

Compilation of Changes to the CPC Scheme Between 2014.07 and 2014.09

Presentation Details

- Entries for new symbols and headings: *Black text in italics*
- Entries for existing symbols and headings
- text insertions: *Green text in italics with yellow background*
- text deletions: *Red strikethrough text with grey background*
- Entries for deleted symbols and headings: *Black strikethrough text*
- In cases when the originating project cannot be found, "N/A" is given for the Project information (e.g. the change could be due to an Editorial Correction).
 - Projects ending in "-F" indicate finalisation after reclassification was completed.

Project: N/A (A01B)

- U A01B 63/00** **Lifting or adjusting devices or arrangements for agricultural machines or implements(lifting mechanisms for the cutter-bar of a mower [A01D 34/24](#) ; adjusting devices for the cutter-bar of a mower [A01D 34/28](#) ; constructional features of lifting devices per se [B66F](#))**
- A01B 63/002
- {Devices for adjusting or regulating the position of tools or wheels(preventing overstrain [A01B 61/00](#) ; ~~regulating working depth of implements mounted on tractors [A01B3/111](#)~~; wheels adjustable relatively to the frame for drawn implements [A01B 3/16](#) ; tools or tool holders adjustable relatively to the frame for drawn implements [A01B 63/24](#))}
- WARNING
- Documents of group [A01B 63/002](#) and subgroups are in the process of being reorganised to groups [A01B 63/111](#) , [A01B 63/16](#) , [A01B 63/24](#)

Project: N/A (A01C)

- U A01C 1/00** **Apparatus, or methods of use thereof, for testing or treating seed, roots, or the like, prior to sowing or planting (chemicals therefor [A01N 25/00](#) to [A01N 65/00](#) { irradiation in general [B01J 19/08](#)})**
- U A01C 1/04
- Arranging seeds on carriers, e.g. on tapes, on cords { Carrier compositions}
- A01C 2001/048
- ~~Machines~~{*Machines*}

Project: N/A (A01D)

- U A01D 17/00** **Digging machines with sieving and conveying mechanisms**
- U A01D 17/10
- with smooth conveyer belts, lath bands or rake bands
- A01D 2017/103
- {Constructional details of conveyor belts}
- A01D 2017/105
- {Driving means for the belt.}
- A01D 2017/106
- {Belts with fingers mounted on them.}
- A01D 2017/108
- {Belts with paddles mounted on them.}
- U A01D 23/00** **Topping machines**
- U A01D 23/02
- cutting the tops before being lifted
- A01D 2023/022
- {Rotatable cleaning devices, e.g. brushes, for removing the rests of vegetal material on the root-crops not yet harvested(with cutters [A01D 2023/026](#))}
- A01D 2023/024
- {Devices with fix blades for topping.}
- A01D 2023/026
- {Devices with movable knives for topping, e.g. rotatable cutting disks.}
- A01D 2023/028
- {Cutters rotating around a shaft forming a cutting rotor.}
- U A01D 33/00** **Accessories for digging harvesters**

A01D 2033/005	• {Yield crop determination mechanisms for root-crop harvesters.}
U A01D 34/00	Mowers(combined with apparatus performing additional operations while mowing A01D 37/00 to A01D 41/00 , A01D 43/00 ; convertible to apparatus for purposes other than mowing or capable of performing operations other than mowing A01D 42/00); Mowing apparatus of harvesters
U A01D 34/01	• characterised by features relating to the type of cutting apparatus
U A01D 34/412	• • having rotating cutters
U A01D 34/63	• • • having cutters rotating about a vertical axis
U A01D 34/64	• • • • mounted on a vehicle, e.g. a tractor, or drawn by an animal or a vehicle(A01D 34/695 takes precedence)
A01D 2034/645	• • • • • {Lifting means for the cutter of the lawnmower mounted at the front of the vehicle for inspection and maintenance}
U A01D 34/67	• • • • hand-guided by a walking operator
U A01D 34/68	• • • • • with motor driven cutters or wheels
U A01D 34/6806	• • • • • • {Driving mechanisms(for the cutters A01D 34/76)}
A01D 2034/6825	• • • • • • • {being tire driven}
A01D 2034/6831	• • • • • • • {being fluid driven}
A01D 2034/6837	• • • • • • • {Drive connections}
A01D 2034/6843	• • • • • • • {Control levers on the handle of the mower}
U A01D 34/835	• specially adapted for particular purposes
U A01D 34/90	• • for carrying by the operator
A01D 2034/907	• • • {Control levers for portable mowing machines}
U A01D 46/00	Picking of fruits, vegetables, hops, or the like; Devices for shaking trees or shrubs
	<u>NOTE</u>
	In this group, group A01D 46/30 takes precedence over groups A01D 46/02 to A01D 46/28
U A01D 46/26	• Devices for shaking trees or shrubs; Fruit catching devices to be used therewith(A01D 46/28 takes precedence)
A01D 2046/262	• • {Collecting surfaces extended around a tree in order to catch the fruit}
A01D 2046/266	• • {Portable devices to shake branches}
A01D 2046/268	• • {Devices to shake the branches pneumatically powered}
U A01D 75/00	Accessories for harvesters or mowers
U A01D 75/20	• Devices for protecting men or animals(safety devices in general F16P)
A01D 2075/203	• • {by stopping driving when lifting frames, e.g. for haymakers}
U A01D 85/00	Arrangements for making or setting stacks
U A01D 85/005	• {Forming groups of bales, e.g. bale sledges(loaders for bales A01D 87/12 ; vehicles for loading bales A01D 90/08)}
A01D 2085/007	• • {Machines directly attached to a baler}
A01D 2085/008	• • {Making groups of bales just at horizontal level for leaving them on the field.}
U A01D 87/00	Loaders for hay or like field crops(combined with mowers A01D 43/06 ; { loading in forage silos A01F 25/18 ; } ; loading in general B65G , B66)
U A01D 87/12	• Loaders for sheaves, stacks or bales
U A01D 87/122	• • {for bales on the ground(vehicles for loading A01D 90/08)}
A01D 2087/123	• • • {Manual trolleys for bales.}

- U A01D 87/127 · · {Apparatus for handling, loading or unrolling round bales}
- A01D 2087/128 · · · {Devices for unrolling or breaking round bales.}
- U **A01D 90/00** **Vehicles for carrying harvested crops with means for self-loading or unloading(combined with mowers [A01D 43/06](#) ; load transporting vehicles modified to facilitate loading in general [B60P](#) ; bucket cars, i.e having scraper bowls [E02F 3/64](#))**
 - A01D 2090/005 · {Vehicles for transporting bunches of bananas}
 - U A01D 90/02 · Loading means{(loaders [A01D 87/00](#) ; pick-ups [A01D 89/00](#))}
 - U A01D 90/08 · · with bale-forming means additionally used for loading; with means for picking-up bales and transporting them into the vehicle
 - A01D 2090/086 · · · {Taking loose material, i.e. before having been baled, into the vehicle}

Project: N/A (A01F)

A01F 5/00 -
~~A01F 12/00~~
[A01F 7/00](#)

Threshing

- U **A01F 12/00** **Parts or details of threshing apparatus (devices, other than safety devices for feeders, for protecting human beings [A01D 75/20](#), [A01F 21/00](#))**
- U A01F 12/18 · Threshing devices
- A01F 2012/188 · · {Rethreshing devices }
- U **A01F 15/00** **Baling presses for straw, hay or the like { making compressed stacks [A01D 85/00](#)}**
- U A01F 15/04 · Plunger presses
- A01F 2015/048 · · {Anti-return systems for the material in the pressing chamber when the plunger moves backwards }
- U A01F 15/07 · Rotobalers, i.e. machines for forming cylindrical bales by winding and pressing
- U A01F 15/071 · · {Wrapping devices (tying devices [A01F 15/141](#))}
- U A01F 15/0715 · · · {Wrapping the bale in the press chamber before opening said chamber}
- A01F 2015/072 · · · · {Braking means for the film roll in balers which wrap the bale before opening the pressing chamber in order to stretch the film while wrapping. }
- A01F 2015/0725 · · · {Film dispensers for film rollers in a satellite type wrapper, e.g. holding and tensioning means for the film roller (the rotating arm itself [A01F 2015/073](#))}
- A01F 2015/073 · · · {Features related to the horizontal rotating arm of a wrapping device of the satellite type (features of film dispensers [A01F 2015/0725](#))}
- A01F 2015/0735 · · · {Combined machines that include a press bale and a wrapping device in a further step, e.g. turning table, not in the same closed pressing chamber }
- A01F 2015/074 · · · {Mechanisms for discharging a bale from the wrapping machine. }
- A01F 2015/0745 · · · {Special features of the wrapping material for wrapping the bale. }
- A01F 2015/075 · · · {Opening the pressing chamber before wrapping, and then wrapping by rotating the bale without displacing it out of the open pressing chamber }
- A01F 2015/0755 · · · {Configuration of support surfaces which can move in order to rotate a bale around at least one axis while wrapping }
- A01F 2015/076 · · · {Wrapping device incorporating sensors }
- A01F 2015/077 · · {Pressing chamber formed by belts and rollers. }
- A01F 2015/0775 · · {Pressing chambers with fix volume }
- A01F 2015/078 · · {Pressing chamber formed exclusively by flexible elements, e.g. belts }

	A01F 2015/0785	• • {Latching or locking means for the tailgate of the rotobaler. }
	A01F 2015/079	• • {Sledge for rollers of the pressing chamber. }
	A01F 2015/0795	• • {Pressing chamber with variable volume }
U	A01F 15/08	• Details
	A01F 2015/0808	• • {Balers incorporate an inclinometer }
U	A01F 15/0841	• • {Drives for balers}
U	A01F 15/0858	• • • {for the tying devices or needles}
	A01F 2015/0866	• • • • {Clutching means for the knotting process; Bale length measuring means for triggering the clutching mean }
U	A01F 15/0875	• • {Discharge devices}
	A01F 2015/0891	• • • {Weighing the finished bale before falling to ground }
U	A01F 15/10	• • Feeding devices for the crop material, {e.g. precompression devices (pick-ups A01D 89/00)}
U	A01F 15/101	• • • {Feeding at right angles to the compression stroke (A01F 15/106 takes precedence)}
	A01F 2015/102	• • • • {the pressing chamber is fed from the bottom side }
	A01F 2015/103	• • • • {the pressing chamber is fed from a lateral side }
	A01F 2015/105	• • • • {the pressing chamber is fed from the top side }
	A01F 2015/107	• • • {Means for withdrawing knives, rotor or walls of the feeding chamber in case of plugging or congestion }
	A01F 2015/108	• • • {Cutting devices comprising cutter and counter-cutter }
U	A01F 15/14	• • Tying devices specially adapted for baling presses { independent binders A01D 39/00 }
U	A01F 15/141	• • • {for round balers (wrapping devices A01F 15/071)}
	A01F 2015/143	• • • • {Guiding fingers for twines in order to avoid the slippage of twines to the sides of the bale when tying it }
U	A01F 15/18	• • Endless belts, rolls or the like
	A01F 2015/183	• • • {Constructional details of belts of the press chamber }
	A01F 2015/186	• • • {Constructional details of rollers or the bearings of the rollers of the press chamber }
U	A01F 25/00	Storing agricultural or horticultural produce; Hanging-up harvested fruit (maturing fruit A23N 15/06; arrangements in barns for preparatory treatment of tobacco A24B 1/02; packing or storing hops C12C 3/04)
U	A01F 25/14	• Containers specially adapted for storing
	A01F 2025/142	• • {Machinery for making sausage-like groups of bales by wrapping or bagging (for bagging of loose material A01F 2025/145)}
	A01F 2025/145	• • {Bagging machines for loose materials making some kind of "sausage" on the field (making sausage-like groups of bales A01F 2025/142)}
	A01F 2025/147	• • {the containers are specially adapted for storing or drying the products in vacuum }
U	A01F 25/16	• Arrangements in forage silos
U	A01F 25/20	• • Unloading arrangements
U	A01F 25/2027	• • • {for trench silos}
	A01F 2025/2045	• • • • {Unloading arrangements including a conveyor belt for transferring the material to a hopper }
	A01F 2025/2054	• • • • {Machinery for cutting successive parallel layers of material in a trench silo (for shredding A01F 2025/2063)}

- A01F 2025/2063 . . . {Machinery for shredding successive parallel layers of material in a trench silo }
- A01F 2025/2072 . . . {Scoops with an extracting tool mounted inside or in the vicinity of said scoop }
- A01F 2025/2081 . . . {Hydraulic features of the trench silos unloading devices, e.g. hydraulic circuits }
- A01F 2025/209 . . . {Manual portable tools for unloading a silo, e.g. for cutting out a block }

Project: N/A (A01G)**U A01G 1/00**

Horticulture; Cultivation of vegetables (labels or name-plates [G09F 3/00](#), [G09F 7/00](#))

- A01G 2001/008 . {Growing plants or turf in soil-like layered substrates using a foil}
- U A01G 1/06 . Grafting (grafting-wax [A01N 3/04](#))
- A01G 2001/065 . . {Removing buds}

U A01G 3/00

Cutting implements specially adapted for horticultural purposes; Delimbing standing trees (felling trees [A01G 23/08](#); hand-held cutting tools suitable for other use [B26B](#))

- A01G 2003/005 . {Removing buds}
- A01G 2003/007 . {Using spray}
- U A01G 3/02 . Secateurs; Flower or fruit shears
- A01G 2003/023 . . {with means for grasping the cut object}
- U A01G 3/04 . Apparatus for trimming hedges, e.g. hedge shears
- A01G 2003/0443 . . {with height-adjustable platforms}
- A01G 2003/0452 . . {with platforms for persons}
- A01G 2003/0461 . . {with reciprocating knives}

U A01G 5/00

Floral handling

- A01G 2005/005 . {Thorn removers}

U A01G 9/00

Cultivation of flowers, vegetables or rice in receptacles, forcing-frames, or greenhouses (cultivation without soil [A01G 31/00](#); {turfing of roofs [E04D 11/002](#)})

- A01G 2009/003 . {Plant pots consisting of two halves, allowing easy removal of the plant}
- U A01G 9/10 . Pots {(or other receptacles)} for seedlings, { saplings, cuttings or other young plants (foldable pots)}; Soil {(or like)} blocks for seedlings; { Plant substrate bodies}; Means for forming soil-blocks
- U A01G 9/104 . . { Units comprising two or more connected receptacles}
- A01G 2009/1046 . . . {containing mineral wool}
- A01G 2009/1053 . . . {containing superabsorbents}
- A01G 2009/106 . . . {containing wood}
- A01G 2009/1093 . . {for dwarf plants}
- U A01G 9/14 . Greenhouses (cloches [A01G 13/04](#); {glazing bars, glazing clips therefor [E04D 3/06](#)})
- U A01G 9/1438 . . { Covering materials therefor; Materials for protective coverings used for soil and plants, e.g. films, canopies, tunnels or cloches}
- A01G 2009/1446 . . . {with perforations}
- A01G 2009/1453 . . . {containing textile products}
- A01G 2009/1461 . . . {containing woven structures}

- A01G 2009/1484
 - • {Glazing apparatus}
- A01G 2009/1492
 - • {Cleaning apparatus}
- U A01G 9/24
 - Devices {or systems} for heating, ventilating, regulating temperature, or watering, in greenhouses, forcing-frames, or the like
- A01G 2009/248
 - • {with distillation of water}
- U **A01G 13/00**
Protecting plants (apparatus for the destruction of vermin or noxious animals [A01M](#); use of chemical materials therefor, composition of protective materials, e.g. grafting wax, [A01N](#); {coverings around trees forming part of a road [E01C 9/005](#)})
 - A01G 2013/002
 - {Wind breakers}
 - A01G 2013/004
 - {Liquid mulch}
 - A01G 2013/006
 - {with perforations}
 - A01G 2013/008
 - {using straw}
 - U A01G 13/02
 - Protective coverings for plants; { Coverings for the ground;} Devices for laying-out { or removing} coverings {(covering materials [A01G 9/1438](#))}
 - A01G 2013/0218
 - • {for removing}
 - U A01G 13/04
 - • Cloches { i.e. protective full coverings for individual plants (dismountable or portable greenhouses [A01G 9/16](#); individual canopies [A01G 13/0212](#))}
 - A01G 2013/046
 - • • ~~foldable~~{foldable}
- U **A01G 17/00**
Cultivation of hops, vines, fruit trees, or like trees
 - U A01G 17/04
 - Supports for hops, vines, or trees
 - U A01G 17/06
 - • Trellis-work
 - A01G 2017/065
 - • • {Trellis-work for supporting vines having wire-tensioning devices}
- U **A01G 25/00**
Watering gardens, fields, sports grounds, or the like (special apparatus or adaptations for fertilising-liquids [A01C 23/00](#); nozzles or outlets, spraying apparatus [B05B](#); gravity flow, open channel irrigation ditch systems [E02B 13/00](#))
 - A01G 2025/003
 - {with an impermeable layer in the ground}
 - A01G 2025/006
 - {Tubular drip irrigation dispensers mounted coaxially within water feeding tubes}
- U **A01G 31/00**
Hydroponics; Cultivation without soil ([A01G 33/00](#) takes precedence)
 - A01G 2031/002
 - {Substrates with a flexible envelope}
 - A01G 2031/003
 - {with foam substrates}
 - A01G 2031/005
 - {with mineral wool substrates}
 - A01G 2031/006
 - {with means for recycling the nutritive solution}
 - A01G 2031/007
 - {with superabsorbents}
 - A01G 2031/008
 - {with wood}

Project: N/A (A01K)

- U **A01K 3/00**
Pasturing equipment, e.g. tethering devices; {Guiding corridors; Corrals, e.g. portable, collapsible}; Grids for preventing cattle from straying; Electrified wire fencing (construction of fencing in general [E04H 17/00](#); electric circuits for fences [H05C](#))
 - A01K 2003/007
 - {Fencing and guiding systems for amphibia }

Project: N/A (A01N)**A01N 65/00**

Biocides, pest repellants or attractants, or plant growth regulators containing material from algae, lichens, bryophyta, multi-cellular fungi or plants, or extracts thereof (containing compounds of determined constitution [A01N 27/00](#) to [A01N 59/00](#))

WARNING

Groups [A01N 65/03](#) to [65/48](#)[A01N 65/48](#), with the exception of [A01N65/38T](#), are incomplete. See also group [A01N 65/00](#).

Project: N/A (A22B)**U A22B 5/00****Accessories for use during or after slaughtering**

U A22B 5/0005

- Eviscerating devices, e.g. removing rectum, anus, intestines, brain tissue, hypophysis(for poultry [A22C 21/06](#) ; for fish [A22C 25/14](#))}

A22B 2005/0011

- {Means for closing or removing the vent, rectum, anus or cloaca of carcasses }

Project: N/A (A22C)**U A22C 11/00****Sausage making {(chemical aspects [A23L 1/31](#)); Apparatus for handling or conveying sausage products during manufacture}**

U A22C 11/10

- Apparatus for twisting { or linking} sausages {(subdividing filled flexible tubes to form packages, involving displacement of contents [B65B 9/12](#), by applying pressure and heat successively [B65B 51/26](#))}

A22C 2011/101

- {for pinching and twisting }

A22C 2011/102

- • {and twisting in opposite directions }

U A22C 13/00**Sausage casings {(made of animal intestines [A22C 17/14](#))}**

A22C 2013/002

- {made by extrusion }

A22C 2013/0023

- • {coextruded together with the food product }

A22C 2013/003

- {with peeling aids, e.g. reducing adhesion between casing and product }

A22C 2013/0033

- {with at least one layer of a fat impermeable material }

A22C 2013/0036

- {with features allowing an easy opening and/or removal of the casing }

A22C 2013/004

- {with at least one layer of a gas, e.g. oxygen, water vapour, impermeable material }

A22C 2013/0043

- {with at least one layer of a water impermeable material }

A22C 2013/0046

- {suitable for impregnation with flavouring substances, e.g. caramel, liquid smoke, spices }

A22C 2013/005

- {monolayer casings }

A22C 2013/0053

- {multilayer casings }

A22C 2013/0056

- {nets and similar open structures to hold sausages and meat in general (making nets [D04G](#); filling sausage products into sleeve netting [A22C 11/005](#))}

A22C 2013/0059

- {thermoplastic casings, casings with at least one layer of thermoplastic material }

A22C 2013/0063

- {containing polyamide, e.g. nylon, aramide }

A22C 2013/0066

- {casings according to the presence or absence of seams }

A22C 2013/0069

- • {seamed casings, casings with at least one longitudinal seam }

A22C 2013/0073

- • {seamless casings made out of a continuous seamless tubular sheet }

A22C 2013/0076

- {treated in order to be conferred a rough appearance }

A22C 2013/0079	• {printable sausage casings or sausage casings showing any kind of indicia (printing textiles D06P)}
A22C 2013/0083	• {biaxially oriented }
A22C 2013/0086	• {shrinkable casings }
A22C 2013/0089	• {smokable casings, e.g. permeable to liquid smoke or phenol }
A22C 2013/0093	• {textile casings, casings with at least one layer of textile material }
A22C 2013/0096	• cellulosic -{cellulosic }
U A22C 13/02	• Shirring of sausage casings {(storing preformed tubular webs on filling nozzles B65B 9/15)}
A22C 2013/021	• • {with pressurised air }
A22C 2013/025	• • {Severing the shired food casing }
A22C 2013/026	• • {Shirring netting onto a tube }
A22C 2013/028	• • {Supplying and shirring casings }

Project: N/A (A23G)**A23G****COCOA; COCOA PRODUCTS, e.g. CHOCOLATE; SUBSTITUTES FOR COCOA OR COCOA PRODUCTS; CONFECTIONERY; CHEWING GUM; ICE-CREAM; PREPARATION THEREOF**NOTES

In this subclass, the following term is used with the meaning indicated:

- "ice-cream" includes any edible frozen or congealed semi-liquid or pasty substance, e.g. slush ice

In this subclass, subject matter which cannot be completely classified in a single one of the main groups should be classified in each relevant main group

The classification symbols of groups:

[A23G 1/305](#) , [A23G 1/56](#) , [A23G 3/343](#) , ~~[A23G 3/34](#)~~ **[A23G3/34E](#)** , [A23G 4/062](#) , [A23G 9/322](#) and [A23G 9/52](#)

can be followed by additional symbols preceded by the sign "+", e.g. [A23G 1/56](#) +D8. The symbols give further information concerning structure, composition or form and have the meaning as listed below:

D . Containing organic compounds
D2 .. containing micro-organisms, enzymes
D4 .. containing vitamins, antibiotics
D6 .. containing beet sugar or cane sugar if specifically mentioned; containing other carbohydrates, e.g. starches, gums, alcohol sugar, polysaccharides, dextrans
D8 .. containing cocoa fat if specifically mentioned; containing products of cocoa fat; containing other fats, e.g. fatty acid, fatty alcohol, their esters, lecithin, paraffins
D10 .. containing amino-acids, proteins, e.g. gelatine, polypeptides
D12 .. containing dairy products
D14 .. containing fruits, nuts, e.g. almonds, seeds, plants or their extracts (gums D6)
F . Containing inorganic compounds
H . Products with special structure
H2 .. foamed, gas-expanded or cellular products
H4 .. products with a supported structure
H4D ... products with an inedible support, e.g. a stick
H4F ... products with an edible support, e.g. a cornet
H6 .. products with a composite structure, e.g. laminated products

H8 .. hollow products, e.g. with inedible or edible filling, fixed or movable within the cavity

Project: N/A (A23J)

U A23J 3/00

Working-up of proteins for foodstuffs

NOTE

In groups [A23J 3/04](#) to [A23J 3/20](#), in the absence of an indication to the contrary, classification is made in the last appropriate place

A23J 3/22

- by texturising

NOTE

Subject matter classified in groups [A23J 3/22](#) to [A23J 3/28](#) is also classified in groups ~~A23J3/02~~[A23J 3/04](#) to [A23J 3/20](#), if the nature of the protein is of interest {except if subgroups [A23J 3/22](#) to [A23J 3/28](#) already provide for this subject matter}

Project: N/A (A23L)

U A23L 1/00

Foods or foodstuffs; Their preparation or treatment (preservation thereof in general [A23L 3/00](#); {mechanical aspects [A23P](#)})

WARNING

Groups [A23L 1/0002](#) to [A23L 1/0097](#) might be incomplete as a number of documents presently classified in groups [A23P 1/00](#) to [A23P 1/16](#), still needs reclassification to groups [A23L 1/0002](#) to [A23L 1/0097](#)

U A23L 1/09

- containing carbohydrate syrups; containing sugars; containing sugar alcohols, e.g. xylitol; containing starch hydrolysates, e.g. dextrin ([A23L 1/076](#), [A23L 1/236](#) take precedence)

A23L 1/092

- • {Processes or apparatus for dissolving of sugars (~~dissolving and refining~~ ~~G13F1/14~~[dissolving and refining C13B 30/14](#))}

Project: N/A (A23N)

U A23N 7/00

Peeling vegetables or fruit (devices for skinning onions [A23N 15/08](#); {peeling by non-mechanical means [A23P](#)}; peeling machines of the household type [A47J 17/00](#))

A23N 2007/007

- {Brush rollers for peeling fruit or vegetables }

U A23N 15/00

Machines or apparatus for other treatment of fruits or vegetables for human purposes; Machines or apparatus for topping or skinning flower bulbs {(treatment of coffee, other than drying or roasting [A23F](#); treatment of cocoa [A23G 1/02](#))}

A23N 2015/006

- {Singularising cherries or other clustered fruit and vegetables }

A23N 2015/008

- {Sorting of fruit and vegetables }

Project: N/A (A23P)

U A23P 1/00

Shaping or working of foodstuffs

U A23P 1/08

- Coating of foodstuffs; Coatings therefor; Making of laminated, multilayered or stuffed foodstuffs

A23P 2001/088

- • {Tempura batter, leavened and other aerated batter or coating }

A23P 2001/089

- • {Coating food items by printing onto them, or printing layers of food products }

U A23P 1/10

- Other shaping methods, e.g. moulding

U A23P 1/16

- • Foaming or whipping (cream substitutes [A23L 1/19](#))

A23P 2001/165

- • • {Forming foamed food products by sonication }

Project: N/A (A41B)**U A41B 9/00**

A41B 9/16

Undergarments (corsets, brassières [A41C](#))

- Shoulder-straps forming part of the undergarments (shoulder-straps in general ~~A41F 15/00~~ [A41F 15/00](#))

Project: N/A (A41D)

A41D

OUTERWEAR; PROTECTIVE GARMENTS; ACCESSORIES (eye or ear protectors [A61F 9/00](#), [A61F 11/00](#); sweating suits [A61H 36/00](#))NOTE

In this subclass, the following term is used with the meaning indicated:

- "outerwear" covers dressing-gowns, bathing costumes and pyjamas

U A41D 23/00

A41D 2023/002

A41D 2023/004

A41D 2023/006

A41D 2023/008

Scarves; Head-scarves; Neckerchiefs

- {with cooling effect }
- {made of different sections }
- {Protectors therefor }
- {using a slide fastener to adjust the neck loop }

Project: N/A (A43B)

A43B

CHARACTERISTIC FEATURES OF FOOTWEAR; PARTS OF FOOTWEARWARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- [A43B 21/10](#)–[A43B 21/16](#) covered by [A43B 21/06](#) - [A43B 21/34](#) covered by [A43B 21/24](#)

Project: N/A (A43D)**U A43D 25/00**

A43D 25/06

Devices for gluing shoe parts

- Devices for gluing soles on shoe bottoms (~~A32D25/18~~ [A43D 25/18](#), [A43D 25/20](#) take precedence)

Project: N/A (A45B)**U A45B 9/00**

A45B 2009/002

A45B 2009/005

A45B 2009/007

U A45B 9/02

A45B 2009/025

Details

- ~~Accessories~~ {[Accessories](#) }
- ~~Shafts~~ {[Shafts](#) }
- • {of adjustable length, e.g. telescopic shafts }
- Handles or heads
- • {releasably connected to a wrist strap or a glove }

U A45B 11/00

A45B 2011/005

Umbrellas characterised by their shape or attachment

- {characterised by their shape }

U A45B 17/00

A45B 2017/005

Tiltable umbrellas

- {with additional rotation about a vertical axis }

U A45B 19/00

A45B 2019/001

Special folding or telescoping of umbrellas

- {with elastic ribs }

- A45B 2019/002
 - A45B 2019/004
 - A45B 2019/005
 - A45B 2019/007
 - A45B 2019/008
 - U A45B 19/02
 - A45B 2019/023
 - A45B 2019/026
 - U **A45B 23/00**
 - A45B 2023/0006
 - A45B 2023/0012
 - A45B 2023/0018
 - A45B 2023/0025
 - A45B 2023/0031
 - A45B 2023/0037
 - A45B 2023/0043
 - A45B 2023/005
 - A45B 2023/0056
 - A45B 2023/0062
 - A45B 2023/0068
 - A45B 2023/0075
 - A45B 2023/0081
 - A45B 2023/0087
 - A45B 2023/0093
 - U **A45B 25/00**
 - A45B 2025/003
 - U A45B 25/10
 - A45B 2025/105
 - U A45B 25/14
 - A45B 2025/146
 - U A45B 25/18
 - A45B 2025/183
 - A45B 2025/186
- {Umbrellas stored inside the stick when closed, e.g. collapsible into the handle}
 - {with rigid ribs }
 - {without stick }
 - {without stretchers }
 - {Umbrellas having upward pointing rib ends when closed, i.e. the lower dry side of the cover facing the outside when closed}
 - Inflatable umbrellas; Umbrellas without ribs
 - • {Umbrellas with stretchers only }
 - • {Umbrellas without ribs }
 - Other umbrellas**
 - {Portable, self supported sunshades or weather protections }
 - {Ground supported umbrellas or sunshades on a single post, e.g. resting in or on a surface there below }
 - • {with a canopy in form of an inverted cone }
 - {Umbrellas or sunshades mounted laterally on a wall or on an apparatus }
 - {Cantilever umbrellas or sunshades with a support arm }
 - • {the support arm being attached to the stick or to the crown, the canopy being suspended there below }
 - • {the support arm being attached to the stick or to runner, the canopy being suspended there above }
 - • {the support arm being attached to a rib or being formed by a rib }
 - • {the support arm being formed by lazy-tongs, one support arm being a rib and the other arm being attached to the runner and to the rib }
 - • {the support arm being telescopic }
 - • {the support arm being foldable }
 - • {the support arm being rotatable about a vertical axis for adjusting the position }
 - • {the support arm being rotatable about a horizontal axis for adjusting the position }
 - {having a planar opening movement wherein the struts or screen sheet rotate and spread around an axis, e.g. around the stick}
 - {Sunshades or weather protections of other than umbrella type }
 - Details of umbrellas (sticks for umbrellas [A45B 1/00](#) to [A45B 9/00](#); illuminating devices for umbrellas [A45B 3/02](#); {sockets or holders for poles or posts [E04H 12/22](#)})**
 - {Accessories not covered by groups [A45B 25/24](#) to [A45B 25/30](#) }
 - Umbrella crowns {([A45B 25/06](#) takes precedence)}
 - • {movable with respect to the shaft}
 - Devices for opening and for closing umbrellas
 - • {with a crank connected to a rope}
 - Covers (detachable [A45B 15/00](#)); Means for fastening same
 - • {Covers with filtering or screening means for avoiding undesired radiation}
 - • {Umbrellas with two or more covers}

Project: N/A (A45C)

- U **A45C 1/00**
- Purses; Money-bags; Wallets {(collapsible or extensible [A45C 7/00](#); convertible into other articles [A45C 9/00](#))}**

	A45C 2001/003	• {Security cash bags}
	A45C 2001/006	• {Cash boxes, e.g. with compartments}
U	A45C 1/02	• Purses
	A45C 2001/022	• • {releasably fitted to a button or clothing item}
	A45C 2001/026	• • {combined with key rings or the like}
	A45C 2001/028	• • {Rigid coin holders }
U	A45C 1/06	• Wallets ({devices for the prevention of theft or loss of wallets A45C 13/185 }; for holding keys A45C 11/32); Notecases
	A45C 2001/062	• • {Clips for holding banknotes}
	A45C 2001/065	• • {combined with card holders}
	A45C 2001/067	• • {Rigid casings}
U	A45C 1/08	• Combinations of purses and wallets
	A45C 2001/083	• • {combined with card holders}
	A45C 2001/086	• • {with an additional compartment for storing another kind of objects}
U	A45C 1/10	• Money-bags for conductors or like people; Money-bags with rigid coin-holders (sorting, testing, changing, delivering, or otherwise handling coins G07D)
	A45C 2001/101	• • {with means for carrying on the body}
	A45C 2001/102	• • {Rigid coin-holders}
	A45C 2001/104	• • • {with one or more recesses for receiving a coin, i.e. each recess receiving one single coin}
	A45C 2001/105	• • • {with one or more recesses for receiving coins, i.e. the coins being stored side by side in a single recess, e.g. groove with coins flat in one planar surface}
	A45C 2001/107	• • • {with coins stored in piles, i.e. several coins stacked in a compartment}
	A45C 2001/108	• • • • {with means for controlling the dispensing of coins, e.g. followers, pushers, selectors}
U	A45C 1/12	• Savings boxes (safes E05G 1/00)
	A45C 2001/125	• • {Treat collecting devices, e.g. bags for collecting contributions}
U	A45C 3/00	Flexible luggage; Handbags (collapsible or extensible luggage, bags or the like A45C 7/00; handbag mirrors A45D 42/04; { bags for midwives A61B 17/48; doctors' or nurses' bags A61B 19/0266})
U	A45C 3/001	• {Flexible materials therefor (making luggage of leather, canvas or the like B68F)}
	A45C 2003/002	• • {Mesh materials}
	A45C 2003/005	• {Bags having two volumes connected at upper ends, e.g. saddle bags}
	A45C 2003/007	• {Sport bags }
	A45C 2003/008	• {Travelling bags }
U	A45C 5/00	Rigid or semi-rigid luggage (collapsible or extensible luggage, bags or the like A45C 7/00);
U	A45C 5/03	• Suitcases
	A45C 2005/032	• • {semi-rigid, i.e. resistant against deformation and resilient, e.g. with a resilient frame}
	A45C 2005/035	• • • {soft-sided, i.e. with flexible side walls covering a rigid frame}
	A45C 2005/037	• • {with a hard shell, i.e. rigid shell as volume creating element}
U	A45C 5/08	• of round or oval shape
	A45C 2005/10	• • {Travelling baskets }

- U A45C 5/14
 - with built-in rolling means
- U A45C 5/141
 - • {the rolling means being formed by the trunk itself}
- A45C 2005/142
 - • • {with spherical rolling means, e.g. ball casters}
- U A45C 5/146
 - • {retractable}
- A45C 2005/147
 - • • {for climbing stairs}
- A45C 2005/148
 - • • {Other arrangements of the rolling means }
- U A45C 7/00** **Collapsible or extensible { purses,} luggage { hand carried} bags or the like**
 - A45C 2007/0004
 - {convertible into an open planar surface, e.g. a sheet}
 - A45C 2007/0009
 - • {with an elongated shape, i.e. belt-shaped}
 - A45C 2007/0013
 - • {with fasteners along the periphery of the surface}
- U A45C 9/00** **{ Purses,} Luggage or { hand carried} bags convertible into { other articles or into} objects for other use (trunk-wardrobes [A47B 61/06](#); trunks convertible into tables [A47B 85/00](#); trunk-beds [A47C 17/82](#))**
 - A45C 2009/002
 - {into a seat}
 - A45C 2009/005
 - {into a vehicle, e.g. scooter}
 - A45C 2009/007
 - {into other hand or travelling articles }
- U A45C 11/00** **Receptacles for purposes not provided for in groups [A45C 1/00](#) to [A45C 9/00](#) (specially adapted for toilet or cosmetic equipment [A45D](#); travelling sewing kits [A45F 3/48](#); {devices for carrying bowling balls [A63B 47/007](#)})**
 - A45C 2011/001
 - {for portable audio devices, e.g. walkman, headphones, MP3-player }
 - A45C 2011/002
 - {for portable handheld communication devices, e.g. mobile phone, pager, beeper, PDA, smart phone}
 - A45C 2011/003
 - {for portable computing devices, e.g. laptop, tablet, netbook, game boy, navigation system, calculator}
 - U A45C 11/005
 - {Contact lens cases ([A45C 11/046](#) takes precedence)}
 - A45C 2011/006
 - • {for storing a plurality of disposable lens packages }
 - A45C 2011/007
 - {Receptacles for personal medical or care products, e.g. drugs, condoms, patches; Small first aid kits}
 - U A45C 11/18
 - Ticket-holders or the like
 - U A45C 11/182
 - • {Credit card holders}
 - A45C 2011/186
 - • • {with protection from unauthorised reading by remotely readable data carriers}
 - A45C 2011/188
 - • {Media card holders, e.g. memory cards, SIM cards}
 - U A45C 11/32
 - Bags or wallets for holding keys {(key-holding inserts [A45C 13/023](#))}
 - A45C 2011/322
 - • {Sheath-like bags for protecting a key-blade or for receiving a key }
- U A45C 13/00** **Details; Accessories (haberdashery [A44](#); hinged lids for containers [B65D 43/16](#); hinges [E05D](#))**
 - U A45C 13/02
 - Interior fittings; Means, { e.g. inserts,} for holding and packing articles
 - A45C 2013/025
 - • {for holding portable computers or accessories therefor }
 - A45C 2013/026
 - • ~~Inserts~~ {~~Inserts~~ }
 - A45C 2013/028
 - • {for holding or compacting items by creating vacuum}
 - U A45C 13/10
 - Arrangement of fasteners (fastening devices for containers [B65D](#), e.g. [B65D 43/14](#); locks [E05B](#))
 - A45C 2013/1007
 - • {with two parallel resilient strips, hinged at their ends and opened by pressure in longitudinal direction on both ends }

- A45C 2013/1015
 - U A45C 13/1038
 - A45C 2013/1061
 - U A45C 13/18
 - U A45C 13/22
 - A45C 2013/223
 - A45C 2013/226
 - U A45C 13/26
 - U A45C 13/262
 - A45C 2013/265
 - A45C 2013/267
 - U A45C 13/30
 - A45C 2013/303
 - A45C 2013/306
- • {of hook and loop type }
 - • {of flexible ties}
 - • • {of elastic straps or bands }
 - Devices to prevent theft or loss of { purses,} luggage or { hand carried} bags
 - • Detachable handles; Handles foldable into the luggage (separate handles for carrying means [A45F 5/10](#))
 - • • {Detachable handles }
 - • • {Handles foldable into the luggage }
 - Special adaptations of handles ([A45C 13/22](#) takes precedence; handles for containers in general [B65D 25/28](#))
 - • {for wheeled luggage}
 - • • {the handle being adjustable in rotation to a towing element}
 - • • {the handle being slidable, extractable and lockable in one or more positions}
 - Straps; Bands
 - • {with strap loop for carrying an object by passing the hand through the loop, the loop resting partially around the wrist }
 - • {for attaching auxiliary articles to luggage, e.g. piggyback}

Project: N/A (A45D)

- U A45D 1/00
 - A45D 2001/002
 - A45D 2001/004
 - A45D 2001/006
 - A45D 2001/008
 - U A45D 1/02
 - U A45D 1/04
 - A45D 2001/045
 - U A45D 2/00
 - A45D 2002/003
 - A45D 2002/005
 - A45D 2002/006
 - A45D 2002/007
 - A45D 2002/008
 - U A45D 2/02
 - A45D 2002/025
 - U A45D 6/00
 - A45D 2006/005
 - U A45D 7/00
 - A45D 2007/001
- Curling-tongs, i.e. tongs for use when hot; Curling-irons, i.e. irons for use when hot; Accessories therefor**
 - {Accessories therefor}
 - {with a ceramic component, e.g. heater, styling surface}
 - {Hair fusing tongs, e.g. for braid ends }
 - {with vapor generation, e.g. steam}
 - with means for internal heating, e.g. by liquid fuel
 - • by electricity
 - • • {the power being supplied by batteries}
 - Hair-curling or hair-waving appliances (heated curling-tongs, curling-irons [A45D 1/00](#)); {Appliances for hair dressing treatment not otherwise provided for}**
 - {Appliances for hair dressing treatment not otherwise provided for}
 - • {for braiding hair}
 - • {for twisting hair}
 - • {for wrapping hair, e.g. with a cord}
 - • {for threading hair strands through hair or objects, e.g. beads}
 - Hair winders or hair curlers for use substantially perpendicular to the scalp, i.e. steep-curlers ([A45D 6/14](#), [A45D 6/16](#) take precedence; with incorporated heating or drying means [A45D 2/36](#); heating devices designed for use external to and in connection with, hair curlers or hair wavers [A45D 4/02](#))
 - • {lengthwise expandable, collapsible or adjustable, e.g. telescopic}
 - Details of, or accessories for, hair-curling or hair-waving devices**
 - {Accessories therefor }
 - Processes of waving, straightening or curling hair**
 - {Processes of bleaching or colouring hair for hair dressing purposes }

A45D 2007/002	• {Processes of dressing hair }
A45D 2007/004	• • {for braiding, twisting, locking, wrapping or beading hair }
A45D 2007/005	• {Processes or methods of undoing hair, i.e. removing a hair dressing }
A45D 2007/007	• {Processes of trimming or cutting hair for hairdressing purposes }
A45D 2007/008	• {Processes of washing hair for hairdressing purposes }
U A45D 8/00	Hair-holding devices {(as hair-curling or hair-waving appliances A45D 2/00)}; Accessories therefor
A45D 2008/002	• {Accessories therefor}
A45D 2008/004	• {with special decorative arrangements or form}
A45D 2008/006	• • {Interchangeable ornaments attached to hair holding devices}
A45D 2008/008	• • {Ornaments attached to small strands of hair}
U A45D 8/34	• Hair-braid holders; Hair-plait holders
A45D 2008/345	• • {for the end of braids }
U A45D 19/00	Devices for washing the hair or the scalp; Similar devices for colouring the hair
A45D 2019/0033	• {Treatment of the scalp}
A45D 2019/0041	• {Treatment of the hair of the scalp }
A45D 2019/005	• • Shampooing { Shampooing }
A45D 2019/0058	• • {Rinsing or spraying }
A45D 2019/0066	• • {Coloring or bleaching }
A45D 2019/0075	• • • {Producing special patterns, e.g. by masks }
A45D 2019/0083	• • • {the roots of the hair }
A45D 2019/0091	• • • {strands of hair }
U A45D 19/02	• Hand-actuated implements, e.g. hand-actuated spray heads
A45D 2019/025	• • {for applying simultaneously two or more substances, e.g. colouring agents, to the hair without prior mixing}
U A45D 20/00	Hair drying devices; Accessories therefor (A45D 2/00 takes precedence)
U A45D 20/04	• Hot-air producers (A45D 20/20 , A45D 20/22 take precedence)
U A45D 20/06	• • heated otherwise than electrically; ventilated by muscle power
A45D 2020/065	• • • {heated by gas or fuel }
U A45D 20/08	• • heated electrically
U A45D 20/10	• • • Hand-held drying devices, e.g. air douches
U A45D 20/12	• • • • Details thereof or accessories therefor, e.g. nozzles, stands
A45D 2020/126	• • • • • {Stands therefor }
A45D 2020/128	• • • • • {involving features of the hand-held hair dryer }
U A45D 20/22	• Helmets with hot air supply or ventilating means, e.g. electrically heated air current
U A45D 20/24	• • Shape or structure of the helmet body (A45D 20/26 takes precedence)
A45D 2020/245	• • • {of open configuration, e.g. with several movable heat sources}
U A45D 24/00	Hair combs for care of the hair; Accessories therefor (high combs or dress combs A45D 8/12; hair-drying combs A45D 20/48 to A45D 20/52; hair-trimming devices, using a razor blade, integral or combined with combs B26B 21/00, e.g. B26B 21/12)
A45D 2024/002	• {Accessories therefor}
A45D 2024/005	• {for debraiding hair}

- U A45D 24/34 • Crown parting devices
- A45D 2024/345 • • {Devices for separating strands of hair }

- U **A45D 26/00** **Hair-singeing apparatus; Apparatus for removing superfluous hair, e.g. tweezers (removing hair using electrosurgical instruments [A61B 18/04](#), [A61B 18/18](#))**
- A45D 2026/008 • {Details of apparatus for removing superfluous hair }
- A45D 2026/0085 • • {with means for reducing noise }
- A45D 2026/009 • • {with additional lotion applicator, e.g. interchangeable}
- A45D 2026/0095 • • {with additional cutting head, e.g. interchangeable}

- U **A45D 27/00** **Shaving accessories (containers for handling shaving soap [A45D 40/00](#); shaving mirrors [A45D 42/08](#))**
- A45D 2027/006 • {Devices for softening beards, e.g. face steamers}

- U **A45D 29/00** **Manicuring or pedicuring implements**
- A45D 2029/002 • {French manicure}
- A45D 2029/005 • {Printing or stamping devices for applying images or ornaments to nails}
- A45D 2029/008 • {Devices for protecting the nails, e.g. after manicuring}
- U A45D 29/02 • Nail clippers or cutters
- A45D 2029/026 • • {for toenails, e.g. with a rod acting over the clipper}
- U A45D 29/04 • Nail files, e.g. manually operated
- A45D 2029/045 • • {Details of the surface of the nail file}

- U **A45D 31/00** **Artificial nails**
- A45D 2031/005 • {French nails}

- U **A45D 33/00** **Containers or accessories specially adapted for handling toilet or cosmetic powder**
- A45D 2033/001 • ~~Accessories~~ {Accessories }

- U **A45D 34/00** **Containers or accessories specially adapted for handling liquid toilet or cosmetic substances, e.g. perfumes ({ jewellery dispensing perfume or the like [A44C 15/002](#)})**
- A45D 2034/002 • ~~Accessories~~ {Accessories }
- A45D 2034/005 • {with a cartridge}
- A45D 2034/007 • {with special decorative arrangements or form}

- U **A45D 40/00** **Casings or accessories for storing or handling solid or pasty toilet or cosmetic substances, e.g. shaving soap, lipstick, make-up (features common to containers for handling powdery or liquid toilet or cosmetic substances [A45D 33/00](#)-[A45D 37/00](#); cosmetic or like preparations [A61K 8/00](#), [A61Q](#); sample tables or the like [G09F 5/00](#))**
- A45D 2040/0006 • ~~Accessories~~ {Accessories }
- A45D 2040/0012 • {with special decorative arrangements or form}
- A45D 2040/0018 • {with indirect access, e.g. requiring an initial action for separating the cap from the stick holder}
- A45D 2040/0025 • {Details of lipstick or like casings}
- A45D 2040/0031 • • {Replacement of the stick}
- A45D 2040/0037 • • • {by inserting the new stick at the lower, operating end of the casing}
- A45D 2040/0043 • • • {by inserting the new stick at the upper, applying end of the casing}

- A45D 2040/005
 - • • {by removing the old stick from the cartridge by linear, sliding movement of stick relative to the cartridge}
- A45D 2040/0056
 - • • {by removing the old stick from the cartridge by screw movement of stick relative to the cartridge}
- A45D 2040/0062
 - • {Stick holding cups with retaining means, e.g. clamping means}
- A45D 2040/0093
 - {storing soluble solid substances and suitable for application after adding a liquid solvent, e.g. water}
- U A45D 40/10
 - Casings wherein a spring presses the lipstick or like solid into the position for use or into the retracted position
- A45D 2040/105
 - • {into the retracted position}
- U A45D 40/20
 - Pencil-like cosmetics; Simple holders for handling stick-shaped cosmetics or shaving soap while in use
- A45D 2040/201
 - • ~~Accessories~~ {Accessories }
- A45D 2040/202
 - • • {Sharpeners specially adapted for pencil-like cosmetics }
- A45D 2040/204
 - • {the cosmetic being in a cartridge }
- U A45D 40/205
 - • Holders for stick-shaped cosmetics whereby the stick can move axially relative to the holder (casings for lipstick [A45D 40/02](#), [A45D 40/06](#); refill sticks or moulding devices for producing sticks [A45D 40/16](#))
- A45D 2040/207
 - • • {the relative movement being made by an axial action, e.g. by pushing }
- A45D 2040/208
 - • • {the relative movement being made by a rotating action, e.g. effected by a screw }
- U A45D 40/22
 - Casings characterised by a hinged cover
- U A45D 40/222
 - • Means for closing the lid
- A45D 2040/223
 - • • {comprising a latch }
- A45D 2040/224
 - • • {comprising a snap fastener }
- A45D 2040/225
 - • {characterised by the opening or closing movement of the lid}
- A45D 2040/226
 - • • {by limiting the angle between base and lid in the open position}
- A45D 2040/227
 - • • {by biasing the lid towards the open position }
- A45D 2040/228
 - • • {by biasing the lid towards the closed position }
- U **A45D 44/00**
 - Other toilet or cosmetic equipment, e.g. for hairdressers' rooms
- A45D 2044/007
 - {Devices for determining the condition of hair or skin or for selecting the appropriate cosmetic or hair treatment}

Project: N/A (A45F)

- U **A45F 3/00**
 - Travelling or camp articles (travelling rugs [A47G 9/06](#)); Sacks or packs carried on the body (convertible into other articles [A45F 4/00](#))
- A45F 2003/001
 - ~~Accessories~~ {Accessories }
- A45F 2003/002
 - {Sacks or packs carried on the body by means of a single strap passing around the neck }
- A45F 2003/003
 - {combined with other objects; specially adapted for carrying specific objects }
- A45F 2003/006
 - {Sacks or packs carried on the body by means of straps passing around an arm or a leg }
- A45F 2003/007
 - {Sacks or packs carried on the body by means of one strap passing around the neck and one additional strap around the waist }
- A45F 2003/008
 - {Sacks or packs carried on the body by means of one strap passing around the waist and additional straps around a leg or an arm }
- U A45F 3/02
 - Sacks or packs carried on the body by means of one strap passing over the shoulder

	A45F 2003/025	<ul style="list-style-type: none"> • • {and one additional strap around the waist }
U	A45F 3/04	<ul style="list-style-type: none"> • Sacks or packs carried on the body by means of two straps passing over the two shoulders
	A45F 2003/045	<ul style="list-style-type: none"> • • {and one additional strap around the waist }
U	A45F 3/12	<ul style="list-style-type: none"> • Shoulder-pads
	A45F 2003/122	<ul style="list-style-type: none"> • • {Back cushioning parts or details of backpacks, e.g. with ventilation }
	A45F 2003/125	<ul style="list-style-type: none"> • • • {with ventilation }
	A45F 2003/127	<ul style="list-style-type: none"> • • {Dorsal or hip pads for the lumbar back or for the waist }
U	A45F 3/14	<ul style="list-style-type: none"> • Carrying-straps; Pack-carrying harnesses
	A45F 2003/142	<ul style="list-style-type: none"> • • {Carrying-straps }
	A45F 2003/144	<ul style="list-style-type: none"> • • {Pack-carrying waist or torso belts }
	A45F 2003/146	<ul style="list-style-type: none"> • • {Pack-carrying harnesses }
	A45F 2003/148	<ul style="list-style-type: none"> • • {Pack-carrying shoulder holsters }
U	A45F 3/16	<ul style="list-style-type: none"> • Water-bottles; Mess-tins; Cups
	A45F 2003/163	<ul style="list-style-type: none"> • • {Water bottles with purification filter }
	A45F 2003/166	<ul style="list-style-type: none"> • • {Hydration systems attached to the body by straps, e.g. incorporated in a backpack }
U	A45F 3/20	<ul style="list-style-type: none"> • • of flexible material; Collapsible or stackable cups
	A45F 2003/205	<ul style="list-style-type: none"> • • • {Collapsible or foldable cups }
U	A45F 4/00	Travelling or camp articles which may be converted into { other} articles { or into objects} for other use; Sacks or packs carried on the body and convertible into other articles { or into objects for other use}
	A45F 2004/003	<ul style="list-style-type: none"> • {Holders or carriers for hand articles, or for use while travelling or camping, convertible into articles for other use }
	A45F 2004/006	<ul style="list-style-type: none"> • {Pack-frames, pack-carrying harnesses, carrying straps or shoulder-pads convertible into articles for other use }
U	A45F 4/02	<ul style="list-style-type: none"> • Sacks or packs convertible into other articles {or into objects for other use}
	A45F 2004/023	<ul style="list-style-type: none"> • • {into articles covered by groups A45F 3/00 to A45F 3/15 }
	A45F 2004/026	<ul style="list-style-type: none"> • • {into seats or sitting cushions }
U	A45F 5/00	Holders or carriers for hand articles; Holders or carriers for use while travelling or camping
	A45F 2005/002	<ul style="list-style-type: none"> • {combined with other objects }
	A45F 2005/006	<ul style="list-style-type: none"> • {comprising a suspension strap or lanyard }
	A45F 2005/008	<ul style="list-style-type: none"> • {Hand articles fastened to the wrist or to the arm or to the leg }
U	A45F 5/02	<ul style="list-style-type: none"> • Fastening articles to the garment
	A45F 2005/023	<ul style="list-style-type: none"> • • {to a fastening element of the garment, e.g. button }
	A45F 2005/025	<ul style="list-style-type: none"> • • {with a holder or item rotatably connected to the fastening device, e.g. having a rotation axis perpendicular to the garment }
	A45F 2005/026	<ul style="list-style-type: none"> • • • {with a pin having an enlarged head detachably connected to a fastening device, e.g. to a pin receiving slot }
	A45F 2005/027	<ul style="list-style-type: none"> • • • {with a horizontal and parallel rotation axis, i.e. the axis being parallel to the surface of the garment }
	A45F 2005/028	<ul style="list-style-type: none"> • • • {with a vertical rotation axis }
U	A45F 5/10	<ul style="list-style-type: none"> • Handles for carrying purposes (handles for suitcases or {travelling} bags A45C 13/26, {handles of sacks or bags B65D 33/06, straps provided with handles for bundling or supporting articles B65D 63/18, for carrying heavy loads B65G 7/12})

- A45F 2005/1006 . . {with means embracing the hand article to be carried }
- A45F 2005/1013 . . . {comprising a strap or band }
- U A45F 5/102 . . {with means, e.g. a hook, receiving a carrying element of the hand article to be carried}
- U A45F 5/1026 . . . {the carrying element being flexible, e.g. plastic bag handle}
- A45F 2005/1033 {and supported below the grip surface of the carrying handle }
- A45F 2005/104 {and supported near the lateral ends of the grip surface of the carrying handle }
- A45F 2005/1053 {Carrying handles intended for receiving parcel cords or package bands }
- A45F 2005/106 {specially adapted for crossed cords or bands }
- A45F 2005/1066 . . . ~~Details~~-{~~Details~~ }
- A45F 2005/1073 {Retaining means for controlled release of the carrying element }
- A45F 2005/108 . . ~~Accessories~~-{~~Accessories~~ }
- A45F 2005/1086 . . . {Storage means for additional items }
- A45F 2005/1093 . . . {Labels, logos or indicators }
- U A45F 5/12 . Book-carriers
- A45F 2005/125 . . {Mail-carriers }

Project: N/A (A47B)**A47B****TABLES; DESKS; OFFICE FURNITURE; CABINETS; DRAWERS; GENERAL DETAILS OF FURNITURE (furniture jointing [F16B](#))**NOTE

In this subclass, the following terms are used with the meanings indicated:

- "tables" covers also tables or underframes therefor for other than domestic use; - "cabinets" or "racks" covers also cabinets or racks for storage in general.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups are classified in the following CPC groups:

[A47B 21/013](#) and subgroups are covered by [A47B 21/00](#) and subgroups

- U **A47B 1/00** **Extensible tables (extensible shelf units [A47B 46/00](#))**
- A47B 2001/005 . {with double drop-leaf with support legs rotating around a vertical axis }
- U A47B 1/02 . with insertable leaves {arranged in the centre} and fixed frames
- A47B 2001/025 . . {the outer leaves moved simultaneously by a pulley and cable system}
- U A47B 1/03 . . the leaves being foldable or revolvable
- A47B 2001/035 . . . {the extension leaves being unfoldable}
- U A47B 1/04 . with supplementary leaves or drop leaves {arranged at the periphery ([A47B 1/08](#) takes precedence)}
- U A47B 1/05 . . the leaves being extensible by drawing-out
- A47B 2001/053 . . . {and liftable to the same height as the main table leaf}
- U A47B 1/08 . with extensible frames {or with additional legs}
- A47B 2001/085 . . {with draw-leaf supported by additional legs}
- U A47B 1/10 . Slide mechanisms
- A47B 2001/105 . . {with a pinion and rack gear}

U	A47B 3/00	Folding or stowable tables (folded and suspended or hinged, or wall tables A47B 5/04; with tops of variable height A47B 9/00; foldable service or tea tables A47B 31/04)
U	A47B 3/002	• {with foldable underframe}
	A47B 2003/004	• • {of the umbrella type}
	A47B 2003/006	• • {having X/Y-crossed legs rotating around a central vertical axis}
	A47B 2003/008	• {the underframe parts being stored in recesses in the underside of the table top}
U	A47B 3/02	• with foldable cross legs (adjustable for varying height of tops A47B 9/16)
	A47B 2003/025	• • {pivoting to a position underneath the tabletop}
U	A47B 3/04	• with flexible roll-tops
	A47B 2003/045	• • {and crossed legs}
U	A47B 3/08	• with legs pivoted to top or underframe
U	A47B 3/0803	• • {the legs rotating around a vertical axis (A47B 3/083 , A47B 3/087 and A47B 3/091 take precedence)}
	A47B 2003/0806	• • • {and the table top rotating around a horizontal axis}
	A47B 2003/0821	• • {the leg holder being mounted to underside of the table top}
	A47B 2003/0824	• • {the table legs being individually collapsible against the underside of the table top}
	A47B 2003/0827	• • {having means for holding U-shaped legs in storage position, i.e. parallel to the underside of the table top}
U	A47B 3/083	• • with foldable top leaves
	A47B 2003/0835	• • • {being superimposed, hinged and foldable}
U	A47B 3/14	• Foldable table and seat units {(folding school forms A47B 39/06 ; tables combined with seats A47B 83/02)}
	A47B 2003/145	• • {with folding table top}
U	A47B 5/00	Suspended or hinged panels forming a table; Wall tables (bed tables A47B 23/00; {adapted for use in vehicles A47B 31/06}; in combination with other furniture A47B 83/00; arm-rest tables for chairs A47C)
	A47B 2005/003	• {Ceiling suspended tables}
U	A47B 9/00	Tables with tops of variable height ({lecterns with variable height A47B 19/06; school forms or desks with variable height A47B 39/02, A47B 41/02}; seats with variable height A47C 3/20)
	A47B 2009/003	• {with inclined slidable surfaces }
	A47B 2009/006	• {of two distinct heights, e.g. coffee table - dining table}
U	A47B 9/04	• with vertical spindle
	A47B 2009/043	• • {with means connecting the spindles of the various legs}
	A47B 2009/046	• • {with gearbox}
U	A47B 9/06	• with vertical toothed rack
	A47B 2009/065	• • {having rack and pinion}
U	A47B 9/08	• with clamps acting on vertical rods
U	A47B 9/083	• • {with spreading means inside a tube}
	A47B 2009/086	• • • {having ballbearings interacting with a conical surface}
U	A47B 9/14	• with pins coacting with holes
	A47B 2009/145	• • {with pin moving in a sliding trombone}
U	A47B 9/18	• with additional top or additional legs for varying the height of the top

	A47B 2009/185	<ul style="list-style-type: none"> • {being positioned between the table top and the legs or underframe}
U	A47B 13/00	Details of tables or desks (drawers A47B 88/00; feet for furniture in general A47B 91/00)
U	A47B 13/003	<ul style="list-style-type: none"> • {Connecting table tops to underframes (connecting furniture tubing to non-tubular parts F16B 12/42)}
	A47B 2013/006	<ul style="list-style-type: none"> • • {to hollow tubular profiles}
U	A47B 13/02	<ul style="list-style-type: none"> • Underframes
U	A47B 13/021	<ul style="list-style-type: none"> • • {Fastening devices of the feet (A47B 13/023 takes precedence)}
	A47B 2013/022	<ul style="list-style-type: none"> • • • {with detachable connection of a tubular leg}
U	A47B 13/023	<ul style="list-style-type: none"> • • {with a central column}
	A47B 2013/024	<ul style="list-style-type: none"> • • • {being assembled to a base}
	A47B 2013/025	<ul style="list-style-type: none"> • • • {having radial feet assembled to the base of the column}
	A47B 2013/026	<ul style="list-style-type: none"> • • {having three or four legs connected in a central knot}
	A47B 2013/027	<ul style="list-style-type: none"> • • • {without additional connecting element}
	A47B 2013/028	<ul style="list-style-type: none"> • • {held together by screw-threaded tie rod}
U	A47B 13/08	<ul style="list-style-type: none"> • Table tops; Rims therefor (not restricted to table tops A47B 95/04)
U	A47B 13/083	<ul style="list-style-type: none"> • • {Rims for table tops}
	A47B 2013/085	<ul style="list-style-type: none"> • • • {having a mounting web}
U	A47B 13/12	<ul style="list-style-type: none"> • • Transparent tops, {e.g. with lighting means under the table top}
	A47B 2013/125	<ul style="list-style-type: none"> • • • {with incorporated advertising}
U	A47B 19/00	Reading-desks; Lecterns; Pulpits, {i.e. free-standing}
U	A47B 19/002	<ul style="list-style-type: none"> • {Free-standing music stands (leaf turners or devices for holding books open B42D 9/00; with movable strip reading apparatus B42D 19/00)}
	A47B 2019/004	<ul style="list-style-type: none"> • • {with adjustable feet}
	A47B 2019/006	<ul style="list-style-type: none"> • • {with supplemental support device}
	A47B 2019/008	<ul style="list-style-type: none"> • • {with antenna-like telescopic stem}
U	A47B 21/00	Tables or desks {for office equipment, e.g. typewriters, keyboards}
U	A47B 21/007	<ul style="list-style-type: none"> • with under-desk displays, e.g. displays being viewable through a transparent working surface of the table or desk
	A47B 2021/0076	<ul style="list-style-type: none"> • • {the screen being incorporated in the desk top}
U	A47B 21/03	<ul style="list-style-type: none"> • with substantially horizontally extensible or adjustable parts other than drawers, e.g. leaves
	A47B 2021/0307	<ul style="list-style-type: none"> • • {Platforms for supporting office equipment and wrists}
U	A47B 21/0314	<ul style="list-style-type: none"> • • { Platforms for supporting office equipment}
	A47B 2021/0321	<ul style="list-style-type: none"> • • • {Keyboard supports}
	A47B 2021/0328	<ul style="list-style-type: none"> • • • • {of the pantograph type}
	A47B 2021/0335	<ul style="list-style-type: none"> • • • • {mounted under the worksurface}
	A47B 2021/0342	<ul style="list-style-type: none"> • • • • • {having one double articulated arm}
	A47B 2021/035	<ul style="list-style-type: none"> • • • • • {having double articulated arms}
	A47B 2021/0357	<ul style="list-style-type: none"> • • • • {incorporated in the desktop}
	A47B 2021/0364	<ul style="list-style-type: none"> • • • {Keyboard and monitor supports}
U	A47B 21/0371	<ul style="list-style-type: none"> • • { Platforms for supporting wrists}
	A47B 2021/0378	<ul style="list-style-type: none"> • • • {filled with liquid or gel}
	A47B 2021/0385	<ul style="list-style-type: none"> • • • {combined with pointing device, e.g. mouse}

	A47B 2021/0392	<ul style="list-style-type: none"> • • • {height adjustable}
U	A47B 21/06	<ul style="list-style-type: none"> • characterised by means for holding, fastening or concealing cables
	A47B 2021/062	<ul style="list-style-type: none"> • • {the worksurface moving forward to expose the wire gutter, e.g. up and forward }
	A47B 2021/064	<ul style="list-style-type: none"> • • {with power rail running along the back of the desk top and projecting upwards}
	A47B 2021/066	<ul style="list-style-type: none"> • • {with power or communication connection interface}
	A47B 2021/068	<ul style="list-style-type: none"> • • • {with pop-up power outlet}
U	A47B 23/00	Bed-tables; Trays; Reading-racks; Book-rests, {i.e. items used in combination with something else}
	A47B 2023/005	<ul style="list-style-type: none"> • {Laptop cases with folding legs forming a table}
U	A47B 23/007	<ul style="list-style-type: none"> • {Overhead reading-racks or book-rests}
	A47B 2023/008	<ul style="list-style-type: none"> • • {having a transparent book support}
U	A47B 23/04	<ul style="list-style-type: none"> • supported from table, floor or wall
U	A47B 23/042	<ul style="list-style-type: none"> • • {Book-rests or note-book holders resting on tables (releasably mounted A47B 23/02)}
	A47B 2023/045	<ul style="list-style-type: none"> • • • {made of metal wires}
U	A47B 23/046	<ul style="list-style-type: none"> • • {C-shaped bed tables, e.g. foldable}
	A47B 2023/047	<ul style="list-style-type: none"> • • • {with pivoting top plate}
	A47B 2023/048	<ul style="list-style-type: none"> • • {U-shaped bed tables}
	A47B 2023/049	<ul style="list-style-type: none"> • • {Desk stand for laptop computer}
U	A47B 25/00	Card tables; Tables for other games
U	A47B 25/003	<ul style="list-style-type: none"> • {for table tennis}
	A47B 2025/006	<ul style="list-style-type: none"> • • {with retractable wheels}
U	A47B 31/00	Service or tea tables, trolleys, or wagons ({serving trays A47G 23/06}; features relating to running gear or to movement by hand B62B)
	A47B 2031/002	<ul style="list-style-type: none"> • {Catering trolleys}
	A47B 2031/003	<ul style="list-style-type: none"> • {with drawers, trays or shelves}
	A47B 2031/004	<ul style="list-style-type: none"> • {having four vertical uprights}
	A47B 2031/005	<ul style="list-style-type: none"> • • {with movable trays}
	A47B 2031/006	<ul style="list-style-type: none"> • {Medication carts}
	A47B 2031/007	<ul style="list-style-type: none"> • {for carrying plates}
	A47B 2031/008	<ul style="list-style-type: none"> • {Outdoor serving carts}
U	A47B 31/02	<ul style="list-style-type: none"> • with heating, cooling or ventilating means
	A47B 2031/023	<ul style="list-style-type: none"> • • {being dockable to a stationary refrigeration and heating unit}
	A47B 2031/026	<ul style="list-style-type: none"> • • {having warm and cold compartments}
U	A47B 37/00	Tables adapted for other particular purposes {(glass cutting tables C03B 33/03)}
	A47B 2037/005	<ul style="list-style-type: none"> • {Tables specially adapted for laboratories}
U	A47B 51/00	Cabinets with means for moving compartments up and down {(for cabinets with parts rotating about a horizontal axis A47B 46/005; for show or display A47F 3/06)}
	A47B 2051/005	<ul style="list-style-type: none"> • {Ceiling mounted containers}
U	A47B 63/00	Cabinets, racks or shelf units, specially adapted for storing books, documents, forms, or the like

A47B 2063/005	• {rotatable around a vertical axis}
U A47B 67/00	Chests; Dressing-tables; Medicine cabinets or the like; Cabinets characterised by the arrangement of drawers
U A47B 67/02	• Cabinets for shaving tackle, medicines, or the like
A47B 2067/025	• • {having safety means}
U A47B 77/00	Kitchen cabinets (tops specially designed for working on A47B 96/18)
U A47B 77/02	• General layout, e.g. relative arrangement of compartments, working surface or surfaces, supports for apparatus (A47B 77/08 takes precedence; {combinable furniture units A47B 87/00 })
U A47B 77/022	• • {Work tops}
A47B 2077/025	• • • {Fixing means therefore}
A47B 2077/027	• • • {with integrated backsplash}
U A47B 83/00	Combinations comprising two or more pieces of furniture of different kinds
U A47B 83/001	• {Office desks or work-stations combined with other pieces of furniture, e.g. work space management systems}
A47B 2083/003	• • {Table combination having a central power access component}
A47B 2083/005	• • {Office wall with desktop function}
A47B 2083/006	• • • {having an incorporated display screen}
U A47B 83/02	• Tables combined with seats (foldable table and seat units A47B 3/14)
A47B 2083/025	• • {Computer workstation with integrated seat}
U A47B 87/00	Sectional furniture, i.e. combinations of complete furniture units, {e.g. assemblies of furniture units of the same kind such as linkable cabinets, tables, racks or shelf units (switchboards or switch cubicles for the distribution of electric power H02B)}
U A47B 87/002	• {Combination of tables; Linking or assembling means therefor}
A47B 2087/004	• • {Table combination leaving a central opening}
U A47B 87/02	• stackable; {stackable and linkable (by means of separate corner elements being in common with both the vertical and horizontal parts, e.g. corner bars for panels, nodes for rods A47B 47/0016 , A47B 47/0025)}
U A47B 87/0207	• • {Stackable racks, trays or shelf units}
U A47B 87/0223	• • • {Shelves stackable by means of poles or tubular members as distance-holders therebetween}
A47B 2087/023	• • • • {the shelves being held in intermediate connection elements between the tubular members}
A47B 2087/0238	• • • • • {the intermediate connection elements supporting more than one shelf}
U A47B 88/00	Drawers for tables, cabinets or like furniture; Guides for drawers (A47B 63/02 takes precedence; drawers coupled to doors A47B 96/16; {locks for drawers, e.g. anti-tilt interlock E05B 65/46)}
A47B 2088/0007	• {Drawers having additional side walls mountable on existing side walls}
A47B 2088/0011	• {Covers for drawers preventing access to the interior}
U A47B 88/0014	• {Drawers being constructed from two or more parts}
A47B 2088/0033	• • {Drawers being held together by tension rods or elements}
A47B 2088/0037	• • {Corner connectors for drawers}
A47B 2088/004	• • {Connectors between bottom wall and side walls}
U A47B 88/0044	• {Drawers characterized by the front panel arrangements}
A47B 2088/0048	• • {the front panel being less wide than the drawer}

- U A47B 88/0051
 - {Specific connection means for the drawer front}
- A47B 2088/0059
 - • {having male and female interlocking parts}
- A47B 2088/0062
 - • {having two parts and using a screw}
- A47B 2088/0066
 - • {fastening the front panel to a metal sheet side wall}
- A47B 2088/007
 - • {fastening the front panel by a sprung bolt, latch or lock-bolt}
- A47B 2088/0074
 - • {fastening the front panel using a toggle-lever}
- A47B 2088/0077
 - {Drawers having a gasket or sealing means arranged on the front panel}
- A47B 2088/0081
 - {Drawers having a lifting mechanism}
- U A47B 88/0085
 - {Railings for drawers}
- A47B 2088/0088
 - • {Connection means for railings}
- A47B 2088/0092
 - • • {to the front panel of a drawer}
- A47B 2088/0096
 - • • {to the back wall of a drawer}
- U A47B 88/02
 - Coupled drawers
- A47B 2088/023
 - • {Secondary drawer being in or above a primary drawer}
- A47B 2088/026
 - • • {Coupling means therefor }
- U A47B 88/04
 - Sliding drawers; Slides or guides therefor
- A47B 2088/0403
 - • {Drawers being extractable on at least two sides of the cabinet }
- U A47B 88/0418
 - • {Fastening devices for slides or guides}
- U A47B 88/0422
 - • • {at drawer side}
- A47B 2088/0425
 - • • • {ensuring a correct connection at the moment when the drawer is coupled to the drawer rail}
- A47B 2088/0429
 - • • • {the drawer being detachable as a whole from a slide frame}
- A47B 2088/0433
 - • • • {at drawer front via latch means or locking lever}
- A47B 2088/0437
 - • • • {Quick-release clip}
- A47B 2088/0444
 - • • {having a latch mechanism coupling or disconnecting a drawer with drawer side slide from the rest of the slide members}
- A47B 2088/0448
 - • {Slides or guides for wire baskets}
- A47B 2088/0459
 - • {with magnets holding the drawer in closed position}
- U A47B 88/047
 - • {self-closing}
- A47B 2088/0474
 - • • {with detent or emboss on slide}
- U A47B 88/0485
 - • {Vertically-oriented drawers}
- A47B 2088/0488
 - • • {the bottom, cabinet side slide having a U-shape section opening upwards}
- A47B 2088/0492
 - • • {Fittings for connecting the front panel}
- A47B 2088/0496
 - • {Furniture base drawers or drawers with plinths}
- U A47B 88/20
 - Drawers with compartments {(partitions for show shelves [A47F 5/005](#))}
- A47B 2088/202
 - • {Partition walls and holders therefore}
- A47B 2088/205
 - • • {with separate holders}
- A47B 2088/207
 - • • {with stamped sheet metal holding the partition walls}
- U **A47B 91/00**
 - Feet for furniture in general (castors [B60B 33/00](#))**
- A47B 2091/007
 - {fixed by a tubular dowel sleeve}
- U A47B 91/06
 - Gliders or the like
- A47B 2091/063
 - • {self-adhesive}
- U **A47B 95/00**
 - Fittings for furniture**
- U A47B 95/002
 - {Plinths, e.g. between furniture and ceiling or wall}

	A47B 2095/004	• • {Base plinths}
	A47B 2095/006	• {having dowels and expansion plugs}
U	A47B 95/02	• Handles {(similar handles for doors in general E05B 1/0015)}
	A47B 2095/021	• • {Pivotable handles with one socket}
	A47B 2095/022	• • {Pivotable handles with two sockets}
	A47B 2095/023	• • {having blind holes at both end sections}
	A47B 2095/024	• • {Drawer handles}
	A47B 2095/025	• • • {with integrated label}
	A47B 2095/026	• • {built-in}
	A47B 2095/027	• • {being recessed or flush in sheet metal panel}
	A47B 2095/028	• • Knobs {Knobs}
U	A47B 95/04	• Keyplates; Ornaments or the like (rims specially adapted for table tops A47B 13/08 ; keyplates in general E05B 17/14)
U	A47B 95/043	• • {Protecting rims, buffers or the like}
	A47B 2095/046	• • • {of the snap-on type}
U	A47B 96/00	Details of cabinets, racks or shelf units not covered by a single one of groups A47B 43/00 to A47B 95/00; General details of furniture (doors E06B)
U	A47B 96/14	• Bars, uprights, struts, or like supports, for cabinets, brackets, or the like (aspects of adjusting height or inclination of shelves or brackets A47B 57/00)
	A47B 2096/1491	• • {having a T-section}
U	A47B 96/20	• Furniture panels or like furniture elements
U	A47B 96/202	• • {with a continuous layer allowing folding (foldable cabinets A47B 43/00 ; foldable drawers A47B 88/0018)}
	A47B 2096/203	• • • {Profiled sections}
	A47B 2096/204	• • • • {using an insert}
	A47B 2096/207	• • {Furniture panels consisting of a frame with interchangeable insertable panel}
	A47B 2096/208	• • {Decorative panels for household appliances}
	A47B 2096/209	• • {Magnetic decorative panels}
U	A47B 97/00	Miscellaneous furniture; Miscellaneous accessories for furniture
	A47B 2097/003	• {Cable holders; cable organisers}
	A47B 2097/005	• {Monitor mounted supports or stands}
	A47B 2097/006	• {Computer holding devices}
	A47B 2097/008	• {Anti-tip devices}

Project: N/A (A47C)**A47C**

CHAIRS (seats specially adapted for vehicles [B60N 2/00](#); { hunting stands, e.g. hunting seats [A01M 31/02](#); seats adapted for angling, e.g. fisherman's seats [A01K 97/22](#); bath seats [A47K 3/12](#); shower seats [A47K 3/282](#); chairs with toilet means [A47K 11/04](#); seats for surgeons, dentists [A61B 19/28](#); chairs for disabled persons [A61G 5/00](#); operating chairs, dental chairs, physiotherapeutic chairs, gynaecological chairs [A61G 15/00](#); chairs with massage means [A61H 2201/0149](#); ski-lift seats [B61B 12/002](#); rail vehicles seats [B61D 33/00](#); vessel furniture, e.g. boat seats [B63B 29/04](#); aircraft seats [B64D 11/06](#)}); **SOFAS**; **BEDS** (upholstery in general [B68G](#); { beds specially adapted for nursing [A61G 7/00](#); sleeping accommodation for caravans [B60P 3/38](#), sleeping accommodation for rail vehicles [B61D 31/00](#); sleeping accommodation for load-carrying vehicles [B62D 33/0612](#); berths for vessels [B63B 29/10](#)})

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[A47C 1/038](#) covered by [A47C 1/0355](#)
[A47C 23/053](#) covered by [A47C23/05B](#), [A47C 23/05](#), [A47C23/05B2](#),
[A47C23/05B3](#)

Project: N/A (A47F)**A47F**

SPECIAL FURNITURE, FITTINGS, OR ACCESSORIES FOR SHOPS, STOREHOUSES, BARS, RESTAURANTS OR THE LIKE; PAYING COUNTERS

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[A47F 1/14](#) covered by [A47B87/02A](#), [A47B 87/0207](#)
[A47F 1/16](#) covered by [A47F 5/0037](#)
[A47F 1/18](#) covered by [A47F 5/0025](#)
[A47F 3/022](#) covered by [A47F 1/06](#)
[A47F 3/024](#) covered by [A47F 1/08](#)
[A47F 3/026](#) covered by [A47F 1/10](#)

U A47F 1/00

Racks for dispensing merchandise (racks in general [A47B](#); storing means for workshops [B25H](#)); Containers for dispensing merchandise (show or display aspects [A47F 3/00](#); for workshop fittings [B25H 3/00](#); containers in general [B65D](#); {for liquids [B67D](#)}; coin-freed dispensers [G07F](#))

U A47F 1/04

• {Racks or} containers with arrangements for dispensing articles, {e.g. by means of gravity or springs (for wallpaper or textile materials in rolls or rolled tapes [A47F 7/17](#); paper-bag dispensers for check-out counters [A47F 9/042](#); for cigarette papers [A24F 17/00](#); for hand towels or toilet paper [A47K](#); for bandages [A61F](#); for playing cards [A63F](#); for pills, needles [B65D 83/00](#); for web-like material with cutting devices [B65H 35/00](#); photographic paper [G03B](#))}

U A47F 1/08

• • dispensing from bottom

U A47F 1/10

• • • having mechanical dispensing means, {e.g. with buttons or handles}

A47F 2001/103

• • • • {for cutlery}

U A47F 3/00

Show cases or show cabinets

U A47F 3/005

• { with glass panels}

U A47F 3/007

• • {Cases or cabinets of the counter type}

	A47F 2003/008	<ul style="list-style-type: none"> • • • {with pivoting front glass panel}
U	A47F 3/02	<ul style="list-style-type: none"> • with dispensing arrangements ({A47F 1/04 takes precedence; for cigars or cigarettes A24F 15/04; for cigarette papers A24F 17/00; for hand towels or toilet paper A47K; for photographic paper G03B}; coin-freed G07F)
	A47F 2003/021	<ul style="list-style-type: none"> • • {for dispensing bread, buns, confectionary or the like}
U	A47F 3/04	<ul style="list-style-type: none"> • air-conditioned, refrigerated (refrigerators F25D; heating arrangements specially adapted for transparent or reflecting areas H05B 3/84)
U	A47F 3/0439	<ul style="list-style-type: none"> • • {Cases or cabinets of the open type (A47F 3/0482 takes precedence)}
U	A47F 3/0443	<ul style="list-style-type: none"> • • • {with forced air circulation}
	A47F 2003/046	<ul style="list-style-type: none"> • • • • {with shelves having air ducts}
	A47F 2003/0473	<ul style="list-style-type: none"> • • • {Vending or display tables}
U	A47F 3/06	<ul style="list-style-type: none"> • with movable or removable shelves(or receptacles(A47F 3/0486 takes precedence; display racks with movable partsA47F 5/0081))
	A47F 2003/066	<ul style="list-style-type: none"> • • {with movable or removable trolley for easy restocking}
U	A47F 5/00	Show stands, hangers, or shelves characterised by their constructional features
U	A47F 5/0006	<ul style="list-style-type: none"> • {Hangers for hanging articles on bars, tringles, bracket arms or the like (dress holders, e.g. for clothing, shoes, A47G 25/00; packages for hanging B65D; lockable clothing holders E05B 69/00)}
	A47F 2005/0012	<ul style="list-style-type: none"> • • {merchandising strips}
	A47F 2005/0075	<ul style="list-style-type: none"> • {Headers for show stands, shelves, racks or cases}
U	A47F 5/16	<ul style="list-style-type: none"> • Platform-type show stands with flat, inclined, or curved upper surface
	A47F 2005/165	<ul style="list-style-type: none"> • • {with inclined display surface}
U	A47F 7/00	Show stands, hangers, or shelves, adapted for particular articles or materials ({A47F 5/0006 takes precedence})
	A47F 2007/0085	<ul style="list-style-type: none"> • {for light bulbs, lamps, lampshades or the like}
	A47F 2007/0092	<ul style="list-style-type: none"> • {for toy or miniature vehicles}
	A47F 7/08	<ul style="list-style-type: none"> • for shoes {(shoe hangers A47G 25/00BA47G25/00B; shoe hangers with anti-theft means E05B 69/003)}
U	A47F 7/19	<ul style="list-style-type: none"> • for garments (for hosiery A47F 7/10; for ties or collars A47F 7/12; dummies, busts or the like A47F 8/00; wardrobes with garment-holders A47B 61/00; household implements used in connection with wearing apparel or dress holders, {e.g. garment supporting racks} A47G 25/00)
	A47F 2007/195	<ul style="list-style-type: none"> • • {Virtual display of clothes on the wearer by means of a mirror, screen or the like}
U	A47F 9/00	Shop, bar, bank or like counters (show cases or show cabinets A47F 3/00; safety transaction partitions, e.g. movable pay plates, E05G 7/00)
U	A47F 9/02	<ul style="list-style-type: none"> • Paying counters {(change plates, coin dispensers with rotatable change dishes G07D)}
U	A47F 9/04	<ul style="list-style-type: none"> • • Check-out counters, e.g. for self-service stores
	A47F 2009/041	<ul style="list-style-type: none"> • • • {Accessories for check-out counters, e.g. dividers}
U	A47F 9/042	<ul style="list-style-type: none"> • • • {Shopping bags or carton-dispensing systems therefor}
	A47F 2009/044	<ul style="list-style-type: none"> • • • • {dispensing from a roll}
U	A47F 10/00	Furniture or installations specially adapted to particular types of service systems, not otherwise provided for (conveyer aspects B65G; building aspects E04H; coin-freed apparatus G07F)
	A47F 2010/005	<ul style="list-style-type: none"> • {using RFID elements }

- U A47F 10/02
 - for self-service type systems, e.g. supermarkets ([A47F 10/06](#) takes precedence; hand-carts [B62B](#); baskets [B65D](#))
- A47F 2010/025
 - • {using stock management systems }
- U A47F 10/06
 - for restaurant service systems (table equipment [A47G](#); {dirty crockery transport in association with crockery washing machines [A47L 15/00](#)})
- A47F 2010/065
 - • {Food shields; sneeze guards}

Project: N/A (A47G)

- U **A47G 1/00** **Mirrors (as optical elements [G02B 5/08](#)); Picture frames or the like, {e.g. provided with heating, lighting or ventilating means}**
 - A47G 2001/002
 - {comprising magnifying properties}
 - A47G 2001/005
 - {Frames made from flexible material, e.g. rubber}
 - A47G 2001/007
 - {incorporating automatically moving parts}
- U A47G 1/06
 - Picture frames (making from paper [B31D](#))
- A47G 2001/0661
 - • {having means for holding paintings painted on canvas }
- A47G 2001/0666
 - • {Frontloading picture frames }
- A47G 2001/0672
 - • {employing magnets }
- A47G 2001/0677
 - • {having means for fixing the picture or backing to the frame, e.g. clips, nails or the like }
- A47G 2001/0683
 - • {having means for holding flowers }
- A47G 2001/0688
 - • {where the picture is inserted through a slit in one of the frame members }
- A47G 2001/0694
 - • {comprising means allowing the frame to be supported on a horizontal surface }
- U A47G 1/14
 - Photograph stands
- A47G 2001/145
 - • {Picture cubes }
- A47G 2001/146
 - • {comprising means for adjusting the inclination of the stand }
- A47G 2001/147
 - • {Photograph stands with illumination means }
- A47G 2001/148
 - • {adjustable to accommodate frames or pictures of varying sizes }
- U A47G 1/16
 - Devices for hanging or supporting pictures, mirrors, or the like
- A47G 2001/1673
 - • {having illumination means }
- A47G 2001/1693
 - • {Hand-tools for lifting picture frames onto hooks }
- U A47G 1/20
 - • Picture hooks; X-hooks (plugs or hooks for general use [F16B 13/00](#), [F16B 45/00](#))
- A47G 2001/207
 - • • {Safety hooks preventing accidental dislodging of the picture }
- U **A47G 7/00** **Flower holders or the like**
 - A47G 2007/003
 - {Hand tools for lifting or positioning individual flower pots }
- U A47G 7/02
 - Devices for supporting flower-pots or cut flowers (flower-pots, holders for flower-pots in greenhouses [A01G](#))
- U A47G 7/04
 - • Flower tables; Stands or hangers, e.g. baskets, for flowers (stands for use during growing of flowers [A01G](#); flower holders worn on garments [A45F 5/08](#))
- A47G 2007/048
 - • • {Flower tables, stands or hangers with means for automatically rotating the plant pot }
- U A47G 7/06
 - • Flower vases
- A47G 2007/066
 - • • {adaptable for flowers of differing heights, e.g. telescopic flower vases }
- U **A47G 9/00** **Bed-covers; Counterpanes; Travelling rugs; Sleeping rugs; Sleeping bags; Pillows {(loose filling materials for bedding [B68G 1/00](#))}**

A47G 2009/001	• {Anti-allergen; Anti-mite }
A47G 2009/002	• {Bedding to assist in intercourse}
A47G 2009/003	• {with inflatable members }
A47G 2009/004	• {comprising magnets }
A47G 2009/005	• illuminated -{illuminated }
A47G 2009/006	• {comprising sound equipment }
A47G 2009/008	• {using a liquid as filling material }
U A47G 9/02	• Bed linen; Blankets; Counterpanes (sheets specially adapted for use as or with stretchers for patients or invalids A61G 1/01)
U A47G 9/0238	• • {Bed linen}
U A47G 9/0261	• • • {Blanket or duvet enclosing covers, e.g. bag-like}
A47G 2009/0269	• • • • {Devices for use in fitting blanket or duvet enclosing covers}
A47G 2009/0276	• • • {comprising size or centre indication }
U A47G 9/10	• Pillows (pillow holders A47C 21/00 , { A47C 21/026 }; specially adapted for preventing snoring A61F 5/56)
A47G 2009/1018	• • {Foam pillows }
U A47G 11/00	Table linen {(picnic blankets A47G 9/06; placemats A47G 23/0303)}
U A47G 11/003	• {Table-cloths}
A47G 2011/005	• • {Table-cloths comprising a hole or slit for an umbrella }
U A47G 19/00	Table service
A47G 2019/005	• {for shellfish}
U A47G 19/12	• Vessels or pots for table use
A47G 2019/122	• • {for holding and dispensing a plurality of different liquids }
A47G 2019/125	• • {the lid comprising a compartment for holding sugar, cream or the like }
U A47G 19/22	• Drinking vessels or saucers used for table service (glass or drinking-vessel underlays A47G 23/03 ; {cups as travelling or camp articles A45F 3/16 ; collapsible cups A45F 3/20 ; cups made of plastics B65D 1/265 , made of paper B65D 3/06 ; measuring cups G01F 9/00 })
U A47G 19/2205	• • {Drinking glasses or vessels (A47G 19/23 takes precedence)}
U A47G 19/2227	• • • {with means for amusing or giving information to the user (A47G 23/16 takes precedence)}
A47G 2019/2238	• • • • {with illumination means }
A47G 2019/2244	• • • • {with sound emitting means }
A47G 2019/225	• • • • {vessels with thermometers }
A47G 2019/2277	• • collapsible -{collapsible }
A47G 2019/2294	• • {Self-righting drinking vessels, e.g. with means generating a moment to stay upright }
U A47G 19/30	• Other containers or devices used as table equipment {(used as kitchen equipment A47J 47/02)}
A47G 2019/306	• • {Taco stands }
U A47G 21/00	Table-ware (crumb trays A47L 13/52; table knives B26B)
A47G 2021/002	• collapsible -{collapsible }
A47G 2021/008	• {with means for influencing or monitoring the temperature of the food }
U A47G 21/16	• Table-cloth or napkin holders
A47G 2021/162	• • {employing adhesives }

U	A47G 23/00	Other table equipment
U	A47G 23/02	• Glass or bottle holders {(serving trays with openings for carrying glasses or bottles A47G 23/0641 ; bottle racks A47B 73/00 ; for feeding-bottles A61J 9/06 ; in vehicles B60N 3/10)}
	A47G 2023/0275	• • {with means for keeping food cool or hot }
	A47G 2023/0283	• • • {for one glass or cup }
	A47G 2023/0291	• • • • {flexible sleeves or jackets }
U	A47G 23/06	• Serving trays (service tables A47B 31/00)
	A47G 2023/0658	• • illuminated { illuminated }
	A47G 2023/0666	• • {using magnets }
	A47G 2023/0675	• • {suspended from the shoulders or the neck of the user }
U	A47G 23/0683	• • {with means for keeping food cool or hot }
	A47G 2023/0691	• • • {with a cover }
	A47G 23/08	• Food-conveying devices for tables {(restaurant service systems A47F 10/06 ; conveyers for washing or rinsing crockery or tableware A47L15 ; conveyers for washing or rinsing crockery or tableware A47L 15/00); Movable or rotary food-serving devices }
U	A47G 25/00	Household implements used in connection with wearing apparel; Dress, hat or umbrella holders (wardrobes A47B 61/00)
U	A47G 25/02	• Dress holders; Dress suspending devices; Clothes-hanger assemblies; Clothing lifters (clothing or suit hangers A47G 25/14 ; clothing holders with locking devices E05B 69/00)
	A47G 2025/025	• • {Dress suspending devices or clothes-hanger assemblies combined with mirrors, picture frames or the like }
U	A47G 25/14	• Clothing hangers, e.g. suit hangers (A47G 25/60 takes precedence; wardrobes with extensible garment holders A47B 61/02)
	A47G 2025/1485	• • {for diving outfits }
	A47G 2025/1492	• • {for bras }
U	A47G 25/40	• Collapsible hangers
	A47G 2025/4084	• • • {Collapsible clothes hangers combined with brushes }
	A47G 2025/4092	• • • {Collapsible clothes hangers made of wire }
U	A47G 25/44	• Slidable hangers; {Adjustable hangers (A47G 25/4053 , A47G 25/62 take precedence)}
	A47G 2025/448	• • • {Slidable or adjustable clothes hangers made of wire }
U	A47G 25/48	• • Hangers with clamps or the like, e.g. for trousers or skirts
U	A47G 25/483	• • • { with pivoting clamps or clips having axis of rotation parallel with the hanger arms }
	A47G 2025/484	• • • • {Hangers for trousers or skirts with clamps comprising protection means against inadvertent opening }
U	A47G 25/62	• Trouser or skirt stretchers or tensioners of the hanger type (with application of heat or steam D06F)
	A47G 2025/629	• • {Trouser or skirt stretchers or tensioners of the hanger type made of wire }
U	A47G 29/00	Miscellaneous supports, holders, or containers for household use (for drying towels A47K 10/04; stands, racks, or the like for airing beds, garments, or the like, clothes, drying devices D06F 57/00)
U	A47G 29/12	• Mail or newspaper receptacles, e.g. letter-boxes; Openings in doors or the like for delivering mail or newspapers (A47G 29/14 takes precedence; chutes for mail in buildings B65G 11/04 ; { for desktop use B42F 7/10 })

- U A47G 29/122
 - • Parts, details, or accessories, e.g. signalling devices, lamps, devices for leaving messages {(A47G 29/1201 to A47G 29/1218 take precedence)}
- A47G 2029/1221
 - • • {comprising means to detect or prevent a terrorist attack, e.g. to detect anthrax-laced letters }
- U A47G 29/1225
 - • • {Signalling devices}
- A47G 2029/1226
 - • • • {comprising electrical parts }
- A47G 2029/1228
 - • • • {activated by the weight of the letter }
- U A47G 29/14
 - Deposit receptacles for food, e.g. breakfast, milk, { or large parcels}; Similar receptacles for { food or}large parcels with appliances for preventing unauthorised removal of the deposited articles, { i.e. food or large parcels}
- U A47G 29/141
 - • {comprising electronically controlled locking means}
- A47G 2029/142
 - • • {the receptacle interior being adapted to receive a transportable deposit container for food or large parcels }
- A47G 2029/143
 - • • • {the container comprising identification means, e.g. a bar code }
- A47G 2029/144
 - • • {the receptacle being transportable and attachable to a building }
- A47G 2029/145
 - • • {the receptacle comprising means for identifying a deposit; Deposits carrying identification means, e.g. a bar code }
- A47G 2029/146
 - • • {the receptacle comprising identification means, e.g. a bar code }
- A47G 2029/147
 - • • {the receptacle comprising heating or cooling means }
- A47G 2029/148
 - • • {the receptacle comprising a letter box }
- A47G 2029/149
 - • • {with central server link}
- U **A47G 33/00**
 - **Religious or ritual equipment in dwelling or for general use**
- A47G 33/004
 - {Trophies (medals ~~A44C 3/00~~ A44C 3/00; mounting of hunting trophies B44C 5/02)}
- U A47G 33/04
 - Christmas trees (lighting devices therefor F21S {electric candles F21S 10/04, string lighting systems F21S 4/00}, candle holders F21V 35/00, {light guides for lighting systems G02B 6/00})
- U A47G 33/08
 - • Christmas tree decorations
- A47G 2033/0827
 - • • ~~illuminated~~ {illuminated }
- A47G 2033/089
 - • • {for the upper extremity of the central stem }
- U A47G 33/12
 - • Christmas tree stands {(sockets or holders for poles or posts E04H 12/2238)}
- A47G 2033/122
 - • • {involving electricity }
- A47G 2033/1233
 - • • {as insert for a plant pot }
- A47G 2033/124
 - • • {comprising wedges}
- A47G 2033/1253
 - • • {comprising pneumatic or hydraulic parts }
- A47G 2033/1266
 - • • {Stackable, foldable, collapsible, nestable or sale packaged }
- A47G 2033/1273
 - • • {comprising transport wheels or the like }
- A47G 2033/128
 - • • {for trees having a root ball }
- A47G 2033/1286
 - • • {comprising watering means, e.g. a water reservoir }
- A47G 2033/1293
 - • • • {including water feeding or water level monitoring means }

Project: N/A (A47H)

- U **A47H 1/00**
 - **Curtain suspension devices**
- A47H 2001/003
 - {Constructional details common to rods or rails }
- A47H 2001/006
 - • {End-stops, i.e. devices preventing the curtain falling off the end of the rail or rod }
- U A47H 1/02
 - Curtain rods {(stair rods A47G 27/06)}

	A47H 2001/0205	• • {being curved }
	A47H 2001/021	• • {Multiple rods in parallel arrangement }
	A47H 2001/0215	• • {being tubular }
U	A47H 1/04	• Curtain rails
	A47H 2001/042	• • {Curtain rails shaped as curtain rods }
	A47H 2001/045	• • {being curved }
	A47H 2001/047	• • {with multiple tracks }
U	A47H 5/00	Devices for drawing draperies, curtains, or the like
U	A47H 5/02	• Devices for opening and closing curtains
	A47H 2005/025	• • {controlled by electronic sensors }
U	A47H 15/00	Runners or gliders for supporting curtains on rails or rods
	A47H 2015/005	• {Devices for inserting or removing runners or gliders from curtain rails }
U	A47H 23/00	Curtains; Draperies
	A47H 2023/003	• {Additional elements for the decoration of curtains }
	A47H 2023/006	• {Illumination devices }
U	A47H 23/02	• Shapes of curtains; Selection of particular materials for curtains
	A47H 2023/025	• • {Panel type curtains }

Project: N/A (A47J)

U	A47J 9/00	Apparatus or utensils for shaping { or dispensing portions of} butter or the like (for use in dairies A01J 19/00, A01J 21/00, { A01J 23/00}; moulding plastic material in general B29C)
	A47J 2009/008	• {with scales or indicators to determine the amount to be dispensed or separated }
U	A47J 27/00	Cooking-vessels (A47J 29/00 to A47J 33/00 takes precedence)
	A47J 2027/006	• {especially adapted for preparing pasta }
	A47J 2027/008	• • {for cooking pasta under pressure }
U	A47J 27/04	• for cooking food in steam; Devices for extracting fruit juice by means of steam; {Vacuum cooking vessels (steam-heated vessels for hotels, restaurants or canteens A47J 27/16)}
	A47J 2027/043	• • {for cooking food in steam }
	A47J 2027/046	• • {Devices for extracting fruit juice by means of steam }
	A47J 31/00	Apparatus for making beverages (household machines or implements for straining foodstuffs A47J 19/00; preparation of non-alcoholic beverages, e.g. by adding ingredients to fruit or vegetable juices, A23L 2/00; coffee or tea pots A47G 19/14; tea infusers A47G 19/16; dispensing beverages on draught B67D 1/00B67D 1/00; brewing of beer C12C; preparation of wine or other alcoholic beverages C12G)
U	A47J 31/06	• Filters or strainers for coffee or tea makers; { Holders therefor}
	A47J 2031/0694	• • {with indicating means to aid the measurement of ground coffee contained therein}
U	A47J 31/16	• Inverting coffee-making apparatus in which water is boiled in the lower part and the apparatus is subsequently inverted to pass the water through the filter
	A47J 2031/165	• • {Stirring devices operatively connected to cooking utensils when being removably inserted in a cooking-vessel}

- U A47J 37/00 Baking; Roasting; Grilling; Frying (bakers` ovens, non-domestic baking apparatus or equipment [A21B](#); domestic stoves or ranges [F24B](#), [F24C](#))**
- U A47J 37/06
 - Roasters; Grills; Sandwich grills
 - U A47J 37/0611
 - {the food being cooked between two heating plates, e.g. waffle-irons}
 - A47J 2037/0617
 - • {with means to adjust the distance between heating plates}
 - U A47J 37/07
 - Roasting devices for outdoor use; Barbecues {(field-cookers [A47J 33/00](#), [A47J 36/26](#))}
 - A47J 2037/0777
 - • {with foldable construction for storage or transport purposes}
 - U A47J 37/0786
 - • {Accessories}
 - A47J 2037/0795
 - • {Adjustable food supports, e.g. for height adjustment }

U A47J 43/00 Miscellaneous implements for preparing or holding food

 - U A47J 43/04
 - Machines for domestic use not covered elsewhere, e.g. for grinding, mixing, stirring, kneading, emulsifying, whipping or beating foodstuffs, e.g. power-driven (food straining implements [A47J 19/00](#); devices for grating [A47J 43/25](#); multi-purpose machines [A47J 44/00](#))
 - U A47J 43/044
 - with tools driven from the top side
 - A47J 2043/04409
 - • {Apparatus of hand held type }
 - A47J 2043/04418
 - • {with housing extending perpendicular, e.g. horizontally, from the tool axis }
 - A47J 2043/04427
 - • {with housing extending vertically in line with the tool axis }
 - A47J 2043/04436
 - • {attachable to the bowl }
 - A47J 2043/04445
 - • {attachable to a stand }
 - A47J 2043/04454
 - • {Apparatus of counter top type }
 - A47J 2043/04463
 - • {with a mixing unit rigidly fixed on the housing and a movable support for the bowl }
 - A47J 2043/04472
 - • {with a mixing unit vertically movable relative to the support }
 - A47J 2043/04481
 - • {with a mixing unit pivotable on the support }
 - A47J 2043/0449
 - • {with a mixing unit detachable from the support }
 - U A47J 43/07
 - Parts or details, e.g. mixing tools, whipping tools
 - A47J 2043/0733
 - • {Weighing means }
 - A47J 2043/0738
 - • {Means for storing accessories }
 - A47J 2043/0744
 - • {Means for storing the power cord }

Project: N/A (A47K)

- A47K 3/00 Baths; Douches; Appurtenances therefor (for curative purposes [A61H](#), [A61M](#), e.g. bathing devices for special therapeutic or hygienic purposes [A61H 33/00](#) [A61H 33/00](#); {spray heads [B05B](#); devices for suspending or supporting the supply pipe or supply hose of a shower bath [E03C 1/06](#); heated bath tubs [F24H 1/0072](#)))**
- U A47K 3/02
 - Baths (heatable [F24H](#))
 - A47K 3/08
 - Cabinet baths (collapsible shower bath cabinets [A47K 3/23](#) [A47K 3/32](#))
 - A47K 3/12
 - Separate seats or body supports (seats for chairs [A47C 7/02](#); {invalid lifting devices mounted on or in combination with a bathtub [A61G 7/1003](#)})
 - U A47K 3/28
 - Showers { or bathing douches }(combined with baths [A47K 3/20](#); nozzles, spray heads [B05B 1/00](#); { means for suspending or supporting the supply pipe or supply hose [E03C 1/06](#)})

- U A47K 3/30
 - • Screens or {collapsible} cabinets {for showers or baths ([A47K 3/283](#) takes precedence)}
- A47K 2003/305
 - • • {Sealings between screen and bath- or showertub }
- A47K 2003/307
 - • • {Adjustable connections to the wall }
- U A47K 3/36
 - • • Articulated screens
- A47K 2003/365
 - • • • {Liftable articulated screens to be swung over the faucets and against the wall }
- A47K 2003/367
 - • • • {Hinges urging the articulated screen in one or more stable positions }
- U A47K 5/00**

Holders or dispensers for soap, toothpaste, or the like (specially adapted for shaving soap or cosmetics [A45D 33/00](#) to [A45D 40/00](#))
- U A47K 5/06
 - Dispensers for soap
- U A47K 5/12
 - • for liquid or pasty soap
- A47K 2005/1218
 - • • {Table mounted ; Dispensers integrated with the mixing tap }
- U A47K 10/00**

Body-drying implements; Toilet paper; Holders therefor
- U A47K 10/24
 - Towel dispensers, {e.g. for piled-up or folded textile towels}; Toilet-paper dispensers (sheet or web dispensers in general [B65H](#); {paper dispensers for publicity purposes [G09F 21/22](#), [G09F 23/10](#)}); Dispensers for piled-up or folded textile towels provided or not with devices for taking-up soiled towels as far as not mechanically driven
- U A47K 10/32
 - • Dispensers for paper towels or toilet-paper
- A47K 2010/3206
 - • • {Coreless paper rolls }
- A47K 2010/3213
 - • • {activated by coins }
- A47K 2010/322
 - • • {with means for deodorizing the ambient air }
- A47K 2010/3226
 - • • {collecting data of usage }
- A47K 2010/3233
 - • • {Details of the housing, e.g. hinges, connection to the wall }
- A47K 2010/324
 - • • {Jumbo rolls }
- A47K 2010/3246
 - • • {Locking mechanisms for the housing }
- A47K 2010/3253
 - • • {with one or more reserve rolls }
- A47K 2010/326
 - • • {dispensing simultaneously from several rolls or stacks }
- A47K 2010/3266
 - • • {Wet wipes }
- A47K 2010/3273
 - • • • {moistened just before use }
- A47K 2010/328
 - • • • • {by spraying }
- A47K 2010/3286
 - • • • • {mby rollers }
- A47K 2010/3293
 - • • • • {combined with wipe warming devices }
- U A47K 10/34
 - • • dispensing from a web, e.g. with mechanical dispensing means
- U A47K 10/36
 - • • • with {mechanical dispensing, roll switching or} cutting devices
- U A47K 10/3631
 - • • • • { The cutting devices being driven manually}
- A47K 2010/365
 - • • • • • {Triggering mechanism for the blade }
- A47K 2010/3668
 - • • • • • {Detection of the presence of a user }
- A47K 2010/3675
 - • • • • • {Braking devices }
- A47K 2010/3681
 - • • • • • {characterised by the way a new paper roll is loaded in the dispenser }
- A47K 2010/3693
 - • • • • • {Selection of the size of the paper roll }
- U A47K 10/38
 - • • • the web being rolled up {with or without tearing edge ([A47K 10/36](#) and [A47K 10/46](#) take precedence)}
- A47K 2010/3854
 - • • • • {with devices for disposing of the empty core }
- A47K 2010/3863
 - • • • • {with roll rotation braking devices }

- A47K 2010/3872 {the roll support running in inclined grooves }
- A47K 2010/3881 {with tearing edges having movable parts }
- A47K 2010/389 {Accessories or combination with other devices, e.g. music boxes, clocks, heating devices or shelves }
- U A47K 10/42 . . . dispensing from a store of single sheets, e.g. stacked
- A47K 2010/428 {Details of the folds or interfolds of the sheets }
- U A47K 17/00 **Other equipment, {e.g. separate apparatus for deodorising, disinfecting or cleaning devices without flushing for toilet bowls, seats or covers; Holders for toilet brushes (portable urinating aids [A61F 5/4556](#)); (devices for receiving spittle [A61J 19/00](#); {disinfecting apparatus for medical, surgical or hygienic purposes [A61L](#); cleaning devices with flushing for toilet bowls, seats or covers [E03D 9/00](#); for emptying or cleaning chamber-pots, bed pans, bed urinals or the like [E03D 11/025](#)}}**
- A47K 2017/006 . {Defecation help for disabled persons }

Project: N/A (A61B)

- U A61B 5/00 **Detecting, measuring or recording for diagnostic purposes(radiation diagnosis [A61B 6/00](#) ; diagnosis by ultrasonic, sonic or infrasonic waves [A61B 8/00](#)); Identification of persons{(measuring or recording in general subclasses of [G01](#); medical informatics [G06F 19/30](#))}**
- WARNING
Groups [A61B 5/40](#) - [A61B 5/748](#) do not correspond to former or present IPC groups. Concordance CPC : IPC for these groups is as follows: [A61B 5/40](#) : [A61B 5/00](#) [A61B 5/41](#) : [A61B 5/00](#) [A61B 5/42](#) : [A61B 5/00](#) [A61B 5/43](#) : [A61B 5/00](#) [A61B 5/44](#) : [A61B 5/00](#) [A61B 5/45](#) : [A61B 5/00](#) [A61B 5/48](#) : [A61B 5/00](#) [A61B 5/68](#) : [A61B 5/00](#) [A61B 5/70](#) : [A61B 5/00](#) [A61B 5/72](#) : [A61B 5/00](#) [A61B 5/74](#) : [A61B 5/00](#)
- U A61B 5/0059 . {using light, e.g. diagnosis by transillumination, diascopy, fluorescence([A61B 5/0093](#) , [A61B 5/1455](#) , [A61B 5/02416](#) and [A61B 5/0261](#) take precedence)}
- A61B 5/0062 . . {Arrangements for scanning}
- WARNING
Group [A61B 5/0062](#) and subgroups are not complete pending a reorganisation, see also group ~~A61B 5/00~~ P [A61B 5/0059](#)
- U A61B 5/04 . Detecting, measuring or recording bioelectric signals of the body of parts thereof
- U A61B 5/0402 . . Electrocardiography, i.e. ECG
- A61B 5/04028 . . . {Generation of artificial ECG signals based on measured signals, e.g. to compensate for missing leads}
- WARNING
Group ~~A61B5/402K~~ is not complete pending a reorganisation.
- A61B 5/145 . Measuring characteristics of blood in vivo, e.g. gas concentration, pH value; {Measuring characteristics of body fluids or tissues, e.g. interstitial fluid, cerebral tissue} (measuring of blood pressure or blood flow [A61B 5/02](#) ; non-radiation detecting or locating of foreign bodies in blood [A61B 5/06](#))
- WARNING
Groups ~~A61B 5/145~~ H [A61B 5/14535](#) , [A61B 5/14539](#) and [A61B 5/14546](#) are not complete pending a reorganisation; see also groups [A61B 5/145](#)

- U A61B 5/15
- Devices for taking samples of blood(hypodermic syringes [A61M 5/178](#))
- NOTE
- In these subgroups, the following terms are used with the meaning indicated:
- "piercing element" means skin penetrating component e.g. blade, needle, lancet, laser beam;
 - "piercing or lancing device" means device ready to be used for lancing;
 - "driving device" means device for driving a piercing element e.g. spring
- WARNING
- This group and its subgroups are not complete pending a reorganisation. See also [A61B 5/14](#) , [A61B 5/1405](#) and subgroups
- U A61B 5/151
- {Devices} specially adapted for taking samples of capillary blood, e.g. by lancets{, needles or blades}
- A61B 5/15146
- • {Devices loaded with multiple lancets simultaneously, e.g. for serial firing without reloading, for example by use of stocking means.(multiple simultaneous cutting or piercing ~~A61B5/1561~~ [A61B 5/150977](#))}
- U A61B 5/40
- {Detecting, measuring or recording for evaluating the nervous system([A61B 5/4806](#) , [A61B 5/4821](#) , [A61B 5/4824](#) take precedence)}
- WARNING
- Group [A61B 5/40](#) and subgroups are not complete pending a reorganisation, see also groups also groups [A61B 5/00](#) , [A61B 5/02](#) , [A61B 5/0476](#) , [A61B 5/048](#) , [A61B 5/145](#) , [A61B 5/16](#) , [A61B 5/18](#) .
- U A61B 5/4058
- • {for evaluating the central nervous system([A61B 5/4806](#) , [A61B 5/4821](#) take precedence)}
- A61B 5/4064
- • • {Evaluating the brain([A61B 5/031](#) , [A61B 5/0476](#) , ~~A51B5/1455N4~~ [A61B 5/14553](#) take precedence)}
- U **A61B 6/00**
- Apparatus for radiation diagnosis, e.g. combined with radiation therapy equipment(analysis of materials using radiation [G01N 23/00](#) , detecting hidden objects by radiation [G01V 5/0008](#) , radiodiagnostic or X-ray contrast preparations [A61K 49/00](#) ; radiation therapy per se [A61N 5/00](#) ; instruments measuring radiation intensity for application in the field of nuclear medicine, e.g. in vivo counting [G01T 1/161](#) ; apparatus for taking X-ray photographs [G03B 42/02](#) ; X-ray photographic processes [G03C 5/16](#) ; irradiation devices [G21K](#); X-ray apparatus or circuits therefor [H05G 1/00](#))**
- WARNING
- Groups [A61B 6/40](#) to [A61B 6/58](#) do not correspond to former or current IPC groups. Concordance CPC - IPC for these groups is as follows: - [A61B 6/40](#) : [A61B 6/00](#) - [A61B 6/42](#) : [A61B 6/00](#) - [A61B 6/44](#) : [A61B 6/00](#) - [A61B 6/46](#) : [A61B 6/00](#) - [A61B 6/48](#) : [A61B 6/00](#) - [A61B 6/50](#) : [A61B 6/00](#) - [A61B 6/52](#) : [A61B 6/00](#) - [A61B 6/54](#) : [A61B 6/00](#) - [A61B 6/56](#) : [A61B 6/00](#) - [A61B 6/58](#) : [A61B 6/00](#)
- U A61B 6/40
- {with arrangements for generating radiation specially adapted for radiation diagnosis(X-ray tubes or details thereof [H01J 35/00](#))}
- A61B 6/4064
- • {adapted for producing a particular type of beam}
- WARNING
- Groups [A61B 6/40-L](#), [A61B 6/4071](#) , [A61B 6/4078](#) and [A61B 6/4085](#) are not complete pending a reorganisation; see [A61B 6/03-B](#), ~~[A61B6/03B2](#)~~, ~~[A61B6/03B4](#)~~ and ~~[A61B6/03B12](#)~~
- U A61B 6/46
- {with special arrangements for interfacing with the operator or the patient}
- U A61B 6/461
- • {Displaying means of special interest}

	<ul style="list-style-type: none"> • • {adapted to display 3D data(3D image rendering G06T 15/00 ; manipulating 3D models for computer graphics G06T19; <i>manipulating 3D models for computer graphics G06T 19/00</i>)}
U A61B 6/50	<ul style="list-style-type: none"> • {Clinical applications(dentistry A61B 6/14 takes precedence)}
A61B 6/506	<ul style="list-style-type: none"> • {involving diagnosis of nerves}
	<p><u>WARNING</u> Group A61B 6/506 is not complete pending a reorganisation; see A61B-6/00 A61B 6/50</p>
A61B 6/507	<ul style="list-style-type: none"> • {involving determination of haemodynamic parameters, e.g. perfusion CT}
	<p><u>WARNING</u> Group A61B 6/507 is not complete pending a reorganisation; see A61B-6/00 A61B 6/50</p>
A61B 6/52	<ul style="list-style-type: none"> • {Devices using data or image processing specially adapted for radiation diagnosis(image processing per se G06T)}
	<p><u>WARNING</u> Groups of A61B 6/52 are not complete pending a reorganisation; see A61B 6/00 , A61B-6/00 A61B 6/50 , A61B-6/00 A61B 6/00F , A61B 6/03 , A61B 6/032 and A61B 6/04</p>
A61B 8/00	<p>Diagnosis using ultrasonic, sonic or infrasonic waves(imaging of objects using sonar G01S 15/00)</p>
	<p><u>WARNING</u> Groups A61B 8/40 - 8/58 A61B 8/58 do not correspond to former or current IPC groups. Concordance CPC : IPC groups is as follows: - A61B 8/40 - 8/44N A61B 8/4444 : A61B 8/00 - A61B 8/445 : A61B 8/12 - A61B 8/4455 - 8/46 A61B 8/46 : A61B 8/00 - A61B 8/48 - 8/52 A61B 8/52 : A61B 8/08 - A61B 8/54 - 8/58 A61B 8/58 : A61B 8/00</p>
U A61B 10/00	<p>Other methods or instruments for diagnosis, e.g. instruments for taking a cell sample, for biopsy, for vaccination diagnosis(vaccination prophylaxis, vaccination therapy A61B 17/20); Sex determination; Ovulation-period determination(menstruation tables G06C 3/00); Throat striking implements</p>
	<p><u>NOTE</u> Attention is drawn to group A61F 13/15 which provides for swabs</p>
A61B 2010/0003	<ul style="list-style-type: none"> • {including means for analysis by an unskilled person}
A61B 2010/0006	<ul style="list-style-type: none"> • • {involving a colour change}
A61B 2010/0009	<ul style="list-style-type: none"> • {Testing for drug or alcohol abuse}
U A61B 10/0012	<ul style="list-style-type: none"> • {Ovulation-period determination(for animals A61D 17/002)}
A61B 2010/0016	<ul style="list-style-type: none"> • • {based on measurement of electric currents, e.g. conductivity tests}
A61B 2010/0019	<ul style="list-style-type: none"> • • {based on measurement of temperature}
A61B 2010/0022	<ul style="list-style-type: none"> • • {based on measurement of viscosity or visco-elasticity}
A61B 2010/0025	<ul style="list-style-type: none"> • • {based on analysis of crystallisation structure}
A61B 2010/0029	<ul style="list-style-type: none"> • • {based on time measurement}
A61B 2010/0032	<ul style="list-style-type: none"> • • {based on measurement of pH-value}
U A61B 10/0045	<ul style="list-style-type: none"> • {Devices for taking samples of body liquids(devices for taking blood samples A61B 5/1405)}
A61B 10/0051	<ul style="list-style-type: none"> • • {for taking saliva or sputum samples(devices for receiving spittle A61J-9/00 A61J 9/00)}

A61B 2010/0054	• • {Ear liquid}
A61B 2010/0061	• • {Alimentary tract secretions, e.g. biliary, gastric, intestinal, pancreatic secretions}
A61B 2010/0067	• • {Tear or lachrymal fluid}
A61B 2010/0074	• • {Vaginal or cervical secretions}
A61B 2010/0077	• • {Cerebrospinal fluid}
A61B 2010/008	• • {Interstitial fluid}
A61B 2010/0083	• {for taking gas samples}
A61B 2010/0087	• • {Breath samples}
A61B 2010/009	• {Various features of diagnostic instruments}
A61B 2010/0093	• • {slide rules}
A61B 10/0096	• {Casings for storing test samples(A61B10/00C , A61B 10/0038 and A61B 10/0045 take precedence; preservation of living parts of the human or animal body A01N 1/02 ; containers for retaining a material to be analysed B01L 3/50 ; test tubes B01L 3/14 ; containers for enzymology or microbiology C12M 1/16 ; swab-sampler being part of enzymology or microbiology container C12M 1/30)}
U A61B 10/02	• {Instruments for taking a cell sample or for biopsy(A61B 10/0038 and A61B 10/0045 take precedence; needle locating or guiding means A61B 17/3403 ; samplers for enzymology or microbiology C12M 1/26 ; sampling or preparing biological specimens G01N 33/48)}
A61B 2010/0208	• • {Biopsy devices with actuators, e.g. with triggered spring mechanisms}
A61B 2010/0216	• • {Sampling brushes}
A61B 2010/0225	• • {for taking multiple samples}
U A61B 10/0233	• • {Pointed or sharp biopsy instruments}
U A61B 10/025	• • • {for taking bone, bone marrow or cartilage samples}
A61B 2010/0258	• • • • {Marrow samples}
U A61B 10/04	• • Endoscopic instruments
A61B 2010/045	• • • {Needles(pointed biopsy devices with vacuum aspiration A61B 10/0283)}
U A61B 17/00	Surgical instruments, devices or methods, e.g. tourniquets(A61B 18/00 takes precedence; contraceptive devices, pessaries, or applicators therefor A61F 6/00 ; eye surgery A61F 9/007 ; ear surgery A61F 11/00)
A61B 2017/00004	• {(bio)absorbable, (bio)resorbable, resorptive(for implantable prostheses A61F 2210/0004)}
U A61B 17/00008	• {Vein tendon strippers(tube strippers A61M 1/0078)}
A61B 2017/00013	• • {Cables with a stripper head}
A61B 2017/00017	• {Electrical control of surgical instruments}
A61B 2017/00022	• • {Sensing or detecting at the treatment site}
A61B 2017/00026	• • • {Conductivity or impedance, e.g. of tissue}
A61B 2017/0003	• • • • {of parts of the instruments}
A61B 2017/00035	• • • • pH{pH}
A61B 2017/00039	• • • {Electric or electromagnetic phenomena other than conductivity, e.g. capacity, inductivity, Hall effect}
A61B 2017/00044	• • • • {Sensing electrocardiography, i.e. ECG}
A61B 2017/00048	• • • • • {Spectral analysis}
A61B 2017/00053	• • • • • Mapping{Mapping}
A61B 2017/00057	• • • Light{Light}

A61B 2017/00061	• • • • spectrum{spectrum}
A61B 2017/00066	• • • • intensity{intensity}
A61B 2017/0007	• • • • Pyrometers{Pyrometers}
A61B 2017/00075	• • • Motion{Motion}
A61B 2017/00079	• • • Radioactivity{Radioactivity}
A61B 2017/00084	• • • Temperature{Temperature}
A61B 2017/00088	• • • • {using thermistors}
A61B 2017/00092	• • • • {using thermocouples}
A61B 2017/00097	• • • • • {one of the thermometric elements being an electrode or the heating element}
A61B 2017/00101	• • • • {using an array of thermosensors}
A61B 2017/00106	• • • ultrasonic{ultrasonic}
A61B 2017/0011	• • • • {piezo-electric}
A61B 2017/00115	• • {with audible or visual output(with imaging means A61B 2019/5225 A61B 2019/5225)}
A61B 2017/00119	• • • {alarm; indicating an abnormal situation}
A61B 2017/00123	• • • • {and automatic shutdown}
A61B 2017/00128	• • • {related to intensity or progress of surgical action}
A61B 2017/00132	• • {Setting operation time of a device(A61B 2017/00123 takes precedence)}
A61B 2017/00137	• • {Details of operation mode}
A61B 2017/00141	• • • {continuous, e.g. wave}
A61B 2017/00146	• • • • {with multiple frequencies}
A61B 2017/0015	• • • • • {applied simultaneously}
A61B 2017/00154	• • • pulsed{pulsed}
A61B 2017/00159	• • • • {Pulse shapes}
A61B 2017/00163	• • • • • {starting with a negative pulse}
A61B 2017/00168	• • • • • Spike{Spike}
A61B 2017/00172	• • • • {Pulse trains, bursts, intermittent continuous operation}
A61B 2017/00176	• • • • • {Two pulses, e.g. second pulse having an effect different from the first one}
A61B 2017/00181	• • • • {Means for setting or varying the pulse energy}
A61B 2017/00185	• • • • • {Means for setting or varying the pulse height}
A61B 2017/0019	• • • • • {Means for setting or varying the pulse width}
A61B 2017/00194	• • • • {Means for setting or varying the repetition rate}
A61B 2017/00199	• • {with a console, e.g. a control panel with a display}
A61B 2017/00203	• • {with speech control or speech recognition}
A61B 2017/00207	• • {with hand gesture control or hand gesture recognition}
A61B 2017/00212	• • {using remote controls}
A61B 2017/00216	• • {with eye tracking or head position tracking control}
A61B 2017/00221	• • {with wireless transmission of data , e.g. by infrared radiation or radiowaves}
A61B 2017/00225	• • {Systems for controlling multiple different instruments, e.g. microsurgical systems}
A61B 2017/0023	• disposable{disposable}
U A61B 17/00234	• {for minimally invasive surgery(A61B 17/0218 , A61B 17/0469 , A61B 17/12013 , A61B 17/1285 , A61B 17/29 , A61B 17/320016 take precedence)}

- A61B 2017/00238 . . {Type of minimally invasive operation([A61B 2017/00805](#) takes precedence)}
- A61B 2017/00243 . . . ~~cardiac~~{~~cardiac~~}
- A61B 2017/00247 {Making holes in the wall of the heart, e.g. laser Myocardial revascularization}
- A61B 2017/00252 {for by-pass connections, i.e. connections from heart chamber to blood vessel or from blood vessel to blood vessel}
- A61B 2017/00256 {Creating an electrical block}
- A61B 2017/00261 . . . ~~Discectomy~~{~~Discectomy~~}
- A61B 2017/00265 . . . {Hand assisted surgery, i.e. minimally invasive surgery with at least part of an assisting hand inside the body}
- A61B 2017/00269 . . . {endoscopic mucosal resection EMR}
- A61B 2017/00274 . . . {Prostate operation, e.g. prostatectomy, turp, bhp treatment}
- A61B 2017/00278 . . . {Transorgan operations, e.g. transgastric}
- A61B 2017/00283 . . . {with a device releasably connected to an inner wall of the abdomen during surgery, e.g. an illumination source}
- A61B 2017/00287 . . {Bags for minimally invasive surgery}
- A61B 2017/00292 . . {mounted on or guided by flexible, e.g. catheter-like, means}
- A61B 2017/00296 . . . {mounted on an endoscope}
- A61B 2017/003 . . . ~~Steerable~~{~~Steerable~~}
- A61B 2017/00305 {Constructional details of the flexible means}
- A61B 2017/00309 {Cut-outs or slits}
- A61B 2017/00314 {Separate linked members}
- A61B 2017/00318 {Steering mechanisms}
- A61B 2017/00323 {Cables or rods}
- A61B 2017/00327 {with actuating members moving in opposite directions}
- A61B 2017/00331 {with preformed bends}
- A61B 2017/00336 . . . {with a protective sleeve, e.g. retractable or slidable}
- A61B 2017/0034 . . . {adapted to be inserted through a working channel of an endoscope}
- A61B 2017/00345 . . {Micromachines, nanomachines, microsystems}
- A61B 2017/00349 . . {Needle-like instruments having hook or barb-like gripping means, e.g. for grasping suture or tissue([A61B 17/06066](#) takes precedence)}
- A61B 2017/00353 . . {one mechanical instrument performing multiple functions, e.g. cutting and grasping(channel for multiple instruments [A61B 2017/3445](#) ; instrument channel [A61B 2017/22072](#) ; replaceable heads [A61B 2017/2931](#) ; suction [A61M 1/00](#))}
- A61B 2017/00358 . . {Snares for grasping}
- A61B 2017/00362 . . {Packages or dispensers for MIS instruments([A61B 2017/0479](#) takes precedence)}
- A61B 2017/00367 . {Details of actuation of instruments, e.g. relations between pushing buttons, or the like, and activation of the tool, working tip, or the like}
- A61B 2017/00371 . . {Multiple actuation, e.g. pushing of two buttons, or two working tips becoming operational}
- A61B 2017/00376 . . . {Simultaneous actuation of two tools by simultaneously pushing two buttons}
- A61B 2017/0038 . . . {Simultaneous actuation of two tools by pushing one button or the like}
- A61B 2017/00384 . . . {Actuation of one tool by pushing two buttons simultaneously}

A61B 2017/00389	<ul style="list-style-type: none"> • • {Button or wheel for performing multiple functions, e.g. rotation of shaft and end effector}
A61B 2017/00393	<ul style="list-style-type: none"> • • • {with means for switching between functions}
A61B 2017/00398	<ul style="list-style-type: none"> • • {using powered actuators, e.g. stepper motors, solenoids}
A61B 2017/00402	<ul style="list-style-type: none"> • • • {Piezo electric actuators}
A61B 2017/00407	<ul style="list-style-type: none"> • • {Ratchet means}
A61B 2017/00411	<ul style="list-style-type: none"> • • {actuated by application of energy from an energy source outside the body}
A61B 2017/00415	<ul style="list-style-type: none"> • • {having power generation near the working tip of the tool}
A61B 2017/0042	<ul style="list-style-type: none"> • {with special provisions for gripping}
A61B 2017/00424	<ul style="list-style-type: none"> • • {ergonomic, e.g. fitting in fist}
A61B 2017/00429	<ul style="list-style-type: none"> • • {with a roughened portion}
A61B 2017/00433	<ul style="list-style-type: none"> • • • knurled{knurled}
A61B 2017/00438	<ul style="list-style-type: none"> • • {connectable to a finger}
A61B 2017/00442	<ul style="list-style-type: none"> • • {connectable to wrist or forearm}
A61B 2017/00446	<ul style="list-style-type: none"> • • {for use only by lefthanded or only by righthanded persons}
A61B 2017/00451	<ul style="list-style-type: none"> • • • {by lefthanded persons}
A61B 2017/00455	<ul style="list-style-type: none"> • • {Orientation indicators, e.g. recess on the handle}
A61B 2017/0046	<ul style="list-style-type: none"> • {with a releasable handle; with handle and operating part separable(for prosthetic joint-implanting tools A61F 2002/4624)}
A61B 2017/00464	<ul style="list-style-type: none"> • • {for use with different instruments(with hole for different instruments A61B 2017/22072)}
A61B 2017/00469	<ul style="list-style-type: none"> • • {for insertion of instruments, e.g. guide wire, optical fibre}
A61B 2017/00473	<ul style="list-style-type: none"> • • {Distal part, e.g. tip or head(A61B 2017/00464 takes precedence)}
A61B 2017/00477	<ul style="list-style-type: none"> • {Coupling(A61B 2017/0046 takes precedence)}
A61B 2017/00482	<ul style="list-style-type: none"> • • {with a code}
A61B 2017/00486	<ul style="list-style-type: none"> • • {Adaptors for coupling parts with incompatible geometries}
U A61B 17/00491	<ul style="list-style-type: none"> • {Surgical glue applicators(surgical adhesives A61L 24/00 ; two-component delivery syringes A61M 5/19)}
A61B 2017/00495	<ul style="list-style-type: none"> • • {for two-component glue}
A61B 2017/005	<ul style="list-style-type: none"> • • {hardenable using external energy source, e.g. laser, ultrasound}
A61B 2017/00504	<ul style="list-style-type: none"> • • {Tissue welding}
A61B 2017/00508	<ul style="list-style-type: none"> • • • {using laser}
A61B 2017/00513	<ul style="list-style-type: none"> • • {Tissue soldering}
A61B 2017/00517	<ul style="list-style-type: none"> • • • {using laser}
A61B 2017/00522	<ul style="list-style-type: none"> • • Sprayers{Sprayers}
A61B 2017/00526	<ul style="list-style-type: none"> • {Methods of manufacturing}
A61B 2017/0053	<ul style="list-style-type: none"> • • {Loading magazines or sutures into applying tools}
A61B 2017/00535	<ul style="list-style-type: none"> • {pneumatically or hydraulically operated(A61B 2017/22051 , A61B 2019/385 take precedence)}
A61B 2017/00539	<ul style="list-style-type: none"> • • hydraulically{hydraulically}
A61B 2017/00544	<ul style="list-style-type: none"> • • pneumatically{pneumatically}
A61B 2017/00548	<ul style="list-style-type: none"> • • • {Gas cartridges therefor}
A61B 2017/00553	<ul style="list-style-type: none"> • • {using a turbine}
A61B 2017/00557	<ul style="list-style-type: none"> • • {inflatable(A61B 2017/22051 takes precedence)}
A61B 2017/00561	<ul style="list-style-type: none"> • • {creating a vacuum}

A61B 2017/00566	• • • {fixation of form upon application of vacuum}
U A61B 17/0057	• {Implements for plugging an opening in the wall of a hollow or tubular organ, e.g. for sealing a vessel puncture or closing a cardiac septal defect(sutures A61B 17/04 ; closing rectum or urethra near body surface A61F 2/0009)}
A61B 2017/00575	• • {for closure at remote site, e.g. closing atrial septum defects}
A61B 2017/00579	• • • {Barbed implements}
A61B 2017/00584	• • • Clips{Clips}
A61B 2017/00588	• • • {Rigid or stiff implements, e.g. made of several rigid parts linked by hinges}
A61B 2017/00592	• • • {Elastic or resilient implements}
A61B 2017/00597	• • • {Implements comprising a membrane}
A61B 2017/00601	• • • {Implements entirely comprised between the two sides of the opening}
A61B 2017/00606	• • • {Implements H-shaped in cross-section, i.e. with occluders on both sides of the opening}
A61B 2017/0061	• • • {Implements located only on one side of the opening}
A61B 2017/00615	• • • {Implements with an occluder on one side of the opening and holding means therefor on the other}
A61B 2017/00619	• • • {Locking means for locking the implement in expanded state}
A61B 2017/00623	• • • {Introducing or retrieving devices therefor}
A61B 2017/00628	• • • {T-shaped occluders}
A61B 2017/00632	• • • {Occluding a cavity, i.e. closing a blind opening}
A61B 2017/00637	• • {for sealing trocar wounds through abdominal wall}
A61B 2017/00641	• • {for closing fistulae, e.g. anorectal fistulae}
A61B 2017/00646	• • {Type of implements}
A61B 2017/0065	• • • {the implement being an adhesive}
A61B 2017/00654	• • • {entirely comprised between the two sides of the opening}
A61B 2017/00659	• • • {located only on one side of the opening}
A61B 2017/00663	• • • {the implement being a suture}
A61B 2017/00668	• • • {the implement being a tack or a staple}
A61B 2017/00672	• • {Locating means therefor, e.g. bleed back lumen}
A61B 2017/00676	• • {promotion of self-sealing of the puncture}
A61B 2017/00681	• {Aspects not otherwise provided for(not used)}
A61B 2017/00685	• • {Archimedes screw}
A61B 2017/0069	• • {with universal joint, cardan joint}
A61B 2017/00694	• • {with means correcting for movement of or for synchronisation with the body}
A61B 2017/00699	• • • {correcting for movement caused by respiration, e.g. by triggering}
A61B 2017/00703	• • • {correcting for movement of heart, e.g. ECG-triggered}
A61B 2017/00707	• • {Dummies, phantoms; Devices simulating patient or parts of patient}
A61B 2017/00712	• • • {simulating mathematical properties, e.g. for testing of positioning in the isocentre or focus}
A61B 2017/00716	• • • {simulating physical properties}
A61B 2017/00721	• • • • {using artificial kidney stones for testing purposes}
A61B 2017/00725	• • {Calibration or performance testing}
A61B 2017/0073	• • {with means for minimising or preventing pain during treatment}
A61B 2017/00734	• • {battery operated}
A61B 2017/00738	• • {part of the tool being offset with respect to a main axis, e.g. for better view for the surgeon}

- A61B 2017/00743 • {Type of operation; Specification of treatment sites([A61B 2017/00238](#) takes precedence)}
- A61B 2017/00747 • • ~~Dermatology~~{~~Dermatology~~}
- A61B 2017/00752 • • • {Hair removal or transplantation}
- A61B 2017/00756 • • • {Port wine stains}
- A61B 2017/00761 • • • {Removing layer of skin tissue, e.g. wrinkles, scars or cancerous tissue}
- A61B 2017/00765 • • • {Decreasing the barrier function of skin tissue by radiated energy, e.g. using ultrasound, using laser for skin perforation}
- A61B 2017/00769 • • • {Tattoo removal}
- A61B 2017/00774 • • • ~~Wart~~{~~Wart~~}
- A61B 2017/00778 • • {Operations on blood vessels([A61B 2017/22097](#) , [A61B 2017/320741](#) take precedence)}
- A61B 2017/00783 • • • ~~Valvuloplasty~~{~~Valvuloplasty~~}
- A61B 2017/00787 • • {Surgery of the ear}
- A61B 2017/00792 • • {Plastic surgery}
- A61B 2017/00796 • • {Breast surgery}
- A61B 2017/008 • • • {Removal of tumors}
- A61B 2017/00805 • • {Treatment of female stress urinary incontinence}
- A61B 2017/00809 • • {Lung operations}
- A61B 2017/00814 • • {Surgery of the tongue e.g. glossoplasty}
- A61B 2017/00818 • • {Treatment of the gastro-intestinal system}
- A61B 2017/00823 • • • ~~Appendectomy~~{~~Appendectomy~~}
- A61B 2017/00827 • • • {Treatment of gastro-esophageal reflux}
- A61B 2017/00831 • {Material properties}
- A61B 2017/00836 • • {corrosion-resistant([A61B 2017/00853](#) takes precedence; preventing galvanic or electrolytic corrosion in prostheses [A61F 2210/0009](#))}
- A61B 2017/0084 • • {low friction([A61B 2017/00853](#) takes precedence)}
- A61B 2017/00845 • • • {of moving parts with respect to each other}
- A61B 2017/00849 • • • {with respect to tissue, e.g. hollow organs}
- A61B 2017/00853 • • {low friction, hydrophobic and corrosion-resistant fluorocarbon resin coating(ptf, ptfe, polytetrafluoroethylene)}
- A61B 2017/00858 • • {high friction, non-slip(on handles [A61B 2017/00429](#))}
- A61B 2017/00862 • • {elastic or resilient(for sutures [A61B 2017/0618](#))}
- A61B 2017/00867 • • {shape memory effect(for prostheses [A61F 2210/0014](#))}
- A61B 2017/00871 • • • ~~polymeric~~{~~polymeric~~}
- A61B 2017/00876 • • ~~magnetic~~{~~magnetic~~}
- A61B 2017/0088 • • ~~ceramic~~{~~ceramic~~}
- A61B 2017/00884 • • {enhancing wound closure}
- A61B 2017/00889 • • {antimicrobial, disinfectant}
- A61B 2017/00893 • • {pharmaceutically effective}
- A61B 2017/00898 • • {expandable upon contact with fluid}
- A61B 2017/00902 • • {transparent or translucent}
- A61B 2017/00907 • • • {for light}
- A61B 2017/00911 • • • {for fields applied by a magnetic resonance imaging system}
- A61B 2017/00915 • • • {for radioactive radiation}

A61B 2017/0092	• • • {for X-rays}
A61B 2017/00924	• • • {for ultrasonic waves}
A61B 2017/00929	• • {isolating electrical current}
A61B 2017/00933	• • {bone or bone-like}
A61B 2017/00938	• • hydrophobic{hydrophobic}
A61B 2017/00942	• • hydrophilic{hydrophilic}
A61B 2017/00946	• • malleable{malleable}
A61B 2017/00951	• • adhesive{adhesive}
A61B 2017/00955	• • thermoplastic{thermoplastic}
A61B 2017/0096	• • {self cleaning, e.g. having lotus effect}
A61B 2017/00964	• • composite{composite}
A61B 2017/00969	• {used for transplantation}
A61B 2017/00973	• {pedal-operated}
A61B 2017/00977	• • {the depression depth determining the power rate}
A61B 2017/00982	• {General structural features}
A61B 2017/00986	• • {Malecots, e.g. slotted tubes, of which the distal end is pulled to deflect side struts}
A61B 2017/00991	• • {Telescopic means}
A61B 2017/00995	• • {having a thin film}
U A61B 17/02	• for holding wounds open; Tractors({ specula A61B 1/32 } ; drainage appliances for wounds A61M 27/00)
A61B 2017/0212	• • {Cushions or pads, without holding arms, as tissue retainers, e.g. for retracting viscera}
U A61B 17/0218	• • {for minimally invasive surgery(A61B 17/0218 , A61B 17/0281 , A61B 17/0469 , A61B 17/12013 , A61B 17/1285 , A61B 17/29 , A61B 17/320016 take precedence)}
A61B 2017/0225	• • • {flexible, e.g. fabrics, meshes, or membranes}
A61B 2017/0237	• • {for heart surgery(endoscopic heart surgery A61B 2017/00243 ; endoscopic access devices, i.e. trocars, A61B 17/34)}
A61B 2017/0243	• • • {for immobilizing local areas of the heart, e.g. while it beats(trocars attached to inner organs or inner body tissue A61B 2017/3488)}
U A61B 17/025	• • {Joint distractors}
A61B 2017/0256	• • • {for the spine}
A61B 2017/0262	• • • • {with a provision for protecting nerves}
A61B 2017/0268	• • • {for the knee}
A61B 2017/0275	• • • {for the hip}
A61B 2017/0287	• • {with elastic retracting members connectable to a frame, e.g. hooked elastic wires}
U A61B 17/04	• for suturing wounds; Holders or packages for needles or suture materials(suture materials A61L 17/00)
A61B 17/0401	• • {Suture anchors, buttons or pledgets, i.e. means for attaching sutures to bone, cartilage or soft tissue; Instruments for applying or removing suture anchors(A61B 17/0642 takes precedence; fixation devices for tendons or ligaments A61F2/08B6A61F2/0811)}
A61B 2017/0403	• • • {Dowels(other bone dowels 17:68; dowels for connecting prosthetic parts A61F 2002/30436)}
A61B 2017/0404	• • • Buttons{Buttons}

- A61B 2017/0406 . . . **Pledgets**{*Pledgets*}
- A61B 2017/0408 . . . {Rivets(other bone rivets 17:68; rivets for connecting prosthetic parts **K61F2/00T7R**)}
- A61B 2017/0409 . . . {Instruments for applying suture anchors(for applying suture clamps, clips or locks [A61B 2017/0488](#))}
- A61B 2017/0411 . . . {Instruments for removing suture anchors(for removing suture clamps, clips or locks [A61B 2017/049](#))}
- A61B 2017/0412 . . . {having anchoring barbs or pins extending outwardly from suture anchor body}
- A61B 2017/0414 . . . {having a suture-receiving opening, e.g. lateral opening(lateral eyelet for attaching suture to needle [A61B 2017/06019](#))}
- A61B 2017/0416 . . . {Packages or dispensers for suture anchors or for anchor applicators}
- A61B 2017/0417 . . . {T-fasteners}
- A61B 2017/0419 . . . {H-fasteners}
- A61B 2017/042 . . . {plastically deformed during insertion}
- A61B 2017/0422 {by insertion of a separate member into the body of the anchor}
- A61B 2017/0424 {the separate member staying in the anchor after placement}
- A61B 2017/0425 {the anchor or the separate member comprising threads, e.g. a set screw in the anchor}
- A61B 2017/0427 . . . {having anchoring barbs or pins extending outwardly from the anchor body}
- A61B 2017/0429 {the barbs being expanded by a mechanical mechanism which also locks them in the expanded state}
- A61B 2017/043 {by insertion of a separate spreading member into the anchor}
- A61B 2017/0432 {the separate member staying in the anchor after placement}
- A61B 2017/0433 {the anchor or the separate member comprising threads, e.g. a set screw or a worm gear for moving spreading members}
- A61B 2017/0435 {the barbs being separate elements mechanically linked to the anchor, e.g. by pivots}
- A61B 2017/0437 {the barbs being resilient or spring-like}
- A61B 2017/0438 {slotted, i.e. having a longitudinal slot for enhancing their elasticity}
- A61B 2017/044 . . . {with a threaded shaft, e.g. screws}
- A61B 2017/0441 {the shaft being a rigid coil or spiral}
- A61B 2017/0443 {the shaft being resilient and having a coiled or helical shape in the released state}
- A61B 2017/0445 . . . {cannulated, e.g. with a longitudinal through-hole for passage of an instrument}
- A61B 2017/0446 . . . {Means for attaching and blocking the suture in the suture anchor}
- A61B 2017/0448 {Additional elements on or within the anchor}
- A61B 2017/045 {snug fit within the anchor}
- A61B 2017/0451 {Cams or wedges holding the suture by friction}
- A61B 2017/0453 {threaded elements, e.g. set screws}
- A61B 2017/0454 {the anchor being crimped or clamped on the suture}
- A61B 2017/0456 {Surface features on the anchor, e.g. ribs increasing friction between the suture and the anchor}
- A61B 2017/0458 {Longitudinal through hole, e.g. suture blocked by a distal suture kno}
- A61B 2017/0459 {Multiple holes in the anchor through which the suture extends and locking the suture when tension is applied}

- A61B 2017/0461 . . . {with features cooperating with special features on the suture, e.g. protrusions on the suture}
- A61B 2017/0462 {One way system, i.e. also tensioning the suture}
- A61B 2017/0464 . . . {for soft tissue}
- U A61B 17/0469 . . {Suturing instruments for use in minimally invasive surgery, e.g. endoscopic surgery}
- A61B 2017/047 . . . {having at least one proximally pointing needle located at the distal end of the instrument, e.g. for suturing trocar puncture wounds starting from inside the body(J-shaped suture needles [A61B 2017/0608](#))}
- A61B 2017/0472 . . . {Multiple-needled, e.g. double-needled, instruments}
- A61B 2017/0474 . . . {Knot pushers}
- A61B 2017/0475 . . . {using sutures having a slip knot}
- A61B 2017/0477 . . . {with pre-tied sutures}
- A61B 2017/0479 . . . {Packages or dispensers for MIS suturing instruments}
- A61B 2017/048 . . . {for reducing heart wall tension, e.g. sutures with a pad on each extremity}
- U A61B 17/0487 . . {Suture clamps, clips or locks, e.g. for replacing suture knots; Instruments for applying or removing suture clamps, clips or locks(suture anchors [A61B 17/0401](#) ; wound clamps or clips [A61B 17/08](#) ; ligaturing clamps or clips [A61B 17/122](#))}
- A61B 2017/0488 . . . {Instruments for applying suture clamps, clips or locks(for applying suture anchors [A61B 2017/0409](#) ; for applying wound clamps [A61B 17/10](#) ; for applying ligaturing clamps or clips [A61B 17/128](#))}
- A61B 2017/049 . . . {Instruments for removing suture clamps, clips or locks(for removing suture anchors [A61B 2017/0411](#) ; for removing wound clamps [A61B 17/10](#) ; for removing ligaturing clamps or clips [A61B 17/128](#))}
- A61B 2017/0495 . . {Reinforcements for suture lines}
- A61B 2017/0496 . . {for tensioning sutures}
- A61B 2017/0498 . . {for advancing a suture filament along a helical path through tissue}
- U A61B 17/06 . . . {Needles;{Sutures; Needle-suture combinations}; Holders or packages for needles or suture materials(puncturing needles [A61B 17/34](#) ; nerve needles [A61C 5/02](#) ; hypodermic needles [A61M 5/32](#) ; { sewing needles [D05B 85/00](#))}
- U A61B 17/06004 . . . {Means for attaching suture to needle(tipping [A61B 17/06195](#) ; connecting wire to other metallic objects [B21F 15/00](#))}
- A61B 2017/06009 {having additional means for releasably clamping the suture to the needle, e.g. actuating rod slideable within the needle}
- A61B 2017/06014 {spring-loaded}
- A61B 2017/06019 {by means of a suture-receiving lateral eyelet machined in the needle(lateral opening for attaching suture to suture anchor [A61B 2017/0414](#))}
- A61B 2017/06023 {Multiple eyelets}
- A61B 2017/06028 {by means of a cylindrical longitudinal blind bore machined at the suture-receiving end of the needle, e.g. opposite to needle tip}
- A61B 2017/06033 {using adhesives(glue applicators [A61B 17/00491](#) ; for connecting prosthetic parts [A61F 2002/30448](#))}
- A61B 2017/06038 {soldered or brazed or welded(for connecting prosthetic parts [K61F2/00T9](#))}
- A61B 2017/06042 {located close to needle tip}
- A61B 2017/06047 {located at the middle of the needle}

- A61B 2017/06052 . . . {Needle-suture combinations in which a suture is extending inside a hollow tubular needle, e.g. over the entire length of the needle(hollow suture needles [A61B 2017/061](#))}
- A61B 2017/06057 . . . {Double-armed sutures, i.e. sutures having a needle attached to each end}
- U A61B 17/06066 . . . {Needles, e.g. needle tip configurations(making needles [B21G 1/00](#))}
- A61B 2017/06071 . . . {with an abrupt angle formed between two adjacent sections}
- A61B 2017/06076 . . . {helically or spirally coiled(for sutures [A61B 2017/06171](#))}
- A61B 2017/0608 . . . {J-shaped}
- A61B 2017/06085 . . . {having a blunt tip(blunt dissectors [A61B 2017/320044](#))}
- A61B 2017/0609 . . . {having sharp tips at both ends, e.g. shuttle needle alternately retained and released by first and second facing jaws of a suturing instrument(MIS suturing instruments [A61B 17/0469](#) ; jaws of MIS forceps [A61B 2017/2926](#))}
- A61B 2017/06095 . . . ~~pliable~~{~~pliable~~}
- A61B 2017/061 . . . {hollow or tubular(suture extending inside a hollow needle [A61B 2017/06052](#) ; hollow sutures [A61B 2017/06185](#))}
- A61B 2017/06104 . . . {interconnected at their distal ends, e.g. two hollow needles forming a loop for passing a suture}
- U A61B 17/06114 . . . {Packages or dispensers for needles or sutures(packages for sharps [A61B 19/0262](#) ; for dental floss [A61C 15/043](#) ; packages for needles in general [B65D 85/24](#))}
- A61B 2017/06142 . . . {having needle- or suture- retaining members, e.g. holding tabs or needle parks}
- A61B 2017/06147 {Foam blocks, e.g. slitted}
- A61B 2017/06152 . . . {containing a suture wound in a figure-8 configuration}
- A61B 2017/06157 . . . {containing a suture wound in a sinusoidal or zigzag configuration}
- U A61B 17/06166 . . . {Sutures(suture materials [A61L 17/00](#) ; manufacture of artificial threads [D01D](#) ; treatment of threads [D06M](#))}
- A61B 2017/06171 . . . {helically or spirally coiled(for needles [A61B 2017/06076](#))}
- A61B 2017/06176 . . . {with protrusions, e.g. barbs}
- A61B 2017/0618 . . . {elastic, e.g. stretchable(for prostheses [A61F 2210/0057](#))}
- A61B 2017/06185 . . . {hollow or tubular(hollow suture needles [A61B 2017/061](#))}
- A61B 2017/0619 . . . {thermoplastic, e.g. for bonding, welding, fusing or cutting the suture by melting it(suture cutters [A61B 17/0467](#) ; ultrasonic cutters [A61B 17/320068](#) ; electrically heated instruments [A61B 2018/08](#)~~[A61B 2018/08](#)~~)}
- U A61B 17/064 . Surgical staples,{i.e. penetrating the tissue}
- A61B 2017/0641 . . {having at least three legs as part of one single body}
- A61B 2017/0645 . . {being elastically deformed for insertion}
- A61B 2017/0646 . . {for insertion into cartilage, e.g. meniscus}
- A61B 2017/0647 . . {having one single leg, e.g. tacks}
- A61B 2017/0648 . . {threaded, e.g. tacks with a screw thread}
- A61B 2017/0649 . . {Coils or spirals}
- U A61B 17/068 . {Surgical staplers, e.g. containing multiple staples or clamps}(staplers containing only one staple [A61B 17/10](#) ; magazines or containers for staples [A61B 17/105](#) ; for performing anastomosis [A61B 17/115](#) ; { staplers in general [B25C 5/00](#))}
- A61B 2017/0688 . . {Packages or dispensers for surgical staplers}

- U A61B 17/072
 - • for applying a row of staples in a single action, [e.g. the staples being applied simultaneously]
- A61B 2017/07214
 - • • {Stapler heads}
- A61B 2017/07221
 - • • ~~curved~~{curved}
- A61B 2017/07228
 - • • {Arrangement of the staples}
- A61B 2017/07235
 - • • {containing different staples, e.g. staples of different shapes, sizes or materials}
- A61B 2017/07242
 - • • {achieving different staple heights during the same shot, e.g. using an anvil anvil having different heights or staples of different sizes}
- A61B 2017/0725
 - • • {with settable gap between anvil and cartridge, e.g. for different staple heights at different shots}
- A61B 2017/07257
 - • • {characterised by its anvil}
- A61B 2017/07264
 - • • • {characterised by its staple forming cavities, e.g. geometry or material}
- A61B 2017/07271
 - • • {characterised by its cartridge}
- A61B 2017/07278
 - • • {characterised by its sled or its staple holder}
- A61B 2017/07285
 - • • {characterised by its cutter}
- U A61B 17/08
 - Wound clamps(or clips, i.e. not or only partly penetrating the tissue(suture bridges [A61B 17/0466](#)); Devices for bringing together the edges of a wound)
- A61B 2017/081
 - • {Tissue approximator([A61B 2017/1103](#) , [A61B 17/8866](#) take precedence)}
- U A61B 17/085
 - • {with adhesive layer}
- A61B 2017/086
 - • • {having flexible threads, filaments, laces or wires, e.g. parallel threads, extending laterally from a strip, e.g. for tying to opposing threads extending from a similar strip}
- A61B 2017/088
 - • {Sliding fasteners}
- U A61B 17/11
 - for performing anastomosis; Buttons for anastomosis
- A61B 2017/1103
 - • ~~Approximator~~{Approximator}
- A61B 2017/1107
 - • {for blood vessels}
- A61B 2017/111
 - • {with means for removing a constriction after performing anastomosis}
- U A61B 17/1114
 - • {of the digestive tract, e.g. bowels or oesophagus}
- A61B 2017/1117
 - • • {adapted for discharge after necrotisation, e.g. by evacuation, expulsion or excretion}
- A61B 2017/1121
 - • {adapted for performing tissue or graft eversion}
- A61B 2017/1125
 - • {Forceps, specially adapted for performing or assisting anastomosis}
- A61B 2017/1132
 - • {End-to-end connections}
- A61B 2017/1135
 - • {End-to-side connections, e.g. T- or Y-connections(Y-shaped blood vessel prostheses [A61F 2002/065](#))}
- A61B 2017/1139
 - • {Side-to-side connections, e.g. shunt or X-connections}
- A61B 2017/1142
 - • {Purse-string sutures}
- U A61B 17/115
 - • Staplers{for performing anastomosis in a single operation}
- A61B 2017/1157
 - • • {applying the staples radially}
- U A61B 17/12
 - for ligaturing or otherwise compressing tubular parts of the body, e.g. blood vessels, umbilical cord(specially adapted for vas deferens or fallopian tubes [A61F 6/20](#) ; materials for ligaturing blood vessels [A61L 17/00](#))
- A61B 2017/12004
 - • {for haemostasis, for prevention of bleeding}
- U A61B 17/12009
 - • {Implements for ligaturing other than by clamps or clips, e.g. using a loop with a slip knot}
- A61B 2017/12018
 - • • {Elastic band ligators}

- U A61B 17/12022
 - • {Occluding by internal devices, e.g. balloons or releasable wires(plugging an opening in the wall of an organ [A61B 17/0057](#) ; occluders for the cervical canal [A61F 6/146](#) ; vas deferens occluders [A61F 6/20](#))}
- A61B 2017/1205
 - • • {Introduction devices}
- A61B 2017/12054
 - • • • {Details concerning the detachment of the occluding device from the introduction device}
- A61B 2017/12059
 - • • • • {Joint of soluble material}
- A61B 2017/12063
 - • • • • {electrolytically detachable}
- A61B 2017/12068
 - • • • • {detachable by heat}
- A61B 2017/12072
 - • • • • • {the heat created by laser light}
- A61B 2017/12077
 - • • • • • {Joint changing shape upon application of heat, e.g. bi-metal or reversible thermal memory}
- A61B 2017/12081
 - • • • • {detachable by inflation}
- A61B 2017/12086
 - • • • • {magnetically detachable}
- A61B 2017/1209
 - • • • • {detachable by electrical current or potential, e.g. electroactive polymer}
- A61B 2017/12095
 - • • • • {Threaded connection}
- A61B 2017/12127
 - • • {Double occlusion, e.g. for creating blood-free anastomosis site}
- U A61B 17/122
 - • Clamps or clips,{e.g. for the umbilical cord(for the vas deferens [A61F 6/206](#))}
- A61B 2017/1225
 - • • {for clipping and cutting in a single operation}
- U A61B 17/14
 - Surgical saws({ [A61B 17/1637](#) takes precedence } ; tooth saws [A61C 3/12](#) ; { saws for jaw bone [A61C 8/0089](#) } ; cast-cutting saws [A61F 15/02](#)); {Accessories therefor}

WARNING

New subgroups of [A61B 17/14](#) are not complete, pending a reorganisation. See provisionally also group [A61B 17/14](#)
- A61B 2017/143
 - • {Chain saws}
- A61B 2017/145
 - • {Wire or band saws}
- A61B 2017/146
 - • {Circular saw}
- U A61B 17/16
 - {Bone cutting, breaking or removal means other than saws, e.g.}Osteoclasts; Drills or chisels for bones; Trepan{{(arthroscopic bone cutters [A61B 17/320016](#) ; dental implant drills potentially for other surgical use [A61C 8/0089](#) ; bone grinders [A61F 2/4644](#) , [A22C 17/06](#) ; [A61B 17/1662](#) takes precedence over all other subgroups except [A61B 17/17](#))}

WARNING

New groups [A61B 17/1679](#) , [A61B 17/1682](#) , [A61B 17/1684](#) , [A61B 17/1686](#) , [A61B 17/1688](#) , [A61B 17/1691](#) and [A61B 17/1693](#) are not complete, pending a reorganisation. See provisionally also group [A61B 17/16](#) and subgroups
- A61B 2017/1602
 - • ~~Mills~~{Mills}
- U A61B 17/1644
 - • {using fluid other than turbine drive fluid}
- A61B 2017/1648
 - • • {as cutting jet}
- A61B 2017/1651
 - • • {for cooling}
- A61B 2017/1653
 - • • {for lubrication}
- U A61B 17/17
 - • Guides{or aligning means}for drills,{mills, pins or wires}
- A61B 17/1714
 - • • {for applying tendons or ligaments(implements for applying tendons or ligaments ~~A61F2/08B4~~[A61F 2/0805](#))}

- U A61B 17/1739
 - • • {specially designed for particular parts of the body([A61B 17/1703](#) takes precedence)}
- A61B 2017/1771
 - • • • {for the ear}
- A61B 2017/1775
 - • • • {for the foot or ankle}
- A61B 2017/1778
 - • • • {for the shoulder}
- A61B 2017/1782
 - • • • {for the hand or wrist}
- A61B 2017/1785
 - • • • {for the sinus or nose}
- A61B 2017/1789
 - • • • {for the sternum}
- A61B 2017/1792
 - • • • {for the ribs}
- U A61B 17/22
 - Implements for squeezing-off ulcers or the like on{the inside of}inner organs of the body; Implements for scraping-out cavities of body organs, e.g. bones; Calculus removers; Calculus smashing apparatus;{Apparatus for removing obstructions in blood vessels, not otherwise provided for(dilators [A61M 29/00](#))}
- A61B 2017/22001
 - • {Angioplasty, e.g. PCTA}
- A61B 2017/22002
 - • • {preventing restenosis}
- U A61B 17/22004
 - • {using mechanical vibrations, e.g. ultrasonic shock waves([A61B 17/225](#) takes precedence)}
- A61B 2017/22005
 - • • {Effects, e.g. on tissue}
- A61B 2017/22007
 - • • • {Cavitation or pseudocavitation, i.e. creation of gas bubbles generating a secondary shock wave when collapsing}
- A61B 2017/22008
 - • • • • {used or promoted}
- A61B 2017/22009
 - • • • • {reduced or prevented}
- A61B 2017/22011
 - • • • {Combined types of vibration, e.g. ultrasonic and electrohydraulic}
- U A61B 17/22012
 - • • {in direct contact with, or very close to, the obstruction or concrement(for removing obstructions in blood vessels by laser [A61B 18/245](#))}
- A61B 2017/22014
 - • • • {the ultrasound transducer being outside patient's body; with an ultrasound transmission member; with a wave guide; with a vibrated guide wire(not applied in ~~A61B 17/22B2~~ **A61B17/22B2**)}
- A61B 2017/22015
 - • • • • {with details of the transmission member}
- A61B 2017/22017
 - • • • • • {the ultrasonic transmitting members being fibres}
- A61B 2017/22018
 - • • • • • {segmented along its length}
- U A61B 17/2202
 - • • • {the ultrasound transducer being inside patient's body at the distal end of the catheter}
- A61B 2017/22021
 - • • • • {electric leads passing through the catheter}
- A61B 2017/22024
 - • • • {with a part reflecting mechanical vibrations, e.g. for focusing}
- A61B 2017/22025
 - • • • {applying a shock wave([A61B 2017/22091](#) takes precedence)}
- A61B 2017/22027
 - • • {Features of transducers}
- A61B 2017/22028
 - • • • {arrays, e.g. phased arrays}
- U A61B 17/22031
 - • {Gripping instruments, e.g. forceps, for removing or smashing calculi([A61B 17/221](#) takes precedence)}
- A61B 2017/22034
 - • • {for gripping the obstruction or the tissue part from inside}
- A61B 2017/22035
 - • • {for retrieving or repositioning foreign objects}
- A61B 2017/22037
 - • {Fecal impaction removal}
- A61B 2017/22038
 - • {with a guide wire}
- A61B 2017/22039
 - • • ~~eccentric~~{eccentric}
- A61B 2017/22041
 - • • {outside the catheter}

- A61B 2017/22042 . . . {Details of the tip of the guide wire}
- A61B 2017/22044 {with a pointed tip}
- A61B 2017/22045 . . . {fixed to the catheter; guiding tip}
- A61B 2017/22047 . . . {Means for immobilising the guide wire in the patient}
- A61B 2017/22048 **Balloons**{**Balloons**}
- A61B 2017/22049 . . . {Means for locking the guide wire in the catheter}
- A61B 2017/22051 . . {with an inflatable part, e.g. balloon, for positioning, blocking, or immobilisation([A61B 2017/22048](#) , [A61B 2017/3486](#) take precedence)}
- A61B 2017/22052 . . . **eccentric**{**eccentric**}
- A61B 2017/22054 . . . {with two balloons}
- A61B 2017/22055 . . . {with three or more balloons}
- A61B 2017/22057 . . . {Optical properties}
- A61B 2017/22058 **reflective**{**reflective**}
- A61B 2017/22059 **transparent**{**transparent**}
- A61B 2017/22061 . . . {for spreading elements apart}
- A61B 2017/22062 . . . {to be filled with liquid}
- A61B 2017/22064 {transparent liquid}
- A61B 2017/22065 . . . {Functions of balloons(dilating [A61M 29/02](#))}
- A61B 2017/22067 {Blocking; Occlusion([A61B 2017/22054](#) takes precedence)}
- A61B 2017/22068 **Centering**{**Centering**}
- A61B 2017/22069 {Immobilising; Stabilising}
- A61B 2017/22071 **Steering**{**Steering**}
- A61B 2017/22072 . . {with an instrument channel, e.g. for replacing one instrument by the other(in cannulas [A61B 17/3417](#))}
- A61B 2017/22074 . . . {the instrument being only slidable in a channel, e.g. advancing optical fibre through a channel}
- A61B 2017/22075 {with motorized advancing or retracting means}
- A61B 2017/22077 {with a part piercing the tissue([A61B 2017/22044](#) takes precedence)}
- A61B 2017/22078 . . . {for rotating the instrument within a channel, e.g. an optical fibre}
- A61B 2017/22079 . . {with suction of debris}
- A61B 2017/22081 . . {Treatment of vulnerable plaque}
- A61B 2017/22082 . . {after introduction of a substance}
- A61B 2017/22084 . . . {stone- or thrombus-dissolving}
- A61B 2017/22085 . . . {light-absorbing([A61B 2017/22087](#) takes precedence)}
- A61B 2017/22087 . . . **photodynamic**{**photodynamic**}
- A61B 2017/22088 . . . {ultrasound absorbing, drug activated by ultrasound}
- A61B 2017/22089 . . . {Gas-bubbles}
- A61B 2017/22091 . . . **Explosive**{**Explosive**}
- A61B 2017/22092 . . . **Lubricant**{**Lubricant**}
- A61B 2017/22094 . . {for crossing total occlusions, i.e. piercing}
- A61B 2017/22095 . . . {accessing a blood vessel true lumen from the sub-intimal space}
- A61B 2017/22097 . . {Valve removal in veins}
- A61B 2017/22098 . . {Decalcification of valves}
- U A61B 17/221 . . {Gripping devices in the form of loops or baskets{for gripping calculi or similar types of obstructions(surgical snare instruments [A61B 17/32056](#))}

- A61B 2017/2212 . . . {having a closed distal end, e.g. a loop}
- A61B 2017/2215 . . . {having an open distal end}
- A61B 2017/2217 . . . {single wire changing shape to a gripping configuration}
- U A61B 17/225 . . for extracorporeal shock wave lithotripsy (ESWL), e.g. by using ultrasonic waves
- U A61B 17/2251 . . . {characterised by coupling elements between the apparatus, e.g. shock wave apparatus or locating means, and the patient, e.g. details of bags, pressure control of bag on patient}
- A61B 2017/2253 {using a coupling gel or liquid}
- U A61B 17/24 . . for use in the oral cavity, larynx, bronchial passages or nose(for medical inspection of cavities or tubes in the body [A61B 1/00](#)); Tongue scrapers
- A61B 2017/242 . . {for bronchial passages}
- A61B 2017/246 . . {for cleaning of the nose}
- A61B 2017/248 . . {Operations for treatment of snoring, e.g. uvulopalatoplasty}
- U A61B 17/28 . . Surgical forceps({ for holding suture needles or materials [A61B 17/0483](#) ; for removing or smashing calculi [A61B 17/221](#) ; surgical scissors [A61B 17/3201](#) } ; obstetrical forceps [A61B 17/44](#) ; for inserting intraocular lenses [A61F 2/1662](#) ; hand-held gripping tools in general [B25B 7/00](#)])
- A61B 2017/2808 . . {Clamp, e.g. towel clamp}
- U A61B 17/2812 . . {with a single pivotal connection([A61B 17/29](#) takes precedence)}
- U A61B 17/282 . . . {Jaws}
- A61B 2017/2825 {Inserts of different material in jaws}
- A61B 2017/2829 {with a removable cover}
- U A61B 17/2833 . . . {Locking means}
- A61B 2017/2837 {with a locking ratchet}
- U A61B 17/2841 . . . {Handles}
- A61B 2017/2845 {with a spring pushing the handle back}
- U A61B 17/29 . . Forceps for use in minimally invasive surgery
- A61B 2017/2901 . . . {Details of shaft}
- A61B 2017/2902 {characterized by features of the actuating rod}
- A61B 2017/2903 {transferring rotary motion}
- A61B 2017/2904 {curved, but rigid}
- A61B 2017/2905 flexible{flexible}
- A61B 2017/2906 {Multiple forceps}
- A61B 2017/2908 {Multiple segments connected by articulations}
- U A61B 17/2909 . . . {Handles}
- A61B 2017/291 {the position of the handle being adjustable with respect to the shaft}
- A61B 2017/2911 rings{rings}
- A61B 2017/2912 {transmission of forces to actuating rod or piston}
- A61B 2017/2913 {cams or guiding means}
- A61B 2017/2915 {arcuate shaped guiding means}
- A61B 2017/2916 {pins in guiding slots}
- A61B 2017/2917 {with flexible part}
- A61B 2017/2918 {flexible handles}
- A61B 2017/2919 {details of linkages or pivot points}
- A61B 2017/292 {connection of actuating rod to handle, e.g. ball end in recess}

A61B 2017/2922	. . . . . {toggle linkages}
A61B 2017/2923	. . . . . {Toothed members, e.g. rack and pinion}
A61B 2017/2924	. . . . . {Translation movement of handle without rotating movement}
A61B 2017/2925	. . . . {Pistol grips}
A61B 2017/2926	. . . {Details of heads or jaws}
A61B 2017/2927	. . . . {the angular position of the head being adjustable with respect to the shaft}
A61B 2017/2929	. . . . . {with a head rotatable about the longitudinal axis of the shaft}
A61B 2017/293	. . . . . {with means preventing relative rotation between the shaft and the actuating rod}
A61B 2017/2931	. . . . {with releasable head}
A61B 2017/2932	. . . . {Transmission of forces to jaw members}
A61B 2017/2933	. . . . . {camming or guiding means}
A61B 2017/2934	. . . . . {arcuate shaped guiding means}
A61B 2017/2936	. . . . . {Pins in guiding slots}
A61B 2017/2937	. . . . . {with flexible part}
A61B 2017/2938	. . . . . {Independently actuatable jaw members, e.g. two actuating rods}
A61B 2017/2939	. . . . . {Details of linkages or pivot points}
A61B 2017/294	. . . . . {Connection of actuating rod to jaw, e.g. releasable}
A61B 2017/2941	. . . . . {Toggle linkages}
A61B 2017/2943	. . . . . {Toothed members, e.g. rack and pinion}
A61B 2017/2944	. . . . . {Translation of jaw members}
A61B 2017/2945	. . . . {Curved jaws}
A61B 2017/2946	. . . {Locking means}
A61B 2017/2947	. . . Pivots {Pivots}
A61B 2017/2948	. . . {Sealing means, e.g. for sealing the interior from fluid entry}
U A61B 17/30	. Surgical pincettes{without pivotal connections}({ for holding suture needles or materials A61B 17/0483 } ; wound clamps A61B 17/08 ; { hand-held gripping tools without pivotal connections in general B25B 9/02 })
A61B 2017/301	. . {with three legs}
A61B 2017/303	. . {with four or more legs}
A61B 2017/305	. . {Tweezer like handles with tubular extensions, inner slidable actuating members and distal tools, e.g. microsurgical instruments}
A61B 2017/306	. . {holding by means of suction}
A61B 2017/308	. . . {with suction cups}
U A61B 17/32	. Surgical cutting instruments({ A61B 18/042 takes precedence; suture cutters A61B 17/0467 ; instruments for ligaturing or cutting A61B 17/128 ; instruments for rupturing the amniotic membrane A61B 17/4208 ; specially adapted knives for eye surgery A61F 9/0133 })
A61B 2017/320004	. . abrasive {abrasive}
A61B 2017/320008	. . . Scrapers {Scrapers}
A61B 2017/320012	. . . Brushes {Brushes}
U A61B 17/320016	. . {Endoscopic cutting instruments e.g. arthroscopes, resectoscopes(A61B 10/0233 , A61B 17/29 , A61B 17/3207 take precedence)}
U A61B 17/32002	. . . {with continuously rotating, oscillating or reciprocating cutting instruments}
A61B 2017/320024	. . . . {Morcellators, e.g. having a hollow cutting tube with an annular cutter for morcellating and removing tissue}

- A61B 2017/320028 {with reciprocating movements}
- A61B 2017/320032 {Details of the rotating or oscillating shaft, e.g. using a flexible shaft}
- A61B 2017/32004 {having a laterally movable cutting member at its most distal end which remains within the contours of said end}
- A61B 2017/320044 . . {Blunt dissectors(blunt suture needles [A61B 2017/06085](#))}
- A61B 2017/320048 . . . {Balloon dissectors}
- A61B 2017/320052 . . {Guides for cutting instruments(by marking [A61B 2019/545](#))}
- A61B 2017/320056 . . Tunnelers{Tunnelers}
- A61B 2017/32006 . . {with a cutting strip, band or chain, e.g. like a chainsaw}
- A61B 2017/320064 . . {with tissue or sample retaining means}
- U A61B 17/320068 . . {using mechanical vibrations, e.g. ultrasonic([A61B 17/22012](#) , [A61C 3/03](#) and [A61F 9/00745](#) take precedence)}
- A61B 2017/320072 . . . {Working tips with special features, e.g. extending parts}
- A61B 2017/320076 {Tissue manipulating surface}
- A61B 2017/32008 {preventing clogging of suction channel}
- A61B 2017/320084 . . . {Irrigation sleeves}
- A61B 2017/320088 . . . {with acoustic insulation, e.g. elements for damping vibrations between horn and surrounding sheath}
- A61B 2017/320096 . . . {with transverse or torsional motion}
- U A61B 17/3203 . . Fluid jet cutting instruments
- A61B 2017/32032 . . . {using cavitation of the fluid}
- A61B 2017/32035 . . . {with gas or air}
- U A61B 17/3205 . . Excision instruments
- A61B 17/32056 . . . {Surgical snare instruments(for removing or smashing calculi ~~A61B17/221W~~[A61B 2017/2212](#) ; tonsillotomes [A61B 17/26](#))}
- U A61B 17/3207 . . . Atherectomy devices{working by cutting or abrading; Similar devices specially adapted for non-vascular obstructions([A61B 17/32037](#) takes precedence; endoscopic cutting instruments [A61B 17/320016](#))}
- A61B 2017/320716 {comprising means for preventing embolism by dislodged material}
- A61B 2017/320733 {with a flexible cutting or scraping element, e.g. with a whip-like distal filament member}
- A61B 2017/320741 {for stripping the intima or the internal plaque from a blood vessel, e.g. for endarterectomy}
- U A61B 17/320758 {with a rotating cutting instrument, e.g. motor driven([A61B 17/320725](#) , [A61B 17/32075](#) and [A61B 17/320783](#) take precedence; for removing intra-ocular material [A61F 9/00763](#) ; endoscopic rotatable cutting instruments [A61B 17/32002](#))}
- A61B 2017/320766 eccentric{eccentric}
- A61B 2017/320775 {Morcellators, impeller or propeller like means}
- U A61B 17/320783 {through side-hole, e.g. sliding or rotating cutter inside catheter}
- A61B 2017/320791 {with cutter extending outside the cutting window}
- U A61B 17/3209 . . Incision instruments
- A61B 2017/32096 . . . {for slowly cutting through tissue, e.g stent like temporary implants having sharp edges}
- U A61B 17/3211 . . Surgical scalpels, knives; Accessories therefor
- A61B 2017/32113 {with extendable or retractable guard or blade}

- A61B 2017/32116
 - • • {with means for improving the rigidity of the blade, e.g. with a reinforcing rib}
- U A61B 17/322
 - • Skin grafting apparatus
- A61B 2017/3225
 - • • {with processing of harvested tissue}
- U A61B 17/34
 - Trocars; Puncturing needles((pointed biopsy instruments [A61B 10/0233](#) ; devices for piercing the ear-lobes [A44C 7/001](#) ; seals or hemostasis valves [A61M 39/06](#)) }
- U A61B 17/3403
 - • {Needle locating or guiding means(guides for suture needles [A61B 17/0482](#) ; guiding or tracking by nuclear magnetic resonance [G01R 33/285](#)) }
- A61B 2017/3405
 - • • {using mechanical guide means}
- A61B 2017/3407
 - • • • {including a base for support on the body}
- A61B 2017/3409
 - • • • {including needle or instrument drives}
- A61B 2017/3411
 - • • • {with a plurality of holes, e.g. holes in matrix arrangement}
- A61B 2017/3413
 - • • {guided by ultrasound}
- U A61B 17/3417
 - • {Details of tips or shafts, e.g. grooves, expandable, bendable; Multiple coaxial sliding cannulas, e.g. for dilating(syringe needles [A61M 5/32](#) ; dilators [A61M 29/00](#)) }
- A61B 2017/3419
 - • • {Sealing means between cannula and body}
- U A61B 17/3421
 - • • {Cannulas}
- U A61B 17/3423
 - • • • {Access ports, e.g. toroid shape introducers for instruments or hands(access sites for liquids [A61M1/00S](#)) }
- A61B 2017/3425
 - • • • • {for internal organs, e.g. heart ports}
- A61B 2017/3427
 - • • • • {for intercostal space}
- A61B 2017/3429
 - • • • • {having a unitary compressible body, e.g made of silicone or foam}
- A61B 2017/3433
 - • • • {with different outer diameters of the cannula}
- A61B 2017/3435
 - • • • {using everted sleeves}
- A61B 2017/3437
 - • • • {with means for removing or absorbing fluid e.g. wicks or absorbent pads}
- U A61B 17/3439
 - • • • {with means for changing the inner diameter of the cannula, e.g. expandable([A61B 17/3423](#) , [A61B 17/3431](#) take precedence; catheters [A61M 25/0662](#)) }
- A61B 2017/3441
 - • • • • {with distal sealing means}
- A61B 2017/3443
 - • • • {with means for adjusting the length of a cannula}
- A61B 2017/3445
 - • • • {used as instrument channel for multiple instruments(catheters [A61B 2017/22072](#)) }
- A61B 2017/3447
 - • • • • {Linked multiple cannulas}
- A61B 2017/3449
 - • • • • {whereby the instrument channels merge into one single channel}
- A61B 2017/345
 - • • • {for introduction into a natural body opening}
- A61B 2017/3452
 - • • • • {for the rectum, e.g. for hemorrhoid surgery}
- A61B 2017/3454
 - • • {Details of tips}
- A61B 2017/3456
 - • • • blunt{blunt}
- A61B 2017/3458
 - • • • threaded{threaded}
- A61B 2017/346
 - • • • {with wings}
- U A61B 17/3462
 - • {with means for changing the diameter or the orientation of the entrance port of the cannula, e.g. for use with different-sized instruments, reduction ports, adapter seals(expandable cannulas [A61B 17/3417](#)) }
- A61B 2017/3464
 - • • {with means acting on inner surface of valve or seal for expanding or protecting, e.g. inner pivoting fingers}

- A61B 2017/3466 . . . {for simultaneous sealing of multiple instruments}
 - A61B 2017/347 . . {Locking means, e.g. for locking instrument in cannula}
 - A61B 2017/348 . . {Means for supporting the trocar against the body or retaining the trocar inside the body}
 - A61B 2017/3482 . . . inside{inside}
 - A61B 2017/3484 {Anchoring means, e.g. spreading-out umbrella-like structure}
 - A61B 2017/3486 Balloon{Balloon}
 - A61B 2017/3488 {Fixation to inner organ or inner body tissue}
 - A61B 2017/349 {Trocar with thread on outside}
 - A61B 2017/3492 . . . {against the outside of the body}
 - U A61B 17/42 . Gynaecological or obstetrical instruments or methods({ ligaturing clamps or clips for the umbilical cord [A61B 17/122](#) ; curettage [A61B 17/3207](#) } ; dilators [A61M 29/00](#))
 - A61B 2017/4216 . . {Operations on uterus, e.g. endometrium}
 - A61B 2017/4225 . . . {Cervix uteri}
 - A61B 2017/4233 . . {Operations on Fallopian tubes, e.g. sterilization([A61B 2017/1125](#) takes precedence)}
 - U A61B 17/44 . . Obstetrical forceps
 - A61B 2017/445 . . . {with force indication}
 - A61B 2017/447 . . . {with force limitation}
 - U A61B 17/50 . Instruments, other than pincettes or toothpicks, for removing foreign bodies from the human body(locating otherwise [A61B 5/06](#) ; locating by radiation [A61B 6/00](#) ; { removing calculi [A61B 17/22](#) ; from the eyes [A61F 9/00709](#) })
 - A61B 2017/505 . . {Parasite, e.g. tick, removers}
 - U A61B 17/56 . Surgical instruments or methods for treatment of bones or joints; Devices specially adapted therefor({ orthopaedic methods or devices for non-surgical treatment of bones or joints [A61F 5/00](#) })
- NOTE**
1. Documents concerning exclusively surgical methods are classified only in this group.
 2. Surgical instruments or devices are classified only in the relevant subgroups
- A61B 2017/561 . . {Implants with special means for releasing a drug}
 - A61B 2017/564 . . {Methods for bone or joint treatment}
 - A61B 2017/565 . . . {for surgical correction of axial deviation, e.g. hallux valgus or genu valgus}
 - A61B 2017/567 . . {Joint mechanisms or joint supports in addition to the natural joints and outside the joint gaps}
 - A61B 2017/568 . . {produced with shape and dimensions specific for an individual patient}
 - U A61B 17/58 . . for osteosynthesis, e.g. bone plates, screws,{setting implements}or the like([A61B 17/14](#) , [A61B 17/16](#) take precedence; { splints [A61B 5/01](#) ; traction bandages [A61F 13/10](#) })
 - U A61B 17/60 . . . for external osteosynthesis, e.g. distractors, contractors
 - A61B 2017/603 {with three points of contact, e.g. tripod}
 - A61B 2017/606 {with resilient spring element}

- U A61B 17/68
- Internal fixation devices,{including fasteners and spinal fixators, even if a part thereof projects from the skin(bone staples [A61B 17/0642](#) ; dental regeneration membranes [A61C 8/0006](#))}
- WARNING
Subgroups [A61B 17/686](#) and [A61B 17/688](#) are not complete pending a reorganisation. See also [A61B 17/68](#) , [A61B 17/683](#) and [A61B 17/86](#)
- A61B 2017/681
- {Alignment, compression, or distraction mechanisms}
- U A61B 17/70
- Spinal positioners or stabilisers,{Bone stabilisers comprising fluid filler in an implant}
- A61B 17/7056
- {Hooks with specially-designed bone-contacting part}
- WARNING
Not complete, see also [A61B 17/70](#) ~~A61B17/70B~~ , [A61B 17/7032](#) and [A61B 17/7035](#)
- A61B 2017/7073
- {with intervertebral connecting element crossing an imaginary spinal median surface}
- U A61B 17/7094
- {Solid vertebral fillers; devices for inserting such fillers}
- A61B 17/7095
- {the filler comprising unlinked macroscopic particles}
- WARNING
This group is not complete pending a reorganisation; see also group ~~A61B 17/70~~ ~~U~~ ~~A61B17/70U~~
- U A61B 17/80
- Cortical plates{i.e. bone plates; Instruments for holding or positioning cortical plates, or for compressing bone attached to them([A61B 17/70](#) takes precedence)}
- A61B 17/8095
- {Osteotomy wedges} [WARNING: incomplete see [A61B 17/809](#)]
- WARNING
incomplete see ~~A61B 17/80~~ ~~S~~ ~~A61B17/80S~~
- U A61B 17/84
- Fasteners therefor{or fasteners being internal fixation devices}
- A61B 17/86
- {Threaded wires}, pins or screws; {Nuts therefor([A61B 17/72](#) , [A61B 17/74](#) , [A61F 2/4455](#) take precedence)}
- WARNING
Subgroups [A61B 17/861](#) , ~~A61B 17/86~~ ~~HA61B17/86H~~ , ~~A61B 17/86~~ ~~NA61B17/86N~~ , [A61B 17/869](#) and [A61B 17/8695](#) are not complete pending a reorganisation. See also [A61B 17/68](#) , [A61B 17/86](#) , [A61B 17/8605](#) and [A61B 19/026](#)
- A61B 2017/8655
- {with special features for locking in the bone}
- U A61B 17/8665
- {Nuts}
- A61B 2017/867
- {with integral locking or clamping means}
- A61B 2017/8675
- {clamping effect due to tapering, e.g. conical thread}
- A61B 2017/868
- {self-locking due to part of nut being deformed upon tightening}
- U A61B 17/88
- {Osteosynthesis instruments;}Methods or means for implanting or extracting internal{or external}fixation devices
- U A61B 17/8802
- {Equipment for handling bone cement or other fluid fillers(plugs or restrictors for bone cement [A61F 2/30723](#))}
- U A61B 17/8805
- {for introducing fluid filler into bone or extracting it([A61B 17/7097](#) , [A61B 17/8833](#) take precedence; for introducing bone graft [A61F 2/4601](#))}

	A61B 2017/8813	• • • • • {Discharging means for excessively introduced fluid fillers, e.g. discharging excess cement}
	A61B 2017/883	• • • • • {Means for indicating hardening of bone cement}
U	A61B 17/8833	• • • • • {Tools for preparing, e.g. curing, cement or other fluid fillers(B01F takes precedence); Means for supplying cement or other fluid fillers to an introducing tool, e.g. cartridge handling means}
	A61B 2017/8838	• • • • • {for mixing, with or without means for supplying the mixed filler to an injecting tool}
	A61B 2017/8844	• • • • • {Means for determining the viscosity of bone cement}
	A61B 2017/90	• • • • {Guides therefor}
U	A61B 17/92	• • • • Impactors or extractors, e.g. for removing intramedullary devices((insertion or extraction of artificial joints A61F 2/4603))
	A61B 2017/922	• • • • • {Devices for impaction, impact element}
	A61B 2017/924	• • • • • {Impact element driving means}
	A61B 2017/925	• • • • • • {a spring}
	A61B 2017/927	• • • • • {Returning means}
	A61B 2017/928	• • • • • • {a spring}
U	A61B 18/00	Surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body(eye surgery A61F 9/007 ; ear surgery A61F 11/00)
	A61B 2018/00005	• {Cooling or heating of the probe or tissue immediately surrounding the probe}
	A61B 2018/00011	• • {with fluids}
	A61B 2018/00017	• • • {with gas}
	A61B 2018/00023	• • • {closed, i.e. without wound contact by the fluid}
	A61B 2018/00029	• • • open {open}
	A61B 2018/00035	• • • • {with return means}
	A61B 2018/00041	• • {Heating, e.g. defrosting}
	A61B 2018/00047	• • {using Peltier effect}
	A61B 2018/00053	• {Mechanical features of the instrument of device}
	A61B 2018/00059	• • {Material properties}
	A61B 2018/00065	• • • porous {porous}
	A61B 2018/00071	• • • {Electrical conductivity}
	A61B 2018/00077	• • • • {high, i.e. electrically conducting}
	A61B 2018/00083	• • • • {low, i.e. electrically insulating}
	A61B 2018/00089	• • • {Thermal conductivity}
	A61B 2018/00095	• • • • {high, i.e. heat conducting}
	A61B 2018/00101	• • • • {low, i.e. thermally insulating}
	A61B 2018/00107	• • {Coatings on the energy applicator}
	A61B 2018/00113	• • • {with foam}
	A61B 2018/00119	• • • {with metal oxide nitride}
	A61B 2018/00125	• • • {with nano structure}
	A61B 2018/0013	• • • {non-sticking}
	A61B 2018/00136	• • • {with polymer}
	A61B 2018/00142	• • • lubricating {lubricating}
	A61B 2018/00148	• • • {with metal}
	A61B 2018/00154	• • • {containing and delivering drugs}

A61B 2018/0016	• • {Energy applicators arranged in a two- or three dimensional array}
A61B 2018/00166	• • {Multiple lumina}
A61B 2018/00172	• • {Connectors and adapters therefor}
A61B 2018/00178	• • • {Electrical connectors}
A61B 2018/00184	• • {Moving parts}
A61B 2018/0019	• • • vibrating{vibrating}
A61B 2018/00196	• • • {reciprocating lengthwise}
A61B 2018/00202	• • • rotating{rotating}
A61B 2018/00208	• • • • {actively driven, e.g. by a motor}
A61B 2018/00214	• • {Expandable means emitting energy, e.g. by elements carried thereon}
A61B 2018/0022	• • • Balloons{Balloons}
A61B 2018/00226	• • • • {extending from a surface, i.e. Blisters}
A61B 2018/00232	• • • • {having an irregular shape}
A61B 2018/00238	• • • • porous{porous}
A61B 2018/00244	• • • • {adapted to separate target tissue from other tissue}
A61B 2018/0025	• • • • {Multiple balloons}
A61B 2018/00255	• • • • • {arranged one inside another}
A61B 2018/00261	• • • • • {arranged in a line}
A61B 2018/00267	• • • {having a basket shaped structure}
A61B 2018/00273	• • {Anchoring means for temporary attachment of a device to tissue}
A61B 2018/00279	• • • deployable{deployable}
A61B 2018/00285	• • • • Balloons{Balloons}
A61B 2018/00291	• • • {using suction}
A61B 2018/00297	• • {Means for providing haptic feedback}
A61B 2018/00303	• • • {active, e.g. with a motor creating vibrations}
A61B 2018/00309	• • • {passive, e.g. palpable click when activating a button}
A61B 2018/00315	• {for treatment of particular body parts}
A61B 2018/00321	• • {Head or parts thereof}
A61B 2018/00327	• • • {Ear, nose or throat}
A61B 2018/00333	• • Breast{Breast}
A61B 2018/00339	• • {Spine, e.g. intervertebral disc}
A61B 2018/00345	• • {Vascular system}
A61B 2018/00351	• • • Heart{Heart}
A61B 2018/00357	• • • • Endocardium{Endocardium}
A61B 2018/00363	• • • • Epicardium{Epicardium}
A61B 2018/00369	• • • • {Heart valves}
A61B 2018/00375	• • • • {Ostium, e.g. ostium of pulmonary vein or artery}
A61B 2018/0038	• • • • {Foramen ovale}
A61B 2018/00386	• • • • {Coronary vessels}
A61B 2018/00392	• • • • {Transmyocardial revascularisation}
A61B 2018/00398	• • • Blood{Blood}
A61B 2018/00404	• • • {Blood vessels other than those in or around the heart}
A61B 2018/0041	• • • • {Removal of thrombosis}
A61B 2018/00416	• • • • {Treatment of aneurisms}

A61B 2018/00422	. . . . Angioplasty{Angioplasty}
A61B 2018/00428	. . . . Severing{Severing}
A61B 2018/00434	. . {Neural system}
A61B 2018/00444	. . . {Spinal chord}
A61B 2018/00446	. . . Brain{Brain}
A61B 2018/00452	. . Skin{Skin}
A61B 2018/00458	. . . {Deeper parts of the skin, e.g. treatment of vascular disorders or port wine stains}
A61B 2018/00464	. . . . {Subcutaneous fat, e.g. liposuction, lipolysis}
A61B 2018/0047	. . . {Upper parts of the skin, e.g. skin peeling or treatment of wrinkles}
A61B 2018/00476	. . . {Hair follicles}
A61B 2018/00482	. . {Digestive system}
A61B 2018/00488	. . . Esophagus{Esophagus}
A61B 2018/00494	. . . {Stomach, intestines or bowel}
A61B 2018/005	. . . Rectum{Rectum}
A61B 2018/00505	. . {Urinary tract}
A61B 2018/00511	. . . Kidney{Kidney}
A61B 2018/00517	. . . {Urinary bladder or urethra}
A61B 2018/00523	. . . {Treatment of incontinence}
A61B 2018/00529	. . Liver{Liver}
A61B 2018/00535	. . . {Biliary tract}
A61B 2018/00541	. . {Lung or bronchi}
A61B 2018/00547	. . Prostate{Prostate}
A61B 2018/00553	. . Sphincter{Sphincter}
A61B 2018/00559	. . {Female reproductive organs}
A61B 2018/00565	. . Bone{Bone}
A61B 2018/00571	. {for achieving a particular surgical effect}
A61B 2018/00577	. . Ablation{Ablation}
A61B 2018/00583	. . . {Coblation, i.e. ablation using a cold plasma}
A61B 2018/00589	. . Coagulation{Coagulation}
A61B 2018/00595	. . Cauterization{Cauterization}
A61B 2018/00601	. . Cutting{Cutting}
A61B 2018/00607	. . {Coagulation and cutting with the same instrument}
A61B 2018/00613	. . {Irreversible electroporation(reversible electroporation A61N 1/327)}
A61B 2018/00619	. . Welding{Welding}
A61B 2018/00625	. . Vaporization{Vaporization}
A61B 2018/0063	. . Sealing{Sealing}
A61B 2018/00636	. {Sensing and controlling the application of energy}
A61B 2018/00642	. . {with feedback, i.e. closed loop control}
A61B 2018/00648	. . . {using more than one sensed parameter}
A61B 2018/00654	. . . {with individual control of each of a plurality of energy emitting elements}
A61B 2018/0066	. . {without feedback, i.e. open loop control}
A61B 2018/00666	. . {using a threshold value}
A61B 2018/00672	. . . lower{lower}

A61B 2018/00678	• • • upper {upper}
A61B 2018/00684	• • {using lookup tables}
A61B 2018/0069	• • {using fuzzy logic}
A61B 2018/00696	• • {Controlled or regulated parameters}
A61B 2018/00702	• • • {Power or energy}
A61B 2018/00708	• • • • {switching the power on or off}
A61B 2018/00714	• • • Temperature {Temperature}
A61B 2018/0072	• • • Current {Current}
A61B 2018/00726	• • • {Duty cycle}
A61B 2018/00732	• • • Frequency {Frequency}
A61B 2018/00738	• • • {Depth, e.g. depth of ablation}
A61B 2018/00744	• • • {Fluid flow}
A61B 2018/0075	• • • Phase {Phase}
A61B 2018/00755	• • • {Resistance or impedance}
A61B 2018/00761	• • • Duration {Duration}
A61B 2018/00767	• • • Voltage {Voltage}
A61B 2018/00773	• • {Sensed parameters}
A61B 2018/00779	• • • {Power or energy}
A61B 2018/00785	• • • • {Reflected power}
A61B 2018/00791	• • • Temperature {Temperature}
A61B 2018/00797	• • • • {measured by multiple temperature sensors}
A61B 2018/00803	• • • • {with temperature prediction}
A61B 2018/00809	• • • • {measured thermochromatically}
A61B 2018/00815	• • • • {measured by a thermistor}
A61B 2018/00821	• • • • {measured by a thermocouple}
A61B 2018/00827	• • • Current {Current}
A61B 2018/00833	• • • • {Differential current}
A61B 2018/00839	• • • {Bioelectrical parameters, e.g. ECG, EEG}
A61B 2018/00845	• • • Frequency {Frequency}
A61B 2018/00851	• • • • fundamental {fundamental}
A61B 2018/00857	• • • • harmonic {harmonic}
A61B 2018/00863	• • • {Fluid flow}
A61B 2018/00869	• • • Phase {Phase}
A61B 2018/00875	• • • {Resistance or impedance}
A61B 2018/0088	• • • Vibration {Vibration}
A61B 2018/00886	• • • Duration {Duration}
A61B 2018/00892	• • • Voltage {Voltage}
A61B 2018/00898	• • {Alarms or notifications created in response to an abnormal condition}
A61B 2018/00904	• • {Automatic detection of target tissue}
A61B 2018/0091	• {Handpieces of the surgical instrument or device}
A61B 2018/00916	• • {with means for switching or controlling the main function of the instrument or device}
A61B 2018/00922	• • • {by switching or controlling the treatment energy directly within the hand-piece}
A61B 2018/00928	• • • {by sending a signal to an external energy source}

- A61B 2018/00934 . . . {the signal being non electric, e.g. pneumatic, hydraulic, optical}
- A61B 2018/0094 . . . {Types of switches or controllers}
- A61B 2018/00946 slidable{slidable}
- A61B 2018/00952 rotatable{rotatable}
- A61B 2018/00958 . . . {for switching between different working modes of the main function}
- A61B 2018/00964 . {Features of probes}
- A61B 2018/0097 . . {Cleaning probe surfaces}
- A61B 2018/00976 . . . {with scraping means}
- A61B 2018/00982 . {combined with or comprising means for visual or photographic inspections inside the body, e.g. endoscopes}
- A61B 2018/00988 . {Means for storing information, e.g. calibration constants, or for preventing excessive use, e.g. usage, service life counter}
- A61B 2018/00994 . {combining two or more different kinds of non-mechanical energy or combining one or more non-mechanical energies with ultrasound}
- U A61B 18/02 . by cooling, e.g. cryogenic techniques(devices for cooling specific reflex points of the body within cell-life limits [A61H 39/06](#))
 - A61B 2018/0212 . . {using an instrument inserted into a body lumen, e.g. catheter}
 - A61B 2018/0225 . . {using an instrument for clamping tissue, e.g. forceps}
 - A61B 2018/0231 . . {Characteristics of handpieces or probes}
 - A61B 2018/0237 . . . {with a thermoelectric element in the probe for cooling purposes}
 - A61B 2018/0243 {cooling of the hot side of the junction, e.g. heat sink}
 - A61B 2018/025 {by circulating liquid}
 - A61B 2018/0256 {by circulating gas, e.g. air}
 - A61B 2018/0262 . . . {using a circulating cryogenic fluid}
 - A61B 2018/0268 {with restriction of flow}
 - A61B 2018/0275 {using porous elements}
 - A61B 2018/0281 {using a tortuous path, e.g. formed by fins or ribs}
 - A61B 2018/0287 {the fluid flowing through a long thin tube with spiral shape}
 - A61B 2018/0293 . . {using an instrument interstitially inserted into the body, e.g. needle}
- U A61B 18/04 . by heating(by applying electromagnetic radiation [A61B 18/18](#) ; hyperthermia using electric or magnetic fields, radiation or ultrasound [A61N](#))
 - A61B 2018/044 . . {the surgical action being effected by a circulating hot fluid}
 - A61B 2018/046 . . . {in liquid form}
 - A61B 2018/048 . . . {in gaseous form}
- U A61B 18/06 . . caused by chemical reaction,{e.g. moxaburners}
 - A61B 2018/062 . . . {one of the reactants being oxygen}
 - A61B 2018/064 Moxaburners{Moxaburners}
 - A61B 2018/066 . . . {one of the reactants being oxygen not from the air}
 - A61B 2018/068 . . . {none of the reactants being oxygen}
- U A61B 18/08 . . by means of electrically-heated probes
- U A61B 18/082 . . . {Probes or electrodes therefor}
 - A61B 2018/087 {using semiconductors as heating element}
- U A61B 18/12 . . by passing a current through the tissue to be heated, e.g. high-frequency current
- U A61B 18/1206 . . . {Generators therefor}
- A61B 2018/1213 {creating an arc}

- A61B 2018/122 {ionizing, with corona}
- A61B 2018/1226 {powered by a battery}
- A61B 2018/124 {switching the output to different electrodes, e.g. sequentially}
- A61B 2018/1246 {characterised by the output polarity}
- A61B 2018/1253 monopolar{monopolar}
- A61B 2018/126 bipolar{bipolar}
- A61B 2018/1266 {with DC current output}
- A61B 2018/1273 {including multiple generators in one device}
- A61B 2018/128 {generating two or more frequencies}
- A61B 2018/1286 {having a specific transformer}
- A61B 2018/1293 {having means to prevent interference}
- U A61B 18/14 . . . Probes or electrodes therefor
- A61B 2018/1405 {Electrodes having a specific shape}
- A61B 2018/1407 Loop{Loop}
- A61B 2018/141 Snare{Snare}
- A61B 2018/1412 Blade{Blade}
- A61B 2018/1415 {multiple blades}
- A61B 2018/1417 Ball{Ball}
- A61B 2018/142 {at least partly surrounding the target, e.g. concave, curved or in the form of a cave}
- A61B 2018/1422 Hook{Hook}
- A61B 2018/1425 Needle{Needle}
- A61B 2018/1427 {with a beveled end}
- A61B 2018/143 {multiple needles}
- A61B 2018/1432 curved{curved}
- A61B 2018/1435 Spiral{Spiral}
- A61B 2018/1437 {whereby the windings of the spiral touch each other such as to create a continuous surface}
- A61B 2018/144 Wire{Wire}
- U A61B 18/1442 {Probes having pivoting end effectors, e.g. forceps}
- A61B 2018/145 {wherein the effectors remain parallel during closing and opening}
- A61B 2018/1452 {including means for cutting([A61B 2018/146](#) takes precedence)}
- A61B 2018/1455 {having a moving blade for cutting tissue grasped by the jaws}
- A61B 2018/1457 {having opposing blades cutting tissue grasped by the jaws, i.e. combined scissors and pliers}
- A61B 2018/146 Scissors{Scissors}
- A61B 2018/1462 Tweezers{Tweezers}
- A61B 2018/1465 {Deformable electrodes}
- A61B 2018/1467 {using more than two electrodes on a single probe}
- A61B 2018/147 {Electrodes transferring energy by capacitive coupling, i.e. with a dielectricum between electrode and target tissue}
- A61B 2018/1472 {for use with liquid electrolyte, e.g. virtual electrodes}
- A61B 2018/1475 {Electrodes retractable in or deployable from a housing}
- A61B 2018/1495 {Electrodes being detachable from a support structure}
- A61B 2018/1497 {Electrodes covering only part of the probe circumference}

- U A61B 18/16
 - Indifferent or passive electrodes for grounding
- A61B 2018/162
 - {located on the probe body}
- A61B 2018/165
 - {Multiple indifferent electrodes}
- A61B 2018/167
 - {Passive electrodes capacitively coupled to the skin}
- U A61B 18/18
 - . by applying electromagnetic radiation, e.g. microwaves(radiation therapy [A61N 5/00](#))
- A61B 2018/1807
 - . {using light other than laser radiation}
- U A61B 18/1815
 - . . using microwaves
- A61B 2018/1823
 - . . . {Generators therefor}
- A61B 2018/183
 - . . . {characterised by the type of antenna}
- A61B 2018/1838
 - {Dipole antennas}
- A61B 2018/1846
 - {Helical antennas}
- A61B 2018/1853
 - {Monopole antennas}
- A61B 2018/1861
 - . . . {with an instrument instered into a body lumen or cavity, e.g. a catheter}
- A61B 2018/1869
 - . . . {with an instrument interstitially inserted into the body, e.g. needles}
- A61B 2018/1876
 - . . . {with multiple frequencies}
- A61B 2018/1884
 - . . . {with non-uniform emissions}
- A61B 2018/1892
 - . . . {Details of electrical isolations of the antenna}
- U A61B 18/20
 - . . using laser
- A61B 2018/2005
 - . . . {with beam delivery through an interstitially insertable device, e.g. needle}
- A61B 2018/2015
 - . . . {Miscellaneous features}
- A61B 2018/202
 - {Laser in handpiece}
- A61B 2018/2025
 - {with a pilot laser}
- A61B 2018/2035
 - . . . {Beam shaping; Optical components therefor([A61B 2018/2255](#) takes precedence)}
- A61B 2018/204
 - Attenuator{Attenuator}
- A61B 2018/2045
 - Chopper{Chopper}
- A61B 2018/205
 - {with electronic means, e.g. acousto-optic}
- A61B 2018/2055
 - {with mechanical means}
- A61B 2018/206
 - . . . {the laser light passing along a liquid-filled conduit}
- A61B 2018/2065
 - . . . {Multiwave; Wavelength mixing, e.g. using four or more wavelengths(pilot laser [A61B 2018/2025](#))}
- A61B 2018/207
 - {mixing two wavelengths}
- A61B 2018/2075
 - {mixing three wavelengths}
- A61B 2018/208
 - . . . {with multiple treatment beams not sharing a common path, e.g. non-axial or parallel}
- A61B 2018/2085
 - . . . {Scanning mechanisms}
- A61B 2018/209
 - {by movable optical fibre end}
- A61B 2018/2095
 - {by movable mirror, e.g. galvanometric}
- U A61B 18/22
 - . . the beam being directed along or through a flexible conduit, e.g. an optical fibre;{Couplings}, hand-pieces therefor
- A61B 2018/2205
 - {Characteristics of fibres}
- A61B 2018/2211
 - {Plurality of fibres}
- A61B 2018/2216
 - {braided, helically wound}
- A61B 2018/2222
 - {Fibre material or composition}

- A61B 2018/2227 {hollow fibre}
- A61B 2018/2233 {solid transparent for far infrared light}
- A61B 2018/2238 {with means for selectively laterally deflecting the tip of the fibre(-with balloon ~~K61B17/00H5~~ with balloon A61B 2017/22051)}}
- A61B 2018/2244 {Features of optical fibre cables, e.g. claddings}
- A61B 2018/225 {Features of handpieces(A61B 2018/2255 takes precedence)}
- A61B 2018/2255 {Optical elements at the distal end of probe tips}
- A61B 2018/2261 {with scattering, diffusing or dispersing of light}
- A61B 2018/2266 {with a lens, e.g. ball tipped}
- A61B 2018/2272 {with a reflective or refractive surface for deflecting the beam(A61B 2018/2261 , A61B 2018/2266 take precedence)}
- A61B 2018/2277 {with a refractive surface}
- A61B 2018/2283 {with a pivotable mirror}
- A61B 2018/2288 {the optical fibre cable having a curved distal end}
- A61B 2018/2294 {with a diffraction grating}
- U A61B 18/26 for producing a shock wave, e.g. laser lithotripsy
- A61B 2018/263 {the conversion of laser energy into mechanical shockwaves taking place in a liquid}
- A61B 2018/266 {the conversion of laser energy into mechanical shockwaves taking place in a part of the probe}

A61B 19/00

Instruments, implements or accessories for surgery or diagnosis not covered by any of the groups A61B 1/00 to A61B 17/00 , e.g. for stereotaxis, sterile operation, luxation treatment, wound edge protectors ({ surgeon`s or patient`s gowns or dresses, surgical masks A41D 13/00 } ; devices for carrying-off, for treatment of, or for carrying-over, body liquids A61M 1/00)

WARNING

Groups A61B 19/20 - ~~A61B19/56L~~ A61B 19/56 do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows: - A61B 19/20 - A61B 19/56 : A61B 19/00

- U A61B 19/02 { Protective casings or covers for appliances or instruments, e.g. boxes or sterile covers; Instrument tables or cupboards; Doctors` bags({ cleaning devices for surgical instruments A61B 19/34 ; instrument-protective drapes A61B 19/081 ; for sterilising articles A61L 2/00 ; for cleaning for sterilising hypodermic or infusion needles or syringes A61M 5/001 ; for preservation of living parts of the human or animal body A01N 1/02 })}
- A61B 2019/0201 {having adhesive means, e.g. an adhesive strip}
- A61B 2019/0202 {with a lid or cover}
- A61B 2019/0203 {closable by rotation}
- A61B 2019/0204 {of two concentric cylinders with corresponding lateral openings, about their common longitudinal axis}
- A61B 2019/0205 {of two concentric parallelepipeds about a common longitudinal axis}
- A61B 2019/0206 {about the central longitudinal axis perpendicular to the lid plane}
- A61B 2019/0208 {about a lateral axis perpendicular to the lid plane}
- A61B 2019/0209 {about a lateral axis in the lid plane}
- A61B 2019/021 {about a transverse axis in the lid plane}
- A61B 2019/0211 {closable by translation}
- A61B 2019/0212 {parallel to the lid plane}

A61B 2019/0213	• • • {perpendicular to the lid plane, e.g. by a downward movement}
A61B 2019/0214	• • • • {the height of the lid being adjustable with respect to the casing sidewalls}
A61B 2019/0216	• • • {closable by a combination of rotation and translation}
A61B 2019/0217	• • • {Bayonet coupling}
A61B 2019/0218	• • • {by screwing}
A61B 2019/0219	• • • {Peelable cover}
A61B 2019/022	• • • {with additional sealing means, e.g. O-ring}
A61B 2019/0221	• • • {Types of closures or fasteners(using adhesives A61B 2019/0201)}
A61B 2019/0222	• • • • {Cooperating dimples}
A61B 2019/0224	• • • • {Press-buttons}
A61B 2019/0225	• • • • {Locking clamps(A61B 2019/0229 takes precedence)}
A61B 2019/0226	• • • • {Draw-strings(ties A61B 2019/0228)}
A61B 2019/0227	• • • • {Plugs, e.g. rubber plugs}
A61B 2019/0228	• • • • {Ties(draw-strings A61B 2019/0226)}
A61B 2019/0229	• • • • {Toggle latches or clamps(locking clamps A61B 2019/0225 ; swingable wire bails A61B 2019/0231)}
A61B 2019/0231	• • • • {Swingable wire bails or handles(A61B 2019/0229 takes precedence; carrying handles A61B 2019/0281)}
A61B 2019/0232	• • • • {having additional locking means(permanent closure means A61B 2019/0245)}
A61B 2019/0233	• • • • {having additional unlocking means}
A61B 2019/0234	• • • • {Magnetic closures}
A61B 2019/0235	• • • • {Pegs inserted, e.g. forced, into openings}
A61B 2019/0236	• • • • {Pins cooperating with slots of a slideable locking bar}
A61B 2019/0237	• • • • {Rib-and-groove connection}
A61B 2019/0239	• • • • {Snap connection}
A61B 2019/024	• • • • {Tabs inserted into slots}
A61B 2019/0241	• • • • {Hook and loop}
A61B 2019/0242	• • • • {closed by or under vacuum}
A61B 2019/0243	• • • • {closed in two steps}
A61B 2019/0244	• • • • Zip {Zip}
A61B 2019/0245	• • • • {having permanent closure means}
A61B 2019/0247	• • • • {having additional means for temporarily preventing said permanent closure}
U A61B 19/0248	• • {Furniture specially adapted for surgery or diagnosis, e.g. cabinets, carts, cupboards or tables(supports for surgeons A61B 19/28 ; medicine cabinets A47B 67/00 ; accommodation for nursing A61G 12/00)}
A61B 2019/0249	• • • Cabinets {Cabinets}
A61B 2019/025	• • • {Carts or trolleys}
A61B 2019/0251	• • • • {Mayo stands(other holding stands A61B 2019/0259)}
A61B 2019/0252	• • • Cupboards {Cupboards}
A61B 2019/0254	• • • • Drawers {Drawers}
A61B 2019/0255	• • • Tables {Tables}

- U A61B 19/0256
 - • {Holders for articles, e.g. magnetic holders, racks, stands(holders for suture needles or materials [A61B 17/06061](#) ; supports as part of surgical instruments [A61B 19/26](#) ; drapes with means to hold surgical instruments [A61B 19/10](#) ; hangers for particular articles [A47F 7/00](#) ; for tooth drills [A61C 3/04](#) ; for receptacles and tubing attached to beds [A61G 7/0503](#) ; for pharmaceutical containers [A61J 1/16](#) ; for irrigation devices [A61M 3/0266](#) ; racks for syringes or for hypodermic or infusion needles [A61M 5/008](#) ; for infusion devices [A61M 5/1414](#) ; for catheters [A61M 25/02](#) ; holding devices for laboratory apparatus [B01L 9/00](#) ; racks for work tools [B25H 3/04](#))}
- A61B 2019/0257
 - • • {Magnetic holders}
- A61B 2019/0258
 - • • ~~Racks~~{Racks}
- A61B 2019/0259
 - • • {Stands(Mayo stands [A61B 2019/0251](#))}
- U A61B 19/026
 - • {Casings for packaging, protecting or dispensing articles(for endoscopes [A61B 1/00142](#) ; for test samples [A61B 10/0096](#) ; for sutures [A61B 17/06114](#) ; for ligaturing clips [A61B 17/1222](#) ; for gloves or finger-stalls [A61B 19/045](#) ; for dental floss [A61C 15/043](#) ; for dental instruments [A61C 19/02](#) ; for prostheses [A61F 2/0095](#) ; for contraceptive devices [A61F 6/005](#) ; for bandages or the like [A61F 15/001](#) ; for pharmaceutical products [A61J 1/00](#) ; for catheters [A61M 25/002](#) ; in general [B65D](#) , e.g. with dispensing means [B65D 83/00](#) ; for ampoules [B65D 85/42](#) ; for clinical thermometers [G01K 1/083](#) ; for optical fibres [G02B 6/444](#) ; for X-ray films [G03C 3/003](#))}
- U A61B 19/0262
 - • • {for sharps(for suture needles [A61B 17/06114](#) ; for scalpel-blades [A61B 17/3215](#) ; for wound clamps [A61B 17/105](#) ; for used sharps [A61B 19/0288](#) ; for syringes or for hypodermic or infusion needles [A61M 5/002](#) , [A61M 5/1626](#) , [A61M 5/3202](#))}
- A61B 2019/0263
 - • • • {including foam blocks for retaining sharps(for retaining suture needles [A61B 2017/06147](#))}
- U A61B 19/0264
 - • • {Carrying bags, cases, trusses(bags for midwives [A61B 17/48](#) ; bags in general [A45C](#) ; first-aid kits [A61F 17/00](#))}
- A61B 2019/0265
 - • • • ~~Cases~~{Cases}
- A61B 2019/0267
 - • • • {Flexible bags or pouches}
- A61B 2019/0268
 - • • • • {double- or multiple-walled}
- A61B 2019/027
 - • • • • {Multi-pouches, e.g. strips of side-by-side pouches}
- A61B 2019/0272
 - • • • {Baskets made of metal wire}
- A61B 2019/0273
 - • • • {containing desiccant means, e.g. desiccant pouches}
- A61B 2019/0274
 - • • • {containing a preservative liquid, e.g. an antiseptic liquid(bactericidal products in casings for used articles [A61B 2019/0293](#))}
- A61B 2019/0275
 - • • • {Nested casings}
- A61B 2019/0277
 - • • • {Stackable casings}
- A61B 2019/0278
 - • • • {having multiple compartments(multiple flexible pouches [A61B 2019/027](#))}
- A61B 2019/0279
 - • • • {having means for connecting similar adjacent containers}
- A61B 2019/028
 - • • • {carried on the medical practitioner`s clothing or back}
- A61B 2019/0281
 - • • • {having carrying handles(swingable locking handles [A61B 2019/0231](#))}
- A61B 2019/0282
 - • • • • {Wrist hangers}
- A61B 2019/0283
 - • • • {having means for automatically ejecting the stored article}
- A61B 2019/0285
 - • • • {waterproof(for prostheses [A61F 2250/0076](#))}
- A61B 2019/0286
 - • • • {transparent(for surgical instruments or accessories [A61B 2017/00902](#) ; for prostheses [A61F 2250/0091](#))}

- U A61B 19/0287
 - {Casings for removing or collecting used articles(for sutures [A61B 17/06161](#) ; accessories for operating tables, e.g. for collecting body wastes [A61G 13/10](#) ; combustible sputum cups [A61J 19/06](#) ; sterilising refuse [A61L 11/00](#) ; for destroying hypodermic or infusion needles or syringes [A61M 5/3278](#) ; disposal of medical waste by destroying it or transforming it into something useful or harmless [B09B 3/0075](#) ; for domestic refuse or the like [B65F](#))}
- U A61B 19/0288
 - {for sharps(for suture needles [A61B 17/06161](#) ; for scalpel-blades [A61B 17/3217](#) ; for syringes or for hypodermic or infusion needles [A61M 5/3205](#))}
- A61B 2019/0289
 - {having additional means for destroying used sharps(for destroying used hypodermic or infusion needles or syringes [A61M 5/3278](#))}
- U A61B 19/029
 - {for absorbent articles, e.g. bandages, cotton balls, covers, drapes, dressings, garments, gauze, gowns, napkins, sponges, swabs or towels(devices for determining blood loss [A61B 5/02042](#))}
- A61B 2019/0291
 - {for sponges(counting means [A61B 2019/4821](#))}
- A61B 2019/0293
 - {containing anti-microbial, anti-viral, bactericidal or disinfectant products(preservative liquid in packages or dispensers [A61B 2019/0274](#))}
- A61B 2019/0294
 - {having temperature-modifying means}
- A61B 2019/0295
 - {Cooling means}
- A61B 2019/0296
 - {Heating means}
- A61B 2019/0297
 - {Chemical heating}
- A61B 2019/0298
 - {Electric heating}
- U A61B 19/04
 - Operating gloves; Finger-stalls for operating; Devices for treating them, e.g. cleaning, powdering(glove-boxes for manipulating, gloves therefor [B25J 21/02](#))
- A61B 2019/043
 - {Finger stalls}
- A61B 2019/046
 - {Devices for putting-on or taking-off gloves}
- A61B 2019/048
 - {Devices for washing of, drying of, or applying powder to, gloves}
- U A61B 19/08
 - Surgical drapes(bandages, dressings or absorbent pads [A61F 13/00](#))
- U A61B 19/081
 - {for protection of instruments, e.g. microscopes(for part of endoscope entering the body [A61B 1/00142](#))}
- A61B 2019/082
 - {entering the body, e.g. non-transparent}
- A61B 2019/083
 - {closed at the distal end}
- A61B 2019/084
 - {with means for connecting to the patient}
- A61B 2019/085
 - {adhesive}
- A61B 2019/086
 - {for extremities, e.g. having collection pouch([A61B 19/12](#) takes precedence)}
- U A61B 19/10
 - with means to retain or hold surgical implements{(holders for articles [A61B 19/0256](#))}
- A61B 2019/103
 - {with means for retaining a catheter}
- A61B 2019/106
 - {with a drain tube or with means for collecting drain fluid}
- U A61B 19/20
 - {for stereotaxic surgery(using radio-opaque markers [A61B 19/54](#))}
- U A61B 19/201
 - {with needle or instrument guides, e.g. arcuate slides, ball joints(needle guiding or locating means [A61B 17/3403](#))}
- A61B 2019/202
 - {guided by light, e.g. laser pointers}
- U A61B 19/203
 - {Fixators for body parts, e.g. head fixators, skull clamps or bite blocks(tables with compression means for mammography [A61B 6/0414](#) ; tables with patient immobilising means for radiation diagnosis [A61B 6/0421](#)) ; Constructional details thereof, e.g. fixating pins(bone screws or pins [A61B 17/86](#))}

- A61B 2019/204
 - . . {Bite blocks}
- A61B 2019/205
 - . . {for soft tissue, e.g. breast holding devices}
- A61B 2019/206
 - . . {Retaining sheets, e.g. immobilizing masks made from a thermoplastic material}
- A61B 2019/207
 - . {for stereotaxic radiosurgery}
- A61B 2019/208
 - . {Cranial plugs for access to brain}
- U A61B 19/22
 - {Manipulators specially adapted for use in surgery}
- U A61B 19/2203
 - . {Surgical robots}
- A61B 2019/2207
 - . . {operating autonomously}
- A61B 2019/2211
 - . . {for introducing or steering flexible instruments inserted into the body, e.g. catheters or endoscopes}
- A61B 2019/2215
 - . . {specifically adapted for manipulations within body cavities, e.g. within abdominal or thoracic cavities}
- A61B 2019/2219
 - . . {specifically adapted for manipulations within body lumens, e.g. within lumen of gut, spine, or blood vessels}
- A61B 2019/2223
 - . . {Master-Slave robots}
- A61B 2019/2226
 - . . {including a freely orientable platform, e.g. so called 'Stewart platforms'}
- A61B 2019/223
 - . . {for telesurgery}
- A61B 2019/2234
 - . . {Details of wrist mechanisms at distal ends of robotic arms}
- A61B 2019/2238
 - . . . {Wrists with multiple vertebrae}
- A61B 2019/2242
 - . {operated by drive cable mechanisms}
- A61B 2019/2246
 - . . {Cable tensioning mechanisms for removing slack}
- A61B 2019/2249
 - . ~~Micromanipulators~~{Micromanipulators}
- A61B 2019/2253
 - . {Manipulators for magnetic surgery}
- A61B 2019/2257
 - . . {Coil or magnet arrangements therefor}
- A61B 2019/2261
 - . . . {arranged around the patient, e.g. in a gantry}
- A61B 2019/2265
 - . . . {arranged only on one side of the patient, e.g. under a table}
- A61B 2019/2269
 - . {Manual electric input means}
- A61B 2019/2273
 - . . {Glove like input devices, e.g. "data gloves"}
- A61B 2019/2276
 - . . ~~Joysticks~~{Joysticks}
- A61B 2019/228
 - . . ~~Keyboards~~{Keyboards}
- A61B 2019/2284
 - . . ~~Mouse~~{Mouse}
- A61B 2019/2288
 - . {Prevention or compensation of hand tremors}
- A61B 2019/2292
 - . {with means providing feel, e.g. force or tactile feedback}
- A61B 2019/2296
 - . {with motion or force scaling([A61B 2019/2288](#) takes precedence)}
- U A61B 19/26
 - {Supports as part of surgical instruments, e.g. articulated arms, headbands(
[A61B 19/22](#) takes precedence; holders for articles [A61B 19/0256](#))}
- A61B 2019/261
 - . {connected to doctor`s body, e.g. by a belt}
- A61B 2019/262
 - . {Headgear, e.g. helmet, spectacles}
- A61B 2019/263
 - . {with a counter-balancing mechanism}
- A61B 2019/264
 - . . {with a counterweight}
- A61B 2019/265
 - . {using a parallelogram linkage, e.g. panthograph}
- A61B 2019/266
 - . {with releasable brake mechanisms}
- A61B 2019/267
 - . {Accessory clamps}
- A61B 2019/268
 - . . {for clamping a support arm to a bed or other supports}

- U A61B 19/30
 - {Automatic limiting or abutting means, e.g. for safety}
- A61B 2019/301
 - • {torque limiting}
- A61B 2019/302
 - • {pressure limiting, e.g. hydrostatic}
- A61B 2019/303
 - • {Abutting means, stops, e.g. abutting on tissue or skin}
- A61B 2019/304
 - • • {abutting on parts of the device itself}
- A61B 2019/305
 - • • • {preventing further rotation}
- A61B 2019/306
 - • • {abutting on tissue or skin}
- A61B 2019/307
 - • {with a frangible part, e.g. by reduced diameter}
- A61B 2019/308
 - • {during shipment}
- U A61B 19/34
 - {Cleaning devices specially adapted for surgical instruments(disinfecting [A61L 2/00](#) ; cleaning in general [B08B](#))}
- A61B 2019/343
 - • {for flexible tubular instruments, e.g. endoscopes}
- A61B 2019/346
 - • {Devices for testing the cleaning process, e.g. test soils}
- U A61B 19/38
 - {Apparatus for sterile operations, e.g. apparatus fixed to patient for providing an aseptic surgical environment}
- A61B 2019/385
 - • {using air flow}
- U A61B 19/40
 - {Protection of tissue around surgical sites against effects of non-mechanical surgery, e.g. laser surgery(protection of eyes against laser radiation [A61F 9/022](#))}
- A61B 2019/4009
 - • {Specification of type of protection measures}
- A61B 2019/4018
 - • • ~~Compensation~~{[Compensation](#)}
- A61B 2019/4027
 - • • {Prevention of contact}
- A61B 2019/4036
 - • • ~~Shielding~~{[Shielding](#)}
- A61B 2019/4045
 - • • • {by absorption}
- A61B 2019/4054
 - • • • {by reflection}
- A61B 2019/4063
 - • {against cooling or freezing}
- A61B 2019/4072
 - • {against ultrasound energy}
- A61B 2019/4081
 - • {against EM radiation, e.g. microwave}
- A61B 2019/409
 - • {against light, e.g. laser}
- A61B 19/42
 - {Splash shields for protection of the surgeon, e.g. splash guards connected to the apparatus(~~A41D13/00F~~[A41D 13/11](#) takes precedence)}
- U A61B 19/44
 - {Identification means for patients or instruments, e.g. identification tags}
- A61B 2019/442
 - • {with bar code}
- A61B 2019/444
 - • {Colour-coded}
- A61B 2019/446
 - • {coded with symbols, e.g. dots, numbers, letters, words}
- A61B 2019/448
 - • {Detection or identification by electromagnetic means, e.g. transponders}
- U A61B 19/46
 - {Measuring instruments not otherwise provided for(for implanting artificial joints [A61F 2/4657](#))}
- A61B 2019/461
 - • {for measuring dimensions, e.g. length([A61B 2019/462](#) takes precedence)}
- A61B 2019/462
 - • {penetration depth}
- A61B 2019/463
 - • {for measuring volume}
- A61B 2019/464
 - • {for measuring force, pressure or mechanical tension}
- A61B 2019/465
 - • • {for measuring contact or contact pressure}
- A61B 2019/466
 - • • {for measuring torque}
- A61B 2019/467
 - • {for measuring angles}
- A61B 2019/468
 - • • {with a bubble level}

A61B 2019/469	• • • {using a plummet or weight}
A61B 2019/48	• {Accessories or related features not otherwise provided for}
A61B 2019/4805	• • {Prevention of accidental cutting or pricking(protective suturing devices A61B 17/0493 , blunt suture needles A61B 2017/06085 , blunt dissectors A61B 2017/320044)}
A61B 2019/481	• • • {of the patient or his organs}
A61B 2019/4815	• • {Counting the number of times an instrument is used}
A61B 2019/4821	• • {Counting number of instruments used; Instrument detectors}
A61B 2019/4826	• • • {automatically, e.g. by means of magnetic, optical or photoelectric detectors}
A61B 2019/4831	• • • {Instrument detectors with a removable part, e.g. working tip}
A61B 2019/4836	• • {Indication means}
A61B 2019/4842	• • • {for indicating correct assembly of components, e.g. of the surgical apparatus}
A61B 2019/4847	• • • {Indication of cracks or breakages}
A61B 2019/4852	• • • {for contamination or dirt}
A61B 2019/4857	• • • {for the position of a particular part of an instrument with respect to the rest of the instrument, e.g. position of the anvil of a stapling instrument}
A61B 2019/4863	• • • • {indicating loosening or shifting of parts of an instrument, signaling maladjustment of parts}
A61B 2019/4868	• • {Accessories designed for easy sterilising, i.e. re-usable}
A61B 2019/4873	• • {Preventing re-use(for prostheses A61F 2250/009)}
A61B 2019/4878	• • {Implantable devices for insertion in between organs or other soft tissues(plugging wall openings A61B 17/0057 , retractors A61B 17/02 , tissue expanders A61B 19/24)}
A61B 2019/4884	• • • {for preventing adhesion}
A61B 2019/4889	• • {Spatulas or spatula like extensions}
A61B 2019/4894	• • {Redundant systems, e.g. using two independent measuring systems and comparing the signals}
U A61B 19/50	• {Computer-aided planning, simulation or modeling of a surgical operation}
A61B 2019/501	• • {Computer simulation of a surgical treatment}
A61B 2019/502	• • • {Modelling of surgical devices, implants or prosthesis}
A61B 2019/504	• • • • {for modeling the effect of the tool, e.g. the effect of an implanted prosthesis or for predicting the effect of ablation or burring}
A61B 2019/505	• • • {Modelling of the patient , e.g. for ligaments or bones}
A61B 2019/507	• • {with visualisation of a planned trajectory or a target region}
A61B 2019/508	• • {Computer aided selection or customisation of medical implant or cutting guide}
U A61B 19/52	• {Image-producing devices or illumination devices not otherwise provided for, e.g. operation microscopes; Operation lamp handles}
U A61B 19/5202	• • {Devices for illuminating a surgical field}
A61B 2019/5204	• • • {using chemi-luminescent materials}
A61B 2019/5206	• • • {using optical fibres}
A61B 2019/5208	• • • {Lamp handles}
A61B 2019/521	• • • {using white LEDs}
U A61B 19/5212	• • {Image-producing devices, e.g. surgical cameras(A61B 19/5223 , A61B 19/5225 take precedence)}

- A61B 2019/5214 . . . {with images taken automatically}
- A61B 2019/5217 . . . {using optical fibre}
- A61B 2019/5219 . . . {Magnifying glass}
- A61B 2019/5221 . . . {with a mirror}
- U A61B 19/5225 . . {Surgical systems with images on a monitor during operation}
- A61B 2019/5227 . . . {with simultaneous use of two cameras}
- A61B 2019/5229 . . . {Details of monitor hardware}
- A61B 2019/5231 . . . {using light, e.g. by using optical scanners}
- A61B 2019/5234 {Optical coherence tomography (OCT)}
- A61B 2019/5236 . . . {NMR or MRI}
- A61B 2019/5238 . . . {X-ray, e.g. fluoroscopy}
- A61B 2019/524 {using computed tomography systems (CT)}
- A61B 2019/5242 {with a rotating C-arm having a cone beam emitting source}
- U A61B 19/5244 . . . {Systems for tracking the position of an instrument during image guided surgery, e.g. surgical navigation systems}
- A61B 2019/5246 {using a specific tracking technique}
- A61B 2019/5248 {using an accelerometer or inertia sensor}
- A61B 2019/5251 {Electromagnetic tracking systems}
- A61B 2019/5253 {tracking an applied voltage gradient}
- A61B 2019/5255 {Optical tracking systems}
- A61B 2019/5257 {Details of tracking cameras}
- A61B 2019/5259 {Mechanical position encoders therefor}
- A61B 2019/5261 {using shape sensors, e.g. fiber shape sensors with Bragg gratings}
- A61B 2019/5263 {Acoustic tracking systems, e.g. using ultrasound}
- A61B 2019/5265 {Tracking by image or pattern recognition}
- A61B 2019/5268 {using pointers, e.g. pointers having reference marks for determining coordinates of body points}
- A61B 2019/527 {Divots for calibration}
- A61B 2019/5272 {Reference field transducer attached to an instrument or patient}
- A61B 2019/5274 {Interface software}
- A61B 2019/5276 ultrasound {ultrasound}
- A61B 2019/5278 {transmitter or receiver in catheter or minimal invasive instrument}
- A61B 2019/528 {both receiver and transmitter being in the instrument or receiver being also transmitter}
- A61B 2019/5282 {receiver only}
- A61B 2019/5285 {transmitter only}
- A61B 2019/5287 . . {Use of fiducial points}
- A61B 2019/5289 . . {Correlation of different images or relation of image positions in respect to the body}
- A61B 2019/5291 . . . {augmented reality, i.e. correlating a live optical image with another image}
- A61B 2019/5293 . . . {using projection of images directly onto the body}
- A61B 2019/5295 . . . {creating a 3D dataset from 2D images using position information}
- A61B 2019/5297 . . . {changing the image on a display according to the operator's position}
- U A61B 19/54 . {Markers, e.g. radio-opaque or breast lesions markers(mechanical markers for eye-keratomy [A61F 9/0136](#) ; markers in surgical tampons or sponges [A61F 13/44](#) ; markers on catheters [A61M 25/0108](#))}

A61B 2019/5404	• • {for marking specified tissue}
A61B 2019/5408	• • • {Soft tissue, e.g. breast tissue}
A61B 2019/5412	• • • {Body cavities}
A61B 2019/5416	• • • {Bone tissue}
A61B 2019/542	• • radioactive{radioactive}
A61B 2019/5425	• • ultrasonic{ultrasonic}
A61B 2019/5429	• • • active{active}
A61B 2019/5433	• • liquid{liquid}
A61B 2019/5437	• • {visible(A61B 2019/446 takes precedence)}
A61B 2019/5441	• • • photoluminescent{photoluminescent}
A61B 2019/5445	• • • {Active visible markers, e.g. light emitting diodes(A61B 2019/5441 takes precedence)}
A61B 2019/545	• • • {with marking agent for marking skin or other tissue}
A61B 2019/5454	• • {magnetic, e.g. NMR or MRI}
A61B 2019/5458	• • • {emitting a signal}
A61B 2019/5462	• • palpable{palpable}
A61B 2019/5466	• • {Radiopaque markers visible in an X-ray image}
A61B 2019/547	• • {electromagnetic other than visible, e.g. microwave}
A61B 2019/5475	• • • active{active}
A61B 2019/5479	• • • • infrared{infrared}
A61B 2019/5483	• • {Reference marker arrangements for use with image guided surgery}
A61B 2019/5487	• • {Applicators for implanting markers}
A61B 2019/5491	• • {having specific anchoring means to fixate the marker to the tissue, e.g. hooks}
A61B 2019/5495	• • {Multi-modality markers}
U A61B 19/56	• {User interfaces for surgical systems}
A61B 2019/562	• • {indicating steps of a surgical procedure}
A61B 2019/564	• • {being adapted depending on the stage of the surgical procedure}
A61B 2019/566	• • {with a database of accessory information, e.g. including context sensitive help or scientific articles}
A61B 2019/568	• • {providing specific settings for specific users}

Project: N/A (A61C)

U A61C 7/00	Orthodontics, i.e. obtaining or maintaining the desired position of teeth, e.g. by straightening, evening, regulating, separating, or by correcting malocclusions
U A61C 7/002	• { Orthodontic computer assisted systems}
A61C 2007/004	• • {Automatic construction of a set of axes for a tooth or a plurality of teeth}
U A61C 8/00	Means to be fixed to the jaw-bone for consolidating natural teeth or for fixing dental prostheses thereon; Dental implants; Implanting tools (fastening of peg-teeth in the mouth A61C 13/30)
U A61C 8/0018	• {characterised by the shape}
U A61C 8/0037	• • { Details of the shape}
A61C 2008/0046	• • • {Textured surface, e.g. roughness, microstructure (A61C 8/0013 takes precedence)}
A61C 2008/0084	• {Provisional implants or abutments}

- U A61C 13/00** **Dental prostheses; Making same (tooth crowns for capping teeth [A61C 5/08](#); dental implants [A61C 8/00](#))**
- U A61C 13/225 • Fastening prostheses in the mouth {([A61C 8/0048](#) takes precedence)}
- U A61C 13/275 • • removably secured by using bridging bars or rails between residual teeth
- A61C 2013/2753 • • • {characterised by the shape of the bridging bar }
- A61C 2013/2756 • • • • {having a Y-shaped cross-section }

Project: N/A (A61D)

- A61D 1/00** **Surgical instruments for veterinary use (~~electrosurgical apparatus~~ [A61B17/36](#))**
- U A61D 3/00** **Appliances for supporting or fettering animals for operative purposes (fettering in slaughter houses [A22B 1/00](#))**
- A61D 2003/003 • {with head or neck restraining means }
- A61D 2003/006 • {with leg or foot restraining means }

Project: N/A (A61F)

- U A61F 2/00** **Filters implantable into blood vessels; Prostheses, i.e. artificial substitutes or replacements for parts of the body; Appliances for connecting them with the body (as cosmetic articles, see the relevant subclasses, e.g. wigs, hair pieces, [A41G 3/00](#), [A41G 5/00](#), artificial nails [A45D 31/00](#); dental prostheses [A61C 13/00](#); materials for prostheses [A61L 27/00](#); artificial hearts [A61M 1/10](#); artificial kidneys [A61M 1/14](#))**
- WARNING
- Groups [A61F 2/07](#), [A61F 2/844](#) - [A61F 2/97](#) correspond to IPC2013.01
- U A61F 2/0063 • { Implantable repair or support meshes, e.g. hernia meshes}
- A61F 2002/0068 • • {having a special mesh pattern }
- A61F 2002/0072 • • {Delivery tools therefor }
- U A61F 2/0077 • {Special surfaces of prostheses, e.g. for improving ingrowth ([A61F 2/30767](#) takes precedence)}
- A61F 2002/0081 • • {directly machined on the prosthetic surface, e.g. holes, grooves ([A61F 2/30771](#); ~~K61F2/50W52 take~~[takes](#) precedence)}
- A61F 2002/0086 • • {for preferentially controlling or promoting the growth of specific types of cells or tissues (of bone tissue onto implantable joints [A61F 2002/3093](#))}
- A61F 2002/009 • • {for hindering or preventing attachment of biological tissue (of bone tissue onto implantable joints [A61F 2002/30932](#))}
- U A61F 2/01 • Filters implantable into blood vessels {(filters used as gripping instruments [A61B 17/22031](#))}
- A61F 2002/011 • • {Instruments for their placement or removal }
- U A61F 2/013 • • {Distal protection devices, i.e. devices placed distally in combination with another endovascular procedure, e.g. angioplasty or standing}
- A61F 2002/015 • • • {Stop means therefor}
- A61F 2002/016 • • {made from wire-like elements}
- A61F 2002/018 • • {made from tubes or sheets of material, e.g. by etching or laser-cutting }
- U A61F 2/02 • Prostheses implantable into the body {(closure means for urethra or rectum or for artificial body openings therefor [A61F 2/0004](#))}

- U A61F 2/04
 - • Hollow or tubular parts of organs, e.g. bladders, tracheae, bronchi or bile ducts ([A61F 2/18](#), [A61F 2/20](#) take precedence; devices, other than stent-grafts, providing patency to, or preventing collapsing of, tubular structures of the body other than stent-grafts, e.g. stents [A61F 2/82](#); instruments specially adapted for placement or removal of stents or stent-grafts [A61F 2/95](#))
 - A61F 2002/041
 - • • {Bile ducts }
 - A61F 2002/043
 - • • ~~Bronchi~~ {Bronchi }
 - A61F 2002/044
 - • • {Oesophagi or esophagi or gullets }
 - A61F 2002/045
 - • • {Stomach, intestines }
 - A61F 2002/046
 - • • ~~Tracheae~~ {Tracheae }
 - A61F 2002/047
 - • • ~~Urethrae~~ {Urethrae }
 - A61F 2002/048
 - • • ~~Ureters~~ {Ureters }
- U A61F 2/06
 - • • Blood vessels
 - A61F 2002/061
 - • • • {provided with means for allowing access to secondary lumens }
 - A61F 2/062
 - • • • {Apparatus for the production of blood vessels made from natural tissue or with layers of living cells (prostheses made from natural tissue or living cells ~~A61L 27/5007~~ [A61L27/5007](#))}
 - A61F 2002/065
 - • • • {Y-shaped blood vessels }
 - A61F 2002/067
 - • • • ~~modular~~ {modular }
 - A61F 2002/068
 - • • • {Modifying the blood flow model, e.g. by diffuser or deflector }
- U A61F 2/07
 - • • • Stent-grafts
 - A61F 2002/072
 - • • • • {Encapsulated stents, e.g. wire or whole stent embedded in lining }
 - A61F 2002/075
 - • • • • {the stent being loosely attached to the graft material, e.g. by stitching }
 - A61F 2002/077
 - • • • • {having means to fill the space between stent-graft and aneurysm wall, e.g. a sleeve }
- U A61F 2/08
 - • Muscles; Tendons; Ligaments {(sutures [A61B 17/04](#))}
- U A61F 2/0811
 - • • { Fixation devices for tendons or ligaments}
 - A61F 2002/0817
 - • • • {Structure of the anchor}
 - A61F 2002/0823
 - • • • • {Modular anchors comprising a plurality of separate parts}
 - A61F 2002/0829
 - • • • • • {without deformation of anchor parts, e.g. fixation screws on bone surface, extending barbs, cams, butterflies, spring-loaded pins}
 - A61F 2002/0835
 - • • • • • {with deformation of anchor parts, e.g. expansion of dowel by set screw}
 - A61F 2002/0841
 - • • • • {Longitudinal channel for insertion tool running through the whole tendon anchor, e.g. for accommodating bone drill, guidewire }
 - A61F 2002/0847
 - • • • {Mode of fixation of anchor to tendon or ligament}
 - A61F 2002/0852
 - • • • • {Fixation of a loop or U-turn, e.g. eyelets, anchor having multiple holes}
 - A61F 2002/0858
 - • • • • {Fixation of tendon or ligament between anchor and bone, e.g. interference screws, wedges}
 - A61F 2002/0864
 - • • • • {Fixation of tendon or ligament between anchor elements, e.g. by additional screws in the anchor, anchor crimped around tendon}
 - A61F 2002/087
 - • • • • {Anchor integrated into tendons, e.g. bone blocks, integrated rings}
 - A61F 2002/0876
 - • • • {Position of anchor in respect to the bone}
 - A61F 2002/0882
 - • • • • {Anchor in or on top of a bone tunnel, i.e. a hole running through the entire bone}
 - A61F 2002/0888
 - • • • • {Anchor in or on a blind hole or on the bone surface without formation of a tunnel}
 - A61F 2002/0894
 - • • {Muscles (non-implantable [A61F 2002/5066](#))}

- U A61F 2/14 • • Eye parts, e.g. lenses, corneal implants; { Implanting instruments specially adapted therefor}; Artificial eyes
- U A61F 2/16 • • • Intraocular lenses
- U A61F 2/1602 • • • • {Corrective lenses for use in addition to the natural lenses of the eyes}
- A61F 2002/1605 • • • • • {Anterior chamber lenses for use in addition to the natural lenses of the eyes, e.g. iris fixated or floating }
- A61F 2002/1608 • • • • • • {Iris fixated, e.g. by clamping iris tissue or by suturing to the iris }
- A61F 2002/161 • • • • • {Posterior chamber lenses for use in addition to the natural lenses of the eyes }
- U A61F 2/1613 • • • • { having special lens configurations or particular optical properties, e.g. pseudo-accommodative lenses, lenses having variable focus or aberration corrections, multipart lenses, diffractive lenses or lenses for variably absorbing electromagnetic radiation}
- U A61F 2/1637 • • • • • { Correcting aberrations caused by inhomogeneities of the cornea or the surface of the natural lens, or correcting intrinsic aberrations, e.g. aspheric, cylindrical, toric lenses}
- A61F 2002/164 • • • • • • {Aspheric lenses }
- A61F 2002/1643 • • • • • • {Cylindrical lenses }
- A61F 2002/1645 • • • • • • {Toric lenses }
- U A61F 2/1648 • • • • • { Multipart lenses}
- A61F 2002/1651 • • • • • • {Multipart lenses comprising a telescope }
- A61F 2002/1681 • • • • • {characterised by form of haptics }
- A61F 2002/1683 • • • • • • {having filiform haptics }
- A61F 2002/1686 • • • • • • • {Securing a filiform haptic to a lens body }
- A61F 2002/1689 • • • • • • {having plate-haptics }
- A61F 2002/1697 • • • • • {Additional features not otherwise provided for }
- U A61F 2/18 • • Internal ear or nose parts, e.g. ear-drums {(implants for middle ear ventilation or drainage [A61F 11/002](#))}
- A61F 2002/183 • • • {Ear parts }
- U A61F 2/20 • • {Epiglottis}; Larynxes; Tracheae combined with larynxes or for use therewith (tracheae, bronchi per se [A61F 2/04](#); {tracheostomy tubes [A61M 16/0465](#)})
- A61F 2002/206 • • • {Speech aids with external actuators, e.g. electrical larynxes }
- U A61F 2/24 • • Heart valves; { Vascular valves, e.g. venous valves; Heart implants, e.g. passive devices for improving the function of the native valve or the heart muscle; Transmyocardial revascularisation [TMR] devices}
- U A61F 2/2478 • • • { Passive devices for improving the function of the heart muscle, i.e. devices for reshaping the external surface of the heart, e.g. bags, strips or bands}
- U A61F 2/2481 • • • • { Devices outside the heart wall, e.g. bags, strips or bands}
- A61F 2002/2484 • • • • • {Delivery devices therefor }
- A61F 2002/249 • • • • • {Device completely embedded in the heart wall }
- U A61F 2/28 • • Bones ({[A61F 2/42](#) takes precedence}; joints [A61F 2/30](#); {means for introducing bone substitute or for implanting bone graft implants [A61F 2/4601](#); devices for grinding or milling bone material [A61F 2/4644](#)})
- U A61F 2/2803 • • • {for mandibular reconstruction (temporo-mandibular joints [A61F 2/3099](#); bone plates for the jaw [A61B 17/8071](#))}
- A61F 2002/2807 • • • • {Chin implants }
- A61F 2002/281 • • • • {Gonial implants }

- A61F 2002/2817 . . . {Bone stimulation by chemical reactions or by osteogenic or biological products for enhancing ossification, e.g. by bone morphogenetic or morphogenic proteins (BMP) or by transforming growth factors (TGF) }
- A61F 2002/2821 . . . {Bone stimulation by electromagnetic fields or electric current for enhancing ossification }
- A61F 2002/2825 . . . ~~Femur~~-{Femur }
- A61F 2002/2828 . . . {Femoral head }
- A61F 2002/2832 . . . {Femoral neck }
- A61F 2002/2835 . . . {Bone graft implants for filling a bony defect or an endoprosthesis cavity }
- A61F 2002/2839 . . . {Bone plugs or bone graft dowels }
- A61F 2002/2842 . . . {Bone marrow grafts }
- U A61F 2/2846 . . . {Support means for bone substitute or for bone graft implants, e.g. membranes or plates for covering bone defects (nets or sleeves applied to surface of endoprostheses [A61F 2/30907](#); bone plates [A61B 17/80](#); bone regeneration in dental surgery [A61C 8/0006](#))}
- A61F 2002/285 . . . {Fixation appliances for attaching bone substitute support means to underlying bone }
- A61F 2002/2853 . . . ~~Humerus~~-{Humerus }
- A61F 2002/286 . . . {Bone stimulation by mechanical vibrations for enhancing ossification }
- A61F 2002/2864 . . . {by ultrasonic or acoustic vibrations }
- A61F 2002/2867 . . . {Bone marrow }
- A61F 2002/2871 . . . ~~Radius~~-{Radius }
- U A61F 2/2875 . . . {Skull or cranium ([A61F 2/2803](#) and [A61F 2/3099](#) take precedence)}
- A61F 2002/2878 . . . {for orbital repair }
- A61F 2002/2882 . . . {Malar or zygomatic implants }
- A61F 2002/2885 . . . {Paranasal implants }
- A61F 2002/2889 . . . {Maxillary, premaxillary or molar implants }
- A61F 2002/2892 . . . ~~Tibia~~-{Tibia }
- A61F 2002/2896 . . . ~~Ulna~~-{Ulna }
- U A61F 2/30 . . . Joints
- A61F 2002/30001 . . . {Additional features of subject-matter classified in [A61F 2/28](#), [A61F 2/30](#) and subgroups thereof }
- A61F 2002/30003 . . . {Material related properties of the prosthesis or of a coating on the prosthesis }
- A61F 2002/30004 {The prosthesis made from materials having different values of a given property at different locations within the same prosthesis }
- A61F 2002/30006 {differing in density or specific weight }
- A61F 2002/30008 {differing in yarn density }
- A61F 2002/30009 {differing in fibre orientations }
- A61F 2002/30011 {differing in porosity }
- A61F 2002/30013 {made from both porous and non-porous parts, e.g. adjacent parts }
- A61F 2002/30014 {differing in elasticity, stiffness or compressibility }
- A61F 2002/30016 {differing in hardness, e.g. Vickers, Shore, Brinell }
- A61F 2002/30018 {differing in bending or flexure capacity }
- A61F 2002/30019 {differing in mechanical expandability, e.g. in mechanical, self- or balloon expandability }
- A61F 2002/30021 {differing in brittleness }

A61F 2002/30023	. . . . . {differing in viscosity }
A61F 2002/30024	. . . . . {differing in coefficient of friction }
A61F 2002/30026	. . . . . {differing in wear resistance }
A61F 2002/30028	. . . . . {differing in tissue ingrowth capacity, e.g. made from both ingrowth-promoting and ingrowth-preventing parts }
A61F 2002/30029	. . . . . {differing in bone ingrowth capacity }
A61F 2002/30031	. . . . . {differing in wettability, e.g. in hydrophilic or hydrophobic behaviours }
A61F 2002/30032	. . . . . {differing in absorbability or resorbability, i.e. in absorption or resorption time }
A61F 2002/30034	. . . . . {made from both resorbable and non-resorbable prosthetic parts, e.g. adjacent parts }
A61F 2002/30036	. . . . . {differing in release or diffusion time }
A61F 2002/30037	. . . . . {differing in coefficient of thermal expansion or dila(ta)tion }
A61F 2002/30039	. . . . . {differing in shape-memory transition temperatures, e.g. in martensitic transition temperature or in austenitic transition temperature }
A61F 2002/30041	. . . . . {differing in hardening time }
A61F 2002/30042	. . . . . {made from both cured and uncured parts }
A61F 2002/30044	. . . . . {differing in melting temperature }
A61F 2002/30046	. . . . . {differing in thermal conductivity }
A61F 2002/30047	. . . . . {differing in colour }
A61F 2002/30049	. . . . . {differing in optical properties }
A61F 2002/30051	. . . . . {differing in corrosion resistance }
A61F 2002/30052	. . . . . {differing in electric properties }
A61F 2002/30054	. . . . . {differing in electromagnetical properties }
A61F 2002/30056	. . . . . {differing in radiographic density }
A61F 2002/30057	. . . . . {made from both cortical and cancellous adjacent parts }
A61F 2002/30059	. . . . . {differing in bone mineralization, e.g. made from both mineralized and demineralized adjacent parts }
A61F 2002/3006	. . . . . {Properties of materials and coating materials }
A61F 2002/30062	. . . . . {(bio)absorbable, biodegradable, bioerodable, (bio)resorbable, resorptive }
A61F 2002/30064	. . . . . {Coating or prosthesis-covering structure made of biodegradable material }
A61F 2002/30065	. . . . . {thermoplastic, i.e. softening or fusing when heated, and hardening and becoming rigid again when cooled }
A61F 2002/30067	. . . . . {Coating or prosthesis-covering structure made of thermoplastic material }
A61F 2002/30069	. . . . . elastomeric {elastomeric }
A61F 2002/3007	. . . . . {Coating or prosthesis-covering structure made of elastic material, e.g. of elastomer }
A61F 2002/30072	. . . . . {Coating made of plastically deformable or self-moulding material }
A61F 2002/30074	. . . . . stretchable {stretchable }
A61F 2002/30075	. . . . . {swellable, e.g. when wetted }
A61F 2002/30077	. . . . . shrinkable {shrinkable }
A61F 2002/30079	. . . . . magnetic {magnetic }
A61F 2002/3008	. . . . . {radio-opaque, e.g. radio-opaque markers }
A61F 2002/30082	. . . . . radioactive {radioactive }

A61F 2002/30084	. . . . . {Materials having a crystalline structure }
A61F 2002/30085	. . . . . anisotropic {anisotropic }
A61F 2002/30087	. . . . . piezoelectric {piezoelectric }
A61F 2002/30088	. . . . . {Phase change materials (PCM), e.g. for storing latent heat }
A61F 2002/3009	. . . . . {Transparent or translucent }
A61F 2002/30092	. . . . . {using shape memory or superelastic materials, e.g. nitinol }
A61F 2002/30093	. . . . . {operated at only one temperature whilst inside or touching the human body, e.g. constrained in a non-operative shape during surgery, another temperature only occurring before the operation }
A61F 2002/30095	. . . . . {operated at different temperatures whilst inside or touching the human body, heated or cooled by external energy source or cold supply }
A61F 2002/30097	. . . . . cooled {cooled }
A61F 2002/30098	. . . . . {electrically, e.g. heated by resistor }
A61F 2002/301	. . . . . electromagnetically {electromagnetically }
A61F 2002/30102	. . . . . {using a fluid, e.g. circulating }
A61F 2002/30103	. . . . . {heated by light }
A61F 2002/30105	. . . . . ultrasonically {ultrasonically }
A61F 2002/30107	. . . . . {using materials or accessories for preventing galvanic or electrolytic corrosion }
A61F 2002/30108	. . . . . Shapes {Shapes }
A61F 2002/3011	. . . . . {Cross-sections or two-dimensional shapes }
A61F 2002/30112	. . . . . {Rounded shapes, e.g. with rounded corners }
A61F 2002/30113	. . . . . circular {circular }
A61F 2002/30115	. . . . . {circular-O-shaped }
A61F 2002/30116	. . . . . {partial circles, i.e. circular segments }
A61F 2002/30118	. . . . . {concentric circles }
A61F 2002/3012	. . . . . {intersecting circles }
A61F 2002/30121	. . . . . {with lobes }
A61F 2002/30123	. . . . . {with two diametrically opposed lobes }
A61F 2002/30125	. . . . . {elliptical or oval }
A61F 2002/30126	. . . . . {oval-O-shaped }
A61F 2002/30128	. . . . . {concentric ellipses }
A61F 2002/3013	. . . . . {figure-"8"- or hourglass-shaped }
A61F 2002/30131	. . . . . {horseshoe- or crescent- or C-shaped or U-shaped }
A61F 2002/30133	. . . . . {kidney-shaped or bean-shaped }
A61F 2002/30135	. . . . . {S-shaped or Z-shaped }
A61F 2002/30136	. . . . . {undulated or wavy, e.g. serpentine-shaped or zigzag-shaped }
A61F 2002/30138	. . . . . {Convex polygonal shapes }
A61F 2002/3014	. . . . . decagonal {decagonal }
A61F 2002/30141	. . . . . dodecagonal {dodecagonal }
A61F 2002/30143	. . . . . hexagonal {hexagonal }
A61F 2002/30144	. . . . . {Honeycomb pattern }
A61F 2002/30146	. . . . . octagonal {octagonal }
A61F 2002/30148	. . . . . {lozenge- or diamond-shaped }

A61F 2002/30149	. . . . . pentagonal {pentagonal }
A61F 2002/30151	. . . . . {rhomboidal or parallelogram-shaped }
A61F 2002/30153	. . . . . rectangular {rectangular }
A61F 2002/30154	. . . . . square {square }
A61F 2002/30156	. . . . . triangular {triangular }
A61F 2002/30158	. . . . . trapezoidal {trapezoidal }
A61F 2002/30159	. . . . . {Concave polygonal shapes }
A61F 2002/30161	. . . . . {arrow-shaped }
A61F 2002/30163	. . . . . {cruciform, different from X-shaped }
A61F 2002/30164	. . . . . {dovetail-shaped }
A61F 2002/30166	. . . . . {H-shaped or I-shaped }
A61F 2002/30168	. . . . . {L-shaped }
A61F 2002/30169	. . . . . {Pi-shaped }
A61F 2002/30171	. . . . . {rosette- or star-shaped }
A61F 2002/30172	. . . . . {T-shaped }
A61F 2002/30174	. . . . . {the upper branch of the T being inclined with respect to its main branch }
A61F 2002/30176	. . . . . {V-shaped }
A61F 2002/30177	. . . . . {W-shaped, M-shaped or sigma shaped }
A61F 2002/30179	. . . . . {X-shaped }
A61F 2002/30181	. . . . . {Y-shaped }
A61F 2002/30182	. . . . . {Other shapes }
A61F 2002/30184	. . . . . {Alpha-shaped }
A61F 2002/30186	. . . . . {B-shaped }
A61F 2002/30187	. . . . . {D-shaped or half-disc-shaped }
A61F 2002/30189	. . . . . {E-shaped or epsilon-shaped }
A61F 2002/30191	. . . . . {heart-shaped }
A61F 2002/30192	. . . . . {J-shaped }
A61F 2002/30194	. . . . . {quarter-disc-shaped }
A61F 2002/30196	. . . . . {Psi-shaped or fork-shaped }
A61F 2002/30197	. . . . . {Omega-shaped }
A61F 2002/30199	. . . . . {Three-dimensional shapes }
A61F 2002/302	. . . . . {toroidal, e.g. rings }
A61F 2002/30202	. . . . . {half-tores }
A61F 2002/30204	. . . . . toric {toric }
A61F 2002/30205	. . . . . conical {conical }
A61F 2002/30207	. . . . . {Double convex cones, i.e. element having two convex cones, one at each of its opposite ends }
A61F 2002/30209	. . . . . {Cones of elliptical or oval basis }
A61F 2002/3021	. . . . . frustoconical {frustoconical }
A61F 2002/30212	. . . . . {Half-cones }
A61F 2002/30214	. . . . . {having tapered sections of different conicities }
A61F 2002/30215	. . . . . {Stepped cones, i.e. having discrete diameter changes }
A61F 2002/30217	. . . . . {hollow cones, e.g. tubular-like cones }
A61F 2002/30219	. . . . . {the inner and outer surfaces having different conicities }

A61F 2002/3022	. . . . . {Half tubular-like cones }
A61F 2002/30222	. . . . . {concentric tubular-like cones }
A61F 2002/30224	. . . . . cylindrical {cylindrical }
A61F 2002/30225	. . . . . {Flat cylinders, i.e. discs }
A61F 2002/30227	. . . . . {arched, domed or vaulted }
A61F 2002/30228	. . . . . {Cylinders of elliptical or oval basis }
A61F 2002/3023	. . . . . {wedge-shaped cylinders }
A61F 2002/30232	. . . . . {Half-cylinders }
A61F 2002/30233	. . . . . {Stepped cylinders, i.e. having discrete diameter changes }
A61F 2002/30235	. . . . . {tubular, e.g. sleeves }
A61F 2002/30237	. . . . . {partial tubes }
A61F 2002/30238	. . . . . {half tubes }
A61F 2002/3024	. . . . . {concentric tubes }
A61F 2002/30242	. . . . . spherical {spherical }
A61F 2002/30243	. . . . . {the overall spherical surface being composed of a plurality of adjacent circular or polygonal segments, e.g. football-like shaped }
A61F 2002/30245	. . . . . {Partial spheres }
A61F 2002/30247	. . . . . {Hemispheres or half-spheres }
A61F 2002/30248	. . . . . {Quarter-spheres }
A61F 2002/3025	. . . . . {hollow spheres }
A61F 2002/30252	. . . . . {quadric-shaped }
A61F 2002/30253	. . . . . {ellipsoidal or ovoid }
A61F 2002/30255	. . . . . hyperboloidal {hyperboloidal }
A61F 2002/30257	. . . . . paraboloidal {paraboloidal }
A61F 2002/30258	. . . . . {elliptic paraboloid }
A61F 2002/3026	. . . . . {hyperbolic paraboloid }
A61F 2002/30261	. . . . . parallelepipedal {parallelepipedal }
A61F 2002/30263	. . . . . cubical {cubical }
A61F 2002/30265	. . . . . {Flat parallelepipeds }
A61F 2002/30266	. . . . . {wedge-shaped parallelepipeds }
A61F 2002/30268	. . . . . {Partial parallelepipeds }
A61F 2002/3027	. . . . . {Stepped parallelepipeds }
A61F 2002/30271	. . . . . {hollow parallelepipeds }
A61F 2002/30273	. . . . . pyramidal {pyramidal }
A61F 2002/30275	. . . . . {tetrahedral, i.e. having a triangular basis }
A61F 2002/30276	. . . . . frustopyramidal {frustopyramidal }
A61F 2002/30278	. . . . . {hollow pyramids }
A61F 2002/3028	. . . . . {polyhedral different from parallelepipedal and pyramidal }
A61F 2002/30281	. . . . . {wedge-shaped }
A61F 2002/30283	. . . . . hollow {hollow }
A61F 2002/30285	. . . . . {rugby-ball-shaped }
A61F 2002/30286	. . . . . {barrel-shaped }
A61F 2002/30288	. . . . . {bottle-shaped }
A61F 2002/30289	. . . . . {helically-coiled }

A61F 2002/30291	. . . . . {spirally-coiled, i.e. having a 2-D spiral cross-section }
A61F 2002/30293	. . . . . {Cylindrical body made by spirally rolling up a sheet or a strip around itself }
A61F 2002/30294	. . . . . {Conical or frustoconical body made by spirally rolling up a sheet or a strip around itself }
A61F 2002/30296	. . . . . {logarithmic spiral }
A61F 2002/30298	. . . . . {Parallelepipedal body made by spirally rolling up a sheet or a strip around itself }
A61F 2002/30299	. . . . . {umbrella-shaped or mushroom-shaped }
A61F 2002/30301	. . . . . {saddle-shaped }
A61F 2002/30303	. . . . . {polypod-shaped }
A61F 2002/30304	. . . . . {nose-shaped }
A61F 2002/30306	. . . . . {harpoon-shaped }
A61F 2002/30308	. . . . . {banana-shaped }
A61F 2002/30309	. . . . . {hat-shaped }
A61F 2002/30311	. . . . . {doughnut-shaped }
A61F 2002/30313	. . . . . {pear-shaped }
A61F 2002/30314	. . . . . {bell-shaped }
A61F 2002/30316	. . . . {The prosthesis having different structural features at different locations within the same prosthesis; Connections between prosthetic parts; Special structural features of bone or joint prostheses not otherwise provided for }
A61F 2002/30317	. . . . {The prosthesis having different structural features at different locations within the same prosthesis }
A61F 2002/30319	. . . . . {differing in moment of inertia }
A61F 2002/30321	. . . . . {differing in roughness }
A61F 2002/30322	. . . . . {differing in surface structures }
A61F 2002/30324	. . . . . {differing in thickness }
A61F 2002/30326	. . . . . {differing in height or in length }
A61F 2002/30327	. . . . . {differing in diameter }
A61F 2002/30329	. . . . {Connections or couplings between prosthetic parts, e.g. between modular parts; Connecting elements }
A61F 2002/30331	. . . . . {made by longitudinally pushing a protrusion into a complementarily-shaped recess, e.g. held by friction fit }
A61F 2002/30332	. . . . . {Conically- or frustoconically-shaped protrusion and recess }
A61F 2002/30334	. . . . . {Cone of elliptical or oval basis }
A61F 2002/30336	. . . . . {Stepped cones, i.e. having discrete diameter changes }
A61F 2002/30337	. . . . . {Inverted concave conical connections, e.g. for opposing disconnection }
A61F 2002/30339	. . . . . {Double cones, i.e. connecting element having two conical connections, one at each of its opposite ends }
A61F 2002/30341	. . . . . {both cones being convex, i.e. male tapers }
A61F 2002/30342	. . . . . {both cones being concave, i.e. female tapers }
A61F 2002/30344	. . . . . {one cone being convex and the other being concave }
A61F 2002/30345	. . . . . {Multiple conical connection, i.e. the protrusion and recess having several tapered sections of different complementary conicities }

A61F 2002/30347	. . . . . {Protrusion and recess of complementarily-tapered undulated or serrated cross-section }
A61F 2002/30349	. . . . . {the male and female complementary cones being of different conicities, i.e. for reducing the contact area }
A61F 2002/3035	. . . . . {the male convex cone having an inner female concave taper }
A61F 2002/30352	. . . . . {Protrusion and recess of D-shaped cross-section }
A61F 2002/30354	. . . . . {Cylindrically-shaped protrusion and recess, e.g. cylinder of circular basis }
A61F 2002/30355	. . . . . {Cylinder of elliptical or oval basis }
A61F 2002/30357	. . . . . {Stepped cylinders, i.e. having discrete diameter changes }
A61F 2002/30359	. . . . . {Pyramidally- or frustopyramidally-shaped protrusion and recess }
A61F 2002/3036	. . . . . {Protrusion and recess of kidney-shaped cross-section }
A61F 2002/30362	. . . . . {with possibility of relative movement between the protrusion and the recess }
A61F 2002/30364	. . . . . {Rotation about the common longitudinal axis }
A61F 2002/30365	. . . . . {with additional means for limiting said rotation }
A61F 2002/30367	. . . . . {with additional means for preventing said rotation }
A61F 2002/30369	. . . . . {Limited lateral translation of the protrusion within a larger recess }
A61F 2002/3037	. . . . . {Translation along the common longitudinal axis, e.g. piston }
A61F 2002/30372	. . . . . {with additional means for limiting said translation }
A61F 2002/30373	. . . . . {with additional means for preventing said translation }
A61F 2002/30375	. . . . . {with an intermediate bushing or sleeve between the moving parts }
A61F 2002/30377	. . . . . {Protrusion and recess of constant polygonal, serrated or undulated cross-section }
A61F 2002/30378	. . . . . {Spherically-shaped protrusion and recess }
A61F 2002/3038	. . . . . {made by pushing a key or a peg into a mating slot or hole }
A61F 2002/30382	. . . . . {made by pushing lateral pegs into mating lateral slots or bores }
A61F 2002/30383	. . . . . {made by laterally inserting a protrusion, e.g. a rib into a complementarily-shaped groove }
A61F 2002/30385	. . . . . {the rib and groove having non-parallel, e.g. conically-tapered, cooperating sides, e.g. having a trapezoidal front cross-section }
A61F 2002/30387	. . . . . {Dovetail connection }
A61F 2002/30388	. . . . . {Half-dovetail }
A61F 2002/3039	. . . . . {with possibility of relative movement of the rib within the groove }
A61F 2002/30392	. . . . . Rotation {Rotation }
A61F 2002/30393	. . . . . {with additional means for limiting said rotation }
A61F 2002/30395	. . . . . {with additional means for preventing or locking said rotation }
A61F 2002/30397	. . . . . {Limited lateral translation of the rib within a larger groove }
A61F 2002/30398	. . . . . Sliding {Sliding }
A61F 2002/304	. . . . . {with additional means for limiting said sliding }
A61F 2002/30401	. . . . . {with additional means for preventing or locking said sliding }
A61F 2002/30403	. . . . . {Longitudinally-oriented cooperating ribs and grooves on mating lateral surfaces of a mainly longitudinal connection }
A61F 2002/30405	. . . . . {made by screwing complementary threads machined on the parts themselves }

A61F 2002/30406	. . . . . {Threads machined on spherical, e.g. hemispherical, surfaces }
A61F 2002/30408	. . . . . {Conical threadings }
A61F 2002/3041	. . . . . {having threaded portions of different pitches }
A61F 2002/30411	. . . . . {having two threaded end parts connected by a threaded central part with opposite threads at its opposite ends, i.e. for adjusting the distance between both end parts by rotating the central part }
A61F 2002/30413	. . . . . {having threads of increasing height or depth }
A61F 2002/30415	. . . . . {with additional means for limiting the length of the movement of the male threads within the female threads }
A61F 2002/30416	. . . . . Microthreads {Microthreads }
A61F 2002/30418	. . . . . {Double or multiple threadings }
A61F 2002/3042	. . . . . {with a pin cooperating with a helical groove }
A61F 2002/30421	. . . . . {Rounded threads }
A61F 2002/30423	. . . . . {Stepped cylindrical threads, i.e. having discrete diameter changes }
A61F 2002/30425	. . . . . {Square threads }
A61F 2002/30426	. . . . . {Bayonet coupling }
A61F 2002/30428	. . . . . {made by inserting a protrusion into a slot }
A61F 2002/30429	. . . . . {made by inserting a hook into a cooperating slot }
A61F 2002/30431	. . . . . {made by first pushing a necked button longitudinally and then sliding it laterally within a keyhole slot }
A61F 2002/30433	. . . . . {using additional screws, bolts, dowels or rivets, e.g. connecting screws }
A61F 2002/30434	. . . . . {using bolts }
A61F 2002/30436	. . . . . {using dowels }
A61F 2002/30438	. . . . . {using nuts }
A61F 2002/30439	. . . . . {Screw head protectors }
A61F 2002/30441	. . . . . {using rivets or directly riveted }
A61F 2002/30443	. . . . . {using washers }
A61F 2002/30444	. . . . . {Split washers }
A61F 2002/30446	. . . . . {Spring washers, e.g. Belleville washers }
A61F 2002/30448	. . . . . {using adhesives }
A61F 2002/30449	. . . . . {the adhesive being cement }
A61F 2002/30451	. . . . . {soldered or brazed or welded }
A61F 2002/30453	. . . . . brazed {brazed }
A61F 2002/30454	. . . . . {by high energy welding, e.g. laser beam welding, electron beam welding, plasma welding }
A61F 2002/30456	. . . . . {by spot welding }
A61F 2002/30457	. . . . . {by ultrasonic or sonic welding }
A61F 2002/30459	. . . . . stapled {stapled }
A61F 2002/30461	. . . . . {sutured, ligatured or stitched }
A61F 2002/30462	. . . . . {retained or tied with a rope, string, thread, wire or cable }
A61F 2002/30464	. . . . . {using bands, belts or straps }
A61F 2002/30466	. . . . . {being elastic }
A61F 2002/30467	. . . . . {using hook and loop-type fasteners }
A61F 2002/30469	. . . . . {using band clamps }

A61F 2002/30471	. . . . . {connected by a hinged linkage mechanism, e.g. of the single-bar or multi-bar linkage type }
A61F 2002/30472	. . . . . {using connecting nails or pins }
A61F 2002/30474	. . . . . {using an intermediate sleeve interposed between both prosthetic parts to be coupled }
A61F 2002/30476	. . . . . {locked by an additional locking mechanism }
A61F 2002/30477	. . . . . {using sharp protrusions, e.g. spikes, for anchoring into connecting prosthetic part }
A61F 2002/30479	. . . . . {using a locking ball }
A61F 2002/30481	. . . . . {using a locking clip }
A61F 2002/30482	. . . . . {using a locking cam }
A61F 2002/30484	. . . . . {Mechanically expandable devices located on the first prosthetic part for locking into or onto the second prosthetic part }
A61F 2002/30485	. . . . . {plastically deformable }
A61F 2002/30487	. . . . . {Circumferential cooperating grooves and beads on cooperating lateral surfaces of a mainly longitudinal connection }
A61F 2002/30489	. . . . . {Circumferential cooperating serrations }
A61F 2002/3049	. . . . . {using a slidable sleeve covering the connection }
A61F 2002/30492	. . . . . {using a locking pin }
A61F 2002/30494	. . . . . {Cooperating protrusions and recesses, e.g. radial serrations, located on abutting end surfaces of a longitudinal connection }
A61F 2002/30495	. . . . . {using a locking ring }
A61F 2002/30497	. . . . . {Split ring, e.g. circlip }
A61F 2002/30499	. . . . . {Wire ring }
A61F 2002/305	. . . . . {Snap connection }
A61F 2002/30502	. . . . . {Press-buttons }
A61F 2002/30504	. . . . . {made by laterally snapping a peg or a like protrusion into a mating detent, hole or slot }
A61F 2002/30505	. . . . . {spring biased }
A61F 2002/30507	. . . . . {using a threaded locking member, e.g. a locking screw or a set screw }
A61F 2002/30509	. . . . . {using a traction locking screw }
A61F 2002/3051	. . . . . {using a locking bolt or a set bolt }
A61F 2002/30512	. . . . . {using a locking nut or a set nut }
A61F 2002/30514	. . . . . {using a locking washer }
A61F 2002/30515	. . . . . {using a locking wedge or block }
A61F 2002/30517	. . . . . {using a locking plate }
A61F 2002/30518	. . . . . {with possibility of relative movement between the prosthetic parts }
A61F 2002/3052	. . . . . {unrestrained in only one direction, e.g. moving unidirectionally }
A61F 2002/30522	. . . . . {releasable, e.g. using a releasable ratchet }
A61F 2002/30523	. . . . . {by means of meshing gear teeth }
A61F 2002/30525	. . . . . {Worm gears }
A61F 2002/30527	. . . . . {using a gear box }
A61F 2002/30528	. . . . . {Means for limiting said movement }
A61F 2002/3053	. . . . . {having additional means for preventing unwanted connections }

A61F 2002/30532	. . . . . {for preventing connection between parts of wrong sizes or orientations }
A61F 2002/30533	. . . . . {for preventing permanent connection between prosthetic parts and trial parts }
A61F 2002/30535	. . . . . {Special structural features of bone or joint prostheses not otherwise provided for }
A61F 2002/30537	. . . . . adjustable- adjustable }
A61F 2002/30538	. . . . . {for adjusting angular orientation }
A61F 2002/3054	. . . . . {about a connection axis or implantation axis for selecting any one of a plurality of radial orientations between two modular parts, e.g. at discrete positions }
A61F 2002/30542	. . . . . {at continuous positions }
A61F 2002/30543	. . . . . {at only two discrete angular positions, e.g. located at 180 degrees intervals }
A61F 2002/30545	. . . . . {for adjusting a diameter }
A61F 2002/30546	. . . . . {for adjusting elasticity, flexibility, spring rate or mechanical tension }
A61F 2002/30548	. . . . . {for adjusting fluid pressure }
A61F 2002/3055	. . . . . {for adjusting length }
A61F 2002/30551	. . . . . {at different discrete positions, e.g. at equidistant intervals }
A61F 2002/30553	. . . . . {for adjusting a position by translation along an axis }
A61F 2002/30555	. . . . . {along two perpendicular axes }
A61F 2002/30556	. . . . . {for adjusting thickness }
A61F 2002/30558	. . . . . {Force-limiting means }
A61F 2002/3056	. . . . . {Torque-limiting means }
A61F 2002/30561	. . . . . {breakable or frangible }
A61F 2002/30563	. . . . . {having elastic means or damping means, different from springs, e.g. including an elastomeric core or shock absorbers }
A61F 2002/30565	. . . . . {having spring elements }
A61F 2002/30566	. . . . . {Helical springs }
A61F 2002/30568	. . . . . {Multiple spring systems including two or more helical springs }
A61F 2002/3057	. . . . . {Concentric outer and inner helical springs }
A61F 2002/30571	. . . . . {Leaf springs }
A61F 2002/30573	. . . . . {2-D spiral springs }
A61F 2002/30574	. . . . . {with an integral complete or partial collar or flange }
A61F 2002/30576	. . . . . {with extending fixation tabs }
A61F 2002/30578	. . . . . {having apertures, e.g. for receiving fixation screws }
A61F 2002/30579	. . . . . {with mechanically expandable devices, e.g. fixation devices }
A61F 2002/30581	. . . . . {having a pocket filled with fluid, e.g. liquid }
A61F 2002/30583	. . . . . {filled with hardenable fluid, e.g. curable in-situ }
A61F 2002/30584	. . . . . {filled with gas }
A61F 2002/30586	. . . . . {having two or more inflatable pockets or chambers }
A61F 2002/30588	. . . . . {filled with solid particles }
A61F 2002/30589	. . . . . {Sealing means }
A61F 2002/30591	. . . . . {O-rings }
A61F 2002/30593	. . . . . hollow- hollow }

A61F 2002/30594	. . . . . slotted { <i>slotted</i> }
A61F 2002/30596	. . . . . {slots ending in apertures, e.g. for avoiding stress concentration at the ends of the slots }
A61F 2002/30598	. . . . . {Plurality of slots }
A61F 2002/30599	. . . . . stackable { <i>stackable</i> }
A61F 2002/30601	. . . . . telescopic { <i>telescopic</i> }
A61F 2002/30602	. . . . . {Shaft made of a bundle of anchoring rods or bristles, e.g. fasciculate shaft }
A61F 2002/30604	. . . . . modular { <i>modular</i> }
A61F 2002/30606	. . . . . {Sets comprising both cemented and non-cemented endoprostheses }
A61F 2002/30607	. . . . . {Kits of prosthetic parts to be assembled in various combinations for forming different prostheses }
A61F 2002/30609	. . . . . {Sets comprising both coated and non-coated endoprostheses }
A61F 2002/30611	. . . . . {Nested prosthetic parts }
A61F 2002/30612	. . . . . {Pre-assembled implant modules }
A61F 2002/30614	. . . . . {Sets comprising both primary and revision endoprostheses }
A61F 2002/30616	. . . . . {Sets comprising a plurality of prosthetic parts of different sizes or orientations }
A61F 2002/30617	. . . . . {Visible markings for adjusting, locating or measuring }
A61F 2002/30619	. . . . . {Wire rings }
A61F 2002/30621	. . . . {Features concerning the anatomical functioning or articulation of the prosthetic joint }
A61F 2002/30622	. . . . . {Implant for fusing a joint or bone material }
A61F 2002/30624	. . . . . {Hinged joint, e.g. with transverse axle restricting the movement }
A61F 2002/30626	. . . . . {allowing only for single rotation }
A61F 2002/30627	. . . . . {by means of cooperating stepped cylindrical surfaces }
A61F 2002/30629	. . . . . {of the pin-guiding groove linkage type }
A61F 2002/3063	. . . . . {having bearing bushes between the rotating parts }
A61F 2002/30632	. . . . . {with rotation-limiting stops, e.g. projections or recesses }
A61F 2002/30634	. . . . . biaxial { <i>biaxial</i> }
A61F 2002/30635	. . . . . {Cardan or gimbal joints }
A61F 2002/30637	. . . . . {Dual arrangement of two adjacent hinged joints }
A61F 2002/30639	. . . . . {having rolling elements between both articulating surfaces }
A61F 2002/3064	. . . . . {Ball bearings }
A61F 2002/30642	. . . . . {having a single rolling (or sliding) ball articulating between two cups }
A61F 2002/30644	. . . . . {Roller bearings }
A61F 2002/30645	. . . . . {Needle bearings }
A61F 2002/30647	. . . . . {Joints made of two toroidal rings engaged together }
A61F 2002/30649	. . . . . {Ball-and-socket joints }
A61F 2002/3065	. . . . . {Details of the ball-shaped head }
A61F 2002/30652	. . . . . {Special cut-outs, e.g. flat or grooved cut-outs }
A61F 2002/30654	. . . . . {Details of the concave socket }
A61F 2002/30655	. . . . . {Non-spherical concave inner surface }
A61F 2002/30657	. . . . . {made of different partially-spherical concave portions }

A61F 2002/30658	. . . . . {having a central conforming area surrounded by a peripheral annular non-conforming area }
A61F 2002/3066	. . . . . {having a central non-conforming area surrounded by a peripheral annular conforming area }
A61F 2002/30662	. . . . . {with rotation-limiting means }
A61F 2002/30663	. . . . . {multiaxial, e.g. biaxial; multipolar, e.g. bipolar or having an intermediate shell articulating between the ball and the socket }
A61F 2002/30665	. . . . . {Dual arrangement of two adjacent ball-and-socket joints }
A61F 2002/30667	. . . . {Features concerning an interaction with the environment or a particular use of the prosthesis }
A61F 2002/30668	. . . . {Means for transferring electromagnetic energy to implants }
A61F 2002/3067	. . . . . {for data transfer }
A61F 2002/30672	. . . . . temporary {temporary }
A61F 2002/30673	. . . . . {Lubricating means, e.g. synovial pocket }
A61F 2002/30675	. . . . . {Means for regulating synovial fluid pressure }
A61F 2002/30677	. . . . . {Means for introducing or releasing pharmaceutical products, e.g. antibiotics, into the body }
A61F 2002/30678	. . . . . {Gene therapy }
A61F 2002/3068	. . . . . {the pharmaceutical product being in a reservoir }
A61F 2002/30682	. . . . . {Means for preventing migration of particles released by the joint, e.g. wear debris or cement particles }
A61F 2002/30683	. . . . . {Means for collecting wear particles in a hollow cavity inside the prosthesis }
A61F 2002/30685	. . . . . {Means for reducing or preventing the generation of wear particulates }
A61F 2002/30686	. . . . . {Devices for removing particulate debris from prosthetic joints }
A61F 2002/30688	. . . . . {Means for allowing passage or sliding of tendons or ligaments }
A61F 2002/3069	. . . . . {Revision endoprostheses }
A61F 2002/30691	. . . . . {Drainage means, e.g. for evacuating blood or other fluids }
A61F 2002/30693	. . . . . {Air venting means }
A61F 2002/30695	. . . . . {Sound-damping or noise-reducing means }
A61F 2002/30696	. . . . . {Means for preventing the accidental forgetting of prosthetic parts inside the body during operation }
A61F 2002/30698	. . . . . {Alarm means }
A61F 2002/307	. . . . . {Prostheses for animals }
A61F 2002/30701	. . . . . {for cats }
A61F 2002/30703	. . . . . {for dogs }
A61F 2002/30705	. . . . . {for horses }
A61F 2002/30706	. . . . . {specially designed for children, e.g. having means for adjusting to their growth }
A61F 2002/30708	. . . . . {Means for distinguishing between left-sided and right-sided devices, Sets comprising both left-sided and right-sided prosthetic parts }
A61F 2002/3071	. . . . . {Identification means; Administration of patients }
A61F 2002/30711	. . . . . {with bar code }
A61F 2002/30713	. . . . . {colour-coded }
A61F 2002/30714	. . . . . {coded with symbols, e.g. dots, numbers, letters, words }
A61F 2002/30716	. . . . . {for single use, e.g. having means for preventing re-use }

	A61F 2002/30718	. . . . {Means for protecting prosthetic parts, e.g. during operation }
	A61F 2002/30719	. . . . {Means for cleaning prostheses }
U	A61F 2/30721	. . . {Accessories}
U	A61F 2/30724	. . . . {Spacers for centering an implant in a bone cavity, e.g. in a cement-receiving cavity}
	A61F 2002/30726	. . . . {Centering or guiding rods, e.g. for insertion of femoral shafts }
U	A61F 2/30728	. . . . {Collars; Bone edge protectors (A61F 2/30734 takes precedence; sealing collars for use during cementing A61B 17/8808)}
	A61F 2002/30729	. . . . {Separate collars }
	A61F 2002/30731	. . . . {Bone edge protectors }
	A61F 2002/30733	. . . . {Inserts placed into an endoprosthetic cavity, e.g. for modifying a material property }
U	A61F 2/30734	. . . . {Modular inserts, sleeves or augments, e.g. placed on proximal part of stem for fixation purposes or wedges for bridging a bone defect}
	A61F 2002/30736	. . . . {Augments or augmentation pieces, e.g. wedges or blocks for bridging a bone defect }
	A61F 2002/30738	. . . . Sleeves {Sleeves }
U	A61F 2/30739	. . . . {Devices connected to the proximal part of an endoprosthetic femoral shaft for reinforcing or replacing the trochanters, e.g. the greater trochanter (proximal parts of endoprosthetic femoral shafts A61F 2/367 ; non-prosthetic trochanteric devices A61B 17/74)}
	A61F 2002/30741	. . . . {for the lesser trochanter}
U	A61F 2/30744	. . . . {End caps, e.g. for closing an endoprosthetic cavity}
	A61F 2002/30746	. . . . {closable by a rotation different from screwing or bayonet coupling, e.g. about the cap central longitudinal axis }
	A61F 2002/30747	. . . . {closable by translation }
U	A61F 2/30749	. . . . { Fixation appliances for connecting prostheses to the body}
	A61F 2002/30751	. . . . {for attaching cartilage scaffolds to underlying bone }
	A61F 2002/30752	. . . . {by means of a bed of granular material }
	A61F 2002/30754	. . . . {Implants for interposition between two natural articular surfaces }
U	A61F 2/30756	. . . {Cartilage endoprostheses (A61F 2/3603 takes precedence)}
	A61F 2002/30757	. . . . {made of a sheet covering the natural articular surface, e.g. cap }
	A61F 2002/30759	. . . . {Mosaicplasty, i.e. using a plurality of individual cartilage plugs for filling a substantial cartilage defect }
	A61F 2002/30761	. . . . {Support means for artificial cartilage, e.g. cartilage defect covering membranes }
	A61F 2002/30762	. . . . {Means for culturing cartilage }
	A61F 2002/30764	. . . . {Cartilage harvest sites }
	A61F 2002/30766	. . . . {Scaffolds for cartilage ingrowth and regeneration }
U	A61F 2/30767	. . . {Special external and/or bone-contacting surfaces, e.g. coating for improving bone ingrowth (materials for coating prostheses A61L 27/28)}
	A61F 2002/30769	. . . . madreporic {madreporic }
U	A61F 2/30771	. . . . {applied in original prostheses, e.g. holes, grooves (etching the surface A61F 2/30767)}
	A61F 2002/30772	. . . . {Apertures or holes, e.g. of circular cross section }
	A61F 2002/30774	. . . . {internally-threaded }
	A61F 2002/30775	. . . . {with two portions of opposite threads, i.e. a right-hand thread and a left-hand thread }

A61F 2002/30777	. . . . . {Oblong apertures }
A61F 2002/30779	. . . . . arcuate {arcuate }
A61F 2002/3078	. . . . . {having an undulated contour, e.g. made of intercommunicating circular holes }
A61F 2002/30782	. . . . . {inclined obliquely }
A61F 2002/30784	. . . . . {Plurality of holes }
A61F 2002/30785	. . . . . parallel {parallel }
A61F 2002/30787	. . . . . {inclined obliquely w.r.t. each other }
A61F 2002/30789	. . . . . {perpendicular w.r.t. each other }
A61F 2002/3079	. . . . . {Stepped or enlarged apertures, e.g. having discrete diameter changes }
A61F 2002/30792	. . . . . {Dual tapered apertures }
A61F 2002/30794	. . . . . {the enlarged portion being used for receiving and hiding a screw head, a nut or a closing cap }
A61F 2002/30795	. . . . . {Blind bores, e.g. of circular cross-section }
A61F 2002/30797	. . . . . {internally-threaded }
A61F 2002/30799	. . . . . {with two portions of opposite threads, i.e. a right-hand thread and a left-hand thread }
A61F 2002/308	. . . . . oblong {oblong }
A61F 2002/30802	. . . . . arcuate {arcuate }
A61F 2002/30803	. . . . . {inclined obliquely }
A61F 2002/30805	. . . . . {Recesses of comparatively large area w.r.t. their low depth }
A61F 2002/30807	. . . . . {Plurality of blind bores }
A61F 2002/30808	. . . . . parallel {parallel }
A61F 2002/3081	. . . . . {inclined obliquely w.r.t. each other }
A61F 2002/30812	. . . . . {perpendicular w.r.t. each other }
A61F 2002/30813	. . . . . {Stepped or enlarged blind bores, e.g. having discrete diameter changes }
A61F 2002/30815	. . . . . {the enlarged portion being used for receiving and hiding a screw head, a nut or a closing cap }
A61F 2002/30817	. . . . . {Intersecting or overlapping blind bores }
A61F 2002/30818	. . . . . {castellated or crenellated }
A61F 2002/3082	. . . . . Grooves {Grooves }
A61F 2002/30822	. . . . . {Circumferential grooves }
A61F 2002/30823	. . . . . {having the shape of a reverse dovetail }
A61F 2002/30825	. . . . . arcuate {arcuate }
A61F 2002/30827	. . . . . {Plurality of grooves }
A61F 2002/30828	. . . . . parallel {parallel }
A61F 2002/3083	. . . . . {inclined obliquely with respect to each other }
A61F 2002/30831	. . . . . {perpendicular with respect to each other }
A61F 2002/30833	. . . . . {with enlarged portion }
A61F 2002/30835	. . . . . {for receiving and hiding a screw head or a nut }
A61F 2002/30836	. . . . . knurled {knurled }
A61F 2002/30838	. . . . . Microstructures {Microstructures }
A61F 2002/3084	. . . . . Nanostructures {Nanostructures }

A61F 2002/30841	. . . . . {Sharp anchoring protrusions for impaction into the bone, e.g. sharp pins, spikes }
A61F 2002/30843	. . . . . {Pyramidally-shaped }
A61F 2002/30845	. . . . . {with cutting edges }
A61F 2002/30846	. . . . . circular {circular }
A61F 2002/30848	. . . . . straight {straight }
A61F 2002/3085	. . . . . {with a threaded, e.g. self-tapping, bone-engaging surface, e.g. external surface }
A61F 2002/30851	. . . . . {Multiple threadings }
A61F 2002/30853	. . . . . {Double threadings }
A61F 2002/30855	. . . . . {Quadruple or higher rank multiple threadings }
A61F 2002/30856	. . . . . {Triple threadings }
A61F 2002/30858	. . . . . {Threads interrupted by grooves or sidewalls, e.g. flat sidewalls }
A61F 2002/30859	. . . . . {having threaded portions of different pitches }
A61F 2002/30861	. . . . . {having threads of increasing or decreasing height }
A61F 2002/30863	. . . . . {the entry end surface having flutes, relief grooves, starter notches or beveled indentations }
A61F 2002/30864	. . . . . Microthreads {Microthreads }
A61F 2002/30866	. . . . . {Rounded threads }
A61F 2002/30868	. . . . . {Square, rectangular or rhomboidal threads }
A61F 2002/30869	. . . . . {Dovetail-shaped }
A61F 2002/30871	. . . . . {Trapezoidal threads }
A61F 2002/30873	. . . . . {Threadings machined on non-cylindrical external surfaces }
A61F 2002/30874	. . . . . {on conical, e.g. frustoconical, surfaces }
A61F 2002/30876	. . . . . {on spherical, e.g. hemispherical, surfaces }
A61F 2002/30878	. . . . . {with non-sharp protrusions, for instance contacting the bone for anchoring, e.g. keels, pegs, pins, posts, shanks, stems, struts }
A61F 2002/30879	. . . . . Ribs {Ribs }
A61F 2002/30881	. . . . . {Circumferential ribs }
A61F 2002/30883	. . . . . {dovetail-shaped }
A61F 2002/30884	. . . . . {Fins or wings, e.g. longitudinal wings for preventing rotation within the bone cavity }
A61F 2002/30886	. . . . . {externally-threaded }
A61F 2002/30887	. . . . . {with two portions of opposite threads, i.e. a right-hand thread and a left-hand thread }
A61F 2002/30889	. . . . . {Arcuate pegs }
A61F 2002/30891	. . . . . {Plurality of protrusions }
A61F 2002/30892	. . . . . parallel {parallel }
A61F 2002/30894	. . . . . {inclined obliquely w.r.t. each other }
A61F 2002/30896	. . . . . {perpendicular w.r.t. each other }
A61F 2002/30897	. . . . . {Stepped protrusions, i.e. having discrete diameter changes }
A61F 2002/30899	. . . . . {Protrusions pierced with apertures }
A61F 2002/30901	. . . . . longitudinally {longitudinally }
A61F 2002/30902	. . . . . {laterally or radially }
A61F 2002/30904	. . . . . {serrated profile, i.e. saw-toothed }
A61F 2002/30906	. . . . . {shot- sand- or grit-blasted }

- U A61F 2/30907 {Nets or sleeves applied to surface of prostheses or in cement}
- A61F 2002/30909 ~~Nets~~ {Nets }
- A61F 2002/30911 {having a honeycomb structure }
- A61F 2002/30912 {made of expanded metal, e.g. diamond mesh or metal nets having lozenge-shaped apertures }
- A61F 2002/30914 {Details of the mesh structure, e.g. disposition of the woven warp and weft wires }
- A61F 2002/30915 {made of a stack of bonded perforated sheets, grids or wire meshes}
- A61F 2002/30917 {for avoiding direct contact between bone and implant, e.g. extensible membrane for preventing contamination or for easy removal }
- A61F 2002/30919 ~~Sleeves~~ {Sleeves }
- A61F 2002/3092 {having an open-celled or open-pored structure }
- A61F 2002/30922 {Hardened surfaces }
- A61F 2002/30924 {by shot peening }
- A61F 2002/30925 ~~etched~~ {etched }
- A61F 2002/30927 {Electrolytic etching }
- A61F 2002/30929 {having at least two superposed coatings }
- A61F 2002/3093 {for promoting ingrowth of bone tissue }
- A61F 2002/30932 {for retarding or preventing ingrowth of bone tissue }
- A61F 2002/30934 {Special articulating surfaces }
- A61F 2002/30935 {Concave articulating surface composed of a central conforming area surrounded by a peripheral annular non-conforming area }
- A61F 2002/30937 {with cut-outs }
- A61F 2002/30939 {Means for modifying the geometry of articulating surfaces, e.g. for compensating excessive clearance caused by wear }
- U A61F 2/3094 . . . {Designing or manufacturing processes (not used, see subgroups)}
- U A61F 2/30942 {for designing or making customized prostheses, e.g. using templates, CT or NMR scans, finite-element analysis or CAD-CAM techniques (computer-assisted sizing or machining of dental prostheses [A61C 13/0004](#); CAD-CAM techniques per se [G05B 19/4202](#))}
- A61F 2002/30943 {using mathematical models }
- A61F 2002/30945 {using geometrical models }
- A61F 2002/30947 {Fractal geometry }
- A61F 2002/30948 {using computerized tomography, i.e. CT scans }
- A61F 2002/3095 {using computerized axial tomography, i.e. CAT scans }
- A61F 2002/30952 {using CAD-CAM techniques or NC-techniques }
- A61F 2002/30953 {using a remote computer network, e.g. Internet }
- A61F 2002/30955 {using finite-element analysis }
- A61F 2002/30957 {using a positive or a negative model, e.g. moulds }
- A61F 2002/30958 {using lost patterns, e.g. lost wax }
- A61F 2002/3096 {trimmed or cut to a customised size }
- A61F 2002/30962 {using stereolithography }
- A61F 2002/30963 {using templates, e.g. grid charts }
- A61F 2002/30967 {Diffusion bonding }
- A61F 2002/30968 ~~Sintering~~ {Sintering }
- A61F 2002/3097 {using laser }

- A61F 2002/30971 {Laminates, i.e. layered products }
- A61F 2002/30973 {Two joined adjacent layers having complementary interlocking protrusions and recesses }
- A61F 2002/30975 {made of two halves }
- A61F 2002/30976 {using hydrojet }
- A61F 2002/30978 {using electrical discharge machining (EDM) }
- A61F 2002/3098 {using physical vapour deposition (PVD) }
- A61F 2002/30981 {using chemical vapour deposition (CVD) }
- A61F 2002/30983 {using electrostatic spray deposition (ESD)}
- A61F 2002/30985 {using three dimensional printing (3DP) }
- A61F 2002/30986 {using hot isostatic pressing (HIP) }
- U A61F 2/30988 . . . {Other joints not covered by any of the groups [A61F 2/32](#) to [A61F 2/4425](#)}
- U A61F 2/3099 { for temporo-mandibular [TM, TMJ] joints (endoprostheses for mandibular reconstruction [A61F 2/2803](#)) }
- A61F 2002/30991 {Mandibular components }
- A61F 2002/30993 {Temporal components }
- A61F 2002/30995 {for sacro-iliac joints }
- A61F 2002/30996 {for sterno-clavicular joints }
- A61F 2002/30998 {for acromio-clavicular joints }
- U A61F 2/32 . . . for the hip

NOTE

Documents, which are of interest for more than one of the following subgroups, are classified in the hierarchically higher group only

- A61F 2002/3208 {Bipolar or multipolar joints, e.g. having a femoral head articulating within an intermediate acetabular shell whilst said shell articulates within the natural acetabular socket or within an artificial outer shell }
- A61F 2002/3216 ~~tripolar~~{*tripolar*}
- A61F 2002/3225 {the diameter of the inner concave femoral head-receiving cavity of the inner acetabular shell being essentially greater than the diameter of the convex femoral head }
- A61F 2002/3233 {having anti-luxation means for preventing complete dislocation of the femoral head from the acetabular cup }
- A61F 2002/3241 {having a ring, e.g. for locking the femoral head into the acetabular cup }
- A61F 2002/325 {Split ring }
- A61F 2002/3258 {Elastic or split ring, slidable from a first insertion position to a second locked position }
- A61F 2002/3266 {Wire ring }
- A61F 2002/3275 {Partial ring, i.e. not extending along the entire equatorial circumference }
- A61F 2002/3283 {having two rings }
- A61F 2002/3291 {for locking two concentric acetabular shells }
- U A61F 2/34 Acetabular cups
- A61F 2002/3401 {with radial apertures, e.g. radial bores for receiving fixation screws }
- A61F 2002/3403 {Polar aperture }
- A61F 2002/3404 {internally-threaded }
- A61F 2002/3406 {Oblong apertures }

- A61F 2002/3408 {Shells having at least two sets of different apertures, e.g. one set located in the equatorial zone and another set located in the polar zone }
- A61F 2002/3409 {having a bayonet coupling between an outer shell and a bearing insert}
- A61F 2002/3411 {having a snap connection between two concentric shells }
- A61F 2002/3412 {with pins or protrusions, e.g. non-sharp pins or protrusions projecting from a shell surface }
- A61F 2002/3414 {Polar protrusion, e.g. for centering two concentric shells }
- A61F 2002/3416 {externally-threaded }
- A61F 2002/3417 {the outer shell having protrusions on meridian lines, e.g. equidistant fins or wings around the equatorial zone }
- A61F 2002/3419 {Meridian ribs }
- A61F 2002/342 {the outer shell having circumferential protrusions parallel to the equatorial plane, e.g. circumferential fins or wings }
- A61F 2002/3422 {Circumferential ribs }
- A61F 2002/3424 {arranged in rows, the circumferential ribs covering only partially the outer shell surface, e.g. located in the equatorial zone }
- A61F 2002/3425 {the outer shell having non-meridian protrusions, e.g. fins or wings, located in planes inclined or perpendicular w.r.t. the equatorial plane }
- A61F 2002/3427 {Non-meridian ribs, e.g. parallel ribs, inclined or perpendicular w.r.t. the equatorial plane }
- A61F 2002/3429 {with an integral peripheral collar or flange, e.g. oriented away from the shell centre line }
- A61F 2002/343 {partial, i.e. not extending along the entire equatorial circumference }
- A61F 2002/3432 {having apertures for receiving fixation screws }
- A61F 2002/3433 {with cut-outs, e.g. for allowing escape of excess bone cement }
- A61F 2002/3435 {peripheral lip, e.g. elastic lip }
- A61F 2002/3437 {oriented inwardly towards the shell centre line }
- A61F 2002/3438 {hollow, e.g. clearance between inner and outer shells }
- A61F 2002/344 {the inner shell having an inner hip femoral head-receiving cavity offset from its centre line }
- A61F 2002/3441 {the outer shell having an outer surface and an inner insert receiving cavity being angularly inclined w.r.t. the longitudinal axis of the outer surface }
- A61F 2002/3443 {with an anti-luxation elevated rim portion, e.g. on the inner shell }
- A61F 2002/3445 {having a number of shells different from two }
- A61F 2002/3446 {Single cups }
- A61F 2002/3448 {Multiple cups made of three or more concentric shells fitted or nested into one another }
- A61F 2002/345 {the inner and outer (hemi)spherical surfaces of a shell, e.g. an intermediate shell, having distinct centres of rotation, both located on the centre line of the shell }
- A61F 2002/3451 {with angular positioning means for selecting any one of a plurality of radial orientations between two concentric shells, e.g. at discrete positions }
- A61F 2002/3453 {having a non-hemispherical convex outer surface, e.g. quadric-shaped }
- A61F 2002/3454 {having an oblong, oval or elliptical cross-section in the equatorial plane }

A61F 2002/3456	. . . . . {ellipsoidal or having a flattened polar region }
A61F 2002/3458	. . . . . {having a flattened polar plane }
A61F 2002/3459	. . . . . {made of different partially-spherical portions }
A61F 2002/3461	. . . . . {having a lower equatorial peripheral spherical portion and an upper polar spherical portion, e.g. of differing radii or centres of rotation }
A61F 2002/3462	. . . . . {having a frustoconical external shape, e.g. entirely frustoconical }
A61F 2002/3464	. . . . . {partially frustoconical }
A61F 2002/3466	. . . . . {having a cylindrical external shape, e.g. entirely cylindrical }
A61F 2002/3467	. . . . . {partially cylindrical }
A61F 2002/3469	. . . . . {with non-radial inner bores or canals }
A61F 2002/347	. . . . . {with a slotted shell, e.g. outer shell having radial or meridian slots }
A61F 2002/3472	. . . . . {with one radial or meridian slot ending in a polar aperture }
A61F 2002/3474	. . . . . {slots ending in non-polar apertures }
A61F 2002/3475	. . . . . {horizontal slots, i.e. parallel to the equatorial plane }
A61F 2002/3477	. . . . . {arcuate slots }
A61F 2002/3479	. . . . . {Cage-like shells, e.g. hemispherical outer shells made of meridian strips or wires connected to an equatorial strip, rim or wire }
A61F 2002/348	. . . . . {Additional features }
A61F 2002/3482	. . . . . {Two hemispherical halves having completely different structures }
A61F 2002/3483	. . . . . {having a convex shape, e.g. hemispherical heads }
A61F 2002/3485	. . . . . {Shells made of block segments linked by thin connecting strips }
A61F 2002/3487	. . . . . {Partial acetabular cups, e.g. strips replacing only partially the natural acetabular cartilage }
A61F 2002/3488	. . . . . {for allowing sliding or for preventing hurting of the psoas muscle }
A61F 2002/349	. . . . . {Shell having a wavy or undulated peripheral rim }
A61F 2002/3491	. . . . . {partial, i.e. not extending along the entire equatorial circumference }
A61F 2002/3493	. . . . . {Spherical shell significantly greater than a hemisphere, e.g. extending over more than 200 degrees }
A61F 2002/3495	. . . . . {Spherical shell significantly smaller than a hemisphere, e.g. extending over less than 160 degrees }
A61F 2002/3496	. . . . . {having a non-spherical concave inner surface }
A61F 2002/3498	. . . . . {made of different partially-spherical concave portions }
U A61F 2/36	. . . . Femoral heads; {Femoral endoprotheses}
U A61F 2/3601	. . . . . {for replacing only the epiphyseal or metaphyseal parts of the femur, e.g. endoprosthetic femoral heads or necks directly fixed to the natural femur by internal fixation devices (non-prosthetic internal fixation devices for the femoral head or neck A61B 17/74)}
U A61F 2/3603	. . . . . {implanted without ablation of the whole natural femoral head (endoprosthetic cartilage A61F 2/30756)}
A61F 2002/3605	. . . . . {made of two or more concentric caps fitted onto one another }
U A61F 2/3609	. . . . . {Femoral heads or necks; Connections of endoprosthetic heads or necks to endoprosthetic femoral shafts (A61F 2/3601 takes precedence)}
A61F 2002/3611	. . . . . {Heads or epiphyseal parts of femur }
A61F 2002/3613	. . . . . {with lateral or oblique apertures, holes or openings }
A61F 2002/3615	. . . . . {having a concave shape, e.g. hemispherical cups }

A61F 2002/3617	. . . . . {with special cut-outs, e.g. flat cut-outs for inserting the head into a cooperating shell, in a given insertion position }
A61F 2002/3619	. . . . . hollow {hollow }
A61F 2002/3621	. . . . . {pierced with a longitudinal bore }
A61F 2002/3623	. . . . . {Non-spherical heads }
A61F 2002/3625	. . . . . Necks {Necks }
A61F 2002/3627	. . . . . {with lateral apertures, holes or openings }
A61F 2002/3629	. . . . . {inclined obliquely }
A61F 2002/3631	. . . . . {with an integral complete or partial peripheral collar or bearing shoulder at its base }
A61F 2002/3633	. . . . . {with an integral protrusion extending distally under the collar }
A61F 2002/3635	. . . . . {having a separate element placed under the collar }
A61F 2002/3637	. . . . . {with an angled portion, e.g. oriented towards the lesser trochanter }
A61F 2002/3639	. . . . . {with cut-outs }
A61F 2002/3641	. . . . . {pierced with apertures perpendicular to the collar longitudinal axis }
A61F 2002/3643	. . . . . {pierced with apertures parallel or oblique w.r.t. the collar longitudinal axis }
A61F 2002/3645	. . . . . hollow {hollow }
A61F 2002/3647	. . . . . {pierced with a longitudinal bore }
A61F 2002/3649	. . . . . {offset from the neck central longitudinal axis }
A61F 2002/365	. . . . . {Connections of heads to necks }
A61F 2002/3652	. . . . . {Connections of necks to shafts }
A61F 2002/3654	. . . . . {Connections of heads directly to shafts }
A61F 2002/3656	. . . . . {with angular positioning means for selecting any one of a plurality of radial orientations, e.g. at discrete positions }
A61F 2002/3658	. . . . . {Two angular positions, e.g. located at 180 degrees intervals }
A61F 2002/366	. . . . . {at continuous positions }
U A61F 2/3662	. . . . . {Femoral shafts}
A61F 2002/3664	. . . . . {with non-sharp protrusions }
A61F 2002/3666	. . . . . {Circumferential flanges or fins }
A61F 2002/3668	. . . . . {Longitudinal fins or wings, e.g. for preventing rotation within the intramedullary bone cavity }
U A61F 2/3672	. . . . . {Intermediate parts of shafts}
A61F 2002/3674	. . . . . {Connections of proximal parts to distal parts }
A61F 2002/3678	. . . . . {Geometrical features}
A61F 2002/368	. . . . . {with lateral apertures, bores, holes or openings, e.g. for reducing the mass, for receiving fixation screws or for communicating with the inside of a hollow shaft }
A61F 2002/3682	. . . . . {Oblong apertures }
A61F 2002/3684	. . . . . {inclined obliquely w.r.t. the shaft longitudinal axis, e.g. along the neck axis }
A61F 2002/3686	. . . . . bent {bent}
A61F 2002/3688	. . . . . {with opposite proximal and distal curvatures, i.e. S-shaped shaft}
A61F 2002/369	. . . . . {Stepped shaft, i.e. having discrete diameter changes}
A61F 2002/3692	. . . . . hollow {hollow }

- A61F 2002/3694 {with longitudinal bores }
 - A61F 2002/3696 ~~slotted~~{*slotted*}
 - A61F 2002/3698 {twisted about the longitudinal axis of the shaft}
 - U A61F 2/38 . . . for elbows or knees
- NOTE
Documents, which are of interest for more than one of the following subgroups, are classified in the hierarchically higher group only
- U A61F 2/3804 {for elbows}
 - A61F 2002/3809 {for radio-humeral joints }
 - A61F 2002/3813 {for ulno-humeral joints }
 - A61F 2002/3818 {for proximal radio-ulnar joints, i.e. PRU joints }
 - A61F 2002/3822 {Humeral components }
 - A61F 2002/3827 {Radial components }
 - A61F 2002/3831 {Ulnar components }
 - U A61F 2/3859 {Femoral components}
 - A61F 2002/3863 {Condyles fitted on an anchored base }
 - U A61F 2/3877 {Patellae or trochleae}
 - A61F 2002/3881 {with moving parts }
 - A61F 2002/3895 ~~unicompartmental~~{*unicompartmental*}
 - U A61F 2/40 . . . for shoulders
- NOTE
Documents, which are of interest for more than one of the following subgroups, are classified in the hierarchically higher group only
- U A61F 2/4003 {Replacing only the epiphyseal or metaphyseal parts of the humerus, i.e. endoprosthesis not comprising an entire humeral shaft (replacing only the epiphyseal or metaphyseal parts of the femur [A61F 2/3601](#))}
 - A61F 2002/4007 {implanted without ablation of the whole natural humeral head }
 - A61F 2002/4011 {including proximal or total replacement of the humerus }
 - U A61F 2/4014 {Humeral heads or necks; Connections of endoprosthetic heads or necks to endoprosthetic humeral shafts}
 - A61F 2002/4018 {Heads or epiphyseal parts of humerus }
 - A61F 2002/4022 {having a concave shape, e.g. hemispherical cups }
 - A61F 2002/4025 ~~hollow~~{*hollow*}
 - A61F 2002/4029 ~~Necks~~{*Necks*}
 - A61F 2002/4033 {with an integral complete or partial peripheral collar at its base }
 - A61F 2002/4037 {Connections of heads to necks }
 - A61F 2002/404 {with a clearance between proximal end of neck and inner end of head }
 - A61F 2002/4044 {Connections of necks to shafts }
 - A61F 2002/4048 {with an inner clearance between both parts}
 - A61F 2002/4051 {Connections of heads directly to shafts }
 - A61F 2002/4055 {with an inner clearance between both parts }
 - U A61F 2/4059 {Humeral shafts}
 - A61F 2002/4062 {Proximal or metaphyseal parts of shafts }
 - A61F 2002/4066 {for replacement or reinforcement of the greater tubercle }

	A61F 2002/407	. . . . {Intermediate parts of shafts }
	A61F 2002/4074	. . . . {Connections of proximal or metaphyseal parts to distal or diaphyseal parts }
	A61F 2002/4077	. . . . {Distal or diaphyseal parts of shafts }
U	A61F 2/4081	. . . . {Glenoid components, e.g. cups}
	A61F 2002/4085	. . . . {having a convex shape, e.g. hemispherical heads }
	A61F 2002/4088	. . . . {Acromial components }
	A61F 2002/4092	. . . . {Clavicular components }
	A61F 2002/4096	. . . . {Coracoid process components }
U	A61F 2/42	. . . for wrists or ankles; for hands, e.g. fingers; for feet, e.g. toes
U	A61F 2/4202	. . . . {for ankles}
	A61F 2002/4205	. . . . {Tibial components }
	A61F 2002/4207	. . . . {Talar components }
	A61F 2002/421	. . . . {Fibular components, e.g. fibular-malleolar shields }
	A61F 2002/4212	. . . . {Tarsal bones }
	A61F 2002/4215	. . . . {Lateral row of tarsal bones }
	A61F 2002/4217	. . . . {Calcaneum or calcaneus or heel bone }
	A61F 2002/422	. . . . {Medial row of tarsal bones }
	A61F 2002/4223	. . . . {Implants for correcting a flat foot }
U	A61F 2/4225	. . . . {for feet, e.g. toes}
	A61F 2002/4228	. . . . {for interphalangeal joints, i.e. IP joints }
	A61F 2002/423	. . . . {for big or great toes }
	A61F 2002/4233	. . . . {for metatarso-phalangeal joints, i.e. MTP joints }
	A61F 2002/4235	. . . . {for big or great toes }
	A61F 2002/4238	. . . . {for tarso-metatarsal joints, i.e. TMT joints }
U	A61F 2/4241	. . . . {for hands, e.g. fingers}
	A61F 2002/4243	. . . . {for interphalangeal joints, i.e. IP joints }
	A61F 2002/4246	. . . . {for distal interphalangeal joints, i.e. DIP joints }
	A61F 2002/4248	. . . . {for proximal interphalangeal joints, i.e. PIP joints }
	A61F 2002/4251	. . . . {for metacarpo-phalangeal joints, i.e. MCP or MP joints, e.g. knuckle joints }
	A61F 2002/4253	. . . . {for thumbs}
	A61F 2002/4256	. . . . {for carpo-metacarpal joints, i.e. CMC joints }
	A61F 2002/4258	. . . . {for trapezo-metacarpal joints of thumbs }
U	A61F 2/4261	. . . . {for wrists}
	A61F 2002/4264	. . . . {for radio-carpal joints }
	A61F 2002/4266	. . . . {for ulno-carpal joints }
	A61F 2002/4269	. . . . {for distal radio-ulnar joints, i.e. DRU joints }
	A61F 2002/4271	. . . . {Carpal bones }
	A61F 2002/4274	. . . . {Distal carpal row, i.e. bones adjacent the metacarpal bones }
	A61F 2002/4276	. . . . Trapezium {Trapezium }
	A61F 2002/4279	. . . . Trapezoid {Trapezoid }
	A61F 2002/4282	. . . . Capitate {Capitate }
	A61F 2002/4284	. . . . Hamate {Hamate }
	A61F 2002/4287	. . . . {Proximal carpal row, i.e. bones adjacent the radius and the ulna }

	A61F 2002/4289	. . . . . {Scaphoid or navicular bone }
	A61F 2002/4292	. . . . . Lunate {Lunate }
	A61F 2002/4294	. . . . . Triquetrum {Triquetrum }
	A61F 2002/4297	. . . . . {Pisiform bone }
U	A61F 2/44	. . . for the spine, e.g. vertebrae, spinal discs
	A61F 2002/4415	. . . . {elements of the prosthesis being arranged in a chain like manner}
U	A61F 2/442	. . . . {Intervertebral or spinal discs, e.g. resilient (non-disc-shaped intervertebral inflatable pockets A61F 2/441 ; non-disc-shaped intervertebral fusion implants A61F 2/4455)}
U	A61F 2/4425	. . . . . {made of articulated components}
	A61F 2002/443	. . . . . {having two transversal endplates and at least one intermediate component}
	A61F 2002/4435	. . . . . {Support means or repair of the natural disc wall, i.e. annulus, e.g. using plates, membranes or meshes }
	A61F 2002/444	. . . . . {for replacing the nucleus pulposus }
	A61F 2002/4445	. . . . . {Means for culturing intervertebral disc tissue}
	A61F 2002/445	. . . . . {Intervertebral disc tissue harvest sites}
	A61F 2002/4475	. . . . . hollow {hollow}
	A61F 2002/448	. . . . . {comprising multiple adjacent spinal implants within the same intervertebral space or within the same vertebra, e.g. comprising two adjacent spinal implants }
	A61F 2002/4485	. . . . . {comprising three or more adjacent spinal implants }
	A61F 2002/449	. . . . . {comprising multiple spinal implants located in different intervertebral spaces or in different vertebrae }
	A61F 2002/4495	. . . . . {having a fabric structure e.g. made from wires or fibres }
U	A61F 2/46	. . . Special tools or methods for implanting or extracting artificial joints, accessories, bone grafts or substitutes, or particular adaptations therefor
U	A61F 2/4601	. . . . { for introducing bone substitute, for implanting bone graft implants or for compacting them in the bone cavity (for introducing bone cement A61B 17/8805)}
	A61F 2002/4602	. . . . . {for compacting }
U	A61F 2/4603	. . . . {for insertion or extraction of endoprosthetic joints or of accessories thereof}
	A61F 2002/4615	. . . . . {of spacers }
	A61F 2002/4616	. . . . . {of temporo-mandibular joints }
	A61F 2002/4619	. . . . . {for extraction }
	A61F 2002/462	. . . . . {of broken endoprosthetic joint parts }
	A61F 2002/4622	. . . . . {having the shape of a forceps or a clamp }
	A61F 2002/4623	. . . . . {having a handle portion, e.g. integral with the implanting tool }
	A61F 2002/4624	. . . . . {releasable from the implanting tool }
	A61F 2002/4625	. . . . . {with relative movement between parts of the instrument during use}
	A61F 2002/4627	. . . . . {with linear motion along or rotating motion about the instrument axis or the implantation direction, e.g. telescopic, along a guiding rod, screwing inside the instrument }
	A61F 2002/4628	. . . . . {with linear motion along or rotating motion about an axis transverse to the instrument axis or to the implantation direction, e.g. clamping }
	A61F 2002/4629	. . . . . {connected to the endoprosthesis or implant via a threaded connection }

	A61F 2002/4631	. . . . {the prosthesis being specially adapted for being cemented }
	A61F 2002/4632	. . . . {using computer-controlled surgery, e.g. robotic surgery }
	A61F 2002/4633	. . . . {for selection of endoprosthetic joints or for pre-operative planning }
	A61F 2002/4635	. . . . {using minimally invasive surgery }
	A61F 2002/4636	. . . . {through the hip femoral neck }
U	A61F 2/4637	. . . . {for connecting or disconnecting two parts of a prosthesis}
	A61F 2002/4638	. . . . {Tools for performing screwing, e.g. nut or screwdrivers, or particular adaptations therefor }
	A61F 2002/464	. . . . {of end caps for closing a prosthetic cavity }
	A61F 2002/4641	. . . . {for disconnecting }
	A61F 2002/4642	. . . . {for inserting or connecting a locking mechanism }
U	A61F 2/4644	. . . . {Preparation of bone graft, bone plugs or bone dowels, e.g. grinding or milling bone material (bone material A61F 2/28 ; disintegrating or milling devices B02C)}
	A61F 2002/4645	. . . . {Devices for grinding or milling bone material }
	A61F 2002/4646	. . . . {Devices for cleaning bone graft }
	A61F 2002/4648	. . . . {Means for culturing bone graft }
	A61F 2002/4649	. . . . {Bone graft or bone dowel harvest sites }
	A61F 2002/465	. . . . {using heating means }
	A61F 2002/4651	. . . . {Electric or electromagnetic heating }
	A61F 2002/4653	. . . . {using cooling means }
	A61F 2002/4654	. . . . {Cryogenic cooling }
	A61F 2002/4655	. . . . {for introducing lubricating fluid }
U	A61F 2/4657	. . . . {Measuring instruments used for implanting artificial joints (for surgical instruments A61B 19/46)}
	A61F 2002/4658	. . . . {for measuring dimensions, e.g. length }
	A61F 2002/4659	. . . . {for measuring a diameter }
	A61F 2002/4661	. . . . {for measuring thickness }
	A61F 2002/4662	. . . . {for measuring penetration depth }
	A61F 2002/4663	. . . . {for measuring volumes or other three-dimensional shapes }
	A61F 2002/4664	. . . . {for measuring conicities }
	A61F 2002/4666	. . . . {for measuring force, pressure or mechanical tension }
	A61F 2002/4667	. . . . {for measuring torque }
	A61F 2002/4668	. . . . {for measuring angles }
	A61F 2002/467	. . . . {for measuring fluid pressure }
	A61F 2002/4671	. . . . {for measuring resonant frequency}
	A61F 2002/4672	. . . . {for measuring temperature }
	A61F 2002/4674	. . . . {for measuring the pH }
U	A61F 2/4675	. . . . {for cleaning or coating bones, e.g. bone cavities, prior to endoprosthesis implantation or bone cement introduction (for cleaning teeth cavities A61C 17/00 ; irrigators A61M 3/02)}
	A61F 2002/4676	. . . . {for coating the bony surface}
	A61F 2002/4677	. . . . {using a guide wire }
	A61F 2002/4679	. . . . {having quick release means }
	A61F 2002/4681	. . . . {by applying mechanical shocks, e.g. by hammering }
	A61F 2002/4683	. . . . {by applying ultrasonic vibrations }

A61F 2002/4685	. . . . {by means of vacuum }
A61F 2002/4687	. . . . {Mechanical guides for implantation instruments}
A61F 2002/4688	. . . . {having operating or control means }
A61F 2002/4689	. . . . . acoustic { acoustic }
A61F 2002/469	. . . . . electrical { electrical }
A61F 2002/4692	. . . . . fluid { fluid }
A61F 2002/4693	. . . . . hydraulic { hydraulic }
A61F 2002/4694	. . . . . pneumatic { pneumatic }
A61F 2002/4696	. . . . . optical { optical }
A61F 2002/4697	. . . . . visual { visual }
A61F 2002/4698	. . . . . magnetic { magnetic }
A61F 2002/48	. . {Operating or control means}
A61F 2002/481	. . . {acoustic or audible }
A61F 2002/482	. . . electrical { electrical }
A61F 2002/484	. . . fluid { fluid }
A61F 2002/485	. . . . hydraulic { hydraulic }
A61F 2002/487	. . . . pneumatic { pneumatic }
A61F 2002/488	. . . {Means for detecting or monitoring wear }
U A61F 2/50	. Prostheses not implantable in the body {(closure means for urethra or rectum or for artificial body openings therefor A61F 2/0004)}
A61F 2002/5001	. . {Cosmetic coverings }
A61F 2002/5003	. . {having damping means, e.g. shock absorbers (for implantable joints A61F 2002/30563)}
A61F 2002/5004	. . . {operated by electro- or magnetorheological fluids }
A61F 2002/5006	. . . {Dampers, e.g. hydraulic damper }
A61F 2002/5007	. . {having elastic means different from springs, e.g. including an elastomeric insert (elastic coating A61F 2002/3007 ; springs A61F 2002/5072 ; plate-like springs for feet A61F 2002/6657)}
A61F 2002/5009	. . . {having two or more elastomeric blocks }
A61F 2002/501	. . {having an inflatable pocket filled with fluid, i.e. liquid or gas (A61F 2/602 , A61F 2002/74 , A61F 2/7843 take precedence; for lubrication A61F 2002/5086)}
A61F 2002/5012	. . . {having two or more inflatable pockets }
A61F 2002/5013	. . . {filled with particles (for joints A61F 2002/30588)}
A61F 2002/5015	. . . {hardenable fluid, e.g. curable in-situ or cold-hardening casting substance }
A61F 2002/5016	. . {adjustable (for implantable prostheses A61F 2002/30537)}
A61F 2002/5018	. . . {for adjusting angular orientation }
A61F 2002/502	. . . {for adjusting length (for implantable joints A61F 2002/3055)}
A61F 2002/5021	. . . {for adjusting a position by translation along an axis }
A61F 2002/5023	. . . . {along two perpendicular axes }
A61F 2002/5024	. . . {for adjusting thickness }
A61F 2002/5026	. . . {for adjusting a diameter }
A61F 2002/5027	. . . {for adjusting cross-section }
A61F 2002/5029	. . . {for adjusting weight or mass }
A61F 2002/503	. . . {for adjusting elasticity, flexibility, spring rate or mechanical tension }

A61F 2002/5032	<ul style="list-style-type: none"> • • • {for adjusting fluid pressure (inflatable pockets A61F 2002/501, A61F 2/602, A61F 2/7843; fluid operating or control means A61F 2002/74)}
A61F 2002/5033	<ul style="list-style-type: none"> • • • {for adjusting damping (damping means A61F 2002/5003)}
A61F 2002/5035	<ul style="list-style-type: none"> • • • {for adjusting volume flow }
A61F 2002/5036	<ul style="list-style-type: none"> • • • {self-adjustable, e.g. self-learning }
A61F 2002/5038	<ul style="list-style-type: none"> • • {Hinged joint, e.g. with transverse axle restricting the movement (for implantable joints A61F 2002/30624)}
A61F 2002/5039	<ul style="list-style-type: none"> • • • {allowing only for single rotation }
A61F 2002/5041	<ul style="list-style-type: none"> • • • {having bearing bushes between the rotating parts }
A61F 2002/5043	<ul style="list-style-type: none"> • • • {with rotation-limiting stops, e.g. projections or recesses }
U A61F 2/5044	<ul style="list-style-type: none"> • • {Designing or manufacturing processes (not used, see subgroup)}
U A61F 2/5046	<ul style="list-style-type: none"> • • • {for designing or making customized prostheses, e.g. using templates, finite-element analysis or CAD-CAM techniques}
A61F 2002/5047	<ul style="list-style-type: none"> • • • • {using mathematical models (A61F 2002/505 takes precedence)}
A61F 2002/5049	<ul style="list-style-type: none"> • • • • • {Computer aided shaping, e.g. rapid prototyping}
A61F 2002/505	<ul style="list-style-type: none"> • • • • • {using CAD-CAM techniques or NC-techniques }
A61F 2002/5052	<ul style="list-style-type: none"> • • • • • {Direct moulding or reforming to the stump }
A61F 2002/5053	<ul style="list-style-type: none"> • • • • • {using a positive or a negative model, e.g. casting model or mould }
A61F 2002/5055	<ul style="list-style-type: none"> • • • {Reinforcing prostheses by embedding particles or fibres during moulding or dipping, e.g. carbon fibre composites }
A61F 2002/5056	<ul style="list-style-type: none"> • • • {Laminates, i.e. layered products}
A61F 2002/5058	<ul style="list-style-type: none"> • • {having means for restoring the perception of senses }
A61F 2002/5059	<ul style="list-style-type: none"> • • • {the feeling of position }
A61F 2002/5061	<ul style="list-style-type: none"> • • • {the sense of touch }
A61F 2002/5063	<ul style="list-style-type: none"> • • • {the feeling of temperature, i.e. of warmth or cold }
A61F 2002/5064	<ul style="list-style-type: none"> • • • {for reducing pain from phantom limbs }
A61F 2002/5066	<ul style="list-style-type: none"> • • {Muscles (implantable A61F 2002/0894)}
A61F 2002/5067	<ul style="list-style-type: none"> • • {having rolling elements between articulating surfaces (for implantable joints A61F 2002/30639)}
A61F 2002/5069	<ul style="list-style-type: none"> • • • {Ball bearings }
A61F 2002/507	<ul style="list-style-type: none"> • • • {Roller bearings }
A61F 2002/5072	<ul style="list-style-type: none"> • • {having spring elements (spring-biased locking means A61F 2002/30505; for implantable joints A61F 2002/30565; other elastic means A61F 2002/5007)}
A61F 2002/5073	<ul style="list-style-type: none"> • • • {Helical springs, e.g. having at least one helical spring }
A61F 2002/5075	<ul style="list-style-type: none"> • • • • {Multiple spring systems including two or more helical springs }
A61F 2002/5076	<ul style="list-style-type: none"> • • • • • {Concentric outer and inner helical springs }
A61F 2002/5078	<ul style="list-style-type: none"> • • • {2-D spiral springs }
A61F 2002/5079	<ul style="list-style-type: none"> • • • {Leaf springs (A61F 2002/6657 takes precedence)}
A61F 2002/5081	<ul style="list-style-type: none"> • • {Additional features (for implantable joints A61F 2002/30535)}
A61F 2002/5083	<ul style="list-style-type: none"> • • • modular{modular }
A61F 2002/5084	<ul style="list-style-type: none"> • • • {telescopic (adjusting length A61F 2002/502)}
A61F 2002/5086	<ul style="list-style-type: none"> • • • {Lubricating means }
A61F 2002/5087	<ul style="list-style-type: none"> • • • {Sound-damping or noise-reducing means }
A61F 2002/5089	<ul style="list-style-type: none"> • • • waterproof{waterproof }
A61F 2002/509	<ul style="list-style-type: none"> • • • {specially designed for children, e.g. having means for adjusting to their growth (implantable A61F 2250/0082)}

A61F 2002/5092	• • • {Identification means (for implantable prostheses A61F 2250/0085)}
A61F 2002/5093	• • {Tendon- or ligament-replacing cables (implantable A61F 2/08)}
A61F 2002/5095	• • • {for Achilles tendons }
A61F 2002/5096	• • {Ball-and-socket joints (for implantable joints A61F 2002/30649)}
A61F 2002/5098	• • • {with rotation-limiting means }
U A61F 2/52	• • Mammary prostheses (brassieres A41C 3/00)
A61F 2002/523	• • • {Multiple breast forms made of several concentric breast-shaped layers nested into one another }
A61F 2002/526	• • • Nipples { Nipples }
U A61F 2/54	• • Artificial arms or hands or parts thereof
A61F 2002/543	• • • {Lower arms or forearms }
A61F 2002/546	• • • {Upper arms }
U A61F 2/58	• • • Elbows; Wrists; {Other joints; Hands}
U A61F 2/583	• • • • {Hands; Wrist joints}
U A61F 2/586	• • • • • {Fingers}
A61F 2002/587	• • • • • Thumbs { Thumbs }
U A61F 2/60	• • Artificial legs or feet or parts thereof
A61F 2002/607	• • • {Lower legs }
A61F 2002/608	• • • {Upper legs }
U A61F 2/64	• • • Knee joints
A61F 2002/648	• • • • Patellae { Patellae }
U A61F 2/66	• • • Feet; Ankle joints
A61F 2002/6614	• • • • Feet { Feet }
A61F 2002/6621	• • • • • Toes { Toes }
A61F 2002/6628	• • • • • {Big toes }
A61F 2002/6635	• • • • • Metatarsals { Metatarsals }
A61F 2002/6642	• • • • • Heels { Heels }
A61F 2002/665	• • • • • Soles { Soles }
A61F 2002/6657	• • • • • {having a plate-like or strip-like spring element, e.g. an energy-storing cantilever spring keel }
A61F 2002/6664	• • • • • {Dual structures made of two connected cantilevered leaf springs }
A61F 2002/6671	• • • • • {C-shaped }
A61F 2002/6678	• • • • • {L-shaped }
A61F 2002/6685	• • • • • {S-shaped }
A61F 2002/6692	• • • • • {circular or loop-shaped }
U A61F 2/68	• • Operating or control means
A61F 2002/6809	• • • acoustic { acoustic }
A61F 2002/6818	• • • {for braking }
A61F 2002/6827	• • • {Feedback system for providing user sensation, e.g. by force, contact or position }
A61F 2002/6836	• • • {Gears specially adapted therefor, e.g. reduction gears}
A61F 2002/6845	• • • Clutches { Clutches }
A61F 2002/6854	• • • {for locking or unlocking a joint }
A61F 2002/6863	• • • {magnetic (magnetic prosthetic parts A61F 2002/30079)}

- A61F 2002/6872
 - • • {attached and mechanically operated by remaining muscle (bioelectrical control [A61F 2/72](#))}
- A61F 2002/6881
 - • • ~~optical~~{~~optical~~}
- A61F 2002/689
 - • • {Alarm means, e.g. acoustic }
- U A61F 2/70
 - • • electrical {not used, see [A61F 2/68](#) and [A61F 2/72](#)}
- A61F 2002/701
 - • • • {operated by electrically controlled means, e.g. solenoids or torque motors }
- A61F 2002/702
 - • • • {Battery-charging stations }
- A61F 2002/704
 - • • • {computer-controlled, e.g. robotic control }
- A61F 2002/705
 - • • • {Electromagnetic data transfer (for implantable prostheses [A61F 2/027](#))}
- A61F 2002/707
 - • • • {Remote control }
- A61F 2002/708
 - • • • {electrically self charging}
- A61F 2002/74
 - • • {fluid, i.e. hydraulic or pneumatic (inflatable pocket filled with fluid [A61F 2002/501](#))}
- A61F 2002/741
 - • • • {using powered actuators, e.g. stepper motors or solenoids }
- A61F 2002/742
 - • • • {Low pressure systems, e.g. vacuum pump }
- A61F 2002/744
 - • • • {Vane- or curved-cylinder type actuators, e.g. actuators using rotary pistons }
- A61F 2002/745
 - • • • ~~hydraulic~~{~~hydraulic~~}
- A61F 2002/747
 - • • • ~~pneumatic~~{~~pneumatic~~}
- A61F 2002/748
 - • • • {Valve systems }
- U A61F 2/76
 - • Means for assembling, fitting or testing prostheses, e.g. for measuring or balancing, {e.g. alignment means}
- A61F 2002/7605
 - • • {for assembling by heating (for implanting artificial joints [A61F 2002/465](#))}
- A61F 2002/761
 - • • {for assembling by cooling (for implanting artificial joints [A61F 2002/4653](#))}
- A61F 2002/7615
 - • • {Measuring means (for implanting artificial joints [A61F 2/4657](#))}
- A61F 2002/762
 - • • • {for measuring dimensions, e.g. a distance }
- A61F 2002/7625
 - • • • {for measuring angular position }
- A61F 2002/763
 - • • • {for measuring spatial position, e.g. global positioning system (GPS)}
- A61F 2002/7635
 - • • • {for measuring force, pressure or mechanical tension }
- A61F 2002/764
 - • • • {for measuring acceleration }
- A61F 2002/7645
 - • • • {for measuring torque, e.g. hinge or turning moment, moment of force }
- A61F 2002/765
 - • • • {for measuring time or frequency }
- A61F 2002/7655
 - • • • {for measuring fluid pressure }
- A61F 2002/766
 - • • • {for measuring moisture }
- A61F 2002/7665
 - • • • {for measuring temperatures }
- A61F 2002/767
 - • • • {for measuring blood pressure }
- A61F 2002/7675
 - • • • {for measuring oxygen content }
- A61F 2002/768
 - • • • {for measuring battery status }
- A61F 2002/7685
 - • • • {located on natural or sound-site limbs, e.g. comparison measuring means }
- A61F 2002/769
 - • • • {Displaying measured values }
- A61F 2002/7695
 - • • {Means for testing non-implantable prostheses (for testing implantable prostheses [A61F 2240/008](#); for implanting artificial joints [A61F 2/468](#))}
- U A61F 2/78
 - • Means for protecting prostheses or for attaching them to the body, e.g. bandages, harnesses, straps, or stockings for the limb stump

- A61F 2002/7806 . . . {using adhesive means (for connecting prosthetic parts [A61F 2002/30448](#))}
- U A61F 2/7812 . . . {Interface cushioning members placed between the limb stump and the socket, e.g. bandages or stockings for the limb stump}
- A61F 2002/7818 . . . {Stockings or socks for the limb stump (cosmetic coverings [A61F 2/0059](#))}
- A61F 2002/7825 {Devices for putting-on or pulling-off stockings }
- A61F 2002/7831 {with a rope for pulling the sock inside the socket }
- A61F 2002/7837 {Sleeves for attaching or protecting, i.e. open ended hoses}
- A61F 2002/785 {Pads, e.g. relief pads }
- A61F 2002/7856 . . . {having finger loops or grips }
- A61F 2002/7862 . . . {Harnesses, straps (for connecting prosthetic parts [A61F 2002/30464](#))}
- A61F 2002/7868 . . . {Means for putting-on or pulling-off prostheses}
- A61F 2002/7875 . . . {with releasable ratchets or pegs (snap connections [A61F 2002/305](#); pushing a peg into a hole [A61F 2002/3038](#))}
- A61F 2002/7881 . . . {using hook and loop-type fasteners (for connecting prosthetic parts [A61F 2002/30467](#))}
- A61F 2002/7887 . . . {for connecting limb exoprostheses to the stump bone}
- A61F 2002/7893 . . . {using slide fasteners, e.g. zippers }
- U A61F 2/80 Sockets, e.g. of suction type
- A61F 2002/802 {Suction sockets, i.e. utilizing differential air pressure to retain the prosthesis on the stump }
- A61F 2002/805 {having an air valve }
- A61F 2002/807 {having a vacuum reservoir chamber}
- U A61F 2/82 . . . Devices providing patency to, or preventing collapsing of, tubular structures of the body, e.g. stents (stent-grafts for tubular structures of the body other than blood vessels [A61F 2/04](#); stent-grafts for blood vessels [A61F 2/07](#); instruments specially adapted for placement or removal of stents or stent-grafts [A61F 2/95](#); for closing wounds, or holding wounds closed [A61B 17/03](#); dilators [A61M 29/00](#))
- A61F 2002/821 . . . {Ostial stents }
- A61F 2002/823 . . . {Stents, different from stent-grafts, adapted to cover an aneurysm }
- A61F 2002/825 . . . {having longitudinal struts }
- A61F 2002/826 . . . {more than one stent being applied sequentially }
- A61F 2002/828 . . . {Means for connecting a plurality of stents allowing flexibility of the whole structure }
- U A61F 2/848 . . . having means for fixation to the vessel wall, e.g. barbs
- A61F 2002/8483 ~~Barbs~~ {~~Barbs~~ }
- A61F 2002/8486 {provided on at least one of the ends }
- U A61F 2/86 . . . Stents in a form characterised by the wire-like elements; Stents in the form characterised by a net-like or mesh-like structure
- U A61F 2/90 characterised by a net-like or mesh-like structure
- U A61F 2/91 made from perforated sheet material or tubes, e.g. perforated by laser cuts or etched holes
- U A61F 2/915 with bands having a meander structure, adjacent bands being connected to each other
- A61F 2002/91508 {the meander having a difference in amplitude along the band }
- A61F 2002/91516 {the meander having a change in frequency along the band }

	A61F 2002/91525	• • • • • {within the whole structure different bands showing different meander characteristics, e.g. frequency or amplitude }
	A61F 2002/91533	• • • • • {characterised by the phase between adjacent bands }
	A61F 2002/91541	• • • • • {Adjacent bands are arranged out of phase }
	A61F 2002/9155	• • • • • {Adjacent bands being connected to each other }
	A61F 2002/91558	• • • • • {connected peak to peak }
	A61F 2002/91566	• • • • • {connected trough to trough }
	A61F 2002/91575	• • • • • {connected peak to trough }
	A61F 2002/91583	• • • • • {by a bridge, whereby at least one of its ends is connected along the length of a strut between two consecutive apices within a band }
	A61F 2002/91591	• • • • • {Locking connectors, e.g. using male-female connections }
U	A61F 2/95	• Instruments specially adapted for placement or removal of stents or stent-grafts
	A61F 2002/9505	• • {having retaining means other than an outer sleeve, e.g. male-female connector between stent and instrument }
	A61F 2002/9511	• • {the retaining means being filaments or wires }
	A61F 2002/9517	• • {handle assemblies therefor }
	A61F 2002/9522	• • {Means for mounting a stent onto the placement instrument }
	A61F 2002/9528	• • {for retrieval of stents }
	A61F 2002/9534	• • {for repositioning of stents }
U	A61F 2/958	• • Inflatable balloons for placing stents or stent-grafts
	A61F 2002/9583	• • • {Means for holding the stent on the balloon, e.g. using protrusions, adhesives or an outer sleeve }
	A61F 2002/9586	• • • {the means being inside the balloon }
U	A61F 2/962	• • having an outer sleeve
U	A61F 2/966	• • • with relative longitudinal movement between outer sleeve and prosthesis, e.g. using a push rod
	A61F 2002/9665	• • • {with additional retaining means }
U	A61F 5/00	Orthopaedic methods or devices for non-surgical treatment of bones or joints (surgical instruments or methods for treatment of bones or joints, devices specially adapted therefor A61B 17/56); Nursing devices; {Anti-rape devices}{bandages, dressings or absorbent pads A61F 13/00}
U	A61F 5/0003	• { Apparatus for the treatment of obesity; Anti-eating devices (surgical instruments or methods for treatment of obesity, devices specially adapted therefor A61B 17/00 ; hollow or tubular parts of organs A61F 2/04) }
U	A61F 5/0013	• • { Implantable devices or invasive measures }
	A61F 2005/0016	• • • {comprising measuring means }
	A61F 2005/002	• • • {for sensing mechanical parameters }
	A61F 2005/0023	• • • {for sensing chemical parameters }
U	A61F 5/01	• Orthopaedic devices, e.g. splints, casts or braces
U	A61F 5/0102	• • {specially adapted for correcting deformities of the limbs or for supporting them; Ortheses, e.g. with articulations }
	A61F 2005/0132	• • • {Additional features of the articulation }
	A61F 2005/0134	• • • {with two orthogonal pivots }
	A61F 2005/0137	• • • {with two parallel pivots }
	A61F 2005/0139	• • • • geared {geared }
	A61F 2005/0141	• • • • {with more than two parallel pivots }
	A61F 2005/0144	• • • • Multibar {Multibar }

	A61F 2005/0146	<ul style="list-style-type: none"> • • • {combining rotational and sliding movements, e.g. simulating movements of a natural joint }
	A61F 2005/0148	<ul style="list-style-type: none"> • • • • {Floating pivotal axis }
	A61F 2005/0151	<ul style="list-style-type: none"> • • • {combining rotational and torsional movements }
	A61F 2005/0153	<ul style="list-style-type: none"> • • • {combining rotational and stretching movements }
	A61F 2005/0155	<ul style="list-style-type: none"> • • • {with actuating means }
	A61F 2005/0158	<ul style="list-style-type: none"> • • • {with locking means }
	A61F 2005/016	<ul style="list-style-type: none"> • • • • {in standing position }
	A61F 2005/0162	<ul style="list-style-type: none"> • • • • {when weight is applied }
	A61F 2005/0165	<ul style="list-style-type: none"> • • • {with limits of movement }
	A61F 2005/0167	<ul style="list-style-type: none"> • • • • adjustable-adjustable }
	A61F 2005/0169	<ul style="list-style-type: none"> • • • {with damping means }
	A61F 2005/0172	<ul style="list-style-type: none"> • • • {with cushions }
	A61F 2005/0174	<ul style="list-style-type: none"> • • • • {laterally placed }
	A61F 2005/0176	<ul style="list-style-type: none"> • • • • {supporting the patella }
	A61F 2005/0179	<ul style="list-style-type: none"> • • • {with spring means }
	A61F 2005/0181	<ul style="list-style-type: none"> • • {Protectors for articulations }
	A61F 2005/0183	<ul style="list-style-type: none"> • • • {Hip protectors, e.g. for elderly people }
	A61F 2005/0186	<ul style="list-style-type: none"> • • • {Thumb protectors }
	A61F 2005/0188	<ul style="list-style-type: none"> • • {having pressure sensors }
	A61F 2005/0197	<ul style="list-style-type: none"> • {with spring means }
U	A61F 5/37	<ul style="list-style-type: none"> • Restraining devices for the body or for body parts, {e.g. slings}; Restraining shirts {(handcuffs E05B 75/00)}
	A61F 5/3707	<ul style="list-style-type: none"> • { for the head (cervical supports A61F 5/055; splints A61F5/08K A61F 5/05883)}
U	A61F 5/41	<ul style="list-style-type: none"> • Devices for promoting penis erection (penis implants A61F 2/26; massage of the genitals A61H 19/00)
	A61F 2005/411	<ul style="list-style-type: none"> • {Penile supports }
	A61F 2005/412	<ul style="list-style-type: none"> • {by vacuum means }
	A61F 2005/414	<ul style="list-style-type: none"> • {by constricting means }
	A61F 2005/415	<ul style="list-style-type: none"> • {by inflatable means }
	A61F 2005/417	<ul style="list-style-type: none"> • {by vibrating means }
	A61F 2005/418	<ul style="list-style-type: none"> • {by electrical stimulation }
U	A61F 5/44	<ul style="list-style-type: none"> • Devices worn by the patient for reception of urine, faeces, catamenial or other discharge; {Portable urination aids}{absorbent pads, e.g. sanitary towels, A61F 13/15; drainage appliances for wounds A61M 27/00; {emptying devices for urine bags B65B 69/0016}); Colostomy devices (adhesives for colostomy devices A61L 24/00; materials for colostomy devices A61L 28/00)
	A61F 5/4401	<ul style="list-style-type: none"> • {with absorbent pads (diapers A61F13/15D A61F 13/49)}
	A61F 2005/4402	<ul style="list-style-type: none"> • disposabledisposable }
	A61F 2005/4415	<ul style="list-style-type: none"> • {venting by manual operation }
U	A61F 5/445	<ul style="list-style-type: none"> • Colostomy, {ileostomy or urethrostomy} devices (A61F 5/441, A61F 5/442, A61F 5/443 take precedence)
	A61F 2005/4455	<ul style="list-style-type: none"> • Implantable-Implantable }
	A61F 2005/4483	<ul style="list-style-type: none"> • • {Convex pressure ring }
	A61F 2005/4486	<ul style="list-style-type: none"> • • {with operable locking ring }

A61F 2005/4495	<ul style="list-style-type: none"> • • • {with floating-belt attaching ring }
U A61F 5/56	<ul style="list-style-type: none"> • Devices for preventing snoring {(by influencing the respiratory system by gas treatment A61M 16/00)}
A61F 2005/563	<ul style="list-style-type: none"> • • {Anti-bruxisme }
U A61F 6/00	Contraceptive devices; Pessaries; Applicators therefor (chemical aspects of contraception A61K)
U A61F 6/02	<ul style="list-style-type: none"> • for use by males (A61F 6/20 takes precedence)
U A61F 6/04	<ul style="list-style-type: none"> • • Condoms, sheaths or the like, {e.g. combined with devices protecting against contagion}
A61F 2006/041	<ul style="list-style-type: none"> • • • {combined with a protective garment, e.g. underpants or mask }
A61F 2006/042	<ul style="list-style-type: none"> • • • • {covering the mouth , e.g. oral condom }
A61F 2006/043	<ul style="list-style-type: none"> • • • {with more than one barrier }
A61F 2006/044	<ul style="list-style-type: none"> • • • {with absorbent material }
A61F 2006/045	<ul style="list-style-type: none"> • • • {with closing devices at the open end }
A61F 2006/046	<ul style="list-style-type: none"> • • • • {for closing after use }
A61F 2006/047	<ul style="list-style-type: none"> • • • {with holding means }
A61F 2006/048	<ul style="list-style-type: none"> • • • {with surface protuberances }
A61F 2006/049	<ul style="list-style-type: none"> • • • {with strips to apply the condom }
U A61F 7/00	Heating or cooling appliances for medical or therapeutic treatment of the human body (heating or cooling means in connection with bedsteads or mattresses A47C 21/00; {massage, therapeutic baths A61H}; hyperthermia using electric or magnetic fields or ultrasound A61N; electric heating elements H05B)
A61F 2007/0001	<ul style="list-style-type: none"> • {Body part }
A61F 2007/0002	<ul style="list-style-type: none"> • • {Head or parts thereof }
A61F 2007/0003	<ul style="list-style-type: none"> • • • Face {Face }
A61F 2007/0004	<ul style="list-style-type: none"> • • • {Eyes or part of the face surrounding the eyes }
A61F 2007/0005	<ul style="list-style-type: none"> • • • Ears {Ears }
A61F 2007/0006	<ul style="list-style-type: none"> • • • Nose {Nose }
A61F 2007/0007	<ul style="list-style-type: none"> • • • {Forehead, e.g. headbands }
A61F 2007/0008	<ul style="list-style-type: none"> • • • Scalp {Scalp }
A61F 2007/0009	<ul style="list-style-type: none"> • • • {Throat or neck }
A61F 2007/001	<ul style="list-style-type: none"> • • • • {Throat only }
A61F 2007/0011	<ul style="list-style-type: none"> • • • • {Neck only }
A61F 2007/0012	<ul style="list-style-type: none"> • • • • • {with means for support of the head }
A61F 2007/0013	<ul style="list-style-type: none"> • • • Jaw {Jaw }
A61F 2007/0014	<ul style="list-style-type: none"> • • • Chin {Chin }
A61F 2007/0015	<ul style="list-style-type: none"> • • • Cheeks {Cheeks }
A61F 2007/0017	<ul style="list-style-type: none"> • • • Mouth {Mouth }
A61F 2007/0018	<ul style="list-style-type: none"> • • {Trunk or parts thereof }
A61F 2007/0019	<ul style="list-style-type: none"> • • • Breast {Breast }
A61F 2007/002	<ul style="list-style-type: none"> • • • • Heart {Heart }
A61F 2007/0021	<ul style="list-style-type: none"> • • • {Female breast }
A61F 2007/0022	<ul style="list-style-type: none"> • • • Abdomen {Abdomen }
A61F 2007/0023	<ul style="list-style-type: none"> • • • Waist {Waist }

A61F 2007/0024	• • • Back {Back }
A61F 2007/0025	• • • {Higher part of back }
A61F 2007/0026	• • • {Middle part of back }
A61F 2007/0027	• • • {Lower part of back }
A61F 2007/0028	• • • Rectum {Rectum }
A61F 2007/0029	• • {Arm or parts thereof }
A61F 2007/003	• • • Shoulder {Shoulder }
A61F 2007/0031	• • • {Upper arm }
A61F 2007/0032	• • • Elbow {Elbow }
A61F 2007/0034	• • • {Lower arm }
A61F 2007/0035	• • • Wrist {Wrist }
A61F 2007/0036	• • • Hand {Hand }
A61F 2007/0037	• • • Finger {Finger }
A61F 2007/0038	• • • Thumb {Thumb }
A61F 2007/0039	• • {Leg or parts thereof }
A61F 2007/004	• • • Hip {Hip }
A61F 2007/0041	• • • {Upper leg }
A61F 2007/0042	• • • Knee {Knee }
A61F 2007/0043	• • • {Lower leg, calf }
A61F 2007/0044	• • • Ankle {Ankle }
A61F 2007/0045	• • • Foot {Foot }
A61F 2007/0046	• • • Toe {Toe }
A61F 2007/0047	• • • Sole {Sole }
A61F 2007/0048	• • Genitals {Genitals }
A61F 2007/005	• • • female {female }
A61F 2007/0051	• • {Stumps after amputation }
A61F 2007/0052	• • {for treatment of skin or hair }
A61F 2007/0054	• {with a closed fluid circuit, e.g. hot water }
A61F 2007/0055	• • {of gas, e.g. hot air or steam }
A61F 2007/0056	• • {for cooling }
A61F 2007/0057	• • • {of gas, e.g. air or carbon dioxide }
A61F 2007/0058	• • • {evaporating on or near the spot to be cooled }
A61F 2007/0059	• {with an open fluid circuit }
A61F 2007/006	• • {of gas }
A61F 2007/0061	• • • {Using breath }
A61F 2007/0062	• • • {the gas being steam or water vapour }
A61F 2007/0063	• • {for cooling }
A61F 2007/0064	• • • {of gas }
A61F 2007/0065	• • • • {Causing evaporation }
A61F 2007/0067	• • • • • {of sweat }
A61F 2007/0068	• • • {evaporating on the spot to be cooled }
A61F 2007/0069	• • {with return means }
U A61F 7/007	• { characterised by electric heating }
A61F 2007/0071	• • {using a resistor, e.g. near the spot to be heated }

- A61F 2007/0072
 - . . {remote from the spot to be heated }
- A61F 2007/0073
 - . . ~~thermistor~~{*thermistor*}
- A61F 2007/0074
 - . . . ~~PTC~~{*PTC*}
- A61F 2007/0075
 - . {using a Peltier element, e.g. near the spot to be heated or cooled }
- A61F 2007/0076
 - . . {remote from the spot to be heated or cooled }
- A61F 2007/0077
 - . {Details of power supply }
- A61F 2007/0078
 - . . {with a battery }
- A61F 2007/0079
 - . . . {connectable to car battery }
- A61F 2007/008
 - . . . {with a separate, portable battery pack }
- A61F 2007/0081
 - . . {Low voltage, e.g. using transformer }
- A61F 2007/0082
 - . . . {D.C. ([A61F 2007/0078](#) takes precedence)}
- A61F 2007/0084
 - . . {using a solar cell }
- A61F 2007/0086
 - {with a thermostat}
- A61F 2007/0087
 - {Hand-held applicators}
- A61F 2007/0088
 - {Radiating heat }
- A61F 2007/0089
 - {Chemotherapy developing heat}
- A61F 2007/009
 - {with a varying magnetic field acting upon the human body, e.g. an implant therein}
- A61F 2007/0091
 - ~~inflatable~~{*inflatable*}
- A61F 2007/0092
 - . {with, or also with, a substance other than air}
- A61F 2007/0093
 - ~~programmed~~{*programmed*}
- A61F 2007/0094
 - {using a remote control }
- A61F 2007/0095
 - {with a temperature indicator}
- A61F 2007/0096
 - . {with a thermometer}
- A61F 2007/0098
 - {ways of manufacturing heating or cooling devices for therapy}
- U A61F 7/02
 - Compresses or poultices for effecting heating or cooling
- A61F 2007/0201
 - . {shaped as a doll }
- A61F 2007/0203
 - . {Cataplasms, poultices or compresses, characterised by their contents; Bags therefor }
- A61F 2007/0204
 - . . {containing clay, mud, fango, sand, kaolin clay, volcanic or other inorganic granular solids }
- A61F 2007/0206
 - . . {containing organic solids or fibres }
- A61F 2007/0207
 - . . . {Plants, dried plants, seeds or fruits }
- A61F 2007/0209
 - . . . {Synthetics, e.g. plastics }
- A61F 2007/0211
 - ~~Granulars~~{*Granulars*}
- A61F 2007/0212
 - ~~Foams~~{*Foams*}
- A61F 2007/0214
 - {Polymers, e.g. water absorbing }
- A61F 2007/0215
 - . . {containing liquids other than water }
- A61F 2007/0217
 - . . . ~~Oils~~{*Oils*}
- A61F 2007/0219
 - . . . ~~Gels~~{*Gels*}
- A61F 2007/022
 - . . {Bags therefor }
- A61F 2007/0222
 - . . . {made of synthetics, e.g. plastics }
- A61F 2007/0223
 - . . . {made of textiles }
- A61F 2007/0225
 - . {connected to the body or a part thereof }
- A61F 2007/0226
 - . . {adhesive, self-sticking }

A61F 2007/0228	. . . {with belt or strap, e.g. with buckle }
A61F 2007/023	. . . . {with pockets for receiving packs or pouches }
A61F 2007/0231	. . . {hook and loop-type fastener }
A61F 2007/0233	. . . {connected to or incorporated in clothing or garments (A61F 2007/023 takes precedence)}
A61F 2007/0234	. . . . {for the upper part of the trunk, eg. bodice }
A61F 2007/0236	. . . . {for the lower part of the trunk, e.g. panty }
A61F 2007/0238	. . . . {in a pocket (A61F 2007/023 takes precedence)}
A61F 2007/0239	. . . {using vacuum }
A61F 2007/0242	. . {heated by microwaves }
A61F 2007/0244	. . {with layers }
A61F 2007/0246	. . . {with a layer having high heat transfer capability }
A61F 2007/0247	. . . . {Using a substance with high conductivity }
A61F 2007/0249	. . . {with a layer having low heat transfer capability }
A61F 2007/025	. . . . {retaining air or other gas }
A61F 2007/0252	. . . . . {in closed compartments }
A61F 2007/0253	. . . . {using a substance with low conductivity (A61F 2007/025 takes precedence)}
A61F 2007/0255	. . . . {with a reflective layer }
A61F 2007/0257	. . . {with a fluid impermeable layer }
A61F 2007/0258	. . . {with a fluid permeable layer }
A61F 2007/026	. . . {with a fluid absorbing layer }
A61F 2007/0261	. . . medicated { medicated }
A61F 2007/0263	. . . {made of a substance with therapeutic action, e.g. copper or silver }
A61F 2007/0265	. . . . antiallergic { antiallergic }
A61F 2007/0266	. . {without external heat source, i.e. using one's own body heat (A61F 2007/0061 takes precedence)}
A61F 2007/0268	. . {having a plurality of compartments being filled with a heat carrier (heat packs stored in pockets A61F 2007/023 , A61F 2007/0238)}
A61F 2007/0269	. . . {with separable compartments, e.g. reconnectable }
A61F 2007/0271	. . . . {Permanently separable compartments, e.g. with rupturable portions }
A61F 2007/0273	. . . {with openings in the walls between the compartments serving as passageways for the filler (flowing in circuits A61F 2007/0054 , A61F 2007/0059)}
A61F 2007/0274	. . . . {the walls being reduced to spot connections, e.g. spot welds }
A61F 2007/0276	. . . {with separate compartments connectable by rupturing a wall or membrane }
A61F 2007/0277	. . {Other details of hot water bottles, heat packs or cold packs }
A61F 2007/0279	. . . {Removable covers or sleeves (pockets connected to the body or parts thereof A61F 2007/023 , A61F 2007/0238)}
A61F 2007/028	. . . {Devices for wringing }
A61F 2007/0282	. . {for particular medical treatments or effects }
A61F 2007/0284	. . . {Treatment of stings or bites }
A61F 2007/0285	. . . {Local anaesthetic effect }
A61F 2007/0287	. . . {Preventing negative effects of chemotherapy }
A61F 2007/0288	. . . {during operations }

A61F 2007/029	• • • {Fat cell removal or destruction by non-ablative heat treatment }
A61F 2007/0292	• • {using latent heat produced or absorbed during phase change of materials, e.g. of super-cooled solutions }
A61F 2007/0293	• • • {Triggers, activators or catalysts therefor }
A61F 2007/0295	• • {for heating or cooling or use at more than one temperature }
A61F 2007/0296	• • • {Intervals of heating alternated with intervals of cooling }
A61F 2007/0298	• • • {with a section for heating and a section for cooling }
U A61F 7/03	• • Thermophore, i.e. self-heating, { e.g. using a chemical reaction }
U A61F 7/032	• • • { using oxygen from the air, e.g. pocket-stoves }
U A61F 7/034	• • • • { Flameless }
A61F 2007/036	• • • • • Fuels {Fuels }
A61F 2007/038	• • • • • {Carbon or charcoal, e.g. active }
U A61F 7/08	• Warming pads, pans or mats (A61F 7/02 takes precedence); Hot-water bottles <u>WARNING</u> Not complete, see also A61F 7/02
A61F 2007/083	• • {with an outlets tube, e.g. for enema or irrigation }
U A61F 7/10	• Cooling bags, e.g. ice-bags
A61F 2007/101	• • {for cooling organs in the body before or during surgery }
U A61F 7/103	• • {refillable }
A61F 2007/105	• • • {Closures specially adapted for icebags or packs }
A61F 2007/108	• • {Cold packs, i.e. devices to be cooled or frozen in refrigerator or freezing compartment }
U A61F 7/12	• Devices for heating or cooling internal body cavities
A61F 2007/126	• • {for invasive application, e.g. for introducing into blood vessels }
U A61F 9/00	Method or devices for treatment of the eyes; Devices for putting-in contact lenses; Devices to correct squinting; Apparatus to guide the blind; Protective devices for the eyes, carried on the body or in the hand (caps with means for protecting the eyes A42B 1/06; visors for helmets A42B 3/22; {retractors A61B 17/02; manipulators specially adapted for use in surgery A61B 19/22}; appliances to aid invalids to move about A61H 3/00; {exercisers for the eyes A61H 5/00}; eye baths A61H 35/02; sunglasses or goggles having the same features as spectacles G02C)
A61F 2009/0035	• {Devices for immobilising a patient`s head with respect to the instrument }
A61F 2009/0043	• • {by supporting the instrument on the patient`s head, e.g. head bands }
A61F 2009/0052	• • • {the instrument being supported on the patient`s eye }
U A61F 9/007	• Methods or devices for eye surgery
U A61F 9/008	• • using laser
A61F 2009/00842	• • • {Permanent Structural Change (PSC) in index of refraction; Limit between ablation and plasma ignition }
A61F 2009/00844	• • • {Feedback systems }
A61F 2009/00846	• • • • Eyetracking {Eyetracking }
A61F 2009/00848	• • • • {based on wavefront }
A61F 2009/00851	• • • • {Optical coherence topography (OCT) }
A61F 2009/00853	• • • {Laser thermal keratoplasty or radial keratotomy }
A61F 2009/00855	• • • {Calibration of the laser system }
A61F 2009/00857	• • • • {considering biodynamics }

- A61F 2009/00859 {considering nomograms }
- A61F 2009/00861 . . . {adapted for treatment at a particular location }
- A61F 2009/00863 ~~Retina~~ {Retina }
- A61F 2009/00865 ~~Sclera~~ {Sclera }
- A61F 2009/00868 {Ciliary muscles or trabecular meshwork }
- A61F 2009/0087 ~~Lens~~ {Lens }
- A61F 2009/00872 ~~Cornea~~ {Cornea }
- A61F 2009/00874 ~~Vitreous~~ {Vitreous }
- A61F 2009/00876 ~~Iris~~ {Iris }
- A61F 2009/00878 . . . ~~Planning~~ {Planning }
- A61F 2009/0088 {based on wavefront }
- A61F 2009/00882 {based on topography }
- A61F 2009/00885 . . . {for treating a particular disease }
- A61F 2009/00887 ~~Cataract~~ {Cataract }
- A61F 2009/00889 ~~Capsulotomy~~ {Capsulotomy }
- A61F 2009/00891 ~~Glaucoma~~ {Glaucoma }
- A61F 2009/00893 ~~Keratoconus~~ {Keratoconus }
- A61F 2009/00895 ~~Presbyopia~~ {Presbyopia }
- A61F 2009/00897 . . . {Scanning mechanisms or algorithms }
- U A61F 9/02 . Goggles {(breathing masks [A62B 18/00](#); swimming goggles [A63B 33/002](#); diving masks [B63C 11/12](#))}
- A61F 2009/021 . . {Goggles with prescription spectacle lenses }
- U A61F 11/00** **Methods or devices for treatment of the ears, e.g. surgical; Protective devices for the ears, carried on the body or in the hand; {Non-electric hearing aids}**
- U A61F 11/06 . Protective devices for the ears
- U A61F 11/08 . . internal, e.g. earplugs
- A61F 2011/085 . . . {including an inner channel }
- U A61F 11/14 . . external, e.g. earcaps or earmuffs (headwear, e.g. caps or helmets, with means for protecting the ears [A42B 1/06](#), [A42B 3/16](#), {for hairdresser's rooms [A45D 44/12](#); for sports [A63B 71/10](#); headphones [H04R 1/10](#)})
- NOTE**
Group [A61F 11/14](#) contains only acoustic protection (other external protectors, see [A61F 11/06](#))
- A61F 2011/145 . . . {electric, e.g. for active noise reduction }
- A61F 13/00** **Bandages or dressings (suspensory bandages [A61F 5/40](#); { contact-avoiding wound protectors [A61F15/00P](#); bandages or dressings with incorporated medicaments [A61L 15/44](#), ~~[A61M35/00C](#)~~[A61M 35/006](#); radioactive dressings [A61N 5/1029](#)); Absorbent pads (chemical aspects of, or use of materials for, bandages, dressings or absorbent pads [A61L 15/00](#); { absorbent pads for tracheostomy [A61M 16/047](#)})**

WARNING

Documents are in the process of being transferred from groups A61F 13/00 and ~~A61F13/16~~ to A61F 13/2051 to groups A61F 13/15 and A61F 13/28 to A61F 13/82

- A61F 2013/00089
 - {Wound bandages ([A61F 2013/00361](#) takes precedence; ~~adhesive wound bandages K61F13/15A1A~~; for haemorrhoids ~~K61F13/15A2~~; incontinence protection pads for anal discharge ~~K61F13/15A3D~~; surgical tampons ~~K61F13/15A9~~; special configurations, e.g. for catheter or tracheostomy ~~K61F13/15B4~~; anatomically shaped for the rest of the body ~~K61F13/15B6~~;)}
- A61F 2013/00093
 - • ~~tubular~~ {~~tubular~~}
- A61F 2013/00097
 - • • {net structure }(~~net-like plaster K61F13/00J2C~~)
- A61F 2013/00102
 - • ~~oblong~~ {~~oblong~~}
- A61F 2013/00106
 - • {emergency bandages, e.g. for first aid }
- A61F 2013/0011
 - • • ~~spray~~ {~~spray~~}
- A61F 2013/00114
 - • • {with check valve, e.g. for traumatic pneumothorax }
- A61F 2013/00119
 - • ~~elastic~~ {~~elastic~~}
- A61F 2013/00123
 - • • {with elastic indicator }
- A61F 2013/00127
 - • • {fixation means }
- A61F 2013/00131
 - • • {elasticity distribution }
- A61F 2013/00136
 - • • • ~~anisotropy~~ {~~anisotropy~~}
- A61F 2013/0014
 - • • • {non-linearity }
- A61F 2013/00144
 - • • • {transversal distribution }
- A61F 2013/00148
 - • • • {longitudinal distribution }
- A61F 2013/00153
 - • {coloured or with decoration pattern or printing }
- A61F 2013/00157
 - • {for burns or skin transplants ([A61F 2013/00187](#) takes precedence; not adhering to the wound [A61F 2013/00217](#))}
- A61F 2013/00161
 - • • {with wax, e.g. petroleum or bees- (~~lubricant top layers K61F13/15C7G~~; ~~containing lubricants K61F13/15H8G~~; treated with lubricants [A61F 2013/00331](#))}
- A61F 2013/00165
 - • {not touching the wound }
- A61F 2013/0017
 - • {possibility of applying fluid }
- A61F 2013/00174
 - • • {possibility of applying pressure }
- A61F 2013/00178
 - • • • {hand-held [C02](#) cylinder, e.g. sparklet }
- A61F 2013/00182
 - • {with transparent part }
- A61F 2013/00187
 - • {insulating; warmth or cold applying }(~~with different accessories K61F13/15H5~~)
- A61F 2013/00191
 - • • {cooled by evaporation }
- A61F 2013/00195
 - • • {electric warmer }
- A61F 2013/002
 - • • {with temperature control }
- A61F 2013/00204
 - • • ~~insulating~~ {~~insulating~~}
- A61F 2013/00208
 - • • • {by a high viscosity, low conductivity liquid }
- A61F 2013/00212
 - • • • {infra-red absorbing or reflecting }
- A61F 2013/00217
 - • {not adhering to the wound (with wax [A61F 2013/00161](#))}
- A61F 2013/00221
 - • • {biodegradable, non-irritating }
- A61F 2013/00225
 - • • • {with non-degradable reinforcing layer, net or mesh (~~net-like top K61F13/15C1D~~; ~~absorbent core with a reinforcing structure, e.g. net K61F13/15D2H~~*absorbent core with a reinforcing structure, e.g. net [A61F 2013/53463](#)*)}
- A61F 2013/00229
 - • • {with alginate (absorbent structures with superabsorbent materials, e.g. SAM ~~K61F13/15D7~~)}
- A61F 2013/00234
 - • • {metallic layer (metallic underlayers ~~K61F13/15E2~~)}

- A61F 2013/00238 . . {characterised by way of knitting or weaving }
- A61F 2013/00242 . . . {to avoiding fraying or pilling (lint-free, i.e. non-linting or frying [A61F 2013/00348](#))}
- A61F 2013/00246 . . {in a special way pervious to air or vapours (air permeability of absorbent structures **K61F13/15D10T**; underlayers impervious to fluids but not for air or vapours **K61F13/15E1A**; fibrous underlayers impervious to fluids end open for air **K61F13/15E3A**)}
- A61F 2013/00251 . . . {with macroscopic openings }
- A61F 2013/00255 . . . {with pores }
- A61F 2013/00259 . . . {thin film }
- A61F 2013/00263 . . . {vapour permeability >500 g/m2/24h }
- A61F 2013/00268 . . . {impervious, i.e. occlusive bandage }
- A61F 2013/00272 . . {protection of the body or articulation (safety barrier for protection of the operator [A61F 2013/00297](#); protecting the body against ulcers [A61F 2013/15024](#); protection in contaminated, e.g. NBC or industrial toxic ambience [A61F 2013/15065](#))}
- A61F 2013/00276 . . . {for itching skin }
- A61F 2013/0028 . . {applying of mechanical pressure; passive massage }
- A61F 2013/00285 . . {medication confinement }
- A61F 2013/00289 . . {easy removing of the protection sheet }
- A61F 2013/00293 . . {anallergic or hypoallergic material }
- A61F 2013/00297 . . {safety barrier for protection of the operator (protection of the body or articulation [A61F 2013/00272](#); protecting the body against ulcers [A61F 2013/15024](#); protection in contaminated, e.g. NBC or industrial toxic ambience [A61F 2013/15065](#); prophylaxis [A61F 2013/15081](#))}
- A61F 2013/00302 . . . {devices for handling dressings }
- A61F 2013/00306 . . . {dressing for protection of the operator during surgical procedure }
- A61F 2013/0031 . . . {for handling common life objects, e.g. telephone (prophylaxis [A61F 2013/15081](#))}
- A61F 2013/00314 . . {with surface treatments }
- A61F 2013/00319 . . . {to make surface hydrophobic }
- A61F 2013/00323 . . . {to make surface hydrophilic }
- A61F 2013/00327 . . . {to create projections or depressions in surface }
- A61F 2013/00331 . . . {lubricants (with wax, e.g. petroleum or bees- [A61F 2013/00161](#); not adhering to the wound [A61F 2013/00217](#); ~~lubricant top layers~~ **K61F13/15C7G**; ~~containing lubricants~~ **K61F13/15H8G**; *lubricant top layers* [A61F 2013/51073](#))}
- A61F 2013/00336 . . . {polymeric resins }
- A61F 2013/0034 . . {with triboelectric materials }
- A61F 2013/00344 . . . {for increasing oxygen partial pressure }
- A61F 2013/00348 . . {lint-free, i.e. non-linting or frying ([A61F 2013/00242](#) takes precedence)}
- A61F 2013/00353 . . {for red nails, in-grown nails or felons (inflamed digits)}
- A61F 2013/00357 . . {implanted wound fillings or covers (membranes for covering bone defects [A61F 2/2846](#))}

- A61F 2013/00361
 - ~~Plasters~~ *{Plasters }* (adhesive wound bandages **K61F13/15A1A**; for haemorrhoids **K61F13/15A2**; incontinence protection pads for anal discharge **K61F13/15A3D**; protecting the body against ulcers A61F 2013/15024; surgical tampons **K61F13/15A9**; protection in contaminants, e.g. NBC or industrial toxic ambience A61F 2013/15065; prophylaxis A61F 2013/15081; special configurations, e.g. for catheter or tracheostomy **K61F13/15B4**; anatomically shaped for the rest of the body **K61F13/15B6**; hot-melt elastomeric adhesive **K61F13/15B9L5**; with thermoplastic adhesive **K61F13/15C5D1**; connection between layers by adhesive **K61F13/15D2E1**; thermoplastic with heat **K61F13/15D2E2**; with thermoplastic adhesive **K61F13/15D4D1**; absorbent structures with superabsorbent, e.g. SAM **K61F13/15D7**; with adhesive-like impermeable layer **K61F13/15E8**; adhesive fastening means **K61F13/15G1**, **K61F13/15G4A**; apparatus for manufacturing using adhesives **K61F13/15H10E5**)
- A61F 2013/00365
 - • ~~use~~ *{use }*
- A61F 2013/0037
 - • • *{for cosmesis }*
- A61F 2013/00374
 - • • • *{against wrinkles, e.g. face lift }*
- A61F 2013/00378
 - • • • *{coloured as the skin (coloured black or yellow, or with pattern or printing [A61F 2013/00153](#))}*
- A61F 2013/00382
 - • • • *{reconstructing the body shape (prosthetic device [A61F 2013/00574](#))}*
- A61F 2013/00387
 - • • *{skin protection (protection of the body or articulation [A61F 2013/00272](#); safety barrier for protection of the operator [A61F 2013/00297](#); for protection of suture stitches [A61F 2013/00455](#); protection of wound surround [A61F 2013/00825](#))}*
- A61F 2013/00391
 - • • • *{from irradiation, e.g. sun }*
- A61F 2013/00395
 - • • • *{from skin abrasion }*
- A61F 2013/004
 - • • • *{from liquid water }*
- A61F 2013/00404
 - • • • *{against blisters or bed sores }*
- A61F 2013/00408
 - • • • *{shield for protection against hypodermic needles }*
- A61F 2013/00412
 - • • *{for use with needles, tubes or catheters }*
- A61F 2013/00417
 - • • • *{pierced by needle }*
- A61F 2013/00421
 - • • • *{with double adhesive layer (with cyano-acrylic adhesive [A61F 2013/00459](#); with adhesive connecting means [A61F 2013/00561](#); adhesives for plasters [A61F 2013/00655](#); with absorbent adhesives [A61F 2013/00757](#); with permeable adhesive layers [A61F 2013/00761](#); different adhesion of different adhesive layers [A61F 2013/00804](#); changing the adhesion force with strain value [A61F 2013/00838](#))}*
- A61F 2013/00425
 - • • *{for removing of external skin layer, e.g. prepping }*
- A61F 2013/00429
 - • • *{for conducting tests }*
- A61F 2013/00434
 - • • • *{Epicutaneous test }*
- A61F 2013/00438
 - • • • *{blood tests }*
- A61F 2013/00442
 - • • • *{using electrodes }*
- A61F 2013/00446
 - • • *{for oriental medicine }*
- A61F 2013/00451
 - • • *{for surgical sutures, e.g. butterfly type }*
- A61F 2013/00455
 - • • • *{for protection of suture stitches (protection of the body or articulation [A61F 2013/00272](#); safety barrier for protection of the operator [A61F 2013/00297](#); skin protection [A61F 2013/00387](#); protection of wound surround [A61F 2013/00825](#))}*
- A61F 2013/00459
 - • • • *{with cyano-acrylic adhesive (adhesives for mucosae [A61F 2013/00714](#) or for use on wounds [A61F 2013/00719](#))}*
- A61F 2013/00463
 - • • ~~haemostatic~~ *{haemostatic }*

- A61F 2013/00468 . . . {applying local pressure }
- A61F 2013/00472 . . . {with chemical means }
- A61F 2013/00476 . . . {for nose }
- A61F 2013/0048 . . . {for toes (for red nails, in-grown nails or felons [A61F 2013/00353](#))}
- A61F 2013/00485 . . . {treating of athlete`s foot }
- A61F 2013/00489 . . . {for bracing or strapping }
- A61F 2013/00493 . . . ~~torso~~ {torso }
- A61F 2013/00497 . . . {eye patch }
- A61F 2013/00502 . . . {for eyelids }
- A61F 2013/00506 . . . {for treating warts }
- A61F 2013/0051 . . . {for treating insect bite }
- A61F 2013/00514 . . . ~~ticks~~ {ticks }
- A61F 2013/00519 . . . {for treating burn (bandages for burns or skin transplants [A61F 2013/00157](#))}
- A61F 2013/00523 . . . {with hydrogel (wound bandages with alginate [A61F 2013/00229](#); adhesive for plasters; with hydrogel [A61F 2013/00676](#); water-based [A61F 2013/00689](#); for use on mucosae [A61F 2013/00714](#); for use on wounds [A61F 2013/00719](#); wound humidity control with hydrocolloids or superabsorbers [A61F 2013/00748](#); with absorbent adhesives [A61F 2013/00757](#); with fumed silica [A61F 2013/00787](#); with viscoelastic oil-elastomer gel [A61F 2013/00893](#))}
- A61F 2013/00527 . . . {artificial skin }
- A61F 2013/00531 . . . {for exfoliation (enzymes therefor [A61F 2013/00927](#))}
- A61F 2013/00536 . . . {for draining or irrigating wounds }
- A61F 2013/0054 . . . {for deep wounds }
- A61F 2013/00544 . . . {form or structure }
- A61F 2013/00548 . . . {net (wound bandages with net structure [A61F 2013/00097](#))}
- A61F 2013/00553 . . . {with detachable parts }
- A61F 2013/00557 . . . {detachable absorbent pad }
- A61F 2013/00561 . . . {with adhesive connecting means (plasters with a double adhesive layer [A61F 2013/00421](#); with cyano-acrylic adhesive [A61F 2013/00459](#); adhesives for plasters [A61F 2013/00655](#); with absorbent adhesives [A61F 2013/00757](#); with permeable adhesive layers [A61F 2013/00761](#); different adhesion of different adhesive layers [A61F 2013/00804](#); changing the adhesion force with strain value [A61F 2013/00838](#))}
- A61F 2013/00565 . . . {with hook and loop-type fastener connecting means }
- A61F 2013/0057 . . . {with openable cover }
- A61F 2013/00574 . . . {shaped as a body part ([A61F 2013/00187](#) take precedence; use of plasters [A61F 2013/00365](#); containing means for different purposes [A61F 2013/00902](#))}
- A61F 2013/00578 . . . {conformable; soft or flexible, e.g. elastomeric }
- A61F 2013/00582 . . . {Properties of backing }
- A61F 2013/00587 . . . ~~Thickness~~ {Thickness }
- A61F 2013/00591 . . . {breaking stress or force }
- A61F 2013/00595 . . . {breaking strain or extension }
- A61F 2013/006 . . . {Elastic modulus }
- A61F 2013/00604 . . . ~~Multilayer~~ {Multilayer }
- A61F 2013/00608 . . . {with reinforcing layers }

- A61F 2013/00612 . . . {with different thickness }
- A61F 2013/00617 . . . {with different hardness }
- A61F 2013/00621 . . . ~~cast~~ {cast }
- A61F 2013/00625 . . . {in situ }
- A61F 2013/00629 . . . {on a model }
- A61F 2013/00634 . . . ~~foam~~ {foam }
- A61F 2013/00638 . . . ~~Gel~~ {Gel }
- A61F 2013/00642 . . . {soluble, e.g. in water }
- A61F 2013/00646 . . . {Medication patches, e.g. transcutaneous }
- A61F 2013/00651 . . . {tapered, bevelled or chamfered }
- A61F 2013/00655 . . . {adhesive (wound bandages with alginate [A61F 2013/00229](#); plasters with a double adhesive layer [A61F 2013/00421](#); with cyano-acrylic adhesive [A61F 2013/00459](#); plasters for treating burn with hydrogel [A61F 2013/00523](#); with adhesive connecting means [A61F 2013/00561](#); adhesive for plasters, with hydrogel [A61F 2013/00676](#); for use on mucosae [A61F 2013/00714](#); for use on wounds [A61F 2013/00719](#); wound humidity control with hydrocolloids or superabsorbers [A61F 2013/00748](#); with absorbent adhesives [A61F 2013/00757](#); with fumed silica [A61F 2013/00787](#); with viscoelastic oil-elastomer gel [A61F 2013/00893](#); with permeable adhesive layers [A61F 2013/00761](#); different adhesion of different adhesive layers [A61F 2013/00804](#); changing the adhesion force with strain value [A61F 2013/00838](#))}
- A61F 2013/00659 . . . {polymeric base }
- A61F 2013/00663 . . . ~~acrylic~~ {acrylic }
- A61F 2013/00668 . . . ~~Ether~~ {Ether }
- A61F 2013/00672 . . . {cyano-acrylic }
- A61F 2013/00676 . . . ~~hydrogel~~ {hydrogel }
- A61F 2013/0068 . . . {cross-linked by radiations, e.g. electron beam }
- A61F 2013/00685 . . . {soluble in liquid, e.g. of particular pH }
- A61F 2013/00689 . . . {water-based }
- A61F 2013/00693 . . . {oil-based }
- A61F 2013/00697 . . . {elastomer-, e.g. rubber- based }
- A61F 2013/00702 . . . {silicon-based }
- A61F 2013/00706 . . . {basis weight }
- A61F 2013/0071 . . . {containing active agent }
- A61F 2013/00714 . . . {adhesives for mucosae }
- A61F 2013/00719 . . . {adhesives for use on wounds }
- A61F 2013/00723 . . . {non-adhesive skin fixation }
- A61F 2013/00727 . . . {means for wound humidity control }
- A61F 2013/00731 . . . {with absorbing pads }
- A61F 2013/00736 . . . {containing zeolites }
- A61F 2013/0074 . . . {containing foams }(~~plasters with foam cast K61F13/00L2H5; cushion on the elastic means or foam K61F13/15B9R1; top-layer foam K61F13/15C1F; superabsorbent foam or sponge K61F13/15D7D5; absorbent structure made of foam K61F13/15D8; foam underlayers K61F13/15E1D; foam-side parts K61F13/15F4A11; process of foam or sponge formation K61F13/15H11N~~)

- A61F 2013/00744 . . . {containing non-woven }(~~top layers made of non-woven K61F13/15C1B~~
~~polymeric non-woven K61F13/15C1C~~; multi-layered top sheet
~~K61F13/15C4F1, K61F13/15C4F5, K61F13/15C4F7~~; with
superabsorbent in form of paper or non-woven cloth or fabric
~~K61F13/15D7D2D~~; underlayer consisting in multi-layered structure
of non-woven and synthetic film ~~K61F13/15E1E1~~; underlayers made
of non-woven ~~K61F13/15E3G~~; side parts made of polymeric non-
woven ~~K61F13/15F4A9~~; apparatus for manufacturing non-woven webs
~~K61F13/15H10H~~)
- A61F 2013/00748 . . . {with hydrocolloids or superabsorbers (wound bandages with alginate
[A61F 2013/00229](#); plasters with cyano-acrylic adhesive [A61F 2013/00459](#);
plasters for treating burn with hydrogel [A61F 2013/00523](#); adhesive for
plasters, with hydrogel [A61F 2013/00676](#); water-based [A61F 2013/00689](#);
for use on mucosae [A61F 2013/00714](#); for use on wounds
[A61F 2013/00719](#); with absorbent adhesives [A61F 2013/00757](#); with
fumed silica [A61F 2013/00787](#); with viscoelastic oil-elastomer gel
[A61F 2013/00893](#))}
- A61F 2013/00753 . . . {superabsorbent fabric of cloth }
- A61F 2013/00757 . . . {with absorbent adhesives }
- A61F 2013/00761 . . . {with permeable adhesive layers }
- A61F 2013/00765 . . . {continuous layer }
- A61F 2013/0077 . . . {arranged in lines }
- A61F 2013/00774 . . . {arranged in discrete dots }
- A61F 2013/00778 . . . {porous layers }
- A61F 2013/00782 . . . {with macroscopic openings }
- A61F 2013/00787 . . . {fumed silica }
- A61F 2013/00791 . . . {device for evaporation of essudates }
- A61F 2013/00795 . . {special helping devices }
- A61F 2013/008 . . . {easy removing of the protection sheet }
- A61F 2013/00804 . . . {different adhesion of different adhesive layers (~~hot-melt elastomeric
adhesive K61F13/15B9L5~~; with thermoplastic adhesive ~~K61F13/15C5D1~~
~~connection between layers by adhesive K61F13/15D2E1~~; thermoplastic
with heat ~~K61F13/15D2E2~~; with thermoplastic adhesive ~~K61F13/15D4D1~~
~~with adhesive-like impermeable layer K61F13/15E8~~; adhesive fastening
means ~~K61F13/15G1, K61F13/15G4A~~; apparatus for manufacturing;
using adhesives ~~K61F13/15H10E5~~; plasters with a double adhesive layer
[A61F 2013/00421](#); with cyano-acrylic adhesive [A61F 2013/00459](#); with
adhesive connecting means [A61F 2013/00561](#); adhesives for plasters
[A61F 2013/00655](#); with absorbent adhesives [A61F 2013/00757](#); with
permeable adhesive layers [A61F 2013/00761](#); changing the adhesion
force with strain value [A61F 2013/00838](#))}
- A61F 2013/00808 . . . {force step in removing the protection layer }
- A61F 2013/00812 . . . {perforate or breakable zones }
- A61F 2013/00817 . . . {handles or handling tabs }
- A61F 2013/00821 . . . {with hinge means }
- A61F 2013/00825 . . . {protection of wound surround (protecting the body against ulcers
[A61F 2013/15024](#); protection in contaminated, e.g. NBC or industrial toxic
ambience [A61F 2013/15065](#); prophylaxis [A61F 2013/15081](#); protection
of the body or articulation [A61F 2013/00272](#); safety barrier for protection
of the operator [A61F 2013/00297](#); skin protection [A61F 2013/00387](#); for
protection of suture stitches [A61F 2013/00455](#))}
- A61F 2013/00829 . . . {rigid or semi-rigid backing }

- A61F 2013/00834 . . . {as a frame }
- A61F 2013/00838 . . . {changing the adhesion force with strain value (plasters with a double adhesive layer [A61F 2013/00421](#); with cyano-acrylic adhesive [A61F 2013/00459](#); with adhesive connecting means [A61F 2013/00561](#); adhesives for plasters [A61F 2013/00655](#); with absorbent adhesives [A61F 2013/00757](#); with permeable adhesive layers [A61F 2013/00761](#); different adhesion of different adhesive layers [A61F 2013/00804](#))}
- A61F 2013/00842 . . . {for tearing off dressing of desired size }
- A61F 2013/00846 . . {with transparent or translucent part }
- A61F 2013/00851 . . . {with grid or reference marks }
- A61F 2013/00855 . . {pervious to air or vapours (wound bandages in a special way pervious to air or vapour [A61F 2013/00246](#); ~~air permeability of absorbent structures K61F13/15D10T~~; underlayers impervious to fluids but not for air or vapours [K61F13/15E1A](#); fibrous underlayers impervious to fluids end open for air [K61F13/15E3A](#))}
- A61F 2013/00859 . . . {with macroscopic openings }
- A61F 2013/00863 . . . {with pores }
- A61F 2013/00868 . . . {thin film }(~~polymeric thin film K61F13/00L5B~~)
- A61F 2013/00872 . . . {with controlled oxygen permeability }
- A61F 2013/00876 . . . {vapour permeability >500 g/mg/24h }
- A61F 2013/0088 {adjustable to a predetermined value }
- A61F 2013/00885 . . . {impervious, i.e. occlusive bandage }
- A61F 2013/00889 ~~waterproof~~ {~~waterproof~~ }
- A61F 2013/00893 {viscoelastic oil-elastomer gel (adhesives based on oil [A61F 2013/00693](#); on rubber [A61F 2013/00697](#); hydrogel-based adhesives for plasters [A61F 2013/00676](#))}
- A61F 2013/00897 . . {package for individual plaster }
- A61F 2013/00902 . . {containing means }
- A61F 2013/00906 . . . {for transcutaneous or transdermal drugs application }
- A61F 2013/0091 . . . {with disinfecting or anaesthetics means, e.g. anti-microbial }
- A61F 2013/00914 . . . {with deodorising or perfuming means }(~~top-layer with odour control K61F13/15C9~~; ~~sprayed with odours or smells K61F13/15C7M~~; ~~underlayer with odour control means K61F13/15E9~~; ~~containing perfumes or medicaments K61F13/15H8~~)
- A61F 2013/00919 . . . {for physical therapy, e.g. cold or magnetic }
- A61F 2013/00923 {triboelectricity (wound bandages with triboelectric materials [A61F 2013/0034](#))}
- A61F 2013/00927 . . . {with biological activity, e.g. enzymes for debriding wounds or others, collagen or growth factors }
- A61F 2013/00931 ~~chitin~~ {~~chitin~~ }
- A61F 2013/00936 {metal (wound bandages with a metallic layer [A61F 2013/00234](#); ~~underlayers K61F13/15E2~~)}
- A61F 2013/0094 {for sensing physical parameters (plasters for conducting test [A61F 2013/00429](#); ~~sensors or indicators for wetness or Ph K61F13/15H3~~; ~~for diagnostic purposes K61F13/15H4~~)}
- A61F 2013/00944 {humidity; moisture }
- A61F 2013/00948 {Ph, e.g. acid }
- A61F 2013/00953 ~~temperature~~ {~~temperature~~ }
- A61F 2013/00957 ~~pressure~~ {~~pressure~~ }

- A61F 2013/00961 . . . {electrical conductivity }
- A61F 2013/00965 . . . {microbiological activity }
- A61F 2013/0097 . . . {oxygen content }
- A61F 2013/00974 . . {for writing or drawing, e.g. labels }
- A61F 2013/00978 . {attachments assembly for prosthesis; pouch, e.g. ostomy }
- A61F 2013/00982 . {anallergic or hypoallergic material }
- U A61F 13/02 . Adhesive plasters or dressings ([A61F 13/06](#) to [A61F 13/15](#) take precedence; { for diagnosis, e.g. allergy test patches, [A61B 10/0035](#)}; surgical adhesives or cements [A61L 24/00](#); { for transdermal drug administration [A61M 35/00](#)})
- U A61F 13/0276 . { Apparatus or processes for manufacturing adhesive dressings or bandages }
- A61F 2013/0296 . . {for making transdermal patches (chemical processes excluded)}
- U A61F 13/15 . Absorbent pads, e.g. sanitary towels, swabs or tampons for external or internal application to the body (non-absorbent catamenial receptacles [A61F](#)); Supporting or fastening means therefor; Tampon applicators
- A61F 2013/15008 . {characterized by the use }
- A61F 2013/15016 . . {for breast; pads for bras }
- A61F 2013/15024 . . {for protecting the body against ulcers }
- A61F 2013/15032 . . {as umbilical bandage }
- A61F 2013/1504 . . . {for avoiding contact with umbilical region }
- A61F 2013/15048 . . {for protection against contamination, or protection in using body disinfecting wipes }
- A61F 2013/15056 . . . {for the protection for furniture, e.g. car seats, chairs, beds }
- A61F 2013/15065 . . . {for protecting in contaminated ambience, e.g. NBC or industrial chemicals }
- A61F 2013/15073 . . {as drapes }
- A61F 2013/15081 . . {as prophylaxis }
- A61F 2013/15089 . . . {as facial prophylaxis }
- A61F 2013/15097 . . . {as genital prophylaxis }
- A61F 2013/15105 . . . {as contraceptive, e.g. condom }
- A61F 2013/15113 . . {for haemorrhoids }
- A61F 2013/15121 . . {for mild incontinence }
- A61F 2013/1513 . . {for anal discharge }
- A61F 2013/15138 . . . {for flatus, i.e. gas }
- A61F 2013/15146 . . {for urine collection }
- A61F 2013/15154 . . {for hospitalised patients }
- A61F 2013/15162 . . {for jaundice phototherapy, i.e. UV light-permeable or transparent materials }
- A61F 2013/1517 . . {for puerperae, i.e. after childbirth }
- A61F 2013/15178 . . {for prevention and therapy of hip dysplasia or subluxation }
- A61F 2013/15186 . . {for animals }
- A61F 2013/15195 . . {as swimwear }
- U A61F 13/15203 . {Properties of the article, e.g. stiffness or absorbency (chemical aspects [A61L 15/00](#))}
- U A61F 13/15211 . . {soluble or disintegratable in liquid}
- A61F 2013/15219 . . . {by mechanical separation of water resistant parts }
- A61F 2013/15227 . . . {by its solubility in particular Ph solution }

	A61F 2013/15235	. . . . {by its solubility in water }
	A61F 2013/15243	. . . . {printed or coloured, e.g. to match skin }
U	A61F 13/15252	. . . . {compostable or biodegradable}
	A61F 2013/1526	. . . . compostable {compostable }
	A61F 2013/15276	. . . . washable {washable }
	A61F 2013/15284	. . . . {characterized by quantifiable properties }
	A61F 2013/15292	. . . . {Resistance, i.e. modulus or strength }
	A61F 2013/153	. . . . . {in dry conditions }
	A61F 2013/15308	. . . . . {in wet conditions, i.e. wet strength }
	A61F 2013/15317	. . . . . {Wet compressibility, i.e. void volume/gr }
	A61F 2013/15325	. . . . . {Stress relaxation or compression recovery }
	A61F 2013/15333	. . . . . {to hot, e.g. 90 decC washing procedures }
	A61F 2013/15341	. . . . . {to fire or flame }
	A61F 2013/15349	. . . . . {with controlled smoke emission }
	A61F 2013/15357	. . . . {Stiffness, e.g. Taber rigidity }
	A61F 2013/15365	. . . . Dimensions {Dimensions }
	A61F 2013/15373	. . . . . {Calliper, i.e. thickness }
	A61F 2013/15382	. . . . . {Reduced thickness }
	A61F 2013/1539	. . . . . {being expandable }
	A61F 2013/15398	. . . . . {for giving the illusion of a thick absorbent pad }
	A61F 2013/15406	. . . . {Basis weight }
	A61F 2013/15414	. . . . {Bulk thickness }
	A61F 2013/15422	. . . . Density {Density }
	A61F 2013/1543	. . . . . {with a density gradient in the horizontal plane }
	A61F 2013/15439	. . . . . {with a density gradient in the vertical plane }
	A61F 2013/15447	. . . . {Fibre dimension, e.g. denier or tex }
	A61F 2013/15455	. . . . . {Volume-to-fibre surface area ratio }
	A61F 2013/15463	. . . . Absorbency {Absorbency }
	A61F 2013/15471	. . . . . {Total capacity }
	A61F 2013/15479	. . . . . {Drip capacity }
	A61F 2013/15487	. . . . {Capillary properties, e.g. wicking }
	A61F 2013/15495	. . . . . {pore dimension }
	A61F 2013/15504	. . . . . {with a porosity gradient in the vertical or horizontal plane }
	A61F 2013/15512	. . . . . {with specific hydrophilicity }
	A61F 2013/1552	. . . . . {with specific diffusion velocity }
	A61F 2013/15528	. . . . . {with specific capillary or osmotic pressure }
	A61F 2013/15536	. . . . . {with a capillarity gradient in the vertical or horizontal plane }
	A61F 2013/15544	. . . . Permeability {Permeability }
	A61F 2013/15552	. . . . . {Air permeability }
	A61F 2013/1556	. . . . . {Water permeability }
	A61F 2013/15569	. . . . Adhesivity {Adhesivity }
U	A61F 13/15577	. . {Apparatus or processes for manufacturing}
U	A61F 13/15707	. . . {Mechanical treatment, e.g. notching, twisting, compressing, shaping}
	A61F 2013/15715	. . . . {Shaping or making outer layers }

- U A61F 13/15772 . . . {Control}
- A61F 2013/1578 {via optical means associated to computer coordinator }
- A61F 2013/15788 {of the presence of the article or components }
- A61F 2013/15796 {of the alignment or position of article or components }
- U A61F 13/15804 . . . {Plant, e.g. involving several steps}
- A61F 2013/15813 {with modular lines }
- A61F 2013/15821 {characterized by the apparatus for manufacturing }
- A61F 2013/15829 {using pressure liquid jet }
- A61F 2013/15837 {using solvent }
- A61F 2013/15845 {using a specific cam for programming the apparatus }
- A61F 2013/15853 {using a specific computer algorithm for programming the apparatus }
- A61F 2013/15861 {for bonding }
- A61F 2013/15869 {with ultrasonic energy }
- A61F 2013/15878 {by thermal bonding }
- A61F 2013/15886 {by spot bonding }
- A61F 2013/15894 {by infra-red radiation }
- A61F 2013/15902 {with specific parameters, e.g. temperature, pressure }
- A61F 2013/1591 {via adhesive }
- A61F 2013/15918 {for die cutting }
- A61F 2013/15926 {for vacuum forming }
- A61F 2013/15934 {for making non-woven }
- A61F 2013/15943 {by air-laid technique }
- A61F 2013/15951 {by wet-laid technique }
- A61F 2013/15959 {by spunbond technique }
- A61F 2013/15967 {by meltblown technique }
- A61F 2013/15975 {by non-bonded and deformable technique }
- A61F 2013/15983 {by hydroentangled technique }
- A61F 2013/15991 {in making composite multi-layered product }
- A61F 2013/16 . . . { Sanitary towels; Means for supporting or fastening them }
- WARNING
For group **A61F13/16** and subgroups see warning after [A61F 13/00](#)
- U A61F 13/20 . . . Tampons, e.g. catamenial tampons; Accessories therefor
- WARNING
For group [A61F 13/20](#) and subgroups see warning after [A61F 13/00](#)
- U A61F 13/2002 . . . { characterised by the use}
- A61F 2013/2014 {for endoscopic procedures }
- U A61F 13/42 . . . with wetness indicator or alarm
- WARNING
See warning after [A61F 13/00](#)
- A61F 2013/421 {the alarm being a temperature change }
- A61F 2013/422 {the alarm being a colour change }
- A61F 2013/423 {the alarm being a volume change or a movement of a component }
- A61F 2013/424 {having an electronic device }

- A61F 2013/425 . . . {being also a toilet training aid }
- A61F 2013/426 . . . {Moisture sensitive polymers }
- A61F 2013/427 . . . {pH indicator }
- A61F 2013/428 . . . {for articles with superabsorbent materials }
- A61F 2013/429 . . . {Thermochromic materials, e.g. ink or dye }
- U A61F 13/45 . . . characterised by the shape (cup-shaped type tampons [A61F 13/24](#))
- A61F 2013/4506 . . . {special configurations using catheter or tube }
- A61F 2013/4512 . . . {folded in special shape during use ([A61F 13/534](#) , [A61F 13/551](#),
[A61F 13/56](#), [A61F 13/15747](#) and ~~K61F13/M4C~~ take precedence)}
- A61F 2013/4518 {formed from two separated panels }
- A61F 2013/4525 {by front and rear joined laterally at the crotch }
- A61F 2013/4531 {by lateral panels joined at the centreline, i.e. along the longitudinal axis
}
- A61F 2013/4537 {with aeration ducts (with hose-like, tubular sealing barriers
[A61F 13/49473](#))}
- A61F 2013/4543 {with a special transverse section ([A61F 13/534](#) takes precedence)}
- A61F 2013/455 {having a "W" shape }
- A61F 2013/4556 {having a "M" shape }
- A61F 2013/4562 {cup-shaped }
- A61F 2013/4568 {three-dimensional; with split absorbent core }
- A61F 2013/4575 {connected by elastic means }
- A61F 2013/4581 {with absorbent core in separated pieces }
- A61F 2013/4587 . . . {with channels or deep spot depressions on the upper surface
([A61F 13/4704](#) and [A61F 13/49001](#) take precedence)}
- A61F 2013/4593 . . . {allowing introduction of medical instruments without removing the
absorbent article }
- U A61F 13/47 Sanitary towels, incontinence pads or napkins ([A61F 13/49](#) takes
precedence)
- A61F 2013/4706 {enlarged in the anal area }
- A61F 2013/4708 {Panty-liner }
- U A61F 13/472 specially adapted for female use {([A61F 13/474](#), [A61F 13/475](#),
[A61F 13/476](#) take precedence)}
- A61F 2013/47281 {with internal collecting device }
- A61F 2013/4729 {combining catamenial pad and tampon }
- U A61F 13/49 Absorbent articles specially adapted to be worn around the waist, e.g.
diapers
- U A61F 13/49007 { Form-fitting, self-adjusting disposable diapers}
- U A61F 13/49009 { with elastic means}
- U A61F 13/4902 { characterised by the elastic material}
- A61F 2013/49022 {being elastomeric sheet }
- A61F 2013/49023 {being textured, e.g. corrugated }
- A61F 2013/49025 {having multiple elastic strands }
- A61F 2013/49026 {with variable spacing }
- A61F 2013/49028 {with different tensile stress }
- A61F 2013/4903 {being a net }
- A61F 2013/49031 {being elastic in longitudinal direction }

A61F 2013/49033	. . . . . {being elastic in transversal direction }
A61F 2013/49034	. . . . . {being elastic in both the transversal and longitudinal direction }
A61F 2013/49036	. . . . . {having a inelastic zone by deactivating the elastic property }
A61F 2013/49038	. . . . . {the elastic means is located all around the absorbent article's perimeter }
A61F 2013/49039	. . . . . {the elastic means is located around the target zone }
A61F 2013/49041	. . . . . {having a specific location other than covered by groups K61F1349D2B A61F 13/49011 - K61F1349D2K A61F 13/49019 }
A61F 2013/49042	. . . . . {with only stretchable part , i.e. part being not elastic but only extensible with not a full recovery of its original length }
A61F 2013/49044	. . . . . {being stretchable non-elastic panels, (A61F 13/4902 takes precedence)}
A61F 2013/49046	. . . . . {at the crotch }
A61F 2013/49047	. . . . . {at the ears }
A61F 2013/49049	. . . . . {on the hips }
A61F 2013/4905	. . . . . {at the waist }
A61F 2013/49052	. . . . . {having a specific direction of stretchability }
A61F 2013/49053	. . . . . {being stretchable in the longitudinal direction or machine direction, i.e. longitudinal }
A61F 2013/49055	. . . . . {being stretchable in transversal direction or cross machine direction }
A61F 2013/49057	. . . . . {being stretchable in both longitudinal and transversal direction }
U A61F 13/49058	. . . . { characterised by the modular concept of constructing the diaper }
A61F 2013/49063	. . . . . {the diaper having decoupled components }
A61F 2013/49065	. . . . . {being joined by a transverse line }
A61F 2013/49066	. . . . . {being joined by an area of low stiffness }
A61F 2013/49068	. . . . {characterized by the shape of the outline }
A61F 2013/49069	. . . . . {being rectangular, i.e. parallelepiped }
A61F 2013/49071	. . . . . {being triangular }
A61F 2013/49073	. . . . . {being trapezoidal }
A61F 2013/49074	. . . . . {hourglass; dog bone-shaped }
A61F 2013/49076	. . . . . {as "I"-shaped }
A61F 2013/49077	. . . . . {as "T"-shaped }
A61F 2013/49079	. . . . . {as backbone-shape }
A61F 2013/4908	. . . . . concave {concave }
A61F 2013/49082	. . . . . {being a complex shape not covered by the other groups A61F 2013/49068-A61F 2013/4908 }
A61F 2013/49084	. . . . conformable {conformable }
A61F 2013/49085	. . . . . {with a multiplicity of rounded, i.e. spherical elements }
A61F 2013/49087	. . . . {having breakable lateral stitches or panels }
A61F 2013/49088	. . . . {characterized by the leg opening }
A61F 2013/4909	. . . . . {being asymmetric leg openings }
A61F 2013/49092	. . . . . {comprising leg cuffs }
A61F 2013/49093	. . . . . {having multiple barriers }
A61F 2013/49095	. . . . . {Being formed by lateral sleets }
A61F 2013/49096	. . . . {with braces }

- A61F 2013/49098 {Other Details not otherwise provided of the absorbent articles specially adapted to be worn around the waist }
- A61F 13/493 adjustable { by adding or removing material e.g. umbilical cord arrangements (adjustable by the fastening ~~A61F13/59B4~~[A61F 13/5638](#), ~~A61F13/59D4~~[A61F 13/5655](#))}
- U A61F 13/494 characterised by edge leakage prevention means
- U A61F 13/49406 { the edge leakage prevention means being at the crotch region}
- U A61F 13/49413 { the edge leakage prevention means being an upstanding barrier}
- A61F 2013/49433 {the barrier having variable heights }
- A61F 2013/4944 {having multiple barriers }
- A61F 2013/4948 {the edge leakage prevention means being elastic }
- A61F 2013/49486 {the edge leakage prevention means being padded }
- A61F 2013/49493 {the edge leakage prevention means being or forming three-dimensional barrier with raised lateral side-or end-wall }
- U A61F 13/495 with faecal cavity
- A61F 2013/4951 {with internal barriers }
- A61F 2013/4953 {with rear faecal part separate from front urinary part }
- A61F 2013/4955 {with separable, disposable upper body layer }
- A61F 2013/4956 {with vertical spacer or separator keeping other components out of contact }
- A61F 2013/4958 {with a faecal management layer }
- U A61F 13/496 in the form of pants or briefs
- A61F 2013/4966 {with intentionally damp topsheet }
- U A61F 13/505 with separable parts, e.g. combination of disposable and reusable parts, ([A61F 13/20](#), { [A61F 13/49003](#) } take precedence; supporting or fastening means [A61F 13/56](#); { belts or the like [A61F 13/64](#)})
- A61F 2013/5055 {Possibility of doubling or putting in new pieces }
- U A61F 13/51 characterised by the outer layers {(wicking or transfer layers [A61F 13/537](#))}
- A61F 2013/51002 {with special fibres }
- A61F 2013/51004 {characterized by the length of the fibres }
- A61F 2013/51007 {characterized by the orientation of fibres }
- A61F 2013/51009 {characterized by the shape of the fibres }
- A61F 2013/51011 {characterized by the count of the fibres, e.g. denier or tex }
- A61F 2013/51014 {characterized by the connection between the fibres }
- A61F 2013/51016 {followed by a distension heat treatment }
- A61F 2013/51019 {being cellulosic material }
- A61F 2013/51021 {being chemically modified }
- A61F 2013/51023 {being polymeric fibres }
- A61F 2013/51026 {being in thermoplastic material }
- A61F 2013/51028 {being bicomponent }
- A61F 2013/5103 {being hydrophobic }
- A61F 2013/51033 {being hydrophilic }
- A61F 2013/51035 {being biodegradable, e.g. Rayon, polylactate, dioxanone }
- A61F 2013/51038 {being a mixture of fibres }
- A61F 2013/5104 {with pulp and polymeric fibres }
- A61F 2013/51042 {with hydrophobic and hydrophilic fibres }

A61F 2013/51045	. . . . {with thermoplastic binder }
A61F 2013/51047	. . . . {with antibacterial agents }
A61F 2013/5105	. . . . {with mineral or inert material }
A61F 2013/51052	. . . . {having different diameters }
A61F 2013/51054	. . . . {having different densities }
A61F 2013/51057	. . . . {having different ratio of fibres }
A61F 2013/51059	. . . {being sprayed with chemicals }
A61F 2013/51061	. . . . {for rendering the surface hydrophobic }
A61F 2013/51064	. . . . {in the legs area }
A61F 2013/51066	. . . . {for rendering the surface hydrophilic }
A61F 2013/51069	. . . . {by hydrophilisation with plasma or corona discharge }
A61F 2013/51071	. . . . {with anti-static agents }
A61F 2013/51073	. . . . {with lubricants }
A61F 2013/51076	. . . . {with perfumes or odour-masking agents }
A61F 2013/51078	. . . {being embossed }
A61F 2013/5108	. . . . {in grids }
A61F 2013/51083	. . . . {in point }
A61F 2013/51085	. . . . {in diamonds }
A61F 2013/51088	. . . . {in very fine micro-texture }
A61F 2013/5109	. . . {with odour control }
A61F 2013/51092	. . . {characterized by the dimensions }
A61F 2013/51095	. . . {being metallic }
A61F 2013/51097	. . . {with high friction coefficient for fixation of the bandage }
U A61F 13/511	. . . Topsheet, i.e. the permeable cover or layer facing the skin
U A61F 13/51113	. . . . { comprising an additive e.g. lotion or odour control A61F 13/51108 takes precedence }
A61F 2013/51117	. . . . {the lotion having skin care properties }
U A61F 13/51121	. . . . { characterised by the material }
A61F 2013/51126	. . . . {being nets }
A61F 2013/5113	. . . . {being foams }
A61F 2013/51134	. . . . . {the foam being compressed and expandable, e.g. a cellulosic sponge }
A61F 2013/51139	. . . . . {being woven or knitted fabrics }
A61F 2013/51143	. . . . . {being papers }
A61F 2013/51147	. . . . . {being polymeric films }
A61F 2013/51152	. . . . . {having specific distance between the fibres }
A61F 2013/51156	. . . . . {having integrally attached }
U A61F 13/5116	. . . . { being formed of multiple layers (A61F 13/5123 takes precedence) }
A61F 2013/51165	. . . . . {with the combination of films and nonwovens }
A61F 2013/51169	. . . . . {the nonwoven being hydroentangled or needlingentangled to the film }
A61F 2013/51173	. . . . . {with the combination of polymeric films }
A61F 2013/51178	. . . . . {with the combination of nonwoven webs }
A61F 2013/51182	. . . . . {with non-continuous bonding }
A61F 2013/51186	. . . . {specially shaped topsheets }

	A61F 2013/51191	. . . . {Self-sealing top layers }
	A61F 2013/51195	. . . . {not contacting the absorber }
U	A61F 13/512	. . . . characterised by its apertures, e.g. perforations
	A61F 2013/5127	. . . . {characterized by the dimension of apertures }
	A61F 2013/5128	. . . . {characterized by open targets or acquisitions or vulnerability zones }
U	A61F 13/513	. . . . { characterised by its function or properties, e.g. stretchability, breathability, rewet, visual effect;} having areas of different permeability
	A61F 2013/51316	. . . . {with low friction coefficient }
	A61F 2013/51322	. . . . {being elastomeric or stretchable }
	A61F 2013/51327	. . . . . {in only one specific direction }
	A61F 2013/51333	. . . . . {in only specific parts or sections of the top layer }
	A61F 2013/51338	. . . . {having improved touch or feeling, e.g. smooth film }
	A61F 2013/51344	. . . . . {with pile webs or velvet-like tissues }
	A61F 2013/5135	. . . . {with flame retardant agents or fire extinguishing agents }
	A61F 2013/51355	. . . . {for improving fluid flow }
	A61F 2013/51361	. . . . . {with pleats or folds }
	A61F 2013/51366	. . . . . {with hydrophilic lower face }
	A61F 2013/51372	. . . . . {with valve or valve-like upper layer; Tapered capillary structures }
	A61F 2013/51377	. . . . {having decoration properties }
	A61F 2013/51383	. . . . {being adapted for female properties }
	A61F 2013/51388	. . . . {being adapted to male properties }
U	A61F 13/514	. . . . backsheet, i.e. the impermeable cover or layer furthest from the skin {(A61F 13/15211, A61F 13/15252 take precedence)}
U	A61F 13/51401	. . . . { characterised by the material}
	A61F 2013/51407	. . . . {being flexible }
	A61F 2013/51409	. . . . {being a film }
	A61F 2013/51411	. . . . . {being impervious to fluids but not for air or vapours }
	A61F 2013/51413	. . . . . {with macroscopic openings }
	A61F 2013/51415	. . . . . {with pores }
	A61F 2013/51417	. . . . . {with thin films }
	A61F 2013/51419	. . . . . {with stretched areas }
	A61F 2013/51421	. . . . . {only in special places }
	A61F 2013/51423	. . . . . {the vapour permeability being less than 500g/m/24h }
	A61F 2013/51425	. . . . . {being impervious, i.e. occlusive }
	A61F 2013/51427	. . . . . {having valves }
	A61F 2013/51429	. . . . . {being elastomeric or stretchable sheet }
	A61F 2013/51431	. . . . . {in the composition of the elastomer }
	A61F 2013/51433	. . . . . {being biodegradable }
	A61F 2013/51435	. . . . . {having flame retardant agent or fire extinguishing agent }
	A61F 2013/51437	. . . . . {being integral with absorbent core }
	A61F 2013/51439	. . . . {being foams }
	A61F 2013/51441	. . . . {being a fibrous material }
	A61F 2013/51443	. . . . . {being impervious to fluids and being air permeable }
	A61F 2013/51445	. . . . . {comprising microfibres, e.g. Gore-Tex }
	A61F 2013/51447	. . . . . {being air permeable }

	A61F 2013/51449	. . . . . {being knitted or woven fabrics }
	A61F 2013/5145	. . . . . {being treated materials }
	A61F 2013/51452	. . . . . {being nonwovens }
	A61F 2013/51454	. . . . . {being papers }
U	A61F 13/51456	. . . . { characterised by its properties }
	A61F 2013/51468	. . . . . {being removable }
	A61F 2013/5147	. . . . . {the outer layer being adhesive itself }
	A61F 2013/51472	. . . . . {for reducing noise }
U	A61F 13/51474	. . . . { characterised by its structure }
U	A61F 13/51478	. . . . . { being a laminate, e.g. multi-layered or with several layers }
	A61F 2013/51482	. . . . . {being laminated on paper }
	A61F 2013/51486	. . . . . {with specially shaped backsheets }
	A61F 2013/51488	. . . . . {for napkins }
	A61F 2013/5149	. . . . . {being embossed }
	A61F 2013/51492	. . . . . {having specially shaped gas or air bubbles or bag-like structure }
	A61F 2013/51494	. . . . . {having underlayer extending around the longitudinal edges of the absorbent core }
U	A61F 13/53	. . characterised by the absorbing medium (A61F 13/20 takes precedence)
	A61F 2013/530007	. . . {being made from pulp }
	A61F 2013/530014	. . . . {being made in hard wood pulp }
	A61F 2013/530021	. . . . {being made in soft wood pulp }
	A61F 2013/530029	. . . . {being made from cotton }
	A61F 2013/530036	. . . . {being made in chemically-modified cellulosic material, e.g. Rayon }
	A61F 2013/530043	. . . . . {being made in oxidized cellulose }
	A61F 2013/530051	. . . . . {being made in cross-linked cellulosic fibres }
	A61F 2013/530058	. . . . {with specific method of producing wood pulp fibres }
	A61F 2013/530065	. . . . . {with chemical pulp }
	A61F 2013/530072	. . . . . {with sulphate pulp, e.g. Kraft }
	A61F 2013/53008	. . . . . . {being unbleached }
	A61F 2013/530087	. . . . . {with debonding agents }
	A61F 2013/530094	. . . . . {with mechanical pulp }
	A61F 2013/530102	. . . . . {with thermomechanical pulp }
	A61F 2013/530109	. . . . . {with chemithermomechanical pulp }
	A61F 2013/530116	. . . . . {with recycled material, e.g. paper }
	A61F 2013/530124	. . . . . {with compressed and delaminated material }
	A61F 2013/530131	. . . {being made in fibre but being not pulp }
	A61F 2013/530138	. . . . {characterized by the fibre length }
	A61F 2013/530145	. . . . . {being short }
	A61F 2013/530153	. . . . . {being long }
	A61F 2013/53016	. . . . {having special shape }
	A61F 2013/530167	. . . . . {being crimped }
	A61F 2013/530175	. . . . . {with capillary channel }
	A61F 2013/530182	. . . . {characterized by the connection between the fibres }
	A61F 2013/530189	. . . . . {with thermoplastic adhesive }

A61F 2013/530197	. . . . {with water-soluble binder }
A61F 2013/530204	. . . . . {being alcohol-based binder }
A61F 2013/530211	. . . . . {with water-insoluble binder }
A61F 2013/530218	. . . . . {followed by heat treatment }
A61F 2013/530226	. . . . {with polymeric fibres }
A61F 2013/530233	. . . . . {being thermoplastic fibres }
A61F 2013/53024	. . . . . {being bicomponent fibres }
A61F 2013/530248	. . . . . {being thermosetting fibres }
A61F 2013/530255	. . . . . {being hydrophobic fibres }
A61F 2013/530262	. . . . . {only in particular parts or specially arranged }
A61F 2013/53027	. . . . . {the maximum being at the crotch }
A61F 2013/530277	. . . . . {the maximum being at front or rear }
A61F 2013/530284	. . . . . {the maximum being at a certain depth in the thickness }
A61F 2013/530291	. . . . . {the maximum being along the sides }
A61F 2013/530299	. . . . . {being hydrophilic fibres }
A61F 2013/530306	. . . . . {coated with superabsorbent polymer }
A61F 2013/530313	. . . . . {being biodegradable }
A61F 2013/530321	. . . . . {in biopolymer, e.g. PHA }
A61F 2013/530328	. . . . {being mineral fibres, e.g. glass }
A61F 2013/530335	. . . . {being in peat moss }
A61F 2013/530343	. . . . {being natural fibres }
A61F 2013/53035	. . . . . {of cotton }
A61F 2013/530357	. . . . . {of wool }
A61F 2013/530364	. . . . . {of bamboo }
A61F 2013/530372	. . . . . {of ramie or jute or linen }
A61F 2013/530379	. . . . {comprising mixtures of fibres }
A61F 2013/530386	. . . . . {with pulp and polymeric }
A61F 2013/530394	. . . . . {in coform }
A61F 2013/530401	. . . . . {with hydrophobic and hydrophilic fibres }
A61F 2013/530408	. . . . . {with thermoplastic binder }
A61F 2013/530416	. . . . . {having different count e.g. denier or tex }
A61F 2013/530423	. . . . . {having different densities }
A61F 2013/53043	. . . . . {with different ratio of components }
A61F 2013/530437	. . . {having a part with elevated absorption means }
A61F 2013/530445	. . . . {by defining a target or acquisition or vulnerability zone }
A61F 2013/530452	. . . . {having chemically-stiffened fibres }
A61F 2013/530459	. . . . . {being curled }
A61F 2013/530467	. . . . . {being twisted }
A61F 2013/530474	. . . . . {being cross-linked }
A61F 2013/530481	. . . {having superabsorbent materials, i.e. highly absorbent polymer gel materials }
A61F 2013/530489	. . . . {being randomly mixed in with other material }
A61F 2013/530496	. . . . . {being fixed to fibres }
A61F 2013/530503	. . . . . {comprising poly-aluminium-chloride }

A61F 2013/53051	. . . . {being only in particular parts or specially arranged }
A61F 2013/530518	. . . . . {the maximum being at the crotch }
A61F 2013/530525	. . . . . {the maximum being at front or rear }
A61F 2013/530532	. . . . . {the maximum being at certain depth in the thickness }
A61F 2013/53054	. . . . . {the maximum being along the side edges }
A61F 2013/530547	. . . . . {positioned in a separate layer or layers }
A61F 2013/530554	. . . . . . {and being fixed to a web }
A61F 2013/530562	. . . . . . {being arranged in discontinuous pattern }
A61F 2013/530569	. . . . {characterized by the particle size }
A61F 2013/530576	. . . . . {having different size in different parts }
A61F 2013/530583	. . . . {characterized by the form }
A61F 2013/530591	. . . . . {in granules or particles }
A61F 2013/530598	. . . . . . {in aggregates }
A61F 2013/530605	. . . . . . {in sheet }
A61F 2013/530613	. . . . . {in fibres }
A61F 2013/53062	. . . . . . {being made into a paper or non-woven }
A61F 2013/530627	. . . . . {in flakes }
A61F 2013/530635	. . . . . {in thin film }
A61F 2013/530642	. . . . . . {being cross-linked or polymerised in situ }
A61F 2013/530649	. . . . . {in sponge or foam }
A61F 2013/530656	. . . . . . {being cut into pieces }
A61F 2013/530664	. . . . . {being a knitted or woven fabric }
A61F 2013/530671	. . . . {being mixed with mineral or inert material, e.g. "introying particles" }
A61F 2013/530678	. . . . . {with citric acid }
A61F 2013/530686	. . . . . {with metallic soluble salts, e.g. Na, K, Mg chloride }
A61F 2013/530693	. . . . . {with polymeric material }
A61F 2013/5307	. . . . {characterized by the quantity or ratio of superabsorbent material }
A61F 2013/530708	. . . . {characterized by the absorbency properties }
A61F 2013/530715	. . . . . {by the acquisition rate }
A61F 2013/530722	. . . . . . {by the delayed absorbency }
A61F 2013/530729	. . . . . . {by the swelling rate }
A61F 2013/530737	. . . . . {by the absorbent capacity }
A61F 2013/530744	. . . . . . {by the absorbency under load }
A61F 2013/530751	. . . . . . . {by the centrifugal load }
A61F 2013/530759	. . . . . . . {by the osmotic feature }
A61F 2013/530766	. . . . . . . {by the cross-link factor }
A61F 2013/530773	. . . . . . . {by the inverse temperature transition }
A61F 2013/530781	. . . . . . . {by the ionic surfactant, e.g. salt resistant }
A61F 2013/530788	. . . . {characterized by the gel layer permeability }
A61F 2013/530795	. . . . {being biodegradable }
A61F 2013/530802	. . . . {characterized by the foam or sponge other than superabsorbent (A61F 2013/530649 takes precedence)}
A61F 2013/53081	. . . . {with special pore dimension or arrangement }
A61F 2013/530817	. . . . . {being open cells }

- A61F 2013/530824 {the cells being opened by mechanical or physical treatment }
- A61F 2013/530832 {being closed cells }
- A61F 2013/530839 {being hydrophilic }
- A61F 2013/530846 {being hydrophobic }
- A61F 2013/530854 {being collapsed or collapsible foam }
- A61F 2013/530861 {having slit regions }
- A61F 2013/530868 . . . {characterized by the liquid distribution or transport means other than wicking layer (A61F 13/537 takes precedence)}
- A61F 2013/530875 {having holes }
- A61F 2013/530883 {having folds }
- A61F 2013/53089 {having impervious part }
- A61F 2013/530897 {having capillary means, e.g. pore or fibre size gradient }
- A61F 2013/530905 {being hydrophilic }
- A61F 2013/530912 {being hydrophobic }
- A61F 2013/530919 {being hydroneutral }
- A61F 2013/530927 {having longitudinal barriers }
- A61F 2013/530934 {having a density gradient }
- A61F 2013/530941 {through the thickness }
- A61F 2013/530948 {along the length }
- A61F 2013/530956 {being only in particular parts or specially arranged }
- A61F 2013/530963 {being maximum at the crotch }
- A61F 2013/53097 {being at front or rear region }
- A61F 2013/530978 {being at a particular depth in the thickness }
- A61F 2013/530985 {being along the side edges }
- A61F 2013/530992 . . . {in the form of string or ball instead of sheets }
- U A61F 13/531 having a homogeneous composition through the thickness of the pad (A61F 13/538, A61F 13/539 take precedence)
- A61F 2013/5312 {with structure resisting compression }
- A61F 2013/5315 {with a tissue-wrapped core }
- A61F 2013/5317 {with integral impervious bottom surface }
- U A61F 13/532 inhomogeneous in the plane of the pad
- A61F 2013/5326 {being a flanged fibrous pad }
- U A61F 13/534 having an inhomogeneous composition through the thickness of the pad ((A61F 13/538, A61F 13/539 take precedence; homogeneous cores with tissue wrapping A61F 13/53))
- A61F 2013/53445 {from several sheets }
- A61F 2013/53454 {with mirror-like structure }
- A61F 2013/53463 {with a reinforcing structure, e.g. net }
- A61F 2013/53472 {being a non-woven tissue wrapping the core }
- A61F 2013/53481 {being biodegradable }
- A61F 2013/5349 {being a tissue-wrapped core }
- U A61F 13/535 inhomogeneous in the plane of the pad, e.g. core absorbent layers being of different sizes ((A61F 13/5323, A61F 13/537 take precedence))
- A61F 2013/5355 {with terraced core }
- U A61F 13/537 characterised by a layer facilitating or inhibiting flow in one direction or plane, e.g. a wicking layer ((A61F 13/538 takes precedence))

- U A61F 13/53708 { the layer having a promotional function on liquid propagation in at least one direction }
- A61F 2013/53721 {with capillary means }
- A61F 2013/53726 {on the top layer }
- A61F 2013/5373 {on the bottom layer }
- A61F 2013/53734 {with compressed lines }
- A61F 2013/53739 {with compressed points }
- A61F 2013/53765 {characterized by its geometry }
- A61F 2013/53769 {with the wicking layer not contacting the absorbent core }
- A61F 2013/53773 {with a deformable spacing structure }
- A61F 2013/53778 {with grooves }
- A61F 2013/53782 {with holes }
- A61F 2013/53786 {with folds }
- A61F 2013/53791 {being resilient or elastic }
- A61F 2013/53795 {being a surge management layer }
- U A61F 13/538 . . . characterised by specific fibre orientation or weave
- A61F 2013/5383 {by the fibre orientation in the x-y plane }
- A61F 2013/5386 {by the fibre orientation in the z plane or vertical direction }
- U A61F 13/539 . . . characterised by the connection of the absorbent layers with each other or with the outer layers
- A61F 2013/53908 {with adhesive }
- A61F 2013/53916 {with epicyclical pattern }
- A61F 2013/53925 {with intermittent pattern, e.g. spots }
- A61F 2013/53933 {with water-soluble binder }
- A61F 2013/53941 {being alcohol-based binder }
- A61F 2013/5395 {with thermoplastic agent, i.e. softened by heat }
- A61F 2013/53958 {with separate adhesive layer }
- A61F 2013/53966 {by needling, sewing, blow-needling }
- A61F 2013/53975 {by Hydraulic entanglement }
- A61F 2013/53983 {with hook and loop-type fastener or the like }
- A61F 2013/53991 {by ultrasonic method }
- U A61F 13/551 . . . Packaging before or after use {(general packaging of absorbent pads [B65D 85/00](#))}
- U A61F 13/55105 . . . { packaging of diapers }
- U A61F 13/5512 { after use }
- A61F 2013/55125 {the disposal system being a bag or a pocket integral with or attached to the diaper }
- U A61F 13/5513 . . . { packaging of feminine sanitary napkins }
- U A61F 13/5515 { after use }
- A61F 2013/55155 {the disposal system being a bag or pocket integral with or attached to the sanitary napkin }
- A61F 2013/55195 . . . {Packaging for dispensing and disposing }
- U A61F 13/56 . . . Supporting or fastening means
- U A61F 13/5622 . . . {specially adapted for diapers or the like }
- A61F 2013/5627 {comprising a zip fastener }

- A61F 2013/5661 . . . {in special holders for beds, chairs or seats }
- A61F 2013/5666 . . . {connected to itself ([A61F 13/58](#) and [A61F 13/62](#) take precedence)}
- A61F 2013/5672 . . . {with buttons or the like ([A61F 13/78](#) takes precedence)}
- A61F 2013/5677 ~~refastenable~~ {refastenable }
- A61F 2013/5683 . . . {Disposition or arrangement }
- A61F 2013/5688 {inclined at an oblique angle to the longitudinal axis }
- A61F 2013/5694 . . . {Other non adhesive means than hook and loop-type fastener or belts ([A61F 13/62](#), [A61F 13/64](#) and [A61F 13/66](#) take precedence)}
- U A61F 13/58 . . . Adhesive tab fastener elements ({[A61F 13/5611](#), [A61F 13/5616](#)}, [A61F 13/66](#) take precedence)
- A61F 2013/582 {with one strip on one place }
- A61F 2013/583 {with strips on several places }
- A61F 2013/585 {being spot like }
- A61F 2013/586 {on lateral flaps }
- A61F 2013/587 {on rear or front tabs }
- A61F 2013/588 {on waist panels }
- U A61F 13/84 . . Accessories, not otherwise provided for, for absorbent pads
- A61F 2013/8402 . . . {including disposal means ([A61F 13/5512](#), ~~K61F13/55B4~~ [A61F 13/5515](#), [A61F 13/5517](#), [A61F 13/5518](#) take precedence)}
- U A61F 13/8405 . . . { Additives, e.g. for odour, disinfectant or pH control}
- A61F 2013/8408 {with odour control }
- A61F 2013/8411 {in controlling solution Ph }
- A61F 2013/8414 {with anti-microbic }
- A61F 2013/8417 {being anti-mycosis }
- A61F 2013/842 {with active charcoal }
- A61F 2013/8423 {with molecular sieves; zeolites }
- A61F 2013/8426 {with metallic salts }
- A61F 2013/8429 {with ion exchange resins }
- A61F 2013/8432 {with glycerine polyol }
- A61F 2013/8435 {with plant derivatives }
- A61F 2013/8438 {being enzymes, e.g. proteolysis, cellulase }
- A61F 2013/8441 {being cultures }
- A61F 2013/8444 {being microbial, e.g. bulgaricus }
- A61F 2013/8447 {in using different incompatible substances }
- A61F 2013/845 {being powder embodied in a polymeric matrix }
- A61F 2013/8452 {being contained in microcapsules }
- A61F 2013/8455 {being lubricants }
- A61F 2013/8458 {having bees-wax }
- A61F 2013/8461 {having petroleum derivative }
- A61F 2013/8464 {having plant derivative }
- A61F 2013/8467 {being antistatic agents }
- A61F 2013/847 {being infrared absorbing agent }
- A61F 2013/8473 . . . {for diagnostic purposes }
- A61F 2013/8476 . . . {with various devices or method }
- A61F 2013/8479 {including electric or magnetic devices }

- A61F 2013/8482 {including numeric control, e.g. using computer }
- A61F 2013/8485 {including optical filtering devices }
- A61F 2013/8488 . . . {including testing apparatus }
- A61F 2013/8491 {including test methods }
- A61F 2013/8494 . . . {including pumping devices }
- A61F 2013/8497 . . . {having decorations or indicia means }

Project: N/A (A61G)**U A61G 1/00****Stretchers**

- U A61G 1/04 . Parts, details or accessories, e.g. head-, foot-, or like rests specially adapted for stretchers
- A61G 2001/042 . . {Suspension means}

U A61G 3/00**Ambulance aspects of vehicles; Vehicles with special provisions for transporting patients or disabled persons, or their personal conveyances, e.g. for facilitating access of, or for loading, wheelchairs**

- U A61G 3/02 . Loading or unloading personal conveyances; Facilitating access of patients or disabled persons to, or exit from, vehicles
- U A61G 3/06 . . Transfer using ramps, lifts or the like
- A61G 2003/067 . . . {with compartment for horizontally storing the ramp or lift(load transporting vehicles with a ramp being stored under the loading floor when not in use [B60P 1/431](#))}
- A61G 2003/068 . . . {in combination with folding stairs(retractable steps or ladders facilitating access to or on a vehicle [B60R 3/02](#) ; folding steps for railway vehicles [B61D 23/02](#) ; collapsible stairs in buildings [E04F 11/06](#))}

U A61G 5/00**Chairs or personal conveyances specially adapted for patients or disabled persons, e.g. wheelchairs({ chairs with toilet conveniences [A47K 11/04](#) ; } devices enabling patients or disabled persons to operate an apparatus or device not forming part of the body [A61F 4/00](#) ; { running gear or propulsion features [B60K](#); } bicycles specially adapted for disabled riders [B62K 3/16](#) ; { Invalid chairs having removable seats specially adapted to be transferred with the invalid to a vehicle and support the invalid during use of the vehicle [A61G 3/02](#) })****NOTE**

Invalid chairs having removable seats specially adapted to be transferred with the invalid to a vehicle and support the invalid during use of the vehicle are classified in group [A61G 3/00](#)

- U A61G 5/04 . motor-driven([A61G 5/06](#) takes precedence; motor-operated rests [A61G 5/12](#) ; for vehicles with handlebars, equipped with three or more wheels [B62K 5/003](#) , [B62K 5/023](#))
- A61G 2005/048 . . {Power-assistance activated by pushing on hand rim or on handlebar}
- U A61G 5/08 . foldable
- A61G 2005/0808 . . {characterised by a particular folding direction}
- A61G 2005/0816 . . . {folding left - right, e.g. reducing the overall width of the wheelchair}
- A61G 2005/0825 {comprising a scissor-type frame, e.g. having pivoting cross bars for enabling folding(scissor-type frame for folding front-back [A61G 2005/0841](#) ; scissor-type frame for folding up-down [A61G 2005/0858](#))}
- A61G 2005/0833 . . . {folding front - back, e.g. reducing the overall depth of the wheelchair}

- A61G 2005/0841
 - • • {comprising a scissor-type frame, e.g. having pivoting cross bars for enabling folding(scissor-type frame for folding left-right [A61G 2005/0825](#) ; scissor-type frame for folding up-down [A61G 2005/0858](#))}
- A61G 2005/085
 - • • {folding up - down, e.g. reducing the overall height of the wheelchair}
- A61G 2005/0858
 - • • {comprising a scissor-type frame, e.g. having pivoting cross bars for enabling folding(scissor-type frame for folding left-right [A61G 2005/0825](#) ; scissor-type frame for folding front-back [A61G 2005/0841](#))}
- A61G 2005/0866
 - • {folding down backrest, e.g. where the backrest folds down onto the seat support}
- A61G 2005/0875
 - • {dismountable, e.g. where the wheelchair can be disassembled for transportation or storage}
- A61G 2005/0883
 - • {having locking means for maintaining a folded or unfolded condition}
- A61G 2005/0891
 - • {having rigid supports, e.g. seat or back supports which retain their shape after folding of the wheelchair}
- U A61G 5/10
 - Parts, details or accessories
- U A61G 5/1043
 - • {Cushions specially adapted for wheelchairs}
- A61G 2005/1045
 - • • {for the seat portion}
- A61G 2005/1048
 - • • {for the back-rest}
- A61G 2005/1051
 - • {Arrangements for steering}
- A61G 2005/1054
 - • {Large wheels, e.g. higher than the seat portion}
- A61G 2005/1078
 - • {with shock absorbers or other suspension arrangements between wheels and frame}
- A61G 2005/1081
 - • {with shock absorbers or other suspension arrangements between frame and seat}
- A61G 2005/1083
 - • {Quickly-removable wheels}
- A61G 2005/1086
 - • {Anti-roll-back devices}
- A61G 2005/1089
 - • {Anti-tip devices}
- A61G 2005/1091
 - • {Cushions, seats or abduction devices}
- A61G 2005/1094
 - • {Tables, working plates, trays}
- A61G 2005/1097
 - • {Camber- or toe-adjusting means for the drive wheels}
- U A61G 5/12
 - • Rests specially adapted therefor, e.g. for the head or the feet
- A61G 2005/121
 - • • {for head or neck}
- A61G 2005/122
 - • • {for the back}
- A61G 2005/124
 - • • {for pelvis or buttocks}
- A61G 2005/125
 - • • {for arms}
- A61G 2005/127
 - • • {for lower legs}
- A61G 2005/128
 - • • {for feet}
- U **A61G 7/00**

Beds specially adapted for nursing; Devices for lifting patients or disabled persons(equipment for beds, treatment tables, floor frames or the like for extending or stretching [A61F 5/045](#) { takes precedence } ; stretchers with facilities for picking up patients or disabled persons [A61G 1/003](#))
- U A61G 7/05
 - Parts, details or accessories of beds(devices for prevention against falling out [A47C 21/08](#) , [A47D 7/00](#) ; { mattresses [A47C 27/00](#) })
- U A61G 7/0507
 - • {Side-rails(side-bolsters [A61G 7/0525](#) ; non medical devices for prevention against falling-out [A47C 21/08](#))}
- A61G 2007/0508
 - • • {characterised by a particular connection mechanism}
- A61G 2007/0509
 - • • {sliding or pivoting downwards}

A61G 2007/051	• • • • {pivoting sideward}
A61G 2007/0512	• • • {characterised by customised length}
A61G 2007/0513	• • • • {covering particular sections of the bed, e.g. one or more partial side-rail sections along the bed}
A61G 2007/0514	• • • • • {mounted to individual mattress supporting frame sections}
A61G 2007/0515	• • • • {covering the full bed length, e.g. from head board to foot board}
A61G 2007/0516	• • • {with height adjustability}
A61G 2007/0518	• • • {quickly removable}
A61G 2007/0519	• • • {stowable, e.g. underneath mattress}
A61G 2007/052	• • • {characterised by safety means, e.g. to avoid injuries to patient or caregiver}
A61G 2007/0521	• • • • {Anti-pinching means to avoid injuries to body parts when moving side-rails or mattress supports, e.g. gap and grid covers, side-rail parts with special shape or electronic means for warning}
A61G 2007/0522	• • • • {Padding means to soften side-rail surfaces}
A61G 2007/0524	• • • {characterised by integrated accessories, e.g. bed control means, nurse call or reading lights}
A61G 2007/0527	• • {Weighing devices}
A61G 2007/0528	• • {Steering or braking devices for castor wheels}
U A61G 7/057	• • Arrangements for preventing bed-sores or for supporting patients with burns, e.g. mattresses specially adapted therefor{(ventilation openings in mattresses A47C 21/042 ; pneumatic or hydraulic mattresses A47C 27/08)}
A61G 2007/05784	• • • {with ventilating means, e.g. mattress or cushion with ventilating holes or ventilators}
A61G 2007/05792	• • • • {with low air loss function, e.g. in mattresses, overlays or beds}
U A61G 7/065	• • Rests specially adapted therefor
A61G 7/07	• • • for the head or torso, e.g. special back-rests{(pillows in general A47G9/00A A47G 9/10)}
U A61G 7/10	• Devices for lifting patients or disabled persons, e.g. special adaptations of hoists thereto
U A61G 7/16	• • converting a lying surface into a chair
A61G 2007/165	• • • {Chair detachable from bed}
U A61G 13/00	Operating tables; Auxiliary appliances therefor(illumination of operating tables F21L, F21S or F21V){ adjustability of tables in general A47B 9/00 ; tables for radiation diagnosis A61B 6/04 , drainage or irrigation pans, bags, or attachments A61G 7/02 , A61G 7/0503 }
U A61G 13/0036	• {Orthopaedic operating tables(devices for stretching fractured limbs A61F 5/04)}
A61G 2013/0045	• • {specially adapted for hand or wrist surgeries}
A61G 2013/0054	• • {specially adapted for back or spinal surgeries}
A61G 2013/0063	• • {specially adapted for knee surgeries}
A61G 2013/0072	• • {specially adapted for shoulder surgeries}
A61G 2013/0081	• • {specially adapted for hip surgeries}
U A61G 15/00	Operating chairs; Dental chairs(barbers` chairs A47C 1/04); Accessories specially adapted therefor, e.g. work stands
A61G 15/007	• {Physiotherapeutic chairs(with incorporated massage means A61H1/00B A61H 1/00)}

- U A61G 17/00 Coffins; Funeral wrappings; Funeral urns**
- A61G 2017/004 · {specially adapted to be cremated}
 - U A61G 17/04** · Fittings for coffins
 - A61G 2017/041 · · **Handles**{Handles}
 - A61G 2017/042 · · **Linings**{Linings}
 - A61G 2017/044 · · {Corpse supports}
 - A61G 2017/045 · · {Rack for flowers}
 - A61G 2017/047 · · {Absorption devices for decomposition liquid}
 - A61G 2017/048 · · {Adaption for decomposing gas}

Project: N/A (A61H)**A61H**

PHYSICAL THERAPY APPARATUS, e.g. DEVICES FOR LOCATING OR STIMULATING REFLEX POINTS IN THE BODY; ARTIFICIAL RESPIRATION; MASSAGE; BATHING DEVICES FOR SPECIAL THERAPEUTIC OR HYGIENIC PURPOSES OR SPECIFIC PARTS OF THE BODY (methods or devices enabling invalids to operate an apparatus or a device not forming part of the body [A61F 4/00](#); electrotherapy, magnetotherapy, radiation therapy, ultrasound therapy [A61N](#))

NOTE

In this subclass, the following expression is used with the meaning indicated:
 - "physical therapy" covers the treatment of disease or disability by means, e.g. mechanical means, as opposed to drugs or surgery.
 It includes, by way of example, massage, whirlpool baths or devices for exercising a passive body member.

- U A61H 1/00 Apparatus for passive exercising ([A61H 5/00](#) takes precedence); Vibrating apparatus {(driving means for vibrating [A61H 23/00](#)); Chiropractic devices, e.g. body impacting devices, external devices for briefly extending or aligning unbroken bones**

NOTE

This group does not cover orthopaedic methods or devices, which are covered by group [A61F 5/00](#)

- U A61H 1/02** · Stretching or bending {or torsioning} apparatus for exercising
- NOTE**
- In this group, documents which are of interest for more than one subgroup are classified in the hierarchically higher group only, unless there is a specific group for the combination
- A61H 2001/0203 · · {Rotation of a body part around its longitudinal axis}
 - A61H 2001/0207 · · {Nutating movement of a body part around its articulation}
 - A61H 2001/0211 · · {Walking coordination of arms and legs }

Project: RP0040 (A61H)

- U A61H 1/0218** · · { Drawing-out devices (suspension devices for supporting the patient in upright walking or standing position [A61H 3/008](#); orthopedic devices for non-surgical treatment [A61F 5/01](#); stretching fractured limbs [A61F 5/04](#))}
- D A61H 2001/0225** · · · by hanging the patient upside down or inclined downwardly

Project: N/A (A61H)

- A61H 2001/0233 · · · {Pulsating, alternating, fluctuating}

- U A61H 1/0237
 - • {for the lower limbs}
- U A61H 1/0244
 - • • {Hip ([A61H 1/0255](#) takes precedence)}
- A61H 2001/0248
 - • • • {by separating the legs laterally }
- A61H 2001/0251
 - • • • {by moving the legs together laterally }
- U A61H 1/0266
 - • • {Foot}
- A61H 2001/027
 - • • • ~~Toes~~{Toes}
- U **A61H 3/00**

Appliances for aiding patients or disabled persons to walk about (apparatus for helping babies to walk [A47D 13/04](#); { orthopaedic devices for correcting deformities of, or supporting, limbs [A61F 5/0102](#)}; exercising apparatus for the feet or toes [A63B 23/10](#); { stairways or ramps [E04F 11/00](#)})

 - A61H 2003/001
 - {on steps or stairways}
 - A61H 2003/002
 - {with attached or incorporated article carrying means}
 - A61H 2003/003
 - • ~~Umbrellas~~{Umbrellas}
 - A61H 2003/004
 - • ~~Trays~~{Trays}
 - A61H 2003/005
 - {with knee, leg or stump rests}
 - A61H 2003/006
 - {with forearm rests, i.e. for non-used arms}
 - A61H 2003/007
 - {secured to the patient, e.g. with belts}
 - U A61H 3/02
 - Crutches
 - A61H 2003/0205
 - • {Crutches with no pivoting movement during use, e.g. tripods}
 - A61H 2003/0211
 - • {with curved ground-engaging means, i.e. rockers }
 - A61H 2003/0216
 - • {Crutches in which movement is limited to a pivoting in one plane, e.g. 2-point supports}
 - A61H 2003/0222
 - • {with means for grasping or picking-up objects}
 - A61H 2003/0227
 - • {convertible from armpit- into forearm-model}
 - A61H 2003/0233
 - • {convertible from armpit crutch into cane}
 - A61H 2003/0238
 - • {convertible from forearm crutch into cane}
 - U A61H 3/0244
 - • {Arrangements for storing or keeping upright when not in use}
 - A61H 2003/025
 - • • {with devices for securing a pair of crutches together }
 - A61H 2003/0255
 - • • {on a single crutch for being fixed on or supported by a wall, furniture or the like }
 - A61H 2003/0261
 - • • {on walls or furniture for receiving single crutches }
 - A61H 2003/0266
 - • • {with magnetic fixing }
 - A61H 2003/0272
 - • • {on a single crutch allowing it to remain upright when not in use, e.g. retractable tripods ([A61H 2003/0205](#) takes precedence)}
 - U A61H 3/0277
 - • {Shock absorbers therefor}
 - A61H 2003/0283
 - • • {using elastomeric material }
 - U A61H 3/0288
 - • {Ferrules or tips therefor (for walking sticks or umbrellas [A45B 9/04](#))}
 - A61H 2003/0294
 - • • {comprising a ball-and-socket joint }
 - U A61H 3/04
 - Wheeled walking aids for disabled persons ({[A61H 3/008](#) ,[A61H 3/06](#) take precedence})
 - A61H 2003/043
 - • {with a drive mechanism }
 - A61H 2003/046
 - • {with braking means }
 - U A61H 3/06
 - Walking {or guiding} aids for blind persons (walking sticks {in general} [A45B](#); replacing direct visual perception by another kind of perception [A61F 9/08](#))
 - U A61H 3/061
 - • { with electronic detecting or guiding means}
 - A61H 2003/063
 - • • {with tactile perception }

	A61H 2003/065	<ul style="list-style-type: none"> • • • {in the form of braille }
U	A61H 7/00	Devices for suction-kneading massage; Devices for massaging the skin by rubbing or brushing not otherwise provided for (Electro-medical massage devices applying electric current by contact A61N 1/18 { Brushes in general A46; Bathing sponges, brushes, gloves or similar cleaning or rubbing implements not specially for massage A47K 7/02; Suction devices for nursing A61M 1/06, A61M 1/08; Rollers or balls therefore, A61H 15/00}}
U	A61H 7/007	<ul style="list-style-type: none"> • { Kneading }
	A61H 2007/009	<ul style="list-style-type: none"> • • {having massage elements mounted on parallel output axis turning in opposite sense }
U	A61H 9/00	Pneumatic or hydraulic massage, {e.g. sprays (A61H 13/00 takes precedence; underwater massage, spraying systems acting on a body or body part immersed in water A61H 33/00, A61H 35/00; brushes with fluid supply A46B 11/00; nozzles per se B05B)}
	A61H 2009/0014	<ul style="list-style-type: none"> • {with particles, e.g. sand }
U	A61H 9/0021	<ul style="list-style-type: none"> • {Hand-held devices for spraying and removing liquid while moved on the skin}
	A61H 2009/0035	<ul style="list-style-type: none"> • • {with cabin for the whole body }
	A61H 2009/0042	<ul style="list-style-type: none"> • • {with water recirculation }
U	A61H 9/005	<ul style="list-style-type: none"> • { Pneumatic massage }
	A61H 2009/0064	<ul style="list-style-type: none"> • • {suction by releasing a flexible cup after deformation, i.e. without further vacuum source }
U	A61H 11/00	Belts, strips or combs for massage purposes
	A61H 2011/005	<ul style="list-style-type: none"> • {with belt or strap expanding and contracting around an encircled body part }
U	A61H 15/00	Massage by means of rollers, balls, e.g. inflatable, chains, or roller chains
	A61H 2015/0007	<ul style="list-style-type: none"> • {with balls or rollers rotating about their own axis }
	A61H 2015/0014	<ul style="list-style-type: none"> • • {cylinder-like, i.e. rollers }
	A61H 2015/0021	<ul style="list-style-type: none"> • • • {multiple on the same axis }
	A61H 2015/0028	<ul style="list-style-type: none"> • • {disc-like, i.e. diameter substantially greater than width }
	A61H 2015/0035	<ul style="list-style-type: none"> • • • {multiple on the same axis }
	A61H 2015/0042	<ul style="list-style-type: none"> • • {Balls or spheres }
	A61H 2015/005	<ul style="list-style-type: none"> • • • {multiple on the same axis }
	A61H 2015/0057	<ul style="list-style-type: none"> • • {the axis being resiliently biased }
	A61H 2015/0064	<ul style="list-style-type: none"> • {with freely rotating spheres }
	A61H 2015/0071	<ul style="list-style-type: none"> • {with balls or rollers having built-in vibrating means }
U	A61H 23/00	Percussion or vibration massage, e.g. using supersonic vibration; Suction-vibration massage; Massage with moving diaphragms {(apparatus for passive exercising A61H 1/00; generating or transmitting mechanical vibrations in general B06B)}
	A61H 2023/002	<ul style="list-style-type: none"> • {having a percussion element combined with a passive spacer element for bearing against the skin }
U	A61H 23/02	<ul style="list-style-type: none"> • with electric or magnetic drive
	A61H 2023/0209	<ul style="list-style-type: none"> • • {powered with frequencies not related to mains frequency }
U	A61H 23/0218	<ul style="list-style-type: none"> • • {with alternating magnetic fields producing a translating or oscillating movement }
	A61H 2023/0227	<ul style="list-style-type: none"> • • • {with magnetostrictive elements }
U	A61H 23/0254	<ul style="list-style-type: none"> • • {with rotary motor }

- U A61H 23/0263
 - • • { using rotating unbalanced masses }
- A61H 2023/0272
 - • • • { multiple masses each rotated by an individual motor }
- A61H 2023/0281
 - • • • { multiple masses driven by the same motor }
- A61H 2023/029
 - • • • • { with variable angular positioning }
- U A61H 23/04
 - with hydraulic or pneumatic drive {(Hydraulic or Pneumatic massages, [A61H 9/00](#); Underwater massages, [A61H 33/00](#))}
- A61H 2023/045
 - • { using hydrostatic pressure, e.g. high density fluids }
- U **A61H 31/00**

Artificial respiration or heart stimulation ({blood pumps [A61M 1/10](#)}; artificial respiration by treatment with gas or air, e.g. mouth-to-mouth respiration [A61M 16/00](#); applying electric currents by contact electrodes for stimulation, e.g. heart pace-makers [A61N 1/36](#); {teaching or training models, rhythm indicators [G09B 23/288](#))}
- A61H 2031/001
 - { fixed on the chest by suction }
- A61H 2031/002
 - { fixed on the chest by adhesives }
- A61H 2031/003
 - { with alternated thorax decompression due to lateral compression }
- U A61H 31/02
 - "Iron-lungs", {i.e. involving chest expansion by applying underpressure thereon}, whether or not combined with gas breathing means
- A61H 2031/025
 - • { using the same pump for pressure and vacuum, not being driven at the respiratory rate, e.g. blowers }
- U **A61H 33/00**

Bathing devices for special therapeutic or hygienic purposes ([A61H 35/00](#) takes precedence; {sprays acting on a body or body part not immersed in water [A61H 9/00](#); means for washing bed-ridden persons [A61G 7/0005](#)}; for subaquatic intestinal cleaning [A61M 9/00](#); {isolation tanks [A61M 21/0094](#)}; electric or magnetic baths, applying ionised fluids [A61N 1/44](#); {heated bath tubs [F24H 1/0072](#))}
- A61H 2033/0004
 - {Bathing devices specially adapted for treating burned patients}
- A61H 2033/0008
 - {Arrangement for cleaning the installation before or after use (not used)}
- A61H 2033/0012
 - • {by rinsing}
- A61H 2033/0016
 - • {using cleansing products}
- A61H 2033/002
 - • {by blowing air through the installation after the bath has been emptied}
- A61H 2033/0025
 - • {by connecting the air lines with the drain}
- A61H 2033/0029
 - • {with ultrasonics}
- A61H 2033/0033
 - • {by draining-off pumps, nozzles, waterlines by gravity}
- A61H 2033/0037
 - {Arrangement for cleaning the fluid during use}
- A61H 2033/0041
 - {Cleaning and recovery of the fluid without mixing the cleaned and uncleaned fluid, e.g. using a recovery tank}
- A61H 2033/0045
 - {with heat-recovery of waste fluid}
- U A61H 33/005
 - { Electrical circuits therefor }
- A61H 2033/0054
 - • {with liquid level detectors}
- A61H 2033/0058
 - • {controlled by the user}
- A61H 2033/0062
 - • • {with electro-pneumatic or -hydraulic switches}
- A61H 2033/0066
 - • • {with low-voltage switching, e.g. using optical isolators, isolated transformers}
- A61H 2033/007
 - • • {with capacitors, e.g. proximity switches}
- A61H 2033/0075
 - • • {with opto-electric switches}
- A61H 2033/0079
 - • • {using remote control signal transmission devices, e.g. ultrasonic, infra-red}
- A61H 2033/0083
 - • ~~Illumination~~ {~~Illumination~~ }

- U A61H 33/02
 - Bathing devices for use with gas-containing liquid, or liquid in which gas is led or generated, e.g. carbon dioxide baths {(A61H 33/6026 takes precedence)}
- A61H 2033/021
 - {Nozzles having flow-regulation means}
- A61H 2033/022
 - {with control means for regulating the air volume aspirated by a water jet}
- A61H 2033/023
 - {with means in the air supply lines to prevent back-feed of water, e.g. anti-backflow valves, draining devices}
- A61H 2033/041
 - {Baths with dry sand or other dry particles}
- A61H 2033/042
 - {gas-fluidised or -heated during use}
- A61H 2033/043
 - {Foam baths}
- A61H 2033/044
 - {Baths with herbs, e.g. infusions }
- A61H 2033/045
 - {Liquid-metal baths}
- A61H 2033/046
 - {Mud baths; Baths using sand or other particles in water}
- A61H 2033/047
 - {Paraffin or wax baths}
- A61H 2033/048
 - {Baths using solutions, e.g. salts}
- U A61H 33/06
 - Artificial hot-air or cold-air baths; Steam or gas baths or douches, e.g. sauna or Finnish baths {(artificial climate rooms A61G 10/02)}
- A61H 2033/061
 - {Artificial hot-air baths}
- A61H 2033/062
 - {Artificial cold-air baths}
- A61H 2033/068
 - {Steam baths}
- U A61H 33/14
 - Devices for gas baths with ozone, hydrogen, or the like (production of ozone or hydrogen C01B, C25B 1/02)
- A61H 2033/141
 - {with ionised gas, e.g. ozone }
- A61H 2033/143
 - {with oxygen}
- A61H 2033/145
 - {with CO2}
- A61H 2033/146
 - {with nitrogen}
- A61H 2033/148
 - {with hydrogen}
- U A61H 35/00
 - Baths for specific parts of the body {(electric circuits therefor A61H 33/005; specific components therefor A61H 33/60)}
- A61H 2035/004
 - {for the whole body except the head }
- U A61H 39/00
 - Devices for locating or stimulating specific reflex points of the body for physical therapy, e.g. acupuncture (chiropractors` instruments A61B 17/54; {for radiation therapy A61N 5/0619})
- A61H 2039/005
 - {by means of electromagnetic waves, e.g. I.R., U.V. rays}

Project: N/A (A61J)

- U A61J 1/00
 - Containers specially adapted for medical or pharmaceutical purposes (capsules or the like for oral use A61J 3/07; boxes for medical appliances, doctors` bags A61B 19/02; antithrombogenic treatment of articles for conditioning blood A61L 33/00; devices for introducing media into or onto the body A61M; containers for radioactive substances G21F 5/00)
- U A61J 1/05
 - for collecting, storing or administering blood, plasma or medical fluids {(multiple bags systems for separating or storing blood components A61M 1/0209; Infusion or perfusion containers}
- U A61J 1/14
 - Details, { e.g. inlet or outlet ports, provisions for hanging, shape retaining means}; Accessories therefor, { e.g. connections of tubings, valves, caps (plugs or stoppers B65D 51/00)}(A61J 7/00 takes precedence; openers B65D, B67B 7/00)]

- U A61J 1/1412
 - • • { Containers with closing means, e.g. caps (plugs for containers [B65D 51/00](#)) }
- A61J 2001/1418
 - • • • { threaded type }
- A61J 2001/1425
 - • • • { snap-fit type }
- A61J 2001/1431
 - • • • { permanent type, e.g. welded or glued }
- U A61J 1/1443
 - • • { Containers with means for dispensing liquid medicaments in a filtered or sterile way, e.g. with bacterial filters }
- A61J 2001/145
 - • • • { using air filters }
- A61J 2001/1456
 - • • • { using liquid filters }
- A61J 2001/1468
 - • • { Containers with specific material properties }
- U A61J 1/1475
 - • • { Inlet or outlet ports }
- A61J 2001/1481
 - • • • { with connection retaining means, e.g. thread or snap-fit }
- A61J 2001/1487
 - • • • { with friction fit, e.g. connecting tubes directly to a protruding port }
- U A61J 1/20
 - • • Arrangements for transferring { or mixing } fluids, e.g. from vial to syringe { (containers in general with provisions for mixing contents [B65D 81/32](#)) }
- A61J 2001/2003
 - • • • { Accessories used in combination with means for transfer or mixing of fluids, e.g. for activating fluid flow, separating fluids, filtering fluid or venting }
- A61J 2001/2006
 - • • • • { Piercing means }
- A61J 2001/201
 - • • • • • { having one piercing end }
- A61J 2001/2013
 - • • • • • { having two piercing ends }
- A61J 2001/2017
 - • • • • • { having more than two piercing ends }
- A61J 2001/202
 - • • • • { Separating means }
- A61J 2001/2024
 - • • • • • { having peelable seals }
- A61J 2001/2027
 - • • • • • { having frangible parts }
- A61J 2001/2031
 - • • • • • { having openings brought into alignment }
- A61J 2001/2034
 - • • • • • { having separation clips }
- A61J 2001/2037
 - • • • • • { having valve means }
- A61J 2001/2041
 - • • • • • { having removable plugs }
- A61J 2001/2044
 - • • • • • { having slits }
- A61J 2001/2048
 - • • • • { Connecting means }
- A61J 2001/2051
 - • • • • • { having tap means, e.g. tap means activated by sliding }
- A61J 2001/2055
 - • • • • • { having gripping means }
- A61J 2001/2058
 - • • • • • { having multiple connecting ports }
- A61J 2001/2062
 - • • • • • • { with directional valves }
- A61J 2001/2065
 - • • • • • { having aligning and guiding means }
- A61J 2001/2068
 - • • • • { Venting means }
- A61J 2001/2072
 - • • • • • { for internal venting }
- A61J 2001/2075
 - • • • • • { for external venting }
- A61J 2001/2079
 - • • • • { Filtering means }
- A61J 2001/2082
 - • • • • • { for gas filtration }
- A61J 2001/2086
 - • • • • • { for fluid filtration }
- U A61J 7/00
 - Devices for administering medicines orally, e.g. spoons (calibrated capacity measures for fluids or fluent solid material [G01F 19/00](#); weighing spoons [G01G 19/56](#)); Pill counting devices; Arrangements for time indication or reminder for taking medicine

- U A61J 7/04
 - Arrangements for time indication or reminder for taking medicine, e.g. programmed dispensers
- U A61J 7/0409
 - • {with timers}
- A61J 2007/0418
 - • • {with electronic history memory }
- A61J 2007/0427
 - • • {with direct interaction with a dispensing or delivery system }
- A61J 2007/0436
 - • • • {resulting from removing a drug from, or opening, a container }
- A61J 2007/0445
 - • • • {by preventing drug dispensing during a predetermined time period }
- A61J 2007/0454
 - • • {for multiple drugs }
- A61J 2007/0463
 - • • {for multiple patients }
- U A61J 7/0481
 - • • {working on a schedule basis}
- A61J 2007/049
 - • • • {changed automatically as a reaction on a schedule deviation due to the patient }

U A61J 9/00**Feeding-bottles in general (electric heating elements [H05B](#))**

- U A61J 9/06
 - Holders for bottles
- A61J 2009/0607
 - • {having aesthetic properties, e.g. toy-like or imitating a female breast }
- A61J 2009/0615
 - • {providing isolation }
- A61J 2009/0623
 - • {facilitating gripping }
- A61J 2009/063
 - • {having a particular supporting function }
- A61J 2009/0638
 - • • {for supporting in a feeding position }
- A61J 2009/0646
 - • • {for supporting only in a non-feeding position }
- A61J 2009/0653
 - • {characterised by the type of support }
- A61J 2009/0661
 - • • {attachable to a device or furniture, e.g. crib, commode or stroller }
- A61J 2009/0669
 - • • {supported by the infant }
- A61J 2009/0676
 - • • {supported by the caregiver }
- A61J 2009/0684
 - • • {having a self supporting base }
- A61J 2009/0692
 - • • {comprising a flexible arm }

U A61J 15/00**Feeding-tubes for therapeutic purposes (drinking tubes as tableware [A47G 21/18](#))**

- U A61J 15/0026
 - { Parts, details or accessories for feeding-tubes (external tubes from the medical container to a connector outside of the body [A61M 39/08](#))}
- A61J 2015/0076
 - • {Feeding pumps ([A61M 1/00](#), [A61M 5/142](#), [A61M 25/1018](#) take precedence)}
- A61J 2015/008
 - • {Sensor means, e.g. sensing reflux, acidity, pressure (sensors for diagnostic purposes [A61B 5/00](#); sensors for inflation control [A61M 25/1018](#))}
- A61J 2015/0084
 - • • {for sensing parameters of the patient }
- A61J 2015/0088
 - • • {for sensing parameters of the device }

U A61J 17/00**Baby-comforters; Teething rings**

- A61J 2017/001
 - {Baby-comforters }
- A61J 2017/002
 - • {with music box }
- A61J 2017/003
 - • {with thermometer }
- A61J 2017/005
 - • {light-emitting }
- A61J 2017/006
 - • {releasing medication }
- A61J 2017/007
 - • {mounted on soft cushion or doll }
- A61J 2017/008
 - • {with protective shield }

Project: N/A (A61K)**U A61K 8/00**

Cosmetic or similar toilet preparations(casings or accessories for storing or handling of solid or pasty toilet or cosmetic substances [A45D 40/00](#))

NOTES

Use of cosmetics or similar toilet preparations is further classified in subclass [A61Q](#) .

1. Use of cosmetics or similar toilet preparations is mandatorily further classified in subclass [A61Q](#) . 2. In each of groups [A61K 8/02](#) and [A61K 8/18](#) , in the absence of an indication of the contrary, classification is made in the last appropriate place. 3. Attention is drawn to the Notes in class [C07](#) , for example the notes following the title of subclass [C07D](#) , setting forth the rules for classifying organic compounds in that class, which rules are also applicable, if not otherwise indicated, to the classification of organic compounds in group [A61K 8/00](#) . 4. Salts or complexes of organic compounds are classified according to the base compounds. If a complex is formed between two or more compounds, classification is made for each compound.

WARNING

Group [A61K 8/00](#) and subgroups are incomplete. See provisionally also [A61K7/00](#) and subgroups.

U A61K 8/02
A61K 8/0241

- characterised by special physical form
- {Containing particulates characterized by their shape and/or structure(see also [A61K 8/04](#) , [A61K 8/11](#) , and [A61K 8/14](#) , further aspects are classified in [A61K2800/40](#)[A61K 2800/40](#) and subcodes)}

U A61K 8/04

- Dispersions; Emulsions

U A61K 2008/048

- {Microbeadlets; Microspheres; Granules; Microgranules}

U A61K 8/11

- Encapsulated compositions

U A61K 2008/115

- {Microcapsules}

U A61K 8/18

- characterised by the composition

U A61K 8/30

- containing organic compounds

A61K 8/40

- containing nitrogen(quinones containing nitrogen [A61K-8/35-G](#) [A61K8/35C](#))

U A61K 9/00

Medicinal preparations characterised by special physical form(nuclear magnetic resonance contrast preparations or magnetic resonance imaging contrast preparataions [A61K 49/18](#) ; preparations containing radioactive substances [A61K 51/12](#))

NOTE

Among the one-dot groups of [A61K 9/00](#) , classification is not made in the last appropriate place.

[A61K 9/00](#) is subdivided according to the following concepts:

- the drug release technique ([A61K 9/0002](#) and subgroups),
- the site of application ([A61K 9/0012](#) and subgroups), and
- the physical form ([A61K 9/0087](#) to [A61K 9/70 E](#)).

Where relevant, documents are classified in more than one of these subdivisions.

U A61K 9/0012
A61K 9/0014

- {Galenical forms characterised by the site of application}
- {Skin, i.e. galenical aspects of topical compositions(non-active ingredients are additionally classified in [A61K 47/00](#) ; [A61K 9/0009](#) , [A61K 9/0021](#) , [A61K-9/70-D](#)[A61K 9/7015](#) , [A61K 9/7023](#) take precedence; cosmetic preparations [A61K 8/00](#) , [A61Q](#) ; preparations for wound dressings or bandages [A61L 26/00](#))}

- A61K 9/06
- Ointments; Bases therefor; {Other semi-solid forms, e.g. creams, sticks, gels(composition of ointments, creams or gels [A61K 47/00](#))}
- WARNING
incomplete, see also [A61K-9/00-M](#)[A61K 9/0012](#), [A61K 47/00](#)
- A61K 9/08
- Solutions; {(composition of solutions [A61K 47/00](#))}
- WARNING
incomplete, see also [A61K-9/00-M](#)[A61K 9/0012](#), [A61K 47/00](#) , [A61K 9/0095](#)
- A61K 9/10
- Dispersions; Emulsions; {([A61K 9/06](#) takes precedence; composition of dispersions, emulsions [A61K 47/00](#))}
- WARNING
incomplete, see also [A61K-9/00-M](#)[A61K 9/0012](#), [A61K 47/00](#) , [A61K 9/0095](#)
- A61K 9/107
- • Emulsions; {Emulsion preconcentrates; Micelles(composition of emulsions [A61K 47/00](#))}
- WARNING
incomplete, see also [A61K-9/00-M](#)[A61K 9/0012](#), [A61K 47/00](#) , [A61K 9/0095](#)
- U A61K 9/14
- Particulate form, e.g. powders,{Processes for size reducing of pure drugs or the resulting products, Pure drug nanoparticles(microspheres [A61K 9/16](#) ; microcapsules [A61K 9/50](#) ; nanocapsules, nanoparticles of the matrix type [A61K 9/51](#))}
- A61K 9/16
- • Agglomerates; Granulates; Microbeadlets; {Microspheres; Pellets; Solid products obtained by spray drying, spray freeze drying, spray congealing, (multiple)emulsion solvent evaporation or extraction([A61K 9/20](#) takes precedence if the final form is a tablet; microspheres with drug-free outer coating, microcapsules [A61K 9/50](#) ; mixture of different granules, microcapsules, (coated) microparticles [A61K-9/50-M](#)[A61K 9/5084](#); nanoparticles [A61K 9/51](#))}
- A61K 9/167
- • • {with an outer layer or coating comprising drug; with chemically bound drugs or non-active substances on their surface(with further drug-free outer coating [A61K-9/50-K](#)[A61K 9/5073](#))}
- A61K 9/1676
- • • • {having a drug-free core with discrete complete coating layer containing drug(adsorbates of liquid drug formulations on inert powders without simultaneous granulation step [A61K-9/14-H](#)[A61K 9/141](#); with further drug-free outer coating [A61K 9/5078](#) ; drug conjugated to non-active particles [A61K 47/48853](#))}
- A61K 9/19
- • Lyophilised,{i.e. freeze-dried, solutions or dispersions(lyophilised products with subsequent particle size reduction [A61K 9/14](#) ; granules or pellets made by lyophilisation [A61K-9/16-P](#)[A61K 9/1682](#); solid oral dosage forms made by lyophilisation [A61K-9/20-P](#)[A61K 9/2095](#); lyophilisation additives [A61K 47/00](#))}
- U A61K 9/48
- Preparations in capsules, e.g. of gelatin, of chocolate;{([A61K 9/0004](#) takes precedence; bite capsules [A61K 9/0056](#))}
- A61K 9/4808
- • {characterised by the form of the capsule or the structure of the filling; Capsules containing small tablets; Capsules with outer layer for immediate drug release(capsules filled with granules or microparticles [A61K 9/16](#) ; filled with microcapsules or coated microparticles [A61K 9/50](#) ; with mixture of different granules, microcapsules, (coated) microparticles [A61K-9/50-M](#)[A61K 9/5084](#))}
- U A61K 9/4816
- • {Wall or shell material}
- A61K 9/4825
- • • {Proteins, e.g. gelatin(gelatin capsule shells with substantial amounts of other macromolecular substances [A61K-9/48-B](#)[A61K 9/4816](#))}

- A61K 9/4891
 - {Coated capsules; Multilayered drug free capsule shells(with drug coating for immediate release [A61K 9/48](#) - [A61K 9/4808](#); osmotic devices [A61K 9/0004](#))}
- A61K 9/50
 - Microcapsules{having a gas, liquid or semi-solid filling; Solid microparticles or pellets surrounded by a distinct coating layer, e.g. coated microspheres, coated drug crystals([A61K 9/2081](#) takes precedence; particles with a single coating comprising drug [A61K 9/16](#) - [A61K 9/167](#))}

U A61K 35/00**Medicinal preparations containing materials or reaction products thereof with undetermined constitution**NOTE

When classifying in this group, the last place rule (applied throughout [A61K](#)) does not apply. Namely, classification is made for each active component or material.

WARNING

Groups [A61K 35/13](#) , [A61K 35/15](#) , [A61K 35/17](#) , [A61K 35/19](#) , [A61K 35/33](#) , [A61K 35/35](#) , [A61K 35/51](#) , [A61K 35/57](#) , [A61K 35/61](#) do not correspond to former or future IPC. Concordance CPC : IPC for these groups is as follows: - [A61K 35/13](#) : [A61K 35/12](#) - [A61K 35/15](#) : [A61K 35/14](#) - [A61K 35/17](#) : [A61K 35/14](#) - [A61K 35/19](#) : [A61K 35/14](#) - [A61K 35/33](#) : [A61K 35/12](#) - [A61K 35/35](#) : [A61K 35/12](#) - [A61K 35/51](#) : [A61K 35/48](#) - [A61K 35/57](#) : [A61K 35/56](#) - [A61K 35/61](#) : [A61K 35/56](#)

- A61K 2035/11
 - {Medicinal preparations comprising living procariotic cells}
- A61K 2035/115
 - [Probiotics](#){[Probiotics](#)}
- U A61K 35/12
 - Materials from mammals;{compositions comprising non-specified tissues or cells; Compositions comprising non-embryonic stem cells(uncharacterized stem cells [A61K 35/545](#)); Genetically modified cells(gene therapy [C12N 5/10](#) ; vaccines or medicinal preparations containing antigens or antibodies [A61K 39/00](#))}{Note: If the cells are characterized, classify under the corresponding tissue or tissue of origin}

NOTE

When the cells are characterized, classification is given under the corresponding tissue or tissue of origin

- A61K 2035/122
 - {for inducing tolerance or suppression of immune responses}
- A61K 2035/124
 - {the cells being hematopoietic, bone marrow derived or blood cells}
- A61K 2035/126
 - {Immunoprotecting barriers, e.g. jackets, diffusion chambers}
- A61K 2035/128
 - {capsules, e.g. microcapsules}

U A61K 39/00**Medicinal preparations containing antigens or antibodies(materials for immunoassay [G01N 33/53](#))**NOTES

Groups [A61K 39/002](#) to [A61K 39/295](#) cover preparations containing protozoa, bacteria, viruses, or subunits thereof, e.g. membrane parts.

Preparation of antigen or antibody compositions is also classified in subclass [C12N](#) , if the step of cultivating the micro-organism is of interest.

Documents relating to new peptides, e.g. enzymes, or new DNA or RNA encoding for peptides and their use in medicinal preparations are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their medical uses.

Documents relating to antibodies or DNA or RNA encoding for antibodies and their use in medicinal preparations are classified in group [C07K 16/00](#)

or in group [C12N 9/0002](#) according to the antibodies, with the appropriate indexing codes relating to their medical uses.

Documents relating to new therapeutical uses of antibodies or DNA or RNA encoding for antibodies are classified in group [C07K 16/00](#) or in group [C12N 9/0002](#) according to the antibodies, with the appropriate indexing codes relating to their medical uses.

Documents relating to medicinal preparations containing different antibodies as active ingredients are classified in group [C07K 16/00](#) according to the different active antibodies, with the appropriate indexing codes relating to their medical uses. However, documents relating to medicinal preparations containing antibodies and other compounds as active ingredients are classified in groups [A61K 39/395](#) to [A61K 39/42](#), in association with symbol [A61K 2300/00](#) in Combination Sets.

- U A61K 39/02
 - Bacterial antigens
- A61K 2039/10
 - • {Brucella; Bordetella, e.g. Bordetella pertussis{~~Not used, see subgroups~~}; ~~Not used, see subgroups~~}
- A61K 2039/106
 - • {Vibrio; ~~Campylobacter~~; ~~Campylobacter~~{ Not used, see subgroups}}
- U A61K 39/12
 - Viral antigens
 - • Polyvalent viral antigens(vaccinia virus or variola virus [A61K 39/285](#)); Mixtures of viral and bacterial antigens
- WARNING
This group is no longer used for the classification of new documents as from April 1, 2012. The backlog of this group is being continuously reclassified to ~~A61K 39/00~~ ~~M~~**A61K39/00M**, to subgroups of [A61K 39/0016](#) and of [A61K 39/12](#)
- A61K 2039/505
 - {comprising antibodies}
- A61K 2039/507
 - • {Comprising a combination of two or more separate antibodies}
- A61K 2039/51
 - {comprising whole cells, viruses or DNA/RNA}
- A61K 2039/515
 - • {Animal cells}
- A61K 2039/5152
 - • • {Tumor cells}
- A61K 2039/5154
 - • • {Antigen presenting cells [APCs], e.g. dendritic cells, macrophages}
- A61K 2039/5156
 - • • {expressing foreign proteins}
- A61K 2039/5158
 - • • {Antigen-pulsed cells e.g. T-cells}
- A61K 2039/517
 - • {Plant cells}
- A61K 2039/52
 - • {Bacterial cells; Fungal cells; Protozoal cells}
- A61K 2039/521
 - • • {inactivated (killed)}
- A61K 2039/522
 - • • {avirulent or attenuated}
- A61K 2039/523
 - • • {expressing foreign proteins}
- A61K 2039/525
 - • ~~Virus~~{~~Virus~~}
- A61K 2039/5252
 - • • {inactivated (killed)}
- A61K 2039/5254
 - • • {avirulent or attenuated}
- A61K 2039/5256
 - • • {expressing foreign proteins}
- A61K 2039/5258
 - • • {Virus-like particles}
- A61K 2039/53
 - • {DNA (RNA) vaccination}
- A61K 2039/54
 - {characterised by the route of administration}
- A61K 2039/541
 - • {Mucosal route}
- A61K 2039/542
 - • • {oral/gastrointestinal}
- A61K 2039/543
 - • • ~~intranasal~~{~~intranasal~~}

A61K 2039/544	• • • {to the airways(intranasal A61K 2039/543)}
A61K 2039/545	• {characterised by the dose, timing or administration schedule}
A61K 2039/55	• {characterised by the host/recipient, e.g. newborn with maternal antibodies}
A61K 2039/552	• • {Veterinary vaccine}
A61K 2039/555	• {characterised by a specific combination antigen/adjuvant}
A61K 2039/55505	• • {Inorganic adjuvants}
A61K 2039/55511	• • {Organic adjuvants}
A61K 2039/55516	• • • {Proteins; Peptides}
A61K 2039/55522	• • • {Cytokines; Lymphokines; Interferons}
A61K 2039/55527	• • • • Interleukins{Interleukins}
A61K 2039/55533	• • • • • {IL-2}
A61K 2039/55538	• • • • • {IL-12}
A61K 2039/55544	• • • {Bacterial toxins}
A61K 2039/5555	• • • {Muramyl dipeptides}
A61K 2039/55555	• • • {Liposomes; Vesicles, e.g. nanoparticles; Spheres, e.g. nanospheres; Polymers}
A61K 2039/55561	• • • {CpG containing adjuvants; Oligonucleotide containing adjuvants}
A61K 2039/55566	• • • {Emulsions, e.g. Freund's adjuvant, MF59}
A61K 2039/55572	• • • {Lipopolysaccharides; Lipid A; Monophosphoryl lipid A}
A61K 2039/55577	• • • {Saponins; Quil A; QS21; ISCOMS}
A61K 2039/55583	• • • Polysaccharides{Polysaccharides}
A61K 2039/55588	• • {Adjuvants of undefined constitution}
A61K 2039/55594	• • • {from bacteria}
A61K 2039/57	• {characterised by the type of response, e.g. Th1, Th2}
A61K 2039/572	• • {cytotoxic response}
A61K 2039/575	• • {humoral response}
A61K 2039/577	• • {tolerising response}
A61K 2039/58	• {raising an immune response against a target which is not the antigen used for immunisation}
A61K 2039/585	• • {wherein the target is cancer}
A61K 2039/60	• {characteristics by the carrier linked to the antigen}
A61K 2039/6006	• • {Cells(recombinantly expressing antigens A61K 2039/5156 , A61K 2039/523)}
A61K 2039/6012	• • {Haptens, e.g. di- or trinitrophenyl(DNP, TNP)}
A61K 2039/6018	• • {Lipids, e.g. in lipopeptides}
A61K 2039/6025	• • Nucleotides{Nucleotides}
A61K 2039/6031	• • Proteins{Proteins}
A61K 2039/6037	• • • {Bacterial toxins, e.g. diphteria toxoid (DT), tetanus toxoid (TT)}
A61K 2039/6043	• • • {Heat shock proteins}
A61K 2039/605	• • • {MHC molecules or ligands thereof}
A61K 2039/6056	• • • Antibodies{Antibodies}
A61K 2039/6062	• • • {Muramyl peptides}
A61K 2039/6068	• • • {Other bacterial proteins, e.g. OMP}
A61K 2039/6075	• • • {Viral proteins}
A61K 2039/6081	• • • {Albumin; Keyhole limpet haemocyanin (KLH)}

A61K 2039/6087	• • {Polysaccharides; Lipopolysaccharides (LPS)}
A61K 2039/6093	• • {Synthetic polymers, e.g. polyethyleneglycol (PEG), Polymers or copolymers of (D) glutamate and (D) lysine}
A61K 2039/62	• {characterised by the link between antigen and carrier}
A61K 2039/622	• • {non-covalent binding}
A61K 2039/625	• • {binding through the biotin-streptavidin system or similar}
A61K 2039/627	• • {characterised by the linker}
A61K 2039/64	• {characterised by the architecture of the carrier-antigen complex, e.g. repetition of carrier-antigen units}
A61K 2039/645	• • {Dendrimers; Multiple antigen peptides}
A61K 2039/70	• {Multivalent vaccine}
U A61K 47/00	Medicinal preparations characterised by the non-active ingredients used, e.g. carriers, inert additives
U A61K 47/48	• the non-active ingredient being chemically bound to the active ingredient, e.g. polymer drug conjugates
A61K 47/48007	• • {the pharmacologically- or therapeutically-active agent being covalently bound or complexed to a modifying agent}
	<u>NOTE</u> The modifying agent being a macromolecular compound A61K 47/48 K A61K 47/48K , a peptide, protein or polyamino acid A61K 47/48 R A61K 47/48R , an antibody or immunoglobulin A61K 47/48 T A61K 47/48T
U A61K 47/48023	• • • {the modifying agent being an organic compound(A61K 47/48161 takes precedence)}
A61K 47/48076	• • • • {the modifying agent being a chelate, i.e. single central atom/ion sequestered by a polydentate ligand, e.g. Gd-DOTA or Zinc-amino acid chelate, or a chelate-forming compound, i.e. chelating group, e.g. DOTA or ethylenediamine, that being covalently/complexed to the pharmacologically- or therapeutically-active agent}
	<u>NOTE</u> Paramagnetic chelates used in MRI and not linked to by further compound, e.g. polymer, peptide, protein, antibody, small molecules like sugars, are only classified in A61K 49/101 and subgroups. Paramagnetic chelates used in MRI and conjugated to another compound, e.g. a polymer, a peptide, a protein, an antibody, a small molecule like a sugar, are classified in A61K 49/06 and subgroups, and not A61K 47/48 K A61K 47/48K , if said other compound being not used as therapeutic agent, according to the nature of the modifying agent, and completed by A61K 49/085 . Radiolabelled chelates are classified in A61K 51/0474 and its subgroups, and in A61K 51/0497 , A61K 51/065 , A61K 51/088 or A61K 51/1093 if the chelate being linked to a further molecule, e.g. an organic compound, polymer, peptide, protein or polyamino acid, antibody
A61K 47/48153	• • • • {the modifying agent being a chemiluminescent acceptor}
	<u>NOTE</u> A chemical reaction induces the cleavage of the pharmacologically or therapeutically active agent from the carrier while at the same time producing light. If the conjugate is cleaved through activation by light in vivo in order to release the drug, then the classification symbol being A61K 41/00 R A61K 41/00R . Dyes/luminescent agents for optical

diagnostic imaging [A61K 49/00](#) ~~P~~ [A61K 49/00 P](#); for photodynamic therapy
[A61K 41/0057](#)

- U A61K 47/48369 • {the modifying part being an antibody, an immunoglobulin, or a fragment thereof, e.g. a Fc-fragment}
- A61K 47/48723 • • {pretargeting systems involving an antibody for targeting specific cells}

NOTE

The concept of "pre-targeting" covers the administration of the modifying agent (which being an agent able to target specific cells in the body), and of the pharmacologically or therapeutically active agent (drug D) in several steps, their "binding" occurring at the in vivo targeted site. It involves administration in at least two steps, for example: (i) a conjugate T-A corresponding to a targeting agent able to target specific cells or receptors in the body (T) linked to a compound A, and (ii) a conjugate D-M corresponding to the drug linked to a modifying agent M, able to target the compound A. The sequence involves e.g. the administration of T-A and then D-M. Between step (i) and step (ii), a further compound able to bind to A and M may also be administered (e.g. during a clearing step). Classification being made according to the nature of T in the subgroups of [A61K 47/48 G4S](#) [A61K 47/4813](#), [A61K 47/48346](#) and [A61K 47/48723](#). In [A61K 47/48723](#) and its subgroups, T being an antibody. Classification being also made according to the nature of the antibody in the appropriate [A61K 47/48515](#) subgroup. If M and A form a pair of biotin and (strept)avidin (or derivatives of biotin and (strept)avidin), then [A61K 47/48753](#) being used as classification symbol

- U A61K 47/48769 • {the conjugate being characterized by a special physical or galenical form}

NOTE

The conjugates in the [A61K 47/48769](#) subgroups correspond (i) either to a pharmacologically or therapeutically active agent complexed/covalently linked to the special physical or galenical form, e.g. on the surface of a polymeric nanoparticle or liposome, or to polymeric chains in the matrix of a polymeric gel, (ii) or to a special physical or galenical form encapsulating the pharmacologically or therapeutically active agent and modified on its surface or matrix by a modifying agent. In case (i), classification being made according to the nature of the special physical or galenical form in the appropriate [A61K 47/48769](#) subgroup and may be completed by the appropriate [A61K 47/48](#) subgroup defining the compound to which the pharmacologically or therapeutically active agent being linked, e.g. [A61K 47/48053](#) in case of a drug linked to a phospholipid and inserted in the bilayer surface of a liposome. In case (ii), classification being made according to the nature of the modifying agent. Physical or galenical forms not modified by a modifying agent and/or wherein the pharmacologically or therapeutically active agent being not complexed/covalently linked to said forms, are not classified in [A61K 47/48](#), but in [A61K 9/00](#) and its subgroups

- U A61K 47/48792 • • {the form being a colloid, emulsion, i.e. having at least a dispersed/continuous oil phase and a dispersed/continuous aqueous phase, dispersion or suspension}
- A61K 47/48815 • • • {the form being a liposome, i.e. a bilayered vesicle, having its surface modified by covalent attachment or complexation of the pharmacologically or therapeutically active agent and/or modifying agent. (Simple encapsulation of a drug which being not functionalised on its surface by a modifying agent: see [A61K 9/127](#))}

NOTE

Liposomes modified by a polymer because they incorporate a polymer-lipid conjugate are only additionally classified in [A61K 47/48815](#) if

the polymer modifying the lipid being unusual. Liposomes which are pegylated because they incorporate a pegylated lipid are not classified in [A61K 47/48815](#) but in [A61K 9/127-B](#) [A61K 9/127B](#). When the surface of the liposome being functionalised by a modifying agent, classification being also made according to the nature of this modifying agent, e.g. a liposome modified on its surface by a peptide being classified in [A61K 47/48815](#) and [A61K 47/48-R](#) [A61K 47/48R](#). In case of antibodies, see [A61K 47/48823](#). Liposomes wherein the pharmacologically or therapeutically active agent being linked to a phospholipid of the liposomal surface are classified in [A61K 47/48815](#) and [A61K 47/48G4F4](#) [A61K 47/48053](#)]

U A61K 49/00

Preparations for testing in vivo

U A61K 49/06

- Nuclear magnetic resonance (NMR) contrast preparations; Magnetic resonance imaging (MRI) contrast preparations

NOTE

characterised only by the (inorganic) MRI-active nucleus, e.g. ¹²⁹Xe

U A61K 49/08

- • characterised by the carrier

NOTE

characterised by the carrier carrying the MRI-active nucleus, e.g. inorganic carrier]

U A61K 49/10

- • • Organic compounds

NOTE

the carrier being an organic compound, e.g. ¹³C-labelled molecule or perfluorinated alkane, used as MRI in vivo probe, or a small organic molecule, e.g. a sugar, linked to a Gd-chelate

A61K 49/12

- • • • Macromolecular compounds

NOTE

the carrier being an organic macromolecular compound, i.e. an oligomeric, polymeric, dendrimeric molecule (not being a peptide, protein, polyamino acid (see [A61K 49/00](#) or [A61K 14/00](#))) or an antibody (see [A61K 49/00](#) or [A61K 16/00](#) [A61K 49/16](#))

U A61K 51/00

Preparations containing radioactive substances for use in therapy or testing in vivo

U A61K 51/02

- characterised by the carrier, {i.e. characterised by the agent or material covalently linked or complexing the radioactive nucleus}

U A61K 51/04

- • organic compounds

NOTE

Organic compounds used as carriers

A61K 51/0497

- • • {conjugates with a carrier being an organic compounds}

NOTE

The compound which bears, complexes or chelates the radioactive nucleus, is covalently linked or complexed to the carrier being another (small) organic molecule, i.e. not oligomeric, polymeric, dendrimeric. Classification is also made according to the nature of this small organic molecule. In case of a conjugate comprising a complex-forming compound (chelating group) complexing a radioactive metal linked to the carrier (organic compound in [A61K 49/04Z](#)), ~~the nature of this complex-forming compound is not classified except if the complexing/chelating group is the subject of the~~

~~invention and is uncommon, e.g. ¹¹¹In-DTPA-glucose is classified in A61K 51/0497~~), *the nature of this complex-forming compound is not classified except if the complexing/chelating group is the subject of the invention and is uncommon, e.g. ¹¹¹In-DTPA-glucose is classified in A61K 51/0497* (not in A61K 51/048) and in A61K 51/0491

- U A61K 51/06
 - • • Macromolecular compounds, {carriers being organic macromolecular compounds, i.e. organic oligomeric, polymeric, dendrimeric molecules(peptides, proteins, polyamino acids A61K 51/08 ; antibodies A61K 51/10)}

- A61K 51/065
 - • • {conjugates with carriers being macromolecules}

NOTE

The compound which bears, complexes or chelates the radioactive nucleus, is covalently linked or complexed to the carrier being a macromolecule (not being a peptide, polyamino acid, protein, antibody). In case of a conjugate comprising a complex-forming compound (chelating group) complexing a radioactive metal linked to the carrier (organic macromolecular compound in ~~A61K49/06Z~~), ~~the nature of this complex-forming compound is not classified except if it is the real contribution of the claimed invention and it is an uncommon complexing/ chelating group, e.g. ¹¹¹In-DTPA-PEG is classified in A61K 51/065~~), *the nature of this complex-forming compound is not classified except if it is the real contribution of the claimed invention and it is an uncommon complexing/chelating group, e.g. ¹¹¹In-DTPA-PEG is classified in A61K 51/065* and new DTPA-like derivatives conjugated to PEG and complexing ¹¹¹In for use in vivo is classified in A61K 51/0478 and A61K 51/065

- U A61K 2800/00

Properties of cosmetic compositions or active ingredients thereof or formulation aids used therein and process related aspects[Note: This subclass is a secondary classification, e.g. obligatory supplementary classification when already classified in group A61K 8/00 or subclass A61Q]

- U A61K 2800/40
 - Chemical, physico-chemical or functional or structural properties of particular ingredients

- U A61K 2800/59
 - • Mixtures
- A61K 2800/591
 - • • Mixtures of compounds not provided for by any of the codes ~~A61K2800/592~~ A61K 2800/592 to ~~A61K2800/596~~ A61K 2800/596

- U A61K 2800/80
 - Process related aspects concerning the preparation of the cosmetic composition or the storage or application thereof

- A61K 2800/805
 - • Corresponding aspects not provided for by any of codes ~~A61K2800/81~~ A61K 2800/81 to ~~A61K2800/95~~ A61K 2800/95

Project: N/A (A61L)**A61L**

METHODS OR APPARATUS FOR STERILISING MATERIALS OR OBJECTS IN GENERAL; DISINFECTION, STERILISATION, OR DEODORISATION OF AIR; CHEMICAL ASPECTS OF BANDAGES, DRESSINGS, ABSORBENT PADS, OR SURGICAL ARTICLES; MATERIALS FOR BANDAGES, DRESSINGS, ABSORBENT PADS, OR SURGICAL ARTICLES(preservation of bodies or disinfecting characterised by the agent employed [A01N](#) ; preserving, e.g. sterilising, food or foodstuffs [A23](#) ; preparations for medical, dental or toilet purposes [A61K](#) ; preparation of ozone [C01B 13/10](#))

WARNINGS

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

A61L 33/10	covered by	A61L 33/0011
A61L 33/14	covered by	A61L 33/0011
A61L 33/16	covered by	A61L 33/0047

IPC7 groups [A61L 2/07](#) , ~~[A61L2/32](#)~~ and subgroups, and [A61L 9/012](#) to [A61L 9/014](#) might be incomplete as relevant documents might still be classified in the hierarchical higher groups

A61L 26/00

Chemical aspects of, or use of materials for,{wound dressings or}bandages{in liquid, gel or powder form}

NOTES

When classifying in group [A61L 26/00](#) , classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic.

In groups [A61L 26/00](#) to ~~[A61L 26/00 R](#)~~ ~~[A61L26/00R](#)~~ , the use of specific polymers is indicated using the relevant combination set symbol, adding, after the symbol in [A61L](#) , the correspondent symbol of the polymer in subclass [C08L](#) , e.g. liquid bandages on alginates: [A61L 26/0023](#) , [C08L 5/04](#)

A61L 29/00

Materials for catheters,{medical tubing, cannulae, or endoscopes}or for coating catheters(shape or structure of catheters [A61M 25/00](#))

NOTES

In groups [A61L 29/02](#) to { ~~[A61L 29/12 D](#)~~ ~~[A61L29/12D](#)~~ } , in the absence of an indication to the contrary, classification is made in the last appropriate place

When classifying in groups [A61L 29/02](#) to { ~~[A61L 29/12 D](#)~~ ~~[A61L29/12D](#)~~ } , classification is also made in groups [A61L 29/14](#) to [A61L 29/18](#) if the use of materials characterised by their function or physical properties is of interest

When classifying in group [A61L 29/00](#) , classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic

In group [A61L 29/00](#) , the use of specific polymers is indicated using the relevant classification symbols of subclass [C08L](#) in the combination set, e.g. a catheter based on polyvinylchloride ~~[A61L 29/04 B](#)~~ ~~[A61L29/04B](#)~~ , [C08L 27/06](#)

A61L 31/00

Materials for other surgical articles, {e.g. stents, stent-grafts, shunts, surgical drapes, guide wires, materials for adhesion prevention, occluding devices, surgical gloves, tissue fixation devices(shape or structure of stent-grafts [A61F 2/07](#) , of stents [A61F 2/82](#) , of surgical gloves [A61B 19/04](#) , of surgical drapes [A61B 19/08](#) , of occluding devices [A61B 17/12022](#))}

NOTES

In groups [A61L 31/02](#) to { [A61L 31/129](#) } , in the absence of an indication to the contrary, classification is made in the last appropriate place

When classifying in groups [A61L 31/02](#) to { [A61L 31/129](#) } , classification is also made in groups [A61L 31/14](#) to [A61L 31/18](#) if the use of materials characterised by their function or physical properties is of interest

When classifying in group [A61L 31/00](#) , classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic

In group [A61L 31/00](#) , the use of specific polymers is indicated using the relevant classification symbols of subclass [C08L](#) in the second position of the combination set, e.g. surgical clamp based on polyvinylchloride [A61L 31/04 HA61L31/04H](#) , [C08L 27/06](#)

A61L 33/00

Antithrombogenic treatment of surgical articles, e.g. sutures, catheters, prostheses, or of articles for the manipulation or conditioning of blood; Materials for such treatment

NOTES

In groups [A61L 33/0076](#) to [A61L 33/0094](#) and [A61L 33/02](#) to [A61L 33/12](#) [AA61L33/12A](#) , in the absence of an indication to the contrary, classification is made in the last appropriate place

When classifying in groups [A61L 33/02](#) to [A61L 33/12](#) [AA61L33/12A](#) , classification is also made in group [A61L 33/0005](#) if of interest

In group [A61L 33/00](#) , the use of specific polymers is indicated using the relevant classification symbols of subclass [C08L](#) in the second position of the combination set, e.g. antithrombogenic treatment with the help of polyvinylchloride [A61L 33/06 BA61L33/06B](#) , [C08L 27/06](#)

Project: N/A (A61M)**A61M**

DEVICES FOR INTRODUCING MEDIA INTO, OR ONTO, THE BODY(introducing media into or onto the bodies of animals [A61D 7/00](#) ; means for inserting tampons [A61F 13/26](#) ; devices for administering food or medicines orally [A61J](#) ; containers for collecting, storing or administering blood or medical fluids [A61J 1/05](#)); DEVICES FOR TRANSDUCING BODY MEDIA OR FOR TAKING MEDIA FROM THE BODY(surgery [A61B](#) ; chemical aspects of surgical articles [A61L](#)); DEVICES FOR PRODUCING OR ENDING SLEEP OR STUPOR

NOTE

This subclass covers suction, pumping or atomising devices for medical use (e.g. cups, breast relievers, irrigators, sprays, powder insufflators, atomisers, inhalers), apparatus for general or local anaesthetics, devices or methods for causing a change in the state of consciousness, catheters, dilators, apparatus for introducing medicines into the body other than orally

Void

When classifying in this group, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[A61M 1/18](#) covered by [B01D 63/02](#) , [B01D 63/04](#)
[A61M 1/20](#) covered by [B01D 63/06](#)
[A61M 1/22](#) covered by [B01D 63/08](#)
[A61M 1/24](#) covered by [B01D 63/10](#)
[A61M 3/04](#) covered by [A61M 3/02](#)
[A61M 5/175](#) covered by [A61M 5/168](#)
[A61M 5/303](#) covered by [A61M 5/30](#)
[A61M 5/307](#) covered by [A61M 5/30](#)
[A61M 23/00](#) covered by [A61M 25/01](#) , [A61M 29/00](#)
[A61M 25/08](#) covered by [A61M 25/0105](#)
[A61M 25/082](#) covered by [A61M 25/0116](#)
[A61M 25/085](#) covered by [A61M 25/0122](#)
[A61M 25/088](#) covered by [A61M 25/01](#)
[A61M 25/092](#) covered by [A61M 25/0133](#)
[A61M 25/095](#) covered by [A61M 25/01](#) , [A61B 5/00](#) , [A61N 1/056](#) [A61M 25/098](#) covered by [A61M 25/0108](#)
[A61M 25/12](#) covered by [A61M 25/10](#) , [A61M 29/02](#)
[A61M 25/14](#) covered by [A61M 25/0021](#)
[A61M 25/16](#) covered by [A61M 25/0009](#)
[A61M 25/18](#) covered by [A61M 25/0014](#)
[A61M 29/04](#) covered by [A61M 29/02](#)
[A61M 36/00](#) covered by [A61M 37/00-P](#) [A61M 37/0069](#) , [A61N 5/10](#)
[A61M 36/02](#) covered by [A61M 37/00-P](#) [A61M 37/0069](#) , [A61N 5/10](#)
[A61M 36/04](#) covered by [A61M 37/00-P](#) [A61M 37/0069](#) , [A61N 5/10](#) , [A61M 15/02](#)
[A61M 36/06](#) covered by [A61M 37/00-P](#) [A61M 37/0069](#) , [A61N 5/10](#) ; [A61M 15/02](#)
[A61M 36/08](#) covered by [A61M 5/1785](#)
[A61M 36/10](#) covered by [A61M 37/00-P](#) [A61M 37/0069](#) , [A61N 5/10](#)
[A61M 36/12](#) covered by [A61M 37/00-P](#) [A61M 37/0069](#) , [A61N 5/10](#)
[A61M 36/14](#) covered by [A61M 37/00-P](#) [A61M 37/0069](#) , [A61N 5/10](#)

- | | |
|-----------------|---|
| U A61M 5/00 | Devices for bringing media into the body in a subcutaneous, intra-vascular or intramuscular way; Accessories therefor, e.g. filling or cleaning devices, arm-rests({ vaccination appliances for veterinary use A61D 1/025 } ; tube connectors, tube couplings, valves or branch units specially adapted for medical use A61M 39/00 ; containers specially adapted for medical or pharmaceutical purposes A61J 1/00 ; { combinations of vial and syringe for mixing or transferring their contents A61J 1/20 ; holders for containers for collecting, storing or administering blood or medical fluids A61J 1/16 }) |
| U A61M 5/002 | • {Packages specially adapted therefor, e.g. for syringes or needles, kits for diabetics(needle protection, e.g. caps, A61M 5/3202 ; for sharps A61B 19/0262)} |
| A61M 2005/004 | • • {Magazines with multiple needles directly inserted into an injection or infusion device, e.g. revolver-like magazines} |
| A61M 2005/005 | • • {Magazines with multiple ampoules directly inserted into an injection or infusion device, e.g. revolver-like magazines containing ampoules with or without needles} |
| A61M 2005/006 | • {for gases, e.g. CO2} |
| U A61M 5/14 | • Infusion devices, e.g. infusing by gravity; Blood infusion; Accessories therefor(suction in pumping blood transfusion A61M 1/02 ; { infusion containers A61J1/00T }) |

- A61M 2005/1401 . . {Functional features}
- A61M 2005/1402 . . . Priming{Priming}
- A61M 2005/1403 . . . {Flushing or purging}
- A61M 2005/1404 . . . {Keep vein-open rate (KVO), i.e. low flow rate}
- A61M 2005/1405 . . . {Patient controlled analgesia (PCA)}
- A61M 2005/1406 . . . {Minimizing backflow along the delivery catheter track}
- U A61M 5/1414 . . {Hanging-up devices}
- U A61M 5/1415 . . . {Stands, brackets or the like for supporting infusion accessories}
- A61M 2005/1416 {placed on the body of the patient}
- U A61M 5/142 . . Pressure infusion, e.g. using pumps

NOTE

In this group, the following expression is used with the meaning indicated:

- "pressure infusion" includes powered injection working at a controlled rate

- A61M 2005/14204 . . . {with gas-producing electrochemical cell}
- A61M 2005/14208 . . . {with a programmable infusion control system, characterised by the infusion program}
- U A61M 5/14244 . . . {adapted to be carried by the patient, e.g. portable on the body}
- U A61M 5/14248 {of the skin patch type}
- A61M 2005/14252 {with needle insertion means}
- A61M 2005/14256 {with means for preventing access to the needle after use}
- A61M 2005/1426 {with means for preventing access to the needle after use}
- A61M 2005/14264 {with means for compensating influence from the environment}
- A61M 2005/14268 {with a reusable and a disposable component}
- A61M 2005/14272 {for emergency, field or home use, e.g. self-contained kits to be carried by the doctor}
- U A61M 5/14276 {specially adapted for implantation}
- A61M 2005/14284 {with needle insertion means}
- A61M 2005/14288 . . . {Infusion or injection simulation(simulation of surgery in general [A61B 19/50](#) ; training for or simulation of use of injection or infusion devices [G09B 23/285](#) ; computer simulations for diagnosis or treatment in general [G06F 19/3437](#))}
- A61M 2005/14292 {Computer-based infusion planning or simulation of spatio-temporal infusate distribution}
- A61M 2005/14296 {Pharmacokinetic models}
- U A61M 5/145 . . . using pressurised reservoirs, e.g. pressurised by means of pistons
- A61M 2005/14506 {mechanically driven, e.g. spring or clockwork}
- A61M 2005/14513 {with secondary fluid driving or regulating the infusion}
- U A61M 5/1452 {pressurised by means of pistons}
- A61M 2005/14533 {cam actuated}
- U A61M 5/14546 {Front-loading type injectors}
- A61M 2005/14553 {comprising a pressure jacket}
- A61M 2005/14573 {with a replaceable reservoir for quick connection/disconnection with a driving system}

- U A61M 5/158
 - • Needles{for infusions; Accessories therefor, e.g. for inserting infusion needles, or for holding them on the body}
 - A61M 2005/1581
 - • • {Right-angle needle-type devices}
 - A61M 2005/1583
 - • • {Needle extractors}
 - A61M 2005/1585
 - • • {Needle inserters}
 - A61M 2005/1586
 - • • { Holding accessories for holding infusion needles on the body holding devices for catheters [A61M 25/02](#) }
 - A61M 2005/1587
 - • • {suitable for being connected to an infusion line after insertion into a patient}
 - A61M 2005/1588
 - • • {having means for monitoring, controlling or visual inspection, e.g. for patency check, avoiding extravasation}
- U A61M 5/162
 - • Needle sets, i.e. connections by puncture between reservoir and tube; {Connections between reservoir and tube(in jet-action syringes [A61M 5/30](#) ; connectors for tubes having sealed ends and a needle for piercing them [A61M 39/14](#))}
 - A61M 2005/1623
 - • • {Details of air intake}
- U A61M 5/165
 - • Filtering accessories, e.g. blood filters, filters for infusion liquids({ [A61M 1/14](#) }, [A61M 1/34](#) , { [A61M 1/3627](#) , [A61M 1/3679](#) , [A61M 1/3687](#) }take precedence;{ needle sets with incorporated air inlet filters [A61M 5/162](#) })
 - A61M 2005/1652
 - • • {Filter with duct, e.g. filtering element incorporated in a flow line, tube, duct}
 - A61M 2005/1655
 - • • {Filter with fibers, e.g. filtering element in form of hollow fibers}
 - A61M 2005/1657
 - • • {Filter with membrane, e.g. membrane, flat sheet type infusion filter}
- U A61M 5/168
 - • Means for controlling media flow to the body or for metering media to the body, e.g. drip meters, counters;{Monitoring media flow to the body(flow control in general [G05D 7/00](#))}
- U A61M 5/16831
 - • • {Monitoring, detecting, signalling or eliminating infusion flow anomalies(low-level float-valves causing cut-off [A61M 5/40](#) ; indicating or recording presence, absence or direction of flow in general [G01P 13/0066](#))}
 - A61M 2005/16863
 - • • • {Occlusion detection}
 - A61M 2005/16868
 - • • • • {Downstream occlusion sensors}
 - A61M 2005/16872
 - • • • • {Upstream occlusion sensors}
- U A61M 5/172
 - • • electrical or electronic({ [A61M 5/16804](#) and [A61M 5/16831](#) take precedence })
- U A61M 5/1723
 - • • • {using feedback of body parameters, e.g. blood-sugar, pressure(measurement of body parameters [A61B 5/00](#))}
 - A61M 2005/1726
 - • • • • {the body parameters being measured at, or proximate to, the infusion site}
- U A61M 5/178
 - Syringes
 - A61M 5/1782
 - • {Devices aiding filling of syringes in situ(combination of a vial and a syringe for transferring or mixing their contents ~~A61J 1/20 F~~~~A61J1/20F~~, filling of medical containers in general ~~B65B 3/00 B~~ ~~B65B3/00B~~)}
 - A61M 2005/1787
 - • {Syringes for sequential delivery of fluids, e.g. first medicament and then flushing liquid}
 - A61M 5/19
 - • having more than one chamber,{e.g. including a manifold coupling two parallelly aligned syringes through separate channels to a common discharge assembly(surgical glue applicators ~~A61B 17/00 L~~ ~~A61B17/00L~~)}
- U A61M 5/20
 - • Automatic syringes, e.g. with automatically actuated piston rod, with automatic needle injection, filling automatically([A61M 5/142](#) { , [A61M 5/46](#) }take precedence;{ hypodermic projectiles [F42B 12/54](#) })

	A61M 2005/2006	• • • {Having specific accessories}
	A61M 2005/2013	• • • • {triggering of discharging means by contact of injector with patient body}
	A61M 2005/202	• • • • {cocking means, e.g. to bias the main drive spring of an injector}
	A61M 2005/2026	• • • {Semi-automatic, e.g. user activated piston is assisted by additional source of energy}
	A61M 2005/206	• • • {With automatic needle insertion}
	A61M 2005/2073	• • • {preventing premature release, e.g. by making use of a safety lock}
	A61M 2005/208	• • • • {Release is possible only when device is pushed against the skin, e.g. using a trigger which is blocked or inactive when the device is not pushed against the skin}
	A61M 2005/2086	• • • {having piston damping means, e.g. axially or rotationally acting retarders}
	A61M 2005/2093	• • • {including concentration setting means}
U	A61M 5/24	• • Ampoule syringes, i.e. syringes with needle for use in combination with replaceable ampoules or carpules, e.g. automatic(ampoules or carpules A61J 1/06)
	A61M 2005/2403	• • • {Ampoule inserted into the ampoule holder}
	A61M 2005/2407	• • • • {from the rear}
	A61M 2005/2411	• • • • {from the front}
	A61M 2005/2414	• • • • {from the side}
	A61M 2005/2418	• • • {comprising means for damping shocks on ampoule}
	A61M 2005/2433	• • • {Ampoule fixed to ampoule holder}
	A61M 2005/2437	• • • • {by clamping means}
	A61M 2005/244	• • • • • {by flexible clip}
	A61M 2005/2444	• • • • {by thread}
U	A61M 5/2448	• • • {comprising means for injection of two or more media, e.g. by mixing}
	A61M 2005/2451	• • • • {preventing delivery before mixing is completed, e.g. by locking mechanisms}
U	A61M 5/2455	• • • {with sealing means to be broken or opened}
U	A61M 5/2459	• • • • {upon internal pressure increase, e.g. pierced or burst(A61M 5/2429 takes precedence)}
	A61M 2005/2462	• • • • • {by displacing occluding plugs}
U	A61M 5/2466	• • • • • {by piercing without internal pressure increase(A61M 5/2429 takes precedence)}
	A61M 2005/247	• • • • • {with fixed or steady piercing means, e.g. piercing under movement of ampoule}
	A61M 2005/2474	• • • • • {with movable piercing means, e.g. ampoule remains fixed or steady}
	A61M 2005/2477	• • • {comprising means to reduce play of ampoule within ampoule holder, e.g. springs}
	A61M 2005/2481	• • • {comprising means for biasing the ampoule out of the ampoule holder}
	A61M 2005/2485	• • • {Ampoule holder connected to rest of syringe}
	A61M 2005/2488	• • • • {via rotation, e.g. threads or bayonet}
	A61M 2005/2492	• • • • {via snap connection}
	A61M 2005/2496	• • • • {via pivot}
U	A61M 5/28	• • Syringe ampoules or carpules, i.e. ampoules or carpules provided with a needle
U	A61M 5/285	• • • {with sealing means to be broken or opened(not used, see subgroups)}

- U A61M 5/286
 - • • {upon internal pressure increase, e.g. pierced or burst([A61M 5/283](#) takes precedence)}
- A61M 2005/287
 - • • • {by displacing occluding plugs}
- U A61M 5/30
 - • Syringes for injection by jet action, without needle, e.g. for use with replaceable ampoules or carpules
- A61M 2005/3022
 - • • {Worn on the body, e.g. as patches(pressure infusion of the skin patch type [A61M 5/14248](#))}
- U A61M 5/31
 - • Details
- A61M 2005/3101
 - • • {Leak prevention means for proximal end of syringes, i.e. syringe end opposite to needle mounting end}
- A61M 2005/3103
 - • • {Leak prevention means for distal end of syringes, i.e. syringe end for mounting a needle}
- A61M 2005/3104
 - • • • {Caps for syringes without needle}
- A61M 2005/3106
 - • • • {Plugs for syringes without needle}
- A61M 2005/3107
 - • • • {for needles}
- A61M 2005/3109
 - • • • • {Caps sealing the needle bore by use of, e.g. air-hardening adhesive, elastomer or epoxy resin}
- A61M 2005/311
 - • • • • {Plugs, i.e. sealing rods or stylets closing the bore of needles}
- A61M 2005/3112
 - • • {Incorporating self-aspirating means, e.g. to provide flashback}
- A61M 2005/3114
 - • • {Filling or refilling}
- A61M 2005/3115
 - • • • {spring-assisted}
- A61M 2005/3117
 - • • {Means preventing contamination of the medicament compartment of a syringe}
- A61M 2005/3118
 - • • • {via the distal end of a syringe, i.e. syringe end for mounting a needle cannula}
- A61M 2005/312
 - • • • • {comprising sealing means, e.g. severable caps, to be removed prior to injection by e.g. tearing or twisting}
- A61M 2005/3121
 - • • • {via the proximal end of a syringe, i.e. syringe end opposite to needle cannula mounting end}
- A61M 2005/3123
 - • • {having air entrapping or venting means, e.g. purging channels in pistons}
- A61M 2005/3125
 - • • {specific display means, e.g. to indicate dose setting}
- A61M 2005/3126
 - • • • {Specific display means related to dosing}
- A61M 2005/3128
 - • • {Incorporating one-way valves, e.g. pressure-relief or non-return valves}
- U A61M 5/3129
 - • • {Syringe barrels([A61M 5/3205](#) and [A61M 5/50](#) take precedence)}
- A61M 2005/3131
 - • • • {specially adapted for improving sealing or sliding}
- A61M 2005/3132
 - • • • {having flow passages for injection agents at the distal end of the barrel to bypass a sealing stopper after its displacement to this end due to internal pressure increase}
- U A61M 5/3137
 - • • • {Specially designed finger grip means, e.g. for easy manipulation of the syringe rod}
- A61M 2005/3139
 - • • • • {Finger grips not integrally formed with the syringe barrel, e.g. using adapter with finger grips}
- A61M 2005/314
 - • • • {Flat shaped barrel forms, e.g. credit card shaped}
- A61M 2005/3142
 - • • • {Modular constructions, e.g. supplied in separate pieces to be assembled by end-user}
- A61M 2005/3143
 - • • {Damping means for syringe components executing relative movements, e.g. retarders or attenuators slowing down or timing syringe mechanisms}

- U A61M 5/315 . . . Pistons; Piston-rods; Guiding, blocking or restricting the movement of the rod{or piston}; Appliances on the rod for facilitating dosing;{Dosing mechanisms}
- U A61M 5/31501 {Means for blocking or restricting the movement of the rod or piston([A61M 5/5013](#) takes precedence)}
- U A61M 5/31503
- U A61M 5/31505 {Integral with the syringe barrel, i.e. connected to the barrel so as to make up a single complete piece or unit}
- A61M 2005/31506 {formed as a single piece, e.g. molded}
- A61M 2005/31508 {provided on the piston-rod}
- A61M 2005/3151 {by friction}
- U A61M 5/31511 {Piston or piston-rod constructions, e.g. connection of piston with piston-rod([A61M 5/5066](#) takes precedence)}
- A61M 2005/31516 {reducing dead-space in the syringe barrel after delivery}
- A61M 2005/31518 {designed to reduce the overall size of an injection device, e.g. using flexible or pivotally connected chain-like rod members}
- A61M 2005/3152 {including gearings to multiply or attenuate the piston displacing force}
- A61M 2005/31521 {Pistons with a forward extending skirt at their front end}
- A61M 2005/31523 {for reducing reflux}
- U A61M 5/31533 {Dosing mechanisms, i.e. setting a dose(administering mechanisms [A61M 5/31565](#))}
- U A61M 5/31535 {Means improving security or handling thereof, e.g. blocking means, means preventing insufficient dosing, means allowing correction of overset dose}
- U A61M 5/31536 {Blocking means to immobilize a selected dose, e.g. to administer equal doses}
- A61M 2005/3154 {limiting maximum permissible dose}
- U A61M 5/31565 {Administration mechanisms, i.e. constructional features, modes of administering a dose(dosing mechanisms for setting a dose [A61M 5/31533](#))}
- U A61M 5/31576 {Constructional features or modes of drive mechanisms for piston rods}
- A61M 2005/31588 {electrically driven}
- U A61M 5/31596 {comprising means for injection of two or more media, e.g. by mixing}
- A61M 2005/31598 {having multiple telescopically sliding coaxial pistons encompassing volumes for components to be mixed}
- U A61M 5/32 . . . Needles; Details of needles pertaining to their connection with syringe or hub(infusion needles [A61M 5/158](#)); Accessories for bringing the needle into, or holding the needle on, the body{([A61M 5/42](#) , [A61M 5/46](#) take precedence; guide needles for catheters [A61M 25/065](#)); Devices for protection of needles{(apparatus specially adapted for cleaning or sterilising needles [A61M 5/001](#))}
- A61M 2005/3201 {Coaxially assembled needle cannulas placed on top of another, e.g. needles having different diameters}
- U A61M 5/3205 {Apparatus for removing or disposing of used needles or syringes, e.g. containers; Means for protection against accidental injuries from used needles(for sharps [A61B 19/0288](#) ; disintegrating apparatus in general [B02C](#) , e.g. **B02C19/12M** , [B23H 9/001](#) ; disposal of medical waste in general [B09B 3/0075](#) ; receptacles for refuse disposal in general [B65F 1/00](#))}

	A61M 2005/3206	. . . . . {Needle or needle hub disconnecting devices forming part of or being attached to the hub or syringe body}
	A61M 2005/3208	. . . . . {by application of rotational movement to the needle hub, e.g. by use of electrically driven toothed wheels}
	A61M 2005/3209	. . . . . {comprising heat generating means, e.g. melt chamber}
U	A61M 5/321	. . . . . {Means for protection against accidental injuries by used needles}
	A61M 2005/3212	. . . . . {Blunting means for the sharp end of the needle}
U	A61M 5/3213	. . . . . {Caps placed axially onto the needle, e.g. equipped with finger protection guards(axially-extensible protective sleeves A61M 5/3243)}
	A61M 2005/3215	. . . . . {Tools enabling the cap placement}
U	A61M 5/3216	. . . . . {Caps placed transversally onto the needle, e.g. pivotally attached to the needle base}
	A61M 2005/3217	. . . . . {Means to impede repositioning of protection cap from needle covering to needle uncovering position, e.g. catch mechanisms}
U	A61M 5/322	. . . . . {Retractable needles, i.e. disconnected from and withdrawn into the syringe barrel by the piston(devices for protecting guide needles in combination with catheters A61M 25/0612)}
U	A61M 5/3221	. . . . . {Constructional features thereof, e.g. to improve manipulation or functioning}
	A61M 2005/3223	. . . . . {Means impeding or disabling repositioning of used needles at the syringe nozzle}
	A61M 2005/3224	. . . . . {Means to disalign the needle tip and syringe nozzle}
	A61M 2005/3226	. . . . . {with means obstructing or blocking the needle mounting opening}
	A61M 2005/3227	. . . . . {the needle being retracted laterally outside the syringe barrel, e.g. with separate guideway}
	A61M 2005/3228	. . . . . {the needle being retracted by a member protruding laterally through a slot in the barrel, e.g. double-ended needles}
	A61M 2005/323	. . . . . {Connection between plunger distal end and needle hub proximal end, e.g. stud protruding from the plunger}
	A61M 2005/3231	. . . . . {Proximal end of needle captured or embedded inside piston head, e.g. by friction or hooks}
U	A61M 5/3232	. . . . . {Semi-automatic needle retraction, i.e. in which the triggering of the needle retraction requires a deliberate action by the user, e.g. manual release of spring-biased retraction means}
U	A61M 5/3234	. . . . . {Fully automatic, i.e. in which the triggering does not require a deliberate action by the user}
	A61M 2005/3235	. . . . . {triggered by radial deflection of the anchoring parts between needle mount and syringe barrel or needle housing, e.g. spreading of needle mount retaining hooks having slanted surfaces by engagement with correspondingly shaped surfaces on the piston at the end of an injection stroke}
	A61M 2005/3236	. . . . . {Trigger provided at the distal end, i.e. syringe end for mounting a needle}
	A61M 2005/3238	. . . . . {Trigger provided at the proximal end, i.e. syringe end opposite to needle mounting end}
	A61M 2005/3239	. . . . . {triggered by dislodgement of outer part anchoring the needle portion to the inside of the syringe barrel wall, e.g. a ring-shaped portion}

	A61M 2005/3241	. . . . . {Needle retraction energy is accumulated inside of a hollow plunger rod}
	A61M 2005/3242	. . . . . {Needle retraction by vacuum}
U	A61M 5/3243	. . . . . {being axially-extensible, e.g. protective sleeves coaxially slidable on the syringe barrel(devices for protecting guide needles in combination with catheters A61M 25/0612)}
U	A61M 5/3245	. . . . . {Constructional features thereof, e.g. to improve manipulation or functioning}
	A61M 2005/3246	. . . . . {being squeezably deformable for locking or unlocking purposes, e.g. with elliptical cross-section}
	A61M 2005/3247	. . . . . {Means to impede repositioning of protection sleeve from needle covering to needle uncovering position}
	A61M 2005/3249	. . . . . {Means to disalign the needle tip and the distal needle passage of a needle protection sleeve}
	A61M 2005/325	. . . . . {Means obstructing the needle passage at distal end of a needle protection sleeve}
	A61M 2005/3252	. . . . . {being extended by a member protruding laterally through a slot in the syringe barrel}
	A61M 2005/3253	. . . . . {disconnecting the needle hub from the syringe barrel during removal of the sleeve from the syringe barrel}
	A61M 2005/3254	. . . . . {Shielding of proximal needles, e.g. for pen needles}
	A61M 2005/3256	. . . . . {having folding ring sections}
U	A61M 5/3257	. . . . . {Semi-automatic sleeve extension, i.e. in which the triggering of the sleeve extension requires a deliberate action by the user, e.g. manual release of spring-biased extension means}
	A61M 2005/3258	. . . . . {being compressible or compressed along the needle}
U	A61M 5/326	. . . . . {Fully automatic, i.e. in which the triggering does not require}
	A61M 2005/3261	. . . . . {triggered by radial deflection of the anchoring parts between sleeve and syringe barrel, e.g. spreading of sleeve retaining hooks having slanted surfaces by engagement with conically shaped collet of the piston rod during the last portion of the injection stroke of the plunger}
	A61M 2005/3263	. . . . . {Trigger provided at the distal end, i.e. syringe end for mounting a needle}
	A61M 2005/3264	. . . . . {Trigger provided at the proximal end, i.e. syringe end opposite to needle mounting end}
	A61M 2005/3265	. . . . . {Degree of extension of sleeve to its needle covering position is progressively established by the degree of piston insertion into the syringe barrel}
	A61M 2005/3267	. . . . . {Biased sleeves where the needle is uncovered by insertion of the needle into a patient's body}
	A61M 2005/3268	. . . . . {having cantilever elastically spreadable arms, e.g. to accumulate energy during needle uncovering movement for urging protection sleeve to return to needle covering position}
U	A61M 5/3278	. . . . . {Apparatus for destroying used needles or syringes(needle resheathing means destroying the needle A61M 5/321)}
	A61M 2005/3279	. . . . . {Breaking syringe nozzles or needle hubs}
	A61M 2005/328	. . . . . {having needle tip encapsulating means, e.g. two-component hardenable compound or molten plastic}
	A61M 2005/3282	. . . . . {using mechanical means, e.g. mills}

- A61M 2005/3283 {using electric current between electrodes}
- A61M 2005/3284 {Deformaton of needle by deflection or bending}
- U A61M 5/3287 {Accessories for bringing the needle into the body; Automatic needle insertion([A61M 5/20](#) , [A61M 5/31525](#) take precedence)}
- A61M 2005/3289 {with rotation of the needle, e.g. to ease penetration}
- U A61M 5/34 Constructions for connecting the needle,{e.g. to syringe nozzle or needle hub(connecting catheter tubes to hubs [A61M 25/0014](#))}
- A61M 2005/341 {angularly adjustable or angled away from the axis of the injector}
- A61M 2005/342 {Off-center needles, i.e. needle connections not being coaxial with the longitudinal symmetry axis of syringe barrel}
- U A61M 5/50 Having means for preventing re-use, or for indicating if defective, used, tampered with or unsterile{(retractable needles or needle protectors with means for preventing re-use [A61M 5/321](#))}
- A61M 2005/5006 {Having means for destroying the syringe barrel, e.g. by cutting or piercing}
- U A61M 5/5013 {Means for blocking the piston or the fluid passageway to prevent illegal refilling of a syringe}
- U A61M 5/502 {for blocking the piston}
- A61M 2005/5026 {allowing single filling of syringe}
- A61M 2005/5033 {by use of an intermediate blocking member positioned between the syringe barrel and the piston rod to prevent retraction of the latter, e.g. toothed clip placed on the piston rod}
- U A61M 5/504 {for blocking the fluid passageway}
- A61M 2005/5046 {automatically, e.g. plug actuated by the piston head, one-way valve}
- A61M 2005/5053 {Valve or plug actuated by fluid flow or fluid pressure allowing initial filling of the syringe}
- A61M 2005/506 {Plug actuated by contact with fluid, e.g. hydrophilic expansion plug}
- U A61M 5/5066 {Means for preventing re-use by disconnection of piston and piston-rod}
- A61M 2005/5073 {by breaking or rupturing the connection parts}
- A61M 2005/5093 {including soluble mechanical parts}
- U **A61M 16/00** **Devices for influencing the respiratory system of patients by gas treatment, e.g. mouth-to-mouth respiration; Tracheal tubes(stimulating the respiratory movement by mechanical, pneumatic or electrical means, iron lungs combined with gas breathing means [A61H 31/00](#) ; { supine patient supports therefor [A61H 31/008](#) } ; respiratory apparatus in general [A62B](#); respirators for working under water [B63C 11/00](#))**

WARNINGS

Groups [A61M 16/0003](#) - [A61M 16/0012](#), [A61M 16/006](#) - [A61M 16/0063](#), [A61M 16/0069](#), [A61M 16/0081](#) - [A61M 16/0084](#), [A61M 16/0093](#), [A61M 16/0402](#) - [A61M 16/0431](#), [A61M 16/0436](#) - [A61M 16/0438](#), [A61M 16/0443](#) - [A61M 16/0459](#), [A61M 16/0475](#) - [A61M 16/0486](#), [A61M 16/049](#) - [A61M 16/0495](#), [A61M 16/0605](#) - [A61M 16/0655](#), [A61M 16/0672](#) - [A61M 16/0677](#), [A61M 16/0688](#) - [A61M 16/0694](#), [A61M 16/0825](#) - [A61M 16/0866](#), [A61M 16/0883](#) - [A61M 16/0891](#), [A61M 16/1005](#) - [A61M 16/1015](#), [A61M 16/106](#) - [A61M 16/107](#), [A61M 16/108](#) - [A61M 16/1095](#), [A61M 16/122](#) - [A61M 16/127](#), [A61M 16/142](#) - [A61M 16/147](#), [A61M 16/161](#), [A61M 16/164](#) - [A61M 16/168](#), [A61M 16/201](#) - [A61M 16/207](#), [A61M 16/209](#) are incomplete pending reclassification of documents from group [A61M 16/00](#) or respective subgroup.

Until reclassification is complete, groups [A61M 16/00](#) or respective subgroup and [A61M 16/0003](#) - [A61M 16/0012](#), [A61M 16/006](#) - [A61M 16/0063](#), [A61M 16/0069](#), [A61M 16/0081](#) - [A61M 16/0084](#), [A61M 16/0093](#), [A61M 16/0402](#) - [A61M 16/0431](#), [A61M 16/0436](#) - [A61M 16/0438](#), [A61M 16/0443](#) - [A61M 16/0459](#), [A61M 16/0475](#)

- [A61M 16/0486](#), [A61M 16/049](#) - [A61M 16/0495](#), [A61M 16/0605](#) - [A61M 16/0655](#), [A61M 16/0672](#) - [A61M 16/0677](#), [A61M 16/0688](#) - [A61M 16/0694](#), [A61M 16/0825](#) - [A61M 16/0866](#), [A61M 16/0883](#) - [A61M 16/0891](#), [A61M 16/1005](#) - [A61M 16/1015](#), [A61M 16/106](#) - [A61M 16/107](#), [A61M 16/108](#) - [A61M 16/1095](#), [A61M 16/122](#) - [A61M 16/127](#), [A61M 16/142](#) - [A61M 16/147](#), [A61M 16/161](#), [A61M 16/164](#) - [A61M 16/168](#), [A61M 16/201](#) - [A61M 16/207](#), [A61M 16/209](#) should be considered in order to perform a complete search.

- U A61M 16/0003 · {Accessories therefor, e.g. sensors, vibrators, negative pressure}
- A61M 2016/0015 · · {inhalation detectors}
- A61M 2016/0018 · · · ~~electrical~~{*electrical*}
- A61M 2016/0021 · · · · {with a proportional output signal, e.g. from a thermistor}
- A61M 2016/0024 · · · · {with an on-off output signal, e.g. from a switch}
- A61M 2016/0027 · · {pressure meter}
- A61M 2016/003 · · {with a flowmeter}
- A61M 2016/0033 · · · ~~electrical~~{*electrical*}
- A61M 2016/0036 · · · · {in the breathing tube and used in both inspiratory and expiratory phase}
- A61M 2016/0039 · · · · {in the inspiratory circuit}
- A61M 2016/0042 · · · · {in the expiratory circuit}
- U A61M 16/04 · Tracheal tubes(catheters in general [A61M 25/00](#))
- U A61M 16/0402 · · {Special features for tracheal tubes not otherwise provided for}
- U A61M 16/0411 · · · {with means for differentiating between oesophageal and tracheal intubation}
- A61M 2016/0413 · · · · {with detectors of CO2 in exhaled gases}
- U A61M 16/06 · Respiratory or anaesthetic masks
- A61M 2016/0661 · · {with customised shape}
- U A61M 16/10 · Preparation of respiratory gases or vapours
- U A61M 16/1005 · · {with O₂ features or with parameter measurement}
- A61M 2016/102 · · · {Measuring a parameter of the content of the delivered gas}
- A61M 2016/1025 · · · · {the O₂ concentration}
- A61M 2016/103 · · · · {the CO₂ concentration}
- A61M 2016/1035 · · · · {the anaesthetic agent concentration}

A61M 19/00 **Local anaesthesia(syringes therefor [A61M 5/00](#)); Hypothermia([A61M 5/42](#) takes precedence; cooling blood in a bypass of the arterial system [A61M 1/36](#))**

WARNING

Groups [A61B 19/20](#) - ~~A61B19/56L~~[A61B 19/56](#) do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows: - [A61B 19/20](#) - [A61B 19/56](#) : [A61B 19/00](#)]

- U **A61M 21/00** **Other devices or methods to cause a change in the state of consciousness; Devices for producing or ending sleep by mechanical, optical, or acoustical means, e.g. for hypnosis**
- A61M 2021/0005 · {by the use of a particular sense, or stimulus}
- A61M 2021/0011 · · {in a subliminal way, i.e. below the threshold of sensation}
- A61M 2021/0016 · · {by the smell sense}
- A61M 2021/0022 · · {by the tactile sense, e.g. vibrations}

- A61M 2021/0027 . . {by the hearing sense}
- A61M 2021/0033 . . . **subsonic**{subsonic}
- A61M 2021/0038 . . . **ultrasonic**{ultrasonic}
- A61M 2021/0044 . . {by the sight sense}
- A61M 2021/005 . . . {images, e.g. video}
- A61M 2021/0055 . . {with electric or electro-magnetic fields}
- A61M 2021/0061 . . {Simulated heartbeat pulsed or modulated}
- A61M 2021/0066 . . {with heating or cooling}
- A61M 2021/0072 . . {with application of electrical currents}
- A61M 2021/0077 . . {with application of chemical or pharmacological stimulus}
- A61M 2021/0083 . . {especially for waking up}
- A61M 2021/0088 . . {modulated by a simulated respiratory frequency}
- U A61M 25/00 Catheters; Hollow probes(dilators [A61M 29/00](#) ; { peritoneal catheters [A61M 1/285](#) ; tracheal tubes [A61M 16/04](#) ; for drainage [A61M 27/00](#) ; for uterus, vagina or rectum [A61M 31/00](#) } ; for measuring or testing [A61B](#) ; { materials for catheters [A61L 29/00](#))}**
 - A61M 2025/0001 . {for pressure measurement(not used)}
 - A61M 2025/0002 . . {with a pressure sensor at the distal end}
 - A61M 2025/0003 . . {having an additional lumen transmitting fluid pressure to the outside for measurement}
 - A61M 2025/0004 . {having two or more concentrically arranged tubes for forming a concentric catheter system}
 - A61M 2025/0006 . . {which can be secured against axial movement, e.g. by using a locking cuff}
 - A61M 2025/0007 . {Epidural catheters}
 - A61M 2025/0008 . {having visible markings on its surface, i.e. visible to the naked eye, for any purpose, e.g. insertion depth markers, rotational markers or identification of type}
 - A61M 2025/0018 . {having a plug, e.g. an inflatable plug for closing catheter lumens}
 - A61M 2025/0019 . {Cleaning catheters or the like, e.g. for reuse of the device, for avoiding replacement}
 - U A61M 25/0021 . {characterised by the form of the tubing([A61M 25/0054](#) takes precedence)}**
 - U A61M 25/0023 . . {by the form of the lumen, e.g. cross-section, variable diameter}**
 - A61M 2025/0024 . . . {Expandable catheters or sheaths}
 - A61M 2025/0025 . . . {having a collapsible lumen}
 - U A61M 25/0026 . . . {Multi-lumen catheters with stationary elements(catheter assemblies comprising a catheter in combination with a guide tube, sheath or sleeve [A61M 2025/0681](#) ; catheters comprising telescoping coaxial elements [A61M 2025/0175](#))}**
 - U A61M 25/003 {characterized by features relating to least one lumen located at the distal part of the catheter, e.g. filters, plugs or valves(catheter tips [A61M 25/0067](#))}**
 - A61M 2025/0031 {characterized by lumina for withdrawing or delivering, i.e. used for extracorporeal circuit treatment}
 - A61M 2025/0034 {characterized by elements which are assembled, connected or fused, e.g. splittable tubes, outer sheaths creating lumina or separate cores(making of catheters A1M25/00G)}
 - A61M 2025/0035 {characterized by a variable lumen cross-section by means of a resilient flexible septum or outer wall}

- A61M 2025/0036 . . . {with more than four lumina}
- A61M 2025/0037 . . . {characterized by lumina being arranged side-by-side}
- A61M 2025/0039 . . . {characterized by lumina being arranged coaxially}
- A61M 2025/004 . . . {characterized by lumina being arranged circumferentially}
- A61M 2025/0042 . {Micro catheters, cannula or the like having outside diameters around 1 mm or less}
- U A61M 25/0043 . {characterised by structural features}
- U A61M 25/0045 . . {multi-layered, e.g. coated(coating materials [A61L 29/08](#))}
- A61M 2025/0046 . . . {Coatings for improving slidability}
- A61M 2025/0047 . . . {the inner layer having a higher lubricity}
- A61M 2025/0048 {with an outer layer made from silicon}
- A61M 2025/0056 . . {provided with an antibacterial agent, e.g. by coating, residing in the polymer matrix or releasing an agent out of a reservoir}
- A61M 2025/0057 . . {Catheters delivering medicament other than through a conventional lumen, e.g. porous walls or hydrogel coatings}
- A61M 2025/0058 . . {having an electroactive polymer material, e.g. for steering purposes, for control of flexibility, for locking, for opening or closing}
- A61M 2025/0059 . . {having means for preventing the catheter, sheath or lumens from collapsing due to outer forces, e.g. compressing forces, or caused by twisting or kinking}
- A61M 2025/006 . . {having a special surface topography or special surface properties, e.g. roughened or knurled surface}
- A61M 2025/0062 . . {having features to improve the sliding of one part within another by using lubricants or surfaces with low friction(coatings [A61M 2025/0046](#))}
- A61M 2025/0063 . . {having means, e.g. stylets, mandrils, rods or wires to reinforce or adjust temporarily the stiffness, column strength or pushability of catheters which are already inserted into the human body}
- A61M 2025/0064 . . . {which become stiffer or softer when heated}
- A61M 2025/0065 . . . {which become stiffer or softer when becoming wet or humid, e.g. immersed within a liquid}
- U A61M 25/0067 . {characterised by the distal end, e.g. tips([A61M 25/0054](#) , [A61M 25/04](#) take precedence; balloon catheters [A61M 25/10](#))}
- U A61M 25/0068 . . {Static characteristics of the catheter tip, e.g. shape, atraumatic tip, curved tip or tip structure}
- A61M 2025/0073 . . . {Tip designed for influencing the flow or the flow velocity of the fluid, e.g. inserts for twisted or vortex flow(general flow characteristics [A61M 2206/10](#))}
- U A61M 25/0074 . . {Dynamic characteristics of the catheter tip, e.g. openable, closable, expandable or deformable}
- U A61M 25/0075 . . . {Valve means}
- A61M 2025/0076 {Unidirectional valves}
- A61M 2025/0078 {for fluid inflow from the body into the catheter lumen}
- A61M 2025/0079 . . . {Separate user-activated means, e.g. guidewires, guide tubes, balloon catheters or sheaths, for sealing off an orifice, e.g. a lumen or side holes, of a catheter}
- U A61M 25/008 . . {Strength or flexibility characteristics of the catheter tip}
- A61M 2025/0081 . . . {Soft tip}
- U A61M 25/0082 . . {Catheter tip comprising a tool}
- U A61M 25/0084 . . . {being one or more injection needles}

A61M 2025/0085	<ul style="list-style-type: none"> • • • {Multiple injection needles protruding axially, i.e. along the longitudinal axis of the catheter, from the distal tip}
A61M 2025/0086	<ul style="list-style-type: none"> • • • • {the needles having bent tips, i.e. the needle distal tips are angled in relation to the longitudinal axis of the catheter}
A61M 2025/0087	<ul style="list-style-type: none"> • • • {Multiple injection needles protruding laterally from the distal tip}
A61M 2025/0089	<ul style="list-style-type: none"> • • • • {Single injection needle protruding axially, i.e. along the longitudinal axis of the catheter, from the distal tip}
A61M 2025/009	<ul style="list-style-type: none"> • • • • {the needle having a bent tip, i.e. the needle distal tip is angled in relation to the longitudinal axis of the catheter}
A61M 2025/0091	<ul style="list-style-type: none"> • • • • {the single injection needle being fixed}
A61M 2025/0092	<ul style="list-style-type: none"> • • • {Single injection needle protruding laterally from the distal tip}
A61M 2025/0093	<ul style="list-style-type: none"> • • • {wherein at least one needle is a microneedle}
A61M 2025/0095	<ul style="list-style-type: none"> • • • {being one or more needles protruding from the distal tip and which are not used for injection nor for electro-simulation, e.g. for fixation purposes}
A61M 2025/0096	<ul style="list-style-type: none"> • • • {being laterally outward extensions or tools, e.g. hooks or fibres}
A61M 2025/0098	<ul style="list-style-type: none"> • {having a strain relief at the proximal end, e.g. sleeve}
U A61M 25/01	<ul style="list-style-type: none"> • Introducing, guiding, advancing, emplacing or holding catheters(A61M 25/10 takes precedence)
U A61M 25/0105	<ul style="list-style-type: none"> • • {Steering means as part of the catheter or advancing means; Markers for positioning(systems for detection of markers A61B)}
U A61M 25/0133	<ul style="list-style-type: none"> • • • {Tip steering devices}
U A61M 25/0147	<ul style="list-style-type: none"> • • • • {with movable mechanical means, e.g. pull wires}
A61M 2025/015	<ul style="list-style-type: none"> • • • • • {Details of the distal fixation of the movable mechanical means}
A61M 2025/0161	<ul style="list-style-type: none"> • • • • {wherein the distal tips have two or more deflection regions}
A61M 2025/0163	<ul style="list-style-type: none"> • • • • {Looped catheters}
A61M 2025/0166	<ul style="list-style-type: none"> • • • {Sensors, electrodes or the like for guiding the catheter to a target zone, e.g. image guided or magnetically guided}
A61M 2025/0175	<ul style="list-style-type: none"> • • {having telescopic features, interengaging nestable members movable in relations to one another}
A61M 2025/0177	<ul style="list-style-type: none"> • • {having external means for receiving guide wires, wires or stiffening members, e.g. loops, clamps or lateral tubes}
A61M 2025/018	<ul style="list-style-type: none"> • • {Catheters having a lateral opening for guiding elongated means lateral to the catheter}
A61M 2025/0183	<ul style="list-style-type: none"> • • {Rapid exchange or monorail catheters}
A61M 2025/0186	<ul style="list-style-type: none"> • • {Catheters with fixed wires, i.e. so called "non-over-the-wire catheters"}
A61M 2025/0188	<ul style="list-style-type: none"> • • {having slitted or breakaway lumens}
A61M 2025/0191	<ul style="list-style-type: none"> • • {Suprapubic catheters}
U A61M 25/0194	<ul style="list-style-type: none"> • • {Tunnelling catheters}
A61M 2025/0197	<ul style="list-style-type: none"> • • • {for creating an artificial passage within the body, e.g. in order to go around occlusions(for fixation outside the body A61M 25/0194)}
U A61M 25/02	<ul style="list-style-type: none"> • • Holding devices, e.g. on the body
A61M 2025/0206	<ul style="list-style-type: none"> • • • {where the catheter is secured by using devices worn by the patient, e.g. belts or harnesses}
A61M 2025/0213	<ul style="list-style-type: none"> • • • {where the catheter is attached by means specifically adapted to a part of the human body}
A61M 2025/022	<ul style="list-style-type: none"> • • • • {specifically adapted for the mouth}
A61M 2025/0226	<ul style="list-style-type: none"> • • • • {specifically adapted for the nose}

A61M 2025/0233	<ul style="list-style-type: none"> • • • {specifically adapted for attaching to a body wall by means which are on both sides of the wall, e.g. for attaching to an abdominal wall}
A61M 2025/024	<ul style="list-style-type: none"> • • • {having a clip or clamp system}
A61M 2025/0246	<ul style="list-style-type: none"> • • • {fixed on the skin having a cover for covering the holding means}
A61M 2025/0253	<ul style="list-style-type: none"> • • • {where the catheter is attached by straps, bands or the like secured by adhesives}
A61M 2025/026	<ul style="list-style-type: none"> • • • • {where the straps are releasably secured, e.g. by hook and loop-type fastening devices}
A61M 2025/0266	<ul style="list-style-type: none"> • • • {using pads, patches, tapes or the like}
A61M 2025/0273	<ul style="list-style-type: none"> • • • • {having slits to place the pad around a catheter puncturing site}
A61M 2025/028	<ul style="list-style-type: none"> • • • {having a mainly rigid support structure}
A61M 2025/0286	<ul style="list-style-type: none"> • • • {anchored in the skin by suture or other skin penetrating devices}
A61M 2025/0293	<ul style="list-style-type: none"> • • • {Catheter, guide wire or the like with means for holding, centering, anchoring or frictionally engaging the device within an artificial lumen, e.g. tube(natural lumen, e.g. vessels A61M 25/04)}
U A61M 25/06	<ul style="list-style-type: none"> • • Body-piercing guide needles or the like
U A61M 25/065	<ul style="list-style-type: none"> • • • {Guide needles}
A61M 2025/0656	<ul style="list-style-type: none"> • • • • {having a tip larger than the rest of the body}
U A61M 25/0662	<ul style="list-style-type: none"> • • • {Guide tubes}
U A61M 25/0668	<ul style="list-style-type: none"> • • • • {splittable, tear apart}
A61M 2025/0675	<ul style="list-style-type: none"> • • • • • {Introducing-sheath slitters}
A61M 2025/0681	<ul style="list-style-type: none"> • • • • {Systems with catheter and outer tubing, e.g. sheath, sleeve or guide tube}
A61M 2025/0687	<ul style="list-style-type: none"> • • • • {having means for atraumatic insertion in the body or protection of the tip of the sheath during insertion, e.g. special designs of dilators, needles or sheaths}
U A61M 25/09	<ul style="list-style-type: none"> • • Guide wires
A61M 2025/09008	<ul style="list-style-type: none"> • • • {having a balloon}
A61M 2025/09058	<ul style="list-style-type: none"> • • • {Basic structures of guide wires(not used)}
A61M 2025/09066	<ul style="list-style-type: none"> • • • • {having a coil without a core possibly combined with a sheath}
A61M 2025/09075	<ul style="list-style-type: none"> • • • • {having a core without a coil possibly combined with a sheath}
A61M 2025/09083	<ul style="list-style-type: none"> • • • • {having a coil around a core}
A61M 2025/09091	<ul style="list-style-type: none"> • • • • • {where a sheath surrounds the coil at the distal part}
A61M 2025/091	<ul style="list-style-type: none"> • • • {having a lumen for drug delivery or suction}
A61M 2025/09108	<ul style="list-style-type: none"> • • • {Methods for making a guide wire}
A61M 2025/09116	<ul style="list-style-type: none"> • • • {Design of handles or shafts or gripping surfaces thereof for manipulating guide wires}
A61M 2025/09125	<ul style="list-style-type: none"> • • • {Device for locking a guide wire in a fixed position with respect to the catheter or the human body}
A61M 2025/09133	<ul style="list-style-type: none"> • • • {having specific material compositions or coatings; Materials with specific mechanical behaviours, e.g. stiffness, strength to transmit torque}
A61M 2025/09141	<ul style="list-style-type: none"> • • • • {made of shape memory alloys which take a particular shape at a certain temperature}
A61M 2025/0915	<ul style="list-style-type: none"> • • • {having features for changing the stiffness}
A61M 2025/09158	<ul style="list-style-type: none"> • • • • {when heated}
A61M 2025/09166	<ul style="list-style-type: none"> • • • {having radio-opaque features}
A61M 2025/09175	<ul style="list-style-type: none"> • • • {having specific characteristics at the distal tip}

- A61M 2025/09183 . . . {having tools at the distal tip}
- A61M 2025/09191 . . . {made of twisted wires}
- U A61M 25/10 . . . Balloon catheters({ [A61M 25/0125](#) takes precedence; embolectomy [A61B 17/22032](#) ; retractors [A61B 17/02](#) } ; inflatable balloons for placing stents or stent-grafts [A61F 2/958](#) ; { stomach balloons for treatment of obesity [A61F 5/0003](#) ; oesophageal tubes [A61J 15/00](#) })
- U A61M 25/1002 . . . {characterised by balloon shape([A61M 25/1006](#) , [A61M 25/1009](#) take precedence)}
- A61M 2025/1004 . . . {Balloons with folds, e.g. folded or multifolded}
- U A61M 25/1011 . . . {Multiple balloon catheters}
- A61M 2025/1013 . . . {with concentrically mounted balloons, e.g. being independently inflatable}
- A61M 2025/1015 . . . {having two or more independently movable balloons where the distance between the balloons can be adjusted, e.g. two balloon catheters concentric to each other forming an adjustable multiple balloon catheter system}
- U A61M 25/1018 . . . {Balloon inflating or inflation-control devices}

WARNINGS

Groups [A61M 25/10181](#) - [A61M 25/10188](#) are incomplete pending reclassification of documents from group [A61M 25/1018](#). Until reclassification is complete, groups [A61M 25/1018](#) and [A61M 25/10181](#) - [A61M 25/10188](#) should be considered in order to perform a complete search.

- A61M 2025/102 . . . {driven by a solenoid-activated pump}
- A61M 2025/1022 . . . {driven by a rotary motor-activated pump}
- U A61M 25/1027 . . . {Making of balloon catheters}
- U A61M 25/1029 . . . {Production methods of the balloon members, e.g. blow-moulding, extruding, deposition or by wrapping a plurality of layers of balloon material around a mandril}
- A61M 2025/1031 . . . {Surface processing of balloon members, e.g. coating or deposition; Mounting additional parts onto the balloon member's surface}
- A61M 2025/1043 . . . {with special features or adapted for special applications(not used)}
- A61M 2025/1045 . . . {for treating bifurcations, e.g. balloons in y-configuration, separate balloons or special features of the catheter for treating bifurcations}
- A61M 2025/1047 . . . {having centering means, e.g. balloons having an appropriate shape}

NOTES

This group also covers other centering means and is not limited to balloons

- A61M 2025/105 . . . {having a balloon suitable for drug delivery, e.g. by using holes for delivery, drug coating or membranes}
- A61M 2025/1052 . . . {for temporarily occluding a vessel for isolating a sector}
- A61M 2025/1054 . . . {having detachable or disposable balloons}
- A61M 2025/1056 . . . {having guide wire lumens outside the main shaft, i.e. the guide wire lumen is within or on the surface of the balloon}
- A61M 2025/1059 . . . {having different inflatable sections mainly depending on the response to the inflation pressure, e.g. due to different material properties(with different compartments [A61M 2025/1072](#))}
- A61M 2025/1061 . . . {having separate inflations tubes, e.g. coaxial tubes or tubes otherwise arranged apart from the catheter tube}
- A61M 2025/1063 . . . {having only one lumen used for guide wire and inflation, e.g. to minimise the diameter}

A61M 2025/1065	<ul style="list-style-type: none"> • • {having a balloon which is inversely attached to the shaft at the distal or proximal end}
A61M 2025/1068	<ul style="list-style-type: none"> • • {having means for varying the length or diameter of the deployed balloon, this variations could be caused by excess pressure}
A61M 2025/107	<ul style="list-style-type: none"> • • {having a longitudinal slit in the balloon}
A61M 2025/1072	<ul style="list-style-type: none"> • • {having balloons with two or more compartments}
A61M 2025/1075	<ul style="list-style-type: none"> • • {having a balloon composed of several layers, e.g. by coating or embedding}
A61M 2025/1077	<ul style="list-style-type: none"> • • {having a system for expelling the air out of the balloon before inflation and use}
A61M 2025/1079	<ul style="list-style-type: none"> • • {having radio-opaque markers in the region of the balloon}
A61M 2025/1081	<ul style="list-style-type: none"> • • {having sheaths or the like for covering the balloon but not forming a permanent part of the balloon, e.g. retractable, dissolvable or tearable sheaths(for balloon length adjustment A61M 2025/1068)}
A61M 2025/1084	<ul style="list-style-type: none"> • • {having features for increasing the shape stability, the reproducibility or for limiting expansion, e.g. containments, wrapped around fibres, yarns or strands}
A61M 2025/1086	<ul style="list-style-type: none"> • • {having a special balloon surface topography, e.g. pores, protuberances, spikes or grooves}
A61M 2025/1088	<ul style="list-style-type: none"> • • {having special surface characteristics depending on material properties or added substances, e.g. for reducing friction}
A61M 2025/109	<ul style="list-style-type: none"> • • {having balloons for removing solid matters, e.g. by grasping or scraping plaque, thrombus or other matters that obstruct the flow}
A61M 2025/1093	<ul style="list-style-type: none"> • • {having particular tip characteristics}
A61M 2025/1095	<ul style="list-style-type: none"> • • {with perfusion means for enabling blood circulation while the balloon is in an inflated state or in a deflated state, e.g. permanent by-pass within catheter shaft}
A61M 2025/1097	<ul style="list-style-type: none"> • • {with perfusion means for enabling blood circulation only while the balloon is in an inflated state, e.g. temporary by-pass within balloon}
U A61M 27/00	Drainage appliances for wounds or the like,(i.e. wound drains, implanted drains){ implements for holding wounds open A61B 17/02 ; { middle ear drainage A61F 11/002 ; other drainage devices A61M 1/00)}
U A61M 27/002	<ul style="list-style-type: none"> • {Implant devices for drainage of body fluids from one part of the body to another(intraocular A61F 9/00781 ; middle ear A61F 11/002)}
A61M 2027/004	<ul style="list-style-type: none"> • • {with at least a part of the circuit outside the body}
U A61M 29/00	Dilators with or without means for introducing media, e.g. remedies(instruments for performing visual medical inspections of cavities or tubes of the body A61B 1/00)
U A61M 29/02	<ul style="list-style-type: none"> • Dilators made of swellable material{(balloon catheters for angioplasty A61M 25/104)}
A61M 2029/025	<ul style="list-style-type: none"> • • {characterised by the guiding element}
U A61M 37/00	Other apparatus for introducing media into the body(for reproduction or fertilisation A61B 17/425 ; apparatus for iontophoresis or cataphoresis A61N 1/30); Percutany, i.e. introducing medicines into the body by diffusion through the skin(salt baths A61H 33/04)
A61M 2037/0007	<ul style="list-style-type: none"> • {having means for enhancing the permeation of substances through the epidermis, e.g. using suction or depression, electric or magnetic fields, sound waves or chemical agents}
U A61M 37/0015	<ul style="list-style-type: none"> • {by using microneedles}

- A61M 2037/0023 • • {Drug applicators using microneedles}
- A61M 2037/003 • • {having a lumen}
- A61M 2037/0038 • • {having a channel at the side surface}
- A61M 2037/0046 • • {Solid microneedles}
- A61M 2037/0053 • • {Methods for producing microneedles}
- A61M 2037/0061 • • {Methods for using microneedles}

U A61M 39/00

Tubes, tube connectors, tube couplings, valves, access sites or the like, specially adapted for medical use(for respiratory devices, e.g. tracheal tubes [A61M 16/00](#) ; artificial heart valves [A61F 2/24](#))

WARNING

Not complete, see [A61J 1/14](#)

- A61M 2039/0009 • {Assemblies therefor designed for particular applications, e.g. contrast or saline injection, suction or irrigation}
- A61M 2039/0018 • • {designed for flushing a line, e.g. by a by-pass}
- A61M 2039/0027 • • {for mixing several substances from different containers}
- A61M 2039/0036 • {characterised by a septum having particular features, e.g. having venting channels or being made from antimicrobial or self-lubricating elastomer}
- A61M 2039/0045 • • {Radiopaque indicia}
- A61M 2039/0054 • • {Multiple layers}
- A61M 2039/0063 • • {Means for alignment of the septum, e.g. septum rim with alignment holes}
- A61M 2039/0072 • • {Means for increasing tightness of the septum, e.g. compression rings, special materials, special constructions}
- A61M 2039/0081 • • {Means for facilitating introduction of a needle in the septum, e.g. guides, special construction of septum}
- A61M 2039/009 • • {Means for limiting access to the septum, e.g. shields, grids}
- U A61M 39/02 • Access sites
- A61M 2039/0202 • • {for taking samples}
- A61M 2039/0205 • • {for injecting media}
- U A61M 39/0208 • • {Subcutaneous access sites for injecting or removing fluids(transcutaneous access sites **A61M1/00S** ; implantable infusion devices [A61M 5/14276](#))}
- A61M 2039/0211 • • • {with multiple chambers in a single site}
- A61M 2039/0214 • • • • {some or all chambers sharing a single septum}
- A61M 2039/0217 • • • • • {at least some chambers being stacked separated by another septum}
- A61M 2039/022 • • • {being accessible from all sides, e.g. due to a cylindrically-shaped septum}
- A61M 2039/0223 • • • {having means for anchoring the subcutaneous access site}
- A61M 2039/0226 • • • {having means for protecting the interior of the access site from damage due to the insertion of a needle}
- A61M 2039/0229 • • • {having means for facilitating assembling, e.g. snap-fit housing or modular design}
- A61M 2039/0232 • • • {having means for facilitating the insertion into the body}
- A61M 2039/0235 • • • {having an additional inlet, e.g. for a guidewire or a catheter tube}
- A61M 2039/0238 • • • {having means for locating the implanted device to insure proper injection, e.g. radio-emitter, protuberances, radio-opaque markers}
- A61M 2039/0241 • • • {having means for filtering}
- A61M 2039/0244 • • • {having means for detecting an inserted needle}

- U A61M 39/0247
 - {Semi-permanent or permanent transcutaneous or percutaneous access sites to the inside of the body(peritoneal dialysis catheters [A61M 1/285](#) ; tracheostomy devices [A61M 16/0465](#) ; measuring pressure within the body [A61B 5/03](#) ; colostomy devices [A61F 5/445](#) ; gastrotomy feeding tubes [A61J 15/0015](#) ; means for fixing a feeding tube outside of the body [A61J 15/0053](#))}
- A61M 2039/025
 - • • {through bones or teeth, e.g. through the skull}
- A61M 2039/0252
 - • • {for access to the lungs}
- A61M 2039/0255
 - • • {for access to the gastric or digestive system}
- A61M 2039/0258
 - • • {for vascular access, e.g. blood stream access}
- A61M 2039/0261
 - • • {Means for anchoring port to the body, or ports having a special shape or being made of a specific material to allow easy implantation/integration in the body}
- A61M 2039/0264
 - • • {with multiple inlets or multiple outlets}
- A61M 2039/0267
 - • • {comprising sensors or electrical contacts}
- A61M 2039/027
 - • • {having a particular valve, seal or septum(septum [A61M 2039/0036](#))}
- A61M 2039/0273
 - • • {for introducing catheters into the body}
- A61M 2039/0276
 - • • {for introducing or removing fluids into or out of the body}
- A61M 2039/0279
 - • • {for introducing medical instruments into the body, e.g. endoscope, surgical tools}
- A61M 2039/0282
 - • • {with implanted tubes connected to the port}
- A61M 2039/0285
 - • • {with sterilisation means, e.g. antibacterial coatings, disinfecting pads, UV radiation LEDs or heating means in the port}
- A61M 2039/0288
 - • • {protectors, caps or covers therefor}
- A61M 2039/0291
 - • • {method or device for implanting it in the body}
- A61M 2039/0294
 - • • {having a specific shape matching the shape of a tool to be inserted therein, e.g. for easy introduction, for sealing purposes, guide}
- A61M 2039/0297
 - • • {at least part of it being inflatable, e.g. for anchoring, sealing or removing}
- U A61M 39/04
 - • having pierceable self-sealing members
- A61M 2039/042
 - • • {Shrouds encircling the access needle preventing accidental needle-stick}
- A61M 2039/047
 - • • {the self-sealing member being a viscous fluid}
- U A61M 39/06
 - • Haemostasis valves, i.e. gaskets sealing around a needle, catheter or the like, closing on removal thereof
- A61M 2039/062
 - • • {used with a catheter}
- A61M 2039/0626
 - • • {used with other surgical instruments, e.g. endoscope, trocar}
- A61M 2039/0633
 - • • {the seal being a passive seal made of a resilient material with or without an opening}
- A61M 2039/064
 - • • • {Slit-valve}
- A61M 2039/0646
 - • • • {Duckbill-valve}
- A61M 2039/0653
 - • • • {Perforated disc}
- A61M 2039/066
 - • • • {Septum-like element}
- A61M 2039/0666
 - • • • {Flap-valve}
- A61M 2039/0673
 - • • {comprising means actively pressing on the device passing through the seal, e.g. inflatable seals, diaphragms, clamps}
- A61M 2039/068
 - • • {having a seal being made of or coated with a special material}
- A61M 2039/0686
 - • • {comprising more than one seal}
- U A61M 39/08
 - Tubes; Storage means specially adapted therefor

	A61M 2039/082	• • {Multi-lumen tubes}
	A61M 2039/085	• • {external enteral feeding tubes(feeding tubes inside the stomach or intestines A61J 15/00)}
	A61M 2039/087	• • {Tools for handling tubes, e.g. crimping tool for connecting tubes to a connector}
U	A61M 39/10	• Tube connectors; Tube couplings{(A61M 39/02 takes precedence; connecting needles to syringes or hubs A61M 5/34 ; connecting catheter tubes to hubs A61M 25/0014)}
	A61M 2039/1005	• • {Detection of disconnection}
	A61M 2039/1016	• • {Unlocking means providing a secure or comfortable disconnection}
	A61M 2039/1022	• • {additionally providing electrical connection}
	A61M 2039/1027	• • {Quick-acting type connectors}
	A61M 2039/1033	• • {Swivel nut connectors, e.g. threaded connectors, bayonet-connectors}
	A61M 2039/1038	• • {Union screw connectors, e.g. hollow screw or sleeve having external threads}
	A61M 2039/1044	• • {Verifying the connection, e.g. audible feedback, tactile feedback, visual feedback, using external light sources}
	A61M 2039/1061	• • {Break-apart tubing connectors or couplings}
	A61M 2039/1066	• • {having protection means, e.g. sliding sleeve to protect connector itself, shrouds to protect a needle present in the connector, protective housing, isolating sheath}
	A61M 2039/1072	• • {with a septum present in the connector}
	A61M 2039/1077	• • {Adapters, e.g. couplings adapting a connector to one or several other connectors}
	A61M 2039/1083	• • {having a plurality of female connectors, e.g. Luer connectors}
	A61M 2039/1088	• • {having a plurality of male connectors, e.g. Luer connectors}
	A61M 2039/1094	• • {at least partly incompatible with standard connectors, e.g. to prevent fatal mistakes in connection}
U	A61M 39/16	• • having provision for disinfection or sterilisation{(A61M 39/143 takes precedence; methods or apparatus for disinfection or sterilisation A61L 2/00)}
	A61M 2039/167	• • • {with energizing means, e.g. light, vibration, electricity}
U	A61M 39/20	• Closure caps or plugs for connectors or open ends of tubes
	A61M 2039/205	• • {comprising air venting means}
U	A61M 39/22	• Valves or arrangement of valves{(A61M 39/02 , A61M 39/0247 , A61M 39/16 take precedence; regulating valves in infusion systems A61M 5/16881 ; in devices worn by the patient for the reception of urine, faeces, catamenial or other discharge, or in colostomy devices A61F 5/4405)}
U	A61M 39/221	• • {Frangible or pierceable closures within tubing(A61M 39/14 takes precedence; frangible closures for containers A61J 1/14)}
	A61M 2039/222	• • • {frangible within tubing or bags}
U	A61M 39/223	• • {Multiway valves}
	A61M 2039/224	• • • {of the slide-valve type}
	A61M 2039/226	• • {Spindles or actuating means}
	A61M 2039/229	• • Stopcocks { Stopcocks }
U	A61M 39/24	• • Check- or non-return valves
	A61M 2039/2406	• • • {designed to quickly shut upon the presence of back-pressure}

A61M 2039/2413	<ul style="list-style-type: none"> • • • {designed to reduce and or shut-off the flow when a certain maximum flow limit is exceeded}
A61M 2039/242	<ul style="list-style-type: none"> • • • {designed to open when a predetermined pressure or flow rate has been reached, e.g. check valve actuated by fluid}
A61M 2039/2426	<ul style="list-style-type: none"> • • • {Slit valve}
A61M 2039/2433	<ul style="list-style-type: none"> • • • {Valve comprising a resilient or deformable element, e.g. flap valve, deformable disc}
A61M 2039/244	<ul style="list-style-type: none"> • • • • {Hinged closure member, e.g. flap valve}
A61M 2039/2446	<ul style="list-style-type: none"> • • • • {Flexible disc}
A61M 2039/2453	<ul style="list-style-type: none"> • • • • • {not being fixed to the valve body}
A61M 2039/246	<ul style="list-style-type: none"> • • • • • {being fixed along all or a part of its periphery}
A61M 2039/2466	<ul style="list-style-type: none"> • • • • • {being fixed in its center}
A61M 2039/2473	<ul style="list-style-type: none"> • • • {Valve comprising a non-deformable, movable element, e.g. ball-valve, valve with movable stopper or reciprocating element}
A61M 2039/248	<ul style="list-style-type: none"> • • • • {Ball-valve}
A61M 2039/2486	<ul style="list-style-type: none"> • • • • {Guided stem, e.g. reciprocating stopper}
A61M 2039/2493	<ul style="list-style-type: none"> • • • {Check valve with complex design, e.g. several inlets and outlets and several check valves in one body}
U A61M 39/26	<ul style="list-style-type: none"> • • Valves closing automatically on disconnecting the line and opening on reconnection thereof{(check valves A61M 39/24)}
A61M 2039/261	<ul style="list-style-type: none"> • • • {where the fluid space within the valve is increasing upon disconnection}
A61M 2039/262	<ul style="list-style-type: none"> • • • {having a fluid space within the valve remaining the same upon connection and disconnection, i.e. neutral-drawback valve}
A61M 2039/263	<ul style="list-style-type: none"> • • • {where the fluid space within the valve is decreasing upon disconnection}
A61M 2039/265	<ul style="list-style-type: none"> • • • {electrically operated, e.g. a male connector closing an electrical circuit upon connection to a female valve portion}
A61M 2039/266	<ul style="list-style-type: none"> • • • {where the valve comprises venting channels, e.g. to insure better connection, to help decreasing the fluid space upon disconnection, or to help the fluid space to remain the same during disconnection}
A61M 2039/267	<ul style="list-style-type: none"> • • • {having a sealing sleeve around a tubular or solid stem portion of the connector}
A61M 2039/268	<ul style="list-style-type: none"> • • • • {wherein the stem portion is moved for opening and closing the valve, e.g. by translation, rotation}
U A61M 39/28	<ul style="list-style-type: none"> • • Clamping means for squeezing flexible tubes, e.g. roller clamps{(tube strippers A61M 1/0078)}
U A61M 39/281	<ul style="list-style-type: none"> • • • {Automatic tube cut-off devices, e.g. squeezing tube on detection of air}
A61M 2039/282	<ul style="list-style-type: none"> • • • • {including severing of the tube}
A61M 2202/00	Special media to be introduced, removed or treated(applying radioactive material A61M 36/00A61M36/00)
	<u>NOTE</u>
	The classification symbols A61M 2202/0007 to A61M 2202/0092 are not listed first when assigned to patent documents. They are used only when associated to other subgroups of A61M 2202/00 in combination sets
	Example: A61M 2202/0417 , A61M 2202/0057
A61M 2202/02	<ul style="list-style-type: none"> • Gases(smoke evacuating A61B 2218/0008A61B2218/0008)

Project: N/A (A61N)

- U A61N 1/00 Electrotherapy; Circuits therefor ([A61N 2/00](#) takes precedence; irradiation apparatus [A61N 5/00](#))**
- U A61N 1/02
 - Details
 - U A61N 1/04
 - • Electrodes {(electrosurgical electrodes [A61B 18/14](#))}
 - U A61N 1/05
 - • • for implantation or insertion into the body, e.g. heart electrode ([A61N 1/06](#) takes precedence)
 - U A61N 1/056
 - • • • {Transvascular endocardial electrode systems}
 - U A61N 1/057
 - • • • • {Anchoring means; Means for fixing the head inside the heart}
 - A61N 2001/0578
 - • • • • • {having means for removal or extraction }
 - A61N 2001/058
 - • • • • • {Fixing tools }
 - A61N 2001/0582
 - • • • • • {Suture sleeves }
 - A61N 2001/0585
 - • • • • • {Coronary sinus electrodes }
 - U A61N 1/08
 - • Arrangements or circuits for monitoring, protecting, controlling or indicating {(for heart stimulators [A61N 1/37](#); for defibrillators [A61N 1/3925](#); measuring electric variables [G01R](#); control of generator output in general [H02P](#), [H03L](#))}
 - A61N 2001/083
 - • • {Monitoring integrity of contacts, e.g. be impedance measurement }
 - A61N 2001/086
 - • • {MRI compatible leads }
 - U A61N 1/18
 - Applying electric currents by contact electrodes
 - U A61N 1/32
 - • alternating or intermittent currents {(applying electric fields by inductive or capacitive coupling [A61N 1/40](#); microwave apparatus [A61N 5/02](#))}
 - A61N 2001/34
 - • • {for producing anaesthesia or for general pain therapy }
 - U A61N 1/36
 - • • for stimulation, e.g. heart pace-makers
 - A61N 2001/36039
 - • • • {for treating a mental or cerebral condition }
 - U A61N 1/372
 - • • • Arrangements in connection with the implantation of stimulators
 - A61N 2001/37294
 - • • • • {Means for testing medical devices within the package prior to implantation }
 - U A61N 5/00 Radiation therapy (ultrasound therapy [A61N 7/00](#); devices or apparatus applicable to both therapy and diagnosis [A61B 6/00](#))**
 - A61N 2005/002
 - {Cooling systems }
 - A61N 2005/005
 - • {for cooling the radiator }
 - A61N 2005/007
 - • {for cooling the patient }
 - U A61N 5/02
 - using microwaves
 - A61N 2005/027
 - • {using a phased array}
 - U A61N 5/06
 - using light
 - U A61N 5/0601
 - • {Apparatus for use inside the body (illuminating body cavities [A61B 1/06](#); diagnosis by radiation applied to body cavities [A61B 6/4057](#), [A61B 6/145](#); devices for heating or cooling body cavities [A61F 7/12](#); X-ray tubes having a small cross-section to facilitate introduction into small cavities [H01J 35/32](#))}
 - A61N 2005/0602
 - • • {for treatment of blood vessels}
 - U A61N 5/0603
 - • • { for treatment of body cavities}
 - A61N 2005/0604
 - • • • {Lungs and/or airways}
 - A61N 2005/0605
 - • • • Ear{Ear}
 - A61N 2005/0606
 - • • • Mouth{Mouth}
 - A61N 2005/0607
 - • • • Nose{Nose}
 - A61N 2005/0608
 - • • • Rectum{Rectum}

	A61N 2005/0609	. . . {Stomach and/or esophagus}
	A61N 2005/061	. . . {Bladder and/or urethra}
	A61N 2005/0611	. . . Vagina {Vagina}
	A61N 2005/0612	. . {using probes penetrating tissue; interstitial probes}
U	A61N 5/0613	. {Apparatus adapted for a specific treatment}
U	A61N 5/0614	. . {Tanning}
	A61N 2005/0615	. . . {using UV light sources having a specific spectrum}
	A61N 2005/0626	. {Monitoring, verifying, controlling systems and methods }
	A61N 2005/0627	. . {Dose monitoring systems and methods}
	A61N 2005/0628	. . . {including a radiation sensor}
	A61N 2005/0629	. . {Sequential activation of light sources}
	A61N 2005/063	. {comprising light transmitting means, e.g. optical fibres }
	A61N 2005/0631	. . {using crystals}
	A61N 2005/0632	. {Constructional aspects of the apparatus}
	A61N 2005/0633	. . {Arrangements for lifting or hinging the frame which supports the light sources}
	A61N 2005/0634	. . {Mechanisms that allow a space saving storage of the apparatus}
	A61N 2005/0635	. {characterised by the body area to be irradiated }
	A61N 2005/0636	. . {Irradiating the whole body }
	A61N 2005/0637	. . . {in a horizontal position }
	A61N 2005/0638	. . . . {with a specially adapted support surface }
	A61N 2005/0639	. . . . {with additional sources directed at e.g. the face or the feet}
	A61N 2005/064	. . . {in a vertical position }
	A61N 2005/0641	. . . . {with rotation of the patient}
	A61N 2005/0642	. . {Irradiating part of the body at a certain distance }
	A61N 2005/0643	. . {Applicators, probes irradiating specific body areas in close proximity }
	A61N 2005/0644	. . . {Handheld applicators }
	A61N 2005/0645	. . . {Applicators worn by the patient }
	A61N 2005/0647	. . . . {the applicator adapted to be worn on the head }
	A61N 2005/0648	. . . . . {the light being directed to the eyes }
	A61N 2005/0649	. . . {using suction to fix the applicator to the tissue}
	A61N 2005/065	. {Light sources therefor }
	A61N 2005/0651	. . Diodes {Diodes}
	A61N 2005/0652	. . . {Arrays of diodes }
	A61N 2005/0653	. . . {Organic light emitting diodes }
	A61N 2005/0654	. . Lamps {Lamps}
	A61N 2005/0655	. . Tubes {Tubes}
	A61N 2005/0656	. . {Chemical light sources }
	A61N 2005/0657	. . {Natural light sources, e.g. captured sunlight }
	A61N 2005/0658	. {characterised by the wavelength of light used }
	A61N 2005/0659	. . {infra-red }
	A61N 2005/066	. . . {far infrared }
	A61N 2005/0661	. . {ultra-violet }
	A61N 2005/0662	. . {Visible light }

A61N 2005/0663	. . . {Coloured light }
A61N 2005/0664	. . Details {Details }
A61N 2005/0665	. . . Reflectors {Reflectors }
A61N 2005/0666	. . . {for redirecting light to the treatment area }
A61N 2005/0667	. . . Filters {Filters }
A61N 2005/0668	. . . {Apparatus adapted for operation in a moist environment, e.g. bath or shower }
A61N 2005/067	. . {using laser light }
A61N 2005/073	. . {using polarised light }
U A61N 5/10	. X-ray therapy; Gamma-ray therapy; Particle-irradiation therapy (A61N 5/01 takes precedence; {radiation diagnosis, e.g. combined with radiation therapy A61B 6/00 ; irradiation devices in general G21K 1/00 ; X-ray tubes, Lenard tubes H01J 35/00 ; X-ray techniques, in particular circuits for feeding or controlling X-ray tubes, H05G })
U A61N 5/1001	. . { using radiation sources introduced into or applied onto the body; brachytherapy }
U A61N 5/1002	. . . {Intraluminal radiation therapy (intraluminal catheters in general A61M 25/00) }
A61N 2005/1003	. . . . {having means for centering a radioactive source within the lumen, e.g. balloons }
A61N 2005/1004	. . . . {having expandable radiation sources }
A61N 2005/1005	. . . . {with asymmetrical radiation pattern }
U A61N 5/1007	. . . { Arrangements or means for the introduction of sources into the body (needle guides in general A61B 17/3403 ; apparatus for implanting surgical devices A61B 17/3468 ; devices for implanting seeds or pellets in general A61M 37/0069) }
A61N 2005/1008	. . . . {Apparatus for temporary insertion of sources, e.g. afterloaders }
A61N 2005/1009	. . . . {Apparatus for loading seeds into magazines or needles }
A61N 2005/101	. . . . {Magazines or cartridges for seeds }
A61N 2005/1011	. . . . {Apparatus for permanent insertion of sources }
A61N 2005/1012	. . . . {Templates or grids for guiding the introduction of sources }
U A61N 5/1014	. . . {Intracavitary radiation therapy }
A61N 2005/1018	. . . . {with multiple channels for guiding radioactive sources }
A61N 2005/1019	. . . {Sources therefor }
A61N 2005/1021	. . . . {Radioactive fluid }
A61N 2005/1022	. . . . {Generators, e.g. X-ray tubes }
A61N 2005/1023	. . . . {Means for creating a row of seeds, e.g. spacers }
A61N 2005/1024	. . . . Seeds {Seeds }
A61N 2005/1025	. . . . Wires {Wires }
U A61N 5/103	. . {Treatment planning systems }
U A61N 5/1031	. . . { using a specific method of dose optimization }
A61N 2005/1032	. . . . {Genetic optimization methods }
A61N 2005/1034	. . . . {Monte Carlo type methods; particle tracking }
A61N 2005/1035	. . . . {Simulated annealing }
A61N 2005/1041	. . . {using a library of previously administered radiation treatment applied to other patients }
U A61N 5/1048	. . { Monitoring, verifying, controlling systems and methods }

- U A61N 5/1049
 - • • { for verifying the position of the patient with respect to the radiation beam }
 - A61N 2005/105
 - • • • { using a laser alignment system }
 - A61N 2005/1051
 - • • • { using an active marker (markers in general [A61B 19/54](#)) }
 - A61N 2005/1052
 - • • • { using positron emission tomography (PET) single photon emission computer tomography (SPECT) imaging }
 - A61N 2005/1054
 - • • • { using a portal imaging system }
 - A61N 2005/1055
 - • • • { using magnetic resonance imaging (MRI) }
 - A61N 2005/1056
 - • • • { by projecting a visible image of the treatment field }
 - A61N 2005/1057
 - • • • { monitoring flexing of the patient support or the radiation treatment apparatus }
 - A61N 2005/1058
 - • • • { using ultrasound imaging }
 - A61N 2005/1059
 - • • • { using cameras imaging the patient }
 - A61N 2005/1061
 - • • • { using an x-ray imaging system having a separate imaging source }
 - A61N 2005/1062
 - • • • • { using virtual X-ray images, e.g. digitally reconstructed radiographs (DRR) }
 - A61N 2005/1063
 - • • • { maintaining the position when the patient is moved from an imaging to a therapy system }
- U A61N 5/1064
 - • • { for adjusting radiation treatment in response to monitoring }
- A61N 5/1068
 - • • • { Gating the beam as a function of a physiological signal (~~Gating in diagnostic systems A61B6/00F~~) }
- U A61N 5/1071
 - • • { for verifying the dose delivered by the treatment plan }
- A61N 2005/1072
 - • • • { taking into account movement of the target }
- A61N 2005/1074
 - • • { Details of the control system, e.g. user interfaces }
- U A61N 5/1075
 - • • { for testing, calibrating, or quality assurance of the radiation treatment apparatus }
 - A61N 2005/1076
 - • • • { using a dummy object placed in the radiation field, e.g. phantom }
 - A61N 2005/1085
 - • { characterised by the type of particles applied to the patient }
 - A61N 2005/1087
 - • • { Ions; Protons }
 - A61N 2005/1088
 - • • • { generated by laser radiation }
 - A61N 2005/1089
 - • • ~~Electrons~~ { [Electrons](#) }
 - A61N 2005/109
 - • • ~~Neutrons~~ { [Neutrons](#) }
 - A61N 2005/1091
 - • • { Kilovoltage or orthovoltage range photons }
 - A61N 2005/1092
 - • ~~Details~~ { [Details](#) }
 - A61N 2005/1094
 - • • { Shielding, protecting against radiation }
 - A61N 2005/1095
 - • • { Elements inserted into the radiation path within the system, e.g. filters or wedges }
 - A61N 2005/1096
 - • • { Elements inserted into the radiation path placed on the patient, e.g. bags, bolus, compensators }
 - A61N 2005/1097
 - • • { Means for immobilizing the patient }
 - A61N 2005/1098
 - • • { Enhancing the effect of the particle by an injected agent or implanted device }
- U A61N 7/00
 - Ultrasound therapy (lithotripsy [A61B 17/22](#), [A61B 17/225](#); massage using supersonic vibration [A61H 23/00](#); { using ultrasound for introducing media into the body [A61M 37/0092](#)})**
 - A61N 2007/0004
 - { Applications of ultrasound therapy }
 - A61N 2007/0008
 - • { Destruction of fat cells }
 - A61N 2007/0013
 - • { Fracture healing }

- A61N 2007/0017
 - A61N 2007/0021
 - A61N 2007/0026
 - A61N 2007/003
 - A61N 2007/0034
 - A61N 2007/0039
 - A61N 2007/0043
 - A61N 2007/0047
 - A61N 2007/0052
 - A61N 2007/0056
 - A61N 2007/006
 - A61N 2007/0065
 - A61N 2007/0069
 - A61N 2007/0073
 - A61N 2007/0078
 - A61N 2007/0082
 - A61N 2007/0086
 - A61N 2007/0091
 - A61N 2007/0095
 - U A61N 7/02
 - A61N 2007/025
 - A61N 2007/027
- • {Wound healing }
 - • {Neural system treatment}
 - • • {Stimulation of nerve tissue}
 - • • {Destruction of nerve tissue}
 - • {Skin treatment}
 - {using micro bubbles }
 - {intra-cavitary }
 - ~~interstitial~~ {~~interstitial~~ }
 - {using the same transducer for therapy and imaging}
 - {Beam shaping elements }
 - • ~~Lenses~~ {~~Lenses~~}
 - • {Concave transducers}
 - • ~~Reflectors~~ {~~Reflectors~~}
 - {using multiple frequencies }
 - {with multiple treatment transducers }
 - {Scanning transducers }
 - {Beam steering}
 - • {with moving parts, e.g. transducers, lenses, reflectors}
 - • {by modifying an excitation signal}
 - Localised ultrasound hyperthermia {(hyperthermia in general [A61F 7/00](#))}
 - • ~~interstitial~~ {~~interstitial~~ }
 - • {with multiple foci created simultaneously}

Project: N/A (A61Q)

- U A61Q 5/00
 - U A61Q 5/06
 - A61Q 5/065
- Preparations for care of the hair**
- Preparations for styling the hair, e.g. by temporary shaping or colouring
 - • {~~Preparations for temporary colouring the hair, e.g. direct dyes~~}

Project: N/A (A62B)

- U A62B 17/00
 - A62B 17/08
 - U A62B 18/00
 - U A62B 18/02
 - A62B 18/025
- Protective clothing affording protection against heat or harmful chemical agents or for use at high altitudes (protective clothing for work or sport [A41D 13/00](#), {e.g. overalls [A41D 13/02](#), surgical gowns [A41D 13/12](#); materials for protecting clothing [A41D 31/0011](#)}; protecting eyes or ears [A61F 9/00](#); composition of materials for protective clothing [A62D 5/00](#); life-saving garments for use at sea [B63C](#); diving suits [B63C 11/02](#); flying suits, {anti-g suits} [B64D 10/00](#); space suits [B64G 6/00](#); bullet-proof clothing [F41H 1/02](#))**
- Protective coverings for animals {(protective covers when working ~~B68C 5/00~~ [B68C 5/00](#))}
- Breathing masks or helmets, e.g. affording protection against chemical agents or for use at high altitudes {or incorporating a pump or compressor for reducing the inhalation effort}([A62B 17/00](#) takes precedence; anaesthetic masks [A61M 16/06](#))**
- Masks (gas-masks for animals [A62B 18/06](#); masks for welders [A61F 9/06](#))
 - • {Halfmasks ([A62B 23/02](#) takes precedence; surgical face masks ~~[A41D13/00F](#)~~ [A41D 13/11](#))}

Project: N/A (A62C)**U A62C 37/00****Control of fire-fighting equipment(heat-sensitive devices [G01K](#))****WARNING**

Groups [A62C 37/04](#) and [A62C 37/28](#) are no longer used for the classification of new documents. Documents of these groups will be systematically transferred to groups [A62C 37/36](#) to [A62C 37/48](#)

A62C 37/36

- an actuating signal being generated by a sensor separate from an outlet device

WARNING

Groups ~~A62C 37/36 to A62C 37/48~~ are not complete. See also ~~A62C37/02 to A62C 37/04~~ and ~~A62C37/26 to A62C37/34~~

Project: N/A (A62D)**A62D 2101/00**

Harmfull chemical substances made harmless, or less harmful, by effecting chemical change Notes (1) The indexing codes of group [A62D 2101/00](#) are to be used for identifying the origin or chemical nature of the harmful chemical substances which are made harmless or less harmful by processes already classified as such in groups [A62D 3/02](#) to ~~A63D3/40~~ [A62D 3/40](#) (2) When indexing a substance in groups [A62D 2101/02](#) to [A62D 2101/08](#), indexing according to its chemical structure is also made in one or more of groups [A62D 2101/20](#) to [A62D 2101/40](#), if of interest

Project: N/A (A63B)**U A63B 5/00****Apparatus for jumping(mats for jumping [A63B 6/00](#) ; for racing or riding sports, e.g. hurdles [A63K](#))****U A63B 5/08**

- Spring-boards(of trampoline type [A63B 5/11](#) ; { in the form of spring mats [A63B 6/00](#) })

A63B 2005/085

- • {for launching, e.g. catapulting}

U A63B 5/16

- Training devices for jumping; Devices for balloon-jumping; Jumping aids{([A63B 25/02](#) , [A63B 25/10](#) take precedence)}

A63B 2005/163

- • {Free-fall jumping on elastic cords, e.g. Bungee jumping}

U A63B 9/00**Climbing poles, frames, or stages{(climbing walls for mountaineering training [A63B 69/0048](#) ; endless loop ladders [A63B 22/04](#))}****WARNING**

Documents are being reclassified to [A63B 21/072](#) ; [A63B 21/0728](#) is complete

A63B 2009/002

- {Flat climbing nets}

A63B 2009/004

- {Three-dimensional rope or cable networks}

A63B 2009/006

- {Playground structures}

A63B 2009/008

- • {with water spraying means}

U A63B 21/00

Exercising apparatus for developing or strengthening the muscles or joints of the body by working against a counterforce, with or without measuring devices(electric or electronic controls therefor [A63B 24/00](#) ; measuring muscular strength [A61B 5/22](#))

U A63B 21/00079

- {details of the interface with the user related to strength training}

WARNING

not complete, pending the completion of a reclassification

- U A63B 21/00112
 - • {movement of the interface}
 - WARNING
not complete, pending the completion of a reclassification
- A63B 21/00116
 - • • { free movement, unrestricted apart from by the resistance; [A63B 21/072](#) t.p.; ~~A63B 21/32~~ [A63B 21/00043](#) t.p }
 - WARNING
not complete, pending the completion of a reclassification
- U A63B 21/002
 - isometric or isokinetic, i.e. substantial force variation without substantial muscle motion{or wherein the speed of the motion is independent of the force applied by the user}
- A63B 2021/0026
 - • {isokinetic exercising, i.e. the speed or the maximum speed being independent of the force applied by the user}
- U A63B 21/005
 - using electromagnetic or electric force-resisters
- U A63B 21/0053
 - • {using an alternator or a dynamo}
- A63B 2021/0054
 - • • {for charging a battery}
- A63B 2021/0055
 - • • {the produced electric power used as a source for other equipment, e.g. T.V.}
- U A63B 21/0058
 - • {using a motor}
- A63B 2021/0059
 - • • {using a frequency controlled AC motor}
- U A63B 21/008
 - using hydraulic or pneumatic force-resisters{not used, see subgroups}
- U A63B 21/0081
 - • {using hydraulic force-resisters}
- A63B 2021/0082
 - • • {using electrorheological or magnetic-rheological fluids}
- U A63B 21/0085
 - • {using pneumatic force-resisters}
- A63B 2021/0086
 - • • {Suction cups}
- U A63B 21/02
 - using resilient force-resisters
- A63B 2021/021
 - • {Flip-flop, overcentre, toggle systems}
- A63B 2021/022
 - • {with different springs acting at different parts of the stroke}
- U A63B 21/06
 - User-manipulated weights
- U A63B 21/0611
 - • {to be launched or thrown along guiding means against gravity forces}
- A63B 2021/0612
 - • • {with adjustable inclination angle of the guiding means}
- A63B 2021/0614
 - • • {with substantially vertical guiding means([A63B 21/062](#) takes precedence)}
- U A63B 21/0615
 - • {the weight pivoting about a fixed horizontal fulcrum}
- A63B 2021/0616
 - • • {Weight pivot moment being adjustable}
- A63B 2021/0617
 - • • {Weight pivot moment changing as a function of the pivot angle}
- U A63B 21/062
 - • including guide for vertical array of weights
- A63B 2021/0623
 - • • {Weight linking or selecting means}
- A63B 2021/0626
 - • • {Weights being lifted by means other than flexible ones}
- A63B 21/072
 - • Dumb-bells, bar-bells or the like,{also other free movable weights, e.g. weight discs having an integral peripheral handle}
 - WARNING
not complete, see also ~~A63B 11/00~~, ~~A63B 13/00~~, ~~A63B 15/00~~
- A63B 2021/0722
 - • • {transformable, e.g. from dumb-bell to bar-bell or club}
- U A63B 21/078
 - • Devices for bench press exercises,{Supports, guiding means, drop-limiting means for bar-bells, combined or not combined with benches}

- A63B 2021/0783
 - • • {Safety or other features related to bar-bells}
- A63B 2021/0786
 - • • • {drop-limiting means}
- U A63B 21/16
 - Supports for anchoring force-resisters
- A63B 2021/1609
 - • {on a chair}
- A63B 2021/1672
 - • {on beds, mattresses}
- A63B 2021/169
 - • {mounted on or against a wall}
- U A63B 21/22
 - Resisting devices with rotary bodies, {e.g. by overcoming gyroscopic forces([A63B 21/0608](#) takes precedence)}
- A63B 2021/222
 - • {by overcoming gyroscopic forces, e.g. by turning the spin axis}
- U **A63B 22/00**

Exercising apparatus specially adapted for conditioning the cardio-vascular system, for training agility or co-ordination of movements(force-resisting aspects [A63B 21/00](#) ; { for particular parts of the body, e.g. to strengthen particular limbs or muscles [A63B 23/00](#) ; } electric or electronic controls therefor [A63B 24/00](#))

NOTE

In this subclass, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups, which is considered to represent information of interest for search, may also be classified in each of those groups.
- U A63B 22/0002
 - {involving an exercising of arms(for strengthening the upper limbs [A63B 23/12](#))}
- A63B 2022/0005
 - • {with particular movement of the arms provided by handles moving otherwise than pivoting about a horizontal axis parallel to the body-symmetrical-plane}
- U A63B 22/0015
 - {with an adjustable movement path of the support elements}
- A63B 2022/0017
 - • {the adjustment being controlled by movement of the user, e.g. the applied force, the direction of rotation or the speed}
- A63B 2022/002
 - • • {electronically, e.g. by using a program}
- A63B 2022/0025
 - {Particular aspects relating to the orientation of movement paths of the limbs relative to the body; Relative relationship between the movements of the limbs}
- A63B 2022/0028
 - • {the movement path being non-parallel to the body-symmetrical-plane, e.g. support elements moving at an angle to the body-symmetrical-plane}
- A63B 2022/003
 - • • {the movement path being perpendicular to the body-symmetrical-plane}
- A63B 2022/0033
 - • {Lower limbs performing together the same movement, e.g. on a single support element}
- A63B 2022/0035
 - • {Upper limbs performing together the same movement, e.g. on a single support element}
- A63B 2022/0038
 - • {One foot moving independently from the other, i.e. there is no link between the movements of the feet}
- A63B 2022/0041
 - • {one hand moving independently from the other hand, i.e. there is no link between the movements of the hands}
- A63B 2022/0043
 - • {the movements of the limbs of one body half being synchronised, e.g. the left arm moving in the same direction as the left leg}
- A63B 22/0046
 - {Details of the support elements or their connection to the exercising apparatus, e.g. adjustment of size or orientation(attachments of resisters or weights to the body of the user [A63B21/12](#) [A63B 21/1403](#) ; using rollers, wheels, castors or gliding means to be moved over the floor or guide tracks [A63B 22/20](#))}
- U A63B 22/0048
 - {with cantilevered support elements pivoting about an axis([A63B 22/0076](#) takes precedence)}

	A63B 2022/0051	<ul style="list-style-type: none"> • {the support elements being supported at a substantial distance below their axis, e.g. the axis for the foot support elements are arranged at hip height}
	A63B 2022/0053	<ul style="list-style-type: none"> • {each support element being cantilevered by a parallelogram system}
U	A63B 22/0064	<ul style="list-style-type: none"> • {the pivoting movement being in a plane inclined with respect to the horizontal plane, e.g. a step and twist movement}
	A63B 2022/0066	<ul style="list-style-type: none"> • • {the movement of the support elements being downward-inward, i.e. the support elements are moving towards the body-symmetrical-plane}
U	A63B 22/0069	<ul style="list-style-type: none"> • • {about an axis inclined with respect to the horizontal plane, e.g. steppers with an inclined axis}
	A63B 2022/0071	<ul style="list-style-type: none"> • • • {the axis being located behind the user, e.g. for skate training}
	A63B 2022/0074	<ul style="list-style-type: none"> • • • {the axis being located in front of the user, e.g. for steppers with twist movement}
U	A63B 22/0076	<ul style="list-style-type: none"> • {Rowing machines(seats moving during exercise A63B 22/0087 ; training appliances for rowing or sculling on boats A63B 69/06)}
	A63B 2022/0079	<ul style="list-style-type: none"> • {with a pulling cable}
	A63B 2022/0082	<ul style="list-style-type: none"> • {with pivoting handlebars}
	A63B 2022/0084	<ul style="list-style-type: none"> • • {pivoting about a horizontal axis}
U	A63B 22/0087	<ul style="list-style-type: none"> • {with a seat or torso support moving during the exercise, e.g. reformers(A63B 22/0076 takes precedence)}
	A63B 22/0089	<ul style="list-style-type: none"> • {a counterforce being provided to the support(force-resisting aspects A23B21/00 force-resisting aspects A63B 21/00)}
	A63B 2022/0092	<ul style="list-style-type: none"> • {for training agility or co-ordination of movements}
	A63B 2022/0094	<ul style="list-style-type: none"> • {for active rehabilitation, e.g. slow motion devices}
	A63B 2022/0097	<ul style="list-style-type: none"> • {for avoiding blood stagnations, e.g. Deep Vein Thrombosis (DVT)}
U	A63B 22/02	<ul style="list-style-type: none"> • with movable endless bands{, e.g. treadmills (other training appliances for running on the spot A63B 69/0028)}
	A63B 2022/0207	<ul style="list-style-type: none"> • {having shock absorbing means}
	A63B 2022/0214	<ul style="list-style-type: none"> • • {between the belt supporting deck and the frame}
	A63B 2022/0221	<ul style="list-style-type: none"> • • {on the frame or sub-frame supporting the rollers}
	A63B 2022/0228	<ul style="list-style-type: none"> • • {with variable resilience}
U	A63B 22/0235	<ul style="list-style-type: none"> • {driven by a motor}
U	A63B 22/0242	<ul style="list-style-type: none"> • • {with speed variation}
	A63B 2022/025	<ul style="list-style-type: none"> • • • {electrically, e.g. with D.C. motors or eddy current machines}
	A63B 2022/0264	<ul style="list-style-type: none"> • • • hydraulically{hydraulically}
	A63B 2022/0271	<ul style="list-style-type: none"> • • • omnidirectional{omnidirectional}
	A63B 2022/0278	<ul style="list-style-type: none"> • • {with reversible direction of the running surface}
	A63B 2022/0292	<ul style="list-style-type: none"> • {with separate belts for each leg, e.g. dual deck}
U	A63B 22/06	<ul style="list-style-type: none"> • with{support elements performing a}rotating cycling movement,{i.e. a closed path movement}{ support stands for bicycles A63B 69/16 ; unicycles B62K 1/00)}
U	A63B 22/0605	<ul style="list-style-type: none"> • {performing a circular movement, e.g. ergometers}
	A63B 2022/0611	<ul style="list-style-type: none"> • • {Particular details or arrangement of cranks}
	A63B 2022/0617	<ul style="list-style-type: none"> • • • {with separate crank axis for each limb, e.g. being separately adjustable or non parallel}
	A63B 2022/0623	<ul style="list-style-type: none"> • • • {Crankes of adjustable length}
	A63B 2022/0629	<ul style="list-style-type: none"> • • • {each pedal being supported by two or more cranks}
	A63B 2022/0635	<ul style="list-style-type: none"> • • {specially adapted for a particular use}

	A63B 2022/0641	<ul style="list-style-type: none"> • • • {enabling a lateral movement of the exercising apparatus, e.g. for simulating movement on a bicycle}
	A63B 2022/0647	<ul style="list-style-type: none"> • • • {for cycling in a standing position, i.e. without a seat or support for the trunk}
	A63B 2022/0652	<ul style="list-style-type: none"> • • • {for cycling in a recumbent position}
	A63B 2022/0658	<ul style="list-style-type: none"> • • • {for cycling with a group of people, e.g. spinning classes}
U	A63B 22/0664	<ul style="list-style-type: none"> • {performing an elliptic movement}
	A63B 2022/067	<ul style="list-style-type: none"> • • • {with crank and handles being on opposite sides of the exercising apparatus with respect to the frontal body-plane of the user, e.g. the crank is behind and handles are in front of the user}
	A63B 2022/0676	<ul style="list-style-type: none"> • • • {with crank and handles being on the same side of the exercising apparatus with respect to the frontal body-plane of the user, e.g. crank and handles are in front of the user}
	A63B 2022/0682	<ul style="list-style-type: none"> • • • {with support elements being cantilevered, i.e. the elements being supported only on one side without bearing on tracks on the floor below the user}
	A63B 2022/0688	<ul style="list-style-type: none"> • • • {with cranks being substantially within the horizontal moving range of the support elements, e.g. by using planetary gearings}
U	A63B 22/18	<ul style="list-style-type: none"> • with elements,{i.e. platforms,}having a circulating,{nutating}or rotating movement, generated by oscillating movement of the user,{e.g. platforms wobbling on a centrally arranged spherical support}{ hoop exercising apparatus A63B 19/00 ; { eccentric weights put into orbital motion by nutating movement of the user A63B 21/0608 ; pots rotating or rocking by moving the whole body A63G 23/00 }}
	A63B 2022/185	<ul style="list-style-type: none"> • • {specially adapted for using with a single foot}
U	A63B 22/20	<ul style="list-style-type: none"> • using rollers, wheels, castors or the like,{e.g. gliding means,}to be moved over the floor or other surface,{e.g. guide tracks,}during exercising
U	A63B 22/201	<ul style="list-style-type: none"> • • {for moving a support element in reciprocating translation, e.g. for sliding back and forth on a guide track}
	A63B 2022/206	<ul style="list-style-type: none"> • • • {on a curved path}
U	A63B 23/00	<p>Exercising apparatus specially adapted for particular parts of the body(A63B 22/00 takes precedence; force-resisting aspects A63B 21/00 ; electric or electronic controls therefor A63B 24/00 ; devices for exercising or strengthening of fingers, or arms in teaching operation of keyboards G09B 15/06)</p>
	A63B 2023/003	<ul style="list-style-type: none"> • {by torsion of the body part around its longitudinal axis}
	A63B 2023/006	<ul style="list-style-type: none"> • {for stretching exercises}
U	A63B 23/035	<ul style="list-style-type: none"> • for limbs, i.e. upper or lower limbs, e.g. simultaneously
U	A63B 23/04	<ul style="list-style-type: none"> • • for lower limbs{(Training appliances for special sports A63B 69/00 ; For the purpose of producing mechanical power F03G 5/00)}
U	A63B 23/0405	<ul style="list-style-type: none"> • • • {involving a bending of the knee and hip joints simultaneously(A63B 23/0476 takes precedence)}
	A63B 2023/0411	<ul style="list-style-type: none"> • • • • {Squatting exercises}
U	A63B 23/0429	<ul style="list-style-type: none"> • • • • {with guided foot supports moving parallel to the body-symmetrical-plane by being cantilevered about a horizontal axis}
	A63B 2023/0435	<ul style="list-style-type: none"> • • • • • {(not used)}
	A63B 2023/0441	<ul style="list-style-type: none"> • • • • • • {cantilevered about two horizontal axes, e.g. parallelogram systems}
	A63B 2023/0447	<ul style="list-style-type: none"> • • • • • • {the axis being in the body-symmetrical-plane}
	A63B 2023/0452	<ul style="list-style-type: none"> • • • • • • {the foot support being substantially below said axes}

U	A63B 24/00	Electric or electronic controls for exercising apparatus of preceding groups;{Controlling or monitoring of exercises, sportive games, training or athletic performances}
U	A63B 24/0003	• {Analysing the course of a movement or motion sequences during an exercise or trainings sequence, e.g. swing for golf or tennis}
U	A63B 24/0006	• • {Computerised comparison for qualitative assessment of motion sequences or the course of a movement}
	A63B 24/0009	• • • {Computerised real time comparison with previous movements or motion sequences of the user}
	A63B 24/0012	• • • {Comparing movements or motion sequences with a registered reference}
	A63B 24/0015	• • • • {Comparing movements or motion sequences with computerised simulations of movements or motion sequences, e.g. for generating an ideal template as reference to be achieved by the user}
	A63B 24/0018	• • • {using non electronic means}
U	A63B 24/0021	• {Tracking a path or terminating locations}
	A63B 24/0025	• • {Tracking the path or location of one or more users, e.g. players of a game}
	A63B 24/0028	• • {Tracking the path of an object, e.g. a ball inside a soccer pitch}
	A63B 24/0031	• • • {at the starting point}
	A63B 24/0034	• • • {during flight}
	A63B 24/0037	• • {on a target surface or at impact on the ground}
	A63B 24/004	• • • {Multiple detectors or sensors each defining a different zone}
	A63B 24/0043	• • • {Systems for locating the point of impact on a specific surface}
	A63B 24/0046	• • • {Mechanical means for locating the point of impact or entry}
	A63B 24/005	• • • • {Keeping track of the point of impact or entry}
	A63B 24/0053	• • {for locating an object, e.g. a lost ball}
	A63B 24/0056	• • {for statistical or strategic analysis}
U	A63B 24/0062	• {Monitoring athletic performances, e.g. for determining the work of a user on an exercise apparatus, the completed jogging or cycling distance}
	A63B 24/0065	• • {Evaluating the fitness, e.g. fitness level or fitness index}
	A63B 24/0068	• • {Comparison to target or threshold, previous performance or not real time comparison to other individuals}
	A63B 24/0071	• • {Distinction between different activities, movements, or kind of sports performed}
U	A63B 24/0075	• {Means for generating exercise programs or schemes, e.g. computerized virtual trainer, e.g. using expert databases}
	A63B 24/0078	• • {Exercise efforts programmed as a function of time}
	A63B 24/0081	• • {Coaching or training aspects related to a group of users}
U	A63B 24/0087	• { Electric or electronic controls for exercising apparatus of groups A63B 21/00 - A63B 23/00 , e.g. controlling load }
	A63B 24/009	• • {the load of the exercise apparatus being controlled in synchronism with visualising systems, e.g. hill slope}
	A63B 24/0093	• • {the load of the exercise apparatus being controlled by performance parameters, e.g. distance or speed}
	A63B 24/0096	• • {using performance related parameters for controlling electronic or video games or avatars}
U	A63B 26/00	Exercising apparatus not covered by groups A63B 1/00 to A63B 25/00

- U A63B 26/003 • {for improving balance or equilibrium(balance beams [A63B 4/00](#) ; apparatus for rope dancing [A63B 7/08](#) ; balancing drums, balancing boards or the like [A63B 22/16](#))}
- A63B 2026/006 • • {with feet supports below their pivotal point}
- U A63B 29/00 **Apparatus for mountaineering(helmets [A42B 3/00](#) ; non-skid devices or attachments for footwear, e.g. mountain climbing irons [A43C 15/00](#) ; breathing masks or helmets for use at high altitudes [A62B 18/00](#) ; { safety belts or body harnesses [A62B 35/00](#) } ; picks [B25D 7/00](#))**
- U A63B 29/02 • Mountain guy-ropes or accessories, e.g. avalanche ropes{(hooks, e.g. snaphooks, therefor [F16B 45/00](#))}; Means for indicating the location of accidentally buried, e.g. snow-buried, persons(detecting hidden masses in general [G01V](#))
- NOTE
Contrary to the wording of group [A63B 29/02](#) , devices for lowering persons are classified in [A62B 1/06](#)
- U A63B 29/021 • • {Means for indicating the location of accidentally buried, e.g. snow-buried, persons(detecting hidden masses in general [G01V](#))}
- A63B 2029/022 • • • {with means for automatically activating signal means in case of an avalanche}
- U A63B 31/00 **Swimming aids(teaching swimming [A63B 69/10](#) to [A63B 69/14](#) ; life-saving in water, { e.g. life-buoys, life-belts } , [B63C 9/00](#))**
- U A63B 31/08 • Swim fins, flippers or other swimming aids held by, or attachable to, the hands, arms, feet or legs([A63B 31/18](#) takes precedence; worn as gloves [A63B 31/02](#))
- U A63B 31/10 • • held by, or attachable to, the hands or feet
- U A63B 31/11 • • • attachable only to the feet
- A63B 2031/112 • • • • {with means facilitating walking, e.g. retractable, detachable or pivotable blades}
- A63B 2031/115 • • • • {with blade at an angle to the plane of the foot when in use, e.g. to reduce plantar flexion}
- A63B 2031/117 • • • • • {with blade lying substantially in the body-symmetrical plane, e.g. for breast stroke}
- U A63B 33/00 **Swimming equipment attachable to the head, e.g. swim caps or goggles(diving masks [B63C 11/12](#) ; breathing aids, e.g. snorkels, [B63C 11/18](#))**
- U A63B 33/002 • {Swimming goggles(with means covering the nostrils [B63C 11/12](#))}
- A63B 2033/004 • • {comprising two separate lenses joined by a flexible bridge}
- A63B 2033/006 • • • {means allowing adjustment of the bridge}
- A63B 2033/008 • • • • {stepless adjustment}
- U A63B 37/00 **Solid balls;{Rigid hollow balls}; Marbles(heavy throwing balls [A63B 65/06](#))**
- U A63B 37/0003 • {Golf balls(for practising drives [A63B 69/3655](#) , for practising puts [A63B 69/3688](#))}
- WARNING
Subgroups of [A63B 37/0003](#) are not complete pending reclassification; see also this group
- U A63B 37/007 • • {Characteristics of the ball as a whole}
- U A63B 37/0077 • • • {Physical properties}
- A63B 2037/0079 • • • • Compression{Compression}

- U A63B 37/02 • Special cores({ [A63B 37/0001](#) , [A63B 37/0003](#) take precedence)}
- U A63B 37/06 • • Elastic cores
- A63B 2037/065 • • • **Foam**{*Foam*}
- U A63B 37/08 • • Liquid cores; Plastic cores
- A63B 2037/082 • • • {Granular, eg comprising beads}
- A63B 2037/085 • • • {liquid, jellylike}
- A63B 2037/087 • • • {Wound cores or layers}
- U A63B 37/12 • Special coverings,{i.e. outer layer material([A63B 37/0001](#) , [A63B 37/0003](#) take precedence)}
- A63B 2037/125 • • **stitchings**{*stitchings*}
- U A63B 39/00 Hollow non-inflatable balls,{i.e. having no valves(rigid balls [A63B 37/00](#))}**
- A63B 2039/003 • {substantially hollow and pressureless}
- A63B 2039/006 • **pressurised**{*pressurised*}
- U A63B 39/02 • Arrangements for maintaining the pressure
- A63B 2039/022 • • {using special gas-impermeable layers}
- U A63B 41/00 Hollow inflatable balls(connecting valves to inflatable elastic bodies**
- A63B 2041/005 **[B60C 29/00](#) ; valves, e.g. self-closing valves [F16K](#))**
- {with counterweight for adjusting the centre of gravity}
- U A63B 43/00 Balls with special arrangements**
- A63B 2043/001 • {Short-distance or low-velocity balls for training, or for playing on a reduced area}
- U A63B 47/00 Devices for handling or treating balls,{e.g. for holding or carrying balls(for**
- A63B 47/002 **maintaining ball pressure [A63B 39/02](#) ; ball holders combined with racket**
- A63B 2047/004 **presses [A63B 49/16](#) , with racket covers or cases [A63B 49/18](#) , fitted on golf**
- U A63B 47/02 **bags [A63B 55/02](#))}**
- U A63B 47/021 • {Devices for dispensing balls, e.g. from a reservoir(automatic teeing devices
- A63B 2047/022 [A63B 57/0006](#) ; devices for projecting balls [A63B 69/40](#))}
- • {having means preventing bridge formation during dispensing}
- for picking-up{or collecting}
- • {for picking-up automatically, e.g. by apparatus moving over the playing surface}
- • • {Autonomous machines which find their own way around the playing surface}
- U A63B 47/025 • • {Installations continuously collecting balls from the playing areas, e.g. by gravity, with conveyer belts}
- A63B 2047/027 • • • {Hydraulic ball transport}
- A63B 2047/028 • • • {pneumatic ball transport}
- U A63B 47/04 • for cleaning balls(apparatus for cleaning balls, as accessories for bowling- or table alleys [A63D 5/10](#))
- A63B 2047/043 • • {with drying means}
- A63B 2047/046 • • **Motorised**{*Motorised*}
- A63B 49/00 Tennis, badminton, or like rackets**

WARNING

Group ~~A63B-49/00~~ **A63B49/00M**, [A63B 49/06](#) are not complete pending a reclassification. See also this group, its subgroups and other groups of [A63B](#)

- U A63B 49/02
 - Frames
- A63B 2049/0205
 - • {comprising at least two similar parts assembled with the interface plane parallel to the string plane}
- A63B 2049/0211
 - • {with variable thickness of the head in a direction perpendicular to the string plane}
- A63B 2049/0217
 - • {with variable thickness of the head in the string plane}
- A63B 2049/0223
 - • {with defined head dimensions}
- A63B 2049/0229
 - • • {surface area}
- A63B 2049/0235
 - • • height{height}
- A63B 2049/0241
 - • • width{width}
- A63B 2049/0247
 - • {with defined overall length}
- A63B 2049/0252
 - • {with defined weight}
- A63B 2049/0258
 - • • {without strings}
- A63B 2049/0264
 - • • • {head only}
- U A63B 49/027
 - • {Throat section, i.e. sections and elements between head and handle}
- A63B 2049/0282
 - • • {with two legs having mutually different constructions}
- U A63B 49/10
 - • made of non-metallic materials, other than wood
- A63B 2049/103
 - • • {string holes produced during moulding process}
- U **A63B 51/00**
Stringing tennis rackets{(string guides on frames [A63B 49/002](#) ; clamping strings on frames [A63B 49/005](#))}
- A63B 2051/001
 - {using strings with different characteristics, e.g. gut and nylon, on the same frame}
- A63B 2051/002
 - {using strings with different cross-sections, e.g. different thickness, on the same frame}
- A63B 2051/004
 - {using strings with different tension on the same frame}
- U A63B 51/02
 - Strings; String substitutes;{Products applied on strings, e.g. for protection against humidity or wear(ropes or cables in general [D07B](#); yarns or threads for use in sports applications [D02G 3/444](#) ; mechanical methods or apparatus in the manufacture of artificial filaments, threads, fibres, bristles or ribbons [D01D](#); strings for musical instruments [G10D 3/10](#))}
- A63B 2051/023
 - • {with characteristics, e.g. diameter, elasticity varying along the length of the string}
- A63B 2051/026
 - • {with non-circular cross-section}
- U A63B 51/04
 - • Sheet-like structures used as substitutes
- A63B 2051/045
 - • • {wooden blade with perforations}
- U A63B 51/14
 - Devices for stringing,{e.g. controlling the tension of the string during stringing}
- A63B 2051/143
 - • {Hand-Held string-tensioning devices}
- A63B 2051/146
 - • {Devices simultaneously raising and lowering alternate longitudinal strings previously mounted in a frame, to facilitate the threading of the crossstrings}
- U **A63B 53/00**
Golf clubs{(cleaning or maintenance [A63B 57/0087](#) ; measuring, verifying or correcting golf-club characteristics [A63B 59/0074](#) ; clubs or attachments on clubs for golf training [A63B 69/3632](#))}
- A63B 2053/002
 - {Clubs made of composite, plastics or rubber materials, with integral head and shaft}
- A63B 2053/005
 - {Club sets}
- U A63B 53/02
 - Joint structures between the head and the shaft
- A63B 2053/021
 - • {the shaft axis being forwardly offset relative to the striking face of the head}

	A63B 2053/022	• • {allowing adjustable positioning of the head with respect to the shaft}
	A63B 2053/023	• • • {adjustable angular orientation}
	A63B 2053/025	• • • • {lie angle only, i.e. relative angular adjustment between the shaft and the club head about an axis parallel to the intended line of play when the club is in its normal address position}
	A63B 2053/026	• • • • {loft angle only, i.e. relative angular adjustment between the shaft and the club head about a horizontal axis perpendicular to the intended line of play when the club is in its normal address position}
	A63B 2053/027	• • • • {about the longitudinal axis of the shaft only}
	A63B 2053/028	• • • {with a range of alternative attachment points for the shaft}
U	A63B 53/04	• Heads
	A63B 2053/0404	• • {}
	A63B 2053/0408	• • {with defined dimensions}
	A63B 2053/0412	• • • Volume{Volume}
	A63B 2053/0416	• • {Heads with an impact surface provided by a face insert}
	A63B 2053/042	• • • {the face insert consisting of a material different from that of the head}
	A63B 2053/0425	• • • • {the face insert comprising two or more different materials}
	A63B 2053/0429	• • • • {the face insert comprising two or more layers of material}
	A63B 2053/0433	• • {with special sole configurations}
	A63B 2053/0437	• • • {with special crown configurations}
	<u>WARNING</u> not complete, pending the completion of a reclassification	
	A63B 2053/0441	• • {with visual indicators for aligning the golf club}
	A63B 2053/0445	• • {Details of grooves or the like on impact surface}
	A63B 2053/045	• • {Strengthening ribs}
	A63B 2053/0454	• • • {Strengthening ribs on the rear surface of the impact face plate}
	A63B 2053/0458	• • {with non-uniform thickness of the impact face plate}
	A63B 2053/0462	• • • {characterised by tapering thickness of the impact face plate}
U	A63B 53/047	• • {iron-type}
	A63B 2053/0479	• • • {Wedge-type clubs, details thereof}
	A63B 2053/0483	• • • {Chipping clubs, details thereof}
	A63B 2053/0491	• • {with added weights, e.g. changeable, replaceable}
	A63B 2053/0495	• • • {moving on impact, slidable, spring or otherwise elastically biased}
U	A63B 55/00	Bags for golf clubs; Stands for golf clubs for use on the course
	A63B 2055/001	• {Warning devices for indicating missing golf clubs}
	A63B 2055/002	• {Security means for locking golf clubs in the bag}
U	A63B 55/08	• Wheeled carriers for golf bags(running gear or propulsion features B60 ; { insofar as the features thereof are generic to hand carts B62B }
	A63B 2055/081	• • {Caddies fitted with means for sitting}
	A63B 2055/082	• • {Means for mounting weather shields, e.g. umbrellas, on caddies}
	A63B 2055/083	• • {with means for trailing the caddy other than by hand}
	A63B 2055/085	• • • {by mechanical links attached to the golf players}
	A63B 2055/086	• • • {by remote control}
U	A63B 55/087	• • {motorised}
	A63B 2055/088	• • • {Units for converting manually-driven golf carts into motorised ones}

U	A63B 57/00	Golf game accessories, e.g. golf cups, golf tees
U	A63B 57/0018	• {Tees; Tee-holders; Devices for inserting or extracting tees}
	A63B 2057/0025	• • {With adjustable height}
U	A63B 57/0087	• {Cleaning or maintenance of golf-clubs, putters, shoes or other golf accessories(cleaning balls A63B 47/04 ; cleaning grips A63B 59/0062 ; cleaning footwear in general A47L 23/00)}
	A63B 2057/0093	• • {Means for heating or drying golf clubs}
	A63B 59/00	Bats, rackets, or the like, for other games(bats with a ball tethered thereto A63B 67/20); { Hand-held throwing or catching aids; Details or accessories of bats, rackets or the like, not limited to one of the groups A63B 49/00 to A63B 57/00 , or not otherwise provided for }
		<u>WARNING</u>
		Groups A63B 59/0025 to A63B 59/0012 , A63B 59/00 R , A63B 59/00 V , A63B 59/00 T , A63B 59/0096 are not complete pending a reclassification. See also this group, its subgroups and other groups of A63B
	A63B 2059/0003	• {Resonance frequency related characteristics}
	A63B 2059/0007	• {Striking surfaces coated with high-friction abrasive material}
	A63B 2059/0011	• {having special surfaces reducing air resistance}
U	A63B 59/0014	• {Handles or grips(A63B 49/08 takes precedence)}
	A63B 2059/0018	• • {Devices measuring hand characteristics to determine correct grip size}
	A63B 2059/0022	• • {Means for indicating or measuring the pressure on the grip}
	A63B 2059/0081	• {Substantially flexible shafts, hinged shafts}
	A63B 2059/0085	• {Telescopic shafts}
U	A63B 59/06	• for baseball, rounders, or similar games
	A63B 2059/065	• • {with a continuously tapered barrel}
U	A63B 61/00	Tennis nets or accessories for tennis or like games,{e.g. volley-ball(devices for holding or carrying balls A63B 47/00 ; for table tennis A63B 67/04)}
U	A63B 61/02	• Posts; Revolvably-mounted posts;{Straining or adjusting devices on the posts, e.g. coin- or time operated}
	A63B 2061/025	• • {electrically driven}
U	A63B 63/00	Targets or goals for ball games(golf cups A63B 57/00)
	A63B 2063/001	• {Targets or goals with ball-returning means}
	A63B 2063/002	• {variable in size}
U	A63B 63/004	• {Goals of the type used for football, handball, hockey or the like}
	A63B 2063/005	• • {having means not protruding from the profile of the post for attachment of a net}
	A63B 2063/006	• {Forming a target or goal by fixing net or target area to garage doorway or garage parts}
U	A63B 63/06	• Revolving targets;{Moving targets, e.g. moving or revolving on impact}
	A63B 2063/065	• • {movable or switchable between discrete positions, e.g. after a successful shot}
U	A63B 63/08	• with{substantially}horizontal opening for ball, e.g. for basketball{(A63B 57/0056 , A63B 63/06 take precedence)}
U	A63B 63/083	• • {for basketball}
	A63B 2063/086	• • • {deflectable under excessive loads}

U	A63B 67/00	Miscellaneous sporting games
U	A63B 67/002	• {Games using balls, not otherwise provided for}
	A63B 2067/005	• • {Games similar to volleyball or basketball and played on trampolines or the like, e.g. "Spaceball" or "Aeroball"}
U	A63B 67/02	• Special golf games, e.g. miniature golf, {e.g. golf putting games played on putting tracks; putting practice apparatus having an elongated platform as a putting track(mats for golf practice A63B 69/3661)}
	A63B 2067/025	• • {with incorporated means acting on the track surface for varying its topography, e.g. slope}
U	A63B 67/06	• Ring or disc tossing games, {e.g. quoits; Throwing or tossing games, e.g. using balls; Games for manually rolling balls, e.g. marbles}
	A63B 2067/061	• • {Means to mark out tossing area}
	A63B 2067/063	• • {tossing, e.g. rings or horseshoes around or on, e.g. posts, hooks}
	A63B 2067/065	• • {used tossed devices of different sizes giving different degrees of difficulty for fitting in or over a target}
U	A63B 67/14	• Curling stone; Shuffleboard; Similar sliding games
	A63B 2067/142	• • {with braking means}
	A63B 2067/144	• • • variable {variable}
	A63B 2067/146	• • {Stones with rolling elements}
U	A63B 67/16	• Tethered aerial top or spinner games, {i.e. diabolo games}
	A63B 2067/163	• • {Details(Not used)}
	A63B 2067/166	• • • {the diabolo being able to rotate freely in one direction only, e.g. fitted with an over-running clutch}
U	A63B 69/00	Training appliances or apparatus for special sports(training of parachutists B64D 23/00)
U	A63B 69/0002	• {for baseball}
	A63B 2069/0004	• • {specially adapted for particular training aspects}
	A63B 2069/0006	• • • {for pitching}
	A63B 2069/0008	• • • {for batting}
	A63B 2069/0011	• • • Catching {Catching}
U	A63B 69/0028	• {for running, jogging or speed-walking(movable endless bands A63B 22/02)}
	A63B 2069/0031	• • {Speed-walking}
	A63B 2069/0033	• • • {Nordic walking, i.e. using poles for walking}
	A63B 2069/0037	• • {safety devices, eg. warning bells, rear-view mirrors}
U	A63B 69/004	• {for the martial arts, e.g. karate, judo(A63B 69/20 , A63B 69/34 take precedence)}
	A63B 2069/0042	• • {Breaking boards or holders therefore, i.e. devices for destroying exercises}
	A63B 2069/0044	• • {Fake or disarmed practise weapons, i.e. for mimicking combat situations}
U	A63B 69/0051	• { not used, see subgroups and A63B 69/00 }
U	A63B 69/0053	• • {Apparatus generating random stimulus signals for reaction-time training involving a substantial physical effort(testing reaction time A61B 5/162 ; reaction-time games A63F 9/0096)}
	A63B 2069/0055	• • • {with means for distracting the user, e.g. visual or audio means}
U	A63B 69/0057	• • {Means for physically limiting movements of body parts(A63B 23/0211 takes precedence)}
	A63B 2069/0062	• • • {Leg restraining devices}

- U A63B 69/0073
 - {Means for releasably holding a ball in position; Balls constrained to move around a fixed point, e.g. by tethering(not used, see subgroups and [A63B 69/00](#))}
- A63B 2069/0077
 - • {Suspending a ball on an upright stream of air or water}
- U A63B 69/0079
 - • {Balls tethered to a line or cord([A63B 43/007](#) takes precedence; other games using tethered balls [A63B 67/10](#) ; games using a bat or racket with a ball tethered thereto [A63B 67/20](#))}
- A63B 2069/0082
 - • {with movement of the cord-attachment along its rotational axis as a function of the number of revolutions, e.g. following a helical member}
- U A63B 69/02
 - for fencing,{e.g. means for indicating hits(fencing foils, sabres or epees [F41B 13/02](#))}
- A63B 2069/025
 - • {with conductive floor used as part of the detection circuit}
- U A63B 69/06
 - for rowing or sculling
- A63B 2069/062
 - • {by pulling on a cable}
- A63B 2069/064
 - • {with pivoting handlebars}
- A63B 2069/066
 - • {with handlebars rotating about a horizontal axis}
- A63B 2069/068
 - • {kayaking, canoeing}
- U A63B 69/16
 - for cycling,{i.e. arrangements on or for real bicycles(home-trainers [A63B 23/0476](#))}
- A63B 2069/161
 - • {supports for the front of the bicycle}
- A63B 2069/162
 - • • {for front fork or handlebar}
- A63B 2069/163
 - • • {for the front wheel}
- A63B 2069/164
 - • {supports for the rear of the bicycle, e.g. for the rear forks}
- A63B 2069/165
 - • • {rear wheel hub supports}
- A63B 2069/166
 - • {supports for the central frame of the bicycle, e.g. for the crank axle housing, seat tube or horizontal tube}
- A63B 2069/167
 - • {on rollers without further support}
- A63B 2069/168
 - • {Force transfer through the rim of the wheel}
- U A63B 69/18
 - for skiing
- A63B 2069/185
 - • {for ski-jumping}
- U A63B 69/36
 - for golf
- A63B 2069/3602
 - • {Player`s game information devices(not used)}
- A63B 2069/3605
 - • • {Golf club selection aids informing player of his average or expected shot distance for each club}
- U A63B 69/3611
 - • {not used, see [A63B 69/36](#) and subgroups}
- U A63B 69/3617
 - • • {Striking surfaces with impact indicating means, e.g. markers}
- A63B 2069/362
 - • • • {electrical or electronic}
- U A63B 69/3623
 - • {for driving([A63B 69/3608](#) , [A63B 69/3658](#) , [A63B 69/3661](#) , [A63B 69/3667](#) and [A63B 69/3691](#) take precedence)}
- A63B 2069/3626
 - • • {Details(not used)}
- A63B 2069/3629
 - • • • {Visual means not attached to the body for positioning the trainee`s head or for detecting head movement, e.g. by parallax}
- U A63B 69/3661
 - • {Mats for golf practice, e.g. mats having a simulated turf, a practice tee or a green area}
- A63B 2069/3664
 - • • {with bristles, the length of which can be adjusted}
- U A63B 69/3667
 - • {Golf stance aids, e.g. means for positioning a golfer`s feet}
- A63B 2069/367
 - • • {Detection of balance between both feet, i.e. weight distribution}

- U A63B 69/3676
 - • {for putting([A63B 69/3608](#) , [A63B 69/3661](#) , [A63B 69/3667](#) and [A63B 69/3697](#) take precedence)}
- A63B 2069/3679
 - • • {Details(not used)}
- A63B 2069/3682
 - • • {Visual means not attached to the body for positioning the trainee`s head or for detecting head movement, e.g. by parallax}
- U A63B 69/40
 - Stationarily-arranged devices for projecting balls{or other bodies(ball-dispensing devices [A63B 47/002](#) ; golf cups with ball ejector means [A63B 57/0062](#) ; targets with means for returning balls by gravity or mechanically [A63B 63/00](#))};(sling weapons [F41B 3/00](#) ; traps for clay-pigeon targets [F41J 9/18](#))
- A63B 2069/401
 - • {substantially vertically, e.g. for baseball}
- A63B 2069/402
 - • {giving spin}
- A63B 2069/403
 - • • {back or reverse spin}
- A63B 2069/404
 - • • {side spin}
- A63B 2069/405
 - • • {top spin}
- U A63B 71/00**
Games or sports accessories not covered in groups [A63B 1/00](#) to [A63B 69/00](#) (starting appliances [A63K 3/02](#))
- U A63B 71/0009
 - {for handicapped persons}
- A63B 2071/0018
 - • {for wheelchair users}
- A63B 2071/0027
 - • {visually handicapped}
- U A63B 71/0054
 - {Features for injury prevention on an apparatus, e.g. shock absorbers(mats or the like for absorbing shocks for jumping [A63B 6/00](#))}
- A63B 2071/0063
 - • {Shock absorbers}
- A63B 2071/0072
 - • {Limiting the applied force, torque, movement or speed}
- A63B 2071/0081
 - • {Stopping the operation of the apparatus}
- A63B 2071/009
 - • {Protective housings covering the working parts of the apparatus}
- U A63B 71/02
 - for large-room or outdoor sporting games
- U A63B 71/023
 - • {Supports, e.g. poles}
- A63B 2071/024
 - • • {with screws or pins in the earth}
- A63B 2071/025
 - • • {on rollers or wheels}
- A63B 2071/026
 - • • {stabilised by weight}
- A63B 2071/027
 - • • • {using player`s own weight, e.g. on a platform}
- U A63B 71/06
 - Indicating or scoring devices for games or players,{or for other sports activities}
- A63B 2071/0602
 - • {Non-electronic means therefor}
- U A63B 71/0605
 - • {Decision makers and devices using detection means facilitating arbitration}
- A63B 2071/0611
 - • • {Automatic tennis linesmen, i.e. in-out detectors}
- A63B 2071/0613
 - • • {Automatic net-fault detectors}
- U A63B 71/0619
 - • {Displays, user interfaces and indicating devices, specially adapted for sport equipment, e.g. display mounted on treadmills}
- U A63B 71/0622
 - • • {Visual, audio or audio-visual systems for entertaining, instructing or motivating the user}
- A63B 2071/0625
 - • • • {Emitting sound, noise or music}
- A63B 2071/0627
 - • • • • {when used improperly, e.g. by giving a warning}
- A63B 2071/063
 - • • • • {Spoken or verbal instructions}
- A63B 2071/0633
 - • • • • {without electronic means}
- A63B 2071/0636
 - • • • {3D visualisation}

A63B 2071/0638	• • • • {Displaying moving images of recorded environment, e.g. virtual environment}
A63B 2071/0641	• • • • • {with a marker advancing in function of the exercise}
A63B 2071/0644	• • • • • {with display speed of moving landscape controlled by the user's performance}
A63B 2071/0647	• • • {Visualisation of executed movements}
A63B 2071/065	• • • {Visualisation of specific exercise parameters}
A63B 2071/0652	• • • • {Visualisation or indication relating to symmetrical exercise, e.g. right-left performance related to spinal column}
A63B 2071/0655	• • • {Tactile feedback}
A63B 2071/0658	• • • {Position or arrangement of display}
A63B 2071/0661	• • • • {arranged on the user}
A63B 2071/0663	• • • • • {worn on the wrist, e.g. wrist bands}
A63B 2071/0666	• • • • • {worn on the head or face, e.g. combined with goggles or glasses}
A63B 2071/0675	• • {Input for modifying training controls during workout}
A63B 2071/0677	• • • {Input by image recognition, e.g. video signals}
A63B 2071/068	• • • {Input by voice recognition}
A63B 2071/0683	• • • {Input by handheld remote control}
U A63B 71/0686	• • {Timers, rhythm indicators or pacing apparatus using electric or electronic means}
A63B 2071/0688	• • • {using non-electronic means, e.g. mechanical, visual, acoustic or tactile means}
A63B 2071/0691	• • {Maps, e.g. yardage maps or electronic maps}
A63B 2071/0694	• • {Visual indication, e.g. Indicia}
U A63B 71/08	• Body-protectors for players or sportsmen,{i.e. body-protecting accessories affording protection of body parts against blows or collisions}{ protective clothing or garments for sporting purposes A41D 13/00)}
U A63B 71/081	• • {fluid-filled, e.g. air-filled}
A63B 2071/083	• • • {using bubble wrap}
U A63B 71/085	• • {Mouth or teeth protectors(A63B 71/081 takes precedence; protective face masks A41D 13/00)}
A63B 2071/086	• • • {Mouth inserted protectors with breathing holes}
A63B 2071/088	• • • {Mouth inserted protectors with tether or strap}
U A63B 71/10	• • for the head({ A63B 71/081 takes precedence } ; in the form of caps or hats A42B 1/08 ; helmets A42B 3/00)}
A63B 2071/105	• • • {Fencing mask}
U A63B 71/12	• • for the body,{e.g. shoulders}, or the legs({ A63B 71/081 takes precedence)}
A63B 2071/1208	• • • • {for the breast and the abdomen, e.g. breast plates}
U A63B 71/1225	• • • {for the legs, e.g. thighs, knees, ankles, feet(bandages, e.g. orthosis-like supports or braces A61F 5/0102 ; for strengthening joints A61F 13/06)}
A63B 2071/1233	• • • • • {for the hip}
A63B 2071/1241	• • • • • {for the thigh}
A63B 2071/125	• • • • • {for the knee}
A63B 2071/1258	• • • • • {for the shin, e.g. shin guards}
A63B 2071/1266	• • • • • {for the calf}
A63B 2071/1275	• • • • • {for the ankle}
A63B 2071/1283	• • • • • {for the foot}

Project: N/A (A63C)

- U A63C 5/00** **Skis or snowboards (sledges with runners, e.g. ski-bobs, [B62B 13/00](#) ; runners for sledges [B62B 17/02](#) ; runners for carrying wheeled vehicles to facilitate travel on snow or ice [B62B 19/00](#))**
- U A63C 5/06
A63C 2005/063
 - with special devices thereon, e.g. steering devices
 - • {Rolling or like devices }
- U A63C 9/00** **Ski bindings**
A63C 2009/008
 - {with a binding element sliding along an rail during use or setting }
- U A63C 17/00** **Roller skates; Skate-boards**
A63C 2017/0053
 - {with foot plate quick release or shoe binding }
- U A63C 17/14
A63C 2017/1463
 - with brakes, e.g. toe stoppers, freewheel roller clutches
 - • {Foot or toe operated }
- A63C 2017/1472
 - • {Hand operated }
- A63C 2017/1481
 - • {Leg or ankle operated }
- A63C 2017/149
 - • {Stick operated }
- U A63C 19/00** **Design or layout of playing courts, rinks, bowling greens or areas for water-skiing; Covers therefor ({golf courses [A63B 69/3691](#)}; water roundabouts [A63G 3/00](#) ; construction of surfaces of foundations [E01C](#); roofs [E04B 7/00](#); buildings or groups of buildings for sports [E04H 3/10](#); swimming or splash baths or pools [E04H 4/00](#); coverings for baths [E04H 4/06](#))**
- U A63C 19/06
 - Apparatus for setting-out or dividing courts
- U A63C 19/065
A63C 2019/067
 - • { Line markings, e.g. tapes; Methods therefor }
 - • • {Machines for marking }
- U A63C 19/08
A63C 2019/085
 - • Mechanical means for marking-out
 - • • {Fences; Nets; Barriers }

Project: N/A (A63D)

- U A63D 5/00** **Accessories for bowling-alleys or table alleys**
A63D 2005/003
 - {Means for preventing the bowling ball to enter the gutter }
- A63D 2005/006
 - {Heating means for the surface of the alleys }
- U A63D 5/04
A63D 2005/042
 - Indicating devices
 - • {for indicating the ball path }
- A63D 2005/044
 - • {for indicating if a bowling ball touches the border of the alley }
- A63D 2005/046
 - • {for indicating if the ball is passing the foul line }
- A63D 2005/048
 - • {Score sheets }
- U A63D 5/08
A63D 2005/083
 - Arrangements for setting-up or taking away pins
 - • {Threaded pins }
- A63D 2005/086
 - • {Pivotable pins }
- U A63D 15/00** **Billiards, { e.g. carom billiards}; Billiard tables; Pocket billiards, { i.e. pool}**
A63D 2015/001
 - {with inclination indicating means }
- A63D 2015/008
 - {with heating elements }

Project: N/A (A63F)**A63F**

CARD, BOARD, OR ROULETTE GAMES; INDOOR GAMES USING SMALL MOVING PLAYING BODIES; MISCELLANEOUS VIDEO GAMES (data-processing equipment characterised by a specific application for game playing G06F 17/00, G06F 19/00; { coin-freed apparatus for games G07F 17/32}); GAMES NOT OTHERWISE PROVIDED FOR

U A63F 1/00

Card games (aspects of games using an electronically generated display having two or more dimensions showing representations related to the game A63F 13/00; card games played on a gaming machine G07F 17/32)

A63F 2001/001

- {Bridge or baccarat }

A63F 2001/003

- {Blackjack; Twenty one }

A63F 2001/005

- ~~Poker~~ {Poker }

A63F 2001/006

- ~~Rummy~~ {Rummy }

A63F 2001/008

- {adapted for being playable on a screen }

U A63F 1/02

- Cards; Special shapes of cards (card-printing methods [B41K](#), [B41M](#))

A63F 2001/022

- • {Manufacturing of cards }

A63F 2001/025

- • {with holes or slits }

A63F 2001/027

- • {with classical playing card symbols }

U A63F 1/04

- Card games combined with other games

A63F 2001/0408

- • {with text }

A63F 2001/0416

- • {with numbers }

A63F 2001/0425

- • • {with dice dots }

A63F 2001/0433

- • • {with domino dots }

A63F 2001/0441

- • {with a written message or sentence, e.g. chance or instruction cards }

A63F 2001/045

- • • {Chance or clue cards }

A63F 2001/0458

- • {with single words }

A63F 2001/0466

- • {with single letters }

A63F 2001/0475

- • {with pictures or figures }

A63F 2001/0483

- • • {having symbols or direction indicators for playing the game }

A63F 2001/0491

- • {having markings on the rear face or reverse side }

U A63F 3/00

Board games; Raffle games (racing games, traffic games, or obstacle games characterised by figures moved by action of the players A63F 9/14)

WARNING

Reorganisation pending for the following groups: [A63F 3/00003](#), [A63F 3/00047](#), [A63F 3/00053](#), [A63F 3/00056](#), [A63F 3/00059](#), [A63F 3/00173](#), [A63F 3/00261](#), [A63F 3/0052](#), [A63F 3/00529](#), [A63F 3/00533](#), [A63F 3/0402](#), [A63F 3/0497](#), [A63F 3/0605](#), [A63F 3/061](#), [A63F 3/0615](#), [A63F 3/062](#), [A63F 3/0635](#), [A63F 3/0655](#). See also this group and its subgroups

U A63F 3/00003

- { Types of board games (chess [A63F 3/02](#); educational board games [A63F 3/04](#)) }

U A63F 3/00006

- • { Board games played along a linear track, e.g. game of goose, snakes and ladders, along an endless track ([A63F 3/00028](#) to [A63F 3/00157](#), [A63F 3/04](#) take precedence) }

A63F 2003/00009

- • • {with an intersection in the track }

A63F 2003/00012

- • • • {with movable means for switching to another track }

A63F 2003/00015

- • • • {with a star-shaped track ([A63F 2003/00025](#) takes precedence) }

A63F 2003/00018

- • • {played along an endless track }

- A63F 2003/00022 . . . {played along concentric endless tracks }
- A63F 2003/00025 . . . {with a star-shaped track inside, e.g. trivial pursuit }
- U A63F 3/00028 . . { Board games simulating indoor or outdoor sporting games, e.g. bowling, basketball, boxing, croquet, athletics, jeu de boules, darts, snooker, rodeo (racing games played on boards [A63F 3/00082](#); indoor games played with small balls [A63F 7/00](#))}
- U A63F 3/00031 . . { Baseball or cricket board games}
- A63F 2003/00034 . . . ~~Baseball~~ {Baseball }
- A63F 2003/00037 . . . ~~Cricket~~ {Cricket }
- U A63F 3/00063 . . { Board games concerning economics or finance, e.g. trading}
- A63F 2003/00066 . . {with play money (~~with real coins or paper money K63F50/13~~ *with real coins or paper money A63F 2250/13*)}
- U A63F 3/00075 . . { War games}
- A63F 2003/00078 . . {Naval war }
- U A63F 3/001 . . { Board games concerning astrology, religion, or fortune-telling (fortune-telling games [A63F 9/181](#))}
- A63F 2003/00104 . . {Board games having astrology aspects}
- A63F 2003/00107 . . {Board games having aspects of the Yin Yang game}
- A63F 2003/0011 . . {Board games having religion aspects}
- A63F 2003/00113 . . {Board games having aspects of the I Ching game}
- A63F 2003/00116 . . {Board games having aspects of the Tarot game}
- U A63F 3/00119 . . { Board games concerning music, theatre, cinema, or art}
- A63F 2003/00123 . . {Board games concerning music }
- A63F 2003/00126 . . . {using audio equipment }
- A63F 2003/00129 . . . {with a compact disc player }
- A63F 2003/00132 . . {specially adapted for teaching music }
- A63F 2003/00135 . . {Board games concerning cinema or films }
- U A63F 3/00138 . . { Board games concerning voting, political or legal subjects; Patent games}
- A63F 2003/00141 . . {Patent games }
- U A63F 3/00157 . . { Casino or betting games (horse races [A63F 3/00082](#))}
- A63F 2003/0016 . . {imitating fruit machines }
- A63F 2003/00164 . . {Casino tables }
- A63F 2003/00167 . . {with a jackpot }
- A63F 2003/0017 . . . {progressive jackpot }
- U A63F 3/00173 . { Characteristics of game boards, alone or in relation to supporting structures or playing piece}
- U A63F 3/00176 . . { Boards having particular shapes, e.g. hexagonal, triangular, circular, irregular}
- A63F 2003/00179 . . {Triangular game board }
- A63F 2003/00182 . . {Four-sided game board }
- A63F 2003/00186 . . . {Plus- or cross-shaped game board }
- A63F 2003/00189 . . {Pentagonal game board }
- A63F 2003/00192 . . . {Star-shaped game board }
- A63F 2003/00195 . . {Hexagonal game board }
- A63F 2003/00198 . . . {Star-shaped game board }
- A63F 2003/00201 . . . {Octagonal game board }

- A63F 2003/00205 . . . {Decagonal game board }
- A63F 2003/00208 . . . {Circular game board }
- A63F 2003/00211 . . . {Elliptical game board }
- U A63F 3/00214 . . { Three-dimensional game boards }
- A63F 2003/00217 . . . {Superimposed boards }
- A63F 2003/0022 . . . {played in three dimensions }
- A63F 2003/00223 . . . {shaped as a container into which playing pieces may enter (box or container for board games [A63F 2003/00943](#)) }
- A63F 2003/00227 {with five play locations and optionally a sixth in the middle }
- U A63F 3/0023 . . { Foldable, rollable, collapsible or segmented boards ([A63F 3/027](#) takes precedence) }
- A63F 2003/00233 . . . {with one fold or hinge (shaped as a book [A63F 2003/00299](#); convertible into a suitcase [A63F 2003/0094](#)) }
- A63F 2003/00236 {with a part of the rim or board missing near the fold to enable folding; Hinge consisting of a flexible element fixed at the bottom }
- A63F 2003/00239 . . . {with two hinges or folds }
- A63F 2003/00242 ~~perpendicular~~ {~~perpendicular~~ }
- A63F 2003/00246 . . . {with three or more hinges or folds }
- A63F 2003/00249 {all parallel }
- A63F 2003/00252 ~~perpendicular~~ {~~perpendicular~~ }
- A63F 2003/00255 . . . {playable during travel (storing or transporting an interrupted jig-saw puzzle game [A63F 2009/105](#)) }
- A63F 2003/00258 . . . {rollable, flexible or deformable board (shaped as an endless belt [A63F 2003/00321](#); flexible rim [A63F 2003/00504](#)) }
- U A63F 3/00261 . . {Details of game boards, e.g. rotatable, slidable or replaceable parts, modular game boards, vertical game boards }
- A63F 2003/00264 . . . {with rotatable or tiltable parts }
- A63F 2003/00268 {about a vertical axis, e.g. a disc }
- A63F 2003/00271 {underneath the playing surface and viewable through holes or windows }
- A63F 2003/00274 {with or designed as a turntable, lazy Susan }
- A63F 2003/00277 {with rotatable concentric parts }
- A63F 2003/0028 {with rotatable disc and rings in one plane }
- A63F 2003/00283 {with rotatable non-concentric parts }
- A63F 2003/00287 {about a horizontal axis }
- A63F 2003/0029 {underneath the playing surface and viewable through holes or windows }
- A63F 2003/00293 {with blocks rotatable about a horizontal axis }
- A63F 2003/00296 {on one common axis }
- A63F 2003/00299 {designed as a book }
- A63F 2003/00302 {with parts rotatable about an axis perpendicular to the game board }
- A63F 2003/00305 {rotatable about any axis, e.g. ball in a socket }
- A63F 2003/00309 {with stopping means (for roulette [A63F 5/0011](#)) }
- A63F 2003/00312 ~~Detents~~ {~~Detents~~ }
- A63F 2003/00315 {using braking effect caused by friction }
- A63F 2003/00318 {with a rollable board surface }

A63F 2003/00321	. . . . {shaped as an endless belt }
A63F 2003/00324	. . . {with slidable parts of the playing surface }
A63F 2003/00328	. . . . {underneath the playing surface and viewable through holes or windows }
A63F 2003/00331	. . . . {with two or more slidable parts, e.g. parallel }
A63F 2003/00334	. . . . . {on different levels }
A63F 2003/00337	. . . . . {in perpendicular directions }
A63F 2003/0034	. . . {with a replaceable part of the playing surface }
A63F 2003/00343	. . . . {underneath a transparent surface }
A63F 2003/00347	. . . . {the playing surface as a whole being replaceable }
A63F 2003/0035	. . . . . {with stackable playing surfaces }
A63F 2003/00353	. . . . . . {with holes or windows }
A63F 2003/00356	. . . . . {by insertion through a slit }
A63F 2003/00359	. . . {Modular units }
A63F 2003/00362	. . . . {with connections between modules }
A63F 2003/00365	. . . . . {Hook and loop-type fastener }
A63F 2003/00369	. . . . . Adhesive {Adhesive }
A63F 2003/00372	. . . . . {Pin and socket connection }
A63F 2003/00375	. . . . . . {Snap fit }
A63F 2003/00378	. . . . . {sliding in a groove }
A63F 2003/00381	. . . . . {Jig-saw connection, e.g. dove tail }
A63F 2003/00384	. . . . . {with a hook or an eyelet }
A63F 2003/00388	. . . . . {with an auxiliary connective element, e.g. clip or clamp }
A63F 2003/00391	. . . . . magnetic {magnetic }
A63F 2003/00394	. . . {with a surface relief }
A63F 2003/00397	. . . . Changeable {Changeable }
A63F 2003/004	. . . . {with a repetitive structure }
A63F 2003/00403	. . . . . Stepped {Stepped }
A63F 2003/00406	. . . {with a vertical game board }
A63F 2003/0041	. . . . {with playing pieces visible from both sides }
A63F 2003/00413	. . . . {playable on opposite sides but with playing field of opponent not being visible }
A63F 2003/00416	. . . {with means for hiding a part of the playing field }
A63F 2003/00419	. . . . {with a shield in the middle (A63F 2003/00406 takes precedence)}
A63F 2003/00422	. . . . . {the shield being removable }
A63F 2003/00425	. . . . {with a shield on each side of the playing field }
A63F 2003/00429	. . . . . {The shield being removable }
A63F 2003/00432	. . . . {covering a part of the playing field }
A63F 2003/00435	. . . {with a sloping playing field or part thereof }
A63F 2003/00438	. . . . {on two sides, e.g. as a roof }
A63F 2003/00441	. . . . . Inverted {Inverted }
A63F 2003/00444	. . . . . Truncated {Truncated }
A63F 2003/00447	. . . . {on three or more sides, e.g. pyramid-shaped }
A63F 2003/00451	. . . . . Inverted {Inverted }
A63F 2003/00454	. . . . . Truncated {Truncated }

- A63F 2003/00457 . . . {Details of game board internal structure or materials thereof }
- A63F 2003/0046 {with anti-slip means }
- A63F 2003/00463 . . . {Details of the playing field (shape of the board [A63F 3/00176](#); changing the size [A63F 2003/00971](#))}
- A63F 2003/00466 {with indications, e.g. directions for playing }
- A63F 2003/0047 {Geometric shapes of individual playing fields }
- A63F 2003/00473 ~~Triangular~~ {~~Triangular~~ }
- A63F 2003/00476 ~~Rectangular~~ {~~Rectangular~~ }
- A63F 2003/00479 ~~Pentagonal~~ {~~Pentagonal~~ }
- A63F 2003/00482 ~~Hexagonal~~ {~~Hexagonal~~ }
- A63F 2003/00485 {Edges or other provisions for toppling or rolling a playing piece }
- A63F 2003/00488 {with means for limiting the size of the playing field ([A63F 2003/00971](#) takes precedence)}
- A63F 2003/00492 . . . {Details of the rim or side edge ([A63F 2003/00236](#) takes precedence)}
- A63F 2003/00495 {Information on the rim }
- A63F 2003/00498 {by colours }
- A63F 2003/00501 {by numbers or letters }
- A63F 2003/00504 {Flexible rim }
- A63F 2003/00507 {Hinged or collapsible rim }
- A63F 2003/00511 {Rim without board, e.g. empty frame }
- A63F 2003/00514 {Rim or side edge with storing space for objects, e.g. unused playing pieces }
- A63F 2003/00517 {Releasable rim }
- U A63F 3/0052 . . { with a plurality of boards used during one game, i.e. separate game boards or playing areas}
- A63F 2003/00523 . . . {with a separate board for each player }
- A63F 2003/00526 . . . {for playing different games, e. g. with playing surfaces on opposite sides of the board ([A63F 2003/00968](#) takes precedence)}
- U A63F 3/00533 . . { Connection of game board or part of game board to supporting structure}
- A63F 2003/00536 . . . ~~Adhesive~~ {~~Adhesive~~ }
- A63F 2003/00539 . . . {Suction cups }
- A63F 2003/00542 . . . {Clamps or clips }
- A63F 2003/00545 . . . ~~Magnetic~~ {~~Magnetic~~ }
- A63F 2003/00548 . . . {with pin and hole }
- A63F 2003/00552 {Snap fit }
- A63F 2003/00555 {Pin, drawing pin or thumbtack }
- A63F 2003/00558 . . . {sliding or slidable in a groove }
- A63F 2003/00561 . . . {with staples }
- A63F 2003/00564 . . . {by tying to supporting structure, e.g. with ropes }
- A63F 2003/00567 {using elastic means, e.g. rubber bands }
- A63F 2003/0057 . . . {Hook and loop-type fastener }
- U A63F 3/00574 . . { Connections between board and playing pieces}
- A63F 2003/00577 . . . {Hook and loop-type fastener }
- A63F 2003/0058 . . . ~~Adhesive~~ {~~Adhesive~~ }
- A63F 2003/00583 . . . {with pin and hole }

- A63F 2003/00586 {Snap fit }
- A63F 2003/00589 {two or more pins or holes on one playing piece }
- A63F 2003/00593 {friction fitted }
- A63F 2003/00596 {adjustable in height }
- A63F 2003/00599 {with slit, slot or groove ([A63F 3/00634](#) takes precedence)}
- A63F 2003/00602 {using pins, e.g. pins pierced into a soft board }
- A63F 2003/00605 {The hole being in the playing piece }
- A63F 2003/00608 {Characterised by the shape of the hole }
- A63F 2003/00611 . . . {Suction cups }
- A63F 2003/00615 . . . {with a hook or an eyelet }
- A63F 2003/00618 . . . {Clamps or clips }
- A63F 2003/00621 . . . {Screw elements }
- A63F 2003/00624 . . . {The playing piece being retained by a string or rope }
- A63F 2003/00627 {being elastic or resilient, e.g. rubber band }
- A63F 2003/0063 ~~Magnetic~~ {~~Magnetic~~ }
- U A63F 3/00634 . . . { Sliding connections, e.g. playing pieces sliding in a groove}
- A63F 2003/00637 {with non-intersecting, e.g. parallel, grooves }
- A63F 2003/0064 {The groove being in the playing piece }
- U A63F 3/00643 . { Electric board games;Electric features of board games (electric word or number games [A63F 3/0421](#); computer chess [G06F](#); electric raffle games [A63F 3/081](#))}
- A63F 2003/00646 . . {with illumination of playing field or playing piece }
- A63F 2003/00649 ~~Lightbulbs~~ {~~Lightbulbs~~ }
- A63F 2003/00652 . . . {Light-emitting diodes }
- A63F 2003/00656 . . . {Fibre optics }
- A63F 2003/00659 ~~LCD's~~ {~~LCD's~~ }
- A63F 2003/00662 . . {with an electric sensor for playing pieces ([A63F 2009/2444](#) takes precedence)}
- A63F 2003/00665 . . . {using inductance }
- A63F 2003/00668 . . . {using hall effect }
- A63F 2003/00671 . . . {Pressure or force sensor }
- A63F 2003/00675 . . . {Reed relay }
- A63F 2003/00678 . . {with circuits closed by mechanical means }
- A63F 2003/00681 . . . {The playing field comprising two parallel conducting layers }
- A63F 2003/00684 {One of the conducting layers being flexible so that electrical contact with the other can be established, e.g. by the weight of a playing piece }
- A63F 2003/00687 . . . {Printed circuits }
- A63F 2003/0069 . . . {using a spring }
- U A63F 3/00697 . { Playing pieces}
- A63F 2003/007 . . . {Design of classical playing pieces, e.g. classical chess, draughts or go }
- A63F 2003/00703 . . . {Tokens or chips }
- A63F 2003/00706 . . . {Mill game }
- A63F 2003/00709 . . . {Nim game }
- A63F 2003/00712 . . . {Scissors, paper, stone or rock }
- A63F 2003/00716 . . {Connectable or stackable playing pieces or parts thereof }

A63F 2003/00719	. . . {with connections amongst the playing pieces or parts thereof }
A63F 2003/00722	. . . . {Hook and loop-type fastener }
A63F 2003/00725	. . . . {Peg and socket connection }
A63F 2003/00728	. . . . . {Snap-fitted }
A63F 2003/00731	. . . . {Hook or eyelet }
A63F 2003/00735	. . . . {Clamp or clip }
A63F 2003/00738	. . . . Magnetic {Magnetic }
A63F 2003/00741	. . . . {Screw elements }
A63F 2003/00744	. . . . {with a connection to a playing piece that stands on another playing field }
A63F 2003/00747	. . {Playing pieces with particular shapes }
A63F 2003/0075	. . . {covering two or more playing fields }
A63F 2003/00753	. . . {L-shaped }
A63F 2003/00757	. . . {Planimetric shapes, e.g. disks }
A63F 2003/0076	. . . . {circular (A63F 2003/00703 takes precedence)}
A63F 2003/00763	. . . . . {Sections, sectors or segments }
A63F 2003/00766	. . . . Triangular {Triangular }
A63F 2003/00769	. . . . Isosceles {Isosceles }
A63F 2003/00772	. . . . Rectangular {Rectangular }
A63F 2003/00776	. . . . . Lozenge {Lozenge }
A63F 2003/00779	. . . . . Square {Square }
A63F 2003/00782	. . . . Pentagonal {Pentagonal }
A63F 2003/00785	. . . . Hexagonal {Hexagonal }
A63F 2003/00788	. . . . Heptagonal {Heptagonal }
A63F 2003/00791	. . . . Octagonal {Octagonal }
A63F 2003/00794	. . . {Stereometric shapes }
A63F 2003/00798	. . . . Spheres {Spheres }
A63F 2003/00801	. . . . Cylinders {Cylinders }
A63F 2003/00804	. . . . Pyramids {Pyramids }
A63F 2003/00807	. . . . Tetrahedrons {Tetrahedrons }
A63F 2003/0081	. . . . Blocks {Blocks }
A63F 2003/00813	. . . . Cubes {Cubes }
A63F 2003/00817	. . . . Cones {Cones }
A63F 2003/0082	. . . . Prisms {Prisms }
A63F 2003/00823	. . . {T-shaped }
A63F 2003/00826	. . {Changeable playing pieces }
A63F 2003/00829	. . . {with adjustable height }
A63F 2003/00832	. . {with groups of playing pieces, each group having its own characteristic }
A63F 2003/00835	. . . {The characteristic being the colour }
A63F 2003/00839	. . . {The characteristic being size or shape }
A63F 2003/00842	. . . {The characteristic being a graphical marking }
A63F 2003/00845	. . {Additional features of playing pieces; Playing pieces not assigned to one particular player }
A63F 2003/00848	. . . {Barriers, obstacles or obstructions (A63F 2003/00971 takes precedence)}
A63F 2003/00851	. . . . Hurdles {Hurdles }

- A63F 2003/00854 . . . {Element covering a playing piece }
- A63F 2003/00858 . . . {Direction indicators }
- A63F 2003/00861 . . . {Jokers wild cards }
- A63F 2003/00864 . . . {Markers, e.g. indicating the spot of a previous move (score marking on play piece [A63F 2011/0062](#)) }
- A63F 2003/00867 . . {The playing piece having two characteristics }
- A63F 2003/0087 . . . {The characteristics being on the opposite sides of the playing piece }
- A63F 2003/00873 {with different colours on the opposite sides }
- A63F 2003/00876 . . . {One of the characteristics being a colour }
- A63F 2003/0088 . . {The playing piece having three characteristics }
- A63F 2003/00883 . . {The playing piece having four or more characteristics, e.g. on four or more faces }
- A63F 2003/00886 . . ~~Transparent~~{~~Transparent~~ }
- A63F 2003/00889 . . . {with a colour }
- A63F 2003/00892 . . {Manufacturing of playing pieces }
- U A63F 3/00895 . { Accessories for board games ([A63F 3/00697](#) takes precedence; game accessories of general use [A63F 11/00](#)) }
- A63F 2003/00899 . . {Instruments for handling a playing piece }
- A63F 2003/00902 . . . ~~adhesive~~{~~adhesive~~ }
- A63F 2003/00905 . . . {with a suction cup }
- A63F 2003/00908 . . . {with clamping means }
- A63F 2003/00911 . . . {with a hook or an eyelet }
- A63F 2003/00914 ~~Fork~~{~~Fork~~ }
- A63F 2003/00917 . . . {with pin and hole }
- A63F 2003/00921 {snap fit }
- A63F 2003/00924 . . . {Threaded connection }
- A63F 2003/00927 . . . ~~magnetic~~{~~magnetic~~ }
- A63F 2003/0093 {acting through a cover, e.g. transparent cover }
- A63F 2003/00933 . . . {pointed instrument }
- A63F 2003/00936 . . {Handle on the board or box for carrying }
- A63F 2003/0094 . . . {convertible into a suitcase }
- A63F 2003/00943 . . {Box or container for board games }
- A63F 2003/00946 . . . {with a storage for playing pieces next to the playing field (rim with storing space [A63F 2003/00514](#)) }
- A63F 2003/00949 {with a lid }
- A63F 2003/00952 . . . {with a drawer }
- A63F 2003/00955 . . . {with a lid ([A63F 2003/00949](#) takes precedence) }
- A63F 2003/00958 ~~slidable~~{~~slidable~~ }
- A63F 2003/00962 {with a game board on the lid or the inside of the lid }
- A63F 2003/00965 . . . {containing a set of board games }
- A63F 2003/00968 {with playing surfaces on opposite sides of the board }
- A63F 2003/00971 {with means for limiting the size of the playing field }
- A63F 2003/00974 . . {mounted, drawn on or designed as a table }
- A63F 2003/00977 . . . {with adjustable legs }
- A63F 2003/00981 . . . {with collapsible legs }

- A63F 2003/00984 . . . {with only foot pads, e.g. rubber }
- A63F 2003/00987 . . . {with a table-flap }
- A63F 2003/0099 . . . {with extension, e.g. sliding }
- A63F 2003/00993 . . . {with wheels or rollers }
- A63F 2003/00996 . {Board games available as video games }
- U A63F 3/02 . Chess; Similar board games
- U A63F 3/022 . . {Recording or reproducing chess games (data processing for game playing **G06F19/00B**; teaching games [G09B 19/22](#))}
- A63F 2003/025 . . . {for teaching chess}
- U A63F 3/04 . Geographical or like games; Educational games (educational appliances in general [G09B](#))
- U A63F 3/0402 . . { for learning languages}
- A63F 2003/0405 . . . {relating to specific languages }
- A63F 2003/0407 **arabic**-{**arabic** }
- A63F 2003/041 **chinese**-{**chinese** }
- A63F 2003/0413 **japanese**-{**japanese** }
- U A63F 3/0415 . . {Number games (electric [A63F 3/0421](#); mathematical models or topics [A63F 3/0457](#); two-dimensional puzzles with rotating rings or discs [A63F 9/0811](#), [A63F 9/0819](#))}
- A63F 2003/0418 . . . {with a grid, e.g. 'Sudoku'-type games }
- U A63F 3/0423 . . {Word games, e.g. scrabble (electric [A63F 3/0421](#); two-dimensional puzzles with rotating rings or discs [A63F 9/0811](#), [A63F 9/0819](#))}
- A63F 2003/0426 . . . {Spelling games }
- A63F 2003/0428 . . . **Crosswords**-{**Crosswords** }
- A63F 2003/0431 . . . {Encoding or decoding }
- U A63F 3/0434 . . { Geographical games (travelling [A63F 3/00088](#))}
- A63F 2003/0436 . . . **Flags**-{**Flags** }
- A63F 2003/0439 . . . {using geographical maps }
- A63F 2003/0442 **Atlas**-{**Atlas** }
- A63F 2003/0444 **Globe**-{**Globe** }
- A63F 2003/0447 {Road map }
- U A63F 3/0449 . . {concerning history}
- A63F 2003/0452 . . . **Genealogy**-{**Genealogy** }
- A63F 2003/0455 . . . **Prehistoric**-{**Prehistoric** }
- U A63F 3/0457 . . {concerning science or technology, e.g. geology, chemistry, statistics, computer flow charts, radio, telephone ([A63F 3/0478](#) takes precedence; other games concerning science or technology [A63F 9/0076](#))}
- A63F 2003/046 . . . {Mathematics (arithmetics [A63F 3/0415](#))}
- A63F 2003/0463 **Computers**-{**Computers** }
- A63F 2003/0465 **Permutations**-{**Permutations** }
- A63F 2003/0468 . . . **Astronomy**-{**Astronomy** }
- A63F 2003/0471 . . . **Physics**-{**Physics** }
- A63F 2003/0473 . . . **Mechanics**-{**Mechanics** }
- A63F 2003/0476 . . . **Chemistry**-{**Chemistry** }
- U A63F 3/0478 . . {concerning life sciences, e.g. biology, ecology, nutrition, health, medicine, psychology}

- A63F 2003/0481 . . . **Biology** {*Biology*}
- A63F 2003/0484 . . . **Ecology** {*Ecology*}
- A63F 2003/0486 . . . **Nutrition** {*Nutrition*}
- A63F 2003/0489 . . . **Psychology** {*Psychology*}
- A63F 2003/0492 . . . **Medical** {*Medical*}
- U A63F 3/06 . Lottos or bingo games; Systems, apparatus or devices for checking such games {(small boxes with balls used for generating random numbers [A63F 7/048](#); lottery apparatus [G07C 15/00](#); lottery gaming stations, online lottery or bingo [G07F 17/329](#); printing processes for lottery tickets [B41M 3/005](#))}
- U A63F 3/065 . . { Tickets or accessories for use therewith ([A63F 3/0625](#) takes precedence)}
- U A63F 3/0655 . . . { Printing of tickets, e.g. lottery tickets}
- A63F 2003/066 {using ink jet }
- U A63F 3/0665 . . . {having a message becoming legible after rubbing-off a coating or removing an adhesive layer (for educational purposes [G09B](#))}
- A63F 2003/067 {using carbon or graphite coating }
- A63F 2003/0675 {using a metallic coating }
- U A63F 3/08 . Raffle games that can be played by a fairly large number of people {([A63F 3/0625](#), [A63F 3/065](#) take precedence; lottery apparatus [G07C 15/00](#); lottery gaming stations, online lottery or bingo [G07F 17/329](#))}
- U A63F 3/081 . . {electric}
- A63F 2003/082 . . . {with remote participants }
- A63F 2003/083 {played via television }
- A63F 2003/084 {played via radio }
- A63F 2003/085 {played via telegraph }
- A63F 2003/086 {played via telephone, e.g. using a modem }
- A63F 2003/087 {using a fax }
- A63F 2003/088 {played via Internet }
- U **A63F 7/00** **Indoor games using small moving playing bodies, e.g. balls, discs or blocks (board games, raffle games [A63F 3/00](#); roulette games [A63F 5/00](#); miniature bowling games [A63D 3/00](#); bagatelle or similar games [A63D 13/00](#); billiards, pocket billiards [A63D 15/00](#))**
WARNING
Groups not complete pending reclassification: [A63F 7/022](#), [A63F 7/0656](#), [A63F 7/0616](#), [A63F 7/062](#), [A63F 7/0624](#), [A63F 7/0632](#), [A63F 7/064](#), [A63F 7/0644](#), [A63F 7/0648](#), [A63F 7/0656](#), [A63F 7/24](#), [A63F 7/2418](#), [A63F 7/2427](#), [A63F 7/249](#), [A63F 7/265](#), [A63F 7/28](#), [A63F 7/30](#), [A63F 7/3055](#), [A63F 7/306](#), [A63F 7/307](#), [A63F 7/34](#), [A63F 7/36](#), [A63F 7/382](#). See also this group and its subgroups
- U A63F 7/0005 . { played on a table, the ball or other playing body being rolled or slid from one side of the table in more than one direction or having more than one entering position on this same side, e.g. shuffle boards (miniature bowling-alleys [A63D 3/00](#); goalposts per se [A63F 7/305](#))}
- A63F 2007/0011 . . {Target bowling or skee ball }
- U A63F 7/0023 . {played on a table from all sides, e.g. marble games}
- A63F 2007/0029 . . {with a playstation for each participant sharing a part of the playing field }
- A63F 2007/0035 . . . {for two players }
- A63F 2007/0041 . . . {for three or more players }

- A63F 2007/0047
 - • {simulating pool, snooker or billiards }
- A63F 2007/0052
 - • {with a playstation for each participant, each with a separate playing field }
- A63F 2007/0064
 - {Ball games combined with other games }
- A63F 2007/007
 - • {with another ball game }
- U A63F 7/0076
 - {the playing bodies having the function of playing pieces, imitating a board game}
- A63F 2007/0082
 - • ~~Mancala~~-{Mancala }
- U A63F 7/0088
 - {using magnetic power ([A63F 7/068](#) takes precedence; magnetic toys [A63H 33/26](#))}
- A63F 2007/0094
 - • {using electromagnetic action, e.g. for attracting a ball }
- U A63F 7/22
 - in which the playing bodies are projected through the air {(not used, see subgroups of [A63F 7/06](#))}
- U A63F 7/24
 - • Devices controlled by the player to project or roll-off the playing bodies (arrangement of such devices in table alleys, miniature bowling-alleys or bowling games [A63D 3/02](#); in bagatelle or billiards [A63D 13/00](#), [A63D 15/00](#))
- U A63F 7/2409
 - • • { Apparatus for projecting the balls}
- U A63F 7/2436
 - • • • { Hand-held or connected to a finger, e.g. cues, clubs, sticks}
- A63F 2007/2445
 - • • • • {Stick-shaped }
- A63F 2007/2454
 - • • • • {Club, stick }
- A63F 2007/2463
 - • • • • ~~Cue~~-{Cue }
- U A63F 7/28
 - • • using gravity, { i.e. apparatus for rolling off the ball, e.g. a slope, ramp or slant}
- A63F 2007/282
 - • • • {Gutter-shaped }
- A63F 2007/284
 - • • • • {with a plurality of gutters, e.g. parallel }
- A63F 2007/286
 - • • • {Pipe-shaped }
- A63F 2007/288
 - • • • {with more ramps than two on opposite sides of the playing field }
- U A63F 7/30
 - • { Details of the playing surface, e.g.} obstacles; { Goal posts;} Targets; Scoring or pocketing devices; Playing-body-actuated sensors, e.g. switches; Tilt indicators; { Means for detecting misuse or errors}
- A63F 2007/3005
 - • • {Obstacles, obstructions }
- A63F 2007/301
 - • • • ~~Exchangeable~~-{Exchangeable }
- A63F 2007/3015
 - • • • {The obstruction being a wall with apertures allowing the ball to pass }
- A63F 2007/302
 - • • {Hidden parts or passages }
- A63F 2007/3025
 - • • {with means for indicating or regulating a start position, e.g. foul line }
- A63F 2007/303
 - • • {Parts of the playing surface being movable, replaceable or removable ([A63F 2007/301](#) takes precedence)}
- A63F 2007/3035
 - • • • {with movable playing surfaces rotatable about a vertical axis }
- A63F 2007/304
 - • • • {with movable playing surfaces supported or driven by horizontal rollers, e.g. using endless belts }
- A63F 2007/3045
 - • • • {Removable parts for service access }
- A63F 2007/308
 - • • {Means for detecting misuse or errors, e.g. giving audible or visible warning; Preventing misuse }
- A63F 2007/3085
 - • • • ~~Tilting~~-{Tilting }
- A63F 2007/309
 - • • • {Preventing unauthorised use or vandalism }
- A63F 2007/3095
 - • • • {Protective sleeve or cover }
- U A63F 7/34
 - • Other devices for handling the playing bodies, e.g. bonus ball return means
- A63F 2007/341
 - • • {Ball collecting devices or dispensers }

- A63F 2007/343 . . . {with a device for picking up the ball }
- A63F 2007/345 . . . {Ball return mechanisms; Ball delivery }
- A63F 2007/346 . . . ~~Gutter~~ {Gutter }
- A63F 2007/348 . . . {Anti-blocking devices for balls }
- U A63F 7/36 . . . Constructional details not covered by groups [A63F 7/24](#) to [A63F 7/34](#), { i.e. constructional details of rolling boards, rims or play tables}, e.g. frame, game boards, guide tracks,
- U A63F 7/3603 . . . { Rolling boards with special surface, e.g. air cushion boards}
- A63F 2007/3607 . . . {with a flexible surface }
- A63F 2007/3611 . . . {with a playing surface playable on both sides }
- A63F 2007/3614 . . . {with details about roughness of playing surface }
- A63F 2007/3618 . . . {covered or coated with a regular structure, e.g. a net }
- A63F 2007/3625 . . . {Rolling board to be positioned on a table or floor }
- A63F 2007/3629 . . . {with means for connecting the rolling board or parts to the floor or table, e.g. clamps }
- A63F 2007/3633 . . . {Rolling boards characterised by the shape of the playing surface }
- A63F 2007/3637 . . . ~~Concave~~ {Concave }
- A63F 2007/364 . . . ~~Convex~~ {Convex }
- A63F 2007/3644 . . . {Roof-shaped }
- A63F 2007/3648 . . . {Rolling boards characterised by a non-horizontal playing surface }
- A63F 2007/3651 . . . {with adjustable angle }
- A63F 2007/3655 . . . {Collapsible, foldable or rollable parts }
- A63F 2007/3659 . . . {convertible into a suitcase }
- A63F 2007/3662 . . . {modular, e.g. with connections between modules }
- A63F 2007/3666 . . . {Rolling boards with a plurality of playing surfaces, e.g. on different levels }
- A63F 2007/367 . . . {Details of the rim }
- A63F 2007/3674 . . . {Details of play tables, designed as a table }
- A63F 2007/3677 . . . {with a cover remaining over the table during playing }
- A63F 2007/3681 . . . {with a transparent dome }
- A63F 2007/3685 . . . {Details of legs }
- A63F 2007/3688 . . . ~~adjustable~~ {adjustable }
- A63F 2007/3692 . . . ~~collapsible~~ {collapsible }
- A63F 2007/3696 . . . ~~removable~~ {removable }
- U A63F 7/38 . . . Playing surfaces movable during play{, i.e. games played on a non-stationary surface, e.g. the ball intended to be in permanent motion (balls to be shaken or rolled in small boxes [A63F 7/04](#); eccentric weights put into orbital motion by nutating movement of the user [A63B 21/0608](#))}
- U A63F 7/382 . . . { held by the user, e.g. spinning hoops, whirling amusement devices, orbiting toys}
- A63F 2007/384 . . . {held by two or more persons }
- U A63F 7/40 . . . Balls or other moving playing bodies, e.g. pinballs or discs { used instead of balls}
- A63F 2007/4006 . . . {played with a plurality of identical balls }
- A63F 2007/4012 . . . {with an excentric center of gravity }
- A63F 2007/4018 . . . {with balls of different dimensions }
- A63F 2007/4025 . . . {with balls having different masses but the same dimension }

- A63F 2007/4031 {with balls of different colours or other visual characteristics }
- A63F 2007/4037 {with balls of two different colours }
- A63F 2007/4043 {with balls of three or more different colours }
- A63F 2007/405 ~~Magnetic~~-{~~Magnetic~~ }
- A63F 2007/4056 {with a permanent magnet }
- A63F 2007/4062 {with a non-magnetic ball material }
- A63F 2007/4068 {Sliding play elements, e.g. discs or bodies with a low coefficient of friction }
- A63F 2007/4075 {provided with a ball race or rollers }
- A63F 2007/4081 {Ball with a hole sliding over a guide }
- A63F 2007/4087 {Tethered balls }
- A63F 2007/4093 {supported on a tethering arm }

U A63F 9/00

Games not otherwise provided for (aspects of games using an electronically generated display having two or more dimensions showing representations related to the game [A63F 13/00](#) {miscellaneous sporting games [A63B 67/00](#)})

WARNING

Groups incomplete pending reclassification reorganisation: [A63F 9/0243](#), [A63F 9/0495](#), [A63F 9/0601](#), [A63F 9/0602](#), [A63F 9/0604](#), [A63F 9/0611](#), [A63F 9/0612](#), [A63F 9/0641](#), [A63F 9/0666](#), [A63F 9/0669](#), [A63F 9/0807](#), [A63F 9/0834](#), [A63F 9/0838](#), [A63F 9/0842](#), [A63F 9/0857](#), [A63F 9/0861](#), [A63F 9/0865](#), [A63F 9/0869](#), [A63F 9/0873](#), [A63F 9/1208](#), [A63F 9/1252](#), [A63F 9/1288](#). See also this group and its subgroups

- U A63F 9/0001 . {Games specially adapted for handicapped, blind or bed-ridden persons}
- A63F 2009/0003 . . {Games specially adapted for blind or partially sighted people }
- A63F 2009/0004 . . . {using BRAILLE }
- A63F 2009/0006 . . . {Colour blind }
- A63F 2009/0007 . . {Games with therapeutic effects }
- A63F 2009/0009 . . {with provisions for or for use by people lying in bed }
- U A63F 9/001 . {Games or toys connected to, or combined with, other objects; Objects with a second use as a toy or game}
- A63F 2009/0012 . . {the other object being a container or part thereof }
- A63F 2009/0013 . . . {Bottles (cups [A63F 2009/0053](#))}
- A63F 2009/0015 {Closures, e.g. POGS, milk cap game, cap disk game, flippo }
- A63F 2009/0016 ~~Labels~~-{~~Labels~~ }
- A63F 2009/0018 . . {with means for holding a pen or pencil }
- A63F 2009/002 . . {used as hanger or connected to a hanger; Ornaments or jewellery }
- A63F 2009/0021 . . . {Bracelets, worn on wrist }
- A63F 2009/0023 . . . {with provisions for connecting to clothes }
- A63F 2009/0024 . . . {with provisions for connecting to a belt }
- A63F 2009/0026 . . . ~~Headbands~~-{~~Headbands~~ }
- A63F 2009/0027 . . . ~~Keyhangers~~-{~~Keyhangers~~ }
- A63F 2009/0029 . . . ~~Necklaces~~-{~~Necklaces~~ }
- A63F 2009/003 . . . ~~Rings~~-{~~Rings~~ }
- A63F 2009/0032 . . . {with provisions for hanging on a wall }
- A63F 2009/0033 . . {Display or decorative devices }

- A63F 2009/0035 . . . {on a pedestal or stand }
- A63F 2009/0036 . . {combined with a book or magazine }
- A63F 2009/0038 . . . {Dictionaries of encyclopedia }
- A63F 2009/0039 . . . {Instruction or exercise books; Guides }
- A63F 2009/0041 {in electronic form, e.g. video }
- A63F 2009/0043 . . . {Magazines or newspapers }
- A63F 2009/0044 . . ~~Postcards~~ {Postcards }
- A63F 2009/0046 . . . {with stamps }
- A63F 2009/0047 . . {Beer mats or coasters; Placemats }
- A63F 2009/0049 . . {Objects with a second use as toy or game }
- A63F 2009/005 . . . ~~Ashtrays~~ {Ashtrays }
- A63F 2009/0052 . . . {Bottle cap lifters }
- A63F 2009/0053 . . . ~~Cups~~ {Cups }
- A63F 2009/0055 . . . ~~Bens~~ {Bens }
- A63F 2009/0056 . . . {Furniture, e.g. bed }
- A63F 2009/0058 . . . {Drinking glasses }
- A63F 2009/0059 . . . ~~Wallets~~ {Wallets }
- A63F 2009/0061 . . . ~~Calendars~~ {Calendars }
- A63F 2009/0063 . . . {Cigarette lighters }
- A63F 2009/0064 . . . {Items relating to health or medical instruments }
- A63F 2009/0066 ~~Gondoms~~ {Gondoms }
- A63F 2009/0067 . . . {Paper clips }
- A63F 2009/0069 . . . {Clothes pegs }
- A63F 2009/007 . . . {Piggy banks }
- A63F 2009/0072 . . . ~~Whistles~~ {Whistles }
- U A63F 9/0073 . { Games for obtaining a particular arrangement of playing pieces in a plane or space ([A63F 9/08](#) takes precedence; ticktacktoe [A63F 3/00094](#); three-dimensional chess-like games [A63F 3/00214](#)) }
- A63F 2009/0075 . . {Towers of Hanoi }
- U A63F 9/0079 . { Games using compressed air, e.g. with air blowers, balloons, vacuum ([A63F 7/066](#) and [A63F 7/3603](#) take precedence) }
- A63F 2009/0081 . . {using suction or vacuum }
- A63F 2009/0083 . . {Games with balloons }
- A63F 2009/0084 . . . ~~Bursting~~ {Bursting }
- A63F 2009/0086 . . {using inflatable objects }
- A63F 2009/0087 . . {with means for producing an air current }
- A63F 2009/0089 . . . {blown by mouth }
- A63F 2009/009 . . . ~~pneumatic~~ {pneumatic }
- A63F 2009/0092 . . {Air gun }
- U A63F 9/0093 . {Punchboards }
- A63F 2009/0095 . . {the pegs to be inserted to different depths, e.g. by inserting invisible elements }

- U A63F 9/02
 - Shooting or hurling games (throwing-implements for sports or recreational use [A63B 65/00](#); throwing or projecting toys per se [A63H 33/18](#); { gun simulators [F41A 33/00](#), e.g. light- or radiation-emitting guns [F41A 33/02](#); practice apparatus for gun-aiming [F41G 3/26](#), e.g. using a light-emitting device [F41G 3/2616](#)}; targets, target ranges, bullet catchers [F41J](#), { photo-electric hit-detector systems [F41J 5/02](#)})
- U A63F 9/0204
 - • {Targets therefor (for ball games [A63B 63/00](#))}
- U A63F 9/0208
 - • • { the projectile being connectable to the target, e.g. using hook and loop-type fastener, hooks }
 - A63F 2009/0213 • • • • {the projectile, e.g. ring or quoits, to be thrown on a hook or stick }
 - A63F 2009/0217 • • • • • {using horseshoes }
 - A63F 2009/0221 • • • • {with penetrating spikes, e.g. as in darts }
 - A63F 2009/0226 • • • • • {the spikes being on the target }
 - A63F 2009/023 • • • • {with suction cups }
 - A63F 2009/0234 • • • • • {the suction cups being on the target }
 - A63F 2009/0239 • • • • {using hook and loop-type fastener }
- U A63F 9/0252
 - • {Shooting devices therefor}
 - A63F 2009/0256 • • • {with adjustable angle of evaluation }
 - A63F 2009/026 • • • • {by varying the point of impact }
 - A63F 2009/0265 • • • • {using resilient elements }
 - A63F 2009/0269 • • • • {Bow and arrows }
 - A63F 2009/0273 • • • • ~~Catapults~~ {~~Catapults~~ }
- U A63F 9/0278
 - • { Projectiles ([A63F 9/0208](#), [A63F 9/0247](#) and [A63F 9/0252](#) take precedence)}
 - A63F 2009/0282 • • • {with shapes other than balls }
 - A63F 2009/0286 • • • • ~~Dises~~ {~~Discs~~ }
 - A63F 2009/0295 • • {Tiddley winks type games }
- U A63F 9/04
 - Dice (dice tops [A63F 5/04](#) { D}); Dice-boxes; Mechanical dice-throwing devices {(casino or betting games played on boards [A63F 3/00157](#))}
- U A63F 9/0402
 - • { Rolling boards}
 - A63F 2009/0404 • • • {without a barrier, e.g. with limit lines drawn on the board }
- U A63F 9/0406
 - • { Dice-throwing devices, e.g. dice cups}
 - A63F 2009/0408 • • • {with a dice projecting device }
 - A63F 2009/0411 • • • {Dice cups }
- U A63F 9/0415
 - • { Details of dice, e.g. non-cuboid dice}
 - A63F 2009/0417 • • • {Two-sided dice, e.g. coins }
 - A63F 2009/042 • • • {three-sided }
 - A63F 2009/0422 • • • {four-sided }
 - A63F 2009/0424 • • • {five-sided }
 - A63F 2009/0426 • • • {six-sided non-cuboid }
 - A63F 2009/0428 • • • {seven-sided }
 - A63F 2009/0431 • • • {eight-sided }
 - A63F 2009/0433 • • • {nine-sided }
 - A63F 2009/0435 • • • {ten-sided }
 - A63F 2009/0437 • • • {twelve-sided }
 - A63F 2009/044 • • • {fourteen-sided }
 - A63F 2009/0442 • • • {sixteen-sided }

- A63F 2009/0444 . . . {eighteen-sided }
- A63F 2009/0446 . . . {twenty-sided }
- A63F 2009/0448 . . . {twenty-four-sided }
- A63F 2009/0451 . . . {twenty-six-sided }
- A63F 2009/0453 . . . {thirty-sided }
- A63F 2009/0455 . . . {thirty-two-sided }
- A63F 2009/0457 . . . {fourty-two-sided }
- A63F 2009/0459 . . . {fourty-nine-sided }
- A63F 2009/0462 . . . {fifty-sided }
- A63F 2009/0464 . . . ~~irregular~~ {irregular }
- A63F 2009/0466 . . . ~~spherical~~ {spherical }
- A63F 2009/0471 . . {Dice with different colours }
- A63F 2009/0473 . . . {on different faces of a dice }
- A63F 2009/0475 {with two or more colours }
- A63F 2009/0477 . . . {with groups of dice having different colours }
- A63F 2009/0479 {with three or more groups }
- A63F 2009/0482 . . {provided with instructions for playing dice games }
- A63F 2009/0484 . . {Dice with pictures or figures }
- A63F 2009/0486 . . {Dice with symbols, e.g. indicating a direction for moving a playing piece }
- A63F 2009/0488 . . . {with letters or words }
- A63F 2009/0491 . . {Customisable dice, e.g. with interchangeable or replaceable inserts }
- A63F 2009/0493 . . {Dice with other dice inside }
- A63F 2009/0497 . . {Manufacturing of dice }
- U A63F 9/06 . . Patience; Other games for self-amusement
- WARNING
- Groups [A63F 9/0601](#) to [A63F 9/0604](#) are not complete pending reclassification; see also this groups and its other subgroups
- U A63F 9/0604 . . { based on the use of colours }
- A63F 2009/0605 . . . {referring to colour theory }
- A63F 2009/0606 {Complementary colours }
- A63F 2009/0608 {Mixing colours }
- A63F 2009/0609 . . . {using wavelengths of invisible light }
- U A63F 9/0613 . . {Puzzles or games based on the use of optical filters or elements e.g. coloured filters, polaroid filters, transparent sheets with opaque parts (optical, colour or shadow toys [A63H 33/22](#)) }
- A63F 2009/0615 . . . ~~transparent~~ {transparent }
- A63F 2009/0616 {with colours }
- A63F 2009/0618 {used for masking, e.g. for making objects with the same colour invisible }
- A63F 2009/0619 {with an opaque part }
- A63F 2009/062 ~~overlapping~~ {overlapping }
- A63F 2009/0622 {Sighting device }
- A63F 2009/0623 . . . {with mirrors }
- A63F 2009/0625 {using total internal reflection, e.g. in a prism }
- A63F 2009/0626 ~~Periscope~~ {Periscope }

A63F 2009/0627	. . . {partially transparent }
A63F 2009/0629	. . . {with lenses or other refractive optical elements }
A63F 2009/063	. . . {Optical elements other than lenses used for producing refraction, e.g. prisms }
A63F 2009/0631	. . . Binoculars {Binoculars }
A63F 2009/0633	. . . {Fresnel lenses }
A63F 2009/0634	. . . {Magnifying glasses }
A63F 2009/0636	. . . Telescopes {Telescopes }
A63F 2009/0637	. . . {Optical fibres }
A63F 2009/0638	. . . {Polaroid filters }
A63F 2009/064	. . . {opaque, e.g. blindfold, obstructing view }
U A63F 9/0641	. . { using a marker or means for drawing, e.g. pen, pencil, chalk }
A63F 2009/0643	. . . erasable {erasable }
A63F 2009/0644	. . . {Blackboard or slate }
A63F 2009/0645	. . . {for erasing a felt pen }
A63F 2009/0647	. . . {using wet or damp cloth or a sponge }
A63F 2009/0648	. . . {using a rubber }
A63F 2009/065	. . . {using a sliding mechanism }
A63F 2009/0651	. . . {with means for copying }
A63F 2009/0652	. . . {using carbon paper }
A63F 2009/0654	. . . Decalcomania {Decalcomania }
A63F 2009/0655	. . . {Copying from a relief surface, e.g. coin }
A63F 2009/0656	. . . {using a stamp }
A63F 2009/0658	. . . {Marking a point }
A63F 2009/0659	. . . {Drawing a line }
A63F 2009/0661	. . . {Making a drawing }
A63F 2009/0662	. . . {Making a painting }
A63F 2009/0663	. . . {using a template }
A63F 2009/0665	. . . {using a plurality of markers, e.g. different colours }
U A63F 9/0666	. . { matching elementary shapes to corresponding holes }
A63F 2009/0668	. . . {the shapes falling or being pushed through the holes }
U A63F 9/0669	. . { Tessellation }
A63F 2009/067	. . . {using a particular shape of tile }
A63F 2009/0672	. . . {arrow-shaped, V-shaped }
A63F 2009/0673	. . . circular {circular }
A63F 2009/0675	. . . Segments {Segments }
A63F 2009/0676	. . . Sectors {Sectors }
A63F 2009/0677	. . . {Part of a circle other than segment or sector, arcuate }
A63F 2009/0679	. . . {elliptical, oval }
A63F 2009/068	. . . hexagonal {hexagonal }
A63F 2009/0681	. . . pentagonal {pentagonal }
A63F 2009/0683	. . . quadrangular {quadrangular }
A63F 2009/0684	. . . Parallelogram {Parallelogram }
A63F 2009/0686	. . . Rhombus {Rhombus }

- A63F 2009/0687 ~~Rectangle~~{*Rectangle*}
- A63F 2009/0688 ~~Square~~{*Square*}
- A63F 2009/069 ~~Trapezium~~{*Trapezium*}
- A63F 2009/0691 ~~Kite~~{*Kite*}
- A63F 2009/0693 {star-shaped }
- A63F 2009/0694 ~~triangular~~{*triangular*}
- A63F 2009/0695 . . . {using different types of tiles }
- A63F 2009/0697 {of polygonal shapes}
- A63F 2009/0698 {all rectilinear}
- U A63F 9/08 . . . Puzzles provided with elements movable in relation, {i.e. movably connected}, to each other
- U A63F 9/0803 . . . {Two-dimensional puzzles with slideable or rotatable elements or groups of elements, the main configuration remaining unchanged}
- U A63F 9/0811 {with rotatable concentric rings or discs ([A63F 9/083](#) takes precedence)}
- A63F 2009/0815 {with rotary, stacked elements, e.g. elements with a puzzle image on a curved or cylindrical outer surface }
- U A63F 9/0826 . . . {Three-dimensional puzzles with slidable or rotatable elements or groups of elements, the main configuration remaining unchanged, e.g. Rubik's cube (elements rotatable about just one axis, e.g. discs stacked as a cylinder [A63F 9/0811](#))}
- U A63F 9/0838 { with an element, e.g. invisible core, staying permanently in a central position having the function of central retaining spider and with groups of elements rotatable about at least three axes intersecting in one point}
- A63F 2009/0846 {characterised by the shape of the puzzle }
- A63F 2009/0849 ~~Dodecaedrons~~{*Dodecaedrons*}
- A63F 2009/0853 ~~Icosaedrons~~{*Icosaedrons*}
- A63F 2009/0884 . . . {with means for immobilising or stabilising a configuration; e.g. the solution }
- A63F 2009/0888 {using detents }
- A63F 2009/0892 . . . {with an extra element for the final vacant space }
- A63F 2009/0896 . . . {Moebius ring }
- U A63F 9/10 . . . Two-dimensional jig-saw puzzles
- A63F 2009/1005 . . . {with images on both sides }
- A63F 2009/1016 . . . {the pieces having additional connections, i.e. in addition to the connection by the jig-saw shapes }
- A63F 2009/1022 {to the display board}
- A63F 2009/1027 ~~adhesive~~{*adhesive*}
- A63F 2009/1033 ~~magnetic~~{*magnetic*}
- A63F 2009/1038 {with hook and loop-type fastener}
- U A63F 9/1044 . . . { Display boards therefor}
- A63F 2009/105 {with provisions for storing and transporting an interrupted game }
- A63F 2009/1055 {resiliently sandwiched }
- A63F 2009/1061 . . . {with electric features, e.g. light, wires }
- A63F 2009/1066 {completing a circuit if solved correctly}
- A63F 2009/1072 . . . ~~Manufacturing~~{*Manufacturing*}
- A63F 2009/1077 . . . {with a surface having a relief structure}
- A63F 2009/1083 . . . {having plural layers on top of each other }

	A63F 2009/1088	. . . {two layers }
	A63F 2009/1094	. . . {non-planar }
U	A63F 9/12	. Three-dimensional jig-saw puzzles
U	A63F 9/1208	. . . { Connections between puzzle elements }
	A63F 2009/1212	. . . . {magnetic connections }
	A63F 2009/1216	. . . . {using locking or binding pins }
	A63F 2009/122	. . . . . {connecting only two neighbouring elements }
	A63F 2009/1224	. . . . {using two or more types of connections }
	A63F 2009/1228	. . . . {slidable connections }
	A63F 2009/1232	. . . . . {Dove tails }
	A63F 2009/1236	. . . {with a final configuration thereof, i.e. the solution, being packed in a box or container }
	A63F 2009/124	. . . {with a final configuration being a sphere }
	A63F 2009/1244	. . . {with foldable pieces, e.g. pieces having folds or hinges }
	A63F 2009/1248	. . . {with a final configuration representing a house or other building }
U	A63F 9/1252	. . . { using pegs, pins, rods or dowels as puzzle elements }
	A63F 2009/1256	. . . . {using a plurality of pegs }
	A63F 2009/126	. . . . . {Configuration or arrangement of the pegs }
	A63F 2009/1264	. . . . . {all pegs being parallel }
	A63F 2009/1268	. . . . . {the pegs forming angles with each other, e.g. right angles in three dimensions }
	A63F 2009/1272	. . . . . {the pegs forming angles other than right angles in three dimensions }
	A63F 2009/1276	. . . . . {characterised by different lengths }
	A63F 2009/128	. . . . {with notches }
	A63F 2009/1284	. . . . {with screw elements, e.g. nuts }
U	A63F 9/1288	. . . { Sculpture puzzles }
	A63F 2009/1292	. . . . {formed by stackable elements }
	A63F 2009/1296	. . . {Manufacturing of three-dimensional puzzle elements }
U	A63F 9/14	. Racing games, traffic games, or obstacle games characterised by figures moved by action of the players ({ racing } games using dice A63F 3/00)
	A63F 2009/146	. . {Features of the horse or jockey, e.g. moving legs }
U	A63F 9/16	. Spinning-top games
	A63F 2009/165	. . {Use of spinning tops as random generators }
U	A63F 9/18	. Question-and-answer games
U	A63F 9/183	. . {electric }
	A63F 2009/185	. . . {Closing an electric circuit when the answer is correct }
	A63F 2009/186	. . {Guessing games }
	A63F 2009/188	. . {Details of questions, e.g. with increasing level of difficulty }
U	A63F 9/20	. Dominoes or like games; Mah-Jongg games
	A63F 2009/205	. . {Mah-jongg games }
U	A63F 9/24	. { Electric games; } Games using electronic circuits not otherwise provided for {(video games A63F 13/00 , computers for game playing per se G06F19/00B ; computerized gaming systems G07F 17/32)}
	A63F 2009/2401	. . {Detail of input, input devices }
	A63F 2009/2402	. . . {Input by manual operation }

A63F 2009/2404	. . . . Keyboard {Keyboard }
A63F 2009/2405	. . . . . {using more than one keyboard }
A63F 2009/2407	. . . . Joystick {Joystick }
A63F 2009/2408	. . . . {Touch-sensitive buttons }
A63F 2009/241	. . . . {Touch screen }
A63F 2009/2411	. . . {Input form cards, tapes, discs }
A63F 2009/2413	. . . . Magnetic {Magnetic }
A63F 2009/2414	. . . . . Cards {Cards }
A63F 2009/2416	. . . . . Diskettes {Diskettes }
A63F 2009/2417	. . . . . {Tapes or cassettes, e.g. audio or video cassettes }
A63F 2009/2419	. . . . Optical {Optical }
A63F 2009/242	. . . . . {Bar codes }
A63F 2009/2422	. . . . . {Cards with holes }
A63F 2009/2423	. . . . . {Discs, e.g. CD or DVD }
A63F 2009/2425	. . . . . {Scanners, e.g. for scanning regular characters }
A63F 2009/2426	. . . . Mechanical {Mechanical }
A63F 2009/2427	. . . . . {Punch cards }
A63F 2009/2429	. . . . {IC card, chip card, smart card }
A63F 2009/243	. . . {with other kinds of input }
A63F 2009/2432	. . . . {actuated by a sound, e.g. using a microphone }
A63F 2009/2433	. . . . . {Voice-actuated }
A63F 2009/2435	. . . . {using a video camera }
A63F 2009/2436	. . . {Characteristics of the input }
A63F 2009/2438	. . . . {Multiple input devices }
A63F 2009/2439	. . . . {the input being a code, e.g. ID }
A63F 2009/2441	. . . . . {Pin code }
A63F 2009/2442	. . . . {Sensors or detectors }
A63F 2009/2444	. . . . . {Light detector }
A63F 2009/2445	. . . . . . {detecting reflected light }
A63F 2009/2447	. . . . . {Motion detector }
A63F 2009/2448	. . {Output devices }
A63F 2009/245	. . . visual {visual }
A63F 2009/2451	. . . . {using illumination. e.g. with lamps }
A63F 2009/2452	. . . . . {as a signal }
A63F 2009/2454	. . . . . {with LED }
A63F 2009/2455	. . . . Printers {Printers }
A63F 2009/2457	. . . . {Display screens, e.g. monitors, video displays }
A63F 2009/2458	. . . . . {LCD`s }
A63F 2009/246	. . . . . {Computer generated or synthesized image }
A63F 2009/2461	. . . . {Projection of a two-dimensional real image }
A63F 2009/2463	. . . . . {on a screen, e.g. using a video projector }
A63F 2009/2464	. . . . . {on a translucent screen, e.g. frosted glass }
A63F 2009/2466	. . . . . {of a film }
A63F 2009/2467	. . . . . {of a slide }

A63F 2009/2469	. . . . {of a contour (shadow shows A63J 2019/003)}
A63F 2009/247	. . . {audible, e.g. using a loudspeaker }
A63F 2009/2472	. . . . {Buzzer, beep or electric bell }
A63F 2009/2473	. . . . {Devices for imitating a running engine }
A63F 2009/2475	. . . . Headphones {Headphones }
A63F 2009/2476	. . . . {Speech or voice synthesisers, e.g. using a speech chip }
A63F 2009/2477	. . . . {Tone generators, oscillators }
A63F 2009/2479	. . . {Other kinds of output }
A63F 2009/248	. . . . Magnetic {Magnetic }
A63F 2009/2482	. . . . Electromotor {Electromotor }
A63F 2009/2483	. . {Other characteristics }
A63F 2009/2485	. . . {using a general-purpose personal computer }
A63F 2009/2486	. . . . {the computer being an accessory to a board game }
A63F 2009/2488	. . . {Remotely playable }
A63F 2009/2489	. . . . {by radio transmitters, e.g. using RFID }
A63F 2009/2491	. . . {with a detachable memory }
A63F 2009/2492	. . . {Power supply }
A63F 2009/2494	. . . . {Battery, e.g. dry cell }
A63F 2009/2495	. . . . {using connection to car battery }
A63F 2009/2497	. . . . {Solar cells }
A63F 2009/2498	. . . {Moving conductor along conductive track without making contact }
U A63F 9/34	. Games using magnetically moved or magnetically held pieces, not provided for in other subgroups of group A63F 9/00
A63F 2009/345	. . Electromagnetically {Electromagnetically }
U A63F 11/00	Game accessories of general use { e.g. score counters, boxes }
	<u>NOTE</u>
	Game accessories specially adapted for a particular type of game are classified in one of the groups A63F 1/00 to A63F 9/00 covering the particular game
	<u>WARNING</u>
	Groups not complete, pending reclassification: A63F 11/0025 ; A63F 11/0051 ; A63F 11/0074 . See also this group]
A63F 11/0002	. { Dispensing or collecting devices for tokens or chips (dispensers for game pieces in chain reaction games A63F 9/28 ; coin freed apparatus for games G07F 17/32 ; coin freed apparatus for gaming machines with circulation of gaming tokens G07F17/32D2) }
A63F 2011/0004	. . Bags {Bags }
A63F 2011/0006	. . {adapted for chips }
A63F 2011/0009	. . Jars {Jars }
U A63F 11/0011	. { Chance selectors (A63F 7/048 , A63F 9/04 take precedence)}
A63F 2011/0013	. . Pendulums {Pendulums }
A63F 2011/0016	. . Spinners {Spinners }
A63F 2011/0018	. . . {integrated in the game board }
A63F 2011/002	. . . {with two pointers }
A63F 2011/0023	. . {indicating a direction, e.g. wind direction }
U A63F 11/0025	. { Tools }

A63F 2011/0027	• • Spanners {Spanners }
A63F 2011/003	• • Screwdrivers {Screwdrivers }
A63F 2011/0032	• • Hammers {Hammers }
A63F 2011/0034	• • Saws {Saws }
A63F 2011/0037	• • {Devices for scraping }
A63F 2011/0039	• • {Levers or crowbars }
A63F 2011/0041	• • Needles {Needles }
A63F 2011/0044	• • Pliers {Pliers }
A63F 2011/0046	• • {Sieves or filters }
A63F 2011/0048	• • {Scoops, shovels or spatulas }
U A63F 11/0051	• { Indicators of values, e.g. score counters }
A63F 2011/0053	• • {using a calculator }
A63F 2011/0055	• • {using pegs insertable in sockets }
A63F 2011/0058	• • {using electronic means (A63F 2011/0053 takes precedence)}
A63F 2011/006	• • {using knots on a rope }
A63F 2011/0062	• • {Play elements marked with value or score }
A63F 2011/0065	• • {calculating or indicating a ranking or player performance }
A63F 2011/0067	• • {Score or tally sheets }
A63F 2011/0069	• • Abacus {Abacus }
A63F 2011/0072	• • {Indicating values other than scores, e.g. handicap, initial settings, coefficients }
U A63F 11/0074	• { Game concepts, rules or strategies }
A63F 2011/0076	• • {with means for changing the level of difficulty }
A63F 2011/0079	• • {keeping something hidden or invisible }
A63F 2011/0081	• • • {"Memory"-type games, e.g. finding the corresponding hidden element }
A63F 2011/0083	• • {Memory oriented or pattern matching games }
A63F 2011/0086	• • Rules {Rules }
A63F 2011/0088	• • • {with a variety of rules }
A63F 2011/009	• • • • {the rules being changed during play }
A63F 2011/0093	• • • • {characterised by the game theory or winning strategy }
A63F 2011/0095	• • • • {with cooperation amongst players in competitive games, e.g. non zero sum games }
A63F 2011/0097	• • {Watching television being part of the game, e.g. using the television broadcasting of a sporting event }
A63F 13/00	Aspects of Video games, i.e. games using an electronically generated display having two or more dimensions, e.g. on a television screen, showing representations related to the game {(electric circuitry, see the relevant subclasses therefor Gaming systems which provide a financial reward G07F 17/32)}

Project: RP0063 (A63F)

- A63F 13/005
- {characterised by the type of game, e.g. ball games, fighting games}
- WARNINGS**
Group A63F 13/005 is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups A63F 13/80-A63F 13/847.
Until reclassification is complete, groups A63F 13/005 and A63F 13/80 - A63F 13/847 should be considered in order to perform a complete search.
- A63F 13/02
- Accessories (input or output arrangements for electrical digital computers [G06F 3/00](#))
- WARNINGS**
Group A63F 13/02 is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups A63F 13/20 - A63F 13/245 and A63F 13/98.
Until reclassification is complete, groups A63F 13/02 and A63F 13/20 - A63F 13/245 and A63F 13/98 should be considered in order to perform a complete search.
- A63F 13/04
- • for aiming at specific areas on the displays, e.g. with photodetecting means
- WARNINGS**
Group A63F 13/04 is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups A63F 13/20 - A63F 13/245, and A63F 13/837.
Until reclassification is complete, groups A63F 13/04 and A63F 13/20 - A63F 13/245, and A63F 13/837 should be considered in order to perform a complete search.
- A63F 13/06
- • using player-operated means for controlling the position of a specific area display
- WARNINGS**
Group A63F 13/06 is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups A63F 13/20 - A63F 13/245.
Until reclassification is complete, groups A63F 13/06 and A63F 13/20 - A63F 13/245 should be considered in order to perform a complete search.
- A63F 13/08
- Constructional details or arrangements, e.g. housing, wiring, connections, cabinets, not otherwise provided for
- WARNINGS**
Group A63F 13/08 is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups A63F 13/90 – A63F 13/98.
Until reclassification is complete, groups A63F 13/08 and A63F 13/90 – A63F 13/98 should be considered in order to perform a complete search.
- A63F 13/10
- Control of the course of the game, e.g. start, progress, end
- WARNINGS**
Group A63F 13/10 is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups A63F 13/40 - A63F 13/88.
Until reclassification is complete, groups A63F 13/10 and A63F 13/40 - A63F 13/88 should be considered in order to perform a complete search.

A63F 13/12

- involving interaction between a plurality of game devices, e.g. transmission or distribution systems {(protocols for networked virtual reality, networked games [H04L 29/06034](#))}

WARNINGS

Group A63F 13/12 is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups A63F 13/30 - A63F 13/88.

Until reclassification is complete, groups A63F 13/12 and A63F 13/30 - A63F 13/88 should be considered in order to perform a complete search.

Project: N/A (A63F)

N A63F 13/20

- Input arrangements for video game devices

WARNINGS

Group(s) [A63F 13/20-A63F 13/98](#) are incomplete pending reclassification of documents from group(s) [A63F 13/00-A63F 13/12](#).

Until reclassification is complete, groups [A63F 13/20-A63F 13/98](#) and [A63F 13/00-A63F 13/12](#) should be considered in order to perform a complete search.

N A63F 13/21

- • characterised by their sensors, purposes or types

N A63F 13/211

- • • using inertial sensors, e.g. accelerometers or gyroscopes

N A63F 13/212

- • • using sensors worn by the player, e.g. for measuring heart beat or leg activity

N A63F 13/213

- • • comprising photodetecting means, e.g. cameras, photodiodes or infrared cells ([A63F 13/219](#), [A63F 13/655](#) take precedence)

N A63F 13/214

- • • for locating contacts on a surface, e.g. floor mats or touch pads

N A63F 13/2145

- • • • the surface being also a display device, e.g. touch screens

N A63F 13/215

- • • comprising means for detecting acoustic signals, e.g. using a microphone

N A63F 13/216

- • • using geographical information, e.g. location of the game device or player using GPS

N A63F 13/217

- • • using environment-related information, i.e. information generated otherwise than by the player, e.g. ambient temperature or humidity

N A63F 13/218

- • • using pressure sensors, e.g. generating a signal proportional to the pressure applied by the player

N A63F 13/219

- • • for aiming at specific areas on the display, e.g. light-guns

N A63F 13/22

- • Setup operations, e.g. calibration, key configuration or button assignment

N A63F 13/23

- • for interfacing with the game device, e.g. specific interfaces between game controller and console

N A63F 13/235

- • • using a wireless connection, e.g. infrared or piconet

N A63F 13/24

- • Constructional details thereof, e.g. game controllers with detachable joystick handles

N A63F 13/245

- • • specially adapted to a particular type of game, e.g. steering wheels

N A63F 13/25

- Output arrangements for video game devices

N A63F 13/26

- • having at least one additional display device, e.g. on the game controller or outside a game booth

N A63F 13/27

- • characterised by a large display in a public venue, e.g. in a movie theatre, stadium or game arena

- N A63F 13/28
 - • responding to control signals received from the game device for affecting ambient conditions, e.g. for vibrating players' seats, activating scent dispensers or affecting temperature or light (controlling the output signals based on the game progress [A63F 13/50](#))
- N A63F 13/285
 - • • Generating tactile feedback signals via the game input device, e.g. force feedback
- N A63F 13/30
 - Interconnection arrangements between game servers and game devices; Interconnection arrangements between game devices; Interconnection arrangements between game servers
- N A63F 13/31
 - • Communication aspects specific to video games, e.g. between several handheld game devices at close range
- N A63F 13/32
 - • using local area network [LAN] connections
- N A63F 13/323
 - • • between game devices with different hardware characteristics, e.g. hand-held game devices connectable to game consoles or arcade machines
- N A63F 13/327
 - • • using wireless networks, e.g. Wi-Fi or piconet
- N A63F 13/33
 - • using wide area network [WAN] connections
- N A63F 13/332
 - • • using wireless networks, e.g. cellular phone networks
- N A63F 13/335
 - • • using Internet
- N A63F 13/338
 - • • using television networks
- N A63F 13/34
 - • using peer-to-peer connections
- N A63F 13/35
 - • Details of game servers
- N A63F 13/352
 - • • involving special game server arrangements, e.g. regional servers connected to a national server or a plurality of servers managing partitions of the game world
- N A63F 13/355
 - • • Performing operations on behalf of clients with restricted processing capabilities, e.g. servers transform changing game scene into an MPEG-stream for transmitting to a mobile phone or a thin client
- N A63F 13/358
 - • • Adapting the game course according to the network or server load, e.g. for reducing latency due to different connection speeds between clients
- N A63F 13/40
 - Processing input control signals of video game devices, e.g. signals generated by the player or derived from the environment
- N A63F 13/42
 - • by mapping the input signals into game commands, e.g. mapping the displacement of a stylus on a touch screen to the steering angle of a virtual vehicle
- N A63F 13/422
 - • • automatically for the purpose of assisting the player, e.g. automatic braking in a driving game
- N A63F 13/424
 - • • involving acoustic input signals, e.g. by using the results of pitch or rhythm extraction or voice recognition
- N A63F 13/426
 - • • involving on-screen location information, e.g. screen coordinates of an area at which the player is aiming with a light gun
- N A63F 13/428
 - • • involving motion or position input signals, e.g. signals representing the rotation of an input controller or a player's arm motions sensed by accelerometers or gyroscopes
- N A63F 13/44
 - • involving timing of operations, e.g. performing an action within a time slot
- N A63F 13/45
 - Controlling the progress of the video game
- N A63F 13/46
 - • Computing the game score
- N A63F 13/47
 - • involving branching, e.g. choosing one of several possible scenarios at a given point in time
- N A63F 13/48
 - • Starting a game, e.g. activating a game device or waiting for other players to join a multiplayer session

- N A63F 13/49
 - • Saving the game status; Pausing or ending the game
- N A63F 13/493
 - • • Resuming a game, e.g. after pausing, malfunction or power failure
- N A63F 13/497
 - • • Partially or entirely replaying previous game actions
- N A63F 13/50
 - Controlling the output signals based on the game progress
- N A63F 13/52
 - • involving aspects of the displayed game scene
- N A63F 13/525
 - • • Changing parameters of virtual cameras
- N A63F 13/5252
 - • • • using two or more virtual cameras concurrently or sequentially, e.g. automatically switching between fixed virtual cameras when a character changes room or displaying a rear-mirror view in a car-driving game
- N A63F 13/5255
 - • • • according to dedicated instructions from a player, e.g. using a secondary joystick to rotate the camera around a player's character
- N A63F 13/5258
 - • • • by dynamically adapting the position of the virtual camera to keep a game object or game character in its viewing frustum, e.g. for tracking a character or a ball
- N A63F 13/53
 - • involving additional visual information provided to the game scene, e.g. by overlay to simulate a head-up display [HUD] or displaying a laser sight in a shooting game
- N A63F 13/533
 - • • for prompting the player, e.g. by displaying a game menu
- N A63F 13/537
 - • • using indicators, e.g. showing the condition of a game character on screen
- N A63F 13/5372
 - • • • for tagging characters, objects or locations in the game scene, e.g. displaying a circle under the character controlled by the player
- N A63F 13/5375
 - • • • for graphically or textually suggesting an action, e.g. by displaying an arrow indicating a turn in a driving game
- N A63F 13/5378
 - • • • for displaying an additional top view, e.g. radar screens or maps (using two or more virtual cameras concurrently [A63F 13/5252](#))
- N A63F 13/54
 - • involving acoustic signals, e.g. for simulating revolutions per minute [RPM] dependent engine sounds in a driving game or reverberation against a virtual wall
- N A63F 13/55
 - Controlling game characters or game objects based on the game progress
- N A63F 13/56
 - • Computing the motion of game characters with respect to other game characters, game objects or elements of the game scene, e.g. for simulating the behaviour of a group of virtual soldiers or for path finding
- N A63F 13/57
 - • Simulating properties, behaviour or motion of objects in the game world, e.g. computing tyre load in a car race game ([A63F 13/56](#) takes precedence)
- N A63F 13/573
 - • • using trajectories of game objects, e.g. of a golf ball according to the point of impact
- N A63F 13/577
 - • • using determination of contact between game characters or objects, e.g. to avoid collision between virtual racing cars
- N A63F 13/58
 - • by computing conditions of game characters, e.g. stamina, strength, motivation or energy level
- N A63F 13/60
 - Generating or modifying game content before or while executing the game program, e.g. authoring tools specially adapted for game development or game-integrated level editor
- N A63F 13/61
 - • using advertising information
- N A63F 13/63
 - • by the player, e.g. authoring using a level editor
- N A63F 13/65
 - • automatically by game devices or servers from real world data, e.g. measurement in live racing competition
- N A63F 13/655
 - • • by importing photos, e.g. of the player
- N A63F 13/67
 - • adaptively or by learning from player actions, e.g. skill level adjustment or by storing successful combat sequences for re-use

- N A63F 13/69
 - • *by enabling or updating specific game elements, e.g. unlocking hidden features, items, levels or versions*
- N A63F 13/70
 - *Game security or game management aspects*
- N A63F 13/71
 - • *using secure communication between game devices and game servers, e.g. by encrypting game data or authenticating players*
- N A63F 13/73
 - • *Authorising game programs or game devices, e.g. checking authenticity*
- N A63F 13/75
 - • *Enforcing rules, e.g. detecting foul play or generating lists of cheating players*
- N A63F 13/77
 - • *involving data related to game devices or game servers, e.g. configuration data, software version or amount of memory*
- N A63F 13/79
 - • *involving player-related data, e.g. identities, accounts, preferences or play histories*
- N A63F 13/792
 - • • *for payment purposes, e.g. monthly subscriptions*
- N A63F 13/795
 - • • *for finding other players; for building a team; for providing a buddy list*
- N A63F 13/798
 - • • *for assessing skills or for ranking players, e.g. for generating a hall of fame (computing the game score [A63F 13/46](#))*
- N A63F 13/80
 - *Special adaptations for executing a specific game genre or game mode*
- N A63F 13/803
 - • *Driving vehicles or craft, e.g. cars, airplanes, ships, robots or tanks*
- N A63F 13/807
 - • *Gliding or sliding on surfaces, e.g. using skis, skates or boards*
- N A63F 13/812
 - • *Ball games, e.g. soccer or baseball*
- N A63F 13/814
 - • *Musical performances, e.g. by evaluating the player's ability to follow a notation*
- N A63F 13/816
 - • *Athletics, e.g. track-and-field sports*
- N A63F 13/818
 - • *Fishing*
- N A63F 13/822
 - • *Strategy games; Role-playing games ([A63F 13/825](#), [A63F 13/828](#) take precedence)*
- N A63F 13/825
 - • *Fostering virtual characters*
- N A63F 13/828
 - • *Managing virtual sport teams*
- N A63F 13/833
 - • *Hand-to-hand fighting, e.g. martial arts competition ([A63F 13/837](#) takes precedence)*
- N A63F 13/837
 - • *Shooting of targets*
- N A63F 13/843
 - • *involving concurrently two or more players on the same game device, e.g. requiring the use of a plurality of controllers or of a specific view of game data for each player*
- N A63F 13/847
 - • *Cooperative playing, e.g. requiring coordinated actions from several players to achieve a common goal*
- N A63F 13/85
 - *Providing additional services to players*
- N A63F 13/86
 - • *Watching games played by other players*
- N A63F 13/87
 - • *Communicating with other players during game play, e.g. by e-mail or chat*
- N A63F 13/88
 - • *Mini-games executed independently while main games are being loaded*
- N A63F 13/90
 - *Constructional details or arrangements of video game devices not provided for in groups [A63F 13/20](#) or [A63F 13/25](#), e.g. housing, wiring, connections or cabinets*
- N A63F 13/92
 - • *Video game devices specially adapted to be hand-held while playing*
- N A63F 13/95
 - • *Storage media specially adapted for storing game information, e.g. video game cartridges*
- N A63F 13/98
 - • *Accessories, i.e. detachable arrangements optional for the use of the video game device, e.g. grip supports of game controllers*

Project: N/A (A63G)

- U A63G 31/00** Amusement arrangements {(hoop exercising apparatus driven by the user [A63B 19/00](#))}
- A63G 2031/002 • {Free-fall }
- A63G 2031/005 • ~~Skydiving~~ {Skydiving }

Project: N/A (A63H)

- U A63H 11/00** Self-movable toy figures
- A63H 2011/16 • {Toy animals with pairs of legs performing turtle-like motions }
- U A63H 17/00** Toy vehicles, e.g. with self-drive; {(convertible into other toys [A63H 33/003](#)); Cranes, winches or the like;} Accessories therefor (traffic games with figures moved by players [A63F 9/14](#))
- U A63H 17/05** • Trucks; Lorries
- A63H 2017/055 • • {for agricultural use }
- U A63H 18/00** Highways or trackways for toys (railway permanent way [A63H 19/30](#); for special railways [A63H 21/00](#)); Propulsion by special interaction between vehicle and track
- U A63H 18/16** • Control of vehicle drives by interaction between vehicle and track; Control of track elements by vehicles
- A63H 2018/165 • • {Means to improve adhesion of the vehicles on the track, e.g. using magnetic forces }
- U A63H 19/00** Model railways (propulsion by special interaction between vehicle and track [A63H 18/00](#))
- U A63H 19/24** • Electric toy railways; Systems therefor
- A63H 2019/243 • • {Anti-collision systems }
- A63H 2019/246 • • {Remote controls }
- U A63H 19/36** • Model railway structures, e.g. kinds of arrangement of several units in containers, or on plates, or in combination with scenics for toy purposes (models or scenery for general purposes [G09B](#))
- A63H 2019/365 • • {Devices for putting or removing vehicles on or from the rails, e.g. ramps }
- U A63H 27/00** Toy aircraft; Other flying toys (toys with parachutes [A63H 33/20](#)); {Starting or launching devices therefor}
- U A63H 27/10** • Balloons (connection of valves to inflatable elastic bodies [B60C 29/00](#); {other than toy aspects [B64B 1/40](#)})
- A63H 2027/1008 • • {Anchoring means or weights }
- A63H 2027/1016 • • {combined with candy or other food items }
- A63H 2027/1025 • • {Fabrication methods or special materials therefor }
- A63H 2027/1033 • • {Inflation devices or methods for inflating balloons }
- A63H 2027/1041 • • {Holding or sealing means, e.g. handling rods, clamps or plugs }
- A63H 2027/105 • • {Knotting means }
- A63H 2027/1058 • • {associated with light or sound }
- A63H 2027/1066 • • {Having means to guide movement, e.g. propeller or wings }
- A63H 2027/1075 • • {Special shapes or constructions (for aircraft type balloons [A63H 2027/1066](#)) }
- A63H 2027/1083 • • {Valves or nozzles }
- A63H 2027/1091 • • {withobject inserted within; Means or methods for insertion of objects }

Project: N/A (A63J)

- U A63J 1/00** Stage arrangements ({mobile theatres or stages [B60P 3/025](#)}; fabrics for theatre decorations, for costumes, for curtains [D03D](#); structural arrangements of stage or theatre [E04H](#))
- U A63J 1/02
- Scenery; Curtains; Other decorations; Means for moving same {(fireproof curtains [A62C 2/10](#))}
- A63J 2001/022
- • {wound up when not in use }
- A63J 2001/024
- • {folded up when not in use or opened }
- A63J 2001/026
- • ~~inflatable~~ {~~inflatable~~ }
- U A63J 5/00** Auxiliaries for producing special effects on stages, or in circuses or arenas (illuminating arrangements therefor [F21P5/00](#))
- A63J 2005/001
- {enhancing the performance by involving senses complementary to sight or hearing }
- A63J 2005/002
- • {moving the spectator`s body }
- A63J 2005/003
- • {Tactile sense }
- A63J 2005/005
- • {Climate (not used)}
- A63J 2005/006
- • • ~~Temperature~~ {~~Temperature~~ }
- A63J 2005/007
- • • ~~Humidity~~ {~~Humidity~~ }
- A63J 2005/008
- • {Smell sense }
- U A63J 5/02
- Arrangements for making stage effects; Auxiliary stage appliances
- U A63J 5/025
- • {Devices for making mist or smoke effects, e.g. with liquid air (for camouflage [F41H 9/06](#))}
- A63J 2005/026
- • • {for making smoke rings }
- U A63J 19/00** Puppet, marionette, or shadow shows or theatres
- A63J 2019/003
- {Shadow shows }

Project: N/A (B01D)**B01D**

SEPARATION(separating solids from solids by wet methods [B03B](#), [B03D](#); by pneumatic jigs or tables [B03B](#); by other dry methods [B07](#); magnetic or electrostatic separation of solid materials from solid materials or fluids, separation by high-voltage electric fields [B03C](#); centrifuges, vortex apparatus [B04](#); presses per se for squeezing-out liquid from liquid-containing material [B30B 9/02](#) ; treatment of water [C02F](#), e.g. softening by ion-exchange [C02F 1/42](#) ; { arrangements of air intake cleaners in gas turbine plants [F02C 7/05](#) } ; arrangements or mounting of filters in air-conditioning, air-humidification or ventilation [F24F 13/28](#))

NOTE

This subclass covers:

- evaporation, distillation, crystallisation, filtration, dust precipitation, gas cleaning, absorption, adsorption;
- similar processes which are not concerned with, or limited to, separation (except in the case of absorption or adsorption).

In this subclass the terms or expressions are used with the meaning indicated:

- "filtration" and analogous terms include straining solids from fluids;
- "filter medium" is a porous material or porous arrangement of material used to filter solids from fluids;

- "filtering element" is a section of filter medium in addition to parts to which the medium is demountably or permanently fixed, including other sections of medium, end caps, peripheral frames or edge strips, but excluding housings;
 - "filter housing" is the fluid-constraining impervious vessel, whether open or closed, which contains, or is adapted to contain, one or more filtering elements or filter media;
 - "filter chamber" is the space within a housing, where filtering elements or filter media are located. Partitions may divide a single housing into a plurality of chambers;
 - "filtering apparatus" consists of filtering elements combined with housings, cleaning arrangements, motor or the like parts, which are characteristic of the particular type of apparatus. Ancillary devices such as pumps or valves are considered part of a filtering apparatus when inside the apparatus. Ancillary devices performing similar or different unit operation such as comminutors, mixers or non-filtering separators, whether or not inside the apparatus, are not considered part of a filtering apparatus. The term does not extend to apparatus, e.g. washing machines, of which the filter forms only a part. For apparatus used in drying or evaporation, [F26](#) takes precedence over [B01D](#).
- Group [B01D 59/00](#) takes precedence over the other groups of this subclass and over other subclasses in class [B01](#)

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:

B01D9/09	B01D 19/0454	covered by	
	B01D 9/00		
B01D 15/04		covered by	B01J 39/00
to	B01J 49/02		
B01D 17/022		covered by	
B01D 17/0202			
B01D 17/025		covered by	B01D 17/02
F			
B01D 17/028		covered by	
B01D 17/0211			
B01D 17/032		covered by	
B01D 17/0214			
B01D 17/035		covered by	B01D 17/02
D			
B01D 17/038		covered by	
B01D 17/0217			
B01D 17/05		covered by	B01D 17/04
J			
B01D 17/09		covered by	
B01D 17/005			
B01D 17/12		covered by	
B01D 17/00			
B01D 25/133		covered by	
B01D 25/285			
B01D 25/168		covered by	
B01D 25/285			
B01D 25/21		covered by	
B01D 25/164			

[B01D 29/075](#) covered by [B01D 29/62](#)
, [B01D 29/76](#)
[B01D 29/37](#) covered by [B01D 29/336](#)
, [B01D 29/356](#)
[B01D 33/052](#) covered by
[B01D 33/64](#)
[B01D 35/01](#) covered by [B01D 36/00](#)
D
[B01D 61/26](#) covered by
[A61M 1/1656](#)
[B01D 61/34](#) covered by [A61M 1/16](#)

5. The group [B01D 24/00](#) was introduced in March 1989. This group includes subject matter of [B01D 23/00](#) , [B01D 25/06](#) , [B01D 25/10](#) , [B01D 29/0027](#) , [B01D 33/0032](#) and [B01D 33/0054](#) .

6. Documents from the backlog of the group [B01D 23/00](#) , and the subgroups [B01D 25/06](#) , [B01D 25/10](#) , [B01D 29/0027](#) , [B01D 33/0032](#) and [B01D 33/0054](#) are in the process of being revised and also systematically transferred to [B01D 24/00](#) .

7. The groups [B01D 29/01](#) to [B01D 29/43](#) and [B01D 29/50](#) to [B01D 29/965](#) were introduced in March 1989; these subgroups include the subject matter of the subgroups of groups [B01D 29/0002](#) , which are from this date no longer use for the classification of new documents.

8. The documents from the backlog of the subgroups of group [B01D 29/0002](#) are in the process of being systematically transferred to the other subgroups of group [B01D 29/00](#) .

11. The documents from the backlog of the subgroups of group [B01D 33/0003](#) are in the process of being systematically transferred to the other subgroups of group [B01D 33/00](#) .

9. Groups [B01D 25/16](#) , [B01D 25/18](#) and [B01D 25/20](#) are no longer used for the classification of new. Patent documents are continuously being reclassified to groups [B01D 29/44](#) , [B01D 29/46](#) and [B01D 29/48](#) .

10. The groups [B01D 25/04](#) , [B01D 25/08](#) , [B01D 25/121](#) , [B01D 25/122](#) , [B01D 25/124](#) , [B01D 25/125](#) , [B01D 25/14](#) , are no longer used for classification of new documents from December 1, 2011 onwards. The backlog of those groups are being continuously reclassified to groups [B01D 25/00](#) , [B01D 29/00](#) and subgroups.

U B01D 9/00 **Crystallisation(crystallisation directly from the vapour phase [B01D 7/02](#) ; making single crystals [C30B](#) ; { crystallisation as part of the Bayer process also classified in [C01F 7/14](#) })**

[B01D 2009/0086](#) • {Processes or apparatus therefor}

[B01D 2009/009](#) • • {Separation of organic compounds by selective or extractive crystallisation with the aid of auxiliary substances forming complex or molecular compounds, e.g. with ureum, thiourem or metal salts}

[B01D 2009/0095](#) • • • {with the aid of other complex forming substances than ureum, thiourem or metal salts}

U B01D 11/00 **Solvent extraction**

[B01D 2011/002](#) • {Counter-current extraction}

[B01D 2011/005](#) • {Co-current extraction}

[B01D 2011/007](#) • {Extraction using a solvent in the gas phase}

U B01D 15/00 **Separating processes involving the treatment of liquids with solid sorbents(using liquid sorbents [B01D 11/00](#) ; ion exchange processes or materials, sorbent materials in general [B01J](#), e.g. sorbents for chromatography [B01J 20/281](#) ; for investigating or analysing materials [G01N 30/00](#)); Apparatus therefor**

B01D 15/08

- Selective adsorption, e.g. chromatography

NOTE

In order that group [B01D 15/08](#) may provide a basis for a complete search with respect to chromatography in general, all subject matter of general interest is classified in this group even if it is classified primarily in the application-oriented groups, for example dairy products [A23C 9/148](#), treatment of blood, e.g. [A61M 1/36](#), optically active organic compounds [C07B 57/00](#) or peptides [C07K 1/16](#)

WARNING

Groups ~~B01D 15/10 – B01D15/24F~~ are used for systematic classification from May 2003 onwards. For documents published before that date, see also this group

U B01D 15/26

- • characterised by the separation mechanism

U B01D 15/38

- • • involving specific interaction not covered by one or more of groups [B01D 15/265](#) to [B01D 15/36](#)

B01D 2015/3838

- • • • {Ligand exchange chromatography, e.g. complexation chromatography, chelation chromatography, metal interaction chromatography}

B01D 2015/389

- • • • {using ultra-sound}

B01D 2015/3895

- • • • {using light}

U B01D 19/00**Degasification of liquids**

U B01D 19/02

- Foam dispersion or prevention(during boiling [B01B 1/02](#) ; during fermentation [C12](#))

B01D 19/04

- • by addition of chemical substances

NOTES

Antifoam compositions containing a specific compound as the main substance are only classified in the, for this specific compound, corresponding [B01D 19/0404](#) subgroup (e.g. polysiloxanes receive the classification [B01D 19/0409](#)); when the specific compound(s) is (are) not the main substance, then the attributed classification for this compound(s) is a combination of [B01D 19/0404](#) + the corresponding [B01D 19/0404](#) subgroup(s), (e.g. hydrocarbons containing silica are classified in [B01D 19/0404](#) + [B01D 19/0409](#)).

If the main substance is a mixture containing more than one specific compound, then the attributed classification is a combination of the corresponding [B01D 19/0404](#) subgroup of the specific compounds, (e.g. benzene sulfonate and an amide are classified in [B01D 19/0413](#) + ~~[B01D9/04D20B8](#)~~ [B01D 9/02](#)).

In groups [B01D 19/0404](#) to [B01D 19/0495](#), in the absence of an indication to the contrary, an invention is classified in the last appropriate place].

B01D 21/00

Separation of suspended solid particles from liquids by sedimentation({ separation of ores or the like by sedimentation [B03B 5/48](#) to [B03B 5/60](#) } ; differential sedimentation [B03D 3/00](#) ; {purification of water, waste water, sewage or sludge [C02F](#), e.g.} devices for separating or removing fatty or oily substances or similar floating material from water, waste water or sewage [C02F 1/40](#))

WARNING

The following groups are not complete: ~~[B01D21/00C](#)~~, see also [B01D 21/00](#) ~~[B01D21/00J](#)~~, see also [B01D 21/00](#) ~~[B01D-21/00-J](#)~~, see also [B01D-21/00](#) [B01D 21/0054](#), see also [B01D 21/00](#) [B01D 21/0057](#), see also [B01D 21/00](#) ~~[B01D21/00M](#)~~, see also [B01D 21/00](#) ~~[M](#)~~, see also [B01D-21/00](#) [B01D 21/0036](#), see

also [B01D 21/00 B01D21/00S](#), see also [B01D 21/00 S](#), see also [B01D 21/00 B01D 21/2416](#), see also [B01D 21/2405 B01D 21/2422](#), see also [B01D 21/2405 B01D21/24C](#), see also [B01D 21/24 CB01D21/24D](#), see also [B01D 21/24 B01D 21/24 D](#), see also [B01D 21/24 B01D21/26C](#), see also [B01D 21/26 CB01D21/26V](#), see also [B01D 21/26 B01D21/26Y](#), see also [B01D 21/26 V](#), see also [B01D 21/26 B01D 21/26 Y](#), see also [B01D 21/26 B01D 21/28](#), see also [B01D 21/28 B01D 21/302](#), see also [B01D 21/30 B01D21/30B](#), see also [B01D 21/30 B](#), see also [B01D 21/30](#)]

B01D 21/0009 • {Settling tanks making use of electricity or magnetism(electric ultra filters [B01D31/02B01D 61/425](#) ; filters making use of electricity or magnetism [B01D 35/06](#) ; magnetic or electrostatic separation [B03C](#))}

B01D 2021/0078 • {Settling tanks provided with contact surfaces, e.g. baffles, particles}

B01D 2021/0081 • {Settling tanks provided with vibrators}

U B01D 24/00 **Filters comprising loose filtering material, i.e. filtering material without any binder between the individual particles or fibres thereof([B01D 27/02](#) takes precedence)**

NOTE

See WARNING after subclass title, particularly items (7), (8) and (14)

U B01D 24/02 • with the filter bed stationary during the filtration

U B01D 24/10 • • the filtering material being held in a closed container

U B01D 24/12 • • • Downward filtration, the filtering material being supported by pervious surfaces([B01D 24/18](#) takes precedence)

B01D 2024/125 • • • {spray heads specially adapted therefor}

U B01D 24/14 • • • Downward filtration, the container having distribution or collection headers or pervious conduits([B01D 24/18](#) takes precedence)

B01D 2024/145 • • • • {spray heads specially adapted therefor}

U B01D 24/16 • • • Upward filtration([B01D 24/18](#) takes precedence)

B01D 2024/162 • • • • {spray heads specially adapted therefor}

U B01D 29/00 **Other filters with filtering elements stationary during filtration, e.g. pressure or suction filters, or filtering elements therefor{([B01D 24/00](#) , [B01D 25/00](#) and [B01D 27/00](#) take precedence)}**

NOTE

See WARNING after subclass title, particularly items (7), (8), (9), (10) ,(12) and (14)

U B01D 29/0002 • {Aspects of other filters with filtering elements stationary during filtration, or of filtering elements thereof}

U B01D 29/0018 • • {Filters with screens or sheets, e.g. cloth, paper}

U B01D 29/0022 • • • {Filters with corrugated, folded, or wound sheets}

B01D 29/0025 • • • • {allowing a coaxial stream through the filtering element(for cartridge filters [B01D27/06B01D 27/06](#))}

B01D 29/01 • with flat filtering elements([B01D 29/39](#) takes precedence)

NOTE

If the construction of the filtering element itself is of minor importance the document is classified in the subgroups [B01D 29/01](#) , [B01D19/01C](#) [B01D 29/014](#) , [B01D20/01F](#)[B01D 29/016](#) or [B01D 29/018](#) ; otherwise in the subgroups [B01D 29/03](#) to [B01D 29/07](#)

U B01D 29/03 • • self-supporting

B01D 2029/033	• • • {bar screens}
B01D 2029/075	• {Located in a closed housing and comprising scrapers or agitators on the cake side of the filtering elements, e.g. Nutsche- or Rosenmund-type filters for performing multiple step operations}
U B01D 33/00	Filters with filtering elements which move during the filtering operation(filters comprising loose filtering material moving or fluidised during filtration B01D 24/28 to B01D 24/36 ; centrifuges B04B)
	<u>NOTE</u> See WARNING after subclass title, particularly items (7), (8), (11) and (14)
U B01D 33/044	• with filtering bands or the like supported on cylinders which are pervious for filtering
U B01D 33/048	• • with endless filtering bands
B01D 2033/052	• • • {combined with a compression device}
U B01D 33/06	• with rotary cylindrical filtering surfaces, e.g. hollow drums(B01D 33/044 takes precedence; { rotating drums for paper-making D21B })
B01D 2033/07	• • {arranged for inward flow filtration}
U B01D 46/00	Filters{i.e. particle separators}or filtering processes specially modified for separating dispersed particles from gases or vapours(filtering elements B01D 23/00 to B01D 35/00 ; filtering material B01D 39/00 ; their regeneration outside the filters B01D 41/00)
U B01D 46/24	• Particle separators, e.g. dust precipitators, using rigid hollow filter bodies
U B01D 46/2403	• • {characterised by the physical shape or structure of the filtering element}
U B01D 46/2418	• • • {Honeycomb filters(used for filtering exhaust gases of an internal combustion engine F01N 3/022 ; ceramic honeycomb structures per se C04B 38/0006)}
U B01D 46/2425	• • • • {characterized by parameters related to the physical properties of the honeycomb structure material, e.g. modulus of rupture, porosity}
U B01D 46/2429	• • • • • {of the honeycomb walls or cells}
B01D 2046/2433	• • • • • Porosity{Porosity}
B01D 2046/2437	• • • • • {Pore diameter}
U B01D 46/2451	• • • • {characterized by the geometrical structure, shape, pattern or configuration or parameters related to the geometry of the structure, e.g. thickness, cell density}
B01D 2046/2477	• • • • • {Triangular shapes or configurations}
B01D 2046/2481	• • • • • {Quadrangular shapes or configurations, e.g. square, diamond}
B01D 2046/2485	• • • • • {Octagonal shapes or configurations}
B01D 2046/2488	• • • • • {Circular shapes or configurations}
B01D 2046/2492	• • • • • { Other shapes or configurations not covered by groups B01D 46/2474 to B01D 2046/2488 }
B01D 2046/2496	• • • • {The honeycomb filter being defined by mathematical equations}

- U B01D 53/00** Separation of gases or vapours; Recovering vapours of volatile solvents from gases; Chemical or biological purification of waste gases, e.g. engine exhaust gases, smoke, fumes, flue gases, aerosols, (recovery of volatile solvents by condensation [B01D 5/00](#) ; sublimation [B01D 7/00](#) ; cold traps, cold baffles [B01D 8/00](#) ; working-up undefined gaseous mixtures obtained by cracking hydrocarbon oils [C10G 70/00](#) ; cleaning coal gas [C10K](#) ; working-up of natural gas, or synthetic natural gas, [C10L 3/10](#) ; separation of difficult-to-condense gases or air by liquefaction [F25J](#) ; for investigating materials [G01N 30/00](#))
- NOTE
Group [B01D 53/34](#) takes precedence over groups [B01D 53/02](#) to [B01D 53/32](#)
- U B01D 53/14** • by absorption
B01D 53/1493 • • {Selection of liquid materials for use as absorbents}
- NOTE
In [B01D 53/1493](#) it is desirable to add indexing codes for compositional aspects of absorbents. The codes are chosen from [B01D 2252/00](#) - ~~[L01D252/510](#)~~[B01D 2252/61](#)
- U B01D 53/22** • by diffusion(manufacturing semi-permeable membranes [B01D 67/00](#) ; form, structure or properties of semi-permeable membranes [B01D 69/00](#) ; material for semi-permeable membranes [B01D 71/00](#))
B01D 2053/221 • • ~~Devices~~{~~Devices~~}
B01D 2053/222 • • • {with plates}
B01D 2053/223 • • • {with hollow tubes}
B01D 2053/224 • • • • {with hollow fibres}
- U B01D 53/34** • Chemical or biological purification of waste gases
U B01D 53/92 • • of engine exhaust gases(exhaust{ or silencing }apparatus{ for internal combustion engines, machines or engines in general }, having means for purifying,{ rendering innocuous } or otherwise treating exhaust gases [F01N 3/00](#))
- U B01D 53/94** • • • by catalytic processes
B01D 53/9445 • • • • {Simultaneously removing carbon monoxide, hydrocarbons or nitrogen oxides making use of three-way catalysts (TWC) or four-way-catalysts (FWC)}
- WARNING
Groups [B01D 53/945](#) and [B01D 53/9454](#) are not complete pending a reorganisation. See also ~~[B01D 53/94](#)~~~~[L01D53/94L](#)~~
- B01D 53/9481** • • • • {Catalyst preceded by an adsorption device without catalytic function for temporary storage of contaminants, e.g. during cold start}
- WARNING
Groups [B01D 53/9486](#) and [B01D 53/949](#) are not complete pending a reorganisation. See also ~~[B01D 53/94](#)~~~~[P01D53/94P](#)~~
- B01D 61/00** **Processes of separation using semi-permeable membranes, e.g. dialysis, osmosis, ultrafiltration; Apparatus, accessories or auxiliary operations specially adapted therefor**
- NOTE
In groups [B01D 61/00](#) to [B01D 61/58](#) it is desirable to add the indexing codes relating to process operations and control chosen from groups [B01D 2311/00](#) to ~~[B01D 2311/26](#)~~~~[ZB01D2311/26Z](#)~~,

to details relating to membrane modules and apparatus indexing codes chosen from [B01D 2313/00](#) to ~~L01D313/52~~[B01D 2313/90](#) ,
to details relating to the membrane module operation indexing codes chosen from [B01D 2315/00](#) to [B01D 2315/16](#) ,
to details relating to the module arrangement within a plant or an apparatus indexing codes chosen from [B01D 2317/00](#) to [B01D 2317/08](#) and
to details relating to the membrane assembly within one housing indexing codes chosen from [B01D 2319/00](#) to ~~L01D319/04F~~[B01D 2319/06](#)

B01D 61/58

- Multistep processes{(comprising reverse osmosis or hyperfiltration steps ~~B01D-61/02-B~~[B01D61/02B](#); comprising ultrafiltration or microfiltration steps ~~B01D-61/14-B~~[B01D61/14B](#))}

NOTE

In group [B01D 61/58](#) specific process steps within the multistep process are indexed by codes chosen from [B01D 61/02](#) to [B01D 61/56](#)

B01D 63/00

Apparatus in general for separation processes using semi-permeable membranes

NOTE

In groups [B01D 63/00](#) to [B01D 63/16](#) it is desirable to add the indexing codes relating to membrane modules and apparatus chosen from groups [B01D 2313/00](#) to ~~L01D313/52~~[B01D 2313/90](#) ,
to details relating to the membrane module operation indexing codes chosen from [B01D 2315/00](#) to [B01D 2315/16](#) ,
to details relating to the module arrangement within a plant or an apparatus indexing codes chosen from [B01D 2317/00](#) to [B01D 2317/08](#) and
to details relating to the membrane assembly within one housing indexing codes are chosen from [B01D 2319/00](#) to ~~L01D319/04F~~[B01D 2319/06](#)

B01D 69/00

Semi-permeable membranes for separation processes or apparatus characterised by their form, structure or properties; Manufacturing processes specially adapted therefor

NOTES

In this group, the following term is used with the meaning indicated:

- "properties" covers those of a mechanical, physical or chemical nature

Manufacturing processes, if considered of interest, are also classified in group [B01D 67/00](#)

WARNING

The following sub-groups of [B01D 69/00](#) are incomplete. Documents presently classified in the hierarchically higher groups are in the process of reclassification
[B01D 69/043](#)

~~B01D-69/04-D~~ [B01D69/04D](#)

[B01D 69/081](#)

~~B01D-69/08-D~~ [B01D69/08D](#)

~~B01D-69/08-E~~ [B01D69/08E](#)

[B01D 69/085](#)

~~B01D-69/08-H~~ [B01D69/08H](#)

[B01D 69/088](#)

[B01D 69/105](#)

[B01D 69/141](#)

[B01D 69/144](#)

[B01D 69/145](#)

[B01D 69/147](#)

[B01D 69/148](#)

B01D 2311/00**Details relating to membrane separation process operations and control****NOTE**

In groups [B01D 2311/02](#) to [B01D 2311/08](#), the nature of specific operations carried out can be indexed by a combination of symbols chosen from [B01D 2311/10](#) to ~~L01D311/36Z~~[B01D 2311/2696](#)

Project: N/A (B01F)**U B01F 1/00**

Dissolving ({without involving chemical reactions; [B01F 3/04099](#) takes precedence;}) separating by dissolving [B01D](#); dissolving to effect cooling [F25D 5/00](#))

- B01F 2001/0044 . {characterized by the state of the material being dissolved }
- B01F 2001/005 . . {Molten solids (mixing the melt [B01F 3/08](#))}
- B01F 2001/0055 . . {characterised by the configuration, form or shape of the solid material, e.g. in the form of tablets, blocks }
- B01F 2001/0061 . . . {in the form of tablets stored in containers, canisters, receptacles }
- B01F 2001/0066 . . {Solid carbon dioxide or dry ice }
- B01F 2001/0072 . {Elements used for separating or keeping undissolved material in the mixer }
- B01F 2001/0077 . . {Tablet canisters provided with perforated walls, sieves, grids or filters }
- B01F 2001/0083 . . ~~Baffles~~ {[Baffles](#) }
- B01F 2001/0088 . . ~~Filters~~ {[Filters](#) }
- B01F 2001/0094 . . {Sieves, i.e. perforated plates or walls }

U B01F 3/00

Mixing, e.g. dispersing, emulsifying, according to the phases to be mixed ({[C08J 3/02](#) takes precedence})

- B01F 2003/0007 . {Maintaining the aggregation state of the mixed materials }
- B01F 2003/0014 . . {Maintaining mixed ingredients in movement to prevent crystallisation of the ingredients after mixing }
- B01F 2003/0021 . . {Preventing precipitation of solid ingredients during or after mixing by adding a solvent }
- B01F 2003/0028 . . {Preventing sedimentation, conglomeration, agglomeration of solid ingredients during or after mixing by maintaining mixed ingredients in movement }
- B01F 2003/0035 . . {Maintaining mixed ingredients in movement to prevent separation of the ingredients after mixing }
- B01F 2003/0042 . {Specific aggregation state of one or more of the phases to be mixed }
- B01F 2003/005 . . {Mixing ingredients in more than two different agglomeration states, phases }
- B01F 2003/0057 . . {Mixing cryogenic aerosols, i.e. mixtures of gas with solid particles in cryogenic condition, with other ingredients }
- B01F 2003/0064 . . {Mixing fluids or with fluids in a supercritical state, in supercritical conditions, variable density fluids }
- B01F 2003/0071 . {Mixing phases by adding a very small quantity of one of the phases, microdosing }
- B01F 2003/0078 . . {Adding a small quantity or concentration of an additional phase in a main phase, e.g. acting as a carrier phase }
- B01F 2003/0085 . . {Mixing ingredients in very small quantity, adding microingredients, microconcentration, e.g. adding vitamins, minerals, proteins, enzymes, hormones, antibiotics, worm medicines }

U B01F 3/04

- . { gases or vapours with liquids (mixing non-alcoholic beverages with gases [A23L 2/54](#); { for medical purposes [A61M 16/14](#)}) [M1110]

- U B01F 3/04007
 - {Introducing a liquid into a gaseous medium, e.g. preparation of aerosols (for air-conditioning [F24F 6/00](#))}
- B01F 2003/04092
 - • • {by using liquefied or cryogenic gases as liquid component }
- U B01F 3/04099
 - {Introducing a gas or vapour into a liquid medium, e.g. producing aerated liquids (methods for the preparation of non-alcoholic beverages, e.g. of carbonated water [A23L 2/00](#); bottling liquids, e.g. combined with aerating or carbonating [B67C 3/00](#); dispensing beverages on draught combined with carbonating [B67D 1/0057](#), [B67D1/02B](#), [B67D1/04A](#), [B67D 1/0418](#); dispensing beverages by gas pressure from storage containers, e.g. syphons [B67D 1/04](#); biological treatment of water, waste water or sewage [C02F 3/00](#); impregnating wine with carbon dioxide [C12G 1/06](#); gas introduction means for enzymology or microbiology apparatus [C12M 1/04](#))}
- U B01F 3/04106
 - • • {the gas being introduced by bubbling, e.g. within receptacles or tanks ([B01F 3/04531](#), [B01F 3/04787](#) take precedence; introducing gas for agitation only [B01F 13/02](#))}
- U B01F 3/04113
 - • • • {Arrangement or manipulation of the gas bubbling devices}
- U B01F 3/0412
 - • • • • {Mounting the bubbling devices or the diffusers ([B01F 3/04241](#) takes precedence)}
- B01F 2003/04127
 - • • • • • {comprising the use of flow guiding elements adjacent or above the gas stream }
- B01F 2003/04134
 - • • • • • • {the flow guiding elements being baffles, tubes or walls }
- B01F 2003/04141
 - • • • • • • {the flow guiding elements being dome-shaped elements, i.e. for trapping air, e.g. cap-, umbrella-, inversed cone-shaped }
- B01F 2003/04148
 - • • • • • • {characterized by the disposition of the bubbling elements in particular configurations, patterns or arrays }
- B01F 2003/04156
 - • • • • • • {characterized by the way in which the different elements of the bubbling installation are mounted }
- B01F 2003/04163
 - • • • • • • {Mounting auxiliary devices, e.g. pumps, compressors in a particular place on the bubbling installation, e.g. under water }
- B01F 2003/0417
 - • • • • • • {Mounting the gas transporting elements, i.e. connections between conduits }
- B01F 2003/04177
 - • • • • • • {Mounting the bubbling elements, diffusers, e.g. on conduits, using connecting elements; Connections therefor }
- B01F 2003/04184
 - • • • • • • {characterized by the way in which the bubbling devices are mounted within the receptacle }
- B01F 2003/04191
 - • • • • • • {the bubbling devices being fixed, anchored in the bottom }
- B01F 2003/04198
 - • • • • • • {the bubbling devices being supported, e.g. on cables or laying on the bottom }
- B01F 2003/04205
 - • • • • • • {the bubbling devices being suspended on a supporting construction, i.e. not on a floating construction }
- B01F 2003/04212
 - • • • • • • {the bubbling devices being provided with ballast to keep them floating under the surface, i.e. when the bubbling devices are lighter than the liquid }
- B01F 2003/04219
 - • • • • • • {the bubbling devices floating and having a pendulum movement, going to and from, moving in alternating directions }
- B01F 2003/04226
 - • • • • • • {the bubbling devices floating and having a rotating movement around a central vertical axis }
- B01F 2003/04234
 - • • • • • • {Means for manipulating the bubbling constructions and/or elements, e.g. for raising or lowering them }
- U B01F 3/04241
 - • • • • • {Diffusers}

B01F 2003/04276	. . . . . {characterized by the way in which they are assembled or mounted; Fabricating the parts of the diffusers }
B01F 2003/04283	. . . . . {characterized by the shape of the diffuser element }
B01F 2003/0429	. . . . . {having a box- or bloc-shape, being in the form of aeration stones }
B01F 2003/04297	. . . . . {having disc shape }
B01F 2003/04304	. . . . . {having dome-, cap-, inversed cone-shape }
B01F 2003/04312	. . . . . {being in the form of plates, flat beams, flat membranes or films }
B01F 2003/04319	. . . . . {being tubes, tubular elements, cylindrical elements, set of tubes }
B01F 2003/04326	. . . . . {being in the form of rings or annular elements }
B01F 2003/04333	. . . . . {being axially stacked discs, rings, plates }
B01F 2003/0434	. . . . . {being helically wound, coiled and joined bands, wires }
B01F 2003/04347	. . . . . {being spirally wound, coiled tubes or spirally wound, coiled and joined bands, wires }
B01F 2003/04354	. . . . . {characterized by the nature of the diffuser gas outlet }
B01F 2003/04361	. . . . . Perforations {Perforations }
B01F 2003/04368	. . . . . {Slits, cut-out openings }
B01F 2003/04375	. . . . . {Screens, nets, grades, grids }
B01F 2003/04382	. . . . . {Fabric in the form of woven, knitted, braided, non-woven or flocculated fibers or filaments }
B01F 2003/0439	. . . . . Peres {Pores }
B01F 2003/04397	. . . . . {Foam-like }
B01F 2003/04404	. . . . . {Dissolving, hollow fiber membranes }
B01F 2003/04411	. . . . . {having specific properties or elements attached thereto }
B01F 2003/04418	. . . . . {Made of or comprising a biocide }
B01F 2003/04425	. . . . . {Made of or comprising a material able to store a gas which is released when water flows through it }
B01F 2003/04432	. . . . . {Having elements to protect the parts of the diffusers, e.g. from clogging when not in use }
U B01F 3/04531	. . . {using driven stirrers with completely immersed stirring elements (B01F 3/04453 takes precedence; surface aerating with stirrers near to the surface B01F 3/04765; flotation machines B03D 1/16)}
U B01F 3/04539	. . . . characterised by the introduction of the gas along the axis of the stirrer or along the stirrer elements
B01F 2003/04546	. . . . {through a hollow stirrer axis }
B01F 2003/04553	. . . . {through a conduit surrounding the stirrer axis }
B01F 2003/0456	. . . . {through a separate conduit substantially parallel with the stirrer axis }
B01F 2003/04567	. . . . {through a hollow stirrer element }
B01F 2003/04574	. . . . {through a hollow guide surrounding the stirrer element }
B01F 2003/04581	. . . . {through a separate hollow guide substantially parallel with the stirrer element }
B01F 2003/04624	. . . . {characterised by the direction of introduction of the gas relative to the stirrer }
B01F 2003/04631	. . . . {the gas moving along the axis of rotation }
B01F 2003/04638	. . . . {the gas moving perpendicular to the axis of rotation }
B01F 2003/04645	. . . . {the gas being sucked towards the rotating stirrer }
B01F 2003/04652	. . . . {the gas being driven away from the rotating stirrer }

- B01F 2003/04659 {characterised by the location of the place of introduction of the gas relative to the stirrer }
- B01F 2003/04666 {the gas being introduced in a guide tube surrounding at least partially the axis of the stirrer }
- B01F 2003/04673 {the gas being introduced under the stirrer }
- B01F 2003/0468 {the gas being introduced above the stirrer }
- B01F 2003/04687 {the gas being introduced between the stirrer elements }
- B01F 2003/04695 {at the stirrer axis }
- B01F 2003/04702 {at the stirrer elements }
- B01F 2003/04709 {the gas being introduced at the radial periphery of the stirrer }
- B01F 2003/04716 {the gas being introduced in front of the stirrer }
- B01F 2003/04723 {the gas being introduced behind the stirrer }
- U B01F 3/04787 . . . {Apparatus for aerating or carbonating beverages ([B01F 3/0446](#), [B01F 3/04978](#) take precedence; using effervescence-generating compositions, e.g. carbon dioxide tablets [A23L 2/40](#))}
- B01F 2003/04822 {Using security elements, e.g. valves, for relieving overpressure }
- B01F 2003/04843 . . . {characterized by the gas being introduced or the material in which the gas is introduced }
- B01F 2003/04851 {characterized by the gas being introduced }
- B01F 2003/04858 {in the form of microbubbles, e.g. to obtain aphrons }
- B01F 2003/04865 {Aerating, i.e. introducing oxygen containing gas in liquids }
- B01F 2003/04872 {Normal air }
- B01F 2003/04879 ~~Oxygen~~ {Oxygen }
- B01F 2003/04886 ~~Ozone~~ {Ozone }
- B01F 2003/04893 {Carbonating liquids }
- B01F 2003/049 ~~Beverages~~ {Beverages }
- B01F 2003/04907 {Chlorine or chlorine containing gases }
- B01F 2003/04914 {Hydrogenating liquids }
- B01F 2003/04921 {Nitrogenating liquids }
- B01F 2003/04929 {Sulphurating liquids, e.g. introducing sulphur dioxide }
- B01F 2003/04936 {Introducing steam, damp in liquids }
- B01F 2003/04943 {characterized by the material in which the gas is introduced }
- B01F 2003/0495 {Dispersion or a suspension }
- B01F 2003/04957 ~~Emulsion~~ {Emulsion }
- B01F 2003/04964 {Melt, i.e. in a molten, heated solid }
- B01F 2003/04971 ~~Slurry~~ {Slurry }
- U B01F 3/06 . . . gases or vapours with solids
- B01F 2003/061 . . . {by introducing solids in gas volumes }
- B01F 2003/063 . . . {by introducing gases in solid materials, e.g. in masses of powder or particles }
- B01F 2003/065 . . . {by introducing steam, e.g. for wetting the solids }
- B01F 2003/066 . . . {by mixing in fluidised bed state }
- U B01F 3/08 . . . liquids with liquids; Emulsifying {([B01F 13/0222](#) takes precedence; dispensing beverages on draught combined with mixing [B67D1/00F](#), [B67D 1/0043](#))}

- U B01F 3/0807
 - • {Emulsifying (homogenising milk [A01J 11/16](#); for adding a water-fuel emulsion in engine-pertinent apparatus [F02M 25/0228](#); for preparing emulsion of liquid fuel with other fluid(s) for feeding combustion apparatus [F23K 5/12](#))}
- B01F 2003/0823
 - • • {characterized by the internal structure of the emulsion }
- B01F 2003/0826
 - • • • {High internal phase ratio [HIPR] emulsions, e.g. having high percentage of internal phase, e.g. higher than 60-90 % of water in oil [W/O] }
- B01F 2003/083
 - • • • {Inversed-type emulsions }
- B01F 2003/0834
 - • • • {Micro-emulsions }
- B01F 2003/0838
 - • • • {Multiple emulsions, in particular double emulsion e.g. water in oil in water; Three-phase emulsion }
- B01F 2003/0842
 - • • • {Emulsions of oils, e.g. fuel, and water }
- B01F 2003/0846
 - • • • {Emulsions including solid particles, e.g. as solution or dispersion, i.e. molten material or material dissolved in a solvent or dispersed in a liquid }
- B01F 2003/0849
 - • • {Homogenizing a raw emulsion, making monodisperse or fine emulsions }
- B01F 2003/0884
 - • {characterised by the nature of the liquids }
- B01F 2003/0888
 - • • {using liquefied or cryogenic gases }
- B01F 2003/0892
 - • • {using molten solids }
- B01F 2003/0896
 - • • {Using water for diluting a liquid ingredient, obtaining a predetermined concentration or making an aqueous solution of a concentrate }
- U B01F 3/10
 - • Mixing very viscous liquids
- B01F 2003/105
 - • • {using a very viscous liquid and a liquid of low viscosity }
- U B01F 3/12
 - liquids with solids ({[B01F 1/00](#) takes precedence;} displacing one liquid by another in dispersions of solids in liquids [B01D 12/00](#))
- B01F 2003/125
 - • {by introducing, e.g. dispersing, dissolving, solids in liquids }
- B01F 2003/1257
 - • {by introducing liquids in solid material, e.g. to obtain slurries }
- B01F 2003/1264
 - • • {by introducing liquids in a fluidised bed }
- B01F 2003/1278
 - • {characterized by the nature of the liquid }
- B01F 2003/1285
 - • • {Mixing liquids with solids, slurries, sludge, for obtaining a diluted slurry }
- B01F 2003/1292
 - • • {Mixing foam with solids }
- U B01F 5/00
 - **Flow mixers (sprayers, atomisers [B05B](#)); Mixers for falling materials, e.g. solid particles ([B01F 13/04](#) takes precedence; centrifugal mixers [B04](#))**
- B01F 2005/0002
 - • {Direction of flow or arrangement of feed and discharge openings }
- B01F 2005/0005
 - • {Axial flow }
- B01F 2005/0008
 - • {Radial flow }
- B01F 2005/0011
 - • • {from the center to the circumference, i.e. centrifugal flow }
- B01F 2005/0014
 - • • {from the circumference to the center }
- B01F 2005/0017
 - • {Vortex flow, i.e. flow spiraling in a tangential direction and moving in an axial direction }
- B01F 2005/002
 - • {Tangential flow, i.e. flow spiraling in a tangential direction in a flat plane or beltlike area }
- B01F 2005/0022
 - • {Reverse flow, i.e. flow changing substantially 180° in direction }
- B01F 2005/0025
 - • {Turbulent flow, i.e. every point of the flow moves in random direction and intermixes }
- B01F 2005/0028
 - • {Laminar or parallel flow, i.e. every point of the flow moves in layers which do not intermix }

- B01F 2005/0031
 - • • {Parallel flow, i.e. every point of the flow moves in parallel layers where intermixing can occur by diffusion or which do not intermix; Focusing, i.e. compressing parallel layers without intermixing them }
- B01F 2005/0034
 - • {Counter current flow, i.e. flows moving in opposite direction and colliding }
- B01F 2005/0037
 - • {Characterised by the disposition of the feed and discharge openings }
- B01F 2005/004
 - • • {Characterised by the arrangement of the feed openings for one or more flows, e.g. for the mainflow and the flow of an additional component }
- B01F 2005/0042
 - • • • {with feed openings in the center of the main flow }
- B01F 2005/0045
 - • • • {with feed openings at the circumference of the main flow }
- B01F 2005/0048
 - • • • • {with feed openings around the complete circumference of the main flow, e.g. being a perforated or porous part }
- B01F 2005/0051
 - • • • {with feed openings in the center and at the circumference of the main flow }
- B01F 2005/0054
 - • • • {with feed openings facing each other, e.g. for creating counter flows, for creating a series of vortex flows }
- B01F 2005/0088
 - {Arrangement, nature or configuration of flow guiding elements }
- B01F 2005/0091
 - • {Flow guiding elements surrounding feed openings, e.g. jet nozzles }
- B01F 2005/0094
 - • {Nature of the flow guiding elements }
- B01F 2005/0097
 - • • {Surface characteristics, e.g. coated, rough }
- U B01F 5/04
 - Injector mixers, {i.e. one or more components being added to a flowing main component ([B01F 5/0057](#) takes precedence)}
- U B01F 5/0403
 - • {Mixing conduits or tubes, i.e. conduits or tubes through which the main component is flown (mixing devices for gas burners [F23D 14/62](#))}
- U B01F 5/0413
 - • • {provided with a venturi element}
- B01F 2005/0431
 - • • • {characteristics of the Venturi parts }
- B01F 2005/0433
 - • • • • ~~Core~~ {Core }
- B01F 2005/0435
 - • • • • • {Adjustable Venturi core in the nozzle }
- B01F 2005/0436
 - • • • • • {Profiled, grooved, ribbed core, or being provided with baffles }
- B01F 2005/0438
 - • • • • • ~~Nozzle~~ {Nozzle }
- B01F 2005/044
 - • • • • • {Adjustable Venturi nozzle }
- B01F 2005/0441
 - • • • • • {Profiled, grooved, ribbed nozzle, or being provided with baffles }
- B01F 2005/0443
 - • • • • • ~~Discharge~~ {Discharge }
- B01F 2005/0445
 - • • • • • {Adjustable discharge conduit or barrel, e.g. adjustable in width }
- B01F 2005/0446
 - • • • • • {Profiled, grooved, ribbed discharge conduit, or being provided with baffles }
- B01F 2005/0448
 - • • • • • {Constructional characteristics of the diverging discharge conduit or barrel, e.g. with zones of changing conicity }
- U B01F 5/06
 - Mixers in which the components are pressed together through slits, orifices, or screens; { Static mixers; Mixers of the fractal type}{ [B01F 7/164](#), [B01F 7/225](#) take precedence;} turbo-mixers [B01F 5/16](#); colloid-mills [B02C](#); mixing valves [F16K 11/00](#))}
- U B01F 5/0602
 - • {Static mixers, i.e. mixers in which the mixing is effected by moving the components jointly in changing directions, e.g. in tubes provided with baffles or obstructions ([B01F 5/0661](#), [B01F 5/0682](#) take precedence)}
- U B01F 5/0609
 - • • {Mixing tubes, e.g. the material being submitted to a substantially radial movement or to a movement partially in reverse direction}
- U B01F 5/061
 - • • • {Straight mixing tubes, e.g. with smooth walls, having baffles or obstructions therein without substantial pressure drop; Baffles therefor (for falling-particle mixers [B01F 5/246](#))}

- B01F 2005/062 {characterised by the configuration of the baffles or obstructions }
- B01F 2005/0621 {Profiled elements, e.g. profiled blades, bars, pillars, columns or chevrons }
- B01F 2005/0622 {Profiled blades, wings, wedges, i.e. plate-like element having one side or part thicker than the other }
- B01F 2005/0623 {Profiles, pillars, chevrons, i.e. long elements having a polygonal cross-section }
- B01F 2005/0625 {Substantially flat elements, e.g. flat plates or blades }
- B01F 2005/0626 {Assembled flat elements }
- B01F 2005/0627 {in the form of small flat plate-like elements }
- B01F 2005/0628 {Folded or bent blades or strips }
- B01F 2005/0629 {Helically bent blades or strips }
- B01F 2005/063 {Ring-shaped blades or strips }
- B01F 2005/0631 {Tubular elements }
- B01F 2005/0632 {Wires or coils }
- B01F 2005/0633 {Spirally-shaped baffle }
- B01F 2005/0634 {Conical or pyramidal elements }
- B01F 2005/0635 {characterised by the mounting of the baffles or obstructions }
- B01F 2005/0636 {Mounted on the wall }
- B01F 2005/0637 {Mounted on an axial support member, e.g. a rod or bar }
- B01F 2005/0638 {Mounted on a support member extending transversally through the mixing tube }
- B01F 2005/0639 {Support members, e.g. tubular collars, with projecting baffles fitted inside the mixing tube or adjacent to the inner wall }

U B01F 9/00

Mixers with rotating receptacles, {i.e. the rotary motion is imparted to effect the mixing}{(B01F 11/0002,) B01F 13/04 take precedence); {Mixing the contents of packages or like independent containers by rotating them}

- B01F 2009/0056 . {Constructional aspects of the rotating receptacles }
- B01F 2009/0058 . . {Disposition of the rotor axis }
- B01F 2009/0059 . . . ~~horizontal~~ {horizontal }
- B01F 2009/0061 . . . ~~vertical~~ {vertical }
- B01F 2009/0063 . . . ~~inclined~~ {inclined }
- B01F 2009/0065 . . . {variable, e.g. tiltable during the operation }
- B01F 2009/0067 . . . {with a receptacle rotating around two or more axes }
- B01F 2009/0069 {having different, non-perpendicular inclinations, e.g. skew axes }
- B01F 2009/007 {being parallel axes }
- B01F 2009/0072 {being perpendicular axes }
- B01F 2009/0074 {arranged for planetary motion }
- B01F 2009/0076 . . . {with a plurality of rotating receptacles }
- B01F 2009/0078 {having axes of different, non-perpendicular inclinations }
- B01F 2009/0079 {having parallel axes }
- B01F 2009/0081 {having perpendicular axes }
- B01F 2009/0083 {being concentrically arranged }
- B01F 2009/0085 {arranged for planetary motion }
- B01F 2009/0087 . . {Disposition or configuration of the receptacles }
- B01F 2009/0089 . . . {Multi-compartment receptacles }

- B01F 2009/009
 - • • {Configuration of the interior }
- B01F 2009/0092
 - • • • {provided with baffles, plates or bars on the wall or the bottom }
- B01F 2009/0094
 - • • • {provided with guide tubes on the wall or the bottom }
- B01F 2009/0096
 - • • {Nature of the receptacle }
- B01F 2009/0098
 - • • • {Surface characteristics, e.g. coated, rough }
- U B01F 13/00**
Other mixers; Mixing plant, including combinations of {mixers, e.g. of} dissimilar mixers
- U B01F 13/10
 - Mixing plant, including combinations of {mixers, e.g. of} dissimilar mixers {(B01F 13/0294 takes precedence)}
- B01F 2013/1052
 - • {Mixing in several steps, e.g. successive steps }
- B01F 2013/1075
 - • {combining mixing with other treatments }
- B01F 2013/1077
 - • • {with disintegrating }
- B01F 2013/108
 - • • • {by cutting }
- B01F 2013/1083
 - • • • {by crushing or breaking }
- B01F 2013/1086
 - • • • {by grinding or milling }
- B01F 2013/1088
 - • • • {and irradiating }
- B01F 2013/1091
 - • • {with chemical reactions }
- B01F 2013/1094
 - • • {with coating }
- B01F 2013/1097
 - • • {with drying }
- U B01F 15/00**
Accessories for mixers; { Auxiliary operations or auxiliary devices; Parts or details of general application}
- B01F 2015/00077
 - {Use of general mechanical engineering elements in mixing devices }
- B01F 2015/00084
 - • ~~Sealings~~ {Sealings }
- B01F 2015/0009
 - • • {for laboratory mixers }
- B01F 2015/00097
 - • • {Fluid sealings, e.g. using liquids or air under pressure which is leaking into the mixing receptacle }
- B01F 2015/00103
 - • • {comprising a stationary member in frontal contact with a movable member }
- B01F 2015/0011
 - • ~~Bearings~~ {Bearings }
- B01F 2015/00116
 - • {Lubricating systems }
- U B01F 15/00435
 - { Drives, e.g. for reciprocating motion; Transmissions; Brakes; Couplings (B01F 15/00201, B01F 15/00668 take precedence; drives using magnetic couplings B01F 13/08)}
- B01F 2015/00577
 - • {Disposition of the drive }
- B01F 2015/00584
 - • • {independent from the receptacle }
- B01F 2015/0059
 - • • {mounted on the receptacle }
- B01F 2015/00597
 - • • {at the lower side of the axis, e.g. driving the stirrer from the bottom of a receptacle }
- B01F 2015/00603
 - • • {at the upper side of the axis, e.g. driving the stirrer from the top of a receptacle }
- B01F 2015/0061
 - • • {the driving system comprising more than one motor, e.g. having an auxiliary motor or comprising independently driven elements }
- B01F 2015/00616
 - • • • {Driving the stirrer axis from both ends of the axis, i.e. using at least two motors per shaft }
- B01F 2015/00623
 - • ~~Transmissions~~ {Transmissions }
- B01F 2015/00629
 - • • {the transmission alternately changes the speed of rotation }

- B01F 2015/00636 . . . {the transmission alternately changes the direction of rotation }
- B01F 2015/00642 . . . {the transmission or the motor can change the rotation sense, e.g. to mix or aerate, to move a fluid forward or backward, to suck or blow }
- B01F 2015/00649 . . ~~Couplings~~ {Couplings }
- B01F 2015/00655 . . {Brake mechanisms }
- U B01F 15/00662 . { Mounting or supporting mixing devices, e.g. independent stirrer units on receptacles; Mounting or supporting receptacles on frames or stands; Clamping or holding arrangements therefor }
- U B01F 15/00733 . . { Clamping or holding arrangements for mounting receptacles on mixing devices, e.g. for shaking, vibrating or rotating the receptacle }
- B01F 2015/00759 . . . {by means of an air cushion used for supporting the mixing receptacle }
- U B01F 15/02 . Feed or discharge mechanisms
- U B01F 15/0201 . . {Feed mechanisms (with proportioning [B01F 15/04](#))}
- U B01F 2015/0204 . . . {using screws, transporting belts or hoppers}
- B01F 2015/0221 . . . {Feeding the components in several steps, e.g. successive steps }
- U B01F 15/0266 . . {Discharge mechanism}
- U B01F 2015/0269 . . . {using a rotary discharge means, e.g. a screw beneath the receptacle ([B01F 15/0267](#) takes precedence)}
- U B01F 2015/0273 . . . {using a piston reciprocating in the mixing receptacle}
- U B01F 15/06 . Heating or cooling systems
- B01F 2015/061 . . ~~Cooling~~ {Cooling }
- B01F 2015/062 . . ~~Heating~~ {Heating }
- U **B01F 2215/00** **Auxiliary or complementary information in relation with mixing**
- U B01F 2215/0001 . Field of application of the mixing device
- B01F 2215/0031 . . Mixing ingredients for cosmetic, perfume compositions (mixtures with detergents for washing machines [B01F 2215/0077](#); cosmetics or toilet preparations ~~A61K7/00~~ [A61K 8/00](#))

Project: N/A (B01J)

- U **B01J 20/00** **Solid sorbent compositions or filter aid compositions; Sorbents for chromatography; Processes for preparing, regenerating or reactivating thereof(use of sorbent compositions in liquid separation [B01D 15/00](#) , use of filter aid compositions [B01D 37/02](#) ; use of sorbent compositions in gas separation [B01D 53/02](#) , [B01D 53/14](#))**
- B01J 20/28 . characterised by their form or physical properties
WARNING

Groups [B01J 20/281](#) to [B01J 20/29](#) might be incomplete. A number of documents presently classified in [G01N 30/48](#) and ~~G01N30/48A1~~ [G01N 30/482](#) still need reclassification to one or more of these groups
- U **B01J 23/00** **Catalysts comprising metals or metal oxides or hydroxides, not provided for in group [B01J 21/00](#) ([B01J 21/16](#) takes precedence)**
- B01J 23/002 . {Mixed oxides other than spinels, e.g. perovskite}
- NOTE

In group ~~B01J 23/00-B~~ [B01J23/00B](#), elements constituting the exemplified mixed oxide are further indexed with [B01J 2523/00](#) as base symbol using the relevant classification symbols of [B01J 2523/00](#) to ~~B01J-2523/84~~

FB01J2523/84F, in numerical order without L01J523 and preceded by the sign "+", e.g. Moa Vb Tec Ox is classified as [B01J 2523/00](#) +/55+/64+/68

U B01J 29/00

Catalysts comprising molecular sieves{(molecular sieves per se [C01B](#))}

NOTES

In this group, the following term is used with the meaning indicated:

- "zeolites" means:

- (i) crystalline aluminosilicates with base-exchange and molecular sieve properties, having three dimensional, microporous lattice framework structure of tetrahedral oxide units;
- (ii) compounds isomorphous to those of the former category, wherein the aluminium or silicon atoms in the framework are partly or wholly replaced by atoms of other elements, e.g. by gallium, germanium, phosphorus or boron.

If metals are introduced into the framework of the molecular sieve already in the synthesis stage, [B01J 29/86](#) to [B01J 29/89](#) take precedence.

Mixtures of molecular sieves are classified in [B01J 29/005](#) or [B01J 29/80](#) and receive indexing codes chosen from groups [B01J 29/03](#) to [B01J 29/89](#) to identify the individual constituents of these mixtures

U B01J 29/04

- having base-exchange properties, e.g. crystalline zeolites{([B01J 29/005](#) takes precedence)}

U B01J 29/06

- • Crystalline aluminosilicate zeolites; Isomorphous compounds thereof

B01J 2029/062

- • • {Mixtures of different aluminosilicates}

U B01J 29/08

- • • of the faujasite type, e.g. type X or Y

B01J 2029/081

- • • • {Increasing the silica/alumina ratio; Desalumination}

B01J 31/00

Catalysts comprising hydrides, coordination complexes or organic compounds(catalyst compositions used only in polymerisation reactions [C08](#);(catalytic antibodies [C12N 9/0002](#)))

NOTES

1. Group [B01J 31/003](#) takes precedence over groups [B01J 31/02](#) to [B01J 31/24](#) (catalytic antibodies [C12N 9/0002](#))

2. In this group, the following terms or expressions are used with the meanings indicated:

-"Organic compound" a compound in which carbon is bonded to (1)a second carbon; (2)at least one atom of hydrogen or halogen; or (3)nitrogen by a single or double bond; except cyanic acid (HOCN), cyanogen (NCCN), cyanamide (H2NCN), cyanogen halide (HalCN), hydrocyanic acid (HCN) isocyanic acid (HNCO) fulminic acid (HCNO)and metal carbides (MCCM) (catalysts comprising any of these exceptions or their salts [B01J 27/20](#) to [B01J 27/26](#) .

-"Organometallic compounds" includes all organic compounds wherein a metal or metalloid atom is bonded directly to a carbon fragment, the latter being formally anionic, no further neutral ligands being coordinated to the metal and the compound requiring no further cations for charge balance; e.g. M(1-CR3)n with M= main group metal, n= valency of metal and R= H or hydrocarbyl. (Compounds comprising anionic organonitrogen, organooxygen and organosulfur fragments, excluding carboxylates, with a metal bonded to these heteroatoms [B01J 31/02](#) to [B01J 31/0254](#) ; unsaturated carbon fragments in combination with transition metals [B01J 31/22](#) -~~[B01J31/22D](#)~~. -"Coordination complexes" includes any donor-acceptor compounds or complex ions comprising organic or inorganic, anionic or neutral Lewis basic ligands, attached to a Lewis acid central metal or metal ion through one or several complexing donor atoms with at least one lone-pair of electrons, e.g. N, O, S, P, to provide at least a Sigma-

bond. Typically the maximum number of same or different ligands according to the coordination number, spatial requirements of the ligand and electronic configuration of the metal is bound in a predictable geometry. Complexes of neutral, cationic or anionic hydrocarbon ligands with delocalised charge and/or bonding site, e.g. Pd-olefin complexes or metallocenes, are also included (the following groups take precedence: simple hydrocarbyl metal compounds, e.g. of main group metal(l)oids [B01J 31/12](#) ; oxoacid salts [B01J 31/04](#) to [B01J 31/10](#) ; other compounds comprising anionic organonitrogen, organooxygen and organosulfur fragments with a metal bonded to these heteroatoms [B01J 31/02](#) to [B01J 31/0254](#) . -"Organometallic complexes" includes all coordination complexes comprising a M-C bond, e.g. metal carbonyls (complex cyanides such as $M_4[Fe(CN)_6]$ [B01J 27/26](#)). Included are furthermore complexes which are not strictly organometallic per se, e.g. comprising only N, O, S and/or P coordinated ligands, but are described as involving, or known to involve, organometallic intermediates and/or transition states during use, e.g. Group 8-10 metal complexes for a variety of catalytic reactions or steps thereof, such as oxidative addition, e.g. of ArX , hydrogenation, carbonylation, epoxidation, etc. -"Organic complexes" includes all coordination complexes comprising organic ligands (groups [B01J 31/1608](#) to [B01J 31/1895](#) take precedence). -"Polymer" includes any macromolecular substance (typically $M > 10000$ g/mol), which comprises repeating units made up of one or several kinds of atoms or groups of atoms, which are identically connected to one another. Oligomers, i.e. more than two identical repeating units connected to one another and typically $500 < M < 10000$ g/mol, are grouped with the respective polymers (polymers per se [C08](#)).

3. In this group, if two or more aspects are of equal importance, these are each classified, e.g. two components in a catalyst system such as:

- support and pendant or otherwise immobilised coordination complex; or
- coordination complex and essential additive.

However, if two components, even if separately added, are described as forming, or known to form, a coordination complex, only the latter is classified, e.g. phosphine and Group 8-10 metal such as rhodium. The groups [B01J 31/26](#) to [B01J 31/38](#) are not to be used for the central metals in coordination complexes but rather for separately added further inorganic ingredients.

Each specifically disclosed alternative is separately classified, i.e. specifically disclosed by ways of worked examples, specific claims and/or explicit alternatives therein.

4. When classifying in [B01J 31/00](#) , additional information for the catalysts is provided as follows:

- (4-1) the specifically disclosed intended uses are indexed in [B01J 2231/00](#) ;
- (4-2) general aspects of the complexes of group [B01J 31/16](#) and the specifically disclosed central metal(s) therein, as well as additional information regarding any special solvents used for any catalyst system of this group are indexed in [B01J 2531/00](#) .
- (4-3) conceptual articles, e.g. reviews, are separately indexed in [B01J 2231/005](#) and [B01J 2531/001](#) ;
- (4-4) additional information regarding the complexes or ligands classified in [B01J 31/16](#) to [31/24](#) [B01J 31/24](#) and indexed in [B01J 2531/00](#) is indexed in [B01J 2540/00](#) , e.g. non-coordinating substituents on the ligand periphery]

U B01J 35/00

Catalysts, in general, characterised by their form or physical properties

U B01J 35/002

• {Catalysts characterised by their physical properties}

B01J 35/004

• • {Photocatalysts}

WARNING

Groups [B01J 35/0046](#) to [B01J 35/0093](#) are not complete, see also [B01J 35/00](#) - [B01J 35/00D](#)

U B01J 38/00

Regeneration or reactivation of catalysts, in general

B01J 2038/005

- {involving supercritical treatment}

B01J 39/00 -
B01J 49/00

Ion-exchange(treatment of milk [A23C 9/14](#) ; separation by liquid ion-exchangers [B01D](#) , e.g. [B01D 11/00](#) ; separation of isotopes [B01D 59/00](#) ; compounds *er se*, see the relevant classes, e.g. [C01](#) , [C07](#) , [C08](#) ; treatment of water [C02F 1/42](#) ; refining of hydrocarbon oils, in the absence of hydrogen, with solid sorbents [C10G 25/00](#) ; **purification of sugar juices** [C13D3/14](#) ; **extraction of sugar from molasses** [C13J1/06](#) ; **purification of sugar juices** [C13B 20/14](#) ; **extraction of sugar from molasses** [C13B 35/06](#) ; extraction of metal compounds from ores or concentrates by wet processes [C22B 3/00](#) ; using ion-exchange for investigating or analysing materials [G01N 30/96](#) ; treating radioactively contaminated material [G21F 9/12](#))

NOTES

In groups [B01J 39/00](#) to [B01J 49/00](#) :

- Ion-exchange covers all processes whereby ions are exchanged between the solid exchanger and the liquid to be treated and wherein the exchanger is not soluble in the liquid to be treated
- Ion-exchange processes cover also ion-exchange in combination with complex or chelate forming reactions

In groups [B01J 39/00](#) to [B01J 49/00](#) , in the absence of an indication to the contrary, classification is made in the last appropriate place

After the notation of [B01J 39/00](#) to [B01J 49/00](#) , and separated there from by a + sign, notations concerning other constituents may be added. These notations are selected from groups [B01J 39/00](#) and [B01J 41/00](#)

B01J 2531/00

Additional information regarding catalytic systems classified in [B01J 31/00](#)

NOTE

In this group the term "Metals" refers to the central metal in the coordination complexes ([B01J 31/16](#) to [31/24](#)[B01J 31/24](#)), as used for the respective catalytic reaction, excluding carboxylates (see [B01J 31/04](#)) and other simple salts or organometallic compounds (see [B01J 31/12](#)). As to components, only those metals or solvents are indexed which are explicitly mentioned in the claims or the worked examples. As to compositional aspects, only those are provided for in the scheme below and are intended to be indexed, which provide additional information regarding the complexes and/or ligands classified in [B01J 31/16](#) to [31/24](#)[B01J 31/24](#); indexing codes [B01J 2531/0286](#) to [B01J 2531/0297](#) are only used if these aspects are described as essential. Indexing codes [B01J 2531/0213](#) to [B01J 2531/0277](#) characterise the complexes on the basis of bond-type (linkage-type) thereby specifying the structural geometry of the complexes, while classification entries [B01J 31/16](#) to [31/24](#) are purely compositional subdivisions. The individual metals, the compositional aspects of complexes used and the solvents are indexed for each explicit alternative, according to the guideline above

Project: N/A (B01L)

U B01L 7/00

Heating or cooling apparatus (evaporators [B01D 1/00](#); drying gases or vapours, e.g. desiccators, [B01D 53/26](#); autoclaves [B01J 3/04](#); drying ovens [F26B](#); furnaces, ovens [F27](#)); Heat insulating devices

B01L 7/52

- { with provision for submitting samples to a predetermined sequence of different temperatures, e.g. for treating nucleic acid samples (amplification or hybridisation processes *per se* [C12Q 1/68](#); controlling sequential reactions for synthesis [B01J19/00](#)[B8](#)[B01J 19/0046](#)) }

Project: N/A (B02C)

B02C	CRUSHING, PULVERISING, OR DISINTEGRATING IN GENERAL; MILLING GRAIN ({clod-crushers for soil-working machines A01B17/00C} ; {household tools and machines for pulverising foodstuffs, e.g. coffee and spice mills A47J 42/00 ; pharmaceutical mortars A61J 3/02 ; mechanical processing of refuse and garbage B03B 9/06 ; dressing mould materials by grinding B22C 5/04 ; obtaining metallic powder by crushing, grinding or milling B22F 9/04 ; { recovery of plastics by desintegration B29B 17/00 ; crushing raw materials in starch making C08B 30/02 ; shredding devices for sugar-beet and sugar-cane C13C1/00 ; beaters for papermaking D21D 1/02 ; crushing devices specially for transport in mines E21F 13/002 ; slag crushing devices F23J 1/00 ; fuel milling devices in combustion apparatus F23K 1/00 ; household devices for crushing coal F24B 15/02 ; ice desintegrating devices F25C 5/02 })C2011.10
U B02C 2/00	Crushing or disintegrating by gyratory or cone crushers {(with non-coaxial discs with intersecting axes B02C 7/005)}
B02C 2002/002	. {the bowl being a driven element for providing a crushing effect }
U B02C 13/00	Disintegrating by mills having rotary beater elements; {Hammer mills}
U B02C 13/14	. with vertical rotor shaft, e.g. combined with sifting devices
B02C 2013/145	. . {with fast rotating vanes generating vortexes effecting material on material impact }
U B02C 13/18	. . with beaters rigidly connected to the rotor
U B02C 13/1807	. . . {the material to be crushed being thrown against an anvil or impact plate (with horizontal axis B02C 13/09 ; centrifugal acceleration of material through radially extending channels B02C 19/0025 ; centrifugal acceleration of material by means of an open top rotor B02C 19/0031)}
B02C 2013/1857	. . . . {rotating coaxially around the rotor shaft }
B02C 2013/1864	. . . . {rotatable around its own axis }
B02C 2013/1871	. . . . {vertically adjustable }
B02C 2013/1878	. . . . {radially adjustable }
B02C 2013/1885	. . . . {of dead bed type }
B02C 2013/1892	. . . . {cooled or heated }
U B02C 13/26	. Details
U B02C 13/28	. . Shape or construction of beater elements
B02C 2013/2808	. . . {the beater elements are attached to disks mounted on a shaft }
B02C 2013/2812	. . . {the beater elements are attached to a hollow cylindrical rotor }
B02C 2013/2816	. . . {of chain, rope or cable type }
U B02C 13/282	. . Shape or inner surface of mill-housings
B02C 2013/2825	. . . {with fastening means for fixing lining members to the inner surface of mill-housings }
U B02C 13/286	. . Feeding or discharge
B02C 2013/28609	. . . {Discharge means }
B02C 2013/28618	. . . {Feeding means }
B02C 2013/28627	. . . . {of ram or pusher type }
B02C 2013/28636	. . . . {of conveyor belt type }
B02C 2013/28645	. . . . {of conveyor belt and cooperating roller type }
B02C 2013/28654	. . . . {of screw type }
B02C 2013/28663	. . . . {using rollers }

- B02C 2013/28672 {Feed chute arrangements }
- B02C 2013/28681 {Feed distributor plate for vertical mill }
- B02C 2013/2869 . . . {Arrangements of feed and discharge means in relation to each other }
- B02C 2013/29 . . {devices for manipulating beater elements }
- U B02C 15/00 Disintegrating by milling members in the form of rollers or balls co-operating with rings or discs {(high-speed drum mills [B02C 19/11](#))}**
 - B02C 2015/002 . {combined with a classifier }
 - B02C 2015/008 . {Roller drive arrangements }
- U B02C 15/12 Mills with at least two discs {or rings} and interposed balls or rollers mounted like ball or roller bearings**
 - B02C 2015/126 . . {of the plural stage type }
- U B02C 15/14 Edge runners, e.g. Chile mills**
 - B02C 2015/143 . . {each runner pivot carrying more than one runner }
 - B02C 2015/146 . . {Step-shaped runners }
- U B02C 17/00 Disintegrating by tumbling mills, i.e. mills having a container charged with the material to be disintegrated with or without special disintegrating members such as pebbles or balls (high-speed drum mills [B02C 19/11](#); {drums for polishing or grinding [B24B](#)})**
 - U B02C 17/04 with unperforated container**
 - U B02C 17/06 with several compartments**
 - B02C 2017/065 . . . {with several compartments in the form of multiwell blocks }
 - U B02C 17/16 Mills in which a fixed container houses stirring means tumbling the charge**
 - B02C 2017/165 . . {with stirring means comprising more than one agitator }
- U B02C 18/00 Disintegrating by knives or other cutting or tearing members which chop material into fragments {(tree stump comminutors [A01G 23/067](#))}**
 - U B02C 18/0007 {specially adapted for disintegrating documents}**
 - B02C 2018/0015 . . {for disintegrating CDs, DVDs and/or credit cards }
 - B02C 2018/0023 . . {Switching devices }
 - B02C 2018/003 . . {Removing clips, pins or staples before disintegrating }
 - B02C 2018/0038 . . {Motor drives }
 - B02C 2018/0046 . . {Shape or construction of frames, housings or casings }
 - B02C 2018/0053 . . {hand-operated }
 - B02C 2018/0061 . . {with compacting devices for the disintegrated material }
 - B02C 2018/0069 . . {with stripping devices }
 - U B02C 18/06 with rotating knives**
 - U B02C 18/14 within horizontal containers {([B02C 18/062](#), [B02C 18/065](#) take precedence)}**
 - B02C 2018/147 . . . {of the plural stage type }
 - U B02C 18/16 Details**
 - B02C 2018/162 . . . {Shape or inner surface of shredder-housings }
 - B02C 2018/164 . . . {Prevention of jamming and/or overload }
 - B02C 2018/166 . . . {Lubricating the knives of the cutting mechanisms }
 - B02C 2018/168 . . . {User safety devices or measures in shredders }
 - U B02C 18/18 Knives; Mountings thereof**
 - B02C 2018/188 {Stationary counter-knives; Mountings thereof }
 - U B02C 18/22 Feed or discharge means**

- B02C 2018/2208
 - • • • {for weblike material }
- U B02C 18/30
 - Mincing machines with perforated discs and feeding worms
- U B02C 18/305
 - • {Details}
- B02C 2018/307
 - • • {Cooling arrangements in mincing machines }
- B02C 2018/308
 - • {with separating devices for hard material, e.g. bone }
- U B02C 18/36
 - • Knives or perforated discs
- B02C 2018/367
 - • • {Resiliently mounted knives or discs }
- U B02C 19/00**
Other disintegrating devices or methods (for grain [B02C 9/00](#))
- U B02C 19/18
 - Use of auxiliary physical effects, e.g. ultrasonics, irradiation, for disintegrating
- B02C 2019/183
 - • {Crushing by discharge of high electrical energy }
- U B02C 21/00**
Disintegrating plant with or without drying of the material (for grain [B02C 9/04](#))
- U B02C 21/02
 - Transportable disintegrating plant
- B02C 2021/023
 - • {for disintegrating material on the surface of the ground }
- U B02C 23/00**
Auxiliary methods or auxiliary devices or accessories specially adapted for crushing or disintegrating not provided for in preceding groups or not specially adapted to apparatus covered by a single preceding group ({specially adapted for grain mills [B02C 11/00](#);} separating or sorting in general [B03](#), [B04](#), [B07](#))
- U B02C 23/08
 - Separating or sorting of material, associated with crushing or disintegrating ([B02C 23/18](#) takes precedence; {beater mills combined with sifting devices [B02C 13/13](#), [B02C 13/14](#); for tumbling mills [B02C 17/1835](#)})
- U B02C 23/16
 - • with separator defining termination of crushing or disintegrating zone, e.g. screen denying egress of oversize material
- B02C 2023/165
 - • • {Screen denying egress of oversize material }

Project: N/A (B03B)

- U B03B 5/00**
Washing granular, powdered or lumpy materials; Wet separating(separating by pneumatic tables or by pneumatic jigs [B03B 4/00](#))
- U B03B 5/28
 - by sink-float separation
- U B03B 5/30
 - • using heavy liquids or suspensions
- U B03B 5/36
 - • • Devices therefor, other than using centrifugal force(jigs [B03B 5/10](#))
- U B03B 5/40
 - • • • of trough type
- B03B 2005/405
 - • • • • {using horizontal currents}
- U B03B 9/00**
General arrangement of separating plant, e.g. flow sheets
- U B03B 9/06
 - specially adapted for refuse
- B03B 2009/066
 - • {the refuse being batteries}
- B03B 2009/067
 - • {the refuse being carpets}
- B03B 2009/068
 - • {Specific treatment of shredder light fraction}
- U B03B 11/00**
Feed or discharge devices integral with washing or wet-separating equipment(filling or emptying devices per se [B65G 65/30](#))
- B03B 2011/002
 - {Rotary feeding devices}
- B03B 2011/004
 - {Lifting wheel dischargers}
- B03B 2011/006
 - {Scraper dischargers}
- B03B 2011/008
 - {Screw dischargers}

Project: N/A (B03D)**B03D**

FLOTATION; DIFFERENTIAL SEDIMENTATION(sedimentation in general [B01D 21/00](#) ; in combination with other separation of solids [B03B](#); sink-float separation [B03B 5/28](#) ; detergents, soaps [C11D](#))

WARNING

The following groups are not complete: [B03D1/02C](#), see also [B03D 1/02](#) ~~[B03D1/02F](#)~~, see also [B03D 1/02](#) [B03D1/02L](#), see also [B03D 1/02](#) ~~[B03D1/02R](#)~~, see also [B03D 1/02](#) ~~[B03D 1/02 L](#)~~, see also [B03D 1/02](#) ~~[B03D 1/02 R](#)~~, see also [B03D 1/02](#) [B03D1/08D](#), see also [B03D 1/08](#) ~~[B03D1/08F](#)~~, see also [B03D 1/08](#) [B03D1/08T](#), see also [B03D 1/08](#) ~~[B03D1/14A](#)~~, see also [B03D 1/08](#) ~~[B03D 1/08 T](#)~~, see also [B03D 1/08](#) [B03D 1/14](#) ~~[B03D1/14F](#)~~, see also [B03D 1/14](#) ~~[B03D 1/14 F](#)~~, see also [B03D 1/14](#) [B03D 1/145](#), see also [B03D 1/14](#) [B03D 1/1456](#), see also [B03D 1/14](#) [B03D 1/1462](#), see also [B03D 1/14](#) [B03D 1/1468](#), see also [B03D 1/14](#) [B03D 1/1475](#), see also [B03D 1/14](#) [B03D1/14M](#), see also [B03D 1/14](#) ~~[B03D1/14S](#)~~, see also [B03D 1/14](#) ~~[B03D 1/14 S](#)~~, see also [B03D 1/14](#) [B03D1/24N](#), see also [B03D 1/24](#) ~~[B03D1/24R](#)~~, see also [B03D 1/24](#) ~~[B03D 1/24 R](#)~~, see also [B03D 1/24](#)]

Project: N/A (B04B)**U B04B 1/00**

Centrifuges with rotary bowls provided with solid jackets for separating predominantly liquid mixtures with or without solid particles

U B04B 1/20

- discharging solid particles from the bowl by a conveying screw coaxial with the bowl axis and rotating relatively to the bowl

U B04B 1/2016

- {Driving control or mechanisms; Arrangement of transmission gearing}

B04B 2001/2025

- • {with drive comprising a planetary gear }

B04B 2001/2033

- • {with feed accelerator inside the conveying screw }

B04B 2001/2041

- • {with baffles, plates, vanes or discs attached to the conveying screw }

B04B 2001/205

- • {with special construction of screw thread e.g. segments, height }

B04B 2001/2058

- • {with ribbon-type screw conveyor }

B04B 2001/2066

- • {with additional disc stacks }

B04B 2001/2075

- • {with means for recovering the energy of the outflowing liquid }

B04B 2001/2083

- • {Configuration of liquid outlets }

B04B 2001/2091

- • {Configuration of solids outlets }

U B04B 5/00

Other centrifuges

U B04B 5/04

- Radial chamber apparatus for separating predominantly liquid mixtures, e.g. butyrometers

U B04B 5/0407

- • {for liquids contained in receptacles ([B04B 5/0442](#) takes precedence)}

B04B 2005/0435

- • • {with adapters for centrifuge tubes or bags }

U B04B 5/0442

- • {with means for adding or withdrawing liquid substances during the centrifugation, e.g. continuous centrifugation}

B04B 2005/045

- • • {having annular separation channels }

B04B 2005/0457

- • • {having three-dimensional spirally wound separation channels }

B04B 2005/0464

- • • {with hollow or massive core in centrifuge bowl }

B04B 2005/0471

- • • {with additional elutriation separation of different particles }

B04B 2005/0478

- • • {with filters in the separation chamber }

B04B 2005/0485

- • • {with a displaceable piston in the centrifuge chamber }

B04B 2005/0492

- • • {with fluid conveying umbilicus between stationary and rotary centrifuge parts }

- U B04B 5/10
 - Centrifuges combined with other apparatus, e.g. electrostatic separators; Sets or systems of several centrifuges ([B04B 5/12](#) takes precedence; magnetic or electrostatic separators [B03C](#); {amassing particles by electric fields, e.g. by agglomeration [B03C 3/0175](#)})
- B04B 2005/105
 - • {being a grinding mill }
- U B04B 5/12
 - Centrifuges in which rotors other than bowls generate centrifugal effects in stationary containers
- B04B 2005/125
 - • {the rotors comprising separating walls }
- U **B04B 7/00**
Elements of centrifuges (drives [B04B 9/00](#); feeding, charging, or discharging appurtenances or devices [B04B 11/00](#))
- B04B 2007/005
 - {Retaining arms for gripping the stationary part of a centrifuge bowl or hold the bowl itself }
- U B04B 7/02
 - Casings; Lids (shock absorbers, vibration dampers [F16F](#))
- B04B 2007/025
 - • {Lids for laboratory centrifuge rotors }
- U B04B 7/06
 - • Safety devices; {Regulating}
- B04B 2007/065
 - • • {Devices and measures in the event of rotor fracturing e.g. lines of weakness, stress regions }
- U **B04B 9/00**
Drives specially designed for centrifuges; Arrangement or disposition of transmission gearing; Suspending or balancing rotary bowls
- U B04B 9/08
 - Arrangement or disposition of transmission gearing {(for solid bowl screw centrifuges [B04B 1/2016](#)); Couplings; Brakes}
- B04B 2009/085
 - • {Locking means between drive shaft and rotor }
- U B04B 9/14
 - Balancing rotary bowls (balancing per se [G01M](#)); {Schrappers}
- B04B 2009/143
 - • {by weight compensation with liquids }
- U **B04B 11/00**
Feeding, charging, or discharging bowls ([B04B 1/00](#), [B04B 3/00](#), [B04B 7/04](#) take precedence)
- U B04B 11/04
 - Periodical feeding or discharging; Control arrangements therefor
- B04B 2011/046
 - • {Loading, unloading, manipulating sample containers }
- U B04B 11/08
 - Skimmers or scrapers for discharging; {Regulating thereof}
- B04B 2011/084
 - • {with cables for cake removal }
- B04B 2011/086
 - • {with a plurality of scraper blades }
- B04B 2011/088
 - • {with angularly and axially offset scrapers }
- U **B04B 13/00**
Control arrangements specially designed for centrifuges; Programme control of centrifuges (control arrangements for feed, charge, or discharge [B04B 11/00](#))
- B04B 2013/006
 - {Interface detection or monitoring of separated components }

Project: N/A (B04C)

- U **B04C 3/00**
Apparatus in which the axial direction of the vortex {(flow following a screw-thread type line)} remains unchanged {Also devices in which one of the two discharge ducts returns centrally through the vortex chamber, a reverse-flow vortex being prevented by bulkheads in the central discharge duct (combined with other devices [B04C 9/00](#))}
- B04C 2003/003
 - {Shapes or dimensions of vortex chambers }
- B04C 2003/006
 - {Construction of elements by which the vortex flow is generated or degenerated }

- U B04C 5/00** **Apparatus in which the axial direction of the vortex is reversed {(combined with other devices [B04C 9/00](#))}**
- U B04C 5/12 · Construction of the overflow ducting, e.g. diffusing or spiral exits
- U B04C 5/13 · · formed as a vortex finder and extending into the vortex chamber {(exits with bulkheads preventing reverse flow vortex [B04C 3/00](#))}; Discharge from vortex finder otherwise than at the top of the cyclone; Devices for controlling the overflow
- B04C 2005/133 · · · {Adjustable vortex finder }
- B04C 2005/136 · · · {Baffles in the vortex finder }
- U B04C 9/00** **Combinations with other devices, e.g. fans, {expansion chambers, diffusors, water locks}{with filters [B01D 50/00](#)}**
- B04C 2009/001 · {with means for electrostatic separation }
- B04C 2009/002 · {with external filters }
- B04C 2009/004 · {with internal filters, in the cyclone chamber or in the vortex finder }
- B04C 2009/005 · {with external rotors, e.g. impeller, ventilator, fan, blower, pump }
- B04C 2009/007 · {with internal rotors, e.g. impeller, ventilator, fan, blower, pump }
- B04C 2009/008 · {with injection or suction of gas or liquid into the cyclone }

Project: N/A (B05B)**B05B**

SPRAYING APPARATUS; ATOMISING APPARATUS; NOZZLES({ sprayers or atomisers specially adapted for therapeutic purposes [A61M 11/00](#) } ; spray-mixers with nozzles [B01F 5/20](#) ; processes for applying liquids or other fluent materials to surfaces by spraying [B05D](#); { nozzles specially adapted for injection moulding of plastics or substances in a plastic state [B29C 45/1603](#) , [B29C 45/20](#) ; nozzles specially adapted for windscreen washers [B60S 1/52](#) } ; means for pumping fluids [F04](#); valves, e.g. water-taps, [F16K](#))

NOTES

This subclass covers particularly apparatus for the release or projection of drops or droplets into the atmosphere or into a chamber to form a mist or the like. For this purpose, the materials to be projected may be suspended in a stream of gas or vapour.

Attention is drawn to the Note following the title of class [B05](#).

In this subclass, "means for controlling volume of flow" is used in the most general meaning and includes also means allowing only starting and stopping the flow

In this subclass, the meaning of the expression "apparatus carried on or by a person" includes all apparatus comprising at least one container for the material to be sprayed carried on or by a person during use

In this subclass, the word "container" is to be understood as the innermost enclosure containing the material to be sprayed

WARNING

Groups [B05B 11/30](#) to [B05B 11/3098](#) do not correspond to former or current IPC groups. The concordance CPC : IPC for these groups is as follows: - [B05B 11/30](#) - ~~[11/30](#)~~ [B05B 11/30V](#) : [B05B 11/00](#)

- B05B 1/00** Nozzles, spray heads or other outlets, with or without auxiliary devices such as valves, heating means([B05B 3/00](#) , [B05B 5/00](#) , [B05B 7/00](#) take precedence; { nozzles for baths with water or gas jets [A61H 33/00](#) , e.g. [A61H 33/6063](#) , [A61H 33/6021](#) , [A61H 33/026](#) or [A61H 33/027](#) ; Nozzles specially adapted for fire-extinguishing [A62C 31/02](#) ; Nozzles for generating high velocity abrasive fluid jets [B24C 5/04](#) } ; nozzles for jet-ink printing mechanisms [B41J 2/135](#) ; { Nozzles for filling containers [B65B 39/00](#) ; } nozzles for liquid-dispensing, e.g. in vehicle service stations [B67D5/37](#) [B67D 7/42](#))
- U B05B 3/00** Spraying or sprinkling apparatus with moving outlet elements or moving deflecting elements;{Spraying or sprinkling heads with rotating elements located upstream the outlet}
- U B05B 3/02** • with rotating elements
- U B05B 3/04** • • driven by the liquid or other fluent material discharged, e.g. the liquid actuating a motor before passing to the outlet{([B05B 3/023](#) takes precedence)}
- U B05B 3/0409** • • {with moving, e.g. rotating, outlet elements([B05B 3/0486](#) , [B05B 3/06](#) take precedence)}
- U B05B 3/0472** • • • {the spray jet actuating a movable deflector which is successively moved out of the jet by jet action and brought back into the jet by spring action}
- B05B 3/0477** • • • • {the spray outlet having a reversible rotative movement, e.g. for covering angular sector smaller than 360°}
- WARNING
This subgroup is not complete, due to a pending reclassification. See provisionally also group [B05B 3/16](#) [B05B3/16B](#)
- B05B 3/0481** • • • • {Impact motive means}
- WARNING
This subgroup is not complete, due to a pending reclassification. See provisionally also group [B05B 3/16](#) [B05B3/16B](#)
- U B05B 12/00** Arrangements or special adaptations of delivery controlling means in spraying systems(controlling in general [G05](#){ ; valves in spray head or nozzles [B05B 1/30](#) and sub-groups)}
- U B05B 12/08** • responsive to condition of liquid or other fluent material discharged, of ambient medium or of target{; responsive to condition of spray device or of supply means, e.g. pipes, pumps, their drive}
- U B05B 12/12** • • responsive to conditions of ambient medium or target, e.g. humidity, temperature{position or movement of the target relative to the spray apparatus([B05B 12/082](#) , [B05B 12/084](#) take precedence)}
- B05B 2012/128** • • • {Indexing codes not having corresponding classification codes in subclass [B05B](#)(empty group)}
- U B05B 13/00** Machines or plants for applying liquids or other fluent materials to surfaces of objects or other work by spraying, not covered by groups [B05B 1/00](#) to [B05B 11/00](#) ({ [B05B 5/08](#) takes precedence } ; means for supplying or discharging liquid or other fluent material for this purpose, see the relevant preceding groups; processes for applying liquids or other fluent materials to surfaces in general [B05D](#))
- U B05B 13/02** • Means for supporting work; Arrangement or mounting of spray heads; Adaptation or arrangement of means for feeding work([B05B 13/06](#) takes precedence)
- U B05B 13/04** • • the spray heads being moved during{spraying}operation

B05B 13/0463

- • {Installation or apparatus for applying liquid or other fluent material to moving work of indefinite length}

WARNING

Not complete pending reclassification; see also groups ~~B05B 13/04~~
~~B05B 13/04B~~, ~~B05B 13/04C~~ **B05B 13/04C**]

U B05B 17/00

Apparatus for spraying or atomising liquids or other fluent materials, not covered by the preceding groups(dropping or releasing powdered, liquid or gaseous matter in flight [B64D 1/16](#))

B05B 2017/02

- {Arrangements essentially involving the use of aircraft}

Project: N/A (B05C)

U B05C 5/00

Apparatus in which liquid or other fluent material is projected, poured or allowed to flow on to the surface of the work ([B05C 7/00](#) takes precedence; essentially involving spraying or electrostatic projection [B05B](#))

U B05C 5/02

- {the liquid or other fluent material being discharged through an outlet orifice by pressure, e.g.} from an outlet device in contact or almost in contact, with the work

B05C 5/0225

- • {characterised by flow controlling means, e.g. valves, located proximate the outlet ([B05C 5/0258](#), [B05C 5/0275](#) take precedence; supply valves upstream the coating head ~~B05C 11/10G~~ [B05C 11/1036](#))}

Project: N/A (B05D)

U B05D 5/00

Processes for applying liquids or other fluent materials to surfaces to obtain special surface effects, finishes or structures

B05D 5/04

- to obtain a surface receptive to ink or other liquid([B05D 5/02](#) , { ~~B41M 5/00J~~ [B41M 5/52](#) }take precedence)

B05D 7/00

Processes, other than flocking, specially adapted for applying liquids or other fluent materials to particular surfaces or for applying particular liquids or other fluent materials{(coating of foodstuffs [A23P 1/084](#) , [A23P 1/085](#))}

WARNING

Groups [B05D 7/50](#) to ~~B05D 7/53E8E3~~ [B05D 7/5885](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for those groups is as follows - [B05D 7/50](#) to [B05D 7/5885](#) : [B05D 7/00](#)

U B05D 2401/00

Form of the coating product, e.g. solution, water dispersion, powders or the like

U B05D 2401/30

- the coating being applied in other forms than involving eliminable solvent, diluent or dispersant

B05D 2401/33

- • applied as vapours polymerising in situ.

WARNING

A process should be classified or coded in ~~B05D 7/24C~~ [B05D 1/60](#) or ~~B05D 7/24E~~ [B05D 1/62](#)

Project: N/A (B08B)

B08B

CLEANING IN GENERAL; PREVENTION OF FOULING IN GENERAL(brushes [A46](#); devices for domestic or like cleaning [A47L](#); { cleaning golf-clubs or golf accessories [A63B 57/0087](#) ; cleaning grips of bats on rackets [A63B 59/0062](#) } ; separation of particles from liquids or gases [B01D](#); separation of solids [B03](#), [B07](#); spraying or applying liquids or other fluent materials to surfaces in general [B05](#); cleaning devices for conveyers [B65G 45/10](#) ; concurrent cleaning, filling and closing of bottles [B67C 7/00](#) ; inhibiting corrosion or incrustation in general [C23](#); cleaning streets, permanent ways, beaches or land [E01H](#); parts, details or accessories of swimming or splash baths or pools, specially adapted for cleaning [E04H 4/16](#) ; preventing or removing electrostatic charges [H05F](#))

NOTE

This subclass covers only inventions relating to cleaning which are usually classified according to one (or more) of the aspects mentioned below if they are not fully classifiable in a subclass a subclass providing for any of the following aspects: the articles cleaned, e.g. bed-pans, urinal or other sanitary devices for bed-ridden persons [A61G 9/02](#) , filters, semi-permeable membranes [B01D](#), castings and moulds [B22D 29/00](#) , vehicles [B60S](#), coke ovens [C10B 43/00](#) , building forms [E04G](#), boilers [F22](#), combustion apparatus [F23](#), furnaces [F27](#);the general nature of the cleaning, e.g. preparing for sugar manufacture [A23N](#), domestic cleaning [A47L](#), treatment of textiles [D06](#), laundry [D06F](#), air-conditioning [F24F](#); the particular operation performed, e.g. filtering [B01D](#), separating of solids [B03](#), [B07](#), sand-blasting [B24C](#);the particular apparatus or device, e.g. brushes [A46B](#), mops [A47L](#), centrifuges [B04](#), hand tools [B25](#) { devices for cleaning paint-applying hand tools after use [B44D 3/00-D](#) [B44D3/00D](#) } ; the substance cleaned, e.g. metals [B21C](#), [C23](#), water [C02](#), glass [C03B](#), leather [C14B](#), textile fibres [D01](#); the substance removed (or prevented from depositing or forming) e.g. { removing paint [B44D 3/00](#) , e.g. } implements or apparatus for removing dry paint from surfaces [B44D 3/16](#) ; chemical paint-removers [C09D 9/00](#) ; preventing rust [C23F](#); the substance used, e.g. macromolecular compounds or compositions [C08](#), anti-icing materials [C09K](#), detergents [C11D](#);the operation in connection with which cleaning is done, e.g. metal rolling [B21B](#), metal boring [B23B](#), soldering [B23K](#), textile fabrication [D01G](#), H, [D03J](#), [D04B](#); the surroundings of a surface to be cleaned or kept clean, e.g. water in a boiler [C02F](#), air in a room [F24F](#).

- U B08B 3/00** **Cleaning by methods involving the use or presence of liquid or steam([B08B 9/00](#) takes precedence)**
- U B08B 3/04
 - Cleaning involving contact with liquid
- B08B 3/044
 - • (using agitated containers in which the liquid and articles or material are placed(by means of ultrasonic vibrations [B08B 3/12](#) ; cleaning casks or barrels by agitating [B08B9/12D](#) [B08B 9/0817](#) ; mixers with shaking, oscillating or vibrating mechanisms [B01F 11/00](#)))
- U B08B 5/00** **Cleaning by methods involving the use of air flow or gas flow([B08B 6/00](#) takes precedence)**
- B08B 5/04
 - Cleaning by suction, with or without auxiliary action({ [B08B9/03](#) [B08B 9/035](#) takes precedence; }(suction cleaners [A47L](#)))
- U B08B 9/00** **Cleaning hollow articles by methods or apparatus specially adapted thereto([B08B 3/12](#) , [B08B 6/00](#) take precedence)**

- B08B 9/02
- Cleaning pipes or tubes or systems of pipes or tubes(apparatus for cleaning metal pipes by chemical methods [C23G 3/04](#) ; { removing obstructions in waste pipes or sinks [E03C 1/30](#) ; cleaning sewer pipes [E03F 9/00](#)[E03F 9/00](#); cleaning boreholes or wells [E21B 37/00](#) ; cleaning furnace tubes, flues, chimneys [F23J 3/02](#) ; cleaning heat-transfer conduits, e.g. water tubes of boilers [F28G](#) }}
- U B08B 9/027
- • Cleaning the internal surfaces; Removal of blockages
- U B08B 9/032
- • • by the mechanical action of a moving fluid, e.g. by flushing([B08B 9/04](#) takes precedence; { by fluid jets mounted on cleaning devices [B08B 9/0433](#) }}
- B08B 9/0321
- • • • {using pressurised, pulsating or purging fluid([E04F17/12B](#)[E04F 17/126](#) takes precedence)}

Project: N/A (B09B)**B09B****DISPOSAL OF SOLID WASTE****NOTES**

This subclass covers only single or combined, e.g. multistage, operations not fully classifiable in a single other subclass

In this subclass the following terms or expressions are added with the meanings indicated :

- "disposal" means the discarding, e.g. dumping, or destroying of waste or its transformation into something useful or harmless;
- "solid waste" includes waste which, although it has liquid content, is for practical purposes handled as solid

Attention is drawn to the following places:

- [A23J 1/16](#) Obtaining proteins from waste water of starch manufacturing plants of like wastes
- [A23K 1/06](#) Animal feeding-stuffs from distillers` or brewers` waste
- [A23K 1/08](#) Animal feeding-stuffs from waste products of dairy plants
- [A23K 1/10](#) Animal feeding-stuffs from kitchen waste
- [A43B 1/12](#) Footwear made of rubber waste
- [A61L 11/00](#) Disinfection or sterilisation methods specially adapted for refuse
- [A62D 3/00](#) Chemical means for combatting harmful chemical agents; processes for making harmful chemical agents harmless
- [B01D 53/34](#) Chemical purification of smoke or fumes, e.g. flue gas
- [B02C18/40](#) Disintegrating by knives or other cutting or tearing members, which chop material into fragments, specially adapted for disintegrating garbage, waste or sewage
- [B03B 7/00](#) Combinations of wet processes or apparatus with other processes or apparatus, e.g. for dressing ores or garbage
- [B03B 9/06](#) General arrangement of separating plant, e.g. flow sheets, specially adapted for refuse
- [B05B 15/04](#) Control of spray area of spraying plant, e.g. masking, side shields; Means for collection or re-use of excess material
- [B08B 15/00](#) Prevent escape of dirt or fumes from the area where they are produced; Collecting or removing dirt or fumes from that area
- [B23D 25/14](#) Machines or arrangements for shearing stock while the latter is travelling otherwise than in

the direction of the cut without regard to the exact dimensions of the resulting material, e.g. for cutting up scrap

[B27B 33/20](#) Edge trimming saw blades or tools combined with means to disintegrate waste

[B29B 17/00](#) Recovery of plastics or other constituents of waste material containing plastics

[B30B 9/32](#) Presses for consolidating scrap metal or for compacting used cars

[B63B 17/06](#) Refuse discharge from vessels, e.g. for ash {~~[B63B 17/00B](#)~~ [B63J 4/006](#)} Arrangements of installation for treating waste water or sewage on vessels

[B65F 1/00](#) Refuse receptacles

[B65F 3/00](#) Vehicles particularly adapted for collecting refuse

[B65F 5/00](#) Gathering or removal of refuse otherwise than by receptacles or vehicles

[B65F 7/00](#) Cleaning or disinfecting devices combined with refuse receptacles or refuse vehicles

[C03C 1/00](#) Ingredients generally applicable to manufacture of glasses, glazes or vitreous enamels

[C04B 7/24](#) Hydraulic cements from oil shales, residues or waste other than slag

[C04B 11/26](#) Calcium sulfate cements from phosphogypsum or from waste, e.g. purification products of smoke

[C04B 18/04](#) Waste materials or refuse used as fillers for mortars, concrete, artificial stone or the like

[C04B 22/0006](#) Waste inorganic materials used as active ingredients for mortars, concrete, artificial stone or the like

[C04B 24/001](#) Waste organic materials used as active ingredients for mortars, concrete, artificial stone or the like

[C05F 9/00](#) Fertilisers made from household or town refuse

[C08J 11/00](#) Recovery of waste materials of macromolecular substances

[C08L 17/00](#) Compositions of reclaimed rubber

[C10B 53/00](#) Destructive distillation, specially adapted for particular solid raw materials or solid raw materials in special form

[C10B 57/00](#) Other processes not covered before; Features of destructive distillation processes in general

[C10G 1/10](#) Production of liquid hydrocarbon mixtures from rubber or rubber waste

[C10L 5/46](#) Solid fuels essentially based on sewage, house or town refuse

[C10L 5/48](#) Solid fuels essentially based on industrial residues and waste materials

[C10M 175/02](#) Working-up used lubricants based on mineral oils

[C11B 13/00](#) Recovery of fats, fatty oils, or fatty acids from waste materials

[C11D 19/00](#) Recovery of glycerol from a saponification liquor

[C12F 3/00](#) Recovery of by-products

[C12F 3/08](#) Recovery of alcohol from press residues or other waste material

[C12P 7/08](#) Biochemical production of ethanol from waste

[C22B 7/00](#) Working-up raw materials other than ores, e.g.

scrap, to produce non-ferrous metals or compounds thereof
[C22B 19/28](#) Obtaining zinc or zinc oxide from muffle furnace residues
[C22B 19/30](#) Obtaining zinc or zinc oxide from metallic residues or scrap
[C22B 25/06](#) Obtaining tin from scrap
[D01B](#) Mechanical treatment of natural fibrous or filamentary material to obtain fibres or filaments, e.g. for spinning
[D01C 5/00](#) Carbonising rags to recover animal fibres
[D01F 13/00](#) Recovery of starting material, waste material or solvents during the manufacture of artificial filaments or the like
[D01G 11/00](#) Disintegrating fibre-containing articles to obtain fibres for re-use
[D01H 11/00](#) Arrangements for confining or removing dust, fly, or the like
[D06L 1/10](#) Regeneration of used chemical baths used for dry-cleaning or washing fibres, fabrics or the like
[D21B 1/08](#) Dry treatment of waste paper or rags for making paper or for the production of cellulose
[D21B 1/32](#) Defibrating waste paper
[D21C 5/02](#) Processes for obtaining cellulose by working-up waste paper
[D21C 11/14](#) Regeneration of pulp liquors by wet combustion
[D21F 1/66](#) Re-use of pulp-water in wet end machines for making continuous webs of paper
[D21H 17/01](#) Waste products added to the pulp or used in paper-impregnating material
[E03F](#) Sewers, Cesspools
[E04F 17/10](#) Arrangements in building for the disposal of refuse
[F23B 5/00](#) Combustion apparatus arrangements for burning uncombusted material from primary combustion
[F23G](#) Consuming waste products by combustion
[F23J](#) Removal or treatment of combustion products or combustion residues
[G03C 11/24](#) Removing emulsion from waste photographic material
[H01B 15/00](#) Apparatus or processes for salvaging material from electric cables
[H01M 6/52](#) Reclaiming serviceable parts of waste cells or batteries
[H01M 10/54](#) Reclaiming serviceable parts of waste accumulators

Project: N/A (B21B)

U B21B 1/00

Metal-rolling methods or mills for making semi-finished products of solid or profiled cross-section([B21B 17/00](#) to [B21B 23/00](#) take precedence; with respect to composition of material to be rolled [B21B 3/00](#) ; extending closed shapes of metal bands by simultaneous rolling at two or more zones [B21B 5/00](#) ; metal-rolling stands as units [B21B 13/00](#) ; continuous casting into moulds having walls formed by moving rolls [B22D 11/06](#)); Sequence of operations in milling trains; Layout of rolling-mill plant, e.g. grouping of stands; Succession of passes or of sectional pass alternations

- U B21B 1/02
 - for rolling heavy work, e.g. ingots, slabs,{blooms}billets, in which the cross-sectional form is unimportant{Rolling combined with forging or pressing}
- B21B 2001/022
 - • {Blooms or billets}
- B21B 2001/028
 - • ~~Slabs~~{Slabs}
- U B21B 1/08
 - for rolling{structural sections, i.e.}work of special cross-section, e.g. angle steel(rolling metal of indefinite length in repetitive shapes specially designed for the manufacture of particular objects [B21H 8/00](#))
- B21B 2001/081
 - • {Roughening or texturing surfaces of structural sections, bars, rounds, wire rods}
- U B21B 1/22
 - for rolling{plates, strips,}bands or sheets of indefinite length([B21B 1/42](#) takes precedence)
- B21B 2001/221
 - • {by cold-rolling}
- B21B 2001/225
 - • {by hot-rolling}
- B21B 2001/228
 - • {skin pass rolling or temper rolling}
- U B21B 1/38
 - for rolling sheets of limited length, e.g. folded sheets, superimposed sheets, {pack rolling}([B21B 1/40](#) takes precedence; folding sheets before, or separating layers after, rolling [B21B 47/00](#))
- B21B 2001/383
 - • {Cladded or coated products}
- B21B 2001/386
 - • ~~Plates~~{Plates}
- U B21B 3/00**

Rolling materials of special alloys so far as the composition of the alloy requires or permits special rolling methods or sequences{Rolling of aluminium, copper, zinc or other non-ferrous metals}(altering special metallurgical properties of alloys, other than structure consolidation or mechanical properties resulting therefrom [C21D](#) , [C22F](#))
- B21B 2003/001
 - {Aluminium or its alloys}
- B21B 2003/005
 - {Copper or its alloys}
- B21B 2003/006
 - {Powder metal alloys}
- B21B 2003/008
 - {Zinc or its alloys}
- U B21B 13/00**

Metal-rolling stands, i.e. an assembly composed of a stand frame, rolls, and accessories([B21B 17/00](#) to [B21B 23/00](#) take precedence; details, component parts, accessories, auxiliary means, procedures in connection with metal rolling, see the relevant groups)
- B21B 2013/003
 - {Inactive rolling stands}
- B21B 2013/006
 - {Multiple strand rolling mills; Mill stands with multiple caliber rolls}
- U B21B 13/02
 - with axes of rolls arranged horizontally
- B21B 2013/021
 - • {Twin mills}
- B21B 2013/025
 - • {Quarto, four-high stands}
- B21B 2013/026
 - • {Quinto, five high-stands}
- B21B 2013/028
 - • {Sixto, six-high stands}
- U B21B 13/08
 - with differently-directed roll axes, e.g. for the so-called "universal" rolling process
- U B21B 13/10
 - • all axes being arranged in one plane
- B21B 2013/106
 - • • {for sections, e.g. beams, rails}
- U B21B 15/00**

Arrangements for performing additional metal-working operations specially combined with or arranged in, or specially adapted for use in connection with, metal-rolling mills
- U B21B 15/0007
 - {Cutting or shearing the product}

B21B 2015/0014	• • {transversely to the rolling direction}
B21B 2015/0021	• • {in the rolling direction}
B21B 2015/0028	• {Drawing the rolled product}
B21B 2015/0057	• {Coiling the rolled product}
B21B 2015/0064	• {Uncoiling the rolled product}
B21B 2015/0071	• {Levelling the rolled product}
B21B 2015/0078	• {Extruding the rolled product}
B21B 2015/0092	• {Welding in the rolling direction}
U B21B 23/00	Tube-rolling not restricted to methods provided for in only one of groups B21B 17/00 , B21B 19/00 , B21B 21/00 , e.g. combined processes {planetary tube rolling, auxiliary arrangements, e.g. lubricating, special tube blanks, continuous casting combined with tube rolling}(B21B 25/00 takes precedence)
B21B 2023/005	• {Roughening or texturing surfaces of tubes}
U B21B 27/00	Rolls,{roll alloys or roll fabrication}(shape of working surfaces required by special processes B21B 1/00); Lubricating, cooling or heating rolls while in use
U B21B 27/02	• Shape or construction of rolls(for rolling metal of indefinite length in repetitive shapes specially designed for the manufacture of particular objects B21H 8/02) {(B21B 27/005 takes precedence)}
U B21B 27/021	• • {Rolls for sheets or strips}
B21B 2027/022	• • • {Rolls having tapered ends}
U B21B 27/06	• Lubricating, cooling or heating rolls
U B21B 27/08	• • internally
B21B 2027/083	• • • {cooling internally}
B21B 2027/086	• • • {heating internally}
U B21B 27/10	• • externally
B21B 2027/103	• • • {cooling externally}
U B21B 31/00	Rolling stand structures; Mounting, adjusting, or interchanging rolls, roll mountings, or stand frames
U B21B 31/02	• Rolling stand frames(or housings); Roll mountings;{Roll chocks}
B21B 2031/021	• • {Integral tandem mill housings}
B21B 2031/023	• • {Transverse shifting one housing}
B21B 2031/025	• • {Shifting the stand in or against the rolling direction}
B21B 2031/026	• • {Transverse shifting the stand}
U B21B 31/07	• Adaptation of roll{neck}bearings(bearings in general F16C)
B21B 2031/072	• • {Bearing materials}
U B21B 31/16	• Adjusting(or positioning)rolls(control devices B21B 37/00)
U B21B 31/20	• • by moving rolls perpendicularly to roll axis
B21B 2031/206	• • • {Horizontal offset of work rolls}
U B21B 33/00	Safety devices not otherwise provided for(safety devices in general F16P); Breaker blocks; Devices for freeing jammed rolls(for handling cobbles; Overload safety devices)
B21B 2033/005	• {Cobble-freeing}
U B21B 35/00	Drives for metal-rolling mills,{e.g. hydraulic drives}

- B21B 2035/005
 - {Hydraulic drive motors}
- U B21B 35/10
 - Driving arrangements for rolls which have only a low-power drive; Driving arrangements for rolls which receive power from the shaft of another roll
- B21B 2035/103
 - • {Fluid-driven rolls or rollers}
- B21B 2035/106
 - • {Non-driven or idler rolls or rollers}
- U B21B 35/14
 - Couplings, driving spindles, or spindle carriers specially adapted for, or specially arranged in, metal-rolling mills(couplings or shafts in general [F16](#))
- B21B 2035/149
 - • {Measuring devices for spindles or couplings}
- U **B21B 37/00**

Control devices or methods specially adapted for metal-rolling mills or the work produced thereby(methods or devices for measuring specially adapted for metal-rolling mills [B21B 38/00](#))
- B21B 2037/002
 - {Mass flow control}
- U **B21B 38/00**

Methods or devices for measuring,{detecting or monitoring}specially adapted for metal-rolling mills, e.g. position detection, inspection of the product{(Control devices or methods [B21B 37/00](#))}
- B21B 2038/002
 - {Measuring axial forces of rolls}
- B21B 2038/004
 - {Measuring scale thickness}
- U **B21B 45/00**

Devices for surface{or other}treatment of work, specially combined with or arranged in, or specially adapted for use in connection with, metal-rolling mills([B21B 15/00](#) , { [B21B 1/227](#) and [B21B 27/005](#) } take precedence; technical features of scaling-off devices [B21C 43/00](#))
- U B21B 45/004
 - {Heating the product}
- B21B 2045/006
 - • {in vacuum or in inert atmosphere}
- U B21B 45/02
 - for lubricating, cooling, or cleaning{(in particular in combination with forging or pressing devices [B21B 15/005](#) , control of flatness or profile using lubricating or cooling [B21B 37/44](#))}
- U B21B 45/0203
 - • {Cooling}
- U B21B 45/0209
 - • • {Cooling devices, e.g. using gaseous coolants}
- B21B 2045/0212
 - • • • {using gaseous coolants}
- U B21B 45/0215
 - • • • {using liquid coolants, e.g. for sections, for tubes}
- B21B 2045/0221
 - • • • • {for structural sections, e.g. H-beams}
- B21B 2045/0227
 - • • • • {for tubes}
- B21B 2045/0236
 - • {Laying heads for overlapping rings on cooling conveyer}
- U B21B 45/0239
 - • {Lubricating}
- U B21B 45/0245
 - • • {Lubricating devices}
- U B21B 45/0248
 - • • • {using liquid lubricants, e.g. for sections, for tubes}
- B21B 2045/0254
 - • • • • {for structural sections, e.g. H-beams}
- B21B 2045/026
 - • • • • {for tubes}

Project: N/A (B21C)

- U **B21C 23/00**

Extruding metal; Impact extrusion
- U B21C 23/21
 - Presses specially adapted for extruding metal (extrusion presses in general [B30B 11/22](#))
- B21C 23/212
 - • { Details ([B21C 23/217](#), ~~B21C23/42F~~[B21C 23/218](#) take precedence)}

Project: N/A (B21D)

- U **B21D 51/00**

Making hollow objects(from thick-walled or non uniform tubes [B21K 21/00](#))

- U B21D 51/16 · characterised by the use of the objects(making heat exchangers [B21D 53/02](#))
- U B21D 51/38 · · Making inlet or outlet arrangements of cans, tins, baths, bottles, or other vessels; Making can ends; Making closures
- U B21D 51/44 · · · Making closures, e.g. caps(folded of thin metal foils in the way of making paper caps [B31D 5/00](#) ; making closures in conjunction with applying same [B67B](#))
- B21D 51/46 · · · · Placing sealings or sealing material{(moulding plastic sealing material into closure members [B29C67/18E2B29C 70/80](#))}

Project: N/A (B22D)

- U B22D 11/00 **Continuous casting of metals, i.e. casting in indefinite lengths (metal drawing, metal extruding [B21C](#))**
- B22D 11/12 · Accessories for subsequent treating or working cast stock *in situ* (rolling immediately subsequent to continuous casting [B21B 1/46](#), [B22D13/22](#) [B21B 13/22](#))
- U B22D 21/00 **Casting non-ferrous metals or metallic compounds so far as their metallurgical properties are of importance for the casting procedure; selection of compositions therefor {(non-ferrous ingots [B22D 7/005](#))}**
- B22D 21/02 · Casting exceedingly oxidisable non-ferrous metals, e.g. in inert atmosphere (use of inert atmosphere in casting metals in general [B22D 23/00](#); apparatus for vacuum casting [B22D27/16B22D 27/15](#))
- B22D 37/00 **Controlling or regulating the pouring of molten metal from a casting melt-holding vessel ([B22D 39/00](#), [B22D41/00](#) ~~take precedence~~; [B22D 39/00](#), [B22D 41/00](#) ~~take precedence~~; specially adapted to particular processes or machines, see the relevant groups of this subclass){ [B22D 11/18](#) takes precedence}**

Project: N/A (B22F)

- U B22F 1/00 **Special treatment of metallic powder, e.g. to facilitate working, to improve properties {(treatment of powder by mechanical means, e.g. by grinding, milling, rolling [B22F 9/04](#))}; Metallic powders per se, e.g. mixtures of particles of different composition (C04, [C08](#) take precedence; { amorphous powder [B22F 9/002](#))}**
- U B22F 1/0003 · {Metallic powders per se; Mixtures of metallic powders; Metallic powders mixed with a lubricating or binding agent (making ferrous alloys using a mixture of prealloyed powders [C22C 33/0207](#))}
- U B22F 1/0007 · · {Metallic powder characterised by its shape or structure, e.g. fibre structure }
- U B22F 1/0011 · · · {Metallic powder characterised by size or surface area only}
- WARNING**
- Groups [B22F 1/0011](#) and [B22F 1/0014](#) are not complete, see also [B22F 1/0007](#)
- U B22F 1/0018 · · · · {Nanometer sized particles}
- B22F 2001/0029 · · · · · {Hollow particles, including tubes and shells }
- B22F 2001/0033 · · · · · {Flake form nanoparticles }
- B22F 2001/0037 · · · · · {Complex form nanoparticles , e.g.. prism, pyramid, octahedron }
- U B22F 1/0059 · · {Metallic powders mixed with a lubricating or binding agent or organic material}
- B22F 2001/0066 · · · {Organic binder comprising a mixture or obtained by reaction of more than one component other than solvent, lubricant }

- U B22F 1/0081
 - { Special treatment of metallic powder, e.g. to facilitate working, to improve properties (coating with organic material [B22F 1/0062](#))}
- U B22F 1/0088
 - • {Chemical treatment, e.g. passivation}
- B22F 2001/0092
 - • • {Making a dispersion }
- U B22F 3/00**

Manufacture of workpieces or articles from metallic powder characterised by the manner of compacting or sintering; Apparatus specially adapted therefor; {Presses and furnaces}
- U B22F 3/02
 - Compacting only
- B22F 2003/023
 - • {Lubricant mixed with the metal powder }
- B22F 2003/026
 - • {Mold wall lubrication or article surface lubrication }
- U B22F 3/03
 - • Press-moulding apparatus therefor
- B22F 2003/031
 - • • {with punches moving in different directions in different planes }
- B22F 2003/033
 - • • {with multiple punches working in the same direction }
- U B22F 3/10
 - Sintering only
- U B22F 3/1003
 - • {Use of special medium during sintering, e.g. sintering aid}
- B22F 2003/1014
 - • • ~~Getter~~ {Getter }
- B22F 2003/1032
 - • {comprising a grain growth inhibitor }
- B22F 2003/1042
 - • {with support for articles to be sintered }
- B22F 2003/1046
 - • • {with separating means for articles to be sintered }
- U B22F 3/105
 - • by using electric current {other than for infra-red radiant energy}, laser radiation or plasma ([B22F 3/11](#) takes precedence); {by ultrasonic bonding ([B22F 3/115](#) takes precedence)}
- B22F 2003/1051
 - • • {by electric discharge }
- B22F 2003/1052
 - • • {assisted by energy absorption enhanced by the coating or powder }
- B22F 2003/1053
 - • • {by induction }
- B22F 2003/1054
 - • • {by microwave }
- U B22F 3/1055
 - • • { Selective sintering, i.e. stereolithography (selective sintering of powdered plastics [B29C 67/0077](#))}
- B22F 2003/1056
 - • • • {Apparatus components, details or accessories }
- B22F 2003/1057
 - • • • • {for control or data processing, e.g. algorithms }
- B22F 2003/1058
 - • • • • {Support structures for the 3D object during manufacturing, e.g. using sacrificial material }
- B22F 2003/1059
 - • • • • {for cleaning or recycling }
- U B22F 3/11
 - • Making porous workpieces or articles
- U B22F 3/1103
 - • • {with particular physical characteristics}
- B22F 2003/1106
 - • • • {Product comprising closed porosity }
- U B22F 3/1121
 - • • {by using decomposable, meltable or sublimatable fillers}
- U B22F 3/1125
 - • • • {involving a foaming process}
- B22F 2003/1128
 - • • • • {Foaming by expansion of dissolved gas, other than with foaming agent }
- B22F 2003/1131
 - • • • • {Foaming in a liquid suspension and decomposition }
- U B22F 3/12
 - Both compacting and sintering (by forging [B22F 3/17](#))
- U B22F 3/14
 - • simultaneously
- B22F 2003/145
 - • • {by warm compacting, below debinding temperature }
- U B22F 3/15
 - • • Hot isostatic pressing
- B22F 2003/153
 - • • • {apparatus specific to HIP }

- U B22F 3/16
 - • in successive or repeated steps { WARNING: Subgroups of [B22F 3/16](#) are not complete, see also [B22F 3/16](#) }
- U B22F 3/164
 - • • { Partial deformation or calibration }
- B22F 2003/166
 - • • • { Surface calibration, blasting, burnishing, sizing, coining }
- U B22F 3/17
 - by forging
- B22F 2003/175
 - • { by hot forging, below sintering temperature }
- U B22F 3/18
 - by using pressure rollers
- B22F 2003/185
 - • { by hot rolling, below sintering temperature }
- U B22F 3/20
 - by extruding
- B22F 2003/202
 - • { with back pressure }
- B22F 2003/206
 - • { Hydrostatic or hydraulic extrusion }
- B22F 2003/208
 - • { Warm or hot extruding }
- U B22F 3/24
 - After-treatment of workpieces or articles {([B22F 3/1146](#) takes precedence)}
- B22F 2003/241
 - • { Chemical after-treatment on the surface }
- B22F 2003/242
 - • • ~~Coating~~ { ~~Coating~~ }
- B22F 2003/244
 - • • ~~Leaching~~ { ~~Leaching~~ }
- B22F 2003/245
 - • { Making recesses, grooves etc on the surface by removing material }
- B22F 2003/247
 - • { Removing material: carving, cleaning, grinding, hobbing, honing, lapping, polishing, milling, shaving, skiving, turning the surface }
- B22F 2003/248
 - • { Thermal after-treatment }
- U **B22F 5/00**
 - Manufacture of workpieces or articles from metallic powder characterised by the special shape of the product**
- B22F 2005/001
 - { Cutting tools, earth boring or grinding tool other than table ware }
- B22F 2005/002
 - { Tools other than cutting tools }
- B22F 2005/004
 - { Article comprising helical form elements ([B22F 5/085](#) takes precedence)}
- B22F 2005/005
 - { Article surface comprising protrusions }
- U B22F 5/10
 - of articles with cavities or holes, not otherwise provided for in the preceding subgroups
- B22F 2005/103
 - • { Cavity made by removal of insert }
- U **B22F 7/00**
 - Manufacture of composite layers, workpieces, or articles, comprising metallic powder, by sintering the powder, with or without compacting { wherein at least one part is obtained by sintering or compression (application of coating layers by use of metal powders, see [C23C](#)) }**
- U B22F 7/02
 - of composite layers {([B22F 7/002](#) takes precedence)}
- U B22F 7/04
 - • with one or more layers not made from powder, e.g. made from solid metal
- B22F 2007/042
 - • • { characterised by the layer forming method }
- B22F 2007/045
 - • • • { accompanied by fusion or impregnation }
- B22F 2007/047
 - • • • { non-pressurised baking of the paste or slurry containing metal powder }
- U B22F 7/06
 - of composite workpieces or articles from parts, e.g. to form tipped tools { ([B22F 7/002](#) takes precedence)}
- U B22F 7/062
 - • { involving the connection or repairing of preformed parts }
- B22F 2007/066
 - • • { using impregnation }
- B22F 2007/068
 - • • { repairing articles }
- U **B22F 9/00**
 - Making metallic powder or suspensions thereof**
- B22F 2009/001
 - { from scrap particles }

- U B22F 9/02
 - using physical processes
- U B22F 9/04
 - starting from solid material, e.g. by crushing, grinding or milling ({[C22C 1/1084](#) takes precedence}; crushing, grinding or milling, in general, see the relevant subclasses, e.g. [B02C](#))
- B22F 2009/041
 - • {by mechanical alloying , e.g. blending, milling }
- B22F 2009/042
 - • {using a particular milling fluid }
- B22F 2009/043
 - • {by ball milling }
- B22F 2009/044
 - • {by jet milling }
- B22F 2009/045
 - • {by other means than ball or jet milling }
- B22F 2009/046
 - • • {by cutting }
- B22F 2009/047
 - • • {by rolling }
- B22F 2009/048
 - • {by pulverising a quenched ribbon }
- B22F 2009/049
 - • {by pulverising at particular temperature }
- U B22F 9/06
 - starting from liquid material
- B22F 2009/065
 - • {Melting inside a liquid, e.g. making spherical balls }
- U B22F 9/08
 - • by casting, e.g. through sieves or in water, by atomising or spraying (using electric discharge [B22F 9/14](#))
- B22F 2009/0804
 - • • {Dispersion in or on liquid, other than with sieves }
- B22F 2009/0808
 - • • • {Mechanical dispersion of melt, e.g. by sieves }
- B22F 2009/0812
 - • • • {Pulverisation with a moving liquid coolant stream, by centrifugally rotating stream }
- B22F 2009/0816
 - • • • {by casting with pressure or pulsating pressure on the metal bath }
- U B22F 9/082
 - • • • { atomising using a fluid (using centrifugal force [B22F 9/10](#))}
- B22F 2009/0824
 - • • • • {with a specific atomising fluid }
- B22F 2009/0828
 - • • • • {with water }
- B22F 2009/0832
 - • • • • {Handling of atomising fluid, e.g. heating, cooling, cleaning, recirculating }
- B22F 2009/0836
 - • • • • {with electric or magnetic field or induction }
- B22F 2009/084
 - • • • • {combination of methods }
- B22F 2009/0844
 - • • • • {in controlled atmosphere }
- B22F 2009/0848
 - • • • • {Melting process before atomisation }
- B22F 2009/0852
 - • • • • • {Electroslag melting }
- B22F 2009/0856
 - • • • • • {Skull melting }
- B22F 2009/086
 - • • • • • {Cooling after atomisation }
- B22F 2009/0864
 - • • • • • {by oil, other non-aqueous fluid or fluid-bed cooling }
- B22F 2009/0868
 - • • • • • {by injection of solid particles in the melt stream }
- B22F 2009/0872
 - • • • • • {by water }
- B22F 2009/0876
 - • • • • • {by gas }
- B22F 2009/088
 - • • • • • {Fluid nozzles , e.g. angle, distance }
- B22F 2009/0884
 - • • • • • {Spiral fluid }
- B22F 2009/0888
 - • • • • • {casting construction of the melt process, apparatus, intermediate reservoir e.g. tundish, devices for temperature control }
- B22F 2009/0892
 - • • • • • {casting nozzle; controlling metal stream in or after the casting nozzle }
- B22F 2009/0896
 - • • • • • {particle transport, separation: process and apparatus }
- U B22F 9/16
 - using chemical processes
- B22F 2009/165
 - • {Chemical reaction in an Ionic Liquid [IL] ([B22F 2009/245](#) takes precedence)}

- U B22F 9/18
 - U B22F 9/24
 - B22F 2009/245
- • with reduction of metal compounds
 - • • starting from liquid metal compounds, e.g. solutions
 - • • {Reduction reaction in an Ionic Liquid [IL] }

Project: N/A (B23B)

- U **B23B 2200/00** **Details of cutting inserts**
 - U B23B 2200/36
 - B23B 2200/3627
- Other features of cutting inserts not covered by [B23B 2200/04](#) to [B23B 2200/32](#)
 - • Indexing (with grooves on bottom surfaces [B23C 2200/165](#), with polygonal bottom surfaces ~~L23G200/16F~~ [B23B 2200/166](#), with star form bottom surfaces [B23C 2200/167](#))
- U **B23B 2231/00** **Details of chucks, toolholder shanks or tool shanks**
 - B23B 2231/28
 - B23B 2231/44
- Dust covers (nose pieces in chucks [B23B 2231/44](#), dust covers for turning, boring or drilling in general ~~L23B260/58~~ [B23B 2260/058](#))
 - Nose pieces (dust covers in chucks [B23B 2231/28](#), dust covers for turning, boring or drilling in general ~~L23B260/58~~ [B23B 2260/058](#))
- U **B23B 2260/00** **Details of constructional elements**
 - U B23B 2260/048
 - B23B 2260/0487
 - B23B 2260/12
- Devices to regulate the depth of cut
 - • Depth indicators (~~indication scales~~ ~~L23B260/88~~ [indication scales B23B 2260/088](#))
 - Stops (~~depth controls~~ ~~L23B260/48C~~ [depth controls B23B 2260/0482](#))

Project: N/A (B23C)

- U **B23C 2200/00** **Details of milling cutting inserts**
 - B23C 2200/36
- Other features of the milling insert not covered by [B23C 2200/04](#) to ~~B23C200/32~~ [B23C 2200/32](#)

Project: N/A (B23D)

- U **B23D 15/00** **Shearing machines or shearing devices cutting by blades which move parallel to themselves**
 - B23D 2015/007
- {reciprocating horizontally }
- U **B23D 23/00** **Machines or devices for shearing or cutting profiled stock (hand-held devices [B23D 29/00](#))**
 - B23D 2023/005
- {for window coverings }
- U **B23D 31/00** **Shearing machines or shearing devices covered by none or more than one of the groups [B23D 15/00](#) to [B23D 29/00](#); Combinations of shearing machines**
 - U B23D 31/002
 - U B23D 31/003
 - B23D 2031/005
 - B23D 2031/006
 - B23D 2031/007
- {Breaking machines, i.e. pre-cutting and subsequent breaking}
 - • {for rings}
 - • • {Cap holders therefor }
 - • • {for gangs }
 - • {for journals }
- U **B23D 43/00** **Broaching tools (for cutting gear teeth [B23F 21/26](#))**
 - U B23D 43/02
 - B23D 2043/025
 - U B23D 43/06
 - B23D 2043/063
- for cutting by rectilinear movement ([B23D 43/08](#) takes precedence)
 - • {for producing grooves in turbines, e.g. for the insertion of blades}
 - for cutting by rotational movement
 - • {with cutters mounted externally}

B23D 2043/066

- • {with cutters mounted internally}

Project: N/A (B23K)**U B23K 1/00**

Soldering, e.g. brazing, or unsoldering([B23K 3/00](#) takes precedence; characterised only by the use of special materials or media [B23K 35/00](#) ; dip or wave soldering in the manufacture of printed circuits [H05K 3/34](#))

B23K 2001/12

- {specially adapted for particular articles or work}

U B23K 5/00**Gas flame welding**

B23K 2005/207

- {specially adapted for particular articles or work}

U B23K 35/00**Rods, electrodes, materials, or media, for use in soldering, welding, or cutting**

U B23K 35/001

- {Interlayers, transition pieces for metallurgical bonding of workpieces}

B23K 2035/008

- • {at least one of the workpieces being of silicium}

U B23K 35/40

- Making wire or rods for soldering or welding(processes involving a single technical art, see the relevant subclasses, e.g. [B05D](#) , [B21C](#))

U B23K 35/406

- • {Filled tubular wire or rods([B23K 35/402](#) takes precedence)}

B23K 2035/408

- • • {with welded longitudinal seam}

Project: N/A (B23Q)**U B23Q 3/00**

Devices holding, supporting, or positioning work or tools, of a kind normally removable from the machine (work-tables or other parts, e.g. faceplates, normally not incorporating means for securing work [B23Q 1/00](#); automatic position control [B23Q 15/00](#); rotary tool heads for turning-machines [B23B 3/24](#), [B23B 3/26](#); non-driven tool holders [B23B 29/00](#); general features of turrets [B23B 29/24](#); tools or bench devices for fastening, connecting, disengaging or holding [B25B](#))

U B23Q 3/155

- Arrangements for automatic insertion or removal of tools, {e.g. combined with manual handling ([B23Q 7/046](#) takes precedence)}

B23Q 2003/1558

- • {of multi-spindles }

B23Q 2003/15586

- • {of tools in turrets }

B23Q 2003/15593

- • {Optimising tool changing time or capacity in tool storage }

U B23Q 5/00

Driving or feeding mechanisms; Control arrangements therefor (automatic control [B23Q 15/00](#); copying [B23Q 33/00](#), [B23Q 35/00](#); specially adapted for boring or drilling machines [B23B 39/10](#), [B23B 47/02](#); {numerical programme-control of machine tools [G05B 19/18](#))}

B23Q 2005/005

- {Driving or feeding mechanisms with a low and a high speed mode }

U B23Q 11/00

Accessories fitted to machine tools for keeping tools or parts of the machine in good working condition or for cooling work {(accessories specially designed for sawing machines or sawing devices [B23D 59/00](#))}; Safety devices specially combined with or arranged in, or specially adapted for use in connection with, machine tools (in respect of boring or drilling machines [B23B 47/32](#) takes precedence; safety devices in general [F16P](#))

U B23Q 11/08

- Protective coverings for parts of machine tools; Splash guards

B23Q 2011/0808

- • {Means for maintaining identical distances between relatively movable cover parts }

U B23Q 17/00

Arrangements for { observing,} indicating or measuring on machine tools (for automatic control or regulation of feed movement, cutting velocity or position of tool or work [B23Q 15/00](#))

B23Q 2017/001

- {Measurement or correction of run-out or eccentricity }

- U B23Q 17/24 • using optics { or electromagnetic waves}
- B23Q 17/2433 • • { Detection of presence or absence}
- WARNING
- Subgroups **B23Q17/24L**~~B23Q 17/2438~~ - [B23Q 17/2447](#) are not complete, due to a reorganisation in progress; see also [B23Q 17/24](#)

- U B23Q 39/00 **Metal-working machines incorporating a plurality of sub-assemblies, each capable of performing a metal-working operation ([B23Q 33/00](#), [B23P 23/00](#) take precedence; if the operations are similar and the kind of operation is essential, see the relevant subclass for the operation)**
- B23Q 2039/002 • {Machines with twin spindles }
- B23Q 2039/004 • {Machines with tool turrets }
- B23Q 2039/006 • {Machines with multi-spindles }
- B23Q 2039/008 • {Machines of the lathe type }

Project: N/A (B25D)

- U B25D 17/00 **Details of, or accessories for, portable power-driven percussive tools {(details or components, e.g. casings, bodies, of portable power-driven tools not particularly related to the operation performed [B25F 5/00](#))}**
- B25D 17/24 • Damping the reaction force {(resiliently mounted handles [B25D 17/043](#); dampers in connections of hammers to backhoes **E02F3/96D6**~~E02F 3/966~~)}
- B25D 17/28 • Supports; Devices for holding power-driven percussive tools in working position {(connections of hammers to backhoes **E02F3/96D6**~~E02F 3/966~~)}

Project: N/A (B26B)

- U B26B 29/00 **Guards or sheaths {or guides} for hand cutting tools; Arrangements for guiding hand cutting tools (guards for hair clippers or dry shavers [B26B 19/38](#))**
- U B26B 29/06 • Arrangements for guiding hand cutting tools (guiding equipment or arrangements for specific cutting tools, see the particular places, e.g. for hair trimming devices [A45D 24/36](#), for saw blades [B27B 11/02](#), [B26B 13/10](#))
- B26B 2029/066 • • {for slicing bread }

Project: N/A (B26D)

B26D

CUTTING; DETAILS COMMON TO MACHINES FOR PERFORATING, PUNCHING, CUTTING-OUT, STAMPING-OUT OR SEVERING (soil-working [A01B](#); for growing crops or plants [A01D](#), G; for fodder or straw [A01F](#); for bulk butter [A01J](#); for dough [A21C](#); slaughtering [A22B](#); for tobacco, cigars or cigarettes [A24](#); marking-out, perforating or making buttonholes [A41H 25/00](#); manufacturing footwear [A43D](#); brushmaking [A46D](#); surgery [A61B](#); disintegrating, mincing or shredding in general [B02C](#); cutting wire, making pins or nails [B21F](#), G; of the kind used for metal [B23](#); cutting by abrasive fluid jets [B24C 5/02](#); hand-held cutting tools [B26B](#); perforating, cutting-out, stamping-out or punching, or severing by means other than cutting [B26F](#); for wood [B27](#); for stone [B28D](#); working of plastics or substances in a plastic state [B29](#); making boxes, cartons, envelopes or bags, of paper or similarly worked materials, e.g. metal foil, [B31B](#); article or web delivery apparatus incorporating cutting or line-perforating devices [B65H 35/00](#); for leather or upholstery [B68](#); [C14B](#); for glass [C03B](#); making matches [C06F](#); for peat [C10F](#); for sugar [C13H](#) [C13H](#); for textile materials [D06H](#); civil engineering, building, mining, see Section E; for light guides [G02B 6/25](#); cutting processed photographic material [G03D 15/04](#))

NOTES

This subclass covers:

cutting non-metallic sheet material and metal foil in general;
cutting other forms of non-metallic material not otherwise provided for;
features specific to machines for cutting, perforating, punching, cutting-out, stamping-out and severing by means other than cutting, which relate to a requirement or problem of a nature which is not peculiar to a machine for these purposes, that is, details of or arrangements for operating or controlling such machines, although the realisation of such features may differ according to the kind of machine concerned. This subclass covers such features in general even if the feature in any particular case is to some extent peculiar to, or is claimed only for, a machine designed for perforating, punching, cutting-out, stamping-out, or for severing other than by cutting.

If the details or arrangements have no essential features specific to cutting, perforating, punching, cutting-out, stamping-out or severing machines, the more general classes, e.g. [F16](#), take precedence.

In this subclass, in groups [B26D 5/00](#) and [B26D 7/00](#), the following term is used with the meaning indicated:

"cutting" includes cutting-out, stamping-out, punching, perforating, and severing by means other than cutting.

U B26D 1/00

Cutting through work characterised by the nature or movement of the cutting member {or particular materials not otherwise provided for}; Apparatus or machines therefor; Cutting members therefor

U B26D 1/0006

• {Cutting members therefor}

B26D 2001/0013

• • {consisting of a reciprocating or endless band }

B26D 2001/002

• • {Materials or surface treatments therefor, e.g. composite materials }

B26D 2001/0026

• • • {fiber reinforced materials }

B26D 2001/0033

• • {assembled from multiple blades }

B26D 2001/004

• • {not rotating }

B26D 2001/0046

• • {rotating continuously about an axis perpendicular to the edge }

B26D 2001/0053

• • {having a special cutting edge section or blade section }

B26D 2001/006

• • {the cutting blade having a special shape, e.g. a special outline, serrations }

	B26D 2001/0066	• • {having shearing means, e.g. shearing blades, abutting blades }
	B26D 2001/0073	• • {having the form of a three dimensional spiral }
	B26D 2001/008	• • {in the form of wires }
	B26D 2001/0086	• • {having a radiussed blunt cutting edge }
	B26D 2001/0093	• • {circular cutting discs with a radiussed blunt cutting edge }
U	B26D 1/56	• involving a cutting member which travels with the work {otherwise than in the direction of the cut} i.e. flying cutter (flying shears for metal B23D 25/00 ; flying saws for metal B23D 45/18)
U	B26D 1/62	• • and is rotating about an axis parallel to the line of cut, e.g. mounted on a rotary cylinder
	B26D 2001/623	• • • {for selecting different knife sets by shifting the angle of the rotary cylinder }
U	B26D 3/00	Cutting work characterised by the nature of the cut made; Apparatus therefor
U	B26D 3/28	• Splitting layers from work; Mutually separating layers by cutting (B26D 3/30 takes precedence; Recovery of plastics or other constituents of waste material containing plastics B29B 17/00)
U	B26D 3/283	• • { Household devices therefor }
	B26D 2003/285	• • • {cutting one single slice at each stroke }
	B26D 2003/286	• • • {having a detachable blade that is removable attached to the support }
	B26D 2003/287	• • • {having a holder for the product to be cut }
	B26D 2003/288	• • • {making several incisions and cutting cubes or the like, e.g. so-called "julienne-cutter" }
U	B26D 5/00	Arrangements for operating and controlling machines or devices for cutting, cutting-out, stamping-out, punching, perforating, or severing by means other than cutting
	B26D 2005/002	• {Performing a pattern matching operation }
U	B26D 7/00	Details of apparatus for cutting, cutting-out, stamping-out, punching, perforating, or severing by means other than cutting (cutters B26D 1/00; arrangements for guiding hand cutting tools B26B 29/06; punching tools or dies, cutting-out knives or dies B26F)
	B26D 2007/0012	• {Details, accessories or auxiliary or special operations not otherwise provided for }
	B26D 2007/0018	• • {Trays, reservoirs for waste, chips or cut products }
	B26D 2007/0025	• • Sterilizing {Sterilizing }
	B26D 2007/0031	• • {floating a web during slitting }
	B26D 2007/0037	• • {the cutter being a so-called "iris cutter" }
	B26D 2007/0043	• • {the cutting machine comprising a linear motor }
	B26D 2007/005	• • {cutters, e.g. guillotines, used in a label maker or printer }
	B26D 2007/0056	• • {Rotating a pile of sheets in the plane of the sheets }
	B26D 2007/0062	• • {Rounding off the end of self adhesive labels on tapes }
	B26D 2007/0068	• • {Trimming and removing web edges }
	B26D 2007/0075	• • {so-called "winder slitters" }
	B26D 2007/0081	• • {Cutting on three sides, e.g. trilateral trimming }
	B26D 2007/0087	• • {for use on a desktop }
	B26D 2007/0093	• • {for embossing, forming, creasing, flange forming }
U	B26D 7/01	• Means for holding or positioning work

- B26D 2007/011
- B26D 2007/013
- U B26D 7/08
 - Means for treating work or cutting member to facilitate cutting (tensioning band cutters [B26D 1/48](#))
- B26D 2007/082
 - {Guiding or pushing a web into a favorable position by deflector means }
- U B26D 7/18
 - Means for removing cut-out material or waste
- B26D 2007/1809
 - {by stripping fingers }
- B26D 2007/1872
 - {using breakaway pins }
- B26D 2007/1881
 - {using countertools }
- B26D 2007/189
 - {Mounting blanking, stripping and break-out tools }
- U B26D 7/20
 - Cutting beds {([B26D 7/018](#) takes precedence; supporting beds for severing by means of a fluid jet [B26F 3/008](#))}
- B26D 2007/202
 - {Rollers or cylinders being pivoted during operation }
- B26D 2007/206
 - {having a travelling gap }
- B26D 2007/208
 - {having a cleaning device }
- U B26D 7/26
 - Means for mounting or adjusting the cutting member; Means for adjusting the stroke of the cutting member
- B26D 2007/2607
 - {for mounting die cutters }
- B26D 2007/2657
 - {Auxiliary carriages for moving the tool holders }
- B26D 2007/2664
 - {for radial adjustment }
- B26D 2007/2671
 - {for cutters moving in a planetary motion on their support, e.g. so-called "Ferris Wheels" }
- B26D 2007/2678
 - {for cutting pens mounting in a cutting plotter }
- B26D 2007/2685
 - {flexible mounting means }
- B26D 2007/2692
 - {the rollers or cylinders being mounted skewed }
- U B26D 7/27
 - Means for performing other operations combined with cutting ([B26D 9/00](#) takes precedence)
- U B26D 7/32
 - for conveying or stacking cut product (means for removing cut-out material or waste [B26D 7/18](#))
- B26D 2007/322
 - {the cut products being sheets, e.g. sheets of paper }
- B26D 2007/327
 - {the cut products being slices of bread }
- U **B26D 11/00**
 - Combinations of several similar cutting apparatus**
- B26D 2011/005
 - {in combination with different kind of cutters, e.g. two serial slitters in combination with a transversal cutter. }

Project: N/A (B26F)

- U **B26F 1/00**
 - Perforating; Punching; Cutting-out; Stamping-out; Apparatus therefor (subjecting the grinding tools or the abrading medium to vibration, e.g. grinding with ultrasonic frequency [B24B 1/04](#), perforating by sand-blasting [B24C](#); {e.g. abrasive blasting used for cutting [B24C 1/045](#)}; punching cards or tapes for statistical and record purposes [G06K 1/00](#))**
- U B26F 1/32
 - Hand-held perforating or punching apparatus, e.g. awls
- U B26F 1/36
 - Punching or perforating pliers
- B26F 2001/365
 - {hand held pliers with handles }
- U B26F 1/38
 - Cutting-out; Stamping-out
- B26F 2001/3873
 - {advancing the material stepwise onto the work surface of the cutting machine }

- B26F 2001/388
 - B26F 2001/3886
 - B26F 2001/3893
 - U B26F 1/40
 - B26F 2001/402
 - B26F 2001/407
 - U B26F 1/44
 - B26F 2001/4409
 - B26F 2001/4418
 - B26F 2001/4427
 - B26F 2001/4436
 - B26F 2001/4445
 - B26F 2001/4454
 - B26F 2001/4463
 - B26F 2001/4472
 - B26F 2001/4481
 - B26F 2001/449
 - U B26F 3/00
 - U B26F 3/004
 - B26F 2003/006
- • {controlling the blade orientation along the cutting path }
 - • {shearing by reciprocating a straight blade, e.g. nibbling }
 - • {cutting out by using an oscillating needle }
 - • using a press, e.g. of the ram type (presses in general [B30B](#))
 - • • {curvilinear cutting presses, i.e. the stroke comprising an overlay of a linear and a curved movement }
 - • • {stepwise sequential punching processes }
 - • Cutters therefor; Dies therefor
 - • • {having die balancing or compensating means }
 - • • {combining cutting and embossing operations }
 - • • {combining cutting and forming operations }
 - • • {Materials or surface treatments therefore }
 - • • {Matrices, female dies, creasing tools }
 - • • {Die heads carrying several moveable tools }
 - • • {Methods and devices for rule setting, fixation, preparing cutting dies }
 - • • {Cutting edge section features }
 - • • {having special lateral or edge outlines or special surface shapes, e.g. apertures }
 - • • {for shearing, e.g. with adjoining or abutting edges }
- Severing by means other than cutting; Apparatus therefor (severing by grinding [B24B 27/06](#))**
- {by means of a fluid jet (methods for use of abrasive blasting for cutting [B24C 1/045](#); guns for abrasive fluid jets [B24C 5/02](#); perforating by non-mechanical means, e.g. by fluid jet [B26F 1/26](#))}
 - • {having a shutter or water jet deflector }

Project: N/A (B27D)

B27D 1/00

Joining wood veneer with any material; Forming articles thereby (in conjunction with moulding of wood particles or fibres [B29J5/00](#) in conjunction with moulding of wood particles or fibres [B27N 3/06](#)); Preparatory processing of surfaces to be joined, e.g. scoring

Project: N/A (B27F)

B27F

DOVETAILED WORK; TENONS; SLOTTING MACHINES; NAILING OR STAPLING MACHINES (hand- held nailing or stapling tools [B25C](#); manufacture of cases, boxes, or trunks from wood [B27M 3/34](#); jointing elements [F16B](#)){manufacture of long strips or planks by bonding together pieces of wood, e.g. by glueing, [B27M3/00](#)[B27M3/00D](#)}

NOTE

This subclass covers also the assembling of the elements to be jointed, e.g. using adhesives, but the application of adhesives or glue to surfaces of wood to be jointed per se is dealt with in group [B27G 11/00](#) {manufacture of specific semi-finished or finished articles [B27M 3/00](#)}

B27F 1/00

Dovetailed work; Tenons; Making tongues or grooves (slotting [B27F 5/00](#)); Groove- and- tongue jointed work; Finger- joints (machines or devices for working mitred joints [B27G 5/00](#)[B27G 5/00](#); cutting tools for cutting grooves or tenons [B27G 13/14](#))

B27F 5/00

Slotted or mortised work (hand mortising chisels [B25D3/080](#)[B25D 3/00](#))

Project: N/A (B27G)**B27G 11/00**

Applying adhesives or glue to surfaces of wood to be joined (applying liquids, e.g. liquid adhesives, to surfaces in general [B05C](#), [B05D](#); adhesive processes [C09J5/00](#) [C09J 5/00](#); associated with particular wood-working, see the relevant subclasses)

Project: N/A (B27L)**U B27L 1/00**

Debarking or removing vestiges of branches from trees or logs (debarking by chemical treatment [B27L 3/00](#); {peeling osier rods [B27J 3/00](#)}); Machines therefor

NOTE

Tree-feeding devices are covered by group [B27B 25/00](#)

U B27L 1/12

- using pliable tools {,e.g. chains, cables}

B27L 1/127

- {in the form of circulating endless elements, e.g. cutting chains (in general [B27B](#), e.g. [B27L33/14](#) [B27B 33/14](#))}

Project: N/A (B27M)**U B27M 3/00**

Manufacture or reconditioning of specific semi-finished or finished articles (features of copying devices [B23Q](#); manufacture of plywood or veneer, shaping plywood or veneer into articles [B27D](#); of central layers for plywood [B27D 1/06](#); nailing or stapling machines in general [B27F 7/00](#); of elements for cooperage or wheel making [B27H](#)){presses therefor [B27D 3/00](#)}

B27M 3/04

- of flooring elements, e.g. parqueting blocks (assembling wooden elements on backings of other substances [B32B](#), {e.g. [B32B31/00F4](#) [B32B 21/042](#), [E04F 15/16](#); furniture joints [F16B 12/00](#))}

Project: N/A (B28B)**U B28B 1/00**

Producing shaped{prefabricated}articles from the material(using presses [B28B 3/00](#) ; shaping on moving conveyers [B28B 5/00](#) ; producing tubular articles [B28B 21/00](#) ; { producing articles with embedded elements [B28B 23/00](#) })

U B28B 1/08

- by vibrating or jolting{(of moulding sand [B22C 15/10](#) ; of concrete in general [E04G 21/063](#))}

U B28B 1/087

- • by means acting on the mould;{Fixation thereof to the mould}

U B28B 1/0873

- • • {the mould being placed on vibrating or jolting supports, e.g. moulding tables}

B28B 2001/0876

- • • • {Supports, e.g. tables, therefor}

U B28B 1/26

- by slip-casting, i.e. by casting a suspension or dispersion of the material in a liquid-absorbent or porous mould, the liquid being allowed to soak into or pass through the walls of the mould; Moulds therefor([B28B 1/52](#) takes precedence); {specially for manufacturing articles starting from a ceramic slip; Moulds therefor(of tubular articles [B28B 21/08](#))}

U B28B 1/265

- {pressure being applied on the slip in the filled mould or on the moulded article in the mould, e.g. pneumatically, by compressing slip in a closed mould}

B28B 1/266

- • • {Means for counteracting the pressure being applied on the slip or on the moulded article in the mould, e.g. means for clamping the moulds parts together in a frame-like structure(~~fastening means, clamping means for mould parts in general~~ [B28B7/00B5](#))}

- U B28B 3/00** Producing shaped articles from the material by using presses(shaping on moving conveyers [B28B 5/00](#)); Presses specially adapted therefor(presses in general [B30B](#))
- U B28B 3/20
B28B 2003/203
 - wherein the material is extruded{(extrusion moulding of plastics [B29C 47/00](#))}
 - • {for multi-channelled structures, e.g. honeycomb structures}
- U B28B 5/00** Producing shaped articles from the material in moulds or on moulding surfaces, carried or formed by, in, or on conveyers irrespective of the manner of shaping(shaping aspects see the relevant groups)
- U B28B 5/04
 - in moulds moved in succession past one or more shaping stations(on turn-tables [B28B 5/06](#))
- B28B 2005/041
 - • {with compacting of the material}
- B28B 2005/042
 - • • {only by vibrating or jolting}
- B28B 2005/044
 - • • {only by tamping or ramming}
- B28B 2005/045
 - • • {only by pressing}
- B28B 2005/047
 - • • {by tamping, ramming or pressing as well as by vibrating, jolting or by rolling}
- B28B 2005/048
 - • {in moulds carried on a conveyer of the endless-belt type}
- U B28B 5/10
 - in moulds carried on the circumference of a rotating drum
- U B28B 5/12
 - • intermittently rotated
- B28B 2005/125
 - • • {Revolving presses}
- U B28B 7/00** Moulds; Cores; Mandrels(specially adapted for the production of the tubular articles [B28B 21/00](#) ; { for casting metals [B22C 9/00](#) ; moulds for plastic materials in general [B29C 33/00](#) ; falsework, forms or shutterings for forming buildings or parts thereof in situ [E04G 9/00](#) to [E04G 15/00](#) })
- U B28B 7/0029
 - { Moulds or moulding surfaces not covered by [B28B 7/0058](#) to [B28B 7/36](#) and [B28B 7/40](#) to [B28B 7/465](#) , e.g. moulds assembled from several parts }
- B28B 2007/0047
 - • {Mould seals}
- B28B 2007/005
 - • {Fastening means for mould parts, e.g. for attaching mould walls on mould tables; Mould clamps}
- B28B 2007/0052
 - • • {for attaching mould walls on mould tables}
- U B28B 13/00** Feeding the unshaped material to moulds or apparatus for producing shaped articles; Discharging shaped articles from such moulds or apparatus(feeding or discharging devices incorporated in, or operatively associated with, a particular type of shaping apparatus, or specially designed to supply materials to a particular type of shaping apparatus, see the relevant groups for the apparatus)
- U B28B 13/02
 - Feeding the unshaped material to moulds or apparatus for producing shaped articles
- U B28B 13/0215
 - • {Feeding the moulding material in measured quantities from a container or silo}
- U B28B 13/023
 - • • {by using a feed box transferring the moulding material from a hopper to the moulding cavities}
- B28B 2013/024
 - • • • {the feed box being provided with means for transporting the moulded products, e.g. out of the machine}
- B28B 2013/0265
 - • • {Feeding a slurry or a ceramic slip}

Project: N/A (B28C)

- U B28C 5/00** Apparatus or methods for producing mixtures of cement with other substances, e.g. slurries, mortars, porous or fibrous compositions(controlling the mixing apparatus and supplying the ingredients [B28C 7/00](#) { separating cement from waste concrete [B03B 9/063](#) })
- U B28C 5/42** • Apparatus specially adapted for being mounted on vehicles with provision for mixing during transport({ [B28C 5/1893](#) takes precedence; mounted on a wheelbarrow [B28C 5/1215](#) , [B28C 5/1818](#) , [B28C 5/2018](#) ; } vehicle aspect [B60P 3/16](#))
- U B28C 5/4282** • {with moving mixing tools in a stationary container}
- B28C 5/4293** • • {with reciprocating or oscillating stirrers(~~in general [B28C5/12D](#)~~)}

Project: N/A (B29B)

- U B29B 9/00** Making granules (in general [B01J](#); chemical aspects [C08J 3/12](#))
- U B29B 9/12** • characterised by structure or composition
- B29B 2009/125** • • {Micropellets, microgranules, microparticles }
- U B29B 9/16** • Auxiliary treatment of granules
- B29B 2009/161** • • {Absorbing, i.e. introducing a gas, a liquid or a solid material into the granules }
- B29B 2009/163** • • {Coating, i.e. applying a layer of liquid or solid material on the granule }
- B29B 2009/165** • • {Crystallizing granules}
- B29B 2009/166** • • {Deforming granules to give a special form, e.g. spheroidizing, rounding }
- B29B 2009/168** • • {Removing undesirable residual components, e.g. solvents, unreacted monomers; Degassing }
- U B29B 13/00** Conditioning or physical treatment of the material to be shaped (chemical aspects [C08J 3/00](#)){heating, cooling or curing during shaping [B29C 35/00](#); Thermal after-treatment [B29C 71/02](#)}
- B29B 2013/002** • {Extracting undesirable residual components, e.g. solvents, unreacted monomers, from material to be moulded }
- B29B 2013/005** • {Degassing undesirable residual components, e.g. gases, unreacted monomers, from material to be moulded }
- U B29B 13/02** • by heating ([B29B 13/06](#), [B29B 13/08](#) take precedence)
- U B29B 13/023** • • {Half-products, e.g. films, plates}
- B29B 2013/026** • • • {Obtaining a uniform temperature over the whole surface of films or tubes }
- B29B 2013/027** • • • {Obtaining a temperature gradient over the surface of films or tubes }
- B29B 2013/028** • • • {Obtaining a temperature gradient across the wall thickness of plates or tubes }
- U B29B 15/00** Pretreatment of the material to be shaped, not covered by groups [B29B 7/00](#) to [B29B 13/00](#)
- U B29B 15/08** • of reinforcements or fillers (chemical aspects [C08J](#), K)
- B29B 15/10** • • Coating or impregnating {independently of the moulding or shaping step} (applying liquids in general [B05](#))

NOTE

Where the coating or impregnating is combined with moulding the documents are classified in [B29C 53/8066](#), ~~[B29C67/14C](#)~~[B29C 70/00](#)

- U B29B 17/00** **Recovery of plastics or other constituents of waste material containing plastics; ({ volume reduction of waste plastics, e.g. by mechanical compacting or melting disposal of solid waste [B09B](#);} chemical recovery [C08J 11/00](#))**
- B29B 2017/001 • {Pretreating the materials before recovery }
 - B29B 2017/0015 • • {Washing, rinsing }
 - B29B 2017/0021 • • {Dividing in large parts }
 - U B29B 17/0026** • {by agglomeration or compacting}
 - B29B 2017/0031 • • {Melting the outer surface of compressed waste, e.g. for forming briquets by expelling the compressed waste material through a heated tool }
 - U B29B 17/0047** • • {Compacting complete waste articles}
 - U B29B 17/0052** • • • {Hollow articles, e.g. bottles}
 - B29B 2017/0057 • • • • {Externally powered deformation tools, e.g. tools being part of relatively big non domestic installations, powered by motors }
 - B29B 2017/0063 • • • • {Manually driven deformation tools, e.g. tools being part of domestic installations }
 - B29B 2017/0068 • • • • {Softening the hollow articles by heat and causing permanent deformation }
 - B29B 2017/0073 • • • • {Removing caps or labels during deformation }
 - B29B 2017/0078 • • • • {Maintaining the deflated state, e.g. by mounting original screw lids after deformation }
 - B29B 2017/0084 • • • • {Deflating the hollow articles by vacuum; Details of the nozzles used in the vacuum generating devices. }
 - B29B 2017/0089 • {Recycling systems, wherein the flow of products between producers, sellers and consumers includes at least a recycling step, e.g. the products being fed back to the sellers or to the producers for recycling purposes }
 - B29B 2017/0094 • {Mobile recycling devices, e.g. devices installed in truck trailers }
 - U B29B 17/02** • Separating plastics from other materials
 - B29B 2017/0203 • • {Separating plastics from plastics }
 - B29B 2017/0213 • • {Specific separating techniques }
 - B29B 2017/0217 • • • {Mechanical separating techniques; devices therefor }
 - B29B 2017/022 • • • • {Grippers, hooks, piercing needles, fingers, e.g. mounted on robots }
 - B29B 2017/0224 • • • • {Screens, sieves }
 - B29B 2017/0227 • • • • {Vibratory or shaking tables }
 - B29B 2017/0231 • • • • {Centrifugating, cyclones }
 - B29B 2017/0234 • • • • {using gravity, e.g. separating by weight differences in a wind sifter }
 - B29B 2017/0237 • • • • {using density difference }
 - B29B 2017/0241 • • • • • {in gas, e.g. air flow }
 - B29B 2017/0244 • • • • • {in liquids }
 - B29B 2017/0248 • • • • {Froth flotation, i.e. wherein gas bubbles are attached to suspended particles in an aerated liquid }
 - B29B 2017/0251 • • • • {Hydropulping for converting the material under the influence of water into a slurry, e.g. for separating laminated plastic from paper }
 - B29B 2017/0255 • • • {using different melting or softening temperatures of the materials to be separated }
 - B29B 2017/0258 • • • • {using heated surfaces for selective softening or melting of at least one plastic ingredient }
 - B29B 2017/0262 • • • {using electrical characteristics }

- B29B 2017/0265 . . . {Electrostatic separation }
- B29B 2017/0268 . . . {Separation of metals }
- B29B 2017/0272 . . . {Magnetic separation }
- B29B 2017/0275 . . . {using chemical sensors, e.g. analysing gasified constituents }
- B29B 2017/0279 . . . {Optical identification, e.g. cameras or spectroscopy }
- B29B 2017/0282 . . . {using information associated with the materials, e.g. labels on products }
- B29B 2017/0286 . . . {Cleaning means used for separation }
- B29B 2017/0289 . . . {Washing the materials in liquids }
- B29B 2017/0293 . . . {Dissolving the materials in gases or liquids }
- B29B 2017/0296 . . . {Dissolving the materials in aqueous alkaline solutions, e.g. NaOH or KOH }
- U B29B 17/04 . Disintegrating plastics, { e.g. by milling }(B29B 9/02, B29B 11/02, B29B 13/10, { B29B 17/02 } take precedence)
- B29B 2017/0416 . . {Cooling the plastics before disintegration, e.g. freezing }
- B29B 2017/042 . . {Mixing disintegrated particles or powders with other materials, e.g. with virgin materials }
- B29B 2017/0424 . . {Specific disintegrating techniques; devices therefor }
- B29B 2017/0428 . . . {Jets of high pressure fluid }
- B29B 2017/0432 . . . {Abrasive blasting, i.e. the jets being charged with abrasives }
- B29B 2017/0436 . . . {Immersion baths }
- B29B 2017/044 . . . ~~Knives~~ {Knives }
- B29B 2017/0444 . . . {Cutting wires, e.g. vibrating wires }
- B29B 2017/0448 . . . {Cutting discs }
- B29B 2017/0452 . . . {the discs containing abrasives }
- B29B 2017/0456 . . . {Pressing tools with calibrated openings, e.g. in sizing plates, for desintegrating solid materials }
- B29B 2017/046 . . . {Extruder as pressing tool with calibrated die openings for forming and disintegrating pasty or melted material }
- B29B 2017/0464 . . . {Solid state shear extrusion pulverisation }
- B29B 2017/0468 . . . {Crushing, i.e. disintegrating into small particles }
- B29B 2017/0472 . . . {Balls or rollers in a container }
- B29B 2017/0476 . . . {Cutting or tearing members, e.g. spiked or toothed cylinders or intermeshing rollers }
- B29B 2017/048 . . . {Cutter-compactors, e.g. of the EREMA type }
- B29B 2017/0484 . . . {Grinding tools, roller mills or disc mills }
- B29B 2017/0488 . . . {Hammers or beaters }
- B29B 2017/0492 . . . {Projecting the material on stationary or moving impact surfaces or plates }
- B29B 2017/0496 . . . {Pyrolysing the materials }

Project: N/A (B29C)

- U B29C 33/00 **Moulds or cores; Details thereof or accessories therefor**
- B29C 2033/0005 . {with transparent parts, e.g. permitting visual inspection of the interior of the cavity }
- B29C 2033/0094 . {Means for masking a part of the moulding surface }
- U B29C 33/02 . with incorporated heating or cooling means
- B29C 2033/023 . . {Thermal insulation of moulds or mould parts }

B29C 33/04	<ul style="list-style-type: none"> • using liquids, gas or steam{(tyre moulds with incorporated heating or cooling means using liquids, gas or steam B29D 30/06-B B29D 30/0601)}
B29C 2033/042	<ul style="list-style-type: none"> • • {Meander or zig-zag shaped cooling channels, i.e. continuous cooling channels whereby a plurality of cooling channel sections are oriented in a substantial parallel direction}
U B29C 33/20	<ul style="list-style-type: none"> • Opening, closing or clamping
U B29C 33/202	<ul style="list-style-type: none"> • {Clamping means operating on closed or nearly closed mould parts, the clamping means being independently movable of the opening or closing means(clamping devices for injection moulding machines B29C 45/64)}
B29C 2033/205	<ul style="list-style-type: none"> • • {mould clamping by membranes e.g. inflatable membranes or cushions}
B29C 2033/207	<ul style="list-style-type: none"> • • {mould clamping by pivoting members}
U B29C 33/38	<ul style="list-style-type: none"> • characterised by the material or the manufacturing process(B29C 33/44 takes precedence; manufacture of moulds or parts thereof from metal B22 , B23)
U B29C 33/3842	<ul style="list-style-type: none"> • {Manufacturing moulds, e.g. shaping the mould surface by machining}
B29C 2033/385	<ul style="list-style-type: none"> • • {by laminating a plurality of layers(moulds built up by stacking mould elements, e.g. plates, blocks, rods, in general B29C 33/301 , tyre moulds made of a plurality of laminations B29D 2030/0609)}
U B29C 33/3857	<ul style="list-style-type: none"> • • {by making impressions of one or more parts of models, e.g. shaped articles and including possible subsequent assembly of the parts}
B29C 2033/3864	<ul style="list-style-type: none"> • • • {Spraying at least one layer to create the mould}
B29C 2033/3871	<ul style="list-style-type: none"> • • • {the models being organic material, e.g. living or dead bodies or parts thereof}
U B29C 33/42	<ul style="list-style-type: none"> • characterised by the shape of the moulding surface, e.g. ribs, grooves
B29C 2033/422	<ul style="list-style-type: none"> • {Moulding surfaces provided with a shape to promote flow of material in the mould cavity}
U B29C 33/424	<ul style="list-style-type: none"> • {Moulding surfaces provided with means for marking or patterning(for injection moulding B29C 45/372)}
B29C 2033/426	<ul style="list-style-type: none"> • • • Stampers{Stampers}
U B29C 33/44	<ul style="list-style-type: none"> • with means for , or specially constructed to facilitate, the removal of articles, e.g. of undercut articles
U B29C 33/52	<ul style="list-style-type: none"> • soluble or fusible{(in particular used in injection moulding B29C 45/4457)}
B29C 2033/525	<ul style="list-style-type: none"> • • {Cores made of frozen liquids, e.g. ice}
U B29C 33/70	<ul style="list-style-type: none"> • Maintenance
B29C 2033/705	<ul style="list-style-type: none"> • {Mould inspection means, e.g. cameras}
U B29C 33/72	<ul style="list-style-type: none"> • Cleaning{ extruder parts B29C 47/0877 ; in general B08B 7/00 }
B29C 2033/725	<ul style="list-style-type: none"> • • {cleaning by plasma treatment}
B29C 2033/727	<ul style="list-style-type: none"> • • {cleaning during moulding}
U B29C 35/00	<p>Heating, cooling or curing, e.g. crosslinking, vulcanising; Apparatus therefor(moulds with incorporated heating or cooling means B29C 33/02 ; { thermal after-treatment of shaped articles B29C 71/02 } ; curing devices for plastic dental prostheses A61C 13/14 ; before moulding B29B 13/00 ; Chemical aspects C08J 3/00)</p>
U B29C 35/002	<ul style="list-style-type: none"> • {Component parts, details or accessories; Auxiliary operations}
B29C 2035/005	<ul style="list-style-type: none"> • • {Enveloping the material to be cured, e.g. by helically winding a film around the material}
U B29C 35/02	<ul style="list-style-type: none"> • Heating or curing, e.g. crosslinking, vulcanising{during moulding, e.g. in a mould}{ coldvulcanisation B29C 35/18 ; { vulcanising tyres, presses therefor B29D 30/0601)}
B29C 2035/0205	<ul style="list-style-type: none"> • • {Not used}

- B29C 2035/0211 . . . {resistance heating([B29C 2035/0811](#) takes precedence)}
- B29C 2035/0216 . . . {using Peltier-effect}
- B29C 2035/0283 . . {Thermal pretreatment of the plastics material(thermal after-treatment [B29C 71/02](#))}
- U B29C 35/04 . . using liquids, gas or steam
- U B29C 35/041 . . . {using liquids}
- B29C 2035/042 {other than water}
- B29C 2035/043 oil{oil}
- B29C 2035/044 mercury{mercury}
- U B29C 35/045 . . . {using gas or flames}
- B29C 2035/046 {dried air}
- B29C 2035/047 {other than air}
- B29C 2035/048 {inert gas}
- U B29C 35/08 . . by wave energy or particle radiation{([B29C 67/0051](#) , [B29C 71/04](#) take precedence)}
- U B29C 35/0805 . . . {using electromagnetic radiation}
- B29C 2035/0811 {using induction}
- B29C 2035/0816 {using eddy currents}
- B29C 2035/0822 {using IR radiation}
- B29C 2035/0827 {using UV radiation}
- B29C 2035/0833 {using actinic light}
- B29C 2035/0838 {using laser}
- B29C 2035/0844 {using X-ray}
- B29C 2035/085 {using gamma-ray}
- B29C 2035/0855 {using micro-wave}
- B29C 2035/0861 {using radio frequency}
- U B29C 35/0866 . . . {using particle radiation}
- B29C 2035/0872 {using ion-radiation e.g. alpha-rays}
- B29C 2035/0877 {using electron radiation e.g. beta-rays}
- B29C 2035/0883 {using neutron radiation}
- U B29C 35/16 . . Cooling{(cooling extruded material [B29C 47/8815](#) ; cooling preforms for blow moulding [B29C 49/6427](#) ; cooling blown articles [B29C 49/66](#) ; cooling tyres during post cure inflation [B29D 30/0643](#))}
- B29C 2035/1608 . . {using Peltier-effect}
- B29C 2035/1616 . . {using liquids}
- B29C 2035/1625 . . . {other than water}
- B29C 2035/1633 oil{oil}
- B29C 2035/1641 mercury{mercury}
- B29C 2035/165 {liquified gases}
- B29C 2035/1658 . . {using gas}
- B29C 2035/1666 . . . {dried air}
- B29C 2035/1675 . . . {other than air}
- B29C 2035/1683 {inert gas}
- B29C 2035/1691 . . {using gas-liquid mixtures}

U	B29C 37/00	Component parts, details, accessories or auxiliary operations, not covered by group B29C 33/00 or B29C 35/00
U	B29C 37/0025	• {Applying surface layers, e.g. coatings, decorative layers, printed layers, to articles during shaping, e.g. in-mould printing(moulding on preformed layers as inserts B29C 70/68 ; applying fluent material to surfaces in general B05)}
U	B29C 37/0028	• • {In-mould coating, e.g. by introducing the coating material into the mould after forming the article}
	B29C 2037/0035	• • • {the coating being applied as liquid, gel, paste or the like}
	B29C 2037/0039	• • • {the coating being applied in powder or particle form}
	B29C 2037/0042	• • • {the coating being applied in solid sheet form, e.g. as meltable sheet}
	B29C 2037/0046	• • • {In-mould printing, in-mould transfer printing}
	B29C 2037/80	• {Identifying, e.g. coding, dating, marking, numbering}
	B29C 2037/90	• {Measuring, controlling or regulating}
	B29C 2037/903	• • {by means of a computer}
	B29C 2037/906	• • {using visualisation means or linked accessories, e.g. screens, printers}
	B29C 2037/92	• Lubricating { Lubricating }
	B29C 2037/94	• {Safety devices}
	B29C 2037/96	• Filters { Filters }
U	B29C 43/00	Compression moulding, i.e. applying external pressure to flow the moulding material; Apparatus therefor({ by liberation of internal stresses B29C 61/006 } ; shaping or impregnating by compression composites comprising reinforcements other than fibres of short length [B29C 70/12] ; presses in general B30B)
U	B29C 43/02	• of articles of definite length, i.e. discrete articles({ B29C 35/0227 takes precedence)}
U	B29C 43/021	• • {characterised by the shape of the surface}
	B29C 2043/022	• • • {having locally depressed lines, e.g. hinges(single grooves B29C 37/0057 ; folding lines B29C 53/06 ; parting line of the mould parts B29C 33/005)}
	B29C 2043/023	• • • {having a plurality of grooves}
	B29C 2043/024	• • • • {forming a threaded surface}
	B29C 2043/025	• • • • {forming a micro structure, i.e. fine patterning}
	B29C 2043/026	• • • {having functional projections, e.g. fasteners}
U	B29C 43/027	• • {having an axis of symmetry(B29C 43/102 takes precedence)}
	B29C 2043/028	• • • {using radial compression}
	B29C 2043/029	• • • {using axial compression along a longitudinal axis}
U	B29C 43/04	• using movable moulds
	B29C 2043/043	• • • {rotating on their own axis without linear displacement}
	B29C 2043/046	• • • {travelling between different stations, e.g. feeding, moulding, curing stations}
U	B29C 43/10	• Isostatic pressing, i.e. using non-rigid pressure-exerting members against rigid parts or dies({ in general B30B 11/001)}
	B29C 2043/106	• • • {using powder material}
	B29C 2043/108	• • • {using deformable metals, e.g. flowable metals, low melting point eutectic metals, liquified metals}
U	B29C 43/14	• in several steps
	B29C 2043/141	• • • {for making single layer articles(for indefinite articles B29C 43/26)}
	B29C 2043/142	• • • • {by moving a single mould or the article progressively, i.e. portionwise}

- B29C 2043/143 . . . {stepwise in a vertical direction, i.e. each time modifying the thickness}
- B29C 2043/144 . . . {using different moulds, i.e. the layer is compressed in consecutive steps by using different moulds for each portion of the article}
- U B29C 43/146 . . . {for making multilayered articles}
- B29C 2043/147 . . . {by compressing after the laying of further material}
- B29C 2043/148 . . . {using different moulds}
- U B29C 43/18 . . . incorporating preformed parts or layers, e.g. compression moulding around inserts or for coating articles{([B29C 43/206](#) takes precedence)}
- B29C 2043/181 . . . {encapsulated(outsert moulding [B29C 70/74](#))}
- B29C 2043/182 . . . {completely(completely encapsulating inserts [B29C 70/70](#))}
- B29C 2043/185 . . . {using adhesives(joining using adhesives [B29C 65/48](#))}
- B29C 2043/186 . . . {hot-melt or heat activated adhesives(applying molten plastics [B29C 65/40](#) ; joining using adhesives [B29C 65/48](#))}
- B29C 2043/187 . . . {pressure activated or pressure sensitive adhesives}
- B29C 2043/188 . . . {thermosetting adhesives, e.g. polyurethane adhesives(joining by heating [B29C 65/02](#))}
- B29C 2043/189 . . . {the parts being joined}
- U B29C 43/32 . . . Component parts, details or accessories; Auxiliary operations
- B29C 2043/3205 . . . {particular pressure exerting means for making definite articles([B29C 43/36](#) takes precedence)}
- B29C 2043/3211 . . . **magnets**{**magnets**}
- B29C 2043/3216 . . . {deformable nets, meshes, lattices or fabrics, e.g. tubular ones}
- B29C 2043/3222 . . . {pressurized gas, e.g. air}
- B29C 2043/3227 . . . {inside the material, e.g. gas injection compression moulding}
- B29C 2043/3233 . . . {exerting pressure on mould parts}
- B29C 2043/3238 . . . {pressurized liquid acting directly or indirectly on the material to be formed}
- B29C 2043/3244 . . . {retraction of an expanded member}
- B29C 2043/325 . . . **screws**{**screws**}
- B29C 2043/3255 . . . **springs**{**springs**}
- B29C 2043/3261 . . . {thermal expansion}
- B29C 2043/3266 . . . {vibrating tool means}
- B29C 2043/3272 . . . {driving means}
- B29C 2043/3277 . . . {for rotatable supports, e.g. carousels, drums}
- B29C 2043/3283 . . . {for moving moulds or mould parts}
- B29C 2043/3288 . . . {using cam drives}
- B29C 2043/3294 . . . {using screw drives}
- U B29C 43/34 . . . Feeding the material to the mould or the compression means{([B29C 43/085](#) takes precedence)}
- B29C 2043/3405 . . . {using carrying means}
- B29C 2043/3411 . . . {mounted onto arms, e.g. grippers, fingers, clamping frame, suction means}
- B29C 2043/3416 . . . {conveyor belts}
- B29C 2043/3422 . . . **rollers**{**rollers**}
- B29C 2043/3427 . . . {hopper, vessel, chute, tube, conveying screw, for material in discrete form, e.g. particles, powder, fibres(dispensing from vessels [B29C 31/02](#))}

- B29C 2043/3433
 - • • {using dispensing heads, e.g. extruders, placed over or apart from the moulds(feeding using dispensing heads [B29C 31/042](#) ; applying fluent material for coatings [B05D 1/26](#) ; extrusion coating [B05D 1/265](#))}
- B29C 2043/3438
 - • • • {moving during dispensing over the moulds, e.g. laying up(feeding using moving dispensing heads [B29C 31/044](#) ; applying fluent material for coatings [B05D 1/26](#) ; extrusion coating [B05D 1/265](#))}
- B29C 2043/3444
 - • • {using pressurizing feeding means located into the mold, e.g. plungers, pistons(injection-compression moulding [B29C 45/561](#))}
- B29C 2043/345
 - • • {using gas, e.g. air, to transport non liquid material}
- B29C 2043/3455
 - • • • {for particles, powder, fibres, e.g. fluidized or sprayed}
- B29C 2043/3461
 - • • • {for foils, sheets, gobs, e.g. floated}
- B29C 2043/3466
 - • • {using rotating supports, e.g. turntables, drums(in general [B29C 31/065](#) ; turntables as movable moulds [B29C 43/08](#) ; feeding materials to moulding presses [B30B 15/302](#) ; transfer turntables [B65G 47/80](#))}
- B29C 2043/3472
 - • • • {using star wheels comprising arms(transfer stars [B65G 47/84](#))}
- B29C 2043/3477
 - • • {centrally fed, e.g. feeding the material in the center of the mold turntables(turntables as movable moulds [B29C 43/08](#))}
- B29C 2043/3483
 - • • {using band or film carriers}
- B29C 2043/3488
 - • • {uniformly distributed into the mould}
- B29C 2043/3494
 - • • • {using vibrating means}
- U B29C 43/36
 - • Moulds for making articles of definite length, i.e. discrete articles
- B29C 2043/3602
 - • • {with means for positioning, fastening or clamping the material to be formed or preforms inside the mould(moulds with incorporated means for positioning inserts [B29C 33/14](#) ; positioning articles in the mould for injection moulding [B29C 45/14065](#))}
- B29C 2043/3605
 - • • • vacuum{vacuum}
- U B29C 43/361
 - • • {with pressing members independently movable of the parts for opening or closing the mould, e.g. movable pistons(transfer moulding [B29C 45/02](#) ; injection-compression moulding [B29C 45/561](#))}
- B29C 2043/3613
 - • • • {applying pressure locally}
- B29C 2043/3615
 - • • • {forming elements, e.g. mandrels, rams, stampers, pistons, plungers, punching devices(ram pressing [B30B 11/02](#) , [B30B 11/04](#) ; forming pockets in sheets [B65B 47/04](#) ; ~~cooperating punches or dies for making paperboard containers~~ [L31B43/00B](#) ; moulding lenses [B29D 11/00413](#))}
- B29C 2043/3618
 - • • • • {plurality of counteracting elements}
- B29C 2043/3621
 - • • • • {a plurality of individual elements acting on the material in the same or different directions, e.g. making tubular T-joints, profiles}
- B29C 2043/3623
 - • • • • • {coupled on a support, e.g. plate}
- B29C 2043/3626
 - • • • • • {multi-part rams, plungers or mandrels}
- B29C 2043/3628
 - • • • • • {moving inside a barrel or container like sleeve}
- B29C 2043/3631
 - • • • • • {moving in a frame for pressing and stretching; material being subjected to compressing stretching}
- B29C 2043/3634
 - • • • • • {having specific surface shape, e.g. grooves, projections, corrugations}
- B29C 2043/3636
 - • • • • {ultrasonically or sonically vibrating, e.g. sonotrodes}
- B29C 2043/3639
 - • • • {hand operated(forming pockets or receptacles in or from sheets, blanks, or webs [B65B 47/04](#))}
- U B29C 43/3642
 - • • {Bags, bleeder sheets or cauls for isostatic pressing(flexible cores for vulcanizing tyres [B29D 30/0654](#))}

- B29C 2043/3644 . . . {vacuum bags and related details e.g. fixing, clamping(vacuum bagging [B29C 70/44](#) ; flexible pressing means [B30B 5/02](#) ; membrane press [B30B 9/22](#) ; applying pressure through membranes [B29C 51/28](#) ; bladders for making tires [B29D 30/0601](#) ; vacuum laminating [B32B 37/1018](#))}
- B29C 2043/3647 . . . {membranes, diaphragms(vacuum bagging [B29C 70/44](#) ; applying pressure through membranes [B29C 51/28](#) ; bladders for making tires [B29D 30/0601](#) ; vacuum laminating [B32B 37/1018](#) ; flexible pressing means [B30B 5/02](#) ; membrane press [B30B 9/22](#))}
- B29C 2043/3649 . . . {infatable bladders using gas or fluid and related details(vacuum bagging [B29C 70/44](#) ; flexible moulds [B29C 33/50](#) ; flexible pressing means [B30B 5/02](#) ; membrane press [B30B 9/22](#) ; deep drawing membranes [B29C 51/28](#) ; bladders for making tires [B29D 30/0601](#) ; vacuum laminating [B32B 37/1018](#))}
- B29C 2043/3652 . . . {elastic moulds or mould parts, e.g. cores, inserts(isostatic pressing [B29C 43/10](#) ; moulds in elastomer [B29C 33/405](#) ; plastic cores [B29C 33/50](#))}
- B29C 2043/3655 . . . {pressure transmitters, e.g. caul plates, pressure pads}
- B29C 2043/3657 . . . {additional materials, e.g. permeable bleeder or breather sheets, cloths, blankets}
- B29C 2043/366 . . . {plates pressurized by an actuator, e.g. ram drive, screw, vulcanizing presses}
- B29C 2043/3663 . . . {confined in a chamber}
- B29C 2043/3665 . . . {cores or inserts, e.g. pins, mandrels, sliders}
- B29C 2043/3668 . . . {destructible or fusible(moulds for making articles with holes [B29C 33/0033](#) ; lost moulds [B29C 33/0016](#) ; fusible cores [B29C 33/52](#) ; making porous articles [B22F 3/11](#))}
- B29C 2043/3671 . . . {preforms constituting part of the cavity mould wall}
- B29C 2043/3673 . . . {preform constituting a mould half}
- B29C 2043/3676 . . . {moulds mounted on rotating supporting constuctions}
- B29C 2043/3678 . . . {on cylindrical supports with moulds or mould cavities provided on the periphery(rollers for making indefinite articles [B29C 43/46](#) ; turntables presses [B30B 11/08](#) , roller preses [B30B 11/006](#) ; ~~making beams~~ [L29D31/00B](#))}
- B29C 2043/3681 {opening and closing axially, i.e. parallel to the rotation axis}
- B29C 2043/3684 {opening/closing or acting radially, i.e. vertical to the rotation axis}
- B29C 2043/3686 {opening and closing tangential to the rotation, i.e. vertical to the rotation axis and vertical to the radius}
- B29C 2043/3689 {on a support table, flat disk-like tables having moulds on the periphery(press rams on turntables [B30B 11/08](#) , [B30B 9/042](#))}
- B29C 2043/3692 {cooperating with non rotating parts}
- B29C 2043/3694 {on rotating star wheels}
- U B29C 43/40 . . . with means for cutting the article
- B29C 2043/403 {knife blades}
- B29C 2043/406 {laser cutting means}
- U B29C 43/42 . . . for undercut articles
- B29C 2043/425 {mould parts or sliders being movable independently from the mould halves for making undercut portions(collapsible cores or mandrels [B29C 33/485](#))}
- U B29C 43/44 . . . Compression means for making articles of indefinite length

- U B29C 43/46
 - • • Rollers
 - B29C 2043/461
 - • • • {the rollers having specific surface features}
 - B29C 2043/462
 - • • • • {smooth surface}
 - B29C 2043/463
 - • • • • {corrugated, patterned or embossed surface}
 - B29C 2043/464
 - • • • • {having projections or knives, e.g. for cutting-out or for forming local depressions}
 - B29C 2043/465
 - • • • • {having one or more cavities e.g. for forming distinct products}
 - B29C 2043/466
 - • • • {the rollers having specific shape, e.g. non cylindrical rollers, conical rollers}
 - B29C 2043/467
 - • • • {plurality of rollers arranged in a specific manner in relation to each other(calender configuration [B29C 43/24](#))}
 - B29C 2043/468
 - • • • {take-off rollers, i.e. arranged adjacent a material feeding device(calendering [B29C 43/24](#))}
- U B29C 43/48
 - • • Endless belts
 - B29C 2043/483
 - • • • {cooperating with a second endless belt, i.e. double band presses}
 - B29C 2043/486
 - • • • {cooperating with rollers or drums}
- U B29C 43/50
 - • Removing moulded articles
 - B29C 2043/5007
 - • • {using cores, i.e. the cores forming part of the mould cavity}
 - B29C 2043/5015
 - • • • {having undercuts or being threaded(using a rotating movement to unscrew articles [B29C 33/446](#))}
 - B29C 2043/5023
 - • • • {moving away(collapsible cores or mandrels [B29C 33/485](#))}
 - B29C 2043/503
 - • • • {using ejector pins, rods}
 - B29C 2043/5038
 - • • • {having an annular or tubular shape}
 - B29C 2043/5046
 - • • • {using vacuum}
 - B29C 2043/5053
 - • • • {using pressurised gas, e.g. air}
 - B29C 2043/5061
 - • • • {using means movable from outside the mould between mould parts}
 - B29C 2043/5069
 - • • • {take-off members or carriers for the moulded articles, e.g. grippers}
 - B29C 2043/5076
 - • • • {using belts}
 - B29C 2043/5084
 - • • • {using rotary devices, e.g. turntables, carousels(blow moulding machines [B29C 49/36](#) , [B29C 49/4205](#))}
 - B29C 2043/5092
 - • • • {using vibrations means}
- U B29C 43/52
 - • Heating or cooling
 - B29C 2043/522
 - • • {selectively heating a part of the mould to achieve partial heating, differential heating}
 - B29C 2043/525
 - • • • {at predetermined points for local melting, curing or bonding}
 - B29C 2043/527
 - • • • {selectively cooling, e.g. locally, on the surface of the material}
- U B29C 43/56
 - • Compression moulding under special conditions, e.g. vacuum
 - B29C 2043/561
 - • • • {under vacuum conditions(vacuum laminating [B32B 37/1018](#))}
 - B29C 2043/562
 - • • • • {combined with isostatic pressure, e.g. pressurising fluids, gases}
 - B29C 2043/563
 - • • • • {combined with mechanical pressure, i.e. mould plates, rams, stampers}
 - B29C 2043/565
 - • • • {in a clean sterile environment, e.g. to avoid contamination}
 - B29C 2043/566
 - • • • {in a specific gas atmosphere, with or without pressure}
 - B29C 2043/567
 - • • • {in a liquid, i.e. the moulded parts being embedded in liquid}
 - B29C 2043/568
 - • • • {in a magnetic or electric field}
- U B29C 43/58
 - • Measuring, controlling or regulating{(for bank adjustment in calendering [B29C 43/245](#))}

B29C 2043/5808	• • • {pressure or compressing force}
B29C 2043/5816	• • • temperature{temperature}
B29C 2043/5825	• • • {dimensions or shape, e.g. size, thickness}
B29C 2043/5833	• • • {movement of moulds or mould parts, e.g. opening or closing, actuating}
B29C 2043/5841	• • • • {for accomodating variation in mould spacing or cavity volume during moulding(compensating shrinkage B29C 43/54)}
B29C 2043/585	• • • {detecting defects, e.g. foreign matter between the moulds, inaccurate position, breakage}
B29C 2043/5858	• • • • {for preventing tilting of movable mould plate during closing or clamping}
B29C 2043/5866	• • • {ejection of moulded articles}
B29C 2043/5875	• • • {the material feed to the moulds or mould parts, e.g. controlling feed flow, velocity, weight, doses}
B29C 2043/5883	• • • • {ensuring cavity filling, e.g. providing overflow means}
B29C 2043/5891	• • • {using imaging devices, e.g. cameras}
U B29C 45/00	Injection moulding, i.e. forcing the required volume of moulding material through a nozzle into a closed mould; Apparatus therefor(injection blow-moulding B29C 49/06)
U B29C 45/0005	• {using fibre reinforcements}
B29C 2045/0006	• • {the fibres being oriented in a direction perpendicular to the flow direction of the moulding material into the mould}
B29C 2045/0008	• • {the fibres being oriented randomly}
B29C 2045/001	• • {Bulk moulding compounds (BMC)}
B29C 2045/0012	• • {Skin layers without fibres or with little fibres}
U B29C 45/0013	• {using fillers dispersed in the moulding material, e.g. metal particles}
B29C 2045/0015	• • {Non-uniform dispersion of fillers}
U B29C 45/0017	• {moulding interconnected elements which are movable with respect to one another, e.g. chains or hinges}
B29C 2045/0018	• • {moulding containers with handle e.g. buckets}
B29C 2045/002	• • {using shrinkage}
B29C 2045/0022	• • {using deformation of injected material to obtain interconnection}
B29C 2045/0024	• • {using a mould core with a blind hole wherein the hinge shaft is moulded}
U B29C 45/0025	• {Preventing defects on the moulded article, e.g. weld lines, shrinkage marks(preventing defects on the preformed parts or layers B29C 45/14836)}
B29C 2045/0027	• • {Gate or gate mark locations}
B29C 2045/0029	• • • {gates on the central optical axis of lenses}
B29C 2045/0031	• • {Movable mould wall parts in contact with weld lines e.g. rotating pins for stirring the weld line}
B29C 2045/0032	• • {sequential injection from multiple gates, e.g. to avoid weld lines}
B29C 2045/0034	• • {Mould parting lines}
B29C 2045/0036	• • {Submerged or recessed burrs}
B29C 2045/0037	• • {Moulding articles or parts thereof without parting line}
B29C 2045/0039	• • {intermixing the injected material front at the weld line, e.g. by applying vibrations to the melt front(B29C 2045/0031 takes precedence)}
B29C 2045/0041	• • {preventing initial material from entering the mould cavity}
B29C 2045/0043	• • {preventing shrinkage by reducing the wall thickness of the moulded article}
B29C 2045/0044	• • {expelling moulding material outside the mould cavity at the weld line location(moulds with overflow cavities B29C 45/2669)}

- U B29C 45/0046
 - {Details relating to the filling pattern or flow paths or flow characteristics of moulding material in the mould cavity}
- B29C 2045/0048
 - • {Laminar flow}
- B29C 2045/0049
 - • {the injected material flowing against a mould cavity protruding part}
- B29C 2045/0051
 - • {Flow adjustment by throttles}
- U B29C 45/0053
 - {combined with a final operation, e.g. shaping(injection-compression moulding [B29C 45/561](#))}
- U B29C 45/0055
 - • {Shaping}
- B29C 2045/0056
 - • • {folding back undercut forming parts, e.g. tabs of closures}
- B29C 2045/0058
 - • • {removing material}
- U B29C 45/006
 - • {Joining parts moulded in separate cavities}
- B29C 2045/0063
 - • • {facing before assembling, i.e. bringing the parts opposite to each other before assembling}
- B29C 2045/0065
 - • • {the parts being interconnected before assembling by a breaking or shearing point}
- B29C 2045/0067
 - • • {interposing an insert between the parts to be assembled}
- B29C 2045/0068
 - • • {using axially aligned and separated mould cavities}
- B29C 2045/007
 - • • {assembling a container and a handle}
- B29C 2045/0072
 - • • {the parts to be joined being moulded in a stack mould(stack moulds in general [B29C 45/32](#))}
- B29C 2045/0074
 - • • {inserting a heating tool inside the mould}
- B29C 2045/0075
 - • {curing or polymerising by irradiation}
- B29C 2045/0077
 - • {removing burrs or flashes(in general [B29C 37/02](#))}
- B29C 2045/0079
 - • {applying a coating or covering}
- B29C 2045/0086
 - {Runner trees, i.e. several articles connected by a runner}
- B29C 2045/0087
 - {making hollow articles using a floating core movable in the mould cavity by fluid pressure and expelling molten excess material}
- B29C 2045/0089
 - {successive filling of parts of a mould cavity, i.e. one cavity part being filled before another part is filled(sequential filling to prevent weld lines [B29C 2045/0032](#))}
- B29C 2045/0091
 - {Pellets or granules, e.g. their structure, composition, length, height, width}
- B29C 2045/0093
 - {of articles provided with an attaching element}
- B29C 2045/0094
 - {injection moulding of small-sized articles e.g. micro articles, ultra thin articles}
- B29C 2045/0096
 - {drying the moulding material before injection e.g. by heating}
- B29C 2045/0098
 - {shearing of the moulding material e.g. for obtaining molecular orientation or reducing the viscosity([B29C 45/0082](#) takes precedence)}
- U B29C 45/02
 - Transfer moulding, i.e. transferring the required volume of moulding material by a plunger from a "shot" cavity into a mould cavity
- B29C 2045/022
 - • {Stationary transfer plungers}
- B29C 2045/024
 - • {Transfer plungers and pots with an oblong cross section}
- B29C 2045/025
 - • {with the transfer plunger surface forming a part of the mould cavity wall at the end of the plunger transfer movement}
- B29C 2045/027
 - • {heat insulated cold transfer moulding}
- B29C 2045/028
 - • • {using auxiliary curing or setting means}
- U B29C 45/03
 - Injection moulding apparatus(transfer moulding [B29C 45/02](#))
- B29C 2045/033
 - • {horizontal injection units mounted on a mould half carrying plate}
- U B29C 45/04
 - • using movable moulds(or mould halves)([B29C 45/08](#) takes precedence)

- U B29C 45/0408 . . . {involving at least a linear movement([B29C 45/0433](#) takes precedence)}
- U B29C 45/0416 {co-operating with fixed mould halves}
- B29C 2045/0425 {Book moulds, i.e. a mould half can be opened and closed like a book with regard to the other mould half, the mould halves being connected by a hinge}
- U B29C 45/0441 . . . {involving a rotational movement([B29C 45/06](#) takes precedence)}
- U B29C 45/045 {mounted on the circumference of a rotating support having a rotating axis perpendicular to the mould opening, closing or clamping direction}
- B29C 2045/0458 {Drive means for the rotating support}
- B29C 2045/0466 . . . {the axial movement of the mould being linked to the rotation of the mould or mould half}
- B29C 2045/0475 . . . {continuously movable moulds}
- B29C 2045/0483 . . . {pivotally mounted mould halves([B29C 2045/0425](#) takes precedence)}
- B29C 2045/0491 . . . {both mould halves being shifted to the injection unit for obtaining nozzle touch}
- U B29C 45/06 . . . {mounted}on a turntable{i.e. on a rotating support having a rotating axis parallel to the mould opening, closing or clamping direction}
- B29C 2045/065 {continuously rotating turntables}
- B29C 2045/067 {one mould being openable during clamping of the other moulds}
- U B29C 45/07 . . using movable injection units
- B29C 2045/073 . . . {pivotable horizontal injection unit with a nozzle pushed against a mould half}
- U B29C 45/13 . . using two or more injection units co-operating with a single mould
- B29C 2045/135 . . . {selectively injecting different materials in the same mould for making different articles in the same mould}
- U B29C 45/14 . incorporating preformed parts or layers, e.g. injection moulding around inserts or for coating articles{([B29C 45/1671](#) takes precedence)}
- U B29C 45/14008 . . {Inserting articles into the mould([B29C 45/14827](#) takes precedence)}
- B29C 2045/1404 . . . {feeding inserts cut out from an endless sheet outside the mould}
- B29C 2045/14049 . . . {feeding inserts by a swing arm}
- B29C 2045/14057 . . . {feeding inserts wrapped on a core}
- U B29C 45/14065 . . {Positioning or centering articles in the mould}
- U B29C 45/14073 . . . {using means being retractable during injection}
- B29C 2045/14081 {centering means retracted by the injection pressure}
- B29C 2045/1409 {using control means for retraction of the centering means}
- B29C 2045/14098 . . . {fixing or clamping inserts having variable dimensions}
- B29C 2045/14106 . . . {using electrostatic attraction or static electricity}
- B29C 2045/14114 . . . {using an adhesive}
- B29C 2045/14122 . . . {using fixed mould wall projections for centering the insert}
- B29C 2045/14131 . . . {using positioning or centering means forming part of the insert}
- B29C 2045/14139 . . . {positioning inserts having a part extending into a positioning cavity outside the mould cavity}
- B29C 2045/14147 . . . {using pins or needles penetrating through the insert}
- B29C 2045/14155 . . . {using vacuum or suction}
- B29C 2045/14163 . . . {using springs being part of the positioning means}
- B29C 2045/14172 . . . {using light to define the position of the insert}
- U B29C 45/1418 . . {the inserts being deformed or preformed, e.g. by the injection pressure}

- B29C 2045/14188 . . . {trimming the article in the mould}
- U B29C 45/14196 . . . {the inserts being positioned around an edge of the injected part}
- B29C 2045/14204 {the edges formed by an intermediate mould part}
- B29C 2045/14213 {deforming by gas or fluid pressure in the mould cavity}
- U B29C 45/14221 {by tools, e.g. cutting means}
- B29C 2045/14229 {deforming wire-like articles}
- B29C 2045/14237 {the inserts being deformed or preformed outside the mould or mould cavity}
- B29C 2045/14245 {using deforming or preforming means outside the mould cavity}
- B29C 2045/14254 {deforming or preforming endless articles outside the mould}
- U B29C 45/14262 {Clamping or tensioning means for the insert}
- B29C 2045/1427 {controlling the slip of the insert}
- B29C 2045/14278 {controlling the tension of the insert}
- B29C 2045/14286 {means for heating the insert}
- B29C 2045/14295 {the heating means being used for feeding the insert into the mould}
- B29C 2045/14303 {progressively transferring the insert from one mould wall to the other mould wall of the mould cavity}
- U B29C 45/14311 . . . {using means for bonding the coating to the articles([B29C 45/14795](#) takes precedence)}
- B29C 2045/14319 {bonding by a fusion bond}
- B29C 2045/14327 {anchoring by forcing the material to pass through a hole in the article}
- U B29C 45/14336 . . . {Coating a portion of the article, e.g. the edge of the article([B29C 45/14573](#) and [B29C 45/14598](#) take precedence)}
- U B29C 45/14344 {Moulding in or through a hole in the article, e.g. outsert moulding}
- B29C 2045/14352 {injecting into blind holes}
- B29C 2045/1436 {coating hollow articles having holes passing through the wall}
- B29C 2045/14368 {holes with means for anchoring the injected material}
- U B29C 45/14385 {Coating a portion of a bundle of inserts, e.g. making brushes}
- B29C 2045/14393 {preventing leakage of injected material into tuft insertion holes of the mould}
- B29C 2045/14401 {using a hot gas for forming a knob on the tuft end}
- B29C 2045/14442 {injecting a grill or grid on the insert}
- B29C 2045/1445 {injecting a part onto a blow moulded object}
- B29C 2045/14459 {injecting seal elements}
- U B29C 45/14467 . . . {Joining articles or parts of a single article([B29C 45/14377](#) , [B29C 45/14385](#) , [B29C 45/14581](#) , [B29C 45/14614](#) and [B29C 45/006](#) take precedence)}
- U B29C 45/14475 {Joining juxtaposed parts of a single article, e.g. edges of a folded container blank}
- B29C 2045/14483 {overlapping edges of the juxtaposed parts}
- U B29C 45/14491 {Injecting material between coaxial articles, e.g. between a core and an outside sleeve for making a roll}
- B29C 2045/145 {making rolls}
- U B29C 45/14508 {Joining juxtaposed sheet-like articles, e.g. for making trim panels}
- B29C 2045/14516 {the transition area of juxtaposed parts being hidden in a groove of the moulded article}
- B29C 2045/14524 {making hollow articles}

- B29C 2045/14532 . . . {injecting between two sheets}
- B29C 2045/1454 . . . {injecting between inserts not being in contact with each other}
- U B29C 45/14549 . . {Coating rod-like, wire-like or belt-like articles([B29C 45/14426](#) takes precedence)}
- B29C 2045/14557 . . . {coating spliced fibres or cables, e.g. optical fiber splices or junctions}
- U B29C 45/14598 . . {Coating tubular articles}
- B29C 2045/14606 . . . {Mould cavity sealing means}
- U B29C 45/14639 . . {for obtaining an insulating effect, e.g. for electrical components}
- U B29C 45/14655 . . . {connected to or mounted on a carrier, e.g. lead frame}
- B29C 2045/14663 {the mould cavity walls being lined with a film, e.g. release film}
- B29C 2045/14672 {moulding with different depths of the upper and lower mould cavity}
- U B29C 45/14688 . . {Coating articles provided with a decoration}
- B29C 2045/14696 {transparent decorated inserts}
- B29C 2045/14704 {ink decorations}
- B29C 2045/14713 {decorations in contact with injected material}
- B29C 2045/14721 {decorations transferred by diffusion or sublimation}
- B29C 2045/14729 {decorations not in contact with injected material}
- B29C 2045/14737 {decorations printed on the insert by a digital imaging technique}
- B29C 2045/14745 {in-line printing}
- U B29C 45/14754 . . {being in movable or releasable engagement with the coating, e.g. bearing assemblies}
- B29C 2045/14762 {using shrinkage}
- B29C 2045/1477 {Removable inserts, e.g. the insert being peeled off after moulding}
- U B29C 45/14778 . . {the article consisting of a material with particular properties, e.g. porous, brittle}
- U B29C 45/14795 {Porous or permeable material, e.g. foam}
- B29C 2045/14803 {the injected material entering minute pores}
- U B29C 45/14836 . . {Preventing damage of inserts during injection, e.g. collapse of hollow inserts, breakage([B29C 45/14434](#) takes precedence)}
- B29C 2045/14844 {Layers protecting the insert from injected material}
- B29C 2045/14852 . . {incorporating articles with a data carrier, e.g. chips(memory cards, chip cards [B29L 2017/006](#))}
- B29C 2045/1486 . . {Details, accessories and auxiliary operations}
- B29C 2045/14868 {Pretreatment of the insert, e.g. etching, cleaning}
- B29C 2045/14877 {preheating or precooling the insert for non-deforming purposes}
- B29C 2045/14885 {by plasma treatment}
- B29C 2045/14893 {Preventing defects relating to shrinkage of inserts or coating material}
- B29C 2045/14901 {Coating a sheet-like insert smaller than the dimensions of the adjacent mould wall}
- B29C 2045/14909 {the edge of the sheet-like insert being hidden e.g. in a groove or protruding into the injected material}
- B29C 2045/14918 {in-mould-labelling}
- B29C 2045/14926 {multiple labels in the same cavity}
- B29C 2045/14934 {Preventing penetration of injected material between insert and adjacent mould wall(sealing means between mould and article [B29C 45/14418](#))}

- B29C 2045/14942 . . . {Floating inserts, e.g. injecting simultaneously onto both sides of an insert through a pair of opposed gates}
- B29C 2045/1495 . . . {Coating undercut inserts}
- B29C 2045/14959 . . . {Flashing the injected material to the outside of the mould cavity for any purpose}
- B29C 2045/14967 . . . {Injecting through an opening of the insert}
- B29C 2045/14975 {the injection nozzle penetrating through the insert}
- B29C 2045/14983 . . . {Bursting or breakthrough of the insert by the injection pressure}
- B29C 2045/14991 . . . {Submerged burrs e.g. using protruding mould parts forming a cavity in which the burr on the insert is formed for preventing surface defects}
- U B29C 45/16 . . . Making multilayered or multicoloured articles{([B29C 45/0062](#) takes precedence; feeding colouring materials into the injection unit [B29C 45/1816](#))}
- B29C 2045/1601 . . . {the injected materials not being adhered or bonded to each other([B29C 45/0017](#) takes precedence)}
- U B29C 45/1603 . . . {Multi-way nozzles specially adapted therefor}
- B29C 2045/1609 {having independent heating or cooling means for each way}
- B29C 2045/161 {using a hollow needle valve through which one material is injected}
- B29C 2045/1612 {using needle valves with at least four positions}
- B29C 2045/1614 {side-by-side flow of materials in the same channel}
- U B29C 45/1615 . . . {The materials being injected at different moulding stations}
- B29C 2045/1617 {using stack moulds}
- U B29C 45/162 {using means, e.g. mould parts, for transferring an injected part between moulding stations}
- B29C 2045/1621 {the transfer means operating independently from the injection mould cavity i.e. during injection the transfer means are completely outside the mould cavity}
- B29C 2045/1623 {transfer by a slidable element forming a part of both cavities}
- U B29C 45/1625 {Injecting parison-like articles}
- B29C 2045/1626 {using a cooling station}
- U B29C 45/1628 {using a mould carrier rotatable about an axis perpendicular to the opening and closing axis of the moulding stations}
- B29C 2045/1629 {turrets with incorporated ejection means}
- B29C 2045/1631 {turrets fixed with regard to the machine frame}
- B29C 2045/1632 {injection units supported by a movable mould plate}
- U B29C 45/1635 . . . {using displaceable mould parts, e.g. retractable partition between adjacent mould cavities}
- B29C 2045/1637 {the first injected part and the movable mould part being movable together}
- U B29C 45/1642 . . . {having a "sandwich" structure([B29C 45/1603](#) takes precedence)}
- U B29C 45/1646 {Injecting parison-like articles([B29C 45/1643](#) takes precedence)}
- B29C 2045/1648 {the parison core layer being a barrier material}
- B29C 2045/165 {the parison core layer comprising recycled or scrap material}
- B29C 2045/1651 {Independent injection runners or nozzles}
- B29C 2045/1653 {using a core injection nozzle penetrating through the skin or into the mould cavity}
- B29C 2045/1654 {whereby the core material is penetrating through the skin}
- B29C 2045/1656 {Injecting the skin material through the central passage of the multiway nozzle}

- U B29C 45/1657
 - • {using means for adhering or bonding the layers or parts to each other(mechanical anchoring [B29C 37/0082](#))}
- B29C 2045/1659
 - • • {Fusion bonds}
- B29C 2045/166
 - • • {Roughened surface bonds}
- B29C 2045/1662
 - • • • {plasma roughened surface bonds}
- B29C 2045/1664
 - • • {Chemical bonds}
- B29C 2045/1665
 - • • {Shrinkage bonds}
- B29C 2045/1667
 - • • {Deformation bonds}
- B29C 2045/1668
 - • • {Penetration bonds}
- B29C 2045/167
 - • {injecting the second layer through the first layer}
- U B29C 45/1671
 - • {with an insert}
- B29C 2045/1673
 - • • {injecting the first layer, then feeding the insert, then injecting the second layer}
- U B29C 45/1676
 - • {using a soft material and a rigid material, e.g. making articles with a sealing part}
- B29C 2045/1678
 - • • {first moulding the soft material}
- B29C 2045/1681
 - • {one layer penetrating at one or more areas through another layer}
- B29C 2045/1682
 - • {preventing defects}
- B29C 2045/1685
 - • {mounting of the additional injection unit}
- B29C 2045/1687
 - • {preventing leakage of second injected material from the mould cavity}
- B29C 2045/1689
 - • {injecting layers having identical injection cycle times}
- B29C 2045/169
 - • {injecting electrical circuits e.g. one layer being made of conductive material}
- B29C 2045/1692
 - • {one layer comprising fibres}
- B29C 2045/1693
 - • {shaping the first molding material before injecting the second molding material, e.g. by cutting, folding}
- B29C 2045/1695
 - • {injecting ceramic powder layers and plastic material layers}
- B29C 2045/1696
 - • {injecting metallic layers and plastic material layers}
- B29C 2045/1698
 - • {multicoloured articles moulded in one step(non-uniform dispersion of colours [B29C 45/1634](#))}
- U B29C 45/17
 - Component parts, details or accessories; Auxiliary operations
- U B29C 45/1701
 - • {using a particular environment during moulding, e.g. moisture-free or dust-free}
- B29C 2045/1702
 - • • {dissolving or absorbing a fluid in the plastic material}
- U B29C 45/1703
 - • {Introducing an auxiliary fluid into the mould([B29C 45/1701](#) takes precedence)}
- U B29C 45/1704
 - • • {the fluid being introduced into the interior of the injected material which is still in a molten state, e.g. for producing hollow articles([B29C 45/1732](#) and [B29C 45/1734](#) take precedence; injection blow-moulding [B29C 49/06](#))}
- U B29C 45/1706
 - • • • {using particular fluids or fluid generating substances}
- B29C 2045/1707
 - • • • • {using a liquid e.g. water}
- B29C 2045/1708
 - • • • • {removing the liquid from the hollow}
- B29C 2045/1709
 - • • • • {using a cooling fluid}
- B29C 2045/171
 - • • • • {using an evaporating substance}
- U B29C 45/1711
 - • • • {and removing excess material from the mould cavity by the introduced fluid, e.g. to an overflow cavity}
- B29C 2045/1712
 - • • • • {plastic material flowing back into the injection unit}
- B29C 2045/1713
 - • • • • {using several overflow cavities}

B29C 2045/1714	. . . . {overflow cavities provided with heating means}
B29C 2045/1715	. . . . {Filled hollows}
B29C 2045/1717	. . . . {Temperature controlled mould parts to control the location or configuration of the hollow}
B29C 2045/1718	. . . . {sealing or closing the fluid injection opening}
B29C 2045/1719	. . . . {making tubular articles}
B29C 2045/172	. . . . {making roof racks for vehicles or parts thereof}
B29C 2045/1721	. . . . {making wheels}
B29C 2045/1722	. . . . {injecting fluids containing plastic material}
B29C 2045/1723	. . . . {using fibre reinforcements}
B29C 2045/1724	. . . . {hollows used as conduits}
B29C 2045/1725	. . . . {making hollow seals}
B29C 2045/1726	. . . . {moving the fluid through the hollow using a fluid inlet and a fluid outlet}
B29C 2045/1727	. . . . {using short shots of moulding material}
B29C 2045/1728	. . . . {injecting fluid from an end of the mould cavity and in the longitudinal direction thereof}
B29C 2045/1729	. . . . {fluid venting means}
B29C 2045/173	. . . . {using a plurality of fluid injection nozzles}
B29C 2045/1731	. . . . {vacuum or underpressure for forming the hollow}
U B29C 45/1734	. . . {Nozzles therefor}
B29C 2045/1737	. . . . {Pin-in-sleeve devices}
B29C 2045/1738	. . . . {using a valve mounted in movable valve sleeve}
B29C 2045/1739	. . . . {controlling the temperature or heat-transfer in fluid injection nozzles}
U B29C 45/174	. . . {Applying a pressurised fluid to the outer surface of the injected material inside the mould cavity, e.g. for preventing shrinkage marks}
B29C 2045/1741	. . . . {Seals preventing pressurized fluid to escape from the mould cavity(mould seals B29C 45/2608)}
U B29C 45/1742	. . {Mounting of moulds; Mould supports(mounting of exchangeable mould inserts B29C 45/2675)}
B29C 2045/1745	. . . {using vacuum means}
B29C 2045/1746	. . . {using magnetic means}
U B29C 45/1748	. . {Retractable tie-rods}
B29C 2045/175	. . . {using the movable mould plate for extracting a tie rod}
U B29C 45/1751	. . {Adjustment means allowing the use of moulds of different thicknesses}
B29C 2045/1752	. . . {using the mould clamping means for displacing the rear platen}
U B29C 45/1753	. . {Cleaning or purging, e.g. of the injection unit(B29C 45/24 takes precedence)}
B29C 2045/1754	. . . {purging cooling channels}
U B29C 45/1756	. . {Handling of moulds or mould parts, e.g. mould exchanging means(moulds per se B29C 45/26)}
B29C 2045/1757	. . . {common exchange means for several injection machines}
B29C 2045/1758	. . . {exchanging stampers}
U B29C 45/1761	. . {Means for guiding movable mould supports or injection units on the machine base or frame; Machine bases or frames(B29C 45/1747 takes precedence)}
B29C 2045/1762	. . . {compensating frame distortion proportional to the mould clamping force}
B29C 2045/1763	. . . {preventing distortion of the machine part guiding the movable mould}

B29C 2045/1764	• • • {Guiding means between the movable mould plate and tie rods}
B29C 2045/1765	• • • {Machine bases}
B29C 2045/1767	• • • {connecting means for machine base parts}
B29C 2045/1768	• • • {constructions of C-shaped frame elements}
U B29C 45/1769	• • {Handling of moulded articles or runners, e.g. sorting, stacking, grinding of runners}
B29C 2045/177	• • • {stacking moulded articles}
U B29C 45/1771	• • • {Means for guiding or orienting articles while dropped from the mould, e.g. guide rails or skirts}
B29C 2045/1772	• • • • {sorting different articles}
U B29C 45/1775	• • {Connecting parts, e.g. injection screws, ejectors, to drive means}
B29C 2045/1776	• • • {magnetic connecting means}
U B29C 45/1777	• • {Nozzle touch mechanism}
B29C 2045/1778	• • • {separate drive means for moving and producing the touch force}
B29C 2045/1779	• • • {using chains or the like as drive transmission means for the movement of the injection unit}
B29C 2045/1784	• • {Component parts, details or accessories not otherwise provided for; Auxiliary operations not otherwise provided for}
B29C 2045/1785	• • • {Movement of a part, e.g. opening or closing movement of the mould, generating fluid pressure in a built-in fluid pressure generator}
B29C 2045/1786	• • • {Electric wire or cable guides e.g. for manifolds}
B29C 2045/1787	• • • {Mould parts driven by pressure of injected material(B29C 2045/14081 takes precedence)}
B29C 2045/1788	• • • {Preventing tilting of movable mould plate during closing or clamping}
B29C 2045/1789	• • • • {using weight compensating means for the movable mould half}
B29C 2045/179	• • • {Frames or machine parts made of concrete}
B29C 2045/1791	• • • {Means for spacing or distancing mould supporting plates e.g. for mould exchange}
B29C 2045/1792	• • • {Machine parts driven by an electric motor, e.g. electric servomotor}
B29C 2045/1793	• • • • {by an electric linear motor(linear motors in general H02K 41/02)}
B29C 2045/1794	• • • • {by a rotor or directly coupled electric motor e.g. using a tubular shaft motor(for driving axially movable screws B29C 2045/5024)}
B29C 2045/1795	• • • {Means for detecting resin leakage or drooling from the injection nozzle}
B29C 2045/1796	• • • {Moulds carrying mould related information or codes, e.g. bar codes, counters}
B29C 2045/1797	• • • {Machine parts provided with a shroud or cover or shield, e.g. for preventing oil or dust scattering(used as safety device B29C 45/84 ; for guiding or orienting ejected articles B29C 45/1771 ; for obtaining a particular moulding environment B29C 45/1701 ; for obtaining a vacuum environment B29C 45/34)}
B29C 2045/1798	• • • {Using spring tension to drive movable machine parts}
U B29C 45/18	• • Feeding the material into the injection moulding apparatus,{i.e. feeding the non-plastified material into the injection unit}
U B29C 45/1816	• • • {Feeding auxiliary material, e.g. colouring material}
B29C 2045/1825	• • • • {feeding auxiliary material for either skin or core of the injected article}
B29C 2045/1833	• • • • {recycling sprues or runners}
B29C 2045/1841	• • • • {into runner channel or runner nozzle}
B29C 2045/185	• • • • {controlling the amount of auxiliary material}

- B29C 2045/1875 . . . {Hoppers connected to a feed screw}
- B29C 2045/1883 . . . {directly injecting moulding material from the chemical production plant into the mould without granulating}
- B29C 2045/1891 . . . {Means for detecting presence or level of raw material inside feeding ducts, e.g. level sensors inside hoppers}
- U B29C 45/20 . . Injection nozzles{([B29C 45/1603](#) takes precedence)}
- B29C 2045/202 . . . {Laterally adjustable nozzle or nozzle tip mountings}
- B29C 2045/205 . . . {Elongated nozzle openings}
- B29C 2045/207 . . . {Preventing stringing of the moulding material}
- U B29C 45/23 . . . Feed stopping equipment
- B29C 2045/235 {axially movable inclined or orthogonal valves}
- B29C 2045/237 {two or more cooperating valve elements}
- B29C 2045/238 {Injection nozzles extending into the sprue channel or vice versa}
- U B29C 45/26 . . Moulds
- U B29C 45/2602 . . . {Mould construction elements}
- B29C 2045/2604 {Latching means for successive opening or closing of mould plates}
- U B29C 45/263 . . . {with mould wall parts provided with fine grooves or impressions, e.g. for record discs}
- U B29C 45/2632 {Stampers; Mountings thereof}
- B29C 2045/2634 {mounting layers between stamper and mould or on the rear surface of the stamper}
- B29C 2045/2636 {insulating layers}
- B29C 2045/2638 {Magnetic means for mounting stampers}
- B29C 2045/264 {Holders retaining the inner periphery of the stamper}
- U B29C 45/2642 {Heating or cooling means therefor}
- B29C 2045/2644 {for the outer peripheral ring}
- B29C 2045/2646 {Means for adjusting the axial dimension of the mould cavity}
- B29C 2045/2648 {Outer peripheral ring constructions}
- B29C 2045/2651 {using a plurality of mould cavities}
- B29C 2045/2653 {using two stampers}
- B29C 2045/2655 {Means for adjusting the radial dimension of the mould cavity}
- B29C 2045/2657 {Drive means for the outer peripheral ring}
- B29C 2045/2659 {for making substrates for laminated disks}
- B29C 2045/2661 {The thickness of the mould cavity being changeable in radial direction([B29C 2045/2667](#) takes precedence)}
- B29C 2045/2663 {Maintaining the axial dimension of the mould cavity during injection}
- B29C 2045/2665 {using vacuum means for holding the disc on one of the mould walls during opening of the mould}
- B29C 2045/2667 {Particular inner or outer peripheral portions of the substrate}
- U B29C 45/2669 . . . {with means for removing excess material, e.g. with overflow cavities([B29C 45/1711](#) takes precedence)}
- B29C 2045/2671 {Resin exit gates or bleeder passages}
- U B29C 45/2673 . . . {with exchangeable mould parts, e.g. cassette moulds([B29C 45/1756](#) takes precedence)}
- B29C 2045/2677 {The exchangeable mould parts being combinable or rearrangeable in different ways}

B29C 2045/2679	. . . . {Simultaneously producing different products}
B29C 2045/2683	. . . . {Plurality of independent mould cavities in a single mould}
B29C 2045/2685	. . . . {filled with different materials}
B29C 2045/2687	. . . . {controlling the filling thereof(B29C 2045/2691 takes precedence)}
B29C 2045/2689	. . . . {separate independent mould halves mounted on one plate}
B29C 2045/2691	. . . . {sequentially filled}
B29C 2045/2693	. . . . {Mould cores with a built-in injection nozzle}
B29C 2045/2695	. . . . {injecting articles with varying wall thickness e.g. for making a tear line}
B29C 2045/2697	. . . . {Deformed geometry of the cavity}
U B29C 45/27	. . . . Sprue channels{Runner channels or runner nozzles}
U B29C 45/2701	. . . . {Details not specific to hot or cold runner channels(B29C 45/2725 takes precedence)}
U B29C 45/2703	. . . . . {Means for controlling the runner flow, e.g. runner switches, adjustable runners or gates}
B29C 2045/2706	. . . . . {rotatable sprue bushings or runner channels for controlling runner flow in one cavity}
U B29C 45/2708	. . . . . {Gates(B29C 45/2703 takes precedence)}
B29C 2045/2709	. . . . . {with a plurality of mould cavity inlets in close proximity}
B29C 2045/2712	. . . . . {Serial gates for moulding articles in successively filled serial mould cavities}
B29C 2045/2714	. . . . . {elongated e.g. film-like, annular}
B29C 2045/2716	. . . . . {The gate axis being perpendicular to main injection axis, e.g. injecting into side walls of a container}
B29C 2045/2717	. . . . . {Reconfigurable runner channels}
B29C 2045/2719	. . . . . {Fixing or locking of nozzles or sprue bushings in the mould}
B29C 2045/272	. . . . . {Part of the nozzle, bushing or runner in contact with the injected material being made from ceramic material}
B29C 2045/2722	. . . . . {Nozzles or runner channels provided with a pressure sensor}
B29C 2045/2724	. . . . . {Preventing stringing of the moulding material}
U B29C 45/2725	. . . . {Manifolds}
B29C 2045/2729	. . . . . {with thermal expansion}
B29C 2045/273	. . . . . {stacked manifolds}
B29C 2045/2732	. . . . . {sealing means between them}
B29C 2045/2733	. . . . . {Inserts, plugs, bushings}
U B29C 45/2737	. . . . {Heating or cooling means therefor(B29C 45/7331 takes precedence)}
B29C 2045/274	. . . . . {Thermocouples or heat sensors}
B29C 2045/2741	. . . . . {Plurality of independent thermocouples or heat sensors}
B29C 2045/2743	. . . . . {Electrical heating element constructions}
B29C 2045/2745	. . . . . {Film-like electrical heaters}
B29C 2045/2746	. . . . . {Multilayered electrical heaters}
B29C 2045/2748	. . . . . {Insulating layers covering the electrical heating element}
B29C 2045/275	. . . . . {Planar heating or cooling elements}
B29C 2045/2751	. . . . . {Electrical power supply connections}
B29C 2045/2753	. . . . . {Heating means and cooling means, e.g. heating the runner nozzle and cooling the nozzle tip}

- B29C 2045/2754 {Plurality of independent heating or cooling means, e.g. independently controlling the heating of several zones of the nozzle,([B29C 2045/2753](#) takes precedence)}
- B29C 2045/2759 {Nozzle centering or guiding means}
- B29C 2045/2761 {Seals between nozzle and mould or gate}
- B29C 2045/2762 {Seals between nozzle and manifold}
- B29C 2045/2764 {Limited contact between nozzle and mould}
- B29C 2045/2766 {Heat insulation between nozzle and mould}
- B29C 2045/2767 {the heat insulation being provided with an axial opening being part of the melt flow channel}
- B29C 2045/2769 {Insulating layer of injected material}
- B29C 2045/277 {Spacer means or pressure pads between manifold and mould plates}
- B29C 2045/2772 {Means for fixing the nozzle to the manifold}
- B29C 2045/2774 {The nozzle head or the collar portion and central portion being made of different parts or materials}
- B29C 2045/2775 {Nozzles or parts thereof being mountable or exchangeable from the front side of the mould half}
- B29C 2045/2777 {Means for controlling heat flow or temperature distribution in the nozzle}
- B29C 2045/2779 {Nozzles with a plurality of outlets}
- U B29C 45/278 {Nozzle tips([B29C 45/2735](#) takes precedence)}
- B29C 2045/2782 {Nozzle tips metallurgically bonded to the nozzle body}
- B29C 2045/2783 {Nozzle tips with a non-axial outlet opening of the melt channel}
- B29C 2045/2785 {Nozzle tips with high thermal conductivity}
- B29C 2045/2787 {Nozzle tips made of at least 2 different materials}
- B29C 2045/2788 {Nozzles having a polygonal cross section}
- B29C 2045/279 {Controlling the flow of material of two or more nozzles or gates to a single mould cavity}
- B29C 2045/2791 {Alignment means between nozzle and manifold}
- B29C 2045/2793 {Means for providing access to the runner system}
- B29C 2045/2795 {Insulated runners}
- B29C 2045/2796 {Axially movable nozzles or nozzle tips}
- B29C 2045/2798 {for compensating thermal expansion}
- U B29C 45/28 Closure devices therefor
- U B29C 45/2806 {consisting of needle valve systems([B29C 45/2896](#) takes precedence)}
- U B29C 45/281 {Drive means therefor}
- B29C 2045/2813 {Common drive means for several needle valves}
- B29C 2045/2817 {Several valve pin drive cylinders connected to the fluid distributor}
- B29C 2045/282 {Needle valves driven by screw and nut means}
- B29C 2045/2824 {Needle valves driven by an electric motor}
- B29C 2045/2827 {Needle valves driven by an annular piston mounted around the nozzle}
- B29C 2045/2831 {Needle valves driven by a cam}
- B29C 2045/2834 {Needle valves driven by a lever}
- B29C 2045/2837 {Needle valves driven by rack and pinion}
- B29C 2045/2841 {Needle valves driven by a plurality of coaxial pistons}
- B29C 2045/2844 {Needle valves driven by racks only}

	B29C 2045/2848	. . . . . {having an adjustable stroke length}
	B29C 2045/2851	. . . . . {Lateral movement between drive piston and needle valve}
	B29C 2045/2855	. . . . . {intersecting the nozzle or runner channel}
	B29C 2045/2858	. . . . . {Materials or coatings therefor}
	B29C 2045/2862	. . . . . {being tubular}
	B29C 2045/2865	. . . . . {having position detecting means}
	B29C 2045/2868	. . . . . {with an incorporated heat pipe}
	B29C 2045/2872	. . . . . {with at least three positions, e.g. two different open positions to control the melt flow}
	B29C 2045/2875	. . . . . {Preventing rotation of the needle valve}
	B29C 2045/2879	. . . . . {Back flow of material into nozzle channel}
	B29C 2045/2882	. . . . . {closing by a movement in the counterflow direction}
	B29C 2045/2886	. . . . . {closing at a distance from the gate}
	B29C 2045/2889	. . . . . {Sealing guide bushings therefor}
	B29C 2045/2893	. . . . . {Multiple coaxial needle valves}
U	B29C 45/30	. . . . Flow control means disposed within the sprue channel, e.g. "torpedo" construction
	B29C 2045/302	. . . . . {Torpedoes in the sprue channel for heating the melt of cross-linkable material}
	B29C 2045/304	. . . . . {Adjustable torpedoes}
	B29C 2045/306	. . . . . {Movable torpedoes}
	B29C 2045/308	. . . . . {Mixing or stirring devices}
U	B29C 45/32	. . . . having several axially spaced mould cavities,{i.e. for making several separated articles}
	B29C 2045/324	. . . . . {Linked ejection means}
	B29C 2045/326	. . . . . {Supporting means for the central mould plate}
	B29C 2045/328	. . . . . {having a movable mould plate between two fixed mould plates}
U	B29C 45/33	. . . . having transversely, e.g. radially, movable mould parts
U	B29C 45/332	. . . . {Mountings or guides therefor; Drives therefor}
	B29C 2045/334	. . . . . {several transversely movable mould parts driven by a single drive means}
	B29C 2045/336	. . . . . {Cam drives}
	B29C 2045/338	. . . . . {Mould parts with combined axial and transversal movements}
U	B29C 45/36	. . . . having means for locating or centering cores
	B29C 2045/363	. . . . . {using a movable core or core part}
	B29C 2045/366	. . . . . {using retractable pins}
U	B29C 45/37	. . . . Mould cavity walls,{i.e. the inner surface forming the mould cavity, e.g. linings}
	B29C 2045/378	. . . . . {built by a stack of modular elements}
U	B29C 45/38	. . . . Cutting-off equipment for sprues or ingates
	B29C 2045/384	. . . . . {cutting the sprue by a plunger movable into the runner channel}
	B29C 2045/386	. . . . . {returning the cutted sprue into the injection nozzle}
	B29C 2045/388	. . . . . {Locking pins for retaining the sprue}
U	B29C 45/40	. . . . Removing or ejecting moulded articles
U	B29C 45/4005	. . . . {Ejector constructions; Ejector operating mechanisms(B29C 45/44 takes precedence)}

- U B29C 45/401 {Ejector pin constructions or mountings}
- B29C 2045/4015 {Ejector pins provided with sealing means}
- B29C 2045/4021 {Adjustable ejector pins}
- B29C 2045/4026 {Ejectors with internal cooling}
- B29C 2045/4031 {driven by a lever}
- B29C 2045/4036 {driven by a screw and nut mechanism}
- B29C 2045/4042 {driven by rack and pinion means}
- B29C 2045/4047 {driven by a crank or eccentric}
- B29C 2045/4052 {Ejector boxes}
- B29C 2045/4057 . . . {the ejecting surface being large with regard to the surface of the article}
- B29C 2045/4063 . . . {preventing damage to articles caused by the ejector}
- B29C 2045/4068 . . . {using an auxiliary mould part carrying the moulded article and removing it from the mould}
- B29C 2045/4073 . . . {Ejection devices located outside the injection moulding machine}
- B29C 2045/4078 . . . {using stripping means}
- B29C 2045/4084 . . . {Progressive ejection}
- B29C 2045/4089 . . . {Hollow articles retained in the female mould during mould opening}
- B29C 2045/4094 . . . {Ejectors located on the fixed mould half}
- U B29C 45/42 using means movable from outside the mould between mould parts,{e.g. robots}
- U B29C 45/4208 {and driven by the movable mould part}
- B29C 2045/4216 {releasable drive connections between the robot and the movable mould}
- U B29C 45/4225 {Take-off members or carriers for the moulded articles, e.g. grippers}
- B29C 2045/4233 {loading or holding moulded articles in take-off member by fluid ejection}
- B29C 2045/4241 {Auxiliary means for removing moulded articles from the robot}
- B29C 2045/425 {Single device for unloading moulded articles and loading inserts into the mould}
- B29C 2045/4258 {Article removing means movable into a closed mould}
- B29C 2045/4266 {Robot grippers movable along three orthogonal axes}
- B29C 2045/4275 {Related movements between the robot gripper and the movable mould or ejector}
- B29C 2045/4283 {Means for coupling robots to the injection moulding machine}
- B29C 2045/4291 {Robots mounted on a tie rod}
- U B29C 45/44 for undercut articles
- U B29C 45/4407 {by flexible movement of undercut portions of the articles}
- B29C 2045/4414 {Flexible undercut parts divided into segments}
- U B29C 45/4421 {using expansible or collapsible cores}
- B29C 2045/4428 {driven by the moulded article during ejection thereof}
- U B29C 45/4435 {using inclined, tiltable or flexible undercut forming elements driven by the ejector means}
- B29C 2045/4442 {Flexible undercut forming elements}
- B29C 2045/445 {using the movable undercut forming element for ejection of the moulded article}
- U B29C 45/4457 {using fusible, soluble or destructible cores}

- B29C 2045/4464 {injecting the core and the undercut article in separate cavities}
- B29C 2045/4485 {the undercut forming mould part being rotatable into the space made available by the translation movement of another mould part}
- B29C 2045/4492 {preventing damage or deformation of undercut articles during ejection}
- U B29C 45/46 . . Means for plasticising or homogenising the moulding material or forcing it into the mould{(combined with mould opening, closing or clamping devices [B29C 45/70](#))}
- B29C 2045/465 . . . {using pumps for injecting the material into the mould}
- B29C 2045/466 . . . {supplying the injection unit directly by a compounder}
- B29C 2045/467 . . . {injecting material into the mould by sudden expansion of compressed material in the injection unit}
- B29C 2045/468 . . . {using a fluid as directly acting injection means}
- U B29C 45/47 . . . using screws([B29C 45/54](#) takes precedence)
- U B29C 45/50 Axially movable screw
- B29C 2045/5004 {the forward screw end provided with an injection ram}
- U B29C 45/5008 {Drive means therefor}
- B29C 2045/5012 {screws axially driven by a toggle mechanism}
- B29C 2045/5016 {screws axially driven by a lever mechanism}
- B29C 2045/502 {screws axially driven by a crank or eccentric mechanism}
- B29C 2045/5024 {screws rotated by the coaxial rotor of an electric motor}
- B29C 2045/5028 {screws axially driven by the coaxial rotor of an electric motor}
- B29C 2045/5032 {using means for detecting injection or back pressures}
- B29C 2045/5036 {back pressure obtaining means}
- B29C 2045/504 {electric motors for rotary and axial movement of the screw being coaxial with the screw}
- B29C 2045/5044 {screws axially driven by rack and pinion means}
- B29C 2045/5048 {screws axially driven and rotated by a drive shaft having a screw threaded part and spline part}
- B29C 2045/5052 {screws axially driven by a rotatable nut cooperating with a fixed screw shaft}
- B29C 2045/5056 {screws axially driven by a rotatable screw shaft cooperating with a fixed nut}
- B29C 2045/506 {using a hydraulic transmission between drive motor and the axially movable screw}
- B29C 2045/5064 {coupling means between rotation motor and rectilinear drive motor}
- B29C 2045/5068 {mechanical drive means in series with hydraulic drive means for axially movable screw}
- B29C 2045/5072 {using a drive screw comprising screw parts having opposite thread directions}
- B29C 2045/5076 {using a single drive motor for rotary and for axial movements of the screw}
- B29C 2045/508 {idle or dead stroke elements between injection screw and drive means}
- B29C 2045/5084 {screws axially driven by roller elements}
- B29C 2045/5088 {screws axially and rotatably driven by a piston}
- B29C 2045/5096 {decompression of the moulding material by retraction or opposite rotation of the screw}
- U B29C 45/52 Non-return devices

- B29C 2045/522 {Spring biased check rings}
- B29C 2045/524 {Flexible valves}
- B29C 2045/526 {Abrasion resistant means in the screw head or non-return device}
- B29C 2045/528 {Mixing means forming part of or in close proximity to the non-return valve}
- U B29C 45/53 . . . using injection ram or piston
- U B29C 45/532 {using a hollow injection ram co-operating with a coaxial screw}
- B29C 2045/533 {using a continuously rotating plasticising screw}
- B29C 2045/536 {rotatable injection plungers}
- B29C 2045/537 {the injection plunger cooperating with a coaxial hollow transfer plunger}
- B29C 2045/538 {the plunger being part of the mould cavity wall after injection}
- U B29C 45/54 and plasticising screw{([B29C 45/532](#) takes precedence)}
- B29C 2045/545 {alternately operating injection plungers}
- B29C 2045/547 {continuously rotating plasticising screw cooperating with a single injection plunger([B29C 45/542](#) takes precedence)}
- B29C 2045/548 {Reciprocating plasticising screws}
- U B29C 45/56 . . . using mould parts movable during or after injection, e.g. injection-compression moulding{([B29C 45/1705](#) and [B29C 45/572](#) take precedence)}
- U B29C 45/561 {Injection-compression moulding}
- B29C 2045/5615 {Compression stroke, e.g. length thereof}
- B29C 2045/562 {Velocity profiles of the compression stroke}
- B29C 2045/5625 {Closing of the feed opening before or during compression}
- B29C 2045/563 {Enlarging the mould cavity during injection}
- B29C 2045/5635 {Mould integrated compression drive means}
- B29C 2045/564 {Compression drive means acting independently from the mould closing and clamping means}
- B29C 2045/5645 {Resilient compression means}
- B29C 2045/565 {Closing of the mould during injection}
- B29C 2045/5655 {using a screw mechanism as compression drive means}
- B29C 2045/566 {Reducing compression pressure during cooling of the moulded material}
- B29C 2045/5665 {Compression by transversely movable mould parts(transversely movable mould parts in general [B29C 45/33](#))}
- B29C 2045/567 {Expelling resin through the gate}
- U B29C 45/568 {Applying vibrations to the mould parts}
- B29C 2045/5685 {for eliminating internal voids in the moulding material}
- B29C 2045/569 {using a mould part for decreasing and a mould part for increasing the volume of the mould cavity}
- B29C 2045/5695 {using a movable mould part for continuously increasing the volume of the mould cavity to its final dimension during the whole injection step}
- U B29C 45/57 . . . Exerting after-pressure on the moulding material{([B29C 45/174](#) takes precedence)}
- U B29C 45/572 {using movable mould wall or runner parts}
- B29C 2045/575 {preventing backflow of moulding material to the injection means during after-pressure}

	B29C 2045/577	. . . . {pushing the material in the runner channel until a pin or slider reaches the mould cavity wall}
U	B29C 45/58	. . . Details
U	B29C 45/581	. . . . {Devices for influencing the material flow, e.g. "torpedo constructions" or mixing devices}
	B29C 2045/583	. . . . {Mixing devices connected to drive means}
U	B29C 45/586	. . . . {Injection or transfer plungers}
	B29C 2045/588	. . . . {Means for retaining sprues on the end surface of the plunger}
U	B29C 45/60	. . . . Screws
	B29C 2045/605	. . . . {comprising a zone or shape enhancing the degassing of the plastic material}
U	B29C 45/62	. . . . Barrels or cylinders
	B29C 2045/623	. . . . {Cylinders and inner linings having different thermal expansion coefficients}
	B29C 2045/626	. . . . {Cylinders and inner linings having similar thermal expansion coefficients}
U	B29C 45/64	. . Mould opening, closing or clamping devices{(combined with means for plasticising or homogenising B29C 45/70)}
U	B29C 45/641	. . . {Clamping devices using means for straddling or interconnecting the mould halves, e.g. jaws, straps, latches}
	B29C 2045/642	. . . . {using coupling rods for clamping}
	B29C 2045/644	. . . {mould clamping by nozzle touch pressure}
	B29C 2045/645	. . . {using magnetic means}
	B29C 2045/647	. . . . {using magnetostriction}
	B29C 2045/648	. . . {Rack and pinion means for mould opening and closing a pair of mould halves}
U	B29C 45/66	. . . mechanical
U	B29C 45/661	. . . . {using a toggle mechanism for mould clamping}
	B29C 2045/662	. . . . {using toggles directly connected or linked to the fixed platen and indirectly to the movable platen}
	B29C 2045/664	. . . . {using mould clamping means operating independently from the mould closing means}
	B29C 2045/665	. . . . {using a screw or screws having differently threaded parts arranged in series}
	B29C 2045/667	. . . . {Cam drive for mould closing or clamping}
	B29C 2045/668	. . . . {using tilting elements for obtaining mould clamping}
U	B29C 45/67	. . . hydraulic
U	B29C 45/6707	. . . . {without relative movement between the piston and the cylinder of the clamping device during the mould opening or closing movement}
U	B29C 45/6714	. . . . . {using a separate element transmitting the mould clamping force from the clamping cylinder to the mould}
U	B29C 45/6728	. . . . . {the separate element consisting of coupling rods}
	B29C 2045/6735	. . . . . {Rotatable means coaxial with the coupling rod for locking the coupling rod to the mould platen}
	B29C 2045/6742	. . . . . {the coupling rods facilitating access between the mould halves}
	B29C 2045/675	. . . . . {Rotatable means coaxial with the tie rod for locking the movable platen to the tie rod, e.g. bayonet couplings using teeth or splines interrupted by longitudinal grooves}

	B29C 2045/6757	. . . . {Hydraulic locking means}
	B29C 2045/6785	. . . . {interconnecting two cylinders to supply fluid from one cylinder to the other during movement of the pistons}
	B29C 2045/6792	. . . . {Combined pneumatic-hydraulic cylinders}
U	B29C 45/68	. . . hydro-mechanical
	B29C 2045/685	. . . . {using mechanical drive means for mould closing to obtain the hydraulic clamping pressure}
	B29C 2045/686	. . . . {using a screw and nut mechanism for mould closing and a mould clamping ram acting on another nut}
	B29C 2045/688	. . . . {using tie rods as separate elements for clamping}
U	B29C 45/70	. . Means for plasticising or homogenising the moulding material or forcing it into the mould, combined with mould opening, closing or clamping devices
	B29C 2045/703	. . . {using clamping and injection pressures that are proportional to each other}
U	B29C 45/72	. . Heating or cooling
U	B29C 45/7207	. . . {of the moulded articles}
	B29C 2045/7214	. . . . {Preform carriers for cooling preforms}
	B29C 2045/7221	. . . . . {Means for ejecting the preforms}
	B29C 2045/7228	. . . . . {turret-like}
	B29C 2045/7235	. . . . . {Mechanical retaining means for preform ends}
	B29C 2045/7242	. . . . . {Alignment means for preforms}
	B29C 2045/725	. . . . . {Cooling circuits within the preform carriers}
	B29C 2045/7257	. . . . {Cooling or heating pins with temperature adjustment enhancing surface structure}
	B29C 2045/7264	. . . . {Cooling or heating the neck portion of preforms}
	B29C 2045/7271	. . . {Cooling of drive motors}
	B29C 2045/7278	. . . {Heating by friction of the moulding material}
	B29C 2045/7285	. . . {using hydraulic oil as tempering medium}
	B29C 2045/7292	. . . {Recovering waste heat}
U	B29C 45/73	. . . of the mould{(B29C 45/2642 and B29C 45/2737 take precedence)}
U	B29C 45/7312	. . . . {Construction of heating or cooling fluid flow channels}
	B29C 2045/7318	. . . . . {multilayered fluid channel constructions}
	B29C 2045/7325	. . . . . {Mould cavity linings for covering fluid channels or provided therewith}
	B29C 2045/7343	. . . . {heating or cooling different mould parts at different temperatures}
	B29C 2045/735	. . . . {heating a mould part and cooling another mould part during moulding}
	B29C 2045/7356	. . . . {the temperature of the mould being near or higher than the melting temperature or glass transition temperature of the moulding material}
	B29C 2045/7362	. . . . {turbulent flow of heating or cooling fluid}
	B29C 2045/7368	. . . . {combining a heating or cooling fluid and non-fluid means}
	B29C 2045/7375	. . . . {heating a mould surface by a heated gas}
	B29C 2045/7381	. . . . . {heating by gas combustion}
	B29C 2045/7387	. . . . {jetting a cooling fluid onto the moulded article while still in the mould}
	B29C 2045/7393	. . . . {alternately heating and cooling}

- U B29C 45/76
- • Measuring, controlling or regulating{(measuring in general [G01](#); controlling or regulating in general [G05](#))}
- NOTES**
- In groups [B29C 45/76](#) to [B29C 45/80](#) it is desirable to add the indexing codes of [B29C 2945/76](#) relating to measuring, controlling or regulating in injection moulding
- B29C 2045/7606
- • • {Controlling or regulating the display unit}
- U B29C 45/7626
- • • {the ejection or removal of moulded articles}
- B29C 2045/7633
- • • • {Take out or gripping means}
- B29C 2045/764
- • • • {detecting or preventing overload of an ejector(controlling overload in general [G01L 5/0071](#))}
- U B29C 45/7666
- • • {of power or energy, e.g. integral function of force}
- B29C 2045/7673
- • • • {Recovering energy or power from drive motors}
- U B29C 45/77
- • • of velocity or pressure of moulding material
- B29C 2045/773
- • • • {Zero point correction}
- B29C 2045/776
- • • • {determining the switchover point to the holding pressure}
- U B29C 45/82
- • • Hydraulic{or pneumatic}circuits
- B29C 2045/822
- • • • {Pneumatic circuits}
- B29C 2045/824
- • • • **Accumulators**{**Accumulators**}
- B29C 2045/826
- • • • {Plurality of hydraulic actuators driven by one hydraulic pump}
- B29C 2045/828
- • • • {Bidirectional pumps}
- U B29C 45/83
- • Lubricating means
- B29C 2045/835
- • • {for ball screws or ball nuts}
- U B29C 45/84
- • Safety devices{([B29C 45/7626](#) takes precedence)}
- B29C 2045/846
- • • {Windable safety screens}
- B29C 2045/848
- • • {detecting or preventing overload of an injection plunger(controlling overload in general [G01L 5/0071](#))}
- U B29C 47/00**
- Extrusion moulding, i.e. expressing the moulding material through a die or nozzle which imparts the desired form; Apparatus therefor(extrusion blow-moulding [B29C 49/04](#) ; extrusion presses in general [B30B 11/22](#))**
- U B29C 47/0038
- {Combined shaping operations}
- B29C 47/0045
- • {Extrusion moulding in several steps, i.e. components merging outside the die(**~~B29C47/55~~** [B29C 47/02](#) takes precedence)}
- U B29C 49/00**
- Blow-moulding, i.e. blowing a preform or parison to a desired shape within a mould; Apparatus therefor{(extrusion moulding of tubular films [B29C 47/0026](#) ; enlarging tube ends using pressure difference [B29C 57/08](#))}**
- U B29C 49/0005
- {characterised by the choice of material}
- NOTE**
- When classifying in this group, it is desirable to add the indexing codes of subclass [B29K](#) to identify the moulding materials and their properties. Documents concerning the choice of moulding materials having a particular influence on the moulding technique should be classified in this group if of interest
- B29C 2049/001
- • {The material comprising particles or additives to induce special properties in the preform}
- U B29C 49/0031
- {for making articles having hollow walls}

- B29C 2049/0036
 - • {by ballooning the parison in an open mould}
- U B29C 49/0047
 - {Sheet blow-moulding, i.e. using at least two parallel sheets or a folded sheet as a preform}
- B29C 2049/0052
 - • {using a folded sheet as a preform}
- B29C 2049/0057
 - • {using two parallel sheets as a preform}
- B29C 2049/0063
 - • {whereby the folded sheets or the two parallel sheets are separated from each other at least at one place, e.g. to allow inserting of a blowing means}
- B29C 2049/0068
 - • {Means for avoiding the sheets to stick together before or during the blow moulding operation}
- U B29C 49/0073
 - {characterised by the parison configuration, e.g. nestable([B29C 49/22](#) takes precedence)}
- B29C 2049/0089
 - • {the parison being a tube, e.g. a tube which has to be reheated before blow moulding}
- B29C 2049/0094
 - {Blow moulding plants, e.g. using at least two blow moulding apparatuses at the same time}
- U B29C 49/02
 - Combined blow-moulding and manufacture of the preform or the parison
- B29C 2049/021
 - • {the preform or parison being made out of several parts, e.g. by welding or gluing parts together}
- B29C 2049/023
 - • {using inherent heat of the preform, i.e. 1 step blow moulding}
- B29C 2049/024
 - • {not using inherent heat of the preform, i.e. 2 step blow moulding}
- B29C 2049/025
 - • {the preform or parison being made of powder}
- B29C 2049/026
 - • {Coating a preform or parison, e.g. with reinforcing material}
- B29C 2049/027
 - • • {on the inside}
- B29C 2049/028
 - • {Compression blow-moulding}
- U B29C 49/04
 - • Extrusion blow-moulding
- U B29C 49/041
 - • • {using an accumulator head}
- B29C 2049/042
 - • • • {disclosing the push out speed}
- B29C 2049/044
 - • • {extruding the material continuously}
- B29C 2049/045
 - • • • {with means to move the extruder head up and down, e.g. to continue extruding the next parison while blow moulding the previous parison in the blow mould}
- B29C 2049/047
 - • • {extruding the material discontinuously}
- B29C 2049/048
 - • • {extruding several parisons parallel to each other at the same time}
- U B29C 49/06
 - • Injection blow-moulding{(introducing a fluid into the interior of the injected material which is still in a molten state [B29C 45/1704](#))}
- B29C 2049/065
 - • • {Means to compensate or avoid the shrinking of the preforms, e.g. in the injection mould or outside the injection mould.}
- B29C 2049/066
 - • • {One injection moulding station supplies several blow moulding stations with preforms}
- B29C 2049/067
 - • • {Several injection moulding stations supply one blow moulding station with preforms}
- B29C 2049/068
 - • • {Moving the injection mould cavity and blow mould cavity to the geometrically fixed injection core mould}
- B29C 2049/069
 - • • {using a porous core}
- U B29C 49/08
 - Biaxial stretching during blow-moulding{with or without prestretching}
- U B29C 49/10
 - • using mechanical means{for prestretching}
- U B29C 49/12
 - • • Stretching rods

- B29C 2049/1204 {Means for fixing the stretching rod to the driving means, e.g. clamping means or bayonet connections}
- B29C 2049/1209 {rotating during stretching of the preform}
- B29C 2049/1214 {Using at least two stretching rods for stretching different parts of the preform}
- B29C 2049/1219 {Using additional means to clamp the preform bottom while stretching the preform}
- B29C 2049/1223 {Stretching rod configuration, e.g. geometry; Stretching rod material}
- B29C 2049/1228 {the stretching rod comprises at least one opening on the surface through which compressed air is blown into the preform to expand the same}
- B29C 2049/1233 {the opening being at the end where it touches the preform, e.g. to avoid direct contact between the preform and the stretching rod}
- B29C 2049/1238 {Geometry of the stretching rod, e.g. specific stretching rod end shape}
- B29C 2049/1242 {Material for parts or the whole stretching rod e.g. heat insulating material}
- B29C 2049/1247 {to stretch heated tubes}
- B29C 2049/1252 {Drive means therefore}
- B29C 2049/1257 Pneumatic{Pneumatic}
- B29C 2049/1261 Hydraulic{Hydraulic}
- B29C 2049/1266 Mechanical{Mechanical}
- B29C 2049/1271 {being a cam mechanism}
- B29C 2049/1276 {adaptable to different sized stretching rods}
- B29C 2049/128 {being a toggle mechanism}
- B29C 2049/1285 {being a spindle nut mechanism}
- B29C 2049/129 {Electric direct drives, e.g. linear motors}
- B29C 2049/1295 Magnetic{Magnetic}
- U B29C 49/16 . . . using pressure difference{for prestretching}, e.g. pre-blowing{([B29C 49/649](#) takes precedence)}
- B29C 2049/165 . . . {pre-blowing without using a mould}
- U B29C 49/20 . . of articles having inserts or reinforcements;{Handling of inserts or reinforcements}
- B29C 2049/2004 . . {with a specific location of the inserts or reinforcements in or on the final article}
- B29C 2049/2008 . . . Inside{Inside}
- B29C 2049/2013 {Connecting opposite walls, e.g. baffles in a fuel tank}
- B29C 2049/2017 . . . Outside{Outside}
- B29C 2049/2021 . . {Particular inserts}
- B29C 2049/2026 . . . {Neck portions}
- B29C 2049/203 . . . Carpets{Carpets}
- B29C 2049/2034 . . . {Attachments, e.g. hooks to hold or hang the blown article}
- B29C 2049/2039 {Handles, e.g. handles or grips on bottles}
- B29C 2049/2043 . . . {comprising threads, e.g. screws or nuts}
- B29C 2049/2047 . . . {Tubular inserts, e.g. tubes}
- B29C 2049/2052 . . . {having means to avoid that the preform or parison gets into contact with parts of the insert}

- B29C 2049/2056
 - • • {being constructed in such a way that opposite preform or parison walls do not touch each other during extrusion or mould closing}
- B29C 2049/206
 - • • {being constructed in such a way that the joining between the insert and the preform or parison is avoided}
- B29C 2049/2065
 - • • {for reinforcing specific areas of the final blow moulded article}
- B29C 2049/2069
 - • • {being injection moulded, e.g. in the same mould before or after blow moulding}
- B29C 2049/2073
 - • {Means for feeding the inserts into the mould, preform or parison, e.g. grippers}
- B29C 2049/2078
 - • • {being retractable during or after blow moulding}
- B29C 2049/2082
 - • • {Feeding the insert and the preform at the same time, e.g. using the same feeding means for the insert and the preform}
- B29C 2049/2086
 - • {Means for verifying the position of insert}
- B29C 2049/2091
 - • {Means for avoiding cooling of the inserts where the inserts touch the preform or the mould}
- B29C 2049/2095
 - • {Means for heating the inserts}
- U B29C 49/22
 - using multilayered preforms or parisons
- B29C 2049/222
 - • {only parts of the preforms or parisons are layered}
- B29C 2049/224
 - • • {neck portion}
- B29C 2049/225
 - • • {body portion}
- B29C 2049/227
 - • {with particular bonding between the layers}
- B29C 2049/228
 - • {at least one layer has a variable thickness}
- U B29C 49/24
 - Lining or labelling
- B29C 2049/2402
 - • {lining articles}
- B29C 2049/2404
 - • • {on their inside surface, e.g. the inside of a bottle or box}
- B29C 2049/2406
 - • • • {the lining being used to line a previously coated mould}
- B29C 2049/241
 - • {In-mould labelling}
- B29C 2049/2412
 - • • {the label being on the outside surface of the blow moulded article, e.g. bottle with a label on its outside surface}
- B29C 2049/2414
 - • {Particular linings or labels, e.g. specific geometry, multilayered; Pretreatment thereof}
- B29C 2049/2416
 - • • {Specific shapes or geometries}
- B29C 2049/2418
 - • • • {Double folded labels}
- B29C 2049/242
 - • • • {Labels have round edges}
- B29C 2049/2422
 - • • • {Cylindrical labels}
- B29C 2049/2425
 - • • • {Perforated labels}
- B29C 2049/2427
 - • • • {Corrugated or embossed labels}
- B29C 2049/2429
 - • • {Multilayered labels}
- B29C 2049/2431
 - • • {Pretreatment or preshaping of labels}
- B29C 2049/2433
 - • • • {Applying glue}
- B29C 2049/2435
 - • • • • {in a specific pattern}
- B29C 2049/2437
 - • • • • Cutting{Cutting}
- B29C 2049/2439
 - • • • • {by means in the mould cavity}
- B29C 2049/2441
 - • • • {Preshaping while in the mould cavity}
- B29C 2049/2443
 - • {Means for inserting the linings or labels into the mould}
- B29C 2049/2445
 - • • {holding the labels or linings by magnetic force}

- B29C 2049/2447 . . . {holding the labels or linings by electrostatic force}
- B29C 2049/2449 . . . {holding the labels or linings by vacuum}
- B29C 2049/2452 . . . {being a transfer foil}
- B29C 2049/2454 . . . {for placing labels at the same time in two opposite mould cavities}
- B29C 2049/2456 . . . {and removing with the same means the final article}
- B29C 2049/2458 . . . {Driving means}
- B29C 2049/246 Cams{Cams}
- B29C 2049/2462 {Conveyor belt}
- B29C 2049/2464 . . {Means for positioning labels(Moulds with incorporated means for positioning inserts in general [B29C 33/12](#))}
- B29C 2049/2466 . . . {using electrostatic force}
- B29C 2049/2468 . . . {using magnetic force}
- B29C 2049/247 . . . {using needles}
- B29C 2049/2472 . . . {using vacuum}
- B29C 2049/2474 . . . {using adhesive}
- B29C 2049/2477 . . {Deforming linings or the labels during blow moulding}
- B29C 2049/2479 . . {Label or lining movements}
- B29C 2049/2481 . . . {vertical only}
- B29C 2049/2483 . . . {horizontal only}
- B29C 2049/2485 . . . multidirectional{multidirectional}
- B29C 2049/2487 . . . {comprising a rotary movement}
- B29C 2049/2489 . . {Folding the label around the edges of the final blow moulded article, e.g. via mould closing or via additional means}
- B29C 2049/2491 . . {Label materials}
- B29C 2049/2493 . . . {using identical material for the label and the preform}
- B29C 2049/2495 . . . {using different material for the label and the preform}
- B29C 2049/2497 . . . {Labels comprising data carriers or detection means, e.g. chips, RFIDs, antennas}
- U B29C 49/28 . Blow-moulding apparatus
- B29C 2049/283 . . {configured to easily exchange modules, e.g. heating or feeding module}
- B29C 2049/286 . . {using several moulds whereby at least one mould is different from a plurality of identical moulds in at least one feature, e.g. size or shape}
- U B29C 49/30 . . having movable moulds or mould parts
- U B29C 49/32 . . . moving "to and fro"
- B29C 2049/325 {by using guide rails}
- U B29C 49/42 . Component parts, details or accessories; Auxiliary operations
- U B29C 49/4205 . . {Handling means, e.g. transfer, loading or discharging means(handling of inserts or reinforcements [B29C 49/20](#) ; handling of labels [B29C 49/2408](#))}
- B29C 2049/4221 . . . {for transferring at least two preforms to the mould}
- B29C 2049/4226 . . . {for orienting preforms in the mould, e.g. depending on their heat profile}
- B29C 2049/4231 . . . {for aligning disorderly arranged preforms}
- U B29C 49/4252 . . {Auxiliary operations prior to the blow moulding operation, e.g. cutting([B29C 49/64](#) , [B29C 49/76](#) , [B29C 49/78](#) take precedence)}
- B29C 2049/4257 . . . {Means for heating the mould cavity surface from the side of the cavity, e.g. putting an external heating member between the mould halves}
- B29C 2049/4263 {using flames}

- B29C 2049/4294 . . {Sealing means, i.e. for avoiding blowing air to escape}
- U B29C 49/44 . . for applying pressure through the walls of an inflated bag
- B29C 2049/445 . . . {having wall areas with different elasticity}
- U B29C 49/46 . . characterised by using a particular environment or blow fluids other than air
- B29C 2049/4602 . . . {Blowing fluids}
- B29C 2049/4605 {containing an inert gas, e.g. helium}
- B29C 2049/4608 Nitrogen{Nitrogen}
- B29C 2049/4611 {containing a reactive gas}
- B29C 2049/4614 Chlorine{Chlorine}
- B29C 2049/4617 Fluor{Fluor}
- B29C 2049/462 Oxygen{Oxygen}
- B29C 2049/4623 {the gas containing sulfur, e.g. sulfur trioxide}
- B29C 2049/4626 {containing carbon dioxide}
- B29C 2049/4629 {containing a polar gas}
- B29C 2049/4632 {being filtered air}
- B29C 2049/4635 {being sterile}
- B29C 2049/4638 {being a hot gas, i.e. gas with a temperature higher than ambient temperature}
- B29C 2049/4641 {being a cooled gas, i.e. gas with a temperature lower than ambient temperature}
- B29C 2049/4644 {created by evaporating material, e.g. solid powder}
- B29C 2049/4647 {created by an explosive gas mixture}
- B29C 2049/465 {being incompressible}
- B29C 2049/4652 {hot liquids}
- B29C 2049/4655 water{water}
- B29C 2049/4658 oil{oil}
- B29C 2049/4661 {solid media, e.g. powder([B29C 2049/4644](#) takes precedence)}
- B29C 2049/4664 {staying in the final article}
- B29C 2049/4667 {being foamable}
- B29C 2049/467 {created by thermal expansion of enclosed amount of gas, e.g. heating enclosed air in preforms or parisons}
- B29C 2049/4673 . . . {Particular environments}
- B29C 2049/4676 {being dry air to surround or flush parts of the blow moulding apparatus, e.g. blow mould, preforms or parisons}
- B29C 2049/4679 {being sterile gas to surround or flush parts of the blow moulding apparatus, e.g. blowing means, preforms or parisons}
- B29C 2049/4682 {surrounding or flushing preforms or parisons, e.g. flushing the inside of extruded parisons}
- B29C 2049/4685 {after blow moulding}
- B29C 2049/4688 {using reactive gas}
- B29C 2049/4691 {using steam during blow moulding, e.g. to expand foamable beads}
- B29C 2049/4694 {purging or cleaning the blow moulding apparatus or parts of it, e.g. cleaning blow moulds(cleaning moulds in general [B29C 33/72](#))}
- B29C 2049/4697 {Clean room}
- U B29C 49/48 . . Moulds

- U B29C 49/4802
 - • • {with means for locally compressing part(s) of the parison in the main blowing cavity}
- B29C 2049/4805
 - • • • {by closing the mould halves}
- B29C 2049/4807
 - • • • {by movable mould parts in the mould halves}
- B29C 2049/481
 - • • • • {the movable mould parts moving outwardly, e.g. the mould size being increased due to the movement of the movable mould parts}
- B29C 2049/4812
 - • • • {and welding opposite wall parts of the parisons or preforms to each other}
- U B29C 49/4823
 - • • {with incorporated heating or cooling means}
- B29C 2049/4825
 - • • • {for cooling moulds or mould parts([B29C 2049/5889](#) takes precedence)}
- B29C 2049/4828
 - • • • • {for cooling mould parts}
- B29C 2049/483
 - • • • • {in different areas of the mould at different temperatures, e.g. neck, shoulder or bottom}
- B29C 2049/4833
 - • • • • {the cooling means being connected to an external heat exchanger}
- B29C 2049/4835
 - • • • • {releasing the blowing fluid via the cooling channels of the moulds}
- B29C 2049/4838
 - • • • {for heating moulds or mould parts}
- B29C 2049/4841
 - • • • • {for heating mould parts}
- B29C 2049/4843
 - • • • • • {for heating the bottom, e.g. heating the bottom part independently}
- B29C 2049/4846
 - • • • • {in different areas of the mould at different temperatures, e.g. neck, shoulder or bottom}
- B29C 2049/4848
 - • • • • • Bottom{Bottom}
- B29C 2049/4851
 - • • • • • {Side walls}
- B29C 2049/4853
 - • • • {having additional means for improving heat transfer between the mould cavity and the parisons or preforms(in general [B29C 33/30](#))}
- B29C 2049/4856
 - • • {Mounting, exchanging or centering moulds or parts thereof([B29C 2049/5893](#) takes precedence; in general [B29C 33/30](#))}
- B29C 2049/4858
 - • • • {Exchanging mould parts, e.g. for changing the mould size or geometry for making different products in the same mould}
- B29C 2049/4861
 - • • • • {Neck portions of bottle producing moulds}
- B29C 2049/4864
 - • • • {Fixed by a special construction to the mould half carriers, e.g. using insulating material between the mould and the mould half carrier}
- B29C 2049/4866
 - • • • • {center the moulds with the mould half carriers}
- B29C 2049/4869
 - • • {containing more than one mould cavity}
- B29C 2049/4871
 - • • • {having different sizes or shapes mould cavities, e.g. for producing different sized bottles with the same mould}
- B29C 2049/4874
 - • • {Moulds made of at least two different materials, e.g. a hard material and a soft material, materials having different thermal conductivities}
- B29C 2049/4876
 - • • • {one material being heat insulating material}
- B29C 2049/4879
 - • • {defined by special mould configurations}
- B29C 2049/4882
 - • • • {Having a special mould cavity geometry}
- B29C 2049/4884
 - • • • {Mould halves are made of one piece}
- B29C 2049/4887
 - • • • {Mould halves consisting of an independent neck and main part}
- B29C 2049/4889
 - • • • {Mould halves consisting of an independent neck, main and bottom part}
- B29C 2049/4892
 - • • • {Mould halves consisting of an independent main and bottom part}
- B29C 2049/4894
 - • • • {With at least a part of the mould cavity formed by a cylindrical mould}
- B29C 2049/4897
 - • • • {characterised by the manufacturing process(in general [B29C 33/38](#))}
- U B29C 49/50
 - • • having cutting or deflashing means

- B29C 2049/503 {being independently movable during the mould closing}
- B29C 2049/506 {being heated}
- U B29C 49/54 . . . for undercut articles
- B29C 2049/542 {having means to facilitate the removal of the blow moulded articles(in general [B29C 33/44](#))}
- B29C 2049/543 {at the neck portion}
- B29C 2049/545 {by rotationally actuating an auxiliary mould part while the mould is still in a closed position}
- B29C 2049/546 {by translatorilly actuating an auxiliary mould part while the mould is still in a closed position}
- B29C 2049/547 {which are self actuated during the removing of the blow moulded articles, e.g. the means are spring loaded or flexible}
- B29C 2049/548 {the movement of the mould parts during opening of the mould are interlinked}
- U B29C 49/56 . . Opening, closing or clamping means
- B29C 2049/563 . . . {Clamping means}
- B29C 2049/566 . . . {Locking means}
- U B29C 49/58 . . Blowing means{([B29C 45/1734](#) takes precedence)}
- B29C 2049/5803 . . . {Constructional features}
- B29C 2049/5806 {Means for fixing the blowing means with the mould}
- B29C 2049/581 {Mechanical, e.g. fingers or toothed wheels}
- B29C 2049/5813 ~~Hydraulic~~{~~Hydraulic~~}
- B29C 2049/5817 ~~Pneumatic~~{~~Pneumatic~~}
- B29C 2049/582 {Magnetic, e.g. permanent magnets}
- B29C 2049/5824 {Electromagnetic means, e.g. electromagnets}
- B29C 2049/5827 {Blowing means not touching the preform}
- B29C 2049/5831 {Diaphragms or bellows protecting the blowing means against contamination}
- B29C 2049/5834 {Lost blowing means}
- B29C 2049/5837 {Plural independent blowing means}
- B29C 2049/5841 {Plural independent blowing paths}
- B29C 2049/5844 {Compacting means, e.g. to compact the neck portion of the blown article with the blowing means}
- B29C 2049/5848 {Cutting means, e.g. to cut parts of the preform or parison with the blowing means}
- B29C 2049/5851 {Means to avoid clogging of the blowing paths}
- B29C 2049/5855 {allowing injecting additional cooling medium during the blowing operation, e.g. water droplets}
- B29C 2049/5858 {Connecting means, e.g. to allow connection of fluid supply lines to the blowing means}
- B29C 2049/5862 . . . {Drive means therefore}
- B29C 2049/5865 ~~Pneumatic~~{~~Pneumatic~~}
- B29C 2049/5868 ~~Hydraulic~~{~~Hydraulic~~}
- B29C 2049/5872 ~~Mechanical~~{~~Mechanical~~}
- B29C 2049/5875 {Electric direct drives, e.g. linear electric motor}
- B29C 2049/5879 {Magnetic means, e.g. permanent magnets}
- B29C 2049/5882 {Electromagnetic means, e.g. electromagnets}

- B29C 2049/5886 . . . {for introducing from below into the extruded parison, e.g. for reducing contamination of the preforms or parisons}
- B29C 2049/5889 . . . {being cooled}
- B29C 2049/5893 . . . {Mounting, exchanging or centering blowing means}
- B29C 2049/5896 {Centering means therefore}
- U B29C 49/60 . . . Blow-needles
 - B29C 2049/6009 {Constructional features}
 - B29C 2049/6018 {related to the air outlet}
 - B29C 2049/6027 {Having several air outlets e.g. for directing the blowing fluid in different directions}
 - B29C 2049/6036 {the air outlet being located distant from the end of the needle}
 - B29C 2049/6045 {The air outlet being open and closable}
 - B29C 2049/6054 {Means for avoiding blowing fluid leakage between the blow needle and parisons or preforms}
 - B29C 2049/6063 {having means which facilitate the puncturing of the parison}
 - B29C 2049/6072 {being movable, e.g. blow needles move to pierce the parison}
 - B29C 2049/6081 {being rotatable}
 - B29C 2049/609 {being at least two}
- U B29C 49/62 . . . Venting means
 - B29C 2049/622 {Air gaps between closed mould halves}
 - B29C 2049/625 {by using spacing means between the mould halves}
 - B29C 2049/627 {Vacuum means}
- U B29C 49/64 . . . Heating or cooling preforms, parisons or blown articles
- U B29C 49/66 . . . Cooling by refrigerant introduced into the blown article
 - B29C 2049/6607 {Flushing blown articles}
 - B29C 2049/6615 {and exhausting through the blowing means}
 - B29C 2049/6623 {and exhausting through an opening in the blown article}
 - B29C 2049/663 {against ambient pressure}
 - B29C 2049/6638 {against a pressure higher than ambient pressure}
 - B29C 2049/6646 {while keeping the final blowing pressure in the article}
 - B29C 2049/6653 {the refrigerant being other than cooled air}
 - B29C 2049/6661 {the refrigerant being water}
 - B29C 2049/6669 {the refrigerant being gas with water droplets}
 - B29C 2049/6676 {the refrigerant being oriented towards special areas of the blown article}
 - B29C 2049/6684 {Neck area}
 - B29C 2049/6692 {Bottom area}
- U B29C 49/70 . . . Removing or ejecting blown articles from the mould
 - B29C 2049/701 {Ejecting means}
 - B29C 2049/702 {Air pressure}
 - B29C 2049/704 Pins{Pins}
 - B29C 2049/705 {Driving means therefore}
 - B29C 2049/707 Hydraulic{Hydraulic}
 - B29C 2049/708 Pneumatical{Pneumatical}
- U B29C 49/72 . . . Deflashing outside the mould

- B29C 2049/725
- • • {Means for removing the deflashed parts from the deflashing area, e.g. burrs being removed from the deflashing area by a conveyor}
- U B29C 53/00** **Shaping by bending, folding, twisting, straightening or flattening; Apparatus therefor([B29C 61/10](#) takes precedence)**
- B29C 53/005
- {characterised by the choice of material([B29C 53/36](#) [B29C 53/36](#) and [B29C 53/56](#) take precedence)}
- NOTE**
- When classifying in this group, it is desirable to add the indexing codes of subclass [B29K](#) to identify the moulding materials and their properties. Documents concerning the choice of moulding materials having a particular influence on the moulding technique should be classified in this group if of interest
- U B29C 53/02**
- Bending or folding([B29C 53/22](#) , [B29C 53/34](#) , [B29C 53/36](#) , [B29C 53/56](#) take precedence)
- B29C 53/12
- • helically, e.g. for making springs{(for textile fibres [D02G 1/00](#) [D02G 1/00](#))}
- U B29C 53/36**
- Bending and joining, e.g. for making hollow articles([B29C 53/56](#) takes precedence; from paper [B31C](#) , { [B31F](#) })
- B29C 2053/362
- • {for making hems}
- B29C 2053/365
- • • {provided with a string}
- B29C 2053/367
- • • {provided with a strip}
- U B29C 53/80**
- Component parts, details or accessories; Auxiliary operations
- U B29C 53/8008**
- • {specially adapted for winding and joining}
- U B29C 53/8016**
- • • {Storing, feeding or applying winding materials, e.g. reels, thread guides, tensioners}
- B29C 2053/8025
- • • • [tensioning](#){[tensioning](#)}
- B29C 2053/8033
- • • • {fixing the trailing edge of winding materials}
- U B29C 59/00** **Surface shaping{of articles}e.g. embossing; Apparatus therefor{(in-mould printing [B29C 37/0025](#) ; by using liquids [B29C 71/0009](#) ; by using gases without chemical reaction [B29C 71/009](#) ; for decorating in general [B44](#) ; abrasive blasting [B24C](#) ; chemical aspects [C08J 7/00](#))}**
- B29C 59/005
- {characterised by the choice of material}
- NOTE**
- Documents in which moulding materials are mentioned are indexed using indexing codes of subclass [L29C](#)[L29C](#) . However, when, for example, documents concerning the choice of moulding material having a particular influence on the moulding technique cannot be satisfactorily indexed, the documents may be classified in this group if of interest
- U B29C 59/02**
- by mechanical means, e.g. pressing{([B29C 59/007](#) takes precedence; embossing expanded porous articles [B29C 44/5627](#))}
- U B29C 59/022**
- • {characterised by the disposition or the configuration, e.g. dimensions, of the embossments or the shaping tools therefor}
- B29C 2059/023
- • • {Micro embossing}
- B29C 2059/027
- • {Grinding; Polishing}
- B29C 2059/028
- • {Incorporating particles by impact in the surface, e.g. using fluid jets or explosive forces to implant particles}
- U B29C 59/14**
- by plasma treatment(in general [H05H](#))((plasma tubes per se [H01J](#))}
- B29C 2059/145
- • {Atmospheric plasma}
- B29C 2059/147
- • {Low pressure plasma; Glow discharge plasma}

- U B29C 61/00** Shaping by liberation of internal stresses; Making preforms having internal stresses; Apparatus therefor(for surface shaping [B29C 59/18](#) ; for lining articles [B29C 63/38](#) ; for joining preformed parts [B29C 65/66](#)) {{ for packaging [B65B 53/00](#) ; connecting arrangements or other fittings for plastics pipes using shrink-down material [F16L 47/22](#) , electrical connections insulated using heat shrinking insulating sleeves [H01R 4/72](#) ; cable junctions protected by sleeves [H02G 15/18](#))}
- U B29C 61/06 . Making preforms having internal stresses, e.g. plastic memory
- U B29C 61/0608 . . {characterised by the configuration or structure of the preforms}
- U B29C 61/0666 . . . {comprising means indicating that the shrinking temperature is reached}
- B29C 2061/0675 {the means being a material exuding outside the preform when the temperature is reached}
- B29C 2061/0683 {the means being a thermochromic painting or coating}
- B29C 2061/0691 {the means being protrusions on the preform surface disappearing when the temperature is reached}
- U B29C 63/00** Lining or sheathing, i.e. applying preformed layers or sheathing of plastics; Apparatus therefor([B29C 73/00](#) takes precedence; by blowing [B29C 49/00](#) ; by thermoforming [B29C 51/00](#))
- U B29C 63/0004 . {Component parts, details or accessories; Auxiliary operations}
- B29C 2063/0008 . . {Registering, centering the lining material on the substrate}
- B29C 2063/006 . . {of surfaces having irregularities or roughness}
- U B29C 63/02 . using sheet or web-like material([B29C 63/26](#) { and [B29C 63/38](#) }take precedence)
- B29C 2063/021 . . {characterized by the junction of material sections}
- B29C 2063/022 . . . {the junction being located in a groove}
- B29C 2063/027 . . {applied by a squeegee}
- B29C 2063/028 . . {applied by a fluid jet}
- U B29C 63/26 . Lining or sheathing of internal surfaces([B29C 63/38](#) takes precedence)
- U B29C 63/34 . . using tubular layers or sheathings
- B29C 2063/348 . . . {combined with reducing the diameter of the substrate to be lined}
- U B29C 63/48 . Preparation of the surfaces
- B29C 2063/483 . . {by applying a liquid}
- B29C 2063/485 . . . {the liquid being an adhesive}
- B29C 2063/488 . . {providing the surface with fixing elements on which the plastic liner is bonded}
- U B29C 65/00** Joining{or sealing}of preformed parts,{e.g. welding of plastics materials}; Apparatus therefor({ general aspects of processes or apparatus for joining preformed parts [B29C 66/00](#) ; using porous material formed by internal pressure generated therein for joining preformed parts [B29C 44/1228](#) , [B29C 44/326](#) ; } for making boxes, cartons, envelopes or bags [B31B](#); for sealing or securing package folds or closures [B65B 51/00](#) ; joining constructional elements in general [F16B](#); splicing of light guides [G02B 6/255](#))

WARNING

Groups [B29C 65/00](#) to [B29C 65/70](#) are not complete, mainly for documents published before the year 1995, pending reclassification; see also [B29C 65/74](#) and its subgroups

- U B29C 65/02
- by heating, with or without pressure
- WARNING
Group [B29C 65/02](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/48](#) and its subgroups
- U B29C 65/10
- • using hot gases{(e.g. combustion gases)or flames coming in contact with at least one of the parts to be joined}
- B29C 65/103
- • • {direct heating both surfaces to be joined}
- WARNING
Not complete, pending a reorganisation; see also [B29C 65/10](#) and ~~B29C 65/10-B~~**B29C65/10B**
- U B29C 65/18
- • using heated tools
- B29C 65/20
- • • with direct contact, e.g. using "mirror"
- WARNING
Subgroups of [B29C 65/20](#) are not complete, pending a reorganisation; see also this group and ~~B29C 65/20-D~~**B29C65/20D**
- U B29C 65/24
- • • characterised by the means for heating the tool{(by impulse heating [B29C 65/38](#))}
- NOTES
Classification is made in groups [B29C 65/24](#) to [B29C 65/32](#) only if the details or adaptations of the heating means are of interest.
When classifying in this group, heated tools are additionally classified in groups [B29C 65/18](#) , [B29C 65/20](#) or [B29C 65/22](#)
- U B29C 65/30
- • • • {Electrical means([B29C 65/38](#) takes precedence)}
- B29C 65/305
- • • • • {involving the use of cartridge heaters}
- WARNING
Not complete, pending a reorganisation; see also [B29C 65/18](#) to ~~B29C 65/20-H~~**B29C65/20H**
- B29C 65/48
- using adhesives{, i.e. using supplementary joining material} (heat-activated{to be additionally classified in} [B29C 65/02](#) {and subgroups};{applying molten plastics, e.g.}hot melts{to be additionally classified in} [B29C 65/40](#) ; non-mechanical parts of adhesive processes, in general [C09J 5/00](#)); {solvent bonding} [N: Note When classifying in this group, heat-activated adhesives are further classified in group ~~B92C65/02~~**B29C 65/02** . When classifying in this group, applying molten plastics is further classified in group ~~B92C65/40~~**B29C 65/40** .
- WARNING
Subgroups [B29C 65/4805](#) to [B29C 65/4895](#) are not complete, pending a reorganisation; see also this group and [B29C 65/4895](#)
- U B29C 65/78
- Means for handling the parts to be joined, e.g. for making containers or hollow articles{e.g. means for handling sheets, plates, web-like materials, tubular articles, hollow articles or elements to be joined therewith; Means for discharging the joined articles from the joining apparatus}
- WARNING
Subgroups of [B29C 65/78](#) are not complete, pending a reorganisation; see also this group and its subgroups and [B29C 65/20](#) and its subgroups
- U B29C 65/7858
- • {characterised by the feeding movement of the parts to be joined}

- U B29C 65/7861 . . . {In-line machines, i.e. feeding, joining and discharging are in one production line([B29C 65/7879](#) , [B29C 65/7888](#) take precedence)}
- B29C 65/787 . . . {using conveyer belts or conveyer chains(~~B29C65/78M2E~~ , [B29C 66/83421](#) , [B29C 66/83521](#) , [B29C 66/83531](#) take precedence)}
- U B29C 71/00 **After-treatment of articles without altering their shape; Apparatus therefor** [B29C 73/00](#) takes precedence; surface shaping [B29C 59/00](#) ; { for joined or sealed parts [B29C 66/03](#) ; after-treatment specially adapted for vulcanising tyres [B29D 30/0633](#) } ; chemical aspects [C08J 7/00](#))
- B29C 71/0009 . {using liquids, e.g. solvents, swelling agents(spectacle cases, e.g. for cleaning contact lenses [A45C 11/04](#) ; disinfecting or sterilising contact lenses ~~A61L2/00C~~[A61L 12/00](#) , using liquid substances [A61L 2/20](#) ; cleaning involving the use of liquid in general [B08B 3/00](#) ; for hydrating contact lenses [B29D 11/00067](#))}
- B29C 2071/0018 . . {Absorbing ingredients, e.g. drugs, flavourings, UV screeners, embedded in the articles}
- B29C 2071/0027 . . {Removing undesirable residual components, e.g. solvents, unreacted monomers(of material to be shaped [B29B 9/16](#) , [B29B 13/00](#))}
- B29C 2071/0036 . . {Extracting, degassing, removing gases from moulded articles}
- B29C 2071/0045 . . {Washing using non-reactive liquids}
- B29C 2071/0054 . . {Supercritical fluid treatment, i.e. using a liquid in which distinct liquid and gas phases do not exist}
- U B29C 71/02 . Thermal after-treatment{([B29C 71/0063](#) and [B29C 71/0072](#) take precedence)}
- B29C 2071/022 . . ~~Annealing~~{[Annealing](#)}
- B29C 2071/025 . . {Quenching i.e. rapid cooling of an object}
- B29C 2071/027 . . {Tempering i.e. heating an object to a high temperature and quenching it}
- B29C 73/00** **Repairing of articles made from plastics or substances in a plastic state, e.g. of articles shaped or produced by using techniques covered by this subclass or subclass [B29D](#)(retreading tyres [B29D 30/54](#) ; { linings for tyres acting locally ~~B60C 5/145~~[B60C5/145](#) ; } devices for covering leaks in pipes or hoses [F16L 55/16](#))**

WARNING

This group was introduced on 24 June, 1987

Documents from the backlog of [B60C 21/00](#) - ~~B60C 21/08~~[B60C21/08B](#) , [B60C 25/16](#) are in the process of being systematically transferred to [B29C 73/00](#)]

- U B29C 73/24 . Apparatus or accessories not otherwise provided for
- U B29C 73/26 . . for mechanical pretreatment
- B29C 2073/262 . . . {for polishing, roughening, buffing or sanding the area to be repaired}
- B29C 2073/264 . . . {for cutting out or grooving the area to be repaired}
- B29C 2073/266 . . . {for cutting out an undercut for anchoring the repairing material}
- B29C 2073/268 . . . {for drilling holes in the area to be repaired}

Project: N/A (B29D)

- U B29D 30/00 **Producing pneumatic or solid tyres or parts thereof (producing inner tubes [B29D 23/24](#); constructional form of tyres or parts thereof [B60C](#); connection of valves to inflatable elastic bodies [B60C 29/00](#); testing of tyres [G01M 17/02](#))**
- U B29D 30/0005 . {Pretreatment of tyres or parts thereof, e.g. preheating, irradiation, precuring}
- U B29D 2030/0011 . . { Surface activation of tyres or parts thereof, e.g. by plasma treatment}

- U B29D 30/0016 • { Handling tyres or parts thereof, e.g. supplying, storing, conveying ([B29D 30/2607](#) takes precedence; loading and unloading vulcanizing presses [B29D 30/0603](#))}
- U B29D 2030/0022 • • { Handling green tyres, e.g. transferring or storing between tyre manufacturing steps}
- U B29D 2030/0027 • • { Handling cured tyres, e.g. transferring or storing after vulcanizing}
- U B29D 2030/0033 • • { Rotating tyres or their components, e.g. carcasses, belt-tread packages, beads and the like, around their axis, i. e. for preventing deformation}
- U B29D 2030/0038 • • { Handling tyre parts or semi-finished parts, excluding beads, e.g., storing, transporting, transferring ([B29D 2030/0044](#) takes precedence)}
- U B29D 2030/0044 • • { Handling tyre beads, e.g., storing, transporting, transferring and supplying to the toroidal support or to the drum}
- U B29D 30/005 • { General arrangement or lay-out of plants for the processing of tyres or parts thereof (Round cores or cylindrical drums arranged for a single sequence of tire building operations [B29D 30/10](#), [B29D 30/20](#); Vulcanization presses [B29D 30/0601](#))}
- U B29D 2030/0055 • • { Optimization of the cycle times of the tyre manufacturing process, e.g. adaptation of the tyre building process to the vulcanization process}
- U B29D 30/0061 • { Accessories, details or auxiliary operations not otherwise provided for}
- U B29D 2030/0066 • • { Tyre quality control during manufacturing}
- U B29D 2030/0072 • • { Attaching fasteners to tyres, e.g. patches, in order to connect devices to tyres}
- U B29D 2030/0077 • • { Directly attaching monitoring devices to tyres before or after vulcanization, e.g. microchips}
- U B29D 2030/0083 • • { Attaching monitoring devices to tyres before or after vulcanization by inserting them inside tyre cavities}
- U B29D 2030/0088 • • { Adaptive tyres, i.e. the properties of the tyres, e.g. the stiffness, being changeable during use}
- U B29D 2030/0094 • • { Tyres been capable of generating, e.g. recovering, energy}
- U B29D 30/06 • Pneumatic tyres or parts thereof {(e.g. produced by casting, moulding, compression moulding, injection moulding, centrifugal casting)}
- U B29D 30/0601 • • {Vulcanising tyres; Vulcanising presses for tyres}
- U B29D 30/0606 • • • {Vulcanising moulds not integral with vulcanising presses}
- B29D 2030/0607 • • • • {Constructional features of the moulds (moulds or cores in general [B29C 33/00](#))}
- B29D 2030/0609 • • • • • {the moulds being made of a plurality of laminations, e.g. thin plates, adjacent one another, so as to create the moulding cavity }
- B29D 2030/061 • • • • • {Means for forming passages under the tread surface, e.g. undercuts, holes, channels, grooves }
- B29D 2030/0612 • • • • • {Means for forming recesses or protrusions in the tyres, e.g. grooves or ribs, to create the tread or sidewalls patterns }
- B29D 2030/0613 • • • • • {Means, e.g. sipes or blade-like elements, for forming narrow recesses in the tyres, e.g. cuts or incisions for winter tyres }
- B29D 2030/0614 • • • • • {porous moulds, e.g. sintered materials (porous moulds in general [B29C 33/3814](#))}
- B29D 2030/0616 • • • • • {Surface structure of the mould e.g. roughness, arrangement of slits, grooves or channels }
- B29D 2030/0617 • • • • • {Venting devices, e.g. vent plugs or inserts }
- B29D 2030/0618 • • • • • {N: Annular elements, e.g. rings, for moulding the tyre shoulder areas }
- B29D 2030/062 • • • • • {Means for sealing the tyre against the mould in the bead areas }

	B29D 2030/0621	. . . . . {to seal the bead portions against the mould i. e. by using pressing devices }
	B29D 2030/0622	. . . . . {the pressing devices being collapsable, e.g. annular elements consisting of a plurality of sectors }
	B29D 2030/0623	. . . . . {the pressing devices being flexible, e.g. annular elements being relatively elastic and deformable }
	B29D 2030/0625	. . . . . {the pressing devices being substantially rigid }
	B29D 2030/0626	. . . . . {the pressing devices being one-piece devices }
	B29D 2030/0627	. . . . . {the pressing devices being ring-shaped }
U	B29D 30/0629	. . . . {with radially movable sectors}
	B29D 2030/063	. . . . . {the moulds being split in upper and lower halves }
	B29D 2030/0631	. . . . . {Means for forcing adjacent mould sectors away one from another, e.g. using springs or the like, to create repulsive forces }
U	B29D 30/0633	. . . {After-treatment specially adapted for vulcanising tyres}
	B29D 2030/0634	. . . . {Measuring, calculating, correcting tyre uniformity, e.g. correcting RFV }
	B29D 2030/0635	. . . . . {Measuring and calculating tyre uniformity, e.g. using mathematical methods }
	B29D 2030/0637	. . . . . {Correcting by adding material }
	B29D 2030/0638	. . . . . {Correcting by removing material, e.g. by grinding }
	B29D 2030/0639	. . . . . {Correcting by heat treatments }
	B29D 2030/0641	. . . . . {Correcting by restraining tyre deformation }
	B29D 2030/0642	. . . . . {Correcting by stretching }
U	B29D 30/0645	. . . { Devices for inserting vulcanising cores, i.e. bladders, into the tyres; Closing the press in combination herewith}
	B29D 2030/0646	. . . . {Attaching to, or removing the vulcanizing cores or bladders from the center mechanisms }
	B29D 2030/0647	. . . . {Supporting or transferring tyres using an assembly of a bladder and side rings }
U	B29D 30/065	. . . { Tyre-vulcanising presses with two or more moulds, e.g. stacked upon each other}
	B29D 2030/0651	. . . . {the moulds being arranged side by side, or in a circle }
	B29D 2030/0653	. . . . {Exchanging moulds in the presses }
U	B29D 30/0654	. . . { Flexible cores therefor, e.g. bladders, bags, membranes, diaphragms (elastic cores or mandrels for shaping of plastics B29C 33/505 ; bags for isostatic pressing in compression moulding B29C 43/12 , B29C 43/3642)}
	B29D 2030/0655	. . . . {Constructional or chemical features of the flexible cores }
	B29D 2030/0657	. . . . {Removing the vulcanizing media from the flexible cores, e.g. draining or evacuating }
	B29D 2030/0658	. . . . {Venting devices for the flexible cores }
	B29D 2030/0659	. . . . {Details or accessories for the flexible cores not otherwise provided for }
U	B29D 30/0662	. . . { Accessories, details or auxiliary operations}
	B29D 2030/0663	. . . . {Mould maintenance, e.g. cleaning, washing, repairing }
	B29D 2030/0665	. . . . {Measuring, calculating and correcting tyre uniformity before vulcanization }
	B29D 2030/0666	. . . . {Heating by using fluids (heating, cooling or curing using liquids, gas or steam B29C 35/04)}
	B29D 2030/0667	. . . . . {Circulating the fluids, e.g. introducing and removing them into and from the moulds; devices therefor }

- B29D 2030/0669 {the fluids being circulated by a turbine type pump associated with the mould, e.g. positioned in the mould }
- B29D 2030/067 {the vulcanizing fluids being gases or vapours }
- B29D 2030/0671 {the vulcanizing fluids being liquids }
- B29D 2030/0673 {the vulcanizing fluids being combinations of different kinds of fluids, e.g. steam and nitrogen }
- B29D 2030/0674 {Heating by using non-fluid means, e.g. electrical heating }
- B29D 2030/0675 {Controlling the vulcanization processes }
- B29D 2030/0677 {Controlling temperature differences }
- U B29D 30/0681 . . { Parts of pneumatic tyres; accessories, auxiliary operations }
- U B29D 2030/0682 . . . { Inner liners (tubeless tyres with impervious liner or coating on the tyre [B60C 5/14](#)) }
- U B29D 2030/0683 . . . { Additional internal supports to be positioned inside the tyre, as emergency supports for run-flat tyres }
- U B29D 30/0685 . . . { Incorporating auto-repairing or self-sealing arrangements or agents on or into tyres (auto-repairing or self-sealing arrangements or agents [B29C 73/16](#); puncture preventing arrangements [B60C 19/12](#)) }
- B29D 2030/0686 {Incorporating sealants on or into tyres not otherwise provided for; auxiliary operations therefore, e.g. preparation of the tyre }
- B29D 2030/0687 {by incorporating the sealant into one chamber, e.g. bag, cell, tube or closed cavity }
- B29D 2030/0689 {by incorporating the sealant into a plurality of chambers, e.g. bags, cells, tubes or closed cavities }
- B29D 2030/069 {through the use of a cylindrical support, e.g. a drum }
- B29D 2030/0691 {through the use of a toroidal support, e.g. a core, a part of the tyre or an inner tube }
- B29D 2030/0693 {the sealant being in the form of discrete particles, e.g. spheres or balls, filled with sealant }
- B29D 2030/0694 {the sealant being in the form of one or more narrow strips, e.g. applied by winding into the interior of the tyre }
- B29D 2030/0695 {the sealant being in the form of one wide strip, e.g. a patch }
- B29D 2030/0697 {the sealant being in liquid form, e.g. applied by spraying }
- B29D 2030/0698 {the sealant being applied by injection, e.g. introducing the sealant through a hole }
- U B29D 30/08 . . . Building tyres
- B29D 2030/082 {Optimizing the deposition of the layers on the tyre building support, e.g. by using mathematical methods }
- B29D 2030/084 {Placing two side portions of the tyre into the mould and introducing, e.g. by extrusion or injection moulding, the tread material to create the toroidal tyre }
- B29D 2030/086 {Building the tyre carcass by combining two or more sub-assemblies, e.g. two half-carcasses }
- B29D 2030/088 {by using a seamless tubular component, e.g. an inner liner, a carcass structure or a belt/breaker during tyre manufacturing on a core or a building drum }
- U B29D 30/10 . . . on round cores, i.e. the shape of the core is approximately identical with the shape of the completed tyre
- B29D 2030/105 {the cores being movable }

- U B29D 30/16
 - Applying the layers; Guiding or stretching the layers during application { applying tread bands to carcasses [B29D 30/58](#); retreading [B29D 30/54](#) }
- B29D 2030/1664
 - {Details, accessories or auxiliary operations not provided for in the other subgroups of [B29D 30/00](#) }
- B29D 2030/1671
 - {Venting air inclusions during the layer applications, e.g. by creating grooves, channels, passages, holes in the band-like tire component to be applied }
- B29D 2030/1678
 - {the layers being applied being substantially continuous, i. e. not being cut before the application step }
- B29D 2030/1685
 - {the layers being applied being already cut to the appropriate length, before the application step }
- B29D 2030/1692
 - {Changing the orientation of the layers, e.g. plies, to be applied }
- U B29D 30/20
 - . . . by the flat-tyre method, i.e. building on cylindrical drums
- B29D 2030/201
 - {Manufacturing run-flat tyres }
- B29D 2030/202
 - {the building drums being movable, i.e. not permanently connected to a fixed frame }
- B29D 2030/203
 - {the fixtures supporting the cylindrical drums being non displaceable, i.e. substantially fixed to the floor }
- B29D 2030/204
 - {the fixtures supporting the cylindrical drums, e.g. turrets, being displaceable, e.g. movable along a path, rail or the like }
- B29D 2030/205
 - {A single building drum being mounted on a fixture or supporting device, e.g. turret or turntable }
- B29D 2030/206
 - {A plurality of building drums being mounted on a fixture or supporting device, e.g. turret or turntable }
- B29D 2030/207
 - {the drum supporting device being rotatable around a horizontal axis }
- B29D 2030/208
 - {the drum supporting device being rotatable around a vertical axis }
- B29D 2030/209
 - {the drum supporting device being rotatable around an inclined axis }
- U B29D 30/24
 - Drums
- B29D 2030/241
 - {Auxiliary drums used for temporary storage of the layers before application to the building drums }
- U B29D 30/26
 - Accessories or details, e.g. membranes, transfer rings
- B29D 2030/2614
 - {Bladders associated with the building drum, e.g. bladders used for the toroidal expansion, bladders for turning-up the plies }
- B29D 2030/2621
 - {Means for clamping bladders on the drum shoulders }
- B29D 2030/2628
 - {Bladders for shaping the inner parts of the tyre beads or sidewalls }
- B29D 2030/2635
 - {Central bladder, e.g. elastic membrane, sleeve, envelope, diaphragm, which covers the central portion of the drum, e.g. covering the toroidally expandable rigid segments }
- B29D 2030/2642
 - {Adjusting the diameter of the drum, to match its circumference with the length of ply }
- B29D 2030/265
 - {Radially expandable and contractable drum comprising a set of circumferentially arranged elastic, flexible elements, e.g. blades or laminas, with or without expandable annular sleeve or bladder }
- B29D 2030/2657
 - {Radially expandable and contractable drum comprising a set of circumferentially arranged rigid elements, e.g. fingers or arms }
- B29D 2030/2664
 - {the drum comprising at least two portions that are axially separable, e.g. the portions being supported by different shafts, e.g. in order to facilitate the insertion of the beads }
- B29D 2030/2671
 - {Holding the layers, e.g. the webs or the plies, in position onto the drum }

- B29D 2030/2678 {by using magnets }
- B29D 2030/2685 {by using mechanical means, e.g. jaws, grippers, pressing bars }
- B29D 2030/2692 {by using suction means, e.g. vacuum producing devices }
- U B29D 30/30 Applying the layers; Guiding or stretching the layers during application
{ applying tread bands to carcasses [B29D 30/58](#); retreading [B29D 30/54](#)}
- B29D 2030/3064 {Details, accessories and auxiliary operations not otherwise provided
for }
- B29D 2030/3071 {Venting air inclusions during the layer applications, e.g. by creating
grooves, channels, passages, holes in the band-like tire component to
be applied }
- B29D 2030/3078 {the layers being applied being substantially continuous, i. e. not
being cut before the application step }
- B29D 2030/3085 {the layers being applied being already cut to the appropriate length,
before the application step }
- B29D 2030/3092 {Changing the orientation of the layers, e.g. plies, to be applied }
- U B29D 30/32 Fitting the bead-rings or bead-cores; Folding the textile layers around the
rings or cores
- B29D 2030/3207 {Positioning the beads }
- B29D 2030/3214 {Locking the beads on the drum; details of the drum in the bead locking
areas, e.g. drum shoulders }
- B29D 2030/3221 {Folding over means, e.g. bladders or rigid arms }
- B29D 2030/3228 {using one bladder acting on each side of the drum }
- B29D 2030/3235 {using two or more bladders acting on each side of the drum }
- B29D 2030/3242 {and with means for pressing the bladder against the ply material, e.g.
bladder guide shoes, cages, arms }
- B29D 2030/325 {the means being radially expandable and contractible }
- B29D 2030/3257 {using pressing rollers }
- B29D 2030/3264 {using radially expandable, contractible mechanical means, e.g.
circumferentially spaced arms, spring rollers, cages }
- B29D 2030/3271 {using air blasts }
- B29D 2030/3278 {Folding down the ends of the tubular tyre component, e.g. the
carcass, over the drum shoulders }
- B29D 2030/3285 {Placing a cushioning element, e.g. a ring, aside or around the beads }
- B29D 2030/3292 {Interposing trap strips between beads and plies }
- U B29D 30/38 Textile inserts, e.g. cord or canvas layers, for tyres (making woven fabrics
[D03D](#)); Treatment of inserts prior to building the tyre (pretreatment of inserts
[B29B 15/00](#); manufacture of layers comprising fibrous parallel reinforcements
of substantial or continuous length [B29C 70/20](#))
- B29D 2030/381 {the inserts incorporating reinforcing parallel cords; manufacture thereof }
- B29D 2030/383 {Chemical treatment of the reinforcing elements, e.g. cords, wires
and filamentary materials, to increase the adhesion to the rubber
(chemical pretreatment of the textile inserts [B29D 30/40](#); pretreatment
of reinforcements [B29B 15/08](#); treating fibers, threads, yarns, fabrics in
general [D06M 15/00](#))}
- B29D 2030/385 {made by winding and joining a continuous reinforced rubber band onto
a mandrel, to obtain a tubular article as an intermediate element in the
manufacture of the insert }
- B29D 2030/386 {the tubular article being cut to obtain a flat, single-layer insert }
- B29D 2030/388 {the tubular article being flattened to obtain a two-layer insert }

- U B29D 30/42
 - • • Endless textile bands without bead-rings
- B29D 2030/421
 - • • • {General aspects of the joining methods and devices for creating the bands (joining of preformed parts in general [B29C 65/00](#))}
- B29D 2030/422
 - • • • {Butt joining (single butt to butt joints in general **B29C65/00H7B2D2** [B29C 66/1142](#))}
- B29D 2030/423
 - • • • {Joining by overlapping (single lap to lap joints in general **B29C65/00H7B2B2** [B29C 66/1122](#); single bevel to bevel joints in general **B29C65/00H7B2F2** [B29C 66/1162](#))}
- B29D 2030/424
 - • • • {the joining devices being angularly adjustable (joining devices characterized by the movement of the joining tools **B29C65/00M5** [B29C 66/83](#))}
- B29D 2030/425
 - • • • {the joining devices being laterally adjustable (joining devices characterized by the movement of the joining tools **B29C65/00M5** [B29C 66/83](#))}
- B29D 2030/426
 - • • • {the joining devices being longitudinally adjustable (joining devices characterized by the movement of the joining tools **B29C65/00M5** [B29C 66/83](#))}
- B29D 2030/427
 - • • • {Positioning the bands at the joining areas (positioning the parts to be joined in general [B29C 65/7802](#))}
- B29D 2030/428
 - • • • {Positioning the bands at the overlapping joining areas (positioning the parts to be joined by setting the overlap in general [B29C 65/7835](#))}
- U B29D 30/44
 - • • Stretching or treating the layers before application on the drum (during application [B29D 30/30](#))
- B29D 2030/4406
 - • • • {Adjusting the positions of the layers }
- B29D 2030/4412
 - • • • ~~angularly~~ [{angularly }](#)
- B29D 2030/4418
 - • • • {laterally, e.g. sideways }
- B29D 2030/4425
 - • • • ~~longitudinally~~ [{longitudinally }](#)
- B29D 2030/4431
 - • • • {by using gas flows, e.g. air jets blowing onto or underneath or sideways the layers }
- B29D 2030/4437
 - • • • {Adjusting the dimensions of the layers }
- B29D 2030/4443
 - • • • {Increasing the length of the layers, e.g. by stretching }
- B29D 2030/445
 - • • • {Shortening the layers, e.g. by acting on the lateral edges or on the thickness or by cutting }
- B29D 2030/4456
 - • • • {by using speed differences, e.g. between conveyors or between conveyor and drum }
- B29D 2030/4462
 - • • • {by using grasping means }
- B29D 2030/4468
 - • • • {Holding the layers }
- B29D 2030/4475
 - • • • {by electrostatically charging the layers }
- B29D 2030/4481
 - • • • {by using magnetic forces, e.g. magnets }
- B29D 2030/4487
 - • • • {by using mechanical means, e.g. grippers or pressing bars }
- B29D 2030/4493
 - • • • {by using suction means, e.g. vacuum }
- U B29D 30/46
 - • • Cutting textile inserts to required shape
- B29D 2030/463
 - • • • {Holding the textile inserts during cutting; means therefor }
- B29D 2030/466
 - • • • {Cutting the textile inserts between cords }
- U B29D 30/48
 - • Bead-rings or bead-cores (from wire [B21F 37/00](#)); Treatment thereof prior to building the tyre
- B29D 2030/481
 - • • {Fillers or apexes }
- B29D 2030/482
 - • • {Applying fillers or apexes to bead cores }

- B29D 2030/483 . . . {Treating the bead cores to increase rubber adhesion }
- B29D 2030/485 . . . {the bead cores being made using a band containing a plurality of wires embedded in rubber }
- B29D 2030/486 . . . {Additional components for the tyre bead areas, e.g. cushioning elements, chafers, flippers }
- B29D 2030/487 . . . {Forming devices for manufacturing the beads }
- B29D 2030/488 . . . {Clamping the wires on the forming devices }
- U B29D 30/52 . . . Unvulcanised treads, e.g. on used tyres; Retreading (apparatus for forming { treads by extrusion [B29C 47/00](#); apparatus for} vulcanising treads [B29C 35/02](#); apparatus characterised by the means for holding wheels or parts thereof [B60B 30/00](#))
- B29D 2030/523 . . . {Ring-shaped treads }
- B29D 2030/526 . . . {the tread comprising means for discharging the electrostatic charge, e.g. conductive elements or portions having conductivity higher than the tread rubber }
- U B29D 30/54 . . . Retreading
- B29D 2030/541 . . . {Abrading the tyre, e.g. buffing, to remove tread and/or sidewalls rubber, to prepare it for retreading }
- U B29D 30/542 . . . {using envelopes or membranes provided with sealings for curing}
- B29D 2030/543 . . . {Spreading the envelopes or membranes for inserting the tyre therein }
- B29D 2030/544 . . . {Applying an intermediate adhesive layer, e.g. cement or cushioning element between carcass and tread }
- B29D 2030/545 . . . {Using chambers to apply heat and pressure, e.g. autoclaves for curing the retreaded tyres }
- B29D 2030/546 . . . {Measuring, detecting, monitoring, inspecting, controlling }
- B29D 2030/547 . . . {Retreading solid tyres }
- B29D 2030/548 . . . {Removing the worn out tread from the carcass, e.g. by pulling a continuous wire embedded between tread and carcass }
- B29D 2030/549 . . . {Means for holding the tyre on a support }
- U B29D 30/58 . . . Applying bands of rubber treads, i.e. applying camel backs
- B29D 2030/582 . . . {Venting air inclusions, e.g. air trapped between tread and carcass }
- B29D 2030/585 . . . {Radially expanding annular treads to fit it over carcasses }
- B29D 2030/587 . . . {Using isostatic pressure, e.g. bags or bladders, to press tread and carcass against each other }
- U B29D 30/66 . . . Moulding treads on to tyre casings, e.g. non-skid treads with spikes
- B29D 2030/662 . . . {Treads with antiskid properties, i.e. with spikes }
- B29D 2030/665 . . . {Treads containing inserts other than spikes, e.g. fibers or hard granules, providing antiskid properties }
- B29D 2030/667 . . . {Treads with antiskid properties, e.g. having special patterns or special rubber compositions }
- U B29D 30/68 . . . Cutting profiles into the treads of tyres
- B29D 2030/685 . . . {before tread vulcanization }
- U B29D 30/70 . . . Annular breakers
- B29D 2030/705 . . . {the breakers being obtained by cutting a continuous reinforced strip into predefined lengths and placing the cut strips side by side on a suitable support, e.g. a toroidal core or a carcass }
- U B29D 30/72 . . . Side-walls

- B29D 2030/722 • • • {Reinforcing the sidewalls, e.g. by using filaments, fibers or additional reinforcing layers }
- B29D 2030/724 • • • {Stiffening the sidewalls, e.g. by using additional inserts, e.g. made of rubber, plastics or other materials }
- B29D 2030/726 • • • {Decorating or marking the sidewalls before tyre vulcanization (protecting, decorating , marking tyre sidewalls [B60C 13/00](#))}
- B29D 2030/728 • • • {Decorating or marking the sidewalls after tyre vulcanization (protecting, decorating , marking tyre sidewalls [B60C 13/00](#))}

U B29D 99/00 Subject matter not provided for in other groups of this subclass {(not used, see subgroups)} üC1203

- B29D 99/0046 • { Producing rods (connecting-rods formed from fiber-reinforced resins ~~F16C7/00~~[F16C 7/026](#))}

Project: N/A (B29L)

U B29L 2031/00 Other particular articles

WARNING

Groups [B29L 2031/70](#) - [B29L 2031/7782](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: [B29L 2031/70](#) - [B29L 2031/7782](#): [B29L 31/00](#)

- B29L 2031/58 • Upholstery or cushions, e.g. vehicle upholstery or interior padding {(mattresses, cushions ~~B29L 2031/8178~~[B29L2031/8178](#))}

Project: N/A (B30B)

U B30B 1/00 Presses, using a press ram, characterised by the features of the drive therefor, pressure being transmitted directly, or through simple thrust or tension members only, to the press ram or platen

- B30B 1/24 • by rack-and-pinion means{(~~B30B 9/30G3~~[B30B9/30G3](#) takes precedence)}

Project: N/A (B31B)

B31B 29/00 Machinery characterised by making envelopes or bags with structural provision at the base for thickness or contents([B31B 31/00](#) to[B31B 37/00](#) take precedence; {[B31B 31/00](#) ,[B31B 33/00](#) ,[B31B 35/00](#) are not used;[B31B39/00C](#) takes precedence})

B31B 39/00 Machinery characterised by making lined envelopes or bags {(~~B31B19/00K6~~ takes precedence)}

Project: N/A (B31D)

U B31D 1/00 Multiple-step processes for making flat articles; {Making flat articles}

- U B31D 1/02 • the articles being labels or tags (means and processes for attaching threads [D05](#))

NOTE

Attaching threads to labels or tags is classified in group [B31D 1/02](#), e.g. [B31D 1/023](#)

- B31D 1/026 • • {Cutting or perforating (~~B31D1/02B1~~, [B31D 1/022](#) take[takes](#) precedence)}

Project: N/A (B31F)

- U B31F 1/00 **Mechanical deformation of paper or cardboard without removing material including combined deformation and laminating (embossing combined with application of ink, type marking presses, selective embossing machines [B41F](#), [B41J](#), [B41K](#), [B41M](#); machines or apparatus for embossing decorations or marks [B44B 5/00](#); artists hand tools for embossing [B44B 11/04](#); producing decorative effects by processes for stamping ornamental designs on surfaces [B44C 1/24](#); mechanical deformation during paper or board making, kinds of paper or board [D21](#))**
- U B31F 1/0003 • {Shaping by bending, folding, twisting, straightening, flattening or rim-rolling; Shaping by bending, folding or rim-rolling combined with joining; Apparatus therefor (shaping of tube ends [B31F 1/008](#))}
- B31F 1/0006 • {Bending or folding; Folding edges combined with joining; Reinforcing edges during the folding thereof; (creasing [B31F 1/08](#), crêping paper [B31F 1/12](#), corrugating [B31F 1/20](#); bending and joining [B31F 1/0045](#); ~~stretching and folding~~ [B31F 1/00B2B2](#); Reinforcing edges per se [B31F 5/08](#); making wound articles [B31C](#), folding thin material per se [B65H 45/00](#))}

Project: N/A (B32B)

- U B32B 17/00 **Layered products essentially comprising sheet glass, or glass, slag, or like fibres**

- U B32B 17/06 • comprising glass as the main or only constituent of a layer, next to another layer of a specific material (coating on glass [C03C 17/00](#) ; safety glazings [B32B 17/08](#) or [B32B 17/10](#) ; fire protective glazing with intumescent layers [B32B 17/069](#))}
- B32B 17/10 • • of synthetic resin (producing optical elements from plastics [B29D 11/00](#) ; constructional form of optical elements [G02B](#))}

NOTE

1. In this group a layer of organic glass is not considered as a glass layer but as a synthetic resin layer];
2. [N: Inventions related to safety glazings (laminated glazings) are classified in all appropriate subgroups [B32B 17/10009](#) to [B32B 17/10L](#), whereby *transparent polymeric layers other than the interlayer* ([B32B 17/10 L](#); ~~whereby transparent polymeric layers other than the interlayer~~ ([B32B 17/10 G](#)) are classified using indexing codes

- U B32B 17/10165 • • • {particular functional features of the laminated glazing}
- B32B 17/10339 • • • {Specific parts of the laminated glazing being colored or tinted (tinted glass [B32B 17/1011](#) ; tinted interlayer [B32B 17/10G08](#) [B32B 17/10651](#))}

- B32B 18/00 **Laminated products composed mainly of ceramics, e.g. refractory materials (semi-permeable membranes made of inorganic material [B01D 71/02](#) ; ceramic coatings on glass [C03C 17/00](#) ; joining of ceramic layers [C04B 37/00](#) ; coating of ceramics [C04B 41/45](#) ; applying ceramic coatings on metallic materials [C23](#); applying ceramic coatings on silicon for semi-conductor purposes [H01L](#))}**

NOTE

In group [B32B 18/00](#) , from 01-10-2008 onwards, features relating to interlayers, additional compositional information or further processing are indexed with codes chosen from [C04B 2237/00](#) to [C04B 2237/70-R](#) [C04B 2237/70R](#)

- U B32B 37/00** **Methods or apparatus for laminating, e.g. by curing or by ultrasonic bonding**{ making non-planar products [B32B 1/00](#) ; making products characterised by particular features of structure or of composition, see the relevant groups for such products, e.g. making layered products containing glass and synthetic resin layers [B32B 17/10807](#) ; coating of single webs or the like [B05](#) }
- U B32B 37/0046 · {characterised by constructional aspects of the apparatus}
- B32B 2037/0061 · · {the apparatus being an office laminator}
- B32B 2037/0069 · · {the apparatus being originally designed for another function, e.g. printer, photocopier}
- B32B 2037/0092 · {in which absence of adhesives is explicitly presented as an advantage}
- U B32B 37/10 · characterised by the pressing technique, e.g. using action of vacuum or fluid pressure
- B32B 2037/1063 · · {using an electrostatic force}
- B32B 2037/1072 · · {using a fluid jet}
- B32B 2037/1081 · · {using a magnetic force}
- B32B 2037/109 · · {using a squeegee}
- U B32B 37/12 · characterised by using adhesive
- U B32B 37/1207 · · {Heat-activated adhesive(laminating by the partial melting of layers to form the bond [B32B 37/04](#) takes precedence)}
- B32B 2037/1215 · · · {Hot-melt adhesive}
- B32B 2037/1223 · · · {film-shaped}
- B32B 2037/123 · · · {net-shaped}
- B32B 2037/1238 · · · {in the form of powder}
- B32B 2037/1246 · · {Other adhesives(not used)}
- B32B 2037/1253 · · · **curable**{**curable**}
- B32B 2037/1261 · · · · {moisture curable}
- B32B 2037/1269 · · · {multi-component adhesive}
- B32B 2037/1276 · · · {water-based adhesive}
- U B32B 37/14 · characterised by the properties of the layers
- B32B 2037/148 · · {whereby layers material is selected in order to facilitate recycling of the laminate}
- U B32B 37/24 · · with at least one layer not being coherent before laminating, e.g. made up from granular material sprinkled onto a substrate([B32B 37/15](#) takes precedence)
- NOTE**
When classifying in group [B32B 37/24](#) , the technique can be further indexed by using the indexing codes chosen from [B32B 37/24](#) and subgroups
- B32B 2037/243 · · · **Coating**{**Coating**}
- B32B 2037/246 · · · {Vapour deposition}
- U B32B 37/26 · · with at least one layer which influences the bonding during the lamination process, e.g. release layers or pressure equalising layers
- NOTE**
When classifying in group [B32B 37/26](#) , said at least one layer can be further indexed by using the indexing codes chosen from [B32B 37/26](#) and subgroups
- B32B 2037/262 · · · {Partition plates or sheets for separating several laminates pressed simultaneously}

B32B 2037/264	• • • {Pressure equalizing layers}
B32B 2037/266	• • • {Cushioning layers}
B32B 2037/268	• • • {Release layers}
U B32B 38/00	Ancillary operations in connection with laminating processes
U B32B 38/0012	• {Mechanical treatment, e.g. roughing, deforming, stretching}
	<u>NOTE</u> When classifying in group B32B 38/0012 , the treatment can be further indexed by using the indexing codes chosen from B32B 38/0012 and subgroups
B32B 2038/0016	• • Abrading {Abrading}
B32B 2038/002	• • Sandblasting {Sandblasting}
B32B 2038/0024	• • Crushing {Crushing}
B32B 2038/0028	• • {Stretching, elongating}
U B32B 38/0036	• {Heat treatment(for heating or cooling of layers during lamination B32B 37/06 , B32B 37/08)}
	<u>NOTE</u> When classifying in group B32B 38/0036 , the heat treatment can be further indexed by using the indexing codes chosen from B32B 38/0036 and subgroups
B32B 2038/0044	• • {for creating local stresses}
B32B 2038/0048	• • {Annealing, relaxing}
B32B 2038/0052	• {Other operations not otherwise provided for}
B32B 2038/0056	• • Moistening {Moistening}
B32B 2038/006	• • {Relieving internal or residual stresses}
B32B 2038/0064	• • {Smoothing, polishing, making a glossy surface}
B32B 2038/0068	• • {Changing crystal orientation}
B32B 2038/0072	• • {Orienting fibers}
B32B 2038/0076	• • {Curing, vulcanising, cross-linking}
B32B 2038/008	• • {Sewing, stitching}
B32B 2038/0084	• • Foaming {Foaming}
B32B 2038/0088	• • {Expanding, swelling}
B32B 2038/0092	• • Metallizing {Metallizing}
B32B 2038/0096	• • Riveting {Riveting}
U B32B 38/04	• Punching, slitting or perforating
	<u>NOTE</u> When classifying in group B32B 38/04 , the operation can be further indexed by using the indexing codes chosen from B32B 38/04 and subgroups
B32B 2038/042	• • Punching {Punching}
B32B 2038/045	• • Slitting {Slitting}
B32B 2038/047	• • Perforating {Perforating}
U B32B 38/16	• Drying; Softening; Cleaning

- U B32B 38/164
- • {Drying}
- NOTE
When classifying in group [B32B 38/164](#), the drying operation can be further indexed by using the indexing codes chosen from [B32B 38/164](#) and subgroups
- B32B 2038/166
- • • {Removing moisture}
- B32B 2038/168
- • • {Removing solvent}
- U B32B 38/18
- Handling of layers or the laminate
- B32B 2038/1891
- • {Using a robot for handling the layers}
- U B32B 41/00** **Arrangements for controlling or monitoring lamination processes; Safety arrangements**
- B32B 2041/04
- {Detecting wrong registration, misalignment, deviation, failure}
- B32B 2041/06
- {Starting the lamination machine or method}
- B32B 2274/00** **Thermoplastic elastomer material(~~thermoplastic elastomer fibres L32B260/02B2~~, ~~thermoplastic elastomer particles B32B 2264/0221~~, ~~thermoplastic elastomer foam B32B 2266/0292~~ *thermoplastic elastomer fibres B32B 2262/0215*, *thermoplastic elastomer particles B32B 2264/0221*, *thermoplastic elastomer foam B32B 2266/0292*)**
- U B32B 2310/00** **Treatment by energy or chemical effects**
- U B32B 2310/02
- Not used
- B32B 2310/021
- • using electrical effects(~~L32B310:08~~*B32B 2310/08* and [B32B 2310/12](#) take precedence)
- B32B 2315/00** **Other materials containing non-metallic inorganic compounds not provided for in groups ~~L32B311:00~~*B32B 2311/00* to [B32B 2313/04](#)**

Project: N/A (B41F)

- U B41F 13/00** **Common details of rotary presses or machines**
- B41F 13/02
- Conveying or guiding webs through presses or machines(web handling in general [B65H](#), e.g. step-by-step advancement [B41F 21/00](#), turning or reversing ~~B41F23/32~~*B65H 23/32*)

Project: N/A (B41J)

- U B41J 2/00** **Typewriters or selective printing mechanisms characterised by the printing or marking process for which they are designed (mounting, arrangement, or disposition of types or dies [B41J 1/00](#); marking methods [B41M 5/00](#); structure or manufacture of heads, e.g. inductive, for recording by magnetisation or demagnetisation of a record carrier [G11B 5/127](#); heads for reproducing capacitive information [G11B 9/07](#))**

NOTES

This group covers devices reproducing only a discrete number of tones, whereas group [H04N 1/00](#) covers devices used for the reproduction of documents or the like, which devices are capable of reproducing continuous tone value scales.

In this group, the following expressions are used with the meanings indicated:

- "ink jet" involves the projection of ink on to the printing material, e.g. paper, through a nozzle as a stream of droplets or particles of colouring matter
- "continuous ink jet" means a jet of ink transformed into a continuous stream of droplets or particles of colouring matter after having left the nozzle

- "ink spray" means a spray of ink transported by a stream of charged particles or air on to the printing material

- U B41J 2/005
 - characterised by bringing liquid or particles selectively into contact with a printing material (printing by selective application of impact or pressure on a printing or impression-transfer material [B41J 2/22](#))
- B41J 2002/0052
 - • {Control methods or devices for non ink jet heads }
- B41J 2002/0055
 - • {Heating elements adjacent to nozzle orifices of printhead for warming up ink meniscuses, e.g. for lowering the surface tension of the ink meniscuses }
- U B41J 2/01
 - • Ink jet
- B41J 2002/012
 - • • {with intermediate transfer member }
- U B41J 2/015
 - • • characterised by the jet generation process ([B41J 2/215](#) takes precedence)
- U B41J 2/02
 - • • • generating a continuous ink jet
- B41J 2002/022
 - • • • • {Control methods or devices for continuous ink jet }
- U B41J 2/03
 - • • • • by pressure
- B41J 2002/031
 - • • • • • {Gas flow deflection }
- B41J 2002/032
 - • • • • • {Deflection by heater around the nozzle }
- B41J 2002/033
 - • • • • • {Continuous stream with droplets of different sizes }
- U B41J 2/04
 - • • • generating single droplets or particles on demand
- B41J 2002/041
 - • • • • {Electromagnetic transducer }
- B41J 2002/043
 - • • • • {Electrostatic transducer }
- U B41J 2/06
 - • • • • by electric or magnetic field
- B41J 2002/061
 - • • • • • {Ejection by electric field of ink or of toner particles contained in ink }
- B41J 2002/062
 - • • • • • {by using a divided counter electrode opposite to ejection openings of an electrostatic printhead, e.g. for controlling the flying direction of ejected toner particles by providing the divided parts of the counter electrode with different potentials }
- B41J 2002/063
 - • • • • • {Moving solid toner particles in carrier liquid by eletrostatic force acting on the toner particles, e.g. for accumulating the toner particles around an ejection electrode of an electrostatic printhead }
- U B41J 2/135
 - • • Nozzles
- U B41J 2/14
 - • • • Structure thereof {only for on-demand ink jet heads}
- U B41J 2/14016
 - • • • • {Structure of bubble jet print heads}
- B41J 2002/14169
 - • • • • • {Bubble vented to the ambience }
- B41J 2002/14177
 - • • • • • {Segmented heater }
- B41J 2002/14185
 - • • • • • {characterised by the position of the heater and the nozzle }
- B41J 2002/14193
 - • • • • • {movable member in the ink chamber (for bubble jet [B41J 2/14048](#))}
- U B41J 2/14201
 - • • • • {Structure of print heads with piezoelectric elements}
- U B41J 2/14209
 - • • • • • {of finger type, chamber walls consisting integrally of piezoelectric material}
- B41J 2002/14217
 - • • • • • • {Multi layer finger type piezoelectric element }
- B41J 2002/14225
 - • • • • • • {Finger type piezoelectric element on only one side of the chamber }
- U B41J 2/14233
 - • • • • • {of film type, deformed by bending and disposed on a diaphragm}
- B41J 2002/14241
 - • • • • • • {having a cover around the piezoelectric thin film element }
- B41J 2002/1425
 - • • • • • • {Embedded thin film piezoelectric element }
- B41J 2002/14258
 - • • • • • • {Multi layer thin film type piezoelectric element }

B41J 2002/14266	. . . . . {Sheet-like thin film type piezoelectric element }
B41J 2002/14306	. . . . . {Flow passage between manifold and chamber }
B41J 2002/14322	. . . . . {Print head without nozzle }
B41J 2002/14338	. . . . . {Multiple pressure elements per ink chamber (for bubble jet B41J 2/14056) }
B41J 2002/14346	. . . . . {Ejection by pressure produced by thermal deformation of ink chamber, e.g. buckling }
B41J 2002/14354	. . . . . {Sensor in each pressure chamber }
B41J 2002/14362	. . . . . {Assembling elements of heads }
B41J 2002/1437	. . . . . {Back shooter }
B41J 2002/14379	. . . . . {Edge shooter }
B41J 2002/14387	. . . . . {Front shooter }
B41J 2002/14395	. . . . . Electrowetting { Electrowetting }
B41J 2002/14403	. . . . . {including a filter }
B41J 2002/14411	. . . . . {Groove in the nozzle plate }
B41J 2002/14419	. . . . . {Manifold (for bubble jet B41J 2/14145) }
U B41J 2/14427	. . . . . { Structure of ink jet print heads with thermal bend detached actuators }
B41J 2002/14435	. . . . . {Moving nozzle made of thermal bend detached actuator }
B41J 2002/14443	. . . . . {Nozzle guard }
B41J 2002/14459	. . . . . {Matrix arrangement of the pressure chambers }
B41J 2002/14467	. . . . . {Multiple feed channels per ink chamber }
B41J 2002/14475	. . . . . {characterised by nozzle shapes or number of orifices per chamber }
B41J 2002/14483	. . . . . {Separated pressure chamber (for bubble jet B41J 2/14064) }
B41J 2002/14491	. . . . . {Electrical connection (for bubble jet B41J 2/14072) }
U B41J 2/165	. . . . Preventing {or detecting} of nozzle clogging, e.g. cleaning, capping or moistening for nozzles
B41J 2002/16502	. . . . . {Printhead constructions to prevent nozzle clogging or facilitate nozzle cleaning }
U B41J 2/16505	. . . . . {Caps, spittoons or covers for cleaning or preventing drying out}
U B41J 2/16508	. . . . . {connected with the printer frame}
U B41J 2/16511	. . . . . {Constructions for cap positioning (B41J 2/16547 takes precedence)}
B41J 2002/16514	. . . . . {creating a distance between cap and print head, e.g. for suction or pressurising }
U B41J 2/16517	. . . . . { Cleaning of print head nozzles (B41J 2/16505 , B41J 2/1707 , B41J 2/1714 take precedence)}
U B41J 2/1652	. . . . . { by driving a fluid through the nozzles to the outside thereof, e.g. by applying pressure to the inside or vacuum at the outside of the print head }
U B41J 2/16526	. . . . . {by applying pressure only}
B41J 2002/16529	. . . . . {Idle discharge on printing matter }
U B41J 2/16535	. . . . . {using wiping constructions (B41J 2/16552 takes precedence)}
B41J 2002/1655	. . . . . {with wiping surface parallel with nozzle plate and mounted on reels, e.g. cleaning ribbon cassettes }
U B41J 2/16552	. . . . . {using cleaning fluids}
B41J 2002/16555	. . . . . {Air or gas for cleaning }
B41J 2002/16558	. . . . . {Using cleaning liquid for wet wiping }

	B41J 2002/16561	. . . . . {by an electrical field }
	B41J 2002/16564	. . . . . {Heating means therefor, e.g. for hot melt inks}
	B41J 2002/16567	. . . . . {using ultrasonic or vibrating means }
	B41J 2002/1657	. . . . . {Cleaning of only nozzles or print head parts being selected }
	B41J 2002/16573	. . . . . {Cleaning process logic, e.g. for determining type or order of cleaning processes }
	B41J 2002/16576	. . . . . {Cleaning means pushed or actuated by print head movement }
	B41J 2002/16582	. . . . . {Maintenance means fixed on the print head or its carriage }
U	B41J 2/16585	. . . . . { for paper-width or non-reciprocating print heads} M1104]
	B41J 2002/16591	. . . . . {for line print heads above an endless belt }
	B41J 2002/16594	. . . . . {Pumps or valves for cleaning }
	B41J 2002/16597	. . . . . {Pumps for idle discharge of liquid through nozzles }
U	B41J 2/17	. . . characterised by ink handling
U	B41J 2/1721	. . . . {Collecting waste ink; Collectors therefor}
	B41J 2002/1728	. . . . . {Closed waste ink collector }
	B41J 2002/1735	. . . . . {Closed waste ink collector with ink supply tank in common container }
	B41J 2002/1742	. . . . . {Open waste ink collector, e.g. ink receiving from a print head above the collector during borderless printing }
U	B41J 2/175	. . . . Ink supply systems; {Circuit parts therefor}
U	B41J 2/17503	. . . . . {Ink cartridges}
U	B41J 2/17513	. . . . . {Inner structure}
	B41J 2002/17516	. . . . . {comprising a collapsible ink holder, e.g. a flexible bag }
U	B41J 2/17566	. . . . . {Ink level or ink residue control}
	B41J 2002/17569	. . . . . {based on the amount printed or to be printed }
	B41J 2002/17573	. . . . . {using optical means for ink level indication }
	B41J 2002/17576	. . . . . {using a floater for ink level indication }
	B41J 2002/17579	. . . . . {Measuring electrical impedance for ink level indication }
	B41J 2002/17583	. . . . . {using vibration or ultra-sons for ink level indication }
	B41J 2002/17586	. . . . . {using ink bag deformation for ink level indication }
	B41J 2002/17589	. . . . . {using ink level as input for printer mode selection or for prediction of remaining printing capacity }
U	B41J 2/18	. . . . Ink recirculation systems
U	B41J 2/185	. . . . . Ink-collectors; Ink-catchers
	B41J 2002/1853	. . . . . {ink collectors for continuous Inkjet printers, e.g. gutters, mist suction means }
	B41J 2002/1856	. . . . . {waste ink containers }
U	B41J 2/205	. . . for printing a discrete number of tones (B41J 2/21 takes precedence)
U	B41J 2/2056	. . . . {by ink density change}
	B41J 2002/2058	. . . . . {selecting different ink densities from one colour }
U	B41J 2/435	. characterised by selective application of radiation to a printing material or impression-transfer material (optical elements, systems, or apparatus G02B ; modulation or deflection of light G02F ; electrophotography G03G)
U	B41J 2/447	. . using arrays of radiation sources (B41J 2/475 takes precedence)
U	B41J 2/45	. . . using light-emitting diode { [LED] or laser} arrays
	B41J 2002/453	. . . . {self-scanning }

- U B41J 2/475
 - • for heating selectively {by radiation or ultrasonic waves}
- U B41J 2/4753
 - • • {using thermosensitive substrates, e.g. paper}
- B41J 2002/4756
 - • • • {Erasing by radiation }
- U **B41J 25/00**

Actions or mechanisms not otherwise provided for

 - {comprising a plurality of print heads placed around a drum }
- U **B41J 29/00**

Details of, or accessories for, typewriters or selective printing mechanisms not otherwise provided for
- U B41J 29/38
 - Drives, motors, controls or automatic cut-off devices for the entire printing mechanism
- U B41J 29/393
 - • Devices for controlling or analysing the entire machine; { Controlling or analysing mechanical parameters involving printing of test patterns}
- B41J 2029/3932
 - • • {Battery or power source mounted on the carriage }
- B41J 2029/3935
 - • • {by means of printed test patterns }
- B41J 2029/3937
 - • • {Wireless communication between the printer and the cartridge, carriage or printhead }

Project: N/A (B41K)

- U **B41K 1/00**

Portable hand-operated devices without means for supporting or locating the articles to be stamped, i.e. hand stamps; Inking devices or other accessories therefor
- B41K 1/003
 - {combined with other articles (combination of writing appliances with stamps **B43K29/005** **B43K 29/005**)}

Project: N/A (B41M)

- U **B41M 1/00**

Inking and printing with a printer`s forme
- U B41M 1/26
 - Printing on other surfaces than ordinary paper([B41M 1/40](#) takes precedence)
- B41M 1/30
 - • on organic plastics, horn or similar materials{(recording sheets having a coating to improve ink, dye or pigment receptivity [B41M 5/50](#) ; marking or recording on plastic by irradiation with electromagnetic beams, e.g. laser, **B41M 5/26 L** **B41M5/26L**)}
- U **B41M 5/00**

Duplicating or marking methods; Sheet materials for use therein(by using light-sensitive materials [G03](#) ; electrography, magnetography [G03G](#) ; { repeatedly usable boards or tablets for writing or drawing [B43L 1/00](#) })
- B41M 5/20
 - using electric current([B41M 5/24](#) takes precedence; { processes in which the current is transformed into a heat pattern for obtaining transfer to a receptor sheet [B41M 5/382](#) ; electro-coagulable or electro-adhesive printing or recording **B41C 1/10 C** **B41C1/10C**)}
- U B41M 5/26
 - Thermography([B41M 5/20](#) , [B41M 5/24](#) take precedence);{Marking by high energetic means, e.g. laser otherwise than by burning, and characterised by the material used([B23K](#) takes precedence; thermographic or photothermographic systems using noble metal compounds [G03C 1/494](#))}
- U B41M 5/36
 - • using a polymeric layer, which may be particulate and which is deformed or structurally changed with modification of its' properties, e.g. of its' optical hydrophobic-hydrophilic, solubility or permeability properties{ [B41C 1/10](#) takes precedence }
- B41M 2005/365
 - • • {Marking of plastic artifacts, e.g. with a laser}

Project: N/A (B41P)

- U B41P 2213/00 Arrangements for actuating or driving printing presses; Auxiliary devices or processes**
- U B41P 2213/40
 - Auxiliary devices or processes associated with the drives
 - B41P 2213/42
 - • Vibration-dampers for machine parts (for cylinders [B41F 13/08A](#) [B41F 13/08A](#))
 - U B41P 2227/00 Mounting or handling printing plates; Forming printing surfaces in situ**
 - B41P 2227/20
 - Means enabling or facilitating exchange of tubular printing or impression members, e.g. printing sleeves, blankets (attaching cylindrical printing formes [B41F 27/10B](#) [B41F 27/10B](#))

Project: N/A (B43K)

- B43K 25/00 Attaching writing implements to wearing apparel or objects involving constructional changes of the implements (protecting means, e.g. caps [B43K 23/08](#); garment-holding devices [A44B 21/00](#) [A44B 99/00](#); fastening articles to wearing apparel [A45F 5/02](#))**

Project: N/A (B60B)

- U B60B 33/00 Castors in general; {Anti-clogging castors}{castors for large containers [B65D 90/18](#)}**
- U B60B 33/0028
 - {Construction of wheels; methods of assembling on axle}
 - U B60B 2033/0031
 - • {the axle being inclined}
 - U B60B 2033/0034
 - {having means for blocking by gripping on the ground}

Project: N/A (B60C)

- U B60C 1/00 Tyres characterised by the chemical composition or the physical arrangement or mixture of the composition**
- NOTE
- Tyres characterised by compositions only, i.e. having no significant tyre structure, are classified only with the compositions, e.g. [C08K](#) , [C08L](#)
- B60C 2001/0033
 - {Compositions of the sidewall inserts, e.g. for runflat}
 - B60C 2001/005
 - {Compositions of the bead portions, e.g. clinch or chafer rubber or cushion rubber}
 - B60C 2001/0058
 - • {Compositions of the bead apexes}
 - B60C 2001/0066
 - {Compositions of the belt layers}
 - B60C 2001/0075
 - {Compositions of belt cushioning layers}
 - B60C 2001/0083
 - {Compositions of the cap ply layers}
 - B60C 2001/0091
 - {Compositions of non-inflatable or solid tyres}
 - U B60C 3/00 Tyres characterised by the transverse section(characterised by rail-engaging elements [B60B 17/00](#))**
 - B60C 2003/005
 - {Twin tyres}
 - U B60C 5/00 Inflatable pneumatic tyres or inner tubes([B60C 1/00](#) , [B60C 9/00](#) to [B60C 17/00](#) take precedence)**
 - U B60C 5/12
 - without separate inflatable inserts, e.g. tubeless tyres with transverse section open to the rim([B60C 5/20](#) takes precedence)
 - U B60C 5/14
 - • with impervious liner or coating on the inner wall of the tyre([B60C 21/04](#) , [B60C 21/08](#) take precedence)
 - B60C 2005/145
 - • • {made of laminated layers}

B60C 2005/147	<ul style="list-style-type: none"> • • {characterised by the joint or splice}
U B60C 7/00	Non-inflatable or solid tyres(B60C 1/00 takes precedence; tyres or rims characterised by rail engaging elements B60B 17/00)
B60C 2007/005	<ul style="list-style-type: none"> • {made by casting, e.g. of polyurethane}
U B60C 7/10	<ul style="list-style-type: none"> • characterised by means for increasing resiliency(highly resilient wheels B60B 9/00)
B60C 2007/107	<ul style="list-style-type: none"> • • {comprising lateral openings}
U B60C 7/14	<ul style="list-style-type: none"> • • using springs
B60C 2007/146	<ul style="list-style-type: none"> • • • {extending substantially radially, e.g. like spokes}
U B60C 9/00	Reinforcements or ply arrangement of pneumatic tyres(inserts having reinforcing means B60C 5/08 ; bead structure, e.g. turnup or overlap construction, B60C 15/00 ; tyre cords per se D02G 3/48 ; fabrics per se D03D , D04H ; metal ropes or cables per se D07B 1/06){B}
	NOTE
	When classifying in this group, classification is also made in subclass B32B insofar as any layered product is concerned
U B60C 9/0007	<ul style="list-style-type: none"> • {Reinforcements made of metallic elements, e.g. cords, yarns, filaments or fibres made from metal}
B60C 2009/0014	<ul style="list-style-type: none"> • • {Surface treatments of steel cords}
B60C 2009/0021	<ul style="list-style-type: none"> • • {Coating rubbers for steel cords}
B60C 2009/0035	<ul style="list-style-type: none"> • {Reinforcements made of organic materials, e.g. rayon, cotton or silk}
B60C 2009/0071	<ul style="list-style-type: none"> • {characterised by special physical properties of the reinforcements}
B60C 2009/0078	<ul style="list-style-type: none"> • • Modulus{Modulus}
B60C 2009/0085	<ul style="list-style-type: none"> • • {Tensile strength}
B60C 2009/0092	<ul style="list-style-type: none"> • • {Twist structure}
U B60C 9/02	<ul style="list-style-type: none"> • Carcasses
B60C 2009/0215	<ul style="list-style-type: none"> • • {Partial carcass reinforcing plies, i.e. the plies neither crossing the equatorial plane nor folded around the bead core}
B60C 2009/0223	<ul style="list-style-type: none"> • • {comprising a cushion layer between adjacent carcass plies}
U B60C 9/0238	<ul style="list-style-type: none"> • • {characterised by special physical properties of the carcass ply}
B60C 2009/0246	<ul style="list-style-type: none"> • • • {Modulus of the ply}
B60C 2009/0253	<ul style="list-style-type: none"> • • • • {being different between adjacent plies}
B60C 2009/0261	<ul style="list-style-type: none"> • • • • {being different within the same ply}
B60C 2009/0269	<ul style="list-style-type: none"> • • {Physical properties or dimensions of the carcass coating rubber}
B60C 2009/0276	<ul style="list-style-type: none"> • • • {Modulus; Hardness; Loss modulus or "tangens delta"}
B60C 2009/0284	<ul style="list-style-type: none"> • • • Thickness{Thickness}
U B60C 9/04	<ul style="list-style-type: none"> • • the reinforcing cords of each carcass ply arranged in a substantially parallel relationship
B60C 2009/0408	<ul style="list-style-type: none"> • • • {Carcass joints or splices}
B60C 2009/0416	<ul style="list-style-type: none"> • • • {Physical properties or dimensions of the carcass cords}
B60C 2009/0425	<ul style="list-style-type: none"> • • • • {Diameters of the cords; Linear density thereof}
B60C 2009/0433	<ul style="list-style-type: none"> • • • • Modulus{Modulus}
B60C 2009/0441	<ul style="list-style-type: none"> • • • • {Density in width direction}
B60C 2009/045	<ul style="list-style-type: none"> • • • • {Tensile strength}
B60C 2009/0458	<ul style="list-style-type: none"> • • • • {Elongation of the reinforcements at break point}

	B60C 2009/0466	. . . {Twist structures}
	B60C 2009/0475	. . . {Particular materials of the carcass cords}
	B60C 2009/0483	. . . {Different cords in the same layer}
	B60C 2009/0491	. . . {with special path of the carcass cords, e.g. sinusoidal}
U	B60C 9/14	. . built-up with sheets, webs, or films of homogeneous material, e.g. synthetics, sheet metal, rubber
	B60C 2009/145	. . . {at the inner side of the carcass structure}
U	B60C 9/18	. Structure or arrangement of belts or breakers, crown-reinforcing or cushioning layers
U	B60C 9/1807	. . {comprising fabric reinforcements}
	B60C 2009/1814	. . . {square woven}
	B60C 2009/1828	. . {characterised by special physical properties of the belt ply}
U	B60C 9/1835	. . {Rubber strips or cushions at the belt edges(compositions B60C 2001/0075)}
	B60C 2009/1842	. . . {Width or thickness of the strips or cushions}
	B60C 2009/1857	. . . {radially above the belt plies}
	B60C 2009/1864	. . . {wrapped around the edges of the belt}
	B60C 2009/1871	. . {with flat cushions or shear layers between belt layers}
	B60C 2009/1878	. . {with flat cushions or shear layers between the carcass and the belt}
	B60C 2009/1885	. . {with belt ply between adjacent carcass plies}
	B60C 2009/1892	. . {with belt ply radial inside the carcass structure}
U	B60C 9/20	. . built-up from rubberised plies each having all cords arranged substantially parallel
	B60C 2009/2012	. . . {with particular configuration of the belt cords in the respective belt layers}
	B60C 2009/2016	. . . {comprising cords at an angle of 10 to 30 degrees to the circumferential direction}
	B60C 2009/2019	. . . {comprising cords at an angle of 30 to 60 degrees to the circumferential direction}
	B60C 2009/2022	. . . {comprising cords at an angle of 60 to 90 degrees to the circumferential direction}
	B60C 2009/2025	. . . {with angle different or variable in the same layer}
	B60C 2009/2029	. . . {with different cords in the same layer, i.e. cords with different materials or dimensions}
	B60C 2009/2032	. . . {characterised by the course of the belt cords, e.g. undulated or sinusoidal}
	B60C 2009/2035	. . . {built-up by narrow strips}
	B60C 2009/2038	. . . {using lateral belt strips at belt edges, e.g. edge bands}
	B60C 2009/2041	. . . {with an interrupted belt ply, e.g. using two or more portions of the same ply}
	B60C 2009/2045	. . . {with belt joints or splices}
	B60C 2009/2048	. . . {characterised by special physical properties of the belt plies}
	B60C 2009/2051	. . . . {Modulus of the ply}
	B60C 2009/2054	. . . . {being different within the same ply}
	B60C 2009/2058	. . . . {being different between adjacent plies}
	B60C 2009/2061	. . . {Physical properties or dimensions of the belt coating rubber}
	B60C 2009/2064	. . . . {Modulus; Hardness; Loss modulus or "tangens delta"}
	B60C 2009/2067	. . . . Thickness{Thickness}

B60C 2009/207	. . . . {Double layers, e.g. using different rubbers in the same belt ply}
B60C 2009/2074	. . . . {Physical properties or dimension of the belt cord}
B60C 2009/2077	. . . . {Diameters of the cords; Linear density thereof}
B60C 2009/208	. . . . {Modulus of the cords}
B60C 2009/2083	. . . . {Density in width direction}
B60C 2009/2087	. . . . . {with variable density in the same layer}
B60C 2009/209	. . . . {Tensile strength}
B60C 2009/2093	. . . . {Elongation of the reinforcements at break point}
B60C 2009/2096	. . . . {Twist structures}
U B60C 9/22	. . . the plies being arranged with all cords disposed along the circumference of the tyre
U B60C 9/2204	. . . . {obtained by circumferentially narrow strip winding}
B60C 2009/2209	. . . . . {characterised by tension of the cord during winding}
B60C 2009/2214	. . . . {characterised by the materials of the zero degree ply cords}
B60C 2009/2219	. . . . {with a partial zero degree ply at the belt edges - edge band}
B60C 2009/2223	. . . . {with an interrupted zero degree ply, e.g. using two or more portions for the same ply}
B60C 2009/2228	. . . . {characterised by special physical properties of the zero degree plies}
B60C 2009/2233	. . . . . {Modulus of the zero degree ply}
B60C 2009/2238	. . . . {Physical properties or dimensions of the ply coating rubber}
B60C 2009/2242	. . . . . {Modulus; Hardness; Loss modulus or "tangens delta"}
B60C 2009/2247	. . . . . Thickness {Thickness}
B60C 2009/2252	. . . . {Physical properties or dimension of the zero degree ply cords}
B60C 2009/2257	. . . . . {Diameters of the cords; Linear density thereof}
B60C 2009/2261	. . . . . {Modulus of the cords}
B60C 2009/2266	. . . . . {Density of the cords in width direction}
B60C 2009/2271	. . . . . . {with variable density}
B60C 2009/2276	. . . . . {Tensile strength}
B60C 2009/228	. . . . . {Elongation of the reinforcements at break point}
B60C 2009/2285	. . . . . {Twist structures}
B60C 2009/229	. . . . . {characterised by the course of the cords, e.g. undulated or sinusoidal}
B60C 2009/2295	. . . . . {with different cords in the same layer}
U B60C 9/26	. . . Folded plies
U B60C 9/263	. . . {further characterised by an endless zigzag configuration in at least one belt ply, i.e. no cut edge being present}
B60C 2009/266	. . . . {combined with non folded cut-belt plies}
U B60C 9/28	. . . characterised by the belt or breaker dimensions or curvature relative to carcass(B60C 9/30 takes precedence)
B60C 2009/283	. . . . {characterised by belt curvature}
B60C 2009/286	. . . . {being substantially flat}
U B60C 11/00	Tyre tread bands; Tread patterns; Anti-skid inserts
U B60C 11/0008	. {characterised by the tread rubber}
B60C 2011/0016	. . {Physical properties or dimensions}
B60C 2011/0025	. . . {Modulus or tan delta}
B60C 2011/0033	. . . {Thickness of the tread}

	B60C 2011/0091	• {built-up by narrow strip winding}
U	B60C 11/01	• Shape of the shoulders between tread and sidewall, e.g. rounded, stepped, cantilevered(arrangements of grooves or ribs on the sidewalls B60C 13/02)
	B60C 2011/013	• • {provided with a recessed portion}
	B60C 2011/016	• • {different rubber for tread wings}
U	B60C 11/03	• Tread patterns
U	B60C 11/0311	• • {Patterns comprising tread lugs arranged parallel or oblique to the axis of rotation}
	B60C 2011/0313	• • • {directional type}
	B60C 2011/0325	• • {Irregular patterns with particular pitch sequence}
U	B60C 11/0327	• • {characterised by special properties of the tread pattern}
	B60C 2011/0334	• • • Stiffness{Stiffness}
	B60C 2011/0337	• • {characterised by particular design features of the pattern}
	B60C 2011/0339	• • • Grooves{Grooves}
	B60C 2011/0341	• • • • {Circumferential grooves}
	B60C 2011/0344	• • • • • {provided at the equatorial plane}
	B60C 2011/0346	• • • • • {with zigzag shape}
	B60C 2011/0348	• • • • • {Narrow grooves, i.e. having a width of less than 4 mm}
	B60C 2011/0351	• • • • • {Shallow grooves, i.e. having a depth of less than 50% of other grooves}
	B60C 2011/0353	• • • • • {characterised by width}
	B60C 2011/0355	• • • • • {characterised by depth}
	B60C 2011/0358	• • • • {Lateral grooves, i.e. having an angle of 45 to 90 degrees to the equatorial plane}
	B60C 2011/036	• • • • • {Narrow grooves, i.e. having a width of less than 3 mm}
	B60C 2011/0362	• • • • • {Shallow grooves, i.e. having a depth of less than 50% of other grooves}
	B60C 2011/0365	• • • • • {characterised by width}
	B60C 2011/0367	• • • • • {characterised by depth}
	B60C 2011/0369	• • • • • • {with varying depth of the groove}
	B60C 2011/0372	• • • • • {with particular inclination angles}
	B60C 2011/0374	• • • • {Slant grooves, i.e. having an angle of about 5 to 35 degrees to the equatorial plane}
	B60C 2011/0376	• • • • • {characterised by width}
	B60C 2011/0379	• • • • • {characterised by depth}
	B60C 2011/0381	• • • • {Blind or isolated grooves}
	B60C 2011/0383	• • • • • {at the centre of the tread}
	B60C 2011/0386	• • • {Continuous ribs}
	B60C 2011/0388	• • • • {provided at the equatorial plane}
	B60C 2011/039	• • • • {provided at the shoulder portion}
	B60C 2011/0393	• • • • {Narrow ribs, i.e. having a rib width of less than 8 mm}
	B60C 2011/0395	• • • • • {for linking shoulder blocks}
	B60C 2011/0397	• • • • {Sacrificial ribs, i.e. ribs recessed from outer tread contour}
U	B60C 11/12	• • characterised by the use of narrow slits or incisions, e.g. sipes
U	B60C 11/1204	• • • {with special shape of the sipe}
	B60C 2011/1209	• • • • {straight at the tread surface}

	B60C 2011/1213	• • • {sinusoidal or zigzag at the tread surface}
	B60C 2011/1227	• • • {having different shape within the pattern}
	B60C 2011/1231	• • • {being shallow, i.e. sipe depth of less than 3 mm}
U	B60C 11/1236	• • • {with special arrangements in the tread pattern}
	B60C 2011/1245	• • • {being arranged in crossing relation, e.g. sipe mesh}
	B60C 2011/1254	• • • {with closed sipe, i.e. not extending to a groove}
U	B60C 11/1259	• • • {Depth of the sipe}
	B60C 2011/1268	• • • {being different from sipe to sipe}
U	B60C 11/1272	• • • {Width of the sipe}
	B60C 2011/1277	• • • {being narrow, i.e. less than 0.3 mm}
	B60C 2011/1286	• • • {being different from sipe to sipe}
	B60C 2011/129	• • • {Sipe density, i.e. the distance between the sipes within the pattern}
	B60C 2011/1295	• • • variable {variable}
U	B60C 11/13	• • characterised by the groove cross-section, e.g. for buttressing or preventing stone-trapping
U	B60C 11/1307	• • • {with special features of the groove walls}
	B60C 2011/133	• • • {comprising recesses}
	B60C 2011/1338	• • • {comprising protrusions}
U	B60C 11/1353	• • • {with special features of the groove bottom}
	B60C 2011/1361	• • • {with protrusions extending from the groove bottom}
U	B60C 11/14	• Anti-skid inserts, e.g. vulcanised into the tread band
	B60C 2011/142	• • {Granular particles, e.g. hard granules}
	B60C 2011/145	• • {Discontinuous fibres}
	B60C 2011/147	• • {Foamed rubber or sponge rubber on the tread band}
U	B60C 13/00	Tyre sidewalls; Protecting, decorating, marking, or the like, thereof(B60C 17/08 takes precedence; tyre shoulders B60C 11/01)
	B60C 2013/005	• {Physical properties of the sidewall rubber}
	B60C 2013/006	• • {Modulus; Hardness; Loss modulus or "tangens delta"}
	B60C 2013/007	• • Thickness {Thickness}
	B60C 2013/008	• {built-up by narrow strip winding}
U	B60C 13/02	• Arrangement of grooves or ribs
	B60C 2013/026	• • {provided at the interior side only}
U	B60C 13/04	• having annular inlays or covers, e.g. white sidewalls
	B60C 2013/045	• • {comprising different sidewall rubber layers}
U	B60C 15/00	Tyre beads, e.g. ply turn-up or overlap
U	B60C 15/0009	• {features of the carcass terminal portion}
	B60C 2015/009	• • {Height of the carcass terminal portion defined in terms of a numerical value or ratio in proportion to section height}
U	B60C 15/02	• Seating or securing beads on rims(sealing means between beads and rims of tubeless tyres B60C 5/16 ; means for securing solid tyres on rims B60C 7/24 ; rims B60B 21/00)
U	B60C 15/024	• • Bead contour, e.g. lips, grooves or ribs
	B60C 2015/0245	• • • {Bead lips at the bead toe portion, i.e. the axially and radially inner end of the bead}
U	B60C 15/04	• Bead cores(producing bead-rings or bead-cores for tyres B29D 30/48)

	B60C 2015/042	• • {characterised by the material of the core, e.g. alloy}
	B60C 2015/044	• • {characterised by a wrapping layer}
	B60C 2015/046	• • {Cable cores, i.e. cores made-up of twisted wires}
	B60C 2015/048	• • {Polygonal cores characterised by the winding sequence}
U	B60C 15/06	• Flipper strips, fillers, or chafing strips{and reinforcing layers for the construction of the bead}
	B60C 15/0603	• • {characterised by features of the bead filler or apex(compositions of the apex rubber B60C1/00P2B60C 2001/0058)}
	B60C 2015/061	• • • {Dimensions of the bead filler in terms of numerical values or ratio in proportion to section height}
	B60C 2015/0614	• • {characterised by features of the chafer or clinch portion, i.e. the part of the bead contacting the rim}
	B60C 2015/0617	• • {comprising a cushion rubber other than the chafer or clinch rubber}
	B60C 2015/0621	• • • {adjacent to the carcass turnup portion}
	B60C 2015/0625	• • • {provided at the terminal edge portion of a carcass or reinforcing layer}
U	B60C 15/0628	• • {comprising a bead reinforcing layer}
	B60C 2015/0639	• • • {between carcass main portion and bead filler not wrapped around the bead core}
	B60C 2015/0642	• • • {between carcass turn-up and bead filler not wrapped around the bead core}
	B60C 2015/0646	• • • {at the axially inner side of the carcass main portion not wrapped around the bead core}
	B60C 2015/065	• • • {at the axially outer side of the carcass turn-up portion not wrapped around the bead core}
U	B60C 15/0653	• • • {with particular configuration of the cords in the respective bead reinforcing layer}
	B60C 2015/0657	• • • • {comprising cords at an angle of maximal 10 degrees to the circumferential direction}
	B60C 2015/066	• • • • {comprising cords at an angle of 10 to 30 degrees to the circumferential direction}
	B60C 2015/0664	• • • • {comprising cords at an angle of 30 to 60 degrees to the circumferential direction}
	B60C 2015/0667	• • • • {comprising cords at an angle of 60 to 90 degrees to the circumferential direction}
	B60C 2015/0671	• • • • {the cord angle being different or variable within the same layer}
	B60C 2015/0675	• • • • {characterised by the course of the cords, e.g. undulated or sinusoidal}
	B60C 2015/0678	• • • {Physical properties of the bead reinforcing layer, e.g. modulus of the ply}
	B60C 2015/0682	• • • {Physical properties or dimensions of the coating rubber}
	B60C 2015/0685	• • • • {Physical properties or dimensions of the cords, e.g. modulus of the cords}
	B60C 2015/0689	• • • • {Cord density in width direction}
	B60C 2015/0692	• • • {characterised by particular materials of the cords}
	B60C 2015/0696	• • {Asymmetric bead reinforcement, e.g. arrangement of bead reinforcing layer or apex}
U	B60C 17/00	Tyres characterised by means enabling restricted operation in damaged or deflated condition; Accessories therefor(having multiple separate inflatable chambers B60C 5/20 ; { (additional shear belt layers B60C9/18K) })
U	B60C 17/0009	• {comprising sidewall rubber inserts, e.g. crescent shaped inserts}

- B60C 2017/0054 • • {Physical properties or dimensions of the inserts}
- B60C 2017/0063 • • • {Modulus; Hardness; Loss modulus or "tangens delta"}
- B60C 2017/0072 • • • ~~Thickness~~{Thickness}
- B60C 2017/0081 • {comprising special reinforcing means in the crown area}
- U B60C 17/04 • utilising additional non-inflatable supports which become load-supporting in emergency
- U B60C 17/06 • • resilient
- B60C 2017/063 • • • {comprising circumferentially extending reinforcements}
- B60C 2017/068 • • • {comprising springs, e.g. helical springs}
- U B60C 19/00 Tyre parts or constructions not otherwise provided for**
- B60C 2019/004 • {Tyre sensors other than for detecting tyre pressure}
- B60C 2019/005 • {Magnets integrated within the tyre structure}
- B60C 2019/006 • {Warning devices, e.g. devices generating noise due to flat or worn tyres}
- B60C 2019/007 • • {triggered by sensors}
- B60C 2019/008 • {Venting means, e.g. for expelling entrapped air}
- B60C 19/12 • Puncture preventing arrangements([B60C 9/00](#) takes precedence; inflatable inserts having reinforcing means [B60C 5/08](#)); { sealing compositions per se [B29C 73/163](#) ; devices for introducing sealing compositions into the tyre ~~B60C73/16D~~[B29C 73/166](#) }
- U B60C 23/00 Devices for measuring, signalling, controlling, or distributing tyre pressure or temperature, specially adapted for mounting on vehicles(measuring in general [G01](#) , e.g. [G01L 17/00](#) ; remote signalling in general [G08](#)); Arrangement of tyre inflating devices on vehicles, e.g. of pumps, of tanks{(supplying air for tyre inflation [B60S 5/04](#))}; Tyre cooling arrangements**
- B60C 23/005 • {Devices specially adapted for special wheel arrangements}
- NOTE
~~B60C 23/00~~~~B~~~~B60C23/00B~~, [B60C 23/02](#) , [B60C 23/04](#) , [B60C 23/06](#) or [B60C 23/08](#)
- U B60C 29/00 Arrangements of tyre-inflating valves to tyres or rims; Accessories for tyre-inflating valves, not otherwise provided for(tools for mounting or demounting valves [B60C 25/18](#) ; valves per se, valve dust caps [F16K](#))**
- B60C 29/06 • Accessories for tyre-inflating valves, e.g. housings, guards, covers for valve caps, locks, not otherwise provided for{(~~B60C23/00C~~[B60C 23/0496](#) takes precedence; tools for screwing and unscrewing valve caps [B25B 27/0057](#) ; pump connectors [F04B 33/005](#))}

Project: N/A (B60D)

- U B60D 1/00 Traction couplings; Hitches; Draw-gear; Towing devices (devices specially adapted for connection between tractors and agricultural machines or implements [A01B 59/00](#); fifth-wheel couplings [B62D](#))**
- B60D 2001/001 • {specially adapted for use on vehicles other than cars }
- B60D 2001/003 • • {for bicycles or motorbikes }
- B60D 2001/005 • • {for carts, scooters, or the like }
- B60D 2001/006 • • • {comprising a handle }
- B60D 2001/008 • • {specially adapted for implements, e.g. towed tools }
- U B60D 1/48 • characterised by the mounting

- U B60D 1/54 • • collapsible or retractable when not in use, e.g. hide-away hitches ([B60D 1/52](#) takes precedence)
- B60D 2001/542 • • • {characterised by the number of pivot axis }
- B60D 2001/544 • • • • {one pivot axis }
- B60D 2001/546 • • • • {two pivot axes }
- B60D 2001/548 • • • • {three pivot axes }

Project: N/A (B60F)

- U B60F 3/00 **Amphibious vehicles, i.e. vehicles capable of travelling both on land and on water; Land vehicles capable of travelling under water (buoyant wheels [B60B](#); {equipment forming part of, or attachable to vessels, facilitating transport over land [B63C 13/00](#)})**
- B60F 3/0061 • {Amphibious vehicles specially adapted for particular purposes or of a particular type (armoured amphibious vehicles [F41H 7/00](#); equipment for working under water [B63C 11/00](#); flating bridges designed as or mounted on vehicles ~~E01D15/14~~[C5E01D 15/22](#))}

Project: N/A (B60G)**B60G****VEHICLE SUSPENSION ARRANGEMENTS (air-cushion vehicles [B60V](#); { cycle suspensions [B62K 25/00](#)})**NOTES

Attention is drawn to the explanatory note following the class title [B60](#)

Indexing codes [B60G 2200/00](#) to [B60G 2800/00](#) are dedicated to particular aspects of suspension arrangements:

- [B60G 2200/00](#) refers to the type of suspension arrangement;
- [B60G 2202/00](#) refers to the suspension elements used (springs, dampers and actuators);
- [B60G 2204/00](#) refers to mounting features of suspension elements;
- [B60G 2206/00](#) refers to constructional and manufacturing details of suspension elements;
- [B60G 2300/00](#) refers to the type of vehicle;
- [B60G 2400/00](#) to [B60G 2800/00](#) refer to the electronic control of suspension arrangements, whereby:
 - [B60G 2400/00](#) refers to input parameters of the control;
 - [B60G 2401/00](#) refers to types of sensors used;
 - [B60G 2500/00](#) refers to the controlled action or device;
 - [B60G 2600/00](#) refers to particular details of the control system;
 - [B60G 2800/00](#) refers to the result to be achieved by the control action.

Groups [B60G 2200/00](#) to [B60G 2800/00](#) are to be used in multi-aspect classification, so that subject matter characterised by aspects covered by more than one of these groups, which is considered to represent information of interest for search, should be classified in a combination of at least one relevant "invention information" symbol in association with indexing codes from each of these groups.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- [B60G 23/00](#) covered by [B60G 17/0165](#)

Project: N/A (B60H)

- U B60H 1/00** Heating, cooling or ventilating devices (heating, cooling or ventilating devices providing other air treatment, the other treatment being relevant, [B60H 3/00](#); ventilating solely by opening windows, doors, roof parts, or the like [B60J](#); heating or ventilating devices for vehicle seats [B60N 2/56](#); vehicle window or windscreen cleaners using air, e.g. defrosters, [B60S 1/54](#))
- NOTE
In this group and its subgroups, as well as in patent documents, the following abbreviation is used: - HVAC Heating, Ventilating and Air Conditioning
- U B60H 1/00007** . { Combined heating, ventilating, or cooling devices (control systems or mechanisms [B60H 1/00642](#)) }
- U B60H 1/00021** . . { Air flow details of the heating, ventilating and cooling [HVAC] devices }
- B60H 2001/00078** . . . { Assembling, manufacturing or layout details }
- B60H 2001/00085** { of air intake }
- B60H 2001/00092** { of air deflecting or air directing means inside the device }
- B60H 2001/00099** { comprising additional ventilating means }
- B60H 2001/00107** { characterised by the relative position of the heat exchangers, e.g. arrangements leading to a curved airflow }
- B60H 2001/00114** . . . { Heating or cooling details }
- B60H 2001/00121** { More than one heat exchanger in parallel }
- B60H 2001/00128** { Electric heaters }
- B60H 2001/00135** { Deviding walls for separate air flows }
- B60H 2001/00142** { first heating and then cooling }
- B60H 2001/0015** . . . { Temperature regulation }
- B60H 2001/00157** { without by-pass }
- B60H 2001/00164** { with more than one by-pass }
- B60H 2001/00171** { Valves on heaters for modulated liquid flow }
- B60H 2001/00178** { comprising an air passage from the HVAC box to the exterior of the cabin }
- B60H 2001/00185** . . . { Distribution of conditioned air }
- B60H 2001/00192** { to left and right part of passenger compartment }
- B60H 2001/002** { to front and rear part of passenger compartment }
- U B60H 1/00207** . . { characterised by the position of the HVAC devices with respect to the passenger compartment ([B60H 1/00021](#) takes precedence) }
- B60H 2001/00214** . . . { Devices in front of the passenger compartment }
- B60H 2001/00221** . . . { Devices in the floor or side wall area of the passenger compartment }
- B60H 2001/00228** . . . { Devices in the interior of the passenger compartment }
- B60H 2001/00235** . . . { Devices in the roof area of the passenger compartment }
- B60H 2001/00242** . . . { Devices in the rear area of the passenger compartment }
- U B60H 1/00271** . { Heating, cooling or ventilating devices specially adapted for particular vehicle parts or components and being connected to the vehicle HVAC unit }
- B60H 2001/003** . . { Component temperature regulation using an air flow }
- B60H 2001/00307** . . { Component temperature regulation using a liquid flow }
- U B60H 1/00321** . { Heat exchangers for air-conditioning devices ([B60H 1/3227](#) takes precedence) }
- B60H 2001/0035** . . { movable in and out of the air stream }

- U B60H 1/00507
 - {Details, e.g. mounting arrangements, desaeration devices ([B60H 1/32](#) takes precedence)}
- B60H 2001/006
 - • {Noise reduction }
- B60H 2001/00607
 - • ~~Recycling~~ {Recycling }
- B60H 2001/00614
 - • {Cooling of electronic units in air stream }
- B60H 2001/00621
 - • {Fastening lids on air-conditioning housings }
- B60H 2001/00628
 - • {Adaption for left or right hand drive }
- B60H 2001/00635
 - • {Air-tight sealing devices }
- U B60H 1/00642
 - {Control systems or circuits, control members or indication devices for heating, cooling or ventilating devices ([B60H 1/3201](#) - [B60H 1/3208](#), [B60H 1/3225](#) take precedence; dashboards [B60K 37/00](#); systems for controlling or regulating non-electric variables in general [G05D](#))}
- U B60H 1/00664
 - • {Construction or arrangement of damper doors (control systems or circuits for damper doors [B60H 1/00835](#))}
- B60H 2001/007
 - • • {Manufacturing or assembling }
- B60H 2001/00707
 - • • {Details of pivots of damper doors }
- B60H 2001/00714
 - • • {Details of seals of damper doors }
- B60H 2001/00721
 - • • {Air deflecting or air directing means }
- B60H 2001/00728
 - • • {Film doors }
- U B60H 1/00814
 - • {Control systems or circuits characterised by their output, for controlling particular components of the heating, cooling or ventilating installation}
- U B60H 1/00878
 - • • {the components being temperature regulating devices ([B60H 1/00899](#) takes precedence; constructions of valves [B60H 1/00485](#))}
- B60H 2001/00928
 - • • • {comprising a secondary circuit }
- B60H 2001/00935
 - • • • {comprising four way valves for controlling the fluid direction }
- B60H 2001/00942
 - • • • {comprising a plurality of heat exchangers, e.g. for multi zone heating or cooling }
- B60H 2001/00949
 - • • • {comprising additional heating/cooling sources, e.g. second evaporator }
- B60H 2001/00957
 - • • • {comprising locations with heat exchange within the refrigerant circuit itself, e.g. cross-, counter-, or parallel heat exchange }
- B60H 2001/00992
 - • {Calculations modifying a user set value }
- U B60H 1/02
 - the heat being derived from the propulsion plant {([B60H 1/00492](#) takes precedence)}
- U B60H 1/14
 - • otherwise than from cooling liquid of the plant {e.g. heat from the grease oil, the brakes, the transmission unit ([B60H 1/03](#) takes precedence)}
- B60H 2001/146
 - • • {from a viscous fluid heater }
- U B60H 1/22
 - the heat being derived otherwise than from the propulsion plant {([B60H 1/0025](#), [B60H 1/00492](#) and [B60H 1/03](#) take precedence)}
- B60H 2001/2228
 - • {controlling the operation of heaters }
- B60H 2001/2231
 - • • {for proper or safe operation of the heater }
- B60H 2001/2234
 - • • {when vehicle is parked, preheating }
- B60H 2001/2237
 - • • {supplementary heating, e.g. during stop and go of a vehicle }
- B60H 2001/224
 - • • {automatic operation, e.g. control circuits or methods }
- B60H 2001/2243
 - • • {manual operation, e.g. remote control or timer }
- B60H 2001/2246
 - • {obtaining information from a variable, e.g. by means of a sensor }
- B60H 2001/225
 - • • {related to an operational state of another HVAC device }
- B60H 2001/2253
 - • • {related to an operational state of the vehicle or a vehicle component }

B60H 2001/2256	<ul style="list-style-type: none"> • • {related to the operation of the heater itself, e.g. flame detection or overheating }
B60H 2001/2259	<ul style="list-style-type: none"> • • {output of a control signal }
B60H 2001/2262	<ul style="list-style-type: none"> • • {related to the period of on/off time of the heater }
B60H 2001/2265	<ul style="list-style-type: none"> • • {related to the quantity of heat produced by the heater }
B60H 2001/2268	<ul style="list-style-type: none"> • • {Constructional features }
B60H 2001/2271	<ul style="list-style-type: none"> • • {Heat exchangers, burners, ignition devices }
B60H 2001/2275	<ul style="list-style-type: none"> • • {Thermoelectric converters for generating electrical energy }
B60H 2001/2278	<ul style="list-style-type: none"> • • {Connectors, water supply, housing, mounting brackets }
B60H 2001/2281	<ul style="list-style-type: none"> • • {Air supply, exhaust systems }
B60H 2001/2284	<ul style="list-style-type: none"> • • {Fuel supply }
B60H 2001/2287	<ul style="list-style-type: none"> • • {Integration into a vehicle HVAC system or vehicle dashboard (B60H 2001/00128 takes precedence)}
B60H 2001/229	<ul style="list-style-type: none"> • • {Integration into an air outlet }
B60H 2001/2293	<ul style="list-style-type: none"> • • {Integration into other parts of a vehicle }
B60H 2001/2296	<ul style="list-style-type: none"> • • {integration into fluid/air heat exchangers }
U B60H 1/32	<ul style="list-style-type: none"> • Cooling devices ({B60H 1/00478, B60H 1/005 take precedence;} vehicles adapted to transport refrigerated goods B60P 3/20)
B60H 2001/3236	<ul style="list-style-type: none"> • • {information from a variable is obtained }
B60H 2001/3238	<ul style="list-style-type: none"> • • {related to the operation of the compressor }
B60H 2001/3239	<ul style="list-style-type: none"> • • {related to flow }
B60H 2001/3241	<ul style="list-style-type: none"> • • • {of air }
B60H 2001/3242	<ul style="list-style-type: none"> • • • {of a refrigerant }
B60H 2001/3244	<ul style="list-style-type: none"> • • {related to humidity }
B60H 2001/3245	<ul style="list-style-type: none"> • • • {of air }
B60H 2001/3247	<ul style="list-style-type: none"> • • • {of a refrigerant }
B60H 2001/3248	<ul style="list-style-type: none"> • • {related to pressure }
B60H 2001/325	<ul style="list-style-type: none"> • • • {of the refrigerant at a compressing unit }
B60H 2001/3251	<ul style="list-style-type: none"> • • • {of the refrigerant at a condensing unit }
B60H 2001/3252	<ul style="list-style-type: none"> • • • {of the refrigerant at an evaporating unit }
B60H 2001/3254	<ul style="list-style-type: none"> • • • {of the refrigerant at an expansion unit }
B60H 2001/3255	<ul style="list-style-type: none"> • • {related to temperature }
B60H 2001/3257	<ul style="list-style-type: none"> • • • {of the refrigerant at a compressing unit }
B60H 2001/3258	<ul style="list-style-type: none"> • • • {of the air at a condensing unit }
B60H 2001/326	<ul style="list-style-type: none"> • • • {of the refrigerant at a condensing unit }
B60H 2001/3261	<ul style="list-style-type: none"> • • • {of the air at an evaporating unit }
B60H 2001/3263	<ul style="list-style-type: none"> • • • {of the refrigerant at an evaporating unit }
B60H 2001/3264	<ul style="list-style-type: none"> • • • {of the refrigerant at an expansion unit }
B60H 2001/3266	<ul style="list-style-type: none"> • • {related to the operation of the vehicle }
B60H 2001/3267	<ul style="list-style-type: none"> • • {related to the operation of an expansion valve }
B60H 2001/3269	<ul style="list-style-type: none"> • • {output of a control signal }
B60H 2001/327	<ul style="list-style-type: none"> • • {related to a compressing unit }
B60H 2001/3272	<ul style="list-style-type: none"> • • • {to control the revolving speed of a compressor }
B60H 2001/3273	<ul style="list-style-type: none"> • • • {related to the operation of the vehicle , e.g. the compressor driving torque }

B60H 2001/3275	. . . {to control the volume of a compressor }
B60H 2001/3276	. . . {related to a condensing unit }
B60H 2001/3277	. . . {to control the air flow }
B60H 2001/3279	. . . {to control the refrigerant flow }
B60H 2001/328	. . . {related to an evaporating unit }
B60H 2001/3282	. . . {to control the air flow }
B60H 2001/3283	. . . {to control the refrigerant flow }
B60H 2001/3285	. . . {related to an expansion unit }
B60H 2001/3286	. {Constructional features }
B60H 2001/3288	. . {Additional heat source }
B60H 2001/3289	. . {Additional cooling source }
B60H 2001/3291	. . {Locations with heat exchange within the refrigerant circuit itself }
B60H 2001/3292	. . {Compressor drive is electric only }
B60H 2001/3294	. . {Compressor drive is hybrid }
B60H 2001/3295	. . {Compressing means other than compressor }
B60H 2001/3297	. . {Expansion means other than expansion valve }
B60H 2001/3298	. . {Ejector-type refrigerant circuits }
U B60H 1/34	. Nozzles; { Air-diffusers }(dispositions of air diffusers in a vehicle B60H 1/247)
B60H 2001/3464	. . {Details of hinges }
B60H 2001/3471	. . {Details of actuators }
B60H 2001/3478	. . {acting on additional damper doors }
B60H 2001/3485	. . {Air temperature regulation }
B60H 2001/3492	. . {Manufacturing; Assembling }
U B60H 3/00	Other air-treating devices
U B60H 3/0007	. {Adding substances other than water to the air, e.g. perfume, oxygen}
B60H 2003/0042	. . {with ventilating means for adding the substances }
B60H 2003/005	. . {with heating means for adding the substances }
B60H 2003/0057	. . {Servicing means therefor, e.g. for renewal of substances }
B60H 2003/0064	. . {adding more than one substance }
U B60H 3/02	. Moistening; { Devices influencing humidity levels, i.e. humidity control (B60H 1/3202 , B60H 1/3207 take precedence)}
B60H 2003/026	. . {the devices being located in the passenger compartment }
B60H 2003/028	. . {the devices comprising regeneration means }
U B60H 3/06	. Filtering {(B60H 3/0078 takes precedence)}
U B60H 3/0608	. . {Filter arrangements in the air stream}
B60H 2003/065	. . {Details for holding filter elements in position }
U B60H 3/0658	. . { Filter elements specially adapted for their arrangement in vehicles (B60H 3/0608 takes precedence)}
B60H 2003/0666	. . . {the filter element having non-rectangular shape }
B60H 2003/0675	. . {Photocatalytic filters }
B60H 2003/0683	. . {the quality of the filter or the air being checked }
B60H 2003/0691	. . {Adsorption filters, e.g. activated carbon }

Project: N/A (B60J)

- U B60J 1/00** **Windows; Windscreens; Accessories therefor (B60J 10/00 takes precedence; air curtains instead of windows B60J 9/04; { sealing strips for windshields B60J 10/02; sealing sash guides for sliding window panes B60J 10/04; glass partitions inside vehicles to protect occupants against personal attack B60R 21/12})**
- U B60J 1/20** **Accessories, e.g. wind deflectors, blinds (antiglare provisions B60J 3/00; wind deflectors associated with roof openings B60J 7/22; removable external protective coverings for windows or windscreens B60J 11/08; { aerodynamical spoiler for vehicles B62D 35/00; } heating arrangements specially adapted for transparent or reflecting areas H05B 3/84)**
- B60J 1/2011** **{Blinds; curtains or screens reducing heat or light intensity (means against intense light blinding the driver or passengers B60J 3/00)}**
- U B60J 5/00** **Doors (B60J 10/00 takes precedence; window aspects B60J 1/00; { side board or tailgate structures for open load compartments B62D 33/023})**
- U B60J 5/04** **arranged at the vehicle sides {(panel mounted arm-rests B60N 2/466; wall liners B60R 13/02; door edge guards B60R 13/043; padded linings associated with the side doors B60R 21/0428)}**
- U B60J 5/047** **{ characterised by the opening or closing movement}**
- B60J 2005/0475** **{due to absence of the B-pillar }**
- U B60J 7/00** **Non-fixed roofs; Roofs with movable panels { e.g. rotary sunroofs} (B60J 10/00 takes precedence; window aspects B60J 1/00; fixed roofs B62D 25/06; mechanisms for operating wings E05F 11/00, E05F 15/00)**
- U B60J 7/08** **of non-sliding type, i.e. movable or removable roofs or panels, e.g. let-down tops or roofs capable of being easily detached or of assuming a collapsed or inoperative position**
- U B60J 7/12** **{ foldable; Tensioning mechanisms therefor, e.g. struts (B60J 7/10, { B60J 7/20} take precedence)**
- U B60J 7/1204** **{ Control devices, e.g. for compensating tolerances, for defining movement or end position of top, for tensioning the top or for switching to an emergency mode}**
- B60J 2007/1208** **{Control devices}**
- B60J 2007/1213** **{Fastening devices}**
- B60J 2007/1217** **{Pretensioning devices closing the roof aperture when released}**
- B60J 2007/1221** **{construction details of the arches}**
- U B60J 7/185** **Locking arrangements (locks in general E05B)**
- B60J 7/1858** **{ for locking soft tops to a surrounding rigid roof structure, e.g. to a closed vehicle body (B60J 12/00 B60J 12D takes precedence)}**

Project: N/A (B60K)

- U B60K 1/00** **Arrangement or mounting of electrical propulsion units (B60K 7/00 takes precedence; arrangement or mounting of plural diverse prime-movers for mutual or common propulsion B60K 6/00; electric transmission arrangements B60K 17/12; electric equipment or propulsion of electrically-propelled vehicles per se B60L; current-collectors for power supply lines of electrically-propelled vehicles B60L 5/00)**
- B60K 2001/001** **{one motor mounted on a propulsion axle for rotating right and left wheels of this axle }**
- B60K 2001/003** **{with means for cooling the electrical propulsion units }**
- B60K 2001/005** **{the electric storage means }**

	B60K 2001/006	• • {the electric motors }
	B60K 2001/008	• {with means for heating the electrical propulsion units }
U	B60K 1/04	• of the electric storage means for propulsion (for auxiliary purposes only B60R 16/04 ; supplying batteries to, or removing batteries from, vehicles B60S 5/06)
	B60K 2001/0405	• • {characterised by their position }
	B60K 2001/0411	• • • {Arrangement in the front part of the vehicle }
	B60K 2001/0416	• • • {Arrangement in the rear part of the vehicle }
	B60K 2001/0422	• • • {Arrangement under the front seats }
	B60K 2001/0427	• • • {Arrangement between the seats }
	B60K 2001/0433	• • • {Arrangement under the rear seats }
	B60K 2001/0438	• • • {Arrangement under the floor }
	B60K 2001/0444	• • • {Arrangement on a trailer }
	B60K 2001/045	• • • {Arrangement in a wheel, e.g. a spare wheel }
	B60K 2001/0455	• • {Removal or replacement of the energy storages }
	B60K 2001/0461	• • • {from the side }
	B60K 2001/0466	• • • {from above }
	B60K 2001/0472	• • • {from below }
	B60K 2001/0477	• • • {from the back }
	B60K 2001/0483	• • • {from the front }
	B60K 2001/0488	• • • {with arrangements for pivoting }
	B60K 2001/0494	• • • {with arrangements for sliding }
U	B60K 5/00	Arrangement or mounting of internal-combustion or jet-propulsion units (B60K 7/00 takes precedence; arrangement or mounting of plural diverse prime-movers for mutual or common propulsion B60K 6/00)
	B60K 2005/003	• {the internal combustion or jet propulsion unit is arranged between the front and the rear axle }
	B60K 2005/006	• {the internal combustion or jet propulsion unit is arranged behind the rear axle }
U	B60K 5/12	• Arrangement of engine supports [{Supports comprising both a plastic spring and a fluid damper F16F 13/06 }]
	B60K 5/1208	• • {Resilient supports (B60K15/12C B60K 5/1241 - B60K15/12L B60K 5/1291 take precedence)}

U B60K 6/00

Arrangement or mounting of plural diverse prime-movers for mutual or common propulsion, e.g. hybrid propulsion systems comprising electric motors and internal combustion engines { ; Control systems therefor, i.e. systems controlling two or more prime movers, or controlling one of these prime movers and any of the transmission, drive or drive units (arrangement or mounting in vehicles of electrical gearing, in which an electrical machine serves only as reduction gearing and not as the prime mover and in which no electrical storing means are used [B60K 17/12](#); control and regulation of purely electrical prime movers [B60L](#); prime-movers comprising electrical and internal combustion motors in a common engine block or housing per se [F02B 65/00](#); electric motors or motor-generators used for starting the combustion engine [F02N 11/04](#); electric motors for synchronising gearing [F16H 3/12](#))} { Informative references: mechanical gearings with secondary electric drive [F16H 3/72](#); arrangements for handling mechanical energy structurally associated with the dynamo-electric machine [H02K 7/00](#); machines comprising structurally interrelated motor and generator parts [H02K 51/00](#); dynamo-electric machines not otherwise provided for in [H02K](#) see [H02K 57/00](#)}

NOTE

In this subgroup, the following expressions are used, with the meanings indicated :

- "energy storing means" means apparatus for storing propulsive energy and providing stored energy to drive the prime mover or the ultimate propulsive elements
- "hybrid electric vehicle" (HEV) means a vehicle with an electrical prime mover and a combustion engine, in which the electrical prime mover and the combustion engine either singly or in combination, drive the ultimate propulsive elements, e.g. wheels
- "motor-generator" means an electric motor, or an electric generator, or an electrical machine which can be used for both functions, as a motor or a generator
- "prime mover" means a propulsion unit or source of motive power providing a mechanical output, e.g. via a rotating shaft

U B60K 6/08

- Prime-movers comprising combustion engines and mechanical or fluid energy storing means

U B60K 6/12

- • by means of a chargeable fluidic accumulator

B60K 2006/123

- • • {for driving pneumatic motors }

B60K 2006/126

- • • {the hydraulic accumulator starts the engine }

U B60K 6/20

- the prime-movers consisting of electric motors and internal combustion engines, e.g. HEVs

NOTE

When classifying in one of groups [B60K 6/22](#), [B60K 6/42](#) or [B60K 6/50](#), further technical information, which is considered to represent information of interest for search, should also be classified in the other subgroups of main group [B60K 6/00](#) to enable searching using a combination of classification symbols

U B60K 6/22

- • characterised by apparatus, components or means specially adapted for HEVs

U B60K 6/26

- • • characterised by the motors or the generators

B60K 2006/262

- • • • {the motor or generator are used as clutch, e.g. between engine and driveshaft }

B60K 2006/264

- • • • {with outer rotor and inner stator }

B60K 2006/266

- • • • {with two coaxial motors or generators }

	B60K 2006/268	<ul style="list-style-type: none"> • • • {Electric drive motor starts the engine, i.e. used as starter motor }
U	B60K 6/38	<ul style="list-style-type: none"> • • • characterised by the driveline clutches (shift clutches within the gearing or transmission B60K 6/36, { B60K 6/54})
	B60K 2006/381	<ul style="list-style-type: none"> • • • {characterized by driveline brakes (shift brakes in transmission B60K 6/54)}
U	B60K 6/42	<ul style="list-style-type: none"> • • characterised by the architecture of the hybrid electric vehicle
U	B60K 6/48	<ul style="list-style-type: none"> • • • Parallel type
	B60K 2006/4808	<ul style="list-style-type: none"> • • • • {Electric machine connected or connectable to gearbox output shaft }
	B60K 2006/4816	<ul style="list-style-type: none"> • • • • {Electric machine connected or connectable to gearbox internal shaft }
	B60K 2006/4825	<ul style="list-style-type: none"> • • • • {Electric machine connected or connectable to gearbox input shaft }
	B60K 2006/4833	<ul style="list-style-type: none"> • • • • {Step up or reduction gearing driving generator, e.g. to operate generator in most efficient speed range }
	B60K 2006/4841	<ul style="list-style-type: none"> • • • • {the gear provides shifting between multiple ratios }
U	B60K 6/50	<ul style="list-style-type: none"> • • Architecture of the driveline characterised by arrangement or kind of transmission units
U	B60K 6/54	<ul style="list-style-type: none"> • • • Transmission for changing ratio
	B60K 2006/541	<ul style="list-style-type: none"> • • • • {without reverse ratio using instead electric reversing }
	B60K 2006/542	<ul style="list-style-type: none"> • • • • {with overdrive ratio }
U	B60K 7/00	Disposition of motor in, or adjacent to, traction wheel (roller-skate driving mechanisms A63C 17/12)
	B60K 2007/003	<ul style="list-style-type: none"> • {with two or more motors driving a single wheel }
	B60K 2007/0038	<ul style="list-style-type: none"> • {the motor moving together with the wheel axle }
	B60K 2007/0046	<ul style="list-style-type: none"> • {the motor moving together with the vehicle body, i.e. moving independently from the wheel axle }
	B60K 2007/0053	<ul style="list-style-type: none"> • {the motor moving relative to the vehicle body and to the wheel axle }
	B60K 2007/0061	<ul style="list-style-type: none"> • {the motor axle being parallel to the wheel axle }
	B60K 2007/0069	<ul style="list-style-type: none"> • {the motor axle being perpendicular to the wheel axle }
	B60K 2007/0076	<ul style="list-style-type: none"> • • {the motor axle being horizontal }
	B60K 2007/0084	<ul style="list-style-type: none"> • • {the motor axle being vertical }
	B60K 2007/0092	<ul style="list-style-type: none"> • {the motor axle being coaxial to the wheel axle }
U	B60K 15/00	Arrangement in connection with fuel supply of combustion engines {or other fuel consuming energy converters, e.g. fuel cells}; Mounting or construction of fuel tanks (tanks in general B65D, F17C; supplying combustion engines with combustible mixtures or constituents F02M)
U	B60K 15/01	<ul style="list-style-type: none"> • Arrangement of fuel conduits (chassis frame forming fluid conduit means B62D 21/17)
	B60K 2015/016	<ul style="list-style-type: none"> • • {Fuel conduits having more than one internal passage, e.g. for different types of fuel }
U	B60K 15/03	<ul style="list-style-type: none"> • Fuel tanks (chassis frame comprising fluid storage compartment B62D 21/16; { Details of the fuel feeding system related to the fuel tank F02M 37/0076})
U	B60K 15/03006	<ul style="list-style-type: none"> • • {Gas tanks (B60K 15/07 takes precedence)}
	B60K 2015/03013	<ul style="list-style-type: none"> • • • {Control systems for LPG tanks }
	B60K 2015/03019	<ul style="list-style-type: none"> • • • {Filling of gas tanks }
	B60K 2015/03026	<ul style="list-style-type: none"> • • • {comprising a valve }
	B60K 2015/03032	<ul style="list-style-type: none"> • • {Manufacturing of fuel tanks }
	B60K 2015/03039	<ul style="list-style-type: none"> • • • {made of a combination of non metallic and metallic materials }
	B60K 2015/03046	<ul style="list-style-type: none"> • • • {made from more than one layer }

- B60K 2015/03052 . . . {Fuel tanks made of two balloons, one inside the other }
- B60K 2015/03059 . . . {Fuel tanks with double shells or more }
- B60K 2015/03065 . . . {with material filled between the walls }
- B60K 2015/03072 . . {Arrangements for reducing evaporation }
- B60K 2015/03078 . . . {Membranes, layers or the like covering the surface of the fuel }
- B60K 2015/03085 . . . {using inflatable bags or bladders in the tanks }
- B60K 2015/03092 . . {with latent heat storages to reduce the evaporation of fuel }
- B60K 2015/03098 . . {with a device for mixing liquids in the fuel tank, e.g. for mixing oil and fuel }
- B60K 2015/03105 . . {with supplementary interior tanks inside the fuel tank }
- B60K 2015/03111 . . {Swirl pots }
- B60K 2015/03118 . . {Multiple tanks, i.e. two or more separate tanks (supplementary tanks inside the fuel tank [B60K 2015/03105](#)) }
- B60K 2015/03125 . . . {Suction lines for dual tanks }
- B60K 2015/03131 . . . {Systems for filling dual tanks }
- B60K 2015/03138 . . . {Pumping means between the compartments }
- B60K 2015/03144 . . . {Fluid connections between the tanks }
- B60K 2015/03151 . . . {Mechanical connection between the tanks }
- B60K 2015/03157 . . . {for supply different types of fuel to the motor }
- B60K 2015/03164 . . {Modular concepts for fuel tanks }
- B60K 2015/03171 . . {Expansion tanks }
- B60K 2015/03184 . . {Exchangeable tanks, i.e. the empty tank is replaced by refilled tank }
- B60K 2015/0319 . . {with electronic systems, e.g. for controlling fuelling or venting (for LPG tanks [B60K 2015/03013](#)) }
- B60K 2015/03197 . . . {Systems for exchanging data }
- B60K 2015/03203 {during refueling }
- B60K 2015/0321 . . {characterised by special sensors, the mounting thereof }
- B60K 2015/03217 . . . {Fuel level sensors }
- B60K 2015/03223 {comprising at least two level fuel sensors }
- B60K 2015/0323 . . . {Sensors for detecting presence or absence of the filling nozzle }
- B60K 2015/03236 . . {characterised by special filters, the mounting thereof }
- B60K 2015/03243 . . {characterised by special pumps, the mounting thereof }
- B60K 2015/0325 . . . {Jet pumps }
- B60K 2015/03256 . . {characterised by special valves, the mounting thereof }
- B60K 2015/03263 . . . {Ball valves }
- B60K 2015/03269 . . . {Flap valves }
- B60K 2015/03276 . . . {Valves with membranes }
- B60K 2015/03282 . . . {Umbrella type valves }
- B60K 2015/03289 . . . {Float valves; Floats therefor }
- B60K 2015/03296 . . . {Pressure regulating valves }
- B60K 2015/03302 . . . {Electromagnetic valves }
- B60K 2015/03309 . . {Tanks specially adapted for particular fuels }
- B60K 2015/03315 . . . {for hydrogen }
- B60K 2015/03322 . . . {for methanol }
- B60K 2015/03328 . . {Arrangements or special measures related to fuel tanks or fuel handling }
- B60K 2015/03335 . . . {for fast filling of fuel tanks, e.g. specific filler pipes for pressurised fuelling }

B60K 2015/03342	. . . {to allow automatic or robotised filling of the tank }
B60K 2015/03348	. . . {for supplying additives to fuel }
B60K 2015/03355	. . . {for supplying different types of fuel }
B60K 2015/03361	. . . {for checking the quality or quantity of fuel during filling of fuel tank }
B60K 2015/03368	. . . {for preventing overfilling of tanks }
B60K 2015/03375	. . . {to improve security }
B60K 2015/03381	. . . {for preventing explosions }
B60K 2015/03388	. . . {in case of a roll over of the vehicle }
B60K 2015/03394	. . . {for preventing expulsion of fuel during filling of the tank }
B60K 2015/03401	. . . {for preventing electrostatic charges }
B60K 2015/03407	. . . {to protect tanks against projectiles }
B60K 2015/03414	. . . {associated with the fuel tank for cooling heated fuel }
B60K 2015/03421	. . . {to protect the fuel tank against heat }
B60K 2015/03427	. . . {for heating fuel, e.g. to avoiding freezing }
B60K 2015/03434	. . . {for preventing theft of fuel (locks for filler caps B60K 15/0409 ; locking of the inlet cover B60K 2015/0561) }
B60K 2015/0344	. . . {comprising baffles }
B60K 2015/03447	. . . {for improving the sealing }
B60K 2015/03453	. . . {for fixing or mounting parts of the fuel tank together }
B60K 2015/0346	. . . . {by welding }
B60K 2015/03467	. . . . {by clip or snap fit fittings }
B60K 2015/03473	. . . {for draining or emptying a fuel tank }
B60K 2015/0348	. . . {for returning the fuel from the motor }
B60K 2015/03486	. . {characterised by the materials the tank or parts thereof are essentially made from }
B60K 2015/03493	. . . {made of plastics }
U B60K 15/035	. . characterised by venting means
U B60K 15/03504	. . . {adapted to avoid loss of fuel or fuel vapour, e.g. with vapour recovery systems}
B60K 2015/03509	. . . . {with a droplet separator in the vent line }
B60K 2015/03514	. . . . {with vapor recovery means }
B60K 2015/03523	. . . {Arrangements of the venting tube }
B60K 2015/03528	. . . . {Mounting of venting tubes }
B60K 2015/03533	. . . . {the venting tube being movable with the fuel level }
B60K 2015/03538	. . . . {the venting tube being connected with the filler tube }
B60K 2015/03542	. . . {Mounting of the venting means (mounting of venting tubes B60K 2015/03528) }
B60K 2015/03547	. . . . {the venting means are integrated in the fuel cap or inlet cover }
B60K 2015/03552	. . . . {the venting means are integrated into the fuel filler pipe }
B60K 2015/03557	. . . . {comprising elements of the venting device integrated in the fuel tank, e.g. vapor recovery means }
B60K 2015/03561	. . . {Venting means working at specific times }
B60K 2015/03566	. . . . {comprising means for stopping the venting of fuel vapor, e.g. during refueling or engine stop }
B60K 2015/03571	. . . . {Venting during driving }
B60K 2015/03576	. . . . {Venting during filling the reservoir }

	B60K 2015/0358	. . . {the venting is actuated by specific signals or positions of particular parts }
	B60K 2015/03585	. . . . {by gas pressure }
	B60K 2015/0359	. . . . {by filler cap or inlet cover position }
	B60K 2015/03595	. . . . {by filler nozzle }
U	B60K 15/04	. . Tank inlets (B60K 15/077 takes precedence)
U	B60K 15/0406	. . . {Filler caps for fuel tanks}
U	B60K 15/0409	. . . . {Provided with a lock}
	B60K 2015/0412	. . . . . {the key can only be withdrawn when the cap is placed on the filler neck }
	B60K 2015/0416	. . . . . {electrically actuated }
	B60K 2015/0419	. . . . {Self sealing closure caps, e.g. means that the cap have to be removed manually }
	B60K 2015/0422	. . . . . {actuated by the inlet cover }
	B60K 2015/0425	. . . . . {actuated by a motor }
	B60K 2015/0429	. . . . . {actuated by the nozzle }
	B60K 2015/0432	. . . . {having a specific connection between the cap and the vehicle or tank opening }
	B60K 2015/0435	. . . . . {using a sliding connection }
	B60K 2015/0438	. . . . . {using screw or bayonet }
	B60K 2015/0441	. . . . . {with torque control }
	B60K 2015/0445	. . . . . {using hinges }
	B60K 2015/0448	. . . . {comprising spherical valve type closures }
	B60K 2015/0451	. . . . {Sealing means in the closure cap }
	B60K 2015/0454	. . . . {combined closing of the fuel inlet and bodywork inlet by one element which is visible from outside }
	B60K 2015/0458	. . . {Details of the tank inlet }
	B60K 2015/0461	. . . . {comprising a filler pipe shutter, e.g. trap, door or flap for fuel inlet }
	B60K 2015/0464	. . . . {comprising a flexible or extendable filler pipes, e.g. corrugated, foldable or with bellows }
	B60K 2015/0467	. . . . {Fuel tanks with more than one filler pipe }
	B60K 2015/047	. . . . {Manufacturing of the fuel inlet or connecting elements to fuel inlet, e.g. pipes or venting tubes }
	B60K 2015/0474	. . . . {Arrangement of fuel filler pipes in relation to vehicle body }
	B60K 2015/0477	. . . . {Details of the filler neck tank side }
	B60K 2015/048	. . . . {Arrangements for sealing the fuel inlet during filling }
	B60K 2015/0483	. . . . {Means to inhibit the introduction of too small or too big filler nozzles }
	B60K 2015/0487	. . . . {Means to shield vehicle bodywork from fuel, e.g. during filling }
	B60K 2015/049	. . . . {Means for determining the position of the filler nozzle in the filler pipe }
	B60K 2015/0493	. . . . {Means for checking absence or presence of closure cap }
	B60K 2015/0496	. . . . {the fuel inlet being arranged on the top of the fuel tank }
U	B60K 15/05	. . . Inlet covers
	B60K 2015/0507	. . . . {Arrangements for adjusting the inlet cover }
	B60K 2015/0515	. . . . {Arrangements for closing or opening of inlet cover (locking means B60K 2015/0561) }
	B60K 2015/0523	. . . . . {with sliding connection to the vehicle body }
	B60K 2015/053	. . . . . {with hinged connection to the vehicle body }

B60K 2015/0538	• • • • {with open or close mechanism automatically actuated }
B60K 2015/0546	• • • • {Arrangements for checking the position of the inlet cover }
B60K 2015/0553	• • • • {Details concerning the inlet box or bowl in the vehicle car body panel }
B60K 2015/0561	• • • • {Locking means for the inlet cover }
B60K 2015/0569	• • • • • {with actuator fixed to the inlet cover }
B60K 2015/0576	• • • • • {with actuator fixed to the vehicle body }
B60K 2015/0584	• • • • • {the locking bolt is linearly moved to lock or unlock }
B60K 2015/0592	• • • • {with storage means for the cap }
U B60K 15/06	• characterised by fuel reserve systems
U B60K 15/061	• • • {with level control}
B60K 2015/062	• • • • {Arrangement for filling the fuel reserve systems }
U B60K 15/063	• Arrangement of tanks
B60K 2015/0631	• • • {the fuel tank forming at least part of the vehicle floor }
B60K 2015/0632	• • • {the fuel tank is arranged below the front seat }
B60K 2015/0633	• • • {the fuel tank is arranged below the rear seat }
B60K 2015/0634	• • • {the fuel tank is arranged below the vehicle floor }
B60K 2015/0635	• • • {the fuel tank is arranged between the seats }
B60K 2015/0636	• • • {the fuel tank being part of the chassis or frame }
B60K 2015/0637	• • • {the fuel tank is arranged in the front of the vehicle }
B60K 2015/0638	• • • {the fuel tank is arranged in the rear of the vehicle }
B60K 2015/0639	• • • {the fuel tank is arranged near or in the roof }
U B60K 15/067	• • • Mounting of tanks
B60K 2015/0675	• • • • {allowing deflection movements of the tank in case of a crash }
U B60K 15/077	• • with means modifying or controlling distribution or motion of fuel, e.g. to prevent noise, surge, splash or fuel starvation
B60K 2015/0772	• • • {Floats in the fuel tank (float valves B60K 2015/03289)}
B60K 2015/0775	• • • {for reducing movement or slash noise of fuel }
B60K 2015/0777	• • • {in-tank reservoirs or baffles integrally manufactured with the fuel Tank }
U B60K 16/00	Arrangements in connection with power supply from force of nature, e.g. sun, wind (electric propulsion with power supply from force of nature, e.g. sun, wind, B60L 8/00; effecting propulsion by wind motors driving water-engaging propulsive elements B63H 13/00)
B60K 2016/003	• {solar power driven }
B60K 2016/006	• {wind power driven }
U B60K 23/00	Arrangement or mounting of control devices for vehicle transmissions, or parts thereof, not otherwise provided for (movable cabs having special adaptations of vehicle control devices B62D 33/06; such control devices per se F16D, F16H)
B60K 2023/005	• {Adjusting multiple pedals, e.g. for their initial position }
U B60K 23/02	• for main transmission clutches
B60K 2023/025	• • {Adjusting of clutch pedal positions (clutch adjustment for removing slack F16D 13/75)}
U B60K 23/04	• for differential gearing
B60K 2023/043	• • {Control means for varying left-right torque distribution, e.g. torque vectoring }
B60K 2023/046	• • {Axle differential locking means }

- U B60K 23/08
 - for changing number of driven wheels, {for switching from driving one axle to driving two or more axles ([B60K 17/3515](#) takes precedence)}
- U B60K 23/0808
 - • {for varying torque distribution between driven axles, e.g. by transfer clutch}
- B60K 2023/0816
 - • • {for varying front-rear torque distribution with a central differential }
- B60K 2023/0825
 - • • • {for adding torque to the front wheels }
- B60K 2023/0833
 - • • • {for adding torque to the rear wheels }
- B60K 2023/0841
 - • • {for locking a central differential , e.g. by using a lock-up clutch }
- B60K 2023/085
 - • {automatically actuated }
- B60K 2023/0858
 - • • {with electric means, e.g. electro-hydraulic means }
- B60K 2023/0866
 - • • {with hydraulic means only }
- B60K 2023/0875
 - • • {with mechanical means only }
- B60K 2023/0883
 - • {manually actuated }
- B60K 2023/0891
 - • • {with actuator levers, e.g. shift levers or linkage for changing two-wheel to four-wheel drive }
- U **B60K 25/00**

Auxiliary drives ([B60K 16/00](#) takes precedence; arrangements of tyre-inflating pumps mounted on vehicles [B60C 23/10](#); driving tyre-inflating pumps [B60C](#); driving engine auxiliaries [F02B](#))

 - B60K 2025/005
 - {driven by electric motors forming part of the propulsion unit }
 - U B60K 25/02
 - directly from an engine shaft
 - B60K 2025/022
 - • {by a mechanical transmission }
 - B60K 2025/024
 - • • {with variable ratio }
 - B60K 2025/026
 - • {by a hydraulic transmission }
 - B60K 2025/028
 - • {by a pneumatic transmission }
 - U B60K 25/06
 - from the transmission power take-off (transmissions having power-take-off [B60K 17/28](#))
 - B60K 2025/065
 - • {the transmission being fluidic, e.g. hydraulic }
 - U B60K 25/10
 - directly from oscillating movements due to vehicle running motion, e.g. suspension movement (resilient suspensions having dampers accumulating utilisable energy, e.g. compressing air, [B60G 13/14](#))
 - B60K 2025/103
 - • {by electric means }
 - B60K 2025/106
 - • {by fluid means }
- U **B60K 26/00**

Arrangements or mounting of propulsion unit control devices in vehicles

 - U B60K 26/02
 - of initiating means or elements
 - U B60K 26/021
 - • {with means for providing feel, e.g. by changing pedal force characteristics}
 - B60K 2026/022
 - • • {with tactile feedback from a controller, e.g. vibrations }
 - B60K 2026/023
 - • • {with electrical means to generate counter force or torque }
 - B60K 2026/024
 - • {Adjustable consoles, e.g. for changing position of mounting casings }
 - B60K 2026/025
 - • {Input devices for controlling electric drive motors }
 - B60K 2026/026
 - • {Adjusting of accelerator pedal positions }
 - B60K 2026/027
 - • {Acceleration input members mounted on a seat }
 - B60K 2026/028
 - • {Acceleration input members mounted on steering wheel or column }
 - B60K 2026/029
 - • {Joystick type control devices for acceleration }
 - U B60K 26/04
 - of means connecting initiating means or elements to propulsion unit
 - B60K 2026/043
 - • {with mechanical gearings }
 - B60K 2026/046
 - • {with electrical transmission means }

- U B60K 28/00** **Safety devices for propulsion-unit control, specially adapted for, or arranged in, vehicles, e.g. preventing fuel supply or ignition in the event of potentially dangerous conditions (for electrically-propelled vehicles [B60L 3/00](#); road vehicle drive control systems for purposes not related to the control of a particular sub-units [B60W 30/00](#))**
- B60K 2028/003 • {inhibiting the starter motor, e.g. by controlling ignition or park lock circuits }
- B60K 2028/006 • {disconnecting the electric power supply, e.g. the vehicle battery }
- U B60K 31/00** **Vehicle fittings, acting on a single sub-unit only, for automatically controlling, i.e. preventing speed from exceeding an arbitrarily established velocity or maintaining speed at a particular velocity, as selected by the vehicle operator (fittings acting on two or more sub-units [B60W 30/14](#); propulsion unit control in general, see the relevant classes or subclasses, e.g. [F02D](#); speedometers [G01P](#); systems or devices for controlling speed in general [G05D 13/00](#));{ in traffic anti-collision system for road vehicles [G08G 1/16](#)}**
- NOTE
- In this group:
- the means ordinarily includes a device, e.g. a servomechanism, for operating a velocity-affecting element of the vehicle, e.g. the throttle;
 - a means for preventing a vehicle from exceeding a particular speed is often referred to as a "governor", whereas a means for maintaining the vehicle within a relatively narrow speed range is generally designated as "speed control". Since these two functions are frequently interrelated, no attempt has been made to identify such means as being particularly adapted to perform only one, or the other of the functions.
- U B60K 31/0008** • {including means for detecting potential obstacles in vehicle path}
- B60K 2031/0016 • • {Identification of obstacles; Selection of a target vehicle }
- B60K 2031/0025 • • {Detecting position of target vehicle, e.g. vehicle driving ahead from host vehicle }
- B60K 2031/0033 • • {Detecting longitudinal speed or acceleration of target vehicle }
- B60K 2031/0041 • • {Detecting lateral speed of target vehicle }
- B60K 2031/005 • • {Selecting more than one target vehicle, e.g. using several preceding vehicles as target }
- B60K 2031/0091 • {Speed limiters or speed cutters }
- U B60K 41/00** **Conjoint control of drive units; Conjoint control of at least two sub-units thereof (arrangement of plural diverse prime-movers for mutual or common propulsion [B60K 6/00](#))**

NOTES

The control of a single sub-unit is classified in the relevant class for the sub-unit. Where a single sub-unit is controlled by means of signals or commands from other sub-units the control of this single sub-unit is classified in the relevant class for this sub-unit. For instance, the control of variable-ratio gearing by means of

signals from the engine or { from another sub-unit influenced by} the accelerator is classified in subclass [F16H](#)

Conjoint control of drive units, e.g. propulsion units, and variable-ratio gearing occurring only transiently during ratio shift and being also characterised by the control of the gearing is classified in subclass [F16H](#)

WARNING

This group and its subgroups are no longer used for the classification of new documents as from January 1st, 2006. The backlog of these groups is being continuously reclassified to the relevant groups of [B60W](#).

B60K 41/22

- of clutch and gearing(control of torque converter lock-up clutches ~~F16H61/14~~ [F16H 61/14](#))

Project: N/A (B60N)

U B60N 2/00

Seats specially adapted for vehicles(for facilitating access of invalids to, or exit of invalids from, vehicles [A61G 3/02](#) ; railway seats [B61D 33/00](#) ; cycle seats [B62J 1/00](#) ; aircraft seats [B64D 11/06](#) , [B64D 25/04](#) , [B64D 25/10](#))

U B60N 2/005

- Arrangement or mounting of seats in vehicles{e.g. dismountable auxiliary seats} ([B60N 2/02](#) takes precedence; { for railway vehicles [B61D 1/04](#) })

B60N 2002/0055

- • {characterised by special measures to ensure that no seat or seat part collides, during its movement, with other seats, seat parts or the vehicle itself}

U B60N 2/02

- the seat or part thereof being movable, e.g. adjustable({ [B60N 2/427](#) takes precedence } ; adjustable arm-rests [B60N 2/46](#) ; adjustable head-rests [B60N 2/48](#))

B60N 2002/0204

- • {characterised by the seat or seat part turning about or moving along a non-standard, particular axis, i.e. an axis different from the axis characterising the conventional movement}

B60N 2002/0208

- • • {the seat or seat part turning about or moving along an inclined axis}

B60N 2002/0212

- • • {the seat or seat part turning about or moving along a longitudinal axis}

B60N 2002/0216

- • • {the seat or seat part turning about or moving along a transversal axis}

B60N 2002/022

- • • {the seat or seat part turning about or moving along a vertical axis}

U B60N 2/0224

- • {Non-manual adjustment, e.g. with electrical operation([B60N 2/0296](#) , [B60N 2/52](#) take precedence)}

U B60N 2/0232

- • • {electric motors}

B60N 2002/0236

- • • • {characterised by details of the transmission between the electric motor and the seat or seat parts}

B60N 2002/024

- • • • {characterised by details of the mounting of the electric motor}

U B60N 2/0244

- • • {with logic circuits}

B60N 2002/0256

- • • • {Arrangements helping the passenger to get in or out}

B60N 2002/026

- • • • {varying hardness or support of upholstery, e.g. when driving curved roads}

B60N 2002/0264

- • • • {characterised by the type of electrical connection, e.g. wiring, plugs or USB}

B60N 2002/0268

- • • • {using sensors or detectors for adapting the seat or seat part, e.g. to the position of a passenger}

B60N 2002/0272

- • • • {using sensors or detectors for detecting the position of seat parts}

B60N 2002/0288

- • {Adjustable seat width}

U B60N 2/04

- • the whole seat being movable

U B60N 2/12

- • • slidable and tiltable

	B60N 2002/126	<ul style="list-style-type: none"> • • • {the backrest being maintained in its tilted position until the seat has slid to its memorised position}
U	B60N 2/22	<ul style="list-style-type: none"> • • the back-rest being adjustable{(B60N 2/2878 takes precedence)}
	B60N 2002/2204	<ul style="list-style-type: none"> • • • {Adjustable back-rest height or length}
U	B60N 2/24	<ul style="list-style-type: none"> • for particular purposes or particular vehicles
	B60N 2002/247	<ul style="list-style-type: none"> • • {to support passengers in a half-standing position}
U	B60N 2/26	<ul style="list-style-type: none"> • • for children(B60N 2/30 takes precedence)
U	B60N 2/28	<ul style="list-style-type: none"> • • • Seats readily mountable on, and dismountable from, existing seats{or other parts}of the vehicle
U	B60N 2/2803	<ul style="list-style-type: none"> • • • • {Adaptations for seat belts(seat belts for children in general B60R 22/105)}
	B60N 2002/2815	<ul style="list-style-type: none"> • • • • • {with seat belt accessories, e.g. a belt tension detector}
	B60N 2002/2818	<ul style="list-style-type: none"> • • • • • {characterised by guiding means for children belts}
	B60N 2002/2896	<ul style="list-style-type: none"> • • • • • {the child seat being foldable, e.g. to facilitate transport}
U	B60N 2/32	<ul style="list-style-type: none"> • • convertible for other use
U	B60N 2/36	<ul style="list-style-type: none"> • • • into a loading platform{ ski-bags in B60R 5/006 , B60N 2/065 takes precedence }
	B60N 2002/363	<ul style="list-style-type: none"> • • • • {characterised by provisions for enhancing the cargo floor surface, e.g. elements closing gaps or enlarging the back-rest surface}
U	B60N 2/44	<ul style="list-style-type: none"> • Details or parts not otherwise provided for{(seats in general A47C 7/00 ; storage compartments mounted on or under a seat B60R 7/043)}
	B60N 2002/4405	<ul style="list-style-type: none"> • • {the head-rest or seat being used as an anchorage point, for an object not covered by groups in B60N, e.g. for a canvas}
U	B60N 2/442	<ul style="list-style-type: none"> • • {Positioning and locking mechanisms(B60N 2/16 , B60N 2/18 , B60N 2/22 , B60N 2/225 take precedence)}
	B60N 2002/4425	<ul style="list-style-type: none"> • • • {using electric or hydraulic energy}
	B60N 2002/445	<ul style="list-style-type: none"> • • • {the actuation of the positioning or locking mechanism for one seat part being dependent on the position of another seat part, e.g. the seats floor lock being unlocked when the back-rest is inclined or the backrest can be tilted only when the seat is in its rear position}
	B60N 2002/4455	<ul style="list-style-type: none"> • • • {characterised by details of the locking system}
	B60N 2002/446	<ul style="list-style-type: none"> • • • • {the locking system prevents an abnormal or wrong mounting situation, i.e. deployment or functioning of a seat part being prevented if the seat or seat part is not properly mounted}
	B60N 2002/4465	<ul style="list-style-type: none"> • • • • • {the locking system disabling tilting of the back-rest to the vertical position, when the seat is not properly installed}
	B60N 2002/447	<ul style="list-style-type: none"> • • • • {the locking system prevents tilt of whole seat by retaining and locking the seat in a vertical storage position}
	B60N 2002/4475	<ul style="list-style-type: none"> • • • • {the locking system being an element distinct from articulation means, retaining the seat or seat part in its folded position, e.g. controlled by a wire}
	B60N 2002/4485	<ul style="list-style-type: none"> • • {Warning systems, e.g. the seat or seat parts vibrates to warn the passenger when facing a danger}
U	B60N 2/48	<ul style="list-style-type: none"> • • Head-rests{ B60N 2/2851 takes precedence }
	B60N 2002/4888	<ul style="list-style-type: none"> • • • {characterised by other structural or mechanical details}
	B60N 2002/4891	<ul style="list-style-type: none"> • • • • {the head-rest being in the shape of a comma}
	B60N 2002/4894	<ul style="list-style-type: none"> • • • • {rods solidly attached to the backrest}
	B60N 2002/4897	<ul style="list-style-type: none"> • • • • {characterised by details of guide sleeves guiding the rods of the head-rest}

- U B60N 2/58
 - • Seat coverings
- B60N 2002/5808
 - • • {comprising opening zones for airbags}
- U B60N 2/68
 - • Seat frames, e.g. for the back-rest, {e.g. reinforced frames}
- U B60N 2/682
 - • • {Joining means}
- B60N 2002/684
 - • • • {the back rest being mounted or joined with an easy attachment system to the seat}

Project: N/A (B60P)

- U B60P 1/00

Vehicles predominantly for transporting loads and modified to facilitate loading, consolidating the load, or unloading (vehicles for carrying harvested crops with means for self-loading or self-unloading [A01D 90/00](#); peculiar to refuse collecting-vehicles [B65F](#); loading or unloading vehicles by means not incorporated therein [B65G](#))
- B60P 1/02
 - with parallel up-and-down movement of load supporting or containing element (in combination with tipping [B60P 1/34](#); devices for lifting or lowering bulky or heavy goods for loading or unloading purposes, movable on wheels or the like, e.g. fork-lift trucks, [B66F 9/06](#); {suspensions with electronic levelling control during loading or unloading ~~[B60G17/015A4](#)~~[B60G 17/0157](#)})
- U B60P 3/00

Vehicles adapted to transport, to carry or to comprise special loads or objects (ambulance aspects, vehicles with special provisions for invalids [A61G 3/00](#); hearses [A61G 21/00](#); fire-fighting land vehicles [A62C 27/00](#); refuse-collecting vehicles [B65F 3/00](#), [B65F 7/00](#); snow-removing vehicles [E01H](#); armoured or armed vehicles [F41H 7/00](#); self-propelled mine-clearing vehicles [F41H 11/16](#))
- U B60P 3/06
 - for carrying vehicles ([B60P 3/12](#) takes precedence; caravans, camping, or like vehicles with vehicle-carrying means {[B60P 3/36](#)})
- U B60P 3/10
 - • for carrying boats; {(for carrying sailboards [B60R 9/08](#), [B63B 35/7946](#); equipment forming part of or attachable to vessels facilitating transport over land, e.g. wheel units, towing units, [B63C 13/00](#))}
- U B60P 3/1033
 - • • {on a loading frame, e.g. the vehicle being a trailer ([B60P 3/1008](#) takes precedence)}
- B60P 3/1075
 - • • • {Guiding means for loading the boat (using rollers ~~[B60P3/20F8](#)~~[B60P 3/1066](#))}
- B60P 3/22
 - Tank vehicles ({vehicles convertible from transport of fluids to transport of other types of goods [B60P 3/426](#)}; tank aspects ~~[B65D86/00](#)~~, [B65D 90/00](#), [F17C](#))
- U B60P 3/224
 - • {comprising auxiliary devices, e.g. for unloading or level indicating (catwalks, ladders or safety railings therefor [B60R 3/005](#))}
- B60P 3/227
 - • • {Methods for tracing the load (~~for tracing the vehicle [C08G1/123](#)~~)}

Project: N/A (B60Q)

- U B60Q 1/00

Arrangements or adaptations of optical signalling or lighting devices(for lighting vehicle interior [B60Q 3/00](#) ; { circuit arrangements for electric light sources in general [H05B 37/00](#) })
- U B60Q 1/0088
 - {Details of electrical connections([B60Q 1/305](#) takes precedence; electrical connectors in general [H01R](#); electrical connection of the light source itself [F21S 48/1109](#) , [F21S 48/212](#))}
- B60Q 1/0094
 - • {Arrangement of electronic circuits separated from the light source(e.g. mounting of housings for starter circuits for discharge lamps, circuits per se [H05B](#), arrangements being part of the light source holder ~~[F21V17/00M2](#)~~[F21V 17/06](#) , ~~[F21V17/00Q2](#)~~ , [F21S 48/1109](#) , [F21S 48/212](#))}
- U B60Q 3/00

Arrangements or adaptations of lighting devices for vehicle interior

- U B60Q 3/02 · for lighting passenger or driving compartment
- U B60Q 3/0209 · · {mounted onto or for lighting specific vehicle fittings}
- B60Q 3/024 · · · {on or for steering wheel or gear shift(steering wheels [B62D 1/04](#) , gear shifts [B60K20B60K 20/00](#))}

Project: N/A (B60R)

- U B60R 1/00 **Optical viewing arrangements({ house mirrors and spies [A47G 1/00](#) ; } antiglare equipment, e.g. polarising, for windscreens or windows [B60J 3/00](#) ; { visual aids for tractors [B62D 49/0614](#) ; } devices per se [G02B](#))**
- U B60R 1/12 · Mirror assemblies combined with other articles, e.g. clocks
- B60R 2001/1215 · · {with information displays}
- B60R 2001/1223 · · {with sensors or transducers}
- B60R 2001/123 · · {with thermometers}
- B60R 2001/1238 · · {with vanity mirrors}
- B60R 2001/1246 · · {with clocks}
- B60R 2001/1253 · · {with cameras, video cameras or video screens}
- B60R 2001/1261 · · {with antennae}
- B60R 2001/1269 · · {with sun visors}
- B60R 2001/1276 · · {with radio receivers, loud-speakers or buzzers}
- B60R 2001/1284 · · {with communication systems other than radio-receivers, e.g. keyless entry systems, navigation systems; with anti-collision systems}
- B60R 2001/1292 · · {with holding means for personal articles}
- U B60R 11/00 **Arrangements for holding or mounting articles, not otherwise provided for**
- B60R 2011/0001 · {characterised by position}
- B60R 2011/0003 · · {inside the vehicle}
- B60R 2011/0005 · · · [Dashboard](#){[Dashboard](#)}
- B60R 2011/0007 · · · {Mid-console}
- B60R 2011/0008 · · · {Ventilation grilles}
- B60R 2011/001 · · · {Vehicle control means, e.g. steering-wheel or column}
- B60R 2011/0012 · · · {Seats or parts thereof}
- B60R 2011/0014 · · · · {Arm-rests}
- B60R 2011/0015 · · · · {Back-rests}
- B60R 2011/0017 · · · · {Head-rests}
- B60R 2011/0019 · · · {Side or rear panels}
- B60R 2011/0021 · · · · [Doors](#){[Doors](#)}
- B60R 2011/0022 · · · · [Pillars](#){[Pillars](#)}
- B60R 2011/0024 · · · · {Rear shelves}
- B60R 2011/0026 · · · {Windows, e.g. windscreen}
- B60R 2011/0028 · · · {Ceiling, e.g. roof rails}
- B60R 2011/0029 · · · {Floor, e.g. side sills, fire wall}
- B60R 2011/0031 · · · {Seat belts}
- B60R 2011/0033 · · · {Rear-view mirrors}
- B60R 2011/0035 · · · {Sun visors}
- B60R 2011/0036 · · · {Luggage compartment}
- B60R 2011/0038 · · · {Engine compartment}

- B60R 2011/004
 - B60R 2011/0042
 - B60R 2011/0043
 - B60R 2011/0045
 - B60R 2011/0047
 - B60R 2011/0049
 - B60R 2011/005
 - B60R 2011/0052
 - B60R 2011/0054
 - B60R 2011/0056
 - B60R 2011/0057
 - B60R 2011/0059
 - B60R 2011/0061
 - B60R 2011/0063
 - B60R 2011/0064
 - B60R 2011/0066
 - B60R 2011/0068
 - B60R 2011/007
 - B60R 2011/0071
 - B60R 2011/0073
 - B60R 2011/0075
 - B60R 2011/0077
 - B60R 2011/0078
 - B60R 2011/008
 - B60R 2011/0082
 - B60R 2011/0084
 - B60R 2011/0085
 - B60R 2011/0087
 - B60R 2011/0089
 - B60R 2011/0091
 - B60R 2011/0092
 - B60R 2011/0094
 - B60R 2011/0096
 - B60R 2011/0098
 - B60R 11/02
 - B60R 2011/027
 - B60R 2011/0276
 - B60R 2011/0282
 - B60R 2011/0288
 - B60R 2011/0294
- • {outside the vehicle}
 - {characterised by mounting means}
 - • {for integrated articles, i.e. not substantially protruding from the surrounding parts}
 - • • {with visible part, e.g. flush mounted}
 - • • • {using hidden fastening means}
 - • {for non integrated articles}
 - • • {Connection with the vehicle part}
 - • • • {using screws, bolts, rivets or the like}
 - • • • {using cigarette lighter}
 - • • • {using suction cups}
 - • • • {using magnetic means}
 - • • • {using clips, clamps, straps or the like}
 - • • • {using key-type connections}
 - • • • {using adhesive means, e.g. hook and loop fasteners}
 - • • {Connection with the article}
 - • • • {using screws, bolts, rivets or the like}
 - • • • {using suction cups}
 - • • • {using magnetic means}
 - • • • {using latches, clips, clamps, straps or the like}
 - • • • {using key-type connections}
 - • • • {using a containment or docking space}
 - • • • {using adhesive means, e.g. hook and loop fasteners}
 - • • {Quick-disconnect two-parts mounting means}
 - • {Adjustable or movable supports}
 - • • {collapsible, e.g. for storing after use}
 - • • {with adjustment by linear movement in their operational position}
 - • • {with adjustment by rotation in their operational position}
 - • • • {around two axes}
 - • • • {around three axes, i.e. universally mounted}
 - • • • • {the article being mounted on a flexible shaft}
 - • • {with motorization}
 - {characterised by means for covering after user, e.g. boxes, shutters or the like}
 - {Theft prevention of articles}
 - • {using electric or electronic means, e.g. alarms, codes}
 - for radio sets, television sets, telephones, or the like; Arrangements of control thereof({ stowing of tape cartridges, compact discs or the like **B60R-7/08** **H B60R7/08H**; }of aerials **H01Q**)
 - • {for Din-sized apparatus}
 - • {for rear passenger use}
 - • {for the use of several passengers, e.g. simultaneously}
 - • {Apparatus made of several modules independently mounted}
 - • {Apparatus with multi-functionalities, e.g. radio and telephone}

U B60R 13/00 Elements for body-finishing, identifying, or decorating; Arrangements or adaptations for advertising purposes

- U B60R 13/01
 - Liners for load platforms or load compartments
- B60R 2013/015
 - • {made of a plurality of visible parts}
- B60R 2013/016
 - • {integrating other functions or accessories}
- B60R 2013/018
 - • {Connection or positioning of adjacent panels}
- U B60R 13/02
 - {Internal}Trim mouldings;{Internal}Ledges; Wall liners{for passenger compartments}; Roof liners([B60R 13/01](#) takes precedence; { padded linings for the vehicle interior [B60R 21/04](#) ; arrangements or adaptations of floor mats or carpets in vehicles [B60N 3/04](#) ; internal lining for trains [B61D 17/18](#) })
- B60R 2013/0281
 - • {made of a plurality of visible parts}
- B60R 2013/0287
 - • {integrating other functions or accessories}
- B60R 2013/0293
 - • {Connection or positioning of adjacent panels}
- U B60R 13/04
 - {External}Ornamental or guard strips; Ornamental inscriptive devices{thereon(fastening strips or bars to sheets or plates by means of clips [F16B 5/12](#))}
- B60R 2013/046
 - • {Foot boards}
- U B60R 13/08
 - Insulating elements, e.g. for sound insulation{(sound insulating linings for trains [B61D 17/185](#) ; drivers` cabs for load-carrying vehicles insulated against vibrations or noise [B62D 33/0604](#) ; thermal or acoustic insulation of engines [F02B 77/11](#) ; damping of sounds using compensation by electro-acoustic methods [G10K 11/178](#))}
- B60R 2013/0807
 - • {Arrangements of fasteners or clips specially adapted therefore}
- U **B60R 16/00**

Electric or fluid circuits specially adapted for vehicles and not otherwise provided for; Arrangement of elements of electric or fluid circuits specially adapted for vehicles and not otherwise provided for{(devices for protecting vehicle occupants in case of accidents [B60R 21/00](#) ; safety belts [B60R 22/00](#) ; central door locking [E05B 49/00](#) , [E05B 65/38](#))}
- U B60R 16/02
 - electric{constitutive elements}
- U B60R 16/03
 - • for supply of electrical power to vehicle subsystems{or for(circuit arrangements for charging batteries [H02J 7/00](#))}
- U B60R 16/0315
 - • • {using multiplexing techniques(multiplexing for transmission of signals [G08C 15/00](#) ; multiplexing for electrical communication in general [H04J](#))}
- B60R 2016/0322
 - • • • {Temporary code for documents to be reclassified to [G08C](#), [H04L](#) or [H04Q](#)}
- U **B60R 19/00**

Wheel guards; Radiator guards,{e.g. grilles}; Obstruction removers; Fittings damping bouncing force in collisions{(reinforcement elements for side doors [B60J 5/0412](#) ; }mudguards [B62D](#))
- B60R 2019/002
 - {Wheel guards}
- B60R 2019/005
 - {Crash attenuators, i.e. means added to highway service vehicles for softening high speed impacts}
- B60R 2019/007
 - {Means for adjusting or regulating the crash absorption capacity of the vehicle, e.g. when detecting an impending collision}
- U B60R 19/02
 - Bumpers, i.e. impact receiving or absorbing members for protecting vehicles or fending off blows from other vehicles or objects{([B60R 19/56](#) takes precedence; } initiating brake action by contact of bumper with an external object [B60T 7/22](#) ; for rail vehicles [B61F 19/04](#) ; safety equipment for cycles [B62J 27/00](#) ;] integral with waterborne vessels or specially adapted therefor [B63B 59/02](#))
- B60R 2019/026
 - • {Buffers, i.e. bumpers of limited extent}
- U B60R 19/18
 - • {characterised by the cross-section;}Means within the bumper to absorb impact

B60R 2019/1806	<ul style="list-style-type: none"> • • • {Structural beams therefor, e.g. shock-absorbing(bumper beams made of cellular materials B60R 19/22)}
B60R 2019/1813	<ul style="list-style-type: none"> • • • • {made of metal}
B60R 2019/182	<ul style="list-style-type: none"> • • • • • {of light metal, e.g. extruded}
B60R 2019/1826	<ul style="list-style-type: none"> • • • • • {of high-tension steel}
B60R 2019/1833	<ul style="list-style-type: none"> • • • • {made of plastic material}
B60R 2019/184	<ul style="list-style-type: none"> • • • • • {Blow moulded}
B60R 2019/1846	<ul style="list-style-type: none"> • • • • • {comprising a cellular structure}
B60R 2019/1853	<ul style="list-style-type: none"> • • • • • {of reinforced plastic material}
B60R 2019/186	<ul style="list-style-type: none"> • • • {Additional energy absorbing means supported on bumper beams, e.g. cellular structures or material}
B60R 2019/1866	<ul style="list-style-type: none"> • • • • {Cellular structures}
B60R 2019/1873	<ul style="list-style-type: none"> • • • • {Cellular materials}
B60R 2019/188	<ul style="list-style-type: none"> • • • • {Blow molded structures}
B60R 2019/1886	<ul style="list-style-type: none"> • • • {Bumper fascias and fastening means therefor(on fenders B60R 2019/247)}
B60R 2019/1893	<ul style="list-style-type: none"> • • • {comprising a multiplicity of identical adjacent shock-absorbing means}
U B60R 19/24	<ul style="list-style-type: none"> • • Arrangements for mounting bumpers on vehicles
B60R 2019/242	<ul style="list-style-type: none"> • • • {on two vertical sleeves, e.g. on energy absorber ends}
B60R 2019/245	<ul style="list-style-type: none"> • • • {with adjusting means to compensate manufacturing tolerances, e.g. between bumper and energy absorbers}
B60R 2019/247	<ul style="list-style-type: none"> • • • {Fastening of bumpers` side ends}
U B60R 19/26	<ul style="list-style-type: none"> • • • comprising yieldable mounting means({ B60R 19/38 takes precedence; } springs, shock absorbers, or means for damping vibrations per se F16F)
B60R 2019/262	<ul style="list-style-type: none"> • • • • {with means to adjust or regulate the amount of energy to be absorbed}
B60R 2019/264	<ul style="list-style-type: none"> • • • • {using cellular structures}
B60R 2019/266	<ul style="list-style-type: none"> • • • • {using friction surfaces}
B60R 2019/268	<ul style="list-style-type: none"> • • • • {with rebound preventing means, e.g. ratchets}
U B60R 19/48	<ul style="list-style-type: none"> • • combined with, or convertible into, other devices or objects, e.g. bumpers combined with road brushes, bumpers convertible into beds
B60R 2019/486	<ul style="list-style-type: none"> • • • {with air passages, e.g. for cooling}
U B60R 19/50	<ul style="list-style-type: none"> • • • with lights or registration plates
B60R 2019/505	<ul style="list-style-type: none"> • • • • {with lights}
U B60R 19/52	<ul style="list-style-type: none"> • Radiator or grille guards{; Radiator grilles(cooling aspects B60K 11/08)}
B60R 2019/522	<ul style="list-style-type: none"> • • {Bull bars}
B60R 2019/525	<ul style="list-style-type: none"> • • {Radiator grilles}
B60R 2019/527	<ul style="list-style-type: none"> • • • {integral with bumpers}
U B60R 21/00	<p>Arrangements or fittings on vehicles for protecting or preventing injuries to occupants or pedestrians in case of accidents or other traffic risks(safety belts or body harnesses in vehicles B60R 22/00 ; devices, apparatus or methods for life-saving in general A62B ; safety devices for propulsion unit control specially adapted for, or arranged in, vehicles B60K 28/00 ; seats constructed to protect the occupant from the effect of abnormal g-forces, e.g. crash or safety seats, B60N 2/42 ; energy-absorbing arrangements for hand wheels for steering vehicles B62D 1/11 ; energy-absorbing arrangements for vehicle steering columns B62D 1/19 ; harnessing in aircraft B64D 25/00)</p>
B60R 2021/0002	<ul style="list-style-type: none"> • {Type of accident}

B60R 2021/0004	• • {Frontal collision}
B60R 2021/0006	• • {Lateral collision}
B60R 2021/0009	• • {Oblique collision}
B60R 2021/0011	• • {Rear collision or recoiling bounce after frontal collision}
B60R 2021/0013	• • {Free fall}
B60R 2021/0016	• • {Fall in water}
B60R 2021/0018	• • {Roll-over}
B60R 2021/002	• • {Underrun collision}
B60R 2021/0023	• • {Offset collision}
B60R 2021/0025	• • {Pole collision}
B60R 2021/0027	• {Post collision measures, e.g. notifying emergency services}
B60R 2021/003	• {characterised by occupant or pedestrian}
B60R 2021/0032	• • {Position of passenger}
B60R 2021/0034	• • • {lying down}
B60R 2021/0037	• • • standing {standing}
B60R 2021/0039	• • {Body parts of the occupant or pedestrian affected by the accident}
B60R 2021/0041	• • • Arms {Arms}
B60R 2021/0044	• • • Chest {Chest}
B60R 2021/0046	• • • Feet {Feet}
B60R 2021/0048	• • • Head {Head}
B60R 2021/0051	• • • Knees {Knees}
B60R 2021/0053	• • • Legs {Legs}
B60R 2021/0055	• • • Pelvis {Pelvis}
B60R 2021/0058	• • • Shoulders {Shoulders}
B60R 2021/006	• • {Type of passenger}
B60R 2021/0062	• • • {woman, e.g. pregnant}
B60R 2021/0065	• {Type of vehicles}
B60R 2021/0067	• • Buses {Buses}
B60R 2021/0069	• • {Trailers, e.g. caravans}
B60R 2021/0072	• • {Convertible cars}
B60R 2021/0074	• • {Utility vehicles}
B60R 2021/0076	• • • {Agricultural vehicles, e.g. tractors}
B60R 2021/0079	• • • {Fork-lift trucks}
B60R 2021/0081	• • • {Working vehicles}
B60R 2021/0083	• • • {Pick-up trucks; Light trucks; Sport utility vehicles}
B60R 2021/0086	• • {Racing cars}
B60R 2021/0088	• • {Cycles, e.g. motorcycles}
B60R 2021/009	• • {Railway vehicles}
B60R 2021/0093	• • Aircraft {Aircraft}
B60R 2021/0095	• • Boats {Boats}
B60R 2021/0097	• • {Amusement vehicles}

- U B60R 21/01
- Electrical circuits for triggering{passive}safety arrangements,{e.g. airbags, safety belt tighteners,}in case of vehicle accidents or impending vehicle accidents{(electrical circuits for transmission of signals between steering wheel and the vehicle itself [B60R 16/027](#) ; for electrically actuating belt retractor locking mens [B60R 22/343](#))}
- B60R 2021/01006
- • {Mounting of electrical components in vehicles}
- B60R 2021/01013
- • {Means for detecting collision, impending collision or roll-over}
- B60R 2021/0102
- • • {the monitored value being used for calculating occupant displacement}
- B60R 2021/01027
- • • {Safing sensors}
- B60R 2021/01034
- • {Controlling a plurality of restraint devices}
- B60R 2021/0104
- • {Communication circuits for data transmission}
- B60R 2021/01047
- • • Architecture{Architecture}
- B60R 2021/01054
- • • • Bus{Bus}
- B60R 2021/01061
- • • • • {between the airbag system and other vehicle electronic systems}
- B60R 2021/01068
- • • • • {between different sensors and airbag control unit}
- B60R 2021/01075
- • • • • {between the airbag control unit and pyrotechnic fuses or equivalent actuators}
- B60R 2021/01081
- • • {Transmission medium}
- B60R 2021/01088
- • • • wireless{wireless}
- B60R 2021/01095
- • • • optical{optical}
- B60R 2021/01102
- • • {Transmission method}
- B60R 2021/01109
- • • • {power and data signal using transmission medium}
- B60R 2021/01115
- • • • {specific data frames}
- B60R 2021/01122
- • {Prevention of malfunction}
- B60R 2021/01129
- • • {Problems or faults}
- B60R 2021/01136
- • • • {Cut lines}
- B60R 2021/01143
- • • • {Short circuits}
- B60R 2021/0115
- • • • {Current leakage}
- B60R 2021/01156
- • • • {Current or voltage overload}
- B60R 2021/01163
- • • • {Insufficient current or voltage}
- B60R 2021/0117
- • • • Noise{Noise}
- B60R 2021/01177
- • • • {Misdeployment, e.g. during assembly, disassembly, accident salvage or recycling}
- B60R 2021/01184
- • • {Fault detection or diagnostic circuits(in power circuits [B60R 2021/01129](#))}
- B60R 2021/0119
- • • • {Plausibility check}
- B60R 2021/01197
- • • • {Warning devices}
- B60R 2021/01204
- • {Actuation parameters of safety arrangents}
- B60R 2021/01211
- • • {Expansion of air bags}
- B60R 2021/01218
- • • • {control of expansion speed}
- B60R 2021/01225
- • • • {control of expansion volume}
- B60R 2021/01231
- • • • {control of expansion timing or sequence}
- B60R 2021/01238
- • • • {control of expansion shape}
- B60R 2021/01245
- • • • {selection of seat for bag expansion}
- B60R 2021/01252
- • • {Devices other than bags}
- B60R 2021/01259
- • • • Brakes{Brakes}
- B60R 2021/01265
- • • • {Seat belts}

B60R 2021/01272	• • • • {Belt tensioners}
B60R 2021/01279	• • • • {Load limiters}
B60R 2021/01286	• • {Electronic control units}
B60R 2021/01293	• • {programmable for use in different vehicles or with different airbags configurations}
U B60R 21/013	• • including means for detecting collisions, impending collision or roll-over{(inclination sensors per se G01C 9/00 ; acceleration sensors per se G01P 15/00 ; radar systems per se G01S 13/00 ; inertia switches per se H01H 35/14)}
B60R 2021/01302	• • • {monitoring vehicle body vibrations or noise}
B60R 2021/01304	• • • {monitoring rough road condition}
B60R 2021/01306	• • • {monitoring vehicle inclination}
B60R 2021/01308	• • • {monitoring distance between vehicle body and road}
B60R 2021/01311	• • • {monitoring the braking system, e.g. ABS}
B60R 2021/01313	• • • {monitoring the vehicle steering system or the dynamic control system}
B60R 2021/01315	• • • {monitoring occupant displacement}
B60R 2021/01317	• • • {monitoring seat belt tension}
U B60R 21/0132	• • • responsive to vehicle motion parameters{,e.g. to vehicle longitudinal or transversal deceleration or speed value}
B60R 2021/01322	• • • • {comprising variable thresholds, e.g. depending from other collision parameters}
B60R 2021/01325	• • • • {Vertical acceleration}
B60R 2021/01327	• • • • {Angular velocity or angular acceleration}
U B60R 21/0134	• • • responsive to imminent contact with an obstacle{,e.g. using radar systems}
B60R 2021/01345	• • • • {using mechanical sensing means}
U B60R 21/015	• • including means for detecting the presence or position of passengers, passenger seats or child seats, e.g. for disabling triggering{; Including means for controlling the safety arrangement actuation parameters, e.g. rate, speed or timing of airbag inflation, in relation to external conditions, e.g. temperature, crash strength, occupant position, seat belt use or the like; Inhibition means for cases of useless or dangerous conditions, e.g. passengers out of position}
B60R 2021/01504	• • • {monitoring bag displacement}
B60R 2021/01508	• • • {monitoring forces or pressure in bag or module}
B60R 2021/01512	• • • {Passenger detection systems}
B60R 2021/01516	• • • • {using force or pressure sensing means}
B60R 2021/0152	• • • • {mounted on the bag}
B60R 2021/01525	• • • • {using field detection presence sensor}
B60R 2021/01529	• • • • • {using electric or capacitive field sensors}
B60R 2021/01533	• • • • • {using electromagnetic waves, e.g. infrared}
B60R 2021/01537	• • • • • {using ultrasonic waves}
B60R 2021/01541	• • • • • {for image processing, e.g. cameras, sensor arrays}
B60R 2021/01545	• • • • {monitoring passenger motion}
B60R 2021/0155	• • • • {monitoring seat belt, e.g. length, height-adjustment, tension}
B60R 2021/01554	• • • • • {using belt buckle sensors}
B60R 2021/01558	• • • • • {sensing amount of belt wound on retractor}
B60R 2021/01562	• • • • • {sensing belt tension}

- B60R 2021/01566 . . . {monitoring specific human body parts, e.g. face, eyes, hands}
- B60R 2021/0157 . . . {Seat position sensors}
- B60R 2021/01575 . . . {Children seat detection system}
- B60R 2021/01579 . . . {monitoring crash strength}
- B60R 2021/01583 . . . {deceleration dependent}
- B60R 2021/01587 . . . {speed dependent}
- B60R 2021/01591 . . . {Manually or key actuated inhibition switches}
- B60R 2021/01595 . . . {Devices for warning in case of inhibition}
- U B60R 21/02 . Occupant safety arrangements or fittings, {e.g. crash pads(seat belts with crash pads [B60R 22/14](#) ; removable children's seats having a front guard or barrier [B60N 2/2839](#))}
- B60R 2021/0206 . . {Self-supporting restraint systems, e.g. restraining arms, plates or the like}
- B60R 2021/0213 . . . {mounted on floor}
- B60R 2021/022 . . . {mounted on seats}
- B60R 2021/0226 . . . {mounted on fire wall}
- B60R 2021/0233 . . . {mounted on steering-wheel}
- B60R 2021/024 . . . {mounted on dash-board}
- B60R 2021/0246 . . . {mounted on side walls}
- B60R 2021/0253 . . . {mounted on roof}
- U B60R 21/026 . {Rigid partitions inside vehicles, e.g. between passengers and load compartments([B60R 21/12](#) takes precedence)}
- B60R 2021/0266 . . . {comprising energy absorbing means}
- B60R 2021/0273 . . {automatically movable to an operative position, e.g. in case of collision or impending collision}
- B60R 2021/028 . . {Means preventing passenger from falling out of vehicles}
- B60R 2021/0293 . . {Additional pads or cushions in vehicle compartments, e.g. movably mounted}
- U B60R 21/04 . . Padded linings for the vehicle interior; {Energy absorbing structures associated with padded or non-padded linings}
- B60R 2021/0407 . . . {using gas or liquid as energy absorbing means}
- B60R 2021/0414 . . . {using energy absorbing ribs}
- B60R 2021/0421 . . . {using honeycomb structures}
- B60R 2021/0435 . . . {associated with the side or roof pillars}
- B60R 2021/0442 . . . {associated with the roof panel}
- U B60R 21/06 . . Safety nets, transparent sheets, curtains, or the like, e.g. between occupants and glass({ [B60R 21/026](#) } , [B60R 21/11](#) , [B60R 21/12](#) , [B60R 21/16](#) take precedence)
- B60R 2021/065 . . . {comprising energy absorbing mounting means}
- U B60R 21/13 . . Roll-over protection(electrical circuits for triggering safety arrangements [B60R 21/01](#))
- B60R 2021/132 . . . {Roll bars for convertible vehicles}
- B60R 2021/134 . . . {movable from a retracted to a protection position}
- B60R 2021/135 . . . {automatically during an accident}
- B60R 2021/137 . . . {Reinforcement cages for closed vehicle bodies}
- B60R 2021/138 . . . {using external airbags}

- U B60R 21/16
 - • Inflatable occupant restraints or confinements designed to inflate upon impact or impending impact, e.g. air bags({ protective garments with automatically inflatable shock-absorbing means [A41D 13/018](#) ; } connection of valves to inflatable elastic bodies [B60C 29/00](#))
- B60R 2021/161
 - • • {characterised by additional means for controlling deployment trajectory}
- B60R 2021/162
 - • • {Means for diverting, destroying or blocking the bag in case of dangerous deployment, e.g. during rescue operations or use of rear-facing children seats}
- B60R 2021/165
 - • • {reusable, e.g. in case of multiple collisions}
- B60R 2021/167
 - • • {comprising anti-theft devices}
- B60R 2021/168
 - • • {for restraining luggages}
- U B60R 21/20
 - • • Arrangements for storing inflatable members in their non-use or deflated condition; Arrangement or mounting of air bag modules or components
- U B60R 21/207
 - • • • in vehicle seats
- B60R 2021/2074
 - • • • • {in head rests}
- B60R 2021/2076
 - • • • • {Removable covers with tear seams}
- B60R 2021/2078
 - • • • • {in rear seats}
- U B60R 21/215
 - • • • characterised by the covers for the inflatable member({ [B60R 21/2176](#) takes precedence)}
- B60R 2021/21506
 - • • • • {comprising tearing tabs, legs or the like for holding the lid before deployment}
- B60R 2021/21512
 - • • • • {the lid being displaced towards the occupant during deployment([B60R 2021/2161](#) , [B60R 2021/21525](#) take precedence)}
- B60R 2021/21518
 - • • • • {comprising a lock unlocked during deployment}
- B60R 2021/21525
 - • • • • {the lid being fixed on the bag, or forming part of the bag wall, or the bag itself being used as wall liner}
- B60R 2021/21531
 - • • • • {using a stretchable wall liner}
- B60R 2021/21537
 - • • • • {characterised by hinges}
- B60R 2021/21543
 - • • • • {with emblems}
- U B60R 21/216
 - • • • • comprising tether means for limitation of cover motion during deployment
- B60R 2021/2161
 - • • • • • {the cover being displaced towards the occupant during deployment}
- B60R 2021/2163
 - • • • • • {with energy absorbing or elastic means}
- U B60R 21/2165
 - • • • • characterised by a tear line for defining a deployment opening
- B60R 2021/21652
 - • • • • • {the tearing being done or assisted by cutters}
- B60R 2021/21654
 - • • • • • {the tearing being done or assisted by heating or pyrotechnic means}
- U B60R 21/217
 - • • • Inflation fluid source retainers, e.g. reaction canisters; Connection of bags, covers, diffusers or inflation fluid sources therewith or together
- B60R 2021/2172
 - • • • • {the cover being connected to the surrounding part and to the module, e.g. floating mounts}
- B60R 2021/2173
 - • • • • {the module or part thereof being movably mounted on the vehicle}
- B60R 2021/2175
 - • • • • • {using energy absorbing means}
- B60R 2021/2177
 - • • • • {Reaction canisters characterised by material}
- B60R 2021/2178
 - • • • • • Plastic{Plastic}
- U B60R 21/23
 - • • Inflatable members({ [B60R 21/18](#) takes precedence; connection to inflation fluid source retainers [B60R 21/217](#))}

- U B60R 21/231
 - characterised by their shape, construction or spatial configuration
 - WARNING
 - Groups [B60R 21/2334](#) - [B60R 21/2346](#) are not complete, pending a reorganisation; see provisionally also group [B60R 21/233](#)
- B60R 2021/23107
 - {the bag being integrated in a multi-bag system}
- B60R 2021/23115
 - {with inflatable support compartments creating an internal suction volume}
- B60R 2021/23123
 - {Heat protection panels}
- B60R 2021/2313
 - {comprising sensitive compartments}
- U B60R 21/23138
 - {specially adapted for side protection([B60R 21/23184](#) , [B60R 21/232](#) take precedence)}
- B60R 2021/23146
 - {seat mounted}
- B60R 2021/23153
 - {specially adapted for rear seat passengers}
- B60R 2021/23161
 - {specially adapted for protecting at least two passengers, e.g. preventing them from hitting each other}
- B60R 2021/23169
 - {specially adapted for knee protection}
- B60R 2021/23176
 - {specially adapted for foot protection}
- B60R 2021/23192
 - {Roof bags, i.e. protecting the occupant in a roll-over situation}
- U B60R 21/233
 - comprising a plurality of individual compartments; comprising two or more bag-like members, one within the other([B60R 21/232](#) takes precedence)
- B60R 2021/23308
 - {the individual compartments defining the external shape of the bag}
- B60R 2021/23316
 - {Inner seams, e.g. creating separate compartments or used as tethering means}
- B60R 2021/23324
 - {Inner walls crating separate compartments, e.g. communicating with vents}
- B60R 2021/23332
 - {using independent bags, one within the other}
- U B60R 21/2334
 - Expansion regulating features
- U B60R 21/2338
 - Tethers
- B60R 2021/23382
 - {Internal tether means}
- B60R 2021/23384
 - {having ends which are movable or detachable during deployment}
- B60R 2021/23386
 - {External tether means}
- B60R 2021/23388
 - {having ends which are movable or detachable during deployment}
- U B60R 21/235
 - characterised by their material
- B60R 2021/23504
 - {characterised by material}
- B60R 2021/23509
 - ~~Fabric~~{Fabric}
- B60R 2021/23514
 - {coated fabric}
- B60R 2021/23519
 - {Resin(for coating fabric [B60R 2021/23514](#))}
- B60R 2021/23523
 - {Composite(coated fabric [B60R 2021/23514](#))}
- B60R 2021/23528
 - ~~Metal~~{Metal}
- B60R 2021/23533
 - {characterised by the manufacturing process}
- B60R 2021/23538
 - ~~Sewing~~{Sewing}
- B60R 2021/23542
 - ~~Weaving~~{Weaving}
- B60R 2021/23547
 - {one piece weaving}

- B60R 2021/23552 ~~Knitting~~{Knitting}
 - B60R 2021/23557 ~~Molding~~{Molding}
 - B60R 2021/23561 ~~Sealing~~{Sealing}
 - B60R 2021/23566 {Nesting of panels, i.e. for material utilisation}
 - B60R 2021/23571 {characterised by connections between panels}
 - B60R 2021/23576 ~~Sewing~~{Sewing}
 - B60R 2021/2358 ~~Bonding~~{Bonding}
 - B60R 2021/23585 ~~Vulcanisation~~{Vulcanisation}
 - B60R 2021/2359 ~~Welding~~{Welding}
 - B60R 2021/23595 ~~Sealing~~{Sealing}
 - U B60R 21/237 characterised by the way they are folded
 - B60R 2021/2375 {Folding devices}
 - U B60R 21/239 characterised by their venting means
 - B60R 2021/2395 {comprising means to control the venting}
 - U B60R 21/26 characterised by the inflation fluid source or means to control inflation fluid flow{(arrangement or mounting thereof to the vehicle [B60R 21/20](#) ; blasting cartridges for producing gas under pressure in general [F42B 3/04](#) ; Initiators or igniters therefor [F42B 3/10](#))}
- WARNING
- Groups [B60R 21/261](#) - [B60R 21/264](#) are not complete, pending a reorganisation; see provisionally also this group
- B60R 2021/26011 {using a filter through which the inflation gas passes}
 - B60R 2021/26017 {a cooling agent being added to the inflation fluid}
 - B60R 2021/26023 {for filling the bag with foam}
 - B60R 2021/26029 ~~Igniters~~{Igniters}
 - B60R 2021/26035 {triggered by mechanical means}
 - B60R 2021/26041 {of elongated shape}
 - B60R 2021/26047 {of film shape}
 - B60R 2021/26052 {using fluid materials}
 - B60R 2021/26058 {using a combination of inflators}
 - B60R 2021/26064 {characterised by auto-ignition means}
 - B60R 2021/2607 {characterised by heating or heat insulating means, e.g. for use under extreme temperatures}
 - B60R 2021/26076 {characterised by casing}
 - B60R 2021/26082 ~~Material~~{Material}
 - B60R 2021/26088 ~~Plastic~~{Plastic}
 - B60R 2021/26094 {characterised by fluid flow controlling valves}
 - U B60R 21/261 with means other than bag structure to diffuse or guide inflation fluid
 - B60R 2021/2612 {Gas guiding means, e.g. ducts}
 - B60R 2021/2615 {for diverting the gas into a plurality of bags}
 - B60R 2021/2617 {Curtain bag nozzles}
 - U B60R 21/263 using a variable source, e.g. plural stage or controlled output(hybrid inflators [B60R 21/272](#))
 - B60R 2021/2633 {with a plurality of inflation levels}
 - B60R 2021/2636 {The volume of gas being continuously adjustable}

- U B60R 21/264
 - . . . using instantaneous generation of gas, e.g. pyrotechnic([B60R 21/268](#) takes precedence)
- B60R 2021/2642
 - {comprising a plurality of combustion chambers or sub-chambers}
- U B60R 21/2644
 - {using only solid reacting substances, e.g. pellets, powder}
- B60R 2021/2648
 - {comprising a plurality of combustion chambers or sub-chambers}
- U B60R 21/268
 - using instantaneous release of stored pressurized gas{([B60R 21/26005](#) takes precedence)}
- B60R 2021/2685
 - {comprising a plurality of pressure chambers}
- U B60R 21/272
 - with means for increasing the pressure of the gas just before or during liberation, e.g. hybrid inflators
- B60R 2021/2725
 - {using a fluid fuel gas generator}
- U B60R 21/276
 - with means to vent the inflation fluid source, e.g. in case of overpressure{([B60R 21/30](#) takes precedence; venting means on inflatable member walls [B60R 21/239](#))}
- B60R 2021/2765
 - {comprising means to control the venting}
- U B60R 21/33
 - . . Arrangements for non-electric triggering of inflation(electrical circuits for triggering safety arrangements [B60R 21/01](#))
- B60R 2021/335
 - . . . {Connections between collision detecting means and inflators using pyrotechnic transmission lines}
- U B60R 21/34
 - Protecting non-occupants of a vehicle, e.g. pedestrians{([B60R 19/02](#) takes precedence)}
- B60R 2021/343
 - . {using deformable body panel, bodywork or components}
- B60R 2021/346
 - . {means outside vehicle body}
- U **B60R 22/00**
 - Safety belts or body harnesses in vehicles(safety belts or body harnesses in general [A62B 35/00](#))**
- B60R 2022/003
 - {for restraining detainees}
- B60R 2022/005
 - {for restraining luggages}
- B60R 2022/006
 - {Sleeve or tubular members enveloping the seat belt for enhancing comfort or protection}
- B60R 2022/008
 - {Belts; Fixing thereof specially adapted for pregnant users}
- U B60R 22/02
 - Semi-passive restraint systems, e.g. systems applied or removed automatically but not both;(Manual restraint systems(knee, leg or head belts [B60R 22/001](#) ; devices for releasing in an emergency, remote or automatic unbuckling devices [B60R 22/32](#))}
- B60R 2022/021
 - . {Means for holding the tongue or buckle in a non-use position, e.g. for easy access by the user}
- U B60R 22/023
 - . {Three-point seat belt systems comprising two side lower and one side upper anchoring devices([B60R 22/022](#) , [B60R 22/03](#) take precedence)}
- B60R 2022/025
 - . . {Adaptations for use with children seats or luggages}
- B60R 2022/026
 - . . {at least two ends of the belt being retractable after use}
- B60R 2022/027
 - . {Four-point seat belt systems, e.g. with the two upper points connected together}
- B60R 2022/028
 - . {specially adapted for use in sleeping position, e.g. for reclining seats}
- B60R 2022/029
 - . {Belt storage; Devices or systems for controlling winding up of unused seat belt}
- U B60R 22/18
 - Anchoring devices
- B60R 2022/1806
 - . {for buckles}
- B60R 2022/1812
 - . {Connections between seat belt and buckle tongue}

- B60R 2022/1818 . . {Belt guides}
 - B60R 2022/1825 . . . {using rollers}
 - B60R 2022/1831 . . . {comprising a slotted plate sliding in its plane, e.g. inside circular guides}
 - B60R 2022/1837 . . . {comprising a universal mounting. e.g. spherical or cardan-type}
 - B60R 2022/1843 . . . {comprising an elongated sleeve}
 - U B60R 22/195 . . with means to tension the belt in an emergency,{e.g. means of the through-anchor or splitted reel type}(electrical circuits for triggering safety arrangements{ [B60R 21/01](#) })
- NOTE**
If the type of belt tensioner is not specified and can be used indifferently for pulling belt anchors or rotating belt reels, the documents are classified in [B60R 22/46](#)
- U B60R 22/1954 . . . {characterised by fluid actuators, e.g. pyrotechnic gas generators(actuating a cable [B60R 22/1952](#))}
 - B60R 22/1956 {Mechanical triggering means therefor(also adapted for air bag inflators ~~B60R21/32~~[B60R 21/33](#))}
 - B60R 2022/1957 . . . {characterised by electric actuators}
 - U B60R 22/20 . . adjustable in position, e.g. in height
 - B60R 2022/207 . . . {Horizontally or transversally adjustable}
 - B60R 2022/208 . . . {by automatic or remote control means}
 - U B60R 22/26 . . secured to the seat
 - B60R 2022/263 . . . {Front seats}
 - B60R 2022/266 . . . {Rear seats, e.g. benches}
 - U B60R 22/28 . . incorporating energy-absorbing devices{(belt anchors provided with energy-absorbing means for protecting the occupants in case of physical contact therewith [B60R 21/055](#) ; belt retractors comprising energy-absorbing means [B60R 22/341](#) , [B60R 22/4676](#))}
 - B60R 2022/281 . . {for buckles}
 - B60R 2022/282 . . {using fluids or vico-elastic materials}
 - B60R 2022/283 . . {using tearing or scoring of material}
 - B60R 2022/284 . . {using electric or magnetic braking means}
 - B60R 2022/285 . . {using friction surfaces}
 - B60R 2022/286 . . {using deformation of material}
 - B60R 2022/287 . . . {of torsion rods or tubes}
 - B60R 2022/288 . . {with means to adjust or regulate the amount of energy to be absorbed}
 - B60R 2022/289 . . {Energy-absorption curves}
 - U B60R 22/32 . . Devices for releasing in an emergency, e.g. after an accident;{Remote or automatic unbuckling devices(unlocking devices for retractors [B60R 22/3416](#))}
 - B60R 2022/327 . . {using pyrotechnic means}
 - B60R 2022/328 . . {comprising means for cutting the belt}
 - U B60R 22/34 . . Belt retractors, e.g. reels(anchoring devices{ e.g. guide loops } , with means to tension the belt in an emergency [B60R 22/195](#))
 - B60R 2022/3402 . . {Retractor casings; Mounting thereof}
 - B60R 2022/3419 . . {with end lock preventing means}
 - B60R 2022/3421 . . {with means for locking the belt reel in a non-use position, e.g. for seat mounted retractor when the seat is in a non-locked condition}
 - B60R 2022/3424 . . {Multi-spool or multi-belt retractors}

- B60R 2022/3427
 - • {Seat belt connection on reels}
- U B60R 22/347
 - • with means for permanently locking the retractor during the wearing of the belt({ [B60R 22/3405](#) } , [B60R 22/343](#) , [B60R 22/415](#) take precedence)
- B60R 2022/3475
 - • • {having means for acting directly upon the belt, e.g. by clamping or friction}
- U B60R 22/35
 - • • the locking means being automatically actuated
- U B60R 22/353
 - • • • in response to belt movement when a wearer applies the belt
- B60R 2022/3535
 - • • • • {comprising anti-cinch devices}
- U B60R 22/36
 - • self-locking in an emergency({ [B60R 22/3405](#) } , [B60R 22/343](#) take precedence)
- U B60R 22/38
 - • • responsive only to belt movement
- B60R 2022/385
 - • • • {with adjustable sensitivity}
- U B60R 22/40
 - • • responsive only to vehicle movement
- B60R 2022/401
 - • • • {with adjustable sensor}
- B60R 2022/402
 - • • • • {automatically adjustable to keep a vertical position, e.g. irrespective of seat or vehicle tilting}
- B60R 2022/403
 - • • • • • {using externally controlled means, e.g. linked with seat back hinge}
- B60R 2022/404
 - • • • {with remote sensor, e.g. for mounting on seat}
- U B60R 22/44
 - • with means for reducing belt tension during use under normal conditions({ not included in the retractor [B60R 22/19](#) ; [B60R 22/3405](#) takes precedence)}
- B60R 2022/4406
 - • • {Spring shapes; Spring characteristic; Springs with adjustable anchoring means}
- B60R 2022/4413
 - • • {by connecting the retracting spring to the belt reel by means of a transmission which decreases the spring force when the belt is pulled out, e.g. using conical pulleys}
- B60R 2022/442
 - • • {using one spring and one additional retraction device in parallel}
- B60R 2022/4426
 - • • • {the additional retraction device being a second spring}
- B60R 2022/4433
 - • • • • {externally controlled}
- B60R 2022/444
 - • • • {the additional retraction device being an electric actuator}
- B60R 2022/4446
 - • • {using one spring and one additional retraction device in series}
- B60R 2022/4453
 - • • • {the additional retraction device being a second spring}
- B60R 2022/446
 - • • • • {with external control means}
- B60R 2022/4466
 - • • • {the additional retraction device being an electric actuator}
- B60R 2022/4473
 - • • {using an electric retraction device(combined with a spring [B60R 2022/444](#) , [B60R 2022/4466](#))}
- B60R 2022/448
 - • • {using a fluid actuated retraction device}
- B60R 2022/4486
 - • • {for cancelling the belt tension}
- B60R 2022/4493
 - • • {for braking the belt reel using friction surfaces or the like}
- U B60R 22/46
 - • {Reels}with means to tension the belt in an emergency{by forced winding up}{ electrical circuits for triggering safety arrangements [B60R 21/01](#)) { tensioners using reels only guiding the belt during normal use, e.g. splitted reels [B60R 22/195](#) }
- U B60R 22/4604
 - • • {characterised by arrangements in vehicle or relative to seat belt}
- B60R 2022/4609
 - • • • {using a plurality of tensioners}
- B60R 2022/4614
 - • • • {one pretensioner acting on a plurality of belts}
- U B60R 22/4628
 - • • {characterised by fluid actuators, e.g. pyrotechnic gas generators(actuating a cable [B60R 22/4619](#))}

- U B60R 22/4633
 - • • {Linear actuators, e.g. comprising a piston moving along reel axis and rotating along its own axis}
- B60R 2022/4638
 - • • • {comprising a piston moving along or in parallel to the reel axis}
- B60R 2022/4642
 - • • • {the gas directly propelling a flexible driving means, e.g. a plurality of successive masses, in a tubular chamber}
- B60R 2022/4647
 - • • • {the driving means being a belt, a chain or the like}
- B60R 22/4652
 - • • • {Mechanical triggering means therefor(also adapted for air bag inflators **B60R21/32**[B60R 21/33](#))}
- B60R 2022/4657
 - • • • {comprising a plurality of charges}
- B60R 2022/4661
 - • • • {comprising venting means, e.g. for avoiding overpressure in case of fire or for allowing return motion with energy absorption}
- B60R 2022/4666
 - • • {characterised by electric actuators}
- B60R 2022/468
 - • • {characterised by clutching means between actuator and belt reel}
- B60R 2022/4685
 - • • {with means to adjust or regulate the tensioning force in relation to external parameters}
- B60R 2022/469
 - • • reusable{reusable}
- B60R 2022/4695
 - • • {without winding function during normal use}
- U B60R 22/48
 - Control systems, alarms, or interlock systems, for the correct application of the belt or harness
- B60R 2022/4808
 - • {Sensing means arrangements therefor}
- B60R 2022/4816
 - • • {for sensing locking of buckle}
- B60R 2022/4825
 - • • {for sensing amount of belt winded on retractor}
- B60R 2022/4833
 - • • {for sensing locking of retractor}
- B60R 2022/4841
 - • • {for sensing belt tension}
- B60R 2022/485
 - • • {for sensing belt anchor position, belt orientation, or the like}
- B60R 2022/4858
 - • • {for sensing pressure on seat}
- B60R 2022/4866
 - • {Displaying or indicating arrangements thereof}
- B60R 2022/4875
 - • • {on vehicle exterior}
- B60R 2022/4883
 - • {Interlock systems}
- B60R 2022/4891
 - • • {preventing use of the vehicle when the seatbelt is not fastened}

U B60R 25/00 Fittings or systems for preventing or indicating unauthorised use or theft of vehicles(locks for vehicles [E05B 77/00](#)-[E05B 85/00](#))

WARNING

Subgroups of [B60R 25/00](#) corresponding to IPC2013.01 are not complete pending the completion of a reclassification; see also [B60R 25/00](#) and its other subgroups

- U B60R 25/01
 - operating on vehicle systems or fittings, e.g. on doors, seats or windscreens
- U B60R 25/04
 - • operating on the propulsion system, e.g. engine or drive motor
- U B60R 2025/0405
 - • • {from the external}
- B60R 2025/041
 - • • {Preventing use of engine operating on the fluid supply}
- U B60R 2025/0415
 - • • {with safe immobilisation}

NOTE

Not complete pending reclassification; see also other subgroups of [B60R 25/00](#)

WARNING

- U B60R 25/10
 - actuating a signalling device
- B60R 25/1001
 - {Alarm systems associated with another car fitting or mechanism, e.g. door lock or knob, pedals(features related to the general power supply ~~B60R 25/10 F-B60R25/10F~~)}
- B60R 2025/1013
 - {Alarm systems characterised by the type of warning signal, e.g. visual, audible}
- B60R 2025/1015
 - • {Signal coming from the exhaust}
- B60R 2025/1016
 - • {Remote signals alerting owner or authorities, e.g. radio signals}
- U **B60R 99/00**
 - Subject matter not provided for in other groups of this subclass**
- B60R 2099/005
 - {Protections against martens or rodents}

Project: N/A (B60S)

- U **B60S 1/00**
 - Cleaning of vehicles (by apparatus not integral with vehicle [B60S 3/00](#); cleaning in general [B08B](#); de-icing of aircraft [B64D](#); heating arrangements specially adapted for transparent or reflecting areas [H05B 3/84](#))**
- U B60S 1/02
 - Cleaning windscreens, windows or optical devices {(wind deflectors specially adapted for preventing soiling of windows or windscreens [B60J 1/2002](#))}
- U B60S 1/04
 - Wipers or the like, e.g. scrapers
- U B60S 1/32
 - • characterised by constructional features of wiper blade arms {or blades}
- U B60S 1/38
 - • • Wiper blades {(provided with liquid spreading means [B60S 1/524](#); provided with gas spreading means [B60S 1/546](#))}
- B60S 2001/3812
 - • • • {Means of supporting or holding the squeegee or blade rubber }
- B60S 2001/3813
 - • • • • {characterised by a support harness consisting of several articulated elements }
- B60S 2001/3815
 - • • • • • {characterised by the joint between elements }
- B60S 2001/3817
 - • • • • • {characterised by a backing strip to aid mounting of squeegee in support }
- B60S 2001/3818
 - • • • • • {the backing strip being a channel-like element, e.g. not continuous }
- B60S 2001/382
 - • • • • • {the backing strip being an essentially planar reinforcing strip, e.g. vertebra }
- B60S 2001/3822
 - • • • • • {characterised by additional means to prevent longitudinal sliding of squeegee in support, e.g. clips }
- B60S 2001/3824
 - • • • • • {the blade or squeegee pivoting about an axis parallel to blade longitudinal axis }
- B60S 2001/3825
 - • • • • • {the squeegee mounted directly to or in wiper blade arm }
- B60S 2001/3827
 - • • • • {characterised by the squeegee or blade rubber or wiping element }
- B60S 2001/3829
 - • • • • • {characterised by the material of the squeegee or coating thereof }
- B60S 2001/3831
 - • • • • • {cleaning by scrubbing or abrasive action }
- B60S 2001/3832
 - • • • • • {cleaning by rigid or semi-rigid scraping elements, e.g. for removing ice }
- B60S 2001/3834
 - • • • • • {equipped with brush-like elements }
- B60S 2001/3836
 - • • • • • {characterised by cross-sectional shape }
- B60S 2001/3837
 - • • • • • {with more than one wiping edge or lip }
- B60S 2001/3839
 - • • • • • • {with longitudinally split squeegee, with squeegee parts }
- B60S 2001/3841
 - • • • • • {Squeegee modifications to prevent longitudinally sliding of squeegee in support structure }
- B60S 2001/3843
 - • • • • {equipped with removable cover or protective elements }

B60S 2001/3844	. . . . . {equipped with means to indicate wear or usage of blade }
B60S 2001/3846	. . . . . {Devices for renewing or renovating blade wiping edges, e.g. cutters }
B60S 2001/3898	. . . . . {method for manufacturing wiper blades }
U B60S 1/40	. . . . . Connections between blades and arms
U B60S 1/4006	. . . . . { for arms provided with a hook-shaped end}
U B60S 1/4009	. . . . . { comprising a detachable intermediate element mounted on the hook-shaped end}
B60S 2001/4012	. . . . . . {the element being provided with bearing surfaces on its side walls }
U B60S 1/4016	. . . . . . { the element being provided with retention means co-operating with the hook-shaped end of the arm}
B60S 2001/4022	. . . . . . . {the element being provided with a locking element movable thereon }
B60S 2001/4025	. . . . . . . {the element being able to receive pivot pins of different diameters }
B60S 2001/4029	. . . . . . . {the element being able to receive arms of different widths }
B60S 2001/4032	. . . . . . . {the element being able to receive arms with hooks of different radiuses }
B60S 2001/4035	. . . . . . {the connection being covered by a removable cover mounted on the blade }
U B60S 1/4038	. . . . . { for arms provided with a channel-shaped end}
U B60S 1/4045	. . . . . { comprising a detachable intermediate element mounted on the channel-shaped end}
U B60S 1/4048	. . . . . . { the element being provided with retention means co-operating with the channel-shaped end of the arm}
B60S 2001/4051	. . . . . . . {the intermediate element engaging the side walls of the arm }
B60S 2001/4054	. . . . . . . {the intermediate element engaging the back part of the arm }
B60S 2001/4058	. . . . . . {comprising a separate locking element, e.g. in addition to an intermediate element }
B60S 2001/4061	. . . . . . {covered by a removable cover mounted on the blade }
U B60S 1/4067	. . . . . { for arms provided with a side pin}
U B60S 1/4077	. . . . . { characterised by the connecting part of, or an intermediate element mounted on, the wiper blade (means for locking the side pin B60S 1/4074)}
B60S 2001/408	. . . . . . {the connecting part or the intermediate element being provided with holes for different diameters of pivoting pin }
B60S 2001/409	. . . . . {characterised by the arm or connecting part mounted on the arm presenting a shaped opening for bearing the pivot axis }
B60S 2001/4093	. . . . . {characterised by the mounting of the pivot on the main yoke of the blade }
B60S 2001/4096	. . . . . {Connections between arm and blade not using a cylindrical pivot axis on the blade }

Project: N/A (B60T)

U B60T 8/00	Arrangements for adjusting wheel-braking force to meet varying vehicular or ground-surface conditions, e.g. limiting or varying distribution of braking force(by changing number of effective brake cylinders in power brake systems B60T 17/10)
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- B60T 8/18
- responsive to vehicle weight or load, e.g. load distribution({ using electrical circuitry on regulation means [B60T 8/17](#) ; } [B60T 8/30](#) takes precedence; responsive to weight and speed condition [B60T 8/58](#))
- NOTE
[B60T 8/1887](#) and [B60T 8/1893](#) take precedence over [B60T 8/1806](#) to ~~[B60T 8/18](#)~~ ~~[B60T 8/18D](#)~~
- U B60T 8/32
- responsive to a speed condition, e.g. acceleration or deceleration({ using electrical circuitry or regulation means [B60T 8/17](#) } ; [B60T 8/28](#) takes precedence; electric devices on electrically propelled vehicles indicating the wheel slip [B60L 3/10](#) ; measuring linear or angular speed per se [G01P 3/00](#))
- U B60T 8/34
- • having a fluid pressure regulator responsive to a speed condition
- U B60T 8/50
- • • having means for controlling the rate at which pressure is reapplied to{or released from}the brake
- B60T 8/5075
- • • {Pressure release by pulsing of valves(~~[B60T 8/50](#)~~ ~~[NB60T 8/50N](#)~~, [B60T 8/5087](#) take precedence)}

Project: N/A (B60W)

- B60W 20/00**
- Control systems specially adapted for hybrid vehicles, i.e. vehicles having two or more prime movers of more than one type, e.g. electrical and internal combustion motors, all used for propulsion of the vehicle**
- NOTE
 Classification is also made in ~~[B60K 6/04](#)~~ [B60K 6/42](#) for the different types of hybrid electric vehicles
- U **B60W 30/00**
- Purposes of road vehicle drive control systems not related to the control of a particular sub-unit, e.g. of systems using conjoint control of vehicle sub-units, { or advanced driver assistance systems for ensuring comfort, stability and safety or drive control systems for propelling or retarding the vehicle (anti-lock brake systems (ABS) [B60T 8/00](#))}**
- U B60W 30/02
- Control of vehicle driving stability
- U B60W 30/04
- • related to roll-over prevention
- B60W 2030/041
- • • {about the pitch axis }
- B60W 2030/043
- • • {about the roll axis }
- U B60W 30/08
- { Active safety systems} predicting or avoiding probable or impending collision { or attempting to minimise its consequences}
- B60W 2030/082
- • {Vehicle operation after collision }
- B60W 30/10
- Path keeping {(cruise control for automatically following a preceding vehicle ~~[B60W 30/16B](#)~~ [B60W 30/165](#))}
- U B60W 30/18
- Propelling the vehicle
- WARNING
 Subgroups of [B60W 30/18](#) are not complete. Documents from [B60K 41/00](#) and [B60W 30/18](#) are in the process of being reorganised to the new groups
- U B60W 30/18009
- • { related to particular drive situations}
- U B60W 30/18072
- • • { Coasting}
- B60W 2030/18081
- • • • {With torque flow from driveshaft to engine, i.e. engine being driven by vehicle }
- B60W 2030/1809
- • • • {Without torque flow between driveshaft and engine, e.g. with clutch disengaged or transmission in neutral }
- U B60W 30/20
- • Reducing vibrations in the driveline

B60W 2030/203	• • • {related or induced by the clutch }
B60W 2030/206	• • • {related or induced by the engine }
U B60W 40/00	Estimation or calculation of { non-directly measurable} driving parameters for road vehicle drive control systems not related to the control of a particular sub unit, { e.g. by using mathematical models}
U B60W 40/08	• related to drivers or passengers
B60W 2040/0809	• • {Driver authorisation; Driver identical check }
B60W 2040/0818	• • {Inactivity or incapacity of driver }
B60W 2040/0827	• • • {due to sleepiness }
B60W 2040/0836	• • • {due to alcohol }
B60W 2040/0845	• • • {due to drugs }
B60W 2040/0854	• • • {due to driver cheating, e.g. to circumvent driver tests }
B60W 2040/0863	• • • {due to erroneous selection or response of the driver }
B60W 2040/0872	• • {Driver physiology }
B60W 2040/0881	• • {Seat occupation; Driver or passenger presence }
B60W 2040/089	• • {Driver voice }
U B60W 40/12	• related to parameters of the vehicle itself, { e.g. tyre models}
U B60W 40/13	• • Load or weight
B60W 2040/1307	• • • {Load distribution on each wheel suspension }
B60W 2040/1315	• • • {Location of the centre of gravity }
B60W 2040/1323	• • • {Moment of inertia of the vehicle body }
B60W 2040/133	• • • • {about the roll axis }
B60W 2040/1338	• • • • {about the pitch axis }
B60W 2040/1346	• • • • {about the yaw axis }
B60W 2040/1353	• • • {Moment of inertia of a sub-unit }
B60W 2040/1361	• • • • {the component being the engine }
B60W 2040/1369	• • • • {the component being the clutch }
B60W 2040/1376	• • • • {the component being the transmission }
B60W 2040/1384	• • • • {the component being the wheel }
B60W 2040/1392	• • • {Natural frequency of components }
U B60W 50/00	Details of control systems for road vehicle drive control not related to the control of a particular sub-unit, { e.g. process diagnostic or vehicle driver interfaces}
	<u>WARNING</u>
	New subgroups of IPC8 are not yet complete. Documents from B60K , in particular B60K 41/00 and subgroups, are in the process of being reclassified to the new groups
B60W 2050/0001	• {Details of the control system }
B60W 2050/0002	• • {Automatic control, details of type of controller or control system architecture }
B60W 2050/0003	• • • {In analogue systems, e.g. continuous systems }
B60W 2050/0004	• • • {In digital systems, e.g. discrete-time systems involving sampling }
B60W 2050/0005	• • • • {Processor details or data handling, e.g. memory registers or chip architecture }
B60W 2050/0006	• • • • {Digital architecture hierarchy }
B60W 2050/0008	• • • {Feedback, closed loop systems or details of feedback error signal }

B60W 2050/0009	. . . . {Proportional differential (PD) controller }
B60W 2050/001	. . . . {Proportional integral (PI) controller }
B60W 2050/0011	. . . . {Proportional Integral Differential (PID) controller }
B60W 2050/0012	. . . {Feedforward or open loop systems }
B60W 2050/0013	. . . {Optimal controllers }
B60W 2050/0014	. . . {Adaptive controllers }
B60W 2050/0016	. . . {State machine analysis }
B60W 2050/0017	. . . {Modal analysis, e.g. for determining system stability }
B60W 2050/0018	. . . {Method for the design of a control system }
B60W 2050/0019	. . {Control system elements or transfer functions }
B60W 2050/002	. . . {Integrating means }
B60W 2050/0021	. . . {Differentiating means }
B60W 2050/0022	. . . {Gains, weighting coefficients or weighting functions }
B60W 2050/0024	. . . . {Variable gains }
B60W 2050/0025	. . . . {Transfer function weighting factor }
B60W 2050/0026	. . . {Lookup tables or parameter maps }
B60W 2050/0027	. . . {Minimum/maximum value selectors }
B60W 2050/0028	. . . {Mathematical models, e.g. for simulation }
B60W 2050/0029	. . . . {Mathematical model of the driver }
B60W 2050/0031	. . . . {Mathematical model of the vehicle }
B60W 2050/0032	. . . . . {Quarter vehicle model, i.e. only one vehicle corner }
B60W 2050/0033	. . . . . {Single-track, 2D vehicle model, i.e. two-wheel bicycle model }
B60W 2050/0034	. . . . . {Multiple-track, 2D vehicle model, e.g. four-wheel model }
B60W 2050/0035	. . . . . {Multiple-track, 3D vehicle model, e.g. including roll and pitch conditions }
B60W 2050/0036	. . . . . {Multiple-track, 3D multi-body vehicle model, e.g. combination of models for vehicle sub-units }
B60W 2050/0037	. . . . {Mathematical models of vehicle sub-units }
B60W 2050/0039	. . . . . {of the propulsion unit }
B60W 2050/004	. . . . . {of the clutch }
B60W 2050/0041	. . . . . {of the drive line }
B60W 2050/0042	. . . {Transfer function lag; delays }
B60W 2050/0043	. . {Signal treatments, identification of variables or parameters, parameter estimation or state estimation }
B60W 2050/0044	. . . {In digital systems }
B60W 2050/0045	. . . . {using databus protocols }
B60W 2050/0047	. . . {Digital-analogue (D/A) or analogue-digital (A/D) conversion }
B60W 2050/0048	. . . {Addition or subtraction of signals }
B60W 2050/0049	. . . . {Signal offset }
B60W 2050/005	. . . Sampling {Sampling }
B60W 2050/0051	. . . . {combined with averaging }
B60W 2050/0052	. . . {Filtering, filters }
B60W 2050/0054	. . . . {Cut-off filters, retarders, delaying means, dead zones, threshold values or cut-off frequency }
B60W 2050/0055	. . . . . {High-pass filters }

B60W 2050/0056	• • • • {Low-pass filters }
B60W 2050/0057	• • • {Frequency analysis, spectral techniques or transforms }
B60W 2050/0058	• • • {Signal modulation for data transmission }
B60W 2050/0059	• • • {Signal noise suppression }
B60W 2050/006	• • • {Interpolation; Extrapolation }
B60W 2050/0062	• {Adapting control system settings }
B60W 2050/0063	• • {Manual parameter input, manual setting means, manual initialising or calibrating means (for vehicle control input means, control panels see B60K 37/00) }
B60W 2050/0064	• • • {using a remote, e.g. cordless, transmitter or receiver unit, e.g. remote keypad or mobile phone }
B60W 2050/0065	• • • {using a personalised data carrier, e.g. magnetic card, memory card or electronic ignition key }
B60W 2050/0066	• • • {using buttons or a keyboard connected to the on-board processor }
B60W 2050/0067	• • • • {Confirmation by the driver }
B60W 2050/0068	• • • {Giving intention of direction, e.g. by indicator lights, steering input }
B60W 2050/007	• • {Switching between manual and automatic parameter input, and vice versa }
B60W 2050/0071	• • • {Controller overrides driver automatically }
B60W 2050/0072	• • • {Controller asks driver to take over }
B60W 2050/0073	• • • {Driver overrides controller }
B60W 2050/0074	• • • {Driver shifts control to the controller, e.g. by pressing a button }
B60W 2050/0075	• • {Automatic parameter input, automatic initialising or calibrating means }
B60W 2050/0077	• • • {involving external transmission of data to or from the vehicle }
B60W 2050/0078	• • • • {using Global Position System data }
B60W 2050/0079	• • • • {using telemetry }
B60W 2050/008	• • • • • {using data transmitted between vehicles, e.g. for platooning, control of inter-vehicle distance }
B60W 2050/0081	• • • • • {using satellite communication }
B60W 2050/0082	• • • {for initialising the control system }
B60W 2050/0083	• • • {Setting, resetting, calibration }
B60W 2050/0085	• • • • {Setting or resetting initial positions }
B60W 2050/0086	• • • • {Recalibrating datum positions, e.g. by using check cycles }
B60W 2050/0087	• • • • {Resetting start and end points of actuator travel }
B60W 2050/0088	• • • • {Adaptive recalibration }
B60W 2050/0089	• • • {Historical data record of previous events }
B60W 2050/009	• • • {Priority selection }
B60W 2050/0091	• • • • {of control inputs }
B60W 2050/0093	• • • • • {of the engine }
B60W 2050/0094	• • • • {of control units }
B60W 2050/0095	• • • {Automatic control mode change }
B60W 2050/0096	• • • • {Control during transition between modes }
U B60W 50/02	• Ensuring safety in case of control system failures, e.g. by diagnosing, circumventing or fixing failures
U B60W 50/0205	• • { Diagnosing or detecting failures; Failure detection models }
B60W 2050/021	• • • {Means for detecting failure or malfunction }
B60W 2050/0215	• • • {Sensor drifts or sensor failures }

	B60W 2050/022	• • • {Actuator failures }
U	B60W 50/029	• • Adapting to failures or work around with other constraints, e.g. circumvention by avoiding use of failed parts
	B60W 2050/0292	• • • {Fail-safe or redundant systems, e.g. limp-home or backup systems }
	B60W 2050/0295	• • • {Inhibiting action of specific actuators or systems }
	B60W 2050/0297	• • • {Control Giving priority to different actuators or systems }
U	B60W 50/04	• Monitoring the functioning of the control system
	B60W 2050/041	• • {Built in Test Equipment (BITE) }
	B60W 2050/043	• • • {Testing equipment at KEY-ON }
U	B60W 50/045	• • { Monitoring control system parameters}
	B60W 2050/046	• • • {involving external transmission of data to or from the vehicle, e.g. via telemetry, satellite, Global Positioning System (GPS) }
	B60W 2050/048	• • • • {displaying data transmitted between vehicles, e.g. for platooning, control of inter-vehicle distance }
U	B60W 50/06	• Improving the dynamic response of the control system, e.g. improving the speed of regulation or avoiding hunting or overshoot
	B60W 2050/065	• • {by reducing the computational load on the digital processor of the control computer }
U	B60W 50/08	• Interaction between the driver and the control system
	B60W 50/082	• • { Selecting or switching between different modes of propelling (for selection of different gear shift modes B60W30/18F) }
U	B60W 50/14	• • Means for informing the driver, warning the driver or prompting a driver intervention
	B60W 2050/143	• • • {Alarm means (B60W 50/16 takes precedence)}
	B60W 2050/146	• • • {Display means }
U	B60W 2300/00	Indexing codes relating to the type of vehicle
	B60W 2300/14	• Trailers, e.g. full trailers, caravans (relation between towing and towed vehicle L60W410/96 relation between towing and towed vehicle B60Y 2300/28)

Project: N/A (B60Y)

B60Y 2302/00 Responses or measures related to driver conditions (for propulsion units [B60K 28/02](#), related to driving style ~~L60W40/08B~~ [B60W 40/09](#))

Project: N/A (B61D)

U	B61D 17/00	Construction details of vehicle bodies (for tank wagons B61D 5/00 ; for hopper cars B61D 7/00 ; body details specially adapted for tipping wagons B61D 9/06 ; for mine cars B61D 11/00)
	B61D 17/005	• {with bodies characterised by use of plastics materials (B61D17/00C B61D 17/005 takes precedence)}(bogie frames comprising parts made from fibre einforced matrix material B61F 5/523)}

Project: N/A (B61L)

U	B61L 3/00	Devices along the route for controlling devices on the vehicle or vehicle train, e.g. to release brake, to operate a warning signal
U	B61L 3/02	• at selected places along the route, e.g. intermittent control {simultaneous mechanical and electrical control}
U	B61L 3/08	• • controlling electrically
U	B61L 3/12	• • • using magnetic or electrostatic induction; using radio waves

- U B61L 3/121 • • • {using magnetic induction}
- B61L 2003/122 • • • • {German standard for inductive train protection, called "Induktive Zugsicherung" [INDUSI] }
- B61L 2003/123 • • • • {French standard for inductive train protection, called "Contrôle de vitesse par balises" [KVB] }
- U B61L 3/16 • Continuous control along the route
- U B61L 3/22 • • using magnetic or electrostatic induction; using electromagnetic radiation
- U B61L 3/221 • • • {using track circuits}
- B61L 2003/223 • • • • {French cab signaling system, called "Transmission Voie-Machine" [TVM] }
- U B61L 3/225 • • • {using separate conductors along the route}
- B61L 2003/226 • • • • {German inductive continuous train control, called 'Linienzugbeeinflussung' [LZB] }
- B61L 2003/228 • • • {Constructional details }
- U B61L 5/00** **Local operating mechanisms for points or track-mounted scotch-blocks (track-mounted scotch-blocks per se [B61K](#)); Visible or audible signals; Local operating mechanisms for visible or audible signals ([B61L 11/00](#) takes precedence)**
- U B61L 5/12 • Visible signals {(signalling means on the vehicle [B61L 15/00](#); signalling means for classification yards, or the like, with multiple indicating means [B61L 17/023](#); signalling means for road crossings [B61L 29/24](#); lighting in general [F21](#); visible signalling arrangements in general [G08B 5/00](#))}
- U B61L 5/18 • • Light signals; Mechanisms associated therewith, e.g. blinders
- U B61L 5/1809 • • • {Daylight signals}
- B61L 5/1854 • • • • {Mounting and focussing of the light source in a lamp, fixing means (~~focussing of the light source in reflecting mirrors [F21M3/02](#)~~ *focussing of the light source in reflecting mirrors [F21S 48/00](#)*)}
- U B61L 11/00** **Operation of points from the vehicle or by the passage of the vehicle**
- U B61L 11/08 • using electrical or magnetic interaction between vehicle and track
- B61L 2011/086 • • {German radio based operations, called "Funkfahrbetrieb" [FFB] }
- U B61L 19/00** **Arrangements for interlocking between points and signals by means of a single interlocking device, { e.g. central control (remote control [B61L 7/00](#); station block arrangements [B61L 21/00](#))}**
- U B61L 19/06 • Interlocking devices having electrical operation
- B61L 2019/065 • • {with electronic means }
- U B61L 27/00** **Central traffic control systems; { Track-side control or specific communication systems}**
- U B61L 27/0038 • { Track-side control of safe travel of vehicle or vehicle train, e.g. braking curve calculation (on-board target speed calculation and supervision [B61L 3/008](#))}
- B61L 2027/0044 • • {using European Train Control System (ETCS) }
- B61L 2027/005 • • {using Communication-based Train Control (CBTC) }

Project: N/A (B62B)**B62B****HAND-PROPELLED VEHICLES, e.g. HAND CARTS, PERAMBULATORS; SLEDGES****NOTES**

In this subclass, the term "hand carts" also embraces hand-propelled wheeled devices in so far as the features thereof are generic to hand carts. This term also

embraces pedestrian-controlled power-driven vehicles in so far as the features thereof are generic to hand carts

Rollers are taken as being equivalent to wheels

WARNING

The following IPC groups are not used in the internal CPC classification scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~B62B 3/065~~ covered by ~~B62B3/06B4~~

U B62B 5/00 Accessories or details specially adapted for hand carts({ [B62B 3/1404](#) }, [B62B 9/00](#) take precedence; wheels, axles, or axle bearing for vehicles [B60B](#); castors for vehicles, castors in general [B60B 33/00](#))

U B62B 5/04 • Braking mechanisms; Locking devices against movement
B62B 2005/0471 • • {Disk brakes}

Project: N/A (B62D)

U B62D 25/00 Superstructure{or monocoque structure}sub-units; Parts or details thereof not otherwise provided for({ having impact absorbing means [B62D 21/15](#) ; running-boards, steps, or the like as superstructure sub-unit [B60R 3/00](#))}

U B62D 25/08 • Front or rear portions({ sub-frames for mounting engine or suspensions [B62D 21/11](#))}

B62D 25/081 • • {Cowls(ventilating openings situated directly in front of the vehicle front window [B60H 1/28](#) [B60H 1/28](#))}

U B62D 33/00 Superstructures for load-carrying vehicles({ having impact absorbing means [B62D 21/15](#) ; } in which a load-carrying element is movable [B60P](#); liners [B60R 13/00](#) ; { joining sheets or plates to one another or to strips or bars parallel to them [F16B 5/00](#) })

U B62D 33/04 • Enclosed load compartments{Frameworks for movable panels, tarpaulins or side curtains(tarpaulins per se [B60J 7/00](#) , [B60P 7/04](#) ; side curtains per se [B60J 5/065](#))}

B62D 33/042 • • {divided into compartments(movable bulk heads [B60P 7/14](#) ; cattle transport [B60P 3/04](#) ; bottled liquids [B60P3/02](#)[B60P 3/22](#))}

Project: N/A (B62H)

U B62H 3/00 Separate supports or holders for parking or storing cycles (cycle supports used during maintenance [B25H](#); building aspects [E04H](#))

B62H 2003/005 • {Supports or holders associated with means for bike rental }

U B62H 5/00 Appliances preventing or indicating unauthorized use or theft of cycles; Locks integral with cycles (fittings for preventing or indicating use or theft of vehicles in general [B60R](#); general features of locks [E05B](#))

B62H 2005/008 • {Arrangements or adaptations for supporting U-locks on cycles }

Project: N/A (B62J)

U B62J 1/00 Saddles or other seats for cycles; Arrangement thereof; Component parts (arrangements or adaptations of vehicle seats in general [B60N](#))

U B62J 1/08 • Frames for saddles; Connections between saddle frames and seat pillars; Seat pillars (attaching seat pillars to cycle frames [B62K 19/36](#))

B62J 2001/085 • • {Seat pillars having mechanisms to vary seat height, independently of the cycle frame }

- U B62J 6/00** Arrangement of optical signalling or lighting devices on cycles, the mounting or supporting thereof or circuits therefor (optical signalling or lighting devices per se [F21](#), { with built-in power supply [F21S 9/00](#), [G08](#), [H05](#)})
- U B62J 6/005
B62J 2006/006
B62J 2006/008
- {Cycle direction indicators}
 - • {Lighting with automatic activation }
 - {Lighting controlled by wireless switches }
- U B62J 17/00** Weather guards for riders; Fairings or stream-lining parts not otherwise provided for (protective garments [A41D 13/00](#); crash helmets [A42B 3/00](#); hoods or fairings for sidecars [B62K](#))
- U B62J 17/08
B62J 2017/083
B62J 2017/086
- Hoods protecting the rider
 - • {Frame mounted covers attaching to front and rear specially adapted for bicycles }
 - • {Frame mounted covers attaching to front and rear specially adapted for motorcycles }
- U B62J 27/00** Safety equipment, e.g. crash bars (safety belts in general [A62B 35/00](#))
- B62J 2027/005
- {Pillion grab handles attached to riders clothing }
- U B62J 99/00** Subject matter not provided for in other groups of this subclass
- B62J 2099/0006
B62J 2099/0013
B62J 2099/002
B62J 2099/0026
B62J 2099/0033
B62J 2099/004
B62J 2099/0046
B62J 2099/0053
B62J 2099/006
B62J 2099/0066
B62J 2099/0073
B62J 2099/008
B62J 2099/0086
B62J 2099/0093
- {Audio electrical equipments specially adapted for use on cycles, e.g. radios or mobile phones }
 - {Cycle computers }
 - {Sensors specially adapted for cycles (for control of electrically propelled cycles [B62M 6/50](#)) *Mounting thereof*; ~~Mounting thereof~~
 - {Displays specially adapted for cycles (~~for audio equipments [L62J30/00B](#)~~; for cycle computers [B62J 2099/0013](#); arrangement or adaptations of instruments in vehicles [B60K 35/00](#))}
 - • {Mounting arrangements therefor }
 - {Other electrical equipment specially adapted for use on a cycle not provided for in groups [B62J 2099/0006](#) to [B62J 2099/0026](#) e.g. solar cells }
 - {Arrangements for guiding control cables }
 - {Handles for carrying cycles }
 - {Cleaning devices for the ground, e.g. ground sweeping attachments }
 - {Cleaning devices for cycles or parts thereof, e.g. windscreen wipers }
 - {Connecting arms or harnesses, e.g. between cycle and a rider or between cycle and a dog }
 - {Indication devices specially adapted for cycles, e.g. signs or flags }
 - {Ornaments or toys specially designed for fixing on cycles }
 - {Tools adapted to be carried on cycles }
- U B62J 2300/00** Aspects relating to cycles not covered by the other groups of this subclass
- B62J 2300/0026
- Displays specially adapted for cycles (for audio equipments [B62J 2300/0006](#); ~~for cycle computers [L62J39/00C](#)~~; arrangement or adaptations of instruments in vehicles [B60K 35/00](#))

Project: N/A (B62K)

- U B62K 3/00** Bicycles
- U B62K 3/12
B62K 2003/125
- Tandems
 - • {Tandems with side-by-side seating }

- U B62K 5/00** Cycles with handlebars, equipped with three or more main road wheels (cycle supports or stands equipped with additional wheels for ride stabilisation [B62H 1/12](#))
- WARNING
Groups [B62K 5/003](#) - [B62K 5/10](#) correspond to IPC2013.01
- B62K 2005/001 • {Suspension details for cycles with three or more main road wheels }
- B62K 2005/002 • {with adaptations to be used as golf carts }
- U B62K 15/00** Collapsible or foldable cycles
- B62K 2015/001 • {Frames adapted to be easily dismantled }
- B62K 2015/003 • {having a foldable crank or pedal }
- B62K 2015/005 • {having additional wheels for use when folded or collapsed }
- U B62K 25/00** Axle suspensions (for vehicles in general [B60G](#))
- U B62K 25/02 • for mounting axles rigidly on cycle frame or fork, e.g. adjustably
- B62K 2025/025 • • {Hinged axle clamps }
- U B62K 25/04 • for mounting axles resiliently on cycle frame or fork (for sidecars, forecars or the like [B62K 27/06](#))
- B62K 2025/041 • • {the cycle frame being made of a flexible material }
- B62K 2025/042 • • {Suspensions with sprung hubs }
- B62K 2025/044 • • {Suspensions with automatic adjustment }
- B62K 2025/045 • • {Suspensions with ride-height adjustment }
- B62K 2025/047 • • {with suspension locking means }
- B62K 2025/048 • • {with suspension manual adjustment details }

Project: N/A (B62M)

- U B62M 3/00** Construction of cranks operated by hand or foot
- B62M 2003/006 • {Crank arrangements to overcome dead points }
- U B62M 7/00** Motorcycles characterised by position of motor or engine (rider propulsion with addition source of power, e.g. auxiliary combustion engine or electric motor [B62M 6/00](#); frames characterised by position of engine [B62K 11/00](#))
- B62M 2007/005 • {the cycle being equipped with a pneumatic motor }
- U B62M 9/00** Transmissions characterised by use of an endless chain, belt, or the like (cycle chain guards [B62J 13/00](#))
- NOTE
In this main group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.
- B62M 2009/002 • {Non-circular chain rings or sprockets }
- B62M 2009/005 • {Details of transmission chains specially adapted for bicycles }
- B62M 2009/007 • {Guides to prevent chain from slipping off the sprocket }
- U B62M 9/04 • of changeable ratio
- U B62M 9/06 • • using a single chain, belt, or the like
- U B62M 9/10 • • • involving different-sized wheels, {e.g. rear sprocket chain wheels} selectively engaged by the chain, belt, or the like {(bicycle hubs rotatably arranged on axle [B60B 27/023](#))}
- U B62M 9/12 • • • the chain, belt, or the like being laterally shiftable, {e.g. using a rear derailleur}

- U B62M 9/121 Rear derailleurs
- U B62M 9/124 Mechanisms for shifting laterally
- B62M 2009/12406 {Rear derailleur comprising a rigid pivoting arm }
- B62M 2009/12413 {Rear derailleur comprising telescoping mechanisms }
- U **B62M 25/00** **Actuators for gearing speed-change mechanisms specially adapted for cycles (rider operated controls for cycles in general [B62K 23/00](#); gearing speed change mechanisms [F16H](#))**
 - B62M 2025/003 . {with gear indicating means, e.g. a display }
 - B62M 2025/006 . {with auxiliary shift assisting means }
- U **B62M 27/00** **Propulsion devices for sledges or the like (pushed or pulled by persons or animals [B62B](#), [B62C](#); wind propulsion [B62B 15/00](#))**
 - U B62M 27/02 . power driven
 - B62M 2027/021 . . {Snow bikes resembling conventional motorcycles }
 - B62M 2027/022 . . {Snow drive conversions for cycles with wheels }
 - B62M 2027/023 . . {Snow mobiles characterised by engine mounting arrangements }
 - B62M 2027/025 . . {Snow mobiles characterised by the skis }
 - B62M 2027/026 . . {Snow mobiles characterised by the suspension means }
 - B62M 2027/027 . . {Snow mobiles characterised by the tracks }
 - B62M 2027/028 . . {Snow mobiles characterised by chassis or bodywork }

Project: N/A (B63B)

- U **B63B 1/00** **Hydrodynamic or hydrostatic features of hulls or of hydrofoils(keels [B63B 3/38](#) ; determining hydrodynamic or hydrostatic features [B63B 9/00](#) ; hulls peculiar to submarines [B63B 3/13](#) ; decreasing pitch, roll or like unwanted vessel movements by using foils or acting on ambient water [B63B 39/06](#))**
 - B63B 2001/005 . {Deflectors for spray, e.g. for guiding spray generated at the bow of a planing vessel underneath the hull}
 - U B63B 1/02 . deriving lift mainly from water displacement([B63B 1/16](#) takes precedence)
 - U B63B 1/04 . . with single hull
 - B63B 2001/044 . . . {with a small waterline area compared to total displacement, e.g. of semi-submersible type}
 - B63B 2001/045 . . . {with means for actively varying hull shape or configuration, e.g. for varying hydrodynamic characteristics}
 - U B63B 1/06 . . . Shape of fore part
 - B63B 2001/066 {Substantially vertical stems}
 - U B63B 1/10 . . with multiple hulls
 - B63B 2001/102 . . . {Proas, or similar twin-hull vessels with one main hull and one smaller hull or floater, interconnected by one or more outrigger beams or the like}
 - U B63B 1/12 . . . the hulls being interconnected rigidly{([B63B 1/107](#) takes precedence)}
 - U B63B 1/121 {comprising two hulls([B63B 1/107](#) takes precedence)}
 - B63B 2001/123 {interconnected by a plurality of beams, or the like members only}
 - U B63B 1/125 {comprising more than two hulls([B63B 1/107](#) takes precedence)}
 - B63B 2001/126 {comprising more than three hulls}
 - B63B 2001/128 {comprising underwater connectors between the hulls}

- U B63B 1/14
- • • the hulls being interconnected resiliently{or having means for actively varying hull shape or configuration(collapsible, foldable, inflatable or like vessels [B63B 7/00](#))}
- WARNING
Not complete, pending a reorganisation, see [B63B 1/12](#) and subgroups
- B63B 2001/145
- • • • {having means for actively varying hull shape or configuration}
- U B63B 1/16
- deriving additional lift from hydrodynamic forces
- U B63B 1/18
- • of hydroplane type
- B63B 2001/183
- • • {having non-floating planing surfaces, e.g. attached skis or plate-shaped bodies}
- B63B 2001/186
- • • {Sponsons; Arrangements thereof}
- U B63B 1/20
- • • having more than one planing surface([B63B 1/22](#) takes precedence)
- WARNING
Not complete, pending a reorganisation, see [B63B 1/042](#)
- B63B 2001/201
- • • • {divided by longitudinal chines}
- B63B 2001/202
- • • • {divided by transverse steps}
- B63B 2001/203
- • • • {arranged in semi-catamaran configuration}
- B63B 2001/204
- • • • {arranged on multiple hulls}
- B63B 2001/205
- • • • • {the hulls being interconnected rigidly}
- B63B 2001/206
- • • • • • {comprising two hulls, e.g. catamarans}
- B63B 2001/207
- • • • • • {comprising more than two hulls}
- B63B 2001/208
- • • • • • • {comprising three hulls, e.g. trimarans}
- B63B 2001/209
- • • • • {the hulls being interconnected resiliently, or having means for actively varying hull shape or configuration}
- U B63B 1/24
- • of hydrofoil type{(controlling attitude or depth of underwater vessels by hydrofoils or the like [B63G 8/18](#))}
- WARNING
This group is pending a reorganisation, also documents covered by group [B63B 1/26](#) are within this group
- U B63B 1/28
- • • with movable hydrofoils
- B63B 2001/281
- • • • {movable about an axis substantially parallel to the flow direction}
- U B63B 1/32
- Other means for varying the inherent hydrodynamic characteristics of hulls
- B63B 2001/325
- • {Interceptors, i.e. elongate blade-like members projecting from a surface into the fluid flow substantially perpendicular to the flow direction, and by a small amount compared to its own length}
- B63B 2001/327
- • {using magneto-hydrodynamic forces}
- U B63B 1/34
- • by reducing surface friction
- B63B 2001/345
- • • {by ejecting friction reducing solids or liquids, e.g. polymers}
- U B63B 1/38
- • • using air bubbles or air layers{gas filled volumes(waterborne vessels travelling on air cushions [B60V 3/06](#))}
- B63B 2001/382
- • • • {by making use of supercavitation, e.g. for underwater vehicles}
- B63B 2001/385
- • • • {using exhaust gas}
- B63B 2001/387
- • • • • {using means for producing a film of air or air bubbles over at least a significant portion of the hull surface}

U	B63B 3/00	Constructions of hulls(non-metallic hulls B63B 5/00 ; designing, building, maintaining or repairing methods B63B 9/00)
U	B63B 3/02	• Hulls assembled from prefabricated sub-units
U	B63B 3/08	• • with detachably-connected sub-units
	B63B 2003/085	• • • {Multiple hull vessels, e.g. catamarans, assembled from detachably-connected sub-units}
U	B63B 3/14	• Hull parts(hull armour B63B 3/10)
	B63B 2003/145	• • {Frameworks, i.e. load bearing assemblies of trusses and girders interconnected at nodal points}
	B63B 2003/147	• • {Moon-pools, e.g. for offshore drilling vessels}
U	B63B 3/26	• • Frames
	B63B 2003/265	• • • {comprising open profiles, e.g. U- or gutter-shaped, and forming substantially closed channels together with the plate to which they are attached}
U	B63B 3/38	• • Keels(movable keels B63B 41/00)
	B63B 2003/382	• • • {adapted for housing energy accumulators, e.g. batteries}
	B63B 2003/385	• • • {with means for controlling heeling or rolling motions, or lift, e.g. flaps, by changing geometry, or by ballast displacement}
	B63B 2003/387	• • • {adapted for housing propulsion plant elements}
U	B63B 3/42	• • Shaft brackets
	B63B 2003/425	• • • {having features not related to structural construction, e.g. hydrodynamic properties or bearings}
U	B63B 3/48	• • Decks(planking B63B 5/06)
	B63B 2003/485	• • • {movably connected to hull or superstructure}
U	B63B 5/00	Hulls characterised by their construction of non-metallic material
U	B63B 5/24	• made predominantly of plastics{(surf boards B63B 35/7909)}
	B63B 2005/242	• • {made of a composite of plastics and other structural materials, e.g. wood or metal}
	B63B 2005/245	• • • {made of a composite of plastics and metal}
	B63B 2005/247	• • • {made of a composite of plastics and wood}
U	B63B 7/00	Collapsible, foldable, inflatable or like vessels(foldable pontoons B63B 35/36)
	B63B 2007/003	• {with foldable members}
	B63B 2007/006	• {comprising nestable elements}
U	B63B 7/06	• having parts of non-rigid material
	B63B 2007/065	• • {comprising flexible pockets for receiving removable floaters}
U	B63B 9/00	Methods of designing, building, maintaining, converting, refitting, repairing, or determining properties of vessels, not otherwise provided for(shuttering for building concrete vessels E04G)
	B63B 2009/005	• {Methods for dismantling hulls, or elements of ships or other waterborne vessels, e.g. floating offshore structures}
	B63B 2009/006	• • {for dismantling hulls, or structural elements}
	B63B 2009/007	• • {for unshipping or dismantling equipment or non-structural elements, e.g. propellers, rudders or prime movers}
	B63B 2009/008	• {Methods for repairing hulls or structural elements of ships or other waterborne vessels, e.g. floating offshore structures}

- U B63B 9/02
- Using towing tanks or model basins for designing{(arrangements in or on ship testing tanks or water tunnels [G01M 10/00](#))}
- B63B 2009/025
- • {using ice model basins; using non-refrigerated towing tanks or model basins with floating ice covers simulated by other means, e.g. wax}
- U B63B 9/06
- Methods of building hulls
- B63B 9/065
- • {for floating offshore platforms(grounded platforms [E02B 17/00](#))}
- WARNING
Not complete, see [B63B 21/50](#) , ~~[B63B 35/00](#)~~ ~~[B63B 35/00L](#)~~ , [B63B 35/44](#)
- B63B 2009/067
- • • {for assembling offshore structures, e.g. in situ, using buoyancy forces for supporting the structure itself, or part of it, e.g. using barges}
- U B63B 13/00
- Conduits for emptying or ballasting; Self-bailing equipment; Scuppers(draining means for hatches [B63B 19/26](#) ; centrifugal bilge-water separators [B04](#); { arrangements of installations for treating ballast water [B63J 4/002](#) ; }pipes in general [F16L](#))**
- B63B 2013/005
- {Sea chests}
- U B63B 15/00
- Superstructures{,deckhouses, wheelhouses or the like}; Arrangements or adaptations of masts{or spars, e.g. bowsprits}(loading or unloading equipment [B63B 27/00](#) ; masts and staying in general [E04H](#); sails, running rigging [B63H](#); { mounting ladders or the like on masts [B63B 29/205](#))}**
- B63B 2015/0008
- ~~[Bowsprits](#)~~{[Bowsprits](#)}
- B63B 2015/0016
- {Masts characterized by mast configuration or construction}
- B63B 2015/0025
- • {Bipodded masts, e.g. A-type masts}
- B63B 2015/0033
- • {Multipodded masts, e.g. tripod-type}
- B63B 2015/0041
- • {Telescoping masts}
- B63B 2015/005
- • {with means for varying mast position or orientation with respect to the hull}
- B63B 2015/0058
- • • {comprising active mast inclination means}
- B63B 2015/0066
- • • {Inclinable masts with passive righting means, e.g. counterbalancing means}
- B63B 2015/0075
- • • {with mast foot adapted for being moved, e.g. athwartship}
- U B63B 15/0083
- {Masts for sailing ships or boats}
- B63B 2015/0091
- • {comprising means for silencing rope noise}
- U B63B 17/00
- Vessel parts, details, or accessories, not otherwise provided for{(vehicle fittings for preventing or indicating unauthorised use or theft of vehicles in general [B60R 25/00](#) ; propeller guards, line cutters or other means for protecting propellers or rudders [B63H 5/165](#) ; protection of power legs of outboard propulsion units [B63H 20/36](#) ; locking devices for boats, surfboards or parts or accessories thereof [E05B 73/007](#))}**
- WARNING
Not complete pending a reorganisation; for documents concerning protective caps, or anti-theft devices other than using keys, see [B63J 99/00](#)
- B63B 2017/0009
- {Methods or devices specially adapted for preventing theft, or unauthorized use of vessels, or parts or accessories thereof, other than by using locks}
- B63B 2017/0045
- {Caps, hoods, or the like devices for protective purposes, not otherwise provided for}
- B63B 2017/0054
- {Rests or supports for movable ship-borne equipment}
- B63B 2017/0063
- • {Boom rests, i.e. props for main sail booms, derricks, or the like}
- B63B 2017/0072
- {Seaway compensators}

	B63B 2017/009	• {Wave breakers, breakwaters, splashboards, or the like}
U	B63B 17/02	• Awnings{,including rigid weather protection structures, e.g. sunroofs; Tarpaulins; Accessories for awnings or tarpaulins}
	B63B 2017/026	• • {Rigid awnings, or sunroofs}
U	B63B 17/04	• Stanchions; Guard-rails;{Bulwarks or the like}
	B63B 2017/045	• • {Bulwarks, or the like}
U	B63B 19/00	Arrangements or adaptations of ports, doors, windows, port-holes, or other openings or covers(scuppers B63B 13/00 ; arrangements of watertight doors in bulkheads B63B 43/24)
	B63B 2019/0007	• {Ship's windows}
	B63B 2019/0015	• • {Bull's eyes, or the like ship's windows}
	B63B 2019/0023	• • • {Pivotal bull's eyes with central pivoting axis}
	B63B 2019/003	• • • {Pivotal bull's eyes with peripheral hinge axis}
	B63B 2019/0038	• • {Ship's windows, other than bull's eyes}
	B63B 2019/0046	• • • {Fixed ship's windows, other than bull's eyes}
	B63B 2019/0053	• {Locking means for ports, doors, windows, covers, or the like, e.g. providing for watertight closure when locked}
	B63B 2019/0061	• • {comprising pivotally supported threaded locking bolts}
	B63B 2019/0069	• • {comprising movable positive fit locking members, e.g. swivelling locking clips, or dogs}
	B63B 2019/0076	• • • {comprising multiple positive fit locking members arranged for simultaneous locking action}
	B63B 2019/0084	• • • • {with mechanical drive for effecting simultaneous locking action}
	B63B 2019/0092	• {Fly screens, or the like protection devices against insects, e.g. for insertion into bull's eyes openings}
U	B63B 19/08	• Ports or like openings in vessels' sides{or at the vessels' bow or stern(forming ramps when open B63B 27/143)}
	B63B 2019/083	• • {Bow ports, e.g. for ferries}
	B63B 2019/086	• • {Stern ports, e.g. for ferries or Ro-Ro-vessels}
U	B63B 19/12	• Hatches; Hatchways(hatch coamings B63B 3/54)
U	B63B 19/14	• • Hatch covers(opening devices in general E05F)
	B63B 2019/145	• • • {with means for adjusting size, e.g. width}
U	B63B 19/18	• • • slidable
	B63B 2019/185	• • • • {with sliding bearings}
U	B63B 19/24	• • Hatch fastenings, e.g. cleats
	B63B 2019/245	• • • {Loose or removable fastening members specially adapted for fastening hatch covers to coamings, sills, or the like}
U	B63B 21/00	Tying-up; Shifting, towing, or pushing equipment; Anchoring({ of buoys B63B 22/04 } ; dynamic anchoring B63H 25/00 ; equipment for shipping on coasts, in harbours or on other fixed marine structures, e.g. for landing purposes, E02B)
		<u>WARNING</u> Group B63H 21/00 is no longer used for classification of adaptations of ropes, hawsers, or the like, or parts thereof. Documents are in the process of being reorganised to B63B 21/20
	B63B 2021/001	• {Mooring bars, yokes, or the like, e.g. comprising articulations on both ends}
	B63B 2021/002	• • {Yokes, or the like}

B63B 2021/003	• {Mooring or anchoring equipment, not otherwise provided for}
B63B 2021/004	• • {Quick release elements in mooring connections}
B63B 2021/005	• • {Resilient passive elements to be placed in line with mooring or towing chains, or line connections, e.g. dampers or springs}
B63B 2021/006	• • {Suction cups, or the like, e.g. for mooring, or for towing or pushing}
B63B 2021/007	• • {Remotely controlled subsea assistance tools, or related methods for handling of anchors or mooring lines, e.g. using remotely operated underwater vehicles for connecting mooring lines to anchors}
B63B 2021/008	• • {Load monitors}
B63B 2021/009	• • {Drift monitors}
U B63B 21/20	• Adaptations of chains, ropes, hawsers, or the like, or of parts thereof chains, ropes or hawsers in general, see the relevant subclasses, e.g. F16G {or D07B }
<u>WARNING</u>	
Not complete pending a reorganisation, see B63B 21/00	
B63B 2021/203	• • {Mooring cables or ropes, hawsers, or the like; Adaptations thereof}
B63B 2021/206	• • {Weights attached to mooring lines or chains, or the like; Arrangements thereof}
U B63B 21/22	• Handling or lashing of anchors
B63B 2021/222	• • {Buoyancy elements adapted or used for manipulating anchors, e.g. buoyancy elements built-in, or connected to the anchor, and used for lifting or up-righting the same}
B63B 2021/225	• • {Marker buoys for indicating position of an anchor, or for providing a line connection between the anchor and the water surface}
U B63B 21/24	• Anchors
B63B 2021/246	• • {comprising elements yielding at a predetermined load, e.g. shear bolts}
U B63B 21/26	• • securing to bed
B63B 2021/262	• • • {by drag embedment}
B63B 2021/265	• • • {by gravity embedment, e.g. by dropping a pile-type anchor from a certain height}
B63B 2021/267	• • • {by penetration of anchor into the sea bed using water jets, e.g. by ground or sand fluidisation}
U B63B 21/50	• Anchoring arrangements{or methods}for special vessels, e.g. for floating drilling platforms or dredgers
B63B 2021/501	• • {by means of articulated towers, i.e. slender substantially vertically arranged structures articulated near the sea bed}
U B63B 21/502	• • {by means of tension legs}
B63B 2021/504	• • • {comprising suppressors for vortex induced vibrations}
B63B 2021/505	• • {Methods for installation or mooring of floating offshore platforms on site}
U B63B 21/56	• Towing or pushing equipment(tugs B63B 35/66 ; { towing devices for waterskis or watersledges B63B 35/815 })
B63B 2021/563	• • {Pushing equipment}
B63B 2021/566	• • {comprising running ropes or chains, e.g. endless, driven by ground-borne equipment}
U B63B 21/66	• • Equipment specially adapted for towing underwater objects or vessels, e.g. fairings for tow-cables({ paravanes for dragging fishing nets A01K 73/02 ; } salvaging underwater vessels or objects B63C 7/00 ; towed underwater vessels B63G 8/42)
B63B 2021/666	• • • {for intermittent towing}

- U B63B 22/00** Buoy({floating decoys, e.g. for waterfowl [A01M 31/06](#);} means for indicating the location of underwater objects [B63C 7/26](#) ; life-buoys, e.g. rings [B63C 9/08](#) ; { mountings of acoustic transducer in underwater equipment, e.g. sonobuoys [G10K 11/006](#) ; electric cables supported on or from floats [H02G 9/12](#) })
- B63B 2022/006 • {specially adapted for measuring or watch purposes}
- U B63B 22/02** • specially adapted for mooring a vessel
- B63B 2022/028 • • {submerged, e.g. fitting into ship-borne counterpart with or without rotatable turret, or being releasably connected to moored vessel}
- U B63B 25/00** Load-accomodating arrangements, e.g. stowing, trimming; Vessels characterised thereby(trimming otherwise than by cargo division, e.g. by use of ballast [B63B 43/06](#) , [B63B 43/08](#) ; constructive aspects of cargo spaces [B63B 11/00](#) ; hatches, hatchways [B63B 19/12](#))
- U B63B 25/02** • for bulk goods
- B63B 2025/022 • • {comprising flexible receptacles for bulk cargo, e.g. bladders for liquid cargo inserted in tanks}
- B63B 2025/025 • • {Vessels adapted for particular combinations of bulk cargo}
- B63B 2025/027 • • • {Ore-bulk-oil carriers}
- B63B 25/08 • • fluid{(constructional features of bunkers [B63B 11/04](#) ; tanks for fuel or the like not forming bunkers [B63B 17/0027](#))}
- WARNING**
Documents in [B63B 25/08](#) and subgroups concerning bunkers and other tanks for fuel or the like are in the process of being reclassified to [B63B 11/04](#) and ~~B63B 17/00~~ **B63B 17/00F**
- B63B 2025/085 • • • {comprising separation membranes}
- B63B 2025/087 • • • {comprising self-contained tanks installed in the ship structure as separate units}
- U B63B 25/24** • Means for preventing unwanted cargo movement, e.g. dunnage
- B63B 2025/245 • • {of wheeled cargo, e.g. vehicle retainers}
- U B63B 25/28** • for deck loads
- B63B 2025/285 • • {Means for securing deck containers against unwanted movements}
- U B63B 27/00** Loading or unloading cargo or passengers(self-discharging barges or lighters [B63B 35/30](#) ; shore-based [B65G](#) { elevators, escalators or moving walkways per se [B66B](#); floating cranes [B66C 23/52](#) ; loading or unloading devices per se, see the relevant subclasses, e.g. [B65G](#), [B66C](#), [B67D](#) })
- WARNING**
The scope of this group is broader than the scope of the corresponding IPC group, and includes the scope of the IPC2 subgroups [B63B 27/02](#) , [B63B 27/06](#) , and [B63B 27/20](#)
- U B63B 27/02** • with intermittent action
- U B63B 27/14** • • Ramps; Gangways or other outboard ladders(inboard ladders [B63B 29/20](#) { ; land-based bridges giving access to ships [E01D 15/24](#) });{Pilot lifts}
- B63B 2027/141 • • • {telescopically extendable}
- U B63B 27/143** • • • {Ramps}
- B63B 2027/145 • • • • {Inflatable ramps}
- U B63B 27/146** • • • {Pilot ladders or similar outboard ladders, e.g. bathing ladders; Pilot lifts}
- B63B 2027/148 • • • • {Pilot lifts}

- U B63B 27/16 • • using lifts or hoists(elevators per se [B66B](#)){ Pilot lifts [B63B 27/14](#) }
- B63B 2027/165 • • • {Deployment or recovery of underwater vehicles using lifts or hoists}
- B63B 27/30 • {Arrangement of ship-based loading or unloading equipment}for transfer at sea between ships or between ships and off-shore structures
- WARNING
Not complete, pending a reorganisation, see [B63B 22/02](#) ~~B63B22/02B~~, [B63B 35/44](#) , and subgroups
- B63B 27/34 • • using pipe-lines{(Anchoring arrangements for special vessels with mooring turrets [B63B 21/507](#) ; Buoys specially adapted for mooring a vessel and for transferring fluids , e.g. liquids [B63B 22/021](#))}
- WARNING
Not complete, pending a reorganisation, see [B63B 21/50](#) ~~B63B21/50T~~, [B63B 22/02](#) ~~B63B22/02B~~, [B63B 35/44](#) and subgroups
- U B63B 29/00 Accomodation for crew or passengers not otherwise provided for**
- U B63B 29/02 • Cabins or other living spaces; Construction or arrangement thereof
- B63B 2029/022 • • {Bathing platforms}
- B63B 2029/027 • • {Removable walls, e.g. for temporarily erecting cabin spaces in ship hold, or for subdividing living areas into smaller units; Fittings for removable wall panels}
- U B63B 29/04 • • Furniture peculiar to vessels(floatable furniture [B63C 9/30](#))
- B63B 2029/043 • • • {Seats; Arrangements thereof on vessels}
- B63B 2029/046 • • • {Tables, e.g. foldable or stowable}
- U B63B 29/14 • • Closet or like flushing arrangements; Washing or bathing facilities peculiar to ships
- B63B 2029/145 • • • {Collapsible or non-permanent privacy rooms, e.g. closets or changing rooms}
- U B63B 35/00 Vessels or like floating structures adapted for special purposes(vessels characterised by load-accommodating arrangements [B63B 25/00](#) ; fire-fighting vessels [A62C 29/00](#) ; submarines, mine-layers or mine-sweepers [B63G](#); large containers for use in or under water [B65D 88/78](#) ; { Advertising on ships or other floating means [G09F 21/18](#))}**
- B63B 2035/001 • {for beach loading or unloading, e.g. landing crafts}
- B63B 2035/002 • {for inland waters, e.g. for use on canals or rivers}
- B63B 2035/004 • {Passenger vessels, e.g. cruise vessels or the like}
- B63B 2035/005 • {Search and rescue (SAR) vessels}
- B63B 2035/006 • {Unmanned surface vessels, e.g. remotely controlled}
- B63B 2035/007 • • {autonomously operating}
- B63B 2035/008 • • {remotely controlled}
- B63B 2035/009 • {Wind propelled vessels comprising arrangements, installations or devices specially adapted therefor, other than wind propulsion arrangements, installations, or devices, such as sails, running rigging, or the like, and other than sailboards or the like or related equipment}
- U B63B 35/40 • for transporting marine vessels{(load accomodation for floating barges and the like [B63B 25/006](#))}
- B63B 2035/405 • • {for carrying submarines}

- U B63B 35/44
- Floating buildings, stores, drilling platforms, or workshops, e.g. carrying water-oil separating devices{(construction methods for floating offshore platforms [B63B 9/065](#))}
- WARNING
This group and its subgroups are pending a reorganisation, also documents covered by groups [B63B 27/30](#) , [B63B 27/32](#) and [B63B 27/34](#) are within this group and its subgroups.
- B63B 2035/442
- • {Spar-type semi-submersible structures, i.e. shaped as single slender, e.g. substantially cylindrical or trussed vertical bodies}
- B63B 2035/4426
- • {Stationary floating buildings for human use, e.g. floating dwellings or floating restaurants}
- B63B 2035/4433
- • {Floating structures carrying electric power plants}
- B63B 2035/444
- • • {for converting combustion energy into electric energy}
- B63B 2035/4446
- • • {for converting nuclear energy into electric energy}
- B63B 2035/4453
- • • {for converting solar energy into electric energy}
- B63B 2035/446
- • • {for converting wind energy into electric energy}
- B63B 2035/4466
- • • {for converting water energy into electric energy, e.g. from tidal flows, waves or currents}
- B63B 2035/4473
- • {Floating structures supporting industrial plants, such as factories, refineries, or the like}
- B63B 2035/448
- • {Floating hydrocarbon production vessels, e.g. Floating Production Storage and Offloading vessels (FPSO)}
- B63B 2035/4486
- • {Floating storage vessels, other than vessels for hydrocarbon production and storage, e.g. for liquid cargo}
- B63B 2035/4493
- • {Floating structures supporting vegetation, such as trees, reeds, crops, plants, or the like, e.g. flexible structures}
- U B63B 35/71
- {Canoes, kayaks or the like(collapsible, foldable, inflatable or like vessels [B63B 7/00](#))}
- B63B 2035/715
- • {Accessories specially adapted for kayaks, canoes, or the like, other than paddles or footrests, e.g. seats, detachable rudders, detachable propulsion means or sailing rigs}
- U B63B 35/73
- Other vessels or like floating structures for pleasure or sport
- B63B 2035/734
- • {Racing rowing boats, i.e. light, long, narrow racing boats propelled by rowing using oars or sculls; Accessories therefor, other than means for effecting propulsion}
- B63B 2035/735
- • {Towed structures, the towing member, e.g. tow-rope, being connected to the towed structure}
- B63B 2035/737
- • {for particular use, not otherwise provided for}
- B63B 2035/738
- • • {for hunting, or fishing}
- U B63B 35/79
- • Surf-boards, e.g. sailboards
- B63B 2035/7903
- • • {Body-boards, i.e. surfboards specially adapted for use by users in prone position; Planing members attachable to, or held by body-surfers}
- U B63B 35/7933
- • • {Emergency arrangements and equipment; Other accessories(anti-theft devices using locks [E05B 73/007](#))}
- B63B 2035/794
- • • {Leashes, i.e. security lines, or tethers connecting a board to the rider, e.g. to a limb; Attachment means therefor}
- U B63B 35/7953
- • • {Winddriven boards}
- B63B 2035/7956
- • • • {Masts for winddriven boards; Equipment therefor, other than mastfoot arrangements}

- U B63B 35/7959 {Mast foot arrangements}
- B63B 2035/7963 {comprising shock absorbing elements}
- U B63B 35/7973 {Sail arrangements}
- B63B 2035/7986 {Clew trimmers, i.e. mechanisms or arrangements for trimming or positioning the clew of the sail, or for tensioning the outhaul}
- U B63B 35/81 . . Waterskis; Watersledges
- B63B 2035/813 . . . {Fins, keels, or the like water guiding means; Arrangements thereof on waterskis}
- B63B 2035/818 . . . {Wakeboards, i.e. monoboards for users being towed behind a boat, the board comprising bindings oriented substantially perpendicular to the longitudinal axis of the board}
- U B63B 35/85 . . Accessories not otherwise provided for, e.g. sticks for water skiing
- B63B 2035/855 . . . {Equipment or arrangements for generating waves, particularly adapted for surfing, waterskiing, or the like}
- U B63B 39/00 Equipment to decrease pitch, roll, or like unwanted vessel movements; Apparatus for indicating vessel attitude{(for amphibious vehicles [B60F 3/0038](#))}**
- U B63B 39/06 . to decrease vessel movements by using foils acting on ambient water(constructional aspects of bilge keels [B63B 3/44](#) ; { foils mounted on the housing of outboard motors [B63H 20/34](#) })
- B63B 2039/063 . . {the foils comprising flexible portions}
- B63B 2039/065 . . {the foils being pivotal about an axis substantially parallel to the longitudinal axis of the vessel}
- B63B 2039/066 . . {the lift generating devices using the Magnus effect}
- B63B 2039/067 . . {effecting motion dampening by means of fixed or movable resistance bodies, e.g. by bilge keels}
- B63B 2039/068 . . {the foils having a variable cross section, e.g. a variable camber}
- U B63B 39/10 . to decrease vessel movements by damping the waves, e.g. by pouring oil on water
- B63B 2039/105 . . {by absorption of wave energy, e.g. by structured, wave energy absorbing hull surfaces}
- U B63B 41/00 Drop keels, e.g. centre boards, side boards{Collapsible keels, or the like, e.g. telescopically; Longitudinally split hinged keels}(keels integral with hull [B63B 3/38](#) ; stabilising foils [B63B 39/06](#))**
- B63B 2041/003 . {Collapsible keels, or the like, e.g. telescopically; Longitudinally split hinged keels}
- B63B 2041/006 . . {Telescopically collapsible keels}
- U B63B 43/00 Improving safety of vessels, e.g. damage control, not otherwise provided for(fire-fighting in ships [A62C 3/10](#))**
- B63B 2043/003 . {Arrangements of emergency exits, e.g. for escape from engine rooms}
- B63B 2043/006 . {Methods or installations specially adapted for detecting ingress of ambient water, e.g. leak detectors}
- U B63B 43/02 . reducing risk of capsizing or sinking(by means of watertight doors in bulkheads [B63B 43/24](#))
- U B63B 43/04 . . by improving stability
- B63B 2043/042 . . . {using outboard booms supporting ballast, other than solid ballast or persons, e.g. carrying water-filled bags}

- B63B 2043/047
 - • • {by means of hull shapes comprising a wide hull portion near the design water line, and a slender, buoyancy providing, main hull portion extending towards the bottom}
- U B63B 43/10
 - • by improving buoyancy{(amphibious cycles [B60F 3/0038](#))}
- U B63B 43/12
 - • • using inboard air containers{or inboard floating members}
- B63B 2043/123
 - • • • {using floaters mounted to the tip of a mast, e.g. inflatable}
- B63B 2043/126
 - • • • {pneumatic, e.g. inflatable on demand}
- U B63B 43/14
 - • • using outboard floating members
- B63B 2043/145
 - • • • {pneumatic, e.g. inflatable on demand}
- U B63B 43/18
 - preventing collision{or grounding}; reducing collision damage{(reducing pollution by collision [B63B 25/082](#))}
- B63B 2043/185
 - • {using shock absorbing telescoping buffers}
- U **B63B 45/00**

Arrangement or adaptation of signalling or lighting devices(arrangement of signalling or lighting devices, the mounting or supporting thereof or circuits therefor, for vehicles in general [B60Q](#); life-buoys, -belts, -jackets, -suits or the like, characterised by signalling means [B63C 9/20](#) ; lighting devices or systems therefor [F21L](#), [F21S](#))

WARNING

Not complete, pending a reorganisation; see [B63C 9/21](#)
- B63B 2045/005
 - • {comprising particular electric circuits}
- U **B63B 57/00**

Tank{or cargo hold}cleaning specially adapted for vessels(tank cleaning in general [B08B 9/08](#))
- B63B 2057/005
 - • {of ballast tanks, e.g. from deposits, biological organisms; Ship-borne installations therefor}
- U **B63B 59/00**

Hull protection peculiar to vessels; Cleaning devices peculiar to vessels and integral therewith(cleaning of vehicles in general [B60S](#) ; other cleaning in general [B08B](#) ; inhibiting corrosion of metals by anodic or cathodic protection [C23F 13/00](#))
- U B63B 59/02
 - Fenders integral with waterborne vessels or specially adapted therefor, {e.g. fenders forming part of the hull or incorporated in the hull}; Rubbing-strakes(fenders on coasts, in harbours or on other fixed marine structures [E02B 3/26](#))
- B63B 2059/025
 - • • {pneumatic, e.g. inflatable}
- U B63B 59/06
 - Cleaning devices for hulls
- B63B 2059/065
 - • • {mounted on land-borne vehicles, e.g. travelling on the bottom of a dry-dock}
- U B63B 59/08
 - • of underwater surfaces while afloat([B63B 59/10](#) takes precedence)
- B63B 2059/082
 - • • • {the devices being supported on arms or rods}
- B63B 2059/085
 - • • • {the devices being adapted for operation by divers}
- B63B 2059/087
 - • • • {the devices being adapted for being pulled across, or along the underwater surface to be cleaned, e.g. by ropes}
- U **B63B 2745/00**

Propellers for ships in general(construction of air propellers [B64C](#))
- B63B 2745/02
 - Contra-propellers and other water guiding installations in front of or behind the rotating propeller(~~rudders with water guiding surfaces [B23H25/00](#)~~ *rudders with water guiding surfaces [B63H 25/00](#)*)

Project: N/A (B63C)

- U **B63C 5/00**

Equipment usable both on slipways and in dry docks

- U B63C 5/02 • Stagings; Scaffolding; Shores or struts
- B63C 2005/022 • • {Shores or struts, e.g. individual oblique support elements for stabilizing hulls in dry-docks}
- B63C 2005/025 • • {Stagings, or scaffolding, i.e. constructions providing temporary working platforms on slipways, in building or repair docks, or inside hulls}
- B63C 2005/027 • • • {Stages, platforms, or seats suspended adjacent ship hulls on cables, chains, or the like, e.g. boatswain's chairs}
- U B63C 7/00** **Salvaging of disabled, stranded, or sunken vessels; Salvaging of vessel parts or furnishings, e.g. of safes; salvaging of other underwater objects(means for searching for underwater objects [B63C 11/48](#))**
- NOTE
- in this group the following indexing codes are used: [B63B 2702/02](#) , [B63B 2738/00](#) , [B63B 2738/04](#)
- WARNING
- this group is pending a reorganisation; also documents covered by groups [B63C 7/006](#) are within this group
- U B63C 7/06 • in which lifting action is generated in or adjacent to vessels or objects
- U B63C 7/12 • • by bringing air or floating bodies or material into vessels or objects
- B63C 2007/125 • • • {using buoyant masses, e.g. foams, or a large plurality of small buoyant objects}
- U B63C 9/00** **Life-saving in water(life-saving in general [A62B](#); arrangement or adaptation of signalling or lighting devices for ships, other waterborne vessels or for equipment for shipping [B63B 45/00](#) ; rescue equipment specially adapted for submarine personnel [B63G 8/40](#))**
- NOTE
- in this group the following indexing code is used: [B63B 2729/00](#)
- WARNING
- this group is pending a reorganisation; also documents covered by group [B63C 9/065](#) are within this group
- B63C 2009/0017 • {characterised by making use of satellite radio beacon positioning systems, e.g. the Global Positioning System (GPS)}
- B63C 2009/0023 • {Particular features common to inflatable life-saving equipment}
- B63C 2009/0029 • • {Inflation devices comprising automatic activation means, e.g. for puncturing gas-generating cartridges}
- B63C 2009/0035 • • • {activated by deployment of inflatable life-saving equipment}
- B63C 2009/0041 • • • {activated by presence of water}
- B63C 2009/0047 • • • • {using electric means}
- B63C 2009/0052 • • • • {by water pressure}
- B63C 2009/0058 • • • • {using means soluble in water, or weakening when wet}
- B63C 2009/0064 • • • {Inflation devices using pyrotechnic means and comprising automatic activation}
- B63C 2009/007 • • {Inflation devices comprising manual activation means, e.g. for puncturing gas-generating cartridges}
- B63C 2009/0076 • • {Inflation devices making use of the Venturi-effect for enhancing the gas flow from the pressurized gas source by entraining ambient air, e.g. using eductor-jet pumps for decreasing inflation time}

- B63C 2009/0082
- • {Bladder restrictors, i.e. mechanical means, other than peripheral or circumferential means, for restricting expansion in inflated state of inflatable bladders or chambers, e.g. welded spots or lines, or internal braces for limiting thickness}
- B63C 2009/0088
- {characterised by making use of shark deterrents, e.g. electric, acoustic, mechanical or chemical means for deterring sharks}
- B63C 2009/0094
- {Equipment comprising means for providing users with victuals or drinks}
- U B63C 9/02
- Lifeboats, life-rafts or the like, specially adapted for life-saving(floatable furniture [B63C 9/30](#) ; boats in general [B63B](#) ; inflatable vessels [B63B 7/00](#) ; equipment for handling lifeboats or the like [B63B 23/00](#) ; rafts [B63B 35/58](#))
- NOTE
- in this group the following indexing code is used: [B63B 2728/00](#)
- WARNING
- this group is pending a reorganisation; also documents covered by group [B63C 9/065](#) are within this group
- B63C 2009/023
- • {self-righting, i.e. returning into an upright position after upside down deployment, or capsizing}
- B63C 2009/026
- • {Covered lifeboats, or life-rafts comprising self-levelling compartments for occupants}
- U B63C 9/03
- • enclosed
- WARNING
- This group is not complete pending a reclassification; for documents published before 01.01.2012, see also group [B63C 9/02](#)
- B63C 2009/035
- • • {Enclosed lifeboats, or the like}
- U B63C 9/04
- • Life-rafts
- WARNING
- this group is pending a reorganisation; also documents covered by group [B63C 9/065](#) are within this group
- B63C 2009/042
- • • inflatable{inflatable}
- B63C 2009/044
- • • covered{covered}
- B63C 2009/046
- • • {reversible, i.e. deployable in upright or upside down positions}
- B63C 2009/048
- • • {Reversible open life-rafts}
- U B63C 9/08
- Life-buoys, e.g. rings; Life-belts, jackets, suits, or the like({ non-sinkable swimsuits, drawers or trunks [A41D 7/001](#) } ; equipment for swimming [A63B](#) , e.g. swimming aids { other than life-buoys or life-belts } [A63B 31/00](#) , { teaching frames for swimming, swimming boards [A63B 69/14](#) })
- B63C 2009/084
- • {for animals}
- B63C 2009/085
- • {comprising ballast means, e.g. solid ballast}
- U B63C 9/13
- • attachable to body member, e.g. arm, neck, head or waist({ [B63C 9/081](#) takes precedence })
- B63C 2009/131
- • • {specially adapted for being attachable to a single arm or wrist}
- B63C 2009/133
- • • {specially adapted for being attachable to the user's head or neck, e.g. like a cap or collar}
- U B63C 9/26
- Cast or life lines; Attachments thereto; Containers therefor;{Rescue nets or the like}{ adaptations of aerial cableways to shipboard use [B63B 27/18](#) ; guns for line throwing [F41F](#); line-carrying missiles [F42B 12/68](#))
- B63C 2009/265
- • {Nets or sheet-like devices, e.g. for lifting persons on board or for facilitating climbing on board}

- U B63C 11/00** **Equipment for dwelling or working underwater; Means for searching for underwater objects(composition of chemical substances for use in breathing apparatus [A62D 9/00](#) ; swimming aids or equipment [A63B 31/00](#) to [A63B 35/00](#) ; submarines [B63G 8/00](#))**
- B63C 2011/005 • {Underwater equipment specially adapted for use by animals, e.g. diving helmets for dogs}
- U B63C 11/02** • Divers` equipment
- B63C 2011/021 • • {Diving computers, i.e. portable computers specially adapted for divers, e.g. wrist worn, watertight electronic devices for detecting or calculating scuba diving parameters}
- B63C 2011/022 • • {for facilitating observation of objects in opaque liquids, e.g. in dirty, turbid or dark water}
- B63C 2011/023 • • {Accessories for diving arranged or for use outside the water}
- B63C 2011/024 • • • {Tank racks, i.e. racks or mountings for storing breathing air tanks, e.g. onboard boats}
- B63C 2011/025 • • • {Transporting units specially adapted for transporting diver's equipment, such as breathing air tanks, diving suits, or the like}
- B63C 2011/026 • • {Diving harnesses, or the like, e. g. for carrying breathing air tanks}
- B63C 2011/027 • • {Shells for diving equipment, i.e. substantially rigid housings or covers, e.g. streamlined shells(diving computer with shells [B63C 2011/021](#) , shells for containers for goods or personal belongings of the diver [B63C 11/02](#))}
- B63C 2011/028 • • {Devices for underwater towing of divers or divers' sleds}
- U B63C 11/04** • • Resilient suits
- B63C 2011/043 • • • {Dry suits; Equipment therefor}
- B63C 2011/046 • • • {Wet suits, or diving vests; Equipment therefor}
- U B63C 11/08** • • • Control of air pressure within suit, e.g. for controlling buoyancy;{Buoyancy compensator vests, or the like}
- B63C 2011/085 • • • • {Buoyancy compensator vests}
- U B63C 11/12** • • Diving masks{(swimming helmets, swimming goggles [A63B 33/00](#))}
- B63C 2011/121 • • • {comprising integrated optical signalling means or displays for data or images}
- B63C 2011/123 • • • {comprising integrated headlights, spotlights, or the like}
- B63C 2011/125 • • • {comprising nose-clips, i.e. pinching devices for closing the user's nose, other than rubber blisters integral with flexible mask elements}
- B63C 2011/126 • • • {Diving masks comprising periscopes, mirrors, or the like; Periscopes, mirrors, or the like specially adapted for use with diving masks}
- B63C 2011/128 • • • {Straps, or the like for fastening diving masks; Accessories therefor, e.g. buckles}
- U B63C 11/16** • • • with air supply by suction from diver, e.g. snorkels
- B63C 2011/165 • • • • {comprising two or more air ducts leading from the mouthpiece to the air inlet or outlet opening}
- U B63C 11/18** • • Air supply(for diving masks [B63C 11/14](#) , [B63C 11/16](#) ; respiratory apparatus in general [A62B](#))
- B63C 2011/182 • • • {comprising devices for discharge of exhalation air into ambient water, e.g. ducts to back of head}
- B63C 2011/188 • • • {comprising warning means for breathing gas run-out}
- U B63C 11/22** • • • carried by diver
- U B63C 11/2209** • • • • {First-stage regulators([B63C 11/2245](#) takes precedence)}

- B63C 2011/2218 {comprising hollow piston valves, i.e. regulator valves with hollow stems connecting valve seat end in high pressure chamber to low pressure chamber at piston end}
- B63C 2011/2254 {comprising means for prevention of ice formation, e.g. means for heating breathing gas in first or second stage regulators}
- B63C 2011/2263 {using breathing gas stored in its liquid phase, e.g. cryogenic breathing gas}
- B63C 2011/2272 {Pumps specially adapted for filling breathing air into tanks for compressed air, e.g. manual pumps}
- B63C 2011/2281 {Devices for securing breathing gas tanks to diving harnesses, or back pieces of diving jackets, e.g. straps; Tensioning devices therefor}
- B63C 2011/229 {comprising fluid actuated tensioners, e.g. pneumatic jack tensioners for straps}
- U B63C 11/30 . . Ballast{(weights worn on user`s body for exercising [A63B 21/065](#))}
- B63C 2011/303 . . . {integral with, or directly attached to buoyancy compensator vests or to spiders of diver's backpacks combined therewith}
- B63C 2011/306 . . . {Attachment means for quick release of ballast}

Project: N/A (B63G)

- U B63G 7/00** **Mine-sweeping; Vessels characterised thereby**
- B63G 2007/005 . {Unmanned autonomously operating mine sweeping vessels}
- U B63G 7/02 . Mine-sweeping means, Means for destroying mines
- U B63G 7/06 . . of electromagnetic type
- B63G 2007/065 . . . {by making use of superconductivity}
- U B63G 8/00** **Underwater vessels, e.g. submarines; { Equipment specially adapted therefor}(submarine hulls [B63B 3/13](#); diving chambers with mechanical link, e.g. cable, to a base [B63C 11/34](#); divers' sleds [B63C 11/46](#); torpedoes [F42B 19/00](#))**
- U B63G 8/001 . { Underwater vessels adapted for special purposes, e.g. unmanned, underwater vessels; Equipment specially adapted therefor, e.g. docking stations (self-propelled or direction controlled diving chambers with mechanical link to a base [B63C 11/42](#))}
- WARNING**
- [B63G 8/001](#) is not complete pending a reclassification; see also group [B63C 11/42](#)
- B63G 2008/002 . . ~~unmanned~~{~~unmanned~~}
- B63G 2008/004 . . . {autonomously operating}
- B63G 2008/005 . . . {remotely controlled }
- B63G 2008/007 {by means of a physical link to a base, e.g. wire, cable or umbilical}
- B63G 2008/008 . . . {Docking stations for unmanned underwater vessels, or the like}
- U B63G 8/08 . Propulsion ({ schnorkels [B63G 8/36](#); marine propulsion or steering in general [B63H](#);} nuclear propulsion [B63H 21/18](#); propulsion power plants or units per se { [F01](#) to [F04](#)}; submerged exhausting apparatus [F01N 13/12](#))
- U B63G 8/10 . . using steam plant
- B63G 2008/105 . . . {using Walter-type plants, i.e. power plants in which steam is generated in a reactor vessel by reaction between a fuel and an oxidant, e.g. hydrogen peroxide }
- U B63G 8/40 . Rescue equipment for personnel (life-saving in water, not specially adapted for submarine personnel [B63C](#))

- B63G 2008/403
 - • {Docking rescue units}
- B63G 2008/406
 - • {Submarine escape suits}
- U B63G 8/42
 - Towed underwater vessels
- B63G 2008/425
 - • {for transporting cargo, e.g. submersible barges for fluid cargo}
- U **B63G 9/00** **Other offensive or defensive arrangements on vessels against submarines, topedoes, or mines**
 - B63G 2009/005
 - {of sonic watch equipment, e.g. low-frequency or sonar }
- U **B63G 13/00** **Other offensive or defensive arrangements on vessels; Vessels characterised thereby**
 - U B63G 13/02
 - Camouflage (for submarines [B63G 8/34](#))
 - B63G 2013/022
 - • {using means for reducing noise emission into air or water}
 - B63G 2013/025
 - • {using means for reducing radiation emission of electromagnetic waves, e.g. infrared, into air or water}
 - B63G 2013/027
 - • {using stealth design, i.e. superstructures, hulls, or other vessel's components shaped or constructed for minimizing reflection of radar or sonar beams, or the like}

Project: N/A (B63H)

- U **B63H 1/00** **Propulsive elements directly acting on water(jet propulsion [B63H 11/00](#) ; attachment of propellers on shafts [B63H 23/34](#))**
 - B63H 2001/005
 - {using Magnus effect}
 - U B63H 1/02
 - of rotary type(endless-track type [B63H 1/34](#))
 - U B63H 1/04
 - • with rotation axis substantially at right angles to propulsive direction
 - B63H 2001/045
 - • • {with partially immersed nutating or undulated disks, e.g. wobble plates}
 - U B63H 1/06
 - • • with adjustable vanes or blades
 - U B63H 1/08
 - • • • with cyclic adjustment
 - U B63H 1/10
 - • • • • of Voith Schneider type, i.e. with blades extending axially from a disc-shaped rotary body
 - B63H 2001/105
 - • • • • {with non-mechanical control of individual blades, e.g. electric or hydraulic control}
 - U B63H 1/12
 - • with rotation axis substantially in propulsive direction
 - B63H 2001/122
 - • • {Single or multiple threaded helicoidal screws, or the like, comprising foils extending over a substantial angle; Archimedean screws}
 - B63H 2001/125
 - • • • {with helicoidal foils projecting from outside surfaces of floating rotatable bodies, e.g. rotatable, cylindrical bodies}
 - B63H 2001/127
 - • • • {with helicoidal foils projecting from inside surfaces of rotating shrouds; Archimedean screws}
 - B63H 1/14
 - • • Propellers(pitch changing [B63H 3/00](#))
- WARNING
this group is pending a reorganisation; also documents covered by group **[B63B1/15](#)**[B63H 1/15](#) are within this group]
- B63H 2001/145
 - • • • {comprising blades of two or more different types, e.g. different lengths}
 - U B63H 1/16
 - • • • having a shrouding ring attached to blades
 - B63H 2001/165
 - • • • • {Hubless propellers, e.g. peripherally driven shrouds with blades projecting from the shrouds' inside surfaces}
 - U B63H 1/18
 - • • • with means for diminishing cavitation e.g. supercavitation

- B63H 2001/185
 - • • • {Surfacing propellers, i.e. propellers specially adapted for operation at the water surface, with blades incompletely submerged, or piercing the water surface from above in the course of each revolution}
- U B63H 1/28
 - • • • Other means for improving propeller efficiency(water-guiding elements formed by shape of hull [B63H 5/00](#))
- B63H 2001/283
 - • • • {Propeller hub caps with fins having a pitch different from pitch of propeller blades, or a helix hand opposed to the propellers' helix hand}
- B63H 2001/286
 - • • • {Injection of gas into fluid flow to propellers, or around propeller blades}
- U B63H 1/30
 - of non-rotary type
- U B63H 1/34
 - of endless-track type
- B63H 2001/342
 - • • {with tracks substantially parallel to propulsive direction}
- B63H 2001/344
 - • • • {having paddles mounted in fixed relation to tracks, or to track members}
- B63H 2001/346
 - • • • {having paddles movably mounted on the track or on track members, e.g. articulated, or with means for cyclically controlling the paddles' angular position or orientation}
- B63H 2001/348
 - • • {with tracks oriented transverse to propulsive direction}
- B63H 1/36
 - • swinging sideways, e.g. fishtail type
- WARNING
 this group is pending a reorganisation; also documents covered by group [B63B1/37](#) [B63H 1/37](#) are within this group]
- U B63H 3/00

Propeller-blade pitch changing{(Aircraft propellers [B64C 11/30](#) ; Rotors of turbines [F01D 7/00](#) ; Axial wind motors [F03D 7/022](#) ; Axial-flow pumps [F04D 29/00](#))}
- B63H 2003/004
 - {comprising means for locking blades in position}
- B63H 2003/006
 - {Detecting or transmitting propeller-blade pitch angle}
- U B63H 3/06
 - characterised by use of non-mechanical actuating means, e.g. electrical([B63H 3/002](#) takes precedence)
- U B63H 3/08
 - • fluid
- U B63H 3/081
 - • • {actuated by control element coaxial with the propeller shaft}
- U B63H 3/082
 - • • • {the control element being axially reciprocable}
- B63H 2003/084
 - • • • • {with annular cylinder and piston}
- B63H 2003/085
 - • • • • {the control element having means for preventing rotation together with the propeller}
- B63H 2003/087
 - • • {using gaseous fluids, e.g. steam or air}
- B63H 2003/088
 - • • {characterised by supply of fluid actuating medium to control element, e.g. of hydraulic fluid to actuator co-rotating with the propeller}
- U B63H 5/00

Arrangements on vessels of propulsion elements directly acting on water
- B63H 2005/005
 - {Front propulsors, i.e. propellers, paddle wheels, or the like substantially arranged ahead of the vessels' midship section}
- U B63H 5/02
 - of paddle wheels, e.g. of stern wheels

WARNING
 this group is pending a reorganisation; also documents covered by group [B63H 5/03](#) are within this group
- B63H 2005/025
 - • {of Voith Schneider type}
- U B63H 5/07
 - of propellers(forming part of outboard units{ or Z-drives } [B63H 20/00](#))
- B63H 2005/075
 - • {using non-azimuthing podded propulsor units, i.e. podded units without means for rotation about a vertical axis, e.g. rigidly connected to the hull}

- U B63H 5/08
 - • of more than one propeller
- U B63H 5/10
 - • • of coaxial type, e.g. of counter-rotative type
- B63H 2005/103
 - • • • {of co-rotative type, i.e. rotating in the same direction, e.g. twin propellers}
- B63H 2005/106
 - • • • {with drive shafts of second or further propellers co-axially passing through hub of first propeller, e.g. counter-rotating tandem propellers with co-axial drive shafts}
- B63H 5/125
 - • movably mounted with respect to hull, e.g. adjustable in direction {e.g. podded azimuthing thrusters} ({ outboard units or Z-drives [B63H 20/00](#) ; } movably mounted for steering purposes only, {rudders carrying propellers} [B63H 25/42](#))
- WARNING**

- [B63H 5/125](#) and subgroups are not complete pending a reorganisation; see also groups [B63H 21/26](#) and [B63H 25/42](#) - this group is pending a reorganisation; also documents covered by groups **B63B20/00** [B63H 20/00](#) , and subgroups, and by [B63H 25/42](#) are within this group]
- B63H 2005/1254
 - • • {Podded azimuthing thrusters, i.e. podded thruster units arranged inboard for rotation about vertical axis}
- B63H 2005/1256
 - • • • {with mechanical power transmission to propellers}
- B63H 2005/1258
 - • • • {with electric power transmission to propellers, i.e. with integrated electric propeller motors}
- U **B63H 9/00**

Propulsive devices directly acted on by wind; Arrangements thereof(air driven propellers driving underwater propulsive elements [B63H 13/00](#))
- U B63H 9/04
 - using sails or like wind-catching surfaces(sailing sledges or ice boats [B62B 15/00](#) ; { masts for sailing boats [B63B 15/0083](#) ; sail arrangements for wind-driven boards [B63B 35/7973](#) })
- U B63H 9/06
 - • Construction or types of sails; Arrangements thereof on vessels
- U B63H 9/0607
 - • • {Rigid or aerofoil type sails}
- B63H 2009/0621
 - • • • {Rigid sails comprising one or more pivotally supported panels}
- B63H 2009/0628
 - • • • • {the panels being pivotable about horizontal axes}
- B63H 2009/0635
 - • • • • {the panels being pivotable about vertical axes}
- U B63H 9/0642
 - • • {Sail battens}
- B63H 2009/065
 - • • • {with variable rigidity, e.g. inflatable}
- U B63H 9/0657
 - • • {Construction of sails(sails with detachable sections [B63B 35/7983](#))}
- B63H 2009/0664
 - • • • {of spinnakers, gennakers, or the like balloon sails}
- B63H 2009/0671
 - • • • {of molded sails, i.e. of sails manufactured by shaping deformable material on molds , e.g. thermoplastic film on heatable molds; Methods of manufacturing molded sails}
- B63H 2009/0678
 - • • • {of laminated sails with oriented fibres, i.e. fibres or filaments arranged along predefined lines substantially parallel to the principal stress trajectories; Methods of manufacturing therefor}
- U B63H 9/0685
 - • • {Sails pivotally mounted at a mast-tip; Kite sails([B63B 35/7976](#) takes precedence)}
- B63H 2009/0692
 - • • • {Methods, or means specially adapted for controlling kite sails, e.g. control bars, harnesses, automated control units, or methods of their use}
- U B63H 9/08
 - • Connections of sails to masts, spars, or the like
- B63H 2009/082
 - • • {Booms, or the like}
- B63H 2009/084
 - • • {Gooseneck bearings, i.e. bearings for pivotal support of booms on masts}

	B63H 2009/086	<ul style="list-style-type: none"> • • • {by sliders, i.e. by shoes sliding in, or guided by channels, tracks or rails; , for connecting luffs, leeches, battens, or the like to masts, spars or booms}
	B63H 2009/088	<ul style="list-style-type: none"> • • • {Means for tensioning sheets, or other running rigging, adapted for being guided on rails, or the like mounted on deck, e.g. travellers or carriages with pulleys}
U	B63H 9/10	<ul style="list-style-type: none"> • • • Running rigging, e.g. reefing equipment(staying of masts B63B 15/02) <p><u>WARNING</u> this group is pending a reorganisation; also documents covered by group B63H 9/1092 are within this group</p>
U	B63H 9/1021	<ul style="list-style-type: none"> • • • • {Reefing}
	B63H 2009/105	<ul style="list-style-type: none"> • • • • • {using drives for actuating reefing mechanism, e.g. roll reefing drives}
	B63H 2009/1057	<ul style="list-style-type: none"> • • • • • • {using sheaves being friction driven by endless ropes or by ropes having two free ends}
	B63H 2009/1064	<ul style="list-style-type: none"> • • • • • • {using drums driven by winding or unwinding single ropes onto or from the drums}
U	B63H 11/00	Effecting propulsion by jets, i.e. reaction principle(steering by{ auxiliary }jet action,{ rudders carrying jets } B63H 25/46 ; power plant per se, see the relevant classes)
	B63H 2011/002	<ul style="list-style-type: none"> • {using Coanda effect, i.e. the tendency of fluid jets to be attracted to nearby surfaces}
	B63H 2011/004	<ul style="list-style-type: none"> • {using the eductor or injector pump principle, e.g. jets with by-pass fluid paths}
	B63H 2011/006	<ul style="list-style-type: none"> • {with propulsive medium supplied from sources external to propelled vessel, e.g. water from public water supply}
	B63H 2011/008	<ul style="list-style-type: none"> • {Arrangements of two or more jet units}
U	B63H 11/02	<ul style="list-style-type: none"> • the propulsive medium being ambient water
U	B63H 11/04	<ul style="list-style-type: none"> • • by means of pumps
	B63H 2011/043	<ul style="list-style-type: none"> • • • {with means for adjusting or varying pump inlets, e.g. means for varying inlet cross section area}
	B63H 2011/046	<ul style="list-style-type: none"> • • • {comprising means for varying pump characteristics, e.g. rotary pumps with variable pitch impellers, or adjustable stators}
U	B63H 11/08	<ul style="list-style-type: none"> • • • of rotary type
	B63H 2011/081	<ul style="list-style-type: none"> • • • • {with axial flow, i.e. the axis of rotation being parallel to the flow direction}
	B63H 2011/082	<ul style="list-style-type: none"> • • • • {with combined or mixed flow, i.e. the flow direction being a combination of centrifugal flow and non-centrifugal flow, e.g. centripetal or axial flow}
	B63H 2011/084	<ul style="list-style-type: none"> • • • • {with two or more pump stages}
	B63H 2011/085	<ul style="list-style-type: none"> • • • • • {having counter-rotating impellers}
	B63H 2011/087	<ul style="list-style-type: none"> • • • • • {with radial flow}
	B63H 2011/088	<ul style="list-style-type: none"> • • • • • {using shear forces, e.g. disc pumps or Tesla pumps}
	B63H 11/10	<ul style="list-style-type: none"> • • having means for deflecting jet or influencing cross-section thereof <p><u>WARNING</u> Documents concerning deflection of the jet into a direction substantially parallel to the plane of the pump outlet are in the process of being reorganised to B63H 11/10 B63H 11/10B</p>

- B63H 11/101
- • • {having means for deflecting jet into a propulsive direction substantially parallel to the plane of the pump outlet opening}
- WARNING
Not complete, pending a reorganisation; see [B63H 11/10](#) and ~~B63B11/107~~ [B63H 11/107](#) and subgroups
- B63H 11/107
- • • Direction control of propulsive fluid{([B63H 11/101](#) takes precedence)}
- WARNINGS
N1108]
Documents concerning means for deflecting jet into a propulsive direction substantially parallel to the plane of the pump outlet opening are in the process of being reorganized to ~~B63H 11/10-B63H11/10B~~
- U B63H 16/00** **Effecting propulsion by muscle power(swimming frameworks,{ i.e. apparatus fixed to or held by the swimmer or diver } with swimmer-operated driving mechanism [A63B 35/00](#) ; land-based training equipment for rowing or sculling [A63B 69/06](#))**
- B63H 2016/005
- {used on vessels dynamically supported, or lifted out of the water by hydrofoils}
- U B63H 16/04**
- Oars; Sculls; Paddles; Poles
- B63H 2016/043
- • {Stop sleeves or collars for positioning oars in rowlocks, e.g. adjustable}
- B63H 2016/046
- • {Oars for single-oar sculling, i.e. for propelling boats by swinging single stern-mounted oars from side to side; Use or arrangements thereof on boats}
- U B63H 16/06**
- Rowlocks; Mountings therefor
- WARNING
this group is pending a reorganisation; also documents covered by groups [B63H 16/067](#) , and [B63H 16/073](#) are within this group
- B63H 2016/063
- • {Rowlocks mounted on movable support structures}
- U B63H 16/08**
- Other apparatus for converting muscle power into propulsive effort(general features of propulsion elements, see the relevant groups)
- B63H 2016/085
- • {comprising means for transmitting muscular power applied in oscillatory or rotary manner to a rotary input shaft of a reversing transmission, e.g. alternatively allowing for ahead or astern propulsion}
- U B63H 16/16**
- • using reciprocating pull cable, i.e. a strand-like member movable alternately backward and forward
- WARNING
This group is not complete pending a reclassification; for documents published before 01.01.2012, see also groups [B63H 16/12](#) and [B63H 16/14](#)
- B63H 2016/165
- • • {comprising means for transforming oscillating movement into rotary movement, e.g. for driving propeller shafts}
- U B63H 16/18**
- • using sliding{or pivoting}handle or pedal, i.e. the motive force being transmitted to a propelling means by means of a lever operated by the hand or foot of the occupant
- WARNING
This group is not complete pending a reclassification; for documents published before 01.01.2012, see also groups [B63H 16/12](#) and [B63H 16/14](#)
- B63H 2016/185
- • • {comprising means for transforming oscillating movement into rotary movement, e.g. for driving propeller shafts}

- U B63H 16/20
- using rotary cranking arm
- WARNING
This group is not complete pending a reclassification; for documents published before 01.01.2012, see also groups [B63H 16/12](#) and [B63H 16/14](#)
- B63H 2016/202
- • {specially adapted or arranged for being actuated by the feet of the user, e.g. using bicycle-like pedals}
- B63H 2016/205
- • • {making use of standard bicycles}
- B63H 2016/207
- • • • {without wheels}
- B63H 20/00**
- Outboard propulsion units, i.e. propulsion units having a substantially vertical power leg mounted outboard of a hull and terminating in a propulsion element, e.g. "outboard motors", Z-drives{with level bridging shaft arranged substantially outboard}<explanation>power plants per se, see the relevant classes; Arrangements thereof on vessels{(transom panels for outboard motors on inflatable boats [B63B 7/087](#) ; tug-type floating propeller units [B63B 35/665](#) ; rudders carrying propellers [B63H 25/42](#) ; rudders carrying jets [B63H 25/46](#) ; engines of outboard propulsion units [F02B 61/045](#))}**
- WARNING
<p/Not complete pending a reclassification; see also [B63H 5/125](#) ~~B63H5/125B~~, as well as [B63H 21/26](#) and subgroups
- B63H 20/001
- {Arrangements, apparatus and methods for handling fluids used in outboard drives(for handling exhaust gas [B63H 20/24](#) ; for handling cooling-water [B63H 20/28](#) ; cooling outboard marine engines [F01P 3/202](#) ; air intakes for outboard marine engines ~~F02M35/16A~~[F02M 35/167](#))}
- WARNING
This group and its subgroups are not complete, pending a reorganisation; see [B63H 21/38](#) and [B63B 2770/00](#)
- B63H 2020/003
- {Arrangements of two, or more outboard propulsion units}
- B63H 2020/005
- {Arrangements of two or more propellers, or the like on single outboard propulsion units}
- B63H 2020/006
- • {of coaxial type, e.g. of counter-rotative type}
- B63H 2020/008
- {Tools, specially adapted for maintenance, mounting, repair, or the like of outboard propulsion units, e.g. of outboard motors or Z-drives}
- U B63H 20/02
- Mounting of propulsion units([B63H 20/08](#) takes precedence)
- B63H 2020/025
- • {Sealings specially adapted for mountings of outboard drive units; Arrangements thereof, e.g. for transom penetrations}
- U B63H 20/08
- Means enabling movement of the position of the propulsion element, e.g. for trim, tilt, or steering(transmissions allowing movement of the propulsion element [B63H 20/14](#)); Control of trim or tilt(initiating means for steering [B63H 25/02](#))
- U B63H 20/10
- • Means enabling trim or tilt, or lifting of the propulsion element when an obstruction is hit; Control of trim or tilt
- B63H 2020/103
- • • {using a flexible member for enabling or controlling tilt or lifting, e.g. a cable}
- U B63H 20/14
- Transmission between propulsion power unit and propulsion element
- B63H 2020/145
- • {comprising means for permitting telescoping movement of components of the outboard propulsion unit, e.g. telescoping movement of power leg}
- B63H 20/32
- Housings{(air intakes for outboard engines ~~F02M35/16A~~[F02M 35/167](#))}
- B63H 2020/323
- • {Gear cases}

- B63H 2020/326
- • {having a dividing plane substantially in plane with the axes of the transmission shafts}
- U B63H 21/00** **Use of propulsion power plant or units on vessels(use of outboard propulsion units [B63H 20/00](#) ; hull reinforcements for carrying propulsion power plant or units [B63B 3/70](#) ; { propulsion of submarines [B63G 8/08](#) ; }propulsion power plant or units per se, see the relevant classes)**
- NOTE
This group comprises arrangements of propulsion power plant or units on vessels and to some extent it includes adaptations of such plant or units to facilitate such arrangements
- WARNING
this group is pending a reorganisation; also documents covered by group [B63H 21/36](#) are within this group
- B63H 2021/003
- {the power plant using fuel cells for energy supply or accumulation, e.g. for buffering photovoltaic energy}
- B63H 2021/006
- {the vessel being driven by hot gas positive-displacement engine plants of closed-cycle type, e.g. Stirling engines}
- U B63H 21/12**
- the vessel being motor-driven([B63H 21/175](#) , [B63H 21/18](#) take precedence; { cooling circuits with liquid-to-liquid heat-exchange relative to marine vessels [F01P 3/207](#) })
- WARNING
Group [B63H 21/12](#) is no longer used for classification of vessels being motor-driven by electric motor, powered by land vehicle supported by vessel, and powered by nuclear energy. These documents are in the process of being reorganised to groups [B63H 21/17](#) , [B63H 21/175](#) , and [B63H 21/18](#) respectively
- U B63H 21/17**
- • by electric motor(electrically-propelled vehicles [B60L](#) ;{ Transmitting power from propulsion power plant to propulsive elements with electric gearing [B63H 23/24](#) })
- WARNING
Not complete. See [B63H 21/12](#) , [B63H 23/24](#)
- B63H 2021/171
- • {making use of photovoltaic energy conversion, e.g. using solar panels}
- B63H 2021/173
- • {making use of superconductivity}
- U B63H 21/20**
- the vessels being powered by combinations of different types of propulsion units
- B63H 2021/202
- • {of hybrid electric type}
- B63H 2021/205
- • {the second power unit being of the internal combustion engine type, or the like, e.g. a Diesel engine}
- B63H 2021/207
- • {the second power unit being a gas turbine}
- U B63H 21/21**
- Control means for engine or transmission, specially adapted for use on marine vessels
- WARNING
This group is not complete pending a reclassification; for documents published before 01.01.2012, see also group [B63H 21/22](#)
- B63H 2021/216
- • {using electric control means}
- U B63H 21/24**
- the vessels being small craft, e.g. racing boats

- U B63H 21/26
- of outboard type; Outboard propulsion power units movably installed for steering, reversing, tilting, or the like(transom panels for outboard motors for inflatable boats [B63B 7/087](#) ; floating propeller units [B63B 35/665](#))}
- WARNING**
Group [B63H 21/26](#) and subgroups are no longer used for classification. Documents are in the process of being reorganised to [B63H 5/125](#) , and subgroups, to [B63H 20/00](#) , and subgroups, and to [B63H 25/42](#)
- B63H 21/265
- • {Steering or control devices for outboards(steering by rudders [B63H 25/06](#) ; control handles for boats [B63H 21/22B](#) [B63H 21/213](#))}
- U B63H 21/30
- Mounting of propulsion plant or unit, e.g. for anti-vibration purposes(hull reinforcements therefor [B63B 3/70](#) ; { of outboard propulsion units [B63H 20/02](#) ; }vibration in systems [F16F](#); engine beds [F16M](#))
- B63H 2021/307
- {Arrangements, or mountings of propulsion power plant elements in modular propulsion power units, e.g. using containers}
- U B63H 23/00
- Transmitting power from propulsion power plant to propulsive elements(changing pitch or propellers [B63H 3/00](#) ; adaptation of transmission to allow adjustment in location or direction of propellers [B63H 5/125](#) ; transmission between wind motors and propulsive elements [B63H 13/00](#) ; in outboard propulsion units [B63H 20/14](#) ; adaptation of transmission to allow adjustment of location of propeller [B63H 20/08](#) ; { adaptations of transmissions to allow steering or dynamic anchoring by propellers carried on rudders [B63H 25/42](#) ; }for vehicles in general [B60K](#); driving auxiliary machinery [B63J](#); transmission elements per se [F16](#))**
- B63H 2023/005
- {using a drive acting on the periphery of a rotating propulsive element, e.g. on a dented circumferential ring on a propeller, or a propeller acting as rotor of an electric motor}
- U B63H 23/02
- with mechanical gearing
- B63H 2023/0208
- • {by means of endless flexible members}
- B63H 2023/0216
- • • {by means of belts, or the like}
- B63H 2023/0225
- • • {of grooved belts, i.e. with one or more grooves in longitudinal direction of the belt}
- B63H 2023/0233
- • • {of belts having a toothed contact surface, or regularly spaced bosses, or hollows for slip-less or nearly slip-less meshing with complementary profiled contact surface of a pulley}
- B63H 2023/0241
- • • {of V-belts, i.e. belts of tapered cross section}
- B63H 2023/025
- • • {by means of chains}
- B63H 2023/0258
- • {comprising gearings with variable gear ratio, other than reversing drives or trolling drives}
- B63H 2023/0266
- • • {comprising gearings with automatically variable gear ratio, other than continuously variable transmissions or trolling drives}
- B63H 2023/0275
- • • {comprising means for conveying rotary motion with continuously variable gear ratio, e.g. continuously variable transmissions using endless flexible members}
- B63H 2023/0283
- • {using gears having orbital motion}
- B63H 2023/0291
- • {Trolling gears, i.e. mechanical power transmissions comprising controlled slip clutches, e.g. for low speed propulsion}
- U B63H 23/06
- • for transmitting drive from a single propulsion power unit
- B63H 2023/062
- • • {comprising means for simultaneously driving two or more main transmitting elements, e.g. drive shafts}

- B63H 2023/065
 - • • {having means for differentially varying the speed of the main transmitting elements, e.g. of the drive shafts}
- B63H 2023/067
 - • • {the elements being formed by two or more coaxial shafts, e.g. counter-rotating shafts}
- U B63H 23/22
 - with non-mechanical gearing
- U B63H 23/24
 - • electric{(dynamo-electric machines [H02K](#))}

WARNING
This group is not complete pending a reclassification; also documents covered by group [B63H 21/17](#) are in this group
- B63H 2023/245
 - • • {with two or more electric motors directly acting on a single drive shaft, e.g. plurality of electric rotors mounted on one common shaft, or plurality of electric motors arranged coaxially one behind the other with rotor shafts coupled together}
- U B63H 23/30
 - characterised by use of clutches
- B63H 2023/305
 - • {using fluid or semifluid as power transmitting means}
- U B63H 23/32
 - Other parts
- U B63H 23/321
 - • {Bearings or seals specially adapted for propeller shafts}
- B63H 2023/322
 - • • {Intermediate propeller shaft bearings, e.g. with provisions for shaft alignment}
- B63H 2023/323
 - • • {Bearings for coaxial propeller shafts, e.g. for driving propellers of the counter-rotative type}
- B63H 2023/325
 - • • {Thrust bearings, i.e. axial bearings for propeller shafts}
- B63H 2023/327
 - • • {Sealings specially adapted for propeller shafts or stern tubes}
- B63H 2023/328
 - • {Marine transmissions characterised by the use of brakes, other than propeller shaft brakes; Brakes therefor}
- U B63H 23/34
 - Propeller shafts; Paddle-wheel shafts; Attachment of propellers on shafts(shafts in general [F16C](#); attachment of a member on a shaft in general [F16D 1/06](#))
- B63H 2023/342
 - • • {comprising couplings, e.g. resilient couplings; Couplings therefor}
- B63H 2023/344
 - • • {comprising flexible shafts members}
- B63H 2023/346
 - • • {comprising hollow shaft members}
- B63H 2023/348
 - • • {with turning or inching gear, i.e. with means for slowly rotating, or for angularly positioning of shafts or propulsive elements mounted thereon}
- U B63H 25/00

Steering; Slowing-down otherwise than by use of propulsive elements(using adjustably-mounted propeller ducts or rings for steering [B63H 5/14](#) ; using movably-installed outboard propulsion units [B63H 20/00](#)); Dynamic anchoring, i.e. positioning vessels by means of main or auxiliary propulsive elements(anchoring, other than dynamic [B63B 21/00](#) ; equipment to decrease pitch, roll or like unwanted vessel movements by auxiliary jets or propellers [B63B 39/08](#) ; { systems for waterborne vessel position control [G05](#), e.g. [G05D 1/00](#) })

WARNING
This group is pending a reorganisation; also documents covered by group [B63H 25/02](#) , and subgroups are within this group
- B63H 2025/005
 - {Steering specially adapted for towing trains, tug-barge systems, or the like; Equipment or accessories therefor}

- U B63H 25/02
- Initiating means for steering,{for slowing down, otherwise than by use of propulsive elements, or for dynamic anchoring}
- WARNING
[B63H 25/02](#) and subgroups are not complete in view of initiating means for slowing down or for dynamic anchoring, pending a reorganisation; see also group [B63H 25/00](#)
- B63H 2025/022
- {Steering wheels; Posts for steering wheels}
- B63H 2025/024
- {Handle-bars; Posts for supporting handle-bars, e.g. adjustable posts}
- B63H 2025/026
- {using multi-axis control levers, or the like, e.g. joysticks, wherein at least one degree of freedom is employed for steering, slowing down, or dynamic anchoring}
- B63H 2025/028
- {using remote control means, e.g. wireless control; Equipment or accessories therefor}
- U B63H 25/04
- automatic, e.g. reacting to compass
- B63H 2025/045
- {making use of satellite radio beacon positioning systems, e.g. the Global Positioning System (GPS)}
- U B63H 25/06
- Steering by rudders(by rudders carrying propellers [B63H 25/42](#))
- B63H 2025/063
- {Arrangements of rudders forward of the propeller position, e.g. of backing rudders; Arrangements of rudders on the forebody of the hull; Steering gear therefor}
- B63H 2025/066
- {Arrangements of two or more rudders; Steering gear therefor}
- U B63H 25/38
- Rudders(stern posts [B63B 3/40](#) ; { rudders mounted on housing of outboard motors [B63H 20/34](#) ; rudders carrying propellers [B63H 25/42](#) ; rudders carrying jets [B63H 25/46](#) }
- U B63H 25/382
- {movable otherwise than for steering purposes; Changing geometry}
- B63H 2025/384
- {with means for retracting or lifting}
- B63H 2025/385
- {by pivoting}
- B63H 2025/386
- {by sliding, e.g. telescopic}
- B63H 2025/387
- {comprising two or more rigidly interconnected mutually spaced blades pivotable about a common rudder shaft, e.g. parallel twin blades mounted on a pivotable supporting frame}
- B63H 2025/388
- {with varying angle of attack over the height of the rudder blade, e.g. twisted rudders}
- B63H 25/42
- Steering or dynamic anchoring by propulsive elements(by jets [B63H 25/46](#)); Steering or dynamic anchoring by propellers used therefor only; Steering or dynamic anchoring by rudders carrying propellers
- WARNING
This group is not complete as to rudders carrying propellers, pending a reorganisation; see also [B63H 5/125](#) , and [B63H 21/26](#) and subgroups - this group is pending a reorganisation; also documents covered by groups [B63H 5/125](#) , and subgroups, and by ~~B63B20/00~~[B63H 20/00](#) , and subgroups are within this group]
- B63H 2025/425
- {Propulsive elements, other than jets, substantially used for steering or dynamic anchoring only, with means for retracting, or otherwise moving to a rest position outside the water flow around the hull}

- U B63H 25/46
- Steering or dynamic anchoring by jets{or by rudders carrying jets(steering or dynamic anchoring by deflecting or directing main propulsion jets [B63H 11/00](#))}

WARNING

This group is no complete as to rudders carrying jets, pending a reclassification; see also [B63H 20/00](#) and subgroups

- B63H 2025/465
- {Jets or thrusters substantially used for steering or dynamic anchoring only, with means for retracting, or otherwise moving to a rest position outside the water flow around the hull}

Project: N/A (B63J)

- U B63J 2/00
- Arrangements of ventilation, heating, cooling, or air-conditioning (for submarines [B63G 8/00](#); ventilating for cleaning tanks [B63B 57/04](#); for vehicles in general [B60H](#))**

- B63J 2002/005
- {Intakes for coolant medium other than sea chests, e.g. for ambient water }

- U B63J 2/12
- Heating; Cooling

- B63J 2002/125
- {making use of waste energy}

- U B63J 3/00
- Driving of auxiliaries (transmission elements per se [F16](#))**

WARNING

[B63J 3/00](#) and subgroups are not complete pending a reclassification; see also group [B63J 99/00](#)

- B63J 2003/001
- {characterised by type of power supply, or power transmission, e.g. by using electric power or steam }

- B63J 2003/002
- {by using electric power}

- B63J 2003/003
- {using photovoltaic power generation, e.g. using solar panels}

- B63J 2003/005
- {by using mechanical power transmission, e.g. gearings }

- B63J 2003/006
- {by using hydraulic power transmission}

- B63J 2003/007
- {by using a gas, other than steam, as power transmission medium, e.g. for pneumatic power transmission }

- B63J 2003/008
- {by using steam}

- U B63J 3/04
- from power plant other than propulsion power plant

- B63J 2003/043
- {using shore connectors for electric power supply from shore-borne mains, or other electric energy sources external to the vessel, e.g. for docked, or moored vessels }

- B63J 2003/046
- {using wind or water driven turbines or impellers for power generation}

- U B63J 4/00
- Arrangements of installations for treating { ballast water,} waste water, sewage, { sludge, or refuse}, or for preventing environmental pollution not otherwise provided for; ({ centrifugal bilge-water separators [B04](#); discharge of refuse, e.g. for ash [B63B 17/06](#) ; arrangements on tanks for fuel or the like for minimizing pollution by accidents [B63B 17/0036](#), associated with cargo tanks [B63B 25/082](#); vessels for collecting pollution from open water [B63B 35/30](#); } soil-water discharges [B63B 29/16](#) ; { treating waste water, sewage, or sludge, in general, [C02F](#); cleaning or keeping clear the surface of open water, in general [E02B 15/00](#)})**

WARNING

[B63J 4/00](#) is not complete pending a reclassification; see also groups [B63B 13/00](#), [B63B 17/00](#), [B63B 29/16](#), [B63J 99/00](#)

- B63J 2004/008
- {by using dust separation, e.g. during loading}

U B63J 99/00**Subject matter not provided for in other groups of this subclass****WARNING**

This group is pending a reorganisation; also documents covered by groups [B63B 17/00](#), [B63J 3/00](#), [B63J 4/00](#), and subgroups are within this group

- B63J 2099/001 • {Burning of transported goods, e.g. fuel, boil-off or refuse }
- B63J 2099/003 • • {of cargo oil or fuel, or of boil-off gases, e.g. for propulsive purposes }
- B63J 2099/005 • • {of refuse }
- B63J 2099/006 • {Use of computers for particular ship-related tasks, or the like, e.g. for evaluating state variables }
- B63J 2099/008 • • {for evaluating navigational state variables, e.g. speed, distance, wind parameters, or the like }

Project: N/A (B64C)**U B64C 1/00**

Fuselages; Constructional features common to fuselages, wings, stabilising surfaces and the like(aerodynamical features common to fuselages, wings, stabilising surfaces, and the like [B64C 23/00](#) ; flight-deck installations [B64D](#))

- B64C 2001/0018 • {comprising two decks adapted for carrying passengers only}
- B64C 2001/0027 • • {arranged one above the other}
- B64C 2001/0036 • • {arranged side by side at the same level}
- B64C 2001/0045 • {Fuselages characterised by special shapes}
- B64C 2001/0054 • {Fuselage structures substantially made from particular materials}
- B64C 2001/0063 • • {from wood}
- B64C 2001/0072 • • {from composite materials}
- B64C 2001/0081 • • {from metallic materials}
- B64C 2001/009 • {comprising decompression panels or valves for pressure equalisation in fuselages or floors}

U B64C 3/00**Wings(stabilising surfaces [B64C 5/00](#) ; ornithopter wings [B64C 33/02](#))**

- U B64C 3/10 • Shape of wings
- U B64C 3/14 • • Aerofoil profile
 - B64C 2003/142 • • • {with variable camber along the airfoil chord}
 - B64C 2003/143 • • • {comprising interior channels}
 - B64C 2003/144 • • • {including a flat surface on either the extrados or intrados}
 - B64C 2003/145 • • • {comprising 'Gurney' flaps}
 - B64C 2003/146 • • • {comprising leading edges of particular shape}
 - B64C 2003/147 • • • {comprising trailing edges of particular shape}
 - B64C 2003/148 • • • {comprising protuberances, e.g. for modifying boundary layer flow}
 - B64C 2003/149 • • • {for supercritical or transonic flow}
- U B64C 3/38 • Adjustment of complete wings or parts thereof
- U B64C 3/44 • • Varying camber
 - B64C 2003/445 • • • {by changing shape according to the speed, e.g. by morphing}
- U B64C 3/54 • • Varying in area(flaps extendable to increase camber [B64C 3/44](#))
 - B64C 2003/543 • • • {by changing shape according to the speed, e.g. by morphing}

U B64C 9/00

Adjustable control surfaces or members, e.g. rudders(trimming stabilising surfaces [B64C 5/10](#))

B64C 2009/005	• Ailerons { Ailerons }
U B64C 9/14	• forming slots(boundary-layer control B64C 21/00)
B64C 2009/143	• • {comprising independently adjustable elements for closing or opening the slot between the main wing and leading or trailing edge flaps}
U B64C 13/00	Control systems or transmitting systems for actuating flying-control surfaces, lift-increasing flaps, air brakes, or spoilers
U B64C 13/24	• Transmitting means
U B64C 13/38	• • with power amplification
U B64C 13/50	• • • using electrical energy
U B64C 13/503	• • • • {Fly-by-Wire}
B64C 2013/506	• • • • • {using electro-hydrostatic actuators (EHA's)}
U B64C 25/00	Alighting gear(air-cushion alighting gear B60V 3/08)
U B64C 25/001	• { Devices not provided for in the groups B64C 25/02 to B64C 25/68 }
B64C 2025/003	• • {Means for reducing landing gear noise, or turbulent flow around it, e.g. landing gear doors used as deflectors}
B64C 2025/005	• • {Tail skids for fuselage tail strike protection on tricycle landing gear aircraft}
B64C 2025/006	• • {Landing gear legs comprising torque arms}
B64C 2025/008	• • {Comprising means for modifying their length, e.g. for kneeling, for jumping, or for leveling the aircraft}
U B64C 25/02	• Undercarriages
U B64C 25/08	• • non-fixed, e.g. jettisonable
U B64C 25/10	• • • retractable, foldable, or the like
U B64C 25/12	• • • • sideways
B64C 2025/125	• • • • • {into the fuselage, e.g. main landing gear pivotally retracting into or extending out of the fuselage}
U B64C 25/32	• characterised by the ground or like engaging elements(arrester hooks B64C 25/68)
B64C 2025/325	• • {specially adapted for helicopters}
U B64C 25/34	• • wheeled type, e.g. multi-wheeled bogies
B64C 2025/345	• • • {Multi-wheel bogies having one or more steering axes}
U B64C 27/00	Rotorcraft; Rotors peculiar thereto(alighting gear B64C 25/00)
U B64C 27/001	• {Vibration damping devices}
B64C 2027/002	• • {mounted between the rotor drive and the fuselage}
B64C 2027/003	• • {mounted on rotor hub, e.g. a rotary force generator}
B64C 2027/004	• • {using actuators, e.g. active systems}
B64C 2027/005	• • {using suspended masses}
U B64C 27/04	• Helicopters
U B64C 27/12	• • Rotor drives
B64C 2027/125	• • • {including toroidal transmissions, e.g. of the CVT type}
U B64C 27/32	• Rotors(features common to rotors and propellers B64C 11/00)
U B64C 27/46	• • Blades
U B64C 27/473	• • • Constructional features{(B64C 27/463 takes precedence)}
B64C 2027/4733	• • • • {Rotor blades substantially made from particular materials}
B64C 2027/4736	• • • • • {from composite materials}

- U B64C 27/54
 - Mechanisms for controlling blade adjustment or movement relative to rotor head, e.g. lag-lead movement
- U B64C 27/72
 - Means acting on blades
 - • {on each blade individually, e.g. individual blade control (IBC)}
 - • • {without flaps}
 - • • • {using one actuator per blade}
 - • • • {using airfoil deformation}
 - • • • {using blowing slots actuated by piezoelectric actuators}
 - • • • {using higher-harmonic control (HHC)}
 - • • • • {by controlling existing swash plate actuators}
 - • • • • {by using dedicated actuators}
 - • • • • {using jets controlled by piezoelectric actuators}
 - • • • • {using one or more swash plates}
 - • • {with flaps}
 - • • • {actuated by actuators}
 - • • • • {of the electro-hydraulic type}
 - • • • • {of the magnetostrictive type}
 - • • • • {of the piezoelectric type}
 - • • • • {of the memory shape type}
 - • • • {actuated mechanically, e.g. by means of linkages}
- U B64C 27/82
 - characterised by the provision of an auxiliary rotor or fluid-jet device for counter-balancing lifting rotor torque or changing direction of rotorcraft
 - {Electrically driven tail rotors}
 - • {wherein the rotor or the jet axis is inclined with respect to the longitudinal horizontal or vertical plane of the helicopter}
 - • {comprising more than one rotor}
 - • {including pusher propellers}
 - • {using air jets}
 - • {Shrouded tail rotors, e.g. "Fenestron" fans}
 - • {comprising in addition rudders, tails, fins, or the like}
 - • • {comprising fins, or movable rudders}
 - • • {comprising horizontal tail planes}
 - • • {comprising a V-tail units}
- U **B64C 31/00**

Aircraft intended to be sustained without power plant; Powered hang-glider-type aircraft; Microlight-type aircraft
- U B64C 31/06
 - Kites(hang-gliders [B64C 31/028](#) ; toy aspects [A63H 27/08](#) ; towed targets [F41J](#) { for propelling boats [B63H 9/0685](#) ; for propelling wind driven boards, control means and harnesses therefor [B63B 35/7976](#) })
 - • {of inflatable wing type}
- U **B64C 39/00**

Aircraft not otherwise provided for
- B64C 2039/105
 - {of blended wing body type}

Project: N/A (B64D)

- U B64D 9/00** **Equipment for handling freight; Equipment for facilitating passenger embarkation or the like(emergency equipment [B64D 17/00](#), [B64D 19/00](#), [B64D 25/00](#); structures integral with fuselage to facilitate loading, fuselage floors specially adapted for freight, steps mounted on and retractable within aircraft [B64C](#) ; ground installations [B64F](#))**
- B64D 2009/006
 - {Rollers or drives for pallets of freight containers; e.g. PDU}
- U B64D 10/00** **{Flying suits(helmets in general [A42B 3/00](#) ; breathing helmets [A62B 18/00](#))}**
- B64D 2010/002
 - {Anti-g suits or garments}
- B64D 2010/005
 - {High altitude suits or garments, e.g. partial or total pressure}
- B64D 2010/007
 - {Suits with cooling or heating means}
- U B64D 11/00** **Passenger or crew accommodation; Flight-deck installations not otherwise provided for**
- B64D 2011/0038
 - {Illumination systems for cabins as a whole}
- B64D 2011/0046
 - {Modular or preassembled units for creating cabin interior structures}
- B64D 2011/0053
 - {Cabin passenger reading lights}
- B64D 2011/0061
 - {Windows displaying outside view, artificially generated}
- B64D 2011/0069
 - {Rest berths, beds or the like}
- B64D 2011/0076
 - • {for crew members, e.g. for sleeping during flight}
- B64D 2011/0084
 - • {Bed units for passengers attached to the ceiling of the fuselage}
- B64D 2011/0092
 - • {Arrangements for mounting stretchers in aircraft cabins}
- U B64D 11/06**
 - Arrangements or adaptations of seats(seat constructions for emergency purposes [B64D 25/04](#) ; { seat accessories [B60N 3/00](#) })
- B64D 2011/0603
 - • {Details of seats}
- B64D 2011/0606
 - • • {with inclination or position adjusting mechanisms}
- B64D 2011/061
 - • • {with airbag storages}
- B64D 2011/0613
 - • • {with arm rests}
- B64D 2011/0617
 - • • {arranged for providing alternative seat dispositions, e.g. angled}
- B64D 2011/062
 - • • {convertible into beds}
- B64D 2011/0624
 - • • {adapted for children}
- B64D 2011/0627
 - • • {with energy absorbing means}
- B64D 2011/0631
 - • • {with ejection means}
- B64D 2011/0634
 - • • {making use of electric motors}
- B64D 2011/0637
 - • • {with internet connection, earphone jacks, or electric supply sockets}
- B64D 2011/0641
 - • • {Seats with means for exercising during travel, e.g. against congestion}
- B64D 2011/0644
 - • • {with floor attachments}
- B64D 2011/0648
 - • • {with adjustable foot or leg rests}
- B64D 2011/0651
 - • • {with individual temperature controls}
- B64D 2011/0655
 - • • {designed for facilitating manufacturing or for reducing weight}
- B64D 2011/0658
 - • • {including a bed and entertainment equipments, e.g. cocoon type passenger seat modules}
- B64D 2011/0662
 - • • {with personal storage means or waste disposal bags}
- B64D 2011/0665
 - • • {with privacy shells, screens, separators or the like}
- B64D 2011/0668
 - • • {with belts, or other passenger restraintment, or with headrests}

B64D 2011/0672	• • • {with storage means for life vests, oxygen masks or parachutes}
B64D 2011/0675	• • • {with means for holding the passenger in a standing position}
B64D 2011/0679	• • • {with foldable tables, trays or cup holders}
B64D 2011/0682	• • • {with upholstery or cushioning}
B64D 2011/0686	• • • {with ventilation means}
U B64D 13/00	Arrangements or adaptations of air-treatment apparatus for aircraft crew or passenger, or freight space;{or structural parts of the aircraft}{ treatment rooms with artificial climate for medical purposes A61G 10/02 ; respiratory apparatus in general A62B ; for for vehicles in general B60H)
B64D 2013/003	• {Cabin ventilation nozzles}
U B64D 13/06	• the air being conditioned(pressurising B64D 13/02)
B64D 2013/0603	• • {Environmental Control Systems}
B64D 2013/0607	• • • {providing hot air or liquid for deicing aircraft parts, e.g. aerodynamic surfaces or windows}
B64D 2013/0611	• • • {combined with auxiliary power units (APU's)}
B64D 2013/0614	• • • {with subsystems for cooling avionics}
B64D 2013/0618	• • • {with arrangements for reducing or managing bleed air, using another air source, e.g. ram air}
B64D 2013/0622	• • • {used in combination with boundary layer control systems}
B64D 2013/0625	• • • {comprising means for distribution effusion of conditioned air in the cabin}
B64D 2013/0629	• • • {with subsystems for cooling food, catering or special loads}
B64D 2013/0633	• • • {including chemical reaction-based thermal management systems}
B64D 2013/0637	• • • {with CO2 removers}
B64D 2013/064	• • • {comprising more than one system, e.g. dual systems}
B64D 2013/0644	• • • {including electric motors or generators}
B64D 2013/0648	• • • {with energy recovery means, e.g. using turbines}
B64D 2013/0651	• • • {comprising filters, e.g. dust filters}
B64D 2013/0655	• • • {with zone or personal climate controls}
B64D 2013/0659	• • • {comprising provisions for cooling fuel systems}
B64D 2013/0662	• • • {with humidity control}
B64D 2013/0666	• • • {with means for preventing icing within the ECS components}
B64D 2013/067	• • • {with air ionizers}
B64D 2013/0674	• • • {comprising liquid subsystems}
B64D 2013/0677	• • • {comprising on board oxygen generator systems}
B64D 2013/0681	• • • {with oxygen control}
B64D 2013/0685	• • • {with ozone control}
B64D 2013/0688	• • • {with means for recirculating cabin air}
B64D 2013/0692	• • • {with special provisions against smoke from cigarettes}
B64D 2013/0696	• • • {with provisions for starting power plants}
U B64D 27/00	Arrangement or mounting of power plant in aircraft; Aircraft characterised thereby(attitude, flight direction, or altitude control of aircraft by jet reaction B64C)
B64D 2027/005	• {Aircraft with an unducted turbofan comprising contra-rotating rotors, e.g. contra-rotating open rotors [CROR]}
U B64D 27/02	• Aircraft characterised by the type or position of power plant(fuselages or wings adapted for mounting power plant B64C)

	B64D 2027/026	<ul style="list-style-type: none"> • • {comprising different types of power plants, e.g. combination of an electric motor and a gas-turbines}
U	B64D 27/26	<ul style="list-style-type: none"> • Aircraft characterised by construction of power-plant mounting
	B64D 2027/262	<ul style="list-style-type: none"> • • {Engine support arrangements or elements}
	B64D 2027/264	<ul style="list-style-type: none"> • • • {comprising box like supporting frames}
	B64D 2027/266	<ul style="list-style-type: none"> • • • {comprising suspension arrangements for supporting vertical loads}
	B64D 2027/268	<ul style="list-style-type: none"> • • • {comprising thrust links}
U	B64D 33/00	Arrangements in aircraft of power plant parts or auxiliaries not otherwise provided for
U	B64D 33/02	<ul style="list-style-type: none"> • of combustion air intakes(air intakes for gas-turbine plants or jet-propulsion plants per se F02C 7/04 ; air intakes for combustion engines in general F02M 35/00)
	B64D 2033/0206	<ul style="list-style-type: none"> • • {comprising noise reduction means, e.g. acoustic liners}
	B64D 2033/0213	<ul style="list-style-type: none"> • • {specially adapted for auxiliary power units (APU's)}
	B64D 2033/022	<ul style="list-style-type: none"> • • {comprising bird or foreign object protections}
	B64D 2033/0226	<ul style="list-style-type: none"> • • {comprising boundary layer control means}
	B64D 2033/0233	<ul style="list-style-type: none"> • • {comprising de-icing means}
	B64D 2033/024	<ul style="list-style-type: none"> • • {comprising cooling means}
	B64D 2033/0246	<ul style="list-style-type: none"> • • {comprising particle separators}
	B64D 2033/0253	<ul style="list-style-type: none"> • • {specially adapted for particular type of aircraft}
	B64D 2033/026	<ul style="list-style-type: none"> • • • {for supersonic or hypersonic aircraft}
	B64D 2033/0266	<ul style="list-style-type: none"> • • {specially adapted for particular type of power plants}
	B64D 2033/0273	<ul style="list-style-type: none"> • • • {for jet engines}
	B64D 2033/028	<ul style="list-style-type: none"> • • • {for piston engines}
	B64D 2033/0286	<ul style="list-style-type: none"> • • • {for turbofan engines}
	B64D 2033/0293	<ul style="list-style-type: none"> • • • {for turboprop engines}
U	B64D 33/04	<ul style="list-style-type: none"> • of exhaust outlets or jet pipes(exhaust outlets for combustion engines in general F01N; jet pipes or nozzles for jet-propulsion plants per se F02K; plants characterised by the form or arrangement of the jet pipe or nozzle F02K) {attitude, flight direction, or altitude control by jet reaction B64C}
	B64D 2033/045	<ul style="list-style-type: none"> • • {comprising infrared suppressors}
U	B64D 37/00	Arrangements in connection with fuel supply for power plant(refuelling during flight B64D 39/00)
U	B64D 37/32	<ul style="list-style-type: none"> • Safety measures not otherwise provided for, e.g. preventing explosive conditions(extinguishing or preventing fires in aircraft A62C)
	B64D 2037/325	<ul style="list-style-type: none"> • • {Fuel tanks with provisions for reduction hydraulic ram shocks due to projectile impacts}
U	B64D 41/00	Power installations for auxiliary purposes
	B64D 2041/002	<ul style="list-style-type: none"> • {Mounting arrangements for auxiliary power units (APU's)}
	B64D 2041/005	<ul style="list-style-type: none"> • {Fuel cells}
U	B64D 45/00	Aircraft indicators or protectors not otherwise provided for(camouflage F41H 3/00)
U	B64D 45/0005	<ul style="list-style-type: none"> • {Devices specially adapted to indicate the position of a movable element of the aircraft, e.g. landing gear}
	B64D 2045/001	<ul style="list-style-type: none"> • • {for indicating symmetry of flaps deflection}

- U B64D 45/0015 · {Devices specially adapted for the protection against criminal attack, e.g. anti-hijacking systems}
- B64D 2045/002 · · {by disabling or restraining attackers}
- B64D 2045/0025 · · · {by spraying gases in cabins ,or by shooting darts with anesthetic effects}
- B64D 2045/003 · · {by monitoring cabins}
- B64D 2045/0035 · · · {using cameras}
- B64D 2045/004 · · · {detecting passenger or pilot behaviors by sensors, e.g. biometrics}
- B64D 2045/0045 · · {by communicating emergency situations to ground control, or between crew members}
- B64D 2045/005 · · {by protecting cabin or luggage from bombs}
- B64D 2045/0055 · · {by overriding pilot's controls, or by directing aircraft from ground control to avoid certain paths or zones}
- B64D 2045/006 · · {by avoiding the use of electronic equipment during flight, e.g. of mobile phones or laptops}
- B64D 2045/0065 · {Black boxes, devices automatically broadcasting distress signals}
- B64D 2045/007 · {Indicators or signs in the cabin, e.g. exit signs or seat numbering}
- B64D 2045/0075 · {Flight bags, including electronic type flight bags; Supports therefor in the cockpit}
- B64D 2045/008 · {Devices for detecting or indicating hard landing}
- B64D 2045/0085 · {Devices for aircraft health monitoring, e.g. monitoring flutter or vibration}
- B64D 2045/009 · {Fire detection or protection; Erosion protection, e.g. from airborne particles}
- B64D 2045/0095 · {Devices specially adapted to avoid bird strike}
- U **B64D 2231/00** **Emergency oxygen systems**
- U B64D 2231/02 · Supply or distribution systems
- B64D 2231/025 · · Oxygen masks; Mask storages(-adaptations for seats ~~L60D11/06A40~~ -adaptations for seats [B64D 2011/0672](#)); Features related to mask deployment.

Project: N/A (B64G)

- U **B64G 1/00** **Cosmonautic vehicles**
- U B64G 1/10 · Artificial satellites; Systems of such satellites; Interplanetary vehicles (space shuttles [B64G 1/14](#); radio transmission systems using satellites [H04B 7/185](#))
- U B64G 1/1021 · · {Earth observation satellites}
- B64G 2001/1028 · · · {using optical means for mapping, surveying or detection, e.g. of intelligence }
- B64G 2001/1035 · · · {using radar for mapping, surveying or detection, e.g. of intelligence }
- B64G 2001/1042 · · · {specifically adapted for meteorology }
- U B64G 1/105 · · {Space science}
- B64G 2001/1057 · · · {specifically adapted for astronomy }
- B64G 2001/1064 · · · {specifically adapted for interplanetary, solar or interstellar exploration }
- B64G 2001/1071 · · · · {Planetary landers intended for the exploration of the surface of planets, moons or comets }
- B64G 2001/1092 · · {Special features of modular spacecraft systems }
- U B64G 1/22 · Parts of, or equipment specially adapted for fitting in or to, cosmonautic vehicles
- B64G 2001/224 · · {Inflatable space structures }

- B64G 2001/228
 - • {Damping of high-frequency vibration effects on spacecraft elements, e.g. by using acoustic vibration dampers }
- U B64G 1/24
 - • Guiding or controlling apparatus, e.g. for attitude control (jet-propulsion plants [F02K](#); navigation or navigational instruments, see the relevant subclass, e.g. [G01C](#); automatic pilots [G05D 1/00](#))
- B64G 2001/245
 - • • {Spacecraft attitude control, e.g. attitude control algorithms }
- B64G 2001/247
 - • • {Advanced control concepts for autonomous, robotic spacecraft, e.g. by using artificial intelligence, neural networks or autonomous agents }
- U B64G 1/52
 - • Protection, safety or emergency devices; Survival aids (life-saving in general [A62](#))
- B64G 2001/525
 - • • {Survival aids }
- U B64G 1/64
 - • Systems for coupling or separating cosmonautic vehicles or parts thereof, e.g. docking arrangements
- U B64G 1/641
 - • • {Interstage or payload connectors}
- B64G 2001/643
 - • • • {Dispensers for arranging multiple satellites in a single launcher }
- U **B64G 4/00** **Tools specially adapted for use in space**
- B64G 2004/005
 - {Robotic manipulator systems for use in space }
- U **B64G 5/00** **Ground equipment for vehicles, e.g. starting towers, fuelling arrangements ([B64G 3/00](#) takes precedence)**
- B64G 2005/005
 - {Systems for launching spacecraft from a platform at sea }
- U **B64G 7/00** **Simulating cosmonautic conditions, e.g. for conditioning crews (simulators for teaching or training purposes [G09B 9/00](#))**
- B64G 2007/005
 - {Space simulation vacuum chambers }

Project: N/A (B65B)**B65B**

MACHINES, APPARATUS OR DEVICES FOR, OR METHODS OF, PACKAGING ARTICLES OR MATERIALS; UNPACKING (bundling and pressing devices for cigars [A24C 1/44](#); paper-bag holders as shop or office accessories [A47F 13/08](#); apparatus for coating, e.g. by dipping, [B05C](#); devices for tensioning and securing binders adapted to be supported by the article or articles to be bound [B25B](#), [B65B 13/00](#); nailing or stapling devices per se [B25C](#), [B27F](#); { cutting or severing in general [B26D](#), [B26F](#); } inserting documents in envelopes and closing the latter [B43M 3/00](#), [B43M 5/00](#); wrappers, containers or other packaging elements, e.g. binders protective caps [B65D](#); stacking articles in, or removing them from, pallets [B65G](#); devices for handling sheets or webs of interest apart from their application in packaging machines [B65H](#); packaging of matches [C06F](#); wrapping sugar during manufacture [C13HC13H](#); { filling of grease guns [F16N 37/02](#); packing of shotgun cartridges for immediate use [F42B](#); wrapping of coins [G07D 9/00](#); making containers or receptacles per se, see the appropriate subclasses)

NOTE

The term "packaging" should be understood as including mainly the following operations: filling portable containers or receptacles with materials or small articles to form packages inserting articles, or groups of articles, into containers or receptacles closing filled containers or receptacles otherwise than by metal-, glass-, or wood-working operations enclosing, or partially enclosing, articles or quantities of material, in sheets, strips, blanks, webs, or tubes of thin flexible material, e.g. wrapping bundling articles, e.g. holding articles together in groups by applying string or wire attaching articles to cards, sheets, or webs Operations of these types employed in the manufacture of articles other than packages are classified in other appropriate

subclasses, e.g. making confectionery products by casting in moulds formed by wrappers [A23G](#), filling ammunition cartridges F42B Methods of packaging which are wholly characterised by the form of the package produced, or the form of the container or packaging-element utilised, are to be classified in B65D rather than in this subclass In the following elaborations, the term "package" is used to mean the end product of a packaging operation, e.g. a filled and closed container, an article enclosed in a wrapper, a group of articles held together by string or wire, a crate of bottles In the following elaborations, the term "materials" is to be understood as embracing matter, or masses of articles, which are to be packaged, as distinct from separate or individual articles Machines, apparatus or methods of general application for packaging articles or materials

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B65B 51/09](#) covered by [B65B 51/00](#)

- | | | |
|---|-------------------|---|
| U | B65B 9/00 | Enclosing successive articles, or quantities of material, e.g. liquids or semi-liquids, in flat, folded, or tubular webs of flexible sheet material; Subdividing filled flexible tubes to form packages |
| U | B65B 9/02 | • Enclosing successive articles, or quantities of material between opposed webs |
| U | B65B 9/04 | • • one or both webs being formed with pockets for the reception of the articles, or of the quantities of material |
| | B65B 2009/047 | • • • {Rotary pocket formers } |
| U | B65B 9/06 | • Enclosing successive articles, or quantities of material, in a longitudinally-folded web, or in a web folded into a tube about the articles or quantities of material placed upon it |
| | | <u>NOTES</u> |
| | | If an invention involves both continuous and intermittent web motion, it is classified in both groups B65B 9/067 and B65B 9/073 . |
| | B65B 2009/063 | • • {Forming shoulders } |
| U | B65B 11/00 | Wrapping, e.g. partially or wholly enclosing, articles, or quantities of material, in strips, sheets or blanks, of flexible material (bundling articles by applying narrow strips or bands of flexible material B65B 13/00; devices for folding or bending wrappers around contents B65B 49/00; devices for gathering or twisting wrappers B65B 51/00) |
| | B65B 2011/002 | • {Prestretching mechanism in wrapping machines } |
| U | B65B 39/00 | Nozzles, funnels, or guides for introducing articles or materials into containers or wrappers (nozzles in general B05B; funnels in general B67C 11/00) |
| | B65B 2039/008 | • {Strainer means} |
| | B65B 2039/009 | • {Multiple outlets} |
| U | B65B 51/00 | Devices for, or methods of, sealing or securing package folds or closures; Devices for gathering or twisting wrappers, or necks of bags |
| U | B65B 51/10 | • Applying or generating heat or pressure or combinations thereof {(welding of plastics per se B29C 65/02 ; closing plastic tube ends in general B29C 57/10)} |
| | B65B 2051/105 | • • {Heat seal temperature control } |
| U | B65B 67/00 | Apparatus or devices facilitating manual packaging operations; Sack holders |

- U B65B 67/12
 - Sack holders, i.e. stands or frames with means for supporting sacks in the open condition to facilitate filling with articles or materials {(nozzles, funnels or guides adapted to support sacks [B65B 39/06](#))}
- B65B 2067/1261
 - • {Holders with lids}
- U B65B 67/1266
 - • {specially adapted for storing or dispensing sacks from a supply}
- B65B 2067/1272
 - • • {the sacks being rolled-up }
- B65B 2067/1283
 - • {Means for gathering, closing or sealing the sacks}
- B65B 2067/1288
 - • {Inflatable parts}
- B65B 2067/1294
 - • {Holders for multiple sacks }

Project: N/A (B65C)

- U B65C 9/00
 - Details of labelling machines or apparatus {(attaching articles to carriers [B65B 15/00](#); cards of samples [G09F 5/04](#))}
- B65C 2009/0003
 - {Use of RFID labels }
- U B65C 9/0006
 - {Removing backing sheets}
- B65C 2009/0009
 - • {by means of a peeling tip }
- B65C 2009/0012
 - • • {the peeling tip having a variable radius }
- U B65C 9/0015
 - {Preparing the labels or articles, e.g. smoothing, removing air bubbles}
- B65C 2009/0018
 - • {Preparing the labels }
- B65C 2009/0021
 - • • {for temporary attachment to transfer means or to the article }
- B65C 2009/0025
 - • • • {by electrostatic charge }
- B65C 2009/0028
 - • • {for activating the glue }
- B65C 2009/0031
 - • • • {by radiation }
- B65C 2009/0034
 - • • • • ~~IR~~ {IR }
- B65C 2009/0037
 - • • • • ~~UV~~ {UV }
- B65C 2009/004
 - • • • • {electron beam }
- B65C 2009/0043
 - • • • • ~~laser~~ {laser }
- B65C 2009/0046
 - • • • {by hot air }
- B65C 2009/005
 - • • {for reorienting the labels }
- B65C 2009/0053
 - • • • {by rotation }
- B65C 2009/0056
 - • • {removing overlapping labels from backing webs }
- B65C 2009/0059
 - • {Preparing the articles }
- B65C 2009/0068
 - {Machines or apparatus used with gas bottles }
- B65C 2009/0071
 - {Details of glueing devices }
- B65C 2009/0075
 - • {Constructional details of glueing rollers }
- B65C 2009/0078
 - • {Constructional details of doctor blades }
- B65C 2009/0081
 - {Means for forming a label web buffer, e.g. label web loop }
- B65C 2009/0084
 - {Means for reversing the transport of label or web for repositioning the next to be dispensed label, e.g. printing }
- B65C 2009/0087
 - {Details of handling backing sheets }
- B65C 2009/009
 - • {Devices for removing remaining labels from backing strips }
- B65C 2009/0093
 - • {Devices switching between a peelable and a non peelable position }
- B65C 2009/0096
 - • {Rotation of the backing sheet about its longitudinal axis by passing the backing sheet over a roller }
- U B65C 9/08
 - Label feeding
- U B65C 9/18
 - • Label feeding from strips, e.g. from rolls

- U B65C 9/1803 . . . {the labels being cut from a strip}
- B65C 2009/1834 {Details of cutting means }
- B65C 2009/1838 {Cutting drum }
- B65C 2009/1842 {Temperature control }
- B65C 2009/1846 ~~Laser~~ {Laser }
- B65C 2009/1849 {Fluid-jet }
- B65C 2009/1853 {Electrical resistance }
- B65C 2009/1857 {two co-acting knives }
- B65C 2009/1861 {whereby one knife remains stationary }
- U B65C 9/1865 . . . {the labels adhering on a backing strip}
- B65C 2009/1888 {Overlapping labels }
- U B65C 9/20 . Gluing the labels or articles
- U B65C 9/22 . . by wetting, e.g. by applying liquid glue or a liquid to a dry glue coating
- B65C 2009/2295 . . . {Applying several tracks of glue or liquid }
- U B65C 9/26 . Devices for applying labels
- U B65C 9/262 . . {manually operable}
- U B65C 9/265 . . . {specially adapted for compact discs}
- B65C 2009/267 {for non-circular shaped compact discs }
- U B65C 9/40 . Controls; Safety devices
- B65C 2009/401 . . {for detecting the height of articles to be labelled }
- B65C 2009/402 . . {for detecting properties or defects of labels }
- B65C 2009/404 . . . {prior to labelling }
- B65C 2009/405 {reading information before printing and applying a label }
- B65C 2009/407 . . . {after labelling }
- B65C 2009/408 . . {reading information before printing and applying a label }

Project: N/A (B65D)**B65D**

CONTAINERS FOR STORAGE OR TRANSPORT OF ARTICLES OR MATERIALS, e.g. BAGS, BARRELS, BOTTLES, BOXES, CANS, CARTONS, CRATES, DRUMS, JARS, TANKS, HOPPERS, FORWARDING CONTAINERS; ACCESSORIES, CLOSURES, OR FITTINGS THEREFOR; PACKAGING ELEMENTS; PACKAGES(containers specially adapted for storing agricultural or horticultural products [A01F 25/14](#) ; containers specially adapted for use in dairies [A01J](#); travelling bags or baskets, suitcases [A45C](#); travelling or camp equipment [A45F](#); { linkable display containers [A47B87/00C](#) } ; household or table equipment [A47G](#); letter-boxes for home use [A47G 29/12](#) ; kitchen equipment [A47J](#); associated with vehicles, see the appropriate subclass of [B60](#) to [B64](#); machines, apparatus, or devices for, or methods of, packaging articles or materials [B65B](#); sack holders [B65B 67/00](#) ; refuse receptacles [B65F 1/00](#) ; handling sheets, webs or filamentary material [B65H](#); load-engaging elements or devices attached to lifting or lowering gear of cranes or adapted for connection therewith for transmitting lifting forces [B66C](#); liquid handling [B67](#); storing gases [F17](#); { packaging for photosensitive or like materials [G03](#), e.g. [G03C 3/00](#) }; making containers, see subclasses dealing with the working of the material concerned)

NOTES

In this subclass, the indexing codes of [B65D 2519/00004](#) - [B65D 2519/00995](#) should be added, if applicable

This subclass covers:

- containers, packaging elements or packages with auxilliary means or provisions for displaying articles or materials;
- methods of packaging which are wholly characterised by the form of the package produced or the form of the container or packaging element used, as distinct from the operations performed or the apparatus employed, which are covered by subclass [B65B](#)

This subclass, which is intended to be as comprehensive as possible, only excludes containers or packages of a nature clearly confined to a single other subclass, which are classified in that subclass

In this subclass, groups [B65D 5/00](#) , [B65D 27/00](#) , [B65D 30/00](#) or [B65D 65/00](#) include constructional features of foldable or erectable container or wrapper blanks as well as the containers or wrappers formed by folding or erecting such blanks

Containers, packaging elements or packages classified in group [B65D 85/00](#) , are also classified according to the constructional or functional features, if such features are of interest [6]

In this subclass, the following terms or expressions are used with the meanings indicated:

- "rigid or semi-rigid containers" includes:
 - a. containers not deformed by, or not taking-up the shape of, their contents;
 - b. containers adapted to be temporarily deformed to expel their contents;
 - c. pallets;
 - d. trays;
- "flexible containers" includes:
 - a. containers deformed by, or taking-up the shape of, their contents;

b. containers adapted to be permanently deformed to expel their contents;
- "packaging elements" includes:
a. elements, other than containers, for covering, protecting, stiffening, or holding together articles or materials to be stored or transported;
b. packaging materials of special type or form not provided for in other subclasses;
- "packages" includes:
a. combination of containers or packaging elements with articles or materials to be stored or transported;
b. articles joined together for convenience of storage or transport;
- "paper" includes materials, e.g. cardboard, plastic sheet materials, laminated materials, or metal foils, worked in a manner analogous to paper;
- "large containers", in groups [B65D 88/00](#) or [B65D 90/00](#), means containers having about the size of containers used in container traffic, sometimes referred to as freight, forwarding or "ISO" (International Standardization) containers, or larger containers [3]

Tamper-indicating means for containers or closures are classified in the group appropriate to the type of container or closure, e.g. [B65D 5/43](#), [B65D 5/54](#), [B65D 17/00](#), [B65D 27/30](#), [B65D 27/30](#), [B65D 27/34](#), [B65D 33/34](#), [B65D 41/32](#), [B65D 47/36](#), [B65D 49/12](#), [B65D 51/20](#), [B65D 55/06](#) [5]

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

B65D 5/34	covered by	B65D 5/325	
B65D 5/35	covered by	B65D 5/32	
B65D 5/355	covered by	B65D 5/0005	
B65D 5/43	covered by	B65D 5/42	
B65D 5/462	covered by	B65D 5/46008	to
B65D 5/46032			
B65D 5/465	covered by	B65D 5/46008	to
B65D 5/46032			
B65D 5/468	covered by	B65D 5/4608	
B65D 5/472	covered by	B65D 5/46048	
B65D 5/475	covered by	B65D 5/46008	
B65D 5/478	covered by	B65D 5/46056	
B65D 5/4805	-	B65D 5/489	covered by
B65D 5/48002			
B65D 5/49	-	B65D 5/499	covered by
B65D 5/48024			
B65D 5/63	covered by	B65D 5/72	
B65D 6/00	-	B65D 6/40	covered by
B65D 7/00	,	B65D 9/00	,
B65D 15/00			

B65D 8/00	-	B65D 8/22	covered by	
B65D 7/00	,	B65D 9/00	,	B65D 11/00
B65D 15/00				
B65D 19/22		covered by	B65D 19/0004	&
subgroups		B65D 19/24	covered by	B65D 19/0004
& subgroups		B65D 19/26	covered by	B65D 19/0004
& subgroups		B65D 19/28	covered by	B65D 19/0004
& subgroups		B65D 19/30	covered by	B65D 19/0004
& subgroups		B65D 19/31	covered by	B65D 19/0004
& subgroups		B65D 19/34	covered by	B65D 19/0004
B65D 17/28	-	B65D 17/48	,	B65D 17/52
covered by		B65D 17/16	to	B65D 17/26
B65D 19/32		covered by	B65D 19/0002	,
B65D 19/0004				
B65D 21/024		covered by	B65D 21/0201	
B65D 21/028		covered by	B65D 21/0204	
B65D 21/032		covered by	B65D 21/0211	
B65D 21/036		covered by	B65D 21/0217	
B65D 25/26		covered by	B65D 81/02	
B65D 30/00	-	B65D 30/28	covered by	
B65D 29/00	,	B65D 31/00		
B65D 33/17		covered by	B65D 33/1633	
B65D 33/36		covered by	B65D 75/58	
B65D 33/38		covered by	B65D 75/5861	
B65D 35/48	-	B65D 35/54	covered by	
B65D 47/2018				
B65D 39/18		covered by	B65D 39/00	
+s.gr.				
B65D 41/01		covered by	B65D 41/00	
B65D 43/03		covered by	B65D 43/00	+
L65D 43/00A B65D 2543/00027				
B65D 47/22		covered by	B65D 47/20	
B65D 47/34		covered by	B05B 11/00	
B65D 50/06		covered by	B65D 55/02E	
B65D 50/08		covered by	B65D 55/02	
B65D 50/10		covered by	B65D 55/02	
B65D 50/12		covered by	B65D 55/02	
B65D 50/14		covered by	B65D 55/02	
B65D 65/26	-	B65D 65/32	covered by	
B65D 75/58				
B65D 65/34		covered by	B65D 75/66	
B65D 65/36		covered by	B65D 75/58	
B65D 71/52	-	B65D 71/68	covered by	
B65D 71/0003	to	B65D 71/0077		
B65D 75/60	-	B65D 75/64	covered by	
B65D 75/58				
B65D 81/15		covered by	B65D 81/05	
B65D 81/17		covered by	B65D 81/02	
B65D 83/18	-	B65D 83/74	covered by	
B65D 83/14	,	B65D 83/16		
B65D 83/18		covered by	B65D 83/201	
B65D 83/58		covered by	B65D 83/44	
B65D 83/76		covered by	B65D 83/0005	
B65D 85/57		covered by	G11B 23/00	
B65D 85/575		covered by	G11B 23/00	
B65D 85/86	-	B65D 85/90	covered by	
H01L 21/00	S,	H05K 13/00		

B65D91/00 covered by [A47G 29/12](#)

- U B65D 1/00** Containers having bodies formed in one piece, e.g. by casting metallic material, by moulding plastics, by blowing vitreous material, by throwing ceramic material, by moulding pulped fibrous material, by deep-drawing operations performed on sheet material(by winding, bending, or folding paper [B65D 3/00](#) , [B65D 5/00](#) ; specially constructed to be opened by cutting, piercing, or tearing of wall portions [B65D 17/00](#) ; pallets [B65D 19/00](#) ; details of bottles or of jars [B65D 23/00](#) ; bundles of articles held together by packaging elements for convenience of storage or transport, e. g. portable segregating carriers for plural receptacles such as beer cans, pop bottles, [B65D 71/00](#))
- B65D 1/32 • Containers adapted to be temporarily deformed by external pressure to expel contents({ [B65D 47/2018](#) , [B65D 83/0055](#) take precedence } ; containers for pharmaceutical purposes [A61J 1/20](#) , [A61M 5/19](#) ; containers with disinfecting linings [A61L 2/00](#) ; liquid sprayers [B05B](#) ; ~~Kaufman type dispensers based on the siphon principle, e.g. for ketchup, [B67D5/02C](#)~~ ; oil cans [F16N 3/00](#))
- U B65D 5/00** Containers of polygonal cross-section, e.g. boxes, cartons, trays, formed by folding or erecting one or more blanks made of paper(pallets [B65D 19/00](#) ; bundles of articles held together by packaging elements for convenience of storage or transport, e.g. portable segregating carriers for plural receptacles such as beer cans, pop bottles, [B65D 71/00](#) ; forming foldable or erectable blanks [B31B](#))
- U B65D 5/20 • by folding-up portions connected to a central panel from all sides to form a container body, e.g. of tray-like form([B65D 5/36](#) takes precedence)
- U B65D 5/24 • • with adjacent sides interconnected by gusset folds
- B65D 5/247 • • • {and being maintained in erected condition by integral mechanical locking means formed on, or coacting with, the gusset folds, e.g. locking tabs, tongue and slit([B65D5/24B](#) [B65D248/00](#) takes precedence)}
- U B65D 5/42 • Details of containers or of foldable or erectable container blanks
- U B65D 5/44 • • Integral, inserted or attached portions forming internal or external fittings(not used, see subgroups)
- U B65D 5/50 • • • Internal supporting or protecting elements for contents(elements formed by inward-folding of a wall extending from, and continuously around, an end of a tubular body [B65D 5/06](#) ; partitions [B65D 5/48](#))
- U B65D 5/5028 • • • • {Elements formed separately from the container body}
- U B65D 5/5035 • • • • • {Paper elements(in combination with wooden elements [B65D 5/5095](#))}
- B65D 5/5038 • • • • • {Tray-like elements formed by folding a blank and presenting openings or recesses(without external box [B65D71/00E1](#) [B65D 71/72](#) ; external face of container provided with opening for receiving object in display position [B65D 5/5286](#))}
- U B65D 23/00** Details of bottles or jars not otherwise provided for(closure-securing elements [B65D 45/00](#))
- U B65D 23/08 • Coverings or external coatings(wrappers [B65D 65/00](#))
- U B65D 23/0842 • • {Sheets or tubes applied around the bottle with or without subsequent folding operations}
- B65D 23/085 • • • {and glued or otherwise sealed to the bottle([B65D 23/0857](#) , [B65N23/08D3](#) [B65D 23/0864](#) , [B65D 23/0871](#) take precedence)}
- U B65D 33/00** Details of, or accessories for, sacks or bags

B65D 33/01	<ul style="list-style-type: none"> • Ventilation or drainage of bags,{e.g. disaligned apertures, labyrinth welds(pressure-relief valves comprising at least one elastic element B65D 77/22 D B65D77/22D; connection of valves to inflatable elastic bodies B60C 29/00)}
U B65D 35/00	Pliable tubular containers adapted to be permanently{or temporarily}deformed to expel contents, e.g. collapsible tubes for toothpaste or other plastic or semi-liquid material; Holders therefor{(packages for tubes B65D 85/14)}
B65D 35/56	<ul style="list-style-type: none"> • Holders for collapsible tubes{(B65D51/42LB65D 51/249 takes precedence)}
U B65D 41/00	Caps, e.g. crown caps, crown seals, i.e. members having parts arranged for engagement with the external periphery of a neck or wall defining a pouring opening or discharge aperture; Protective cap-like covers for closure members, e.g. decorative covers of metal foil or paper(B65D 45/00 takes precedence; combinations of caps and protective cap-like covers B65D 51/18 ; making closures by working metal sheet B21D 51/44 ; affixing labels B65C 3/06)
U B65D 41/32	<ul style="list-style-type: none"> • Caps or cap-like covers with lines of weakness, tearing-strips, tags, or like opening or removal devices, e.g. to facilitate formation of pouring openings
U B65D 41/34	<ul style="list-style-type: none"> • • Threaded or like caps or cap-like covers{provided with tamper elements formed in, or attached to, the closure skirt}
B65D 41/348	<ul style="list-style-type: none"> • • • {the tamper element being rolled or pressed to conform to the shape of the container, e.g. metallic closures(B65D 41/34 AB65D41/34A, B65D 41/3423 take precedence)}
B65D 43/00	Lids or covers for rigid or semi-rigid containers(for cooking vessels A47J 36/06 ; covers for pressure vessels in general F16J 13/00)
	WARNING Groups B65D 43/04 to B65D 43/10 are no longer used for classification. Documents are in the process of being reorganised to groups B65D43/02B1 to B65D 43/0297
U B65D 43/14	<ul style="list-style-type: none"> • Non-removable lids or covers
B65D 43/16	<ul style="list-style-type: none"> • • hinged for upward or downward movement{(cigar or cigarette receptacles A24F 15/00 ; suitcases, étuis A45C ; casings for cosmetic substances with hinged covers A45D 40/22 ; toolboxes B25H 3/02 } ; hinges of door or similar type E05D ; { boxes for switchboards with hinged covers H02B1/08 H02B 1/066)}
B65D 53/00	Sealing or packing elements(sealings in general F16J 15/00); Sealings formed by liquid or plastics material
	NOTE Sealings or packing means combined with particular closures are classified with the closures, e.g. in subgroups of B65D 39/00 together with indexing codes out of B65D339, or in the groups B65D 41/005 , B65D41/00D B65D 41/0435
B65D 57/00	Internal frames or supports for flexible articles, e.g. stiffeners; Separators for articles packaged in stacks or groups, e.g. for preventing adhesion of sticky articles{(B65D71/00EB65D 71/70 takes precedence)}
B65D 63/00	Flexible elongated elements, e.g. straps, for bundling or supporting articles(attached to or integral with bags or sacks B65D 33/165 ; for securing load B60P 7/08 CB60P7/08C; for supporting pipes, cables or protective tubing F16L 3/137 ; { for bundling pipes F16L 3/233)}

- U B65D 65/00** **Wrappers or flexible covers; Packaging materials of special type or form(wrappers or envelopes with shock-absorbing properties [B65D 81/03](#) ; layered products per se [B32B](#) ; materials per se, see the relevant classes)**
NOTE
 Attention is drawn to the definition of "packaging element" in Note (5) following the title of this subclass
- U B65D 65/38** • Packaging materials of special type or form
B65D 65/40 • • Applications of laminates for particular packaging purposes{([B65D 1/0215](#) , [B65D 1/28](#) , [B65D 3/22](#) , [B65D 5/0281](#) , [B65D 5/563](#) , [B65D 9/30](#) , [B65D 29/02](#) , [B65D 31/02](#) , [B65D 75/26](#) , ~~[B65D77/20D](#)~~[B65D 77/2024](#) , [B65D 81/1275](#) , [B65D 81/3811](#) , [B65D 81/3823](#) , [B65D 81/3834](#) , [B65D 81/3846](#) , [B65D 81/3858](#) , [B65D 81/3874](#) , [B65D 81/3886](#) , [B65D 81/3897](#) take precedence; laminates per se or laminated packages characterised by the composition or)}
- NOTE**
 A packaging purpose covered by another group of [B65D](#) should be classified in that group of [B65D](#) and in [B32B](#)]
- U B65D 75/00** **Packages comprising articles or materials partially or wholly enclosed in strips, sheets, blanks, tubes, or webs of flexible sheet material, e.g. in folded wrappers([B65D 71/00](#) takes precedence; wrapping [B65B 11/00](#))**
- B65D 75/002** • {in shrink films(~~[B65D71/00CA5B](#)~~[B65D 71/08](#) takes precedence)}
- U B65D 75/28** • Articles or materials wholly enclosed in composite wrappers, i.e. wrappers formed by associating or interconnecting two or more sheets or blanks
- U B65D 75/30** • • Articles or materials enclosed between two opposed sheets or blanks having their margins united, e.g. by pressure-sensitive adhesive, crimping, heat-sealing, or welding
- U B65D 75/32** • • • one or both sheets or blanks being recessed to accommodate contents
B65D 75/34 • • • • and having several recesses to accommodate a series of articles or quantities of material{(not used)}
- WARNING**
 Group [B65D 75/34](#) is no longer used for the classification of new documents. Documents of this group are in the process of being reclassified to groups [B65D 75/323](#) , [B65D 75/327](#) , ~~[B65D75/32H](#)~~ and subgroups
- U B65D 75/36** • • • • one sheet or blank being recessed and the other formed of relatively stiff flat sheet material, e.g. blister packages,{the recess or recesses being preformed([B65D 73/0057](#) , [B65D 73/0092](#) take precedence)}
- B65D 2075/361** • • • • • {the two sheets or blanks being mutually slidable or comprising slidable elements}
- B65D 2075/362** • • • • • {the two sheets or blanks being partially releasable and reclosable, e.g. peelable sheets reclosable by slot-and-tongue connections}
- B65D 2075/363** • • • • • {the recess presenting a lateral or a frontal opening}
- B65D 2075/365** • • • • • • {and being provided with a cover}
- U B65D 75/52** • Details
- U B65D 75/58** • • Opening or contents-removing devices added or incorporated during package manufacture{([B65D 75/36](#) , [B65D 85/1027](#) take precedence)}
- B65D 75/5827** • • • {Tear-lines provided in a wall portion(~~[B65D-75/58-B](#)~~[B65D75/58B](#) , [B65D 75/5816](#) take precedence)}

- U B65D 81/00 Containers, packaging elements, or packages, for contents presenting particular transport or storage problems, or adapted to be used for non-packaging purposes after removal of contents**
- B65D 2081/001 • {for packaging articles or materials intended to be mixed or infused with a liquid without having previously been removed from the package}
 - B65D 2081/002 • • {Packages adapted to be totally immersed in the liquid to release part or all of their contents, e.g. tea bags}
 - B65D 2081/004 • • • {with special features facilitating their manipulation or suspension([B65D 2081/005](#) takes precedence)}
 - B65D 2081/005 • • • {characterised by an outer package, e.g. wrappers or boxes for enclosing tea-bags}
 - B65D 2081/007 • • {Packages adapted to allow liquid to pass through the contents([B65D 2081/002](#) takes precedence)}
 - B65D 2081/008 • • {Packages adapted to be filled with the liquid and to retain the resulting preparation, e.g. cups prefilled with coffee powder or trays containing dehydrated food}
- U B65D 81/34** • for packaging foodstuffs{or other articles}intended to be cooked or heated within the package
- B65D 81/3415 • • {specially adapted to be heated in hot water, e.g. boil pouches(dissolvable packages [B65D 65/46](#) ; packaging articles or materials intended to be mixed or infused with a liquid **B65D81/00B** [B65D 85/808](#))}
 - B65D 81/3438 • • {specially adapted to be heated by steaming(~~au-bain-marie~~ **L65D81/34H200C**)}
 - B65D 81/3476 • • {Packages provided with an electrical circuit, e.g. resistances, for heating the contents(~~microwave susceptors~~ **L65D81/34M700S** ~~microwave susceptors~~ [B65D 2581/3463](#))}
 - B65D 81/38 • with thermal insulation(vacuum bottles or the like [A47J 41/00](#) ; { thermal insulation of domestic water storage heaters **F24H1/18B4** [F24H 1/182](#))}
- U B65D 83/00 Containers or packages with special means for dispensing contents(dispensing means incorporated in removable or non-permanently secured container closures [B65D 47/00](#) ; for shops, stores, offices, bars, or the like [A47F 1/04](#) ; showcases or cabinets with dispensing arrangements [A47F 3/02](#) ; { for surgical articles [A61B 19/026](#) } ; magazines for screws or nuts in combination with spanners, wrenches or screw-drivers [B25B 23/06](#) ; nail dispensers [B25C 3/00](#) ; for use in connection with the handling of sheets, webs, or filamentary material [B65H](#); coin deliverers [G07D 1/00](#) ; { coin-freed apparatus for dispensing discrete articles [G07F 11/00](#))}**
- WARNING**
- Groups [B65D 83/75](#) to [B65D 83/759](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [B65D 83/75](#) to [B65D 83/759](#) : [B65D 83/14](#)
- B65D 83/08 • for dispensing thin flat articles in succession{(towel dispensers intended for re-use [A47K 10/24](#))}
- NOTE**
- [B65D 83/10](#) and [B65D 83/12](#) take precedence over [B65D 83/0805](#) to **~~B65D 83/08 H~~ [B65D83/08H](#)**
- U B65D 83/0805** • • {through an aperture in a wall}
 - U B65D 83/0811** • • • {with means for assisting dispensing}
 - B65D 83/0817 • • • • {the articles being automatically urged towards the dispensing aperture, e.g. spring-loaded(**B65D83/008B1B** [B65D 83/0823](#) takes precedence)}

- U B65D 85/00** Containers, packaging elements or packages specially adapted for particular articles or materials([B65D 71/00](#) , [B65D 83/00](#) take precedence; hand implements, travelling equipment [A45C](#) ; cosmetic or toilet equipment [A45D](#) ; { for surgical instruments or appliances [A61B 19/026](#) } ; containers specially adapted for medical or pharmaceutical purposes [A61J 1/00](#) ; paint cans [B44D 3/12](#) ; oil cans [F16N 3/04](#) ; containers for carrying smallarms [F41C 33/06](#) ; packaging of ammunition or explosive charges [F42B 39/00](#) ; containers for record carriers, specially adapted for co-operation with the recording or reproducing apparatus [G11B 23/00](#))
- NOTE**
Attention is drawn to Note (4) following the title of this subclass
- U B65D 85/70** • for materials not otherwise provided for
- B65D 85/804** • • Disposable containers or packages with contents which are{mixed,}infused or dissolved in situ{i.e. without having been previously removed from the package([B65D 65/46](#) takes precedence; tea infusers [A47G 19/16](#) ; spoons or stirrers comprising beverage additives [A47G21/04D](#)[A47G 21/04](#))}
- B65D 2101/00** **Tamper-indicating means(**~~relating to aerosol containers~~ [L65D83/14Y2](#)~~relating to aerosol containers~~ [B65D 83/224](#))
- B65D 2255/00** **Locking devices(**~~for actuation of aerosol containers~~ [L65D83/14Y3B](#)~~;~~ [for actuation of aerosol containers](#) [B65D 83/226](#) ; for lids [B65D 2251/1008](#) , [B65D 2251/1016](#))
- U B65D 2585/00** **Containers, packaging elements or packages specially adapted for particular articles or materials**
- U B65D 2585/68** • for machines, engines, or vehicles in assembled or dismantled form
- B65D 2585/86** • • for electrical components(small electrical components attached to cards, sheets or webs [B65D 73/02](#) ; for articles particularly sensitive to damage by shock or pressure [B65D 2585/30](#) ;~~for ampoules, lamp bulbs, electronic valves or tubes~~ [L65D585/42](#) ;[for ampoules, lamp bulbs, electronic valves or tubes](#) [B65D 85/42](#))

Project: N/A (B65F)

- U B65F 1/00** **Refuse receptacles; {Accessories therefor}(containers not specially adapted for refuse, features of refuse receptacles of general interest [B65D](#))**
- U B65F 1/0033** • {specially adapted for segregated refuse collecting, e.g. receptacles with several compartments; Combination of receptacles ([B65F 1/0093](#) takes precedence)}
- B65F 2001/008** • • {Means for automatically selecting the receptacle in which refuse should be placed }
- B65F 2001/0086** • • {Means for holding receptacles together }
- U B65F 1/04** • with removable inserts
- U B65F 1/06** • • with flexible inserts, e.g. bags or sacks {([B65F 1/0073](#) takes precedence)}
- B65F 2001/061** • • {the flexible inserts being used shopping bags }
- D B65F 2001/064** • • having a plurality of flexible inserts, e.g. on a roll
- U B65F 1/14** • Other constructional features; {Accessories}(holders or carriers for hand articles [A45F 5/00](#); fastening devices [E05C](#))
- B65F 2001/1489** • • {Refuse receptacles adapted or modified for gathering compostable domestic refuse }
- B65F 2001/1494** • • {Refuse receptacles comprising means for preventing or extinguishing fire }
- B65F 2001/1653** • • {Constructional features of lids or covers }

B65F 2001/1661	• . . {relating to noise reduction, e.g. during opening or closing }
B65F 2001/1669	• . . {relating to means for fixing or latching the lid or cover in a certain angle }
B65F 2001/1676	• . . {relating to means for sealing the lid or cover, e.g. against escaping odors }
B65F 2001/1684	• . . . {Water slot seals }
B65F 2001/1692	• . . {relating to safety means, e.g. for children trapped inside the refuse receptacle }
U B65F 3/00	Vehicles particularly adapted for collecting refuse (vehicles in general B60; driving vehicle equipment or auxiliaries B60K; discharging contents by tilting entire vehicles B65G; wheeled apparatus for emptying sewers or cesspools E03F 7/10)
U B65F 3/001	• {for segregated refuse collecting, e.g. vehicles with several compartments}
B65F 2003/003	• . Footboards { Footboards }
B65F 2003/006	• {Constructional features relating to the tank of the refuse vehicle }
B65F 2003/008	• . interchangeable { interchangeable }
U B65F 3/02	• with means for discharging refuse receptacles thereinto (conveyer construction B65G ; Loaders separate from vehicles B66F ; fluid power control systems in general F15B)
B65F 2003/0216	• . {the discharging means comprising a device for determining the volume of the content of refuse receptacles }
B65F 2003/022	• . {the discharging means comprising a device for determining the weight of the content of refuse receptacles }
B65F 2003/0223	• . {the discharging means comprising elements for holding the receptacle}
B65F 2003/0226	• . . {having means for adapting to different sized receptacles }
B65F 2003/023	• . . {Gripper arms for embracing the receptacle}
B65F 2003/0233	• . . . {for embracing two or more receptacles}
B65F 2003/0236	• . . {Suction or vacuum heads}
B65F 2003/024	• . . {Means for locking the rim }
B65F 2003/0243	• . . {Means for locking the side, e.g. via spigots or trunnion pins }
B65F 2003/0246	• . . {Means for locking the front, e.g. via a handle }
B65F 2003/025	• . {Constructional features relating to actuating means for lifting or tipping containers}
B65F 2003/0253	• . . {Means for synchronising or coupling two or more discharging devices, e.g. for allowing the discharge of one large container or the simultaneous discharge of two or more containers}
B65F 2003/0256	• . . {Means for vibrating or shaking the containers for facilitating emptying}
B65F 2003/0259	• . . {Means for automatically varying the speed of operation}
B65F 2003/0263	• . {Constructional features relating to discharging means }
B65F 2003/0266	• . . {comprising at least one telescopic arm }
B65F 2003/0269	• . . {capable of moving along the side of the vehicle }
B65F 2003/0273	• . . {capable of rotating around a vertical axis }
B65F 2003/0276	• . . {capable of moving towards or away from the vehicle }
B65F 2003/0279	• . . {the discharging means mounted at the front of the vehicle }
B65F 2003/0283	• . . . {between the cab and the collection compartment }
B65F 2003/0286	• . {Means mounted on the vehicle for opening the lid or cover of the receptacle }
B65F 2003/0289	• . . {the opening means being mounted on the discharging means }

- B65F 2003/0293
 - • {Means mounted on the vehicle for supporting the refuse receptacle in the tipping position }
- B65F 2003/0296
 - • • {the supporting means mounted on the discharging means}
- U B65F 3/14
 - with devices for charging, distributing or compressing refuse in the interior of the tank of a refuse vehicle ([B65F 3/02](#) takes precedence)
- B65F 2003/146
 - • {Sensors, e.g. pressure sensors }

Project: N/A (B65G)

- U B65G 1/00

Storing articles, individually or in orderly arrangement, in warehouses or magazines(conveyer combinations in warehouses, magazines, or workshops [B65G 37/00](#) ; stacking of articles [B65G 57/00](#) ; removing articles from stacks [B65G 59/00](#) ; loading machines [B65G 65/02](#) ; arrangements of articles for drying or baking in kilns or ovens [F26](#) ; [F27](#))

NOTE
group [B65G 1/0442](#) takes precedence over the other groups, except over [B65G 1/08](#)
- U B65G 1/02
 - Storage devices(furniture, shop fittings, table equipment [A47B](#) , [A47F](#) , [A47G](#) ; mechanical garages [E04H](#) ; for data record cards in association with machines for making or sensing data [G06K](#) ; coin changers or sorters [G07D](#) ; coin-freed apparatus [G07F](#)){ pallets [B65D 19/00](#) }
- U B65G 1/04
 - • mechanical
- U B65G 1/06
 - • • with means for presenting articles for removal at predetermined position or level([B65G 1/12](#) takes precedence)
- B65G 1/08
 - • • the articles being fed by gravity{ braking arrangements for roller-ways [B65G13/00B65G 13/075](#) ; separating or stopping elements [B65G 47/88](#) }
- U B65G 19/00

Conveyers comprising an impeller or a series of impellers carried by an endless traction element and arranged to move articles or materials over a supporting surface or underlying material, e.g. endless scraper conveyers
- U B65G 19/18
 - Details
- B65G 19/185
 - • {for article conveyers,e.g. for container conveyers([B65G 19/20](#) , [B65G 19/22](#) ; [B65G29/28B65G 19/28](#) take precedence)}
- U B65G 45/00

Lubricating, cleaning, or clearing devices
- B65G 45/10
 - Cleaning devices(adaptations of roller sleeves for cleaning belts [B65G-39/073](#) [B65G 39/073](#))
- U B65G 47/00

Article or material handling devices associated with conveyers; Methods employing such devices(for sorting, e.g. postal [B07C](#))
- U B65G 47/34
 - Devices for discharging articles or materials from conveyers([B65G 47/256](#) takes precedence; sorting in general [B07](#))
- B65G 47/46
 - • and distributing, e.g. automatically, to desired points({ pivotable chutes [B65G 11/12](#) } ; in tube mail systems [B65G 51/36](#) ; postal or like sorting [B07C](#) ; in railway operations [B61L11/10B61L](#) ; handling sheets or thin flat articles [B65H](#))
- U B65G 47/52
 - Devices for transferring articles or materials between conveyers(or sections of one conveyer), i.e. discharging and feeding devices(loading or unloading by means not incorporated in, or not operatively associated with, conveyers [B65G 65/00](#) ; transfer of workpieces during metal rolling [B21B 41/00](#))

- U B65G 47/68
- adapted to receive articles arriving in one layer from one conveyer{lane}and to transfer them in individual layers to more than one conveyer{lane or to one broader conveyer lane}, or vice-versa, e.g. combining the flows of articles conveyed by more than one conveyer
- B65G 2047/685
- • • {Devices for preventing jamming in converging flows}
- B65G 2047/686
- • • {Lane boundaries which reciprocate or oscillate, e.g. vibrating boundaries}
- B65G 2047/687
- • • {Lane boundaries which comprise rotatable elements, e.g. discs, cylinders, endless belts}
- B65G 2047/688
- • • {Lane boundaries which are compliant}
- B65G 2047/689
- • • {Lane boundaries which are of such shape that tight arrays of articles are broken up or prevented from forming}
- B65G 53/00**
- Conveying materials in bulk through troughs, pipes, or tubes by floating the materials, or by flows of gas, liquid, or foam(fluidising in connection with loading or unloading [B65G 69/06](#) ; loaders for hay or cereals [A01D 87/00](#) ; { discharging means for mixtures containing clay or cementitious material [B28C 7/16](#) ; } fluidising devices facilitating filling or emptying of large containers [B65D 88/72](#) ; {combined washing or cutting and conveyance of materials in sugar manufacture [A23N](#); [G13C13C](#);} dredging [E02F](#); winning materials out of alluvial deposits [E21C 45/00](#) ; hydraulic or pneumatic mine-filling-up machines [E21F 15/00](#) ; fluid dynamics [F15D](#)){pumping fluid by direct action of another fluid [F04F](#)}
- U B65G 53/34
- Details
- B65G 53/36
- • Arrangements of containers(~~hoppers [B65G3/06](#) ;~~ [hoppers \[B65D 3/06\]\(#\) ;](#) containers in general [B65D](#))
- B65G 53/38
- • Modification of material containing walls to facilitate fluidisation(~~hoppers with walls modified for fluidisation of contents [B65G3/14](#)~~ [hoppers with walls modified for fluidisation of contents \[B65D3714\]\(#\) \)](#)

Project: N/A (B65H)

- U B65H 19/00
- Changing the web roll**
- U B65H 19/10
- in unwinding mechanisms or in connection with unwinding operations
- B65H 2019/16
- • {Driving, e.g. accelerating, the replacement web roll in association with web-splicing operation}
- U B65H 54/00
- Winding, coiling, or depositing filamentary material(cores, formers, holders, cans or receptacles [B65H 75/02](#))**
- U B65H 54/02
- Winding and traversing material on to reels, bobbins, tubes, or like package cores or formers
- U B65H 54/28
- • Traversing devices; Package-shaping arrangements(arrangements for preventing ribbon winding [B65H 54/38](#) ; grooved, slotted, or split drums for driving of packages [B65H 54/46](#))
- B65H 54/2848
- • • {Arrangements for aligned winding(reels with grooves or grooved elements for aligned winding [B65H 75/26](#) - [B65H75/26B](#))}
- U B65H 2301/00
- Handling processes for sheets or webs**
- U B65H 2301/40
- Type of handling process
- U B65H 2301/41
- • Winding, unwinding
- U B65H 2301/414
- • • Winding
- U B65H 2301/4143
- • • • Performing winding process
- U B65H 2301/41432
- • • • • special features of winding process

B65H 2301/414321 helical winding([L65H715/012](#)[B65H 2701/18444](#) takes precedence)

Project: N/A (B66B)

- U B66B 1/00** **Control systems of elevators in general(safety devices [B66B 5/00](#) ; controlling door or gate operation [B66B 13/00](#) ; systems of general application [G05](#))**
- U B66B 1/24 . Control systems with regulation, i.e. with retroactive action, for influencing travelling speed, acceleration, or deceleration
- U B66B 1/2408 . . {where the allocation of a call to an elevator car is of importance, i.e. by means of a supervisory or group controller}
- U B66B 1/2416 . . . {For single car elevator systems}
- U B66B 2001/2425 {Zone definition for two cars in the same hatchway}
- U B66B 1/2433 . . . {For elevator systems with a single shaft and multiple cars}
- U B66B 2001/2441 {with the use of a speed pattern generator}
- B66B 2001/245 {for high-speed elevators which do not attain the maximum speed during shorts runs(~~control of acceleration and deceleration~~ [G05B19/407](#))}
- U B66B 1/2466 . . . {For elevator systems with multiple shafts and multiple cars per shaft}
- U B66B 2001/2475 {by using cost function computing}
- U B66B 2001/2483 {by predicting the traffic, e.g. with statistical or learning procedures}
- U B66B 9/00** **Kinds or types of lifts in, or associated with, buildings or other structures(characterised by control systems [B66B 1/00](#) ; apparatus for raising or lowering persons on stages of theatres [A63J 5/12](#))**
- B66B 2009/006 . {Ganged elevator}
- U B66B 9/06 . inclined, e.g. serving blast furnaces
- U B66B 9/08 . . associated with stairways, e.g. for transporting disabled persons((facilitating access of invalids to vehicles [A61G 3/02](#)))
- B66B 2009/0876 . . . ~~Details~~ [Details](#) }
- B66B 2009/0884 {Control systems}
- B66B 2009/0892 {Seats` constructional features}
- U B66B 23/00** **Component parts of escalators or moving walkways**
- U B66B 23/14 . Guiding means for carrying surfaces
- B66B 2023/142 . . {paternoster return type system}

Project: N/A (B67B)

- B67B 7/00** **Hand- or power-operated devices for opening closed containers (nail pullers or extractors [B25C 11/00](#); { for expelling solid content, e.g. pills, from blister packs ~~B65B67/00D1~~ [B65B 69/0058](#); } attached to, or incorporated in, containers or container closures [B65D](#); { dispensers for pills from blister packs [B65B 69/0058](#))}**
- U B67B 7/02 . for removing stoppers
- U B67B 7/04 . . Cork-screws
- B67B 2007/0458 . . . {Means for cutting sealing capsules }
- B67B 2007/0464 . . . {Means for counting }
- B67B 2007/047 . . . {Means for reducing friction }
- B67B 2007/0476 {by coating the screw }
- B67B 2007/0482 {by using roller-bearings }
- B67B 2007/0488 . . . {Means for measuring temperature }

- B67B 2007/0494
 - • • {Means for varying the lever arm }
- U B67B 7/16
 - for removing flanged caps, e.g. crown caps
- B67B 2007/166
 - • {Means for attaching the opener to fingers }
- B67B 2007/168
 - • {Means for counting }
- U B67B 7/18
 - for removing threaded caps ([B67B 7/14](#) takes precedence; wrenches [B25B 13/00](#))
- B67B 2007/188
 - • {Means for attaching the opener to fingers }
- U B67B 7/30
 - Hand-operated cutting devices
- B67B 2007/303
 - • {can openers }
- B67B 2007/306
 - • • {Means for counting }

Project: N/A (B67C)

- U B67C 3/00
 - Bottling liquids or semiliquids; Filling jars or cans with liquids or semiliquids using bottling or like apparatus; Filling casks or barrels with liquids or semiliquids (filling containers with liquids or semiliquids using apparatus other than bottling or like apparatus [B65B 3/00](#))**
- U B67C 3/02
 - Bottling liquids or semiliquids; Filling jars or cans with liquids or semiliquids using bottling or like apparatus
- U B67C 3/22
 - • Details
- B67C 2003/221
 - • • {Automatic exchange of components }
- B67C 2003/226
 - • • {Additional process steps or apparatuses related to filling with hot liquids, e.g. after-treatment }
- B67C 2003/227
 - • • {Additional apparatus related to blow-moulding of the containers, e.g. a complete production line forming filled containers from preforms }
- B67C 2003/228
 - • • {Aseptic features }
- U B67C 3/26
 - • • Filling-heads; Means for engaging filling-heads with bottle necks
- B67C 2003/2602
 - • • • {Details of vent-tubes }
- B67C 2003/2605
 - • • • • {Piston-like check valves }
- B67C 2003/2645
 - • • • {Means to avoid overfilling by preventing gas returning from the container into the filling tank via the liquid valve, e.g. mesh screens }
- B67C 2003/2648
 - • • • {Inflatable gaskets for sealingly engaging bottle necks or bodies }
- B67C 2003/2651
 - • • • {The liquid valve being carried by the vent tube }
- B67C 2003/2654
 - • • • • {specially adapted for bottom filling, e.g. the liquid valve being located at the lowest part of the vent tube }
- B67C 2003/2657
 - • • • {specially adapted for filling cans }
- B67C 2003/266
 - • • • {Means for centering the container with the filling head }
- B67C 2003/2662
 - • • • • {with means for detecting the presence of a container }
- B67C 2003/2665
 - • • • {Means for locking the filling head in a given position once engaged by a container }
- B67C 2003/2668
 - • • • {Means for adapting the filling head to various sizes of containers }
- B67C 2003/2671
 - • • • {Means for preventing foaming of the liquid }
- B67C 2003/2674
 - • • • • {by creating a conical shaped flow directed to the container wall at the container neck height }
- B67C 2003/2677
 - • • • • • {by means of a deflector }
- B67C 2003/268
 - • • • • • {by means of a flow channel integral with the filling nozzle }
- B67C 2003/2682
 - • • • • • {by creating a conical shaped flow directed to the container wall just above the container bottom }

- B67C 2003/2685 {Details of probes}
- B67C 2003/2688 {Means for filling containers in defined atmospheric conditions }
- B67C 2003/2691 {by enclosing one container in a chamber }
- B67C 2003/2694 {by enclosing a set of containers in a chamber }
- B67C 2003/2697 {by enclosing the container partly in a chamber }

U B67C 7/00

Concurrent cleaning, filling, and closing of bottles; Processes or devices for at least two of these operations

- U B67C 7/0006 . {Conveying; Synchronising}
- B67C 2007/006 . . {Devices particularly adapted for container filling }
- B67C 2007/0066 . . {Devices particularly adapted for container closing }

U B67C 11/00

Funnels, e.g. for liquids (filter funnels [B01D 23/28](#); volume flow-meters [G01F](#))

- U B67C 11/02 . without discharge valves
- B67C 2011/022 . . {for draining oil from engines }
- B67C 2011/025 . . . {with integral tool for opening the draining plug }
- B67C 2011/027 . . {for filling oil into engines }
- B67C 2011/20 . {comprising closures, e.g. stoppers, caps or lids }
- B67C 2011/30 . {comprising venting means }
- B67C 2011/40 . {comprising level indicating means }

Project: N/A (B67D)**U B67D 1/00**

Apparatus or devices for dispensing beverages on draught ([B67D 3/00](#) takes precedence; apparatus for making beverages [A47J 31/00](#))

- U B67D 1/0042 . {Details of specific parts of the dispensers}
- U B67D 1/0081 . . {Dispensing valves}
- B67D 2001/0087 . . . {being mounted on the dispenser housing}
- B67D 2001/0088 {operated by push buttons}
- B67D 2001/0089 {operated by lever means}
- B67D 2001/009 {operated by cup detection}
- B67D 2001/0091 . {Component storage means }
- B67D 2001/0092 . . {Containers for gas, for e.g. CO₂, N₂ }
- B67D 2001/0093 . ~~Valves~~ {Valves }
- B67D 2001/0094 . . {Valve mountings in dispensers }
- B67D 2001/0095 . {Constructional details }
- B67D 2001/0096 . . {Means for pressurizing liquid }
- B67D 2001/0097 . . . {using a pump }
- B67D 2001/0098 . . . {using a gas }
- U B67D 1/04 . Apparatus utilising compressed air or other gas acting directly or indirectly on beverages in storage containers
- B67D 2001/0475 . . {Type of gas or gas mixture used, other than pure CO₂ }
- B67D 2001/0481 . . . {Single inert gas, e.g. N₂ }
- B67D 2001/0487 . . . {Mixture of gases, e.g. N₂ + CO₂ }
- B67D 2001/0493 ~~Air~~ {Air }
- U B67D 1/07 . Cleaning beverage-dispensing apparatus {([B67D 1/0834](#), [B67D 1/0837](#) take precedence)}

- U B67D 2001/075 · · { Sanitising or sterilising the apparatus }
- U B67D 1/08 · Details
- U B67D 1/0801 · · { of beverage containers, e.g. casks, kegs }
- B67D 2001/0811 · · · { provided with coded information }
- B67D 2001/0812 · · · { Bottles, cartridges or similar containers }
- B67D 2001/0814 · · · · { for upside down use }
- B67D 2001/0815 · · · · · { with integral venting tube }
- B67D 2001/0817 · · · · · { with a venting orifice }
- B67D 2001/0818 · · · · { arranged in series }
- B67D 2001/082 · · · · { arranged in parallel }
- B67D 2001/0821 · · · · { having different compartments for different components }
- B67D 2001/0822 · · · { Pressurised rigid containers, e.g. kegs, figals }
- B67D 2001/0824 · · · · { with dip tubes }
- B67D 2001/0825 · · · · { details of dip tube }
- B67D 2001/0827 · · · { Bags in box }
- B67D 2001/0828 · · · · { in pressurised housing }
- U B67D 1/12 · · Flow or pressure control devices or systems { e.g. valves, gas pressure control, level control in storage containers }
- U B67D 1/1252 · · · { Gas pressure control means, e.g. for maintaining proper carbonation (for beer engines [B67D 1/025](#)) }
- B67D 2001/1254 · · · · { comprising means for making a mixture of gases }
- B67D 2001/1259 · · · · { Fluid level control devices }
- B67D 2001/1261 · · · · { the level being detected mechanically }
- B67D 2001/1263 · · · · { the level being detected electrically }
- B67D 2001/1265 · · · · · { Pressure switches }
- B67D 2001/1268 · · · · · ~~Capacitors~~ { [Capacitors](#) }
- U B67D 1/14 · · · Reducing valves or control taps
- B67D 2001/1483 · · · · { electrically or electro-mechanically operated }
- B67D 2001/1488 · · · · { pneumatically operated }
- B67D 2001/1494 · · · · { Taps with means for adjusting the position of a compensator from outside }
- U B67D 7/00 Apparatus or devices for transferring liquids from bulk storage containers or reservoirs into vehicles or into portable containers, e.g. for retail sale purposes (general disposition of plant in stations for supplying fuel to vehicles [B60S 5/02](#); for filling or emptying locomotive water tanks, e.g. water columns, [B61K 11/00](#); for refuelling aircraft during flight [B64D 39/00](#); liquid-handling ground installations specially adapted for fuelling stationary aircraft [B64F 1/28](#))**
- U B67D 7/04 · for transferring fuels, lubricants or mixed fuels and lubricants
- U B67D 7/0401 · · { arrangements for automatically fuelling vehicles, i.e. without human intervention }
- B67D 2007/0403 · · · { Fuelling robots }
- B67D 2007/0405 · · · · { Opening devices }
- B67D 2007/0407 · · · · · { for fuel tank flaps }
- B67D 2007/0409 · · · · · { using vacuum cups }
- B67D 2007/0411 · · · · · { using grippers }

B67D 2007/0413	. . . . . {using air blast }
B67D 2007/0415	. . . . . {for filler caps }
B67D 2007/0417	. . . . {Manipulator arms }
B67D 2007/0419	. . . . {Fuelling nozzles }
B67D 2007/0421	. . . . . {with locking devices }
B67D 2007/0423	. . . . {Fuelling hoses }
B67D 2007/0425	. . . . . {comprising a single hose for several fuels }
B67D 2007/0426	. . . . . {comprising several hoses for several fuels }
B67D 2007/0428	. . . . . {having devices to avoid a mix up of different fuels }
B67D 2007/043	. . . . Moveable -{ Moveable }
B67D 2007/0432	. . . . . {according to a planar coordinate system }
B67D 2007/0434	. . . . . {with the ability to compensate movements of the car during filling }
B67D 2007/0436	. . . . . {according to a spatial coordinate system }
B67D 2007/0438	. . . . . {with the ability to compensate movements of the car during filling }
B67D 2007/044	. . . {Customer interfaces }
B67D 2007/0442	. . . . {interface for orders and payments }
B67D 2007/0444	. . . Sensors -{ Sensors }
B67D 2007/0446	. . . . {measuring physical properties of the fluid to be dispensed }
B67D 2007/0448	. . . . . Density -{ Density }
B67D 2007/0449	. . . . . Viscosity -{ Viscosity }
B67D 2007/0451	. . . . . Temperature -{ Temperature }
B67D 2007/0453	. . . . {recognising the fuel to be dispensed }
B67D 2007/0455	. . . . {recognising the position }
B67D 2007/0457	. . . . . {of the car }
B67D 2007/0459	. . . . . {by interrogating a transponder }
B67D 2007/0461	. . . . . {by calculating from a reference position, e.g the car`s silhouette, reference marks }
B67D 2007/0463	. . . . . optically -{ optically }
B67D 2007/0465	. . . . . {by GPS }
B67D 2007/0467	. . . . . {of the fuel tank flap and/or fuel tank opening }
B67D 2007/0469	. . . . . {by interrogating a transponder }
B67D 2007/0471	. . . . . {by calculating from a reference position, e.g the car`s silhouette, reference marks }
B67D 2007/0473	. . . . . optically -{ optically }
B67D 2007/0474	. . . . . {of the filling nozzle relative to the fuel tank opening, e.g. engagement between nozzle and tank opening }
U B67D 7/0476	. . { Vapour recovery systems }
U B67D 7/0478	. . . { constructional features or components (vapour recovery nozzles B67D 7/54) }
B67D 2007/0494	. . . . {Means for condensing the vapours and reintroducing them into the storage tanks }
U B67D 7/06	. Details or accessories
U B67D 7/32	. . Arrangements of safety or warning devices; Means for preventing unauthorised delivery of liquid
U B67D 7/3281	. . . { Details }
B67D 2007/329	. . . . {Function indicator devices }

- U B67D 7/42
 - • Filling nozzles
- U B67D 7/54
 - • • with means for preventing escape of liquid or vapour or for recovering escaped liquid or vapour ([B67D 7/44](#) takes precedence)
- B67D 2007/545
 - • • {Additional means for preventing dispensing of liquid by incorrect sealing engagement with the tank opening of the vapour recovering means, e.g. bellows, shrouds }
- U B67D 7/74
 - • Devices for mixing two or more different liquids to be transferred (coin-freed apparatus [G07F 13/06](#))
- B67D 2007/745
 - • • {for obtaining fuel of a given octane level }
- B67D 2007/746
 - • • {by mixing different fuel grades or fuel and oil }
- B67D 2007/747
 - • • • {involving means responsive to the octane level, e.g. octane sensor, knock engine }
- B67D 2007/748
 - • • • {by mixing fuel with additives, e.g. anti-knocking agents }
- B67D 2007/749
 - • • • {involving means responsive to the octane level, e.g. octane sensor, knock engine }

Project: N/A (B68B)

- U B68B 1/00

Devices in connection with harness, for hitching, reining, training, breaking or quietening horses or other traction animals (devices of this kind combined with traction harness [B68B 3/00](#); stable equipment [A01K 1/00](#); devices forming part of a vehicle [B62C](#))
- B68B 2001/003
 - {Means to enhance visibility of the horse }
- B68B 2001/006
 - ~~Longeing~~ {Longeing }
- U B68B 1/04
 - Bridles; Reins
- B68B 2001/042
 - • {Bitless bridles }
- B68B 2001/044
 - • {Bridles with arrangements for fluid flow }
- B68B 2001/046
 - • {Fabrication of reins }
- B68B 2001/048
 - • {Stretchable reins }

Project: N/A (B68C)

- U B68C 1/00

Saddling equipment for riding- or pack-animals
- B68C 2001/007
 - {Indexing codes relating to saddling equipment }
- U B68C 1/02
 - Saddles
- B68C 2001/022
 - • {Saddles for disabled persons }
- U B68C 1/04
 - • Adjustable saddles
- B68C 2001/042
 - • • {self-adjustable by means of articulations }
- B68C 2001/044
 - • • {by means of interchangeable elements }
- B68C 2001/046
 - • • {by means of discrete pre-set positions }
- B68C 2001/048
 - • • {continuously by means of screws }
- U B68C 1/12
 - Bottom pads for saddles; Saddle cloths {([B68C 1/005](#) takes precedence)}
- B68C 2001/123
 - • {Disposable numnah }
- U B68C 1/14
 - Belts or straps for saddles; Tighteners therefor {([B68C 1/005](#) takes precedence)}
- B68C 2001/142
 - • {Tensioning devices }
- B68C 2001/145
 - • • {independent from the saddle }
- U B68C 3/00

Stirrups
- B68C 2003/0008
 - {with a swivelling attachment }

- B68C 2003/0025 • {with two levels }
- B68C 2003/0033 • {with a magnet }
- B68C 2003/0041 • {with a shock absorbing device }
- B68C 2003/005 • {Foot release mechanisms }
- B68C 2003/0058 • • {with openable foot support }
- B68C 2003/0066 • • {with fully detachable parts }
- B68C 2003/0075 • {with anterior caps }
- B68C 2003/0083 • {with an anti-slip foot bar }
- B68C 2003/0091 • {with an anti-slip removable sole }

U B68C 5/00**Covers for animals when working, e.g. for protecting**

- B68C 2005/005 • {Heat protectors }

Project: N/A (B68G)**U B68G 1/00****Loose filling materials for upholstery (manufacture of the materials, see the relevant classes)**

- B68G 2001/005 • {for pillows or duvets }

U B68G 9/00**Placing upholstery springs in pockets; Fitting springs in upholstery**

- B68G 2009/005 • {Devices for turning the springs 90° inside the pockets }

Project: N/A (B81C)**B81C**

PROCESSES OR APPARATUS SPECIALLY ADAPTED FOR THE MANUFACTURE OR TREATMENT OF MICRO-STRUCTURAL DEVICES OR SYSTEMS (making microcapsules or microballoons [B01J 13/02](#); processes or apparatus peculiar to the manufacture or treatment of piezo-electric, electrostrictive or magnetostrictive element per se [H01L 41/22](#))

NOTES

This subclass does not cover:

- processes or apparatus for the manufacture or treatment of purely electrical or electronic devices, which are covered by section H, e.g. group [H01L 21/00](#);
- processes or apparatus involving the manipulation of single atoms or molecules, which are covered by group [B82B 3/00](#).

In this subclass, local "residual" subgroups, e.g. [B81C 1/00126](#), are used with the following purpose.

When classifying a document which does not fit in any of a set of subgroups with the same dot-level, the document should be classified in the residual group, if present, and not in the group at the hierarchical level one dot above.

In the example, the document shall be classified in [B81C 1/00126](#) and not in [B81C 1/00023](#) as [B81C 1/00126](#) is "residual" to [B81C 1/00031](#)-[B81C 1/00119](#)

U B81C 1/00**Manufacture or treatment of devices or systems in or on a substrate ([B81C 3/00](#) takes precedence)**

- U B81C 1/00015 • { for manufacturing micro-systems}
- B81C 1/00261 • • { Processes for packaging MEMS devices (MEMS packages [B81B7/00P](#) [B81B 7/0032](#), packaging of smart-MEMS [B81C 1/0023](#))}
- U B81C 1/00436 • { Shaping materials, i.e. techniques for structuring the substrate or the layers on the substrate}
- U B81C 1/00444 • • { Surface micromachining, i.e. structuring layers on the substrate}
- B81C 2001/00452 • • • {involving subtractive techniques other than etching}

- U B81C 1/00523 • • { Etching material}
- B81C 1/00547 • • • { Etching processes not provided for in groups [B81C 1/00531](#) to ~~B81C1/00F6P~~ [B81C 1/00539](#)}
- U B81C 2001/00722 • {Multistep processes for the planarisation of structures (planarising depositions [C23C](#), [H01L](#))}
- U B81C 2203/00 Forming micro-structural systems**
- U B81C 2203/03 • Bonding two components
- B81C 2203/038 • • Bonding techniques not provided for in [B81C 2203/031](#) to ~~L81C203/03S~~ [B81C 2203/037](#)

Project: N/A (C01B)

- U C01B 13/00 Oxygen; Ozone; Oxides or hydroxides in general**
- C01B 13/02 • Preparation of oxygen(~~{ enrichment of a gaseous mixture, in particular air, in oxygen or separation of oxygen from a gaseous mixture by an adsorption process B01D63/03 }~~; by liquefying [F25J](#))
- U C01B 13/10 • Preparation of ozone
- C01B 13/11 • • by electric discharge
- NOTE**
In groups [C01B 13/11](#) and ~~C01B-13/11-B~~ [C01B13/11B](#), additional features relating to the preparation of ozone by electrical discharge are indexed with codes chosen from [C01B 2201/00](#) to [C01B 2201/90](#) .
- U C01B 31/00 Carbon; Compounds thereof({ [C01B 6/00](#) } , [C01B 21/00](#) , [C01B 23/00](#) take precedence; percarbonates [C01B 15/10](#) ; carbon black [C09C 1/48](#) ; gas carbon production [C10B](#))**
- U C01B 31/02 • Preparation of carbon(by using ultra high pressure, e.g. for the formation of diamonds, [B01J 3/06](#) ; by crystal growth [C30B](#)); Purification;{After-treatment}
- U C01B 31/04 • • Graphite, including modified graphite e.g. graphitic oxides, intercalated graphite, expanded graphite or graphene
- NOTE**
In groups [C01B 31/04](#) to [C01B 31/0492](#) it is desirable to add indexing codes for structural aspects or properties of graphene. The indexing codes are chosen from [C01B 2204/00](#) to [C01B 2204/32](#)
- C01B 31/0415 • • • {Intercalation}
- WARNING**
Group [C01B 31/0415](#) is not complete pending a reclassification. See also group ~~C01B-31/00-D~~ [C01B31/00D](#)
- U C01B 33/00 Silicon; Compounds thereof({ [C01B 6/00](#) } , [C01B 21/00](#) , [C01B 23/00](#) take precedence; persilicates [C01B 15/14](#) ; carbides [C01B 31/36](#))**
- U C01B 33/20 • Silicates(persilicates [C01B 15/14](#) ; { containing aluminium [C01B 33/26](#) })
- C01B 33/32 • • Alkali metal silicates({ ~~C01B-33/20-B~~ [C01B33/20B](#) } , [C01B 33/26](#) take precedence]

Project: N/A (C01C)

U C01C 1/00

Ammonia; Compounds thereof {([C01C 3/08](#), [C01C 3/14](#), [C01C 3/16](#), [C01C 3/20](#) take precedence)}

NOTE

Complex ammine salts, e.g. [Pd(NH₃)₄]Cl₂, are { also} classified in the relevant groups of subclasses [C01D](#) to [C01G](#), according to the metal

U C01C 1/02

- Preparation, {purification} or separation of ammonia

U C01C 1/08

- • Preparation of ammonia from nitrogenous organic substances

C01C 1/083

- • • {from molasses (treatment of molasses in general ~~E13J~~[C13J](#))}

Project: N/A (C01G)

C01G

COMPOUNDS CONTAINING METALS NOT COVERED BY SUBCLASSES [C01D](#) OR [C01F](#) (metal hydrides { monoborane, diborane or addition complexes thereof} [C01B 6/00](#); salts of oxyacids of halogens [C01B 11/00](#); peroxides, salts or peroxyacids [C01B 15/00](#); thiosulfates, dithionites, polythionates [C01B 17/64](#); compounds containing selenium, or tellurium [C01B 19/00](#); binary compounds of nitrogen with metals [C01B 21/06](#); azides [C01B 21/08](#); { compounds containing nitrogen, other non-metals and metal [C01B 21/082](#)}; metal amides [C01B 21/092](#); nitrites [C01B 21/50](#); { compounds of noble gases [C01B 23/0005](#)}; phosphides [C01B 25/08](#); salts of oxyacids of phosphorus [C01B 25/16](#); carbides [C01B 31/30](#); compounds containing silicon [C01B 33/00](#); compounds containing boron [C01B 35/00](#); compounds having molecular sieve properties but not having base-exchange properties [C01B 37/00](#); compounds having molecular sieve and base-exchange properties, e.g. crystalline zeolites, [C01B 39/00](#); cyanides [C01C 3/08](#); salts of cyanamide [C01C 3/16](#); thiocyanates [C01C 3/20](#))

WARNING

Groups [C01G 51/30](#) to [C01G 51/70](#) and [C01G 53/40](#) to [C01G 53/70](#) do not correspond to former or current IPC-groups. The concordance CPC : IPC is as follows: - [C01G 51/30](#) - ~~51/70~~[C01G 51/70](#) : [C01G 51/00](#) - [C01G 53/40](#) - ~~53/70~~[C01G 53/70](#) : [C01G 53/00](#)

Project: N/A (C01P)

C01P 2006/00

Physical properties of inorganic compoundsNOTES

Compounds having molecular sieve properties are classified in ~~E01B 37/00~~[C01B 37/00](#), ~~39/00~~[C01B 39/00](#).

The following codes are only to be used for physical values deviating significantly from the average usual values.

Project: N/A (C02F)

U C02F 1/00

Treatment of water, waste water, or sewage([C02F 3/00](#) to [C02F 9/00](#) take precedence)

C02F 2001/007

- {Processes including a sedimentation step}

U C02F 1/42

- by ion-exchange(ion-exchange in general [B01J](#))

NOTE

When classifying in group [C02F 1/42](#) , details of ion-exchangers can be further indexed by using indexing codes chosen from [C02F 2001/422](#) to [C02F 2001/427](#)

- C02F 2001/422 • • {using anionic exchangers}
- C02F 2001/425 • • {using cation exchangers}
- C02F 2001/427 • • {using mixed beds}
- U C02F 1/46 • by electrochemical methods
- U C02F 1/461 • • by electrolysis
- U C02F 1/46104 • • • {Devices therefor; Their operating or servicing}
- U C02F 1/46109 • • • • {Electrodes}

NOTE

When classifying in group [C02F 1/46109](#) , details of devices for electrolysis can be further indexed by using indexing codes chosen from [C02F 2001/46119](#) to [C02F 2001/46166](#)]

- C02F 2001/46119 • • • • • {Cleaning the electrodes}
- C02F 2001/46123 • • • • • {Movable electrodes}
- C02F 2001/46128 • • • • • {Bipolar electrodes}
- C02F 2001/46133 • • • • • {characterised by the material}
- C02F 2001/46138 • • • • • • {Electrodes comprising a substrate and a coating}
- C02F 2001/46142 • • • • • • • {Catalytic coating}
- C02F 2001/46147 • • • • • • • {Diamond coating}
- C02F 2001/46152 • • • • • {characterised by the shape or form(electrodes in particulate form or with conductive or non-conductive particles between them [C02F 1/46114](#))}
- C02F 2001/46157 • • • • • • {Perforated or foraminous electrodes}
- C02F 2001/46161 • • • • • • • {Porous electrodes}
- C02F 2001/46166 • • • • • • • {Gas diffusion electrodes}
- C02F 2001/46171 • • • • • • • {Cylindrical or tubular shaped}
- U C02F 1/4618 • • • • {for producing "ionised" acidic or basic water}

NOTE

When classifying in group [C02F 1/4618](#) , details relating to the production of "ionised" acidic or basic water using electrolysis devices can be further indexed by using indexing codes chosen from [C02F 2001/46185](#) to [C02F 2001/46195](#)

- C02F 2001/46185 • • • • • {only anodic or acidic water, e.g. for oxidizing or sterilizing}
- C02F 2001/4619 • • • • • {only cathodic or alkaline water, e.g. for reducing}
- C02F 2001/46195 • • • • • {characterised by the oxidation reduction potential(ORP)}
- U C02F 1/48 • with magnetic or electric fields([C02F 1/46](#) takes precedence)
- C02F 1/484 • • {using electromagnets}

WARNING

Not complete pending the completion of a reclassification, see also [C02F 1/48](#) and ~~C02F 1/48~~ **C02F1/48C**

- C02F 1/50 • by addition or application of a germicide or by oligodynamic treatment({ ~~C02F 1/46~~ **H** ~~C02F1/46H~~, [C02F 1/467](#) , [C02F 1/76](#) take precedence })
- U C02F 1/52 • by flocculation or precipitation of suspended impurities({ [C02F 1/463](#) takes precedence })
- C02F 2001/5218 • • ~~Crystallization~~ {Crystallization}

- U C02F 3/00 Biological treatment of water, waste water, or sewage**(({ [C02F 1/006](#) takes precedence })
- C02F 2003/001 · {using granular carriers or supports for the microorganisms}
 - C02F 2003/003 · · {using activated carbon or the like}
 - C02F 2003/008 · {using anaerobic baffled reactors}

Project: N/A (C03B)

- U C03B 5/00 Melting in furnaces; Furnaces so far as specially adapted for glass manufacture**
- U C03B 5/16 · Special features of the melting process; Auxiliary means specially adapted for glass-melting furnaces
 - C03B 5/163 · · {Electrochemical treatments, e.g. to prevent bubbling or to create bubbles([C03B5/169](#) [C03B 5/1672](#) , [C03B 5/185](#) take precedence)}

Project: N/A (C04B)

- U C04B 28/00 Compositions of mortars, concrete or artificial stone, containing inorganic binders or the reaction product of an inorganic and an organic binder, e.g. polycarboxylate cements**

NOTE

While using Combination Sets in this main group, the presence of an organic binder is indicated with symbols chosen from group [C04B 24/00](#) , and the presence of a supplementary inorganic binder with symbols chosen from groups [C04B 7/00](#) to [C04B 12/00](#)

- C04B 28/34 · containing cold phosphate binders

NOTE

While using Combination Sets in this main group, the presence of a reactive or reacted oxide is indicated with symbols chosen from [C04B 14/06](#) and [C04B 14/30](#) (and subgroups), except for boron oxide ([C04B 22/0013](#)) and oxides of the alkali or alkaline-earth metals, with the exception of magnesium ([C04B 22/062](#) and [C04B 22/064](#)), e.g. a composition containing a mixture of phosphoric acid, AlCr phosphate and magnesium oxide will be classified in [C04B 28/346](#) and will be indexed with codes [C04B 14/303](#) , [C04B 14/304](#) and [C04B 14/30 L](#) [C04B14/30L](#) . "Phosphates" includes monobasic and dibasic phosphates

- C04B 33/00 Clay-wares(monolithic refractories or refractory mortars [C04B 35/66](#) ; porous products [C04B 38/00](#))**

NOTE

In groups [C04B 33/00](#) to [C04B 33/36](#) , from 01-10-2008 onwards, the indexing codes of groups [C04B 2235/00](#) to [C04B 2235/9646](#) are used (with the exception of [C04B 2235/34 H](#) [C04B2235/34H](#) , [C04B 2235/602 N](#) [C04B2235/602N](#) , [C04B 2235/604](#) and [C04B 2235/9661](#)) to identify aspects relating to ceramic starting mixtures and sintered ceramic products

U C04B 35/00

Shaped ceramic products characterised by their composition{(porous ceramic products [C04B 38/00](#) ; ceramic articles characterised by particular shape, see the relevant classes, e.g. linings for casting ladles, tundishes, cups or the like [B22D 41/02](#) ; ceramic substrates for microelectronic semi-conductors [H01L 23/15](#))}; Ceramics compositions <explanation>containing free metal bonded to carbides, diamond, oxides, borides, nitrides, silicides, e.g. cermets, or other metal compounds, e.g. oxynitrides or sulfides other than as macroscopic reinforcing agents [C22C](#);{shaping of ceramics [B28B](#)}</explanation>; Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products{(Chemical preparation of powders of inorganic compounds [C01](#); infiltration of sintered ceramic preforms with molten metal [C04B 41/51](#))}

NOTES

In this group, in the absence of an indication to the contrary, compositions are classified according to the constituent present in the highest proportion by weight.

In this group, magnesium is considered as an alkaline earth metal.

In this group, a composite is considered as a sintered material containing more than one phase, where the secondary phases are not resulting from sintering aids

In this group, fine ceramics are considered as products having a polycrystalline, fine-grained microstructure, e.g. of dimensions below 100 micrometers.

The production of ceramic powder is classified in this group in so far as it relates to the preparation of powder with specific characteristics.

In groups [C04B 35/00](#) to [C04B 35/83](#) , from 01-01-2005 onwards, the indexing codes of groups [C04B 2235/00](#) to [C04B 2235/9692](#) are used to identify aspects relating to ceramic starting mixtures and sintered ceramic products

WARNING

Attention is drawn to WARNINGS 3 and 4 after subclass title

C04B 35/622

- Forming processes; Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products

NOTE

In groups [C04B 35/622](#) and subgroups indexing codes are given for aspects relating to the preparation, properties or mechanical treatment or to heat treatments of green bodies. The codes are chosen from [C04B 2235/60](#) to ~~C04B 2235/66~~ **P C04B2235/66P**

C04B 37/00

Joining burned ceramic articles with other burned ceramic articles or other articles by heating(laminated products [B32B](#), [E04C](#);{ soldering and welding materials [B23K 35/24](#))}

NOTE

In groups [C04B 37/00](#) to [C04B 37/04](#) , from 01-10-2008 onwards, features relating to interlayers, additional compositional information or further processing are indexed with codes chosen from [C04B 2237/00](#) to ~~C04B 2237/70~~ **R C04B2237/70R**

WARNING

Groups [C04B 37/005](#) , [C04B 37/006](#) , [C04B 37/025](#) and [C04B 37/026](#) are no longer used for classification as from September 1, 2008. Aspects relating to interlayers are from that date indexed by codes chosen from [C04B 2237/02](#) to [C04B 2237/16](#)

C04B 37/04 • with articles made from glass

WARNINGS

N0812]

Groups ~~C04B 37/04~~ ~~B~~ ~~C04B37/04B~~, [C04B 37/045](#) and [C04B 37/047](#) are not complete, see also [C04B 37/04](#)

U C04B 2235/00 Aspects relating to ceramic starting mixtures or sintered ceramic products

NOTE

In this group, magnesium is considered as an alkaline earth metal.

U C04B 2235/02 • Composition of constituents of the starting material or of secondary phases of the final product

NOTE

Indexing codes [C04B 2235/02](#) to [C04B 2235/5481](#) are to be used only if the aspect is not trivial or not standard, e.g. if water is used as a mixing medium for a powder, whereas normally an organic mixing medium is used or if not the standard alpha-alumina is used to make an alumina ceramic but gamma-alumina in stead.

U C04B 2235/30 • • Constituents and secondary phases not being of a fibrous nature

NOTE

1. Indexing codes [C04B 2235/30](#) to [C04B 2235/549](#) are to be given to constituents or additives only if:

a. it is not obvious from the end product as such that the constituent or additive has been used for making the end product.

Examples:

- in case spinel is made from a certain clay in stead of from alumina and silica, the clay is coded, - when calcium zirconate and titania are used to make calcium zirconium titanate, a code should be given for the calcium zirconate constituent while normally calcium oxide or calcium carbonate and zirconia are used. The titania constituent of the starting mixture is not coded since it is to be expected that a single metal oxide is used to make a mixed metal oxide. b. it is not obvious from the "invention information" symbols that this constituent has been used to make the end product, e.g. if the "invention information" symbol given indicates that a zirconia-alumina composite is prepared it is common practice that zirconia and alumina constituents have been used and thus no codes for zirconia or alumina are given. In the same way, if an allocation indicates that an oxide ceramic contains carbon, no code for the addition of carbon is given. However for an alumina composite product comprising titania, the main symbol for composites based on alumina is given together with an indexing code for titania.

2. In groups [C04B 2235/32](#) to [C04B 2235/349](#) oxides are considered to comprise also metal salts from which they are formed by heating.

U C04B 2235/38 • • • Non-oxide ceramic constituents or additives

U C04B 2235/3852 • • • • Nitrides, e.g. oxynitrides, carbonitrides, oxycarbonitrides, lithium nitride, magnesium nitride

C04B 2235/3856 • • • • • Carbonitrides, e.g. titanium carbonitride, zirconium carbonitride

WARNING

When indexing in group [C04B 2235/3856](#) indexing according to the metal is also made in groups [C04B 2235/3865](#) to ~~C04B 2235/38~~ ~~H~~ ~~C04B2235/38H~~

Project: N/A (C07C)

- U C07C 2103/00** **Systems containing at least three condensed rings**
- U C07C 2103/02 • Ortho- or ortho- and peri-condensed systems
- U C07C 2103/40 • • containing four condensed rings
- U C07C 2103/42 • • • containing only six-membered rings
- U C07C 2103/44 • • • • (Hydrogenated) naphthacenes
- C07C 2103/46 • • • • 1,4,4a,5,5a,6,11,12a,6,11,12a-Octahydronaphthacenes, e.g. tetracyclines
- C07C 301/00** **Compounds containing carbon together with sulfur, selenium, or tellurium, with or without hydrogen, halogens, oxygen, or nitrogen**
 - ~~C07C 409/00~~ (irradiation products of cholesterol or its derivatives [C07C 401/00](#); vitamin D derivatives, 9-10-seco cyclopenta[a]phenanthrene or analogues obtained by chemical preparation without irradiation [C07C 401/00](#); derivatives of cyclohexane or of a cyclohexene { or of cyclohexadiene}, having a side-chain containing an acyclic unsaturated part of at least four carbon atoms, this part being directly attached to the cyclohexane or cyclohexene { or cyclohexadiene} rings [C07C 403/00](#); protaglandins or derivatives thereof [C07C 405/00](#); peroxy compounds [C07C 407/00](#), [C07C 409/00](#))
[C07C 2531/00](#)
- U C07C 2527/00** **Catalysts comprising the elements or compounds of halogens, sulfur, selenium, tellurium, phosphorus or nitrogen; Catalysts comprising carbon compounds**
- NOTES**
- Metal catalysts or metal oxide catalysts activated or conditioned by halogens, sulfur or phosphorus, or compounds thereof are indexed in the appropriate groups for metal or metal oxide catalysts.
- The indexing codes of group [C07C 2527/00](#) are associated with groups [C07C 1/00](#) to [C07C 6/00](#).
- U C07C 2527/14 • Phosphorus; Compounds thereof
- U C07C 2527/16 • • containing oxygen
- U C07C 2527/167 • • • Phosphates or other compounds comprising the anion $(\text{PnO}_{3n+1})(n+2)-$
- C07C 2527/173 • • • • Phosphoric acid or other acids with the formula $\text{Hn}+2\text{PnO}-3n2\text{PnO}_{3n}+1$

Project: N/A (C07H)**C07H**

SUGARS; DERIVATIVES THEREOF(derivatives of aldonic or saccharic acids [C07C](#) , [C07D](#) ; aldonic acids, saccharic acids [C07C 59/105](#) , [C07C 59/285](#) ; cyanohydrins [C07C 255/16](#) ; glycals [C07D](#) ; compounds of unknown constitution [C07G](#) ; polysaccharides, derivatives thereof [C08B](#) ; sugar and starch industry [C13](#))

NOTES

This subclass covers compounds containing saccharide radicals. (see the definitions in Note 3. below).

This subclass does not cover polysaccharides which for the purpose of this subclass are defined as having more than five saccharide radicals attached to each other by glycosidic linkages.

In this subclass, the following expressions are used with the meaning indicated:

- "saccharide radical" which is derived from acyclic polyhydroxy-aldehydes or acyclic polyhydroxy-ketones, or from their cyclic tautomers, by removing hydrogen atoms or by replacing hetero bonds to oxygen by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium, or tellurium, in accordance with either of the following definitions:

It consists of an uninterrupted carbon skeleton and oxygen atoms directly attached thereto, and;
is considered to be terminated by every bond to a carbon atom of a cyclic structure and by every bond to a carbon atom having three bonds to hetero atoms, e.g. ester or nitrile radicals, and;
contains within the carbon skeleton an unbranched sequence of at the most six carbon atoms in which at least three carbon atoms at least two in the case of a skeleton having only four carbon atoms have one single bond to an oxygen atom as the only hetero bond {but at least three for compounds in which at least one carbon to oxygen bond involved in a) or b) has been replaced by a carbon bond to a hetero atom other than oxygen} , and
in a cyclic or acyclic sequence, at least one other carbon atom {that is not doubly bound to a carbon atom, e.g. glycals} has two single bonds to oxygen atoms as the only hetero bonds, or
in an acyclic sequence, at least one other carbon atom {that is not doubly bound to a carbon atom} has one double bond to an oxygen atom as the only hetero bond;
{has in the gamma or delta position in respect to the carbon atom bearing those two single bonds or this double bond to oxygen a carbon atom bearing one single bond to oxygen}
{It is also a radical derived from a radical as defined in a. above by replacing at the most four of the specified hetero bonds to oxygen by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium, or tellurium;}
- "heterocyclic radical" or "hetero ring" is considered to exclude saccharide radicals as defined above

Attention is drawn to the notes following the title of class [C07](#) .

The conditions 3) a) or 4) have not to be fulfilled in respect to **C07H19/00E1**

Where a compound may exist --- to be written in Kekulé form

For the purpose of this subclass, the following definitions apply:

A "hetero ring" is a ring having at least one halogen, nitrogen, oxygen, sulfur selenium or tellurium atom as a ring member;

Two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed. The term "bridged" denotes the presence of at least one fusion other than ortho, peri and spiro;

A "condensed ring system" is a ring system in which all rings are condensed among themselves;

The "number of relevant rings" in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;

The "relevant rings" in a condensed system are chosen according to the following criteria consecutively:

- Lowest number of ring members
- Highest number of hetero atoms as ring members
- Lowest number of members shared with other rings
- Last place in the classification scheme

In the absence of specific places, hydrogenated or condensed hetero rings are classified with the parent ring

In the absence of an indication to the contrary, a compound is classified in the last appropriate place

Groups [C07H 3/04](#) and [C07H 3/06](#) take precedence over [C07H 3/08](#) to **C07H15/18D** -with the exception of [C07H 13/06](#) , **C07H 13/12 U****C07H13/12U** , **C07H 15/00 F****C07H15/00F** , [C07H 15/06](#) , [C07H 15/08](#) , **C07H15/10D2** , [C07H 15/16](#) - and over [C07H 15/20](#) as far as a phenyl radical is involved; the purpose of this inversion of the last place rule is to avoid multiple classification

for documents describing compounds, having a complement inhibiting activity or belonging to the "blood-group substances" occurring in tissue fluids, in secretions and at cell and tissue surfaces (e.g. antigen determinants) or forming part of cell membranes. Documents in which both disaccharides and oligosaccharides of this kind are described are only classified in [C07H 3/06](#) .

Group [C07H 9/00](#) takes precedence over [C07H 11/00](#) to [C07H 15/00](#) when at least one ring heteroatom is different from oxygen, however anhydro derivatives of nucleosides and nucleotides [C07H 19/00](#) .

Group [C07H 15/252](#) takes precedence over [C07H 17/00](#) when the naphthalene ring is further condensed to a heteroring, and over [C07H 15/26](#) when the carbocyclic ring is substituted by a hetero ring]

C07H 5/00

Compounds containing saccharide radicals in which hetero bonds to oxygen have been replaced by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium or tellurium{ when the hetero-atom is substituted [C07H 11/00](#) , [C07H 13/00](#) , [C07H 15/00](#) , [C07H 17/00](#) ; when the hetero-atom(s) form(s) part of a heteroring [C07H 9/00](#) , [C07H 19/00](#) , [C07H 21/00](#) ; ([C07H 3/04](#) , [C07H 3/06](#) , ~~C07H3/06H~~ take precedence)}

U C07H 5/04

• to nitrogen

C07H 5/06

• • Aminosugars{ NH-acyl [C07H 11/00](#) , [C07H 13/00](#) ; NHR or NR2 [C07H 15/00](#) ; ~~N-hetero-atom C07H16/00~~ }

C07H 15/00

Compounds containing hydrocarbon or substituted hydrocarbon radicals directly attached to hetero atoms of saccharide radicals{ acylated on hetero atoms of the saccharide radical [C07H 13/00](#) ; derivatives of bis methylenedioxy carbohydrates ~~C07H9/04D~~ ; ([C07H 3/04](#) , [C07H 3/06](#) , ~~C07H13/12U~~ take precedence; [C07H 9/00](#) takes precedence when at least one ring heteroatom is different from oxygen, however anhydro derivatives of nucleosides and nucleotides [C07H 19/00](#))}

NOTE

In this group, acyl radicals directly attached to hetero atoms of the saccharide radicals are not considered as substituted hydrocarbon radicals.

C07H 15/26

• Acyclic or carbocyclic radicals, substituted by hetero rings,{e.g. bleomycins, phleomycins, victomycins, zarbamycins(~~C07H15/00F~~ and ~~C07H15/10D2~~ take precedence; [C07H 15/252](#) takes precedence when the naphthalene ring is further condensed to a heteroring)}

C07H 19/00

Compounds containing a hetero ring sharing{only}one ring hetero atom with the saccharide radical{the ring-heteroatom of the saccharide radical is not to be taken into consideration}; Nucleosides; Mononucleotides{or mononucleosides}; Anhydro-derivatives thereof{(~~C07H15/10D2 takes precedence; acetals C07H9/04D ; C07H15/10D2 takes precedence; acetals ;~~ intermediate for methods of chemical engineering [C07H21/00C4](#) ; nucleosides, nucleotides bonded to or "associated" with macromolecular compounds [C07H21/00F](#) ; nucleosides, nucleotides bonded to or "associated" with organic residues which make them suitable to be qualitatively or quantitatively retrieved [C07H21/00G](#))}

U C07H 21/00

Compounds containing two or more mononucleotide units,{having separate phosphate or polyphosphate groups linked by saccharide radicals of nucleoside groups(~~C07H15/10D2~~ takes precedence)}e.g. nucleic acids

C07H 21/02

• with ribosyl as saccharide radical{(~~C07H21/00C4 takes precedence~~)}

C07H 21/04

• with deoxyribosyl as saccharide radical{(~~C07H21/00C takes precedence~~)}

C07H 23/00

Compounds containing boron, silicon or a metal, e.g. chelates, vitamin B12(esters with inorganic acids, [C07H 11/00](#) ; metal salts: see parent compounds)~~((C07H15/10D2 takes precedence))~~

Project: N/A (C07K)

C07K 16/00

Immunoglobulins [IGs], e.g. monoclonal or polyclonal antibodies{(antibodies with enzymatic activity, e.g. abzymes [C12N 9/0002](#))}

NOTES

Documents characterised by the technical aspects of the construction of an antibody or fragment thereof, should be classified in [C07K 16/00](#) to [C07K 16/065](#) or [C07K 16/46](#) to ~~C07K 16/46-D~~[C07K16/46D](#)

Documents not characterised by the technical aspects of the construction of an antibody or fragment thereof, should be classified only according to their specificity, where necessary accompanied by one or more appropriate indexing codes

Project: N/A (C08C)

U C08C 19/00

Chemical modification of rubber (crosslinking agents, other than provided for by [C08C 19/30](#), [C08K](#))

NOTE

In the absence of an indication to the contrary a process is classified in the last appropriate place

C08C 2019/09

• ~~Metathese~~[{Metathese}](#)

Project: N/A (C08F)

C08F 6/00

Post-polymerisation treatments([C08F 8/00](#) takes precedence; of conjugated diene rubbers [C08C](#))

NOTE

1. In groups [C08F 6/00](#) to [C08F 6/28](#) the treatment of specific polymers is indicated using the subdivision of [C08L 23/00](#) to [C08L 57/12](#) in the form of C-Sets. Example: ([C08F 6/12](#) , [C08L 25/06](#)) 2. Groups ~~C08F 6/00-B~~[C08F6/00B](#), ~~C08F 6/00-D~~[C08F6/00D](#), ~~C08F 6/00-W~~[C08F6/00W](#), [C08F 6/02](#) , [C08F 6/04](#) take precedence over the other groups.

C08F 136/00

Homopolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds([C08F 132/00](#) takes precedence)

NOTE

In [C08F 136/00](#) to [C08F 136/22](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/00](#) to [C08F 2/58](#) in the form of C-Sets; the nature of the catalyst may be indicated using the subdivision of [C08F 4/00](#) to [C08F 4/60](#) , [C08F 4/62](#) , [C08F 4/64](#) , [C08F 4/642](#) , ~~C08F 4/642-B~~[C08F4/642B](#), [C08F 4/643](#) or [C08F 4/68](#) to [C08F 4/82](#) in the form of C-Sets. Example: ([C08F 136/18](#) , [C08F 2/26](#))

U C08F 216/00

Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an alcohol, ether, aldehydo, ketonic, acetal or ketal radical

U C08F 216/02

• by an alcohol radical

- U C08F 216/04
 - • Acyclic compounds
- U C08F 216/08
 - • • Allyl alcohol
- C08F 2216/085
 - • • • {Allyl alcohol alkoxylate}
- U C08F 216/12
 - by an ether radical
- U C08F 216/14
 - • Monomers containing only one unsaturated aliphatic radical
- U C08F 216/1416
 - • • {Monomers containing oxygen in addition to the ether oxygen}
- C08F 2216/1425
 - • • • {Monomers containing side chains of polyether groups}
- C08F 2216/1433
 - • • • • {Monomers containing side chains of polyethyleneoxide groups}
- C08F 2216/1441
 - • • • • {Monomers containing side chains of polypropyleneoxide groups}
- C08F 2216/145
 - • • • • {Monomers containing side chains of polyethylene-co-propyleneoxide groups}
- U C08F 216/1466
 - • • {Monomers containing sulfur}
- C08F 2216/1475
 - • • • {Monomers containing sulfur and oxygen}
- C08F 2216/1483
 - • • • {Monomers containing sulfur and nitrogen}
- C08F 2216/1491
 - • • • {Monomers containing sulfur, oxygen and nitrogen}
- U **C08F 218/00**

Copolymers having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, of carbonic acid or of a haloformic acid
- C08F 2218/20
 - {Esters containing halogen}
- C08F 2218/22
 - {Esters containing nitrogen}
- C08F 2218/24
 - {Esters of carbonic or haloformic acids}
- C08F 2218/245
 - • {Esters of carbonic or haloformic acids, e.g. allyl carbonate}
- U **C08F 220/00**

Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride ester, amide, imide or nitrile thereof
- U C08F 220/02
 - Monocarboxylic acids having less than ten carbon atoms; Derivatives thereof
- U C08F 220/10
 - • Esters
- U C08F 220/12
 - • • of monohydric alcohols or phenols
- U C08F 220/16
 - • • • of phenols or of alcohols containing two or more carbon atoms
- U C08F 220/18
 - • • • • with acrylic or methacrylic acids
- C08F 2220/1808
 - • • • • • {Ethyl or undefined short-chain (meth)acrylate}
- C08F 2220/1816
 - • • • • • • {Propyl(meth)acrylate}
- C08F 2220/1825
 - • • • • • • {Butyl(meth)acrylate}
- C08F 2220/1833
 - • • • • • • {Pentyl or undefined long chain (meth)acrylate}
- C08F 2220/1841
 - • • • • • • {Hexyl(meth)acrylate}
- C08F 2220/185
 - • • • • • • {Heptyl(meth)acrylate}
- C08F 2220/1858
 - • • • • • • {(iso)Octyl(meth)acrylate}
- C08F 2220/1866
 - • • • • • • {C9-(meth)Acrylate}
- C08F 2220/1875
 - • • • • • • {(iso)Decyl(meth)acrylate}
- C08F 2220/1883
 - • • • • • • {Lauryl(meth)acrylate}
- C08F 2220/1891
 - • • • • • • {Longer chain (meth)acrylate}
- U C08F 220/26
 - • • Esters containing oxygen in addition to the carboxy oxygen
- U C08F 220/28
 - • • • containing no aromatic rings in the alcohol moiety

	C08F 2220/281	• • • • {and containing only one oxygen}
	C08F 2220/282	• • • • {and containing two or more oxygen atoms}
	C08F 2220/283	• • • • {and containing one or more carboxylic moiety in the chain}
	C08F 2220/285	• • • • {and containing an ether chain in the alcohol moiety}
	C08F 2220/286	• • • • • {and containing polyethylenoxide in the alcohol moiety}
	C08F 2220/287	• • • • • {and containing polypropylenoxide in the alcohol moiety}
	C08F 2220/288	• • • • • {and containing polypropylen-co-ethylen oxide in the alcohol moiety}
U	C08F 220/30	• • • • containing aromatic rings in the alcohol moiety
	C08F 2220/301	• • • • • {and one oxygen in the alcohol moiety}
	C08F 2220/302	• • • • • {and two or more oxygen atoms in the alcohol moiety}
	C08F 2220/303	• • • • • {and one or more carboxylic moieties in the chain}
	C08F 2220/305	• • • • • {and ether chain in the alcohol moiety}
	C08F 2220/306	• • • • • {and polythylenoxide chain in the alcohol moiety}
	C08F 2220/307	• • • • • {and polypropylene oxide chain in the alcohol moiety}
	C08F 2220/308	• • • • • {and polyethylene-co-propylene oxide chain in the alcohol moiety}
U	C08F 220/32	• • • • containing epoxy radicals
	C08F 2220/325	• • • • • {containing glycidyl radical}
U	C08F 220/34	• • • Esters containing nitrogen
	C08F 2220/343	• • • • {in the form of urethane links}
	C08F 2220/346	• • • • • {and further oxygen}
U	C08F 220/36	• • • • containing oxygen in addition to the carboxy oxygen
	C08F 2220/365	• • • • • {containing further carboxylic moieties}
U	C08F 220/38	• • • Esters containing sulfur
	C08F 2220/382	• • • • {and containing oxygen}
	C08F 2220/385	• • • • {and containing nitrogen}
	C08F 2220/387	• • • • {and containing nitrogen and oxygen}
U	C08F 220/52	• • Amides or imides
U	C08F 220/54	• • • Amides
U	C08F 220/58	• • • • containing oxygen in addition to the carbonamido oxygen
	C08F 2220/585	• • • • • {and containing other heteroatoms}
U	C08F 220/60	• • • • containing nitrogen in addition to the carbonamido nitrogen
	C08F 2220/603	• • • • • {and containing oxygen in addition to the carbonamido oxygen and nitrogen}
	C08F 2220/606	• • • • • {and containing other heteroatoms}
U	C08F 222/00	Copolymers of compounds having one or more unsaturated aliphatic radicals each having only one carbon-to-carbon double bond, at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof
U	C08F 222/10	• Esters
U	C08F 222/1006	• • {of polyhydric alcohols or polyhydric phenols, e.g. ethylene glycol dimethacrylat}
	C08F 2222/1013	• • • {of dialcohols}
	C08F 2222/102	• • • • {of aromatic dialcohols}
	C08F 2222/1026	• • • {of trialcohols}

	C08F 2222/1033	. . . {of aromatic trialcohols}
	C08F 2222/104	. . . {of tetraalcohols}
	C08F 2222/1046	. . . {of aromatic tetraalcohols}
	C08F 2222/1053	. . . {of pentaalcohols}
	C08F 2222/106	. . . {of aromatic pentaalcohols}
	C08F 2222/1066	. . . {Esters of polycondensation macromers}
	C08F 2222/1073	. . . {of alcohol terminated polyesters or polycarbonates}
	C08F 2222/108	. . . {of alcohol terminated polyethers}
	C08F 2222/1086	. . . {of alcohol terminated (poly)urethanes}
	C08F 2222/1093	. . . {of alcohol terminated epoxy functional polymers}
U	C08F 222/12	. . of phenols or saturated alcohols{(C08F 222/1006 takes precedence)}
U	C08F 222/14	. . . Esters having no free carboxylic acid groups
	C08F 2222/145	. . . {the ester chains containing seven or more carbon atoms}
U	C08F 222/16	. . . Esters having free carboxylic acid groups
	C08F 2222/165	. . . {the ester chains containing seven or more carbon atoms}
U	C08F 222/18	. . . Esters containing halogen
	C08F 2222/185	. . . {the ester chains containing seven or more carbon atoms}
U	C08F 222/20	. . . Esters containing oxygen in addition to the carboxy oxygen
	C08F 2222/205	. . . {the ester chains containing seven or more carbon atoms}
U	C08F 222/22	. . . Esters containing nitrogen
	C08F 2222/225	. . . {the ester chains containing seven or more carbon atoms}
U	C08F 222/24	. . . Esters containing sulfur
	C08F 2222/245	. . . {the ester chains containing seven or more carbon atoms}
U	C08F 222/30	. Nitriles
U	C08F 222/32	. . alfa-Cyano-acrylic acid; Esters thereof
	C08F 2222/321	. . . {alfa-Cyano-acrylic acid methyl ester}
	C08F 2222/322	. . . {alfa-Cyano-acrylic acid ethyl ester}
	C08F 2222/323	. . . {alfa-Cyano-acrylic acid propyl ester}
	C08F 2222/324	. . . {alfa-Cyano-acrylic acid butyl ester}
	C08F 2222/325	. . . {alfa-Cyano-acrylic acid pentyl ester}
	C08F 2222/326	. . . {alfa-Cyano-acrylic acid longer chain ester}
	C08F 2222/327	. . . {alfa-Cyano-acrylic acid alkoxy ester}
	C08F 2222/328	. . . {alfa-Cyano-acrylic acid with more than one oxygen in the ester moiety}
U	C08F 222/36	. Amides or imides
U	C08F 222/40	. . Imides, e.g. cyclic imides
	C08F 2222/402	. . . {Alkyl substituted imides}
	C08F 2222/404	. . . {the substituted imides comprising oxygen other than the carboxy oxygen}
	C08F 2222/406	. . . {the substituted imides comprising nitrogen other than the imide nitrogen}
	C08F 2222/408	. . . {the substituted imides comprising other heteroatom}
U	C08F 230/00	Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and containing phosphorus, selenium, tellurium or a metal(metal salts, e.g. phenolates or alcoholates, see the parent compounds)
U	C08F 230/04	. containing a metal
U	C08F 230/06	. . containing boron

- C08F 2230/065 • • {the monomer being a polymerisable additive}
- U C08F 230/08 • • containing silicon
- C08F 2230/085 • • {the monomer being a polymerisable additive}

Project: N/A (C08J)

- U C08J 5/00 **Manufacture of articles or shaped materials containing macromolecular substances(shaping of foodstuffs [A23P](#) ; manufacture of semi-permeable membranes [B01D 67/00](#) to [B01D 71/00](#) ; mechanical features, see the relevant classes, e.g. [B29](#))**

- U C08J 5/20 • Manufacture of shaped of ion-exchange resins [Use of macromolecular compounds as anion [B01J 41/14](#) or cation [B01J 39/20](#) exchangers]
- C08J 5/22 • • Films, membranes, or diaphragms{(ion-exchange in general, [B01J 39/18](#) - [B01J 39/22](#) , [B01J 41/12](#) - [B01J 41/16](#) , [B01J 43/00](#) , [B01J 45/00](#) , [B01J 47/12](#) - [B01J 49/00](#) ; fuel cells with polymeric electrolyte material [H01M 8/1018](#))}

NOTE

[N: Notes:

1. Membranes of which at least the ion-exchanging parts are inorganic, i.e. mixtures of non polymeric ion exchange compounds, e.g. inorganic salts, and at least one polymer are classified in [C08J 5/22](#) ; membranes based on cellulose are classified in [C08J 5/2212](#) .
2. Methods for incorporating reinforcement supports or filling bodies are classified in [C08J 5/2206](#) (the support or filling body has no ion exchange activity).
3. Groups, e.g. SO₂F, which do not have ion-exchanging properties, but which may, by simple hydrolysis in an alkaline, neutral or acid medium, be transformed into ion-exchanging groups, e.g. SO₂H, are considered as such.
4. Ion-exchanging fibrous fabrics are considered as heterogeneous membranes and are classified in [C08J 5/2275](#) ; they include composite membranes, mixtures of two or more (ion exchange) polymers.
5. Membranes obtained by homogeneous melting or from a solution are considered as homogeneous, even if the membrane contains (after solidification of the melt or the solution) heterogeneous elements, e.g. filling bodies, supports e.g. in the form of fabrics, or the like, i.e. the ion exchange resin forms the membrane.
6. Reactions which change the nature of the ion-exchanging groups, introduction of ion-exchanging groups, after-treatment (membrane has already been formed) are classified in ~~C08J 5/22~~ **C08J5/22D**.
7. Quaternising reactions are not considered as after-treatments.

- C08J 9/00 **Working-up of macromolecular substances to porous or cellular articles or materials; After-treatment thereof(-~~mechanical aspects~~ [B29D27/00](#) ÷ ~~mechanical aspects~~ [B29C 44/00](#) ; foamed polymeric products of isocyanates or isothiocyanates characterised by the monomers or catalysts used [C08G 18/00](#))**

- U C08J 2201/00 **Foams characterised by the foaming process**

- C08J 2201/04 • characterised by the elimination of a liquid or solid component, e.g. precipitation, leaching out, evaporation

NOTE

When the elimination is performed in several steps, only the first step is indicated using codes [C08J 2201/042](#) to ~~M08J201/05444~~ [C08J 2201/0547](#)

C08J 2331/00

Characterised by the use of copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, or carbonic acid, or of a haloformic acid (~~of hydrolysed polymers M09J329/00~~ of hydrolysed polymers C08J 2329/00)

Project: N/A (C08K)

C08K

USE OF INORGANIC OR NON-MACROMOLECULAR ORGANIC SUBSTANCES AS COMPOUNDING INGREDIENTS (pesticides, herbicides [A01N](#); pharmaceuticals, cosmetics [A61K](#); explosives [C06B](#); paints, inks, varnishes, dyes, polishes, adhesives [C09](#); lubricants [C10M](#); detergents [C11D](#); artificial filaments or fibres [D01F](#); textile treating compositions [D06](#))

NOTES

1. The use of an ingredient for a specific polymer is classified by adding, in a C-set, to the group symbol of [C08K](#), the subdivision of [C08L 1/00](#) to [C08L 99/00](#). Example: Polystyrene containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)). 2. From April 2012, the use of an ingredient for a specific polymer is classified by adding, in a C-set, to the group symbol of [C08K](#), the subdivision of [C08L 1/00](#) to [C08L 99/00](#). Example: Polystyrene containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)). 3. In this subclass, in the absence of an indication to the contrary, an ingredient is classified in the last appropriate place.

In this subclass:

- a mixture of ingredients is classified in the most indented group covering all the

essential ingredients of the mixture, e.g.:

a mixture of a monohydric and a polyhydric alcohol [C08K 5/05](#)

a mixture of two polyhydric alcohols [C08K 5/053](#)

a mixture of an alcohol and an ether [C08K 5/04](#)

a mixture of an ether and an amine [C08K 5/00](#)

a mixture of an amine and a metal [C08K 13/02](#)

{ This note is applied only for mixtures with more than three essential ingredients. Mixtures with two or three ingredients are classified in the appropriate groups of [C08K](#), e.g. a mixture of Al2O3, an ether and an amine is classified in [C08K 3/22](#), [C08K 5/06](#) and [C08K 5/17](#)}

- ammonium salts are classified in the same way as metal salts

In this subclass, organic acid salts, alcoholates, phenolates or mercaptides are classified in the groups or subgroups of the parent compounds

The use of an ingredient for a specific polymer is classified by adding to the group symbol of [C08K](#) and separated therefrom by a "+" sign, the subdivision of [C08L 1/00](#) to [C08L 99/00](#).

Example: Polystyrene containing a carboxylic amide is classified in [C08K 5/20](#)+L25/06

In this subclass are considered as compounding ingredients:

inert additives

radical crosslinking agents, e.g. peroxides, S-containing vulcanisation agents

coupling agents, i.e. compounds able to improve the adhesion between filler and macromolecule

Are not considered as compounding ingredients:

chemical modifying or crosslinking agents which react via a condensation or addition mechanism (for [C08B](#) polymers [C08B](#), for diene rubbers [C08C 19/30](#), for other vinyl polymers [C08F8/-](#), for polysiloxanes [C08L 83/00](#), for other [C08G](#) polymers [C08G](#))

solvents or dispersion agents for making polymer solutions, emulsions or dispersions ([C08J 3/02](#))

blowing agents ([C08J 9/04](#))

WARNING

The following IPC group is not used in the CPC system. Subject matter covered by this group is classified in the following CPC groups:

~~C08K4/5445~~[C08K 5/5445](#) covered by [C08K 5/544](#)

U C08K 3/00

Use of inorganic ingredients

- U C08K 3/02 • Elements
- U C08K 2003/023 • • { Silicon}
- U C08K 2003/026 • • { Phosphorus}
- U C08K 3/04 • • Carbon
- U C08K 2003/045 • • • { Fullerenes}
- U C08K 3/08 • • Metals
- U C08K 2003/0806 • • • { Silver}
- U C08K 2003/0812 • • • { Aluminium}
- U C08K 2003/0818 • • • { Alkali metal}
- U C08K 2003/0825 • • • • {[N: Potassium] }
- U C08K 2003/0831 • • • { Gold}
- U C08K 2003/0837 • • • { Bismuth}
- U C08K 2003/0843 • • • { Cobalt}
- U C08K 2003/085 • • • { Copper}
- U C08K 2003/0856 • • • { Iron}
- U C08K 2003/0862 • • • { Nickel}
- U C08K 2003/0868 • • • { Osmium}
- U C08K 2003/0875 • • • { Antimony}
- U C08K 2003/0881 • • • { Titanium}
- U C08K 2003/0887 • • • { Tungsten}
- U C08K 2003/0893 • • • { Zinc}
- U C08K 3/16 • Halogen-containing compounds
- U C08K 2003/162 • • { Calcium, strontium or barium halides, e.g. calcium, strontium or barium chloride }
- U C08K 2003/164 • • { Aluminum halide, e.g. aluminium chloride}
- U C08K 2003/166 • • { Magnesium halide, e.g. magnesium chloride}
- U C08K 2003/168 • • { Zinc halides}
- U C08K 3/18 • Oxygen-containing compounds, e.g. metal carbonyls
- U C08K 3/20 • • Oxides; Hydroxides
- U C08K 3/22 • • • of metals
- U C08K 2003/2203 • • • • { of lithium}
- U C08K 2003/2206 • • • • { of calcium, strontium or barium}
- U C08K 2003/221 • • • • { of rare earth metal }
- U C08K 2003/2217 • • • • { of magnesium}
- U C08K 2003/2227 • • • • { of aluminium}
- U C08K 2003/2231 • • • • { of tin}
- U C08K 2003/2234 • • • • { of lead}
- U C08K 2003/2237 • • • • { of titanium}

U	C08K 2003/2248	. . . { of copper}
U	C08K 2003/2251	. . . { of chromium}
U	C08K 2003/2255	. . . { of molybdenum}
U	C08K 2003/2258	. . . { of tungsten}
U	C08K 2003/2262	. . . { of manganese}
U	C08K 2003/2265	. . . { of iron}
U	C08K 3/2279	. . . {of antimony}
U	C08K 2003/2282	. . . { Antimonates}
U	C08K 2003/2286	. . . { of silver}
U	C08K 2003/2289	. . . { of cobalt}
U	C08K 2003/2293	. . . { of nickel }
U	C08K 2003/2296	. . . { of zinc}
U	C08K 3/24	. . Acids; Salts thereof {(C08K 3/16 takes precedence)}
U	C08K 3/26	. . Carbonates; Bicarbonates
U	C08K 2003/262	. . . { Alkali metal carbonates}
U	C08K 2003/265	. . . { Calcium, strontium or barium carbonate}
U	C08K 2003/267	. . . { Magnesium carbonate}
U	C08K 3/28	. Nitrogen-containing compounds
U	C08K 2003/282	. { Binary compounds of nitrogen with aluminium}
U	C08K 2003/285	. { Ammonium nitrates}
U	C08K 2003/287	. { Calcium, strontium or barium nitrates}
U	C08K 3/30	. Sulfur-, selenium- or tellurium-containing compounds
U	C08K 2003/3009	. { Sulfides}
U	C08K 2003/3045	. { Sulfates}
U	C08K 2003/309	. { Sulfur containing acids}
U	C08K 3/32	. Phosphorus-containing compounds
U	C08K 2003/321	. { Phosphates}
U	C08K 2003/329	. { Phosphorus containing acids}
U	C08K 3/34	. Silicon-containing compounds
U	C08K 2003/343	. { Peroxyhydrates, peroxyacids or salts thereof}
U	C08K 3/38	. Boron-containing compounds
U	C08K 2003/382	. { and nitrogen}
U	C08K 2003/387	. { Borates}

Project: N/A (C08L)**C08L**

COMPOSITIONS OF MACROMOLECULAR COMPOUNDS(pesticides, herbicides [A01N](#); pharmaceuticals, cosmetics [A61K](#); explosives [C06B](#); compositions based on polymerisable monomers [C08F](#), [C08G](#); paints, inks, varnishes, dyes, polishes, adhesives [C09](#); lubricants [C10M](#); detergents [C11D](#); artificial filaments or fibres [D01F](#); textile treating compositions [D06](#))

NOTES

Compositions classified in [C08K](#) according to note 3 of [C08K](#), are not classified in [C08L](#).

Documents classified before 09.2003: Classification is given in the form of C-Sets. The polymer in majority is given a [C08L](#) symbol, and the minor components are characterised by Indexing Codes taken from the list below.

The Indexing Codes are linked. The polymer in majority is always first in the C-set. List of M08L codes: [C08L 23/00](#) , [C08L 23/26](#) , [C08L 25/00](#) , [C08L 27/00](#) , [C08L 27/04](#) , M08L27/1 2, [C08L 29/00](#) , [C08L 31/00](#) , [C08L 33/00](#) , [C08L 35/00](#) , [C08L 37/00](#) , [C08L 51/00](#) , [C08L 53/00](#) , [C08L 55/02](#) , [C08L 61/04](#) , [C08L 61/20](#) , [C08L 63/00](#) , [C08L 67/00](#) , [C08L 67/02](#) , ~~C08L 67/02 B~~ **C08L67/02B** , [C08L 67/03](#) , [C08L 67/04](#) , [C08L 67/06](#) , [C08L 67/07](#) , [C08L 69/00](#) , M08L69/OOB, M08L7 1/00, [C08L 75/04](#) , [C08L 77/00](#) , [C08L 77/08](#) , [C08L 77/12](#) , [C08L 79/08](#) , ~~C08L 79/08 B~~ **C08L79/08B** , [C08L 81/00](#) , [C08L 83/00](#) , [C08L 85/00](#) , [C08L 91/06](#) , [C08L 95/00](#) or [C08L 2666/00](#) - [C08L 2666/86](#) . Documents from group [C08L 23/00](#) - [C08L 23/36](#) , [C08L 45/00](#) - [C08L 45/02](#) and [C08L 49/00](#) have all been reclassified following Note 3 below. An additive is classified in the last appropriate place in the list as selected for each [C08L](#) group. Examples:

- a. A composition based on a polyamide and a graft polymer is classified in ([C08L 77/00](#) , [C08L 2666/24](#)).
- b. A composition based on polyvinylchloride and containing CaCO₃ is classified according to note 4 of C08K, i.e. in ([C08K 3/26](#) , [C08L 27/06](#)). If this composition contains also a polyamide, then the classification will be ([C08L 27/06](#) , [C08L 77/00](#) , [C08K 3/26](#)).
- c. A composition based on a polysiloxane ([C08L 83/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C08L 83/04](#) , [C08L 83/04](#) , [C08L 2666/34](#) , [C08L 2666/58](#)).

From 01.09.2003 until April 2012: Classification is given in the form of C-Sets. The polymer in majority is given a [C08L](#) class, and the minor components are characterised by Indexing Codes taken from M08L or M08K and they are linked or unlinked. The polymer in majority is always first in the C-Set. List of M08L codes in the C-Set: [C08L 1/00](#) , [C08L 81/00](#) , [C08L 83/00](#) , [C08L 91/06](#) , [C08L 95/00](#) or [C08L 2666/02](#) - [C08L 2666/08](#) , [C08L 2666/14](#) - [C08L 2666/26](#) . Examples:

- a. A blend of 60 parts polyvinylchloride ([C08L 27/06](#)) and 40 parts polyamide is classified in ([C08L 27/06](#) , [C08L 2666/20](#)) and [C08L 77/00](#) . b. A blend of 50 parts polyvinylchloride ([C08L 27/06](#)) and 50 parts polyamide ([C08L 77/00](#)) is classified in ([C08L 27/06](#) , [C08L 2666/20](#)) and [C08L 77/00](#) , as well as in ([C08L 77/00](#) , [C08L 2666/04](#)) and [C08L 27/06](#) . c. A composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of C08K, i.e. in ([C08K 3/26](#) , [C08L 27/06](#)). If this composition contains also a polyamide, then the classification will be ([C08L 27/06](#) , [C08L 2666/20](#)) and [C08K 3/26](#) . d. A composition based on a first polysiloxane ([C08L 83/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C08L 83/04](#) , [C08L 83/04](#) , [C08K 5/13](#) , [C08K 3/36](#)) and [C08L 2205/02](#) .

From April 2012 onwards, after the notation [C08L](#), notations concerning the other constituents of the composition may be added, in the form of C-Sets. The further constituent is added with an indexing code. The indexing codes are chosen from [C08L 1/00](#) -555/86 **C08L555/86** or ~~M08K~~ **C08K** and they may be linked or unlinked: - [C08L 1/00](#) - [C08L 101/10](#) are linked. - [C08L 2201/00](#) - [C08L 2555/86](#) are unlinked. The polymer in majority is always first in the C-Set. Examples:

- a. A blend of 60 parts polyvinylchloride ([C08L 27/06](#)) and 40 parts polyamide ([C08L 77/00](#)) is classified in ([C08L 27/06](#) , [C08L 77/00](#)). b. A blend of 50 parts polyvinylchloride ([C08L 27/06](#))

and 50 parts polyamide ([C08L 77/00](#)) is classified in ([C08L 27/06](#) , [C08L 77/00](#)) and ([C08L 77/00](#) , [C08L 27/06](#)). c. A composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of [C08K](#), i.e. in ([C08K 3/26](#) , [C08L 27/06](#)). If this composition contains also a polyamide, then the classification will be ([C08L 27/06](#) , [C08L 77/00](#) , [C08K 3/26](#)). d. A composition based on a first polysiloxane ([C08L 83/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C08L 83/04](#) , [C08L 83/00](#) , [C08K 5/13](#) , [C08K 3/36](#)) and [C08L 2205/02](#) . e. A composition containing a polyamide in majority, a polyester and a polyethylene is classified in ([C08L 77/00](#) , [C08L 67/00](#) , [C08L 23/06](#)) and [C08L 2205/03](#) .

WARNING

"Rubber" includes:

natural or conjugated diene rubbers;
rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for compositions of such macromolecular compounds).

In this subclass:

compositions are classified according to the mutual proportions by weight of only the macromolecular constituents;
compositions are classified according to the macromolecular constituent or constituents present in the highest proportion: if all these constituents are present in equal proportions the composition is classified according to each of these constituents.

U C08L 23/00

Compositions of homopolymers or copolymers of unsaturated aliphatic hydrocarbons having only one carbon-to-carbon double bond; Compositions of derivatives of such polymers

U C08L 23/26
C08L 2023/40
C08L 2023/42
C08L 2023/44

- modified by chemical after-treatment
- • {by reaction with compounds changing molecular weight}
- • • {Depolymerisation, vis-breaking or degradation}
- • • {Coupling; Molecular weight increase}

Project: N/A (C09B)

C09B

ORGANIC DYES OR CLOSELY-RELATED COMPOUNDS FOR PRODUCING DYES; MORDANTS; LAKES(fermentation or enzyme-using processes to synthesise a desired chemical compound [C12P](#))

NOTE

In this subclass, in the absence of an indication to the contrary, a compound is classified in the last appropriate place

WARNINGS

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

C09B 23/01	covered by	C09B 23/0008	to
C09B 23/0091			
C09B 29/01	" "	C09B 29/0003	to
C09B 29/0022			
C09B 29/03	" "	C09B29/04 C09B 29/0007	
C09B 29/033	" "	C09B 29/0025	
C09B 29/036	" "	C09B 29/0029	

C09B 29/039	"	"	C09B 29/0074	to
C09B 29/0081				
C09B 29/042	"	"	C09B 29/0085	
C09B 29/045 C09B 29/045	"	"	C09B 29/0088	
C09B 29/048	"	"	C09B 29/0092	
C09B 29/085	"	"	C09B 29/0003	,
C09B 29/0801	to		C09B 29/0848	
C09B 29/09	"	"	C09B 29/0025	,
C09B 29/0801	to		C09B 29/0848	
C09B 29/15	"	"	C09B 29/103	
C09B 29/40	"	"	C09B 29/3608	to
C09B 29/3613				
C09B 29/42	"	"	C09B 29/3617	to
C09B 29/3639				
C09B 29/44	"	"	C09B 29/3643	
C09B 29/46	"	"	C09B 29/3652	
C09B 29/48	"	"	C09B 29/3656	
C09B 29/50	"	"	C09B 29/366	
C09B 29/52	"	"	C09B 29/3665	
C09B 33/13	"	"	C09B 33/12	
C09B 46/00	"	"	C09B 27/00	to
C09B 45/00				
C09B 67/02	"	"	C09B 67/0097	
C09B 67/04	"	"	C09B 67/0001	
C09B 67/06	"	"	C09B 67/0003	
C09B 67/08	"	"	C09B 67/0004	
C09B 67/10	"	"	C09B 67/0014	
C09B 67/12	"	"	C09B 67/0016	
C09B 67/14	"	"	C09B 67/0017	
C09B 67/16	"	"	C09B 67/0019	
C09B 67/18	"	"	C09B 67/002	
C09B 67/20	"	"	C09B 67/006	
C09B 67/22	"	"	C09B 67/0033	
C09B 67/24	"	"	C09B 67/0072	
C09B 67/26	"	"	C09B 67/0073	
C09B 67/28	"	"	C09B 67/0077	
C09B 67/30	"	"	C09B 67/0078	
C09B 67/32	"	"	C09B 67/0075	
C09B 67/34	"	"	C09B 67/0076	
C09B 67/36	"	"	C09B 67/0079	
C09B 67/38	"	"	C09B 67/008	
C09B 67/40	"	"	C09B 67/0082	
C09B 67/42	"	"	C09B 67/0071	
C09B 67/44	"	"	C09B 67/0083	
C09B 67/46	"	"	C09B 67/0084	
C09B 67/48	"	"	C09B 67/0025	
C09B 67/50	"	"	C09B 67/0026	
C09B 67/52	"	"	C09B 67/0027	
C09B 67/54	"	"	C09B 67/0096	

U C09B 68/00

{Organic pigments surface-modified by grafting, e.g. by establishing covalent or complex bonds, in order to improve the pigment properties, e.g. dispersibility or rheology}

WARNING

Groups [C09B 68/00](#) to [C09B 68/485](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [C09B 68/40](#) :

[C09B 67/00](#) or subgroups - [C09B 68/41](#) : [C09B 67/00](#) or subgroups - [C09B 68/42](#)
: [C09B 67/00](#) or subgroups

- U C09B 68/20 · {characterised by the process features}
C09B 68/22 · · {Acid treatment(for acid pasting ~~C09B67/0015~~[C09B 67/0015](#))}

Project: N/A (C09D)

C09D

COATING COMPOSITIONS, e.g. PAINTS, VARNISHES OR LACQUERS; FILLING PASTES; CHEMICAL PAINT OR INK REMOVERS; INKS; CORRECTING FLUIDS; WOODSTAINS; PASTES OR SOLIDS FOR COLOURING OR PRINTING; USE OF MATERIALS THEREFOR(cosmetics [A61K](#) ; processes for applying liquids or other fluent materials to surfaces, in general, [B05D](#) ; staining wood [B27K 5/02](#) ; glazes or vitreous enamels [C03C](#) ; organic macromolecular compounds [C08](#) ; organic dyes or closely-related compounds for producing dyes, mordants or lakes, per se , [C09B](#) ; treatment of inorganic materials other than fibrous fillers used as pigments or fillers [C09C](#) ; natural resins, French polish, drying-oils, driers, turpentine, per se , [C09F](#) ; polishing compositions other than French polish, ski waxes [C09G](#) ; preparation of glue or gelatine [C09H](#), { [C08H 1/06](#) } ; adhesives or use of materials as adhesives [C09J](#) ; materials for sealing or packing joints or covers [C09K 3/10](#) ; materials for stopping leaks [C09K 3/12](#) ; processes for the electrolytic or electrophoretic production of coatings [C25D](#) ; textile-treating compositions [D06](#) ; paper-making [D21](#) ; conductors, insulators [H01B](#))

NOTES

In this subclass, the following terms or expressions are used with the meanings indicated:

- "use of materials for coating compositions" means the use of known or new polymers or products;
- "rubber" includes:
 - a) natural or conjugated diene rubbers;
 - b) rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for coating compositions based on such macromolecular compounds);
- "based on" is defined by means of Note 3, below;
- "filling pastes" means materials used to fill up the holes or cavities of a substrate in order to smooth its surface prior to coating.

In this subclass, coating compositions containing specific macromolecular substances are classified only according to the macromolecular substance, non-macromolecular substances not being taken into account.

Example: a coating composition containing polyethene and amino-propyltrimethoxysilane is classified in group [C09D 123/06](#) .

However, coating compositions containing combinations of organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond with prepolymers or polymers other than unsaturated polymers of groups [C09D 159/00](#) to [C09D 187/00](#) are classified according to the unsaturated non-macromolecular component in group [C09D 4/00](#) .

Example: a coating composition containing polyethene and styrene monomer is classified in group [C09D 4/06](#) .

Aspects relating to the physical nature of the coating compositions or to the effects produced, as defined in group [C09D 5/00](#) , if clearly and explicitly stated, are also classified in this subclass.

Coating compositions characterised by other features, e.g. additives, are classified in group [C09D 7/00](#) , unless the macromolecular constituent is specified.

In this subclass, coating compositions comprising two or more macromolecular constituents are classified according to the macromolecular constituent or constituents present in the highest proportion, i.e. the constituent on which the composition is based. If the composition is based on two or more constituents, present in equal proportions, the composition is classified according to each of these constituents.

Examples:

A coating composition containing 80 parts of polyethene and 20 parts of polyvinylchloride

is classified in group [C09D 123/06](#) ;

A coating composition containing 40 parts of polyethene and 40 parts of polyvinylchloride

is classified in groups [C09D 123/06](#) and [C09D 127/06](#) .

Documents classified up until 04.2012: after the notation of group [C09D 4/06](#) , and separated therefrom by a + sign, notations concerning the macromolecular compound may be added. The notations are selected from the main groups [C08F 251/00](#) to [C08F 291/00](#) and from the subgroups of [C08F 290/00](#) to [C08F 290/048](#) and [C08F 290/08](#) to [C08F 290/128](#) .

Example: a paint based on a mixture of methylmethacrylate monomer and a polymer of vinylchloride is classified in [C09D 4/06](#) + [C08F 259/04](#) .

From April 2012 onwards, after the notation [C09D 4/00](#) , classification concerning the monomer may be added, in the form of C-sets. The notation is selected from [C08F 210/00](#) to [C08F 246/00](#) , [C08G 77/00](#) to [C08G 77/04](#) or [C08G 77/20](#) to [C08G 77/30](#) . Ex.: A paint based on a mixture of methylmethacrylate monomer and a polymer of vinylchloride is classified ([C09D 4/06](#) , [C08F 259/04](#)) .

Documents classified up until 09-2003: Classification is given in the form of C-Sets. The polymer in majority is given a [C09D 101/00](#) - [C09D 201/10](#) symbol, and the minor components are characterised by Indexing Codes taken from the list below. The Indexing Codes are linked. The polymer in majority is always first in the C-set. List of M08L codes: [C08L 23/00](#) , [C08L 23/26](#) , [C08L 25/00](#) , [C08L 27/00](#) , [C08L 27/04](#) , [C08L 27/12](#) , [C08L 29/00](#) , [C08L 31/00](#) , [C08L 33/00](#) , [C08L 35/00](#) , [C08L 37/00](#) , [C08L 51/00](#) , [C08L 53/00](#) , [C08L 55/02](#) , [C08L 61/04](#) , [C08L 61/20](#) , [C08L 63/00](#) , [C08L 67/00](#) , [C08L 67/02](#) , [C08L 67/02B](#) , [C08L 67/03](#) , [C08L 67/04](#) , [C08L 67/06](#) , [C08L 67/07](#) , [C08L 69/00](#) , [C08L 69/00B](#) , [C08L 69/00B](#) , [C08L 71/00](#) , [C08L 75/04](#) , [C08L 77/00](#) , [C08L 77/08](#) , [C08L 77/12](#) , [C08L 79/08](#) , [C08L 79/08B](#) , [C08L 81/00](#) , [C08L 83/00](#) , [C08L 85/00](#) , [C08L 91/06](#) , [C08L 95/00](#) or [C08L 2666/00](#) - [C08L 2666/86](#) . Documents from group [C09D 123/00](#) - [C09D 123/36](#) , [C09D 145/00](#) - [C09D 145/02](#) and [C09D 149/00](#) have all been reclassified following Note 3 below. An additive is classified in the last appropriate place in the list as selected for each [C09D](#) group.

Examples: a. A coating composition based on a polyamide and a graft polymer is classified in ([C09D 177/00](#) , [C08L 2666/24](#)) . b. A coating composition based on polyvinylchloride and containing CaCO₃ is classified according to note 4 of [C08K](#) , i.e. in [C08K 3/26](#) and [C09D 127/06](#) . If this coating composition contains also a polyamide, then the classification will be ([C09D 127/06](#) , [C08L 77/00](#) , [C08K 3/26](#)) . c. A coating composition based on a polysiloxane ([C09D 183/04](#)) and containing a second polysiloxane, a phenol and silica is classified in

([C09D 183/04](#) , [C08L 83/04](#) , [C08L 2666/34](#) , [C08L 2666/54](#)).

From 01.09.2003 until April 2012: Classification is given in the form of C-Sets. The polymer in majority is given a [C09D](#) symbol, and the minor components are characterised by Indexing Codes taken from M08L or M08K and they are linked or unlinked. The polymer in majority is always first in the C-set. List of indexing codes in the C-Sets: [C08L 1/00](#) , [C08L 81/00](#) , [C08L 83/00](#) , [C08L 91/06](#) , [C08L 95/00](#) or [C08L 2666/02](#) - [C08L 2666/08](#) , [C08L 2666/14](#) - [C08L 2666/26](#) . Examples:

a. A coating of 60 parts polyvinylchloride ([C09D 127/06](#)) and 40 parts polyamide is classified in ([C09D 127/06](#) , [C08L 2666/20](#)), [C08L 77/00](#) . b. A coating of 50 parts polyvinylchloride ([C09D 127/06](#)) and 50 parts polyamide ([C09D 177/00](#)) is classified in ([C09D 127/06](#) , [C08L 2666/20](#)), and [C08L 77/00](#) , as well as ([C09D 177/00](#) , [C08L 2666/04](#)) and [C08L 27/06](#) . c. A coating composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of [C08K](#) , i.e. in [C08K 3/26](#) , [C09D 127/06](#) . If this composition contains also a polyamide, then the classification will be ([C09D 127/06](#) , [C08L 2666/20](#)) and [C08K 3/26](#) . d. A composition based on a first polysiloxane ([C09D 183/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C09D 183/04](#) , [C08L 83/00](#) , [C08K 5/13](#) , [C08K 3/36](#)) and [C08L 2205/02](#) .

From April 2012 onwards, after the notation of groups [C09D 101/00](#) to [C09D 201/00](#) , notations concerning the other constituents of the coating composition may be added, in the form of C-Sets. The further constituent is added with an indexing code. The indexing codes are chosen from [C08L 1/00](#) -[555/86](#) [C08L 555/86](#) or [M08K](#) [C08K](#) and they may be linked or unlinked: - [C08L 1/00](#) - [C08L 101/10](#) are linked. - [C08L 2201/00](#) - [C08L 2555/86](#) are unlinked. The polymer in majority is always first in the C-set. Examples:

a. A coating composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups [C09D 123/06](#) and [C08K 5/544](#) (unlinked). b. A coating composition containing 80 parts of polyethylene and 20 parts of polyvinylchloride is classified in ([C09D 123/06](#) , [C08L 27/06](#)). c. A coating composition containing 40 parts of polyethylene and 40 parts of polyvinylchloride is classified in ([C09D 123/06](#) , [C08L 27/06](#)) and ([C09D 127/06](#) , [C08L 23/06](#)). d. A coating composition containing 90% of polysiloxane ([C09D 183/04](#)) further containing 10% of polyester ([C08L 67/00](#)) and an alcohol is classified in ([C09D 183/04](#) , [C08L 67/00](#) , [C08K 5/05](#)).

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[C09D 4/02](#) covered by [C09D 4/00](#)
, [C08F 220/00](#)
[C09D 4/04](#) covered by [C09D 4/00](#)
, [C08F 222/00](#)

C09D 5/23	covered by	
H01F 41/16		
C09D 5/25	covered by	
H01B 3/308		
C09D 5/33	covered by	
C09D 5/004		
C09D 5/46	covered by	
C09D 5/03		
C09D 161/08	,	C09D 161/10
covered by	C09D 161/06	
C09D 163/02	covered by	
C09D 163/00		
C09D 171/08	covered by	
C09D 171/02		
C09D 171/10	covered by	
C09D 171/12		
C09D 183/05	covered by	
C09D 183/04		
C09D 183/07	covered by	C09D 183/04
,	C09D 183/06	

Project: RP0069 (C09D)

C09D 11/00

Inks

NOTE

Groups C09D 11/02 to C09D 11/54 do not correspond to former IPC.
Concordance CPC : IPC for these groups is as follows: - C09D 11/023 -
C09D11/49 : C09D 11/02 - C09D 11/50 - C09D 11/54 : C09D 11/00

C09D 11/02	• Printing inks(C09D 11/30 ; takes C09D 11/52 take precedence)
U C09D 11/023	• • Emulsion inks
C09D 11/0235	• • • Duplicating inks, e.g. for stencil printing(stencil printing per se B41M 1/12)
U C09D 11/10	• • based on artificial resins
C09D 11/102	• • • containing macromolecular compounds obtained by reactions other than those only involving unsaturated carbon-to-carbon bonds(C09D 11/101 takes precedence)
C09D 11/106	• • • containing macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds(C09D 11/101 takes precedence)

Project: N/A (C09D)

U C09D 11/16	• Writing inks
C09D 11/17	• • containing specific characterised by colouring agents
C09D 11/30	• Jet- Inkjet printing inks

Project: RP0069 (C09D)

U C09D 11/32	• • characterised by colouring agents
U C09D 11/324	• • • containing carbon black
C09D 11/326	• • • characterised by the pigment dispersant (C09D 11/324 takes precedence)
C09D 11/38	• • characterised by non-macromolecular additives other than solvents, pigments or dyes(C09D 11/36 takes precedence)

C09D 11/40

- Ink-sets specially adapted for multi-colour ink-jet printing(~~devices for multi-colour ink-jet printing B41J 2/21~~)

C09D 11/52

- Electrically conductive inks(~~C09D 11/30 takes precedence~~)

Project: N/A (C09D)**U C09D 17/00****Pigment pastes, e.g. for mixing in paints(artists` paints [C09D 5/06](#))**

C09D 17/001

- {in aqueous medium(~~C09D 17/00 H~~[C09D 17/00H](#), [C09D 17/004](#) take precedence)}

C09D 17/002

- {in organic medium(~~C09D 17/00 H~~[C09D 17/00H](#), [C09D 17/004](#) take precedence)}

Project: N/A (C09J)**C09J**

ADHESIVES; NON-MECHANICAL ASPECTS OF ADHESIVE PROCESSES IN GENERAL; ADHESIVE PROCESSES NOT PROVIDED FOR ELSEWHERE; USE OF MATERIALS AS ADHESIVES(surgical adhesives [A61L 24/00](#) ; processes for applying liquids or other fluent materials to surfaces in general [B05D](#); adhesives on the basis of non specified organic macromolecular compounds used as bonding agents in layered products [B32B](#); organic labelling fabrics or comparable materials or articles with deformable surface using adhesives and thermo-activatable adhesives respectively [B65C 5/02](#) , [B65C 5/04](#) ; organic macromolecular compounds [C08](#); production of multi-layer textile fabrics [D06M 17/00](#) ; preparation of glue or gelatine [C09H](#) ; adhesive labels, tag tickets or similar identification of indication means [G09F 3/10](#))

NOTES

In this subclass, the following terms or expressions are used with the meanings indicated:

- "use of materials as adhesives" means the use of known or new polymers or products;
- "rubber" includes:
 - a) natural or conjugated diene rubbers;
 - b) rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for adhesives based on such macromolecular compounds);
- "based on" is defined by means of Note 3, below.

In this subclass, adhesives containing specific macromolecular substances are classified only according to the macromolecular substance, non-macromolecular substances not being taken into account.

Example: an adhesive containing polyethene and amino-propyltrimethoxysilane is classified in group [C09J 123/06](#) .

However, adhesives containing combinations of organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond with prepolymers or polymers other than unsaturated polymers of groups [C09J 159/00](#) to [C09J 187/00](#) are classified according to the unsaturated non-macromolecular component in group [C09J 4/00](#) .

Example: an adhesive containing polyethene and styrene monomer is classified in group [C09J 4/06](#) .

Aspects relating to the physical nature of the adhesives or to the effects produced, as defined in group [C09J 9/00](#) , if clearly and explicitly stated, are also classified in this subclass. Adhesives characterised by other features,

e.g. additives, are classified in group [C09J 11/00](#) , unless the macromolecular constituent is specified.

In this subclass, adhesives comprising two or more macromolecular constituents are classified according to the macromolecular constituent or constituents present in the highest proportion, i.e. the constituent on which the adhesive is based. If the adhesive is based on two or more constituents, present in equal proportions, the adhesive is classified according to each of these constituents.

Examples: An adhesive containing 80 parts of polyethene and 20 parts of polyvinylchloride

is classified in group [C09J 123/06](#) ;

An adhesive containing 40 parts of polyethene and 40 parts of polyvinylchloride is

classified in groups [C09J 123/06](#) and [C09J 127/06](#) .

An adhesive composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups [C09J 123/06](#) and [C08K 5/544](#)
Documents classified up until 09-2003: Classification is given in the form of C-Sets. The polymer in majority is given a [C09J 101/00](#) - [C09J 201/10](#) symbol, and the minor components are characterised by Indexing Codes taken from the list below. The Indexing Codes are linked. The polymer in majority is always first in the C-set.

List of M08L codes: [C08L 23/00](#) , [C08L 23/26](#) , [C08L 25/00](#) , [C08L 27/00](#)

, [C08L 27/04](#) , [C08L 27/12](#) , [C08L 29/00](#) , [C08L 31/00](#) , [C08L 33/00](#)

, [C08L 35/00](#) , [C08L 37/00](#) , [C08L 51/00](#) , [C08L 53/00](#) , [C08L 55/02](#)

, [C08L 61/04](#) , [C08L 61/20](#) , [C08L 63/00](#) , [C08L 67/00](#) , [C08L 67/02](#)

, ~~C08L 67/02 B~~[C08L67/02B](#) , [C08L 67/03](#) , [C08L 67/04](#) , [C08L 67/06](#)

, [C08L 67/07](#) , [C08L 69/00](#) , ~~C08L 69/00 B~~[C08L69/00B](#) , [C08L 71/00](#)

, [C08L 75/04](#) , [C08L 77/00](#) , [C08L 77/08](#) , [C08L 77/12](#) , [C08L 79/08](#) ,

~~C08L 79/08 B~~[C08L79/08B](#) , [C08L 81/00](#) , [C08L 83/00](#) , [C08L 85/00](#) ,

[C08L 91/06](#) , [C08L 95/00](#) or [C08L 2666/00](#) - [C08L 2666/86](#) . An additive is

classified in the last appropriate place in the list as selected for each [C09J](#) group. Examples:

a. An adhesive composition based on a polyamide and a graft polymer is classified in ([C09J 177/00](#) ,

[C08L 2666/24](#)) . b. An adhesive composition based

on polyvinylchloride and containing CaCO₃ is classified

according to note 4 of [C08K](#) , i.e. in [C08K 3/26](#)

and [C09J 127/06](#) . If this adhesive composition

contains also a polyamide, then the classification will be

([C09J 127/06](#) , [C08L 77/00](#) ,

[C08K 3/26](#)) . c. An adhesive composition based on a

polysiloxane ([C09J 183/04](#)) and containing

a second polysiloxane, a phenol and silica is classified in

([C09J 183/04](#) , [C08L 83/04](#) ,

[C08L 2666/34](#) , [C08L 2666/54](#)

3. From April 2012, after the notation

[C09J 4/00](#) , classification concerning the monomer

may be added, in the form of C-sets. The notation is

selected from [C08F 210/00](#) to [C08F 246/00](#)

, [C08G 77/00](#) to [C08G 77/04](#) or

[C08G 77/20](#) to [C08G 77/30](#) . Ex. 1: An

adhesive based on methylmethacrylate monomer is classified in

([C09J 4/00](#) , [C08F 220/00](#)) . Ex.

2: An adhesive based on a dialkoxysilane monomer compound is

classified in ([C09J 4/00](#) , [C08G 77/04](#)

) .

From 01.09.2003 until April 2012: Classification is given in the form of C-Sets. The polymer in majority is given a [C08L](#) class, and the minor components are characterised by Indexing Codes taken from M08L or M08K and they are linked or unlinked. The polymer in majority is

always first in the C-set. List of indexing codes in the C-Sets: [C08L 1/00](#) , [C08L 81/00](#) , [C08L 83/00](#) , [C08L 91/06](#) , [C08L 95/00](#) or [C08L 2666/02](#) - [C08L 2666/08](#) , [C08L 2666/14](#) - [C08L 2666/26](#) . Examples:

- a. An adhesive blend of 60 parts polyvinylchloride ([C09J 127/06](#)) and 40 parts polyamide is classified in ([C09J 127/06](#) , [C08L 2666/20](#)), [C08L 77/00](#) . b. An adhesive blend of 50 parts polyvinylchloride ([C09J 127/06](#)) and 50 parts polyamide ([C09J 177/00](#)) is classified in ([C09J 127/06](#) , [C08L 2666/20](#)), ([C09J 177/00](#) , [C08L 2666/04](#)), [C08L 77/00](#) and [C08L 27/06](#) . c. An adhesive composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of [C08K](#), i.e. in [C08K 3/26](#) , [C09J 127/06](#) . If this composition contains also a polyamide, then the classification will be ([C09J 127/06](#) , [C08L 2666/20](#)) and [C08K 3/26](#) . d. A composition based on a first polysiloxane ([C09J 183/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C09J 183/04](#) , [C08L 83/00](#) , [C08K 5/13](#) , [C08K 3/36](#)) and [C08L 2205/02](#) .

From April 2012 onwards, after the notation of groups [C09J 101/00](#) to [C09J 201/00](#) , notations concerning the other constituents of the adhesive composition may be added, in the form of C-sets. The further constituent is added with an indexing code. The indexing codes are chosen from [C08L 1/00](#) -~~555/86~~[C08L 555/86](#) or ~~M08K~~[C08K](#) and they may be linked or unlinked: - [C08L 1/00](#) - ~~M08L 11/10~~[C08L 101/16](#) are linked. - [C08L 2201/00](#) - [C08L 2555/86](#) are unlinked. The polymer in majority is always first in the C-set.

Examples:

- a. An adhesive composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups [C09J 123/06](#) and [C08K 5/544](#) (unlinked). b. An adhesive containing 80 parts of polyethene and 20 parts of polyvinylchloride is classified in group ([C09J 123/06](#) , [C08L 27/06](#)). c. An adhesive containing 40 parts of polyethene and 40 parts of polyvinylchloride is classified in groups ([C09J 123/06](#) , [C08L 27/06](#)) and ([C09J 127/06](#) , [C08L 23/06](#)). d. An adhesive containing 90% of polysiloxane ([C09J 183/04](#)) further containing of polyester ([C08L 67/00](#)) and an alcohol is classified in ([C09J 183/04](#) , [C08L 67/00](#) , [C08K 5/05](#)).

WARNING

The following IPC group is not used in the CPC system: Subject matter covered by these groups is classified in the following CPC group: [C09J 163/02](#) covered by [C09J 163/00](#)

C09J 7/00

Adhesives in the form of films or foils

NOTE

In this group, the indexing codes of subclass ~~M09J~~[M09J](#) are used

U C09J 7/02

• on carriers

- C09J 7/04
- on paper or textile fabric(~~adhesive bandages, dressings or adsorbent pads, {e.g. plasters}~~, **A61L15/06** *adhesive bandages, dressings or adsorbent pads, {e.g. plasters}*, **A61F 13/02**)

U C09J 201/00**Adhesives based on unspecified macromolecular compounds**

U C09J 201/02

- characterised by the presence of specified groups,{e.g. terminal or pendant functional groups}

C09J 2201/12

- {by the arrangement of layers}

C09J 2201/122

- • {the adhesive layer being present only on one side of the carrier, e.g. single-sided adhesive tape}

C09J 2201/128

- • {the adhesive layer being present on both sides of the carrier, e.g. double-sided adhesive tape}

C09J 2201/134

- • • {the opposite adhesive layers being different}

C09J 2201/16

- {by the structure of the carrier layer}

C09J 2201/162

- • {the carrier layer being a laminate constituted by plastic layers only}

C09J 2201/20

- {by perforations through the adhesive tape}

C09J 2201/24

- {the adhesive being in the form of fibres}

C09J 2201/28

- {the adhesive coating being discontinuous}

C09J 2201/32

- {the adhesive layer comprising non-adhesive protrusions}

C09J 2201/36

- {the adhesive layer being constituted by at least two or more adjacent or superposed adhesive layers, e.g. multilayer adhesive}

C09J 2201/40

- {the adhesive layer being formed by alternating adhesive areas being chemically different}

C09J 2201/60

- {by other properties}

C09J 2201/602

- • {being conductive}

C09J 2201/606

- • {the adhesive being pressure-sensitive, i.e. tacky at temperatures inferior to 30°C}

C09J 2201/61

- • {the adhesive being a hot-melt, i.e. not tacky at temperatures inferior to 30°C}

C09J 2201/614

- • {the adhesive being water-activatable}

C09J 2201/618

- • {the adhesive losing adhesive strength when being stretched, e.g. stretch adhesive}

C09J 2201/622

- • {the parameters being the characterising features}

C09J 2201/626

- • {the adhesive effect being based on a so-called Gecko structure}

Project: N/A (C09K)**U C09K 3/00****Materials not provided for elsewhere****NOTE**

When classifying in groups [C09K 3/10](#) to [C09K 3/1028](#) the properties and uses of the material can be further indexed by using indexing codes chosen from [C09K 2003/1034](#) to [C09K 2003/1096](#) and the chemical nature of the materials can be further indexed by using indexing codes chosen from [C09K 2200/00](#) to [C09K 2200/0697](#)

U C09K 3/10

- {Materials in mouldable or extrudable form}for sealing or packing joints or covers(filling pastes [C09D 5/34](#))

C09K 2003/1034

- {Materials or components characterised by specific properties}

C09K 2003/1037

- • {Intumescent materials}

C09K 2003/104

- • {Water-swallowable materials}

- C09K 2003/1043 . . . {Non water-swellable materials}
- C09K 2003/1046 . . . {Water-absorbing materials}
- C09K 2003/105 . . . {Water-soluble materials}
- C09K 2003/1053 . . . {Elastomeric materials}
- C09K 2003/1056 . . . {Moisture-curable materials}
- C09K 2003/1059 . . . {Heat-curable materials}
- C09K 2003/1062 . . . {UV-curable materials}
- C09K 2003/1065 . . . {Anaerobically hardenable materials}
- C09K 2003/1068 . . . {Crosslinkable materials}
- C09K 2003/1071 . . . {Thixotropic materials}
- C09K 2003/1075 . . . {Injection-mouldable materials}
- C09K 2003/1078 . . . {Fire-resistant, heat-resistant materials}
- C09K 2003/1081 . . . {Water-proofed materials}
- C09K 2003/1084 . . . ~~Laminates~~{Laminates}
- C09K 2003/1087 . . . {Materials or components characterised by specific uses}
- C09K 2003/109 . . . {Crown caps}
- C09K 2003/1093 . . . ~~Cables~~{Cables}
- C09K 2003/1096 . . . {Cylinder head gaskets}

U C09K 11/00**Luminescent, e.g. electroluminescent, chemiluminescent materials**

C09K 11/08

- . containing inorganic luminescent materials{Note In this group, magnesium is considered as an alkaline earth metal}

NOTE

In groups [C09K 11/08](#) to [C09K 11/897](#) , in the absence of an indication to the contrary, classification of materials is made in the last appropriate place

WARNING

Groups [C09K 11/0805](#) to ~~C09K 11/08~~**C09K 11/08L**, with the exception of [C09K 11/0883](#) for classifying nitrides, are no longer used for classification of new documents. The backlog of this group is being continuously reclassified to subgroups [C09K 11/54](#) to [C09K 11/897](#)

U C09K 11/62

- . . containing gallium, indium or thallium

C09K 11/626

- . . . {Halogenides(~~C09K 11/26B~~ [C09K 11/621](#) takes precedence)}

C09K 19/00**Liquid crystal materials****NOTES**

In groups [C09K 19/02](#) to [C09K 19/60](#) , { with the exception of groups [C09K 19/0208](#) to ~~C09K 19/02~~**C09K 19/02K** }, in the absence of an indication to the contrary, materials are classified in the last appropriate place.

Mixtures containing two or more liquid crystal compounds covered individually by the same one of groups [C09K 19/04](#) to [C09K 19/40](#) are classified only in that group.

If liquid crystal components of the mixtures classified in groups [C09K 19/42](#) to [C09K 19/50](#) are of importance as such, they should also be classified according to the compounds in groups [C09K 19/04](#) to [C09K 19/40](#) .

U C09K 19/04

- . characterised by the chemical structure of the liquid crystal components,{e.g. by a specific unit}

U C09K 19/0403

- . {the structure containing one or more specific, optionally substituted ring or ring systems}

	C09K 2019/0407	• • • {containing a carbocyclic ring, e.g. dicyano-benzene, chlorofluoro-benzene or cyclohexanone}
	C09K 2019/0411	• • • {containing a chlorofluoro-benzene, e.g. 2-chloro-3-fluoro-phenylene-1,4-diyl}
	C09K 2019/0414	• • • {containing a heterocyclic ring}
U	C09K 2019/0418	• • • {containing a dendromer structure; Dendritic liquid crystals}
	C09K 2019/0425	• • {characterized by a specific unit that results in a functional effect}
	C09K 2019/0429	• • • {the specific unit being a carbocyclic or heterocyclic discotic unit}
	C09K 2019/0433	• • • {the specific unit being a luminescent or electroluminescent unit}
	C09K 2019/0437	• • • {the specific unit being an optically active chain used as linking group between rings or as end group}
	C09K 2019/044	• • • {the specific unit being a perfluoro chain used as an end group}
	C09K 2019/0444	• • {characterized by a linking chain between rings or ring systems, a bridging chain between extensive mesogenic moieties or an end chain group}
	C09K 2019/0448	• • • {the end chain group being a polymerizable end group, e.g. -Sp-P or acrylate}
	C09K 2019/0451	• • • {the end chain group being a CH ₃ CH=CHCH ₂ CH ₂ - chain}
	C09K 2019/0455	• • • {the linking chain being a -CF ₂ CF ₂ - , -CF ₂ CF ₂ CF ₂ CF ₂ - or -CH ₂ CF ₂ CF ₂ CH ₂ - chain}
	C09K 2019/0459	• • • {the linking chain being a -CF=CF- chain, e.g. 1,2-difluoroethen-1,2-diyl}
	C09K 2019/0462	• • • {the linking chain being a -CF ₂ CF ₂ O- chain}
	C09K 2019/0466	• • • {the linking chain being a -CF ₂ O- chain}
	C09K 2019/047	• • • {the linking chain being a -CH ₂ CF ₂ O- chain}
	C09K 2019/0474	• • • {the linking chain being a -CHFO- chain}
	C09K 2019/0477	• • {characterized by the positioning of substituents on phenylene}
	C09K 2019/0481	• • • {Phenylene substituted in meta position}
	C09K 2019/0485	• • • {Phenylene substituted in ortho position}
	C09K 2019/0488	• • {characterized by a special bonding}
	C09K 2019/0492	• • • {the special bonding being an hydrogen bond}
	C09K 2019/0496	• • • {the special bonding being a specific pi-conjugated group}
U	C09K 19/06	• • Non-steroidal liquid crystal compounds
U	C09K 19/08	• • • containing at least two non-condensed rings
U	C09K 19/10	• • • • containing at least two benzene rings
U	C09K 19/12	• • • • • at least two benzene rings directly linked, e.g. biphenyls
	C09K 2019/121	• • • • • {Compounds containing phenylene-1,4-diyl (-Ph-)}
	C09K 2019/122	• • • • • {Ph-Ph}
	C09K 2019/123	• • • • • {Ph-Ph-Ph}
	C09K 2019/124	• • • • • {Ph-Ph-Ph-Ph}
	C09K 2019/125	• • • • • {Ph-Ph-Ph-Ph-Ph or more Ph rings}
	C09K 2019/127	• • • • • {Compounds containing phenylene-1,3-diyl}
	C09K 2019/128	• • • • • {Compounds containing phenylene-1,2-diyl}
U	C09K 19/14	• • • • • linked by a carbon chain
U	C09K 19/16	• • • • • the chain containing carbon-to-carbon double bonds, e.g. stilbenes
	C09K 2019/161	• • • • • {Ph-CH=CH-Ph}
	C09K 2019/163	• • • • • {Ph-Ph-CH=CH-Ph}
	C09K 2019/165	• • • • • {Ph-Ph-CH=CH-Ph-Ph}

	C09K 2019/166	. . . . . {Ph-Ph-Ph-CH=CH-Ph}
	C09K 2019/168	. . . . . {Ph-CH=CH-Ph-CH=CH-Ph}
U	C09K 19/18	. . . . . the chain containing carbon-to-carbon triple bonds, e.g. tolans
	C09K 2019/181	. . . . . {Ph-C \equiv C-Ph(? is a triple bond)}
	C09K 2019/183	. . . . . {Ph-Ph-C \equiv C-Ph(? is a triple bond)}
	C09K 2019/185	. . . . . {Ph-Ph-C \equiv C-Ph-Ph(? is a triple bond)}
	C09K 2019/186	. . . . . {Ph-C \equiv C-C \equiv C-Ph(? is a triple bond)}
	C09K 2019/188	. . . . . {Ph-C \equiv C-Ph-C \equiv C-Ph(? is a triple bond)}
U	C09K 19/20	. . . . . linked by a chain containing carbon and oxygen atoms as chain links, e.g. esters{or ethers}
U	C09K 19/2007	. . . . . {the chain containing -COO- or -OCO- groups}
	C09K 2019/2035	. . . . . {Ph-COO-Ph}
	C09K 2019/2042	. . . . . {Ph-Ph-COO-Ph}
	C09K 2019/205	. . . . . {Ph-Ph-Ph-COO-Ph}
	C09K 2019/2057	. . . . . {Ph-Ph-Ph-Ph-COO-Ph, or more Ph rings}
	C09K 2019/2064	. . . . . {Ph-Ph-COO-Ph-Ph}
	C09K 2019/2071	. . . . . {Ph-Ph-Ph-COO-Ph-Ph, or more Ph rings}
	C09K 2019/2078	. . . . . {Ph-COO-Ph-COO-Ph}
	C09K 2019/2085	. . . . . {Ph-CH=CH-Ph-COO-Ph}
	C09K 2019/2092	. . . . . {Ph-C \equiv C-Ph-COO-Ph(? is a triple bond)}
U	C09K 19/30	. . . . . containing saturated or unsaturated non-aromatic rings, e.g. cyclohexane rings
U	C09K 19/3001	. . . . . {Cyclohexane rings}
U	C09K 19/3003	. . . . . {Compounds containing at least two rings in which the different rings are directly linked(covalent bond)}
	C09K 2019/3004	. . . . . {Cy-Cy}
	C09K 2019/3006	. . . . . {Cy-Cy-Cy}
	C09K 2019/3007	. . . . . {Cy-Cy-Cy-Cy or more Cy rings}
	C09K 2019/3009	. . . . . {Cy-Ph}
	C09K 2019/301	. . . . . {Cy-Cy-Ph}
	C09K 2019/3012	. . . . . {Cy-Cy-Cy-Ph, or more Cy rings}
	C09K 2019/3013	. . . . . {Cy-Ph-Cy}
	C09K 2019/3015	. . . . . {Cy-Cy-Ph-Cy}
	C09K 2019/3016	. . . . . {Cy-Ph-Ph}
	C09K 2019/3018	. . . . . {Ph-Cy-Ph}
	C09K 2019/3019	. . . . . {Cy-Cy-Ph-Ph}
	C09K 2019/3021	. . . . . {Cy-Ph-Ph-Cy}
	C09K 2019/3022	. . . . . {Cy-Ph-Cy-Ph}
	C09K 2019/3024	. . . . . {Ph-Cy-Cy-Ph}
	C09K 2019/3025	. . . . . {Cy-Ph-Ph-Ph}
	C09K 2019/3027	. . . . . {Compounds comprising 1,4-cyclohexylene and 2,3-difluoro-1,4-phenylene}
U	C09K 19/3028	. . . . . {in which at least two rings are linked by a carbon chain containing carbon to carbon single bonds}
	C09K 2019/303	. . . . . {Cy-C ₂ H ₄ -Cy}

	C09K 2019/3031	. . . . . {Cy-Cy-C2H4-Cy}
	C09K 2019/3033	. . . . . {Cy-Cy-Cy-C2H4-Cy}
	C09K 2019/3034	. . . . . {Cy-Cy-C2H4-Cy-Cy}
	C09K 2019/3036	. . . . . {Cy-C2H4-Ph}
	C09K 2019/3037	. . . . . {Cy-Cy-C2H4-Ph}
	C09K 2019/3039	. . . . . {Cy-Cy-Cy-C2H4-Ph}
	C09K 2019/304	. . . . . {Cy-C2H4-Ph-Ph}
	C09K 2019/3042	. . . . . {Cy-Cy-C2H4-Ph-Ph}
	C09K 2019/3043	. . . . . {Cy-Cy-C2H4-Ph-Cy}
	C09K 2019/3045	. . . . . {Cy-Ph-C2H4-Ph-Cy}
	C09K 2019/3046	. . . . . {Cy-C2H4-Ph-C2H4-Cy}
U	C09K 19/3048	. . . . . {in which at least two rings are linked by a carbon chain containing carbon to carbon double bonds}
	C09K 2019/305	. . . . . {Cy-CH=CH-Cy}
	C09K 2019/3051	. . . . . {Cy-CH=CH-Cy-Ph}
	C09K 2019/3053	. . . . . {Cy-CH=CH-Ph}
	C09K 2019/3054	. . . . . {Cy-Cy-CH=CH-Ph}
	C09K 2019/3056	. . . . . {Cy-Ph-CH=CH-Ph}
	C09K 2019/3057	. . . . . {Cy-Ph-Ph-CH=CH-Ph}
U	C09K 19/3059	. . . . . {in which at least two rings are linked by a carbon chain containing carbon to carbon triple bonds}
	C09K 2019/306	. . . . . {Cy-C?C-Cy(? is a triple bond)}
	C09K 2019/3062	. . . . . {Cy-C?C-Ph(? is a triple bond)}
	C09K 2019/3063	. . . . . {Cy-Ph-C?C-Ph(? is a triple bond)}
	C09K 2019/3065	. . . . . {Cy-Ph-Ph-C?C-Ph(? is a triple bond)}
U	C09K 19/3066	. . . . . {in which the rings are linked by a chain containing carbon and oxygen atoms, e.g. esters or ethers}
U	C09K 19/3068	. . . . . {chain containing -COO- or -OCO- groups}
	C09K 2019/3069	. . . . . {Cy-COO-Cy}
	C09K 2019/3071	. . . . . {Cy-Cy-COO-Cy}
	C09K 2019/3072	. . . . . {Cy-Cy-Cy-COO-Cy, or more Cy rings}
	C09K 2019/3074	. . . . . {Cy-Cy-COO-Cy-Cy, or more Cy rings}
	C09K 2019/3075	. . . . . {Cy-COO-Ph}
	C09K 2019/3077	. . . . . {Cy-Cy-COO-Ph}
	C09K 2019/3078	. . . . . {Cy-Cy-COO-Ph-Cy}
	C09K 2019/308	. . . . . {Cy-Cy-COO-Ph-Ph}
	C09K 2019/3081	. . . . . {Cy-Ph-COO-Cy}
	C09K 2019/3083	. . . . . {Cy-Ph-COO-Ph}
	C09K 2019/3084	. . . . . {Cy-Ph-COO-Ph-Cy}
U	C09K 19/3087	. . . . . {in which at least two rings are linked by a chain containing sulfur atoms}
	C09K 2019/3089	. . . . . {Cy-S-Cy}
	C09K 2019/309	. . . . . {Cy-S-Ph}
	C09K 2019/3092	. . . . . {Cy-S-Ph-Ph}
	C09K 2019/3093	. . . . . {Cy-Ph-S-Ph}

- C09K 2019/3095 {in which the end group is the monoterpene menthyl}
- C09K 2019/3096 {Cyclobutane rings}
- U C09K 19/32 . . . containing condensed ring systems, i.e. fused, bridged or spiro ring systems
- U C09K 19/322 {Compounds containing a naphthalene ring or a completely or partially hydrogenated naphthalene ring}
- C09K 2019/323 {containing a binaphthyl}
- C09K 2019/324 {containing a dihydronaphthalene}
- C09K 2019/325 {containing a tetrahydronaphthalene, e.g. -2,6-diyl (tetralin)}
- C09K 2019/326 {containing a decahydronaphthalene, e.g. -2,6-diyl (decalin)}
- C09K 2019/327 {containing a spiro ring system}
- C09K 2019/328 {containing a triphenylene ring system}
- U C09K 19/34 . . . containing at least one heterocyclic ring
- U C09K 19/3402 {having oxygen as hetero atom(sugars [C09K 19/0422](#))}
- U C09K 19/3405 {the heterocyclic ring being a five-membered ring}
- C09K 2019/3408 {Five-membered ring with oxygen(s) in fused, bridged or spiro ring systems}
- U C09K 19/3411 {the heterocyclic ring being a three-membered ring}
- C09K 2019/3413 {Three-membered member ring with oxygen(s), e.g. oxirane in fused, bridged or spiro ring systems}
- C09K 2019/3416 {the heterocyclic ring being a four-membered ring, e.g. oxetane}
- C09K 2019/3419 {Four-membered ring with oxygen(s), e.g. oxetane, in fused, bridged or spiro ring systems}
- C09K 2019/3422 {the heterocyclic ring being a six-membered ring}
- C09K 2019/3425 {Six-membered ring with oxygen(s) in fused, bridged or spiro ring systems}
- C09K 2019/3427 {Six-membered ring with 3 or more oxygen atoms}
- C09K 2019/343 {the heterocyclic ring being a seven-membered ring}
- C09K 2019/3433 {Seven-membered ring with oxygen(s) in fused, bridged or spiro ring systems}
- C09K 2019/3436 {Seven-membered ring with 3 or more oxygen atoms}
- C09K 2019/3438 {Crown ethers}
- U C09K 19/52 . . characterised by components which are not liquid crystals, e.g. additives{with special physical aspect: solvents, solid particles}
- C09K 2019/521 . . {Inorganic solid particles}
- C09K 2019/523 . . {Organic solid particles}
- C09K 2019/525 . . Solvents{Solvents}
- C09K 2019/526 . . {Gelling agents}
- C09K 2019/528 . . Surfactants{Surfactants}
- U C09K 19/54 . . Additives having no specific mesophase{characterised by their chemical composition}
- U C09K 19/542 . . . {Macromolecular compounds}
- C09K 2019/546 {creating a polymeric network}
- C09K 2019/548 {stabilizing the alignment; Polymer stabilized alignment}

Project: N/A (C10G)**C10G**

CRACKING HYDROCARBON OILS; PRODUCTION OF LIQUID HYDROCARBON MIXTURES, e.g. BY DESTRUCTIVE HYDROGENATION, OLIGOMERISATION, POLYMERISATION (cracking to hydrogen or synthesis gas [C01B](#); cracking or pyrolysis of hydrocarbon gases to individual hydrocarbons or mixtures thereof of definite or specific constitution [C07C](#); cracking to cokes [C10B](#)); RECOVERY OF HYDROCARBON OILS FROM OIL-SHALE, OIL-SAND, OR GASES; REFINING MIXTURES MAINLY CONSISTING OF HYDROCARBONS; REFORMING OF NAPHTHA; MINERAL WAXES (inhibiting corrosion or incrustation in general [C23F](#))

NOTES

In this subclass,

- groups [C10G 9/00](#) to [C10G 49/00](#) are limited to one-step processes;
- combined or multi-step processes are covered by groups [C10G 51/00](#) to [C10G 69/00](#) ;
- refining or recovery of mineral waxes is covered by group [C10G 73/00](#) .

In this subclass, the following terms or expressions are used with the meanings indicated:

- "in the presence of hydrogen" or "in the absence of hydrogen" mean treatments in which hydrogen, in free form or as hydrogen generating compounds, is added, or not added, respectively;
- "hydrotreatment" is used for conversion processes as defined in group [C10G 45/00](#) or group [C10G 47/00](#) ;
- "hydrocarbon oils" covers mixtures of hydrocarbons such as tar oils or mineral oils.

In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[C10G 73/23](#) covered by [C10G 73/06](#)
 Groups [C10G 2/30](#) to [C10G 2/50](#)
 do not correspond to former or current IPC groups. The concordance CPC : IPC is as follows: - [C10G 2/30](#)
 - ~~C01G2/50~~[C10G 2/50](#) : [C10G 2/00](#)

C10G 3/00

Production of liquid hydrocarbon mixtures from oxygen-containing or organic materials, e.g. fatty oils, fatty acids (production from non-melting solid oxygen-containing carbonaceous materials [C10G 1/00](#) ; preparation of individual hydrocarbons or mixtures thereof of definite or specified contribution [C07C](#))

WARNING

1. Groups [C10G 3/40](#) to [C10G 3/62](#) are not complete pending a reorganization. See also [C10G 3/00](#)
 2. Groups [C10G 3/40](#) to [C10G 3/62](#) do not correspond to former or current IPC groups.
- Concordance CPC : IPC for these groups is as follows: - [C10G 3/40](#) - ~~3/62~~[C10G 3/62](#) : [C10G 3/00](#)

Project: N/A (C10L)

U C10L 1/00	Liquid carbonaceous fuels
U C10L 1/10	• containing additives
U C10L 1/14	• • Organic compounds
U C10L 1/18	• • • Containing oxygen
U C10L 1/192	• • • • {Macromolecular compounds}(C10L 1/1814 , C10L 1/1817 take precedence)
C10L 1/195	• • • • • obtained by reactions involving only carbon-to-carbon unsaturated bonds†
C10L 1/197	• • • • • derived from monomers containing a carbon-to-carbon unsaturated bond and an acyloxy group of a saturated carboxylic or carbonic acid†
C10L 2200/00	Components of fuel compositions Note Additives in liquid fuels present in concentrations lower than 5% get a class taken from C10L 1/10 - 1/30B2 C10L 1/30B2 and corresponding C10L 1/10 - 1/30B2 C10L 1/30B2 . In groups C10L 1/32 to C10L 11/08 is such distinction between the terms additive and component not made.

Project: N/A (C10N)

C10N 2210/00	Nature of the metal present as such or in compounds, i.e. in salts <u>NOTE</u> Indexing codes C10N 2210/01 to C10N 2210/08 are only to be used as linked codes in combination with codes chosen from subclass M10M identifying the chemical nature of the compounds concerned: Example: C10M 2201/084 + C10N 2210/02
C10N 2270/00	Specific manufacturing methods for lubricant compositions or compounds not covered by groups C10N 2210/00 to M10M 260/00 C10N 2260/00

Project: N/A (C11D)

U C11D 3/00	Other compounding ingredients of detergent compositions covered in group C11D 1/00 <u>NOTE</u> Documents classified in group C11D 3/0005 are also classified in other groups of subclass C11D according to the chemical nature of the compounds as such
U C11D 3/16	• Organic compounds
U C11D 3/26	• • containing nitrogen {(C11D 3/162 , C11D 3/164 , C11D 3/166 , C11D 3/168 take precedence)}
U C11D 3/32	• • • Amides; Substituted amides
U C11D 2003/326	• • • • { granulated, coated or protected}
C11D 3/34	• • containing sulfur {(C11D 3/162 , C11D 3/164 , C11D 3/166 , C11D 3/168 take precedence)}
	<u>NOTES</u> In this group in the absence of an indication to the contrary sulfur containing compounds are classified in the last appropriate place (see Note before group C11D 3/00) and indexed for the individual functional groups using codes chosen from C11D 3/3409 to C11E 3/349 C11E 3/349 In case of mixtures or a list of alternatives or Markush formulae each individual compound is classified and indexed according to Note 1.

Project: N/A (C12M)

C12M

APPARATUS FOR ENZYMOLOGY OR MICROBIOLOGY; { APPARATUS FOR CULTURING MICROORGANISMS FOR PRODUCING BIOMASS, FOR GROWING CELLS OR FOR OBTAINING FERMENTATION OR METABOLIC PRODUCTS, i.e. BIOREACTORS OR FERMENTERS}NOTE

In this subclass the term microorganism includes prokaryotic and eukaryotic cells. Viruses, human, animal or plant cells, protozoa, tissues and unicellular algae are considered microorganisms.

When classifying an apparatus according to its use in group [C12M 21/00](#), classification should also be given in at least one of the groups [C12M 23/00-C12M 99/00](#).

This subclass covers apparatus or devices for the fermentation or for growing microorganisms or animal tissues of both laboratory and industrial scale, i.e. bioreactors.

This subclass covers also apparatus or devices for the pre-treatment or after-treatment of the biomass or microorganisms to be cultured or that have been cultured.

This subclass does not cover the methods or processes taking place in the bioreactors that are not based on the use of the parts of the apparatus.

This subclass does not cover:

apparatus for culturing plant tissue, which are covered by

A01H4/00B;

apparatus for preservation of living parts of bodies of humans or animals, which are covered by [A01N 1/0242](#);

apparatus or devices for testing sterility conditions not linked to a bioreactor or fermenter growing biomass, which are covered by [A61L 2/00](#), **G01N31/22F**;

apparatus for biological treatment of water, waste water, sewage or sludge, which are covered by [C02F 3/00](#), [C02F 11/00](#);

apparatus for brewing of beer, which are covered by [C12C](#);

apparatus for production of wine or vinegar, which are covered by [C12G](#), [C12J 1/10](#);

apparatus or devices for DNA and RNA technology, which are covered by [B01L 7/52](#), **B01J19/00C**, **C12N15/10A**;

fermentation processes, which are covered by [C12P](#);

apparatus for bioleaching of ores, which are covered by [C22B 3/18](#);

removing cellulose from cellulosic substances, which is covered by [D21C](#);

apparatus or devices for sampling, detection, investigation or analysis of microorganisms or biosensors, which are covered by [G01N 33/48](#);

apparatus for automatic analysis not linked to a bioreactor or fermenter growing biomass, which are covered by [G01N 35/00](#);

testing or evaluating the effect of a chemical or biological compound involving human or animal cells, which are covered by **G01N33/50D**;

apparatus for immunological test processes, which are covered by **G01N33/53B**.

WARNING

Groups [C12M 21/00](#) to [C12M 99/00](#) do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows:

- [C12M 21/00](#) : [C12M 1/00](#) - [C12M 21/02](#) : [C12M 1/00](#) - [C12M 21/04](#)
- : [C12M 1/107](#) - [C12M 21/06](#) : [C12M 3/00](#) - [C12M 21/08](#) : [C12M 3/00](#)
- [C12M 21/10](#) : [C12M 3/10](#) - [C12M 21/12](#) : [C12M 1/00](#) - [C12M 21/14](#)
- : [C12M 1/00](#) - [C12M 21/16](#) : [C12M 1/16](#) - [C12M 21/18](#) : [C12M 1/40](#)
- [C12M 23/00](#) : [C12M 1/00](#) - [C12M 23/02](#) : [C12M 1/00](#) - [C12M 23/04](#)
- : [C12M 1/12](#) - [C12M 23/06](#) : [C12M 1/12](#) - [C12M 23/08](#) : [C12M 1/24](#)

- [C12M 23/10](#) : [C12M 1/22](#) - [C12M 23/12](#) : [C12M 1/32](#) - [C12M 23/14](#)
: [C12M 1/00](#) - [C12M 23/16](#) : [C12M 3/06](#) - [C12M 23/18](#) : [C12M 1/00](#)
- [C12M 23/20](#) : [C12M 1/00](#) - [C12M 23/22](#) : [C12M 1/00](#) - [C12M 23/24](#)
: [C12M 1/04](#) - [C12M 23/26](#) : [C12M 1/00](#) - [C12M 23/28](#) : [C12M 1/00](#)
- [C12M 23/30](#) : [C12M 1/00](#) - [C12M 23/32](#) : [C12M 1/00](#) - [C12M 23/34](#)
: [C12M 1/00](#) - [C12M 23/36](#) : [C12M 1/107](#) - [C12M 23/38](#) : [C12M 1/00](#)
- [C12M 23/40](#) : [C12M 1/00](#) - [C12M 23/42](#) : [C12M 3/00](#) - [C12M 23/44](#)
: [C12M 3/00](#) - [C12M 23/46](#) : [C12M 3/00](#) - [C12M 23/48](#) : [C12M 3/00](#)
- [C12M 23/50](#) : [C12M 1/00](#) - [C12M 23/52](#) : [C12M 1/00](#) - [C12M 23/54](#)
: [C12M 3/00](#) - [C12M 23/56](#) : [C12M 1/09](#) - [C12M 23/58](#) : [C12M 1/00](#)
- [C12M 25/00](#) : [C12M 1/12](#) - [C12M 25/02](#) : [C12M 1/12](#) - [C12M 25/04](#)
: [C12M 1/12](#) - [C12M 25/06](#) : [C12M 1/12](#) - [C12M 25/08](#) : [C12M 1/12](#)
- [C12M 25/10](#) : [C12M 1/12](#) - [C12M 25/12](#) : [C12M 1/12](#) - [C12M 25/14](#)
: [C12M 1/12](#) - [C12M 25/16](#) : [C12M 1/12](#) - [C12M 25/18](#) : [C12M 1/12](#)
- [C12M 25/20](#) : [C12M 1/12](#) - [C12M 27/00](#) : [C12M 1/02](#) - [C12M 27/02](#)
: [C12M 1/06](#) - [C12M 27/04](#) : [C12M 1/04](#) - [C12M 27/06](#) : [C12M 1/06](#)
- [C12M 27/08](#) : [C12M 1/06](#) - [C12M 27/10](#) : [C12M 3/04](#) - [C12M 27/12](#)
: [C12M 3/04](#) - [C12M 27/14](#) : [C12M 3/06](#) - [C12M 27/16](#) : [C12M 3/06](#)
- [C12M 27/18](#) : [C12M 1/00](#) - [C12M 27/20](#) : [C12M 1/00](#) - [C12M 27/22](#)
: [C12M 1/00](#) - [C12M 27/24](#) : [C12M 1/08](#) - [C12M 29/00](#) : [C12M 1/00](#)
- [C12M 29/02](#) : [C12M 1/00](#) - [C12M 29/04](#) : [C12M 1/00](#) - [C12M 29/06](#)
: [C12M 1/00](#) - [C12M 29/08](#) : [C12M 1/00](#) - [C12M 29/10](#) : [C12M 1/00](#)
- [C12M 29/12](#) : [C12M 1/00](#) - [C12M 29/14](#) : [C12M 1/00](#) - [C12M 29/16](#)
: [C12M 1/00](#) - [C12M 29/18](#) : [C12M 1/00](#) - [C12M 29/20](#) : [C12M 1/00](#)
- [C12M 29/22](#) : [C12M 1/00](#) - [C12M 29/24](#) : [C12M 1/00](#) - [C12M 29/26](#)
: [C12M 1/00](#) - [C12M 31/00](#) : [C12M 1/00](#) - [C12M 31/02](#) : [C12M 1/00](#)
- [C12M 31/04](#) : [C12M 1/00](#) - [C12M 31/06](#) : [C12M 1/00](#) - [C12M 31/08](#)
: [C12M 1/00](#) - [C12M 31/10](#) : [C12M 1/00](#) - [C12M 31/12](#) : [C12M 1/00](#)
- [C12M 33/00](#) : [C12M 1/26](#) - [C12M 33/02](#) : [C12M 1/30](#) - [C12M 33/04](#)
: [C12M 1/26](#) - [C12M 33/06](#) : [C12M 1/32](#) - [C12M 33/08](#) : [C12M 1/26](#)
- [C12M 33/10](#) : [C12M 1/26](#) - [C12M 33/12](#) : [C12M 1/26](#) - [C12M 33/14](#)
: [C12M 1/26](#) - [C12M 33/16](#) : [C12M 1/26](#) - [C12M 33/18](#) : [C12M 1/26](#)
- [C12M 33/20](#) : [C12M 1/26](#) - [C12M 35/00](#) : [C12M 1/42](#) - [C12M 35/02](#)
: [C12M 1/42](#) - [C12M 35/04](#) : [C12M 1/42](#) - [C12M 35/06](#) : [C12M 1/42](#)
- [C12M 35/08](#) : [C12M 1/42](#) - [C12M 37/00](#) : [C12M 1/12](#) - [C12M 37/02](#)
: [C12M 1/12](#) - [C12M 37/04](#) : [C12M 1/12](#) - [C12M 37/06](#) : [C12M 1/12](#)
- [C12M 39/00](#) : [C12M 1/00](#) - [C12M 41/00](#) : [C12M 1/34](#) - [C12M 41/02](#)
: [C12M 1/21](#) - [C12M 41/04](#) : [C12M 1/34](#) - [C12M 41/06](#) : [C12M 1/00](#)
- [C12M 41/08](#) : [C12M 1/00](#) - [C12M 41/10](#) : [C12M 1/00](#) - [C12M 41/12](#)
: [C12M 1/34](#) - [C12M 41/14](#) : [C12M 1/00](#) - [C12M 41/16](#) : [C12M 1/34](#)
- [C12M 41/18](#) : [C12M 1/02](#) - [C12M 41/20](#) : [C12M 1/02](#) - [C12M 41/22](#)
: [C12M 1/02](#) - [C12M 41/24](#) : [C12M 1/02](#) - [C12M 41/26](#) : [C12M 1/34](#)
- [C12M 41/28](#) : [C12M 1/34](#) - [C12M 41/30](#) : [C12M 1/34](#) - [C12M 41/32](#)
: [C12M 1/34](#) - [C12M 41/34](#) : [C12M 1/34](#) - [C12M 41/36](#) : [C12M 1/34](#)
- [C12M 41/38](#) : [C12M 1/34](#) - [C12M 41/40](#) : [C12M 1/34](#) - [C12M 41/42](#)
: [C12M 1/34](#) - [C12M 41/44](#) : [C12M 1/34](#) - [C12M 41/46](#) : [C12M 1/34](#)
- [C12M 41/48](#) : [C12M 1/36](#) - [C12M 43/00](#) : [C12M 1/00](#) - [C12M 43/02](#)
: [C12M 1/00](#) - [C12M 43/04](#) : [C12M 1/00](#) - [C12M 43/06](#) : [C12M 1/00](#)
- [C12M 43/08](#) : [C12M 1/00](#) - [C12M 45/00](#) : [C12M 1/00](#) - [C12M 45/02](#)
: [C12M 1/33](#) - [C12M 45/04](#) : [C12M 1/00](#) - [C12M 45/06](#) : [C12M 1/00](#) -
C12M45/08[C12M 45/06](#) : [C12M 3/08](#) - **C12M45/10**[C12M 45/09](#) : [C12M 3/08](#)
- **C12M45/12**[C12M 45/20](#) : [C12M 3/08](#) - **C12M45/14**[C12M 45/06](#) :
[C12M 3/08](#) - **C12M45/16**[C12M 45/09](#) : [C12M 3/08](#) - **C12M45/18**[C12M 45/20](#)
: [C12M 1/00](#) - [C12M 45/20](#) : [C12M 1/00](#) - [C12M 45/22](#) : [C12M 1/00](#)
- [C12M 47/00](#) : [C12M 1/00](#) - [C12M 47/00](#) : [C12M 1/00](#) - [C12M 47/02](#)
: [C12M 1/00](#) - [C12M 47/04](#) : [C12M 1/00](#) - [C12M 47/06](#) : [C12M 1/00](#)
- [C12M 47/08](#) : [C12M 1/00](#) - [C12M 47/10](#) : [C12M 1/00](#) - [C12M 47/12](#)

: [C12M 1/00](#) - [C12M 47/14](#) : [C12M 1/00](#) - [C12M 47/16](#) : [C12M 1/00](#) -
[C12M 47/18](#) : [C12M 1/00](#) - [C12M 47/20](#) : [C12M 1/00](#)

C12M 41/00

{ Means for regulation, monitoring, measurement or control, e.g. flow regulation (controlling or regulating chemical, physical or physicochemical processes [B01J 19/0006](#); heating or cooling apparatus for laboratory use [B01L 7/00](#); electro optical investigation of individual particles, flow cytometers [G01N 15/14](#); automatic analysis [G01N 35/00](#); controlling or regulating in general [G05NG05N](#))}

Project: N/A (C12N)

C12N

MICRO-ORGANISMS OR ENZYMES; COMPOSITIONS THEREOF(biocides, pest repellants or attractants, or plant growth regulators, containing micro-organisms, viruses, microbial fungi, enzymes, fermentates or substances produced by or extracted from micro-organisms or animal material [A01N 63/00](#) ; food compositions [A21](#) , [A23](#) ; medicinal preparations [A61K](#) ; chemical aspects of, or use of materials for, bandages, dressings, absorbent pads or surgical articles [A61L](#) ; fertilisers [C05](#)); **PROPAGATING, PRESERVING OR MAINTAINING MICRO-ORGANISMS**(preservation of living parts of humans or animals [A01N 1/02](#)); **MUTATION OR GENETIC ENGINEERING; CULTURE MEDIA**(micro-biological testing media [C12Q](#))

NOTES

Documents relating to the use of vectors or hosts for the preparation of specific peptides, e.g. enzymes, are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes.

Attention is drawn to Notes (1) to (3) following the title of Class [C12](#) . When classifying in this group, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

C12N 1/11	covered by	
C12N 15/79		
C12N 1/13	covered by	
C12N 15/79		
C12N 1/15	covered by	
C12N 15/80		
C12N 1/19	covered by	
C12N 15/81		
C12N 1/21	covered by	
C12N 15/74		
C12N 5/02	covered by	C12N 5/00
,	C12N 5/04	to C12N 5/166
C12N 5/07	-	C12N 5/095 covered
by	C12N 5/06	and subgroups
C12N 5/18	-	C12N 5/28 covered
by	C12N 5/16	and subgroups
C12N5/08	covered by	C12N 5/06
to	C12N5/06R	
C12N 5/18	covered by	
C12N 5/16		

C12N 5/20	covered by
C12N 5/163	
C12N 5/22	covered by
C12N 5/16	
C12N 5/24	covered by
C12N 5/163	
C12N 5/26	covered by
C12N 5/166	
C12N 5/28	covered by
C12N 5/166	
C12N 7/01	covered by
C12N 7/00	
C12N 9/70	covered by
C07K 14/3153	
C12N 15/05	covered by
C12N 5/14	
C12N 15/06	covered by
C12N 5/16	
C12N 15/07	covered by
C12N 5/16	
C12N 15/08	covered by
C12N 5/166	
C12N 15/12	covered by
C07K 14/435	
C12N 15/13	covered by
C07K 16/00	
C12N 15/14	covered by
C07K 14/765	
C12N 15/15	covered by
C07K 14/81	
C12N 15/16	covered by
C07K 14/575	
C12N 15/17	covered by
C07K 14/62	
C12N 15/18	covered by
C07K 14/61	
C12N 15/19	covered by
C07K 14/52	
C12N 15/20	covered by
C07K 14/555	
C12N 15/21	covered by
C07K 14/56	
C12N 15/22	covered by
C07K 14/565	
C12N 15/23	covered by
C07K 14/57	
C12N 15/24	covered by
C07K 14/54	
C12N 15/25	covered by
C07K 14/545	
C12N 15/26	covered by
C07K 14/55	
C12N 15/27	covered by
C07K 14/53	
C12N 15/28	covered by
C07K 14/525	
C12N 15/29	covered by
C07K 14/415	

C12N 15/30	covered by	
C07K 14/44		
C12N 15/31	covered by	C07K 14/195
,		
C07K 14/005		
C12N 15/32	covered by	
C07K 14/325		
C12N 15/33	covered by	
C07K 14/005		
C12N 15/34	covered by	
C07K 14/01		
C12N 15/35	covered by	
C07K 14/015		
C12N 15/36	covered by	
C07K 14/02		
C12N 15/37	covered by	
C07K 14/025		
C12N 15/38	covered by	
C07K 14/03		
C12N 15/39	covered by	
C07K 14/065		
C12N 15/40	covered by	
C07K 14/08		
C12N 15/41	covered by	
C07K 14/085		
C12N 15/42	covered by	
C07K 14/09		
C12N 15/43	covered by	
C07K 14/105		
C12N 15/44	covered by	
C07K 14/11		
C12N 15/45	covered by	
C07K 14/115		
C12N 15/46	covered by	
C07K 14/14		
C12N 15/47	covered by	
C07K 14/145		
C12N 15/48	covered by	
C07K 14/15		
C12N 15/49	covered by	
C07K 14/155		
C12N 15/50	covered by	
C07K 14/165		
C12N 15/51	covered by	C07K 14/02
,		
C07K 14/10		C07K 14/18
,		
C12N 15/53	covered by	
C12N 9/02		
C12N 15/54	covered by	
C12N 9/10		
C12N 15/55	covered by	
C12N 9/14		
C12N 15/56	covered by	
C12N 9/24		
C12N 15/57	covered by	
C12N 9/48		
C12N 15/58	covered by	C12N9/72B
C12N 9/6456		
C12N 15/59	covered by	C12N9/64A
C12N 9/6483		

C12N 15/60	covered by	
C12N 9/88		
C12N 15/61	covered by	
C12N 9/90		
C12N 15/83	covered by	
C12N 15/82		
C12N 15/84	covered by	C12N 15/82

- U C12N 9/00** **Enzymes; Proenzymes; Compositions thereof(preparations containing enzymes for cleaning teeth [A61K 8/66](#) , [A61Q 11/00](#) ; medicinal preparations containing enzymes or pro-enzymes [A61K 38/43](#) ; enzyme containing detergent compositions [C11D](#) ; { enzymes with nucleic acid structure, e.g. ribozymes, [C12N 15/113](#) }); Processes for preparing, activating, inhibiting, separating or purifying enzymes(preparation of malt [C12C 1/00](#))**

NOTE

Enzymes are generally categorized below according to the "Nomenclature and Classification of Enzymes" of the International Commission on Enzymes. Where appropriate, this designation appears in the groups below in parenthesis.

C12N 2009/02 • {Oxidoreductases (1.)}

- U C12N 15/00** **Mutation or genetic engineering; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification; Use of hosts therefor(mutants or genetically engineered micro-organisms, per se [C12N 1/00](#) , [C12N 5/00](#) , [C12N 7/00](#) ; new plants per se [A01H](#) ; plant reproduction by tissue culture techniques [A01H 4/00](#) ; new animals per se [A01K 67/00](#) ; use of medicinal preparations containing genetic material which is inserted into cells of the living body to treat genetic diseases, gene therapy [A61K 48/00](#))**

- U C12N 15/09** • Recombinant DNA-technology
- C12N 15/10** • • Processes for the isolation, preparation or purification of DNA or RNA(chemical preparation of DNA or RNA [C07H 21/00](#) ; preparation of non-structural polynucleotides from micro-organisms or with enzymes [C12P 19/34](#))

NOTE

After the symbol [C12N 15/10](#) to ~~[G12N 15/10](#)~~ **[C12N 15/10D](#)**, and separated therefrom by a + sign, it is desirable to add the indexing codes selected from groups [C12Q 2500/00](#) to ~~[M12Q 599/00](#)~~ **[C12Q 599/00](#)**, relating to relevant technical features of the invention. When more than one indexing code is selected, the different codes are separated by a + sign. Example : [C12N 15/1037](#) + 537/125 + 521/537

- C12N 15/11** • • DNA or RNA fragments; Modified forms thereof(DNA or RNA not used in recombinant technology, [C07H 21/00](#)); {Non-coding nucleic acids having a biological activity}

NOTE

Documents relating to DNA or its corresponding RNA and their use in recombinant DNA technology or the preparation of specific peptides, e.g. enzymes, are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their use in recombinant technology. Groups [C12N 15/11](#) to [C12N 15/117](#) cover also the use of non-coding nucleic acids as active ingredients in medicinal preparations. The [C12N 2300/00](#) ICO scheme has to be applied to these groups. When documents classifiable in one or more subgroups disclose general principles of the technology

applicable to the whole field, classification is also made in group

~~C12N 15/11~~ ~~M~~ ~~C12N 15/111~~

U C12N 15/63 . . Introduction of foreign genetic material using vectors; Vectors; Use of hosts therefor; Regulation of expression

U C12N 15/79 . . . Vectors or expression systems specially adapted for eukaryotic hosts

NOTE

This group covers the use of eukaryotes as hosts.

U C12N 15/85 for animal cells

U C12N 15/8509 {for producing genetically modified animals, e.g. transgenic}

NOTE

The purpose of the modified animal is indicated using the codes under [A01K 2267/00](#)

U C12N 2015/8518 {expressing industrially exogenous proteins, e.g. for pharmaceutical use, human insulin, blood factors, immunoglobulins, pseudoparticles}

U C12N 2015/8527 {for producing animal models, e.g. for tests or diseases}

C12N 2503/00

Use of cells in diagnostics

NOTE

When testing involves a protein, a receptor, an enzyme or a nucleic acid merely expressed by a cell ~~M07K203/00~~, ~~M07K205/00~~, ~~M12N203/00~~ or ~~M12N205/00~~.

Project: N/A (C12P)

U C12P 13/00

C12P 13/02

Preparation of nitrogen-containing organic compounds

. Amides, e.g. chloramphenicol{or polyamides; Imides or polyimides; Urethanes, i.e. compounds comprising N-C=O structural element or polyurethanes(~~peptides C12P21 or C07K~~ ~~peptides C12P 21/00 or C07K~~)}

Project: N/A (C12Q)

C12Q

MEASURING OR TESTING PROCESSES INVOLVING ENZYMES OR MICRO-ORGANISMS(immunoassay [G01N 33/53](#)); COMPOSITIONS OR TEST PAPERS THEREFOR; PROCESSES OF PREPARING SUCH COMPOSITIONS; CONDITION RESPONSIVE CONTROL IN MICROBIOLOGICAL OR ENZYMOLOGICAL PROCESSES

NOTES

This subclass does not cover the observation of the progress or of the result of processes specified in this subclass by any of the methods specified in groups [G01N 3/00](#) to [G01N 29/00](#), which is covered by subclass [G01N](#).

In this subclass, the following expression is used with the meaning indicated: "involving", when used in relation to a substance, includes the testing for the substance as well as employing the substance as a determinant or reactant in a test for a different substance.

Attention is drawn to Notes (1) to (3) following the title of class [C12](#).

In this subclass, test media are classified in the appropriate group for the relevant test process.

Documents describing the use of an electrode for analysis of a specific analyte are classified in [C12Q 1/001](#) or subgroups and not according to the last place rule

Documents relating to new peptides, e.g. enzymes, or new DNA or its corresponding mRNA, encoding for the peptides, and their use in measuring or testing processes are classified in subclass [C07K](#) or in group [C12N 9/00](#)

according to the peptides, with the appropriate indexing codes relating to their use in diagnostics. However where the new nucleic acids are principally used in diagnostic processes, e.g. PCR, hybridisation reactions, the documents are also classified in group [C12Q 1/68](#)

When classifying in groups [C12Q 1/68](#) to [C12Q 1/70](#) it is desirable to classify with symbols from groups [C12Q 2500/00](#) to ~~M12Q599/00~~ [C12Q 599/00](#), relating to relevant technical features of the invention, using Combination Sets.

In groups [C12Q 1/68](#) M- [C12Q 1/6895](#) and [C12Q 1/70](#) - [C12Q 1/708](#) it is desirable to add the indexing codes [C12Q 2600/00](#) to [C12Q 2600/178](#) which reflect the use of the product in combination with the virus groups only if the application refers to products.

- U C12Q 2533/00 {Reactions characterised by the enzymatic reaction principle used}**
- U C12Q 2533/10
- the purpose being to increase the length of an oligonucleotide strand(ligase detection reaction, LDR [C12Q 2561/125](#))
- C12Q 2533/101
- • Primer extension(~~see also codes M535/125 , M565/537~~ see also codes [C12Q 2535/125](#) , [C12Q 2565/537](#))
- C12Q 2533/107
- • Probe/oligonucleotide ligation(~~Not used with code M21Q531/137 , M21Q561/125~~ Not used with code [C12Q 2531/137](#) , [C12Q 2561/125](#))

Project: N/A (C21B)

- U C21B 5/00 Making pig-iron in the blast furnace**
- U C21B 5/001
- {Injecting additional fuel or reducing agents}
- C21B 2005/005
- • {Selection or treatment of the reducing gases }

Project: N/A (C21C)

- U C21C 5/00 Manufacture of carbon-steel, e.g. plain mild steel, medium carbon steel or cast steel {or stainless steel}**
- U C21C 5/28
- Manufacture of steel in the converter ({[C21C 5/005](#) takes precedence)}
- U C21C 5/36
- • Processes yielding slags of special composition
- C21C 2005/363
- • • {Slag cements }
- C21C 2005/366
- • • {Foam slags }
- U C21C 5/42
- • Constructional features of converters
- U C21C 5/44
- • • Refractory linings
- U C21C 5/445
- • • • {Lining or repairing the taphole}
- C21C 2005/446
- • • • • {Dry linings }
- C21C 2005/448
- • • • {Lining wear indicators }
- U C21C 5/46
- • • Details or accessories
- U C21C 5/4606
- • • • {Lances or injectors}
- C21C 2005/4626
- • • • • {Means for cooling, e.g. by gases, fluids or liquids }
- U C21C 5/466
- • • • {Charging device for converters}
- C21C 2005/4666
- • • • • {for charging with organic contaminated scrap }
- U C21C 5/4673
- • • • {Measuring and sampling devices}
- C21C 2005/468
- • • • • {Means for determining the weight of the converter }
- U C21C 5/52
- Manufacture of steel in electric furnaces ({[C21C 5/005](#) takes precedence}; electric heating per se [H05B](#))
- U C21C 5/5211
- • {in an alternating current (AC) electric arc furnace}
- C21C 2005/5223
- • • {with post-combustion }

- U C21C 5/5229
 - {in a direct current (DC) electric arc furnace}
- C21C 2005/5235
 - • {with bottom electrodes }
- C21C 2005/5258
 - {with crater formed by down-melting of scrap or charge through electrode or lance }
- U C21C 5/527
 - {Charging of the electric furnace}
- C21C 2005/5276
 - • {with liquid or solid rest, e.g. pool, "sumpf" }
- C21C 2005/5282
 - • {with organic contaminated scrap }
- C21C 2005/5288
 - • {Measuring or sampling devices }
- U **C21C 7/00**

Treating molten ferrous alloys, e.g. steel, not covered by groups [C21C 1/00](#) to [C21C 5/00](#) (treating molten metals during moulding [B22D 1/00](#), [B22D 27/00](#); remelting ferrous metals [C22B](#))
- U C21C 7/0006
 - {Adding metallic additives}
- C21C 2007/0012
 - • ~~Lead~~-{~~Lead~~ }
- C21C 2007/0018
 - • ~~Boron~~-{~~Boron~~ }
- U C21C 7/0025
 - {Adding carbon material}
- C21C 2007/0031
 - • {being plastics, organic compounds, polymers }
- U C21C 7/0056
 - {using cored wires}
- C21C 2007/0062
 - • {with introduction of alloying or treating agents under a compacted form different from a wire, e.g. briquette, pellet }
- C21C 2007/0093
 - {Duplex process; Two stage processes }

Project: N/A (C21D)

- U **C21D 8/00**

Modifying the physical properties by deformation combined with, or followed by, heat treatment(hardening articles or materials formed by forging or rolling with no further heating beyond that required for the formation [C21D 1/02](#))
- C21D 8/02
 - during manufacturing of plates or strips([C21D 8/12](#) takes precedence)

NOTE
In this group classification is made according to the most important feature in one subgroup only; for other features indexing codes of ~~M21D~~**M21D** are added
- C21D 8/04
 - • to produce plates or strips for deep-drawing

NOTE
In this group classification is made according to the most important feature in one subgroup only; for other features indexing codes of ~~M21D~~**M21D** are added
- C21D 8/12
 - during manufacturing of articles with special electromagnetic properties

NOTE
In this group classification is made according to the most important feature in one subgroup only; for other features indexing codes of ~~M21D~~**M21D** are added

Project: N/A (C22B)

- U **C22B 3/00**

Extraction of metal compounds from ores or concentrates by wet processes

NOTE
This group covers methods directed to the extraction of three or more metals.

For the recovery of one or two metals, see the other groups of this subclass concerning these metals

- U C22B 3/20
 - Treatment or purification of solutions, e.g. obtained by leaching([C22B 3/18](#) takes precedence)
- C22B 3/44
 - • by chemical processes([C22B 3/0005](#) to ~~G22B3/20D2P~~ [C22B 3/0097](#) take precedence)

Project: N/A (C22C)

- U C22C 1/00

Making alloys (powder-metallurgical apparatus or processes, not specially modified for making alloys [B22F](#); by electrothermal methods [C22B 4/00](#); by electrolysis [C25C](#))
- U C22C 1/08
 - Alloys with open or closed pores {(by powder metallurgy [B22F 3/11](#))}
- C22C 2001/081
 - • {Casting porous metals into porous preform skelet without foaming }
- C22C 2001/082
 - • • {with removal of the preform }
- C22C 2001/083
 - • {Foaming process in molten metal other than by powder metallurgy }
- C22C 2001/085
 - • • {with external pressure or pressure buildup to make porous metals }
- C22C 2001/086
 - • • {Gas foaming process }
- C22C 2001/087
 - • • {after casting in solidified or solidifying metal to make porous metals }
- C22C 2001/088
 - • {Foaming process with solid metal other than by powder metallurgy }
- U C22C 1/10
 - Alloys containing non-metals ({ [C22C 1/05](#), [C22C 1/08](#), { [C22C 47/00](#), [C22C 49/00](#) } take precedence)
- U C22C 1/1005
 - • { Pretreatment of the non-metallic additives (pretreatment of non-metallic fibres [C22C 47/02](#)){ WARNING Groups [C22C 1/1005](#), [C22C 1/101](#) and [C22C 1/1015](#) are not complete, see also [C22C 1/10](#) }
- U C22C 1/1015
 - • • { by preparing or treating a non-metallic additive preform }
- C22C 2001/1021
 - • • • {the preform being ceramic }
- U C22C 1/1036
 - • {starting from a melt (infiltration of sintered ceramic preforms with molten metal [C04B 41/51](#))}
- C22C 2001/1047
 - • • {by mixing and casting liquid metal matrix composites }
- C22C 2001/1052
 - • • • {by mixing and casting metal matrix composites with reaction }
- C22C 2001/1057
 - • • {Reactive infiltration }
- C22C 2001/1063
 - • • • {Gas reaction, e.g. lanxide }
- C22C 2001/1073
 - • • {Infiltration or casting under mechanical pressure, e.g. squeeze casting }
- C22C 2001/1089
 - • {by partial reduction or decomposition of a solid metal compound }
- U C22C 26/00

Alloys containing diamond { or cubic or wurtzitic boron nitride, fullerenes or carbon nanotubes }
- C22C 2026/001
 - ~~Fullerenes~~ {Fullerenes }
- C22C 2026/002
 - {Carbon nanotubes }
- C22C 2026/003
 - {Cubic boron nitrides only }
- C22C 2026/005
 - {with additional metal compounds being borides }
- C22C 2026/006
 - {with additional metal compounds being carbides }
- C22C 2026/007
 - {with additional metal compounds being nitrides }
- C22C 2026/008
 - {with additional metal compounds other than carbides, borides or nitrides }
- U C22C 47/00

Making alloys containing metallic or non-metallic fibres or filaments
- C22C 2047/005
 - {Working of filaments or rods into fibre reinforced metal by mechanical deformation }

- U C22C 47/20 • by subjecting to pressure and heat an assembly comprising at least one metal layer or sheet and one layer of fibres or filaments
- C22C 2047/205 • • {placing wires inside grooves of a metal layer }

Project: N/A (C23C)**C23C**

COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL; SURFACE TREATMENT OF METALLIC MATERIAL BY DIFFUSION INTO THE SURFACE, BY CHEMICAL CONVERSION OR SUBSTITUTION; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL(applying liquids or other fluent materials to surfaces in general [B05](#); making metal-coated products by extrusion [B21C 23/22](#) ; covering with metal by connecting pre-existing layers to articles, see the relevant places, e.g. [B21D 39/00](#) , [B23K](#); working of metal by the action of a high concentration of electric current on a workpiece using an electrode [B23H](#); metallising of glass [C03C](#); metallising mortars, concrete, artificial stone, ceramics or natural stone [C04B 41/00](#) ; paints varnishes, laquers [C09D](#); enamelling of, or applying a vitreous layer to, metals [C23D](#); inhibiting corrosion of metallic material or incrustation in general [C23F](#); single-crystal film growth [C30B](#); manufacture of semiconductor devices [H01L](#); manufacture of printed circuits [H05K](#))

NOTE

In this subclass, an operation is considered as pre-treatment or after-treatment when it is specially adapted for, but quite distinct from, the coating process concerned and constitutes an independent operation. If an operation results in the formation of a permanent sub- or upper layer, it is not considered as pre-treatment or after-treatment and is classified as a multi-coating process.

WARNING

1. Groups [C23C 28/30](#) to [C23C 28/44](#) do not correspond to former or current IPC-groups. Concordance CPC : IPC for these groups is as follows - [C23C 28/30](#) - [28/44](#)[C23C 28/44](#) : [C23C 28/00](#)

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[C23C 14/36](#) to [C23C 14/44](#) covered by
[C23C 14/34](#) + subgr.

The following IPC group is not used in the CPC system. Subject-matter covered by the group is classified in the following CPC groups : [C23C 18/28](#) covered by [C23C 18/20](#) B- [C23C 18/2093](#)

- U C23C 16/00 **Chemical coating by decomposition of gaseous compounds, without leaving reaction products of surface material in the coating, i.e. chemical vapour deposition (CVD) processes(reactive sputtering or vacuum evaporation [C23C 14/00](#))**

- U C23C 16/44 • characterised by the method of coating([C23C 16/04](#) takes precedence)
- C23C 16/4418 • • {Methods for making free-standing articles(~~[C23C 16/00B](#)~~[C23C 16/01](#) takes precedence)}

- U C23C 18/00 **Chemical coating by decomposition of either liquid compounds or solutions of the coating forming compounds, without leaving reaction products of surface material in the coating(chemical surface reaction [C23C 8/00](#) , [C23C 22/00](#)); Contact plating**

NOTE

This groups covers also suspensions containing reactive liquids and non-reactive solid particles.

- U C23C 18/16 • by reduction or substitution, e.g. electroless plating([C23C 18/54](#) takes precedence)
- U C23C 18/1601 • • {Process or apparatus}
- C23C 18/1619 • • • {Apparatus for electroless plating}
- WARNING
the groups [C23C 18/1619](#) to [C23C 18/1698](#) are not complete, pending reorganisation. See also [C23C 18/16-B](#) [C23C 18/16B](#)
- U C23C 18/18 • • Pre-treatment of the material to be coated
- U C23C 18/20 • • • of organic surfaces, e.g. resins
- U C23C 18/2006 • • • • { by other methods than those of [C23C 18/22](#) to [C23C 18/30](#) }
- C23C 18/2013 • • • • • {by mechanical pretreatment, e.g. grinding, sanding}
- WARNING
the groups [C23C 18/2013](#) to [C23C 18/2093](#) are not complete, pending reorganisation. See also [C23C 18/20-B](#) [C23C 18/20B](#)

Project: N/A (C25D)

- U C25D 11/00 **Electrolytic coating by surface reaction, i.e. forming conversion layers**
- C25D 11/005 • { Apparatus specially adapted for electrolytic conversion coating (apparatus in general for electrolytic coating [C25D 17/00](#))}
- WARNING
Groups [C25D 11/00B](#) [C25D 11/005](#), [C25D 11/022](#)-[C25D 11/02F](#), [C25D 11/045](#) are not complete, pending reorganization, see also [C25D 11/00](#)
- C25D 17/00 **Constructional parts, or assemblies thereof, of cells for electrolytic coating (apparatus for continuously conveying articles into baths [B65G](#), e.g. [B65G 49/00](#); electric devices see the relevant classes, e.g. [H01B](#), [H02G](#)) {([C25D 7/06](#), [C25D 11/42](#) [C25D 11/005](#), [C25D 13/22](#), [C25](#) takes precedence)}**
- C25D 17/001 • { Apparatus specially adapted for plating wafers, e.g. semiconductors, solar cells}
- WARNING
Groups [C25D 17/00B](#) [C25D 17/005](#)-[C25D 17/008](#) are not complete, pending reorganization, see also [C25D 17/00](#)

Project: N/A (C30B)

- C30B 23/00 **Single-crystal growth by condensing evaporated or sublimed material**
- NOTE
Groups [C30B 23/002](#) to [C30B 23/00D](#) [C30B 23/005](#) take precedence over groups [C30B 23/007](#) to [C30B 23/08](#)
- WARNING
Group [C30B 23/002](#) to [C30B 23/00D](#) [C30B 23/005](#) are not complete, see also [C30B 23/02](#)

Project: N/A (D01H)

- U D01H 5/00 Drafting machines or arrangements {Threading of roving into drafting machine}{arrangements in which draft is dependent on linear movement of take-up spindles, e.g. in mules, [D01H 3/00](#); devices for combing or orienting fibres for open-end spinning machines [D01H 4/30](#); {increasing the strength of a roving or sliver by false-twisting [D01H 7/92](#), during drafting [D01H 5/28](#), after drafting and before spinning according to groups [D01H 1/02](#) to [D01H 1/08](#), [D01H 7/90](#); depositing materials in cans after drafting [B65H 54/76](#) + T}}
- U D01H 5/18 • Drafting machines or arrangements without fallers or like pinned bars
- D01H 5/30 • • incorporating arrangements for severing continuous filaments, e.g. in direct spinning (converting tows to slivers or yarns ~~D01G 1/06~~[D01G 1/06](#))

Project: N/A (D03C)

- U D03C 9/00 Healds; Heald frames(for leno shedding [D03C 7/00](#))
- U D03C 9/02 • Healds
- D03C 2009/04 • • {Metal healds}

Project: N/A (D03J)

- D03J 5/00 Shuttles (swivel shuttles ~~D03D 31/00~~[D03D 31/00](#); shuttles for smallware looms [D03D 35/00](#); circular loom shuttles [D03D 37/00](#); selvedge shuttles [D03D 47/46](#))

Project: N/A (D04H)

- D04H 18/00 Needling machines

WARNING

Groups [D04H 18/02](#) and [D04H 18/04](#) are not complete pending a reorganisation.
See also group ~~D04H 18/00-B~~[D04H 18/00B](#)

Project: N/A (D05B)

- U D05B 35/00 Work-feeding or -handling elements not otherwise provided for
- D05B 2035/005 • {Sewing machines for uniting carpets with or without presence of a seaming ribbon}

Project: N/A (D06F)

- U D06F 58/00 Domestic laundry driers (drying in general [F26B](#))
- U D06F 58/20 • General details of domestic laundry driers ([D06F 59/00](#) takes precedence)
- U D06F 58/28 • • Controlling or regulating (controlling or regulating in general [G05](#))
- D06F 2058/2803 • • • {Manual setting }
- D06F 2058/2806 • • • • {of intensity of heater, motor or blower }
- D06F 2058/2809 • • • • {of load, quantity, weight, type of laundry or the like }
- D06F 2058/2812 • • • • {of rough drying time or timing for part of the programme }
- D06F 2058/2816 • • • {Automatic detection of the humidity or dryness of the laundry directly or indirectly by measuring }
- D06F 2058/2819 • • • • {the air humidity }
- D06F 2058/2822 • • • • • {the air humidity by capacitance }
- D06F 2058/2825 • • • • • {the air humidity by resistance }
- D06F 2058/2829 • • • • {the air temperature }

- D06F 2058/2832 {the variation of quantities in the condenser, e.g. water temperature }
- D06F 2058/2835 {the laundry electrical capacitance }
- D06F 2058/2838 {the laundry electrical resistance }
- D06F 2058/2841 {the laundry temperature }
- D06F 2058/2845 {by means of radiation }
- D06F 2058/2848 {the variation of the weight }
- D06F 2058/2851 {the time necessary for a cooling-down or a heating-up period }
- D06F 2058/2854 {Other automatic detection }
- D06F 2058/2858 {Controlling the correct functioning of the machine; Security
([D06F 2058/2861](#) and [D06F 2058/2887](#) take precedence)}
- D06F 2058/2861 {Load, type of laundry, weight, e.g. overload }
- D06F 2058/2864 {Air quantity; Control of the blower; Mixing with fresh air }
- D06F 2058/2867 {Control by ON/OFF timing }
- D06F 2058/287 {Control of the heat pump }
- D06F 2058/2874 {by ON/OFF timing }
- D06F 2058/2877 {Driving motor control }
- D06F 2058/288 {by ON/OFF timing }
- D06F 2058/2883 {Displaying or monitoring the programme progress }
- D06F 2058/2887 {Warning to signal incorrect functioning of the machine }
- D06F 2058/289 {Heater control }
- D06F 2058/2893 {by ON/OFF timing }
- D06F 2058/2896 {Timing in general; Timing of a part of the cycle, e.g. cooling-down period }

NOTE

If output = input, only the input is indexed ([D06F 2058/2812](#))

Project: N/A (D06P)**U D06P 1/00**

General processes of dyeing or printing textiles, or general processes of dyeing leather, furs, or solid macromolecular substances in any form, classified according to the dyes, pigments, or auxiliary substances employed

- D06P 2001/0084 . {Non-aqueous dyeing in an inorganic medium }
- D06P 2001/0088 . {Aqueous dyeing characterised by a short bath ratio }
- D06P 2001/0092 . . {Foam dyeing }
- U D06P 1/90 . using dyes dissolved in organic solvents or aqueous emulsions thereof
{([D06P 1/94](#) takes precedence)}
- D06P 2001/901 . . ~~Hydrocarbons~~ {~~Hydrocarbons~~ }
- D06P 2001/903 . . . {Halogenated hydrocarbons }
- D06P 2001/905 . . . {Non-halogenated hydrocarbons }
- D06P 2001/906 . . {Solvents other than hydrocarbons }

Project: N/A (D21C)**D21C 9/00**

After-treatment of cellulose pulp, e.g. of wood pulp, or cotton linters; { Treatment of dilute or dewatered pulp or process improvement taking place after obtaining the raw cellulosic material and not provided for elsewhere (polysaccharides, derivatives thereof [C08B](#); paper-making [D12BD12D](#) to [D12HD12H](#))}

Project: N/A (E01B)

- U E01B 3/00** **Transverse or longitudinal sleepers(for switches or crossings [E01B 7/22](#)); Other means resting directly on the ballastway for supporting rails**
- U E01B 3/02 • made from wood(drying or impregnating [B27K](#))
- U E01B 3/04 • • Means for preventing cleaving
- E01B 3/08 • • • Straps ~~E01D3/06~~ or bands for hooping or encircling sleepers (apparatus for hooping wooden railway sleepers on the spot [E01B 31/28](#))

Project: N/A (E01C)

- U E01C 13/00** **Pavings or foundations specially adapted for playgrounds or sports grounds;{Drainage, irrigation or heating of sports grounds}{ general layout [A63C 19/00](#))**
- E01C 2013/006 • {Transportable sport surfaces for multipurpose stadiums}
- U E01C 13/08 • Surfaces simulating grass;{Grass-grown sports grounds(grass-like surfaces for skiing [E01C 13/12](#))}
- E01C 2013/086 • • {Combination of synthetic and natural grass}
- U E01C 19/00** **Machines, tools or auxiliary devices for preparing or distributing paving materials, for working the placed materials, or for forming, consolidating, or finishing the paving(surface stabilisation [E01C 21/00](#) ; apparatus specially adapted for reconditioning or repairing paving [E01C 23/00](#))**
- U E01C 19/02 • for preparing the materials({ [E01C 19/002](#) , [E01C 19/45](#) , [E01C 19/46](#) , [E01C 21/00](#) , [E01C 23/065](#) take precedence; producing hydraulic cement concrete in general [B28C 5/00](#) to [B28C 9/00](#))}
- U E01C 19/10 • • Apparatus or plant for premixing or precoating aggregate or fillers with non-hydraulic binders, e.g. with bitumen, with resins,{i.e. producing mixtures or coating aggregates otherwise than by penetrating or surface dressing}; Apparatus for premixing non-hydraulic mixtures prior to placing or for reconditioning salvaged non-hydraulic compositions({ [E01C 19/08](#) , [E01C 19/21](#) , [E01C 21/00](#) , [E01C 23/065](#) take precedence)}
- E01C 2019/1081 • • • {Details not otherwise provided for}
- E01C 2019/1086 • • • • {Mixing containers having concentric drums}
- E01C 2019/109 • • • • {Mixing containers having a counter flow drum, i.e. the flow of material is opposite to the gas flow}
- E01C 2019/1095 • • • • {Mixing containers having a parallel flow drum, i.e. the flow of material is parallel to the gas flow}
- U E01C 19/12 • for distributing granular or liquid materials({ [E01C 19/002](#) , [E01C 19/45](#) , [E01C 19/46](#) , [E01C 19/48](#) , [E01C 23/03](#) , [E01C 23/065](#) } , [E01C 23/07](#) take precedence; for filling joints or grooves [E01C 23/02](#) , [E01C 23/09](#))
- U E01C 19/20 • • Apparatus for distributing, e.g. spreading, granular or pulverulent materials, e.g. sand, gravel, salt, dry binders({ [E01C 19/21](#) , [E01C 19/4813](#) , [E01C 19/482](#) , [E01C 23/098](#) , [E01C 23/166](#) take precedence; } fertiliser distributors [A01C 15/00](#) ; { permanently-installed devices for applying gritting or thawing materials [E01H 10/005](#) ; mobile spreaders specially adapted for treating wintry roads [E01H 10/007](#))}
- E01C 2019/2055 • • • {Details not otherwise provided for}
- E01C 2019/206 • • • • {Hand operated spreading devices}
- E01C 2019/2065 • • • • {Sensing the quantity of the material actually being distributed}
- E01C 2019/207 • • • • {Feeding the distribution means}
- E01C 2019/2075 • • • • • {with longitudinal conveyor belt}
- E01C 2019/208 • • • • • {with longitudinal auger}

- E01C 2019/2085 {with transverse conveyor belt}
- E01C 2019/209 {with transverse auger}
- E01C 2019/2095 {by tipping}

Project: N/A (E01D)

- U E01D 15/00 Movable or portable bridges; Floating bridges**
- U E01D 15/12 . Portable or sectional bridges (floating bridges [E01D 15/14](#))
 - E01D 15/122 . {Inflatable or unreelable bridges (inflatable or unreelable girders in general [E04C 3/00B](#) [E04C3/00B](#)); Bridges with main load-supporting structure consisting only of non-rigid elements, e.g. cables}

Project: N/A (E01F)

- U E01F 9/00 Arrangement of road signs or traffic signals (signals, signalling systems [G08](#); signs, attachment thereof to supports [G09F](#)); Arrangements for enforcing caution, e.g. speed bumps**
- E01F 9/002 . {Use of light guides, e.g. fibre optic devices (in lighting devices or systems [F21S5/00](#) [F21S 10/005](#); indicating arrangements with optic fibres [G09F 9/305](#))}

Project: N/A (E01H)

- U E01H 1/00 Removing undesirable matter from roads or like surfaces, with or without moistening of the surface (for snow or ice [E01H 5/00](#); cleaning tramway rails [E01H 8/00](#); obstruction removers on vehicles [B60R 19/00](#); in combination with application of bitumen or the like [E01C 19/16](#); in combination with application of traffic line [E01C 23/16](#); { Sweeping apparatus, particularly for lawns [A01G 1/12](#); Removing undesirable matter from floors and similar surfaces [A47L 5/00](#) to [A47L 13/00](#))}**
- U E01H 1/08 . Pneumatically dislodging or taking-up undesirable matter { or small objects} ({ [E01H 1/006](#) and [E01H 1/005](#) take precedence; } suction cleaners in general [A47L 5/00](#) to [A47L 9/00](#); { sucking-off liquids or semi-liquids [E01H 1/108](#)}); Drying by heat only or by streams of gas (permanently-installed heating or blowing devices [E01C 11/26](#); heating or drying for road- building or repairing [E01C 23/14](#); { devices for melting snow or ice in situ [E01H 5/10](#), [E01H 8/08](#); for scorching undesirable vegetation [E01H 11/00](#)}); Cleaning by projecting abrasive particles (sand-blasting in general [B24C](#); { roughening of road surfaces [E01C 23/08](#); cleaning of road joints [E01C 23/0906](#))}
 - E01H 2001/0881 . . {Details for pneumatically dislodging or removing not related to the mouth-piece }
 - E01H 2001/089 . . . {Suction-effect created through blowing, e.g. using the venturi effect }
 - U E01H 1/12 . Hand implements, e.g. litter pickers ({blowing or suction instruments [E01H 1/08](#); spraying instruments [E01H 1/101](#); rakes [A01D 7/00](#); {brushes or brooms [A46B](#), [A46D](#); floor scrapers [A47L 13/02](#); floor squeegees [A47L 13/11](#))}
 - E01H 2001/122 . . [Details](#){[Details](#)}
 - E01H 2001/1226 . . . {characterised by way of removing material}
 - E01H 2001/1233 {by pressing a tool in the material to be removed}
 - E01H 2001/124 {Glove-like means}
 - E01H 2001/1246 {Double or multiple closing means making horizontal sliding movement (not applied for grabs)}
 - E01H 2001/1253 {by using shoes to remove the material }
 - E01H 2001/126 {the implement being for single use but not glove-like }
 - E01H 2001/1266 . . . {having lighting means}
 - E01H 2001/1273 . . . {having a dog leash}

- E01H 2001/128 · · · {having means for storing bags or the like}
- E01H 2001/1286 · · · · {storing used bags }
- E01H 2001/1293 · · · {Walking cane or the like, i.e. implements allowing handling while in an upright position }

U E01H 4/00 Working on surfaces of snow or ice in order to make them suitable for traffic or sporting purposes, e.g. by compacting snow (production of artificial snow [F25C 3/04](#))

- U E01H 4/02 · for sporting purposes, e.g. preparation of ski trails; { Construction of artificial surfacings for snow or ice sports (construction of ice skating rinks [E01C 13/102](#)); Trails specially adapted for on-the-snow vehicles}, e.g. devices adapted for ski-trails (production of snow or ice for winter sports or similar recreational purposes [F25C 3/00](#))
- E01H 2004/026 · · {for making half pipes }

Project: N/A (E02B)

E02B

HYDRAULIC ENGINEERING (ship-lifting [E02C](#); dredging [E02F](#))

WARNINGS

[C12.08]

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

E02B 15/06	covered by	E02B15/04B2 E02B 15/08
E02B 15/08	covered by	E02B15/04B
E02B 15/10	covered by	E02B15/04C to E02B15/04G

U E02B 15/00 Cleaning or keeping clear the surface of open water; Apparatus therefor (construction of ships or other waterborne vessels [B63B](#), e.g. vessels specially adapted for collecting pollution from open water [B63B 35/32](#); in swimming or splash baths or pools [E04H 4/16](#))

- E02B 2015/005 · {Tent-like structures for dealing with pollutant emissions below the water surface }

U E02B 17/00 Artificial islands mounted on piles or like supports, e.g. platforms on raisable legs { or offshore constructions}; construction methods therefor ({ construction methods for floating platforms [B63B 9/065](#)}; anchoring floating platforms [B63B 21/00](#); floating platforms, e.g. anchored, [B63B 35/44](#); { underwater reservoirs [B65D 88/78](#)})

- E02B 2017/0039 · {Methods for placing the offshore structure }
- E02B 2017/0043 · · {Placing the offshore structure on a pre-installed foundation structure }
- E02B 2017/0047 · · {using a barge }
- E02B 2017/0052 · {Removal or dismantling of offshore structures from their offshore location }
- E02B 2017/0056 · {Platforms with supporting legs }
- E02B 2017/006 · · {with lattice style supporting legs }
- E02B 2017/0065 · · {Monopile structures }
- E02B 2017/0069 · · {Gravity structures }
- E02B 2017/0073 · · {Details of sea bottom engaging footing }
- E02B 2017/0078 · · · {Suction piles, suction cans }
- E02B 2017/0082 · · · {Spudcans, skirts or extended feet }
- E02B 2017/0086 · · · {Large footings connecting several legs or serving as a reservoir for the storage of oil or gas }

E02B 2017/0091

- {Offshore structures for wind turbines }

E02B 2017/0095

- {Connections of subsea risers, piping or wiring with the offshore structure }

Project: N/A (E02D)**U E02D 3/00**

Improving or preserving soil or rock, e.g. preserving permafrost soil (securing of slopes or inclines [E02D 17/20](#); damming or interrupting passage of underground water [E02D 19/12](#); improving soil for agricultural purposes [A01](#); soil stabilisation for road building or like purposes [E01C 21/00](#), [E01C 23/10](#); setting rock anchoring bolts [E21D](#))

E02D 3/12

- Consolidating by placing solidifying or pore-filling substances in the soil (making piles [E02D 5/46](#); soil-conditioning or soil-stabilising materials [C09K 17/00](#); consolidation of ground around boreholes or wells ~~[E21B33/138B](#)~~, [E21B 43/025](#))

Project: N/A (E02F)**E02F****DREDGING; SOIL-SHIFTING (winning peat [E21C 49/00](#))****NOTE**

This subclass covers :

- primarily equipment for excavating or loosening earth or for moving loose earth;
- equipment for working similarly on other materials and similar equipment for loading or unloading materials

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

E02F 3/32	covered by	E02F 3/30 , E02F 3/425
E02F 3/39	covered by	E02F 3/286 , E02F3/30K E02F 3/306 , E02F3/34K E02F 3/3402
E02F 3/78	" "	E02F7/76 + s.gr.
E02F 3/85	" "	E02F3/84A E02F 3/841 ,
E02F 3/842 , E02F3/84B E02F 3/844 ,		E02F 3/845 ,
E02F 3/847		
E02F 5/04	" "	E21B
E02F 5/06	" "	E02F 3/08
E02F 5/08	" "	E02F 3/18
E02F 5/16	" "	E21B
E02F 5/18	" "	E21B
E02F 5/20	" "	E21B

U E02F 3/00

Dredgers; Soil-shifting machines (for special purposes [E02F 5/00](#); other machines or apparatus for mining [E21C](#); tunnelling [E21D](#))

U E02F 3/04

- mechanically-driven

U E02F 3/96

- • with arrangements for alternate { or simultaneous} use of different digging elements {([E02F 3/7604](#), [E02F 3/769](#), [E02F 3/78](#) take precedence; quick-acting devices to connect tools to arms or booms [E02F 3/3609](#), for arms to tractors or the like [E02F 3/627](#))}

E02F 3/965

- • { of metal-cutting or concrete-crushing implements (shearing devices [B23D 17/00](#); ~~wrecking of buildings, e.g. tools therefor, [E04F23/08](#)~~; ~~wrecking of buildings, e.g. tools therefor, [E04G 23/08](#)~~)}

U E02F 9/00

Component parts of dredgers or soil-shifting machines, not restricted to one of the kinds covered by groups [E02F 3/00](#) to [E02F 7/00](#) (laying-out or take-up devices for trailing electric cables [B66C](#))

- U E02F 9/08
 - Superstructures; Supports for superstructures ({arrangements for travelling gear, e.g. undercarriages for wheels, crawlers, caterpillars [E02F 9/02](#); for motor vehicles [B62D 25/00](#), [B62D 33/00](#)})
- U E02F 9/0858
 - • { Arrangement of component parts installed on superstructures not otherwise provided for, e.g. electric components, fenders, air-conditioning units ([E02F 9/16](#), [E02F 9/18](#) take precedence)}
- E02F 9/0883
 - • • { Tanks, e.g. oil tank, urea tank, fuel tank (~~for vehicles in general B60K15~~for *vehicles in general B60K 15/00*)}
- U E02F 9/16
 - Cabins, platforms, or the like, for drivers ({ for motor vehicles in general [B62D 33/06](#)}, for cranes [B66C 13/54](#))
- E02F 9/166
 - • { movable, tiltable or pivoting, e.g. movable seats, dampening arrangements of cabins (~~seats for vehicles in general B60N2~~*seats for vehicles in general B60N 2/00*)}
- U E02F 9/20
 - Drives; Control devices (gearings in general [F16H](#); controlling in general [G05](#); electric multi-motor drives [H02K](#), [H02P](#))
- U E02F 9/2058
 - • { Electric or electro-mechanical or mechanical control devices of vehicle sub-units (for vehicles in general [B60W](#))}
- U E02F 9/2062
 - • • { Control of propulsion units (for control of the prime mover depending on the load in a hydraulic or pneumatic drive [E02F 9/2246](#))}
- E02F 9/2075
 - • • • { of the hybrid type (~~for vehicles in general B60W20~~for *vehicles in general B60W 20/00*)}

Project: N/A (E03B)

- U E03B 1/00
 - Methods or layout of installations for water supply([E03B 3/00](#), [E03B 9/00](#) take precedence)**
- U E03B 1/04
 - for domestic or like local supply
- U E03B 1/041
 - • { Greywater supply systems}
- E03B 2001/045
 - • • {using household water }
- E03B 2001/047
 - • • {using rainwater }
- U E03B 9/00
 - Methods or installations for drawing-off water (domestic water-drawing devices [E03C](#); taps or valves per se [F16K](#))**
- U E03B 9/02
 - Hydrants; Arrangements of valves therein; Keys for hydrants
- E03B 2009/022
 - • {Hydrants with a tubular valve seat }
- U E03B 11/00
 - Arrangements or adaptations of tanks for water supply (water-butts [E03B 3/03](#); storage aspects [B65D](#), [B65G](#), [F17B](#), [F17C](#); foundations [E02D 27/38](#); construction or assembling of bulk storage containers employing civil engineering techniques [E04H 7/00](#); tower aspects [E04H 12/00](#))**
- E03B 2011/005
 - {Tanks with two or more separate compartments divided by e.g. a flexible membrane }

Project: N/A (E03C)

- U E03C 1/00
 - Domestic plumbing installations for fresh water or waste water; Sinks {(work tops [A47B77/02B](#))}**
- E03C 2001/005
 - {Installations allowing recovery of heat from waste water for warming up fresh water }
- U E03C 1/02
 - Plumbing installations for fresh water
- E03C 2001/026
 - • {with flow restricting devices }
- E03C 2001/028
 - • {Alignment aids for plumbing installations }

- U E03C 1/04
 - • Water-basin installations specially adapted to wash-basins or baths (valves, faucets, mixing valves, taps [F16K](#))
- E03C 2001/0414
 - • • {allowing different orientations of the spout or the outlet nozzle }
- E03C 2001/0415
 - • • {having an extendable water outlet }
- E03C 2001/0416
 - • • {using a socket for mounting of faucet }
- E03C 2001/0417
 - • • {having space-saving features, e.g. retractable, demountable }
- E03C 2001/0418
 - • • {having temperature indicating means }
- U E03C 1/08
 - • Jet regulators {or jet guides}, e.g. anti-splash devices
- E03C 2001/082
 - • • {Outlets connected by an universal joint }
- U E03C 1/12
 - Plumbing installation for waste water; Basins or fountains connected thereto (drainage devices in floors [E03F 5/04](#)); Sinks {(wash-basins not connected to the waste-pipe [A47K 1/04](#))}
- E03C 2001/1206
 - • {Pipes with specific features for influencing flow characteristics }
- E03C 2001/1213
 - • {Constructional features of bidet bowls; adapters for using other sanitary appliances as bidet }
- U E03C 1/22
 - • Outlet devices mounted in basins, baths, or sinks (stoppers [A47K 1/14](#))
- U E03C 1/23
 - • • with mechanical closure mechanisms
- E03C 2001/2311
 - • • • {the actuation force being magnetic or electromagnetic }
- E03C 2001/2313
 - • • • {the actuation force being pneumatic or hydraulic }
- E03C 2001/2315
 - • • • {the actuation force created by a turning movement of a handle }
- E03C 2001/2317
 - • • • {transmission of actuation force involves a spring }
- U E03C 1/24
 - • Overflow devices for basins or baths ([E03C 1/232](#) takes precedence)
- E03C 2001/2406
 - • • {Overflow alarm devices }
- E03C 2001/2413
 - • • {Covers for temporarily closing off overflow outlets }
- U E03C 1/32
 - • Holders or supports for basins
- E03C 2001/321
 - • • {Siphon or angle valve covers }

Project: N/A (E03D)

- U E03D 1/00
 - **Water flushing devices with cisterns; {Setting up a range of flushing devices or water-closets; Combinations of several flushing devices}**
- U E03D 1/02
 - High-level flushing systems
- U E03D 1/14
 - • Cisterns discharging variable quantities of water (twin or multiple flushing cisterns [E03D 1/22](#); flushing devices operated by pressure of the water supply system and discharging variable quantities of water [E03D 3/12](#)){also cisterns with bell siphons in combination with flushing valves}
- E03D 2001/147
 - • • {having provisions for active interruption of flushing }
- E03D 2001/148
 - • • • {with means to prevent premature closing of flushing valve }
- E03D 7/00
 - **Wheeled lavatories (wheeled closets without flushing ~~A47K 11/00~~ [A47K 11/00](#); construction of land vehicles [B62](#))**
- U E03D 9/00
 - **Sanitary or other accessories for lavatories (hand tools for cleaning the toilets bowl [A47K 11/10](#); seats or covers for closets [A47K 13/00](#); body supports, other than seats for closets [A47K 17/02](#); devices for preventing contamination of drinking-water pipes [E03C 1/10](#)){Devices for cleaning or disinfecting the toilet room or the toilet bowl; Devices for eliminating smells (cleaning, disinfecting or deodorising the seat [A47K 13/30](#))}**
- U E03D 9/02
 - Devices adding a disinfecting, deodorising, or cleaning agent to the water while flushing (apparatus for disinfection [A61L 2/00](#); treatment of water in general [C02F](#))

- E03D 2009/024 • • {using a solid substance }
- E03D 2009/026 • • {using a gel-form substance }
- E03D 2009/028 • • {using a liquid substance }

Project: N/A (E03F)**U E03F 3/00****Sewer pipe-line systems**

U E03F 3/06

- Methods of, or installations for, laying sewer pipes (making pipes in situ [F16L 1/038](#)){ laying conduits in association with the digging of a trench [E02F 5/10](#); laying pipes in general [F16L 1/00](#)}

E03F 2003/065

- • {Refurbishing of sewer pipes, e.g. by coating, lining }

U E03F 5/00**Sewerage structures**

U E03F 5/02

- Manhole shafts or other inspection chambers (in general [E02D 29/12](#)); snow-filling openings; accessories (covers or frames for manholes or the like [E02D 29/14](#))

E03F 2005/028

- • {Sealing joints between manhole segments }

U E03F 5/04

- Gullies {inlets, road sinks, floor drains} with or without odour seals or sediment traps

E03F 2005/0412

- • {with means for adjusting their position with respect to the surrounding surface }

E03F 2005/0413

- • • {for height adjustment }

E03F 2005/0414

- • • {for inclination adjustment }

E03F 2005/0415

- • • {for horizontal position adjustment }

E03F 2005/0416

- • {with an odour seal }

E03F 2005/0417

- • • {in the form of a valve }

E03F 2005/0418

- • • {in the form of a bell siphon }

U E03F 5/06

- • Gully gratings

E03F 2005/061

- • • {hinged to the body of the gully }

E03F 2005/063

- • • {with slidable or rotatable locking elements }

E03F 2005/065

- • • {with elastic locking elements }

E03F 2005/066

- • • {with means for protecting against vandalism }

E03F 2005/068

- • • {with means for enhancing water flow }

E03F 5/26

- Installations for stirring-up sewage {disintegrating garbage to be evacuated with sewage ~~B02C18/40~~[B02C 18/0084](#); devices on water-closet bowls [E03D](#)}

E03F 9/00

Arrangements or fixed installations{methods or devices}for cleaning{or clearing}sewer pipes, e.g. by flushing (sediment traps, rakes, screens, or the like, arranged in sewer lines[E03F 5/14](#); cleaning pipes in general, devices for cleaning pipes[B08B 9/02](#)){gullies provided with flushing means for cleaning or emptying[E03F5/04B](#) [E03F 5/0402](#); devices to remove obstructions in waste-pipes or sinks[E03C 1/30](#)}}

Project: N/A (E04B)**U E04B 1/00**

Constructions in general; Structures which are not restricted either to walls, e.g. partitions, or floors or ceilings or roofs(scaffolds, shutterings[E04G](#); structures specially adapted for buildings for special purposes, general layout of buildings, e.g. modular co-ordination,[E04H](#); the particular parts of buildings, see the relevant groups for those parts)

E04B 2001/0053

- {Buildings characterised by their shape or layout grid }

E04B 2001/0061

- • {Buildings with substantially curved horizontal cross-section, e.g. circular }

- E04B 2001/0069 . . {Prismatic shaped buildings with substantially triangular vertical cross-section }
- E04B 2001/0076 . . {Buildings with specific right-angled horizontal layout grid }
- E04B 2001/0084 . . {Buildings with non right-angled horizontal layout grid, e.g. triangular or hexagonal }
- E04B 2001/0092 . . . {Small buildings with hexagonal or similar horizontal cross-section }
- U E04B 1/18 . Structures comprising elongated load-supporting parts, e.g. columns, girders, skeletons ([E04B 1/32](#) to [E04B 1/36](#) take precedence; elongated load-supporting parts as elements, trusses, truss-like structures [E04C 3/00](#))
- U E04B 1/19 . . Three-dimensional framework structures {folded structures and grid-like formations acting as shell structures [E04B 7/10](#)}
- U E04B 1/1903 . . . { Connecting nodes specially adapted therefor }
- U E04B 1/1912 {with central cubical connecting element }

NOTE

Subgroup [E04B 1/19](#) takes precedence over subgroups [E04B 1/20](#) to [E04B 1/30](#)

- E04B 2001/1915 {with strut engaging means at the edges of the cube }
- E04B 2001/1918 {with connecting nodes having flat radial connecting surfaces }
- E04B 2001/1921 {with connecting nodes having radial connecting stubs }
- E04B 2001/1924 . . . {Struts specially adapted therefor }
- E04B 2001/1927 {of essentially circular cross section }
- E04B 2001/193 {with flattened connecting parts, e.g. ends }
- E04B 2001/1933 {of polygonal, e.g. square, cross section }
- E04B 2001/1936 {Winged profiles, e.g. with a L-, T-, U- or X-shaped cross section }
- E04B 2001/1939 {Inflatable struts }
- E04B 2001/1942 {Struts adjustable in length }
- E04B 2001/1945 {Wooden struts }
- E04B 2001/1948 {Concrete struts }
- E04B 2001/1951 {uninterrupted struts situated in the outer planes of the framework }
- E04B 2001/1954 {uninterrupted struts connecting alternately with the outer planes of the framework, e.g. zig-zagging struts }
- E04B 2001/1957 . . . {Details of connections between nodes and struts }
- E04B 2001/196 {Screw connections with axis parallel to the main axis of the strut }
- E04B 2001/1963 {Screw connections with axis at an angle, e.g. perpendicular, to the main axis of the strut }
- E04B 2001/1966 {Formlocking connections other than screw connections }
- E04B 2001/1969 {Ball and socket type connection }
- E04B 2001/1972 {Welded or glued connection }
- E04B 2001/1975 . . . {Frameworks where the struts are directly connected to each other, i.e. without interposed connecting nodes or plates }
- E04B 2001/1978 . . . {Frameworks assembled from preformed subframes, e.g. pyramids }
- E04B 2001/1981 . . . {characterised by the grid type of the outer planes of the framework }
- E04B 2001/1984 {rectangular, e.g. square, grid }
- E04B 2001/1987 {triangular grid }
- E04B 2001/199 . . . {Details of roofs, floors or walls supported by the framework }
- E04B 2001/1993 . . . {Details of framework supporting structure, e.g. posts or walls }

	E04B 2001/1996	<ul style="list-style-type: none"> • • • {Tensile-integrity structures, i.e. structures comprising compression struts connected through flexible tension members, e.g. cables }
U	E04B 1/24	<ul style="list-style-type: none"> • • the supporting parts consisting of metal
U	E04B 1/2403	<ul style="list-style-type: none"> • • • {Connection details of the elongated load-supporting parts}
	E04B 2001/2406	<ul style="list-style-type: none"> • • • • {Connection nodes }
	E04B 2001/2409	<ul style="list-style-type: none"> • • • • {Hooks, dovetails or other interlocking connections }
	E04B 2001/2412	<ul style="list-style-type: none"> • • • • • {Keyhole connections }
	E04B 2001/2415	<ul style="list-style-type: none"> • • • • {Brackets, gussets, joining plates }
	E04B 2001/2418	<ul style="list-style-type: none"> • • • • {Details of bolting }
	E04B 2001/2421	<ul style="list-style-type: none"> • • • • {Socket type connectors }
	E04B 2001/2424	<ul style="list-style-type: none"> • • • • {Clamping connections other than bolting or riveting }
	E04B 2001/2427	<ul style="list-style-type: none"> • • • • {using adhesives or hardening masses }
	E04B 2001/243	<ul style="list-style-type: none"> • • • • {Assembling by non resilient deformation other than riveting }
	E04B 2001/2433	<ul style="list-style-type: none"> • • • • {using a removable key }
	E04B 2001/2436	<ul style="list-style-type: none"> • • • • {Snap-fit connections }
	E04B 2001/2439	<ul style="list-style-type: none"> • • • • {Adjustable connections, e.g. using elongated slots or threaded adjustment elements }
	E04B 2001/2442	<ul style="list-style-type: none"> • • • • {Connections with built-in weakness points }
	E04B 2001/2445	<ul style="list-style-type: none"> • • • • {Load-supporting elements with reinforcement at the connection point other than the connector }
	E04B 2001/2448	<ul style="list-style-type: none"> • • • • {Connections between open section profiles }
	E04B 2001/2451	<ul style="list-style-type: none"> • • • • {Connections between closed section profiles }
	E04B 2001/2454	<ul style="list-style-type: none"> • • • • {Connections between open and closed section profiles }
	E04B 2001/2457	<ul style="list-style-type: none"> • • • • {Beam to beam connections }
	E04B 2001/246	<ul style="list-style-type: none"> • • • • {Post to post connections }
	E04B 2001/2463	<ul style="list-style-type: none"> • • • • {Connections to foundations }
	E04B 2001/2466	<ul style="list-style-type: none"> • • • {Details of the elongated load-supporting parts }
	E04B 2001/2469	<ul style="list-style-type: none"> • • • • {Profile with an array of connection holes }
	E04B 2001/2472	<ul style="list-style-type: none"> • • • • {Elongated load-supporting part formed from a number of parallel profiles }
	E04B 2001/2475	<ul style="list-style-type: none"> • • • • {Profile with an undercut grooves for connection purposes }
	E04B 2001/2478	<ul style="list-style-type: none"> • • • • {Profile filled with concrete }
	E04B 2001/2481	<ul style="list-style-type: none"> • • • {Details of wall panels }
	E04B 2001/2484	<ul style="list-style-type: none"> • • • {Details of floor panels or slabs }
	E04B 2001/2487	<ul style="list-style-type: none"> • • • {Portico type structures }
	E04B 2001/249	<ul style="list-style-type: none"> • • • {Structures with a sloping roof }
	E04B 2001/2493	<ul style="list-style-type: none"> • • • {Structures with a vaulted roof }
	E04B 2001/2496	<ul style="list-style-type: none"> • • • {Shear bracing therefor }
U	E04B 1/26	<ul style="list-style-type: none"> • • the supporting parts consisting of wood
U	E04B 1/2604	<ul style="list-style-type: none"> • • • {Connections specially adapted therefor (shear dowels E04B 1/486, E04B 1/49)}
	E04B 2001/2616	<ul style="list-style-type: none"> • • • • {Hinged connections of wooden members }
	E04B 2001/262	<ul style="list-style-type: none"> • • • • {Connection node with interlocking of specially shaped wooden members, e.g. puzzle type connection }
	E04B 2001/2624	<ul style="list-style-type: none"> • • • • • {with dovetail-type connections }

- E04B 2001/2628
 - • • • {Interlocking connectors, e.g. with hooks or dovetails, added to the elongated wooden members }
- E04B 2001/2632
 - • • • {with dovetail-type connections }
- E04B 2001/2636
 - • • • {with connectors located in slots of the wooden members }
- E04B 2001/264
 - • • • {Glued connections }
- E04B 2001/2644
 - • • • {Brackets, gussets or joining plates (E04B 2001/2628 takes precedence)}
- E04B 2001/2648
 - • • • {located in slots of the elongated wooden members }
- E04B 2001/2652
 - • • • {Details of nailing, screwing, or bolting }
- E04B 2001/2656
 - • • • {Bent or curved bolts }
- E04B 2001/266
 - • • • {Socket type connectors }
- E04B 2001/2664
 - • • • {using a removable key }
- E04B 2001/2668
 - • • • {for members with a round cross-section }
- E04B 2001/2672
 - • • • {for members formed from a number of parallel sections }
- E04B 2001/2676
 - • • • {Connector nodes (E04B 2001/262 takes precedence)}
- E04B 2001/268
 - • • • {Connection to foundations }
- E04B 2001/2684
 - • • • {with metal connectors }
- E04B 2001/2688
 - • • • • {self adjusting, e.g. for compensation of shrinkage }
- E04B 2001/2692
 - • • • {End to end connections of elongated members along their common longitudinal axis }
- E04B 2001/2696
 - • • • {Shear bracing }
- U E04B 1/32
 - Arched structures; Vaulted structures; Folded structures ({E04B 1/34378 takes precedence;} vaulted roofs E04B 7/08)
- E04B 2001/3217
 - • {Auxilliary supporting devices used during erection of the arched structures }
- E04B 2001/3223
 - • {Theoretical polygonal geometry therefor }
- E04B 2001/3229
 - • {constructed using a boom }
- E04B 2001/3235
 - • {having a grid frame }
- E04B 2001/3241
 - • • {Frame connection details }
- E04B 2001/3247
 - • • • Nodes-~~{Nodes }~~
- E04B 2001/3252
 - • • {Covering details }
- E04B 2001/3258
 - • {comprised entirely of a single self-supporting panel }
- E04B 2001/3264
 - • • {hardened in-situ }
- E04B 2001/327
 - • {comprised of a number of panels or blocs connected together forming a self-supporting structure }
- E04B 2001/3276
 - • • {Panel connection details }
- E04B 2001/3282
 - • • • {Panels connected together exclusively at their corners }
- E04B 2001/3288
 - • • {Panel frame details, e.g. flanges of steel sheet panels }
- E04B 2001/3294
 - • {with a faceted surface }
- U E04B 1/343
 - Structures characterised by movable, separable, or collapsible parts, e.g. for transport (movable roof parts E04B 7/16; floatable buildings B63B; small prefabricated buildings, transportable as a whole E04H 1/12; small garages E04H 6/02; tents or canopies, in general E04H 15/00){containers B65G}
- E04B 2001/34389
 - • {Set of building elements forming a self-contained package for transport before assembly }
- E04B 2001/34394
 - • {Vertical telescopic structures }
- U E04B 1/348
 - Structures composed of units comprising at least considerable parts of two sides of a room, e.g. box-like or cell-like units closed or in skeleton form

- E04B 2001/34876 • • {with a sloping or barrel roof }
- E04B 2001/34884 • • • {creating a living space between several units }
- E04B 2001/34892 • • {Means allowing access to the units, e.g. stairs or cantilevered gangways }
- E04B 1/35 • Extraordinary methods of construction, e.g. lift-slab, jack-block ([E04B 1/34](#) takes precedence; falsework, shuttering for shaping walls, floors, ceilings or roofs in situ [E04G 11/04](#) [E04G 11/04](#); conveying or assembling of building materials [E04G 21/00](#); working measure on existing buildings [E04G 23/00](#))
- E04B 2001/3561 • • {adding living space above existing structures }
- E04B 2001/3566 • • {mounting masonry against a forwork }
- E04B 2001/3572 • • {using templates or jigs to set out buildings or parts thereof }
- E04B 2001/3577 • • {prefabricating a building and moving it as a whole to the erection site }
- E04B 2001/3583 • • {using permanent tensioning means, e.g. cables or rods, to assemble or rigidify structures (not pre- or poststressing concrete), e.g. by tying them around the structure }
- E04B 2001/3588 • • {using special lifting or handling devices, e.g. gantries, overhead conveying rails }
- E04B 2001/3594 • • • {inflatable lifting or handling devices }
- U E04B 1/38 • Connections for building structures in general

NOTE

Connections specially adapted for particular building parts or for particular building structures are classified in the groups for those parts or structures, e.g. in groups [E04B 1/21](#), [E04B 2/00](#), [E04B 5/00](#), [E04B 7/00](#) or [E04B 9/00](#). Joints not specially adapted for building construction, or of more general application, are classified in the appropriate subclasses, e.g. [F16B](#).

- E04B 2001/386 • • {Nailable or screwable inserts for foam panels }
- U E04B 1/40 • • Separate connecting elements (for forms, falsework, or shutterings [E04G 17/00](#); releasable clips or clamps, hooks, wedges, wall-dowels, nails, bolts, rivets, screws, wood-screws [F16B](#))

WARNING

Group [E04B 1/40](#) is no longer used for the classification of new documents. The backlog of this group is in the process of being reorganised to group [E04B 1/41](#) and subgroups

- E04B 2001/405 • • • ~~Brackets~~ {Brackets }
- U E04B 1/41 • • • Connecting devices specially adapted for embedding in concrete ({ joist hangers [E04B 1/2612](#); shear dowels [E04B 1/483](#)); spacers { other than masonry wall ties} for cavity walls [E04B 2/30](#), [E04B 2/44](#); connectors for reinforcing elements [E04C 5/16](#); supporting devices for connector reinforcing rods for concrete walls [E04G 21/125](#); fastening frames to the border of openings [E06B 1/56](#))
- E04B 2001/4192 • • • {attached to concrete reinforcing elements, e.g. rods or wires }
- U E04B 1/58 • • of bar-shaped building elements {(framework connections [E04B 1/21](#), [E04B 1/2403](#), [E04B 1/2604](#))}
- U E04B 1/5825 • • • {with a closed cross-section}
- E04B 2001/5856 • • • • {using the innerside thereof }
- E04B 2001/5862 • • • {Angularly adjustable connections without hinge pin }
- E04B 2001/5868 • • • {Hinged connections }
- E04B 2001/5875 • • • {using exterior clamping plates or shells }
- E04B 2001/5881 • • • {using an undercut groove, e.g. dovetail groove }

- E04B 2001/5887 . . . {using connectors with sockets }
- E04B 2001/5893 . . . {Puzzle type connections }
- U E04B 1/61 . . of slab-shaped building elements with each other
- U E04B 1/6108 . . . {the frontal surfaces of the slabs connected together}
- E04B 2001/6191 {by means on the corners of the slabs }
- E04B 2001/6195 {the slabs being connected at an angle, e.g. forming a corner }
- U E04B 1/62 . Insulation or other protection; Elements or use of specified material therefor (chemical compositions [C01](#) to [C11](#); implements for applying insulation or sealings [E04F 21/00](#); buildings to withstand or to provide protection against external undesired influences [E04H 9/00](#); sealing pipes in walls or partitions [F16L 5/02](#); shielding against dangerous radiation [G21F](#); constructions of particular parts of buildings, see the relevant groups for those parts)
- U E04B 1/66 . . Sealings ({damp-proof courses [E04B 1/644](#); fire-proof sealings [E04B 1/948](#); additions of anti-leak properties to plaster [C04B](#); bituminous sealing masses [C08L 95/00](#); sealings for hydraulic engineering work in general [E02B 3/16](#); against ground humidity or ground water [E02D 31/02](#); coverings against rain or other precipitations of the atmosphere [E04D](#); composition of material or manufacture of sealing foils, see the relevant classes for these foils)
- U E04B 1/68 . . . of joints, e.g. expansion joints (packing for joints in roads or airfields [E01C 11/02](#); expansion joints for bridges [E01D 19/06](#); sealing joints between foundation piles [E02D 5/14](#); joints in foundation structures [E02D 29/16](#); devices for sealing the spaces or joints between roof-covering elements [E04D 1/36](#); sealing joints between roof-covering elements [E04D 3/38](#); {construction of joints for flooring or floor layers composed of a number of similar elements [E04F 15/02005](#); construction of joints for flooring or floor layers made of masses in situ [E04F 15/14](#))
- E04B 2001/6818 {Joints with swellable parts }
- U E04B 1/74 . . Heat, sound or noise insulation, absorption, or reflection (forms of, or arrangements in, rooms for influencing or directing sound [E04B 1/99](#)). Other building methods affording favourable thermal or acoustical conditions, e.g. accumulating of heat within walls (fire protection [E04B 1/94](#); elements chiefly adapted for structural purposes [E04C 1/00](#) to [E04C 3/00](#); chiefly adapted for surface covering [E04F 13/00](#); as underlayers for floor coverings [E04F 15/18](#); closures for wall or like openings [E06B](#))
- E04B 2001/741 . . . {Insulation elements with markings, e.g. identification or cutting template }
- E04B 2001/742 . . . {Use of special materials; Materials having special structures or shape }
- E04B 2001/743 {Animal products, e.g. wool, feathers }
- E04B 2001/745 {Vegetal products, e.g. plant stems, barks }
- E04B 2001/746 {Recycled materials, e.g. made of used tires, bumpers or newspapers }
- E04B 2001/747 {Corrugated materials }
- E04B 2001/748 {Honeycomb materials }
- U E04B 1/76 . . . specifically with respect to heat only (heat insulation in general [F16L 59/00](#))
- E04B 2001/7679 {Means preventing cold bridging at the junction of an exterior wall with an interior wall or a floor }
- E04B 2001/7683 {Fibrous blankets or panels characterised by the orientation of the fibres }
- E04B 2001/7687 {Crumble resistant fibrous blankets or panels using adhesives or meltable fibres }
- E04B 2001/7691 {Heat reflecting layers or coatings }
- E04B 2001/7695 {Panels with adjustable width }

- U E04B 1/82
 - • • specifically with respect to sound only ({of floors or ceilings [E04B 9/001](#); of flooring [E04F 15/20](#)}; noise damping in ducts or channels [E04F 17/00](#); {sound damping devices for pipes [F16L 55/033](#)}; noise damping in general [G10K 11/00](#))
- E04B 2001/8245
 - • • • {Machines for manufacturing, shaping, piercing or filling sound insulating elements }
- E04B 2001/8254
 - • • • {Soundproof supporting of building elements, e.g. stairs, floor slabs or beams, on a structure }
- E04B 2001/8263
 - • • • {Mounting of acoustical elements on supporting structure, e.g. framework or wall surface }
- E04B 2001/8272
 - • • • • {Resiliently mounted wall cladding acting as a diaphragmatic sound damper }
- E04B 2001/8281
 - • • • • {Flat elements mounted parallel to a supporting surface with an acoustically active air gap between the elements and the mounting surface }
- E04B 2001/829
 - • • • • {Flat elements mounted at an angle, e.g. right angle, to the supporting surface }
- U E04B 1/84
 - • • • Sound-absorbing elements
- E04B 2001/8414
 - • • • • {with non-planar face, e.g. curved, egg-crate shaped }
- E04B 2001/8419
 - • • • • • {Acoustical cones or the like, e.g. for anechoic chambers }
- E04B 2001/8423
 - • • • • • {Tray or frame type panels or blocks, with or without acoustical filling }
- E04B 2001/8428
 - • • • • • {containing specially shaped acoustical bodies, e.g. funnels, egg-crates, fanfolds }
- E04B 2001/8433
 - • • • • • {with holes in their face }
- E04B 2001/8438
 - • • • • • • {Slot shaped holes }
- E04B 2001/8442
 - • • • • • • {Tray type elements }
- E04B 2001/8447
 - • • • • • • {with two faacing trays }
- E04B 2001/8452
 - • • • • • • {with peripheral frame members }
- E04B 2001/8457
 - • • • • • {Solid slabs or blocks }
- E04B 2001/8461
 - • • • • • • ~~layered~~ {~~layered~~ }
- E04B 2001/8466
 - • • • • • • {with an intermediate layer formed of lines or dots of elastic material }
- E04B 2001/8471
 - • • • • • • {with non-planar interior transition surfaces between layers, e.g. faceted, corrugated }
- E04B 2001/8476
 - • • • • • • {with acoustical cavities, with or without acoustical filling }
- E04B 2001/848
 - • • • • • • {the cavities opening onto the face of the element }
- E04B 2001/8485
 - • • • • • • • {the opening being restricted, e.g. forming Helmholtz resonators }
- E04B 2001/849
 - • • • • • • • {Groove or slot type openings }
- E04B 2001/8495
 - • • • • • • • {the openings going through from one face to the other face of the element }
- U E04B 1/92
 - • Protection against other undesired influences or dangers (buildings providing protection against external dangers [E04H 9/00](#); shielding against dangerous radiation [G21F](#))
- E04B 2001/925
 - • • {Protection against harmful electro-magnetic or radio-active radiations, e.g. X-rays }

- U E04B 1/94
- • • against fire ({fire protection of partitions [E04B 2/7403](#), [E04B 2/7409](#); supporting constructions for ceilings having the capability of expansion in case of fire [E04B 9/08](#); fire-fighting [A62C](#), {e.g. fire prevention or containment [A62C 2/00](#); impregnation of wood or similar materials [B27K](#); {fireproof paints [C09D 5/18](#); fireproofing materials [C09K 21/00](#); flame-resistant papers [D21H 5/0002](#); coverings or linings, e.g. for walls or ceilings, in general [E04F 13/00](#); fireproof doors [E06B 5/16](#); {firebreak devices for pipes or the like passing through walls [F16L 5/04](#); protection of pipes by means of non-inflammable material [F16L 57/04](#)})
- E04B 2001/949
- • • • {Construction elements filled with liquid, e.g. water, either permanently or only in case of fire }
- U E04B 2/00
- Walls, e.g. partitions, for buildings; Wall construction with regard to insulation; Connections specially adapted to walls (connections for building structures in general [E04B 1/38](#); insulation for buildings in general [E04B 1/62](#); building elements of relatively thin form for parts of buildings [E04C 2/00](#))**
- U E04B 2/02
- built-up from layers of building elements
- E04B 2002/0202
- • {Details of connections }
- E04B 2002/0204
- • • {Non-undercut connections, e.g. tongue and groove connections }
- E04B 2002/0206
- • • • {of rectangular shape }
- E04B 2002/0208
- • • • {of trapezoidal shape }
- E04B 2002/021
- • • • {of triangular shape }
- E04B 2002/0213
- • • • {of round shape }
- E04B 2002/0215
- • • • {with separate protrusions }
- E04B 2002/0217
- • • • • {of prismatic shape }
- E04B 2002/0219
- • • • • {of pyramidal shape }
- E04B 2002/0221
- • • • • {of conical shape }
- E04B 2002/0223
- • • • • {of cylindrical shape }
- E04B 2002/0226
- • • • {with tongues and grooves next to each other on the end surface }
- E04B 2002/0228
- • • • {with tongues next to each other on one end surface and grooves next to each other on opposite end surface }
- E04B 2002/023
- • • • {with rabbets, e.g. stepped }
- E04B 2002/0232
- • • {Undercut connections, e.g. using undercut tongues and grooves }
- E04B 2002/0234
- • • • {Angular dovetails }
- E04B 2002/0236
- • • • • {tapered, i.e. dovetail narrows in the direction of tongue or groove }
- E04B 2002/0239
- • • • • {Round dovetails }
- E04B 2002/0241
- • • • • {tapered, i.e. dovetail narrows in the direction of tongue or groove }
- E04B 2002/0243
- • • {Separate connectors or inserts, e.g. pegs, pins or keys }
- E04B 2002/0245
- • • • {Pegs or pins }
- E04B 2002/0247
- • • • {Strips or bars }
- E04B 2002/025
- • • • {U-shaped, e.g. brackets }
- E04B 2002/0252
- • • • {Dovetail keys }
- E04B 2002/0254
- • • • {Tie rods }
- E04B 2002/0256
- • {Special features of building elements }
- E04B 2002/0258
- • • {Gripping or handling aids }
- E04B 2002/026
- • • {Splittable building elements }
- E04B 2002/0263
- • • {Building elements for making angled walls }

- E04B 2002/0265 . . . {Building elements for making arcuate walls }
- E04B 2002/0267 . . . {Building elements with the appearance of several bricks }
- E04B 2002/0269 . . . {Building elements with a natural stone facing }
- E04B 2002/0271 . . . {Building elements with the appearance of rock layers }
- E04B 2002/0273 . . . {Adhesive layers other than mortar between building elements }
- E04B 2002/0276 {Separate layers or strips }
- E04B 2002/0278 {forming a unity with the building elements }
- E04B 2002/028 {Spacers between building elements }
- E04B 2002/0282 {Separate spacers }
- E04B 2002/0284 {forming a unity with the building elements }
- E04B 2002/0286 {Building elements with coatings }
- E04B 2002/0289 {Building elements with holes filled with insulating material }
- E04B 2002/0291 {loose material }
- E04B 2002/0293 {solid material }
- E04B 2002/0295 . . . {of which the width is equal to the wall thickness }
- E04B 2002/0297 . . . {of which the width is less than the wall thickness }
- U E04B 2/56 . {Load-bearing} walls of framework or pillarwork; Walls incorporating load-bearing elongated members ([E04B 2/74](#), [E04B 2/88](#) take precedence; pillars [E04C 3/30](#))
- E04B 2002/565 . . {with a brick veneer facing }
- E04B 2002/567 . . {with posts or pillars made from a plurality of smaller prefabricated elements }
- U E04B 2/72 . {Non-load-bearing} walls of elements of relatively thin form {with respect to the thickness of the wall}([E04B 2/56](#), [E04B 2/74](#), [E04B 2/88](#) take precedence; with joint fillings acting as framework or pillars [E04B 2/68](#); elements [E04C 2/00](#))
- U E04B 2/723 . . {constituted of gypsum elements}
- E04B 2002/725 . . . {Corner or angle connection details }
- E04B 2002/726 . . . {Clips for butt-joining plasterboards }
- E04B 2002/728 . . . {Butt-joining plasterboards in the space between two studs }
- U E04B 2/74 . . Removable non-load-bearing partitions; Partitions with a free upper edge (framed panels [E04C 2/38](#)) {modular coordination}
- U E04B 2/7407 . . {assembled using frames with infill panels or coverings only; made-up of panels and a support structure incorporating posts ([E04B 2/78](#) and [E04B 2/80](#) take precedence)}
- U E04B 2/7416 . . . {with free upper edge, e.g. for use as office space dividers}
- E04B 2002/7418 {Accessories supported on the free upper edge, e.g. auxilliary panels, noise abatement devices }
- E04B 2002/742 {Details of panel top cap }
- E04B 2002/7446 {Post-like profiles for connecting panels at an angle }
- E04B 2002/7461 . . {Details of connection of sheet panels to frame or posts }
- E04B 2002/7462 . . . {using resilient connectors, e.g. clips }
- E04B 2002/7464 {clasping a flange of a profile }
- E04B 2002/7466 . . . {using hooks }
- E04B 2002/7468 . . . {using magnets }
- E04B 2002/747 . . . {using hook and loop-type fasteners }
- E04B 2002/7472 . . . {using adhesives }
- E04B 2002/7474 . . . {using releasable connectors actuatable with a key or a tool }

- E04B 2002/7475 . . . {using connectors with claws penetrating the sheet panels }
- E04B 2002/7477 . . . {Details of connections using screws or nails }
- E04B 2002/7479 . . {Details of connection of flexible sheets to frame or posts }
- E04B 2002/7481 . . {Locating rails with adjustable curvature }
- E04B 2002/7483 . . {Details of furniture, e.g. tables or shelves, associated with the partitions }
- E04B 2002/7485 . . . {Load supports therefor placed between wall studs }
- E04B 2002/7487 . . {Partitions with slotted profiles }
- E04B 2002/7488 . . {Details of wiring }
- E04B 2002/749 . . {Partitions with screw-type jacks }
- E04B 2002/7492 . . . {used in partitions extending from floor to ceiling }
- E04B 2002/7494 {the jacks being located at the top or the side of the partition }
- E04B 2002/7496 . . {using wedges to level or hold the partition in place }
- E04B 2002/7498 . . {Partitions for clean rooms }
- E04B 2/84 . Walls made by casting, pouring, or tamping in situ ([E04B 2/02](#), [E04B 2/56](#) take precedence; forms therefor ~~E04G 11/06~~[E04G 11/06](#); working of concrete or similar masses able to be cast or poured in situ [E04G 21/02](#))
- U E04B 2/86 . . made in permanent forms
- E04B 2002/867 . . . {Corner details }
- E04B 2002/8676 . . . {Wall end details }
- E04B 2002/8682 . . . {Mixed technique using permanent and reusable forms }
- E04B 2002/8688 . . . {Scaffoldings or removable supports therefor }
- E04B 2002/8694 . . . {with hinged spacers allowing the formwork to be collapsed for transport }
- U **E04B 5/00** **Floors; Floor construction with regard to insulation; Connections specially adapted therefor (elements for floors, e.g. bricks, stones, filling bodies, girders, [E04C](#); flooring as finishing work, insulation of flooring, sectional false floors, e.g. for computers [E04F 15/00](#))**
- U E04B 5/16 . Load-carrying floor structures wholly or partly cast or similarly formed in situ ([E04B 5/43](#) to [E04B 5/48](#) take precedence; floors merely characterised by the prefabricated elements [E04C](#))
- U E04B 5/17 . Floor structures partly formed in situ
- E04B 2005/173 . . . {with permanent forms for the floor edges }
- E04B 2005/176 . . . {with peripheral anchors or supports }
- U E04B 5/23 . . . with stiffening ribs or other beam-like formations wholly or partly prefabricated (with all load-carrying parts substantially consisting of prefabricated units [E04B 5/02](#)){beams built-up by elements joined in line [E04C 3/22](#)}
- E04B 2005/232 {with special provisions for connecting wooden stiffening ribs or other wooden beam-like formations to the concrete slab }
- E04B 2005/235 {Wooden stiffening ribs or other wooden beam-like formations having a special form }
- E04B 2005/237 {Separate connecting elements }
- U E04B 5/32 . Floor structures wholly cast in situ with or without form units or reinforcements
- E04B 2005/322 . . . {with permanent forms for the floor edges }
- E04B 2005/324 . . . {with peripheral anchors or supports }

- U E04B 7/00** **Roofs; Roof construction with regard to insulation (structures for roofs as well as for floors [E04B 5/00](#); ceilings [E04B 9/00](#); greenhouses [A01G 9/14](#); large containers having floating covers [B65D 88/34](#); roof trusses, trusslike structures, joists [E04C 3/02](#); roof covering [E04D](#))**
- U E04B 7/02 • with plane sloping surfaces, e.g. saddle roofs {(canopies [E04F 10/00](#))}
([E04B 7/12](#) takes precedence)
- U E04B 7/06 • • Constructions of roof intersections or hipped ends
- U E04B 7/063 • • • {Hipped ends}
- E04B 2007/066 • • • • {for conservatories }
- U E04B 9/00** **Ceilings; Construction of ceilings, e.g. false ceilings; Ceiling construction with regard to insulation (ceilings used as forms for making floors [E04B 5/00](#); coverings or linings for ceilings [E04F 13/00](#))**
- U E04B 9/02 • having means for ventilation or vapour discharge
- E04B 2009/026 • • {the supporting ceiling grid acting as air diffusers }
- U E04B 9/04 • comprising slabs, { panels, } sheets or the like
- E04B 2009/0492 • • {with fabrics tensioned on frames }
- U E04B 9/06 • characterised by constructional features of the supporting construction, { e.g. cross section or material of framework members }
- E04B 2009/062 • • {Caps covering visible surfaces of the supporting construction }
- U E04B 9/18 • Means for suspending the supporting construction
- E04B 2009/186 • • {with arrangements for damping vibration }

Project: N/A (E04C)

- U E04C 2/00** **Building elements of relatively thin form for the construction of parts of buildings, e.g. sheet materials, slabs, or panels (materials or manufacture, see the relevant subclasses, e.g. [B27N](#), [D21J](#); made in situ [E04B](#); specially designed for insulation or other protection [E04B 1/62](#); load-carrying floor structures [E04B 5/02](#), [E04B 5/16](#); roofs consisting of self-supporting slabs [E04B 7/20](#); roof or like covering elements [E04D 3/00](#); for lining or finishing [E04F 13/00](#))**
- E04C 2002/001 • {Mechanical features of panels }
- E04C 2002/002 • • {Panels with integrated lifting means, e.g. with hoisting lugs }
- E04C 2002/004 • • {Panels with profiled edges, e.g. stepped, serrated }
- E04C 2002/005 • {Appearance of panels }
- E04C 2002/007 • • {Panels with the appearance of a brick wall }
- E04C 2002/008 • • {Panels with the appearance of a natural stone wall }
- U E04C 2/02 • characterised by specified materials (translucent [E04C 2/54](#))
- U E04C 2/04 • • of concrete or other stone-like material; of asbestos cement; {of cement and other mineral fibres}([E04C 2/26](#) takes precedence; material or manufacture [B28](#), [C04](#))
- U E04C 2/044 • • • {of concrete ([E04C 2/049](#) takes precedence)}
- E04C 2002/045 • • • • {with two parallel leaves connected by tie anchors }
- E04C 2002/046 • • • • • {Flat anchors }
- E04C 2002/047 • • • • • {Pin or rod shaped anchors }
- E04C 2002/048 • • • • • {Bent wire anchors }
- U E04C 2/30 • characterised by the shape or structure (translucent [E04C 2/54](#))
- U E04C 2/34 • • composed of two or more spaced sheet-like parts ([E04C 2/32](#) takes precedence; spacers for cavity walls [E04B 2/44](#))

- U E04C 2/3405
 - • • {spaced apart by profiled spacer sheets}
 - E04C 2002/3411
 - • • • {Dimpled spacer sheets }
 - E04C 2002/3416
 - • • • • {with cylindrical dimples }
 - E04C 2002/3422
 - • • • • {with polygonal dimples }
 - E04C 2002/3427
 - • • • • {with conical dimples }
 - E04C 2002/3433
 - • • • • {with dimples extending from both sides of the spacer sheet }
 - E04C 2002/3438
 - • • • • • {with saddle-shaped dimples, e.g. eggcrate type spacer sheets }
 - E04C 2002/3444
 - • • • {Corrugated sheets }
 - E04C 2002/345
 - • • • • {with triangular corrugations }
 - E04C 2002/3455
 - • • • • {with trapezoidal corrugations }
 - E04C 2002/3461
 - • • • • {with rectangular corrugations }
 - E04C 2002/3466
 - • • • • {with sinusoidal corrugations }
 - E04C 2002/3472
 - • • • {with multiple layers of profiled spacer sheets }
 - E04C 2002/3477
 - • • {spaced apart by tubular elements parallel to the sheets }
 - E04C 2002/3483
 - • • {spaced apart by spacers stamped from the sheets }
 - E04C 2002/3488
 - • • {spaced apart by frame like structures }
 - E04C 2002/3494
 - • • {Apparatus for making profiled spacer sheets }
- U E04C 3/00 **Structural elongated elements designed for load-supporting (as building aids [E04G](#))**
- U E04C 3/02
 - Joists; Girders, trusses, or trusslike structures, e.g. prefabricated; Lintels; Transoms; {Braces}([E04C 3/38](#) takes precedence; for structures characterised by movable, separable, or collapsible parts [E04B 1/343](#); {braced purlins [E04B 7/024](#)})
 - E04C 2003/023
 - • ~~Lintels~~ {~~Lintels~~ }
 - E04C 2003/026
 - • ~~Braces~~ {~~Braces~~ }
- U E04C 3/04
 - • of metal ([E04C 3/29](#) takes precedence; as reinforcing elements [E04C 5/06](#); manufacture [B21](#))
 - E04C 2003/0404
 - • • {beams, girders, or joists characterised by cross-sectional aspects }
 - E04C 2003/0408
 - • • • {characterised by assembly or the cross-section }
 - E04C 2003/0413
 - • • • • {being built up from several parts }
 - E04C 2003/0417
 - • • • • • ~~demountable~~ {~~demountable~~ }
 - E04C 2003/0421
 - • • • • {comprising one single unitary part }
 - E04C 2003/0426
 - • • • {characterised by material distribution in cross section }
 - E04C 2003/043
 - • • • • {the hollow cross-section comprising at least one enclosed cavity }
 - E04C 2003/0434
 - • • • • {the open cross-section free of enclosed cavities }
 - E04C 2003/0439
 - • • • • {the cross-section comprising open parts and hollow parts }
 - E04C 2003/0443
 - • • • {characterised by substantial shape of the cross-section }
 - E04C 2003/0447
 - • • • • {circular- or oval-shaped }
 - E04C 2003/0452
 - • • • • {H- or I-shaped }
 - E04C 2003/046
 - • • • • {L- or T-shaped }
 - E04C 2003/0465
 - • • • • {square- or rectangular-shaped }
 - E04C 2003/0469
 - • • • • {triangular-shaped }
 - E04C 2003/0473
 - • • • • {U- or C-shaped }
 - E04C 2003/0478
 - • • • • {X-shaped }
 - E04C 2003/0482
 - • • • • {Z- or S-shaped }

- E04C 2003/0486 . . . {Truss like structures composed of separate truss elements }
- E04C 2003/0491 {the truss elements being located in one single surface or in several parallel surfaces }
- E04C 2003/0495 {the truss elements being located in several non-parallel surfaces }

Project: N/A (E04D)**U E04D 1/00****Roof covering by making use of tiles, slates, shingles, or other small roofing elements (roofing supports {and underlayers} [E04D 12/00](#))**

- E04D 2001/005 . {the roofing elements having a granulated surface }
- U E04D 1/30 . Special roof-covering elements, e.g. ridge tiles, gutter tiles, gable tiles, ventilation tiles ([E04D 3/40](#), {[E04D 13/03](#), [E04D 13/14](#)} take precedence)
 - E04D 2001/301 . . {at roof edges, e.g. intersections with walls }
 - E04D 2001/302 . . . {Gable tiles }
 - E04D 2001/303 . . . {Eave tiles }
 - E04D 2001/304 . . {at roof intersections, e.g. valley tiles, ridge tiles }
 - E04D 2001/305 . . . {Ridge or hip tiles }
 - E04D 2001/306 {Under-ridge tiles }
 - E04D 2001/307 . . {for passages in the roof surface }
 - E04D 2001/308 . . {for special purposes not otherwise provided for, e.g. turving tiles, step tiles }
 - E04D 2001/309 . . {Ventilation tiles }
- U E04D 1/34 . Fastenings for attaching roof-covering elements to the supporting elements
 - E04D 2001/3408 . . {characterised by the fastener type or material }
 - E04D 2001/3411 . . . {Metal wires or rods }
 - E04D 2001/3414 . . . {Metal strips or sheet metal }
 - E04D 2001/3417 . . . {Synthetic, composite or molded material }
 - E04D 2001/342 . . . {Flexible filamentous ties, e.g. to be twisted or forming nets }
 - E04D 2001/3423 . . . {Nails, rivets, staples or straps piercing or perforating the roof covering material }
 - E04D 2001/3426 . . . {Threaded elements }
 - E04D 2001/3429 . . . {Press-studs elements }
 - E04D 2001/3432 . . . {Strips covering the gap between the roof covering elements }
 - E04D 2001/3435 . . . {Adhesive, hardenable or heat-sensitive material }
 - E04D 2001/3438 . . . {Fasteners comprising several coating elements }
 - E04D 2001/3441 . . . {Series of easily separable fasteners }
 - E04D 2001/3444 . . {characterised by the roof covering or structure with integral or premounted fastening means }
 - E04D 2001/3447 . . . {the fastening means being integral or premounted to the roof covering }
 - E04D 2001/345 . . . {the fastening means being integral or premounted to the roof structure }
 - E04D 2001/3452 . . {characterised by the location of the fastening means }
 - E04D 2001/3455 . . . {on the internal surface of the roof covering elements }
 - E04D 2001/3458 . . . {on the upper or lower transverse edges of the roof covering elements }
 - E04D 2001/3461 . . . {on the lateral edges of the roof covering elements }
 - E04D 2001/3464 . . . {on the lateral corners of the roof covering elements for diagonally tiled roofs }
 - E04D 2001/3467 . . . {through apertures, holes or slots }
 - E04D 2001/347 . . {characterised by the fastening pattern }

E04D 2001/3473	• • • {fastening single roof elements to the roof structure with or without indirect clamping of neighbouring roof covering elements }
E04D 2001/3476	• • • {the fastening means taking hold directly on adjacent elements of the same row and fastening them simultaneously to the roof structure }
E04D 2001/3479	• • • {the fastening means taking hold directly on adjacent elements of the same row and fastening them only to each other }
E04D 2001/3482	• • • {the fastening means taking hold directly on elements of succeeding rows and fastening them simultaneously to the structure }
E04D 2001/3485	• • • {the fastening means taking hold directly on elements of succeeding rows and fastening them only to each other }
E04D 2001/3488	• • {characterised by the type of roof covering elements being fastened }
E04D 2001/3491	• • • {made of flexible material, e.g. shingles }
E04D 2001/3494	• • • {made of rigid material having a flat external surface }
E04D 2001/3497	• • • {Spanish type tiles }
U E04D 3/00	Roof covering by making use of flat or curved slabs or stiff sheets (E04D 1/00 takes precedence; built-up roofs E04D 11/02)
U E04D 3/02	• of plane slabs, slates, or sheets, or in which the cross-section is unimportant (E04D 3/35 takes precedence)
U E04D 3/06	• • of glass or other translucent material; Fixing means therefor (fixing glass panes by means applicable to windows E06B 3/54)
E04D 2003/065	• • • {Corner- or point-supported glazing }
U E04D 3/08	• • • with metal glazing bars
E04D 2003/0806	• • • • {the supporting section of the glazing bar consisting of one single extruded or rolled metal part }
E04D 2003/0812	• • • • {the supporting section of the glazing bar consisting of one single bent or otherwise deformed sheetmetal }
E04D 2003/0818	• • • • {the supporting section of the glazing bar consisting of several parts, e.g. compound sections }
E04D 2003/0825	• • • • • {the metal section covered by parts of other material }
E04D 2003/0831	• • • • • {Glazing gaskets of particular shape }
E04D 2003/0837	• • • • • {Sections comprising intermediate parts of insulating material }
E04D 2003/0843	• • • • {Clamping of the sheets or glass panes to the glazing bars by means of covering strips }
E04D 2003/085	• • • • • {locked by snap action }
E04D 2003/0856	• • • • • {locked by screws, bolts or pins }
E04D 2003/0862	• • • • {by means of separate clips or hooks }
E04D 2003/0868	• • • • {Mutual connections and details of glazing bars }
E04D 2003/0875	• • • • • {on the ridge of the roof or on intersecting roof parts }
E04D 2003/0881	• • • • • {on the eaves of the roof }
E04D 2003/0887	• • • • {Glazing bars for coverings consisting of more than one sheet or glass pane }
E04D 2003/0893	• • • • {Glazing bars comprising means for draining condensation water or infiltrated rainwater }
U E04D 3/24	• with special cross-section, e.g. with corrugations on both sides, with ribs, flanges, or the like (E04D 3/35 takes precedence)
U E04D 3/28	• • of glass {or other translucent material}
E04D 2003/285	• • • {with specially profiled marginal portions for connecting purposes }
U E04D 3/36	• Connecting; Fastening

- U E04D 3/361
 - • by specially-profiled marginal portions of the slabs or sheets
- E04D 2003/3612
 - • • {Separate fastening elements fixed to the roof structure and comprising plastic parts for avoiding thermal bridges }
- E04D 2003/3615
 - • • {Separate fastening elements fixed to the roof structure and consisting of parts permitting relative movement to each other, e.g. for thermal expansion }
- E04D 2003/3617
 - • • {with locking or snapping edges located in the thickness of the slab or sheet }
- U E04D 13/00

Special arrangements or devices in connection with roof coverings; {Protection against birds}; Roof drainage; {Sky-lights}{ventilation tiles [E04D 1/30](#); ventilation slabs [E04D 3/40](#); internal channels [E04F 17/00](#); elements therefor, see the relevant groups}
- U E04D 13/03
 - Sky-lights; Domes; Ventilating sky-lights ([E04D 13/14](#) takes precedence; structures therefor, {e.g. dormer windows} [E04B 7/18](#); {saw-tooth roofs with light-transmission [E04B 7/12](#)})
- E04D 2013/034
 - • {Daylight conveying tubular skylights }
- E04D 2013/0345
 - • • {with skylight shafts extending from roof to ceiling }
- U E04D 13/04
 - Roof drainage; Drainage fittings in flat roofs, {balconies or the like}{gutter tiles [E04D 1/30](#); gutter slabs [E04D 3/40](#); {vessels for collecting rainwater [E03B 3/03](#); } street gullies [E03F 5/04](#)}
- U E04D 13/0404
 - • {Drainage on the roof surface}
- U E04D 13/0409
 - • • {Drainage outlets, e.g. gullies}
- E04D 2013/0413
 - • • • {Strainers for drainage outlets }
- E04D 2013/0418
 - • • • {with de-icing devices or snow melters }
- E04D 2013/0422
 - • • • {for draining water above the roof level, e.g. gullies with overflow ports }
- E04D 2013/0427
 - • • • {with means for controlling the flow in the outlet }
- E04D 2013/0436
 - • • • {with sealing means }
- E04D 2013/044
 - • • • • {on multiple levels }
- U E04D 13/0445
 - • • {Drainage channels}
- E04D 2013/045
 - • • • {on inclined roofs }
- E04D 2013/0454
 - • • • • {at the intersection of roof surfaces, e.g. roof valleys }
- U E04D 13/0459
 - • • {Drainage borders, e.g. dripping edges, gravel stops or dispersers}
- E04D 2013/0463
 - • • • ~~Dispersers~~{[Dispersers](#)}
- E04D 2013/0468
 - • • • {Drip edges }
- E04D 2013/0472
 - • • • {Gravel stops }
- U E04D 13/0481
 - • • {Drainage guiding provisions, e.g. deflectors or stimulation by inclined surfaces}
- E04D 2013/0486
 - • • • ~~Deflectors~~{[Deflectors](#)}
- E04D 2013/049
 - • • {of condensation water or infiltrated rainwater }
- E04D 2013/0495
 - • • {to storage tanks }
- U E04D 13/08
 - • Down pipes; Special clamping means therefor (clamping pipes in general [F16B](#), [F16L](#))
- E04D 2013/0806
 - • • {Details of lower end of down pipes, e.g. connection to water disposal system }
- E04D 2013/0813
 - • • • {Water diverters }
- E04D 2013/082
 - • • {Down pipe branches }
- E04D 2013/0826
 - • • {Passages of down pipes through walls or floors }

- E04D 2013/0833 . . . {Elbow pieces }
- E04D 2013/084 . . . {Means for fixing down pipes to structure }
- E04D 2013/0846 . . . {Interconnecting down pipe parts }
- E04D 2013/0853 . . . {Valves for controlling the rain water flow }
- E04D 2013/086 . . . ~~Filters~~ {Filters }
- E04D 2013/0866 . . . {Access opening for cleaning; Devices for avoiding cumulation of debris }
- E04D 2013/0873 . . . {Rain water reservoirs integrated in down pipes }
- E04D 2013/088 . . . {D-icing devices or snow melters }
- E04D 2013/0886 . . . {Devices for preventing climbing on down pipes }
- E04D 2013/0893 . . . {incorporated in building structure }
- U E04D 13/14 . Junctions of roof sheathings to chimneys or other parts extending above the roof
- E04D 2013/1422 . . {Parapet building elements for retaining the roof flashing }
- U E04D 15/00 Apparatus or tools for roof working**
- U E04D 15/04 . for roof coverings comprising slabs, sheets or flexible material
- E04D 2015/042 . . {Fixing to the roof supporting structure }
- E04D 2015/045 . . . {by nailing }
- E04D 2015/047 . . . {by screwing }

Project: N/A (E04F)

- U E04F 11/00 Stairways, ramps, or like structures (mounting or marking-off stairways [E04F 21/26](#); of temporary { use during building} construction [E04G 27/00](#); means for facilitating access to swimming pools [E04H 4/144](#); { means for facilitating access to swimming pools [E04H 4/144](#); appliances for aiding patients or disabled persons to walk [A61H 3/00](#)}); Balustrades; Handrails (ladders permanently attached to fixed structures [E06C 9/00](#))**
- U E04F 11/002 . { Ramps}
- U E04F 2011/005 . . { collapsible, e.g. folding, telescopic}
- U E04F 2011/007 . . { characterised by the supporting structure}
- U E04F 11/02 . Stairways; Layouts thereof
- E04F 2011/0203 . . {Miscellaneous features of stairways not otherwise provided for}
- E04F 2011/0205 . . . {Stairways characterised by the use of specific materials for the supporting structure of the treads }
- E04F 2011/0207 {mainly of wood}
- E04F 2011/0209 {mainly of metal}
- E04F 2011/021 {mainly of stone or stone like materials, e.g. concrete; mainly of glass}
- E04F 2011/0212 {mainly of concrete}
- E04F 2011/0214 {cast in-situ}
- E04F 2011/0216 {mainly of glass}
- E04F 2011/0218 {mainly of organic plastics with or without reinforcements or filling materials}
- U E04F 11/104 . . Treads
- E04F 2011/1046 . . . {Miscellaneous features of treads not otherwise provided for}
- E04F 2011/1047 . . . {with means for eliminating squeak}
- E04F 2011/1048 . . . {with lighting means}

- U E04F 11/18
 - Balustrades; Handrails (guard-rails on ships [B63B](#); for bridges [E01D 19/10](#); for roads [E01F 13/00](#), [E01F 15/00](#); fences [E04H 17/00](#); { safety measures for persons during the construction of buildings [E04G 21/32](#)})
- U E04F 11/1802
 - • { Handrails mounted on walls, e.g. on the wall side of stairs}
- E04F 2011/1806
 - • • {Balcony guard with additional child safety means}
- U E04F 11/181
 - • { Balustrades}
- U E04F 11/1817
 - • • { Connections therefor ([E04F 11/1812](#) and [E04F 11/1836](#) take precedence)}
- U E04F 2011/1819
 - • • • { between balustrade posts and horizontal or sloping balustrade members}
- U E04F 2011/1823
 - • • • { between balustrade filling members, e.g. balusters or panels, and horizontal or sloping balustrade members}
- U E04F 2011/1831
 - • • • { between balustrade filling members, e.g. panels, and balustrade posts}
- E04F 2011/1868
 - • {Miscellaneous features of handrails not otherwise provided for }
- E04F 2011/187
 - • • {lengthwise adjustable, e.g. telescopic}
- E04F 2011/1872
 - • • • ~~illuminated~~{illuminated}
- E04F 2011/1874
 - • • {Noise reduction}
- E04F 2011/1876
 - • • {Movable elements, e.g. against sunlight}
- E04F 2011/1878
 - • • {Heat exchanger}
- E04F 2011/188
 - • • {with flower pots}
- E04F 2011/1882
 - • • {with traction cable inside post or rail }
- E04F 2011/1885
 - • {Handrails or balusters characterized by the use of specific materials }
- E04F 2011/1887
 - • • {mainly of wood}
- E04F 2011/1889
 - • • {mainly of metal}
- E04F 2011/1891
 - • • {mainly of stone or stone like materials, e.g. concrete; mainly of glass}
- E04F 2011/1893
 - • • • {mainly of concrete}
- E04F 2011/1895
 - • • • {mainly of glass}
- E04F 2011/1897
 - • • {mainly of organic plastics with or without reinforcements or filling materials}
- U E04F 13/00
 - **Coverings or linings, e.g. for walls or ceilings (flooring [E04F 15/00](#); decoration of surfaces, mosaic work [B44](#), e.g. paper-hanging [B44C 7/00](#); made of webs, e.g. of fabrics or wallpaper, { as such, or their manufacturing} [D03D](#), [D04G](#), [D04H](#), [D06N](#), [D21H](#); construction of { false} ceilings [E04B 9/00](#); roofings or similar water-tight coverings against precipitation [E04D](#))**
- U E04F 13/02
 - of plastic materials hardening after applying, e.g. plaster (surface treatment in painting technique [B44D](#); inorganic or bituminous masses [C04B](#); organic plastics [C08L](#)){implements for applying plasticised materials [E04F 21/02](#)}
- U E04F 13/04
 - • Bases for plaster (sub-ceilings with plaster-carrying means [E04B 9/06](#))
- U E04F 13/06
 - • • Edge-protecting borders {(borders for joints between plaster layers and window or door frames or like [E06B 1/62](#))}
- U E04F 2013/061
 - • • • { for arched or curved edges}
- U E04F 2013/063
 - • • • { for corners}
- U E04F 2013/065
 - • • • { for lower edges of outer insulation layers}
- U E04F 2013/066
 - • • • { for expansion joints between two plaster layers}

- U E04F 15/00** Flooring (stair treads [E04F 11/104](#); coverings not specially adapted for floors [E04F 13/00](#); borders, skirtings [E04F 19/02](#); { implements for laying flooring [E04F 21/20](#); } gratings for cleaning soles of footwear [A47L 23/24](#); { built-in gratings [E04F 19/10](#); removing floor coverings [E04G 23/00](#); carpets [A47G 27/00](#); } of similar materials to roads [E01C](#); basic or rough floors { , structural floors} [E04B 5/00](#))
- U E04F 15/02 • Flooring or floor layers composed of a number of similar elements (of webs [E04F 15/16](#))
- U E04F 15/02044 • { Separate elements for fastening to an underlayer ([E04F 15/02133](#), [E04F 15/0215](#) take precedence)}
- E04F 2015/0205 • • {with load-supporting elongated furring elements between the flooring elements and the underlayer }
- E04F 2015/02055 • • • {with additional supporting elements between furring elements and underlayer }
- E04F 2015/02061 • • • • {adjustable perpendicular to the underlayer }
- E04F 2015/02066 • • • • {with additional fastening elements between furring elements and flooring elements }
- E04F 2015/02072 • • • • {the additional fastening elements extending into the back side of the flooring elements ([E04F 2015/021](#) takes precedence)}
- E04F 2015/02077 • • • • {the additional fastening elements located in-between two adjacent flooring elements }
- E04F 2015/02083 • • • • • {Piercing the side faces of the flooring elements }
- E04F 2015/02088 • • • • • {Engaging side holes preformed into the flooring elements }
- E04F 2015/02094 • • • • • {Engaging side grooves running along the whole length of the flooring elements }
- E04F 2015/021 • • • • • {fixed by means of hooking means on the back side of the flooring elements }
- E04F 2015/02105 • • • {without load-supporting elongated furring elements between the flooring elements and the underlayer }
- E04F 2015/02111 • • • • {not adjustable }
- E04F 2015/02116 • • • • • {with fastening elements extending into the back side of the flooring elements }
- E04F 2015/02122 • • • • • {with fastening elements engaging holes or grooves in the side faces of the flooring elements ([E04F 2015/02116](#) takes precedence)}
- E04F 2015/02127 • • • • {adjustable perpendicular to the underlayer ([E04F 15/02464](#) takes precedence)}
- U E04F 19/00** Other details of constructional parts for finishing work on buildings (ladders, e.g. climbing irons, [E06C 9/04](#))
- U E04F 19/02 • Borders; Finishing strips, e.g. beadings; Light coves (for protecting edges of plaster [E04F 13/06](#))
- U E04F 19/04 • • for use between floor or ceiling and wall, e.g. skirtings
- E04F 2019/0404 • • • {characterised by the material }
- E04F 2019/0409 • • • • {of wood }
- E04F 2019/0413 • • • • • {of metal }
- E04F 2019/0418 • • • • • {of stone or stone like material, e.g. ceramics, concrete; of glass }
- E04F 2019/0422 • • • • • {of organic plastics with or without reinforcements or filling materials }
- E04F 2019/0427 • • • • • {with a integrally formed hinge }
- E04F 2019/0431 • • • • • {of two or more materials }
- E04F 2019/044 • • • {with conduits }

- E04F 2019/0445 . . . {Ventilating plinths }
- E04F 2019/0454 . . . {with decorative effects }

Project: N/A (E04G)**E04G**

SCAFFOLDING; FORMS; SHUTTERING; BUILDING IMPLEMENTS OR OTHER BUILDING AIDS, OR THEIR USE; HANDLING BUILDING MATERIALS ON THE SITE; REPAIRING, BREAKING-UP OR OTHER WORK ON EXISTING BUILDINGS

NOTE

In this subclass the word "scaffolding" includes other supports for like purposes

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

E04G3/02	covered by	E04G 3/00
E04G3/04	" "	E04G 3/00
E04G3/06	" "	E04G 3/00
E04G3/08	" "	E04G 3/00
E04G3/10	" "	E04G 3/00
E04G3/12	" "	E04G 3/00
E04G3/14	" "	E04G 3/00
E04G3/16	" "	E04G 3/00
E04G 23/03	" "	E04G 23/0266

U E04G 1/00**Scaffolds primarily resting on the ground**WARNING

New subgroups [E04G 1/17](#) and [E04G 1/38](#), corresponding to IPC8, are not complete. Documents from main groups [E04G 1/00](#) respectively [E04G 1/00](#) and [E04G 3/00](#) are in the process of being reorganised to these new subgroups

- U E04G 1/15 . essentially comprising special means for supporting or forming platforms ([E04G 1/20](#) takes precedence); Platforms (boards or planks therefor [E04G 5/08](#), { clips or connections for securing boards [E04G 7/28](#)})
- E04G 2001/155 . . {Platforms with an access hatch for getting through from one level to another }
- E04G 2001/156 . . {Stackable platforms }
- E04G 2001/157 . . {Extensible platforms, e.g. telescopic platforms }
- E04G 2001/158 . . {Platforms supported by spigots which engage through holes in the platform }
- U E04G 1/24 . comprising essentially special base constructions; comprising essentially special ground-engaging parts, e.g. inclined struts, wheels (component parts [E04G 5/00](#))
- E04G 2001/242 . . {Scaffolds movable on wheels or tracks }
- E04G 2001/244 . . . {mechanically operated }
- E04G 2001/246 {human powered }
- E04G 2001/248 . . {Inclined struts }
- U E04G 1/28 . designed to provide support only at a low height
- U E04G 1/30 . . Ladder scaffolds {(ladders having platforms [E06C 1/39](#), platforms on, or for use on; ladders [E06C 7/16](#))}
- E04G 2001/302 . . . {with ladders supporting the platform }

E04G 2001/305	• • • {The ladders being vertical and perpendicular to the platform }
E04G 2001/307	• • • {The ladders being self-supporting folding ladders }
U E04G 3/00	Scaffolds essentially supported by building constructions, e.g. adjustable in height (E04G 1/00 takes precedence { and E04G 21/3204 takes precedence})
U E04G 3/28	• Mobile scaffolds; Scaffolds with mobile platforms {(movable inspection or maintenance platforms for bridges E01D 19/106, lifting devices for movable platforms e.g. on vehicles B66F 11/04)}
E04G 2003/283	• • {mobile horizontally }
E04G 2003/286	• • {mobile vertically }
U E04G 5/00	Component parts or accessories for scaffolds (connections E04G 7/00)
E04G 2005/008	• {Hoisting devices specially adapted as part of a scaffold system }
U E04G 5/06	• Consoles; Brackets {(E04G 3/00 takes precedence)}
E04G 2005/068	• • {Connections of consoles at an angle }
U E04G 5/12	• Canopies {(safety or protective measures preventing damage to building parts or finishing work during construction E04G 21/24)}
E04G 2005/125	• • {Roof for scaffolds, e.g. extending to the adjacent building }
U E04G 5/14	• Railings
E04G 2005/148	• • {latticed or netted }
U E04G 7/00	Connections between parts of the scaffold (for building structures in general E04B 1/38; connections in general F16B; { connection for tubes or rods in general F16B 7/00})
E04G 2007/005	• {Adaptors to adapt the connection means of one manufacturer's scaffold system to the one of another manufacturer }
U E04G 7/02	• with separate coupling elements
U E04G 7/28	• • Clips or connections for securing boards (brackets E04G 5/06; { scaffolds comprising special means for supporting or forming platforms, platforms E04G 1/15; scaffold boards or planks E04G 5/08})
E04G 2007/285	• • • {specially adapted for toe boards }
U E04G 9/00	Forming or shuttering elements for general use {(for prefabrication of concrete elements in a plant B28B 7/00)}
U E04G 9/02	• Forming boards or similar elements (E04G 9/08, E04G 9/10 take precedence)
E04G 2009/023	• • {with edge protection }
E04G 2009/025	• • • {by a flange of the board's frame }
E04G 2009/026	• • • {specific for corners }
E04G 2009/028	• • {with reinforcing ribs on the underside }
U E04G 11/00	Forms, shutterings, or falsework for making walls, floors, ceilings, or roofs {(for prefabrication of concrete elements in a plant B28B 7/00)}
U E04G 11/06	• for walls, e.g. curved {end panels for wall shutterings; filler elements for wall shutterings; shutterings for vertical ducts}(E04G 11/04 takes precedence)
E04G 2011/067	• • {Integrated forms comprising shuttering skin, bracing or strutting arrangements, workplatforms and railings }
U E04G 11/36	• for floors, ceilings, or roofs of plane or curved surfaces { end formpanels for floor shutterings (floors with lost forms E04B 5/32)}
U E04G 11/48	• • Supporting structures for shutterings or frames for floors or roofs (struts E04G 25/00)

- U E04G 11/50
 - • • Girders, beams, or the like as supporting members for forms (girders intended to form part of the construction [E04C 3/02](#); members, e.g. consoles, for attachment to the wall [E04G 17/16](#))
- E04G 2011/505
 - • • • {with nailable or screwable inserts }
- U E04G 17/00 **Connecting or other auxiliary members for forms, falsework structure, or shutterings**
 - E04G 2017/008
 - {Pin and hole connection type }
 - U E04G 17/06
 - Tying means; Spacers; { Devices for extracting or inserting wall ties ([E04G 17/047](#) takes precedence; permanent forms for walls e.g. with ties [E04B 2/86](#))}
 - E04G 2017/0601
 - • {Tying means, the tensional element of which is threaded to ensure its fastening or tensioning}
 - E04G 2017/0603
 - • • {one-piece element}
 - E04G 2017/0605
 - • • • {fully recoverable}
 - E04G 2017/0607
 - • • • {remaining completely or partially embedded in the cast material}
 - E04G 2017/0609
 - • • {the element consisting of several parts}
 - E04G 2017/0611
 - • • • {fully recoverable}
 - E04G 2017/0612
 - • • • {remaining completely or partially embedded in the cast material}
 - E04G 2017/0614
 - • {Tying means, the tensional element of which is fastened or tensioned by means of wedge-shaped members}
 - E04G 2017/0616
 - • • {one-piece element}
 - E04G 2017/0618
 - • • • {fully recoverable}
 - E04G 2017/062
 - • • • {remaining completely or partially embedded in the cast material}
 - E04G 2017/0622
 - • • {the element consisting of several parts}
 - E04G 2017/0624
 - • • • {fully recoverable}
 - E04G 2017/0625
 - • • • {remaining completely or partially embedded in the cast material}
 - E04G 2017/0627
 - • {Tying means, the tensional element of which is fastened or tensioned by other means}
 - E04G 2017/0629
 - • • {one-piece element}
 - E04G 2017/0631
 - • • • {fully recoverable}
 - E04G 2017/0633
 - • • • {remaining completely or partially embedded in the cast material}
 - E04G 2017/0635
 - • • {the element consisting of several parts}
 - E04G 2017/0637
 - • • • {fully recoverable}
 - E04G 2017/0638
 - • • • {remaining completely or partially embedded in the cast material}
 - E04G 2017/0646
 - • {made of a flat strip, e.g. of metal }
 - E04G 2017/0648
 - • • {The strip being twisted }
- U E04G 21/00 **Preparing, conveying, or working-up building materials or building elements in situ; Other devices or measures for constructional work (conveying in general [B65G](#); lifting devices [B66](#); working stone-like materials [B28D](#); measuring instruments [G01](#))**
 - U E04G 21/02
 - Conveying or working-up concrete or similar masses able to be heaped or cast (in connection with finishing work [E04F](#); construction and surfacing of floorings made of similar material to roads or pavements [E01C](#); in connection with barrages [E02B 7/00](#); in connection with foundations [E02D 15/00](#); composition of concrete [C04B](#); working concrete in general, e.g. mixing machines [B28C](#))
 - U E04G 21/04
 - • Devices for both conveying and distributing (concrete pumps [F04](#))
 - E04G 2021/049
 - • • {concrete mixing nozzles specially adapted for conveying devices }

- U E04G 21/12
 - Mounting of reinforcing inserts; Prestressing (shell tubes for prestressing members [E04C 5/10](#); anchoring means [E04C 5/12](#); connections of reinforcing elements and spacers [E04C 5/16](#))
- E04G 2021/127
 - • {Circular prestressing of e.g. columns, tanks, domes }
- E04G 2021/128
 - • {Prestressing each strand of a cable one by one to the same tension }
- U E04G 21/14
 - Conveying or assembling building elements (roofing [E04D](#); finishing work [E04F](#))
- U E04G 21/16
 - • Tools or apparatus (devices for erecting fences [E04H 17/26](#))
- U E04G 21/20
 - • • for applying mortar
- E04G 2021/208
 - • • • {on a vertical joint }
- U E04G 21/24
 - Safety or protective measures preventing damage to building parts or finishing work during construction (as auxiliary structures for scaffolds [E04G](#), { [E04G 5/12](#)})
- E04G 2021/248
 - • {Tarpaulins specially adapted therefor }
- U E04G 21/32
 - Safety or protective measures for persons during the construction of buildings (relating to scaffolds [E04G 5/00](#); climbing tools, e.g. climbing irons for masts [A63B 27/00](#); ropes or belts for life saving [A62B 1/16](#), [A62B 35/00](#))
- U E04G 21/3204
 - • {against falling down}
- E04G 2021/3257
 - • • {specific for floors made of prefabricated hollow plates }
- U **E04G 23/00**

Working measures on existing buildings, ({ domestic cleaning of walls or floors [A47L 11/00](#); grinding floors or walls [B24B 7/18](#); removing of wall coverings [B44C 7/00](#); removing of paint from surfaces [B44D 3/16](#); electrochemical desalination or re-alkalisation [C04B 41/00](#)}; on foundations [E02D 35/00](#), [E02D 37/00](#); in connection with insulations [E04B](#); subsequent or finishing work [E04F](#))

NOTE

In addition to the subject matter referred out in this group, subject matter relating to working measures on existing buildings which are analogous to those used in constructing new buildings, are classified in the appropriate construction groups.
- U E04G 23/02
 - Repairing, e.g. filling cracks; Restoring; Altering; Enlarging {(compositions of filling material [C04B](#); strengthening, widening, repairing of bridges [E01D 22/00](#); drying damp layers by temporary mechanical ventilation [E04B 1/7092](#))}
- U E04G 23/0218
 - • {Increasing or restoring the load-bearing capacity of building construction elements ([E04G 23/0203](#) and [E04G 23/0266](#) take precedence)}
- E04G 2023/0248
 - • • {of elements made of wood }
- E04G 2023/0251
 - • • {by using fiber reinforced plastic elements }
- E04G 2023/0255
 - • • • {whereby the fiber reinforced plastic elements are stressed }
- E04G 2023/0259
 - • • • • {Devices specifically adapted to stress the fiber reinforced plastic elements }
- E04G 2023/0262
 - • • • {Devices specifically adapted for anchoring the fiber reinforced plastic elements e.g. to avoid peeling off }
- U E04G 23/08
 - Wrecking of buildings (of fences [E04H 17/26](#); {Demolition agents based on cementitious or like materials [C04B 41/0009](#)})
- E04G 2023/085
 - • {crowbars specially adapted for wrecking wooden buildings }
- E04G 2023/086
 - • {of tanks, reservoirs or the like }
- E04G 2023/087
 - • {of chimneys, smoke stacks or the like }
- E04G 2023/088
 - • {of window or door frames }

- U E04G 25/00** **Shores or struts (specially designed for use in mines [E21D 15/00](#) { ; [E04G 21/26](#), [E04G 23/04](#) take precedence}); Chocks**
- E04G 2025/003 • {Supports therefor, e.g. tripods }
 - E04G 2025/006 • {Heads therefor, e.g. pivotable }
 - U E04G 25/04** • telescopic {(locking of telescopic systems in general [F16B 7/10](#))}
 - E04G 2025/042 • • {with devices to avoid accidental disengagement of the telescopic elements, e.g. during transport }
 - E04G 2025/045 • • {which telescoping action effected by a lever }
 - E04G 2025/047 • • {which telescoping action effected by a piston }

Project: N/A (E04H)

- U E04H 1/00** **Buildings or groups of buildings for dwelling or office purposes; General lay-out, e.g. modular co-ordination, staggered storeys {small buildings} ([E04H 3/00](#) takes precedence; buildings for two or more purposes, e.g. drive-in buildings [E04H 14/00](#); building construction in general [E04B 1/00](#))**
- U E04H 1/12** • Small buildings or other erections for limited occupation, erected in the open air or arranged in buildings, e.g. kiosks, waiting shelters for bus stops or for filling stations, roofs for railway platforms, watchmens` huts, dressing cubicles (movable screens as household equipment [A47G 5/00](#))
- E04H 2001/1283 • • {Small buildings of the ISO containers type}
 - E04H 2001/1288 • • {Sauna cabins }
 - E04H 2001/1294 • • {Booths for smoking }
- U E04H 3/00** **Buildings or groups of buildings for public or similar purposes; Institutions, e.g. infirmaries, prisons (portions of buildings for individual occupation, e.g. cubicles [E04H 1/00](#); structures covering a large free area [E04B 1/342](#))**
- U E04H 3/10** • for meetings, entertainments, or sports
 - U E04H 3/14** • • Gymnasiums; Other sporting buildings (tribunes [E04H 3/12](#))
 - E04H 2003/142 • • • {with vertically movable or tiltable playing field or sections }
 - E04H 2003/145 • • • {with reconfigurable seating arrangement }
 - E04H 2003/147 • • • {using horizontally movable sections of tribunes }
- E04H 4/00** **Swimming or splash baths or pools (wave-producers for baths [A47K 3/10](#); separation [B01D](#); treatment of water [C02F](#); wave-producing pumps [F04D 35/00](#) [F04D 35/00](#))**
- U E04H 4/0018** • { Easily movable or transportable swimming pools}
 - E04H 2004/0068 • • {made of plastic shells or plastic elements including at least parts of walls and floors }
 - U E04H 4/12** • Devices or arrangements for circulating water, {i.e. devices for removal of polluted water, cleaning baths or for water treatment}
 - E04H 4/129 • • {Systems for heating the water content of swimming pools (solar collectors using pools [F24J2/04B16](#) [F24J 2/0472](#), [F24J 2/0461](#); by solar radiation [F24J 2/423](#))}
 - U E04H 4/14** • Parts, details or accessories not otherwise provided for
 - E04H 4/144 • • {Means for facilitating access, e.g. step units or slides (invalid-lifting devices for swimming pools [A61G7/10D](#) [A61G 7/1005](#))}
 - E04H 2004/146 • • {Fixing of liners }
 - E04H 2004/147 • • • {the liner edge being held in a slot }
- U E04H 5/00** **Buildings or groups of buildings for industrial or agricultural purposes (building construction in general [E04B 1/00](#))**

	E04H 2005/005	• {Buildings for data processing centers }
U	E04H 7/00	Construction or assembling of bulk storage containers employing civil engineering techniques in situ or off the site (tower aspects E04H 12/00; storage aspects, e.g. floating roofs, sealing means, filling or discharging means B65D, B65G, F17B, F17C; foundations E02D 27/38)
U	E04H 7/22	• Containers for fluent solids, e.g. silos, bunkers; Supports therefor
	E04H 2007/225	• • {Silos with retaining wall type wall elements, e.g. trench silos }
U	E04H 9/00	Buildings, or groups of buildings, or shelters adapted to withstand or provide protection against abnormal external influences, e.g. war-like action, earthquake, extreme climate (floatable buildings B63B; foundation aspects E02D; building constructions in general E04B; bearings or like supports allowing movement E04B 1/36; special details in regard to insulation or other protection E04B 1/62; supporting structures for endangered or damaged existing buildings or parts thereof E04G 23/04; doors, windows E06B 5/00; air-conditioning, ventilation F24F; camouflage F41H 3/00; cells or rooms shielded against dangerous radiation G21F 7/00)
U	E04H 9/02	• withstanding earthquake or sinking of ground (foundations E02D 27/34 ; {making use of active or passive dynamic mass damping systems E04B 1/985 })
	E04H 2009/026	• • {Anti-seismic devices with hydraulic or pneumatic damping }
U	E04H 12/00	Towers; Masts, poles; Chimney-stacks; Water-towers; Methods of erecting such structures (cooling-towers E04H 5/12; devices for erecting masts or poles B66F; foundation piles E02D 5/22; foundations for masts, poles, chimneys E02D 27/42; structural elongated members in general E04C 3/00; fixed climbing irons E06C 9/04; derricks for oil drilling E21B 15/00)
	E04H 2012/006	• {Structures with truss-like sections combined with tubular-like sections}
U	E04H 15/00	Tents or canopies, in general
U	E04H 15/20	• inflatable, e.g. shaped, strengthened, or supported by fluid pressure (connection of valves to inflatable elastic bodies B60C 29/00 ; inflatable forms for making walls or the like E04G 11/04)
	E04H 2015/201	• • {with inflatable tubular framework, with or without tent cover }
	E04H 2015/202	• • {with inflatable panels, without inflatable tubular framework }
	E04H 2015/203	• • • {supported by a non-inflatable structure or framework}
	E04H 2015/204	• • • {made from contiguous inflatable tubes}
	E04H 2015/205	• • • {made from two sheets with intermediate spacer means }
	E04H 2015/206	• • {Details of inflation devices, e.g. valves, connections to fluid pressure source }
	E04H 2015/207	• • {Tents specially designed for insulation }
	E04H 2015/208	• • {with inflatable mattresses }
	E04H 2015/209	• • {Structures with a netting or similar for anchorage }
U	E04H 15/32	• Parts, components, construction details, accessories, interior equipment, specially adapted for tents, e.g. guy-line equipment, skirts, thresholds
	E04H 2015/326	• • {Frame members connected by elastic cord }
	E04H 2015/328	• • {Frames kept erected solely by guy lines }
U	E04H 17/00	Fencing, e.g. fences, enclosures, corrals (features peculiar to electrified fences A01K 3/00, H05C; means for allowing passage through fences, barriers, or the like E06B 11/00)
	E04H 2017/006	• {Caps for posts }

- U E04H 17/14
- Fences constructed of rigid elements, e.g. with posts, with additional wire fillings
- E04H 2017/1447
- • {Details of connections between rails and posts }
- E04H 2017/1452
- • • {the ends of the rails are fixed on the lateral sides of the posts }
- E04H 2017/1456
- • • • {the ends of the rails being located in vertical channels extending along a substantial portion of the length of the post }
- E04H 2017/146
- • • {the rails being attached to the front faces of the posts }
- E04H 2017/1465
- • • {the rails being supported within blind or through holes of the posts }
- E04H 2017/1469
- • • • {Snap connections }
- E04H 2017/1473
- • • {using fixing devices encircling, partially or fully, the post }
- E04H 2017/1478
- • • {the posts extending through apertures or cut-outs in the rails }
- E04H 2017/1482
- • • {the rails being attached to the tops of the posts }
- E04H 2017/1486
- • • {the rails being positioned between the uprights of double posts }
- E04H 2017/1491
- • • {Hinged connections between rails and posts }
- E04H 2017/1495
- • {Fences with pivotable slats for reduced wind resistance or for adjusting visibility }

Project: N/A (E05B)

- U E05B 1/00
- Knobs or handles for wings ({ specially adapted for vehicle doors [E05B 85/10](#); for furniture [A47B 95/02](#); Knobs, handles or press buttons for locks or latches on wings ([E05B 5/00](#), [E05B 7/00](#) take precedence)**
- U E05B 1/0015
- {Knobs or handles which do not operate the bolt or lock, e.g. non-movable; Mounting thereof }
- E05B 2001/0023
- • {being movable into a non-operating position, e.g. foldable towards the mounting plane }
- E05B 2001/0076
- {The handle having at least two operating positions, e.g. the bolt can be retracted by moving the handle either upwards or downwards }
- U E05B 3/00
- Fastening { knobs or } handles to lock or latch parts {([E05B 79/06](#) takes precedence)}**
- E05B 2003/006
- {Fastening knobs or handles to the spindle by means of tilt-plates }
- U E05B 9/00
- Lock casings or latch-mechanism casings; { Fastening locks or fasteners or parts thereof to the wing}(padlock casings [E05B 67/02](#); for vehicles [E05B 79/04](#), [E05B 85/02](#))**
- E05B 2009/004
- {Shape of the lock housing }
- E05B 2009/006
- • ~~circular~~ {circular }
- E05B 2009/008
- • {circle segment }
- U E05B 9/04
- { Casings } of cylinder locks {(details specific for pin or ball tumbler cylinder locks [E05B 27/0014](#); details specific for plate tumbler cylinder locks [E05B 29/00](#))}
- U E05B 9/041
- • { Double cylinder locks ([E05B 9/045](#), [E05B 9/048](#) take precedence)}
- E05B 2009/043
- • • {whereby the casing contains an inner and outer rotor which are simultaneously operated by a long key }
- E05B 2009/046
- • {Cylinder locks operated by knobs or handles }
- E05B 2009/047
- • {Means for returning cylinder locks to their neutral position }
- U E05B 15/00
- Other details of locks; Parts for engagement by bolts of fastening devices (fastening devices for wings other than locks or associated with locks [E05C](#))**

- U E05B 15/0053 · { means providing a stable, i.e. indexed, position of lock parts}
- E05B 2015/0066 · · {axially operated }
- U E05B 15/02 · Striking-plates; Keepers; Bolt staples; Escutcheons{(keyhole finders [E05B 15/08](#); escutcheons made of hard materials [E05B 15/1614](#); finger-plates [E06B 7/285](#))}
- U E05B 15/0205 · · {Striking-plates, keepers, staples (means for reducing friction [E05B 17/007](#); electric strikers [E05B 47/0046](#); staples for padlocks [E05B 67/383](#); strikers for espagnolettes [E05C 9/1808](#))}
- U E05B 15/021 · · · {Strikers having multiple positions for the bolt}
- E05B 2015/0215 · · · · {Screw-type}
- E05B 2015/023 · · · {Keeper shape}
- E05B 2015/0235 · · · · {Stud-like}
- U E05B 15/024 · · · {adjustable}
- E05B 2015/026 · · · · {using eccentrics}
- E05B 2015/0265 · · · · {pivoting or tilting}
- E05B 2015/027 · · · · {auto-adjustable}
- E05B 2015/0275 · · · · {in two directions}
- E05B 2015/028 · · · · {in three directions}
- E05B 2015/0285 · · · {Portable striker }
- U E05B 15/04 · Spring arrangements in locks {([E05B 3/065](#), [E05B 15/101](#), [E05B 15/143](#), [E05C 19/06](#) take precedence)}
- E05B 2015/0403 · · {Wound springs }
- E05B 2015/0406 · · · {wound in a cylindrical shape }
- E05B 2015/041 · · · · {loaded perpendicular to cylinder axis }
- E05B 2015/0413 · · · · {loaded by compression }
- E05B 2015/0417 · · · · {loaded by traction }
- E05B 2015/042 · · · {wound in a plane, e.g. spirally }
- E05B 2015/0424 · · · {of conical shape }
- E05B 2015/0427 · · · {curved, e.g. toroidal}
- E05B 2015/0431 · · {Modifying spring characteristic or tension ([E05B 2015/0441](#) takes precedence)}
- E05B 2015/0434 · · · ~~Automatically~~{Automatically}
- E05B 2015/0437 · · {Attachments or mountings; Mounting of springs}
- E05B 2015/0441 · · · {Tensioning after mounting}
- E05B 2015/0444 · · {Springs additionally fulfilling an electric function }
- E05B 2015/0448 · · {Units of springs; Two or more springs working together}
- E05B 2015/0451 · · {Folded springs}
- E05B 2015/0455 · · {Torsion springs of bar type }
- E05B 2015/0458 · · {Leaf springs; Non-wound wire springs }
- E05B 2015/0462 · · {Ring springs }
- E05B 2015/0465 · · {Cup- or dished-disc springs }
- E05B 2015/0468 · · {made of one piece with a lock part }
- E05B 2015/0472 · · {Made of rubber, plastics or the like }
- E05B 2015/0475 · · · {of block type }
- E05B 2015/0479 · · · {of elastic string type }
- E05B 2015/0482 · · {Heavy springs which cannot be operated by hand }

E05B 2015/0486	• • {A single spring working on more than one element }
E05B 2015/0489	• • • {on more than one tumbler }
E05B 2015/0493	• • {Overcenter springs }
E05B 2015/0496	• • {Springs actuated by cams or the like }
U E05B 15/10	• Bolts of locks or night latches {(made of hard materials e.g. to prevent sawing E05B 15/1614 ; lengthwise adjustable E05B 63/06)}
U E05B 15/102	• • {Bolts having movable elements (E05B 23/00 takes precedence)}
E05B 2015/105	• • • {Two pivoting latch elements with opposite inclined surfaces mounted on one slidable main latch-piece }
E05B 2015/107	• • • {Roller bolt, i.e. a slidable main latch-piece with a roller-, ball- or barrel-shaped rotating element }
U E05B 15/14	• Tumblers
E05B 2015/146	• • {Tumblers with parts movable to each other }
U E05B 15/16	• Use of special materials for parts of locks (for handles E05B 1/00){for reducing friction E05B 17/007 ; for keys E05B 19/26 }
U E05B 15/1614	• • {of hard materials, to prevent drilling (E05B 67/04 , E05B 67/38 take precedence)}
E05B 2015/1628	• • • {Free-rotating protecting covers or discs }
U E05B 15/1635	• • {of plastics materials (springs E05B 15/04)}
E05B 2015/1642	• • • {for the whole lock }
E05B 2015/165	• • • {for bolts }
E05B 2015/1657	• • • {for escutcheons }
E05B 2015/1664	• • • {for lock housing (E05B 17/002 , E05B 17/0041 , E05B 17/0045 take precedence)}
E05B 2015/1671	• • • {for strikers (E05B 15/022 takes precedence)}
E05B 2015/1678	• • • {for handle bearings }
E05B 2015/1685	• • {Sheet materials }
E05B 2015/1692	• • {Wires or straps (for springs E05B 2015/0403)}
U E05B 17/00	Accessories in connection with locks (buffers E05F 5/00; means for preventing rattling of wings E05F 7/04; means for taking the weight of the wing E05F 7/06)
E05B 2017/0095	• {Means preventing wrong operation, e.g. preventing damaging contact between extended bolt and striker or bolt and frame (retaining the bolt in the retracted position E05B 63/18)}
U E05B 17/04	• { Devices for coupling the turning cylinder of a single or a double cylinder lock with the bolt operating member}
U E05B 17/042	• • { using toothed wheels or geared sectors (E05C 9/023 , E05C 9/041 take precedence)}
E05B 2017/043	• • • {Planetary gear }
U E05B 17/20	• Means independent of the locking mechanism, { i.e. other than the tumblers or detents} for preventing unauthorised opening, e.g. for securing the bolt in the fastening position {(E05B 63/12 takes precedence)}
U E05B 17/2084	• • {Means to prevent forced opening by attack, tampering or jimmying (E05B 15/1614 takes precedence; for ignition or steering locks B60R 25/023)}
E05B 2017/2096	• • • {Preventing tampering by removal of lock parts which are vital for the function }

- U E05B 27/00** Cylinder locks { and other locks} with tumbler pins which are set by pushing the key in {(fastening of cylinders, rotors, plugs or cores [E05B 9/084](#); with magnetic tumblers [E05B 47/0044](#); with electromagnetic control [E05B 47/0611](#))}
- U E05B 27/0003 · { Details }
- E05B 2027/0025 · · {having means preventing rotation of the tumbler }
- E05B 2027/10 · {Tumblers operated by other surfaces than the edge of the key }
- U E05B 35/00** Locks for use with special keys or a plurality of keys; { keys therefor }
- E05B 2035/009 · {Locks where a characteristic part of the user's body is used as a key (control of electronic locks by characteristics of body parts [G07C 9/00563](#)) }
- U E05B 43/00** Time locks, { e.g. locks with delaying means}(clocks or clock mechanisms with attached or built-in means operating any device at preselected times or after a predetermined time interval [G04B 23/00](#) { time recording locks [G07C 1/32](#)})
- E05B 2043/002 · {using mechanical clocks }
- E05B 2043/007 · {using hydraulic or pneumatic retarders }
- U E05B 45/00** Alarms locks (alarm devices actuated by tampering with fastenings, in general [G08B](#); {vehicle fittings actuating a signalling device [B60R 25/10](#); bicycle appliances indicating unauthorised use [B62H 5/20](#)})
- U E05B 45/06 · Electric alarm locks {([E05B 45/005](#) takes precedence)}
- E05B 2045/0615 · · {triggered by movement of the handle }
- E05B 2045/062 · · {by traction on a chain }
- E05B 2045/0625 · · {by pressure on a safety bar }
- E05B 2045/063 · · {by movement of the wing }
- E05B 2045/0635 · · {by rotation of key or rotor }
- E05B 2045/064 · · {by movement of the lock housing or part thereof }
- E05B 2045/0645 · · {by movement of the keyhole cover }
- E05B 2045/065 · · {Switch or sensor type used in alarm locks }
- E05B 2045/0655 · · · {Photo-diodes }
- E05B 2045/066 · · · {Mercury switches }
- E05B 2045/0665 · · · {Magnetic switches, e.g. reed- or hall-switch }
- E05B 2045/067 · · · {Switches triggered by inertia }
- E05B 2045/0675 · · · {Foam or rubber element with contacts which close a circuit due to deformation of the element }
- E05B 2045/068 · · · {Piezo-electric sensors }
- E05B 2045/0685 · · · {Optical fibres for transmitting the sensor signal }
- E05B 2045/069 · · {Timers therefor }
- E05B 2045/0695 · · {Actuation of a lock triggering an alarm system, e.g. an alarm system of a building }
- U E05B 47/00** Operating or controlling locks or other fastening devices by electric or magnetic means (electric permutation locks [E05B 49/00](#); holding in open position or limiting movement of wings by magnetic or electromagnetic attraction [E05C 17/56](#); { [E05B 17/0029](#), [E05B 17/147](#), [E05B 81/00](#), [E05C 19/16](#) take precedence})
- U E05B 47/0001 · { with electric actuators; Constructional features thereof (for vehicles [E05B 81/04](#)) }
- U E05B 47/0002 · · { with electromagnets }

- E05B 2047/0007 . . . {with two or more electromagnets }
- E05B 2047/0008 {having different functions }
- U E05B 47/0012 . . { with rotary electromotors (actuators with rotary electromotors per se [H02K 7/06](#), [H02K 23/68](#))}
- E05B 2047/0013 . . . {more than one motor for the same function, e.g. for redundancy or increased power (electric spare devices [E05B 2047/0087](#))}
- E05B 2047/0014 . . {Constructional features of actuators or power transmissions therefor (for vehicles [E05B 81/24](#))}
- E05B 2047/0015 . . . {Output elements of actuators }
- E05B 2047/0016 {with linearly reciprocating motion }
- E05B 2047/0017 {with rotary motion }
- E05B 2047/0018 . . . {Details of actuator transmissions }
- E05B 2047/002 {Geared transmissions }
- E05B 2047/0021 {Geared sectors or fan-shaped gears }
- E05B 2047/0022 {Planetary gears }
- E05B 2047/0023 {Nuts or nut-like elements moving along a driven threaded axle }
- E05B 2047/0024 ~~Cams~~ {Cams }
- E05B 2047/0025 {in the form of grooves }
- E05B 2047/0026 {Clutches, couplings or braking arrangements }
- E05B 2047/0027 {using centrifugal action }
- E05B 2047/0028 {using electromagnetic means }
- E05B 2047/003 {of the overload- slip- or friction type }
- E05B 2047/0031 {of the elastic type }
- E05B 2047/0032 {using flywheel action }
- E05B 2047/0033 {using electro-rheological or magneto-rheological substances }
- E05B 2047/0034 {using materials with a volume which changes due to electrical voltage or current }
- E05B 2047/0035 . . . {Actuators being driven in a single direction only }
- E05B 2047/0036 . . . {Reversible actuators }
- E05B 2047/0037 . . . {Powered actuators with automatic return to the neutral position by non-powered means, e.g. springs. }
- E05B 2047/0048 . {Circuits, feeding, monitoring}
- E05B 2047/005 . . {Opening, closing of the circuit}
- E05B 2047/0051 . . . {by closing the wing}
- E05B 2047/0052 . . . {opening the circuit by detection of current increase}
- E05B 2047/0053 . . . {by operating the handle}
- E05B 2047/0054 . . . {using microprocessor, printed circuits, or the like}
- E05B 2047/0055 . . . {by blowing}
- E05B 2047/0056 . . . {by sensing the presence of a person, e.g. body heat sensor }
- E05B 2047/0057 . . ~~Feeding~~ {Feeding}
- E05B 2047/0058 . . . {by batteries}
- E05B 2047/0059 . . . {by transfer between frame and wing}
- E05B 2047/0061 {using induction }
- E05B 2047/0062 . . . {by generator}
- E05B 2047/0063 . . . {Energy transfer from key to lock, e.g. for emergency opening }

E05B 2047/0064	• • • {by solar cells}
E05B 2047/0065	• • {Saving energy (E05B 2047/0053 , E05B 2047/0074 , E05B 2047/0077 , E05B 2047/0079 , E05B 2047/0081 take precedence)}
E05B 2047/0066	• • • {Reduced holding current}
E05B 2047/0067	• • Monitoring { Monitoring }
E05B 2047/0068	• • • {Door closed}
E05B 2047/0069	• • • {bolt position }
E05B 2047/0071	• • {Connecting lockparts by electronic communication means only, e.g. bus systems, time multiplexing }
E05B 2047/0072	• Operation { Operation }
E05B 2047/0073	• • {Current to unlock only}
E05B 2047/0074	• • • {holding means other than current (mechanical, magnetic)}
E05B 2047/0075	• • • {locked by gravity}
E05B 2047/0076	• • {Current to lock only, i.e. "fail-safe"}
E05B 2047/0077	• • • {holding means other than current}
E05B 2047/0078	• • • {unlocked by gravity}
E05B 2047/0079	• • {Bi-stable electromagnet(s), different pulse to lock or unlock}
E05B 2047/0081	• • {Same pulse to lock or unlock}
E05B 2047/0082	• {Induction for charging or current transformation }
E05B 2047/0083	• {Devices of electrically driving keys, e.g. to facilitate opening }
E05B 2047/0084	• {Key or electric means; Emergency release}
E05B 2047/0085	• • {Key and electromagnet}
E05B 2047/0086	• • {Emergency release, e.g. key or electromagnet (E05B 63/0073 takes precedence)}
E05B 2047/0087	• • • {Electric spare devices, e.g. auxiliary batteries or capacitors for back up }
E05B 2047/0088	• • {Key-operated switch}
E05B 2047/0089	• {with electronic learning functions (electronic locks G07C 9/00)}
E05B 2047/0091	• {Retrofittable electric locks, e.g. an electric module can be attached to an existing manual lock (electrically driven keys E05B 2047/0083)}
E05B 2047/0092	• {including means for preventing manipulation by an external magnetic field, e.g. preventing opening by using a strong magnet }
E05B 2047/0093	• {including means for preventing manipulation by external shocks, blows or the like }
E05B 2047/0094	• {Mechanical aspects of remotely controlled locks (electronic locks G07C 9/00)}
E05B 2047/0095	• • {Mechanical aspects of locks controlled by telephone signals, e.g. by mobile phones (electronic locks G07C 9/00)}
E05B 2047/0096	• • {Mechanical aspects of locks whose actuation is dependent on geographical location, e.g. by means of a GPS system (electronic locks G07C 9/00)}
E05B 2047/0097	• {including means for monitoring voltage, e.g. for indicating low battery state }
E05B 2047/0098	• {Arrangements for grounding electrical locks or elements thereof, e.g. for avoiding shocks or failure due to static electricity }
U E05B 51/00	Operating or controlling locks or other fastening devices by other non-mechanical means
U E05B 51/02	• by pneumatic or hydraulic means {(E05B 17/0029 takes precedence)}
E05B 2051/026	• • {with manually generated fluid pressure }
U E05B 63/00	Locks {or fastenings} with special structural characteristics

E05B 2063/0026	<ul style="list-style-type: none"> • {Elongated, e.g. stud-like, striker entering into an opening in which movable detent means engage the elongated striker (stud-like keepers in general E05B 2015/0235)}
E05B 2063/0039	<ul style="list-style-type: none"> • {Ground mounted locks or lock elements }
U E05B 63/0065	<ul style="list-style-type: none"> • {Operating modes; Transformable to different operating modes}
E05B 2063/0082	<ul style="list-style-type: none"> • • {Locking modes}
E05B 2063/0086	<ul style="list-style-type: none"> • • • {Handles used only for locking, while unlocking is achieved by other means }
E05B 2063/0091	<ul style="list-style-type: none"> • • • {Lock actuation dependent on temperature }
E05B 2063/0095	<ul style="list-style-type: none"> • • • {Locking devices actuated or controlled by seismic activity, e.g. earthquakes }
U E05B 63/18	<ul style="list-style-type: none"> • with arrangements independent of the locking mechanism for retaining the bolt {or latch} in the retracted position
U E05B 63/20	<ul style="list-style-type: none"> • • released automatically when the wing is closed {(for panic door locks of the vertical rod type E05B 65/1013)}
E05B 2063/207	<ul style="list-style-type: none"> • • • {Automatic deadlocking }
U E05B 65/00	<p>Locks { or fastenings} for special use {(for dishwashers A47L 15/4259; hatch fastenings B63B 19/24; for container closures B65D 55/02; for elevator doors B66B 13/16; for lids or covers of refuse receptacles B65F 1/1615; for laundry washing machines D06F 37/42, D06F 39/14; for two wings E05C 7/00; safety devices F16P 3/08; for furnaces F24C 15/022; coin freed locks G07F 17/12, G07F 17/14; switches operated by key or combination H01H 27/00)}</p>
U E05B 65/0035	<ul style="list-style-type: none"> • {for privacy rooms, e.g. bathrooms}
E05B 2065/0039	<ul style="list-style-type: none"> • • {with emergency release }
E05B 2065/0096	<ul style="list-style-type: none"> • {Locks for sport stadiums }
U E05B 65/08	<ul style="list-style-type: none"> • for sliding wings {(for vehicles E05B 83/04, E05B 83/40; holding sliding wings open E05C 17/60)}
E05B 2065/0805	<ul style="list-style-type: none"> • • {with a handle operating in both directions }
U E05B 65/44	<ul style="list-style-type: none"> • for furniture or drawers
U E05B 65/46	<ul style="list-style-type: none"> • • Special locks for drawers, e.g. for a plurality of drawers {(for electronic unit cases H05K 7/1401)}
E05B 2065/469	<ul style="list-style-type: none"> • • • {for drawers which can be opened from both sides }
U E05B 67/00	<p>Padlocks(permutation locksE05B 37/00; { steering wheel padlocksB60R 25/022}); Details thereof</p>
U E05B 67/02	<ul style="list-style-type: none"> • Cases
E05B 2067/025	<ul style="list-style-type: none"> • • Bumpers {Bumpers }
U E05B 67/06	<ul style="list-style-type: none"> • Shackles; Arrangement of the shackle
E05B 2067/066	<ul style="list-style-type: none"> • • {Shackle extensions }
U E05B 67/38	<ul style="list-style-type: none"> • Auxiliary or protective devices {(weather protection E05B 17/002; armoured cases E05B 67/04)}
E05B 2067/386	<ul style="list-style-type: none"> • • {Padlock holders }

- U E05B 73/00** Devices for locking portable objects against unauthorised removal; Miscellaneous locking devices {(motorcycle helmets [A42B 3/0413](#), [B62J 11/005](#); gun racks [A47B 81/005](#); showcases with theft protection [A47F 3/002](#); anti-theft means for peg-boards, grids or rods for hanging merchandise [A47F 5/0861](#); show stands, hangers, shelves with provision against unauthorised removal [A47F 7/024](#); for self-service hand-carts [A47F 10/04](#); locking skis [A63C 11/004](#); locking bolts, nuts or pins [F16B 41/00](#))}
- U E05B 73/0082** • {for office machines, e.g. PC`s, portable computers, typewriters, calculators}
- E05B 2073/0088** • • {being lockable or unlockable by means of the office machine itself, e.g. by its keyboard }
- U E05B 83/00** Vehicle locks specially adapted for particular types of wing or vehicle{locks specially adapted for bicycles [E05B 71/00](#); locking arrangements for non-fixed vehicle roofs [B60J 7/185](#); latching means for sideboards or tailgates of open load compartments [B62D 33/037](#)}
- U E05B 83/28** • Locks for glove compartments, console boxes, fuel inlet covers or the like
- E05B 2083/33** • • { }

Project: N/A (E05C)

- U E05C 1/00** **Fastening devices with bolts moving rectilinearly**
- E05C 2001/008** • {the axis of the bolt movement forming an oblique angle with the surface from which the bolt protrudes, e.g. the wing edge }
- U E05C 3/00** **Fastening devices with bolts moving pivotally or rotatively**
- U E05C 3/12** • with latching action (devices in which the securing part is formed or merely carried by a spring and moves only by distortion of the spring, e.g. snaps, [E05C 19/06](#); tilt-plate latches [E05C 19/007](#))
- E05C 2003/126** • • {Only part of the latch movable for latching}
- E05C 2003/128** • • {Pendulum-type bolt}
- U E05C 5/00** **Fastening devices with bolts moving otherwise than only rectilinearly and only pivotally or rotatively {(E05C 9/1883, E05C 19/009, E05B 63/125, E05B 63/126, E05B 63/127 take precedence; pivotally-mounted hooks-like fastenings with toggle action E05C 19/14; bayonet-type locks E05B 63/125; locks for sliding wings, with additional movement E05B 65/0817)}**
- E05C 2005/005** • {Pivoting bolts or catches being able to move in an additional direction, e.g. by sliding or by pivoting about an additional axis, in order to allow closing of the wing even if the bolt or catch is in its locked position }
- U E05C 7/00** **Fastening devices specially adapted for two wings**
- NOTE
- If a fastening device merely secures one wing to another wing which is already closed it is not regarded as specially adapted for two wings
- E05C 2007/007** • {for a double-wing sliding door or window, i.e. where both wings are slidable }
- U E05C 9/00** **Arrangements of simultaneously actuated bolts or other securing devices at well-separated positions on the same wing ({ Locking, cross or security bars E05C 19/003; locks for safes or the like E05B 65/0075; of the vertical-rod type for panic or emergency doors E05B 65/1006}; similar constructions for engineering closures F16J 13/08)**
- U E05C 9/18** • Details of fastening means or of fixed retaining means for the ends of bars
- U E05C 9/1808** • • {Keepers}

- E05C 2009/1816 • • • {snap-mounted without screw fasteners }
- U E05C 9/1825 • • { Fastening means}
- U E05C 9/1833 • • • { performing sliding movements}
- U E05C 9/185 • • • • { parallel with actuating bar}
- E05C 2009/1866 • • • • • {of the keyhole slot type}

Project: N/A (E05D)**E05D**

HINGES OR OTHER SUSPENSION DEVICES FOR DOORS, WINDOWS OR WINGS{ foldable tables [A47B 3/00](#) ; hinged panels [A47B 5/00](#) ; foldable chairs [A47C 4/00](#) ; making hinges [B21D 53/40](#) , [B21K 13/02](#) ; making holes for taking-up fittings [B27F 5/12](#) ; for vehicle tailboards [B60P1/00D](#) [B60P 1/26](#) ; for refuse receptacles [B65F 1/1646](#) } ; pivotal connections in general [F16C 11/00](#) ; mounting of stove or range doors [F24C 15/023](#) ; for folding flat displays of portable computers [G06F1/16P2H](#) [G06F 1/1616](#)])

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups: [E05D 5/16](#) covered by [E05D 5/14](#)

[E05D 7/081](#) covered by [E05D 7/08](#)

[E05D 7/083](#) covered by [E05D 7/082](#)

[E05D 15/04](#) covered by [E05D 15/02](#) , [E05D 15/28](#) , [E05D 15/40-B](#) [E05D15/40B](#)

[E05D 15/522](#) covered by [E05D 15/52](#)

[E05D 15/523](#) covered by [E05D 15/52](#)

[E05D 15/524](#) covered by [E05D 15/52](#)

- U **E05D 1/00** **Pinless hinges; Substitutes for hinges**
- U E05D 1/04 • with guide members shaped as circular arcs
- E05D 2001/045 • • {for telescopic hinges}
- U **E05D 3/00** **Hinges with pins**{([E05D 7/08](#) takes precedence)}
- U E05D 3/02 • with one pin
- E05D 2003/025 • • {having three knuckles}
- E05D 2003/027 • • • {the end knuckles being mutually connected}
- U E05D 3/06 • with two or more pins([E05D 7/08](#) takes precedence)
- U E05D 3/16 • • with seven parallel pins and four arms
- E05D 2003/163 • • • {Horizontal pivot-axis}
- E05D 2003/166 • • • {Vertical pivot-axis}

- U **E05D 5/00** **Construction of single parts, e.g. the parts for attachment**
- U E05D 5/02 • Parts for attachment, e.g. flaps
- U E05D 5/0246 • • {for attachment to glass panels}
- E05D 2005/0253 • • • {the panels having conical or stepped recesses}
- E05D 2005/0261 • • • {connecting two or more glass panels}
- E05D 2005/0269 • • • • {the panels being coplanar}
- E05D 2005/0284 • • {for embedding in concrete or masonry}
- E05D 2005/0292 • • {for passing through insulating layers}
- U E05D 5/06 • • Bent flaps
- E05D 2005/067 • • • {gooseneck shaped}
- U E05D 5/10 • Pins, sockets or sleeves; Removable pins([E05D 15/522](#) takes precedence)
- E05D 2005/102 • • **Pins**{*Pins*}

- E05D 2005/104 . . . {characterised by the materials}
- E05D 2005/106 . . . {with non-cylindrical portions}
- E05D 2005/108 . . . {with elastically deformable parts}
- U E05D 5/12 . . Securing pins in sockets, movably or not
- U E05D 5/121 . . . {Screw-threaded pins}
- E05D 2005/122 {externally threaded}
- E05D 2005/124 {internally threaded}
- U E05D 5/14 . . Construction of sockets or sleeves
- E05D 2005/145 . . . {with elastically deformable parts}
- U E05D 7/00** **Hinges or pivots of special construction(used for special suspension arrangements [E05D 15/00](#) ; so as to be self-closing [E05F 1/06](#) , [E05F 1/12](#) ; with means for raising wings before being turned [E05F 7/02](#))**
- U E05D 7/0009 . {Adjustable hinges([E05D 7/04](#) takes precedence)}
- U E05D 7/0018 . . {at the hinge axis}
- U E05D 7/0027 . . . {in an axial direction}
- E05D 2007/0036 {with axially fixed hinge pins}
- U E05D 7/0045 . . . {in a radial direction}
- U E05D 7/0054 {by means of eccentric parts}
- E05D 2007/0063 {Eccentric hinge pins}
- E05D 2007/0072 {with sliding sleeves}
- E05D 2007/0081 {with swinging or rolling sleeves}
- U E05D 7/04 . Hinges adjustable relative to the wing or the frame
- U E05D 7/043 . . {by means of dowel attachments}
- E05D 2007/0438 . . . {with bolts fixedly mounted on the hinge part}
- E05D 2007/0446 . . . {with threaded bolts fixedly mounted on the hinge part}
- E05D 2007/0453 . . . {with threaded sleeves}
- E05D 2007/0461 . . {in angular arrangement to the wing or the frame}
- E05D 2007/0469 . . {in an axial direction}
- E05D 2007/0476 . . {Pocket hinges}
- E05D 2007/0484 . . {in a radial direction}
- E05D 2007/0492 . . {in three directions}
- U E05D 7/10 . to allow easy separation{or connection}of the parts at the hinge axis({ [E05D 5/12](#) and [E05D 15/50](#) take precedence } ; substitutes for hinges [E05D 1/06](#))
- U E05D 7/1005 . . {by axially moving free pins, balls or sockets}
- E05D 2007/1027 . . . {by axially moving free pins}
- E05D 2007/1033 . . . {by axially moving free balls}
- E05D 2007/1038 . . . {by axially moving free sockets}
- U E05D 7/1083 . . {facilitating simultaneous assembly of a plurality of hinges, e.g. for mounting heavy wings}
- E05D 2007/1088 . . . {using hinge pins having different lengths}
- E05D 2007/1094 . . {Guiding devices therefor}
- U E05D 7/12 . to allow easy detachment of the hinge from the wing or the frame(({ [E05D 15/507](#) takes precedence))
- E05D 2007/126 . . {in an axial direction}

E05D 2007/128	<ul style="list-style-type: none"> • • {in a radial direction}
U E05D 11/00	Additional features or accessories of hinges{(edge protecting devices E06B 3/88)}
U E05D 11/0018	<ul style="list-style-type: none"> • {Anti-tamper devices}
U E05D 11/0027	<ul style="list-style-type: none"> • • {arranged on or near the hinge and comprising parts interlocking as the wing closes, e.g. security studs}
E05D 2011/0036	<ul style="list-style-type: none"> • • • {near the hinge}
E05D 2011/0045	<ul style="list-style-type: none"> • • • {on the hinge}
U E05D 11/0054	<ul style="list-style-type: none"> • {Covers, e.g. for protection}
E05D 2011/0063	<ul style="list-style-type: none"> • • {for screw-heads or bolt-heads}
E05D 2011/0072	<ul style="list-style-type: none"> • • {for the gap between hinge parts}
E05D 2011/009	<ul style="list-style-type: none"> • {Impact absorbing hinges for vehicle doors}
U E05D 11/04	<ul style="list-style-type: none"> • relating to the use of free balls as bearing-surfaces(E05D 7/06 takes precedence)
E05D 2011/045	<ul style="list-style-type: none"> • • {located in line with the hinge axis}
U E05D 11/08	<ul style="list-style-type: none"> • Friction devices between relatively-movable hinge parts(E05D 7/086 takes precedence)
U E05D 11/082	<ul style="list-style-type: none"> • • {with substantially radial friction, e.g. cylindrical friction surfaces}
E05D 2011/085	<ul style="list-style-type: none"> • • • {the friction depending on the opening angle}
E05D 2011/088	<ul style="list-style-type: none"> • • {with automatic disengagement}
U E05D 11/10	<ul style="list-style-type: none"> • Devices for preventing movement between relatively-movable hinge parts
U E05D 11/1028	<ul style="list-style-type: none"> • • {for maintaining the hinge in two or more positions, e.g. intermediate or fully open}
E05D 2011/1035	<ul style="list-style-type: none"> • • • {with circumferential and evenly distributed detents around the pivot-axis}
E05D 2011/1092	<ul style="list-style-type: none"> • • {the angle between the hinge parts being adjustable}
U E05D 13/00	Accessories for sliding or lifting wings, e.g. pulleys, safety catches{(closers or openers for horizontally sliding wings E05F 1/02 , E05F 1/08); counterbalance devices{ for swinging wings } E05F 1/00 , E05F 3/00)}
E05D 13/04	<ul style="list-style-type: none"> • Fasteners specially adapted for holding sliding wings open({ E05D 15/06B2 takes precedence}; for holding wings closed E05C)
U E05D 15/00	Suspension arrangements for wings(arrangements of wings not characterised by the construction of the supporting means E06B 3/32)
U E05D 15/06	<ul style="list-style-type: none"> • for wings sliding horizontally more or less in their own plane
U E05D 15/0621	<ul style="list-style-type: none"> • • {Details, e.g. suspension or supporting guides(E05D 15/0604 , E05D 15/08 to E05D 15/14 take precedence)}
E05D 2015/0695	<ul style="list-style-type: none"> • • • {Magnetic suspension or supporting means}
U E05D 15/10	<ul style="list-style-type: none"> • • movable out of one plane into a second parallel plane
E05D 2015/1018	<ul style="list-style-type: none"> • • • {with the track rotating around its axis}
E05D 2015/1026	<ul style="list-style-type: none"> • • • {accessories, e.g. sliding or rolling guides, latches}
E05D 2015/1028	<ul style="list-style-type: none"> • • • {with only the wing moving transversely}
E05D 2015/1031	<ul style="list-style-type: none"> • • • • {the wing supported on arms extending from the carriage}
E05D 2015/1034	<ul style="list-style-type: none"> • • • • • {the carriage having means for preventing rotation of the wing}
E05D 2015/1036	<ul style="list-style-type: none"> • • • • • {the arms being movable in vertical, e.g. transverse, planes}
E05D 2015/1039	<ul style="list-style-type: none"> • • • • {the wing sliding transversely on the carriage}
U E05D 15/1042	<ul style="list-style-type: none"> • • • {with transversely moving carriage(E05D 15/1065 takes precedence)}

- E05D 2015/1049 {the carriage swinging or rotating in a transverse plane}
- E05D 2015/1052 {transversely over-dimensioned track sections or carriage}
- E05D 2015/1055 {with slanted or curved track sections or cams}
- E05D 2015/1057 {the carriage swinging or rotating in those track sections}
- E05D 2015/106 {transversely orientated track sections}
- E05D 2015/1063 {disconnecting the carriage from the track}
- U E05D 15/1065 . . . {with transversely moving track}
- E05D 2015/1071 {the track being directly linked to the fixed frame, e.g. slidingly}
- E05D 2015/1073 {rocking transversely}
- E05D 2015/1076 {swinging transversely, e.g. on arms}
- E05D 2015/1078 {swinging or rotating in a horizontal plane}
- E05D 2015/1084 {the carriage being directly linked to the fixed frame, e.g. slidingly}
- E05D 2015/1086 {swingingly, e.g. on arms}
- E05D 2015/1089 {the carriage having means for preventing rotation of the wing}
- E05D 2015/1092 {the carriage swinging or rotating in curved track sections}
- E05D 2015/1094 {disconnecting itself from the track}
- E05D 2015/1097 {with the carriage and track forming a telescopic element}
- U E05D 15/16 . . . for wings sliding vertically more or less in their own plane
- U E05D 15/22 . . . allowing an additional movement{([E05D 15/20](#) takes precedence)}
- E05D 2015/225 {specially adapted for overhead wings}
- U E05D 15/26 . . . for folding wings
- E05D 2015/268 . . . {the wings being successively folded}
- U E05D 15/48 . . . allowing alternative movements{([E05D 15/0604](#) takes precedence } ; for vertically-sliding wings [E05D 15/22](#))
- E05D 2015/482 . . . {for panic doors}
- E05D 2015/485 . . . {Swinging or sliding movements}
- E05D 2015/487 . . . {Tilting or swinging movements}
- U E05D 15/52 . . . for opening about a vertical as well as a horizontal axis
- U E05D 15/526 Safety devices{([E05D 15/5217](#) takes precedence)}
- E05D 2015/5263 {acting parallel to the plane of the wing}
- E05D 2015/5266 {acting perpendicular to the plane of the wing}
- U E05D 15/56 . . . with successive different movements{(raising wings before being turned [E05F 7/02](#))}
- U E05D 15/58 . . . with both swinging and sliding movements
- E05D 2015/585 {with stationary hinge parts}
- E05D 2015/586 {with travelling hinge parts}
- E05D 2015/587 {with axially separating hinge parts}
- E05D 2015/588 {with radially separating hinge parts}

Project: N/A (E05F)

- U E05F 3/00 **Closers or openers with braking devices, e.g. checks; Construction of pneumatic or liquid braking devices (construction of non-pneumatic or non-liquid braking devices [E05F 5/00](#); friction devices in hinges [E05D 11/08](#))**
- U E05F 3/22 . . . Additional arrangements for closers, e.g. for holding the wing in opened or other position
- E05F 2003/228 . . . {Arrangements where the end of the closer arm is sliding in a track }

U	E05F 5/00	Braking devices, e.g. checks; Stops; Buffers; {Dovetails with buffering action}; (construction of pneumatic or liquid braking devices E05F 3/00; combined with devices for holding wings open E05C 17/00; devices for limiting opening of wings or for holding wings open by a movable member extending between frame and wing E05C 17/04)
U	E05F 5/02	• specially for preventing the slamming of {swinging} wings {during final closing movement, e.g. jamb stops}
U	E05F 5/04	• • hand-operated, {e.g. removable}; operated by centrifugal action {or by high closing speed}
	E05F 2005/043	• • • {operated by centrifugal action at high closing speed }
	E05F 2005/046	• • • {hand operated }
U	E05F 11/00	Man-operated mechanisms for operating wings, including those which also operate the fastening (connecting mechanisms for a plurality of wings E05F 17/00)
U	E05F 11/38	• for sliding windows, e.g. vehicle windows, to be opened or closed by vertical movement
U	E05F 11/382	• • {for vehicle windows (E05F 11/40 to E05F 11/52 take precedence)}
U	E05F 11/385	• • • {Fixing of window glass to the carrier of the operating mechanism}
	E05F 2011/387	• • • • {using arrangements in the window glass, e.g. holes }
U	E05F 15/00	Power-operated mechanisms for wings {(for hatch covers B63B 19/14; for elevator doors B66B 13/00; motor-operated devices for completing closing or initiating opening of a wing E05B 17/0029; limit switches H01H 3/16)}
U	E05F 15/0004	• {Safety devices, e.g. safety couplings, detection of obstructions or end position (E05F 15/20 takes precedence); anti-dropping devices E05D 13/003 ; by current overload H02H 7/0851 }
U	E05F 15/0021	• • {Detection using safety edges}
U	E05F 15/0026	• • • {by disruption of energy beams, e.g. light, sound}
	E05F 2015/0034	• • • • {with acoustical sensors }
	E05F 2015/0039	• • • • • {using reflection from the obstruction }
	E05F 2015/0043	• • • • • {with optical sensors }
	E05F 2015/0047	• • • • • • {by interruption of the beam }
	E05F 2015/0052	• • • • • • • {the beam being parallel to the wing edge }
	E05F 2015/0056	• • • • • • • {the beam being perpendicular to the wing edge }
U	E05F 15/006	• • • {by change in electrical conductivity}
	E05F 2015/0069	• • • • {using switches in serial arrangement }
	E05F 2015/0086	• • • • {for detection during opening }
	E05F 2015/0091	• • • • {Fault detection of safety edges }
U	E05F 15/10	• with rotary electromotors {(detection of end position by striking, safety couplings E05F 15/0017)}
U	E05F 15/12	• • for swinging wings
U	E05F 15/127	• • • {operated by swinging arms}
	E05F 2015/128	• • • • {the end of the arm sliding in a track; Slider arms therefor }
U	E05F 15/20	• controlled by automatically-acting means, e.g. by photocells, by electric waves, by thermostats, by rain, by fire, {by remote or time control}
U	E05F 15/2023	• • {by detection of movement or presence of persons or objects}
	E05F 2015/2053	• • • {with acoustical sensors }
	E05F 2015/2061	• • • • {with optical sensors (photocells E05F 15/203)}

E05F 2015/2069 . . . {using camera's }

U E05F 17/00 Special devices for shifting a plurality of wings operated simultaneously (for simultaneously moving a plurality of interconnected ventilating lamellae [E06B 7/086](#))

E05F 2017/005 . {for sliding wings }

E05F 2017/007 . . {with means for interlocking the wings }

E05F 2017/008 . {for swinging wings }

Project: N/A (E05G)

U E05G 1/00 Safes or strong-rooms for valuables (savings boxes [A45C 1/12](#); floatable safes [B63C 7/30](#); storage containers without attack or fire repellent features [B65D](#); bank buildings in general, e.g. modular construction, floor plan, [E04H 1/06](#); buildings resistant to earthquakes or war action [E04H 9/00](#))

E05G 1/005 . {Portable strong boxes, e.g. which may be fixed to a wall or the like ([E05G 1/08](#), [E05G 1/14](#) take precedence; devices to prevent theft or loss of bags, trunks, baskets, or the like [A45C 13/18](#); coin boxes for coin freed apparatus [G07F 9/06](#); ~~money-boxes for coin dispensers [G07D1/00B](#)~~)}

E05G 1/12 . with fluent material releasing, generating or distributing means, e.g. repellent or fire extinguishing ([E05G 1/14](#) takes precedence; indentifying, scaring or incapacitating burglars, thieves or intruders with smoke, gas, powder or liquid ~~[G08B 15/02](#)~~ [G08B 15/02](#))

Project: N/A (E05Y)

U E05Y 2201/00 Constructional elements; Accessories therefore

U E05Y 2201/60 . Suspension or transmission members; Accessories therefore

U E05Y 2201/622 . . Suspension or transmission members elements

U E05Y 2201/644 . . . Flexible elongated pulling elements; Members cooperating with flexible elongated pulling elements

E05Y 2201/648 having teeth (~~toothed gearing [P05Y201/700](#)~~ [toothed gearing \[E05Y 2201/71\]\(#\)](#))

Project: N/A (E06B)

U E06B 1/00 Border constructions of openings in walls, floors, or ceilings; Frames to be rigidly mounted in such openings([E06B 5/00](#) takes precedence; features relating also to inner frames or wing frames, features relating solely to the mounting of inner frames [E06B 3/00](#) ; corner joints or edge joints [E06B 3/96](#))

U E06B 1/62 . Tightening or covering joints between the border of openings and the frame{or between contiguous frames}([E06B 1/34](#) takes precedence)

E06B 2001/622 . . {especially adapted for door frames; Joint covering devices where the wall surface is parallel to the adjacent door or window frame part}

E06B 2001/624 . . {with parts to be embedded in the stucco layer or otherwise linked to this layer}

E06B 2001/626 . . {comprising expanding foam strips}

E06B 2001/628 . . {Separate flexible joint covering strips; Flashings}

U E06B 1/70 . Sills; Thresholds

E06B 2001/707 . . {Thresholds with special provision for insulation}

- U E06B 3/00** Window sashes, door leaves, or like elements for closing{wall or like}openings; Layout of fixed or moving closures, e.g. windows{in wall or like openings}; Features of rigidly-mounted outer frames relating to the mounting of wing frames([E06B 5/00](#) takes precedence; shutters or the like [E06B 9/00](#) ; glass panes [C03](#))
- U E06B 3/04 . Wing frames not characterised by the manner of movement(features relating to the manner of movement [E06B 3/32](#))
- U E06B 3/06 . . Single frames
- U E06B 3/08 . . . Constructions depending on the use of specified materials([E06B 3/24](#) takes precedence)
- U E06B 3/12 of metal
- U E06B 3/14 of special cross-section{ not used, see subgroup and [E06B 3/12](#) }
- U E06B 3/16 Hollow frames{of special construction, e.g. made of folded sheet metal or of two or more section parts connected together}
- E06B 2003/166 {with a filled cavity}
- U E06B 3/20 of plastics
- U E06B 3/22 Hollow frames{([E06B 3/205](#) takes precedence)}
- U E06B 3/221 {with the frame member having local reinforcements in some parts of its cross-section or with a filled cavity}
- U E06B 3/222 {with internal prefabricated reinforcing section members inserted after manufacturing of the hollow frame}
- E06B 2003/224 {with reinforcing plastic section members}
- E06B 2003/225 {Means for stabilising the insert}
- E06B 2003/226 {by adhesives or filling up the remainder of the cavity, e.g. together with foam}
- E06B 2003/227 {with reinforcing wooden section members}
- E06B 2003/228 {with separate reinforcements situated outside the cavity or in the walls}
- U E06B 3/26 . . Compound frames, i.e. one frame within or behind another([E06B 3/28](#) takes precedence; arrangements of movable frames [E06B 3/32](#))
- U E06B 3/2605 . . {with frames permanently mounted behind or within each other, each provided with a pane or screen}
- E06B 2003/261 . . . {Frames made of wood}
- E06B 2003/2615 . . . {Frames made of metal}
- E06B 2003/262 . . . {Frames made of plastic material}
- E06B 2003/2625 . . . {with different frames made from different materials}
- U E06B 3/263 . . Frames with special provision for insulation
- U E06B 3/26301 . . . {with prefabricated insulating strips between two metal section members(with two metal frame members having interpenetrating or overlapping parts when mounted [E06B 3/26336](#) ; combined with insulating elements formed in situ [E06B 3/2675](#))}
- U E06B 3/26305 . . . {Connection details(deformation of portions of the metal frame members [E06B 3/273](#) ; expansion of the extremities of the insulating elements [E06B 3/277](#))}
- E06B 2003/26309 {using glue}
- E06B 2003/2631 {Screw or pin connections}
- E06B 2003/26312 {Snap connections}
- E06B 2003/26314 {Provisions for reducing the shift between the strips and the metal section members}

E06B 2003/26316	. . . . {Disconnectable connections or permitting shifting between the sections}
E06B 2003/26318	. . . . {Connecting by rotating the metal section or the strip around its longitudinal axis}
U E06B 3/2632	. . . {with arrangements reducing the heat transmission, other than an interruption in a metal section}
E06B 2003/26321	. . . . {with additional prefab insulating materials in the hollow space}
E06B 2003/26323	. . . . {with coatings reducing the radiation}
E06B 2003/26325	. . . . {the convection or radiation in a hollow space being reduced, e.g. by subdividing the hollow space}
E06B 2003/26327	. . . . {with separate thin walled inserts}
E06B 2003/26329	. . . . {the insulating strips between the metal sections being interconnected}
E06B 2003/2633	. . . . {the insulating strips between the metal sections having ribs extending into the hollow space}
E06B 2003/26332	. . . . {Arrangements reducing the heat transfer in the glazing rabbet or the space between the wing and the casing frame}
E06B 2003/26334	. . . . {Contact reducing arrangements between the insulating strips and the metal sections}
E06B 2003/26349	. . . {Details of insulating strips}
E06B 2003/2635	. . . . {Specific form characteristics}
E06B 2003/26352	. . . . . hollow{hollow}
E06B 2003/26354	. . . . . filled{filled}
E06B 2003/26356	. . . . . Honeycomb{Honeycomb}
E06B 2003/26358	. . . . . {stepped or undulated}
E06B 2003/26359	. . . . . {making flush mounting with neighbouring metal section members possible}
E06B 2003/26361	. . . . . {Openings, incisions or indents}
E06B 2003/26363	. . . . . {Screw channels}
E06B 2003/26365	. . . . . {Composed of several similar parts positioned one after the other}
E06B 2003/26367	. . . . {making flush mounting with neighbouring metal section members possible}
E06B 2003/26369	. . . . {Specific material characteristics}
E06B 2003/2637	. . . . . reinforced{reinforced}
E06B 2003/26372	. . . . . {with coatings}
E06B 2003/26374	. . . . . {with parts of differing nature}
E06B 2003/26376	. . . . . {Non-plastic materials, e.g. wood, metal}
E06B 2003/26378	. . . . . {comprising foam}
E06B 2003/26379	. . . . {Specific characteristics concerning the disposition between the metal section members}
E06B 2003/26381	. . . . . {disposed obliquely}
E06B 2003/26383	. . . . . {with two similar parallel strips, one shifted to one side}
E06B 2003/26385	. . . . . {with strips disposed perpendicular to each other}
E06B 2003/26387	. . . . {Performing extra functions}
E06B 2003/26389	. . . . . {Holding sealing strips or forming sealing abutments}
E06B 2003/2639	. . . . . {Provisions for fittings, e.g. locks or hinges}
E06B 2003/26392	. . . {Glazing bars}
E06B 2003/26394	. . . {Strengthening arrangements in case of fire}

- E06B 2003/26396 . . . {specially adapted for sheet metal frames}
 - E06B 2003/26398 . . . {with two metal sections clamping a pane}
 - U E06B 3/32 . Arrangements of wings characterised by the manner of movement; Arrangements of movable wings in openings; Features of wings or frames relating solely to the manner of movement of the wing{ fittings or supporting means, separable from the frame, for guiding or controlling the movement of wings, arrangements of wings characterised by particular forms of such means [E05D](#) }
 - U E06B 3/34 . . with only one kind of movement([E06B 3/48](#) takes precedence)
 - E06B 2003/343 . . . {with at least two axes of rotation without additional frame within the wing}
 - E06B 2003/345 . . . {with additional rotating frame within the wing}
 - E06B 2003/346 {where the additional frame rotates around a vertical axis}
 - E06B 2003/348 {where the additional frame rotates around a horizontal axis}
 - U E06B 3/40 . . . with a vertical or horizontal axis of rotation not at one side of the opening, e.g. turnover wings
 - E06B 2003/403 {where the axis of rotation is horizontal}
 - E06B 2003/406 {where the axis of rotation is vertical}
 - U E06B 3/42 . . . Sliding wings; Details of frames with respect to guiding{([E06B 3/26347](#) and [E06B 3/92](#) take precedence)}
 - U E06B 3/44 Vertically-sliding wings
 - E06B 2003/4438 {characterised by the material used for the frames}
 - E06B 2003/4446 ~~Wood~~{[Wood](#)}
 - E06B 2003/4453 ~~Metal~~{[Metal](#)}
 - E06B 2003/4461 ~~Plastics~~{[Plastics](#)}
 - E06B 2003/4469 {with at least two frames made from different materials}
 - E06B 2003/4476 {Coverings, e.g. for protecting against weather or for decorative purposes}
 - E06B 2003/4484 {Special provisions for mounting or dismounting sashes}
 - E06B 2003/4492 {provided with screens}
 - U E06B 3/46 Horizontally-sliding wings{([E06B 3/487](#) takes precedence)}
 - E06B 3/4636 {for doors([E06B 3/4609](#) and [E06B 3/4654](#) to [E06B 3/4681](#) take precedence; Sliding shower doors ~~A47K3/22F1C~~[A47K 3/34](#))}
 - U E06B 3/50 . . . with more than one kind of movement([E06B 3/48](#) takes precedence){([E06B 3/92](#) takes precedence)}
 - E06B 3/509 . . . {where one of the sliding and rotating movements necessarily precedes the other}
- WARNING
Group [E06B 3/509](#) is not complete pending a reorganisation. See also groups [E06B 3/5009](#) and ~~E06B 3/50-Z~~[E06B3/50Z](#)
- U E06B 3/54 . Fixing of glass panes or like plates
 - U E06B 3/5454 . . {inside U-shaped section members}
 - E06B 2003/5463 . . . {in a preassembled frame, the pane being consecutively introduced obliquely, rotated and shifted}
 - E06B 2003/5472 . . . {in an at least partly preassembled frame by introducing it through a slot in one of the frame members or inserting the pane before completing the frame}
 - E06B 3/56 . . by means of putty, cement, or adhesives only([E06B 3/64](#) { ~~E06B5/54C~~ [E06B 3/5427](#) }take precedence)

- U E06B 3/58
 - • by means of borders, cleats, or the like({ [E06B 3/30](#) } , [E06B 3/64](#) take precedence)
- U E06B 3/62
 - • • of rubber-like elastic cleats
 - E06B 2003/6208
 - • • • {with adjustable dimensions}
 - E06B 2003/6211
 - • • • • {with tear away strips}
 - E06B 2003/6214
 - • • • {specially adapted for glazing bars}
 - E06B 2003/6217
 - • • • {with specific fixing means}
 - E06B 2003/622
 - • • • • {using nails or the like}
 - E06B 2003/6223
 - • • • • {with protruding parts anchored in grooves}
 - E06B 2003/6226
 - • • • • {with locking strips}
 - E06B 2003/6229
 - • • • • {with grooves anchoring the cleat on a rim}
 - E06B 2003/6232
 - • • • • {using glue}
 - E06B 2003/6235
 - • • • • {moulded on the pane}
 - E06B 2003/6238
 - • • • {having extra functions}
 - E06B 2003/6241
 - • • • • {with drainage means}
 - E06B 2003/6244
 - • • • • {with extra parts sealing against the bottom of the glazing rebate or against the edge of the pane}
 - E06B 2003/6247
 - • • • • {with extra parts sealing against the fixed or another window frame}
 - E06B 2003/625
 - • • • {Specific form characteristics}
 - E06B 2003/6252
 - • • • • {wedge-shaped}
 - E06B 2003/6255
 - • • • • {H-shaped}
 - E06B 2003/6258
 - • • • • {U-shaped}
 - E06B 2003/6261
 - • • • • {S-shaped}
 - E06B 2003/6264
 - • • • • hollow{*hollow*}
 - E06B 2003/6267
 - • • • • {consisting of several separate parts}
 - E06B 2003/627
 - • • • {with specific characteristics concerning the material}
 - E06B 2003/6273
 - • • • • {reinforced, e.g. against elongation}
 - E06B 2003/6276
 - • • • • {with parts of differing nature, e.g. hardness}
 - E06B 2003/6279
 - • • • • {with coverings or embellisher strips}
 - E06B 2003/6282
 - • • • • {of cellular nature}
 - E06B 2003/6285
 - • • • • {with provisions for receiving putty or pasty adhesives}
 - E06B 2003/6288
 - • • • • {with fire resisting properties}
 - E06B 2003/6291
 - • • • {Corner arrangements}
 - E06B 2003/6294
 - • • • • {using separate corner members}
 - E06B 2003/6297
 - • • • {for glazing panels of special shape, e.g. with undulating or U-shaped cross-section}
- U E06B 3/66
 - Units comprising two or more parallel glass or like panes permanently secured together{(reforming and uniting glass sheets by fusing [C03B 23/00](#) ; joining glass to glass or to other materials [C03C 27/00](#) ; laminated glass [B32B 17/10](#))}
- U E06B 3/663
 - • Element for spacing panes
- U E06B 3/66309
 - • • {Section members positioned at the edges of the glazing unit}
- U E06B 3/66333
 - • • • {of unusual substances, e.g. wood or other fibrous materials, glass or other transparent materials}
 - E06B 2003/66338
 - • • • • {of glass}
 - E06B 2003/6638
 - • • • {with coatings}
 - E06B 2003/66385
 - • • • {with special shapes}

- E06B 2003/6639 ~~sinuous~~{sinuous}
- E06B 2003/66395 {U-shape}
- U E06B 3/673 Assembling the units([E06B 3/677](#) takes precedence; { making hollow glass sheets or bricks [C03B 23/24](#) })
- U E06B 3/67365 {Transporting or handling panes, spacer frames or units during assembly([E06B 3/67304](#) to [E06B 3/67339](#) take precedence)}
- E06B 2003/67378 {Apparatus travelling around the periphery of the pane or the unit}
- E06B 2003/67395 {Non-planar units or of curvilinear outline, e.g. for vehicles}
- U E06B 3/70 Door leaves(wing frames [E06B 3/04](#))
- E06B 2003/7011 {with easily replaceable or interchangeable panels}
- E06B 2003/7013 {put in place through a slot in the frame}
- U E06B 3/7015 {characterised by the filling between two external panels(fireproof doors [E06B 5/16](#) ; noise insulating doors [E06B 5/20](#))}
- E06B 2003/7019 {of corrugated type}
- E06B 2003/7021 {consisting of wooden strips filling the whole door}
- E06B 2003/7023 {of foam type}
- E06B 2003/7025 {of cork; of wood or similar fibres}
- E06B 2003/7026 {of granular type}
- E06B 2003/7028 {of cementitious type, e.g. concrete}
- E06B 2003/703 {containing a metallic layer}
- E06B 2003/7032 {of non-vegetal fibrous material, e.g. glass or rock wool}
- E06B 2003/7034 {of asbestos}
- E06B 2003/7036 {of plaster}
- E06B 2003/7038 {made from a slurry}
- E06B 2003/704 {of mineral material which is not further specified}
- E06B 2003/7042 {with a fire retardant layer}
- E06B 2003/7044 {Garage doors}
- E06B 2003/7046 {with provisions for locks, hinges or other fittings}
- E06B 2003/7048 {with arcuate periphery; with openings having an arcuate periphery}
- E06B 2003/7049 {Specific panel characteristics}
- E06B 2003/7051 {of layered construction involving different materials}
- E06B 2003/7053 ~~corrugated~~{corrugated}
- E06B 2003/7055 {Left-right hinged interchangeable door leaves}
- E06B 2003/7057 {with little passing through doors}
- E06B 2003/7059 {Specific frame characteristics}
- E06B 2003/7061 {Wooden frames}
- E06B 2003/7063 {reinforced; in combination with other materials, e.g. foam, honeycomb}
- E06B 2003/7065 {Wood fibres}
- E06B 2003/7067 {of layered construction}
- E06B 2003/7069 {with cladding}
- E06B 2003/7071 {made of a plurality of separate blocks or strips}
- E06B 2003/7073 {with fire retardant measures in frame}
- E06B 2003/7074 {Metal frames}
- E06B 2003/7076 ~~insulated~~{insulated}
- E06B 2003/7078 {with fire retardant measures in frame}

E06B 2003/708	<ul style="list-style-type: none"> • • • insulated{insulated}
E06B 2003/7082	<ul style="list-style-type: none"> • • • {Plastic frames}
E06B 2003/7084	<ul style="list-style-type: none"> • • • • {reinforced with metal or wood sections}
E06B 2003/7086	<ul style="list-style-type: none"> • • • • {One-piece frames, e.g. made out of a single panel by cutting out a middle portion, moulded frames}
E06B 2003/7088	<ul style="list-style-type: none"> • • • • {Two-piece frames made of a stile and an U-shaped part surrounding the panel}
E06B 2003/709	<ul style="list-style-type: none"> • • • • {Frame parts being attached to both sides of the panel which extends till the door edge}
E06B 2003/7092	<ul style="list-style-type: none"> • • • • {with frame members not directly or resiliently connected to each other}
E06B 2003/7094	<ul style="list-style-type: none"> • • {with ventilated innerspace}
E06B 2003/7096	<ul style="list-style-type: none"> • • {with possibilities to alter the extension of the door}
E06B 2003/7098	<ul style="list-style-type: none"> • • {with bracing means crossing each other, e.g. diagonally disposed}
E06B 3/92	<ul style="list-style-type: none"> • Doors or windows extensible when set in position(foldable wings E06B 3/48 ; sliding wings for windows E06B 3/42 ; wall-closing devices which may be rolled up, e.g. shutters, E06B9/089E06B 9/11)({ E06B 3/01 takes precedence)}
U E06B 5/00	Doors, windows, or like closures for special purposes({ insulated compound frames specially adapted for sliding doors or windows E06B 3/26347)}); Border constructions therefor
E06B 5/006	<ul style="list-style-type: none"> • {for furniture(E06B 3/00 , E06B9/10FE06B 9/115 take precedence)}
E06B 7/00	Special arrangements or measures in connection with doors or windows({ arrangements against burglary at the edges of the wings E06B 5/11 B E06B5/11B } ; screening or similar protective devices E06B 9/00)
U E06B 7/02	<ul style="list-style-type: none"> • for providing ventilation, e.g. through double windows; Arrangement of ventilation roses(airflow control members per se F24F 13/08)
E06B 2007/023	<ul style="list-style-type: none"> • • {Air flow induced by fan}
E06B 2007/026	<ul style="list-style-type: none"> • • {with air flow between panes}
U E06B 7/14	<ul style="list-style-type: none"> • Measures for draining-off condensed water or water leaking-in{frame members for draining off condensation water, throats at the bottom of a sash}
E06B 2007/145	<ul style="list-style-type: none"> • • {for glass façade, e.g. curtain wall}
U E06B 7/16	<ul style="list-style-type: none"> • Sealing arrangements on wings or parts co-operating with the wings({ specially adapted for fireproof or similar closures E06B 5/164 ; } E06B 7/098 takes precedence; { fixed sealing joints E04B 1/68 ; Devices for fitting sealing strips E04F 21/00 })
U E06B 7/18	<ul style="list-style-type: none"> • • by means of movable edgings, e.g. draught sealings additionally used for bolting,{e.g. by spring force or with operating lever}
U E06B 7/20	<ul style="list-style-type: none"> • • • automatically withdrawn when the wing is opened,{e.g. by means of magnetic attraction, a pin or an inclined surface, especially for sills}
E06B 2007/202	<ul style="list-style-type: none"> • • • • {Actuator connected to wing frame}
U E06B 7/28	<ul style="list-style-type: none"> • Other arrangements on doors or windows, e.g. door-plates, windows adapted to carry plants, hooks for window cleaners{ edge protecting devices for door leaves E06B 3/88 ; special glazing; emergency glazing; double glazing E06B 3/66 }
U E06B 7/30	<ul style="list-style-type: none"> • • Peep-holes; Devices for speaking through; Doors having windows
E06B 2007/305	<ul style="list-style-type: none"> • • • Microphone{Microphone}

- U E06B 7/36
 - Finger guards{or other measures preventing harmful access between the door and the door frame(safety devices for doors in railway cars [B61D 19/026](#) ; for lift doors [B66B 13/26](#) ; detection of obstructions [E05F 15/0004](#))}
- U E06B 7/362
 - {the gap between the door and the door frame at the hinge side being constructed in a way to remain too small or too wide to cause injury}
- E06B 2007/365
 - {Rounded shape at gap, e.g. cylindrical}
- U **E06B 9/00**

Screening or protective devices for{wall or similar}openings, with or without operating or securing mechanisms; Closures of similar construction([E06B 5/10](#) takes precedence; wings for doors or windows, connected at their edges, [E06B 3/48](#) ; additional indoor equipment of doors or windows, not forming part of the proper finishing work of a building, e.g. curtains, [A47H](#) ; gratings as building elements [E04C 2/24](#) ; fastening means [E05](#) ; operating-mechanisms for wings in general [E05F](#))
- E06B 2009/002
 - {Safety guards or gates}
- E06B 2009/005
 - {Storm panels; hurricane shutters}
- E06B 2009/007
 - {Flood panels}
- U E06B 9/01
 - Grilles fixed to walls, doors, or windows; Grilles moving with doors or windows; Walls formed as grilles, e.g. claustra{(emergency release of window grilles [E05B 65/1033](#) ; security bars for wings [E05C 19/003](#))}
- E06B 2009/015
 - {Mounting details}
- U E06B 9/02
 - Shutters, movable grilles, or other safety closing devices, e.g. against burglary(louvre windows or grilles [E06B 7/08](#) ; lamellar blinds [E06B 9/26](#))
- U E06B 9/06
 - collapsible or foldable, e.g. of the bellows or lazy-tongs type(bellows-type doors [E06B 3/94](#) ; roll-type grilles [E06B 9/18](#))
- U E06B 9/0607
 - {comprising a plurality of similar rigid closing elements movable to a storage position}
- U E06B 9/0646
 - {characterised by the relative arrangement of the closing elements in the stored position}
- E06B 2009/0684
 - {stored in a spiral like arrangement}
- U E06B 9/08
 - Roll-type closures(roller blinds [E06B 9/40](#) ; operating, guiding or securing devices or arrangements for roll-type closures [E06B 9/56](#) ; usable only as awnings [E04F 10/06](#))
- U E06B 9/11
 - Roller shutters
- U E06B 9/13
 - with closing members of one piece, e.g. of corrugated sheet metal
- E06B 2009/135
 - {Horizontal shutter reinforcements}
- U E06B 9/15
 - with closing members formed of slats or the like
- E06B 2009/1505
 - {Slat details}
- E06B 2009/1511
 - [Coatings](#){[Coatings](#)}
- E06B 2009/1516
 - {Means to increase resistance against bending}
- E06B 2009/1522
 - {Sealing joint between adjacent slats}
- E06B 2009/1527
 - {Transparent slats or transparent sections in slats}
- E06B 2009/1533
 - {Slat connections}
- E06B 2009/1538
 - {Slats directly connected}
- E06B 2009/1544
 - {Engaging section has curved articulation surfaces}
- E06B 2009/155
 - {Slats connected by separate elements}
- E06B 2009/1555
 - {Flexible elements, e.g. tapes, strips, cords or chains}
- E06B 2009/1561
 - [Strips](#){[Strips](#)}

- E06B 2009/1566 {Rigid elements, e.g. hinges, hooks or profiles}
- E06B 2009/1572 {Locking means to prevent slat disengagement}
- E06B 2009/1577 {Slat end pieces used for guiding shutter}
- E06B 2009/1583 {inserted in slat cavity}
- E06B 2009/1588 {inserted in engaging section of adjacent slats}
- E06B 2009/1594 {attached to outer surface of slat}
- U E06B 9/17 Parts or details of roller shutters, e.g. suspension devices, shutter boxes, wicket doors, ventilation openings
- E06B 2009/17038 {Shutter cleaning arrangements}
- E06B 2009/17053 {Door in shutter screen; wicket door}
- E06B 2009/17069 ~~Insulation~~{Insulation}
- U E06B 9/17076 {Sealing or antirattling arrangements}
- E06B 2009/17084 {closing outlet slot of shutter box}
- E06B 2009/17092 ~~Manufacturing~~{Manufacturing}
- U E06B 9/171 Rollers therefor; Fastening roller shutters to rollers
- E06B 2009/1713 {Telescopic rollers}
- E06B 2009/1716 {Arrangements to improve rolling of the shutter on the roller}
- U E06B 9/174 Bearings specially adapted therefor
- E06B 2009/1743 {allowing radial roller movement}
- E06B 2009/1746 {Axial connection of rollers}
- U E06B 9/24 Screens or other constructions affording protection against light, especially against sunshine; Similar screens for privacy or appearance;{Slat blinds} (operating, guiding or securing devices or arrangements for roll-type closures [E06B 9/56](#) ; free-hanging flexible screens [A47H 23/00](#))
- E06B 2009/2405 . . . {Areas of differing opacity for light transmission control}
- E06B 2009/2411 . . . {Coloured fluid flow for light transmission control}
- E06B 2009/2417 . . . {Light path control; means to control reflection}
- E06B 2009/2423 . . . {Combinations of at least two screens}
- E06B 2009/2429 . . . {One vertical sheet and slats}
- E06B 2009/2435 . . . {Two vertical sheets and slats in-between}
- E06B 2009/2441 . . . {Screens joined one below the other}
- E06B 2009/2447 . . . {Parallel screens}
- E06B 2009/2452 . . . {moving independently}
- E06B 2009/2458 . . . {moving simultaneously}
- E06B 2009/2464 . . . {featuring transparency control by applying voltage; e.g. LCD, electrochromic panels}
- E06B 2009/247 . . . {Electrically powered illumination}
- E06B 2009/2476 . . . {Solar cells}
- E06B 2009/2482 . . . {Special shape}
- E06B 2009/2488 . . . {Curved perimeter}
- E06B 2009/2494 . . . {Trapezoidal or triangular}
- U E06B 9/26 . . . Lamellar or like blinds, e.g. venetian blinds{(for vehicles [B60J 1/2088](#))}
- U E06B 9/262 . . . with flexibly-interconnected horizontal or vertical strips; Concertina blinds, {i.e. upwardly folding flexible screens}
- E06B 2009/2622 . . . {Gathered vertically; Roman, Austrian or festoon blinds}
- E06B 2009/2625 . . . {Pleated screens, e.g. concertina- or accordion-like}

- E06B 2009/2627 {Cellular screens, e.g. box or honeycomb-like}
- U E06B 9/264 . . . Combinations of lamellar blinds with roller shutters, screen windows, windows, or double panes; Lamellar blinds with special devices
- E06B 2009/2643 {Screens between double windows}
- E06B 2009/2646 {Magnetic screen operator}
- U E06B 9/28 . . . with horizontal lamellae, e.g. non-liftable(louvre windows or gratings [E06B 7/08](#))
- E06B 2009/285 {Means for actuating a rod(being tilt rod or lift rod)}
- U E06B 9/30 liftable
- U E06B 9/32 Operating, guiding, or securing devices therefor(operation of tilting bars [E06B 9/307](#))
- U E06B 9/322 Details of operating devices, e.g. pulleys, brakes, spring drums, drives({ operating devices [E06B 9/68](#) } ; devices of general interest specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material [B65H 75/34](#))
- E06B 2009/3222 {Cordless, i.e. user interface without cords}
- E06B 2009/3225 {Arrangements to aid the winding of cords rollers}
- E06B 2009/3227 {Axially moving rollers}
- U E06B 9/326 Details of cords, e.g. buckles, drawing knobs
- E06B 2009/3265 {Emergency release to prevent strangulation or excessive load}
- U E06B 9/40 . . . Roller blinds(usable only as awnings [E04F 10/06](#))
- E06B 2009/402 . . . {adjustable without the use of tools or cutting instruments}
- E06B 2009/405 . . . {Two rollers}
- E06B 2009/407 . . . {Telescopic roller}
- U E06B 9/42 . . . Parts or details of roller blinds, e.g. suspension devices, blind boxes(brackets or adjustable mountings for roller blinds and drawable curtains [A47H 1/13](#))
- E06B 2009/425 {Pull chain or cord attached to bottom edge of screen}
- U E06B 9/44 Rollers therefor; Fastening roller blinds to rollers
- E06B 2009/445 {by adhesive}
- U E06B 9/52 . . . Devices affording protection against insects, e.g. fly screens; Mesh windows for other purposes{ screens [A47G 5/00](#) }
- E06B 2009/524 . . . {Mesh details}
- E06B 2009/525 . . . {Patches for mesh repair or decoration}
- E06B 2009/527 . . . {Mounting of screens to window or door}
- E06B 2009/528 . . . {Screens extending between movable wing and fixed frame of window or door}
- U E06B 9/54 . . . Roller fly screens(operating, guiding or securing devices therefor [E06B 9/56](#))
- E06B 2009/543 . . . {Horizontally moving screens}
- E06B 2009/546 . . . {connected to end- or bottom-bar of roller shutter}
- U E06B 9/56 . . . Operating, guiding or securing devices or arrangements for roll-type closures; Spring drums; Tape drums; Counterweighting arrangements therefor(devices of general interest specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material [B65H 75/34](#))
- U E06B 9/58 . . . Guiding devices
- E06B 2009/583 . . . {Cords or cables}
- E06B 2009/585 . . . {Emergency release to prevent damage of shutter or guiding device}

- E06B 2009/586 . . . {with heating to prevent frost or condensate}
- E06B 2009/587 . . . {Mounting of guiding devices to supporting structure}
- E06B 2009/588 . . . {Sealings for guides}
- U E06B 9/68 . . Operating devices or mechanisms, e.g. with electric drive
- E06B 2009/6809 . . . ~~Control~~{Control}
- E06B 2009/6818 {using sensors}
- E06B 2009/6827 {sensing light}
- E06B 2009/6836 {sensing obstacle}
- E06B 2009/6845 {sensing position}
- E06B 2009/6854 {sensing torque}
- E06B 2009/6863 {sensing wind speed}
- E06B 2009/6872 {using counters to determine shutter position}
- E06B 2009/6881 {Mechanical counters}
- E06B 2009/689 {using end switches}
- U E06B 9/72 . . . comprising an electric motor positioned inside the roller
- E06B 2009/725 {with epicyclic or planetary gear train}
- U E06B 9/78 . . for direct manual operation, e.g. by tassels, by handles
- E06B 2009/785 . . . {by belts, straps, bands, tapes, cords, tassels}
- U E06B 9/80 . . Safety measures against dropping or unauthorised opening; Braking or immobilising devices; Devices for limiting unrolling(securing devices or arrangements for direct manual operation [E06B 9/78](#))
- E06B 2009/801 . . . {Locking arrangements}
- E06B 2009/802 {located in or close to shutter box}
- E06B 2009/804 {acting directly on the shutter}
- E06B 2009/805 {located on or in the guides}
- E06B 2009/807 . . . {Brakes preventing fast screen movement}
- E06B 2009/808 {Fluid brakes}
- U E06B 9/82 . . . automatic
- U E06B 9/88 for limiting unrolling
- E06B 2009/885 {Braking mechanism activated by the bottom bar}
- U E06B 9/90 for immobilising the closure member in various chosen positions
- E06B 2009/905 {using wrap spring clutches}

Project: N/A (E21B)

- U **E21B 3/00** **Rotary drilling (drives used in the borehole [E21B 4/00](#); rotary drilling machines in general [B23B](#))**
- U E21B 3/02 . Surface drives for rotary drilling
- U E21B 3/04 . . Rotary tables {(portable drilling rigs with rotary tables [E21B 7/021](#))}
- E21B 2003/05 . . . {with a to-and-fro rotation of the drill pipe or casing }
- U **E21B 7/00** **Special methods or apparatus for drilling**
- U E21B 7/12 . Underwater drilling (derricks or masts specially adapted therefor [E21B 15/02](#); telescoping joints [E21B 17/07](#); using heave compensators [E21B 19/09](#))
- E21B 7/128 . . from floating support with independent underwater anchored guide base {guide line systems ~~E21B33/035F~~[E21B 41/10](#)}

U	E21B 10/00	Drill bits (specially adapted for deflecting the direction of boring E21B 7/064; with means for collecting substances E21B 27/00)
U	E21B 10/08	• Roller bits (roller core bits E21B 10/06 ; with leading portion E21B 10/26 ; characterised by wear resisting parts E21B 10/46)
U	E21B 10/22	• • characterised by bearing, lubrication or sealing details
	E21B 2010/225	• • • {sealing details }
U	E21B 10/24	• • • characterised by lubricating details
	E21B 2010/243	• • • • {with drilling fluid supply to the bearing }
U	E21B 10/42	• Rotary drag type drill bits with teeth, blades or like cutting elements, e.g. fork-type bits, fish tail bits (characterised by wear resisting parts E21B 10/54 , by conduits or nozzles for drilling fluid E21B 10/60 , by detachable or adjustable parts E21B 10/62)
	E21B 2010/425	• • {characterised by teeth or cutter arrangement }
U	E21B 10/46	• characterised by wear resisting parts, e.g. diamond inserts {(drill bits with self-renewable cutting edge E21B 10/006)}
U	E21B 10/54	• • the bit being of the rotary drag type, e.g. fork-type bits
	E21B 2010/545	• • • {with blades having performed cutting elements mounted on a distinct support, e.g. polycrystalline inserts }
U	E21B 10/56	• • Button type inserts (E21B 10/52 takes precedence)
	E21B 2010/561	• • • {Inserts with performed cutting elements mounted on a distinct support, e.g. polycrystalline inserts }
	E21B 2010/562	• • • • {having a non planar or non circular cutting face }
	E21B 2010/563	• • • • {having a cutting face with different segments, e.g. mosaic-type inserts }
	E21B 2010/564	• • • • {characterised by support details }
	E21B 2010/565	• • • • • {Interface between the substrate and the cutting element }
	E21B 2010/566	• • • • {with chip breaking arrangements }
U	E21B 10/567	• • • with preformed cutting elements mounted on a distinct support, e.g. polycrystalline inserts
	E21B 10/5673	• • • • { having a non planar or non circular cutting face (E21B10/571 takes precedence) }
U	E21B 10/60	• characterised by conduits or nozzles for drilling fluids (for roller bits E21B 10/18 ; for percussion drill bits E21B 10/38 ; {mining picks with arrangement of fluid-spraying nozzles E21C 35/187 })
	E21B 2010/607	• • {characterised by the nozzle structure }
U	E21B 10/62	• characterised by parts, e.g. cutting elements, which are detachable or adjustable (E21B 10/64 takes precedence; for roller bits E21B 10/20 ; { for rotary drag type drill bits E21B 10/42 ; for augers E21B 10/44)
	E21B 2010/622	• • {with plural separable cutter elements }
	E21B 2010/624	• • • {independently attachable }
U	E21B 21/00	Methods or apparatus for flushing boreholes, e.g. by use of exhaust air from motor (freeing objects stuck in boreholes by flushing E21B 31/03; well drilling compositions C09K 8/02)
	E21B 2021/005	• {using gaseous fluids }
	E21B 2021/006	• {Underbalanced techniques, i.e. where borehole fluid pressure is below formation pressure }
	E21B 2021/007	• {Arrangements for handling drilling fluids or cuttings outside the borehole, e.g. mud boxes }
	E21B 2021/008	• • {Means engaging the bore entrance, e.g. hoods for collecting dust }

- U E21B 21/06
 - Arrangements for treating drilling fluids outside the borehole (treating steps per se, see the relevant subclasses)
- E21B 2021/061
 - • {for treating dust-loaded gaseous fluids }
- U E21B 23/00 **Apparatus for displacing, setting, locking, releasing, or removing tools, packers or the like in the boreholes or wells (setting of casings, screens or liners [E21B 43/10](#))**
 - E21B 2023/008
 - {Self propelling system or apparatus, e.g. for moving tools within the horizontal portion of a borehole }
 - E21B 23/14
 - for displacing a cable or cable-operated tool, e.g. for logging or perforating operations in deviated wells ({side entry sub ~~E21B17/02D~~[E21B 17/025](#); control line protectors [E21B 17/1035](#); by fluid pressure [E21B 23/08](#); provision on well heads for introducing or removing cable-operated tools [E21B 33/072](#), [E21B 33/076](#))}
- U E21B 33/00 **Sealing or packing boreholes or wells**
 - E21B 2033/005
 - {Sealings characterised by their shape }
 - U E21B 33/10
 - in the borehole {sealing the junction between main bore and laterals [E21B 41/0042](#)}
 - E21B 2033/105
 - • {characterised by sealing the junction between a lateral and a main bore }
 - U E21B 33/13
 - • Methods or devices for cementing, for plugging holes, crevices, or the like (dump bailers [E21B 27/02](#); { methods or apparatus for grouting offshore structures [E02B 17/0008](#)} chemical compositions therefor [C09K 8/00](#))
 - U E21B 33/14
 - • • for cementing casings into boreholes {(using special cement compositions ~~E21B33/13B~~; control of cementation quality or level [E21B 47/0005](#))}
 - E21B 33/16
 - • • using plugs for isolating cement charge; Plugs therefor {(~~spacer compositions E21B33/13B5~~; *spacer compositions C09K 8/424*; stage cementing [E21B 33/146](#))}
- U E21B 34/00 **Valve arrangements for boreholes or wells (in drilling fluid circulation systems [E21B 21/10](#); {tool diverters [E21B 23/002](#);} blow-out preventers [E21B 33/06](#); oil flow regulating apparatus [E21B 43/12](#); valves in general [F16K](#))**
 - E21B 2034/002
 - {Ball valves }
 - E21B 2034/005
 - {Flapper valves }
 - E21B 2034/007
 - {Sleeve valves }
- U E21B 41/00 **Equipment or details not covered by groups [E21B 15/00](#) to [E21B 40/00](#)**
 - E21B 2041/0028
 - {Fuzzy logic, artificial intelligence, neural networks, or the like }
- U E21B 43/00 **Methods or apparatus for obtaining oil, gas, water, soluble or meltable materials or a slurry of minerals from wells (applicable only to water [E03B](#); obtaining oil-bearing deposits or soluble or meltable materials by mining techniques [E21C 41/00](#); pumps [F04](#))**
 - U E21B 43/01
 - specially adapted for obtaining from underwater installations (underwater well heads [E21B 33/035](#))
 - E21B 2043/0115
 - • {Drilling for or production of natural gas hydrate reservoirs; Drilling through or monitoring of formations containing gas hydrates }
 - E21B 43/02
 - Subsoil filtering (~~E21B43/11TAKES precedence, chemical compositions for consolidating loose sand or the like around wells C09K 8/56~~[E21B 43/11 takes precedence, chemical compositions for consolidating loose sand or the like around wells C09K 8/56](#))
 - U E21B 43/12
 - Methods or apparatus for controlling the flow of the obtained fluid to or in wells ([E21B 43/25](#) takes precedence; valve arrangements [E21B 34/00](#))

- U E21B 43/121 • • {Lifting well fluids (survey of down-hole pump systems [E21B 47/0007](#))}
- E21B 2043/125 • • • {Adaptation of walking-beam pump systems }
- U E21B 43/16 • Enhanced recovery methods for obtaining hydrocarbons (fracturing [E21B 43/26](#); obtaining slurry [E21B 43/29](#); reclamation of contaminated soil in situ [B09C](#); { chemical compositions therefor [C09K 8/58](#)})
- E21B 43/24 • • using heat, e.g. steam injection (heating, cooling or insulating wells [E21B 36/00](#)){(in combination with organic material [E21B 43/22D](#) in combination with organic material [C09K 8/592](#))}
- U E21B 47/00 **Survey of boreholes or wells (monitoring pressure or flow of drilling fluid [E21B 21/08](#); geophysical logging [G01V](#))**
- E21B 47/0002 • { Survey of boreholes or wells by visual inspection (photographing internal surfaces, e.g. of pipes [G03B 37/005](#), [E21B 57/A7B8](#) [E21B 57/A7B8](#); closed circuit television systems [H04N 7/18](#))}
- U E21B 49/00 **Testing the nature of borehole walls; Formation testing; Methods or apparatus for obtaining samples of soil or well fluids, specially adapted to earth drilling or wells (sampling in general [G01N 1/00](#))**
- U E21B 49/08 • Obtaining fluid samples or testing fluids, in boreholes or wells {(packers [E21B 33/12](#); valves [E21B 34/00](#); analysing pressure variations in an injection or production test [E21B 49/008](#))}
- E21B 2049/085 • • {Determining specific physical fluid parameters }

Project: N/A (E21C)**E21C****MINING OR QUARRYING**NOTES

This subclass covers methods or apparatus specific to mining or quarrying

This subclass does not cover, even though they may be disclosed only for mining or quarrying, drill bits, bore reamers, core taking devices, drilling pipes or rods, handling, racking or connecting arrangements for drilling pipes or rods, counterboring or enlarging drilled holes, flame drilling, or other drilling apparatus, which are covered by subclass [E21B](#)

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

E21C1/02	covered by	E21B 3/02	covered by
E21B 3/02			
E21C1/04	E21B 3/035	" "	E21B3/02S E21B 3/035
E21C1/06	E21B 3/025	" "	E21B3/02B E21B 3/025
E21C1/08	E21B 3/03	" "	E21B3/02D E21B 3/03
E21C1/12	" "	E21B 6/00	" "
E21B 6/00			
E21C3/08	" "	B25D 9/06	B25D 15/00
E21C3/10	" "	B25D 15/02	
E21C3/12	" "	B25D 11/00	
E21C3/14	" "	B25D 11/00	
E21C3/20	" "	B25D 9/12	
E21C3/22	" "	B25D 9/125	
E21C3/28	" "	B25D16/00B	
E21C3/30	" "	B25D16/00B2	
E21C3/32	B25D 11/005	" "	B25D 9/265
E21C3/34	" "	B25D 17/08	
E21C5/02	E21B 19/081	" "	E21B19/08B E21B 19/081
E21C5/04	E21B 19/083	" "	E21B19/08D E21B 19/083

E21C5/06	E21B 19/084	"	"	E21B19/08F	E21B 19/084
E21C5/11	"	"	"	E21B19/08K	E21B19/08L
E21C5/12	E21B 19/089	"	"	E21B19/08S	E21B 19/089
E21C5/14	E21B 44/08	"	"	E21B44/00G2	E21B 44/08
E21C5/16	"	"	"	E21B 44/00	"
E21B 44/00					
E21C7/02	"	"	"	E21B21/00P	
E21C7/06	"	"	"	E21B 21/14	"
E21B 21/14					
E21C11/02	"	"	"	E21B 7/02	"
E21B 7/02					
E21C 37/24	"	"	"	B25D	
E21C 37/26	"	"	"	B25D	
E21C 41/18	"	"	"	E21C 41/16	
E21C 41/20	"	"	"	E21C 41/16	
E21C 41/22	"	"	"	E21C 41/16	
E21C 41/24	"	"	"	E21C 41/16	
E21C 41/28	"	"	"	E21C 41/26	
E21C 41/30	"	"	"	E21C 41/26	
E21C 45/02	"	"	"	E21C 25/60	E21C 45/00
E21C 45/04	"	"	"	E21C 25/60	E21C 45/00
E21C 45/06	"	"	"	E21C 25/60	E21C 45/00
E21C 45/08	"	"	"	E21C 25/60	E21C 45/00
E21C 50/00	"	"	"	E02F 3/88	
E21C 50/02	"	"	"	E02F 3/88	E21C7/00B

U E21C 35/00

Miscellaneous items relating to machines for slitting or completely freeing the mineral from the seam

U E21C 35/18

- Mining picks; Holders therefor (planing knives [E21C 27/44](#); { pick-like bits for milling stone like materials [B28D 1/186](#)})

E21C 2035/1803

- • {Inserts or layers of wear-resistant material}

E21C 2035/1806

- • • {Fixing methods or devices}

E21C 2035/1809

- • • {Multiple inserts}

E21C 2035/1813

- • • {Chemical composition or specific material}

E21C 2035/1816

- • • {characterised by the shape }

E21C 2035/182

- • {Reversible picks, i.e. having two working ends, one operating, the other in reserve}

E21C 2035/1823

- • {using a locking piston actuated hydraulically, e.g. by spraying-fluid pressure}

E21C 2035/1826

- • {characterised by adaptations to use an extraction tool }

U E21C 35/19

- • Means for fixing picks or holders

E21C 2035/191

- • • {for fixing holders }

U E21C 35/22

- Equipment for preventing the formation of, or for removal of, dust (removing dust while drilling [E21C 7/00](#); picks with arrangement of fluid-spraying nozzles [E21C 35/187](#))

E21C 2035/226

- • {Control valves for the spraying liquid used in dust suppression systems}

E21C 41/00

Methods of underground or surface mining ([E21C 45/00](#) takes precedence); Lay-outs therefor (for peat [E21C 49/00](#))

WARNING

Groups ~~E21C41/02~~[E21C 41/28](#) to [E21C 41/14](#) are no longer used for classification. Documents are reclassified to groups [E21C 41/16](#), [E21C 41/26](#) and [E21C 41/32](#)

Project: N/A (E21D)

- U E21D 1/00 Sinking shafts**
- U E21D 1/03 • mechanically, {e.g. by loading shovels or loading buckets, scraping devices, conveying screws}([E21D 1/08](#) takes precedence)
- E21D 1/04 • • with grabs {(~~boring grabs E02F3/44, E21B 27/00~~; *boring grabs E21D 1/04, E21B 27/00*; grab buckets for digging in general [E02F 3/47](#))}
- U E21D 9/00 Tunnels or galleries, with or without linings; Methods or apparatus for making thereof ([E02D 29/045](#), [E02D 29/063](#) take precedence; linings per se [E21D 11/00](#)); Layout of tunnels or galleries**
- E21D 2009/008 • {Driving transverse tunnels starting from existing tunnels}
- U E21D 9/06 • Making by using a driving shield, {i.e. advanced by pushing means bearing against the already placed lining (pushing prefabricated elements through the ground from an access pit [E21D 9/005](#))}
- U E21D 9/0607 • • {the shield being provided with devices for lining the tunnel, e.g. shuttering ([E21D 9/082](#), [E21D 9/087](#) take precedence; tail sealing means used as end shuttering [E21D 9/0635](#))}
- E21D 2009/0614 • • • {with means for applying a continuous liner, e.g. sheets of plastics, between the main concrete lining and the rock}
- E21D 2009/0642 • • {the shield having means for additional processing at the front end }
- E21D 2009/065 • • • {with devices for provisionally supporting the front face}
- E21D 2009/0657 • • • {structurally associated with rock crushers}
- E21D 2009/0664 • • • {with means for applying a coating layer to the front face, e.g. by spraying}
- E21D 2009/0671 • • • {with means for consolidating the rock in front of the shield by injection of consolidating substances through boreholes}
- E21D 2009/0678 • • • {Adding additives, e.g. chemical compositions, to the slurry or the cuttings (bentonite shall not be coded)}
- E21D 2009/0685 • • • • {Foaming agents}
- U E21D 9/08 • • with additional boring or cutting means {other than the conventional cutting edge of the shield}
- U E21D 9/081 • • • {with a rotary drilling head cutting simultaneously the whole front face}
- E21D 2009/084 • • • • {with rotary drilling heads having variable diameter}
- E21D 2009/088 • • • {for driving non-circular tunnels }
- U E21D 11/00 Lining tunnels, galleries or other underground cavities, e.g. large underground chambers; Linings therefor; Making such linings in situ, e.g. by assembling ([E21D 15/00](#) to [E21D 23/00](#) take precedence; specially for shafts [E21D 5/00](#); {driving shields in combination with means for lining the tunnel [E21D 9/06](#)}; lining pressure water galleries, linings therefor [E02B 9/06](#))**
- U E21D 11/04 • Lining with building materials ([E21D 11/02](#), [E21D 11/14](#) take precedence; {compositions of mortars, concrete or like building materials [C04B](#); placing filling-up materials in underground workings [E21F 15/00](#))}
- U E21D 11/08 • • with preformed concrete slabs {(backfilling the space between the slabs and the rock [E21D 11/105](#))}
- E21D 2011/086 • • • {Making of concrete lining segments }
- U E21D 11/38 • Waterproofing (in general [E02D 31/00](#)); Heat insulating; Soundproofing; Electric insulating (for building constructions in general [E04B 1/62](#))
- U E21D 11/385 • • {Sealing means positioned between adjacent lining members (for joints in foundation structures [E02D 29/16](#); for sewers [E03F 3/04](#); for building structures in general [E04B 1/68](#))}

- E21D 2011/386
 - • • inflatable{inflatable}
- E21D 2011/388
 - • • {having longitudinal cavities communicating with the exterior on the outer side of the lining elements}
- U E21D 11/40
 - Devices or apparatus specially adapted for handling or placing units of linings {or supporting units} for tunnels or galleries {(combined with tunnelling shields [E21D 9/06](#))}
- E21D 2011/406
 - • {Placing endless lining elements, e.g. from reels (in combination with a tunnelling shield [E21D 2009/0614](#))}
- E21D 21/00**

Anchoring-bolts for roof, floor {in galleries or longwall working}, or shaft-lining protection ({ground anchors [E02D 5/80](#); anchorings for building constructions [E04B 1/41](#), [E21D2/30](#)[E21D 21/00](#)}; dowels or other devices fastened in walls or the like by inserting them in holes made therein for that purpose [F16B 13/00](#); {bolts with visible load [G01L 1/00](#))}
- U E21D 21/0026
 - {characterised by constructional features of the bolts}
- E21D 2021/0053
 - • {Anchoring-bolts in the form of lost drilling rods }
- E21D 2021/006
 - • {Anchoring-bolts made of cables or wires }
- E21D 2021/0066
 - • {Anchoring-bolts formed by a bundle of radially arranged rigid elements }
- E21D 2021/0073
 - • {Anchoring-bolts having an inflatable sleeve, e.g. hollow sleeve expanded by a fluid }
- U **E21D 23/00**

Mine roof supports for step- by- step movement, e.g. in combination with provisions for shifting of conveyers, mining machines, or guides therefor [(N: transport of mine roof support units [E21F 13/008](#); shifting of mine conveyers at the working face [E21F 13/08](#))]
- U E21D 23/12
 - Control, e.g. using remote control ([E21D 23/16](#) takes precedence)
- U E21D 23/14
 - • Effecting automatic sequential movement of supports, e.g. one behind the other ({advancing of mining machines toward the working face [E21C 29/02](#); advancing of conveyers toward the working face [E21D 23/085](#))}
- E21D 2023/142
 - • • {Measuring the advance of support units with respect to external points of reference }
- E21D 2023/144
 - • • {Measuring the advance of support units with respect to internal points of reference, e.g. with respect to neighbouring support units or extension of a cylinder }
- E21D 2023/146
 - • • {Transmission of signals and commands by cable }
- E21D 2023/148
 - • • {Wireless transmission of signals and commands }

Project: N/A (F01B)

- U **F01B 3/00**

Reciprocating-piston machines or engines with cylinder axes coaxial with, or parallel or inclined to, main shaft axis
- U F01B 3/0082
 - {Details}
- U F01B 3/0094
 - • {Driving or driven means}
- F01B 2003/0097
 - • • {Z-shafts, i.e. driven or driving shafts in Z-form }
- U **F01B 9/00**

Reciprocating-piston machines or engines characterised by connections between pistons and main shafts and not specific to preceding groups (connections disengageable during idling [F01B 31/24](#))
- U F01B 9/04
 - with rotary main shaft other than crankshaft
- U F01B 9/042
 - • {the connections comprising gear transmissions}
- F01B 2009/045
 - • • {Planetary gearings }
- U F01B 9/06
 - • the piston motion being transmitted by curved surfaces

- F01B 2009/061 . . . {by cams }
- F01B 2009/063 {Mono-lobe cams }
- F01B 2009/065 {Bi-lobe cams }
- F01B 2009/066 {Tri-lobe cams }
- F01B 2009/068 {Quadri-lobe cams }

U F01B 11/00 Reciprocating-piston machines or engines without rotary main shaft, e.g. of free-piston type

- U F01B 11/004 . {in which the movement in the two directions is obtained by two single acting piston motors, each acting in one direction}
- F01B 2011/005 . . {with oscillating pistons, i.e. the pistons are arranged in ring like cylinder sections and oscillate with respect to the center of the ring }

Project: N/A (F01C)

U F01C 21/00 Component parts, details or accessories not provided for in groups [F01C 1/00](#) to [F01C 20/00](#)

- F01C 2021/12 . {Control of working fluid admission or discharge }
- F01C 2021/125 . . {Arrangements for supercharging the working space }
- F01C 2021/14 . . {for variable fluid distribution }
- F01C 2021/16 . {Other regulation or control }
- F01C 2021/1606 . . {Variation of the working chamber }
- F01C 2021/1612 . . . {by changing the eccentricity of an element with respect to another element }
- F01C 2021/1618 . . . {by changing the positions of the inlet and outlet openings with respect to the working chambers }
- F01C 2021/1625 {with sliding or rotating valves, adjustable in position }
- F01C 2021/1631 {with sliding valves controlled by the use of fluid other than the working fluid }
- F01C 2021/1637 . . . {by changing the form of the radially inner or the radially outer contour of the working chamber }
- F01C 2021/1643 . . {by using valves regulating pressure and flow rate, e.g. discharge valves }
- F01C 2021/165 . . . {using a by-pass channel }
- F01C 2021/1656 {being obtained by displacing a lateral sealing face }
- F01C 2021/1662 . . . {with venting means }
- F01C 2021/1668 . . {with several machines or engines connected in series or in parallel }
- F01C 2021/1675 . . {with reversible machines or engines }
- F01C 2021/1681 . . {by varying the rotational speed }
- F01C 2021/1687 . . {Safety arrangements }
- F01C 2021/1693 . . {Stopping or starting, idling or no-load operation }

Project: N/A (F01L)

U F01L 1/00 Valve-gear or valve arrangements, e.g. lift-valve gear (lift-valve and valve-seat assemblies per se [F01L 3/00](#); slide-valve gear [F01L 5/00](#); actuated non-mechanically [F01L 9/00](#); valve arrangements in working piston or piston rod [F01L 11/00](#); modifications of valve-gear to facilitate reversing, braking, starting, changing compression ratio, or other specific operations [F01L 13/00](#))

- U F01L 1/02 . Valve drive (transmitting-gear between valve drive and valve [F01L 1/12](#))
- F01L 2001/028 . . {Pre-assembled timing arrangement, e.g. located in a cassette }

- U F01L 1/04
 - • by means of cams, camshafts, cam discs, eccentrics or the like ([F01L 1/10](#) takes precedence)
- U F01L 1/047
 - • • Camshafts
- F01L 2001/0471
 - • • • {Assembled camshafts, e.g. "gebaute Nockenwelle" }
- F01L 2001/0473
 - • • • • {Composite camshafts e.g. with cams or cam sleeve being able to move relative to the inner camshaft or a cam adjusting rod }
- F01L 2001/0475
 - • • • • {Hollow camshafts ([F01L 2001/0473](#) takes precedence)}
- F01L 2001/0476
 - • • • • {Camshaft bearings }
- F01L 2001/0478
 - • • • • {Torque pulse compensated camshafts }
- U F01L 1/053
 - • • • overhead type
- F01L 2001/0535
 - • • • • {Single overhead camshafts (SOHC) }
- F01L 2001/0537
 - • • • • {Double overhead camshafts (DOHC) }
- F01L 2001/054
 - • • • • {Camshafts in cylinder block }
- U F01L 1/12
 - Transmitting gear between valve drive and valve (simultaneously operating two or more valves [F01L 1/26](#))
- U F01L 1/18
 - • Rocking arms or levers
- F01L 2001/186
 - • • {Split rocking arms, e.g. rocker arms having two articulated parts and means for varying the relative position of these parts or for selectively connecting the parts to move in unison }
- F01L 2001/187
 - • • {Clips, e.g. for retaining rocker arm on pivot }
- F01L 2001/188
 - • • {Fulcrums at upper surface }
- U F01L 1/20
 - Adjusting or compensating clearance
- U F01L 1/22
 - • automatically, e.g. mechanically
- U F01L 1/24
 - • • by fluid means, e.g. hydraulically
- F01L 2001/2427
 - • • • {by means of an hydraulic adjusting device located between cam and push rod }
- F01L 2001/2433
 - • • • • {Self contained, e.g. sealed hydraulic lash adjusters }
- F01L 2001/2438
 - • • • • {with means permitting forced opening of check valve }
- F01L 2001/2444
 - • • • • {Details relating to the hydraulic feeding circuit, e.g. lifter oil manifold assembly (LOMA) }
- U F01L 1/245
 - • • • Hydraulic tappets
- F01L 2001/256
 - • • • • {between cam and push rod }
- U F01L 1/34
 - characterised by the provision of means for changing the timing of the valves without changing the duration of opening {and without affecting the magnitude of the valve lift}
- U F01L 1/344
 - • changing the angular relationship between crankshaft and camshaft, e.g. using helicoidal gear
- U F01L 1/3442
 - • • {using hydraulic chambers with variable volume to transmit the rotating force}
- F01L 2001/34423
 - • • • • {Details relating to the hydraulic feeding circuit }
- F01L 2001/34426
 - • • • • {Oil control valves }
- F01L 2001/3443
 - • • • • • {Solenoid driven oil control valves }
- F01L 2001/34433
 - • • • • • • {Location oil control valves }
- F01L 2001/34436
 - • • • • • {Features or method for avoiding malfunction due to foreign matters in oil }
- F01L 2001/3444
 - • • • • • • {Oil filters }
- F01L 2001/34443
 - • • • • • • {Cleaning control of oil control valves }

F01L 2001/34446	• • • • {Fluid accumulators for the feeding circuit }
F01L 2001/3445	• • • • {Details relating to the hydraulic means for changing the angular relationship }
F01L 2001/34453	• • • • {Locking means between driving and driven members }
F01L 2001/34456	• • • • • {Locking in only one position }
F01L 2001/34459	• • • • • {Locking in multiple positions }
F01L 2001/34463	• • • • • {Locking position intermediate between most retarded and most advanced positions }
F01L 2001/34466	• • • • • {with multiple locking devices }
F01L 2001/34469	• • • • • {Lock movement parallel to camshaft axis }
F01L 2001/34473	• • • • • {Lock movement perpendicular to camshaft axis }
F01L 2001/34476	• • • • • {Restrict range locking means }
F01L 2001/34479	• • • • • {Sealing of phaser devices }
F01L 2001/34483	• • • • • {Phaser return springs }
F01L 2001/34486	• • {Location and number of the means for changing the angular relationship }
F01L 2001/34489	• • • • {Two phasers on one camshaft }
F01L 2001/34493	• • • • {Dual independent phasing system (DIPS) }
F01L 2001/34496	• • • • {Two phasers on different camshafts }
U F01L 1/352	• • • using bevel or epicyclic gear
F01L 2001/3521	• • • • {Harmonic drive of flexspline type }
F01L 2001/3522	• • • • {with electromagnetic brake }
U F01L 1/46	• Component parts, details, or accessories, not provided for in preceding subgroups
F01L 2001/467	• • {Lost motion springs }
U F01L 3/00	Lift-valve, i.e. cut-off apparatus with closure members having at least a component of their opening and closing motion perpendicular to the closing faces; Parts or accessories thereof
F01L 2003/11	• {Connecting valve members to rocker arm or tappet }
F01L 2003/25	• {Valve configurations in relation to engine }
F01L 2003/251	• • {Large number of valves, e.g. five or more }
F01L 2003/253	• • {configured parallel to piston axis }
F01L 2003/255	• • {configured other than parallel or symmetrical relative to piston axis }
F01L 2003/256	• • {configured other than perpendicular to camshaft axis }
F01L 2003/258	• • {opening away from cylinder }
U F01L 9/00	Valve-gear or valve arrangements actuated non-mechanically
U F01L 9/02	• by fluid means, e.g. hydraulic
F01L 2009/028	• • {Boost means, i.e. means for increasing initial opening force of the valve }
U F01L 9/04	• by electric means
F01L 2009/0401	• • {Driving circuits therefor }
F01L 2009/0403	• • {Electromagnetic actuators comprising one coil }
F01L 2009/0405	• • {Electromagnetic actuators comprising two or more coils }
F01L 2009/0407	• • • {The two coils being disposed coaxially to the armature shaft }
F01L 2009/0409	• • • {The armature being articulated perpendicularly to the coils axes }
F01L 2009/0411	• • {Electromagnetic actuators using a rotary motor }
F01L 2009/0413	• • {Piezo electric actuators }

F01L 2009/0415	• • {Moving coil actuators }
F01L 2009/0417	• • {Floating actuators for varying the valve stroke }
F01L 2009/0419	• • {Actuator position setting device, e.g. initial setting }
F01L 2009/0421	• • {Mixed arrangement with both mechanically and electromagnetically actuated valves }
F01L 2009/0423	• • {Electromagnetic actuators construction details}
F01L 2009/0425	• • • {Shaft and armature construction }
F01L 2009/0426	• • • • {Arrangements for amplifying the armature stroke }
F01L 2009/0428	• • • {Core and coil construction }
F01L 2009/043	• • • {Casing construction }
F01L 2009/0432	• • • {Biasing means }
F01L 2009/0434	• • • • {Helical springs }
F01L 2009/0436	• • • • • {Two opposed springs for intermediate resting position of the armature }
F01L 2009/0438	• • • • {Torsion springs }
F01L 2009/044	• • • • {Pneumatic springs }
F01L 2009/0442	• • • • {Means for varying the spring bias }
F01L 2009/0444	• • • • {Means for connecting springs to valve or anchor }
F01L 2009/0446	• • • {Latching means }
F01L 2009/0448	• • • • {using permanent magnet}
F01L 2009/0449	• • • {Means for varying the air gap }
F01L 2009/0451	• • • {Damping means }
F01L 2009/0453	• • • {Means for counteracting cylinder pressure }
F01L 2009/0455	• • • {Lash adjusting means }
F01L 2009/0457	• • • {Actor cooling means }
F01L 2009/0459	• • • {Means for facilitating assembly }
F01L 2009/0461	• • • Wiring {Wiring }
F01L 2009/0463	• • • • Connectors {Connectors }
F01L 2009/0465	• • • • Harnesses {Harnesses }
F01L 2009/0467	• • • {Sensing means }
F01L 2009/0469	• • • • {Position sensors }
F01L 2009/0471	• • • • {Vibration sensors }
F01L 2009/0473	• • • • {Temperature sensors }
F01L 2009/0474	• • • • {Flux sensors }
F01L 2009/0476	• • • • {Spring force sensors }
F01L 2009/0478	• • {Electromagnetic actuators; Method of operation thereof }
F01L 2009/048	• • • {Engine starting }
F01L 2009/0482	• • • • {in normal conditions}
F01L 2009/0484	• • • • {Cold start }
F01L 2009/0486	• • • {Soft landing, e.g. applying braking current; Levitation of armature close to core surface }
F01L 2009/0488	• • • {Fail safe, e.g. valve kept closed if not opening properly }
F01L 2009/049	• • • {Determination of valve speed }
F01L 2009/0492	• • • {Determination of valve timing during particular working conditions, e.g. deceleration }
F01L 2009/0494	• • • {Engine stopping; Engine stall }

F01L 2009/0496 . . . {relating to sticking duration}

F01L 2009/0498 . . . {relating to gap between armature shaft and valve stem end}

U F01L 13/00

Modifications of valve-gear to facilitate reversing, braking, starting, changing compression ratio, or other specific operations

U F01L 13/0005 . {Deactivating valves}

F01L 2013/001 . . {Deactivating cylinders }

U F01L 13/0015 . {for optimising engine performances by modifying valve lift according to various working parameters, e.g. rotational speed, load, torque}

U F01L 13/0036 . . {the valves being driven by two or more cams with different shape, size or timing or a single cam profiled in axial and radial direction}

F01L 2013/0052 . . . {with cams provided on an axially slidable sleeve }

U F01L 13/0063 . . {by modification of cam contact point by displacing an intermediate lever or wedge-shaped intermediate element, e.g. Tourtelot}

F01L 2013/0068 . . . {with an oscillating cam acting on the valve of the "BMW-Valvetronic" type }

F01L 2013/0073 . . . {with an oscillating cam acting on the valve of the "Delphi" type }

F01L 2013/0078 . . {by modification of cam contact point by axially displacing the camshaft}

F01L 2013/0084 . . {by modification of cam contact point by radially displacing the camshaft}

F01L 2013/0089 . . {with means for delaying valve closing }

F01L 2013/0094 . . . {with switchable clamp for keeping valve open }

F01L 2013/10 . {Auxiliary actuators for variable valve timing }

F01L 2013/101 . . ~~Electromagnets~~ {Electromagnets }

F01L 2013/103 . . {Electric motors }

F01L 2013/105 . . {Hydraulic motors }

F01L 2013/106 . . {Pneumatic motors }

F01L 2013/108 . . {Centrifugal force }

F01L 2013/11 . {Sensors for variable valve timing }

F01L 2013/111 . . {Camshafts position or phase }

F01L 2013/113 . . {crankshafts position }

F01L 2013/115 . . ~~Pressure~~ {Pressure }

F01L 2013/116 . . ~~Temperature~~ {Temperature }

F01L 2013/118 . . {Valve lift }

Project: N/A (F01M)

U F01M 1/00

Pressure lubrication

U F01M 1/02 . using lubricating pumps (pumps in general [F04](#); lubricating pumps per se [F16N](#))

F01M 2001/0207 . . {characterised by the type of pump }

F01M 2001/0215 . . . {Electrical pumps}

F01M 2001/0223 . . . {Electromagnetic pumps }

F01M 2001/023 . . . {Piston pumps }

F01M 2001/0238 . . . {Rotary pumps }

F01M 2001/0246 . . . {Adjustable pumps }

F01M 2001/0253 . . {characterised by the pump driving means }

F01M 2001/0261 . . . {driven by the camshaft }

F01M 2001/0269 . . . {driven by the crankshaft }

F01M 2001/0276 . . . {driven by a balancer shaft }

	F01M 2001/0284	• • {mounting of the pump }
	F01M 2001/0292	• • Sealings{Sealings}
U	F01M 1/06	• Lubricating systems characterised by the provision therein of crankshafts or connecting rods with lubricant passageways, e.g. bores (crankshafts, connecting-rods, per se F16C)
	F01M 2001/062	• • {Crankshaft with passageways }
	F01M 2001/064	• • {Camshaft with passageways }
	F01M 2001/066	• • {Connecting rod with passageways }
	F01M 2001/068	• • {Bakance shaft with passageways }
U	F01M 1/08	• Lubricating systems characterised by the provision therein of lubricant jetting means
	F01M 2001/083	• • {for lubricating cylinders }
	F01M 2001/086	• • {for lubricating gudgeon pins }
U	F01M 1/10	• Lubricating systems characterised by the provision therein of lubricant venting or purifying means, e.g. of filters
	F01M 2001/1007	• • {characterised by the purification means combined with other functions }
	F01M 2001/1014	• • • {comprising supply of additives }
	F01M 2001/1021	• • • {comprising self cleaning systems }
	F01M 2001/1028	• • {characterised by the type of purification }
	F01M 2001/1035	• • • {comprising centrifugal filters }
	F01M 2001/1042	• • • {comprising magnetic parts }
	F01M 2001/105	• • {characterised by the layout of the purification arrangements }
	F01M 2001/1057	• • • {comprising a plurality of filters, parallel or serial }
	F01M 2001/1064	• • • {comprising drains for oil to the carter, e.g. to recover spilled oil during change of filters }
	F01M 2001/1071	• • • {comprising oil tanks }
	F01M 2001/1078	• • • {comprising an oil pick-up tube to oil pump, e.g. strainer }
	F01M 2001/1085	• • • {comprising non-return valves }
	F01M 2001/1092	• • • {comprising valves bypassing the filter }
U	F01M 1/12	• Closed-circuit lubricating systems not provided for in groups F01M 1/02 to F01M 1/10
	F01M 2001/123	• • {using two or more pumps }
	F01M 2001/126	• • {Dry-sumps}
U	F01M 1/16	• Controlling lubricant pressure or quantity (rendering machines or engines inoperative or idling on lubricant pressure failure F01M 1/22)
	F01M 2001/165	• • {according to fuel dilution in oil }
U	F01M 5/00	Heating, cooling, or controlling temperature of lubricant (arrangement of lubricant coolers in engine cooling system F01P 11/08); lubrication means facilitating engine starting
U	F01M 5/002	• {Cooling}
	F01M 2005/004	• • {Oil-cooled engines }
	F01M 2005/008	• {Lubrication means facilitating engine starting}
U	F01M 5/02	• Conditioning lubricant for aiding engine starting, e.g. heating
U	F01M 5/021	• • {by heating}
	F01M 2005/023	• • • {Oil sump with partition for facilitating heating of oil during starting }
U	F01M 5/025	• • {by prelubricating, e.g. using an accumulator}

	F01M 2005/026	• • {with an auxiliary pump }
	F01M 2005/028	• • {with a reservoir under pressure }
U	F01M 11/00	Component parts, details or accessories, not provided for in, or of interest apart from, groups F01M 1/00 to F01M 9/00
U	F01M 11/0004	• {Oilsumps}
	F01M 2011/0008	• • {with means for reducing vibrations }
	F01M 2011/0012	• • • {with acoustic insulation }
	F01M 2011/0016	• • {with thermic insulation }
	F01M 2011/002	• • {with means for improving the stiffness}
	F01M 2011/0025	• • {with heat exchangers }
	F01M 2011/0029	• • {with oil filters }
	F01M 2011/0033	• • {with special means for guiding the return of oil into the sump }
	F01M 2011/0037	• • {with different oil compartments }
	F01M 2011/0041	• • • {for accommodating movement or position of engines}
	F01M 2011/0045	• • • {for controlling the oil temperature }
	F01M 2011/005	• • {with special anti-turbulence means, e.g. anti-foaming means or intermediate plates }
	F01M 2011/0054	• • {Fastening to the cylinder block }
	F01M 2011/0058	• • {Fastening to the transmission }
	F01M 2011/0062	• • Gaskets {Gaskets }
	F01M 2011/0066	• • {with passages in the wall, e.g. for axles or fluid passages }
	F01M 2011/007	• • {Oil pickup tube to oil pump, e.g. strainer }
	F01M 2011/0075	• • • {with a plurality of tubes }
	F01M 2011/0079	• • {with the oil pump integrated or fixed to sump }
	F01M 2011/0083	• • {Dry sumps }
	F01M 2011/0087	• • {Sump being made of different parts }
	F01M 2011/0091	• • {characterised by used materials }
	F01M 2011/0095	• {Supplementary oil tank }
U	F01M 11/02	• Arrangements of lubricant conduits
	F01M 2011/021	• • {for lubricating auxiliaries, e.g. pumps or turbo chargers }
	F01M 2011/022	• • {for lubricating cylinders }
	F01M 2011/023	• • {between oil sump and cylinder head }
	F01M 2011/025	• • {for lubricating gudgeon pins }
	F01M 2011/026	• • {for lubricating crankshaft bearings }
	F01M 2011/027	• • {for lubricating connecting rod bearings }
	F01M 2011/028	• • {for lubricating balance shafts }
U	F01M 11/03	• Mounting or connecting of lubricant purifying means relative to the machine or engine; Details of lubricant purifying means (filters B01D)
	F01M 2011/031	• • {characterised by mounting means }
	F01M 2011/033	• • • {comprising coolers or heat exchangers }
	F01M 2011/035	• • • {comprising oil pumps }
	F01M 2011/036	• • • {comprising pumps for the cooling circuit }
	F01M 2011/038	• • • {comprising lubricant-air separators }
U	F01M 11/04	• Filling or draining lubricant of or from machines or engines
U	F01M 11/0408	• • {Sump drainage devices, e.g. valves, plugs}

	F01M 2011/0416	• • • Plugs {Plugs }
	F01M 2011/0425	• • • • {with a device facilitating the change of oil }
	F01M 2011/0433	• • • • {with a device defining the lubricant level during filling }
	F01M 2011/0441	• • • • {for measuring the lubricant level }
U	F01M 11/0458	• • {Lubricant filling and draining}
	F01M 2011/0466	• • • {Filling or draining during running }
	F01M 2011/0475	• • • • {with combustion of used lubricant in the engine }
	F01M 2011/0483	• • {with a lubricant cartridge for facilitating the change }
	F01M 2011/0491	• • {Filling cap with special features }
U	F01M 11/06	• Means for keeping lubricant level constant or for accommodating movement or position of machines or engines
U	F01M 11/062	• • {Accommodating movement or position of machines or engines, e.g. dry sumps}
U	F01M 11/065	• • • {Position}
	F01M 2011/068	• • • • {with internal reservoir }
U	F01M 11/10	• Indicating devices; Other safety devices
	F01M 2011/14	• • {for indicating the necessity to change the oil }
	F01M 2011/1406	• • • {by considering acidity }
	F01M 2011/1413	• • • {by considering dielectric properties }
	F01M 2011/142	• • • {by considering speed, e.g. revolutions per minute [RPM] }
	F01M 2011/1426	• • • {by considering distance }
	F01M 2011/1433	• • • {by considering load }
	F01M 2011/144	• • • {by considering magnetic properties of the oil }
	F01M 2011/1446	• • • {by considering pressure }
	F01M 2011/1453	• • • {by considering oil quantity }
	F01M 2011/146	• • • {by considering moisture level }
	F01M 2011/1466	• • • {by considering quantity of soot }
	F01M 2011/1473	• • • {by considering temperature }
	F01M 2011/148	• • • {by considering viscosity }
	F01M 2011/1486	• • • {by considering duration of operation }
	F01M 2011/1493	• • • {by considering total base number [TBN] }
U	F01M 13/00	Crankcase ventilating or breathing
	F01M 2013/0005	• {with systems regulating the pressure in the carter }
U	F01M 13/0011	• {Breather valves}
	F01M 2013/0016	• • {with a membrane }
	F01M 2013/0022	• • electromagnetic {electromagnetic }
	F01M 2013/0027	• • {with a de-icing or defrosting system }
	F01M 2013/0038	• {Layout of crankcase breathing systems }
	F01M 2013/0044	• • {with one or more valves }
	F01M 2013/005	• • {having one or more deoilers }
	F01M 2013/0055	• • • {with a by-pass }
	F01M 2013/0061	• • • {having a plurality of deoilers }
	F01M 2013/0066	• • • • {in parallel }
	F01M 2013/0072	• • • • {in series }

- F01M 2013/0077 . {Engine parameters used for crankcase breather systems }
- F01M 2013/0083 . . {Crankcase pressure }
- F01M 2013/0088 . . {Rotation speed }
- F01M 2013/0094 . . {Engine load }
- U F01M 13/02 . by means of additional source of positive or negative pressure
- U F01M 13/021 . . {of negative pressure}
- F01M 2013/026 . . . {with a pump sucking air or blowby gas from the carter }
- F01M 2013/027 . . . {with a turbo charger or compressor }
- U F01M 13/04 . having means for purifying air before leaving crankcase, e.g. removing oil
- F01M 2013/0411 . . {using cooling means }
- F01M 2013/0422 . . {Separating oil and gas with a centrifuge device }
- F01M 2013/0427 . . . {the centrifuge device having no rotating part, e.g cyclone }
- F01M 2013/0433 . . {with a deflection device, e.g. screen }
- F01M 2013/0438 . . {with a filter }
- F01M 2013/0444 . . {with means for accomodating movement or position of engines }
- F01M 2013/045 . . {using compression or decompression of the gas }
- F01M 2013/0455 . . {with a de-icing or defrosting system (for breathing valves [F01M 2013/0027](#))}
- F01M 2013/0461 . . {with a labyrinth}
- F01M 2013/0466 . . {with electrostatic means }
- F01M 2013/0472 . . {using heating means }
- F01M 2013/0477 . . {by separating water or moisture }
- F01M 2013/0483 . . {using catalysis }
- F01M 2013/0488 . . {with oil trap in the return conduit to the crankcase }
- F01M 2013/0494 . . . {using check valves }

Project: N/A (F01P)

- U **F01P 1/00** **Air cooling**
- F01P 2001/005 . {Cooling engine rooms}
- U F01P 1/02 . Arrangements for cooling cylinders or cylinder heads, e.g. ducting cooling-air from its pressure source to cylinders or along cylinders
- F01P 2001/023 . . {Cooling cylinders ([F01P 2003/022](#) takes precedence)}
- F01P 2001/026 . . {Cooling cylinder heads ([F01P 2003/025](#) takes precedence)}
- U **F01P 3/00** **Liquid cooling**
- F01P 2003/001 . {Cooling liquid}
- F01P 2003/003 . . {having boiling-point higher than 100°C}
- F01P 2003/005 . {the liquid being fuel}
- F01P 2003/006 . {the liquid being oil}
- F01P 2003/008 . {the liquid being water and oil}
- U F01P 3/02 . Arrangements for cooling cylinders or cylinder heads
- F01P 2003/021 . . {Cooling cylinders}
- F01P 2003/022 . . . {combined with air cooling}
- F01P 2003/024 . . {Cooling cylinder heads}
- F01P 2003/025 . . . {combined with air cooling}
- F01P 2003/027 . . {Cooling cylinders and cylinder heads in parallel}

	F01P 2003/028	<ul style="list-style-type: none"> • • {Cooling cylinders and cylinder heads in series}
U	F01P 3/18	<ul style="list-style-type: none"> • Arrangements or mounting of liquid-to-air heat-exchangers (such arrangements on cylinders or cylinder heads F01P 3/04; relative to vehicles B60K 11/04)
	F01P 2003/182	<ul style="list-style-type: none"> • • {with multiple heat-exchangers}
	F01P 2003/185	<ul style="list-style-type: none"> • • {arranged in parallel}
	F01P 2003/187	<ul style="list-style-type: none"> • • {arranged in series}
U	F01P 3/22	<ul style="list-style-type: none"> • characterised by evaporation and condensation of coolant in closed cycles (other cooling by evaporation F01P 9/02); characterised by the coolant reaching higher temperatures than normal atmospheric boiling-point
	F01P 2003/2214	<ul style="list-style-type: none"> • • Condensers{Condensers}
	F01P 2003/2221	<ul style="list-style-type: none"> • • • {of the horizontal type}
	F01P 2003/2228	<ul style="list-style-type: none"> • • • {of the upflow type}
	F01P 2003/2235	<ul style="list-style-type: none"> • • • {of the downflow type}
	F01P 2003/2242	<ul style="list-style-type: none"> • • • {Steam-to-steam condensers}
	F01P 2003/225	<ul style="list-style-type: none"> • • • {Steam-to-liquid condensers}
	F01P 2003/2257	<ul style="list-style-type: none"> • • • {Rotating condensers}
	F01P 2003/2264	<ul style="list-style-type: none"> • • • Separators{Separators}
	F01P 2003/2278	<ul style="list-style-type: none"> • • {Heat pipes}
	F01P 2003/2292	<ul style="list-style-type: none"> • • {with thermostatically controlled by-pass }
U	F01P 5/00	Pumping cooling-air or liquid coolants (controlling circulation or supply of coolants by influencing drive of pumps F01P 7/00)
U	F01P 5/02	<ul style="list-style-type: none"> • Pumping cooling-air; Arrangements of cooling-air pumps, e.g. fans or blowers
	F01P 2005/025	<ul style="list-style-type: none"> • • {using two or more air pumps }
U	F01P 5/04	<ul style="list-style-type: none"> • Pump-driving arrangements
	F01P 2005/046	<ul style="list-style-type: none"> • • • {with electrical pump drive }
U	F01P 5/10	<ul style="list-style-type: none"> • Pumping liquid coolant; Arrangements of coolant pumps
	F01P 2005/105	<ul style="list-style-type: none"> • • {Using two or more pumps}
U	F01P 5/12	<ul style="list-style-type: none"> • Pump-driving arrangements
	F01P 2005/125	<ul style="list-style-type: none"> • • • {Driving auxiliary pumps electrically}
U	F01P 7/00	Controlling of coolant flow
U	F01P 7/14	<ul style="list-style-type: none"> • the coolant being liquid
	F01P 2007/143	<ul style="list-style-type: none"> • • {using restrictions}
	F01P 2007/146	<ul style="list-style-type: none"> • • {using valves}
U	F01P 7/16	<ul style="list-style-type: none"> • • by thermostatic control
	F01P 2007/168	<ul style="list-style-type: none"> • • • {By varying the cooling capacity of a liquid-to-air heat-exchanger}
U	F01P 9/00	Cooling having pertinent characteristics not provided for in, or of interest apart from, groups F01P 1/00 to F01P 7/00 (profiting from waste heat of combustion-engine cooling F02G 5/00)
	F01P 2009/005	<ul style="list-style-type: none"> • {Cooling with melting solids}
U	F01P 11/00	Component parts, details, or accessories not provided for in, or of interest apart from, groups F01P 1/00 to F01P 9/00
U	F01P 11/02	<ul style="list-style-type: none"> • Liquid-coolant {filling}, overflow, venting, or draining devices (automatic draining during freezing conditions F01P 11/20)
U	F01P 11/0204	<ul style="list-style-type: none"> • • {Filling}
U	F01P 11/0209	<ul style="list-style-type: none"> • • • {Closure caps}

- U F01P 11/0214 {Mounting}
- F01P 2011/0219 {using bayonet connections }
- F01P 2011/0223 ~~Decoration~~ {~~Decoration~~ }
- F01P 2011/0228 ~~Sealing~~ {~~Sealing~~ }
- F01P 2011/0233 ~~Venting~~ {~~Venting~~ }
- U F01P 11/0238 {with overpressure valves or vent valves}
- F01P 2011/0242 {setting the pressure valve }
- U F01P 11/0247 {Safety; Locking against opening}
- F01P 2011/0252 {Venting before opening }
- F01P 2011/0257 {with theft preventing means }
- F01P 2011/0261 {activated by temperature }
- F01P 2011/0266 {activated by pressure }
- F01P 2011/0271 {Semi-permeable, e.g. using Gore-Tex c fibres }
- U F01P 11/06 . Cleaning (in general [B08B](#)); Combating corrosion (in general [C23F](#))
- F01P 2011/061 . . {Cleaning or combatting corrosion using filters }
- F01P 2011/063 . . {Cleaning ([F01P 2011/061](#) takes precedence)}
- F01P 2011/065 . . ~~Flushing~~ {~~Flushing~~ }
- F01P 2011/066 . . {Combating corrosion ([F01P 2011/061](#) takes precedence)}
- F01P 2011/068 . . . ~~chemically~~ {~~chemically~~ }
- U F01P 11/14 . Indicating devices; Other safety devices
- F01P 2011/205 . . {using heat-accumulators}

Project: N/A (F02B)

- U F02B 19/00 **Engines characterised by precombustion chambers(engines with incandescent chambers [F02B 9/08](#))**
 - F02B 2019/002 . {with electric heater fitted to at least part of prechamber-wall or transfer passage}
 - F02B 2019/004 . . {with heater control}
 - F02B 2019/006 . {with thermal insulation}
 - F02B 2019/008 . . ~~variable~~ {~~variable~~ }
- U F02B 23/00 **Other engines characterised by special shape or construction of combustion chambers to improve operation(engines with incandescent chambers [F02B 9/08](#))**

NOTE

- in this group the following indexing codes are used:
[F02B 2700/02](#) to [F02B 2720/30](#)

 - U F02B 23/02 . with compression ignition
 - U F02B 23/06 . . the combustion space being arranged in working piston([F02B 23/04](#) takes precedence)
 - U F02B 23/0603 . . . {at least part of the interior volume or the wall of the combustion space being made of material different from the surrounding piston part, e.g. combustion space formed within a ceramic part fixed to a metal piston head}
 - F02B 2023/0606 {the material being a catalyst}
 - F02B 2023/0609 {the material being a porous medium, e.g. sintered metal}

	F02B 2023/0612	<ul style="list-style-type: none"> • • • {the material having a high temperature and pressure resistance, e.g. ceramic}
	F02B 2023/0615	<ul style="list-style-type: none"> • • • {the combustion space having a volume defined by revolution around an axis inclined relative to the cylinder axis}
U	F02B 23/08	<ul style="list-style-type: none"> • with positive ignition
	F02B 2023/085	<ul style="list-style-type: none"> • • {using several spark plugs per cylinder}
U	F02B 23/10	<ul style="list-style-type: none"> • • with separate admission of air and fuel into cylinder
	F02B 2023/102	<ul style="list-style-type: none"> • • • {the spark plug being placed offset the cylinder centre axis}
	F02B 2023/103	<ul style="list-style-type: none"> • • • {the injector having a multi-hole nozzle for generating multiple sprays}
	F02B 2023/106	<ul style="list-style-type: none"> • • • {Tumble flow, i.e. the axis of rotation of the main charge flow motion is horizontal}
	F02B 2023/107	<ul style="list-style-type: none"> • • • {Reverse tumble flow, e.g. having substantially vertical intake ports}
	F02B 2023/108	<ul style="list-style-type: none"> • • • {Swirl flow, i.e. the axis of rotation of the main charge flow motion is vertical}
U	F02B 29/00	Engines characterised by provision for charging or scavenging not provided for in groups F02B 25/00 , F02B 27/00 or F02B 33/00 to F02B 39/00 ; Details thereof
U	F02B 29/04	<ul style="list-style-type: none"> • Cooling of air intake supply
	F02B 2029/0487	<ul style="list-style-type: none"> • • {with all or part of the supercharged air by-passing the air cooler as a function of the supercharged air pressure}
U	F02B 31/00	Modifying induction systems for imparting a rotation to the charge in the cylinder(structural features of induction systems F02M)
	F02B 2031/003	<ul style="list-style-type: none"> • {with an auxiliary intake conduit starting upstream of personally controlled throttle valve and ending upstream of and close to the intake valve, or with an auxiliary intake conduit being an independent passage, e.g. having its own carburettor}
	F02B 2031/006	<ul style="list-style-type: none"> • {having multiple air intake valves}
U	F02B 37/00	Engines characterised by provision of pumps driven at least for part of the time by exhaust(characterised by the introduction of liquid fuel into cylinders by use of auxiliary fluid F02B 13/00 ; characterised by after-charging F02B 29/06 ; characterised by passages conducting the charge from the pump to the engine inlet F02B 33/44)
U	F02B 37/12	<ul style="list-style-type: none"> • Control of the pumps
	F02B 2037/122	<ul style="list-style-type: none"> • • {Control of rotational speed of the pump}
	F02B 2037/125	<ul style="list-style-type: none"> • • {Control for avoiding pump stall or surge}
U	F02B 37/16	<ul style="list-style-type: none"> • • by bypassing charging air{(bypassing air from the pump inlet, e.g. to the pump outlet F02B 37/127)}
	F02B 2037/162	<ul style="list-style-type: none"> • • • {by bypassing, e.g. partially, intake air from pump inlet to pump outlet}
U	F02B 39/00	Component parts, details, or accessories relating to, driven charging or scavenging pumps, not provided for in groups F02B 33/00 to F02B 37/00
U	F02B 39/16	<ul style="list-style-type: none"> • Other safety measures for, or other control of, pumps
	F02B 2039/162	<ul style="list-style-type: none"> • • {Control of pump parameters to improve safety thereof}
	F02B 2039/164	<ul style="list-style-type: none"> • • • {the temperature of the pump, of the pump drive or the pumped fluid being limited}
	F02B 2039/166	<ul style="list-style-type: none"> • • • {the fluid pressure in the pump or exhaust drive being limited}
	F02B 2039/168	<ul style="list-style-type: none"> • • • {the rotational speed of pump or exhaust drive being limited}

- U F02B 41/00** Engines characterised by special means for improving conversion of heat or pressure energy into mechanical power
- U F02B 41/02
F02B 2041/12
- Engines with prolonged expansion
 - {in jet propulsion apparatus}
- U F02B 43/00** Engines characterised by operating on gaseous fuels; Plants including such engines(engines characterised by the gas-air charge being ignited by compression ignition of an additional fuel [F02B 7/06](#) ; engines convertible from gas to other fuel consumption [F02B 69/04](#))
- NOTE
- in this group the following indexing codes are used:
[F02B 2700/02](#) to [F02B 2720/30](#)
- U F02B 43/10
- Engines or plants characterised by use of other specific gases, e.g. acetylene, oxyhydrogen
- F02B 2043/103
- {Natural gas, e.g. methane or LNG used as a fuel}
- F02B 2043/106
- {Hydrogen obtained by electrolysis}
- U F02B 53/00** Internal-combustion aspects of rotary-piston or oscillating-piston engines(internal-combustion aspects of rotary pistons or outer members for co-operation therewith [F02B 55/00](#))
- NOTE
- in this group the following indexing codes are used:
[F02B 2730/01](#) to [F02B 2730/09](#)
- F02B 2053/005
- {Wankel engines}
- U F02B 63/00** Adaptations of engines for driving pumps, hand-held tools or electric generators; Portable combinations of engines with engine-driven devices(of rotary-piston or oscillating-piston engines [F02B 53/14](#))
- U F02B 63/04
- for electric generators
- U F02B 63/044
- {the engine-generator unit being placed on a frame or in an housing}
- F02B 2063/045
- • {Frames for generator-engine sets}
- F02B 2063/046
- • {Handles adapted therefor, e.g. handles or grips for movable units}
- U F02B 75/00** Other engines
- U F02B 75/02
- Engines characterised by their cycles, e.g. six-stroke
- F02B 2075/022
- • {having less than six strokes per cycle}
- F02B 2075/023
- • • ~~one~~{one}
- F02B 2075/025
- • • ~~two~~{two}
- F02B 2075/026
- • • ~~three~~{three}
- F02B 2075/027
- • • ~~four~~{four}
- F02B 2075/028
- • • ~~five~~{five}
- U F02B 75/12
- Other methods of operation
- F02B 2075/125
- • {Direct injection in the combustion chamber for spark ignition engines, i.e. not in pre-combustion chamber}
- U F02B 75/16
- Engines characterised by number of cylinders, e.g. single-cylinder engines([F02B 75/26](#) takes precedence)
- U F02B 75/18
- Multi-cylinder engines(scavenging aspects [F02B 25/00](#))
- F02B 2075/1804
- • • {Number of cylinders}
- F02B 2075/1808
- • • • ~~two~~{two}

F02B 2075/1812	. . . . three { <i>three</i> }
F02B 2075/1816	. . . . four { <i>four</i> }
F02B 2075/182	. . . . five { <i>five</i> }
F02B 2075/1824	. . . . six { <i>six</i> }
F02B 2075/1828	. . . . seven { <i>seven</i> }
F02B 2075/1832	. . . . eight { <i>eight</i> }
F02B 2075/1836	. . . . nine { <i>nine</i> }
F02B 2075/184	. . . . ten { <i>ten</i> }
F02B 2075/1844	. . . . eleven { <i>eleven</i> }
F02B 2075/1848	. . . . twelve { <i>twelve</i> }
F02B 2075/1852	. . . . thirteen { <i>thirteen</i> }
F02B 2075/1856	. . . . fourteen { <i>fourteen</i> }
F02B 2075/186	. . . . fifteen { <i>fifteen</i> }
F02B 2075/1864	. . . . sixteen { <i>sixteen</i> }
F02B 2075/1868	. . . . twenty { <i>twenty</i> }
F02B 2075/1872	. . . . {<i>twenty-two</i> }
F02B 2075/1876	. . . . {<i>twenty-four</i> }
F02B 2075/188	. . . . thirty { <i>thirty</i> }
F02B 2075/1884	. . . . {<i>thirty-two</i> }
F02B 2075/1888	. . . . {<i>thirty-four</i> }
F02B 2075/1892	. . . . {<i>thirty-six</i> }

U F02B 77/00	Component parts, details or accessories, not otherwise provided for
U F02B 77/04	. Cleaning of, preventing corrosion or erosion in, or preventing unwanted deposits in, combustion engines{(cleaning of fuel injection apparatus F02M 65/00)}
F02B 2077/045	. . { <i>by flushing or rinsing</i> }
F02B 2077/06	. { <i>Arrangements of purifying apparatus for liquid fuel or lubricant filters</i> }

Project: N/A (F02C)

U F02C 3/00	Gas-turbine plants characterised by the use of combustion products as the working fluid (generated by intermittent combustion F02C 5/00)
U F02C 3/20	. using a special fuel, oxidant, or dilution fluid to generate the combustion products
F02C 3/205	. . { <i>in a fluidised-bed combustor (in combination with a steam cycle see F01K 23/061; fluidised-bed apparatus in general B01J 8/18; fluidised-bed combustors in general F23C11/02 F23C 10/00)</i> }

Project: N/A (F02D)

U F02D 1/00	Controlling fuel-injection pumps, e.g. of high pressure injection type(F02D 3/00 takes precedence; controlling fuel-injection electrically F02D 41/30){pumping elements on fuel pressure acting for varying fuel delivery in quantity or timing F02M}
	<u>NOTE</u>
	- in this subclass the following indexing codes are used: F02D 2700/0282 and F02D 2700/10
F02D 2001/0005	. { <i>Details, component parts or accessories of centrifugal governors</i> }

- F02D 2001/001 . . {Arrangement of centrifugal weights}
- F02D 2001/0015 . . . {the weights being cup-shaped and carrying governor springs}
- F02D 2001/002 . . {Arrangement of governor springs}
- F02D 2001/0025 . . . {having at least two springs, one of them being idling spring}
- F02D 2001/003 . . . {the main spring being active at maximum speed only}
- F02D 2001/0035 . . . {the main spring being active at all speeds, e.g. its tension varying with the load, i.e. the position of pump control}
- F02D 2001/004 . . {Arrangement of linkages between governor sleeve and pump control}
- F02D 2001/0045 . . {Arrangement of means for influencing governor characteristics by operator}
- F02D 2001/005 . . . {varying main spring tension}
- F02D 2001/0055 . . . {varying pivotal point of linkages between governor sleeve and pump control}
- F02D 2001/006 . . {Assembling; Disassembling; Replacing}
- F02D 2001/0065 . . {Selection of particular materials}
- F02D 2001/007 . {Means for adjusting stops for minimum and maximum fuel delivery}
- F02D 2001/0075 . . {using engine temperature, e.g. to adjust the idling speed at cold start}
- F02D 2001/008 . . {using intake air pressure, e.g. adjusting full load stop at high supercharging pressures}
- F02D 2001/0085 . {Arrangements using fuel pressure for controlling fuel delivery in quantity or timing}
- F02D 2001/009 . . {Means for varying the pressure of fuel supply pump according to engine working parameters}
- F02D 2001/0095 . {Mounting of control means with respect to injection apparatus or the engine}
- U F02D 1/02 . not restricted to adjustment of injection timing, e.g. varying amount of fuel delivered
- U F02D 1/08 . . Transmission of control impulse to pump control, e.g. with power drive or power assistance
- F02D 2001/082 . . . ~~electric~~{electric}
- F02D 2001/085 {using solenoids}
- F02D 2001/087 {using step motors}
- U F02D 1/16 . Adjustment of injection timing([F02D 1/02](#) takes precedence){ rotary distributor pumps [F02M 41/00](#) ; by adjustment of pumping elements [F02M 59/20](#) }
- F02D 2001/165 . . {by means dependent on engine load}
- F02D 2001/167 . . {by means dependent on engine working temperature, e.g. at cold start}
- U F02D 1/18 . . {with non-mechanical means for transmitting control impulse; with amplification of control impulse}
- U F02D 1/183 . . . {hydraulic}
- F02D 2001/186 {using a pressure-actuated piston for adjustment of a stationary cam or roller support}
- U F02D 7/00 Other fuel-injection control**
- U F02D 7/02 . Controlling fuel injection where fuel is injected by compressed air
- F02D 2007/025 . . {Controlling compressed air quantity or pressure}

NOTES

accelerator lever means a lever actuated by foot or hand (e.g. pedal).

throttle lever means a lever connected to the accelerator lever via a force transmitting element (e.g. cable, link) and mounted on the throttle axis.

U F02D 9/00 Controlling engines by throttling air or fuel-and-air induction conduits or exhaust conduits

NOTE

- in this group the following indexing codes are used: [F02D 2700/00](#) ,
[F02D 2700/02](#) , [F02D 2700/04](#) ,
[F02D 2700/09](#)

- U F02D 9/02
 - concerning induction conduits(throttle valves, or arrangements thereof in conduits [F02D 9/08](#))
- F02D 2009/0201
 - . {Arrangements; Control features; Details thereof}
- F02D 2009/0203
 - . . {Mechanical governor}
- F02D 2009/0205
 - . . {working on the throttle valve and another valve, e.g. choke}
- F02D 2009/0206
 - . . {specially positioned with relation to engine or engine housing}
- F02D 2009/0208
 - . . {for small engines}
- F02D 2009/021
 - . . {combined with an electromechanical governor, e.g. centrifuged governor and electric governor acting on the governor lever}
- F02D 2009/0211
 - . . {combined with another mechanical or pneumatic governor}
- F02D 2009/0213
 - . . {Electronic or electric governor}
- F02D 2009/0215
 - . . {Pneumatic governor}
- F02D 2009/0216
 - . . {of the air-vane type}
- F02D 2009/0218
 - . . {Details of governor springs}
- F02D 2009/022
 - . . {Throttle control function parameters}
- F02D 2009/0222
 - . . {Exhaust gas temperature}
- F02D 2009/0223
 - . . {Cooling water temperature}
- F02D 2009/0225
 - . . {Intake air or mixture temperature}
- F02D 2009/0227
 - . . {Atmospheric pressure}
- F02D 2009/0228
 - . . {Manifold pressure}
- F02D 2009/023
 - . . {Engine speed}
- F02D 2009/0232
 - . . {Fuel pump rack position}
- F02D 2009/0233
 - . . {Engine vibration}
- F02D 2009/0235
 - . . {Throttle control functions}
- F02D 2009/0237
 - . . {Increasing combustion chamber gas temperature}
- F02D 2009/0238
 - . . {Increasing ignition delay}
- F02D 2009/024
 - . . {Increasing intake vacuum}
- F02D 2009/0242
 - . . {Increasing exhaust brake effect}
- F02D 2009/0244
 - . . {Choking air flow at low speed and load}
- F02D 2009/0245
 - . . {Shutting down engine, e.g. working together with fuel cut-off}
- F02D 2009/0247
 - . . {Opening the throttle a little on engine shutdown}
- F02D 2009/0249
 - . . {Starting engine, e.g. closing throttle in Diesel engine to reduce starting torque}
- F02D 2009/025
 - . . {Opening the throttle a little during starting}
- F02D 2009/0252
 - . . {Opening a special valve-controlled intake passage (by-pass) during starting}
- F02D 2009/0254
 - . . {Mechanical control linkage between accelerator lever and throttle valve}
- F02D 2009/0255
 - . . {with means for correcting throttle position, e.g. throttle cable of variable length}

F02D 2009/0257	• • • {having a pin and slob connection ("Leerweg")}
F02D 2009/0259	• • • {having a dashpot, e.g. working in the throttle opening and closing directions}
F02D 2009/0261	• • • {having a specially shaped transmission member, e.g. a cam, specially toothed gears, with a clutch}
F02D 2009/0262	• • • {having two or more levers on the throttle shaft}
F02D 2009/0264	• • • {in which movement is transmitted through a spring}
F02D 2009/0266	• • • {in which movement is transmitted through a vacuum motor}
F02D 2009/0267	• • • {for simultaneous action of a governor and an accelerator lever on the throttle}
F02D 2009/0269	• • • {Throttle closing springs; Acting of throttle closing springs on the throttle shaft}
F02D 2009/0271	• • • {with means for closing the throttle other than throttle closing springs}
F02D 2009/0272	• • • {Two or more throttles disposed in series}
F02D 2009/0274	• • • {one being controlled by pressure in intake conduit, e.g. for slowly opening the throttle as the other valve is suddenly opened}
F02D 2009/0276	• • • {Throttle and EGR-valve operated together}
F02D 2009/0277	• • • {Fail-safe mechanisms, e.g. with limp-home feature, to close throttle if actuator fails, or if control cable sticks or breaks}
F02D 2009/0279	• • • {Throttle valve control for intake system with two parallel air flow paths, each controlled by a throttle, e.g. a resilient flap disposed on a throttle}
F02D 2009/0281	• • • {with means for detecting malfunction of one throttle and actuating only the correctly working throttle}
F02D 2009/0283	• • • {Throttle in the form of an expander}
F02D 2009/0284	• • • {Throttle control device with means for signalling a certain throttle opening, e.g. by a steplike increase of throttle closing spring force}
F02D 2009/0286	• • • {Throttle control device with accelerator lever defining a stop for opening the throttle, e.g. the throttle itself being opened by air flow, a spring}
F02D 2009/0288	• • • {Throttle control device specially adapted for spark-assisted compression-ignition engine(Diesel engine)}
F02D 2009/0289	• • • {Throttle control device with means for establishing a variable resistance torque during throttle opening}
F02D 2009/0291	• • • {Throttle control device for throttle being disposed in a two-stroke engine transfer passage}
F02D 2009/0293	• • • {Throttle control device adapted to limit power development at low attitude}
F02D 2009/0294	• • • {Throttle control device with provisions for actuating electric or electronic sensors}
F02D 2009/0296	• • • {Throttle control device with stops for limiting throttle opening or closing beyond a certain position during certain periods of operation}
F02D 2009/0298	• • • {Throttle control device with holding devices, i.e. to hold throttle in a predetermined position}
U F02D 11/00	Arrangements for, or adaptations to, non-automatic engine control initiation means, e.g. operator initiated(specially for reversing F02D 27/00 ; arrangement or mounting of prime-mover control devices in vehicles B60K 26/00) [0610]
U F02D 11/06	• characterised by non-mechanical control linkages, e.g. fluid control linkages or by control linkages with power drive or assistance
U F02D 11/10	• • of the electric type
F02D 2011/101	• • • {characterised by the means for actuating the throttles}

F02D 2011/102	• • • {at least one throttle being moved only by an electric actuator}
F02D 2011/103	• • • {at least one throttle being alternatively mechanically linked to the pedal or moved by an electric actuator}
F02D 2011/104	• • • {using electric step motors}
F02D 2011/108	• • {with means for detecting or resolving a stuck throttle, e.g. when being frozen in a position}
U F02D 13/00	Controlling the engine output power by varying inlet or exhaust valve operating characteristics, e.g. timing(modifying valve gear F01L)
F02D 2013/005	• {of throttleless spark ignited engines}
U F02D 13/02	• during engine operation
U F02D 13/028	• {for two-stroke engines}
U F02D 13/0284	• • {Variable control of exhaust valves only}
F02D 2013/0288	• • • {for cleaning the valves}
U F02D 2013/0292	• • {in the start-up phase, e.g. for warming-up cold engine or catalyst}
U F02D 2013/0296	• • {Changing the valve lift only}
U F02D 21/00	Controlling engines characterised by their being supplied with non-airborne oxygen or other non-fuel gas
U F02D 21/06	• peculiar to engines having other non-fuel gas added to combustion air
U F02D 21/08	• • the other gas being the exhaust gas of engine(circulation of exhaust gas in oxygen-fed engines F02D 21/04)
F02D 2021/083	• • • {controlling exhaust gas recirculation electronically}
F02D 2021/086	• • • {the exhaust gas recirculation valve being controlled by fuel pressure, e.g. indirectly}
U F02D 41/00	Electrical control of supply of combustible mixture or its constituents(F02D 43/00 takes precedence)
U F02D 41/0002	• {Controlling intake air}
F02D 2041/001	• • {for engines with variable valve actuation}
F02D 2041/0012	• • • {with selective deactivation of cylinders}
F02D 2041/0015	• • {for engines with means for controlling swirl or tumble flow, e.g. by using swirl valves}
F02D 2041/0017	• • {by simultaneous control of throttle and exhaust gas recirculation}
F02D 2041/002	• • {by simultaneous control of throttle and variable valve actuation}
F02D 2041/0022	• • {for diesel engines by throttle control}
U F02D 41/0025	• {Controlling engines characterised by use of non-liquid fuels, pluralities of fuels, or non-fuel substances added to the combustible mixtures}
U F02D 41/0047	• • {Controlling exhaust gas recirculation [EGR](temperature control with cooler in recirculation circuit F02M 25/0738)}
U F02D 41/0065	• • • {Specific aspects of external EGR control(constructional details of EGR system F02M 25/07)}
F02D 2041/0067	• • • • {Determining the EGR temperature}
F02D 2041/007	• • • • • {by estimation}
U F02D 41/0072	• • • • {Estimating, calculating or determining the EGR rate, amount or flow(sensors in EGR systems F02M 25/0753)}
F02D 2041/0075	• • • • • {by using flow sensors}
U F02D 41/009	• using means for generating position or synchronisation signals
F02D 2041/0092	• • {Synchronisation of the cylinders at engine start}

	F02D 2041/0095	<ul style="list-style-type: none"> • • {Synchronisation of the cylinders during engine shutdown}
U	F02D 41/02	<ul style="list-style-type: none"> • Circuit arrangements for generating control signals
U	F02D 41/021	<ul style="list-style-type: none"> • • N: Introducing corrections for particular conditions exterior to the engine(conjoint control of vehicle sub-units for propelling the vehicle B60W 30/18)]
U	F02D 41/0235	<ul style="list-style-type: none"> • • • {in relation with the state of the exhaust gas treating apparatus(control of exhaust gas treating apparatus per se F01N)}
U	F02D 41/024	<ul style="list-style-type: none"> • • • • {to increase temperature of the exhaust gas treating apparatus}
	F02D 2041/026	<ul style="list-style-type: none"> • • • • • {using an external load, e.g. by increasing generator load or by changing the gear ratio}
	F02D 2041/0265	<ul style="list-style-type: none"> • • • • • {to decrease temperature of the exhaust gas treating apparatus}
U	F02D 41/14	<ul style="list-style-type: none"> • • Introducing closed-loop corrections
U	F02D 41/1401	<ul style="list-style-type: none"> • • • {characterised by the control or regulation method(F02D 41/1473 , F02D 41/1477 take precedence)}
	F02D 2041/1409	<ul style="list-style-type: none"> • • • • {using at least a proportional, integral or derivative controller}
	F02D 2041/141	<ul style="list-style-type: none"> • • • • • {using a feed-forward control element}
	F02D 2041/1411	<ul style="list-style-type: none"> • • • • • {using a finite or infinite state machine, automaton or state graph for controlling or modelling}
	F02D 2041/1412	<ul style="list-style-type: none"> • • • • • {using a predictive controller}
	F02D 2041/1413	<ul style="list-style-type: none"> • • • • • {Controller structures or design}
	F02D 2041/1415	<ul style="list-style-type: none"> • • • • • • {using a state feedback or a state space representation}
	F02D 2041/1416	<ul style="list-style-type: none"> • • • • • • • Observer{<i>Observer</i>}
	F02D 2041/1417	<ul style="list-style-type: none"> • • • • • • • {Kalman filter}
	F02D 2041/1418	<ul style="list-style-type: none"> • • • • • • {Several control loops, either as alternatives or simultaneous}
	F02D 2041/1419	<ul style="list-style-type: none"> • • • • • • • {the control loops being cascaded, i.e. being placed in series or nested}
	F02D 2041/142	<ul style="list-style-type: none"> • • • • • • {using different types of control law in combination, e.g. adaptive combined with PID and sliding mode}
	F02D 2041/1422	<ul style="list-style-type: none"> • • • • • • • {Variable gain or coefficients}
	F02D 2041/1423	<ul style="list-style-type: none"> • • • • • • • {Identification of model or controller parameters}
	F02D 2041/1424	<ul style="list-style-type: none"> • • • • • • • {Pole-zero cancellation}
	F02D 2041/1425	<ul style="list-style-type: none"> • • • • • • • {using a bond graph model or models with nodes}
	F02D 2041/1426	<ul style="list-style-type: none"> • • • • • • • {taking into account control stability}
	F02D 2041/1427	<ul style="list-style-type: none"> • • • • • • • {Decoupling, i.e. using a feedback such that one output is controlled by only one input}
	F02D 2041/1429	<ul style="list-style-type: none"> • • • • • • • {Linearisation, i.e. using a feedback law such that the system evolves as a linear one}
	F02D 2041/143	<ul style="list-style-type: none"> • • • • • • • {the control loop including a non-linear model or compensator}
	F02D 2041/1431	<ul style="list-style-type: none"> • • • • • • • {the system including an input-output delay}
	F02D 2041/1432	<ul style="list-style-type: none"> • • • • • • • {the system including a filter, e.g. a low pass or high pass filter}
	F02D 2041/1433	<ul style="list-style-type: none"> • • • • • • • {using a model or simulation of the system}
	F02D 2041/1434	<ul style="list-style-type: none"> • • • • • • • {Inverse model}
	F02D 2041/1436	<ul style="list-style-type: none"> • • • • • • • {Hybrid model}
	F02D 2041/1437	<ul style="list-style-type: none"> • • • • • • • Simulation{<i>Simulation</i>}
U	F02D 41/1438	<ul style="list-style-type: none"> • • • {using means for determining characteristics of the combustion gases; Sensors therefor}
U	F02D 41/1444	<ul style="list-style-type: none"> • • • • {characterised by the characteristics of the combustion gases}

- F02D 2041/1468 {the characteristics being an ammonia content or concentration of the exhaust gases}
- F02D 2041/1469 {with determination means using an estimation}
- F02D 2041/147 {the characteristics being a hydrogen content or concentration of the exhaust gases}
- F02D 2041/1472 {the characteristics being a humidity or water content of the exhaust gases}
- U F02D 41/20 . Output circuits, e.g. for controlling currents in command coils(current control in inductive loads in general [H03K 17/64](#))
- F02D 2041/2003 . . {using means for creating a boost voltage, i.e. generation or use of a voltage higher than the battery voltage, e.g. to speed up injector opening}
- F02D 2041/2006 . . . {by using a boost capacitor}
- F02D 2041/201 . . . {by using a boost inductance}
- F02D 2041/2013 . . . {by using a boost voltage source}
- F02D 2041/2017 . . {using means for creating a boost current or using reference switching}
- F02D 2041/202 . . {characterised by the control of the circuit}
- F02D 2041/2024 . . . {the control switching a load after time-on and time-off pulses}
- F02D 2041/2027 {Control of the current by pulse width modulation or duty cycle control}
- F02D 2041/2031 . . . {Control of the current by means of delays or monostable multivibrators}
- F02D 2041/2034 . . . {Control of the current gradient}
- F02D 2041/2037 . . . {for preventing bouncing of the valve needle}
- F02D 2041/2041 . . . {for controlling the current in the free-wheeling phase}
- F02D 2041/2044 . . . {using pre-magnetisation or post-magnetisation of the coils}
- F02D 2041/2048 . . . {said control involving a limitation, e.g. applying current or voltage limits}
- F02D 2041/2051 . . . {using voltage control}
- F02D 2041/2055 . . . {with means for determining actual opening or closing time}
- F02D 2041/2058 . . . {using information of the actual current value}
- F02D 2041/2062 {the current value is determined by simulation or estimation}
- F02D 2041/2065 . . . {the control being related to the coil temperature}
- F02D 2041/2068 . . {characterised by the circuit design or special circuit elements}
- F02D 2041/2072 . . . {Bridge circuits, i.e. the load being placed in the diagonal of a bridge to be controlled in both directions}
- F02D 2041/2075 . . . {Type of transistors or particular use thereof}
- F02D 2041/2079 . . . {the circuit having several coils acting on the same anchor}
- F02D 2041/2082 . . . {the circuit being adapted to distribute current between different actuators or recuperate energy from actuators}
- F02D 2041/2086 . . {with means for detecting circuit failures}
- F02D 2041/2089 . . . {detecting open circuits}
- F02D 2041/2093 . . . {detecting short circuits}
- U F02D 41/22 . Safety or indicating devices for abnormal conditions{(in air/fuel ratio feedback systems [F02D 41/1495](#) , in electric control linkage [F02D 11/107](#) , in purge control systems [F02M 25/0809](#))}
- U F02D 41/222 . . {relating to the failure of sensors or parameter detection devices}
- F02D 2041/223 . . . {Diagnosis of fuel pressure sensors}
- F02D 2041/224 . . {Diagnosis of the fuel system}
- F02D 2041/225 . . . {Leakage detection}

F02D 2041/226	• • • {Fail safe control for fuel injection pump}
F02D 2041/227	• • {Limping Home, i.e. taking specific engine control measures at abnormal conditions}
F02D 2041/228	• • {Warning displays}
U F02D 41/24	• characterised by the use of digital means
U F02D 41/26	• • using computer, e.g. microprocessor
U F02D 41/28	• • • Interface circuits
F02D 2041/281	• • • • {between sensors and control unit}
F02D 2041/283	• • • • • {the sensor directly giving at least one digital reading}
F02D 2041/285	• • • • • {the sensor having a signal processing unit external to the engine control unit.}
F02D 2041/286	• • • • {comprising means for signal processing}
F02D 2041/288	• • • • • {for performing a transformation into the frequency domain, e.g. Fourier transformation}
F02D 41/30	• {Controlling fuel injection({ F02D 41/18 A F02D41/18A , } F02D 41/24 take precedence)}
U F02D 41/3011	• • {according to or using specific or several modes of combustion}
U F02D 41/3017	• • • {characterised by the mode(s) being used}
F02D 2041/3052	• • • • {the mode being the stratified charge compression-ignition mode}
F02D 2041/3088	• • {for air assisted injectors}
U F02D 41/38	• • of the high pressure type
U F02D 41/3809	• • • {Common rail control systems(common rail apparatus F02M 55/025 , F02M 63/0225)}
F02D 2041/3881	• • • • {with multiple common rails, e.g. one rail per cylinder bank, or a high pressure rail and a low pressure rail}
F02D 2041/389	• • • {for injecting directly into the cylinder}

Project: N/A (F02F)

U F02F 1/00	Cylinders; Cylinder heads(in general F16J)
F02F 2001/006	• {having a ring at the inside of a liner or cylinder for preventing the deposit of carbon oil particles, e.g. oil scrapers}
F02F 2001/008	• {Stress problems, especially related to thermal stress}
U F02F 1/02	• having cooling means(cylinder heads F02F 1/26)
U F02F 1/10	• • for liquid cooling
F02F 2001/104	• • • {using an open deck, i.e. the water jacket is open at the block top face}
F02F 2001/106	• • • {using a closed deck, i.e. the water jacket is not open at the block top face}
U F02F 1/24	• Cylinder heads
F02F 2001/241	• • {specially adapted to pent roof shape of the combustion chamber}
F02F 2001/244	• • {Arrangement of valve stems in cylinder heads}
F02F 2001/245	• • • {the valve stems being orientated at an angle with the cylinder axis}
F02F 2001/246	• • • • {and orientated radially from the combustion chamber surface}
F02F 2001/247	• • • {the valve stems being orientated in parallel with the cylinder axis}
F02F 2001/248	• • {Methods for avoiding thermal stress-induced cracks in the zone between valve seat openings}
F02F 2001/249	• • {with flame plate, e.g. insert in the cylinder head used as a thermal insulation between cylinder head and combustion chamber}
U F02F 1/42	• • Shape or arrangement of intake or exhaust channels in cylinder heads

- F02F 2001/4207
 - • • {Arrangements with one conduit connected with two valves; Arrangements connecting one valve with two conduits}
- U F02F 1/4264
 - • • {of exhaust channels}
- F02F 2001/4278
 - • • • {Exhaust collectors}
- U F02F 3/00** **Pistons(in general [F16J](#))**
 - F02F 2003/0007
 - {Monolithic pistons; One piece constructions; Casting of pistons}
 - U F02F 3/0015
 - {Multi-part pistons}
 - U F02F 3/003
 - • {the parts being connected by casting, brazing, welding or clamping}
 - F02F 2003/0038
 - • • {by brazing}
 - F02F 2003/0046
 - • • {by crimping}
 - F02F 2003/0053
 - • • {by soldering}
 - F02F 2003/0061
 - • • {by welding}
- U F02F 7/00** **Casings, e.g. crankcases(engine casings in general [F16M](#)){or frames}**
 - U F02F 7/0021
 - {Construction}
 - F02F 2007/0041
 - • {Fixing Bolts}
 - U F02F 7/0043
 - {Arrangements of mechanical drive elements}
 - U F02F 7/0053
 - • {Crankshaft bearings fitted in the crankcase}
 - F02F 2007/0056
 - • • {using bearing beams, i.e. bearings interconnected by a beam or multiple beams}
 - U F02F 7/006
 - {Camshaft or pushrod housings(oil sumps [F01M 11/0004](#))}
 - F02F 2007/0063
 - • {Head bolts; Arrangements of cylinder head bolts}
 - U F02F 7/0065
 - {Shape of casings for other machine parts and purposes, e.g. utilisation purposes, safety}
 - U F02F 7/0073
 - • {Adaptations for fitting the engine, e.g. front-plates or bell-housings}
 - F02F 2007/0075
 - • • {Front covers}
 - F02F 2007/0078
 - • • {Covers for belt transmissions}
 - U F02F 7/0085
 - {Materials for constructing engines or their parts}
 - F02F 2007/009
 - • {Hypereutectic aluminum, e.g. aluminum alloys with high Si content}
 - F02F 2007/0092
 - • {Transparent materials}
 - F02F 2007/0097
 - {for large diesel engines}

Project: N/A (F02K)

- U F02K 9/00** **Rocket- engine plants, i.e. plants carrying both fuel and oxidant therefor; Control thereof (chemical composition of propellants [C06B](#), [C06D](#)){ launching apparatus for rockets [F41F 3/04](#); explosive charges, ammunition [F42B](#)}**
- U F02K 9/08
 - using solid propellants ([F02K 9/72](#) takes precedence; using semi-solid or pulverulent propellants [F02K 9/70](#)){cartridges for producing gas under pressure [F42B 3/04](#)}
- F02K 9/26
 - • Burning control {(~~[F02K 9/10](#), [F02K 9/34](#), [F02K 9/86](#), [F02K 9/92](#) and [F02K 9/94](#)~~~~[TAKE precedence](#)~~[F02K 9/10](#), [F02K 9/34](#), [F02K 9/86](#), [F02K 9/92](#) and [F02K 9/94](#) take precedence)}

Project: N/A (F02M)

- U F02M 3/00** **Idling devices (with means for facilitating idling below operational temperatures [F02M 1/00](#))**
- U F02M 3/06
 - Increasing idling speed

	F02M 2003/067	<ul style="list-style-type: none"> • {the valve for controlling the cross-section of the conduit being rotatable, but not being a screw-like valve }
U	F02M 3/08	<ul style="list-style-type: none"> • Other details of idling devices (fighting ice-formation by heating idling ports F02M 15/02)
U	F02M 3/10	<ul style="list-style-type: none"> • Fuel metering pins; nozzles
	F02M 2003/105	<ul style="list-style-type: none"> • • {Needle adjustment limiter caps }
U	F02M 23/00	Apparatus for adding secondary air to fuel-air mixture
	F02M 2023/008	<ul style="list-style-type: none"> • {by injecting compressed air directly into the combustion chamber }
U	F02M 25/00	Engine-pertinent apparatus for adding non-fuel substances or small quantities of secondary fuel to combustion-air, main fuel, or fuel-air mixture (F02M 43/00 takes precedence; adding secondary air to fuel-air mixture F02M 23/00)
U	F02M 25/06	<ul style="list-style-type: none"> • adding lubricant vapours or exhaust gases
U	F02M 25/07	<ul style="list-style-type: none"> • • adding exhaust gases; { Exhaust gas recirculation (EGR)}
	F02M 2025/0757	<ul style="list-style-type: none"> • • • {Arrangements; Control features; Details }
	F02M 2025/0759	<ul style="list-style-type: none"> • • • • {EGR valve being controlled by vacuum or overpressure}
	F02M 2025/076	<ul style="list-style-type: none"> • • • • • {Intake vacuum or overpressure modulating valve}
	F02M 2025/0761	<ul style="list-style-type: none"> • • • • {EGR valve controlled by air measuring device}
	F02M 2025/0762	<ul style="list-style-type: none"> • • • • {EGR valve controlled by a temperature signal or an air/fuel ratio (lambda) signal}
	F02M 2025/0763	<ul style="list-style-type: none"> • • • • {EGR valve controlled by an engine speed signal}
	F02M 2025/0764	<ul style="list-style-type: none"> • • • • {EGR valve controlled by inertia, e.g. having a pendulum controlling the EGR valve}
	F02M 2025/0765	<ul style="list-style-type: none"> • • • • {EGR specially adapted for intake systems having two or more fuel injectors per cylinder}
	F02M 2025/0767	<ul style="list-style-type: none"> • • • • {EGR specially adapted for engines having two or more spark plugs per cylinder}
	F02M 2025/0768	<ul style="list-style-type: none"> • • • • {EGR specially adapted for engines having a combustion chamber divided by the piston at TDC into two or more sub-chambers}
	F02M 2025/0769	<ul style="list-style-type: none"> • • • • {EGR combined with means to change air/fuel ratio, ignition timing, charge swirl in the cylinder}
U	F02M 25/08	<ul style="list-style-type: none"> • adding fuel vapours drawn from engine fuel reservoir {(electrical control of purge system F02D 41/003)}
	F02M 2025/0845	<ul style="list-style-type: none"> • • {Electromagnetic valves }
	F02M 2025/0863	<ul style="list-style-type: none"> • • {with means dealing with condensed fuel or water, e.g. having a liquid trap }
	F02M 2025/0881	<ul style="list-style-type: none"> • • {with means to heat or cool the canister }
U	F02M 27/00	Apparatus for treating combustion-air, fuel, or fuel-air mixture, by catalysts, electric means, magnetism, rays, sound waves, or the like
U	F02M 27/04	<ul style="list-style-type: none"> • by electric means, {ionisation, polarisation} or magnetism
	F02M 2027/047	<ul style="list-style-type: none"> • • {with a pulsating magnetic field }
U	F02M 35/00	Combustion-air cleaners, air intakes, intake silencers, or induction systems specially adapted for, or arranged on, internal-combustion engines (air cleaners in general B01D)
U	F02M 35/02	<ul style="list-style-type: none"> • Air cleaners
	F02M 2035/0211	<ul style="list-style-type: none"> • • {acting by electric discharge; Electrostatic precipitators therefor }

- U F02M 37/00** Apparatus or systems for feeding liquid fuel from storage containers to carburettors or fuel-injection apparatus (**F02M 69/00** takes precedence; fuel injection apparatus characterised by their conduits and venting means **F02M 55/00**; fuel injection apparatus having a common rail **F02M 63/0225**; control of fuel feeding **F02D 33/003**; feeding liquid fuel to combustion apparatus, in general **F23K 5/00**; fuel supply to apparatus for generating combustion products of high pressure or high velocity **F23R 3/28**); Arrangements for purifying liquid fuel specially adapted for, or arranged on, internal-combustion engines (separating apparatus, filters per se **B01D**; centrifuges **B04B**)
- F02M 2037/0005 • {with means for damping pressure pulsations }
 - U F02M 37/04 • Feeding by means of driven pumps (pump construction **F04**)
 - U F02M 37/08 • • electrically driven
 - F02M 2037/082 • • • {Details of the entry of the current supply lines into the pump housing, e.g. wire connectors, grommets, plugs or sockets }
 - F02M 2037/085 • • • {Electric circuits therefor }
 - F02M 2037/087 • • • • {Controlling fuel pressure valve }
 - U F02M 37/22 • Arrangements for purifying liquid fuel specially adapted for, or arranged on, internal-combustion engines, e.g. arrangement in the feeding system
 - F02M 2037/225 • • {having pump means in the filter housing }
 - F02M 2037/226 • • {having pressure regulator means in the filter housing }
 - F02M 2037/228 • • {Fuel tank strainers }
- U F02M 41/00** **Fuel-injection apparatus with two or more injectors fed from a common pressure-source sequentially by means of a distributor**
- NOTE
- in this group the following indexing codes are used: **F02M 2700/1329**
- U F02M 41/08 • the distributor and pumping elements being combined
 - U F02M 41/14 • • rotary distributor supporting pump pistons
 - F02M 2041/1438 • • • {Arrangements or details pertaining to the devices classified in **F02M 41/14** and subgroups }
 - F02M 2041/1444 • • • • {Feed-pumps; Arrangements or pressure regulation therefor }
 - F02M 2041/145 • • • • {Throttle valves for metering fuel to the pumping chamber }
 - F02M 2041/1455 • • • • {Shuttles per se, or shuttles associated with throttle valve for metering fuel admitted to the pumping chamber }
 - F02M 2041/1461 • • • • {Axial displacement of rotor for varying piston stroke or for controlling fuel passages }
 - F02M 2041/1466 • • • • {Piston-stroke variation by other means than axial displacement of rotor }
 - F02M 2041/1472 • • • • {Devices for limiting maximum delivery or for providing excess fuel for starting or for correcting advance at starting }
 - F02M 2041/1477 • • • • {Releasing fuel pressure or adjusting quantity-time characteristics of fuel delivery, e.g. by conducting pressurised fuel to a variable volume space, an accumulator or a return conduit }
 - F02M 2041/1483 • • • • {Variably timed valves controlling fuel passages, e.g. sleeve-valves mounted on the rotor }
 - F02M 2041/1488 • • • • {Electric actuation of valves or other parts }
 - F02M 2041/1494 • • • • {Details of cams, tappets, rotors, venting means, specially arranged valves, e.g. in the rotor }
- U F02M 51/00** **Fuel-injection apparatus characterised by being operated electrically**

- U F02M 51/06 · Injectors peculiar thereto { with means directly operating the valve needle}
- F02M 2051/08 · · {Specially for low-pressure fuel-injection}

Project: N/A (F02N)

- U F02N 11/00 **Starting of engines by means of electric motors(arrangement or mounting of prime-movers consisting of electric motors and internal combustion engines for mutual or common propulsion [B60K 6/20](#))**
- U F02N 11/08 · Circuits{or control means}specially adapted for starting of engines
- U F02N 11/087 · · {Details of the switching means in starting circuits, e.g. relays or electronic switches}
- U F02N 2011/0874 · · · {characterised by said switch being an electronic switch}
- U F02N 2011/0877 · · · {said switch being used as a series-parallel switch, e.g. to switch circuit elements from series to parallel connection}
- F02N 2011/0881 · · {Components of the circuit not provided for by previous groups}
- F02N 2011/0885 · · · {Capacitors, e.g. for additional power supply}
- F02N 2011/0888 · · · {DC/DC converters}
- F02N 2011/0892 · · · {Two coils being used in the starting circuit, e.g. in two windings in the starting relay or two field windings in the starter}
- F02N 2011/0896 · · · {Inverters for electric machines, e.g. starter-generators}
- U F02N 15/00 **Other power-operated starting apparatus; Component parts, details, or accessories, not provided for in, or of interest apart from groups [F02N 5/00](#) to [F02N 13/00](#)**
- U F02N 15/02 · Gearing between starting-engines and started engines; Engagement or disengagement thereof
- U F02N 15/04 · · the gearing including disengaging toothed gears
- U F02N 15/06 · · · the toothed gears being moved by axial displacement
- F02N 2015/061 · · · · {said axial displacement being limited, e.g. by using a stopper}
- U F02N 19/00 **Starting aids for combustion engines, not otherwise provided for**
- F02N 2019/002 · {Aiding engine start by acting on fuel}
- U F02N 19/005 · {Aiding engine start by starting from a predetermined position, e.g. pre-positioning or reverse rotation}
- F02N 2019/007 · · {using inertial reverse rotation}
- F02N 2019/008 · · {the engine being stopped in a particular position}

Project: N/A (F02P)

- U F02P 15/00 **Electric spark ignition having characteristics not provided for in, or of interest apart from, groups [F02P 1/00](#) to [F02P 13/00](#) {and combined with layout of ignition circuits (not combined [F02B](#), [F02C](#), [F02G](#), [F02K](#))}**
- U F02P 15/001 · {Ignition installations adapted to specific engine types (ignition of jet propulsion plants [F02K 9/95](#); for rotary piston engines [F02B 53/12](#))}
- F02P 15/003 · · {Layout of ignition circuits for gas turbine plants (ignition of gas turbine plants per se [F02C 7/26](#)[F02C 7/26](#))}
- F02P 15/005 · · {Layout of ignition circuits for rotary- or oscillating piston engines (ignition of those engines per se [F02B 53/12](#)[F02B 53/12](#))}
- U F02P 17/00 **Testing of ignition installations, e.g. in combination with adjusting (testing fuel injection apparatus [F02M 65/00](#); testing ignition installations in general [F23Q 23/00](#)); Testing of ignition timing in compression-ignition engines**
- F02P 2017/003 · {using an inductive sensor, e.g. trigger tongs }

- F02P 2017/006
- U F02P 17/12
 - {using a capacitive sensor }
 - Testing characteristics of the spark, ignition voltage or current (testing of sparking plugs [H01T 13/60](#))
- F02P 2017/121
- F02P 2017/123
 - • {by measuring spark voltage }
 - • {Generating additional sparks for diagnostics }
- F02P 2017/125
 - • {Measuring ionisation of combustion gas, e.g. by using ignition circuits }
- F02P 2017/126
 - • • {for burners }
- F02P 2017/128
 - • • {for knock detection }
- U F02P 21/00
 - Direct use of flames or burners for ignition
- F02P 21/04
 - Burning-cartridges or like inserts being arranged in engine working chambers (as starting aid [F02N17/02](#)[F02N 19/02](#))

Project: N/A (F03B)

- U F03B 3/00
 - Machines or engines of reaction type; Parts or details peculiar thereto
- F03B 3/04
 - with substantially axial flow throughout rotors, e.g. propeller turbines {(rotors per se [F03B3/14D](#)[F03B 3/126](#))}

Project: N/A (F03C)

- U F03C 1/00
 - Reciprocating-piston liquid engines
- F03C 1/02
 - with multiple-cylinders, characterised by the number or arrangement of cylinders (with movable cylinders [F03C 1/22](#); of flexible-wall type [F03C5/02](#)[F03C 7/00](#))
- U F03C 1/08
 - Distributing valve-gear peculiar thereto (for engines with positive-displacement in general [F01L](#)); {[F03C 1/06](#) takes precedence}
- U F03C 1/10
 - • actuated by piston or piston-rod
- F03C 1/12
 - • • mechanically (~~[F03C1/18](#) takes precedence~~)

Project: N/A (F03G)

- U F03G 6/00
 - Devices for producing mechanical power from solar energy (solar boilers [F24](#))
- F03G 2006/006
 - {Soles pond }
- F03G 2006/008
 - {with a tower }
- U F03G 6/06
 - with means for concentrating solar rays (means per se [F24J 2/06](#))
- F03G 2006/061
 - • {Parabolic linear concentrator }
- F03G 2006/062
 - • {Parabolic point concentrator }
- U F03G 7/00
 - Mechanical-power-producing mechanisms, not otherwise provided for or using energy sources not otherwise provided for {(micro-structural devices or systems, e.g. micro-mechanical devices [B81B](#))}
- F03G 2007/007
 - {using heat pumps }

Project: N/A (F04B)

- F04B 13/00
 - Pumps specially modified to deliver fixed or variable measured quantities (for transferring liquid from bulk storage containers or reservoirs into vehicles or into portable containers [B67D5/40](#)[B67D 7/58](#))
- U F04B 15/00
 - Pumps adapted to handle specific fluids, e.g. by selection of specific materials for pumps or pump parts
- U F04B 15/02
 - the fluids being viscous or non-homogeneous

- F04B 2015/026
 - • {with a priming plunger or piston ahead of the pumping piston and connected on the same piston rod }
- U F04B 15/06
 - for liquids near their boiling point, e.g. under subnormal pressure
- U F04B 15/08
 - • the liquids having low boiling points
- F04B 2015/081
 - • • {Liquified gases }
- F04B 2015/0812
 - • • • Air-{Air }
- F04B 2015/0814
 - • • • Argon-{Argon }
- F04B 2015/0816
 - • • • {Carbon monoxide }
- F04B 2015/0818
 - • • • {Carbon dioxide }
- F04B 2015/082
 - • • • Helium-{Helium }
- F04B 2015/0822
 - • • • Hydrogen-{Hydrogen }
- F04B 2015/0824
 - • • • Nitrogen-{Nitrogen }
- F04B 2015/0826
 - • • • Oxygen-{Oxygen }
- U F04B 19/00

Machines or pumps having pertinent characteristics not provided for in, or of interest apart from, groups [F04B 1/00](#) to [F04B 17/00](#)
- F04B 19/04
 - Pumps for special use (for transferring liquids from bulk storage containers or reservoirs into vehicles or into portable containers [B67D5/40](#) [B67D 7/58](#))
- U F04B 27/00

Multi-cylinder pumps characterised by number or arrangement of cylinders ([F04B 25/00](#) takes precedence; control of reciprocating machines or pumps in general [F04B 49/00](#))
- U F04B 27/08
 - having cylinders coaxial with, or parallel or inclined to, main shaft axis
- U F04B 27/14
 - • Control
- U F04B 27/16
 - • • of pumps with stationary cylinders
- U F04B 27/18
 - • • • by varying the relative positions of a swash plate and a cylinder block
- U F04B 27/1804
 - • • • • {Controlled by crankcase pressure}
- F04B 2027/1809
 - • • • • • {Controlled pressure }
- F04B 2027/1813
 - • • • • • {Crankcase pressure }
- F04B 2027/1818
 - • • • • • {Suction pressure }
- F04B 2027/1822
 - • • • • • {Valve-controlled fluid connection }
- F04B 2027/1827
 - • • • • • {between crankcase and discharge chamber }
- F04B 2027/1831
 - • • • • • {between crankcase and suction chamber }
- F04B 2027/1836
 - • • • • • {between crankcase and working chamber }
- F04B 2027/184
 - • • • • • {Valve controlling parameter }
- F04B 2027/1845
 - • • • • • {Crankcase pressure }
- F04B 2027/185
 - • • • • • {Discharge pressure }
- F04B 2027/1854
 - • • • • • {External parameters }
- F04B 2027/1859
 - • • • • • {Suction pressure }
- F04B 2027/1863
 - • • • • • {with an auxiliary valve, controlled by }
- F04B 2027/1868
 - • • • • • {Crankcase pressure }
- F04B 2027/1872
 - • • • • • {Discharge pressure }
- F04B 2027/1877
 - • • • • • {External parameters }
- F04B 2027/1881
 - • • • • • {Suction pressure }
- F04B 2027/1886
 - • • • • • {Open (not controlling) fluid passage }
- F04B 2027/189
 - • • • • • {between crankcase and discharge chamber }
- F04B 2027/1895
 - • • • • • {between crankcase and suction chamber }

U F04B 2201/00**Pump parameters**

U F04B 2201/02
F04B 2201/021

- Piston parameters
- • Rotational speed of a piston rotating around its own axis (~~F04B 7/06~~ **F04B 7/06**)

Project: N/A (F04C)**U F04C 2210/00****Fluid**

F04C 2210/26

- Refrigerants with particular properties, e.g. HFC-~~134a~~ **134a**

Project: N/A (F04D)**U F04D 27/00****Control, e.g. regulation, of pumps, pumping installations or systems**WARNING

This group is not complete pending a reorganisation. See also group [F04D 27/02](#) which covers also control in general not focussing on surge control

F04D 27/002

- {by varying geometry within the pumps, e.g. by adjusting vanes}

WARNING

This group is not complete pending a reorganisation. See also group ~~F04D 27/02-G~~ **F04D27/02C**

F04D 27/004

- {by varying driving speed}

WARNING

This group is not complete pending a reorganisation. See also group ~~F04D 27/02-F~~ **F04D27/02F**

F04D 27/006

- {by influencing fluid temperatures}

WARNING

This group is not complete pending a reorganisation. See also group ~~F04D 27/02-K~~ **F04D27/02K**

F04D 27/007

- {Conjoint control of two or more different functions}

WARNING

This group is not complete pending a reorganisation. See also group ~~F04D 27/02-L~~ **F04D27/02L**

F04D 27/009

- {by bleeding, by passing or recycling fluid}

WARNING

This group is not complete pending a reorganisation. See also group ~~F04D 27/02-B~~ **F04D27/02B**

Project: N/A (F05B)**U F05B 2210/00****Working fluid**NOTE

Indexing codes of group [F05B 2210/00](#) can be followed by a name for a specific working fluid preceded by the "+" sign, e.g. [F05B 2210/11](#)+water.

U F05B 2210/10
F05B 2210/14

- Kind or type
- • Refrigerants with particular properties, e.g. HFC-~~134a~~ **134a**

Project: N/A (F05D)

- U F05D 2220/00** **Application**
F05D 2220/90
• in vehicles adapted for vertical or short take off and landing (v/stol vehicles);
(gas turbines providing direct vertical lift **R05D220/38**)
- U F05D 2250/00** **Geometry**
NOTE
Geometry indicates the shape or form of a component or the configuration or arrangement of components in a machine or in a plant
- U F05D 2250/80**
F05D 2250/84
• Size or power range of the machines
• • Nanomachines (Nanotechnology for interacting, sensing or actuating **Y01N8/00**)
- U F05D 2270/00** **Control**
U F05D 2270/01
F05D 2270/14
• Purpose of the control system
• • to control thermoacoustic behaviour in the combustion chambers
(counteracting noise or vibration **F05D260/96** **F05D 2260/96**)
- U F05D 2300/00** **Materials; Properties thereof**
F05D 2300/30
• Inorganic materials other than provided for in groups **F05D300/10**
F05D 2300/10 to **F05D300/2291** **F05D 2300/2291**

Project: N/A (F15B)

- U F15B 11/00** **Servomotor systems without provision for follow-up action;{Circuits therefor}{ F15B 3/00 takes precedence }**
- U F15B 11/02**
• Systems essentially incorporating special features for controlling the speed or actuating force of an output member
- U F15B 11/024**
• • by means of differential connection of the servomotor lines, e.g. regenerative circuits({ interconnecting valve details **F15B 13/021**)}
F15B 2011/0243
• • • {the regenerative circuit being activated or deactivated automatically}
F15B 2011/0246
• • • {with variable regeneration flow}
- F15B 13/00** **Details of servomotor systems({ F15B 1/04 , F15B1/06 F15B 1/26 , F15B 3/00 , F15B 7/08 , F15B 11/02 , F15B 11/10 , F15B 15/00 take precedence; Valves for servomotor systems })**
- F15B 2013/002
• {Modular valves, i.e. consisting of an assembly of interchangeable components}
- F15B 2013/004
• • {Cartridge valves}
- F15B 2013/006
• • {Modular components with multiple uses, e.g. kits for either normally-open or normally-closed valves, interchangeable or reprogrammable manifolds}
- F15B 2013/008
• {Throttling member profiles}
- U F15B 13/02**
• Fluid distribution or supply devices characterised by their adaptation to the control of servomotors({ **F15B 11/15** takes precedence } ; multiple-way valves **F16K 11/00**)
- WARNING
Subgroups **F15B 13/023** to **F15B 13/029** are not complete, see **F15B 13/02**
- U F15B 13/04**
• • for use with a single servomotor
- U F15B 13/0401**
F15B 2013/0409
F15B 2013/041
• • • {Valve members; Fluid interconnections therefor}
• • • • {Position sensing or feedback of the valve member}
• • • • {with two positions}

- F15B 2013/0412 {with three positions}
- F15B 2013/0413 {with four or more positions}
- F15B 2013/0414 {Dosing devices}
- U F15B 13/042 operated by fluid pressure{([F15B 13/0401](#) , [F15B 13/0416](#) take precedence)}
- F15B 13/0422 {with manually-operated pilot valves, e.g. joysticks(arrangements of handles or pedals for cranes [B66C 13/54](#) ; control levers for dredgers and soil shifting machines [E02F 9/2004](#) ; similar mechanical control actuators [G05G9/049](#)[G05G 9/047](#))}
- F15B 2013/0428 {with switchable internal or external pilot pressure source}
- U F15B 13/044 operated by electrically-controlled means, e.g. solenoids, torque-motors{(electrically-controlled pilot valves [F15B 13/043](#))}
- F15B 2013/0448 {Actuation by solenoid and permanent magnet}
- U **F15B 15/00** **Fluid-actuated devices for displacing a member from one position to another(motors for continuous movement [F01](#) to [F03](#)); Gearing associated therewith**
- U F15B 15/08 . . characterised by the construction of the motor unit(pistons, cylinders, packing [F16J](#))
- F15B 15/088 . . {the motor using combined actuation, e.g. electric and fluid actuation}
WARNING
Not complete, see also [F15B 15/08](#) , ~~[F15B 15/20](#)~~ ~~[MF15B15/20M](#)~~
- F15B 15/10 . . the motor being of diaphragm type(connection of valves to inflatable elastic bodies ~~[B60C 29/00](#)~~[B60C 29/00](#); diaphragms, bellows [F16J 3/00](#) ; { clutches with a fluid-actuated elastic clutching member [F16D 25/04](#))}
- U F15B 15/14 . . of the straight-cylinder type
- F15B 2015/1495 {with screw mechanism attached to the piston}
- U F15B 15/20 . . Other details{e.g. assembly with regulating devices}
- F15B 2015/206 {Combined actuation, e.g. electric and fluid actuated}
- F15B 2015/208 {Special fluid pressurisation means, e.g. thermal or electrolytic}
- U F15B 15/26 . . Locking mechanisms{(locking valves not combined with the actuator [F15B 13/01](#))}
- F15B 2015/267 {Manual locking or release}
- F15B 2015/268 {Fluid supply for locking or release independent of actuator pressurisation}

Project: N/A (F15C)

- U **F15C 1/00** **Circuit elements having no moving parts**
- F15C 1/003 . . { for process regulation, (e.g. chemical processes, in boilers or the like); for machine tool control (e.g. sewing machines, automatic washing machines); for liquid level control; for controlling various mechanisms; for alarm circuits; for ac-dc transducers for control purposes (automatic washing machines [D06F 33/00](#); electric regulation of mechanical working machines [B23Q 35/00](#), [G05B 19/00](#); ~~data processing machines for controlling production processes~~ ~~[G06F15/46](#)~~ ; valve-controlled servomotors [F15B 9/08](#); thread feeding devices for sewing machines [D05B 51/00](#); special provisions on lathes [B23B 25/00](#), [B23Q](#); non-electric signal transmission [G08C 23/00](#))}

Project: N/A (F16B)

F16B

DEVICES FOR FASTENING OR SECURING CONSTRUCTIONAL ELEMENTS OR MACHINE PARTS TOGETHER, e.g. NAILS, BOLTS, CIRCLIPS, CLAMPS, CLIPS, WEDGES, JOINTS OR JOINTING

NOTES

Attention is drawn to:

the Note following group [E04B 1/38](#) [E04B 1/38](#);
the following places:

A44B	Buckles, slide fasteners
A47G 3/00	Ornamental heads for nails, screws, or the like
B42F 3/00	Means, not using staples, for attaching sheets temporarily together
{ C14B 17/08	Fastening devices, e.g. clips for leather-stretching used in apparatus or machines for manufacturing or treating skins, hides, leathers or furs}
E01B 9/10	Screws or bolts for railway sleepers
E01B 11/00	Rail joints
E04	Connections for building
E04D 13/08	Clamping means for down pipes for roof drainage
E04G 5/04	Fastening scaffolds against buildings
E04G 7/00	Scaffolding couplings
E05C	Bolts for fasteners for wings, specially for doors or windows
F16C 29/10	Locking bearings for parts moving only linearly
F16G 17/00	Hooks as integral parts of chains
F16L	Pipe joints
F16L 3/00	Supports for pipes, cables or protective tubing, e.g. hangers, holders, clamps, cleats, clips, brackets
F16L 33/02	Clips for connecting hoses to rigid members
H01F 7/00	Magnetic holding devices
H02N 13/00	Electrostatic holding devices.

Groups [F16B 2/00](#) to [F16B 47/00](#) take precedence over group [F16B 1/00](#).

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

F16B 7/08	covered by	F16B 5/12 , F16B 7/04 , F16L 3/00
F16B 7/12	" "	F16B 7/105
F16B 7/16	" "	F16B 7/14
F16B 13/10	" "	F16B 13/08
F16B 13/13	" "	F16B 13/002 , F16B 13/12
F16B 21/14	" "	F16B 21/12 , F16B 21/125
F16B 25/02	" "	F16B 25/00
F16B 25/04	" "	F16B 25/00
F16B 25/06	" "	F16B 25/00
F16B 25/08	" "	F16B 25/00
F16B 33/04	" "	F16B 33/02
F16B 37/10	" "	F16B 37/0842 , F16B 37/0871

- U F16B 1/00** **Devices for securing together, or preventing relative movement between, constructional elements or machine parts**
- F16B 2001/0007 • {Fasteners made by sintering powders }
 - F16B 2001/0021 • {Friction-reducing coatings}
 - F16B 2001/0028 • {by the use of a material of the hooks-and-loops type}
 - F16B 2001/0035 • {by the use of a magnetic material}
 - F16B 2001/0042 • {by the use of an explosive charge ([F16B 19/125](#), [F16B 31/005](#) take precedence)}
 - F16B 2001/0064 • {and establishing a good electrical connection}
 - F16B 2001/0078 • {having differing thermal expansion coefficients}
 - F16B 2001/0085 • {Ceramic-to-metal-connections}
 - F16B 2001/0092 • {with means for avoiding incorrect assembly or positioning}
- U F16B 5/00** **Joining sheets or plates, {e.g. panels}, to one another or to strips or bars parallel to them ({[F16B 17/002](#) takes precedence}; by sticking together [F16B 11/00](#); dowel connections [F16B 13/00](#); pins, including deformable elements [F16B 19/00](#); covering of walls [E04F 13/00](#); fastening signs, plates, panels or boards to a supporting structure, fastening readily-detachable elements, e.g. letters to signs, plates, panels, or boards, [G09F 7/00](#))**
- U F16B 5/06 • by means of clamps or clips ({[F16B 5/0004](#) takes precedence}; friction-grip releasable fastenings in general [F16B 2/00](#))
 - U F16B 5/0607 • • {joining sheets or plates to each other ([F16B 5/0692](#), [F16B 21/082](#) take precedence)}
 - U F16B 5/0621 • • • {in parallel relationship (fastened by a drive-pin [F16B 19/1081](#); fastened by a device locking by rotation [F16B 21/02](#))}
 - F16B 2005/0671 • • • • {with unlocking by rotation }
 - F16B 2005/0678 • • • {in abutting relationship}
- U F16B 7/00** **Connections of rods or tubes, e.g. of non-circular section, mutually, including resilient connections ({[F16B 11/008](#), [F16B 17/002](#) take precedence}; umbrella frames [A45B 25/02](#); welding or soldering of connections [B23K](#); vehicle connections in general [B60D](#); railway couplings [B61G](#); bicycle frames [B62K](#); couplings for transmitting rotation [F16D](#); couplings for tubes conveying fluids [F16L](#))**
- U F16B 7/10 • Telescoping systems { for vertically adjustable chairs [A47C 3/20](#); telescopic steering columns [B62D 1/18](#); for scaffolding [E04G 25/04](#); { telescopic masts, poles or the like [E04H12/18B](#); telescopic door or window holders [E05C 17/30](#); telescope props for mining [E21D 15/14](#) to [E21D 15/46](#); stands or trestles as supports for apparatus or articles placed thereon { [F16M 11/26](#)}
 - U F16B 7/14 • • locking in intermediate {non-discrete} positions {(the rod or tube being locked by a tilting clip [F16B 2/246](#))}
 - F16B 2007/16 • • • {locking only against movement in one direction}
- U F16B 12/00** **Jointing of furniture or the like, e.g. hidden from exterior ([F16B 2/00](#) to [F16B 11/00](#) take precedence; fastening means per se [F16B 13/00](#) to [F16B 47/00](#); wood-working [B27](#))**
- U F16B 12/04 • Non-loosenable joints for non-metal furniture parts, e.g. glued
 - F16B 2012/043 • • {using carpentry joints other than mortise and tenon joints, e.g. using multiple tenons }
 - F16B 2012/046 • • {using mortise and tenon joints }
 - U F16B 12/10 • using pegs, bolts, tenons, clamps, clips, or the like (glued [F16B 12/04](#); fastening means per se [F16B 15/00](#) to [F16B 47/00](#))

	F16B 2012/103	• • {Sleeves or dowels for connection fittings }
	F16B 2012/106	• • {Connection bolts for connection fittings }
U	F16B 12/12	• • for non-metal furniture parts, e.g. made of wood, of plastics
U	F16B 12/14	• • • using threaded bolts or screws
	F16B 2012/145	• • • • {Corner connections }
U	F16B 12/20	• • • using clamps, clips, wedges, sliding bolts, or the like
U	F16B 12/2009	• • • • {actuated by rotary motion}
	F16B 2012/2018	• • • • • {pin and drum securing device; drum has cam surface to engage the head of the pin}
	F16B 2012/2045	• • • • • {pin and drum securing device; drum has screw to engage the head of the pin}
	F16B 2012/2072	• • • • • {Pin and drum securing devices; Drums having lever with cam surface to engage the head of the pin }
	F16B 2012/2081	• • • • • {having a fitting providing slanted access for a screwdriver as actuator }
	F16B 2012/209	• • • • • {having an integrated lever as actuator }
U	F16B 12/40	• Joints for furniture tubing
	F16B 2012/403	• • {with inserts for joining tubes coaxially }
	F16B 2012/406	• • {Cove joints for joining two cylindrical members }
U	F16B 12/44	• Leg joints; Corner joints
	F16B 2012/443	• • {with two-dimensional corner element, the legs thereof being inserted in hollow frame members }
	F16B 2012/446	• • {with three-dimensional corner element, the legs thereof being inserted in hollow frame members }
U	F16B 12/46	• • Non-metal corner connections
	F16B 2012/463	• • • {for wooden members without additional elements }
	F16B 2012/466	• • • {using mortise and tenon joints }
U	F16B 12/50	• • Metal corner connections
	F16B 2012/505	• • • {having a corner insert which is inserted in mitered profiled members }
U	F16B 13/00	Dowels or other devices fastened in walls or the like by inserting them in holes made therein for that purpose (nails F16B 15/00; self-locking pins or bolts in general, stud-and-socket releasable fastenings F16B 21/00; dowels or bolts for railroad sleepers E01B 9/00; and means for anchoring structural elements or bulkheads specially adapted to foundation engineering E02D 5/74; bolts or dowels used while laying bricks or casting concrete sleepers E04B 1/38; setting anchoring bolts in shafts, tunnels or galleries E21D 20/00; anchoring bolts for shafts, tunnels or galleries E21D 21/00)
	F16B 2013/006	• {with sealing means }
	F16B 2013/007	• {to be fastened in undercut holes}
	F16B 2013/008	• {used for mining purposes}
	F16B 2013/009	• {Double sleeve dowels, i.e. the first sleeve is fixed in a hole by the action of a second sleeve and one of the sleeves receives a nail, a screw or the like }
U	F16B 13/04	• with parts gripping in the hole or behind the reverse side of the wall after inserting from the front ({ F16B 13/002 and F16B 13/12 take precedence; } friction-grip releasable fastenings in general F16B 2/00)
	F16B 2013/10	• • {with gripping parts moved into their final position in relation to the body of the device by a separate operation}
	F16B 2013/105	• • • {with a toggle-mechanism}

- U F16B 13/14
 - Non-metallic plugs or sleeves {not used, see [F16B 13/002- F16B 13/12](#)}; Use of liquid, loose solid or kneadable material therefor
- U F16B 13/141
 - • {Fixing plugs in holes by the use of settable material}
- F16B 2013/147
 - • • {Grout with reinforcing elements or with fillers, e.g. fibres, flakes, balls, wires}
- F16B 2013/148
 - • • {Means for inhibiting adhesion between dowel or anchor bolt parts and the surrounding grouting composition}
- U F16B 15/00**

Nails; Staples (surgical staples [A61B 17/064](#); manufacture of nails or staples [B21G](#); { drawing-pins, thumb-tacks [B43M 15/00](#)}; railway spikes [E01B 9/06](#))
- U F16B 15/0023
 - {Nail plates (claw dowels for building structures [E04B 1/49](#); machines for driving in nail plates [B27F 7/15](#))}
- F16B 2015/0061
 - • {Multipiece-plates}
- F16B 2015/0069
 - • {with nails on both sides}
- F16B 2015/0076
 - • {with provisions for additional fastening means, e.g. hooks, holes for separate screws or nails, adhesive}
- F16B 2015/0084
 - • {with marks to indicate where to strike with the hammer}
- U F16B 19/00**

Bolts without screw-thread; Pins, including deformable elements (in screwed connections [F16B 29/00](#)); Rivets (means for preventing withdrawal [F16B 21/00](#))
- U F16B 19/002
 - {Resiliently deformable pins ([F16B 21/06](#) takes precedence)}
- F16B 2019/006
 - • {made in a plurality of pieces}
- F16B 19/04
 - Rivets; Spigots or the like fastened by riveting (lead seals ~~G09F 3/00~~[G09F 3/00](#))
- F16B 2019/045
 - • {Coated rivets}
- U F16B 19/05
 - • Bolts fastening by swaged-on collars ([F16B 19/08](#) takes precedence)
- F16B 2019/055
 - • • {deformed by an electro-magnetic action}
- U F16B 19/08
 - • Hollow rivets; Multi-part rivets
- U F16B 19/10
 - • • fastened by expanding mechanically
- NOTES

Subject matter relating to hollow or single-part rivets fastened by a pull-through mandrel is classified in 19/10B2B

Subject matter relating to hollow or single-part rivets fastened by a drive pin is classified in [F16B 19/1081](#)
- F16B 2019/1009
 - • • • {hollow or single-part rivets fastened by a pull-through mandrel}
- F16B 2019/1018
 - • • • {hollow or single-part rivets fastened by a drive pin}
- U F16B 21/00**

Means for preventing relative axial movement of a pin, spigot, shaft or the like and a member surrounding it (riveted or deformable spigots [F16B 19/04](#); for gudgeon pins [F16J 1/18](#)); Stud-and-socket releasable fastenings
- U F16B 21/10
 - by separate parts ({[F16B 21/06](#) takes precedence}; key-type connection [F16B 3/00](#); locking screws or nuts against rotation by such means [F16B 39/04](#))
- U F16B 21/12
 - • with locking-pins or split-pins thrust into holes
- F16B 2021/14
 - • • {Details of locking-pins or split-pins}
- U F16B 31/00**

Screwed connections specially modified in view of tensile load; Break-bolts (shape of thread {[F16B 33/02](#); in couplings [F16D 9/00](#))
- F16B 2031/002
 - {Breakbolts loosening due to an electromagnetic action}

- U F16B 31/02
 - for indicating {the attainment of a particular tensile load} or limiting tensile load {(apparatus for, or method of, determining value of torque or twisting moment for tightening a nut or other member similarly stressed [G01L 5/24](#))}
- F16B 2031/022
 - • {using an ultrasonic transducer }
- U F16B 31/04
 - for maintaining {a} tensile load
- U F16B 31/043
 - • {Prestressed connections tensioned by means of liquid, grease, rubber, explosive charge, or the like (hydraulic bolt tensioners [B25B 29/02](#))}
- F16B 2031/046
 - • • {by means of an explosive charge}
- U F16B 33/00** **Features common to bolt and nut**
- U F16B 33/02
 - Shape of thread; Special thread-forms ({[F16B 25/00](#) takes precedence; used to remove paint or dirt layers [F16B 35/007](#), [F16B 37/002](#)}; used as screw-locking device [F16B 39/30](#))
- F16B 2033/025
 - • {with left-hand thread }
- F16B 2033/04
 - • {in view of tensile load}
- U F16B 37/00** **Nuts or like thread-engaging members {(specially shaped for rotations by a tool [F16B 23/00](#))}**
- F16B 2037/007
 - {with a blind hole }
- U F16B 43/00** **Washers or equivalent devices; Other devices for supporting bolt-heads or nuts (circlips [F16B 21/18](#); {for indicating tensile load [F16B 31/02](#); forming a whole with the bolt or nut [F16B 33/00](#); locking bolts or nuts by means of a fixed plate or ring, or washer-like resilient plates [F16B 39/10](#), [F16B 39/24](#)})**
- F16B 2043/008
 - {with a cavity for receiving the bolt head in order to make a flush surface }

Project: N/A (F16C)

- U F16C 17/00** **Sliding-contact bearings for exclusively rotary movement ([F16C 32/06](#) takes precedence; adjustable bearings [F16C 23/00](#), [F16C 25/00](#))**
- U F16C 17/02
 - for radial load only
- F16C 17/03
 - • with tiltably-supported segments, e.g. Michell bearings {(hydrostatic bearings with tiltably supported bearing pads [F16C 32/0666](#); made from a plurality of rods [F16C 33/26](#); with flexible leaves ~~F16C17/42B~~[F16C 17/024](#); hydrodynamic bearings with chambers [F16C 33/1075](#))}
- U F16C 17/04
 - for axial load only
- F16C 17/06
 - • with tiltably-supported segments, e.g. Michell bearings {(with flexible leaves ~~F16C17/42B~~[F16C 17/042](#); hydrostatic [F16C 32/0666](#))}
- U F16C 19/00** **Bearings with rolling contact, for exclusively rotary movement (adjustable bearings [F16C 23/00](#), [F16C 25/00](#); { electrically insulating bearings [H02K 5/173](#)})**
- U F16C 19/22
 - with bearing rollers essentially of the same size in one or more circular rows, e.g. needle bearings
- U F16C 19/34
 - • for both radial and axial load
- U F16C 19/36
 - • • with a single row of rollers
- U F16C 19/364
 - • • • { with tapered rollers, i.e. rollers having essentially the shape of a truncated cone}
- F16C 2019/365
 - • • • • {with a single rib on the inner ring, i.e. only with an inner ring back face rib}
- F16C 2019/367
 - • • • • {with two ribs on the inner ring, i.e. with a front face rib and a back face rib}
- F16C 2019/368
 - • • • • {with a rib on the outer ring facing the large end of the rollers}

- U F16C 33/00** **Parts of bearings; Special methods for making bearings or parts thereof (metal-working or like operations, see the relevant classes)**
- U F16C 33/02 • Parts of sliding-contact bearings
- U F16C 33/04 • • Brasses; Bushes; linings
- F16C 33/06 • • • Sliding surface mainly made of metal ([F16C 33/24](#) to [F16C 33/28](#) take precedence; { ~~casting metal bearing surfaces F16C31C24B, B22D 15/02, B22D 19/08~~; { ~~casting metal bearing surfaces B22D 15/02, B22D 19/08~~})
- F16C 2361/00** **Apparatus or articles in engineering in general (~~F15 to F17~~ [F15 to F17](#))**
- F16C 2361/41 • Couplings (~~in general F16D3~~ [in general F16D 3/00](#))
- F16C 2361/53 • Spring-damper, e.g. gas springs (~~in general F16F9~~ [in general F16F 9/00](#))
- F16C 2361/55 • Flywheel systems (~~in general F16F15~~ [in general F16F 15/00](#))

Project: N/A (F16D)**F16D****COUPLINGS FOR TRANSMITTING ROTATION; CLUTCHES; BRAKES**NOTE

Attention is drawn to the following places:

[A01D 69/08](#) , [A01D 69/10](#) Clutches or brakes of harvesting machines for grass or cereals;

[A61C 1/18](#) Clutches in dental machines for boring or cutting;

[B21B 35/14](#) Drive couplings for metal-rolling mills;

[B30B 15/10](#) Brakes specially adapted for presses;

[B30B 15/12](#) Clutches specially adapted for presses;

[B41J 33/52](#) Braking devices for ribbon-feed devices in selective printing mechanisms;

[B60K 17/00](#) Arrangement or location of clutches in vehicles;

[B61H](#) Brakes peculiar to rail vehicles;

[B62B 5/04](#) Braking mechanisms for hand carts;

[B62B 9/08](#) Braking mechanisms for children's carriages or perambulators;

[B62C 7/00](#) Braking mechanisms for animal-drawn vehicles;

[B62L](#) Cycle brakes;

[B66D 5/00](#) Braking devices for lifting or hoisting gear;

[E21B 17/02](#) Couplings for drilling rods;

[H02P 3/04](#) Brakes for electric motors, generators, dynamo-electric converters;

[H04L 13/04](#) Clutches for apparatus for transmission of coded digital information.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~F16D 3/19~~ covered by ~~F16D 3/50~~ ;

~~F16D 3/27~~ covered by ~~F16D 3/26~~ B;

~~F16D 13/69~~ covered by ~~F16D 13/52~~ ,

~~F16D 13/64~~ C, ~~F16D 13/68~~ B;

F16D 27/07 — covered by — F16D 27/06 — ,
F16D 27/14 — ; —
F16D 28/00 — covered by — F16D 27/00 — B; —
F16D 41/061 — covered by — F16D 41/06 — F; —
F16D 41/063 — covered by — F16D 41/06 — C; —
F16D 41/06 — D; —
F16D 41/064 — covered by — F16D 41/06 — H; —
F16D 41/066 — covered by — F16D41/06H3 — ,
F16D41/06H3B — ; —
F16D 41/067 — covered by — F16D41/06H3C —
; —
F16D 41/069 — covered by — F16D 41/06 — G; —
F16D 48/12 — covered by — B60K 23/08 — B; —
F16D65/35 — covered by — F16D 63/00 — .

- U F16D 1/00** **Couplings for rigidly connecting two coaxial shafts or other movable machine elements(attachment of wheels to axles for railway carriages [B60B](#) ; for attachment of cranks to their shafts [F16C 3/10](#))**
- U F16D 1/06
- for attachment of a member on a shaft or on a shaft-end(attachment of marine propellers on shafts [B63H 23/34](#))
- F16D 2001/062
- • {characterised by adaptors where hub bores being larger than the shaft}
- U F16D 1/08
- • with clamping hub; with hub and longitudinal key
- U F16D 1/09
- • • with radial clamping due to axial loading of at least one pair of conical surfaces{(tapered keys [F16D 1/0882](#))}
- F16D 2001/0903
- • • • {the clamped shaft being hollow}
- F16D 2001/0906
- • • • { using a hydraulic fluid to clamp or disconnect, not provided for in [F16D 1/091](#) }
- U F16D 1/093
- • • • using one of more elastic segmented conical rings forming at least one of the conical surfaces, the rings being expanded or contracted to effect clamping([F16D 1/091](#) takes precedence)
- U F16D 1/094
- • • • • using one or more pairs of elastic or segmented rings with mutually mating conical surfaces, one of the mating rings being contracted and the other being expanded
- F16D 2001/0945
- • • • • • {using multiple pairs of elastic or segmented rings to effect clamping}
- U F16D 1/095
- • • • • with clamping effected by ring contraction only{(for connecting two abutting shafts [F16D 1/02](#))}
- F16D 2001/0955
- • • • • • {the clamping is effected by hub contraction, i.e. a compression of the hub instead of the ring}
- U F16D 1/10
- Quick-acting couplings in which the parts are connected by simply bringing them together axially
- F16D 2001/102
- • {the torque is transmitted via polygon shaped connections}
- F16D 2001/103
- • {the torque is transmitted via splined connections}
- U F16D 3/00** **Yielding couplings, i.e. with means permitting movement between the connected parts during the drive(couplings disconnectable simply by axial movement [F16D 1/10](#) ; slip couplings [F16D 7/00](#))**
- U F16D 3/16
- Universal joints in which flexibility is produced by means of pivots or sliding or rolling connecting parts

- U F16D 3/20
- one coupling part entering a sleeve of the other coupling part and connected thereto by sliding or rolling members([F16D 3/18](#) , [F16D 3/24](#) take precedence)
- NOTE
- "coupling parts" means the driving member and the driven member of the coupling to be mounted on and rotate as a unit with the shafts or their equivalents between which the coupling is placed. An intermediate member interconnecting these parts is regarded as such an equivalent.
- U F16D 3/202
- • {one coupling part having radially projecting pins, e.g. tripod joints}
- F16D 2003/2023
- • • {with linear rolling bearings between raceway and trunnion mounted shoes}
- F16D 2003/2026
- • • {with trunnion rings, i.e. with tripod joints having rollers supported by a ring on the trunnion}
- U F16D 3/22
- • the rolling members being balls, rollers, or the like, guided in grooves or sockets in both coupling parts
- U F16D 3/223
- • • the rolling members being guided in grooves in both coupling parts
- WARNINGS
- Groups [F16D 3/2233](#) and [F16D 3/2237](#) are not yet complete pending a reorganisation; see also this group
- F16D 2003/22303
- • • • {Details of ball cages}
- F16D 2003/22306
- • • • {having counter tracks, i.e. ball track surfaces which diverge in opposite directions}
- F16D 2003/22309
- • • • {Details of grooves}
- F16D 2003/22313
- • • • {Details of the inner part of the core or means for attachment of the core on the shaft}
- F16D 2003/22316
- • • • {Means for fastening or attaching the bellows or gaiters}
- F16D 2003/2232
- • • • {Elements arranged in the hollow space between the end of the inner shaft and the outer joint member}
- F16D 2003/22323
- • • • {Attachments to the shaft of the inner joint member whereby the attachments are distanced from the core}
- F16D 2003/22326
- • • • {Attachments to the outer joint member, i.e. attachments to the exterior of the outer joint member or to the shaft of the outer joint member}
- U F16D 3/50
- with the coupling parts connected by one or more intermediate members([F16D 3/16](#) takes precedence)
- U F16D 3/72
- with axially-spaced attachments to the coupling parts([F16D 3/56](#) takes precedence)
- U F16D 3/74
- • the intermediate member or members being made of rubber or other{rubber-like}flexible material
- F16D 2003/745
- • • {Tyre type coupling i.e. bellows with only one fold}
- U F16D 3/84
- Shrouds, e.g. casings, covers; Sealing means specially adapted therefor
- U F16D 3/843
- • {enclosed covers}
- U F16D 3/845
- • {allowing relative movement of joint parts due to the flexing of the cover}
- F16D 2003/846
- • • {Venting arrangements for flexible seals e.g. ventilation holes}
- U F16D 11/00**
- Clutches in which the members have interengaging parts(arrangements for synchronisation [F16D 23/02](#))**
- F16D 2011/002
- {using an external and axially slidable sleeve for coupling the teeth of both coupling components together}

F16D 2011/004	<ul style="list-style-type: none"> • {using an internal or intermediate axially slidable sleeve, coupling both components together, whereby the intermediate sleeve is arranged internally at least with respect to one of the components.}
F16D 2011/006	<ul style="list-style-type: none"> • {Locking or detent means, i.e. means to keep the clutch in engaged condition}
F16D 2011/008	<ul style="list-style-type: none"> • {characterised by the form of the teeth forming the inter-engaging parts; Details of shape or structure of these teeth}
U F16D 13/00	Friction clutches(arrangements for synchronisation F16D 23/02)
U F16D 13/22	<ul style="list-style-type: none"> • with axially-movable clutching members(similar brakes F16D 55/00)
U F16D 13/38	<ul style="list-style-type: none"> • • with flat clutching surfaces, e.g. discs
U F16D 13/52	<ul style="list-style-type: none"> • • • Clutches with multiple lamellae{Clutches in which three or more axially moveable members are fixed alternately to the shafts to be coupled and are pressed from one side towards an axially-located member(F16D 13/385 takes precedence)}
U F16D 13/54	<ul style="list-style-type: none"> • • • • with means for increasing the effective force between the actuating sleeve or equivalent member and the pressure member
U F16D 13/56	<ul style="list-style-type: none"> • • • • • in which the clutching pressure is produced by springs only
F16D 2013/565	<ul style="list-style-type: none"> • • • • • • {with means for releasing the clutch pressure in case of back torque}
U F16D 13/58	<ul style="list-style-type: none"> • Details{(tools for assembling or disassembling clutches B25B 27/0064)}
F16D 2013/581	<ul style="list-style-type: none"> • • {Securing means for transportation or shipping.}
F16D 2013/586	<ul style="list-style-type: none"> • • {the cover housing is formed by diaphragm springs}
F16D 2013/588	<ul style="list-style-type: none"> • • • {the diaphragm springs are arranged outside the cover housing}
U F16D 13/60	<ul style="list-style-type: none"> • • Clutching elements(friction lining or attachment thereof F16D 69/00)
U F16D 13/64	<ul style="list-style-type: none"> • • • Clutch-plates; Clutch-lamellae(brake-plates, brake-lamellae F16D 65/12)
F16D 2013/642	<ul style="list-style-type: none"> • • • • {with resilient attachment of frictions rings or linings to their supporting discs or plates for allowing limited axial displacement of these rings or linings}
U F16D 13/70	<ul style="list-style-type: none"> • • Pressure members, e.g. pressure plates, for clutch-plates or lamellae; Guiding arrangements for pressure members{(clutch flywheels comprising two or more masses with a rotational damper F16F 15/12)}
F16D 2013/703	<ul style="list-style-type: none"> • • • {the pressure plate on the flywheel side is combined with a damper}
F16D 2013/706	<ul style="list-style-type: none"> • • • {the axially movable pressure plate is supported by leaf springs}
U F16D 21/00	Systems comprising a plurality of actuated clutches(for synchronisation F16D 23/04)
U F16D 21/02	<ul style="list-style-type: none"> • for interconnecting three or more shafts or other transmission members in different ways(in endless-track vehicles B62D)
U F16D 21/06	<ul style="list-style-type: none"> • • at least two driving shafts or two driven shafts being concentric
F16D 2021/0607	<ul style="list-style-type: none"> • • • {Double clutch with torque input plate in-between the two clutches, i.e. having a central input plate}
F16D 2021/0615	<ul style="list-style-type: none"> • • • • {the central input plate is supported by bearings in-between the two clutches}
F16D 2021/0623	<ul style="list-style-type: none"> • • • • {the central input plate having a damper in-between the two clutches}
F16D 2021/063	<ul style="list-style-type: none"> • • • {Electric arrangements for clutch control}
F16D 2021/0638	<ul style="list-style-type: none"> • • • {Electrically actuated multiple lamellae clutches}
F16D 2021/0646	<ul style="list-style-type: none"> • • • {Electrically actuated clutch with two clutch plates}
F16D 2021/0653	<ul style="list-style-type: none"> • • • {Hydraulic arrangements for clutch control}
F16D 2021/0661	<ul style="list-style-type: none"> • • • {Hydraulically actuated multiple lamellae clutches}
F16D 2021/0669	<ul style="list-style-type: none"> • • • {Hydraulically actuated clutches with two clutch plates}

F16D 2021/0676	• • • {Mechanically actuated multiple lamellae clutches}
F16D 2021/0684	• • • {Mechanically actuated clutches with two clutch plates}
F16D 2021/0692	• • • {with two clutches arranged axially without radial overlap}
U F16D 23/00	Details of mechanically-actuated clutches not specific for one distinct type
U F16D 23/02	• Arrangements for synchronisation, also for power-operated clutches(shape or mounting of interengaging parts of clutch members to facilitate engagement F16D 11/08)
U F16D 23/04	• • with an additional friction clutch(synchro rings per se F16D 23/025)
U F16D 23/06	• • • and a blocking mechanism preventing the engagement of the main clutch prior to synchronisation
F16D 2023/0618	• • • • {Details of blocking mechanism comprising a helical spring loaded element, e.g. ball}
F16D 2023/0625	• • • • {Details of members being coupled, e.g. gears}
F16D 2023/0631	• • • • {Sliding sleeves; Details thereof}
F16D 2023/0637	• • • • {Details relating to the hub member on which the sliding is arranged}
F16D 2023/0643	• • • • {Synchro friction clutches with flat plates, discs or lamellae}
F16D 2023/065	• • • • {Means to provide additional axial force for self-energising, e.g. by using torque from the friction clutch}
F16D 2023/0656	• • • • {Details of the tooth structure; Arrangements of teeth}
F16D 2023/0662	• • • • • {Details relating to special geometry of arrangements of teeth}
F16D 2023/0668	• • • • • {Details relating to tooth end or tip geometry}
F16D 2023/0675	• • • • • {Details relating to special undercut geometry}
F16D 2023/0681	• • • • {Double cone synchromesh clutches}
F16D 2023/0687	• • • • {Clutches with electrical actuation}
F16D 2023/0693	• • • • {Clutches with hydraulic actuation}
U F16D 23/12	• Mechanical clutch-actuating mechanisms arranged outside the clutch as such(specific for combined clutches F16D 21/00 ; mechanisms specific for synchronisation F16D 23/02)
F16D 2023/123	• • {Clutch actuation by cams, ramps or ball-screw mechanisms}
F16D 2023/126	• • {Actuation by rocker lever; Rocker levers therefor}
U F16D 23/14	• • Clutch-actuating sleeves{or bearings}; Actuating members directly connected to clutch-actuating sleeves{or bearings}
F16D 2023/141	• • • {characterised by using a fork; Details of forks}
U F16D 25/00	Fluid-actuated clutches
U F16D 25/08	• with fluid-actuated member not rotating with a clutching member(F16D 25/02 takes precedence){ F16D 25/048 takes precedence }
F16D 2025/081	• • {Hydraulic devices that initiate movement of pistons in slave cylinders for actuating clutches, i.e. master cylinders}
U F16D 27/00	Magnetically-{or electrically}-actuated clutches; Control or electric circuits therefor(clutches with magnetisable particles F16D 37/02 ; { with electro-rheological fluids F16D 37/008)}
F16D 2027/001	• {Means for electric connection of the coils of the electromagnetic clutches}
F16D 2027/002	• {Electric or electronic circuits relating to actuation of electromagnetic clutches.}
F16D 2027/005	• {Details relating to the internal construction of coils or to clutches having more than one coil in the same housing}
F16D 2027/007	• {Bias of an armature of an electromagnetic clutch by flexing of substantially flat springs, e.g. leaf springs}

F16D 2027/008	<ul style="list-style-type: none"> • {Details relating to the magnetic circuit, or to the shape of the clutch parts to achieve a certain magnetic path}
U F16D 37/00	Clutches in which the drive is transmitted through a medium consisting of small particles, e.g. centrifugally speed-responsive
F16D 2037/001	<ul style="list-style-type: none"> • {Electric arrangements for clutch control}
F16D 2037/002	<ul style="list-style-type: none"> • {characterised by a single substantially axial gap in which the fluid or medium consisting of small particles is arranged}
F16D 2037/004	<ul style="list-style-type: none"> • {characterised by multiple substantially axial gaps in which the fluid or medium consisting of small particles is arranged}
F16D 2037/005	<ul style="list-style-type: none"> • {characterised by a single substantially radial gap in which the fluid or medium consisting of small particles is arranged}
F16D 2037/007	<ul style="list-style-type: none"> • {characterised by multiple substantially radial gaps in which the fluid or medium consisting of small particles is arranged}
U F16D 41/00	Freewheels or freewheel clutches(cycle brakes controlled by back-peddalling B62L 5/00 ; { one-way linear clutches F16B 7/16)}
U F16D 41/06	<ul style="list-style-type: none"> • with intermediate wedging coupling members between an inner and an outer surface(F16D 41/02 , F16D 41/24 take precedence)
F16D 2041/0601	<ul style="list-style-type: none"> • • {with a sliding bearing or spacer}
F16D 2041/0603	<ul style="list-style-type: none"> • • {Sprag details}
F16D 2041/0605	<ul style="list-style-type: none"> • • {Spring details}
F16D 2041/0606	<ul style="list-style-type: none"> • • {the intermediate coupling members having parts wedging by movement other than pivoting or rolling but combined with pivoting or rolling parts, e.g. shoes on pivot bars or on rollers}
F16D 2041/0608	<ul style="list-style-type: none"> • • {Races with a regular polygon shape}
U F16D 41/064	<ul style="list-style-type: none"> • • the intermediate members wedging by rolling and having a circular cross-section, e.g. balls(F16D 41/061 takes precedence)
F16D 2041/0643	<ul style="list-style-type: none"> • • • {the intermediate coupling members being of more than one size}
F16D 2041/0646	<ul style="list-style-type: none"> • • • {the intermediate coupling members moving between recesses in an inner race and recesses in an outer race}
U F16D 41/066	<ul style="list-style-type: none"> • • • all members having the same size and only one of the two surfaces being cylindrical
F16D 2041/0665	<ul style="list-style-type: none"> • • • {characterised by there being no cage other than the inner and outer race for distributing the intermediate members}
U F16D 43/00	Automatic clutches(varying the relationship between two coaxial shafts F16D 3/10 ; freewheels, freewheel clutches F16D 41/00)
U F16D 43/02	<ul style="list-style-type: none"> • actuated entirely mechanically
U F16D 43/04	<ul style="list-style-type: none"> • • controlled by angular speed(F16D 43/24 takes precedence; clutches in which the drive is transmitted through a medium consisting of small particles F16D 37/00)
U F16D 43/14	<ul style="list-style-type: none"> • • • with centrifugal masses actuating the clutching members directly in a direction which has at least a radial component; with centrifugal masses themselves being the clutching members
F16D 2043/145	<ul style="list-style-type: none"> • • • • {the centrifugal masses being pivoting}
U F16D 47/00	Systems of clutches, or clutches and couplings, comprising devices of types grouped under at least two of the preceding guide headings
F16D 47/02	<ul style="list-style-type: none"> • of which at least one is a coupling(elastic attachment of clutch parts, see the groups for the clutches){(clutch flywheels with damping devices F16D 15/10 +s.gr. <i>clutch flywheels with damping devices F16F 15/10 +s.gr.</i>)}

U F16D 48/00**External control of clutches**WARNING

Groups [F16D 48/00](#) , [F16D 48/06](#) , [F16D 48/08](#) , [F16D 48/10](#) , introduced in September 1998, are not complete. Documents from the groups [F16D 48/062](#) to [F16D 48/066](#) are in the process of being reorganised to [F16D 48/00](#) , [F16D 48/08](#) , [F16D 48/10](#)

- U F16D 48/02
 - Control by fluid pressure
- F16D 2048/0203
 - • {with an accumulator; Details thereof}
- F16D 2048/0209
 - • {characterised by fluid valves having control pistons, e.g. spools}
- F16D 2048/0212
 - • {Details of pistons for master or slave cylinders especially adapted for fluid control(for other details of pistons in master or slave cylinders [F16D 2025/081](#) or [F16D 25/082](#))}
- F16D 2048/0215
 - • {for damping of pulsations within the fluid system}
- F16D 2048/0218
 - • {Reservoirs for clutch control systems; Details thereof}
- F16D 2048/0221
 - • {Valves for clutch control systems; Details thereof}
- F16D 2048/0224
 - • {Details of conduits, connectors or the adaptors therefor specially adapted for clutch control}
- F16D 2048/0227
 - • {Source of pressure producing the clutch engagement or disengagement action within a circuit; Means for initiating command action in power assisted devices(for details of the source or means per se [F16D 25/088](#) , [F16D 29/005](#))}
- F16D 2048/023
 - • • {by pedal actuation(for pedals per se [G01G 1/30](#))}
- F16D 2048/0233
 - • • {by rotary pump actuation}
- F16D 2048/0236
 - • • • {with multiple independent pumps, e.g. one per clutch, or for supplying fluid to different systems}
- F16D 2048/0239
 - • • • • {One fluid source supplying fluid at high pressure and one fluid source supplying fluid at low pressure}
- F16D 2048/0242
 - • • • • {Two or more rotating pumps driven together by the same power source, e.g. connected by a shaft, or a single pump having two or more fluid outputs}
- F16D 2048/0245
 - • • • {Electrically driven rotary pumps}
- F16D 2048/0248
 - • • • • {Reversible rotary pumps, i.e. pumps that can be rotated in the two directions.}
- F16D 2048/0251
 - • • • {Electric motor driving a piston, e.g. for actuating the master cylinder(for details of the actuator per se [F16D 29/00](#))}
- F16D 2048/0254
 - • • • {Double actuation, i.e. two actuation means can produce independently an engagement or disengagement of the clutch}
- F16D 2048/0257
 - • {Hydraulic circuit layouts, i.e. details of hydraulic circuit elements or the arrangement thereof}
- F16D 2048/026
 - • • {The controlling actuation is directly performed by the pressure source, i.e. there is no intermediate valve for controlling flow or pressure}
- F16D 2048/0263
 - • • {Passive valves between pressure source and actuating cylinder, e.g. check valves or throttle valves}
- F16D 2048/0266
 - • • {Actively controlled valves between pressure source and actuation cylinder}
- F16D 2048/0269
 - • • {Single valve for switching between fluid supply to actuation cylinder or draining to the sump}
- F16D 2048/0272
 - • • {Two valves, where one valve is supplying fluid to the cylinder and the other valve is for draining fluid to the sump}

F16D 2048/0275	<ul style="list-style-type: none"> • • {Two valves arranged in parallel, e.g. one for coarse and the other for fine control during supplying or draining fluid from the actuation cylinder}
F16D 2048/0278	<ul style="list-style-type: none"> • • {Two valves in series arrangement for controlling supply to actuation cylinder}
F16D 2048/0281	<ul style="list-style-type: none"> • • {Complex circuits with more than two valves in series or special arrangements thereof not provided for in previous groups}
F16D 2048/0284	<ul style="list-style-type: none"> • • {characterised by valve arrangements supplying fluid to a two chamber-cylinder}
F16D 2048/0287	<ul style="list-style-type: none"> • • {Hydraulic circuits combining clutch actuation and other hydraulic systems}
F16D 2048/029	<ul style="list-style-type: none"> • • {Hydraulic circuits combining clutch actuation with clutch lubrication or cooling}
F16D 2048/0293	<ul style="list-style-type: none"> • • {Hydraulic circuits combining clutch and transmission actuation}
F16D 2048/0296	<ul style="list-style-type: none"> • • {Hydraulic circuits controlled exclusively by hydraulic pressure, i.e. with no electrically controlled valves}
U F16D 48/04	<ul style="list-style-type: none"> • providing power assistance
F16D 2048/045	<ul style="list-style-type: none"> • • {Vacuum boosters therefor}
U F16D 51/00	Brakes with outwardly-movable braking members co-operating with the inner surface of a drum or the like(similar clutches F16D 13/14)
F16D 2051/001	<ul style="list-style-type: none"> • {Parts or details of drum brakes}
F16D 2051/003	<ul style="list-style-type: none"> • {Brake supports}
F16D 2051/005	<ul style="list-style-type: none"> • {Protective covers}
F16D 2051/006	<ul style="list-style-type: none"> • {Braking members arranged axially spaced, e.g. side by side}
F16D 2051/008	<ul style="list-style-type: none"> • {Brakes with only one substantially rigid braking member}
U F16D 55/00	Brakes with substantially-radial braking surfaces pressed together in axial direction, e.g. disc brakes(similar clutches F16D 13/38)
F16D 2055/0004	<ul style="list-style-type: none"> • {Parts or details of disc brakes}
F16D 2055/0008	<ul style="list-style-type: none"> • {Brake supports}
F16D 2055/0012	<ul style="list-style-type: none"> • • {integral with vehicle suspension}
F16D 2055/0016	<ul style="list-style-type: none"> • {Brake calipers}
F16D 2055/002	<ul style="list-style-type: none"> • • {assembled from a plurality of parts}
F16D 2055/0025	<ul style="list-style-type: none"> • • {comprising a flat frame member}
F16D 2055/0029	<ul style="list-style-type: none"> • • {Retraction devices}
F16D 2055/0033	<ul style="list-style-type: none"> • {Fully-enclosing housings}
F16D 2055/0037	<ul style="list-style-type: none"> • {Protective covers}
F16D 2055/0041	<ul style="list-style-type: none"> • {Resilient elements interposed directly between the actuating member and the brake support, e.g. anti-rattle springs}
F16D 2055/0045	<ul style="list-style-type: none"> • {Braking members arranged non-symmetrically with respect to the brake disc}
F16D 2055/005	<ul style="list-style-type: none"> • {Brakes straddling an annular brake disc radially internally}
F16D 2055/0054	<ul style="list-style-type: none"> • {Brakes located in the radial gap between two coplanarly arranged annular brake discs}
F16D 2055/0058	<ul style="list-style-type: none"> • {Fully lined, i.e. braking surface extending over the entire disc circumference}
F16D 2055/0062	<ul style="list-style-type: none"> • {Partly lined, i.e. braking surface extending over only a part of the disc circumference}
F16D 2055/0066	<ul style="list-style-type: none"> • {Brakes having more than one actuator on the same side of the disc}
F16D 2055/007	<ul style="list-style-type: none"> • {Pins holding the braking members}
F16D 2055/0075	<ul style="list-style-type: none"> • {Constructional features of axially engaged brakes}

F16D 2055/0079	• • {with braking members arranged non-symmetrically with respect to the rotor}
F16D 2055/0083	• • {with brake actuator located radially inside of an annular rotor}
F16D 2055/0087	• • {with brake actuator located between two coplanar annular rotors}
F16D 2055/0091	• • {Plural actuators arranged side by side on the same side of the rotor}
F16D 2055/0095	• • {Plural rotors with different properties, e.g. to influence working conditions like wear or temperature}
U F16D 65/00	Parts or details(similar members for clutches F16D 13/58)
U F16D 65/02	• Braking members; Mounting thereof(friction linings or attachment thereof F16D 69/00)
F16D 2065/022	• • Rollers { Rollers }
F16D 2065/024	• • {the braking surface being inclined with respect to the rotor`s axis of rotation at an angle other than 90 degrees, e.g. comprising a conical rotor}
F16D 2065/026	• • {characterised by a particular outline shape of the braking member, e.g. footprint of friction lining}
F16D 2065/13	• • {Parts or details of discs or drums}
F16D 2065/1304	• • • Structure { Structure }
F16D 2065/1308	• • • • {one-part}
F16D 2065/1312	• • • • {circumferentially segmented}
F16D 2065/1316	• • • • {radially segmented}
F16D 2065/132	• • • • layered { layered }
F16D 2065/1324	• • • • {carrying friction elements}
F16D 2065/1328	• • • • {internal cavities, e.g. cooling channels}
F16D 2065/1332	• • • • {external ribs, e.g. for cooling or reinforcement}
F16D 2065/1336	• • • • {integral part of vehicle wheel}
F16D 2065/134	• • • Connection { Connection }
F16D 2065/1344	• • • • {permanent, e.g. by casting}
F16D 2065/1348	• • • • resilient { resilient }
F16D 2065/1352	• • • • articulated { articulated }
F16D 2065/1356	• • • • interlocking { interlocking }
F16D 2065/136	• • • • • {with relative movement radially}
F16D 2065/1364	• • • • • {with relative movement axially}
F16D 2065/1368	• • • • • {with relative movement both radially and axially}
F16D 2065/1372	• • • • {outer circumference}
F16D 2065/1376	• • • • {inner circumference}
F16D 2065/138	• • • • {to wheel}
F16D 2065/1384	• • • • {to wheel hub}
F16D 2065/1388	• • • • {to shaft or axle}
F16D 2065/1392	• • • • {Connection elements}
F16D 2065/1396	• • • • • {Ancillary resilient elements, e.g. anti-rattle or retraction springs}
U F16D 65/38	• Slack adjusters
F16D 2065/383	• • {for adjusting the spring force in spring-applied brakes}
F16D 2065/386	• • {driven electrically}
U F16D 65/78	• Features relating to cooling
F16D 2065/781	• • {involving phase change of material}
F16D 2065/782	• • {the brake-actuating fluid being used as a coolant}

F16D 2065/783	• • {cooling control or adjustment}
F16D 2065/784	• • {the coolant not being in direct contact with the braking surface}
F16D 2065/785	• • {Heat insulation or reflection}
F16D 2065/786	• • {Fluid spray devices}
F16D 2065/787	• • Pumps {Pumps}
F16D 2065/788	• • {Internal cooling channels}
F16D 2065/789	• • {External cooling ribs}
U F16D 66/00	Arrangements for monitoring working conditions, e.g. wear, temperature
F16D 2066/001	• Temperature {Temperature}
F16D 2066/003	• {Position, angle or speed}
F16D 2066/005	• {Force, torque, stress or strain}
F16D 2066/006	• {without direct measurement of the quantity monitored, e.g. wear or temperature calculated from force and duration of braking}
F16D 2066/008	• {of clutches}
U F16D 69/00	Friction linings; Attachment thereof; Selection of coating friction substances or surfaces(clutching elements F16D 13/60 ; braking members F16D 65/02)
F16D 2069/001	• {Material of friction lining and support element of same or similar composition}
F16D 2069/002	• {Combination of different friction materials}
F16D 2069/003	• {Selection of coating friction materials}
F16D 2069/004	• {Profiled friction surfaces, e.g. grooves, dimples}
F16D 2069/005	• {having a layered structure}
F16D 2069/006	• • {comprising a heat-insulating layer}
F16D 2069/007	• • {comprising a resilient layer}
F16D 2069/008	• • {Layers of fibrous materials}
F16D 2069/009	• {Linings attached to both sides of a central support element, e.g. a carrier plate}
F16D 69/02	• Compositions of linings; {Methods of manufacturing}
	NOTE
	Indexing codes F16D 69/021 to R16D69/02H F16D 2250/0053 are used for indexing aspects relating to compositions or manufacturing of friction linings
U F16D 69/04	• Attachment of linings
F16D 2069/0425	• • {Attachment methods or devices}
F16D 2069/0433	• • • {Connecting elements not integral with the braking member, e.g. bolts, rivets}
F16D 2069/0441	• • • {Mechanical interlocking, e.g. roughened lining carrier, mating profiles on friction material and lining carrier}
F16D 2069/045	• • • Bonding {Bonding}
F16D 2069/0458	• • • • {metallurgic, e.g. welding, brazing, sintering}
F16D 2069/0466	• • • • {chemical, e.g. using adhesives, vulcanising}
F16D 2069/0475	• • • • • {comprising thermal treatment}
F16D 2069/0483	• • • {Lining or lining carrier material shaped in situ}
F16D 2069/0491	• • • {Tools, machines, processes}

Project: N/A (F16F)

- F16F 15/00** **Suppression of vibrations in systems({ damping of non-rotary systems using inertia effect [F16F 7/10](#) ; prevention or isolation of vibrations in machine tools [B23Q 11/0032](#) ; ~~suppression of driveline vibrations in hybrid vehicle transmissions [B60K6/04B](#) }~~ ; ~~suppression of driveline vibrations in hybrid vehicle transmissions [B60W 30/20](#) }~~ ; vehicle seat suspension devices [B60N 2/50](#) ; { methods or devices for protecting against, or damping of, acoustic waves, e.g. sound [G10K 11/16](#) }); Means or arrangements for avoiding or reducing out-of-balance forces, e.g. due to motion({ vibration absorbing or balancing means for aircraft propellers [B64C 11/008](#) , for rotorcraft rotors [B64C 27/001](#) } ; testing static and dynamic balance of machines or structures [G01M 1/00](#))**
- U F16F 15/02 • Suppression of vibrations of non-rotating, e.g. reciprocating systems; Suppression of vibrations of rotating systems by use of members not moving with the rotating systems({ [F16F 15/005](#) takes precedence } ; layered products [B32B](#) ; suppression of vibration in ships [B63](#) ; { relieving load on bearings, using magnetic means [F16C 39/06](#) })
- U F16F 15/03 • • using{magnetic or}electromagnetic means([F16F 9/53](#) , { [F16F 15/005](#) }take precedence)
- F16F 15/035 • • • {by use of eddy or induced-current damping(dynamo-electric brakes of the eddy-current type ~~[H02K49/04B](#)~~[H02K 49/04](#))}
- U F16F 15/10 • Suppression of vibrations in rotating systems by making use of members moving with the system(by balancing [F16F 15/22](#) ; { yielding couplings [F16D 3/00](#) } ; with flywheels acting variably or intermittently [F16H](#) ; { construction providing resilience or vibration-damping for gear elements [F16H 55/14](#) })
- U F16F 15/12 • • using elastic members or friction-damping members, e.g. between a rotating shaft and a gyratory mass mounted thereon({ [F16F 15/14](#) } , [F16F 15/16](#) take precedence)
- F16F 15/1204 • • • {with a kinematic mechanism or gear system(~~[F16F 15/12L](#)~~[F16F15/12L](#) , [F16F 15/13157](#) take precedence)}
- U F16F 15/22 • Compensation of inertia forces(({ suppression of vibrations of rotating systems by favourable grouping or relative arrangements of the moving members of the system or systems [F16F 15/20](#) , counterweights [F16F 15/28](#) ; correcting-weights for balancing rotating bodies [F16F 15/32](#)))
- U F16F 15/26 • • of crankshaft systems using solid masses, other than the ordinary pistons, moving with the system,{i.e. masses connected through a kinematic mechanism or gear system([F16F 15/226](#) takes precedence)}
- U F16F 15/264 • • • {Rotating balancer shafts([F16F 15/262](#) takes precedence)}
- F16F 15/265 • • • • {Arrangement of two or more balancer shafts(~~[F61F15/26R4](#)~~[F16F 15/267](#) takes precedence)}

Project: N/A (F16H)

- U F16H 1/00 **Toothed gearings for conveying rotary motion(specific for conveying rotary motion with variable gear ratio or for reversing rotary motion [F16H 3/00](#))**
- U F16H 1/28 • with gears having orbital motion
- F16H 2001/2872 • • {comprising three central gears, i.e. ring or sun gear, engaged by at least one common orbital gear mounted on an idling carrier}
- F16H 2001/2881 • • {comprising two axially spaced central gears, i.e. ring or sun gear, engaged by at least one common orbital gear wherein one of the central gears is forming the output}

- F16H 2001/289
 - • {comprising two or more coaxial and identical sets of orbital gears, e.g. for distributing torque between the coaxial sets}
- U F16H 1/32
 - • in which the central axis of the gearing lies inside the periphery of an orbital gear
- F16H 2001/322
 - • • {comprising at least one universal joint, e.g. a Cardan joint}
- F16H 2001/323
 - • • {comprising eccentric crankshafts driving or driven by a gearing}
- F16H 2001/324
 - • • {comprising two axially spaced, rigidly interconnected, orbital gears}
- F16H 2001/325
 - • • {comprising a carrier with pins guiding at least one orbital gear with circular holes}
- F16H 2001/326
 - • • {comprising a carrier with linear guiding means guiding at least one orbital gear}
- F16H 2001/327
 - • • {with orbital gear sets comprising an internally toothed ring gear}
- F16H 2001/328
 - • • {comprising balancing means}
- U **F16H 3/00**

Toothed gearings for conveying rotary motion with variable gear ratio or for reversing rotary motion(speed-changing or reversing mechanisms [F16H 59/00](#) to [F16H 63/00](#))
- U F16H 3/006
 - {power being selectively transmitted by either one of the parallel flow paths}
- F16H 2003/007
 - • {with two flow paths, one being directly connected to the input, the other being connected to the input though a clutch}
- F16H 2003/008
 - • {comprising means for selectively driving countershafts}
- U F16H 3/02
 - without gears having orbital motion
- U F16H 3/08
 - • exclusively or essentially with continuously meshing gears, that can be disengaged from their shafts
- F16H 2003/0803
 - • • {with countershafts coaxial with input or output shaft}
- F16H 2003/0807
 - • • {with gear ratios in which the power is transferred by axially coupling idle gears}
- F16H 2003/0811
 - • • {using unsynchronised clutches}
- F16H 2003/0815
 - • • {using torque sharing, i.e. engaging two gear ratios simultaneously to transfer large torque, e.g. using one slipping clutch}
- F16H 2003/0818
 - • • {comprising means for power-shifting}
- F16H 2003/0822
 - • • {characterised by the arrangement of at least one reverse gear}
- F16H 2003/0826
 - • • {wherein at least one gear on the input shaft, or on a countershaft is used for two different forward gear ratios}
- U F16H 3/087
 - • • characterised by the disposition of the gears([F16H 3/083](#) , [F16H 3/085](#) take precedence)
- NOTE

When counting the countershafts, the reverse countershaft is not taken into consideration if it is used for reversal only.
- U F16H 3/093
 - • • • with two or more countershafts
- F16H 2003/0931
 - • • • • {each countershaft having an output gear meshing with a single common gear on the output shaft}
- F16H 2003/0933
 - • • • • {with coaxial countershafts}
- F16H 2003/0935
 - • • • • {with multiple countershafts comprising only one idle gear and one gear fixed to the countershaft}
- F16H 2003/0936
 - • • • • {with multiple countershafts comprising only two idle gears and one gear fixed to the countershaft}
- F16H 2003/0938
 - • • • • {with multiple gears on the input shaft directly meshing with respective gears on the output shaft}

- U F16H 3/12
 - • • with means for synchronisation not incorporated in the clutches(synchronised clutches [F16D 23/02](#))
- F16H 2003/123
 - • • {using a brake}
- U F16H 3/44
 - using gears having orbital motion{(the gear-ratio being changed by inversion of torque direction [F16H 3/005](#))}
- F16H 2003/442
 - • {comprising two or more sets of orbital gears arranged in a single plane}
- F16H 2003/445
 - • {without permanent connection between the input and the set of orbital gears}
- F16H 2003/447
 - • {without permanent connection between the set of orbital gears and the output}
- U F16H 3/72
 - • with a secondary drive, e.g. regulating motor, in order to vary speed continuously
- F16H 3/727
 - • • {with at least two dynamo electric machines for creating an electric power path inside the gearing, e.g. using generator and motor for a variable power torque path(special adapted for a hybrid electric vehicle [B60K6/04](#) [B60K 6/42](#))}
- F16H 7/00 -
F16H 9/00

Gearing for conveying rotary motion by endless flexible members{(control of exclusively fluid gearings for conveying rotary motion by endless flexible members [F16H61/38C](#)[F16H 61/662](#))}
- U F16H 7/00

Gearings for conveying rotary motion by endless flexible members(specific for conveying rotary motion with variable gear ratio or for reversing rotary motion [F16H 9/00](#) ; { Belts, V-belts, ropes, cables, and chains [F16G](#) , chain-wheels [F16H 55/30](#) ; pulleys [F16H 55/36](#) })
- U F16H 7/02
 - with belts; with V-belts
- F16H 2007/026
 - • {with belts running in a mist of oil}
- U F16H 7/08
 - Means for varying tension of belts, ropes, or chains(pulleys of adjustable construction [F16H 55/52](#) ; { gearings with endless belts [F16H 7/02](#) ; tensioning for chains or belts specially adapted for cycles [B62M 9/16](#) ; belt or chain tensioning arrangements for endless conveyers [B65G 23/44](#) })
- F16H 2007/0802
 - • {Actuators for final output members}
- F16H 2007/0804
 - • • {Leaf springs}
- F16H 2007/0806
 - • • {Compression coil springs}
- F16H 2007/0808
 - • • {Extension coil springs}
- F16H 2007/081
 - • • {Torsion springs}
- F16H 2007/0812
 - • • {Fluid pressure}
- F16H 2007/0814
 - • • • {with valves opening on surplus pressure}
- F16H 2007/0817
 - • • • {with means for venting unwanted gas}
- F16H 2007/0819
 - • • {Rubber or other elastic materials}
- F16H 2007/0821
 - • • {working with gravity}
- F16H 2007/0823
 - • • {Electric actuators}
- F16H 2007/0825
 - • • {influenced by other actuators of output members}
- U F16H 7/0829
 - • {with vibration damping means}
- F16H 2007/084
 - • • {having vibration damping characteristics dependent on the moving direction of the tensioner}
- F16H 2007/0842
 - • {Mounting or support of tensioner}
- F16H 2007/0844
 - • • {Mounting elements essentially within boundaries of final output members}
- F16H 2007/0846
 - • {comprising a mechanical stopper}
- U F16H 7/0848
 - • {with means for impeding reverse motion}
- F16H 2007/0851
 - • • [Wedges](#){[Wedges](#)}

- F16H 2007/0853 . . . **Ratchets**{*Ratchets*}
- F16H 2007/0855 {comprising a clip member engaging with the rack teeth}
- F16H 2007/0857 . . . {Screw mechanisms}
- F16H 2007/0859 . . . {Check valves}
- F16H 2007/0861 . . {comprising means for sensing tensioner position}
- F16H 2007/0863 . . {Finally actuated members, e.g. constructional details thereof}
- F16H 2007/0865 . . . **Pulleys**{*Pulleys*}
- F16H 2007/0868 {comprising means for changing working diameter of pulley}
- F16H 2007/087 . . . **Sprockets**{*Sprockets*}
- F16H 2007/0872 . . . {Sliding members}
- F16H 2007/0874 . . . {Two or more finally actuated members}
- F16H 2007/0876 . . {Control or adjustment of actuators}
- F16H 2007/0878 . . . {Disabling during transport}
- F16H 2007/088 . . . {Manual adjustment}
- F16H 2007/0882 . . . {the tension being a function of temperature}
- F16H 2007/0885 . . . {the tension being a function of engine running condition}
- F16H 2007/0887 . . . {the tension being a function of load}
- F16H 2007/0889 . . {Path of movement of the finally actuated member}
- F16H 2007/0891 . . . {Linear path}
- F16H 2007/0893 . . . {Circular path}
- F16H 2007/0895 . . . {Internal to external direction}
- F16H 2007/0897 . . . {External to internal direction}
- U F16H 7/18 . Means for guiding or supporting belts, ropes, or chains(construction of pulleys [F16H 55/36](#))
- F16H 2007/185 . . {the guiding surface in contact with the belt, rope or chain having particular shapes, structures or materials}
- U **F16H 9/00** **Gearings for conveying rotary motion with variable gear ratio, or for reversing rotary motion, by endless flexible members(control of change-speed or reversing-gearings conveying rotary motion [F16H 59/00](#) to [F16H 63/00](#))**
- U F16H 9/02 . without members having orbital motion
- U F16H 9/04 . . using belts, V-belts, or ropes(with toothed belts [F16H 9/24](#) ; pulleys of adjustable construction [F16H 55/52](#))
- F16H 9/12 . . . engaging a pulley built-up out of relatively axially-adjustable parts in which the belt engages the opposite flanges of the pulley directly without interposed belt-supporting members{(means for controlling the geometrical interrelationship of pulleys and the endless flexible member, e.g. belt alignment or position of the resulting axial pulley force in the plane perpendicular to the pulley axis **F16H61/662P** [F16H 2061/66295](#))}
- U F16H 9/16 using two pulleys, both built-up out of adjustable conical parts
- F16H 2009/163 {Arrangements of two or more belt gearings mounted in parallel, e.g. for increasing transmittable torque}
- F16H 2009/166 {Arrangements of two or more belt gearings mounted in series, e.g. for increasing ratio coverage}
- U F16H 9/24 . . using chains or toothed belts, belts in the form of links; Chains or belts specially adapted to such gearing(toothed belts [F16G 1/28](#) ; V-belts in the form of links [F16G 5/18](#) ; toothed V-belts [F16G 5/20](#))
- F16H 2009/245 . . . {with idle wheels to assist ratio change}

	F16H 13/00 - F16H 19/00	<u>Other friction gearing for conveying rotary motion</u>{(control of exclusively friction gearings for conveying rotary motion F16H 61/38B F16H 61/664)}
U	F16H 15/00	Gearings for conveying rotary motion with variable gear ratio, or for reversing rotary motion, by friction between rotary members { gearings for reversal only F16H 3/14 , F16H 3/60 } ; control of change-speed or reversing-gearings conveying rotary motion F16H 59/00 to F16H 63/00)
U	F16H 15/02	• without members having orbital motion
U	F16H 15/04	• • Gearings providing a continuous range of gear ratios
U	F16H 15/06	• • • in which a member A of uniform effective diameter mounted on a shaft may co-operate with different parts of a member B
U	F16H 15/32	• • • • in which the member B has a curved friction surface formed as a surface of a body of revolution generated by a curve which is neither a circular arc centered on its axis of revolution nor a straight line
U	F16H 15/36	• • • • • with concave friction surface, e.g. a hollow toroid surface
U	F16H 15/38	• • • • • with two members B having hollow toroid surface opposite to each other, the member or members A being adjustably mounted between the surfaces
	F16H 2015/383	• • • • • • {with two or more sets of toroid gearings arranged in parallel}
	F16H 2015/386	• • • • • • {with two or more sets of toroid gearings arranged in series}
U	F16H 19/00	Gearings comprising essentially only toothed gears or friction members and not capable of conveying indefinitely-continuing rotary motion (with intermittently-driving members F16H 27/00 - F16H 31/00 ; rope or like tackle for lifting or haulage B66D 3/00)
U	F16H 19/001	• {for conveying reciprocating or limited rotary motion}
	F16H 2019/008	• • {Facilitating the engagement or stopping of gear sections}
U	F16H 19/02	• for interconverting rotary motion and reciprocating motion
U	F16H 19/04	• • comprising a rack
	F16H 2019/046	• • • {Facilitating the engagement or stopping of racks}
U	F16H 19/06	• • comprising {flexible members, e.g. an}endless flexible member
		<u>WARNING</u> Groups F16H 19/0604 - F16H 19/0672 are not complete pending reclassification; see also this group
	F16H 2019/0609	• • • {the reciprocating motion being created by drums with different diameters using a differential effect}
	F16H 2019/0613	• • • {the flexible member being a toothed belt or chain engaging a rack}
U	F16H 19/0622	• • • {for converting reciprocating movement into oscillating movement and vice versa, the reciprocating movement is perpendicular to the axis of oscillation}
U	F16H 2019/0627	• • • • {the flexible member, e.g. a cable, being wound with one string to a drum and unwound with other string from the same or an other drum to create reciprocating movement of the flexible member}
	F16H 2019/0668	• • • {Both ends of the flexible member are fixed to the casing}
	F16H 2019/0677	• • • {characterised by the means for fixing the flexible member to a drum}
	F16H 2019/0681	• • • {characterised by an endless flexible member, i.e. the flexible member forming a closed loop}
	F16H 2019/0686	• • • • {the flexible member being directly driven, e.g. by a pulley, and the reciprocating member forming a part of the loop, i.e. a part of the endless flexible member}

	F16H 2019/069	<ul style="list-style-type: none"> • • {with means for generating two superposed movements, e.g. for driving a X-Y table}
	F16H 2019/0695	<ul style="list-style-type: none"> • • {Generating pivoting movement of a joint}
U	F16H 19/08	<ul style="list-style-type: none"> • for interconverting rotary motion and oscillating motion
	F16H 2019/085	<ul style="list-style-type: none"> • • {by using flexible members}
U	F16H 25/00	Gearings comprising primarily only cams, cam-followers and screw-and-nut mechanisms
U	F16H 25/04	<ul style="list-style-type: none"> • for conveying rotary motion
U	F16H 25/06	<ul style="list-style-type: none"> • • with intermediate members guided along tracks on both rotary members
	F16H 2025/063	<ul style="list-style-type: none"> • • {the intermediate members, e.g. balls, engaging cams on opposite coaxial discs}
	F16H 2025/066	<ul style="list-style-type: none"> • • {the intermediate members being rollers supported in a chain}
U	F16H 25/08	<ul style="list-style-type: none"> • for interconverting rotary motion and reciprocating motion(F16H 23/00 takes precedence)
U	F16H 25/12	<ul style="list-style-type: none"> • • with reciprocation along the axis of rotation, e.g. gearings with helical grooves and automatic reversal,{or cams}{ screw mechanism without automatic reversal F16H 25/20)
	F16H 2025/127	<ul style="list-style-type: none"> • • {using electric solenoids for generating the reciprocating motion}
U	F16H 25/18	<ul style="list-style-type: none"> • for conveying or interconverting oscillating or reciprocating motions
U	F16H 25/20	<ul style="list-style-type: none"> • • Screw mechanisms(with automatic reversal F16H 25/12)
U	F16H 25/2003	<ul style="list-style-type: none"> • • {with arrangements for taking up backlash(F16H 25/2209 takes precedence)}
	F16H 2025/2012	<ul style="list-style-type: none"> • • • {using a spring member creating rotary torque for counter rotating the two nuts, e.g. a torsion bar}
	F16H 2025/2028	<ul style="list-style-type: none"> • • {specially adapted for converting reciprocating motion into rotary motion, e.g. by using screw profile with high efficiency}
	F16H 2025/2031	<ul style="list-style-type: none"> • • {Actuator casings}
	F16H 2025/2034	<ul style="list-style-type: none"> • • • {Extruded frame casings}
	F16H 2025/2037	<ul style="list-style-type: none"> • • {Actuator supports or means for fixing piston end, e.g. flanges}
	F16H 2025/204	<ul style="list-style-type: none"> • • {Axial sliding means, i.e. for rotary support and axial guiding of nut or screw shaft}
	F16H 2025/2043	<ul style="list-style-type: none"> • • {Screw mechanisms driving an oscillating lever, e.g. lever with perpendicular pivoting axis}
	F16H 2025/2046	<ul style="list-style-type: none"> • • {with gears arranged perpendicular to screw shaft axis, e.g. helical gears engaging tangentially the screw shaft}
	F16H 2025/2053	<ul style="list-style-type: none"> • • {Screws in parallel arrangement driven simultaneously with an output member moved by both screws}
	F16H 2025/2059	<ul style="list-style-type: none"> • • {Superposing movement by two coaxial screws, e.g. with opposite thread direction(telescopic screws with three screw members F16H 25/2056)}
	F16H 2025/2062	<ul style="list-style-type: none"> • • {Arrangements for driving the actuator}
	F16H 2025/2065	<ul style="list-style-type: none"> • • • {Manual back-up means for overriding motor control, e.g. hand operation in case of failure}
	F16H 2025/2068	<ul style="list-style-type: none"> • • • {Means for returning linear actuator to zero position, e.g. upon occurrence of failure by using a spring}
	F16H 2025/2071	<ul style="list-style-type: none"> • • • {Disconnecting drive source from the actuator, e.g. using clutches for release of drive connection during manual control}
	F16H 2025/2075	<ul style="list-style-type: none"> • • • {Coaxial drive motors}
	F16H 2025/2078	<ul style="list-style-type: none"> • • • • {the rotor being integrated with the nut body}

	F16H 2025/2081	. . . . {Parallel arrangement of drive motor to screw axis}
	F16H 2025/2084	. . . . {Perpendicular arrangement of drive motor to screw axis}
	F16H 2025/2087	. . . . {using planetary gears}
	F16H 2025/209	. . . . {using worm gears}
	F16H 2025/2093	. . . . {using conical gears}
	F16H 2025/2096	. . . . {using endless flexible members}
U	F16H 25/22	. . . with balls, rollers, or similar members between the co-operating parts; Elements essential to the use of such members
U	F16H 25/2204	. . . . {with balls}
	F16H 2025/2242	. . . . {Thread profile of the screw or nut showing a pointed "gothic" arch in cross-section}
U	F16H 25/2247	. . . . {with rollers}
U	F16H 25/2252	. . . . {Planetary rollers between nut and screw}
	F16H 2025/2257	. . . . . {with means for shifting planetary rollers axially, e.g. into central position}
	F16H 2025/2271	. . . . . {with means for guiding circulating rollers}
	F16H 2025/2276	. . . . . {using roller spacers, i.e. spacers separating the rollers, e.g. by forming a complete chain}
	F16H 2025/228	. . . . . {Screw mechanisms having rollers being supported by the screw shaft and engaging the nut}
U	F16H 25/24	. . . Elements essential to such mechanisms, e.g. screws, nuts(F16H 25/22 takes precedence)
	F16H 2025/2436	. . . . {Intermediate screw supports for reducing unsupported length of screw shaft}
	F16H 2025/2445	. . . . {Supports for compensating misalignment or offset between screw and nut}
U	F16H 25/2454	. . . . {Brakes; Rotational locks}
	F16H 2025/2463	. . . . . {using a wrap spring brake, i.e. a helical wind up spring for braking or locking}
	F16H 2025/2481	. . . . {Special features for facilitating the manufacturing of spindles, nuts, or sleeves of screw devices}
	F16H 2025/249	. . . . {Special materials or coatings for screws or nuts(lubrication F16H 57/0497)}
U	F16H 35/00	Gearings or mechanisms with other special functional features
	F16H 2035/001	. {Gearings with eccentric mounted gears, e. g. for cyclically varying ratio}
	F16H 2035/003	. {Gearings comprising pulleys or toothed members of non-circular shape, e.g. elliptical gears(harmonic drives with elliptical wave generators F16H 49/001)}
	F16H 2035/005	. {Gearings or mechanisms preventing back-driving(braking or locking of screw actuators F16H 25/2454)}
	F16H 2035/006	. {Gearings or mechanisms for stopping or limiting movement, e.g. stopping a movement after few turns(for linear screw actuators F16H 25/2015)}
U	F16H 35/10	. Arrangements or devices for absorbing overload or preventing damage by overload({ for screw mechanisms F16H 25/2021 }; couplings for transmitting rotation F16D)
	F16H 2035/103	. . {with drive interruption by structural failure of overload preventing means, e.g. using shear pins}
	F16H 2035/106	. . {Monitoring of overload}

U	F16H 37/00	Combinations of mechanical gearings, not hereinbefore provided for (applications of "underdrives" or "overdrives" in motor vehicles, combinations with differential gearings in motor vehicles B60K)
U	F16H 37/02	• comprising essentially only toothed or friction gearings
U	F16H 37/021	• • {toothed gearing combined with continuous variable friction gearing}
	F16H 2037/023	• • • {CVT's provided with at least two forward and one reverse ratio in a serial arranged sub-transmission}
	F16H 2037/025	• • • {CVT's in which the ratio coverage is used more than once to produce the overall transmission ratio coverage, e.g. by shift to end of range, then change ratio in sub-transmission and shift CVT through range once again}
	F16H 2037/026	• • • {CVT layouts with particular features of reversing gear, e.g. to achieve compact arrangement}
	F16H 2037/028	• • {having two distinct forward drive ratios and one reverse drive ratio arranged in series with a continuously variable transmission unit}
U	F16H 37/04	• • Combinations of toothed gearings only(F16H 37/06 takes precedence)
U	F16H 37/042	• • • {change gear transmissions in group arrangement}
U	F16H 37/043	• • • • {without gears having orbital motion}
	F16H 2037/044	• • • • • {comprising a separate gearing unit for shifting between forward or reverse}
	F16H 2037/045	• • • • • {comprising a separate gearing unit for shifting between high and low ratio range}
	F16H 2037/047	• • • {comprising one or more orbital gear sets coaxial with a first shaft and having more than one drive connection to a second shaft parallel to the first shaft}
	F16H 2037/048	• • • {Combinations of parallel shaft and orbital motion gearing, wherein the orbital motion gear has more than one connection with the parallel shaft gearing}
	F16H 2037/049	• • • {Forward-reverse units with forward and reverse gears for achieving multiple forward and reverse gears, e.g. for working machines}
U	F16H 37/06	• • with a plurality of driving or driven shafts; with arrangements for dividing torque between two or more intermediate shafts
U	F16H 37/08	• • • with differential gearing
U	F16H 37/0833	• • • • {with arrangements for dividing torque between two or more intermediate shafts, i.e. with two or more internal power paths(F16H 37/72 takes precedence)}
U	F16H 37/084	• • • • • {at least one power path being a continuously variable transmission, i.e. CVT}
	F16H 2037/0866	• • • • • • {Power split variators with distributing differentials, with the output of the CVT connected or connectable to the output shaft}
	F16H 2037/0873	• • • • • • • {with switching, e.g. to change ranges}
	F16H 2037/088	• • • • • • {Power split variators with summing differentials, with the input of the CVT connected or connectable to the input shaft}
	F16H 2037/0886	• • • • • • • {with switching means, e.g. to change ranges}
	F16H 2037/0893	• • • • • • • {characterised in the ratio of the continuously variable transmission is different from zero when the output shaft speed is zero}
U	F16H 37/10	• • • • at both ends of intermediate shafts{(F16H 37/0806 takes precedence)}
	F16H 2037/101	• • • • • {Power split variators with one differential at each end of the CVT}
	F16H 2037/102	• • • • • {the input or output shaft of the transmission is connected or connectable to two or more differentials}

F16H 2037/103	<ul style="list-style-type: none"> • • • • {Power split variators with each end of the CVT connected or connectable to a Ravigneaux set}
F16H 2037/104	<ul style="list-style-type: none"> • • • • {Power split variators with one end of the CVT connected or connectable to two or more differentials}
F16H 2037/105	<ul style="list-style-type: none"> • • • • {characterised by number of modes or ranges, e.g. for compound gearing}
F16H 2037/106	<ul style="list-style-type: none"> • • • • • {with switching means to provide two variator modes or ranges}
F16H 2037/107	<ul style="list-style-type: none"> • • • • • {with switching means to provide three variator modes or ranges}
F16H 2037/108	<ul style="list-style-type: none"> • • • • • {with switching means to provide four or more variator modes or ranges}
U F16H 37/12	<ul style="list-style-type: none"> • Gearings comprising primarily toothed or friction gearing, links or levers, and cams, or members of at least two of these types(F16H 21/14 , F16H 21/28 , F16H 21/30 take precedence; toothed or friction gearing or cam gearing with only an additional lever or link, see the appropriate group for the main gearing)
F16H 2037/128	<ul style="list-style-type: none"> • {Generating reciprocating motion by a planetary gear(ratio 2:1)using endless flexible members}
U F16H 39/00	Rotary fluid gearing using pumps and motors of the volumetric type, i.e. passing a predetermined volume of fluid per revolution({ application to motor vehicles B60K } ; application to lifting or pushing equipment B66F; control of exclusively fluid gearing F16H 61/38)
F16H 2039/005	<ul style="list-style-type: none"> • {comprising arrangements or layout to change the capacity of the motor or pump by moving the hydraulic chamber of the motor or pump}
U F16H 39/04	<ul style="list-style-type: none"> • with liquid motor and pump combined in one unit
U F16H 39/06	<ul style="list-style-type: none"> • • pump and motor being of the same type
U F16H 39/08	<ul style="list-style-type: none"> • • • each with one main shaft and provided with pistons reciprocating in cylinders
U F16H 39/10	<ul style="list-style-type: none"> • • • with cylinders arranged around and parallel or approximately parallel to the main axis of the gearing
F16H 2039/105	<ul style="list-style-type: none"> • • • • {at least one pair of motors or pumps sharing a common swash plate}
U F16H 41/00	Rotary fluid gearing of the hydrokinetic type(control of exclusively fluid gearing F16H 61/38)
U F16H 41/24	<ul style="list-style-type: none"> • Details
F16H 2041/243	<ul style="list-style-type: none"> • • {Connections between pump shell and cover shell of the turbine}
F16H 2041/246	<ul style="list-style-type: none"> • • {relating to one way clutch of the stator}
U F16H 41/28	<ul style="list-style-type: none"> • • with respect to manufacture, e.g. blade attachment
F16H 2041/285	<ul style="list-style-type: none"> • • • {of stator blades}
U F16H 45/00	Combinations of fluid gearings for conveying rotary motion with couplings or clutches(F16H 41/22 , { F16H 47/085 } take precedence; conjoint control of driveline clutches and change-speed gearing in vehicles B60W 10/02 , B60W 10/10 { and B60W 30/18 })
NOTE	
Clutches for varying working conditions in fluid torque-converters are regarded as part of the torque converter	
F16H 2045/002	<ul style="list-style-type: none"> • {comprising a clutch between prime mover and fluid gearing}
F16H 2045/005	<ul style="list-style-type: none"> • {comprising a clutch between fluid gearing and the mechanical gearing unit}
F16H 2045/007	<ul style="list-style-type: none"> • {comprising a damper between turbine of the fluid gearing and the mechanical gearing unit}

- U F16H 45/02
 - with mechanical clutches for bridging a fluid gearing of the hydrokinetic type(control of torque converter lock-up clutches [F16H 61/14](#))
- F16H 2045/0205
 - • {two chamber system, i.e. without a separated, closed chamber specially adapted for actuating a lock-up clutch}
- F16H 2045/021
 - • {three chamber system, i.e. comprising a separated, closed chamber specially adapted for actuating a lock-up clutch}
- F16H 2045/0215
 - • {Details of oil circulation}
- F16H 2045/0221
 - • {with damping means}
- F16H 2045/0226
 - • • {comprising two or more vibration dampers}
- F16H 2045/0231
 - • • • {arranged in series}
- F16H 2045/0236
 - • • {with axial dampers, e.g. comprising a ramp system}
- F16H 2045/0242
 - • • {with viscous dampers}
- F16H 2045/0247
 - • • {having a turbine with hydrodynamic damping means}
- F16H 2045/0252
 - • • {having a damper arranged on input side of the lock-up clutch}
- F16H 2045/0257
 - • • {having a pump adapted for use as a secondary mass of the damping system}
- F16H 2045/0263
 - • • {the damper comprising a pendulum}
- F16H 2045/0268
 - • • {the damper comprising a gearing}
- F16H 2045/0273
 - • {characterised by the type of the friction surface of the lock-up clutch}
- F16H 2045/0278
 - • • {comprising only two co-acting friction surfaces}
- F16H 2045/0284
 - • • {Multiple disk type lock-up clutch}
- F16H 2045/0289
 - • • {Details of friction surfaces of the lock-up clutch}
- F16H 2045/0294
 - • • {Single disk type lock-up clutch, i.e. using a single disc engaged between friction members}
- U **F16H 47/00**
Combinations of mechanical gearing with fluid clutches or fluid gearing(conjoint control of clutch and gearing [B60K 41/22](#) ; control of driveline clutches and change-speed gearing in vehicles [B60W 10/02](#) and [B60W 10/10](#))
- U F16H 47/02
 - the fluid gearing being of the volumetric type
- F16H 2047/025
 - • {the fluid gearing comprising a plurality of pumps or motors}
- U F16H 47/04
 - • the mechanical gearing being of the type with members having orbital motion
- F16H 2047/045
 - • • {the fluid gearing comprising a plurality of pumps or motors}
- U **F16H 48/00**
Differential gearings(cooling or lubricating of differential gearing [F16H 57/04](#))
- NOTE**
- When classifying in this main group, in the absence of an indication to the contrary, classification is made in all appropriate places.
- F16H 2048/02
 - • {Transfer gears for influencing drive between outputs}
- F16H 2048/04
 - • {having unequal torque transfer between two outputs}
- U F16H 48/06
 - with gears having orbital motion
- U F16H 48/08
 - • comprising bevel gears
- F16H 2048/082
 - • • {characterised by the arrangement of output shafts}
- F16H 2048/085
 - • • {characterised by shafts or gear carriers for orbital gears}
- F16H 2048/087
 - • • {characterised by the pinion gears, e.g. their type or arrangement}
- U F16H 48/10
 - • with orbital spur gears
- F16H 2048/102
 - • • {with spur gears engaging face gears}

	F16H 2048/104	• • • {characterised by two ring gears}
	F16H 2048/106	• • • {characterised by two sun gears}
	F16H 2048/108	• • • {characterised by intermeshing orbital gears, i.e. at least two intermeshing orbital gears}
U	F16H 48/20	• Arrangements for suppressing or influencing the differential action, e.g. locking devices
	F16H 2048/201	• • {with means directly braking the orbital gears}
	F16H 2048/202	• • {using freewheel clutches}
	F16H 2048/204	• • {Control of arrangements for suppressing differential actions}
	F16H 2048/205	• • • {using the steering as a control parameter}
	F16H 2048/207	• • • {using torque sensors}
	F16H 2048/208	• • • {using flywheels}
U	F16H 48/26	• • using fluid action, e.g. viscous clutches
	F16H 2048/265	• • • {with a fluid throttling means}
U	F16H 48/28	• • using self-locking gears or self-braking gears
	F16H 2048/282	• • • {using the axial movement of axially movable bevel gears}
U	F16H 48/30	• • using externally-actuatable means
	F16H 2048/305	• • • {using manual actuators}
U	F16H 48/34	• • • using electromagnetic or electric actuators
	F16H 2048/343	• • • • {using a rotary motor}
	F16H 2048/346	• • • • {using a linear motor}
U	F16H 48/36	• characterised by intentionally generating speed difference between outputs
	F16H 2048/362	• • {using a continuously variable transmission}
	F16H 2048/364	• • {using electric or hydraulic motors}
	F16H 2048/366	• • {using additional non-orbital gears in combination with clutches or brakes}
	F16H 2048/368	• • {using additional orbital gears in combination with clutches or brakes}
U	F16H 48/38	• Constructional details(the outer casing comprising the differential and supporting input and output shafts F16H 57/037)
	F16H 2048/382	• • {Methods for manufacturing differential gearings}
	F16H 2048/385	• • {of the ring or crown gear}
	F16H 2048/387	• • {Shields or washers}
U	F16H 48/40	• • characterised by features of the rotating cases
	F16H 2048/405	• • • {characterised by features of the bearing of the rotating case}
U	F16H 48/42	• • characterised by features of the input shafts, e.g. mounting of drive gears thereon
	F16H 2048/423	• • • {characterised by bearing arrangement}
	F16H 2048/426	• • • • {characterised by spigot bearing arrangement, e.g. bearing for supporting the free end of the drive shaft pinion}
U	F16H 49/00	Other gearings
U	F16H 49/001	• {Wave gearings, e.g. harmonic drive transmissions(harmonic drives specially adapted for positioning programme-controlled manipulators B25J 9/1025)}
	F16H 2049/003	• • {Features of the flexsplines therefor}
	F16H 2049/006	• {Wave generators producing a non-elliptical shape of flexsplines, i.e. with a qualified different shape than elliptical}

F16H 2049/008	<ul style="list-style-type: none"> • {Linear wave gearings, i.e. harmonic type gearing imposing a strain wave to a straight flexible member engaging a second member with different pitch to generate linear motion thereof}
U F16H 55/00	Elements with teeth or friction surfaces for conveying motion; Worms; Pulleys; Sheaves(pulley-blocks B66D 3/04)
U F16H 55/02	<ul style="list-style-type: none"> • Toothed members; Worms
U F16H 55/06	<ul style="list-style-type: none"> • • Use of materials; Use of treatments of toothed members or worms to affect their intrinsic material properties({ coatings for lubrication F16H 57/041 ; producing gear wheels from plastics or substances in a plastic state B29D 15/00 ; heat treatment C21D 9/32 ; electrolytic surface treatment C25D; heating by electromagnetic field H05B 6/00 })
F16H 2055/065	<ul style="list-style-type: none"> • • • {Moulded gears, e.g. inserts therefor}
U F16H 55/08	<ul style="list-style-type: none"> • • Profiling
F16H 2055/086	<ul style="list-style-type: none"> • • • {Silent gear profiles}
F16H 2055/0866	<ul style="list-style-type: none"> • • • {Profiles for improving radial engagement of gears, e.g. chamfers on the tips of the teeth}
F16H 2055/0893	<ul style="list-style-type: none"> • • • {for parallel shaft arrangement of toothed members}
U F16H 55/17	<ul style="list-style-type: none"> • • Toothed wheels({ with simple tooth shapes F16H 55/10 } ; worm wheels F16H 55/22 ; chain wheels F16H 55/30)
F16H 2055/173	<ul style="list-style-type: none"> • • • {Crown gears, i.e. gears have axially arranged teeth}
F16H 2055/175	<ul style="list-style-type: none"> • • • {specially adapted for easy repair, e.g. exchange of worn teeth}
F16H 2055/176	<ul style="list-style-type: none"> • • • {Ring gears with inner teeth}
F16H 2055/178	<ul style="list-style-type: none"> • • • {combined with clutch means, e.g. gear with integrated synchronizer clutch}
U F16H 55/18	<ul style="list-style-type: none"> • • • Special devices for taking up backlash({ in tuner actuating devices H03J , H03J 1/06 ; in gear-train of clocks or watches G04B 35/00 })
F16H 2055/185	<ul style="list-style-type: none"> • • • • {using compound gears with coincident teeth of different material, e.g. laminated construction of metal and elastomeric gear layers, where elastic layer is slightly oversized}
U F16H 55/26	<ul style="list-style-type: none"> • • Racks
U F16H 55/28	<ul style="list-style-type: none"> • • • Special devices for taking up backlash
F16H 2055/281	<ul style="list-style-type: none"> • • • • {Cylindrical or half-cylindrical bushings around the rack, e.g. using special wedges to reduce play}
U F16H 55/30	<ul style="list-style-type: none"> • • Chain-wheels(specially adapted for cycles B62M)
F16H 2055/306	<ul style="list-style-type: none"> • • • {with means providing resilience or vibration damping in chain sprocket wheels}
U F16H 55/32	<ul style="list-style-type: none"> • Friction members(friction surfaces F16D 69/00)
F16H 2055/325	<ul style="list-style-type: none"> • • {characterized by roughness or hardness of friction surface}
U F16H 55/36	<ul style="list-style-type: none"> • • Pulleys(with features essential for adjustments F16H 55/52)
F16H 2055/363	<ul style="list-style-type: none"> • • • {with special means or properties for lateral tracking of the flexible members running on the pulley, e.g. with crowning to keep a belt on track}
F16H 2055/366	<ul style="list-style-type: none"> • • • {with means providing resilience or vibration damping}
F16H 57/00	General details of gearing(of screw-and-nut gearing F16H 25/00 ; of fluid gearing F16H 39/00 - F16H 43/00)

NOTE

Groups [F16H 57/01](#) , [F16H 57/021](#) - ~~F16H57/39~~[F16H 57/039](#) are based on IPC2012.01

- U F16H 57/0006
 - {Vibration-damping or noise reducing means specially adapted for gearings(devices for varying tension of belts, ropes or chains with damping means [F16H 7/0829](#) ; toothed members with construction providing vibration damping [F16H 55/14](#) ; reducing vibrations or noise of the gearbox casing [F16H 57/028](#) ; suppression of vibrations or noise of gear selectors [F16H 59/0208](#) ; control of hydrostatic fluid gearing preventing or reducing vibrations or noise **F16H61/40W**)}
- F16H 2057/0012
 - • {for reducing drive line oscillations}
- F16H 2057/0043
 - {Mounting or adjusting transmission parts by robots}
- F16H 2057/005
 - {Mounting preassembled units, i.e. using pre-mounted structures to speed up final mounting process(mounting of gears or shafts in a gearbox [F16H 57/022](#))}
- F16H 2057/0056
 - {Mounting parts arranged in special position or by special sequence, e.g. for keeping particular parts in his position during assembly}
- F16H 2057/0062
 - {Tools specially adapted for assembly of transmissions}
- F16H 2057/0068
 - {Repairing of transmissions by using repair kits(for gear wheels [F16H 2055/175](#))}
- F16H 2057/0075
 - {Modifying standard transmissions from manufacturer, e.g. by adding an extension for additional ratios(for control [F16H 2061/0062](#))}
- F16H 2057/0081
 - {Fixing of, or adapting to transmission failure(detecting transmission failures [F16H 2057/018](#))}
- F16H 2057/0087
 - {Computer aided design [CAD] specially adapted for gearing features(computer aided design per se [G06F 17/50](#))*Analysis of gear systems*; *Analysis of gear systems*}
- F16H 2057/0093
 - {Means or measures for transport, shipping or packaging}
- U F16H 57/01
 - Monitoring wear or stress of transmission elements, e.g. for triggering maintenance
- F16H 2057/012
 - • {of gearings}
- F16H 2057/014
 - • {of friction elements in transmissions}
- F16H 2057/016
 - • {Monitoring of overload conditions}
- F16H 2057/018
 - • {Detection of mechanical transmission failures(fixing or adapting to failure [F16H 2057/0081](#) ; of transmission control [F16H 61/12](#))}
- U F16H 57/02
 - Gearboxes; Mounting gearing therein

NOTE

When classifying in this group, in the absence of an indication to the contrary, classification is made in all appropriate subgroups.

WARNINGS

Subgroups of [F16H 57/02](#) are not complete pending reclassification; see provisionally also respective higher groups
- F16H 2057/02008
 - • {characterised by specific dividing lines or planes of the gear case}
- F16H 2057/02013
 - • {Extension units for gearboxes, e.g. additional units attached to a main gear}
- F16H 2057/02017
 - • {characterised by special features related to the manufacturing of the gear case, e.g. special adaptations for casting}
- F16H 2057/02021
 - • {with means for adjusting alignment}
- F16H 2057/02026
 - • {Connection of auxiliaries with a gear case; Mounting of auxiliaries on the gearbox}
- F16H 2057/0203
 - • {the gearbox is associated or combined with a crank case of an engine}
- F16H 2057/02034
 - • {Gearboxes combined or connected with electric machines(structural association with electric machines [H02K 7/116](#))}

- F16H 2057/02039 . . {Gearboxes for particular applications}
- F16H 2057/02043 . . . {for vehicle transmissions}
- F16H 2057/02047 {Automatic transmissions}
- F16H 2057/02052 {Axle units; Transfer casings for four wheel drive}
- F16H 2057/02056 {for utility vehicles, e.g. tractors or agricultural machines}
- F16H 2057/0206 {for commercial vehicles, e.g. buses or trucks}
- F16H 2057/02065 {for motorcycles or squads}
- F16H 2057/02069 . . . {for industrial applications}
- F16H 2057/02073 {Reduction gearboxes for industry}
- F16H 2057/02078 . . . {for wind turbines}
- F16H 2057/02082 . . . {for application in vehicles other than propelling, e.g. adjustment of parts}
- F16H 2057/02086 . . {Measures for reducing size of gearbox, e.g. for creating a more compact transmission casing}
- F16H 2057/02091 . . {Measures for reducing weight of gearbox(by using particular materials [F16H 57/032](#))}
- F16H 2057/02095 . . {Measures for reducing number of parts or components}
- U F16H 57/021 . . Shaft support structures, e.g. partition walls, bearing eyes, casing walls or covers with bearings
- F16H 2057/0213 . . . {Support of worm gear shafts}
- F16H 2057/0216 . . . {Intermediate shaft supports, e.g. by using a partition wall}
- U F16H 57/022 . . . Adjustment of transmission shafts or bearings(for compensating misalignment of axes of toothed gearings without orbital motion [F16H 1/26](#) ; for compensating misalignment of axes of planetary gears [F16H 1/48](#))
- F16H 2057/0221 {Axial adjustment}
- F16H 2057/0222 {Lateral adjustment}
- F16H 2057/0224 {using eccentric bushes}
- F16H 2057/0225 {with means for adjusting alignment}
- F16H 2057/0227 {Assembly method measuring first tolerances or position and selecting mating parts accordingly, e.g. special sized shims for transmission bearings}
- F16H 2057/0228 {Mounting with rough tolerances and fine adjustment after assembly}
- U F16H 57/023 . . Mounting or installation of gears or shafts in the gearbox casing, e.g. methods or means for assembly
- F16H 2057/0235 . . . {specially adapted to allow easy accessibility and repair(using repair kits [F16H 2057/0068](#))}
- F16H 2057/0325 . . {Moulded casings made from plastic}
- U F16H 57/033 . . Series gearboxes, e.g. gearboxes based on the same design being available in different size or gearboxes using a combination of several standardised units
- F16H 2057/0335 . . . {Series transmissions of modular design, e.g. providing for different transmission ratios or power ranges}
- U F16H 57/04 . . Features relating to lubrication or cooling(or heating){ in hydrokinetic gearing [F16H 41/30](#) ; } control of lubrication or cooling in hydrostatic gearing [F16H 61/4165](#))

WARNINGS

Subgroups of [F16H 57/04](#) are not complete pending reclassification; see provisionally also respective higher groups

- F16H 57/0458
 - {Oil-mist or spray lubrication ; Means to reduce foam formation(lubrication by injection [F16H 57/0456](#) ; venting [F16H57/02B](#) [F16H 57/027](#))}
- U F16H 57/08
 - of gearing with members having orbital motion
- F16H 2057/085
 - {Bearings for orbital gears}
- F16H 2057/087
 - {Arrangement and support of friction devices in planetary gearings, e.g. support of clutch drums, stacked arrangements of friction devices(see also arrangements for shifting planetary gears [F16H 3/62](#) , [F16H3/30H1](#) [F16H 63/3026](#))}
- U F16H 57/12
 - Arrangements for adjusting or for taking-up backlash not provided for elsewhere
- F16H 2057/121
 - {using parallel torque paths and means to twist the two path against each other}
- F16H 2057/122
 - • {by using two independent drive sources, e.g. electric motors}
- F16H 2057/123
 - {using electric control means}
- F16H 2057/125
 - {Adjustment of backlash during mounting or assembly of gearing}
- F16H 2057/126
 - {Self-adjusting during operation, e.g. by a spring}
- F16H 2057/127
 - • {using springs}
- F16H 2057/128
 - {using axial positioning of gear wheel with addendum modification on gear width, i.e. backlash is compensated by axial positioning of a slightly conical gear wheel}

**F16H 59/00 -
F16H 63/00**

Control of gearings conveying rotary motion(orbital toothed gearings with a secondary drive in order to vary the speed ratio of driving or feeding mechanisms of machine tools [B23Q 5/12](#) , [B23Q 5/46](#) ; conjoint control of drive units for vehicles [B60K 41/00](#) ; cycle transmissions [B62M](#) ; marine propulsion [B63H](#))

NOTES

Attention is drawn to the Notes following group [B60K 41/00](#) .

In groups [F16H 59/00](#) to [F16H 63/00](#) , clutches positioned within a gearbox are considered as comprising part of the gearings.

In groups [F16H 59/00](#) to [F16H 63/00](#) , the following terms or expressions are used with the meaning indicated:

- "final output element" means the final element which is moved to establish a gear ratio, i.e. which achieves the linking between two power transmission means, e.g. reverse idler gear, gear cluster, coupling sleeve, apply piston of a hydraulic clutch;
- "mechanism" means a kinematic chain consisting either of a single element or alternatively of a series of elements, the position of each point on the kinematic chain being derivable from the position of any other point on the chain, and therefore, for a given position of a point on one of the elements forming the kinematic chain there is only one position for each of the other points on the elements forming the kinematic chain;

- "final output mechanism" means the mechanism which includes the final output element;
- "actuating mechanism" means the mechanism, the movement of which causes the movement of another mechanism by being in mutual contact;
- "final actuating mechanism" means the mechanism actuating the final output mechanism.
- { "mechanical force" means the force transmitted by an actuating mechanism or the human body }

Combinations of features individually covered by group [F16H 61/00](#) and one or both of groups [F16H 59/00](#) and [F16H 63/00](#) are classified in group [F16H 61/00](#).

Combinations of features individually covered by groups [F16H 59/00](#) and [F16H 63/00](#) are classified in group [F16H 63/00](#).

When classifying in groups [F16H 59/00](#) to [F16H 63/00](#), control inputs or types of gearing, which are not identified by the preceding notes concerning combinations, and which are considered to represent information of interest for search, may also be classified. Such non-obligatory classification should be given as "additional information", e.g. selected from subgroup ~~F15H61/66~~[F16H 61/66](#) relating to the type of gearing controlled or from group [F16H 59/00](#) relating to control inputs

U F16H 59/00 Control inputs to{control units of}change-speed-, or reversing-gearings for conveying rotary motion

- F16H 2059/003 • {Detecting or using driving style of a driver, e.g. for adapting shift schedules}
- F16H 2059/006 • {Overriding automatic control}

U F16H 59/02 • Selector apparatus

NOTE

Selection apparatus of general applicability or of interest apart from its use in control of gearings conveying rotary motion is also classified in subclass [G05G](#)

- F16H 2059/0221 • • {for selecting modes, i.e. input device(for selecting between different modes with range selector [F16H 2059/082](#) ; for conjoint control [B60W 30/182](#))}
- F16H 2059/0226 • • • {for selecting particular shift speeds, e.g. a fast shift speed with aggressive gear change}
- F16H 2059/023 • • {Selectors for gearings using voice control(for vehicle control [B60R 16/0373](#))}
- F16H 2059/0234 • • {Selectors for gearings using foot control}
- F16H 2059/0239 • • {Up- and down-shift selection by repeated movement(mechanical step by step selection devices [F16H 63/14](#))}
- F16H 2059/0243 • • • {with push buttons, e.g. shift buttons arranged on steering wheel(range selection with push buttons [F16H 59/12](#))}
- F16H 2059/0247 • • • {with lever or pedal behind steering wheel}
- F16H 2059/0252 • • {with means for initiating skip or double gear shifts, e.g. by moving selection lever beyond a threshold}
- F16H 2059/0256 • • {Levers for forward-reverse selection only, e.g. for working machines having a separate lever for switching between forward and reverse mode}
- F16H 2059/026 • • {Details or special features of the selector casing or lever support(for mechanical gear shifting [F16H 59/042](#))}
- F16H 2059/0265 • • • {Selector lever support with pivot axis offset, e.g. support by four bar linkage to create pivoting centre outside the mechanism}

	F16H 2059/0269	• • • {Ball joints or spherical bearings for supporting the lever}
	F16H 2059/0273	• • • {Cardan or gimbal type joints for supporting the lever}
U	F16H 59/0278	• • {Constructional features of the selector lever, e.g. grip parts, mounting or manufacturing}
	F16H 2059/0282	• • • {Lever handles with lock mechanisms, e.g. for allowing selection of reverse gear or releasing lever from park position}
	F16H 2059/0286	• • • {with range or splitter selector on selector lever}
	F16H 2059/0291	• • {comprising safety means for preventing injuries in case of accidents}
	F16H 2059/0295	• • {with mechanisms to return lever to neutral or datum position, e.g. by return springs}
U	F16H 59/04	• • Ratio selector apparatus
	F16H 2059/047	• • • {with essentially straight linear movement for gear selection, e.g. straight selection movement using detent mechanism for improving feeling(up-down shift by repeated movements F16H 2059/0239)}
	F16H 2059/048	• • • {with means for un-locking select or shift movement to allow access to reverse gear position(particular details of the lever handle F16H 2059/0282)}
U	F16H 59/06	• • • the ratio being infinitely variable
	F16H 2059/065	• • • • {Inching pedals for setting the ratio of an hydrostatic transmission}
U	F16H 59/08	• • Range selector apparatus
	F16H 2059/081	• • • {using knobs or discs for rotary range selection}
	F16H 2059/082	• • • {with different modes}
	F16H 2059/083	• • • • {Overdrive or overdrive cut-off}
	F16H 2059/084	• • • • {Economy mode}
	F16H 2059/085	• • • • {Power mode}
	F16H 2059/086	• • • • {Adaptive mode, e.g. learning from the driver}
	F16H 2059/087	• • • • {Winter mode, e.g. to start on snow or slippery surfaces}
	F16H 2059/088	• • • {Fast forward-reverse-sequence mode}
U	F16H 59/14	• Inputs being a function of torque or torque demand
	F16H 2059/142	• • {of driving resistance calculated from weight, slope, or the like}
	F16H 2059/144	• • {characterised by change between positive and negative drive line torque, e.g. torque changes when switching between coasting and acceleration}
	F16H 2059/145	• • {being a function of power demand of auxiliary devices}
	F16H 2059/147	• • {Transmission input torque, e.g. measured or estimated engine torque}
	F16H 2059/148	• • {Transmission output torque, e.g. measured or estimated torque at output drive shaft}
U	F16H 59/18	• • dependent on the position of the accelerator pedal
	F16H 2059/183	• • • {Rate of change of accelerator position, i.e. pedal or throttle change gradient}
	F16H 2059/186	• • • Coasting {Coasting}
U	F16H 59/36	• Inputs being a function of speed
	F16H 2059/363	• • {Rate of change of engine or motor speed}
	F16H 2059/366	• • {Engine or motor speed}
U	F16H 59/38	• • of gearing elements
	F16H 2059/385	• • • {Turbine speed}
	F16H 2059/405	• • • {Rate of change of output shaft speed or vehicle speed}
U	F16H 59/42	• • • Input shaft speed

	F16H 2059/425	<ul style="list-style-type: none"> • • • {Rate of change of input or turbine shaft speed}
U	F16H 59/44	<ul style="list-style-type: none"> • • dependent on machine speed of the machine,{e.g. the vehicle}
	F16H 2059/443	<ul style="list-style-type: none"> • • • {Detecting travel direction, e.g. the forward or reverse movement of the vehicle}
	F16H 2059/446	<ul style="list-style-type: none"> • • • {Detecting vehicle stop, i.e. the vehicle is at stand still, e.g. for engaging parking lock}
U	F16H 59/46	<ul style="list-style-type: none"> • • dependent on a comparison between speeds
	F16H 2059/462	<ul style="list-style-type: none"> • • • {Detecting synchronisation, i.e. speed difference is approaching zero}
	F16H 2059/465	<ul style="list-style-type: none"> • • • {Detecting slip, e.g. clutch slip ratio}
	F16H 2059/467	<ul style="list-style-type: none"> • • • • {of torque converter}
U	F16H 59/50	<ul style="list-style-type: none"> • Inputs being a function of the status of the machine, e.g. position of doors or safety belts
	F16H 2059/503	<ul style="list-style-type: none"> • • {Axle-load distribution}
	F16H 2059/506	<ul style="list-style-type: none"> • • {Wheel slip}
U	F16H 59/52	<ul style="list-style-type: none"> • • dependent on the weight of the machine, e.g. change in weight resulting from passengers boarding a bus
	F16H 2059/525	<ul style="list-style-type: none"> • • • {the machine undergoing additional towing load, e.g. by towing a trailer}
U	F16H 59/60	<ul style="list-style-type: none"> • Inputs being a function of ambient conditions
	F16H 2059/605	<ul style="list-style-type: none"> • • {Traffic stagnation information, e.g. traffic jams}
U	F16H 59/66	<ul style="list-style-type: none"> • • Road conditions, e.g. slope, slippery
	F16H 2059/663	<ul style="list-style-type: none"> • • • {Road slope}
	F16H 2059/666	<ul style="list-style-type: none"> • • • {Determining road conditions by using vehicle location or position, e.g. from global navigation systems (GPS)}
U	F16H 59/68	<ul style="list-style-type: none"> • Inputs being a function of gearing status
	F16H 2059/6807	<ul style="list-style-type: none"> • • {Status of gear-change operation, e.g. clutch fully engaged}
	F16H 2059/6815	<ul style="list-style-type: none"> • • {Post shift value of gearing, i.e. calculated or estimated parameters after shift is completed, e.g. estimated output torque after shift is performed}
	F16H 2059/6823	<ul style="list-style-type: none"> • • {Sensing neutral state of the transmission}
	F16H 2059/683	<ul style="list-style-type: none"> • • {Sensing pressure in control systems or in fluid controlled devices, e.g. by pressure sensors(for hydrostatic transmissions F16H 2059/6861)}
	F16H 2059/6838	<ul style="list-style-type: none"> • • {Sensing gearing status of hydrostatic transmissions}
	F16H 2059/6846	<ul style="list-style-type: none"> • • • {the flow in hydrostatic transmissions circuits , e.g. high, low or differential pressures}
	F16H 2059/6853	<ul style="list-style-type: none"> • • • {the state of the transmission units, i.e. motor or pump capacity, e.g. for controlled shifting of range gear}
	F16H 2059/6861	<ul style="list-style-type: none"> • • • {the pressures, e.g. high, low or differential pressures}
	F16H 2059/6869	<ul style="list-style-type: none"> • • • {the pump speed}
	F16H 2059/6876	<ul style="list-style-type: none"> • • • {the motor speed}
	F16H 2059/6884	<ul style="list-style-type: none"> • • • {Sensing or calculating the pump torque}
	F16H 2059/6892	<ul style="list-style-type: none"> • • • {Sensing or calculating the motor torque}
U	F16H 59/70	<ul style="list-style-type: none"> • • dependent on the ratio established
	F16H 2059/702	<ul style="list-style-type: none"> • • • {Rate of change of gear ratio, e.g. for triggering clutch engagement}
	F16H 2059/704	<ul style="list-style-type: none"> • • • {Monitoring gear ratio in CVT's}
	F16H 2059/706	<ul style="list-style-type: none"> • • • {Monitoring gear ratio in stepped transmissions, e.g. by calculating the ratio from input and output speed}
	F16H 2059/708	<ul style="list-style-type: none"> • • • {Sensing reverse gear, e.g. by a reverse gear switch}
U	F16H 59/72	<ul style="list-style-type: none"> • • dependent on oil characteristics, e.g. temperature, viscosity

	F16H 2059/725	<ul style="list-style-type: none"> • • {Sensing or calculating temperature of friction devices, e.g. clutches to prevent overheating of friction linings}
U	F16H 59/74	<ul style="list-style-type: none"> • Inputs being a function of engine parameters(F16H 59/14 takes precedence)
	F16H 2059/743	<ul style="list-style-type: none"> • • {using engine performance or power for control of gearing(transmission input torque F16H 2059/147)}
	F16H 2059/746	<ul style="list-style-type: none"> • • {Engine running state, e.g. on-off of ignition switch}
U	F16H 61/00	Control functions within{control units of}change-speed- or reversing-gearings for conveying rotary motion;{Control of exclusively fluid gearing, friction gearing, gearings with endless flexible members or other particular types of gearing}
	F16H 2061/0012	<ul style="list-style-type: none"> • {Transmission control for optimising power output of driveline}
	F16H 2061/0015	<ul style="list-style-type: none"> • {Transmission control for optimising fuel consumptions}
	F16H 2061/0018	<ul style="list-style-type: none"> • {Transmission control for optimising exhaust emissions}
U	F16H 61/0021	<ul style="list-style-type: none"> • {Generation or control of line pressure}
	F16H 61/0025	<ul style="list-style-type: none"> • • {Supply of control fluid; Pumps therefore} <p><u>WARNING</u> Group F16H 61/0025 and subgroups are not complete pending a reorganisation, see also F16H 61/00 KF16H61/00K</p>
	F16H 2061/0034	<ul style="list-style-type: none"> • • {Accumulators for fluid pressure supply; Control thereof}
	F16H 2061/0037	<ul style="list-style-type: none"> • • {characterised by controlled fluid supply to lubrication circuits of the gearing(see also lubrication control F16H 57/0446)}
	F16H 2061/004	<ul style="list-style-type: none"> • {Venting trapped air from hydraulic systems(venting of hydrostatic transmissions F16H 61/4174 ; deaeration or removal of unsolved gas F15B 21/044)}
	F16H 2061/0043	<ul style="list-style-type: none"> • {Cleaning of hydraulic parts, e.g. removal of an orifice clogging}
	F16H 2061/0046	<ul style="list-style-type: none"> • {Details of fluid supply channels, e.g. within shafts, for supplying friction devices or transmission actuators with control fluid}
	F16H 2061/005	<ul style="list-style-type: none"> • {Supply of electric power, e.g. batteries for back up supply}
	F16H 2061/0053	<ul style="list-style-type: none"> • {Initializing the parameters of the controller}
	F16H 2061/0056	<ul style="list-style-type: none"> • {Powering down of the controller}
	F16H 2061/0062	<ul style="list-style-type: none"> • {Modifying an existing transmission control from a manufacturer for improvement or adaptation, e.g. by replacing a valve or an electric part}
	F16H 2061/0065	<ul style="list-style-type: none"> • {Modifying or tuning an existing transmission control for racing, e.g. adaptation of valves for very fast shifting}
	F16H 2061/0068	<ul style="list-style-type: none"> • {Method or means for testing of transmission controls or parts thereof}
	F16H 2061/0071	<ul style="list-style-type: none"> • • {Robots or simulators for testing control functions in automatic transmission(testing of transmissions G01M 13/02)}
	F16H 2061/0075	<ul style="list-style-type: none"> • {characterised by a particular control method}
	F16H 2061/0078	<ul style="list-style-type: none"> • • {Linear control, e.g. PID, state feedback or Kalman}
	F16H 2061/0081	<ul style="list-style-type: none"> • • {Fuzzy logic}
	F16H 2061/0084	<ul style="list-style-type: none"> • • {Neural networks}
	F16H 2061/0087	<ul style="list-style-type: none"> • • {Adaptive control, e.g. the control parameters adapted by learning}
	F16H 2061/009	<ul style="list-style-type: none"> • • {using formulas or mathematic relations for calculating parameters}
	F16H 2061/0093	<ul style="list-style-type: none"> • • {using models to estimate the state of the controlled object}
	F16H 2061/0096	<ul style="list-style-type: none"> • • {using a parameter map}

F16H 61/02	<ul style="list-style-type: none"> characterised by the signals used(for shift actuators F16H 61/28 , for continuously variable gearings F16H 61/66) <p>NOTES</p> <p>Control units where gearshift is controlled by an electric circuit, are classified in F16H 61/02 F16H61/02E</p> <p>Control units where gearshift is controlled by hydraulic signals and a subfunction, e.g. kickdown, is controlled by an electric circuit, are classified in F16H 61/0262 with indexing of the electric features</p>
U F16H 61/0202	<ul style="list-style-type: none"> {the signals being electric(F16H 61/04 takes precedence)}
U F16H 61/0204	<ul style="list-style-type: none"> {for gearshift control, e.g. control functions for performing shifting or generation of shift signal}
U F16H 61/0206	<ul style="list-style-type: none"> {Layout of electro-hydraulic control circuits, e.g. arrangement of valves(for control of actuators selecting and moving final output members, e.g. shift forks F16H 61/2807)}
F16H 2061/0209	<ul style="list-style-type: none"> {with independent solenoid valves modulating the pressure individually for each clutch or brake}
U F16H 61/0213	<ul style="list-style-type: none"> {characterised by the method for generating shift signals}
F16H 2061/0216	<ul style="list-style-type: none"> {Calculation or estimation of post shift values for different gear ratios, e.g. by using engine performance tables}
F16H 2061/0218	<ul style="list-style-type: none"> {Calculation or estimation of the available ratio range, i.e. possible gear ratios, e.g. for prompting a driver with a display}
F16H 2061/022	<ul style="list-style-type: none"> {Calculation or estimation of optimal gear ratio, e.g. best ratio for economy drive or performance according driver preference, or to optimise exhaust emissions}
F16H 2061/0223	<ul style="list-style-type: none"> {Generating of new shift maps, i.e. methods for determining shift points for a schedule by taking into account driveline and vehicle conditions}
F16H 2061/0225	<ul style="list-style-type: none"> {Modifying of shift maps by manual control, e.g. by learning values from the driver during manual shift mode}
F16H 2061/0227	<ul style="list-style-type: none"> {Shift map selection, i.e. methods for controlling selection between different shift maps, e.g. to initiate switch to a map for up-hill driving}
F16H 2061/023	<ul style="list-style-type: none"> {Drive-off gear selection, i.e. optimising gear ratio for drive off of a vehicle}
F16H 2061/0232	<ul style="list-style-type: none"> {Selecting ratios for bringing engine into a particular state, e.g. for fast warming up or for reducing exhaust emissions}
F16H 2061/0234	<ul style="list-style-type: none"> {Adapting the ratios to special vehicle conditions}
F16H 2061/0237	<ul style="list-style-type: none"> {Selecting ratios for providing engine braking}
F16H 2061/0239	<ul style="list-style-type: none"> {Selecting ratios for preventing or cancelling wheel slip}
F16H 2061/0241	<ul style="list-style-type: none"> {Adapting the ratio to special transmission conditions, e.g. shifts during warming up phase of transmission when fluid viscosity is high}
F16H 2061/0244	<ul style="list-style-type: none"> {Adapting the automatic ratio to direct driver requests, e.g. manual shift signals or kick down}
U F16H 61/0251	<ul style="list-style-type: none"> {Elements specially adapted for electric control units, e.g. valves for converting electrical signals to fluid signals}
F16H 2061/0253	<ul style="list-style-type: none"> {Details of electro hydraulic valves, e.g. lands, ports, spools or springs}
F16H 2061/0255	<ul style="list-style-type: none"> {Solenoid valve using PWM or duty-cycle control}
F16H 2061/0258	<ul style="list-style-type: none"> {Proportional solenoid valve}
F16H 2061/026	<ul style="list-style-type: none"> {On-off solenoid valve}
U F16H 61/0262	<ul style="list-style-type: none"> {the signals being hydraulic(F16H 61/04 takes precedence)}
U F16H 61/0276	<ul style="list-style-type: none"> {Elements specially adapted for hydraulic control units, e.g. valves}

F16H 2061/0279	• • • {Details of hydraulic valves, e.g. lands, ports, spools or springs}
F16H 2061/0281	• • • {Rotary shift valves, e.g. with a rotary moveable spool for supply of fluid to different channels}
F16H 2061/0288	• • • {Relay valve, e.g. valve arranged between shift valve and servo}
U F16H 61/04	• Smoothing ratio shift
U F16H 61/0403	• {Synchronisation before shifting}
F16H 2061/0407	• • {by control of clutch in parallel torque path}
F16H 2061/0411	• • {by control of shaft brakes}{-shaft brakes F16H3/12B -}
F16H 2061/0414	• • {by retarder control}
F16H 2061/0418	• • {by using different synchronisation devices simultaneously, e.g. for faster synchronisation}
F16H 2061/0422	• • {by an electric machine, e.g. by accelerating or braking the input shaft}
F16H 2061/0425	• {Bridging torque interruption}
F16H 2061/0429	• • {by torque supply with a clutch in parallel torque path}
F16H 2061/0433	• • {by torque supply with an electric motor}
F16H 2061/044	• {when a freewheel device is disengaged or bridged}
F16H 2061/0444	• {during fast shifting over two gearsteps, e.g. jumping from fourth to second gear}
F16H 2061/0448	• • {using a particular sequence of gear ratios or friction members}
F16H 2061/0451	• {during swap-shifts, i.e. gear shifts between different planetary units, e.g. with double transitions shift involving three or more friction members}
F16H 2061/0455	• {during shifts involving three or more friction members, e.g. release of 3-4 clutch, 2-4 brake and apply of forward clutch C1(swap shift F16H 2061/0451)}
F16H 2061/0459	• {using map for shift parameters, e.g. shift time, slip or pressure gradient, for performing controlled shift transition and adapting shift parameters by learning}
F16H 2061/0462	• {by controlling slip rate during gear shift transition}
F16H 2061/0466	• {Smoothing shift shock by apply or release of band brake servos, e.g. overlap control of band brake and a clutch or vice versa}
F16H 2061/047	• {by preventing or solving a tooth but situation upon engagement failure due to misalignment of teeth}
F16H 2061/0474	• {by smoothing engagement of positive clutches; Methods or means for shock free engagement of dog clutches(for tooth but situations F16H 2061/047)}
F16H 2061/0477	• {by suppression of excessive engine flare or turbine racing during shift transition(engine flare caused by lock-up release F16H 61/143)}
F16H 2061/0481	• {during range shift from drive (D) or reverse (R) to neutral(N)}
F16H 2061/0485	• {during range shift from neutral (N) to reverse (R)}
F16H 2061/0488	• {during range shift from neutral(N)to drive (D)}
F16H 2061/0492	• {for high engine torque, e.g. during acceleration or uphill driving}
F16H 2061/0496	• {for low engine torque, e.g. during coasting, sailing or engine braking}
U F16H 61/06	• • by controlling rate of change of fluid pressure
U F16H 61/061	• • {using electric control means}
F16H 2061/062	• • • {for controlling filling of clutches or brake servos, e.g. fill time, fill level or pressure during filling}
F16H 2061/064	• • • {for calibration of pressure levels for friction members, e.g. by monitoring the speed change of transmission shafts}
U F16H 61/08	• • Timing control

F16H 2061/085	<ul style="list-style-type: none"> • • • {Timing of auxilliary gear shifts}
U F16H 61/12	<ul style="list-style-type: none"> • Detecting malfunction or potential malfunction, e.g. fail safe(in control of hydrostatic gearing F16H 61/4192); {Circumventing or fixing failures}
F16H 2061/1204	<ul style="list-style-type: none"> • • {for malfunction caused by simultaneous engagement of different ratios resulting in transmission lock state or tie-up condition(lock state for braking F16H 61/0059)}
F16H 2061/1208	<ul style="list-style-type: none"> • • {with diagnostic check cycles; Monitoring of failures}
F16H 2061/1212	<ul style="list-style-type: none"> • • • {Plausibility checks; Counting means for repeated failures}
F16H 2061/1216	<ul style="list-style-type: none"> • • • {Display or indication of detected failures}
F16H 2061/122	<ul style="list-style-type: none"> • • {Avoiding failures by using redundant parts}
F16H 2061/1224	<ul style="list-style-type: none"> • • {Adapting to failures or work around with other constraints, e.g. circumvention by avoiding use of failed parts}
F16H 2061/1228	<ul style="list-style-type: none"> • • {Fixing failures by repairing failed parts, e.g. loosening a sticking valve}
F16H 2061/1232	<ul style="list-style-type: none"> • • {Bringing the control into a predefined state, e.g. giving priority to particular actuators or gear ratios}
F16H 2061/1236	<ul style="list-style-type: none"> • • • {using fail priority valves}
F16H 2061/124	<ul style="list-style-type: none"> • • {Limiting the input power, torque or speed}
F16H 2061/1244	<ul style="list-style-type: none"> • • {Keeping the current state}
F16H 2061/1248	<ul style="list-style-type: none"> • • {Resuming normal operation}
F16H 2061/1252	<ul style="list-style-type: none"> • • {Fail safe valves(fail priority valves F16H 2061/1236)}
F16H 2061/1256	<ul style="list-style-type: none"> • • {characterised by the parts or units where malfunctioning was assumed or detected}
F16H 2061/126	<ul style="list-style-type: none"> • • • {the failing part is the controller}
F16H 2061/1264	<ul style="list-style-type: none"> • • • • {Hydraulic parts of the controller, e.g. a sticking valve or clogged channel}
F16H 2061/1268	<ul style="list-style-type: none"> • • • • {Electric parts of the controller, e.g. a defect solenoid, wiring or microprocessor}
F16H 2061/1272	<ul style="list-style-type: none"> • • • {the failing part is a part of the final output mechanism, e.g. shift rods or forks}
F16H 2061/1276	<ul style="list-style-type: none"> • • • {the failing part is a friction device, e.g. clutches or brakes}
F16H 2061/128	<ul style="list-style-type: none"> • • • • {the main clutch}
F16H 2061/1284	<ul style="list-style-type: none"> • • • {the failing part is a sensor}
F16H 2061/1288	<ul style="list-style-type: none"> • • • {the failing part is an actuator}
F16H 2061/1292	<ul style="list-style-type: none"> • • • {the failing part is the power supply, e.g. the electric power supply}
F16H 2061/1296	<ul style="list-style-type: none"> • • • {the failing part is an electric machine forming part of the transmission}
U F16H 61/14	<ul style="list-style-type: none"> • Control of torque converter lock-up clutches
U F16H 61/143	<ul style="list-style-type: none"> • • {using electric control means}
F16H 2061/145	<ul style="list-style-type: none"> • • • {for controlling slip, e.g. approaching target slip value}
F16H 2061/146	<ul style="list-style-type: none"> • • • {for smoothing gear shift shock}
F16H 2061/147	<ul style="list-style-type: none"> • • • {during engine braking, e.g. to attenuate gear clunk when torque direction is changed}
U F16H 61/16	<ul style="list-style-type: none"> • Inhibiting{or initiating}shift during unfavourable conditions,{e.g. preventing forward reverse shift at high vehicle speed, preventing engine over speed(unintentional control input F16H 61/18)}
F16H 2061/161	<ul style="list-style-type: none"> • • {by checking feasibility of shifts, i.e. determine if requested shift can be successfully completed and post shift values are in an acceptable range}
F16H 2061/163	<ul style="list-style-type: none"> • • {Holding the gear for delaying gear shifts under unfavorable conditions, e.g. during cornering}

	F16H 2061/165	• • {Preventing reverse gear shifts if vehicle speed is too high for safe shifting}
	F16H 2061/166	• • {Preventing or initiating shifts for preventing stall or overspeed of engine}
	F16H 2061/168	• • {Forced shifts into neutral for safety reasons, e.g. in case of transmission failure or emergency braking}
U	F16H 61/18	• Preventing unintentional or unsafe shift,{e.g. preventing manual shift from highest gear to reverse gear}
	F16H 2061/185	• • {Means, e.g. catches or interlocks, for preventing unintended shift into reverse gear}
U	F16H 61/20	• Preventing gear creeping;{Transmission control during standstill, e.g. hill hold control}
	F16H 2061/202	• • {Active creep control for slow driving, e.g. by controlling clutch slip}
	F16H 2061/205	• • {Hill hold control, e.g. with torque converter or an friction device slightly engaged to keep vehicle stationary}
	F16H 2061/207	• • {by neutral control}
U	F16H 61/21	• Providing engine brake control
	F16H 2061/213	• • {for emergency braking, e.g. for increasing brake power in emergency situations}
	F16H 2061/216	• • {by using exhaust brakes}
U	F16H 61/22	• Locking{of the control input devices}{ F16H 63/34 takes precedence; { vehicle fittings for preventing unauthorised use, e.g. ignition keys interlocked with gear box or gear lever B60R 25/06 }}
	F16H 2061/223	• • {Electrical gear shift lock, i.e. locking of lever in park or neutral position by electric means if brake is not applied; Key interlock, i.e. locking the key if lever is not in park position}
	F16H 2061/226	• • {Manual distress release of the locking means for shift levers, e.g. to allow towing of vehicle in case of breakdown(for parking locks F16H 63/3491)}
U	F16H 61/24	• Providing feel, e.g. to enable selection
	F16H 2061/241	• • {Actuators providing feel or simulating a shift gate, i.e. with active force generation for providing counter forces for feed back}
	F16H 2061/242	• • {Mechanical shift gates or similar guiding means during selection and shifting}
	F16H 2061/243	• • {Cams or detent arrays for guiding and providing feel}
	F16H 2061/245	• • {Ramp contours for generating force threshold, e.g. cams or pushers for generating additional resistance for a reverse path}
	F16H 2061/246	• • {Additional mass or weight on shift linkage for improving feel}
	F16H 2061/247	• • {Detents for range selectors}
	F16H 2061/248	• • {with audible signals for providing selection or shift feed back}
U	F16H 61/26	• Generation or transmission of movements for final actuating mechanisms
NOTES		
The generation or transmission of movements comprising only the selector apparatus, is classified in group F16H 59/00 .		
The generation or transmission of movements, when part of the final output mechanisms, is classified in group F16H 63/00 .		
U	F16H 61/28	• • with at least one movement of the final actuating mechanism being caused by a non-mechanical force, e.g. power-assisted
	F16H 2061/2823	• • • {Controlling actuator force way characteristic, i.e. controlling force or movement depending on the actuator position, e.g. for adapting force to synchronisation and engagement of gear clutch}
	F16H 2061/283	• • • {Adjustment or calibration of actuator positions, e.g. neutral position}

- F16H 2061/2838 . . . {Arrangements with single drive motor for selecting and shifting movements, i.e. one motor used for generating both movements}
- F16H 2061/2846 . . . {Arrangements of actuators for enabling jump shifting for skipping of gear ratios}
- F16H 2061/2853 . . . {Electromagnetic solenoids}
- F16H 2061/2861 . . . {Linear motors}
- F16H 2061/2869 . . . {Cam or crank gearing}
- F16H 2061/2876 . . . ~~Racks~~ {Racks}
- F16H 2061/2884 . . . {Screw-nut devices}
- F16H 2061/2892 . . . {other gears, e.g. worm gears, for transmitting rotary motion to the output mechanism}
- U F16H 61/30 . . . Hydraulic{or pneumatic}motors{or related fluid control means}therefor
- F16H 2061/301 {for power assistance, i.e. servos with follow up action}
- F16H 2061/302 {with variable force amplification, e.g. force is depending on selected gear or on actuator force(non-linear amplification)}
- F16H 2061/304 {using telemotors, i.e. systems with master cylinder and linked shift actuator without external pressure source}
- F16H 2061/305 {Accumulators for fluid supply to the servo motors, or control thereof}{~~accumulators for line pressure R16H61/00K4~~}
- F16H 2061/307 {Actuators with three defined positions, i.e. three position servos}
- F16H 2061/308 {Modular hydraulic shift units, i.e. preassembled actuator units for select and shift movements adapted for being mounted on transmission casing}
- U F16H 61/32 Electric motors{actuators or related electrical control means}therefor
- F16H 2061/323 {for power assistance, i.e. servos with follow up action}
- F16H 2061/326 {Actuators for range selection, i.e. actuators for controlling the range selector or the manual range valve in the transmission}
- U F16H 61/66 . . . specially adapted for continuously variable gearings([F16H 61/38](#) takes precedence)
- F16H 2061/6601 . . . {with arrangements for dividing torque and shifting between different ranges}
- F16H 2061/6602 . . . {with at least two dynamo-electric machines for creating an electric power path inside the transmission device, e.g. using generator and motor for a variable power torque path}
- F16H 2061/6603 . . . {characterised by changing ratio in the mechanical gearing}
- F16H 2061/6604 . . . {Special control features generally applicable to continuously variable gearings}
- F16H 2061/6605 . . . {Control for completing downshift at hard braking}
- F16H 2061/6607 . . . {Controls concerning lubrication or cooling(lubrication features of friction gearings [F16H 57/0487](#))}
- F16H 2061/6608 . . . {Control of clutches, or brakes for forward-reverse shift}
- F16H 2061/6609 . . . {Control of clutches or brakes in torque split transmissions}
- F16H 2061/661 . . . {Conjoint control of CVT and drive clutch}
- F16H 2061/6611 . . . {Control to achieve a particular driver perception, e.g. for generating a shift shock sensation}
- F16H 2061/6612 {for engine braking}
- F16H 2061/6614 . . . {Control of ratio during dual or multiple pass shifting for enlarged ration coverage}
- F16H 2061/6615 . . . {Imitating a stepped transmissions}
- F16H 2061/6616 {the shifting of the transmission being manually controlled}

- F16H 2061/6617 . . . {Manual control of CVTs while continuously varying the ratio}
- F16H 2061/6618 . . . {Protecting CVTs against overload by limiting clutch capacity, e.g. torque fuse}
- U F16H 61/662 . . with endless flexible means
- F16H 2061/66204 . . . {Control for modifying the ratio control characteristic}
- F16H 2061/66209 {dependent on ambient conditions}
- F16H 2061/66213 {dependent on driver's choice}
- F16H 2061/66218 {dependent on control input parameters other than ambient conditions or driver's choice}
- F16H 2061/66222 {the ratio is varied in order to reduce surface wear of belt or pulley}
- U F16H 61/66272 . . . {characterised by means for controlling the torque transmitting capability of the gearing}
- F16H 2061/66277 {by optimising the clamping force exerted on the endless flexible member}
- F16H 2061/66281 {by increasing the line pressure at the occurrence of input torque peak}
- F16H 2061/66286 . . . {Control for optimising pump efficiency}
- F16H 2061/6629 . . . {Detection of slip for determining level of wear}
- F16H 2061/66295 . . . {characterised by means for controlling the geometrical interrelationship of pulleys and the endless flexible member, e.g. belt alignment or position of the resulting axial pulley force in the plane perpendicular to the pulley axis}
- U F16H 61/664 . . Friction gearings
- F16H 2061/6641 . . . {Control for modifying the ratio control characteristic}
- F16H 2061/6642 {dependent on ambient conditions}
- F16H 2061/6643 {dependent on driver's choice}
- F16H 2061/6644 {dependent on control input parameters other than ambient conditions or driver's choice}
- U F16H 61/70 . . specially adapted for change-speed gearing in group arrangement, i.e. with separate change-speed gear trains arranged in series, e.g. range or overdrive-type gearing arrangements
- F16H 61/702 . . {using electric or electrohydraulic control means(timing of auxilliary gear shifts **F16H61/08B**[F16H 2061/085](#))}
- F16H 61/705 . . {using hydraulic and mechanical control means(timing of auxilliary gear shifts **F16H61/08B**[F16H 2061/085](#))}
- U **F16H 63/00** **Control outputs{from the control unit}to change-speed- or reversing-gearings for conveying rotary motion{or to other devices than the final output mechanism}**
- F16H 2063/005 . {Preassembled gear shift units for mounting on gear case(for hydraulic shift units [F16H 2061/308](#))}
- U F16H 63/02 . Final output mechanisms therefor; Actuating means for the final output mechanisms
- F16H 2063/025 . . {Final output mechanisms for double clutch transmissions}
- U F16H 63/08 . . Multiple final output mechanisms being moved by a single common final actuating mechanism{(Constructional features of the final output mechanisms [F16H 63/30](#))}
- U F16H 63/20 . . . with preselection and subsequent movement of each final output mechanism by movement of the final actuating mechanism in two different ways, e.g. guided by a shift gate
- F16H 2063/202 {using cam plates for selection or shifting, e.g. shift plates with recesses or groves moved by a selector extension}

F16H 2063/204	. . . {the gear shift lever being the immediate final actuating mechanism, e.g. the shift finger being a part of the gear shift lever}
F16H 2063/208	. . . {using two or more selecting fingers}
U F16H 63/30	. Constructional features of the final output mechanisms
U F16H 63/3003	. . {Bandbrake actuating mechanisms}
F16H 2063/3006	. . . {moved by a non-mechanical force}
F16H 63/3023	. . {the final output mechanisms comprising elements moved by fluid pressure(F16H63/30B1 <u>F16H 63/3003</u> takes precedence)}
U F16H 63/3026	. . . {comprising friction clutches or brakes(band brake actuating mechanisms <u>F16H 63/3003</u>)}
F16H 2063/303	. . . . {the friction member is actuated and released by applying pressure to different fluid chambers}
F16H 2063/3033	. . . . {the brake is actuated by springs and released by a fluid pressure}
F16H 2063/3036	. . . . {the clutch is actuated by springs and released by a fluid pressure}
F16H 63/304	. . {the final output mechanisms comprising elements moved by electrical or magnetic force(F16H63/30B1 <u>F16H 63/3003</u> takes precedence)}
F16H 2063/3046	. . . {using electromagnetic clutch for coupling gear wheel to shaft(friction clutches <u>F16H 63/3043</u>)}
F16H 2063/305	. . . {using electromagnetic solenoids}
F16H 2063/3053	. . . {using linear motors}
F16H 2063/3056	. . . {using cam or crank gearing}
F16H 2063/3059	. . . {using racks}
F16H 2063/3063	. . . {using screw devices}
F16H 2063/3066	. . . {using worm gears}
U F16H 63/3069	. . {Interrelationship between two or more final output mechanisms(interlocking devices <u>F16H 63/36</u>)}
F16H 2063/3073	. . . {final output mechanisms mounted on a single shaft}
F16H 2063/3076	. . {Selector shaft assembly, e.g. supporting, assembly or manufacturing of selector or shift shafts; Special details thereof}
F16H 2063/3079	. . {Shift rod assembly, e.g. supporting, assembly or manufacturing of shift rails or rods; Special details thereof}
F16H 2063/3083	. . {Shift finger arrangements, e.g. shape or attachment of shift fingers}
F16H 2063/3086	. . {Shift head arrangements, e.g. forms or arrangements of shift heads for preselection or shifting}
F16H 2063/3089	. . {Spring assisted shift, e.g. springs for accumulating energy of shift movement and release it when clutch teeth are aligned}
F16H 2063/3093	. . {Final output elements, i.e. the final elements to establish gear ratio, e.g. dog clutches or other means establishing coupling to shaft(fluid actuated clutches <u>F16H 63/3026</u> ; electromagnetic clutches <u>F16H 2063/3046</u>)}
F16H 2063/3096	. . . {Sliding keys as final output elements; Details thereof}
U F16H 63/32	. . Gear shift yokes,{e.g. shift forks}
F16H 2063/321	. . . {characterised by the interface between fork body and shift rod, e.g. fixing means, bushes, cams or pins}
F16H 2063/322	. . . {characterised by catches or notches for moving the fork}
F16H 2063/324	. . . {characterised by slide shoes, or similar means to transfer shift force to sleeve}
F16H 2063/325	. . . {Rocker or swiveling forks, i.e. the forks are pivoted in the gear case when moving the sleeve}

- F16H 2063/327 . . . {essentially made of sheet metal}
 - F16H 2063/328 . . . {essentially made of plastics, e.g. injection molded}
 - U F16H 63/40 . comprising signals other than signals for actuating the final output mechanisms
 - U F16H 63/42 . Ratio indicator devices
- WARNING
This group is not complete pending reclassification; see also codes [B60K 2741/22](#) , [B60K 2741/225](#)
- F16H 2063/423 . . . {Range indicators for automatic transmissions, e.g. showing selected range or mode}
 - F16H 2063/426 . . . {with means for advising the driver for proper shift action, e.g. prompting the driver with allowable selection range of ratios}
 - U F16H 63/50 . Signals to an engine or motor
 - F16H 2063/504 . . . {for bringing engine into special condition by transmission control, e.g. by changing torque converter characteristic to modify engine set point to higher engine speed for better acceleration performance}
 - F16H 2063/506 . . . {for engine torque resume after shift transition, e.g. a resume adapted to the driving style}
 - F16H 2063/508 . . . {for limiting transmission input torque, e.g. to prevent damage of transmission parts}
- U F16H 2306/00 Shifting**
- F16H 2306/36 . Filling the dead volume of actuators(controlling filling of clutches or brake servos ~~F16H61/06E2~~[F16H 61/62](#))

Project: N/A (F16J)

- U F16J 9/00 Piston-rings, {e.g. non-metallic piston-rings}, seats therefor; Ring sealings of similar construction in general (other sealings between pistons and cylinders [F16J 3/06](#), [F16J 15/16](#); {manufacture of piston-rings [B23P 15/06](#), [B23P 15/08](#)}; tools for mounting or removing piston-rings or the like [B25B](#); piston sealing arrangements on brake master cylinders [B60T 11/236](#); {sealing provided on pump pistons [F04B 53/143](#)})**
- U F16J 9/12 . Details
 - U F16J 9/20 . Rings with special cross-section (L-section rings [F16J 9/02](#)); Oil-scraping rings {([F16J 9/06](#) takes precedence)}
 - F16J 9/203 . . . {Oil-scraping rings}
- WARNING
The group [F16J 9/203](#) is no longer used for the classification of new documents from August ~~1st~~^{1st}, 2002. The backlog of this group is being continuously reclassified to [F16J 9/206](#), and to [F16J 9/06](#) and sub-groups
- U F16J 15/00 Sealings (sealing arrangements for vehicle windows, windscreens, non-fixed roofs, doors, or similar devices [B60J 10/00](#); sealing or packing elements for container closures [B65D 53/00](#); sealing arrangements in rotary-piston machines or engines [F01C 19/00](#); sealings in non-positive-displacement machines or engines [F01D 11/00](#); arrangements of sealings in combustion engines [F02F 11/00](#); sealing arrangements in rotary-piston pumps [F04C 27/00](#); sealing lead-in or lead-through insulators [H01B 17/30](#))**
- U F16J 15/02 . between relatively-stationary surfaces ([F16J 15/46](#), [F16J 15/48](#) take precedence)
 - U F16J 15/06 . with solid packing compressed between sealing surfaces
 - U F16J 15/08 . . . with exclusively metal packing

- U F16J 15/0818 {Flat gaskets}
- F16J 2015/0837 {with an edge portion folded over a second plate or shim }
- F16J 2015/0843 {with an edge portion folded over the plate itself }
- F16J 2015/085 {without fold over }
- F16J 2015/0856 {with a non-metallic coating or strip }
- F16J 2015/0862 {with a bore ring }
- F16J 2015/0868 {Aspects not related to the edges of the gasket }
- F16J 2015/0875 {comprising welds }

Project: N/A (F16K)

- U F16K 31/00 **{Actuating devices;}Operating means; Releasing devices{(regulating means G05D)}**
- U F16K 31/02 . electric{(F16K 31/004 takes precedence)}; magnetic
- U F16K 31/04 . . using a motor
- F16K 31/041 . . . {for rotating valves(F16K 31/055 takes precedence)}

WARNING

Subgroups [F16K 31/042](#) to [F16K 31/045](#) are not complete pending a reorganisation, see also ~~F16K 31/04~~ **BF16K31/04B**

- U F16K 99/00 **Subject matter not provided for in other groups of this subclass**
- U F16K 99/0001 . {Micro-valves(micro-devices [B81B 1/00](#) ; manufacture or treatment of devices or systems in or on a substrate [B81C 1/00](#) ; micro-fluidic structures [B01L 3/5027](#) ; micro-pumps [F04B 19/006](#))}
- F16K 2099/0069 . . {Bistable microvalves}
- F16K 2099/0071 . . {with latching means}
- F16K 2099/0073 . {Fabrication methods specifically adapted for microvalves}
- F16K 2099/0074 . . {using photolithography, e.g. etching}
- F16K 2099/0076 . . {using electrical discharge machining (EDM), milling or drilling}
- F16K 2099/0078 . . {using moulding or stamping}
- F16K 2099/008 . . {Multi-layer fabrications}
- F16K 2099/0082 . {Microvalves adapted for a particular use}
- F16K 2099/0084 . . {Chemistry or biology, e.g. "lab-on-a-chip" technology}
- F16K 2099/0086 . . {Medical applications}
- F16K 2099/0088 . . . {Implanted devices}
- F16K 2099/009 . . {Fluid power devices}
- F16K 2099/0092 . . {Inkjet printers}
- F16K 2099/0094 . . {Micro-pumps}
- F16K 2099/0096 . . {Fuel injection devices}
- F16K 2099/0098 . . {Refrigeration circuits, e.g. for cooling integrated circuits}

Project: N/A (F16L)**F16L****PIPES; JOINTS OR FITTINGS FOR PIPES; SUPPORTS FOR PIPES, CABLES OR PROTECTIVE TUBING; MEANS FOR THERMAL INSULATION IN GENERAL**NOTES

In this subclass, the following terms are used with the meanings indicated:

- "pipe" means a conduit of closed cross-section, which is specially adapted to convey fluids, materials or objects;
- "hose" means a pipe, as defined above, which has flexibility as an essential characteristic.

Attention is drawn to the following places:

- [A61M 39/00](#) Tube connectors, tube couplings or branch units, specially adapted for medical use
- [B05B 1/20](#) Perforated pipes
 - { [B60T 17/04](#) Arrangement of piping or air hoses in brake systems}
- [B63B 35/03](#) Pipe-laying vessels
- [B64D 39/04](#) Adaptation of hose constructions for refuelling aircraft during flight
 - { [B65G 51/00](#) Conveying articles through pipes or tubes by fluid flow or pressure}
 - { [B65G 53/00](#) Conveying materials in bulk through pipes or tubes}
- [B67D5/36](#)[B67D 7/38](#) Arrangements of hoses in apparatus for transferring liquids, e.g. fuel, from bulk to vehicles or portable containers
- [E01D 19/10](#) Fastening of pipes or cables to bridges
- [E03B](#) Water supply installations
- [E03D 11/17](#) Means for connecting water-closet bowls to the flushing pipe
- [E03D 11/18](#) Siphons for water-closets
- [E03F 3/04](#) Pipes or fittings specially adapted to sewers
- [E04D 13/08](#) Down pipes for roof drainage; Clamping means therefor
- [E04F 17/00](#) Vertical ducts, channels in buildings, e.g. chimneys
- [E21F 1/04](#) Air ducts for ventilation of mines or tunnels; Connections therefor
- [E21F 17/02](#) Suspension devices for tubes or the like in mines or tunnels
- [F01N](#) Gas flow silencers or exhaust apparatus for machines or engines
 - { [F16B 7/00](#) Connections of rods or tubes}
- [F16N 21/00](#) Conduits, junctions for lubrication systems
- [F17C 3/02](#) Thermal insulation of vessels not under pressure for storing liquefied or solidified gases, e.g. Dewar flask
 - { [F17D](#) Pipe-line systems, pipe-lines}
- [F22B 37/10](#) Water tubes of steam boilers
- [F23J 13/04](#) Joints, connections for chimneys or flues
- [F24H 9/12](#) Connecting circulation pipes to heaters
- [F28F 9/04](#) Arrangements for sealing elements into header boxes or end plates of heat-exchangers
- [G21C 15/22](#) Structural association of coolant tubes with headers or other pipes in nuclear reactors
- [H02G 3/04](#) Protective tubing or conduits for electric cables
- [H02G 3/26](#) Installations of electric cables or lines, or protective tubing on or in walls, ceilings or floors.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[F16L 3/21](#) covered by [F16L3/205B](#)[F16L 3/2053](#), [F16L3/205C](#)
[F16L 3/2056](#);
[F16L 13/013](#) covered by [F16L 13/007](#);
[F16L 19/03](#) covered by [F16L19/02D](#)[F16L 19/0212](#);
[F16L 59/05](#) covered by [F16L59/02B](#)[F16L 59/021](#).

- F16L 3/00** Supports for pipes, cables or protective tubing, e.g. hangers, holders, clamps, cleats, clips, brackets (anchors for holding pipes on or under the ground [F16L 1/06](#); {sound-damping supports [F16L55/033S](#)[F16L 55/035](#); supports for insulated pipes [F16L 59/135](#)})
- F16L 5/00** Devices for use where pipes, cables or protective tubing pass through walls or partitions ({joining pipes to walls [F16L 41/00](#); joining plastic pipes to walls [F16L47/00J](#)[F16L 47/26](#); passing insulated pipes through walls [F16L 59/121](#); for steam boilers [F22B 37/105](#)}; arrangements for leading electric cables or lines through walls, floors or ceilings [H02G 3/22](#))
- U F16L 11/00** Hoses, i.e. flexible pipes (hose-like supports for pipes, cables or protective tubing, between relatively movable points [F16L 3/01](#); suction-cleaner hoses [A47L 9/24](#))
- U F16L 11/04** • made of rubber or flexible plastics
- F16L 2011/047** • • {with a diffusion barrier layer }
- U F16L 13/00** Non-disconnectible pipe-joints, e.g. soldered, adhesive or caulked joints (joints for rigid pipes of plastics [F16L 47/00](#); {non-disconnectible pipe-joints to walls or other pipes, the joined pipe axis being perpendicular to the plane of the wall or to the axis of the other pipe [F16L 41/082](#)})
- F16L 13/007** • specially adapted for joining pipes of dissimilar materials {(disconnectible joints for pipes of dissimilar materials [F16L 25/0072](#); joints between metal and plastic pipes [F16L47/00H3](#)[F16L 47/24](#)})
- F16L 13/02** • Welded joints {(arc welding curved planar seams [B23K9/02C](#)[B23K 9/028](#)})
- U F16L 13/14** • made by plastically deforming the material of the pipe, e.g. by flanging, rolling {(working of metal tubes without essentially removing material [B21D](#)})
- F16L 2013/145** • • {Tools specially adapted therefor }
- U F16L 21/00** Joints with sleeve or socket ([F16L 13/00](#), {[F16L 15/00](#)}, [F16L 17/00](#), [F16L 19/00](#), {[F16L 25/0027](#), [F16L 27/00](#), [F16L 37/00](#)} take precedence; {specially adapted to be made of plastics or to be used with pipes made of plastics [F16L 47/06](#); specially adapted for pipes of brittle material [F16L 49/08](#); devices for covering leaks in pipes or hoses [F16L 55/16](#)})
- U F16L 21/02** • with elastic sealing rings between pipe and sleeve or between pipe and socket, e.g. with rolling or other prefabricated profiled rings ([F16L 21/06](#), [F16L 21/08](#) take precedence; {sealing ring with radial ribs [F16L 17/025](#); sealing ring with axial lips [F16L 17/03](#)}; if adjustability is essential [F16L 27/00](#))
- F16L 21/04** • • in which sealing rings are compressed by axially-movable members {(for joints using a threaded member [F16L 19/07](#); quick acting couplings [F16L 37/00](#); devices for covering leaks from inside a pipe [F16L55/16B](#)[F16L 55/162](#)})
- F16L 21/08** • with additional locking means ({[F16L 17/035](#), [F16L17/04B](#)[F16L 17/04](#), [F16L 21/04](#)}, [F16L 21/06](#) take precedence; {screwed joints [F16L 19/08](#)}; couplings of the quick-acting type [F16L 37/00](#))
- U F16L 25/00** Constructive types of pipe joints not provided for in groups [F16L 13/00](#) to [F16L 23/00](#) (adjustable joints [F16L 27/00](#); couplings of the quick-acting type [F16L 37/00](#); specially adapted to be made of plastics or to be used with pipes made of plastics [F16L 47/00](#)){Details of pipe joints not otherwise provided for, e.g. electrically conducting or insulating means}

F16L 25/0072	<ul style="list-style-type: none"> • {Joints for pipes of dissimilar materials (non-disconnectible joints for pipes of dissimilar materials F61L13/007; joints between metal and plastic pipes F61L47/00H<i>non-disconnectible joints for pipes of dissimilar materials F16L 13/007</i>; <i>joints between metal and plastic pipes F16L 47/24</i>)}
F16L 27/00	Adjustable joints, Joints allowing movement (of the quick-acting type F61L37/50 ; <i>of the quick-acting type F16L 37/50</i> ; for double-walled or multi-channel pipe assemblies F16L 39/04 ; {connecting arrangements or other fittings specially adapted to be made of plastics or to be used with pipes made of plastics F16L 47/00 ; connecting arrangements specially adapted for pipes of brittle material F16L 49/00 })
U F16L 27/02	<ul style="list-style-type: none"> • Universal joints, i.e. with mechanical connection allowing angular movement or adjustment of the axes of the parts in any direction { articulated hoses made of rigid material F16L 11/18}
F16L 27/04	<ul style="list-style-type: none"> • with partly spherical engaging surfaces {(with, between the surfaces, a flexible element which undergoes shear and flexure F16L27/10D <i>F16L 27/103</i>)}
U F16L 29/00	Joints with fluid cut-off means (quick-acting joints with cut-off means F16L 37/28 ; {valves, taps or cocks in general F16K })
F16L 29/007	<ul style="list-style-type: none"> • {Joints with cut-off devices controlled separately (F16K29/00D takes precedence; operating means for cut-off devices in general F16K 31/00)}
F16L 41/00	Branching pipes; Joining pipes to walls (F16L 39/00 takes precedence; joints suitable for connecting together pipe-ends see the relevant groups {specially adapted to be made of plastics or to be used with pipes made of plastics F16L47/00J <i>F16L 47/26</i> ; characterised by couplings of the quick-acting type F16L 37/008 }; connections not designed for conveying fluid F16B 9/00)
F16L 49/00	Connecting arrangements, e.g. joints, specially adapted for pipes of brittle material, e.g. glass, earthenware {(sleeves, nipples or reduction pieces made of elastic material A61L21/00B2 <i>sleeves, nipples or reduction pieces made of elastic material F16L 21/005</i>)}
U F16L 51/00	Expansion-compensation arrangements for pipe-lines ({hangers or supports for pipes with special provision allowing movement of the pipes F16L 3/16 }; telescopic pipes F16L 27/12)
F16L 51/02	<ul style="list-style-type: none"> • making use of bellows or an expansible folded or corrugated tube {(rigid corrugated pipes F16L 9/06; corrugated hoses made of rigid material F16L11/14B<i>F16L 11/15</i>)}
U F16L 55/00	Devices or appurtenances for use in, or in connection with, pipes or pipe systems (the preceding groups and groups F16L 57/00 , F16L 59/00 take precedence; repairing or joining pipes on or under water F16L 1/26 ; nozzles B05B ; cleaning of pipes B08B 9/02 ; {arrangements of draining devices for water main or service pipe systems E03B 7/08 }; devices for preventing bursting of water pipes by freezing E03B 7/10 ; {draining devices for hydrants E03B 9/14 }; for domestic plumbing installations E03C 1/00 ; {steam traps for draining of liquids from enclosures containing gases or vapours F16T }; arrangements for sealing leaky tubes or conduits of heat-exchangers F28F 11/00)
U F16L 55/26	<ul style="list-style-type: none"> • Pigs or moles, i.e. devices movable in a pipe or conduit with or without self-contained propulsion means (tunnel railway systems B61B 13/10; conveying articles through pipes or tubes, e.g. tube mail systems, B65G 51/00)

F16L 55/265

- {specially adapted for work at or near a junction between a main and a lateral pipe}

NOTES

Pigs or moles specially adapted for particular applications are classified in the relevant places for the applications, e.g.

- stopping flow from or in pipes or hoses [F16L 55/12](#);
- repairing pipes [F16L 55/18](#);
- applying liquids or other fluent materials to the inside of tubes [B05C 7/08](#);
- cleaning pipes or tubes or systems of pipes or tubes [B08B 9/02](#);
- welding or cutting [B23K 37/02](#);
- earth drilling [E21B](#);
- {separating products [F17D 3/08](#)};
- cleaning chimneys [F23J 3/02](#);
- cleaning internal or external surfaces of heat-exchange or heat-transfer conduits [F28G](#);
- measuring, testing [G01](#);
- inspection of vessels in nuclear reactors [G21C 17/003](#);
- inspection or maintenance of pipe-lines or tubes in nuclear installations [G21C 17/017](#);
- installing electric, or combined optical and electric, cables or lines [H02G](#).

In groups [F16L 55/26](#) to [F16L 55/48](#), the indexing codes of **R16L101:00** [F16L 2101/00](#) to **R16L101:70** [F16L 2101/70](#) are added

U F16L 59/00

Thermal insulation in general(heat, sound insulation in buildings [E04B](#); heat insulation of steam engines [F01B 31/08](#); { thermal or acoustic isolation for combustion engines [F02B 77/11](#)}; heat insulation in rotary piston machines [F01C 21/06](#); heat insulation of pumps [F04C 29/04](#); thermal insulation of pressure vessels [F17C 1/12](#); vessels not under pressure, with provision for insulation [F17C 3/02](#))

U F16L 59/14

- Arrangements for the insulation of pipes or pipe systems ([F16L 59/02](#) to [F16L 59/12](#) take precedence)

F16L 59/141

- {in which the temperature of the medium is below that of the ambient temperature (rigid pipes of wood [F16L 9/006](#); vacuum insulation **F16L59/06C** [F16L 59/065](#))}

Project: N/A (F16M)

U F16M 1/00

Frames or casings of engines, machines or apparatus; Frames serving as machinery beds

U F16M 1/02

- for reciprocating engines or similar machines

U F16M 1/021

- for housing crankshafts

F16M 1/022

- of tunnel type, i.e. wherein the crankshaft can only be introduced axially(~~for engines or machines with star-shaped cylinder arrangement **F16K1/023**~~ [for engines or machines with star-shaped cylinder arrangement F16M 1/023](#))

Project: N/A (F16N)

U F16N 13/00

Lubricating-pumps (oil cans with pump [F16N 3/08](#); pumps for liquids in general [F04](#))

F16N 2013/003

- {Flexible-wall pumps}

F16N 2013/006

- {Jet pumps}

- U F16N 13/02 • with reciprocating piston (pumps with distributing equipment [F16N 13/22](#))
- U F16N 13/06 • • Actuation of lubricating-pumps
 - F16N 2013/063 • • • {with electrical drive}
 - F16N 2013/066 • • • {with electromagnetical drive}
- U F16N 13/20 • Rotary pumps (with distributing equipment [F16N 13/22](#))
 - F16N 2013/205 • • {Screw pumps}
- U F16N 21/00 Conduits; Junctions (in general [F16L](#)); Fittings for lubrication apertures**
 - F16N 2021/005 • {Modulair units }
- U F16N 31/00 Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus (oil separators for separating oil from exhaust steam [F22G](#))**
 - F16N 2031/008 • {Drain plugs}
 - U F16N 31/02 • Oil catchers; Oil wipers (oil-scraping rings for pistons [F16J 9/20](#); { cleaning means for indicating or measuring dip members, e.g. dipstick wipers [G01F 23/045](#)})
 - F16N 2031/025 • • {Oil-slinger}
- U F16N 33/00 Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts**
 - F16N 2033/005 • ~~Flushing~~-{*Flushing*}
- U F16N 37/00 Equipment for transferring lubricant from one container to another**
 - F16N 2037/006 • ~~Filling~~-{*Filling*}
- U F16N 39/00 Arrangements for conditioning of lubricants in the lubricating system (cleaning of lubricating oil, lubricating compositions [C10M](#))**
 - F16N 2039/007 • {Using strainers}
 - U F16N 39/06 • by filtration (filters in general [B01D](#); magnetic separators [B03C 1/00](#); {centrifugal separators or filters [B04B 5/005](#)})
 - F16N 2039/065 • • {inlet foot filter}

Project: N/A (F17C)

- U F17C 5/00 Methods or apparatus for filling containers with liquefied, solidified, or compressed gases under pressures (adding propellants to aerosol containers [B65B 31/00](#))**

NOTE

This group includes not only the filling of vessels for storage of compressed or liquefied gases, but also the filling of pressurised apparatus insofar as it is not covered by a single other subclass, e.g. [A62C](#), [B05B](#).

 - U F17C 5/002 • {Automated filling apparatus}
 - F17C 5/007 • • { for individual gas tanks or containers, e.g. in vehicles (filling with liquid fuel not under pressure, [B60S 5/02](#), ~~B67D5/00~~[B67D 7/00](#))}

Project: N/A (F17D)**F17D 1/00**

Pipe-line systems (conveying articles or materials through a pipe- line by means of a fluid carrier [B65G 51/00](#), [B65G 53/00](#); liquids [B67D](#); special devices for transferring liquids from bulk storage containers into vehicles or boats or vice versa, e.g. loading or unloading vehicles or portable containers [B67D5/00](#) [B67D 7/00](#); conveying material which has been excavated by a dredger or soil shifter through a pipe-line [E02F 7/10](#); sewer pipe-line systems [E03F 3/00](#); thermal insulation of pipe-lines [F16L 59/00](#); central heating systems [F24D](#))

Project: N/A (F21K)**U F21K 99/00**

F21K 2099/005

Subject matter not provided for in other groups of this subclass

- {Other light sources comprising light emitting diodes associated with conversion means}

Project: N/A (F21L)**F21L 2/00 -****~~F21L 15/00~~****[F21L 2/00](#)****Electric lighting****F21L 2003/00****- ~~F21L 2005/00~~****[F21L 15/00](#)****Portable electric lighting devices****Project: N/A (F21S)****U F21S 10/00**

F21S 10/002

Lighting devices or systems producing a varying lighting effect

- {using liquids, e.g. water([F21S8/00P7](#) [F21W 2121/02](#) takes precedence)}

F21S 11/00**- ~~F21S 48/00~~****[F21S 15/00](#)****Non-electric lighting****Project: N/A (F21V)****F21V 1/00 -****~~F21V 14/00~~****[F21V 7/00](#)****Details of those parts involved in light emission or distribution (optical elements and systems in general [G02B](#))****U F21V 9/00**

Light filters (coloured shades [F21V 1/00](#)); Selection of luminescent materials for light screens (luminescent materials per se [C09K 11/00](#); electroluminescent light sources [H05B 33/00](#))

U F21V 9/08

- for producing coloured light, e.g. monochromatic; for reducing intensity of light ([F21V 9/16](#) takes precedence)

F21V 2009/086

- • {for vehicle rear lights }

Project: N/A (F22B)**U F22B 1/00**

Methods of steam generation characterised by form of heating method (solar heating [F24J](#); jackets or other cooling means in which steam is generated and which serve for cooling other apparatus, see the subclasses for such apparatus)

U F22B 1/02

- by exploitation of the heat content of hot heat carriers

U F22B 1/16

- • the heat carrier being hot liquid or hot vapour, e.g. waste liquid, waste vapour

F22B 1/165

- • • {using heat pipes (heat pipes per se [F28D15/00B](#) [F28D 15/02](#))}

- U F22B 31/00** **Modifications of boiler construction, or of tube systems, dependent on installation of combustion apparatus; Arrangements of dispositions of combustion apparatus (steam generation characterised by heating method [F22B 1/00](#); combustion apparatus per se [F23](#))**
- F22B 31/0007
 - {with combustion in a fluidized bed (fluidized bed apparatus per se [B01J 8/00](#); fluidized bed combustors [F23C11/02](#) [F23C 10/00](#))}
- U F22B 37/00** **Component parts or details of steam boilers (venting devices [F16K 24/00](#); steam traps or like apparatus [F16T](#))**
- U F22B 37/002
 - {specially adapted for nuclear steam generators, e.g. maintenance, repairing or inspecting equipment not otherwise provided for}
- U F22B 37/003
 - {Maintenance, repairing or inspecting equipment positioned in or via the headers}
- F22B 37/005
 - • { Positioning apparatus specially adapted therefor ([F22B37/70C3](#) [F22B 37/64](#) takes precedence)}

Project: N/A (F23N)

- U F23N 5/00** **Systems for controlling combustion([F23N 1/00](#) , [F23N 3/00](#) take precedence)**
- U F23N 5/16
 - using noise-sensitive detectors
- F23N 2005/165
 - • {with ultrasonic means}
- U F23N 5/18
 - using detectors sensitive to rate of flow of air or fuel
- F23N 2005/181
 - • {using detectors sensitive to rate of flow of air}
- F23N 2005/182
 - • • {Air flow switch}
- F23N 2005/185
 - • {using detectors sensitive to rate of flow of fuel}

Project: N/A (F23Q)

- U F23Q 7/00** **Incandescent ignition; Igniters using electrically-produced heat, e.g. lighters for cigarettes (circuits therefor [H01T 15/00](#)); Electrically-heated glowing plugs**
- U F23Q 7/001
 - {Glowing plugs for internal-combustion engines}
- F23Q 2007/002
 - • {with sensing means }
- F23Q 2007/004
 - • {Manufacturing or assembling methods }
- F23Q 2007/005
 - • • {pressure sensors }
- F23Q 2007/007
 - • • {ion current sensors }
- F23Q 2007/008
 - • • {temperature sensors }

Project: N/A (F24D)

- U F24D 19/00** **Details (of water or air heaters [F24H 9/00](#); of heat-exchange or heat-transfer apparatus, of general application [F28F](#))**
- U F24D 19/02
 - Arrangement of mountings or supports for radiators
- U F24D 19/024
 - • { Functioning details of supporting means for radiators}
- U F24D 19/0256
 - • • { Radiators clamped by supporting means}
- F24D 2019/0266
 - • • • {Radiators clamped by supporting means around a column or tube }
- F24D 2019/0269
 - • • • {Radiators clamped by supporting means between two columns or tubes }
- F24D 2019/0296
 - • {having spring loaded holding means }

Project: N/A (F24F)**U F24F 1/00**

Rooms units, e.g. receiving primary air from a central station { or with supply of heating or cooling agents from a central station, such as those applied to air-treatment systems included in [F24F 3/00](#) and [F24F 5/00](#) (arrangement or assembly of components for the primary treatment of air [F24F 11/08](#); mixing chambers for air [F24F 13/04](#))}

WARNING

[F24F 1/08](#) to [F24F 1/24](#) and [F24F 1/28](#) to [F24F 1/68](#) not complete pending the completion of a reclassification; see also other groups of [F24F 1/00](#)

- U F24F 1/0007 • {Fan coil units, e.g. using an evaporating refrigerant}
- F24F 2001/0037 • • {mounted in or under the ceiling }
- F24F 2001/004 • • {mounted or standing on the floor }
- F24F 2001/0044 • • {mounted at least partially under the floor or the outlet air is being distributed under the floor (HVAC with raised floors [F24F 2221/40](#))}
- F24F 2001/0048 • • {mounted in or on the wall }
- F24F 2001/0051 • • {Introducing outside air to rooms }
- F24F 2001/0055 • • {Exhausting internal air from rooms }
- F24F 2001/0062 • {receiving air from a central station}
- F24F 2001/0066 • • {with air treatment in the central station and in the room unit}
- F24F 2001/007 • • {with air treatment in the room unit}
- F24F 2001/0074 • {receiving heat exchange fluid}
- F24F 2001/0077 • • {the fluid entering and leaving the room unit as a liquid}
- F24F 2001/0081 • • {the fluid entering the room unit as a liquid and leaving it as a gas}
- F24F 2001/0085 • {using the cooling effect of evaporating fluid either evaporating directly in the room air, in the air supplied to the room or in the outside air}
- F24F 2001/0088 • • {evaporating directly in the room air or the air supplied to the room}
- F24F 2001/0092 • • {evaporating in the outside air, e.g. evaporation heat being extracted from the room air by indirect heat exchange}
- F24F 2001/0096 • {Units supplying highly filtered air to a room or to a limited area within a room}

U F24F 3/00

Air-conditioning systems in which conditioned primary air is supplied from one or more central stations to distributing units in the rooms or spaces where it may receive secondary treatment; Apparatus specially designed for such systems (room units [F24F 1/00](#); construction of heat-exchangers [F28](#)){[F24F 3/044](#) takes precedence; arrangement or assembly of components for the primary treatment of air [F24F 11/08](#)}

- F24F 2003/003 • {with primary air treatment in the central station and subsequent secondary air treatment in air treatment units located in or near the rooms}
- F24F 2003/005 • • {with a single air duct for transporting treated primary air from the central station to air treatment units located in or near the rooms}
- F24F 2003/006 • • {with two air ducts for separately transporting treated hot and cold primary air from the central station to air treatment units located in or near the rooms}
- F24F 2003/008 • {Supplying highly filtered air to a room or to a limited area within a room}
- U F24F 3/044 • Systems in which all treatment is given in the central station, i.e. all-air systems
- F24F 2003/0446 • • {with a single air duct for transporting treated air from the central station to the rooms}
- F24F 2003/0448 • • {with two air ducts for separately transporting treated hot and cold air from the central station to the rooms}

- U F24F 3/12
 - characterised by the treatment of the air otherwise than by heating and cooling ([F24F 3/02](#), [F24F 3/06](#) take precedence, apparatus for the individual treatment, see the appropriate subclasses for the treatments)
- U F24F 3/14
 - • by humidification; by dehumidification
 - • • {comprising semi-permeable membrane }
 - • • {by dehumidification only }
 - • • • {by condensing }
 - • • • • {heat extracted from the humid air for condensing is returned to the dried air }
 - • • {using regenerators }
 - • • • {using rotating regenerators }
- U F24F 3/16
 - • by purification, e.g. by filtering; by sterilisation; by ozonisation {ion sources [H01J 27/02](#), [H01J 37/08](#); treatment rooms or enclosures for medical purposes [A61G 10/00](#)}
- U F24F 3/1603
 - • • {by filtering (arrangements or mounting of filters [F24F 13/28](#))}
 - • • • {using a dry filtering element }
 - • • • {using wet filtering methods }
 - • • • {using chemical filtering methods }
 - • • • • {using active carbon }
 - • • • • {using catalytic reaction }
 - • • • {using vortex }
 - • • • {using high voltage }
 - • • • {with filter cleaning }
 - • • • {of pollen, to avoid allergies }
 - • • • {of tobacco smoke }
 - • • • {of ozone }
 - • • • {using biofilters, plants or microorganisms }
 - • • • {the air pollution of a street or a city }
 - • • {by sterilisation }
 - • • • {using UV light }
 - • • • {using ozone }
 - • • • {using a sterilising medium }
 - • • • {to avoid the Legionella bacteria }
 - • • {by ionisation }
 - • • {by ozonisation }
 - • • {by odorising }
 - • • {by adding oxygen }
 - • • {by removing radon }
- U F24F 5/00
 - Air-conditioning systems or apparatus not covered by [F24F 1/00](#) or [F24F 3/00](#) { e.g. using solar heat; combined with household units such as an oven or water heater }**
- U F24F 5/0007
 - {cooling apparatus specially adapted for use in air-conditioning (self-contained room units [F24F 1/02](#); [F24F 5/0046](#) takes precedence; air-humidification [F24F 6/00](#))}
- U F24F 5/0017
 - • {using cold storage bodies, e.g. ice}
 - • • {using heat exchange fluid storage tanks }

F24F 2005/0028	• • • {using hydridable metals as energy storage media }
F24F 2005/0032	• • • {Systems storing energy during the night }
F24F 2005/0039	• • {using a cryogen, e.g. CO2 liquid or N2 liquid }
F24F 5/0042	• {characterised by the application of thermo-electric units or the Peltier effect (refrigerators and cooling systems using magnetic or electrical effects in general F25B 21/02 ; for semi-conductors H01L 23/38 ; thermobatteries or thermogenerators H01L 35/00 H01L 35/00)}
U F24F 5/0046	• {using natural energy, e.g. solar energy, energy from the ground}
F24F 2005/0053	• • {receiving heat-exchange fluid from a well }
F24F 2005/0057	• • {receiving heat-exchange fluid from a closed circuit in the ground }
F24F 2005/006	• • {receiving heat-exchange fluid from the drinking or sanitary water supply circuit }
F24F 2005/0064	• • {using solar energy }
F24F 2005/0067	• • • {with photovoltaic panels }
U F24F 5/0075	• {Systems using thermal walls, e.g. double window (double windows per se E06B)}
F24F 2005/0078	• • {Double windows }
F24F 2005/0082	• • Facades { Facades }
U F24F 6/00	Air-humidification, e.g. for increasing comfort in living spaces by "room humidifiers" { cooling by humidification}
F24F 2006/001	• {using a water curtain }
F24F 2006/003	• {using a decorative fountain }
F24F 2006/005	• {using plants }
F24F 2006/006	• {with water treatment }
F24F 2006/008	• {Air-humidifier with water reservoir }
U F24F 6/02	• by evaporation of water in the air {humidifiers specially adapted for radiators see F24D 19/008 }
U F24F 6/04	• • using stationary unheated wet elements
F24F 2006/046	• • • {with a water pump }
U F24F 6/06	• • using moving unheated wet elements
F24F 2006/065	• • • {using slowly rotating discs for evaporation }
U F24F 6/12	• by forming water dispersions in the air
U F24F 6/14	• • using nozzles (nozzles per se, spraying in general B05B)
F24F 2006/143	• • • {using pressurised air for spraying }
F24F 2006/146	• • • {using pressurised water for spraying }
U F24F 7/00	Ventilation, { e.g. by means of wall-ducts; systems using window or roof apertures}
F24F 2007/001	• {with exhausting air ducts }
F24F 2007/002	• • {Junction box, e.g. for ducts from kitchen, toilet or bathroom }
F24F 2007/003	• {using vent ports in a wall }
F24F 2007/004	• {Natural ventilation using convection }
F24F 2007/005	• {Cyclic ventilation, e.g. alternating air supply volume or reversing flow direction (F24F 2012/008 takes precedence when there is heat exchange between exhaust and supply air)}
U F24F 9/00	Use of air currents for screening, e.g. air curtain (air curtains for vehicles B60J 9/04)

F24F 2009/002	• {Room dividers }
F24F 2009/005	• {combined with a door }
F24F 2009/007	• {using more than one jet or band in the air curtain }
U F24F 11/00	Control or safety systems or apparatus ({extinguishing or preventing fire A62C 3/14}; control valves per se F16K; humidity control G05D 22/00)
U F24F 11/0001	• {for ventilation (F24F 11/0009 takes precedence)}
F24F 2011/0002	• • {for admittance of outside air }
F24F 2011/0004	• • • {to create overpressure in a room }
F24F 2011/0005	• • • {to create underpressure in a room, keeping contamination inside }
F24F 2011/0006	• • {using low temperature external supply air to assist cooling }
U F24F 11/0009	• {Electrical control or safety systems or apparatus}
U F24F 11/001	• • {Control systems or circuits characterised by their inputs, e.g. using sensors}
U F24F 11/0012	• • • {Air temperature}
F24F 2011/0013	• • • • {of the outside air }
U F24F 11/0015	• • • {Air humidity}
F24F 2011/0016	• • • • {of the outside air }
U F24F 11/0017	• • • {Air quality properties}
F24F 2011/0019	• • • • {of the outside air }
F24F 2011/002	• • • • {Odor concentration }
F24F 2011/0021	• • • • {Ozone concentration }
F24F 2011/0023	• • • • {Concentration of air-borne particles }
F24F 2011/0024	• • • • • {Tobacco smoke }
F24F 2011/0026	• • • • • {Carbon dioxide concentration }
F24F 2011/0027	• • • • • {Carbon monoxide concentration }
F24F 2011/0028	• • • • • {Oxygen concentration }
F24F 2011/003	• • • • • {Radon concentration }
F24F 2011/0031	• • • • • {Electric charge }
F24F 2011/0032	• • • • • {Volatile organic compound [VOC] }
U F24F 11/0034	• • • {Occupancy}
F24F 2011/0035	• • • • {Position of occupants }
F24F 2011/0036	• • • • {Activity of occupants }
F24F 2011/0038	• • • {Air velocity }
F24F 2011/0039	• • • • {of the outside air }
F24F 2011/0041	• • • Pressure { Pressure }
F24F 2011/0042	• • • • {Air pressure }
F24F 2011/0043	• • • • {Heat exchange fluid pressure }
F24F 2011/0045	• • • {Heat exchange fluid temperature }
F24F 2011/0046	• • • Load { Load }
F24F 2011/0047	• • • {Energy consumption }
F24F 2011/0049	• • • Sunlight { Sunlight }
F24F 2011/005	• • • {Artificial light }
F24F 2011/0052	• • • Malfunction { Malfunction }
F24F 2011/0053	• • • Sound { Sound }
F24F 2011/0054	• • • Condensate { Condensate }

	F24F 2011/0056	• • • {Damper state, e.g. open or closed }
	F24F 2011/0057	• • • {using feedback from user }
	F24F 2011/0058	• • • {using weather information or forecast }
U	F24F 11/006	• {Control systems or circuits characterised by type of control, internal processing or calculations, e.g. using fuzzy logic adaptative control or estimating values}
	F24F 2011/0061	• • • {using electronic processing }
	F24F 2011/0063	• • • • {using pre-stored data }
	F24F 2011/0064	• • • • {for selecting an operative mode }
	F24F 2011/0065	• • • • • {Sleeping mode }
	F24F 2011/0067	• • • {using one central controller connected to several sub-controllers }
	F24F 2011/0068	• • • {using remote control device }
	F24F 2011/0069	• • • • {using a telephone line }
	F24F 2011/0071	• • • • {using internet communication }
	F24F 2011/0072	• • • • {for programming }
	F24F 2011/0073	• • • • {using timers }
	F24F 2011/0075	• • • {for electric energy efficiency or saving }
U	F24F 11/0076	• {Control systems or circuits characterised by their outputs, e.g. using a variable flow fan}
U	F24F 11/008	• • • {controlling the supply of heat-exchange fluid}
	F24F 2011/0082	• • • • {using a valve }
	F24F 2011/0083	• • • • {using a variable flow pump }
	F24F 2011/0084	• • • • {monitoring refrigerant leakage }
U	F24F 11/0086	• {Control systems or circuits characterised by other control features, e.g. display or monitoring devices}
	F24F 2011/0087	• • • {for defrosting }
	F24F 2011/0089	• • • • {an outdoor unit }
	F24F 2011/009	• • • • {an indoor unit }
	F24F 2011/0091	• • • {Display or monitoring devices }
	F24F 2011/0093	• • • • {Devices monitoring filter performance }
	F24F 2011/0094	• • • • {for computing energy costs }
	F24F 2011/0095	• • • {Devices triggered by fire, excessive heat or smoke }
	F24F 2011/0097	• • • • {opening air passage in case of fire, excessive heat or smoke }
	F24F 2011/0098	• • • • {closing air passage in case of fire, excessive heat or smoke }
U	F24F 12/00	Use of energy recovery systems in air conditioning, ventilation or screening (with both heat and humidity transfer between supplied and exhausted air F24F 3/147; heat-exchange in general F28)
U	F24F 12/001	• {with heat-exchange between supplied and exhausted air}
U	F24F 12/002	• {using an intermediate heat-transfer fluid}
	F24F 2012/005	• • • {using heat pipes }
	F24F 2012/007	• • {using a by-pass for bypassing the heat-exchanger }
	F24F 2012/008	• • {cyclic routing supply and exhaust air (F24F 2007/005 takes precedence when there is no heat exchange)}
U	F24F 13/00	Details common to, or for air-conditioning, air-humidification, ventilation or use of air currents for screening
U	F24F 13/02	• Ducting arrangements

- U F24F 13/06
 - • Outlets for directing or distributing air into rooms or spaces, e.g. ceiling air diffuser
- F24F 2013/0608
 - • • {Perforated ducts }
- F24F 2013/0612
 - • • {Induction nozzles without swirl means }
- F24F 2013/0616
 - • • {Outlets that have intake openings }
- U F24F 13/08
 - Air-flow control members, e.g. louvres, grilles, flaps, guide plates ([F24F 13/06](#) takes precedence; roof ventilators [F24F 7/02](#))
- U F24F 13/082
 - • {Grilles, registers or guards}
- F24F 2013/087
 - • • {using inflatable bellows }
- F24F 2013/088
 - • • {Air-flow straightener }
- U F24F 13/10
 - • movable, e.g. damper ([F24F 13/18](#) takes precedence; valves in general [F16K](#))
- U F24F 13/14
 - • • built up of tilting members, e.g. louver
- U F24F 13/1426
 - • • • {characterised by actuating means}
- F24F 2013/1433
 - • • • • {with electric motors }
- F24F 2013/144
 - • • • • {with thermoactuators }
- F24F 2013/1446
 - • • • • {with gearings }
- F24F 2013/1453
 - • • • • {with cables, e.g. bowden cables }
- F24F 2013/146
 - • • • • {with springs }
- F24F 2013/1466
 - • • • • {with pneumatic means }
- F24F 2013/1473
 - • • • • {with cams or levers }
- F24F 2013/148
 - • • • • {with magnets }
- F24F 2013/1493
 - • • • {using an elastic membrane }
- U F24F 13/20
 - Casings or covers
- F24F 2013/202
 - • {Mounting a compressor unit therein }
- F24F 2013/205
 - • {Mounting a ventilator fan therein }
- F24F 2013/207
 - • {with control knobs; Mounting controlling members or control units therein }
- U F24F 13/22
 - Means for preventing condensation or evacuating condensate {(for refrigerating devices in general [F25D 21/14](#))}
- F24F 2013/221
 - • {to avoid the formation of condensate, e.g. dew }
- U F24F 13/222
 - • {for evacuating condensate}
- F24F 2013/225
 - • • {by evaporating the condensate in the cooling medium, e.g. in air flow from the condenser }
- F24F 2013/227
 - • • {Condensate pipe for drainage of condensate from the evaporator }
- F24F 2013/228
 - • {Treatment of condensate, e.g. sterilising }
- U F24F 13/24
 - Means for preventing or suppressing noise {(in perforated ceilings [F24F 7/10](#))}
- F24F 2013/242
 - • {Sound-absorbing material }
- F24F 2013/245
 - • {using resonance }
- F24F 2013/247
 - • {Active noise-suppression }

Project: N/A (F24H)

- U F24H 1/00
 - Water heaters having heat generating means, e.g. boiler, flow- heater, water-storage heater ([F24H 7/00](#), [F24H 8/00](#) take precedence; details [F24H 9/00](#); steam boilers [F22B](#); domestic stoves or ranges with additional provisions for heating water [F24B 9/00](#), [F24C 13/00](#))
- U F24H 1/18
 - Water storage heaters (combined with water-heating stoves for central heating [F24H 1/22](#); [F24H 1/50](#) takes precedence)

- U F24H 1/181
 - • {Construction of the tank (containers or tanks in general [B65D](#), e.g. metal containers [B65D 7/00](#))}
- F24H 1/183
 - • • {Inner linings (linings for containers in general [B65D 25/14](#), [B65D87/14](#) [B65D 90/04](#))}
- F24H 1/185
 - • {using electric energy supply ([F24H1/18F](#) [F24H 1/201](#) takes precedence)}
- U F24H 1/22
 - Water heaters other than continuous-flow or water storage heaters, e.g. water-heaters for central heating ([F24H 1/50](#) takes precedence)
- U F24H 1/24
 - • with water mantle surrounding the combustion chamber or chambers ([F24H 1/40](#), [F24H 1/44](#) take precedence)
- U F24H 1/26
 - • • the water mantle forming an integral body
- F24H 2001/266
 - • • • {with a water cooled element coaxial in combustion chamber }

Project: N/A (F24J)**F24J 1/00**

Apparatus or devices using heat produced by exothermal chemical reactions other than by combustion (for cooking-vessels [A47J 36/28](#); self-heating compresses [A61F](#) {[A61F7/04C](#) [A61F 7/03](#)}; materials for the production of heat or cold involving non-reversible chemical reactions, other than by combustion, when used [C09K 5/18](#))

U F24J 2/00

Use of solar heat, e.g. solar heat collectors (distillation or evaporation of water using solar energy [C02F 1/14](#); devices for producing mechanical power from solar energy [F03G 6/00](#); semiconductor devices adapted for converting solar energy into electrical energy [H01L 25/00](#), [H01L 31/04](#); semiconductor devices including arrays of solar cells using heat energy [H01L 31/058](#); generators in which light radiation is directly converted into electrical energy [H02N 6/00](#))

- F24J 2002/003
 - {Heat traps }
- F24J 2002/0038
 - {Solar modules layout; Modular arrangements }
- F24J 2002/0046
 - • {in the form of multiple rows and multiple columns, all solar modules being coplanar }
- F24J 2002/0053
 - • {Coplanar arrangements with frame overlapping portions }
- F24J 2002/0061
 - • {Overlaying arrangements similar to roof tiles }
- F24J 2002/0069
 - • {Stepped arrangements, e.g. in parallel planes, without module overlapping }
- F24J 2002/0076
 - • {Non-parallel arrangements }
- F24J 2002/0084
 - • {Preventing shading effects }
- F24J 2002/0092
 - • {Arrangements of solar thermal modules combined with solar PV modules }
- U F24J 2/04
 - Solar heat collectors having working fluid conveyed through collector
- F24J 2002/0405
 - • {having a particular shape, e.g. prismatic, pyramidal }
- F24J 2002/0411
 - • • {in the form of louvers }
- F24J 2002/0416
 - • • {allowing change of position for optimization of heat collection }
- U F24J 2/06
 - • having concentrating elements (optical elements or systems per se [G02B](#))
- U F24J 2/07
 - • • Receivers working at high temperature, e.g. for solar power plants
- F24J 2002/075
 - • • • {movable or adjustable }
- U F24J 2/10
 - • • having reflectors as concentrating elements
- F24J 2002/1004
 - • • • {Special shape not covered by [F24J 2/1047](#) - [F24J 2/18](#) }
- F24J 2002/1009
 - • • • • ~~corrugated~~ {[corrugated](#) }
- F24J 2002/1014
 - • • • • ~~curved~~ {[curved](#) }
- F24J 2002/1019
 - • • • • {dish-shaped }
- F24J 2002/1023
 - • • • • {trough-shaped }

- F24J 2002/1028 ~~asymmetric~~ {asymmetric }
- F24J 2002/1033 ~~spiral~~ {spiral }
- F24J 2002/1038 ~~hyperbolic~~ {hyperbolic }
- F24J 2002/1042 ~~involute~~ {involute }
- F24J 2002/1061 {Reflective elements inside solar collector casings }
- F24J 2002/1066 {Micro-reflectors }
- F24J 2002/1071 {in the form of reflective coatings }
- F24J 2002/1076 {Reflectors layout }
- F24J 2002/108 {Assemblies of spaced reflective elements on common support, e.g. Fresnel reflectors }
- F24J 2002/1085 {Reflectors formed by assemblies of adjacent similar reflective facets }
- F24J 2002/109 {Reflectors formed by assemblies of adjacent reflective elements having different orientation or different features }
- F24J 2002/1095 {Assemblies of spaced reflective elements in the form of grids, e.g. vertical or inclined reflective elements extending over heat absorbing elements }
- U F24J 2/24 . . the working fluid being conveyed through tubular heat absorbing conduits
- F24J 2002/241 . . . {the conduits having a non-circular cross-section }
- U F24J 2/26 . . . having extended surfaces, e.g. protrusions ([F24J 2/28](#) takes precedence)
- F24J 2002/261 {Special fins }
- F24J 2002/263 {extending obliquely }
- U F24J 2/38 . . employing tracking means ([F24J 2/02](#), [F24J 2/06](#) take precedence; direction-finders for determining the direction from which electromagnetic waves are being received [G01S 3/78](#) { , e.g. solar tracking systems [G01S 3/7861](#)}; control of position or direction [G05D 3/00](#) { , e.g. [G05D 3/105](#)})
- F24J 2002/385 . . {Calibration means; Methods for initial positioning of solar concentrators or solar receivers }
- F24J 2/42 . . Solar heat systems not otherwise provided for {(solar heat systems in greenhouses [A01G 9/243](#); distillation by solar energy [C02F 1/14](#); devices for producing mechanical power from solar energy [F03G 6/00](#); central heat systems using heat solar energy [F24D 11/003](#), [F24D 11/007](#), [F24D 11/0221](#), [F24D 11/0264](#); domestic hot-water supply systems using solar energy [F24D 17/0015](#), ~~[F24D 17/00F3](#)~~, [F24D 17/0042](#), [F24D 17/0063](#); air-conditioning systems using solar energy [F24F 5/0046](#); refrigeration machines, plants or systems using solar energy [F25B 27/002](#); drying solid materials or objects by radiation, e.g. from the sun [F26B 3/28](#))}
- U F24J 2/46 . . Component parts, details or accessories of solar heat collectors
- F24J 2002/4601 . . {Arrangements for heat transfer optimization }
- F24J 2002/4603 . . . {Flow guiding means; Inserts inside conduits }
- F24J 2002/4605 . . . {Arrangements for one-way heat transfer, e.g. thermal diodes }
- F24J 2002/4656 . . {Arrangements for reinforcement of solar collector elements }
- F24J 2002/4658 . . {Fastening; Joining }
- F24J 2002/4659 . . . {by using hook and loop-type fasteners }
- F24J 2002/4661 . . . {by using hooks }
- F24J 2002/4663 . . . {by clamping }
- F24J 2002/4665 . . . {by clipping, e.g. by using snap connectors }
- F24J 2002/4667 . . . {by screwed connection }
- F24J 2002/4669 . . . {by using threaded elements, e.g. stud bolts }

- F24J 2002/467 . . . {by using form-fitting connection means, e.g. tongue and groove }
- F24J 2002/4672 . . . {by using toothed elements }
- F24J 2002/4674 . . . {by deforming the material, e.g. by crimping or clinching }
- F24J 2002/4676 . . . {by bonding, e.g. by using adhesives }
- F24J 2002/4678 . . . {by welding or brazing }
- F24J 2002/4679 . . . {Joining different materials }
- F24J 2002/4681 . . . {Joining glass with non-glass elements }
- F24J 2002/4683 . . {Selection of particular materials }
- F24J 2002/4685 . . . ~~Geramies~~ {Ceramics }
- F24J 2002/4687 . . . ~~Concrete~~ {Concrete }
- F24J 2002/4689 . . . ~~Foams~~ {Foams }
- F24J 2002/469 . . . {Carbone, e.g. graphite }
- F24J 2002/4692 . . . ~~Plastics~~ {Plastics }
- F24J 2002/4694 . . . {Textiles; Fabrics }
- F24J 2002/4696 . . . {Natural materials, e.g. wood }
- F24J 2002/4698 . . . {Recycled materials }
- U F24J 2/50 . . Transparent coverings
- F24J 2002/501 . . . {Special shape }
- F24J 2002/502 . . . {in the form of multiple covering elements }
- F24J 2002/503 . . . {in the form of curved covering elements }
- F24J 2002/508 . . . {Transparent insulation; Convection preventing members }
- U F24J 2/52 . . Arrangement of mountings or supports
- U F24J 2/5201 . . . { Stationary supporting structures for solar modules; Load-bearing elements for movable supporting structures }
- U F24J 2/5203 . . . { comprising elongated rigid mounting elements, e.g. mounting profiles or rails for covering a building surface with solar modules; Module frames (F24J 2/523 takes precedence) }
- F24J 2002/5213 {Special profiles }
- F24J 2002/5215 {having hollow parts with closed cross-section }
- F24J 2002/5216 {having circular or oval cross-section }
- F24J 2002/5218 {having a central web, e.g. I-shaped, inverted T- shaped }
- F24J 2002/522 {U-, C- or O-shaped; Hat profiles }
- F24J 2002/5222 {in the form of corrugated profiles }
- F24J 2002/5224 {having curved portions }
- F24J 2002/5226 {having undercut grooves }
- F24J 2/5271 . . . {Airborne solar collectors, e.g. using inflated structures (F24J2/04B16C F24J 2/0472, F24J 2/5267 take precedence) }
- F24J 2002/5273 . . . {Details; Special support components or methods }
- F24J 2002/5275 . . . {Arrangements for mounting elements inside solar collectors; Spacers inside solar collectors }
- F24J 2002/5277 {Foldable support elements }
- F24J 2002/5279 {Stackable support elements }
- F24J 2002/5281 {Methods for installing support elements }
- F24J 2002/5283 {Supports with play between elements }
- F24J 2002/5284 {Filling or spacing means; Elastic means }

- F24J 2002/5286 {Tensioning means }
- F24J 2002/5288 {Means for preventing movements, e.g. stops }
- F24J 2002/529 {Means for accommodating irregularities on mounting surface; Tolerance compensation means }
- F24J 2002/5292 {Ballasting means }
- F24J 2002/5294 {Sealing means between support elements and mounting surface }
- F24J 2002/5296 {Sealing means between support elements, e.g. overlapping arrangements; Gap closing arrangements }
- F24J 2002/5298 {Means for preventing theft; Locking means }
- U F24J 2/54 . . . specially adapted for rotary movement {(F24J 2/5269 takes precedence)}
- F24J 2002/5434 {Special components }
- F24J 2002/5437 {Driving means }
- F24J 2002/5441 {hydraulic or pneumatic }
- F24J 2002/5444 {Coupling means }
- F24J 2002/5448 ~~Transmissions~~ {~~Transmissions~~ }
- F24J 2002/5451 {in the form of articulated bars }
- F24J 2002/5455 {in the form of compasses, scissors or parallelograms }
- F24J 2002/5458 {in the form of flexible elements, e.g. belts, chains, ropes }
- F24J 2002/5462 {in the form of gearings or rack-and-pinion transmissions }
- F24J 2002/5465 {in the form of threaded elements }
- F24J 2002/5468 {for moving several solar collectors by common transmission elements }
- F24J 2002/5472 {for deriving one movement from another one, e.g. for deriving elevation movement from azimuth movement }
- F24J 2002/5475 {Movement guiding means }
- F24J 2002/5479 ~~Tracks~~ {~~Tracks~~ }
- F24J 2002/5482 ~~Bearings~~ {~~Bearings~~ }
- F24J 2002/5486 {Hinged elements; Pin connections }
- F24J 2002/5489 {Spherical joints }
- F24J 2002/5493 {Load balancing means, e.g. use of counter-weights }
- F24J 2002/5496 {Movement dampening means; Braking means }
- U F24J 3/00 **Other production or use of heat, not derived from combustion (use of solar heat F24J 2/00)**
- U F24J 3/06 . . . using natural heat
- U F24J 3/08 . . . using geothermal heat
- F24J 2003/087 . . . {Component parts, details or accessories }
- F24J 2003/088 . . . {Methods for installation }
- F24J 2003/089 . . . {Control arrangements }

Project: N/A (F26B)

- U F26B 15/00 **Machines or apparatus for drying objects with progressive movement; Machines or apparatus with progressive movement for drying batches of material in compact form(F26B 13/00 , F26B 17/00 take precedence; conveyers in general B65G)**
- F26B 2015/003 . . {the load carrying elements having provisions for defining drying gas ducts, e.g. panels }

F26B 2015/006

- {the drying tunnel not being partitioned by load carrying elements}

Project: N/A (F27B)**U F27B 3/00**

Hearth-type furnaces, e.g. of reverberatory type (F27B 9/00, F27B 11/00, F27B 13/00, F27B 14/00, F27B 15/00, F27B 21/00 take precedence); Tank furnaces

U F27B 3/10

- Details, accessories, or equipment peculiar to hearth-type furnaces

U F27B 3/12

- • Working chambers or casings; Supports therefor

F27B 2003/125

- • • Hearths {Hearths}

U F27B 3/16

- • • Walls; Roofs

F27B 2003/165

- • • • Roofs {Roofs}

U F27B 5/00

Muffle furnaces; Retort furnaces; Other furnaces in which the charge is held completely isolated (F27B 9/00 takes precedence)

U F27B 5/06

- Details, accessories, or equipment peculiar to furnaces of these types

F27B 2005/062

- • {Cooling elements}

F27B 2005/064

- • • {disposed in the furnace, around the chamber, e.g. coils}

F27B 2005/066

- • • {disposed around the fan}

F27B 2005/068

- • • {for external cooling}

U F27B 5/14

- Arrangements of heating devices

F27B 2005/143

- • • {Heating rods disposed in the chamber}

F27B 2005/146

- • • • {the heating rods being in the tubes which conduct the heating gases}

U F27B 5/16

- Arrangements of air or gas supply devices

F27B 2005/161

- • • {Gas inflow or outflow}

F27B 2005/162

- • • • {through closable or non-closable openings of the chamber walls}

F27B 2005/163

- • • • • {Controlled openings, e.g. orientable}

F27B 2005/164

- • • • • {Air supply through a set of tubes with openings}

F27B 2005/165

- • • • • {Controlled tubes, e.g. orientable or with closable openings}

F27B 2005/166

- • • {Means to circulate the atmosphere}

F27B 2005/167

- • • • {the atmosphere being recirculated through the treatment chamber by a turbine}

F27B 2005/168

- • • • • {by more than one turbine}

F27B 2005/169

- • • • • {the atmosphere being continuously renewed by exterior means}

U F27B 7/00

Rotary-drum furnaces, i.e. horizontal or slightly inclined

F27B 2007/005

- {for the treatment of slurries or wet materials}

U F27B 7/02

- of multiple-chamber or multiple-drum type

F27B 2007/022

- • {the drum having a non-uniform section along its length}

F27B 2007/025

- • {with different chambers, e.g. treatment zones}

F27B 2007/027

- • {with more than one drum}

U F27B 7/04

- • with longitudinal divisions

F27B 2007/041

- • • {Longitudinal tubes}

F27B 2007/043

- • • {the partition being a cylinder, coaxial to the rotary drum, defining two chambers}

F27B 2007/045

- • • • {the charge going in one direction in one chamber, then after a turn coming back in the other direction in the other chamber}

F27B 2007/046

- • • {Radial partitions}

- F27B 2007/048
 - • • {defining an helical chamber}
- U F27B 7/14
 - with means for agitating or moving the charge
- U F27B 7/16
 - • the means being fixed relatively to the drum, {e.g. composite means} (F27B 7/04 takes precedence)
- U F27B 7/161
 - • {the means comprising projections jutting out from the wall}
- U F27B 7/162
 - • • {the projections consisting of separate lifting elements, e.g. lifting shovels}
- F27B 2007/163
 - • • • {using only a ring of lifting elements to lift the charge}
- F27B 2007/165
 - • • {forming a helical lifting projection}
- U F27B 7/167
 - • • {the means comprising partitions}
- F27B 2007/168
 - • • {Annular partition}
- U F27B 7/20
 - Details, accessories, or equipment peculiar to rotary-drum furnaces
- F27B 2007/2008
 - • {Devices for reintroducing dust in the drum}
- F27B 2007/2091
 - • {Means for eliminating compounds from gases by condensation, e.g. alkali metals}
- U F27B 7/22
 - • Rotary drums; Supports therefor
- U F27B 7/2206
 - • • {Bearing rings}
- F27B 2007/2213
 - • • • {mounted floatingly on the drum}
- F27B 2007/222
 - • • • {the mounting comprising radially resilient elements, e.g. springs}
- F27B 2007/2226
 - • • • {the mounting comprising elements to maintain the ring between series of abutments}
- F27B 2007/2233
 - • • • {the ring being fixed to the drum, e.g. welded}
- F27B 2007/2246
 - • • {Support rollers}
- F27B 2007/2253
 - • • • {mounted movable, e.g. resiliently on the ground}
- F27B 2007/226
 - • • • {constituted of series of two rollers mounted on tiltable support along the drum}
- F27B 2007/2266
 - • • • {the mounting allowing a movement of the rollers support in a horizontal plane}
- F27B 2007/2273
 - • • • {with arrangements, e.g. rollers, to maintain the drum against longitudinal movement}
- F27B 2007/228
 - • • • {comprising rollable bodies}
- F27B 2007/2286
 - • • • {supporting the drum directly, without the use of a bearing ring}
- F27B 2007/2293
 - • • {the furnace being suspended}
- U F27B 7/26
 - • Drives
- F27B 2007/261
 - • • {working with a ring embracing the drum}
- F27B 2007/262
 - • • • {A gear ring combined with a dented wheel drive}
- F27B 2007/263
 - • • • {A gear ring combined with a ram drive}
- F27B 2007/265
 - • • • {the ring being mounted floatingly}
- F27B 2007/266
 - • • • {the ring being a bearing ring}
- F27B 2007/267
 - • • • {A gear ring combined with a chain drive}
- F27B 2007/268
 - • • {Details of the motor or the pinions}
- U F27B 7/32
 - • Arrangement of devices for charging
- U F27B 7/3205
 - • • {Charging}
- F27B 2007/3211
 - • • • {at the open end of the drum}
- F27B 2007/3217
 - • • • • {axially, optionally at some distance in the kiln}
- F27B 2007/3223
 - • • • • {the charging device being movable axially, e.g. reciprocable}
- F27B 2007/3229
 - • • • • {via a centrifugal device}

- F27B 2007/3235 {the introducing device comprising a spray or a lance}
- F27B 2007/3241 {in the flame of the burner}
- F27B 2007/3247 {through a lateral opening in the drum}
- F27B 2007/3252 {with lifting scoops attached to the drum}
- F27B 2007/3258 {at the open end of the drum}
- F27B 2007/3264 {using special discharge means located around the discharge end, e.g. lifting scoops or a transversal annular partition}
- F27B 2007/327 {centrifugally through lateral openings in the drum}
- F27B 2007/3276 {with a collector means extending longitudinally into the drum}
- F27B 2007/3282 . . . Details{Details}
- F27B 2007/3288 {Sieves or grading means}
- F27B 2007/3294 {Means to fluidise the charge in the air}
- U F27B 7/36 . . Arrangements of air or gas supply devices
- U F27B 7/362 . . . {Introducing gas into the drum axially or through the wall}
- F27B 2007/365 longitudinally{longitudinally}
- F27B 2007/367 {transversally through the wall of the drum}
- U F27B 9/00** **Furnaces through which the charge is moved mechanically, e.g. of tunnel type (F27B 7/14 takes precedence); Similar furnaces in which the charge moves by gravity**
- U F27B 9/02 . . of multiple-track type; of multiple-chamber type; Combinations of furnaces
- F27B 2009/026 . . . {Two or more conveyers, e.g. mounted successively}
- F27B 2009/027 {working in parallel}
- U F27B 9/12 . . with special arrangements for preheating or cooling the charge
- F27B 2009/122 . . . Preheating{Preheating}
- F27B 2009/124 . . . Cooling{Cooling}
- F27B 2009/126 {involving the circulation of cooling gases, e.g. air}
- F27B 2009/128 {the gases being further utilised as oxidants in the burners}
- U F27B 9/14 . . characterised by the path of the charge during treatment; characterised by the means by which the charge is moved during treatment (F27B 9/28 takes precedence; travelling or movable supports or containers for the charge F27D 3/12)
- U F27B 9/20 . . . the charge moving in a substantially straight path {tunnel furnace}
- U F27B 9/24 being carried by a conveyer {transport by conveyers in general B65G}
- U F27B 9/243 {Endless-strand conveyer}
- F27B 2009/2438 {with means to transfer the heat from the outcoming band to the incoming band}
- F27B 2009/2446 {with means to control the tension of the band}
- F27B 2009/2484 {the conveyer being a helical device}
- F27B 2009/2492 {the conveyer being constituted by series of little rams or ratchets, moving the charge along}
- U F27B 9/26 . . . on or in trucks, sleds, or containers
- U F27B 9/262 {on or in trucks}
- F27B 2009/264 {the truck carrying a partition}
- F27B 2009/266 {the truck having conducts for guiding the oven atmosphere}
- F27B 2009/268 {through the structure of the car and through the charge}
- U F27B 9/30 . . Details, accessories, or equipment peculiar to furnaces of these types

- U F27B 9/3005
 - • {arrangements for circulating gases}
- U F27B 9/3011
 - • • {arrangements for circulating gases transversally}
- F27B 2009/3016
 - • • • {with arrangements to circulate gases through the charge}
- F27B 2009/3022
 - • • • {with arrangements to maintain oxidising reducing or neutral zones}
- F27B 2009/3027
 - • • {Use of registers, partitions}
- F27B 2009/3033
 - • • {Fumes circulating in the same direction as the charge}
- F27B 2009/3038
 - • • {Fumes or gases alternatively changing their longitudinal direction}
- F27B 2009/305
 - • {Particular conformation of the furnace}
- F27B 2009/3055
 - • • {Non-uniform section through the length of the furnace}
- F27B 2009/3061
 - • • {Furnaces with longitudinal grooves}
- F27B 2009/3066
 - • {Cooling the under-structure of the kiln, e.g. under the cars}
- F27B 2009/3072
 - • {Balancing the pressure between the upper part and the lower part of the kiln, above and under the track}
- F27B 2009/3083
 - • {Arrangements to handle skid marks}
- F27B 2009/3088
 - • {Drying arrangements}
- F27B 2009/3094
 - • {Means to store a part of the charge in the furnace}
- U F27B 9/36
 - • Arrangements of heating devices
- F27B 2009/3607
 - • • {Heaters located above the track of the charge}
- F27B 2009/3615
 - • • • {Burner in the ceiling directed vertically downwards}
- F27B 2009/3623
 - • • {Heaters located under the track}
- F27B 2009/363
 - • • • {Burners in the hearth directed towards the ceiling}
- F27B 2009/3638
 - • • {Heaters located above and under the track}
- F27B 2009/3646
 - • • {Heating the ceiling or the walls for a reverberatory effect}
- F27B 2009/3653
 - • • {Preheated fuel}
- F27B 2009/3661
 - • • • {preheated with the exhaust gases}
- F27B 2009/3669
 - • • • {preheated with the gases of the cooling zone}
- F27B 2009/3676
 - • • • {preheated with the gases of the preheating zone}
- F27B 2009/3684
 - • • {Combustion within a combustion chamber with outlets in the kiln chamber}
- F27B 2009/3692
 - • • {The charge containing combustible materials}
- U F27B 9/38
 - • Arrangements of devices for charging
- F27B 2009/382
 - • • Charging{Charging}
- F27B 2009/384
 - • • Discharging{Discharging}
- F27B 2009/386
 - • • {Lateral intake or outtake }
- F27B 2009/388
 - • • • {Centrally in the lateral wall }
- U **F27B 14/00**
 - • • • • **Crucible or pot furnace**
- F27B 2014/002
 - • {Smelting process, e.g. sequences to melt a specific material}
- F27B 2014/004
 - • {Process involving a smelting step, e.g. vaporisation}
- F27B 2014/006
 - • {involving a salt bath or help metal bath}
- F27B 2014/008
 - • {Continuous casting}
- U F27B 14/04
 - adapted for treating the charge in vacuum or special atmosphere
- F27B 2014/045
 - • Vacuum{Vacuum}
- U F27B 14/06
 - heated electrically, e.g. induction crucible furnaces with or without any other source of heat (F27B 14/04 takes precedence)
- U F27B 14/061
 - • {Induction furnaces}

F27B 2014/066	• • • {Construction of the induction furnace}
F27B 2014/068	• • {with the use of an electrode producing a current in the melt}
U F27B 14/08	• Details peculiar to crucible or pot furnaces
U F27B 14/0806	• • {Charging or discharging devices}
F27B 2014/0812	• • • {Continuously charging}
F27B 2014/0818	• • • Discharging{Discharging}
F27B 2014/0825	• • {Crucible or pot support}
F27B 2014/0831	• • • {Support or means for the transport of crucibles}
F27B 2014/0837	• • {Cooling arrangements}
F27B 2014/0843	• • {Lining or casing}
F27B 2014/085	• • {Preheating of the charge}
F27B 2014/0856	• • • {Preheating of the crucible}
F27B 2014/0862	• • {Flux guides}
F27B 2014/0868	• • {Magnetic shields}
F27B 2014/0875	• • {Two zones or chambers, e.g. one used for charging}
F27B 2014/0881	• • {Two or more crucibles}
F27B 2014/0887	• • {Movement of the melt}
F27B 2014/0893	• • {Heat-conductive material disposed on the surface of the melt}
U F27B 14/10	• • Crucibles
F27B 2014/102	• • • {Form of the crucibles}
F27B 2014/104	• • • {Crucible linings}
F27B 2014/106	• • • Ladles{Ladles}
F27B 2014/108	• • • {Cold crucibles (transparent to electromagnetic radiations)}
U F27B 14/14	• • Arrangements of heating devices
F27B 2014/146	• • • {Recuperation of lost heat, e.g. regenerators}
U F27B 17/00	Furnaces of a kind not covered by any preceding group (structural combinations of furnaces F27B 19/02)
U F27B 17/0016	• {Chamber type furnaces}
F27B 2017/0091	• • {Series of chambers, e.g. associated in their use}

Project: N/A (F27D)

U F27D 1/00	Casings; Linings; Walls; Roofs (refractory materials C04B; firebridges for combustion chambers F23M 3/00)
F27D 2001/0046	• {Means to facilitate repair or replacement or prevent quick wearing (repairing linings F27D 1/16)}
F27D 2001/005	• • {Removable part or structure with replaceable elements}
F27D 2001/0053	• • {Furnace constructed in modules (tunnel furnaces with add-on modules F27B 9/029)}
F27D 2001/0056	• • {Aspects of construction intended to prevent wear}
F27D 2001/0059	• {Construction elements of a furnace}
F27D 2001/0063	• • {Means to strengthen a part}
F27D 2001/0066	• • {Movable or removable parts (removable parts for replacement because of wearing F27D 2001/005)}
F27D 2001/0069	• • {Means to prevent heat conduction (heat shields F27D 1/0033)}
F27D 2001/0073	• • • {Surrounding protection around the furnace, e.g. covers, circulation of gas }

F27D 2001/0076	• • {comprising a corrugated sheet}
F27D 2001/0079	• {Means to assemble at least two parts of a furnace or of any device or accessory associated to its use (assembling elements for linings parts F27D 1/145)}
F27D 2001/0083	• • {Means to assemble a moving part to a fixed one (movements due to thermal expansion F27D 1/0003 ; movements of the cover F27D 1/18 ; movements of the container or of the support of the charge F27D 2003/0085)}
F27D 2001/0086	• • • {the moving part being in rotation}
F27D 2001/0089	• • • {the moving part being in translation}
F27D 2001/0093	• • • {the moving part being hinged to the fixed one}
F27D 2001/0096	• • • {the moving part staying in the same plane }
U F27D 1/04	• characterised by the form {e.g. shape} of the bricks or blocks used
U F27D 1/045	• • {Bricks for lining cylindrical bodies, e.g. skids, tubes}
F27D 2001/047	• • • {Lining of cylindrical vessels}
U F27D 1/16	• Making or repairing linings {increasing the durability of linings or breaking away linings}
F27D 2001/1605	• • {Repairing linings }
F27D 2001/161	• • • {Hot repair }
F27D 2001/1615	• • • {through a hole in the casing, e.g. injecting refractory from outside the vessel }
U F27D 1/1626	• • {Making linings by compacting a refractory mass in the space defined by a backing mould or pattern and the furnace wall}
F27D 2001/1631	• • • {using an expandable core }
U F27D 1/1636	• • {Repairing linings by projecting or spraying refractory materials on the lining}
U F27D 1/1642	• • • {using a gunning apparatus}
U F27D 1/1647	• • • • {the projected materials being partly melted, e.g. by exothermic reactions of metals (Al, Si) with oxygen}
U F27D 1/1652	• • • • • {Flame gunning; Use of a fuel}
F27D 2001/1657	• • • • • • {Solid fuel }
F27D 2001/1663	• • • • • • {Fluid fuel, e.g. gas }
U F27D 1/1678	• • {Increasing the durability of linings; Means for protecting}
U F27D 1/1684	• • • {by a special coating applied to the lining}
F27D 2001/1689	• • • • {obtained from materials added to the melt }
U F27D 1/18	• Door frames; Doors, lids, removable covers
U F27D 1/1808	• • {Removable covers}
F27D 2001/1825	• • • {Means for moving the cover}
F27D 2001/1833	• • • • {comprising a screw mechanism}
F27D 2001/1841	• • • • {comprising means for rotating or moving the cover in a horizontal or quasi horizontal plane}
F27D 2001/185	• • • • {comprising means for tilting the cover}
U F27D 1/1858	• • {Doors}
F27D 2001/1875	• • • {Hanging doors and walls (movable partitions R27D23/00B2 movable partitions F27D 2099/0071)}
F27D 2001/1883	• • • • {Hanging curtains}
F27D 2001/1891	• • • {Doors for separating two chambers in the furnace}
U F27D 3/00	Charging; Discharging; Manipulation of charge (moving charge through a furnace F27B 9/14)

- F27D 2003/0001 . {Positioning the charge}
- F27D 2003/0002 . . {involving positioning devices, e.g. buffers, buffer zones (involving sensors [F27D 2019/0071](#); involving sequence controllers [F27D 2019/0059](#); involving spacers [F27M 2002/016](#))}
- F27D 2003/0003 . . {involving a system for aligning the articles through a lateral guidance, e.g. funnel }
- F27D 2003/0004 . . {involving devices for measuring the article, the stack of articles or the height of the furnace passage or for adjusting the height of the passage to the charge or for putting the articles in the same position }
- F27D 2003/0006 . . {Particulate materials}
- F27D 2003/0007 . . . {Circular distribution}
- F27D 2003/0008 . . . {Longitudinal distribution}
- F27D 2003/0009 . . . {Separation of different types of fines, e.g. by a blower }
- F27D 2003/001 . . . {Series of dispensers or separation in two or more parts }
- F27D 2003/0012 . . {Working with piles }
- F27D 2003/0013 . . . {Unstacking or making stacks }
- F27D 2003/0014 . . {involving the use of magazines }
- F27D 2003/0015 . . . {the magazine being vertical }
- F27D 2003/0016 . . . {the magazine being a rotary device }
- F27D 2003/0018 . . {comprising means to introduce or extract the charge in series of separate containers or zones }
- F27D 2003/0019 . . . ~~simultaneously~~ {simultaneously}
- F27D 2003/002 . . {Transforming a single row in a multiple row }
- F27D 2003/0034 . {Means for moving, conveying, transporting the charge in the furnace or in the charging facilities}
- F27D 2003/0036 . . {comprising inflatable or extendable parts}
- F27D 2003/0037 . . {comprising friction surfaces}
- F27D 2003/0038 . . {comprising shakers}
- F27D 2003/0039 . . {comprising magnetic means}
- F27D 2003/004 . . . {Magnetic lifters }
- F27D 2003/0042 . . {comprising roller trains}
- F27D 2003/0043 . . . {at least one of them being driven separately}
- F27D 2003/0044 . . . {at least one of them being removable}
- F27D 2003/0045 . . . {Use of rollable bodies, e.g. balls }
- F27D 2003/0046 . . {comprising one or more movable arms, e.g. forks }
- F27D 2003/0048 . . . {Walking beams}
- F27D 2003/0049 {comprising eccentrics or lever arms}
- F27D 2003/005 {comprising ramps}
- F27D 2003/0051 . . {comprising means to pick up the charge and put it down}
- F27D 2003/0053 . . {comprising a device for charging with the doors closed}
- F27D 2003/0054 . . {Means to move molten metal, e.g. electromagnetic pump}
- F27D 2003/0055 . . . {with flow regulation}
- F27D 2003/0056 . . . {through a syphon in a vacuum chamber, e.g. involving aspiration or pressure on the bath}
- F27D 2003/0057 . . {Fast-outlet or inlet means}
- F27D 2003/0059 . . {comprising tracks, e.g. rails and wagon}

F27D 2003/006	• • • {with a return track}
F27D 2003/0061	• • • {with means for changing track}
F27D 2003/0062	• • {using devices for tilting or rocking the charge}
F27D 2003/0063	• • {comprising endless belts}
F27D 2003/0065	• • {Lifts, e.g. containing the bucket elevators }
F27D 2003/0066	• • {comprising scrapers or systems to pull out}
F27D 2003/0067	• • {comprising conveyers where the translation is communicated by friction from at least one rotating element, e.g. two opposed rotations combined }
F27D 2003/0068	• • {comprising clamps or tongs}
F27D 2003/0069	• • {the device being suspended, e.g. from a crane }
F27D 2003/0071	• • {Use of a comminuting device, e.g. grinding mill }
F27D 2003/0072	• • {Use of a pinion and a rack}
F27D 2003/0073	• • {the charge floating on a liquid, e.g. water }
F27D 2003/0074	• • • {floating on water}
F27D 2003/0075	• • {Charging or discharging vertically, e.g. through a bottom opening }
F27D 2003/0077	• • {Use of centrifugal devices}
F27D 2003/0078	• • {comprising jacks, e.g. hydraulic jacks }
F27D 2003/0079	• • {Use of cams }
F27D 2003/008	• • {comprising cross-beams or gantry cranes }
F27D 2003/0081	• • {Series of little rams }
F27D 2003/0083	• • {Means for stirring the charge }
F27D 2003/0085	• {Movement of the container or support of the charge in the furnace or in the charging facilities}
F27D 2003/0086	• • {Up or down}
F27D 2003/0087	• • {Rotation about a vertical axis}
F27D 2003/0089	• • {Rotation about a horizontal or slightly inclined axis }
F27D 2003/009	• • • {Oscillations about a horizontal axis; Rocking}
F27D 2003/0091	• • Horizontally {Horizontally}
F27D 2003/0092	• • • {with a reciprocating movement}
F27D 2003/0093	• • {Movement on a slope}
F27D 2003/0095	• • {the advancement being step by step}
F27D 2003/0096	• • {Advancement along the longitudinal axis of the workpiece}
F27D 2003/0097	• • {Advancement along an axis perpendicular to the axis of the workpiece}
F27D 2003/0098	• • • {Workpiece rolling on its support }
U F27D 3/04	• Ram or pusher apparatus
F27D 2003/045	• • {used to pull the charge }
U F27D 3/10	• Charging directly from hoppers or shoots
F27D 2003/105	• • {using shutters }
U F27D 3/12	• Travelling or movable supports or containers for the charge
F27D 2003/121	• • {Band, belt or mesh}
F27D 2003/122	• • • {Band made from longitudinal wires or bars}
F27D 2003/124	• • {Sleds; Transport supports }
F27D 2003/125	• • {Charging cars, lift trolleys }
F27D 2003/126	• • • {with long arms, charging forks }
F27D 2003/127	• • • {for carrying pots (slag pots R27D23/00K6 slag pots F27D 2099/0095)}

- F27D 2003/128
 - • • {for carrying stacks of articles, e.g. bricks }
- U F27D 3/16
 - Introducing a fluid jet or current into the charge {(porous elements for gas flushing of molten metals [B22D 1/005](#))}
- F27D 2003/161
 - • {through a porous element}
- F27D 2003/162
 - • {the fluid being an oxidant or a fuel}
- F27D 2003/163
 - • • {the fluid being an oxidant}
- F27D 2003/164
 - • • • ~~Oxygen~~{Oxygen}
- F27D 2003/165
 - • • {the fluid being a fuel}
- F27D 2003/166
 - • {the fluid being a treatment gas}
- F27D 2003/167
 - • {the fluid being a neutral gas}
- F27D 2003/168
 - • {through a lance}
- F27D 2003/169
 - • • {Construction of the lance, e.g. lances for injecting particles}
- U F27D 3/18
 - Charging particulate material using a fluid carrier
- F27D 2003/185
 - • {Conveying particles in a conduct using a fluid }
- U **F27D 5/00**
Supports, screens, or the like for the charge within the furnace (travelling or movable supports [F27D 3/12](#))
- U F27D 5/0068
 - {Containers}
- F27D 2005/0075
 - • {Pots, e.g. slag pots, ladles }
- F27D 2005/0081
 - ~~Details~~{Details }
- F27D 2005/0087
 - • {Means to prevent the adherence of the charge }
- F27D 2005/0093
 - • {Means to maintain the form of the article }
- U **F27D 7/00**
Forming, maintaining, or circulating atmospheres in heating chambers
- U F27D 7/02
 - Supplying steam, vapour, gases, or liquids
- F27D 2007/023
 - • ~~Conduits~~{Conduits}
- F27D 2007/026
 - • {Dampers (~~registers for granular flows~~ ~~R27D23/00B2~~ *registers for granular flows [F27D 2099/0071](#)*)}
- U F27D 7/04
 - Circulating atmospheres by mechanical means
- F27D 2007/045
 - • ~~Fans~~{Fans}
- U F27D 7/06
 - Forming or maintaining special atmospheres or vacuum within heating chambers ([F27D 7/02](#) takes precedence)
- F27D 2007/063
 - • {Special atmospheres, e.g. high pressure atmospheres }
- F27D 2007/066
 - • ~~Vacuum~~{Vacuum}
- U **F27D 9/00**
Cooling of furnaces or of charges therein ([F27D 1/00](#), [F27D 3/00](#) take precedence)
- F27D 2009/0002
 - {Cooling of furnaces}
- F27D 2009/0005
 - • {the cooling medium being a gas}
- F27D 2009/0008
 - • • {Ways to inject gases against surfaces}
- F27D 2009/001
 - • {the cooling medium being a fluid other than a gas}
- F27D 2009/0013
 - • • {the fluid being water}
- F27D 2009/0016
 - • • • {Water-spray}
- F27D 2009/0018
 - • {the cooling medium passing through a pattern of tubes}
- F27D 2009/0021
 - • • {with the parallel tube parts close to each other, e.g. a serpentine}
- F27D 2009/0024
 - • • • {with contiguous tubes, which may be separately welded one to the other}
- F27D 2009/0027
 - • • • {linked by elements}

F27D 2009/0029	• • • {fixed, e.g. welded to a supporting surface}
F27D 2009/0032	• • • {integrated with refractories in a panel}
F27D 2009/0035	• • • {arranged for the covering of a cylindrical surface}
F27D 2009/0037	• • {the cooling medium passing a radiator}
F27D 2009/004	• • {the cooling medium passing a waterbox}
F27D 2009/0043	• • • {Insert type waterbox, e.g. cylindrical or flat type}
F27D 2009/0045	• • {the cooling medium passing a block, e.g. metallic}
F27D 2009/0048	• • • {incorporating conduits for the medium}
F27D 2009/0051	• • {comprising use of studs to transfer heat or retain the liner}
F27D 2009/0054	• • • {adapted to retain formed bricks}
F27D 2009/0056	• • {Use of high thermoconductive elements}
F27D 2009/0059	• • • {made mostly from graphite}
F27D 2009/0062	• • • {made from copper or copper alloy}
F27D 2009/0064	• • {Cooling of furnace arches}
F27D 2009/0067	• • {Cooling element inlet and outlet tubes}
F27D 2009/007	• {Cooling of charges therein}
F27D 2009/0072	• • {the cooling medium being a gas}
F27D 2009/0075	• • • {in direct contact with the charge}
F27D 2009/0078	• • • {in indirect contact with the charge}
F27D 2009/0081	• • {the cooling medium being a fluid (other than a gas in direct or indirect contact with the charge)}
F27D 2009/0083	• • • {the fluid being water}
F27D 2009/0086	• • • • {applied in spray form}
F27D 2009/0089	• • Quenching { Quenching }
F27D 2009/0091	• • {in a fluidised bed of cooling elements }
F27D 2009/0094	• • {making use of already cooled material, e.g. forming a layer }
F27D 2009/0097	• • • {the charge being used as a coolant }
U F27D 13/00	Apparatus for preheating charges; Arrangements for preheating charges
F27D 2013/007	• {using a rotary furnace}
U F27D 15/00	Handling or treating discharged material; Supports or receiving chambers therefor
U F27D 15/02	• Cooling
U F27D 15/0206	• • {with means to convey the charge}
U F27D 15/0213	• • • {comprising a cooling grate}
U F27D 15/022	• • • • {grate plates}
F27D 2015/0226	• • • • • {Support, fixation of the grate }
F27D 2015/0233	• • • • • {with gas, e.g. air, supply to the grate }
F27D 2015/024	• • • • {Multiple grates }
F27D 2015/0246	• • • • {Combination of fixed and movable grates }
F27D 2015/0253	• • • • • {Gratin grates }
F27D 2015/026	• • • • {Means to discharge the fines }
U F27D 15/0286	• • {in a vertical, e.g. annular, shaft (shafts including rotating parts F27D 15/0273)}
F27D 2015/0293	• • • {including rotating parts }

U	F27D 17/00	Arrangements for using waste heat (heat-exchangers per se F28); Arrangements for using, or disposing of, waste gases
U	F27D 17/004	• {Systems for reclaiming waste heat}
	F27D 2017/005	• • {including pyrolysing the waste gases}
	F27D 2017/006	• • {using a boiler}
	F27D 2017/007	• • {including regenerators }
	F27D 2017/009	• {Cyclone for separating fines from gas }
U	F27D 19/00	Arrangements of controlling devices
	F27D 2019/0003	• {Monitoring the temperature or a characteristic of the charge and using it as a controlling value}
	F27D 2019/0006	• {Monitoring the characteristics (composition, quantities, temperature, pression) of at least one of the gases of the kiln atmosphere and using it as a controlling value}
	F27D 2019/0009	• • {Monitoring the pression in an enclosure or kiln zone}
	F27D 2019/0012	• • {Monitoring the composition of the atmosphere or of one of their components}
	F27D 2019/0015	• • • {Monitoring the composition of the exhaust gases or of one of its components}
	F27D 2019/0018	• • {Monitoring the temperature of the atmosphere of the kiln}
	F27D 2019/0021	• • • {Monitoring the temperature of the exhaust gases}
	F27D 2019/0025	• • {Monitoring the temperature of a part or of an element of the furnace structure}
	F27D 2019/0028	• Regulation {Regulation}
	F27D 2019/0031	• • {through control of the flow of the exhaust gases}
	F27D 2019/0034	• • {through control of a heating quantity such as fuel, oxidant or intensity of current}
	F27D 2019/0037	• • • {Quantity of electric current}
	F27D 2019/004	• • • {Fuel quantity}
	F27D 2019/0043	• • • • {Amount of air or O2 to the burner}
	F27D 2019/0046	• • • • {Amount of secondary air to the burner}
	F27D 2019/005	• • • {Amount of heat given to the charge via a controlled heat exchanger}
	F27D 2019/0053	• • • • {involving heating the charge in a fluid or fluidised medium}
	F27D 2019/0056	• • {Regulation involving cooling}
	F27D 2019/0059	• • {Regulation involving the control of the conveyer movement, e.g. speed or sequences}
	F27D 2019/0062	• • • {control of the workpiece stay in different zones}
	F27D 2019/0065	• • {Regulation involving controlled section modification}
	F27D 2019/0068	• • {Regulation involving a measured inflow of a particular gas in the enclosure}
	F27D 2019/0071	• • {Regulation using position sensors}
	F27D 2019/0075	• • {Regulation of the charge quantity}
	F27D 2019/0078	• • {Regulation of the speed of the gas through the charge}
	F27D 2019/0081	• {Controlling an air-lock chamber}
	F27D 2019/0084	• {Controlling closure systems, e.g. doors}
	F27D 2019/0087	• {Automatisation of the whole plant or activity }
	F27D 2019/009	• • {Use of codes, e.g. bar codes }
	F27D 2019/0093	• {Maintaining a temperature gradient}
	F27D 2019/0096	• {involving simulation means, e.g. of the treating or charging step }

U F27D 21/00	Arrangements of monitoring devices; Arrangements of safety devices
F27D 2021/0007	• {Monitoring the pression}
U F27D 21/0035	• {Devices for monitoring the weight of quantities added to the charge}
F27D 2021/0042	• • {Monitoring the level of the solid charge}
F27D 2021/005	• {Devices for monitoring thermal expansion}
F27D 2021/0057	• {Security or safety devices, e.g. for protection against heat, noise, pollution or too much duress; Ergonomic aspects }
F27D 2021/0064	• • {against noises}
F27D 2021/0071	• • {against explosions}
F27D 2021/0078	• • {against the presence of an undesirable element in the atmosphere of the furnace}
F27D 2021/0085	• • {against molten metal, e.g. leakage or splashes}
F27D 2021/0092	• • {against a jam in the transport line or a production interruption}
U F27D 21/02	• Observation or illuminating devices
F27D 2021/023	• • {Closable inserting openings, e.g. for the introduction of lances, sensors or burners }
F27D 2021/026	• • {using a video installation}
U F27D 27/00	Stirring devices for molten material (F27D 3/14 takes precedence)
F27D 2027/002	• {Gas stirring }
U F27D 99/00	Subject matter not provided for in other groups of this subclass
U F27D 99/0001	• { Heating elements or systems}
U F27D 99/0006	• • { Electric heating elements or system}
F27D 2099/0008	• • • {Resistor heating }
F27D 2099/001	• • • • {the container being the resistor }
F27D 2099/0011	• • • • {The resistor heats a radiant tube or surface }
F27D 2099/0013	• • • • • {immersed in the charge }
F27D 2099/0015	• • • {Induction heating }
F27D 2099/0016	• • • • {Different magnetic fields, e.g. two coils, different characteristics of the same coil along its length or different parts of the same coil used }
F27D 2099/0018	• • • • {Relative movement of the coil and the charge during the heat treatment }
F27D 2099/002	• • • • {Core heating }
F27D 2099/0021	• • • {Arc heating }
F27D 2099/0023	• • • • {DC arc heating }
F27D 2099/0025	• • • {Currents through the charge }
F27D 2099/0026	• • • {with a generator of electromagnetic radiations }
F27D 2099/0028	• • • {Microwave heating }
F27D 2099/003	• • • {Bombardment heating, e.g. with ions or eletrons }
F27D 2099/0031	• • • {Plasma-torch heating }
U F27D 99/0033	• • { using burners (manufacture of steel in an electric arc furnace equipped with burners C21C 5/5217)}
F27D 2099/0036	• • • {immersed in the charge }
F27D 2099/0038	• • • removable {removable }
F27D 2099/004	• • • {directed upon the charge, e.g. vertically }
F27D 2099/0041	• • • • {with a small angle, e.g. almost tangentially }

- F27D 2099/0043 . . . {Impulse burner }
- F27D 2099/0045 . . . {Radiant burner }
- F27D 2099/0046 . . . {with incomplete combustion, e.g. reducing atmosphere }
- F27D 2099/0048 {Post- combustion }
- F27D 2099/005 . . . {Catalytic burner }
- F27D 2099/0051 . . . {Burning waste as a fuel }
- F27D 2099/0053 . . . {Burner fed with preheated gases }
- F27D 2099/0055 ~~Fuel~~ {Fuel }
- F27D 2099/0056 ~~Oxidant~~ {Oxidant }
- F27D 2099/0058 . . {Means for heating the charge locally }
- F27D 2099/006 . . {Auxiliary heating, e.g. in special conditions or at special times }
- F27D 2099/0061 . . {Indirect heating }
- F27D 2099/0063 . . . ~~Liquid~~ {Liquid }
- F27D 2099/0065 . . . ~~Gas~~ {Gas }
- F27D 2099/0066 . . . {Particles or solid bodies, e.g. bed of particles }
- F27D 2099/0068 . . {Heating directly by circulation of a fluid other than a gas or by particles }
- U F27D 99/007 . {Partitions}
- F27D 2099/0071 . . {Partitions used as registers }
- U F27D 99/0073 . {Seals}
- F27D 2099/0078 . . {Means to minimize the leakage of the furnace atmosphere during charging or discharging }
- F27D 2099/008 . . . {Using an air-lock (use of air-locks for charging smelt furnaces [F27D 3/0032](#)) }
- F27D 2099/0081 . . ~~Joint~~ {Joint }
- F27D 2099/0083 . {Drives; Auxilliary drives }
- F27D 2099/0085 . ~~Accessories~~ {Accessories }
- F27D 2099/0086 . . {Filters, e.g. for molten metals }
- F27D 2099/0088 . . {Apparatus to cut metal, e.g. logs, in billets }
- F27D 2099/009 . . ~~Bumpers~~ {Bumpers }
- F27D 2099/0091 . . {Means to grease or oil }
- F27D 2099/0093 . . {Means to collect ashes or dust, e.g. vessels }
- F27D 2099/0095 . . {Means to collect the slag or spilled metal, e.g. vessels (cars to carry the pots [F27D 2003/127](#)) }
- F27D 2099/0096 . . ~~Presses~~ {Presses }
- F27D 2099/0098 . . {Means for moving the furnace }

F27D 2201/00**Manipulation of furnace parts**NOTE

Indexing code [F27D 2201/00](#) can be followed by additional indexing codes preceded by a + sign. These additional indexing codes are chosen from codes of subclass ~~R27D~~**R27D** describing similar manipulations of furnace charges.
Example: [F27D 2201/00](#) + [F27D 2003/0036](#)

Project: N/A (F28B)**U F28B 1/00**

Condensers in which the steam or vapour is separate from the cooling medium by walls, e.g. surface condenser

- U F28B 1/06
- using air or other gas as the cooling medium

NOTE

This group covers also air cooled heat exchangers for which the use as condenser is not explicitly specified, but the configuration is similar to air cooled condensers, e.g. dry cooling towers

- F28B 2001/065
- • {with secondary condenser, e.g. reflux condenser or dephlegmator}

Project: N/A (F28C)

- U F28C 1/00
- Direct-contact trickle coolers, e.g. cooling towers (building construction [E04H 5/12](#); enclosed spaces cooled by trickle [F25](#); components parts of trickle coolers [F28F 25/00](#); { indirect-contact cooling towers [F28B 1/06](#)})**

- F28C 2001/006
- {Systems comprising cooling towers, e.g. for recooling a cooling medium (for condensers [F28B 9/06](#))}

- U F28C 1/14
- comprising also a non-direct contact heat exchange
- F28C 2001/145
- • {with arrangements of adjacent wet and dry passages}

Project: N/A (F28D)

- U F28D 1/00
- Heat-exchange apparatus having stationary conduit assemblies for one heat-exchange medium only, the media being in contact with different sides of the conduit wall, in which the other heat-exchange medium is a large body of fluid, e.g. domestic or motor car radiators ([F28D 5/00](#) takes precedence)**

- U F28D 1/02
- with heat-exchange conduits immersed in the body of fluid
- F28D 2001/0253
- • {Particular components }
- F28D 2001/026
- • • ~~Gores~~ {Cores }
- F28D 2001/0266
- • • • {Particular core assemblies, e.g. having different orientations or having different geometric features }
- F28D 2001/0273
- • • • {having special shape, e.g. curved, annular }
- F28D 2001/028
- • • • {with empty spaces or with additional elements integrated into the cores }
- F28D 2001/0286
- • • {Radiating plates; Decorative panels }
- F28D 2001/0293
- • • • {with grooves for integration of conduits }

- U F28D 15/00
- Heat-exchange apparatus with the intermediate heat-transfer medium in closed tubes passing into or through the conduit walls; {Heat-exchange apparatus employing intermediate heat-transfer medium or bodies ([F28D 17/00](#), [F28D 19/00](#), [F28D 20/00](#) take precedence)}**

- F28D 15/02
- in which the medium condenses and evaporates, e.g. heat pipes {(heat pipes used in solar heat collectors [F24J 2/32](#); in radiators [F28D 1/0226](#); in nuclear reactors ~~G21C15/24F~~ [G21C 15/257](#))}
- F28D 2015/0216
- • {having particular orientation, e.g. slanted, or being orientation-independent }
- F28D 2015/0225
- • {Micro-heat pipes }
- F28D 2015/0291
- • {comprising internal rotor means, e.g. turbine driven by the working fluid }

- U F28D 20/00
- Heat storage plants or apparatus in general (specially adapted for particular applications, see the relevant places, e.g. [F24D 15/02](#)); Regenerative heat-exchange apparatus not covered by groups [F28D 17/00](#) or [F28D 19/00](#)**

- F28D 2020/0004
- {Particular heat storage apparatus }
- F28D 2020/0008
- • {the heat storage material being enclosed in plate-like or laminated elements, e.g. in plates having internal compartments }

F28D 2020/0013	<ul style="list-style-type: none"> • {the heat storage material being enclosed in elements attached to or integral with heat exchange conduits }
F28D 2020/0017	<ul style="list-style-type: none"> • {the heat storage material being enclosed in porous or cellular or fibrous structures (phase-change materials F28D 20/023)}
F28D 2020/0021	<ul style="list-style-type: none"> • {the heat storage material being enclosed in loose or stacked elements }
F28D 2020/0026	<ul style="list-style-type: none"> • {the heat storage material being enclosed in mobile containers for transporting thermal energy }
U F28D 20/0034	<ul style="list-style-type: none"> • {using liquid heat storage material}
F28D 2020/0047	<ul style="list-style-type: none"> • {using molten salts or liquid metals }
F28D 2020/006	<ul style="list-style-type: none"> • {Heat storage systems not otherwise provided for }
F28D 2020/0065	<ul style="list-style-type: none"> • {Details, e.g. particular heat storage tanks, auxiliary members within tanks }
F28D 2020/0069	<ul style="list-style-type: none"> • {Distributing arrangements; Fluid deflecting means }
F28D 2020/0073	<ul style="list-style-type: none"> • • movable {movable }
F28D 2020/0078	<ul style="list-style-type: none"> • {Heat exchanger arrangements }
F28D 2020/0082	<ul style="list-style-type: none"> • {Multiple tanks arrangements, e.g. adjacent tanks, tank in tank }
F28D 2020/0086	<ul style="list-style-type: none"> • Partitions {Partitions }
F28D 2020/0091	<ul style="list-style-type: none"> • • flexible {flexible }
F28D 2020/0095	<ul style="list-style-type: none"> • • {movable or floating }
U F28D 21/00	<p>Heat-exchange apparatus not covered by any of the groups F28D 1/00 to F28D 20/00 { Note: Particular use of heat exchangers is classified in F28D 21/00 and subgroups, whereas additionally the type of the heat exchangers is classified in the groups F28D 1/00 to F28D 20/00}</p>
F28D 2021/0019	<ul style="list-style-type: none"> • {Other heat exchangers for particular applications; Heat exchange systems not otherwise provided for }
F28D 2021/0021	<ul style="list-style-type: none"> • {for aircrafts or cosmonautics (air-treatment for aircraft B64D 13/00, temperature control of cosmonautic vehicles B64G 1/50)}
F28D 2021/0022	<ul style="list-style-type: none"> • {for chemical reactors }
F28D 2021/0024	<ul style="list-style-type: none"> • {for combustion apparatus, e.g. for boilers }
F28D 2021/0026	<ul style="list-style-type: none"> • {for combustion engines, e.g. for gas turbines or for Stirling engines (engine cooling systems F28D 2021/004)}
F28D 2021/0028	<ul style="list-style-type: none"> • {for cooling heat generating elements, e.g. for cooling electronic components or electric devices (for cooling semiconductors H01L 23/34, for cooling electric apparatus H05K 7/20)}
F28D 2021/0029	<ul style="list-style-type: none"> • • {Heat sinks }
F28D 2021/0031	<ul style="list-style-type: none"> • • {Radiators for recooling a coolant of cooling systems }
F28D 2021/0033	<ul style="list-style-type: none"> • {for cryogenic applications (air separation F25J 3/04, cold heat exchange systems F25J 1/0262)}
F28D 2021/0035	<ul style="list-style-type: none"> • {for domestic or space heating, e.g. heating radiators (for vehicles F28D 2021/0096)}
F28D 2021/0036	<ul style="list-style-type: none"> • • {Radiators for drying, e.g. towel radiators }
F28D 2021/0038	<ul style="list-style-type: none"> • {for drying or dehumidifying gases or vapours (by refrigeration B01D 53/265)}
F28D 2021/004	<ul style="list-style-type: none"> • {for engine or machine cooling systems (for vehicles F28D 2021/0094; marine radiators F28D 1/022)}
F28D 2021/0042	<ul style="list-style-type: none"> • {for foodstuffs }
F28D 2021/0043	<ul style="list-style-type: none"> • {for fuel cells (heat exchange in fuel cell H01M 8/04007)}
F28D 2021/0045	<ul style="list-style-type: none"> • {for granular materials (fluidised beds F28D 13/00)}
F28D 2021/0047	<ul style="list-style-type: none"> • {for hydrogen or other compressed gas storage tanks }

- F28D 2021/0049 . . {for lubricants, e.g. oil coolers (for vehicles [F28D 2021/0089](#))}
- F28D 2021/005 . . {for medical applications (heating or cooling appliances for medical treatment [A61F 7/00](#))}
- F28D 2021/0052 . . {for mixers }
- F28D 2021/0054 . . {for nuclear applications (cooling arrangements for nuclear reactors [G21C 15/00](#))}
- F28D 2021/0056 . . {for ovens or furnaces (for boilers [F28D 2021/0024](#), arrangements for using waste heat in furnaces [F27D 17/00](#))}
- F28D 2021/0057 . . . {for melting materials }
- F28D 2021/0059 . . {for petrochemical plants }
- F28D 2021/0061 . . {for phase-change applications (for refrigerant cycles [F28D 2021/0068](#); heat pipes [F28D 15/02](#))}
- F28D 2021/0063 . . . {Condensers (steam or vapour condensers [F28B](#))}
- F28D 2021/0064 . . . {Vaporizers, e.g. evaporators }
- F28D 2021/0066 . . . {with combined condensation and evaporation }
- F28D 2021/0068 . . {for refrigerant cycles }
- F28D 2021/007 . . . {Condensers (for vehicles [F28D 2021/0084](#); for compression systems [F25B 39/04](#)), cold exchangers for separating constituents of gaseous mixtures [F25J3/00](#) [F25J 3/06](#)}
- F28D 2021/0071 . . . {Evaporators (for vehicles [F28D 2021/0085](#), for compression systems [F25B 39/02](#))}
- F28D 2021/0073 . . . {Gas coolers }
- F28D 2021/0075 . . {for syngas or cracked gas cooling systems (cooling of cracked gas [C10G 9/002](#))}
- F28D 2021/0077 . . {for tempering, e.g. with cooling or heating circuits for temperature control of elements }
- F28D 2021/0078 . . . {in the form of cooling walls }
- F28D 2021/008 . . {for vehicles (for aircrafts [F28D 2021/0021](#))}
- F28D 2021/0082 . . . {Charged air coolers (cooling of air intake supply [F02B 29/04](#))}
- F28D 2021/0084 . . . ~~Condensers~~ {[Condensers](#)}
- F28D 2021/0085 . . . ~~Evaporators~~ {[Evaporators](#)}
- F28D 2021/0087 . . . {Fuel coolers (apparatus for cooling fuel on vehicles [F02M 31/20](#))}
- F28D 2021/0089 . . . {Oil coolers (heating or cooling lubricants in vehicles [F01M 5/00](#))}
- F28D 2021/0091 . . . ~~Radiators~~ {[Radiators](#)}
- F28D 2021/0092 {with particular location on vehicle, e.g. under floor or on roof }
- F28D 2021/0094 {for recooling the engine coolant (arrangements of liquid-to-air heat exchangers on vehicles [F01P 3/18](#))}
- F28D 2021/0096 {for space heating (for air-conditioning in vehicles [B60H 1/00321](#))}
- F28D 2021/0098 . . {for viscous or semi-liquid materials, e.g. for processing sludge (for foodstuffs [F28D 2021/0042](#))}

Project: N/A (F28F)

- U F28F 1/00 Tubular elements; Assemblies of tubular elements (specially adapted for movement [F28F 5/00](#))**
- U F28F 1/02 . . Tubular elements of cross-section which is non-circular ([F28F 1/08](#), [F28F 1/10](#) take precedence)
- F28F 2001/027 . . {with dimples }

- U F28F 1/10
 - Tubular elements and assemblies thereof with means for increasing heat-transfer area, e.g. with fins, with projections, with recesses (crimped or corrugated elements [F28F 1/06](#), [F28F 1/08](#))
- U F28F 1/42
 - • the means being both outside and inside the tubular element
- F28F 2001/428
 - • • {Particular methods for manufacturing outside or inside fins }
- U **F28F 3/00**

Plate-like or laminated elements; Assemblies of plate-like or laminated elements (specially adapted for movement [F28F 5/00](#))
- F28F 3/02
 - Elements or assemblies thereof with means for increasing heat-transfer area, e.g. with fins, with recesses, with corrugations ([F28F 3/08](#) ~~(F28F3/08D)~~ takes precedence)
- U **F28F 9/00**

Casings; Header boxes; Auxiliary supports for elements; Auxiliary members within casings
- U F28F 9/001
 - { Casings in the form of plate-like arrangements; Frames enclosing a heat exchange core }
- F28F 2009/004
 - • {Common frame elements for multiple cores }
- U F28F 9/02
 - Header boxes; End plates
- F28F 2009/0285
 - • {Other particular headers or end plates }
- F28F 2009/0287
 - • • {having passages for different heat exchange media }
- F28F 2009/029
 - • • {with increasing or decreasing cross-section, e.g. having conical shape }
- F28F 2009/0292
 - • • {with fins }
- F28F 2009/0295
 - • • {comprising cooling circuits }
- F28F 2009/0297
 - • • {Side headers, e.g. for radiators having conduits laterally connected to common header }
- U F28F 9/22
 - Arrangements for directing heat-exchange media into successive compartments, e.g. arrangements of guide plates
- F28F 2009/222
 - • {Particular guide plates, baffles or deflectors, e.g. having particular orientation relative to an elongated casing or conduit }
- F28F 2009/224
 - • • {Longitudinal partitions }
- F28F 2009/226
 - • • {Transversal partitions }
- F28F 2009/228
 - • • {Oblique partitions }
- F28F 9/26
 - Arrangements for connecting different sections of heat-exchange elements, e.g. of radiators (connecting different sections in water heaters [F24H 9/14](#), {connecting headers with inlet or outlet fittings ~~F28F9/04B~~ [F28F 9/0246](#)})
- U **F28F 13/00**

Arrangements for modifying heat-transfer, e.g. increasing, decreasing ([F28F 1/00](#) to [F28F 11/00](#) take precedence)
- F28F 2013/001
 - {Particular heat conductive materials, e.g. superconductive elements (for thermal joints [F28F 2013/006](#))}
- F28F 2013/005
 - {Thermal joints }
- F28F 2013/006
 - • {Heat conductive materials }
- F28F 2013/008
 - • {Variable conductance materials; Thermal switches }
- U **F28F 25/00**

Component parts of trickle coolers (arrangements for increasing heat transfer [F28F 13/00](#); controlling arrangements [F28F 27/00](#))
- F28F 2025/005
 - {Liquid collection; Liquid treatment; Liquid recirculation; Addition of make-up liquid }
- U **F28F 2275/00**

Fastening; Joining
- F28F 2275/06
 - by welding (~~welding heat exchangers L23K101/14~~ [welding heat exchangers B23K 2201/14](#))

Project: N/A (F28G)**U F28G 15/00**

F28G 2015/006

Details (measuring thickness of deposit [G01B](#))

- {Arrangements for processing a cleaning fluid after use, e.g. filtering and recycling}

Project: N/A (F41G)**U F41G 11/00****Details of sighting or aiming apparatus; Accessories {(Tools for adjustment of sights [F41G 1/545](#))}****U F41G 11/001**

- { Means for mounting tubular or beam shaped sighting or aiming devices on firearms}

F41G 11/004

- { Mountings with clamping means on the device embracing at least a part of the firearm, e.g. the receiver or a dustcover (~~F41G 1/003~~ [F41G 1/003](#) takes precedence)}

Project: N/A (F41H)

F41H 5/00

Armour; Armour plates(processes for manufacturing or treating [B21](#), [G21](#), { heat treatment [C21D 9/42](#); wall or panel structure for safes [E05G 1/024](#)})**Project: N/A (F42D)**

F42D 3/00

Particular applications of blasting techniques{ explosive welding [B23K 20/08](#) ; explosive bolts or actuators ~~F42B 3/00~~ [DF42B3/00D](#); explosive valves [F16K 13/06](#) ; cutting devices actuated by explosion [B23D 15/14](#) ~~BB23D15/14B~~; pyrotechnical actuators [F15B 15/19](#) ; switching devices actuated by explosion [H01H 39/00](#) }**Project: N/A (G01B)****U G01B 3/00****Instruments as specified in the subgroups and characterised by the use of mechanical measuring means(arrangements for measuring particular parameters [G01B 5/00](#) ; devices of general interest specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material [B65H 75/34](#))****U G01B 3/02**

- Rulers or tapes with scales or marks for direct reading

U G01B 3/10

- {flexible, e.g. tape measures}

NOTE

Group [G01B 3/1002](#) takes precedence over groups [G01B 3/1005](#) to [G01B 3/10 Z](#)

U G01B 3/1005

- • {Braking or locking members, i.e. means for preventing rotation or the tape or for holding the tape at a certain position; Damping means, i.e. means for absorbing shock due to rewinding of the tape; Winding mechanisms, e.g. springs, electrical motors, crank-handles}

G01B 2003/1007

- • • {Locking members}

G01B 2003/101

- • • • {acting on the drum}

G01B 2003/1012

- • • • {engaging the tape in a direction parallel to the tape itself}

G01B 2003/1015

- • • • {engaging the tape in a direction transversal to the tape itself}

G01B 2003/1017

- • • • {acting on the whole coil}

G01B 2003/102

- • • • {Damping means}

G01B 2003/1023

- • • • {Winding mechanisms}

G01B 2003/1025

- • • • {Hand operated, e.g. crank-handles}

	G01B 2003/1028	• • • • {Electrical motors}
	G01B 2003/103	• • • • Springs {Springs}
	G01B 2003/1033	• • • • {Means for activating locking, braking or releasing of the tape, e.g. buttons}
	G01B 2003/1035	• • • • {by pivotal operation}
	G01B 2003/1038	• • • • {by translatable motion operation}
U	G01B 3/1041	• • • {Casings, i.e. structures to contain the tape}
	G01B 2003/1043	• • • • {internal structure and constructional details}
	G01B 2003/1046	• • • • {external shape; elements for generating an offset}
	G01B 2003/1048	• • • • {mounting elements integral to the casing for fixing to external structures or for holding, e.g. handles}
	G01B 2003/1051	• • • • {plurality of tapes within the same casing}
	G01B 2003/1053	• • • • {tape exit slot, e.g. shape or exit direction}
	G01B 2003/1058	• • • {Manufacturing or assembling methods}
U	G01B 3/1061	• • • {Means for reading or displaying length measurement}
	G01B 2003/1064	• • • • {Windows, e.g. lens, glass or cross-hairs}
	G01B 2003/1066	• • • • {Index sliding on tape}
	G01B 2003/1069	• • • • {Electronic or mechanical displaying means}
U	G01B 3/1071	• • • {External support or attachment means, i.e. not provided in the tape measure itself}
	G01B 2003/1074	• • • • {for the casing}
	G01B 2003/1076	• • • • {for the end-hook}
	G01B 2003/1079	• • • • {for the tape itself}
U	G01B 3/1084	• • • {Particular applications of tape measures or special adaptations thereto}
	G01B 2003/1087	• • • • {for illuminating}
	G01B 2003/1089	• • • • {for drawing, marking, cutting}
	G01B 2003/1092	• • • • {measuring instruments cooperating with the tape measure, e.g. bubble-type level}
	G01B 2003/1094	• • • • {for calculating, recording, indicating; aide memoire}
	G01B 2003/1097	• • • • {Tape measures with an adhesive surface}
	G01B 3/14	• Templates for checking contours({ templates for mounting doors or windows E04F 21/00-B E04F21/00B)}
U	G01B 5/00	Measuring arrangements characterised by the use of mechanical means(instruments of the types covered by group G01B 3/00 per se G01B 3/00)
U	G01B 5/0011	• {Arrangements for eliminating or compensation of measuring errors due to temperature or weight}
	G01B 5/0014	• • {due to temperature(on machine tools B23Q 11/00B B23Q11/00B)}
U	G01B 21/00	Measuring arrangements or details thereof in so far as they are not adapted to particular types of measuring means of the preceding groups
	NOTE	
	Measuring arrangements or details thereof covered by two or more of groups G01B 3/00 - G01B 17/00 are classified in this group if no single other group can be selected as being predominantly applicable.	
U	G01B 21/02	• for measuring length, width, or thickness(G01B 21/10 takes precedence)

G01B 21/06

- specially adapted for measuring length or width of objects while moving{ unwinding or rewinding apparatus incorporating length measuring devices [B65H 16/025](#), ~~[B65H18/02C](#)~~ }

Project: N/A (G01C)**U G01C 9/00**

Measuring inclination, e.g. by clinometers, by levels{(switches operated by inclination or orientation [H01H 35/02](#))}

U G01C 9/02

- Details

U G01C 9/06

- • Electric or photoelectric indication or reading means

G01C 2009/062

- • • ~~capacitive~~{capacitive}

G01C 2009/064

- • • ~~inductive~~{inductive}

G01C 2009/066

- • • ~~optical~~{optical}

G01C 2009/068

- • • ~~resistive~~{resistive}

U G01C 9/10

- by using rolling bodies{e.g. spheres, cylinders, mercury droplets(tilting mercury container switches [H01H 29/20](#))}

G01C 2009/102

- • ~~cylinders~~{cylinders}

G01C 2009/105

- • {mercury droplets}

G01C 2009/107

- • ~~spheres~~{spheres}

U G01C 9/18

- by using liquids

G01C 2009/182

- • ~~conductive~~{conductive}

G01C 2009/185

- • ~~dielectric~~{dielectric}

G01C 2009/187

- • {magnetic, e.g. ferromagnetic}

U G01C 11/00

Photogrammetry or videogrammetry, e.g. stereogrammetry; Photographic surveying(cameras combined with surveying instruments, e.g. with theodolites, [G01C 1/00](#) , [G01C 3/00](#) , [G01C 5/00](#) , [G01C 9/00](#) ; surveying cameras [G03B 37/00](#))

WARNING

The following IPC group is not used in the CPC scheme: Subject-matter covered by this group is classified in the following CPC groups: [G01C 11/36](#) covered by [G01C 11/00](#) to [G01C 11/34](#)

G01C 2011/36

- {Videogrammetry, i.e. electronic processing of video signals from{ a single source or from} different sources to give parallax or range information}

WARNING

This group it is currently not used for classification purpose in ECLA. Subject-matter covered by the IPC group [G01C 11/36](#) is rather classified in the following CPC groups: [G01C 11/00](#) to [G01C 11/34](#)

U G01C 21/00

Navigation; Navigational instruments not provided for in preceding groups(measuring distance traversed on the ground by a vehicle [G01C 22/00](#) ; measuring linear or angular speed or acceleration [G01P](#) ; control of position, course, altitude or attitude of vehicles [G05D 1/00](#) ; traffic control systems [G08G](#))

U G01C 21/26

- specially adapted for navigation in a road network

U G01C 21/34

- • Route searching; Route guidance

U G01C 21/3407

- • • {specially adapted for specific applications}

G01C 21/343

- • • {Calculating itineraries, i.e. routes leading from a starting point to a series of categorical destinations using a global route restraint, round trips, touristic trips(travelling salesman problem ~~[G06Q10/00B](#)~~[G06Q 10/04](#) ; optimisation of routes ~~[G06Q10/00B4](#)~~[G06Q 10/047](#))}

Project: N/A (G01D)**G01D**

MEASURING NOT SPECIALLY ADAPTED FOR A SPECIFIC VARIABLE; ARRANGEMENTS FOR MEASURING TWO OR MORE VARIABLES NOT COVERED IN A SINGLE OTHER SUBCLASS; TARIFF METERING APPARATUS; MEASURING OR TESTING NOT OTHERWISE PROVIDED FOR (means structurally associated with lightning or other over-voltage discharging apparatus for recording the operation thereof [G01R](#); displaying information in general [G09F](#); recording in a way which requires playback through a transducer [G11B](#))

NOTES

This subclass covers :

- devices for indicating or recording the results of measurements, not peculiar to variables covered by a single other subclass;
- analogous apparatus but in which the input is not a variable to be measured, e.g. a hand operation;
- details of measuring instruments, which are of general interest;
- measurement transducers not adapted solely for the measurement of a single specified variable and not provided for elsewhere, i.e. means for converting the output of a sensing member to another variable where the form or nature of the sensing member does not constrain the means for converting;
- measuring or testing not otherwise provided for.

Attention is drawn to the Notes following the title of class [G01](#).

U G01D 4/00

Tariff metering apparatus (tariff meters for measuring the time integral of electric power or current [G01R 11/56](#); in taximeters [G07B 13/00](#); coin-feed mechanisms therefor [G07F](#))

U G01D 4/02

• Details

G01D 4/06

• • Arrangement of clutches between driving and indicating member, e.g. of hysteresis clutch (~~[G01B4/04](#)~~ [G01D 4/04](#) takes precedence)

U G01D 5/00

Mechanical means for transferring the output of a sensing member; Means for converting the output of a sensing member to another variable where the form or nature of the sensing member does not constrain the means for converting; Transducers not specially adapted for a specific variable ([G01D 3/00](#) takes precedence; specially adapted for apparatus giving results other than momentary value of variable [G01D 1/00](#); sensing members, see the relevant subclasses, e.g. of [G01](#), [H01](#); for converting a single current or a single voltage into a mechanical displacement [G01R 5/00](#); specially adapted for high-voltage or high-current measuring arrangements [G01R 15/04](#), [G01R 15/14](#); measuring currents or voltages using digital measurement techniques [G01R 19/25](#); transmission systems for measured values, control or similar signals [G08C](#), e.g. electrical signals [G08C 19/00](#))

NOTE

The subgroups of this main group are distinguished by the means which is of major importance. Thus the mere application of other means for giving a final indication does not affect the classification.

U G01D 5/12

• using electric or magnetic means ([G01D 5/06](#) takes precedence)

U G01D 5/244

• • influencing characteristics of pulses or pulse trains; generating pulses or pulse trains

G01D 5/24423

• • { Mounting means or means for restraining during shipping (~~[G01D5/244P1F](#)~~ [G01D 5/24442](#) takes precedence)}

Project: N/A (G01F)**G01F**

MEASURING VOLUME, VOLUME FLOW, MASS FLOW OR LIQUID LEVEL; METERING BY VOLUME (milk flow sensing devices in milking machines or devices [A01J 5/01](#); measuring or recording blood flow [A61B 5/02](#), [A61B 8/06](#); metering media to the human body [A61M 5/168](#); burettes or pipettes [B01L 3/02](#); arrangements of liquid volume meters or volume-flow meters in liquid-delivering apparatus, e.g. for retail sale purposes, ~~B67D5/16~~ [B67D 7/16](#); pumps, fluid motors, details common to measuring or metering devices and pumps or fluid motors [F01](#) to [F04](#); { sampling [G01N 1/00](#)}; locating, determining distance or velocity using reflection or reradiation of radio waves, analogous arrangements using other waves [G01S](#); systems for ratio control [G05D 11/00](#); { coin-freed apparatus for metering flow of liquid or gas [G07F 15/00](#)})

NOTE

Attention is drawn to the Notes following the title of class [G01](#).

Project: N/A (G01G)**U G01G 15/00**

Arrangements for check-weighing of materials dispensed into removable containers (packaging aspects [B65B](#); {electric measuring arrangements involving comparison with a reference value [G01R 17/00](#)})

- U G01G 15/001
 - {Volumetric pre-dispensing to an estimated weight; Gravimetric make-up device for target device}
- U G01G 2015/002
 - • {using electrical, electromechanical or electronic means}
- U G01G 15/006
 - {using electrical, electromechanical, or electronic means not covered by [G01G 15/001](#), [G01G 15/02](#), [G01G 15/04](#)}
- U G01G 2015/007
 - • {involving digital counting}
- U G01G 2015/008
 - • {involving comparison with a reference value}
- U G01G 15/02
 - with provision for adding or removing a make-up quantity of material to obtain the desired net weight (dribble-feed means for automatic batch-weighers [G01G 13/04](#))
- U G01G 2015/022
 - • {using electrical, electromechanical or electronic means}
- U G01G 15/04
 - with provision for adding or removing a make-up quantity of material to obtain the desired gross weight (dribble-feed means for automatic batch-weighers [G01G 13/04](#))
- U G01G 2015/042
 - • {using electrical, electromechanical or electronic means}

Project: N/A (G01J)**U G01J 1/00**

Photometry, e.g. photographic exposure meter (spectrophotometry [G01J 3/00](#); specially adapted for radiation pyrometry [G01J 5/00](#)){exposure meters built in cameras [G03B 17/06](#)}

- U G01J 1/02
 - Details
- G01J 2001/0257
 - • ~~portable~~ {[portable](#) }
- G01J 2001/0261
 - • • {Pocket size; Card size }
- G01J 2001/0276
 - • ~~Protection~~ {[Protection](#) }
- G01J 2001/028
 - • • {against liquid }
- G01J 2001/0285
 - • • {against laser damage }
- U G01J 1/04
 - • Optical or mechanical part {supplementary adjustable parts}
- G01J 2001/0481
 - • • {Preset integrating sphere or cavity }
- G01J 2001/0485
 - • • {Cosinus correcting or purposely modifying the angular response of a light sensor }

- U G01J 1/0488
 - • • { with spectral filtering }
- G01J 2001/0496
 - • • • { using fiber Bragg gratings }
- U G01J 1/06
 - • • Restricting the angle of incident light
- G01J 2001/061
 - • • • Baffles-~~{Baffles }~~
- G01J 2001/062
 - • • • { by fibre-optic packed bundle }
- G01J 2001/063
 - • • • { with selectable field of view }
- G01J 2001/065
 - • • • • { by changing elements }
- G01J 2001/066
 - • • • • { with an aiming optical device }
- G01J 2001/067
 - • • • { for angle scan }
- G01J 2001/068
 - • • • • { by diaphragm or the like }
- U G01J 1/08
 - • Arrangements of light sources specially adapted for photometry { standard sources, also using luminescent or radioactive material }
- G01J 2001/083
 - • • { Testing response of detector }
- G01J 2001/086
 - • • { Calibrating drift correction }
- U G01J 1/10
 - by comparison with reference light or electric value { provisionally void }
- U G01J 1/16
 - • using electric radiation detectors ([G01J 1/20](#) takes precedence)
- G01J 2001/1605
 - • • { Null method }
- G01J 2001/161
 - • • { Ratio method, i.e. I_m/I_r }
- G01J 2001/1615
 - • • • { Computing a difference/sum ratio, i.e. $(I_m - I_r)/(I_m + I_r)$ }
- G01J 2001/1621
 - • • • { Comparing a duty ratio of pulses }
- U G01J 1/1626
 - • • { Arrangements with two photodetectors, the signals of which are compared }
- G01J 2001/1631
 - • • • { Bridge circuit }
- G01J 2001/1636
 - • • • { one detector directly monitoring the source, e.g. also impulse time controlling }
- G01J 2001/1642
 - • • • • { and acting on the detecting circuit }
- G01J 2001/1647
 - • • • { one signal maintained constant }
- G01J 2001/1652
 - • • • { one detector being transparent before the other one }
- G01J 2001/1657
 - • • • { one signal being spectrally modified, e.g. for UV }
- G01J 2001/1663
 - • • • { two detectors of different sensitivity }
- G01J 2001/1668
 - • • { the measuring signal itself varying in time, e.g. periodic, for example blood pulsation }
- G01J 2001/1673
 - • • { using a reference sample }
- G01J 2001/1678
 - • • { Comparing time separated signals, i.e. chopped }
- G01J 2001/1684
 - • • • { and selecting also a DC level from the signal }
- G01J 2001/1689
 - • • • { one separated signal being processed differently }
- G01J 2001/1694
 - • • • { with a signal from on/off switched light source }
- U G01J 1/18
 - • • using comparison with a reference electric value
- G01J 2001/182
 - • • • { with SH sample and hold circuits }
- G01J 2001/184
 - • • • • { on a succession of signals }
- G01J 2001/186
 - • • • { Comparison or correction from an electric source within the processing circuit }
- G01J 2001/188
 - • • • • { on pulse train }
- U G01J 1/20
 - • intensity of the measured or reference value being varied to equalise their effects at the detectors, e.g. by varying incidence angle
- U G01J 1/22
 - • • using a variable element in the light-path, e.g. filter, polarising means ([G01J 1/34](#) takes precedence)

- U G01J 1/24
 - • • • using electric radiation detectors
 - G01J 2001/242 • • • • {Filter wheel, i.e. absorption filter series graduated }
 - G01J 2001/245 • • • • {with two or more separate attenuated steps }
 - G01J 2001/247 • • • • {of spectral wedge type }
- U G01J 1/34
 - • • using separate light paths used alternately or sequentially, e.g. flicker
- U G01J 1/36
 - • • • using electric radiation detectors
 - G01J 2001/363 • • • • {Chopper stabilisation }
 - G01J 2001/366 • • • • {Balancing two paths }
- U G01J 1/42
 - using electric radiation detectors (optical or mechanical part [G01J 1/04](#); by comparison with a reference light or electric value [G01J 1/10](#))
- U G01J 1/4228
 - • { arrangements with two or more detectors, e.g. for sensitivity compensation }
 - G01J 2001/4233 • • • {with selection of detector }
 - G01J 2001/4238 • • {Pulsed light }
 - G01J 2001/4242 • • {Modulated light, e.g. for synchronizing source and detector circuit }
 - G01J 2001/4247 • • {for testing lamps or other light sources }
 - G01J 2001/4252 • • • {for testing LED`s }
- U G01J 1/4257
 - • {applied to monitoring the characteristics of a beam, e.g. laser beam, headlamp beam (monitoring arrangements for lasers in general [H01S 3/0014](#)) }
 - G01J 2001/4261 • • • {Scan through beam in order to obtain a cross-sectional profile of the beam }
 - G01J 2001/4266 • • {for measuring solar light }
 - G01J 2001/4271 • • • ~~Pyrrheliometer~~ {~~Pyrrheliometer~~ }
 - G01J 2001/4276 • • • {Solar energy integrator over time }
 - G01J 2001/428 • • • {for sunlight scattered by atmosphere }
 - G01J 2001/4285 • • • {Pyranometer, i.e. integrating over space }
 - G01J 2001/4295 • • {using a physical effect not covered by other subgroups of [G01J 1/42](#) }
- U G01J 1/44
 - • Electric circuits {for command of an exposure part [G03B 7/02](#)}
 - G01J 2001/4406 • • • {Plural ranges in circuit, e.g. switchable ranges; Adjusting sensitivity selecting gain values }
 - G01J 2001/4413 • • • ~~Type~~ {~~Type~~ }
 - G01J 2001/442 • • • • {Single-photon detection or photon counting }
 - G01J 2001/4426 • • • • {with intensity to frequency or voltage to frequency conversion [IFC or VFC] }
 - G01J 2001/4433 • • • • {Peak sensing }
 - G01J 2001/444 • • • {Compensating; Calibrating, e.g. dark current, temperature drift, noise reduction or baseline correction; Adjusting }
 - G01J 2001/4446 • • • {Type of detector }
 - G01J 2001/4453 • • • • ~~PMT~~ {~~PMT~~ }
 - G01J 2001/446 • • • • ~~Photodiode~~ {~~Photodiode~~ }
 - G01J 2001/4466 • • • • ~~Avalanche~~ {~~Avalanche~~ }
 - G01J 2001/4473 • • • • ~~Phototransistor~~ {~~Phototransistor~~ }
 - G01J 2001/448 • • • • {Array (CCD) }
 - G01J 2001/4486 • • • • {Streak tube }
 - G01J 2001/4493 • • • • {with image intensifier tube (IIT) }
- U G01J 3/00 **Spectrometry; Spectrophotometry; Monochromators; Measuring colour**

- G01J 2003/003 · {Comparing spectra of two light sources }
- G01J 2003/006 · {Fundamentals or review articles }
- U G01J 3/02 · Details
- G01J 2003/0281 · · ~~slitless~~ {slitless }
- U G01J 3/04 · · Slit arrangements {slit adjustment}
- G01J 2003/042 · · · {Slit wheel }
- G01J 2003/045 · · · {Sequential slits; Multiple slits }
- G01J 2003/047 · · · {Configuration of two or more entry or exit slits for predetermined delta-lambda }
- U G01J 3/06 · · Scanning arrangements {arrangements for order-selection}
- G01J 2003/061 · · · {Mechanisms, e.g. sine bar }
- G01J 2003/062 · · · {motor-driven }
- G01J 2003/063 · · · · {Step motor }
- G01J 2003/064 · · · {Use of other elements for scan, e.g. mirror, fixed grating }
- G01J 2003/065 · · · · {Use of fibre scan for spectral scan }
- G01J 2003/066 · · · {Microprocessor control of functions, e.g. slit, scan, bandwidth during scan }
- G01J 2003/067 · · · {Use of plane parallel plate, e.g. small scan, wobble }
- G01J 2003/068 · · · {tuned to preselected wavelengths }
- G01J 2003/069 · · · {Complex motion, e.g. rotation of grating and correcting translation }
- U G01J 3/10 · · Arrangements of light sources specially adapted for spectrometry or colorimetry
- G01J 2003/102 · · · {Plural sources }
- G01J 2003/104 · · · · {Monochromatic plural sources }
- G01J 2003/106 · · · · {the two sources being alternating or selectable, e.g. in two ranges or line:continuum }
- U G01J 3/12 · · Generating the spectrum; Monochromators
- G01J 2003/1204 · · {Grating and filter }
- G01J 2003/1208 · · {Prism and grating }
- G01J 2003/1213 · · {Filters in general, e.g. dichroic, band }
- G01J 2003/1217 · · · {Indexed discrete filters or choppers }
- G01J 2003/1221 · · · {Mounting; Adjustment }
- G01J 2003/1226 · · {Interference filters }
- G01J 2003/123 · · · {Indexed discrete filters }
- G01J 2003/1234 · · · {Continuously variable IF (CVIF); Wedge type }
- G01J 2003/1239 · · · {and separate detectors }
- G01J 2003/1243 · · · {Pivoting IF or other position variation }
- G01J 2003/1247 · · · ~~Tuning~~ {Tuning }
- G01J 2003/1252 · · · {Using "resonance cell", e.g. Na vapor }
- G01J 2003/126 · · {Focal isolation type }
- G01J 2003/1265 · · {the wavelengths being separated in time, e.g. through optical fibre array }
- G01J 2003/1269 · · {Electrooptic filter }
- G01J 2003/1273 · · {Order selection }
- G01J 2003/1278 · · {Mask with spectral selection }
- G01J 2003/1282 · · {Spectrum tailoring }
- G01J 2003/1286 · · {Polychromator in general }

- G01J 2003/1291
 - • {polarised, birefringent }
- G01J 2003/1295
 - • {Plural entry slits, e.g. for different incidences }
- U G01J 3/14
 - • using refracting elements, e.g. prisms ([G01J 3/18](#), [G01J 3/26](#) take precedence){prisms per se [G02B 5/04](#)}
- G01J 2003/145
 - • • {Prism systems for straight view }
- U G01J 3/18
 - • using diffraction elements, e.g. grating (gratings per se [G02B](#))
- G01J 2003/1814
 - • • {Double monochromator }
- G01J 2003/1819
 - • • • {Double pass monochromator }
- G01J 2003/1823
 - • • • ~~subtractive~~ {~~subtractive~~ }
- G01J 2003/1828
 - • • {with order sorter or prefilter }
- G01J 2003/1842
 - • • {Types of grating }
- G01J 2003/1847
 - • • • {Variable spacing }
- G01J 2003/1852
 - • • • {Cylindric surface }
- G01J 2003/1857
 - • • • {Toroid surface }
- G01J 2003/1861
 - • • • {Transmission gratings }
- G01J 2003/1866
 - • • {Monochromator for three or more wavelengths }
- G01J 2003/1871
 - • • • ~~Duochromator~~ {~~Duochromator~~ }
- G01J 2003/1876
 - • • • ~~Polychromator~~ {~~Polychromator~~ }
- G01J 2003/188
 - • • {Constant deviation }
- G01J 2003/1885
 - • • {Holder for interchangeable gratings, e.g. at different ranges of wavelengths }
- U G01J 3/26
 - • using multiple reflection, e.g. Fabry-Perot interferometer, variable interference filters
- G01J 2003/262
 - • • {Double pass; Multiple pass }
- G01J 2003/265
 - • • {Read out, e.g. polychromator }
- G01J 2003/267
 - • • {of the SISAM type }
- U G01J 3/28
 - Investigating the spectrum (using colour filters [G01J 3/51](#))
- U G01J 3/2803
 - • {using photoelectric array detector}
- G01J 2003/2806
 - • • {Array and filter array }
- G01J 2003/2809
 - • • • {Array and correcting filter }
- G01J 2003/2813
 - • • • {2D-array }
- G01J 2003/2816
 - • • • {Semiconductor laminate layer }
- G01J 2003/282
 - • • {Modified CCD or like }
- U G01J 3/2823
 - • {Imaging spectrometer}
- G01J 2003/2826
 - • • {Multispectral imaging, e.g. filter imaging }
- G01J 2003/283
 - • {computer-interfaced }
- G01J 2003/2833
 - • • {and memorised spectra collection }
- G01J 2003/2836
 - • • {Programming unit, i.e. source and data processing }
- G01J 2003/284
 - • • {Spectral construction }
- G01J 2003/2843
 - • • {Processing for eliminating interfering spectra }
- U G01J 3/2846
 - • { using modulation grid; Grid spectrometers}
- G01J 2003/285
 - • • {Hadamard transformation }
- G01J 2003/2853
 - • {Averaging successive scans or readings }
- G01J 2003/2856
 - • • {and calculation of standard deviation }
- G01J 2003/2859
 - • {Peak detecting in spectrum }

- G01J 2003/2863 . . . {and calculating peak area }
- G01J 2003/2866 . . {Markers; Calibrating of scan }
- G01J 2003/2869 . . . {Background correcting }
- G01J 2003/2873 . . . {Storing reference spectrum }
- G01J 2003/2876 . . . {Correcting linearity of signal }
- G01J 2003/2879 . . . {Calibrating scan, e.g. Fabry Perot interferometer }
- G01J 2003/2883 . . . {Correcting overlapping }
- G01J 2003/2886 . . {Investigating periodic spectrum }
- U G01J 3/2889 . . {Rapid scan spectrometers; Time resolved spectrometry}
- G01J 2003/2893 . . . {with rotating grating }
- G01J 2003/2896 . . {Vidicon, image intensifier tube }
- U G01J 3/30 . . Measuring the intensity of spectral line directly on the spectrum itself
([G01J 3/42](#), [G01J 3/44](#) take precedence)
- U G01J 3/32 . . . Investigating bands of a spectrum in sequence by a single detector
- G01J 2003/323 {Comparing line:background }
- G01J 2003/326 {Scanning mask, plate, chopper, e.g. small spectrum interval }
- U G01J 3/42 . . Absorption spectrometry; Double beam spectrometry; Flicker spectrometry;
Reflection spectrometry (beam switching arrangements [G01J 3/08](#))
- G01J 2003/421 . . . {Single beam }
- G01J 2003/423 . . . {Spectral arrangements using lasers, e.g. tunable }
- G01J 2003/425 . . . ~~Reflectance~~ {~~Reflectance~~ }
- U G01J 3/427 . . . Dual wavelengths spectrometry
- G01J 2003/4275 {Polarised dual wavelength spectrometry }
- U G01J 3/433 . . . Modulation spectrometry; Derivative spectrometry
- G01J 2003/4332 {frequency-modulated }
- G01J 2003/4334 {by modulation of source, e.g. current modulation }
- G01J 2003/4336 {by magnetic modulation, e.g. Zeeman effect }
- U G01J 3/44 . . Raman spectrometry; Scattering spectrometry; {Fluorescence spectrometry}
- U G01J 3/4412 . . . {Scattering spectrometry (particle sizing by light scattering [G01N 15/0205](#);
optical velocimetry of particles [G01P5/00D](#))}
- G01J 2003/4418 {Power spectrum }
- G01J 2003/4424 {Fluorescence correction for Raman spectrometry }
- U G01J 3/443 . . Emission spectrometry
- G01J 2003/4435 . . . {Measuring ratio of two lines, e.g. internal standard }
- U G01J 3/45 . . Interferometric spectrometry
- G01J 2003/451 . . . {Dispersive interferometric spectrometry }
- G01J 2003/452 . . . {with recording of image of spectral transformation, e.g. hologram }
- U G01J 3/453 . . . by correlation of the amplitudes
- G01J 2003/4534 {Interferometer on illuminating side }
- G01J 2003/4538 {Special processing }
- U G01J 3/46 . . Measurement of colour; Colour measuring devices, e.g. colorimeters
(measuring colour temperature [G01J 5/60](#))
- G01J 2003/466 . . {Coded colour; Recognition of predetermined colour; Determining proximity
to predetermined colour }
- G01J 2003/467 . . {Colour computing }

- G01J 2003/468
 - • {of objects containing fluorescent agent }
- U G01J 3/50
 - • using electric radiation detectors
- G01J 2003/503
 - • • {Densitometric colour measurements}
- G01J 2003/507
 - • • {the detectors being physically selective }
- U G01J 3/51
 - • • using colour filters
- U G01J 3/513
 - • • • { having fixed filter-detector pairs}
- G01J 2003/516
 - • • • • {with several stacked filters or stacked filter-detector pairs}
- U **G01J 4/00**

Measuring polarisation of light (investigating or analysing materials by measuring rotation of plane of polarised light [G01N 21/21](#))

 - G01J 2004/001
 - ~~Devices~~ {~~Devices~~ }
 - G01J 2004/002
 - • {Selecting polarisation direction }
 - G01J 2004/004
 - • • {sequential, i.e. time-divided }
 - G01J 2004/005
 - • • {simultaneous, i.e. space-divided }
 - G01J 2004/007
 - • • {Mechanical mounting }
 - G01J 2004/008
 - {Polarisation rate }
- U **G01J 5/00**

Radiation pyrometry (photometry in general [G01J 1/00](#); spectrometry in general [G01J 3/00](#)) {measuring temperature in general, i.e. with a contacting sensor [G01K](#); calorimetry of radiation beams [G01K 17/00](#); direction finders for radiant sources [G01S](#); intrusion detection by radiation [G08B](#)}

 - U G01J 5/0022
 - {for sensing the radiation of moving bodies}
 - G01J 2005/0029
 - • ~~Sheet~~ {~~Sheet~~ }
 - G01J 2005/0033
 - • ~~Wheel~~ {~~Wheel~~ }
 - G01J 2005/0048
 - {Calibrating; Correcting }
 - G01J 2005/0051
 - • {Methods for correcting for emissivity }
 - G01J 2005/0055
 - • {Atmospheric correction }
 - G01J 2005/0059
 - • {Correcting for reflection of the emitter radiation }
 - G01J 2005/0062
 - • {Linearising circuits }
 - G01J 2005/0074
 - {having separate detection of emissivity }
 - G01J 2005/0077
 - ~~Imaging~~ {~~Imaging~~ }
 - G01J 2005/0081
 - ~~Thermography~~ {~~Thermography~~ }
 - G01J 2005/0085
 - • {Temperature profile }
 - G01J 2005/0092
 - {Temperature by averaging, e.g. by scan (scan intended for space- resolved determination [G01J 2005/0081](#))}
 - U G01J 5/02
 - Details
 - U G01J 5/04
 - • Casings {Mountings}
 - U G01J 5/041
 - • • {Mountings in enclosures or in a particular environment}
 - G01J 5/045
 - • • • { Sealings; Vacuum enclosures; Encapsulated packages; Wafer bonding structures; Getter arrangements (getter arrangements per se [H01L 23/26](#) and [H01L31/0203B](#) [H01L 21/3221](#))}
 - U G01J 5/06
 - • Arrangements for eliminating effects of disturbing radiation
 - U G01J 5/061
 - • • {using cooling or thermostating of parts of the apparatus (cooling techniques in general [F17C](#), [F25J](#))}
 - G01J 2005/062
 - • • • ~~Peltier~~ {~~Peltier~~ }
 - G01J 2005/063
 - • • • {Heating; Thermostating }
 - G01J 2005/065
 - • • {by shielding }
 - G01J 2005/066
 - • • {Differential arrangement, i.e. sensitive/not sensitive }

	G01J 2005/067	• • • {Compensating for environment parameters }
	G01J 2005/068	• • • • {Ambient temperature sensor; Housing temperature sensor }
U	G01J 5/10	• using electric radiation detectors
	G01J 2005/103	• • {Absorbing heated plate or film and temperature detector }
	G01J 2005/106	• • Arrays {Arrays }
U	G01J 5/12	• • using thermoelectric elements, e.g. thermocouples (thermoelectric elements per se H01L 35/00 , H01L 37/00)
	G01J 2005/123	• • • {Thermoelectric array }
	G01J 2005/126	• • • {Thermoelectric black plate and thermocouple }
U	G01J 5/20	• • using resistors, thermistors, or semi-conductors sensitive to radiation
	G01J 2005/202	• • • Arrays {Arrays }
	G01J 2005/204	• • • • {prepared by semiconductor processing, e.g. VLSI }
	G01J 2005/206	• • • {on foils }
	G01J 2005/208	• • • superconductive {superconductive }
U	G01J 5/28	• • using photo-emissive, photo-conductive, or photo-voltaic cells
	G01J 2005/283	• • • Array {Array }
	G01J 2005/286	• • • • {Arrangement of conductor therefor }
U	G01J 5/34	• • using capacitors {e.g. pyroelectric elements}
	G01J 2005/345	• • • Arrays {Arrays }
U	G01J 5/38	• using extension or expansion of solids or fluids
U	G01J 5/42	• • using Golay cells
	G01J 2005/425	• • • {Micro-array }
U	G01J 5/50	• using techniques specified in the subgroups below
U	G01J 5/52	• • using comparison with reference sources, e.g. disappearing-filament pyrometer
	G01J 2005/526	• • • {Periodic insertion of emissive surface }
	G01J 2005/528	• • • {Periodic comparison }
U	G01J 5/58	• • using absorption; using polarisation; using extinction effect
	G01J 2005/583	• • • {Interferences, i.e. fringe variation with temperature }
	G01J 2005/586	• • • Polarisation {Polarisation }
U	G01J 5/60	• • using determination of colour temperature {Pyrometry using two wavelengths filtering; using selective, monochromatic or bandpass filtering; using spectral scanning}
U	G01J 5/602	• • • {using selective, monochromatic or bandpass filtering}
	G01J 2005/604	• • • • {bandpass filtered }
	G01J 2005/607	• • • {on two separate detectors }
	G01J 2005/608	• • • {Colour temperature of lamps, soruces or the like }
U	G01J 5/62	• • using means for chopping the light {Compensation for background radiation of chopper element}
	G01J 2005/623	• • • {Compensating radiation of chopper }
	G01J 2005/626	• • • {Electrooptic chopper }
U	G01J 9/00	Measuring optical phase difference (devices or arrangements for controlling the phase of light beams G02F 1/01); Determining degree of coherence; Measuring optical wavelength (spectrometry G01J 3/00)
	G01J 2009/002	• {Wavefront phase distribution }
	G01J 2009/004	• {Mode pattern }

- G01J 2009/006 • {using pulses for physical measurements }
- G01J 2009/008 • • {using decay time in cavity }
- U G01J 9/02 • by interferometric methods (using interferometers for measuring optically the linear dimensions of objects [G01B 9/02](#))
- G01J 2009/0203 • • {Phased array of beams }
- G01J 2009/0207 • • {Double frequency, e.g. Zeeman }
- G01J 2009/0211 • • {for measuring coherence }
- U G01J 9/0215 • • {by shearing interferometric methods}
- G01J 2009/0219 • • • {using two or more gratings }
- G01J 2009/0223 • • {Common path interferometry; Point diffraction interferometry }
- G01J 2009/0226 • • ~~Fibres~~ {Fibres }
- G01J 2009/023 • • • {of the integrated optical type }
- G01J 2009/0234 • • {Measurement of the fringe pattern }
- G01J 2009/0238 • • • {the pattern being processed optically, e.g. by Fourier transformation }
- G01J 2009/0242 • • ~~Compensator~~ {Compensator }
- G01J 2009/0249 • • {with modulation }
- G01J 2009/0253 • • • {of wavelength }
- G01J 2009/0257 • • {multiple, e.g. Fabry Perot interferometer }
- G01J 2009/0261 • • ~~polarised~~ {polarised }
- G01J 2009/0265 • • • {with phase modulation }
- G01J 2009/0269 • • {Microscope type }
- G01J 2009/0273 • • {Ring interferometer }
- G01J 2009/0276 • • {Stellar interferometer, e.g. Sagnac }
- G01J 2009/028 • • ~~Types~~ {Types }
- G01J 2009/0284 • • • ~~Michelson~~ {Michelson }
- G01J 2009/0288 • • • ~~Machzehnder~~ {Machzehnder }
- G01J 2009/0292 • • • {Fizeau; Wedge }
- G01J 2009/0296 • • • ~~achromatic~~ {achromatic }
- U G01J 11/00 **Measuring the characteristics of individual optical pulses or of optical pulse trains**
- G01J 2011/005 • {Streak cameras }

Project: N/A (G01K)**G01K**

MEASURING TEMPERATURE; MEASURING QUANTITY OF HEAT; THERMALLY-SENSITIVE ELEMENTS NOT OTHERWISE PROVIDED FOR (sensing temperature changes for compensating measurements of other variables for compensating readings of instruments for variation in temperature, see [G01D](#) or relevant subclasses for variable measured; radiation pyrometry [G01J](#); investigating or analysing materials by use of thermal means [G01N 25/00](#); compound sensitive elements, e.g. bimetallic, [G12B 1/02](#))

NOTES

In this subclass, the following term is used with the meaning indicated :

- "thermometer" includes thermally-sensitive elements not provided for in other subclasses.

Attention is drawn to the Notes following the title of class [G01](#).

Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "micro-structural devices" and "micro-structural systems".

- U G01K 3/00** **Thermometers giving results other than momentary value of temperature ([G01K 7/42](#) takes precedence)**
- U G01K 3/08
 - giving differences of values (using thermoelectric elements [G01K 7/02](#)); giving differentiated values
- U G01K 3/14
 - • in respect of space
- G01K 2003/145
 - • • {Hotspot localization}
- U G01K 7/00** **Measuring temperature based on the use of electric or magnetic elements directly sensitive to heat (giving results other than momentary value of temperature [G01K 3/00](#); measuring electric or magnetic variables [G01R](#)); {Power supply, e.g. by thermoelectric elements}**
- U G01K 7/16
 - using resistive elements (resistive elements per se [H01C](#), [H01L](#))
- G01K 2007/163
 - • {provided with specially adapted connectors}
- G01K 2007/166
 - • {Electrical time domain reflectometry }
- U G01K 7/42
 - Circuits for reducing thermal inertia; Circuits for predicting the stationary value of temperature
- G01K 2007/422
 - • {Dummy objects used for estimating temperature of real objects}
- U G01K 11/00** **Measuring temperature based upon physical or chemical changes not covered by groups [G01K 3/00](#), [G01K 5/00](#), [G01K 7/00](#) or [G01K 9/00](#)**
- U G01K 11/32
 - using changes in transmission, scattering or fluorescence in optical fibres {(in general [G01D 5/268](#))}
- G01K 2011/322
 - • {using Brillouin scattering}
- G01K 2011/324
 - • {using Raman scattering}
- U G01K 13/00** **Adaptations of thermometers for specific purposes**
- U G01K 13/02
 - for measuring temperature of moving fluids or granular materials capable of flow
- G01K 2013/024
 - • {Moving gas }
- G01K 2013/026
 - • {Moving liquid }

Project: N/A (G01L)

- U G01L 1/00** **Measuring force or stress in general (measuring force due to impact [G01L 5/00](#); measuring deformation of bodies as a result of stress by using gauges [G01B](#))**
- U G01L 1/12
 - by measuring variations in the magnetic properties of materials resulting from the application of stress
- G01L 1/127
 - • { by using inductive means (~~G01L 12/12A~~[G01L 1/122](#), [G01L 1/125](#) take precedence)}

- U G01L 9/00** Measuring steady or quasi-steady pressure of a fluid or a fluent solid material by electric or magnetic pressure-sensitive elements **{{G01L 11/004 takes precedence}}**; Transmitting or indicating the displacement of mechanical pressure-sensitive elements, used to measure the steady or quasi-steady pressure of a fluid or fluent solid material by electric or magnetic means (measuring differences of two or more pressure values [G01L 13/00](#); measuring two or more pressure values simultaneously [G01L 15/00](#); vacuum gauges [G01L 21/00](#); transferring the output of the sensing member to the indicating or recording part in general [G01D 5/00](#))
- U G01L 9/0041 • {Transmitting or indicating the displacement of flexible diaphragms (pressure sensitive flexible diaphragms in general [G01L 7/08](#))}
- U G01L 9/0051 • • {using variations in ohmic resistance}
- U G01L 9/006 • • • {of metallic strain gauges fixed to an element other than the pressure transmitting diaphragm}
- G01L 2009/0063 • • • • {using a fluid coupling between strain gauge carrier and diaphragm }
- G01L 2009/0066 • • • {Mounting arrangements of diaphragm transducers; Details thereof, e.g. electromagnetic shielding means}
- G01L 2009/0067 • • • • {with additional isolating diaphragms }
- G01L 2009/0069 • • • • {the transducer being mounted on a flexible element }
- U G01L 19/00** Details of, or accessories for, apparatus for measuring steady or quasi-steady pressure of a fluent medium insofar as such details or accessories are not special to particular types of pressure gauges
- G01L 2019/0053 • {Pressure sensors associated with other sensors, e.g. for measuring acceleration, temperature }
- U G01L 19/06 • Means for preventing overload or deleterious influence of the measured medium on the measuring device or vice versa
- U G01L 19/0627 • • { Protection against aggressive medium in general}
- G01L 19/0645 • • • { using isolation membranes, specially adapted for protection (use of coupling membranes with a coupling fluid in general [G01L9/00D2E4](#), [G01L9/00D2F2](#)[G01L 19/0046](#))}
- U G01L 23/00** Devices or apparatus for measuring or indicating or recording rapid changes, such as oscillations, in the pressure of steam, gas, or liquid; Indicators for determining work or energy of steam, internal-combustion, or other fluid-pressure engines from the condition of the working fluid
- U G01L 23/22 • for detecting or indicating knocks in internal-combustion engines; Units comprising pressure-sensitive members combined with ignitors for firing internal-combustion engines
- G01L 2023/228 • • {circuit arrangements therefor }

Project: N/A (G01M)

- U G01M 3/00** Investigating fluid-tightness of structures(investigating permeability of porous material, investigating the presence of flaws in general [G01N](#)){ membrane leak detection in blood dialysis [A61M 1/1692](#) ; detecting infusion flow leakage [A61M 5/16831](#) }
- U G01M 3/02 • by using fluid or vacuum
- U G01M 3/04 • • by detecting the presence of fluid at the leakage point
- U G01M 3/20 • • • using special tracer materials, e.g. dye, fluorescent material, radioactive material
- G01M 3/202 • • • • {mass spectrometer detection systems(mass spectrometers [H01J 49/26](#) [H01J 49/26](#))}

G01M 11/00

Testing of optical apparatus; Testing structures by optical methods not otherwise provided forWARNING

Groups ~~G11M11/30~~ ~~G11M11/39~~ ~~do not correspond to former or future IPC groups. Concordance CPC : IPC for these groups is as follows:~~ ~~G01M 11/30~~ -
~~G01M 11/39~~ ~~do not correspond to former or future IPC groups. Concordance CPC : IPC for these groups is as follows:~~
 - ~~G01M 11/30~~ - ~~G01M11/38~~ ~~G01M 11/39~~ :
[G01M 11/00](#)

U G01M 15/00

Testing of enginesNOTE

Informative note

References listed below indicate IPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

Measurement of mechanical vibrations in general [G01H](#)

Analysing gases in general [G01N](#)

Arrangements for testing electrical properties; Arrangements for locating electric faults; Arrangements for electrical testing characterised by what is being tested not provided for elsewhere [G01R 31/00](#) .

U G01M 15/04

- Testing of internal-combustion engines, e.g. diagnostic testing of piston engines

NOTES

Informative note

References listed below indicate IPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

Monitoring or diagnostic devices for exhaust-gas treatment apparatus

[F01N 11/00](#)

Indicating or supervising devices of internal-combustion engines [F02B 77/08](#)

Running in of internal-combustion engines [F02B 79/00](#)

Controlling combustion engines [F02D](#)

Apparatus for testing, tuning or synchronising carburettors, e.g. carburettor flow stands [F02M 19/01](#)

Testing fuel-injection apparatus [F02M 65/00](#)

Testing internal-combustion engine ignition, e.g. timing [F02P 17/00](#)

Devices for determining the value of power, e.g. by measuring and simultaneously multiplying the values of torque and revolutions per unit of time, by multiplying the values of tractive or propulsive force and velocity [G01L 3/24](#)

Determining the characteristic of torque in relation to revolutions per unit of time [G01L 5/26](#)

Devices for detecting or indicating knocks in internal-combustion engines [G01L 23/22](#)

Devices for measuring pressure in inlet or exhaust ducts of internal combustion engines [G01L 23/24](#)

Means for indicating positions of pistons or cranks of internal-combustion engines by measuring pressure [G01L 23/30](#) .

Group [G01M 15/05](#) takes precedence over groups [G01M 15/042](#) and [G01M 15/06](#) to [G01M 15/12](#) .

U G01M 15/10

- • by monitoring exhaust gases{or combustion flame(analyses of gases per se [G01N](#))}

U G01M 15/102

- • • {by monitoring exhaust gases}

G01M 15/104

- . . . {using oxygen or lambda-sensors(testing catalytic converters [F01N 3/18](#) , ~~F01N7/00E~~[F01N 11/007](#))}

U G01M 99/00**Subject matter not provided for in other groups of this subclass**

G01M 99/007

- . {by applying a load, e.g. for resistance or wear testing(~~G01M19/00A~~ [G01M 99/001](#) takes precedence; testing the elasticity of structures [G01M 5/00](#))}

Project: N/A (G01N)**U G01N 1/00****Sampling; Preparing specimens for investigation**

G01N 2001/002

- . {Devices for supplying or distributing samples to an analysing apparatus}

G01N 2001/005

- . . {Packages for mailing or similar transprot of samples}

G01N 2001/007

- . . {Devices specially adapted for forensic samples, e.g. tamper-proofing, sample tracking}

U G01N 1/02

- . Devices for withdrawing samples(for medical or veterinary purposes [A61](#); { sampling of foundation soil [E02D 1/04](#) } ; obtaining samples of soil or well fluids [E21B 49/00](#) ; { collecting or conveying radioactive samples [G01T 7/00](#) , e.g. [G01T 7/02](#) , [G01T 7/08](#) })

G01N 2001/021

- . . {Correlating sampling sites with geographical information, e.g. GPS}

G01N 2001/022

- . . {sampling for security purposes, e.g. contraband, warfare agents}

G01N 2001/024

- . . . {passengers or luggage}

G01N 2001/025

- . . . {postal items}

G01N 2001/027

- . . . {field kits / quick test kits}

G01N 2001/028

- . . {Sampling from a surface, swabbing, vaporising}

U G01N 1/04

- . . in the solid state, e.g. by cutting

G01N 2001/045

- . . . {Laser ablation; Microwave vaporisation}

U G01N 1/06

- . . providing a thin slice, e.g. microtome

G01N 2001/061

- {Blade details}

G01N 2001/063

- {with sawing action}

G01N 2001/065

- {Drive details}

G01N 2001/066

- ~~electric~~{[electric](#)}

G01N 2001/068

- {Illumination means}

U G01N 1/08

- . . involving an extracting tool, e.g. core bit

G01N 2001/085

- ~~Grabs~~{[Grabs](#)}

U G01N 1/10

- . in the liquid or fluent state{ burettes, pipettes [B01L 3/02](#) ; Sampling of ground water [E02D 1/06](#) ; metering by volume of fluids or fluent solid material [G01F 11/00](#) , [G01F 13/00](#) }

G01N 2001/1006

- . . . {Dispersed solids}

G01N 2001/1012

- ~~Suspensions~~{[Suspensions](#)}

G01N 2001/1018

- {Gas suspensions; Fluidised beds}

G01N 2001/1025

- {Liquid suspensions; Slurries; Mud; Sludge}

G01N 2001/1031

- . . . {Sampling from special places}

G01N 2001/1037

- {from an enclosure(hazardous waste, radioactive)}

G01N 2001/1043

- {from sewers}

G01N 2001/105

- {from high-pressure reactors or lines}

G01N 2001/1056

- . . . {Disposable (single-use) samplers}

G01N 2001/1062

- . . . {Sampling under constant temperature, pressure, or the like}

	G01N 2001/1068	. . . . {Cooling sample below melting point}
	G01N 2001/1075	. . . . {Trapping evaporated liquids by cooling}
	G01N 2001/1081	. . . . {Storing samples under refrigeration}
	G01N 2001/1087	. . . {Categories of sampling}
	G01N 2001/1093	. . . . {Composite sampling; Cumulative sampling}
U	G01N 1/14	. . . Suction devices, e.g. pumps; Ejector devices
	G01N 2001/1418	. . . . {Depression, aspiration}
	G01N 2001/1427	. . . . . {Positive displacement, piston, peristaltic}
	G01N 2001/1436	. . . . . Ejector {Ejector}
	G01N 2001/1445	. . . . {Overpressure, pressurisation at sampling point}
	G01N 2001/1454	. . . . . {Positive displacement, piston}
	G01N 2001/1463	. . . . . {Injector; Air-lift}
	G01N 2001/1472	. . . . {Devices not actuated by pressure difference}
	G01N 2001/1481	. . . . . {Archimedian screw; Auger}
	G01N 2001/149	. . . . . {Capillaries; Sponges}
U	G01N 1/18	. . . with provision for splitting samples into portions(G01N 1/12 , G01N 1/14 take precedence; fraction-collection apparatus for chromatography B01D 15/08)
	G01N 2001/185	. . . . {Conveyer of containers successively filled}
U	G01N 1/20	. . . for flowing or falling materials{ G01N 1/2035 }(G01N 1/12 , G01N 1/14 take precedence)
	G01N 2001/2007	. . . . {Flow conveyers}
	G01N 2001/2014	. . . . . {Pneumatic conveyers}
	G01N 2001/2021	. . . . . {falling under gravity}
	G01N 2001/2028	. . . . . Belts {Belts}
U	G01N 1/2035	. . . . {by deviating part of a fluid stream, e.g. by drawing-off or tapping}
	G01N 2001/205	. . . . . {using a valve}
	G01N 2001/2057	. . . . . . {Sample chamber in a valve/piston}
	G01N 2001/2064	. . . . . {using a by-pass loop}
	G01N 2001/2071	. . . . . {Removable sample bottle}
	G01N 2001/2078	. . . . . . {Pre-evacuated bottle}
	G01N 2001/2085	. . . . . . {Non-pre-evacuated septum closed bottles}
	G01N 2001/2092	. . . . {Cross-cut sampling}
U	G01N 1/22	. . in the gaseous state{(specially adapted for biological material G01N 33/497 ; measuring breath flow A61B 5/087)}
U	G01N 1/2202	. . . {involving separation of sample components during sampling}
U	G01N 1/2214	. . . . {by sorption}
	G01N 2001/2217	. . . . . {using a liquid}
	G01N 2001/222	. . . . {other features(not used)}
	G01N 2001/2223	. . . . . {aerosol sampling devices}
U	G01N 1/2226	. . . {Sampling from a closed space, e.g. food package, head space}
	G01N 2001/2229	. . . . {Headspace sampling, i.e. vapour over liquid}
	G01N 2001/2232	. . . . . {using a membrane, i.e. pervaporation}
	G01N 2001/2235	. . . . {over a melt, e.g. furnace}
	G01N 2001/2238	. . . . {the gas being compressed or pressurized}

	G01N 2001/2241	. . . {purpose-built sampling enclosure for emissions}
	G01N 2001/2244	. . . {Exhaled gas, e.g. alcohol detecting}
U	G01N 1/2247	. . . {Sampling from a flowing stream of gas}
	G01N 2001/225	. . . {isokinetic, same flow rate for sample and bulk gas}
U	G01N 1/2252	. . . {in a vehicle exhaust}
	G01N 2001/2255	. . . {with dilution of the sample}
U	G01N 1/2258	. . . {in a stack or chimney}
	G01N 2001/2261	. . . {preventing condensation(heating lines)}
	G01N 2001/2264	. . . {with dilution}
	G01N 2001/2267	. . . {separating gas from liquid, e.g. bubbles}
	G01N 2001/227	. . . {separating gas from solid, e.g. filter}
U	G01N 1/2273	. . . {Atmospheric sampling}
	G01N 2001/2276	. . . {Personal monitors}
	G01N 2001/2279	. . . {high altitude, e.g. rockets, balloons}
	G01N 2001/2282	. . . {with cooling means}
	G01N 2001/2285	. . . {Details of probe structures}
	G01N 2001/2288	. . . {Filter arrangements}
	G01N 2001/2291	. . . {Movable probes, e.g. swivelling, swinging}
	G01N 2001/2297	. . . {Timing devices}
U	G01N 1/24	. . . Suction devices{(G01N 1/22 to G01N 1/2294 take precedence)}
	G01N 2001/241	. . . Bellows { <i>Bellows</i> }
	G01N 2001/242	. . . {Injectors or ejectors}
	G01N 2001/244	. . . {using critical flow orifices}
	G01N 2001/245	. . . Fans { <i>Fans</i> }
	G01N 2001/247	. . . Syringes { <i>Syringes</i> }
	G01N 2001/248	. . . {Evacuated containers}
U	G01N 1/28	. Preparing specimens for investigation{ including physical details of (bio-)chemical methods covered elsewhere, e.g. G01N 33/50 , C12Q } (mounting specimens on microscopic slides G02B 21/34 ; means for supporting the objects or the materials to be analysed in electron microscopes H01J 37/20 ; { laboratory gas handling apparatus B01L 5/00)}
U	G01N 1/2813	. . {Producing thin layers of samples on a substrate, e.g. smearing, spinning-on(G01N 1/30 takes precedence)}
	G01N 2001/282	. . . {with mapping; Identification of areas; Spatial correlated pattern}
	G01N 2001/2826	. . . {Collecting by adsorption or absorption}
	G01N 2001/2833	. . . {Collecting samples on a sticky, tacky, adhesive surface}
	G01N 2001/284	. . . {using local activation of adhesive, i.e. Laser Capture Microdissection}
	G01N 2001/2846	. . . {Cytocentrifuge method}
U	G01N 1/286	. . {involving mechanical work, e.g. chopping, disintegrating, compacting, homogenising(microtomes G01N 1/06 ; pulverising in general B02C ; mixing in general B01F)}
	G01N 2001/2866	. . . {Grinding or homogeneising}
	G01N 2001/2873	. . . {Cutting or cleaving}
	G01N 2001/288	. . . {Filter punches}
	G01N 2001/2886	. . . {Laser cutting, e.g tissue catapult}
	G01N 2001/2893	. . {Preparing calibration standards}

- U G01N 1/30
 - • Staining; Impregnating{Fixation; Dehydration; Multistep processes for preparing samples of tissue, cell or nucleic acid material and the like for analysis}
 - G01N 2001/302
 - • • {Stain compositions}
 - G01N 2001/305
 - • • {Fixative compositions}
 - G01N 2001/307
 - • • {non-toxic, no Hg, no formaldehyde}
- U G01N 1/31
 - • • Apparatus therefor
 - G01N 2001/315
 - • • {Basket-type carriers for tissues}
 - G01N 2001/317
 - • • {spraying liquids onto surfaces}
- U G01N 1/36
 - • Embedding or analogous mounting of samples
 - G01N 2001/362
 - • • {using continuous plastic film to mount sample}
 - G01N 2001/364
 - • • {using resins, epoxy}
 - G01N 2001/366
 - • • {Moulds; Demoulding}
 - G01N 2001/368
 - • • {Mounting multiple samples in one block, e.g. TMA(Tissue Micro-arrays)}
- U G01N 1/38
 - • Diluting, dispersing or mixing samples
 - G01N 2001/381
 - • • {by membrane diffusion; Permeation tubes}
 - G01N 2001/382
 - • • {using pistons of different sections}
 - G01N 2001/383
 - • • {collecting and diluting in a flow of liquid}
 - G01N 2001/385
 - • • {diluting by adsorbing a fraction of the sample}
 - G01N 2001/386
 - • • {Other diluting or mixing processes}
 - G01N 2001/387
 - • • • {mixing by blowing a gas, bubbling}
 - G01N 2001/388
 - • • • {mixing the sample with a tracer}
- U G01N 1/40
 - • Concentrating samples
- U G01N 1/4005
 - • • {by transferring a selected component through a membrane}
 - G01N 2001/4011
 - • • • {being a ion-exchange membrane}
 - G01N 2001/4016
 - • • • {being a selective membrane, e.g. dialysis or osmosis}
- U G01N 1/4022
 - • • {by thermal techniques; Phase changes}
 - G01N 2001/4027
 - • • • {evaporation leaving a concentrated sample}
 - G01N 2001/4033
 - • • • {sample concentrated on a cold spot, e.g. condensation or distillation}
 - G01N 2001/4038
 - • • • {electric methods, e.g. electromigration, electrophoresis, ionisation}
- U G01N 1/4055
 - • • {by solubility techniques}
 - G01N 2001/4061
 - • • • {Solvent extraction}
 - G01N 2001/4066
 - • • • {using difference of solubility between liquid and gas, e.g. bubbling, scrubbing or sparging}
 - G01N 2001/4072
 - • • • {membraneless transfer of a component between two parallel laminar flows of fluid}
- U G01N 1/4077
 - • • {by other techniques involving separation of suspended solids}
 - G01N 2001/4083
 - • • • sedimentation{sedimentation}
 - G01N 2001/4088
 - • • • filtration{filtration}
 - G01N 2001/4094
 - • • • {using ultrasound}

U G01N 3/00 Investigating strength properties of solid materials by application of mechanical stress(strain gauges [G01B](#); measuring stress in general [G01L](#))

NOTE

This group covers the stressing of materials not only below but also beyond the elastic limit, e.g. until breaking occurs.

- U G01N 3/08
 - by applying steady tensile or compressive forces([G01N 3/28](#) takes precedence)
- U G01N 3/16
 - • applied through gearing([G01N 3/18](#) takes precedence)
- G01N 3/165
 - • • {generated by rotation, i.e. centrifugal force(for testing structures or apparatus ~~G01M19/00C~~[G01M 99/004](#))}
- G01N 3/60
 - Investigating resistance of materials, e.g. refractory materials, to rapid heat changes{(thermal testing of structures or apparatus ~~G01M19/00B~~[G01M 99/002](#))}
- U G01N 9/00**
Investigating density or specific gravity of materials; Analysing materials by determining density or specific gravity(weighing apparatus [G01G](#))
- U G01N 9/002
 - {using variation of the resonant frequency of an element vibrating in contact with the material submitted to analysis([G01N 9/34](#) takes precedence)}
- G01N 2009/004
 - • {comparing frequencies of two elements}
- G01N 2009/006
 - • {vibrating tube, tuning fork}
- G01N 2009/008
 - • {Schlatter vibrating vane type}
- U G01N 9/02
 - by measuring weight of a known volume
- G01N 2009/022
 - • {of solids}
- G01N 2009/024
 - • • {the volume being determined directly, e.g. by size of container}
- G01N 2009/026
 - • • {the volume being determined by amount of fluid displaced}
- G01N 2009/028
 - • • • {a gas being used as displacement fluid}
- U G01N 9/26
 - by measuring pressure differences
- G01N 2009/263
 - • {using vertically-movable pressure transducer}
- U G01N 11/00**
Investigating flow properties of materials, e.g. viscosity, plasticity; Analysing materials by determining flow properties
- G01N 2011/0006
 - {Calibrating, controlling or cleaning viscometers}
- G01N 2011/0013
 - • {Temperature compensation}
- G01N 2011/002
 - • {Controlling sample temperature; Thermal cycling during measurement}
- G01N 2011/0026
 - {Investigating specific flow properties of non-Newtonian fluids}
- G01N 2011/0033
 - • {Yield stress; Residual stress at zero shear rate}
- G01N 2011/004
 - • {Stress relaxation time}
- G01N 2011/0046
 - {In situ measurement during mixing process}
- G01N 2011/0053
 - • {using ergometry; measuring power consumption}
- G01N 2011/006
 - {Determining flow properties indirectly by measuring other parameters of the system}
- G01N 2011/0066
 - • {electrical properties}
- G01N 2011/0073
 - • {acoustic properties}
- G01N 2011/008
 - • {optical properties}
- G01N 2011/0086
 - • {magnetic properties}
- G01N 2011/0093
 - • {thermal properties}
- U G01N 11/10
 - by moving a body within the material
- U G01N 11/14
 - • by using rotary bodies, e.g. vane([G01N 11/16](#) takes precedence)
- U G01N 11/142
 - • • {Sample held between two members substantially perpendicular to axis of rotation, e.g. parallel plate viscometer}
- G01N 2011/145
 - • • • {both members rotating}
- G01N 2011/147
 - • • {Magnetic coupling}

U	G01N 13/00	Investigating surface or boundary effects, e.g. wetting power; Investigating diffusion effects; Analysing materials by determining surface, boundary, or diffusion effects(scanning-probe techniques or apparatus G01Q)
	G01N 2013/003	• {Diffusion; diffusivity between liquids}
	G01N 2013/006	• {Dissolution of tablets or the like}
U	G01N 13/02	• Investigating surface tension of liquids
	G01N 2013/0208	• • {by measuring contact angle}
	G01N 2013/0216	• • {by measuring skin friction or shear force}
	G01N 2013/0225	• • {of liquid metals or solder}
	G01N 2013/0233	• • {Langmuir troughs; thin-film balances}
	G01N 2013/0241	• • {bubble, pendant drop, sessile drop methods}
	G01N 2013/025	• • • {Measuring foam stability}
	G01N 2013/0258	• • • {Oscillating drop methods}
	G01N 2013/0266	• • • {Bubble methods}
	G01N 2013/0275	• • {involving surface-active agents}
	G01N 2013/0283	• • {methods of calculating surface tension}
	G01N 2013/0291	• • {Wilhelmy plate}
U	G01N 15/00	Investigating characteristics of particles; Investigating permeability, pore-volume, or surface-area of porous materials(identification of micro-organisms C12Q)
	G01N 2015/0003	• {Determining electric mobility, velocity profile, average speed or velocity of a plurality of particles}
	G01N 2015/0007	• {Investigating dispersion of gas}
	G01N 2015/0011	• • {in liquids, e.g. bubbles}
	G01N 2015/0015	• • {in solids}
	G01N 2015/0019	• {Means for transferring or separating particles prior to analysis, e.g hoppers or particle conveyors}
	G01N 2015/0023	• {Investigating dispersion of liquids}
	G01N 2015/0026	• • {in gas, e.g. fog}
	G01N 2015/003	• • {in liquids, e.g. emulsion}
	G01N 2015/0034	• • {in solids}
	G01N 2015/0038	• {Investigating nano particles}
	G01N 2015/0042	• {Investigating dispersion of solids}
	G01N 2015/0046	• • {in gas, e.g. smoke}
	G01N 2015/0049	• • • {of filaments in gas}
	G01N 2015/0053	• • {in liquids, e.g. trouble}
	G01N 2015/0057	• • • {of filaments in liquids}
	G01N 2015/0061	• • {in solids, e.g. petrography}
	G01N 2015/0065	• {biological, e.g. blood}
	G01N 2015/0069	• • {with lysing, e.g. of erythrocyts}
	G01N 2015/0073	• • {Red blood cells}
	G01N 2015/0076	• • • Reticulocytes { <i>Reticulocytes</i> }
	G01N 2015/008	• • {White cells}
	G01N 2015/0084	• • Platelets { <i>Platelets</i> }
	G01N 2015/0088	• • {Biological contaminants; Fouling}

- G01N 2015/0092 • {Monitoring flocculation or agglomeration}
- G01N 2015/0096 • {Investigating consistence of powders, dustability, dustiness}
- U G01N 15/02 • Investigating particle size or size distribution([G01N 15/04](#) , [G01N 15/10](#) take precedence; by measuring osmotic pressure [G01N 7/10](#) ; by filtering [B01D](#) ; by sifting [B07B](#))
- U G01N 15/0205 • • {by optical means, e.g. by light scattering, diffraction, holography or imaging}
- U G01N 15/0211 • • • {Investigating a scatter or diffraction pattern}
- G01N 2015/0216 • • • • {from fluctuations of diffraction pattern}
- G01N 2015/0222 • • • • {from dynamic light scattering, e.g. photon correlation spectroscopy}
- G01N 2015/0233 • • • {using holography}
- G01N 2015/0238 • • • {Single particle scatter}
- G01N 2015/0244 • • • {with cutting-out molecular scatter}
- G01N 2015/025 • • • {Methods for single or grouped particles}
- U G01N 15/0255 • • {with mechanical, e.g. inertial, classification, and investigation of sorted collections(with centrifuges [G01N 15/042](#))}
- G01N 2015/0261 • • • {using impactors}
- G01N 2015/0277 • • {Average size only}
- G01N 2015/0283 • • {using control of suspension concentration}
- G01N 2015/0288 • • {Sorting the particles}
- G01N 2015/0294 • • {Particle shape}
- G01N 2015/03 • {Electro-optical investigation of a plurality of particles, the analyser being characterised by the optical arrangement}
- G01N 2015/035 • • {the optical arrangement forming an integrated apparatus with the sample container}
- U G01N 15/04 • Investigating sedimentation of particle suspensions
- U G01N 15/042 • • {by centrifuging and investigating centrifugates(centrifuges per se [B04B](#))}
- G01N 2015/045 • • • {by optical analysis}
- G01N 2015/047 • • • • {by static multidetectors}
- U G01N 15/05 • • in blood
- G01N 2015/055 • • • {for hematocrite determination}
- U G01N 15/06 • Investigating concentration of particle suspensions([G01N 15/04](#) , [G01N 15/10](#) take precedence; by weighing [G01N 5/00](#))

NOTE

References listed below indicate CPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group and its subgroups:

- Investigating or analysing materials;
- by the use of optical means: [G01N 21/00](#)
, e.g. [G01N 21/47](#) , [G01N 21/90](#)
;
- by other radiations or by particles:
[G01N 23/00](#) , e.g. [G01N 23/02](#) ,
[G01N 23/01](#) ;
- by measuring impedance: [G01N 27/02](#)
, e.g. [G01N 27/06](#) , [G01N 27/22](#)
;
- by electrochemical means: [G01N 27/00](#)
, e.g. [G01N 27/26](#) , [G01N27/56B](#)
;

- by measuring absorption of sonic or ultrasonic vibrations: [G01N 29/00](#), e.g. [G01N 29/02](#)

- G01N 2015/0662 . . {Comparing before/after passage through filter}
- G01N 2015/0668 . . {Comparing properties of sample and carrier fluid, e.g. oil in water}
- G01N 2015/0675 . . {Comparing suspension before/after dilution}
- G01N 2015/0681 . . {Purposely modifying particles, e.g. humidifying for growing}
- G01N 2015/0687 . . {in solutions, e.g. non volatile residue}
- G01N 2015/0693 . . {by optical means, e.g. by integrated nephelometry}
- U G01N 15/08 . Investigating permeability, pore-volume, or surface area of porous materials
- G01N 2015/0813 . . {Measuring intrusion, e.g. of mercury}
- G01N 2015/0833 . . {Pore surface area}
- G01N 2015/084 . . {Testing filters}
- G01N 2015/0846 . . {by use of radiation, e.g. transmitted or reflected light}
- G01N 2015/0853 . . {by electrical capacitance measurement}
- G01N 2015/086 . . {of films, membranes or pellicules}
- G01N 2015/0866 . . Sorption{Sorption}
- G01N 2015/0873 . . . {Dynamic sorption, e.g. with flow control means}
- U G01N 15/10 . Investigating individual particles
- G01N 2015/1006 . . {for cytology}
- U G01N 15/1012 . . {Calibrating particle analysers; References therefor}
- G01N 2015/1018 . . . {Constitution of reference particles}
- G01N 2015/1025 . . . {Particle flow simulating, e.g. liquid crystal cell}
- G01N 2015/1037 . . {Associating coulter-counter and optical flow cytometer (OFC)}
- G01N 2015/1043 . . {Measuring mass of individual particles}
- G01N 2015/105 . . {Other than optical measurement of deformation of individual particles(optical measurement [G01N 2015/1495](#))}
- G01N 2015/1062 . . {counting the particles by other than electro-optical means(by electro-optical means [G01N 2015/1486](#))}
- G01N 2015/1068 . . {Recognizing failure of the analyser, e.g. bubbles; Quality control for particle analysers}
- G01N 2015/1075 . . {Determining speed or velocity of a particle}
- G01N 2015/1081 . . {Sorting the particles}
- G01N 2015/1087 . . {Particle size}
- G01N 2015/1093 . . {Particle shape}
- U G01N 15/12 . . Coulter-counters
- U G01N 15/1209 . . . {Details}
- G01N 2015/1236 {Flow forming}
- G01N 2015/1254 . . . Electrodes{Electrodes}
- G01N 2015/1263 {Scanning electrodes}
- G01N 2015/1272 . . . Cleaning{Cleaning}
- G01N 2015/1281 . . . {Detecting blocking debris}
- G01N 2015/129 . . . {measuring the ratio of AC/DC impedances}
- U G01N 15/14 . . Electro-optical investigation, e.g. flow cytometers
- G01N 2015/1402 . . . {Data analysis by thresholding or gating operations performed on the acquired signals or stored data}

- U G01N 15/1404 . . . {Fluid conditioning in flow cytometers, e.g. flow cells; Supply; Control of flow}
- G01N 2015/1406 . . . {Control of droplet point}
- G01N 2015/1409 . . . {Control of supply of sheaths fluid, e.g. sample injection control}
- G01N 2015/1411 . . . {Features of sheaths fluids}
- G01N 2015/1413 . . . {Hydrodynamic focussing}
- G01N 2015/1415 . . . {Control of particle position}
- G01N 2015/1418 . . . {Eliminating clogging of debris}
- G01N 2015/142 . . . {Acoustic or ultrasonic focussing}
- G01N 2015/1422 . . . {Electrical focussing}
- U G01N 15/1434 . . . {using an analyser being characterised by its optical arrangement}
- G01N 2015/1438 . . . {Using two lasers in succession}
- G01N 2015/144 . . . {Imaging characterised by its optical setup}
- G01N 2015/1443 . . . {Auxiliary imaging}
- G01N 2015/1445 . . . {Three-dimensional imaging, imaging in different image planes, e.g. under different angles or at different depths, e.g. by a relative motion of sample and detector, for instance by tomography}
- G01N 2015/1447 . . . {Spatial selection}
- G01N 2015/145 . . . {by pattern of light, e.g. fringe pattern}
- G01N 2015/1452 . . . {Adjustment of focus; Alignment}
- G01N 2015/1454 . . . {using phase shift or interference, e.g. for improving contrast}
- U G01N 15/1456 . . . {without spatial resolution of the texture or inner structure of the particle, e.g. processing of pulse signals}
- G01N 2015/1461 . . . {Coincidence detecting; Circuits therefor}
- U G01N 15/1463 . . . {using image analysis for extracting features of the particle}

NOTE

References listed below indicate CPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

- counting objects disposed at random with size distinction [G06M 11/04](#)
- extraction of features from image for pattern recognition [G06K 9/46](#)
- specific image analysis method for the recognition of microscopic objects [G06K 9/00127](#)
- image enhancement in general [G06T 5/00](#)
- image analysis in general [G06T 7/00](#)

- G01N 2015/1465 . . . {image analysis on colour image}

- U G01N 15/1468
- • • {with spatial resolution of the texture or inner structure of the particle}
 { Informative Note References listed below indicate CPC places which could also be interest when carrying out a search in respect of the subject matter covered by the preceding group: -counting objects disposed at random with size distinction [G06M 11/04](#) -extraction of features from image for pattern recognition [G06K 9/46](#) -specific image analysis method for the recognition of microscopic objects [G06K 9/00127](#) -image enhancement in general [G06T 5/00](#) -image analysis in general [G06T 7/00](#) }
- NOTE
- References listed below indicate CPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:
- counting objects disposed at random with size distinction [G06M 11/04](#)
 - extraction of features from image for pattern recognition [G06K 9/46](#)
 - image enhancement [G06T 5/00](#)
 - image analysis [G06T 7/00](#)
- G01N 2015/1472
- • • • {with colour}
- G01N 2015/1477
- • • **Multiparameters**{*Multiparameters*}
- G01N 2015/1479
- • • • {Using diffuse illumination or excitation}
- G01N 2015/1481
- • • {Optical analysis of particle in droplet}
- G01N 2015/1486
- • • {Counting the particles}
- G01N 2015/1488
- • • {Methods for deciding}
- G01N 2015/149
- • • {Sorting the particles}
- G01N 2015/1493
- • • {Particle size}
- G01N 2015/1495
- • • • {Deformation of particles}
- G01N 2015/1497
- • • {Particle shape}
- U G01N 21/00
- Investigating or analysing materials by the use of optical means, i.e. using infra-red, visible, or ultra-violet light([G01N 3/00](#) to [G01N 19/00](#) take precedence; measuring stress in general [G01L 1/00](#) ; optical elements of measuring instruments [G02B](#))**
- NOTE
- This group does not cover the investigation of spectral properties of light per se, or measurements of the properties of materials where spectral properties of light are sensed and primary emphasis is placed on creating, detecting or analysing the spectrum providing that the properties of the materials to be investigated are of minor importance (see also Note (4) after the title of class [G01](#)). Those subjects are covered by group [G01J 3/00](#) .
- U G01N 21/01
- Arrangements or apparatus for facilitating the optical investigation
- G01N 2021/0106
- • {General arrangement of respective parts}
- G01N 2021/0112
- • • {Apparatus in one mechanical, optical or electronic block}
- G01N 2021/0118
- • • {Apparatus with remote processing}
- G01N 2021/0125
- • • • {with stored program or instructions}
- G01N 2021/0131
- • • • • {being externally stored}
- G01N 2021/0137
- • • • {with PC or the like}
- G01N 2021/0143
- • • • {with internal and external computer}
- G01N 2021/015
- • • {Apparatus with interchangeable optical heads or interchangeable block of optics and detector}

	G01N 2021/0156	• • • {with optics only in separate head, e.g. connection by optical fibres}
	G01N 2021/0162	• • {using microprocessors for control of a sequence of operations, e.g. test, powering, switching, processing}
	G01N 2021/0168	• • • {for the measurement cycle}
	G01N 2021/0175	• • • {for selecting operating means}
	G01N 2021/0181	• • {Memory or computer-assisted visual determination}
	G01N 2021/0187	• • {Mechanical sequence of operations}
	G01N 2021/0193	• • {the sample being taken from a stream or flow to the measurement cell}
U	G01N 21/03	• • Cuvette constructions
U	G01N 21/0303	• • • {Optical path conditioning in cuvettes, e.g. windows; adapted optical elements or systems; path modifying or adjustment(G01N 21/031 to G01N 21/15 take precedence)}
	G01N 2021/0307	• • • • {Insert part in cell}
U	G01N 21/031	• • • {Multipass arrangements}
	G01N 2021/0314	• • • • {Double pass, autocollimated path}
	G01N 2021/0321	• • • • {One time use cells, e.g. integrally moulded}
	G01N 2021/0325	• • • • {Cells for testing reactions, e.g. containing reagents}
	G01N 2021/0328	• • • • {Arrangement of two or more cells having different functions for the measurement of reactions}
U	G01N 21/0332	• • • {with temperature control(control of temperature G05D 23/00 ; cryostats F17C 3/08)}
	G01N 2021/0335	• • • • {Refrigeration of cells; Cold stages}
	G01N 2021/0339	• • • • {Holders for solids, powders}
	G01N 2021/0342	• • • • {Solid sample being immersed, e.g. equiindex fluid}
	G01N 2021/0346	• • • • {Capillary cells; Microcells}
	G01N 2021/035	• • • • {Supports for sample drops}
	G01N 2021/0353	• • • • • {Conveyer of successive sample drops}
	G01N 2021/0357	• • • • {Sets of cuvettes}
	G01N 2021/036	• • • • {transformable, modifiable}
	G01N 2021/0364	• • • • {flexible, compressible}
	G01N 2021/0367	• • • • {Supports of cells, e.g. pivotable}
	G01N 2021/0371	• • • • {Supports combined with sample intake}
	G01N 2021/0375	• • • • • {Slidable cells}
	G01N 2021/0378	• • • • Shapes {Shapes}
	G01N 2021/0382	• • • • • {Frustoconical, tapered cell}
	G01N 2021/0385	• • • • {Diffusing membrane; Semipermeable membrane}
	G01N 2021/0389	• • • • Windows {Windows}
	G01N 2021/0392	• • • • • {Nonplanar windows}
	G01N 2021/0396	• • • • • {Oblique incidence}
U	G01N 21/05	• • • • Flow-through cuvettes(G01N 21/09 takes precedence; handling fluid samples G01N 1/10)
	G01N 2021/052	• • • • • {Tubular type; cavity type; multireflective}
	G01N 2021/054	• • • • • {Bubble trap; Debubbling}
	G01N 2021/056	• • • • • {Laminated construction}
	G01N 2021/058	• • • • • {Flat flow cell}
U	G01N 21/11	• • Filling or emptying of cuvettes

- G01N 2021/115
 - • • {Washing; Purging}
- U G01N 21/13
 - • Moving of cuvettes or solid samples to or from the investigating station{ handling materials for automatic analysis [G01N 35/00](#) }
- G01N 2021/135
 - • • {Sample holder displaceable(in automatised apparatus [G01N 35/02](#))}
- U G01N 21/15
 - • Preventing contamination of the components of the optical system or obstruction of the light path
- G01N 2021/151
 - • • {Gas blown}
- G01N 2021/152
 - • • {Scraping; Brushing; Moving band}
- G01N 2021/154
 - • • {Ultrasonic cleaning}
- G01N 2021/155
 - • • {Monitoring cleanness of window, lens, or other parts}
- G01N 2021/157
 - • • • {Monitoring by optical means}
- G01N 2021/158
 - • • {Eliminating condensation}
- U G01N 21/17
 - Systems in which incident light is modified in accordance with the properties of the material investigated(where the material investigated is optically excited causing a change in wavelength of the incident light [G01N 21/63](#))
- U G01N 21/1702
 - • {with opto-acoustic detection, e.g. for gases or analysing solids}
- G01N 2021/1704
 - • • {in gases}
- G01N 2021/1706
 - • • {in solids}
- G01N 2021/1708
 - • • {with piezotransducers(probes for investigating or analysing materials by the use of ultrasonic, sonic or infrasonic waves [G01N 29/24](#))}
- U G01N 21/171
 - • {with calorimetric detection, e.g. with thermal lens detection}
- G01N 2021/1712
 - • • {Thermal lens, mirage effect}
- G01N 2021/1714
 - • • {Photothermal radiometry with measurement of emission}
- U G01N 21/1717
 - • {with a modulation of one or more physical properties of the sample during the optical investigation, e.g. electro-reflectance}
- G01N 2021/1719
 - • • {Carrier modulation in semiconductors}
- G01N 2021/1721
 - • • ~~Electromodulation~~{~~Electromodulation~~}
- G01N 2021/1723
 - • • {Fluid modulation}
- G01N 2021/1725
 - • • {Modulation of properties by light, e.g. photorefectance}
- G01N 2021/1727
 - • • ~~Magnetomodulation~~{~~Magnetomodulation~~}
- G01N 2021/1729
 - • • ~~Piezomodulation~~{~~Piezomodulation~~}
- G01N 2021/1731
 - • • {Temperature modulation}
- G01N 2021/1734
 - • {Sequential different kinds of measurements; Combining two or more methods}
- G01N 2021/1736
 - • • {with two or more light sources}
- G01N 2021/1738
 - • {Optionally different kinds of measurements; Method being valid for different kinds of measurement}
- G01N 2021/174
 - • • {either absorption-reflection or emission-fluorescence}
- G01N 2021/1742
 - • • {either absorption or reflection}
- G01N 2021/1744
 - • • {either absorption or scatter}
- G01N 2021/1746
 - • {Method using tracers}
- G01N 2021/1748
 - • {Comparative step being essential in the method}
- G01N 2021/1751
 - • • {Constructive features therefore, e.g. using two measurement cells}
- G01N 2021/1753
 - • • • {and using two light sources}
- G01N 2021/1755
 - • • • {and using two apparatus or two probes}

- G01N 2021/1757
 - • {Time modulation of light being essential to the method of light modification, e.g. using single detector(~~circuits for photometry with modulation, using one detector S01J1/44M~~ *circuits for photometry with modulation, using one detector G01J 1/44*)}
- G01N 2021/1759
 - • • {Jittering, dithering, optical path modulation}
- G01N 2021/1761
 - • {A physical transformation being implied in the method, e.g. a phase change}
- G01N 2021/1763
 - • • {Gas to liquid phase change}
- G01N 2021/1765
 - • {Method using an image detector and processing of image signal}
- G01N 2021/1768
 - • • {using photographic film}
- G01N 2021/177
 - • • {Detector of the video camera type}
- G01N 2021/1772
 - • • • {Array detector}
- G01N 2021/1774
 - • • • • {Line array detector}
- G01N 2021/1776
 - • • • {Colour camera}
- G01N 2021/1778
 - • • • {IIT [intensified image tube]}
- G01N 2021/178
 - • {Methods for obtaining spatial resolution of the property being measured}
- G01N 2021/1782
 - • • {In-depth resolution}
- G01N 2021/1785
 - • • {Three dimensional}
- G01N 2021/1787
 - • • • {Tomographic, i.e. computerised reconstruction from projective measurements}
- G01N 2021/1789
 - • {Time resolved}
- G01N 2021/1791
 - • • {stroboscopic; pulse gated; time range gated}
- G01N 2021/1793
 - • {Remote sensing}
- G01N 2021/1795
 - • • {Atmospheric mapping of gases}
- G01N 2021/1797
 - • • {in landscape, e.g. crops}
- U G01N 21/21
 - • Polarisation-affecting properties([G01N 21/19](#) takes precedence)
- U G01N 21/211
 - • • {Ellipsometry(optical thickness measurement [G01B 11/06](#))}
- G01N 2021/212
 - • • • {Arrangement with total internal reflection}
- G01N 2021/213
 - • • • {Spectrometric ellipsometry}
- G01N 2021/214
 - • • • {Variangle incidence arrangement}
- G01N 2021/215
 - • • • {Brewster incidence arrangement}
- G01N 2021/216
 - • • {using circular polarised light}
- G01N 2021/217
 - • • {Measuring depolarisation or comparing polarised and depolarised parts of light}
- G01N 2021/218
 - • • {Measuring properties of electrooptical or magneto-optical media}
- U G01N 21/25
 - • Colour; Spectral properties, i.e. comparison of effect of material on the light at two or more different wavelengths or wavelength bands
- G01N 2021/258
 - • • {Surface plasmon spectroscopy, e.g. micro- or nano- particles in suspension}
- U G01N 21/29
 - • • using visual detection([G01N 21/31](#) takes precedence)
- G01N 2021/296
 - • • • {Visually measuring scintillation effect}
- U G01N 21/31
 - • • Investigating relative effect of material at wavelengths characteristic of specific elements or molecules, e.g. atomic absorption spectrometry({ [G01N 21/72](#) takes precedence })
- U G01N 21/3103
 - • • • {Atomic absorption analysis}
- G01N 2021/3107
 - • • • • {Cold vapor, e.g. determination of Hg}
- G01N 2021/3111
 - • • • • {using Zeeman split}

- G01N 2021/3114 {Multi-element AAS arrangements}
- G01N 2021/3118 {Commutating sources, e.g. line source/broad source, chopping for comparison of broad/narrow regimes}
- G01N 2021/3122 {using a broad source with a monochromator}
- G01N 2021/3125 {Measuring the absorption by excited molecules}
- G01N 2021/3129 {Determining multicomponents by multiwavelength light}
- G01N 2021/3133 {with selection of wavelengths before the sample}
- G01N 2021/3137 {with selection of wavelengths after the sample}
- U G01N 21/314 {with comparison of measurements at specific and non-specific wavelengths(dual wavelength spectrometry [G01J 3/427](#))}
- G01N 2021/3144 {for oxymetry}
- G01N 2021/3148 {using three or more wavelengths}
- G01N 2021/3155 {Measuring in two spectral ranges, e.g. UV and visible}
- G01N 2021/3159 {Special features of multiplexing circuits}
- G01N 2021/3162 {with offset adjustment between filters}
- G01N 2021/3166 {using separate detectors and filters}
- G01N 2021/317 {Special constructive features}
- G01N 2021/3174 {Filter wheel}
- G01N 2021/3177 {Use of spatially separated filters in simultaneous way}
- G01N 2021/3181 {using LEDs}
- G01N 2021/3185 {typically monochromatic or band-limited}
- G01N 2021/3188 {band-limited}
- G01N 2021/3192 {Absorption edge variation is measured}
- G01N 2021/3196 {Correlating located peaks in spectrum with reference data, e.g. fingerprint data}
- U G01N 21/33 using ultra-violet light([G01N 21/39](#) takes precedence)
- G01N 2021/335 {Vacuum UV}
- U G01N 21/35 using infra-red light([G01N 21/39](#) takes precedence)
- U G01N 21/3504 {for analysing gases, e.g. multigases analysis}
- G01N 2021/3509 {Correlation method, e.g. one beam alternating in correlator/sample field}
- G01N 2021/3513 {Open path with an instrumental source}
- U G01N 21/3518 {Devices using the gas filter correlation method including the radiometric type, i.e. without instrumental source; Devices using gas pressure modulation method}
- G01N 2021/3522 {balancing by two filters on two detectors}
- G01N 2021/3527 {and using one filter cell as attenuator}
- G01N 2021/3531 {without instrumental source, i.e. radiometric}
- G01N 2021/3536 {using modulation of pressure or density}
- G01N 2021/354 {Hygrometry of gases}
- G01N 2021/3545 {Disposition for compensating effect of interfering gases}
- G01N 2021/355 {by using a third optical path, e.g. interference cuvette}
- U G01N 21/3563 {for analysing solids; preparation of samples therefor(sampling or preparing specimen for investigation in general [G01N 1/00](#))}
- G01N 2021/3568 {applied to semiconductors, e.g. Silicon}
- G01N 2021/3572 {Preparation of samples, e.g. salt matrices}

- G01N 2021/3595 {using FTIR}
- U G01N 21/39 using tunable lasers
- G01N 2021/391 {Intracavity sample}
- G01N 2021/392 {Measuring reradiation, e.g. fluorescence, backscatter}
- G01N 2021/393 {and using a spectral variation of the interaction of the laser beam and the sample}
- G01N 2021/394 {DIAL method}
- G01N 2021/395 {using a topographic target}
- G01N 2021/396 {Type of laser source}
- G01N 2021/397 {Dye laser}
- G01N 2021/398 {CO2 laser}
- G01N 2021/399 {Diode laser}
- U G01N 21/41 Refractivity; Phase-affecting properties, e.g. optical path length([G01N 21/21](#) takes precedence)
- G01N 2021/4106 . . . {Atmospheric distortion; Turbulence}
- G01N 2021/4113 . . . {Atmospheric dispersion}
- G01N 2021/4126 . . . {Index of thin films}
- U G01N 21/4133 . . . {Refractometers, e.g. differential}
- G01N 2021/414 {Correcting temperature effect in refractometers}
- G01N 2021/4146 {Differential cell arrangements}
- G01N 2021/4153 {Measuring the deflection of light in refractometers}
- G01N 2021/416 {Visualising flow by index measurement}
- G01N 2021/4166 {Methods effecting a waveguide mode enhancement through the property being measured}
- G01N 2021/4173 . . . {Phase distribution}
- G01N 2021/418 {Frequency/phase diagrams}
- G01N 2021/4186 {Phase modulation imaging}
- G01N 2021/4193 {using a PSD}
- U G01N 21/43 by measuring critical angle
- U G01N 21/431 {Dip refractometers, e.g. using optical fibres}
- G01N 2021/432 {comprising optical fibres}
- G01N 2021/433 {with an unclad part on the fibre}
- G01N 2021/434 {Dipping block in contact with sample, e.g. prism}
- G01N 2021/435 {Sensing drops on the contact surface}
- G01N 2021/436 {Sensing resonant reflection}
- G01N 2021/437 {with investigation of angle}
- G01N 2021/438 {with investigation of wavelength}
- U G01N 21/45 using interferometric methods; using Schlieren methods
- G01N 2021/451 {for determining the optical absorption}
- G01N 2021/456 {Moire deflectometry}
- G01N 2021/458 {using interferential sensor, e.g. sensor fibre, possibly on optical waveguide}
- U G01N 21/47 Scattering, i.e. diffuse reflection([G01N 21/25](#) , [G01N 21/41](#) take precedence){ [G01N 21/55](#) takes precedence }
- G01N 2021/4702 . . . {Global scatter; Total scatter, excluding reflections}

- G01N 2021/4704 . . . {Angular selective}
- G01N 2021/4707 {Forward scatter; Low angle scatter}
- G01N 2021/4709 Backscatter{Backscatter}
- G01N 2021/4711 {Multiangle measurement}
- G01N 2021/4714 {Continuous plural angles}
- G01N 2021/4716 {Using a ring of sensors, or a combination of diaphragm and sensors; Annular sensor}
- G01N 2021/4719 {using a optical fibre array}
- G01N 2021/4721 {using a PSD}
- G01N 2021/4723 {Scanning scatter angles}
- G01N 2021/4726 {Detecting scatter at 90°}
- G01N 2021/4728 {Optical definition of scattering volume}
- G01N 2021/473 . . . {Compensating for unwanted scatter, e.g. reliefs, marks}
- G01N 2021/4733 . . . {Discriminating different types of scatterers}
- G01N 2021/4735 . . . {Solid samples, e.g. paper, glass}
- U G01N 21/4738 . . . {Diffuse reflection(precedence is given to [G01N 21/55](#) - [G01N 21/57](#) if specular component is taken into consideration), e.g. also for testing fluids, fibrous materials}
- U G01N 21/474 {Details of optical heads therefor, e.g. using optical fibres}
- G01N 2021/4742 {comprising optical fibres}
- G01N 2021/4745 {Fused bundle, i.e. for backscatter}
- G01N 2021/4747 {Concentric bundles}
- G01N 2021/475 {Bifurcated bundle}
- G01N 2021/4752 Geometry{Geometry}
- G01N 2021/4754 {Diffuse illumination}
- G01N 2021/4757 {Geometry 0/45° or 45/0°}
- G01N 2021/4759 {Annular illumination}
- G01N 2021/4761 {Mirror arrangements, e.g. in IR range}
- G01N 2021/4764 {Special kinds of physical applications}
- G01N 2021/4766 {Sample containing fluorescent brighteners}
- G01N 2021/4769 {Fluid samples, e.g. slurries, granulates; Compressible powdery of fibrous samples}
- G01N 2021/4771 {Matte surfaces with reflecting particles}
- G01N 2021/4773 {Partly or totally translucent samples}
- G01N 2021/4776 {Miscellaneous in diffuse reflection devices}
- G01N 2021/4778 {Correcting variations in front distance}
- G01N 2021/478 {Application in testing analytical test strips}
- G01N 2021/4783 {Examining under varying incidence; Angularly adjustable head}
- U G01N 21/4788 . . . {Diffraction(for sizing particles [G01N 15/0205](#))}
- G01N 2021/479 Speckle{Speckle}
- G01N 2021/4792 . . . {Polarisation of scatter light}
- U G01N 21/4795 . . . {spatially resolved investigating of object in scattering medium(in vivo [A61B](#))}
- G01N 2021/4797 {time resolved, e.g. analysis of ballistic photons}
- U G01N 21/49 . . . within a body or fluid

- G01N 2021/495 {the fluid being adsorbed, e.g. in porous medium}
- U G01N 21/51 inside a container, e.g. in an ampoule([G01N 21/53](#) takes precedence; checking containers for cleanliness [B08B 9/46](#))
- G01N 2021/513 {Cuvettes for scattering measurements}
- G01N 2021/516 {Multiple excitation of scattering medium, e.g. by retro-reflected or multiply reflected excitation rays}
- U G01N 21/53 within a flowing fluid, e.g. smoke(alarm devices actuated by smoke [G08B 17/10](#))
- U G01N 21/534 {by measuring transmission alone, i.e. determining opacity}
- G01N 2021/536 {Measurement device mounted at stack}
- U G01N 21/55 . . . Specular reflectivity
- G01N 2021/551 . . . **Retroreflectance**{**Retroreflectance**}
- G01N 2021/555 . . . {Measuring total reflection power, i.e. scattering and specular}
- G01N 2021/556 . . . {Measuring separately scattering and specular}
- G01N 2021/557 . . . {Detecting specular reflective parts on sample}
- G01N 2021/558 . . . {Measuring reflectivity and transmission}
- G01N 2021/559 . . . {Determining variation of specular reflection within diffusively reflecting sample}
- U G01N 21/57 . . . Measuring gloss
- G01N 2021/575 **Photogoniometering**{**Photogoniometering**}
- U G01N 21/59 . . . Transmissivity([G01N 21/25](#) takes precedence)
- G01N 2021/5903 . . . {using surface plasmon resonance [SPR], e.g. extraordinary optical transmission [EOT]}
- U G01N 21/5907 . . . {Densitometers}
- G01N 2021/5915 {Processing scan data in densitometry}
- G01N 2021/5919 {Determining total density of a zone}
- G01N 2021/5923 {Determining zones of density; quantitating spots}
- G01N 2021/5926 **Isodensitometers**{**Isodensitometers**}
- G01N 2021/593 {Correcting from the background density}
- G01N 2021/5934 {Averaging on a zone}
- G01N 2021/5938 {Features of monitor, display}
- G01N 2021/5942 {for dot area ratio in printing applications}
- G01N 2021/5946 {for binary signal}
- G01N 2021/5949 {Correcting nonlinearity of signal, e.g. in measurement of photomedium}
- G01N 2021/5953 {for detecting a spatial spectrum}
- G01N 2021/5957 {using an image detector type detector, e.g. CCD}
- G01N 2021/5961 {using arrays of sources and detectors}
- G01N 2021/5965 {using selected detectors in an array}
- G01N 2021/5969 {Scanning of a tube, a cuvette, a volume of sample}
- G01N 2021/5973 {where the cuvette or tube is moved}
- G01N 2021/5976 {Image projected and scanning projected image}
- G01N 2021/598 {Features of mounting, adjusting}
- G01N 2021/5984 {height adjustable}
- G01N 2021/5988 {Fluid mounting or the like, e.g. vortex}
- G01N 2021/5992 {Double pass}

- G01N 2021/5996 {Positioning the head}
- U G01N 21/62 . Systems in which the material investigated is excited whereby it emits light or causes a change in wavelength of the incident light
- G01N 2021/625 . . {Excitation by energised particles such as metastable molecules}
- U G01N 21/63 . . optically excited
- U G01N 21/631 . . . {using photolysis and investigating photolysed fragments}
- G01N 2021/632 {Predissociation, e.g. for fluorescence of transient excited radicals}
- G01N 2021/633 . . . {Photoinduced grating used for analysis}
- G01N 2021/634 . . . {Photochromic material analysis}
- G01N 2021/635 . . . {Photosynthetic material analysis, e.g. chlorophyll}
- U G01N 21/636 . . . {using an arrangement of pump beam and probe beam; using the measurement of optical non-linear properties; (non-linear optics per se [G02F 1/35](#))}
- G01N 2021/637 {Lasing effect used for analysis}
- G01N 2021/638 {Brillouin effect, e.g. stimulated Brillouin effect}
- U G01N 21/64 . . . Fluorescence; Phosphorescence
- U G01N 21/6402 {Atomic fluorescence; Laser induced fluorescence}
- U G01N 21/6404 {Atomic fluorescence}
- G01N 2021/6406 {multi-element}
- U G01N 21/6408 {with measurement of decay time, time resolved fluorescence}
- G01N 2021/641 {Phosphorimetry, gated}
- G01N 2021/6413 {Distinction short and delayed fluorescence or phosphorescence}
- G01N 2021/6415 {with two excitations, e.g. strong pump/probe flash}
- G01N 2021/6417 {Spectrofluorimetric devices}
- G01N 2021/6419 {Excitation at two or more wavelengths}
- G01N 2021/6421 {Measuring at two or more wavelengths}
- G01N 2021/6423 {Spectral mapping, video display}
- G01N 2021/6426 {Determining Fraunhofer lines}
- U G01N 21/6428 {Measuring fluorescence of fluorescent products of reactions or of fluorochrome labelled reactive substances, e.g. measuring quenching effects, using measuring "optrodes" (in vivo [A61B 5/00](#) ; immunoassay [G01N 33/53](#))}
- G01N 21/643 {non-biological material}
- WARNING
Not complete, see [G01N 21/64-HG01N21/64H](#)
- G01N 2021/6432 [Quenching](#){[Quenching](#)}
- G01N 2021/6434 [Optrodes](#){[Optrodes](#)}
- G01N 2021/6436 {for analysing tapes}
- G01N 2021/6439 {with indicators, stains, dyes, tags, labels, marks}
- G01N 2021/6441 {with two or more labels}
- G01N 2021/6443 {Fluorimetric titration}
- G01N 21/645 {Specially adapted constructive features of fluorimeters}
- WARNING
Not complete, see also [G01N 21/6428](#) to [G01N 21/64-MG01N21/64M](#)

- U G01N 21/6452 {Individual samples arranged in a regular 2D-array, e.g. multiwell plates}
WARNING
 Not complete, see also [G01N 21/6428](#) to [G01N 21/645](#) and [G01N 21/253](#)
- G01N 21/6454 {using an integrated detector array}
NOTE
 Not complete, see [G01N 21/64 P](#) [G01N21/64P](#)
- G01N 21/6456 {Spatial resolved fluorescence measurements; Imaging}
WARNING
 Not complete, see also [G01N 21/6428](#) to [G01N 21/64 M](#) [G01N21/64M](#)
- G01N 21/6458 {Fluorescence microscopy(fluorescence microscopes per se [G02B 21/0076](#) and [G02B 21/16](#))}
WARNING
 Not complete, see also [G01N 21/6428](#) to [G01N 21/64 M](#) [G01N21/64M](#)
- G01N 2021/646 {Detecting fluorescent inhomogeneities at a position, e.g. for detecting defects}
- G01N 2021/6463 [Optics](#) [{Optics}](#)
- G01N 2021/6465 {Angular discrimination}
- G01N 2021/6467 {Axial flow and illumination}
- G01N 2021/6469 {Cavity, e.g. ellipsoid}
- G01N 2021/6471 {Special filters, filter wheel}
- G01N 2021/6473 {In-line geometry}
- G01N 2021/6476 {Front end, i.e. backscatter, geometry}
- G01N 2021/6478 {Special lenses}
- G01N 21/648 {using evanescent coupling or surface plasmon coupling for the excitation of fluorescence}
WARNING
 Not complete, see also [G01N 21/553](#) and [G01N 21/64 H](#) [G01N21/64H](#)
- G01N 2021/6482 {Sample cells, cuvettes}
- G01N 2021/6484 {Optical fibres}
- G01N 21/6486 {Measuring fluorescence of biological material, e.g. DNA, RNA, cells([G01N 21/6428](#) takes precedence)}
WARNING
 Not complete, see also [G01N 21/6428](#) to [G01N 21/64 M](#) [G01N21/64M](#)
- G01N 2021/6491 {Measuring fluorescence and transmission; Correcting inner filter effect}
- G01N 2021/6493 {by alternating fluorescence/transmission or fluorescence/reflection}
- G01N 2021/6495 {Miscellaneous methods}
- G01N 2021/6497 {Miscellaneous applications}
- U G01N 21/65 . . . Raman scattering
- G01N 2021/651 {Cuvettes therefore}
- G01N 2021/653 {Coherent methods (CARS)}
- G01N 2021/655 {Stimulated Raman}

- G01N 2021/656 {Raman microprobe}
- U G01N 21/66 . . electrically excited, e.g. electroluminescence
- U G01N 21/69 . . . specially adapted for fluids{e.g. molten metal}
- G01N 2021/695 {Molten metals}
- U G01N 21/71 . . thermally excited
- G01N 2021/712 . . . {using formation of volatile hydride}
- U G01N 21/72 . . . using flame burners
- G01N 2021/725 {for determining of metalloids, using Beilstein type reaction}
- U G01N 21/74 . . . using flameless atomising, e.g. graphite furnaces
- G01N 2021/745 {Control of temperature, heating, ashing}
- U G01N 21/75 . Systems in which material is subjected to a chemical reaction, the progress or the result of the reaction being investigated(systems in which material is burnt in a flame or plasma [G01N 21/72](#) , [G01N 21/73](#))
- G01N 2021/751 . . {Comparing reactive/non reactive substances}
- G01N 2021/752 . . {Devices comprising reaction zones}
- G01N 2021/754 . . {Reagent flow and intermittent injection of sample or vice-versa}
- G01N 2021/755 . . {Comparing readings with/without reagents, or before/after reaction}
- G01N 2021/757 . . {using immobilised reagents}
- G01N 2021/758 . . {using reversible reaction}
- U G01N 21/77 . . by observing the effect on a chemical indicator
- U G01N 21/7703 . . . {using reagent-clad optical fibres or optical waveguides(using measurement of total internal reflection or attenuated total reflection [G01N 21/552](#) ; optical fibres or waveguides per se [G02B](#))}
- G01N 2021/7706 {Reagent provision}
- G01N 2021/7709 {Distributed reagent, e.g. over length of guide}
- G01N 2021/7713 {in core}
- G01N 2021/7716 {in cladding}
- G01N 2021/772 {Tip coated light guide}
- G01N 2021/7723 {Swelling part, also for adsorption sensor, i.e. without chemical reaction}
- G01N 2021/7726 {Porous glass}
- G01N 2021/773 {Porous polymer jacket; Polymer matrix with indicator}
- G01N 2021/7733 {Reservoir, liquid reagent}
- G01N 2021/7736 {exposed, cladding free}
- G01N 2021/775 . . . {Indicator and selective membrane}
- G01N 2021/7753 . . . {Reagent layer on photoelectrical transducer}
- G01N 2021/7756 . . . {Sensor type}
- G01N 2021/7759 . . . {Dipstick; Test strip}
- G01N 2021/7763 . . . {Sample through flow}
- G01N 2021/7766 . . . {Capillary fill}
- G01N 2021/7769 . . . {Measurement method of reaction-produced change in sensor}
- G01N 2021/7773 Reflection{Reflection}
- G01N 2021/7776 Index{Index}
- G01N 2021/7779 interferometric{interferometric}
- G01N 2021/7783 {Transmission, loss}

- G01N 2021/7786 Fluorescence{Fluorescence}
- G01N 2021/7789 {Cavity or resonator}
- G01N 2021/7793 {Sensor comprising plural indicators}
- G01N 2021/7796 {Special mountings, packaging of indicators}
- U G01N 21/78 producing a change of colour
- G01N 2021/786 {with auxiliary heating for reaction}
- U G01N 21/82 producing a precipitate or turbidity
- G01N 2021/825 Agglutination{Agglutination}
- U G01N 21/84 Systems specially adapted for particular applications
- G01N 2021/8405 {Application to two-phase or mixed materials, e.g. gas dissolved in liquids}
- G01N 2021/8411 {Application to online plant, process monitoring}
- G01N 2021/8416 {and process controlling, not otherwise provided for}
- U G01N 21/8422 {Investigating thin films, e.g. matrix isolation method}
- G01N 2021/8427 Coatings{Coatings}
- G01N 2021/8433 {Comparing coated/uncoated parts}
- G01N 2021/8438 Multilayers{Multilayers}
- G01N 2021/8444 {Fibrous material}
- G01N 2021/845 {Objects on a conveyer}
- G01N 2021/8455 {and using position detectors}
- G01N 2021/8461 {Investigating impurities in semiconductor, e.g. Silicon}
- G01N 2021/8466 {Investigation of vegetal material, e.g. leaves, plants, fruits}
- G01N 2021/8472 {Investigation of composite materials}
- G01N 2021/8477 {Investigating crystals, e.g. liquid crystals}
- U G01N 21/8483 {Investigating reagent band(test-element handling not specific to a test method [G01N 33/4875](#) ; analytical elements specific to chemical analysis of biological material [G01N 33/52](#) ; autometer with reagent band [G01N 35/04](#))}
- G01N 2021/8488 {the band presenting reference patches}
- G01N 2021/8494 {Measuring or storing parameters of the band}
- U G01N 21/85 Investigating moving fluids or granular solids
- U G01N 21/8507 {Probe photometers, i.e. with optical measuring part dipped into fluid sample}
- G01N 2021/8514 {with immersed mirror}
- G01N 2021/8521 {with a combination mirror cell-cuvette}
- G01N 2021/8528 {Immersed light conductor}
- G01N 2021/8535 {presenting a cut}
- G01N 2021/8542 {presenting an exposed part of the core}
- G01N 2021/855 {Underground probe, e.g. with provision of a penetration tool}
- G01N 2021/8557 {Special shaping of flow, e.g. using a by-pass line, jet flow, curtain flow}
- G01N 2021/8564 {Sample as drops}
- G01N 2021/8571 {using filtering of sample fluid}
- G01N 2021/8578 {Gaseous flow(IR analysers [G01N 21/8507](#))}
- G01N 2021/8585 {using porous sheets, e.g. for separating aerosols}
- G01N 2021/8592 {Grain or other flowing solid samples}
- U G01N 21/86 Investigating moving sheets([G01N 21/89](#) takes precedence)
- G01N 2021/8609 {Optical head specially adapted}

- G01N 2021/8618 {with an optically integrating part, e.g. hemisphere}
- G01N 2021/8627 {with an illuminator over the whole width}
- G01N 2021/8636 {Detecting arrangement therefore, e.g. collimators, screens}
- G01N 2021/8645 . . . {using multidetectors, detector array}
- G01N 2021/8654 . . . {Mechanical support; Mounting of sheet}
- G01N 2021/8663 . . . {Paper, e.g. gloss, moisture content(inspecting the presence of flaws in moving materials, e.g. paper [G01N 21/89](#) ; measurement of gloss in general [G01N 21/57](#))}
- G01N 2021/8672 {Paper formation parameter}
- G01N 2021/8681 {Paper fibre orientation}
- G01N 2021/869 . . . {Plastics or polymeric material, e.g. polymers orientation in plastic, adhesive imprinted band}
- U G01N 21/88 . . Investigating the presence of flaws or contamination
- U G01N 21/8806 . . . {Specially adapted optical and illumination features}
- G01N 2021/8809 {Adjustment for highlighting flaws}
- G01N 2021/8812 {Diffuse illumination, e.g. "sky"}
- G01N 2021/8816 {by using multiple sources, e.g. LEDs}
- G01N 2021/8819 {by using retroreflecting screen}
- G01N 2021/8822 {Dark field detection}
- G01N 2021/8825 {Separate detection of dark field and bright field}
- G01N 2021/8829 {Shadow projection or structured background, e.g. for deflectometry(three-dimensional metrology of surfaces [G01B 11/25](#))}
- G01N 2021/8832 {Structured background, e.g. for transparent objects}
- G01N 2021/8835 {Adjustable illumination, e.g. software adjustable screen}
- G01N 2021/8838 {Stroboscopic illumination; synchronised illumination}
- G01N 2021/8841 {Illumination and detection on two sides of object}
- G01N 2021/8845 {Multiple wavelengths of illumination or detection}
- G01N 2021/8848 {Polarisation of light}
- U G01N 21/8851 . . . {Scan or image signal processing specially adapted therefor, e.g. for scan signal adjustment, for detecting different kinds of defects, for compensating for structures, markings, edges([G01N 21/8806](#) and [G01N 21/93](#) to [G01N 21/95692](#) take precedence; optical measurement of dimensions [G01B 11/00](#) ; optical scanning [G02B 26/10](#) ; image transformation [G06T 3/00](#) ; computerised image enhancement [G06T 5/00](#) ; image processing per se for flaw detection [G06T 7/0002](#))}
- G01N 2021/8854 {Grading and classifying of flaws}
- G01N 2021/8858 {Flaw counting}
- G01N 2021/8861 {Determining coordinates of flaws}
- G01N 2021/8864 {Mapping zones of defects}
- G01N 2021/8867 {using sequentially two or more inspection runs, e.g. coarse and fine, or detecting then analysing}
- G01N 2021/887 {the measurements made in two or more directions, angles, positions}
- G01N 2021/8874 {Taking dimensions of defect into account}
- G01N 2021/8877 {Proximity analysis, local statistics}
- G01N 2021/888 {Marking defects}
- G01N 2021/8883 {involving the calculation of gauges, generating models}
- G01N 2021/8887 {based on image processing techniques}

	G01N 2021/889	. . . . {providing a bare video image, i.e. without visual measurement aids}
	G01N 2021/8893	. . . . {providing a video image and a processed signal for helping visual decision}
	G01N 2021/8896	. . . . {Circuits specially adapted for system specific signal conditioning}
U	G01N 21/89	. . . in moving material, e.g. running paper or textiles(G01N 21/90 , G01N 21/91 , G01N 21/94 take precedence)
U	G01N 21/8901	. . . . {Optical details; Scanning details(per se G02B)}
	G01N 2021/8902	. . . . {Anamorphic spot}
	G01N 2021/8904	. . . . {Sheetwide light conductor on detecting side, e.g. fluorescing light rod}
	G01N 2021/8905	. . . . {Directional selective optics, e.g. slits, spatial filters}
	G01N 2021/8907	. . . . {Cylindrical optics}
	G01N 2021/8908	. . . . {Strip illuminator, e.g. light tube}
	G01N 2021/8909	. . . . {Scan signal processing specially adapted for inspection of running sheets}
	G01N 2021/891	. . . . {Edge discrimination, e.g. by signal filtering}
	G01N 2021/8911	. . . . {Setting scan-width signals}
	G01N 2021/8912	. . . . {Processing using lane subdivision}
U	G01N 21/8914	. . . . {characterised by the material examined}
	G01N 2021/8917	. . . . {Paper, also undulated}
	G01N 2021/8918	. . . . Metal {Metal}
U	G01N 21/892	. . . . characterised by the flaw, defect or object feature examined
	G01N 2021/8924	. . . . {Dents; Relief flaws}
	G01N 2021/8925	. . . . Inclusions {Inclusions}
	G01N 2021/8927	. . . . {Defects in a structured web}
	G01N 2021/8928	. . . . {Haze defects, i.e. with a part of diffracted light}
U	G01N 21/896	. . . . Optical defects in or on transparent materials, e.g. distortion, surface flaws{in conveyed flat sheet or rod(for other objects G01N 21/958)}
	G01N 2021/8962	. . . . {for detecting separately opaque flaws and refracting flaws}
	G01N 2021/8965	. . . . {using slant illumination, using internally reflected light}
	G01N 2021/8967	. . . . {Discriminating defects on opposite sides or at different depths of sheet or rod}
U	G01N 21/90	. . . in a container or its contents(G01N 21/91 takes precedence)
U	G01N 21/9018	. . . . {Dirt detection in containers}
	G01N 21/9027	. . . . {in containers after filling}
	WARNING Not complete, see also G01N 21/90 , G01N-21/90-B G01N21/90B , G01N-21/90-C G01N21/90C	
	G01N 21/9045	. . . . {Inspection of ornamented or stippled container walls}
	WARNING Not complete, see also G01N 21/90 , G01N-21/90-B G01N21/90B , G01N-21/90-C G01N21/90C	
	G01N 2021/9063	. . . . {Hot-end container inspection}
U	G01N 21/93	. . . Detection standards; Calibrating{baseline adjustment, drift correction}
	G01N 2021/933	. . . . {Adjusting baseline or gain(also for web inspection)}
	G01N 2021/936	. . . . {Adjusting threshold, e.g. by way of moving average}

- U G01N 21/94
 - • • Investigating contamination, e.g. dust([G01N 21/85](#) takes precedence)
- G01N 2021/945
 - • • • {Liquid or solid deposits of macroscopic size on surfaces, e.g. drops, films, or clustered contaminants(dust particles and microscopic contaminants in [G01N 21/94](#))}
- U G01N 21/95
 - • • characterised by the material or shape of the object to be examined([G01N 21/89](#) to [G01N 21/91](#) , [G01N 21/94](#) take precedence)
- G01N 2021/9511
 - • • • {Optical elements other than lenses, e.g. mirrors(~~testing of optical apparatus in G01M11~~*testing of optical apparatus in G01M 11/00*)}
- G01N 2021/9513
 - • • • {Liquid crystal panels}
- U G01N 21/9515
 - • • • {Objects of complex shape, e.g. examined with use of a surface follower device(measuring contours and curvatures [G01B 11/24](#))}
- G01N 2021/9516
 - • • • • {whereby geometrical features are being masked}
- G01N 2021/9518
 - • • • • {using a surface follower, e.g. robot}
- U G01N 21/954
 - • • • Inspecting the inner surface of hollow bodies, e.g. bores
- G01N 2021/9542
 - • • • • {using a probe}
- G01N 2021/9544
 - • • • • • {with emitter and receiver on the probe}
- G01N 2021/9546
 - • • • • • {with remote light transmitting, e.g. optical fibres}
- G01N 2021/9548
 - • • • • {Scanning the interior of a cylinder}
- U G01N 21/956
 - • • • Inspecting patterns on the surface of objects(contactless testing of electronic circuits [G01R 31/308](#) ; testing currency [G07D](#) { manufacturing processes per se of semiconductor devices implementing a measuring step [H01L 22/10](#) })
- U G01N 21/95607
 - • • • • {using a comparative method}
- G01N 2021/95615
 - • • • • • {with stored comparison signal}
- G01N 2021/9563
 - • • • • {and suppressing pattern images}
- G01N 2021/95638
 - • • • • {for PCB`s}
- G01N 2021/95646
 - • • • • • Soldering{*Soldering*}
- G01N 2021/95653
 - • • • • • {Through-holes}
- G01N 2021/95661
 - • • • • • {for leads, e.g. position, curvature}
- G01N 2021/95669
 - • • • • • • {for solder coating, coverage}
- G01N 2021/95676
 - • • • • {Masks, reticles, shadow masks}
- U G01N 21/958
 - • • • Inspecting transparent materials(or objects, e.g. windscreens(for conveyed flat sheet or rod [G01N 21/896](#))}
- G01N 2021/9583
 - • • • • Lenses{*Lenses*}
- G01N 2021/9586
 - • • • • Windscreens{*Windscreens*}
- U **G01N 27/00**

Investigating or analysing materials by the use of electric, electro-chemical, or magnetic means([G01N 3/00](#) to [G01N 25/00](#) take precedence; measurement or testing electric or magnetic variables or of electric or magnetic properties of materials [G01R](#))
- U G01N 27/02
 - by investigating the impedance of the material
- U G01N 27/22
 - by investigating capacitance
- U G01N 27/221
 - • {by investigating the dielectric properties(using microwaves [G01N 22/00](#) ; measuring loss factors or dielectric constants per se [G01R 27/26](#))}
- G01N 2027/222
 - • • • {for analysing gases}

- U G01N 27/26
- by investigating electrochemical variables; by using electrolysis or electrophoresis(investigating resistance to corrosion [G01N 17/00](#) ; investigating or analysing materials by separation into components using adsorption, absorption or similar phenomena or using ion-exchange, e.g. chromatography, [G01N 30/00](#) ; immunoelectrophoresis [G01N 33/561](#) ; electrochemical processes or apparatus in general [B01J](#); standard cells [H01M 6/28](#))
- U G01N 27/28
- • Electrolytic cell components
- U G01N 27/30
- • • Electrodes, e.g. test electrodes; Half-cells([G01N 27/414](#) takes precedence)
- G01N 27/327
- • • • Biochemical electrodes{electrical and mechanical details of in vitro measurements(-~~chemical and biological details C12Q1~~, ~~G01N 33/543~~ ; ~~chemical and biological details C12Q 1/00~~, ~~G01N 33/543~~ ; in vivo [A61B 5/00](#))}
- U G01N 30/00
- Investigating or analysing materials by separation into components using adsorption, absorption or similar phenomena or using ion-exchange, e.g. chromatography([G01N 3/00](#) to [G01N 29/00](#) take precedence; separation for the preparation or production of components [B01D 15/00](#) , [B01D 53/02](#) , [B01D 53/14](#) ; solid sorbent compositions in general [B01J 20/00](#) ; ion-exchange in general [B01J 39/00](#) to [B01J 49/00](#)){or field flow fractionation(for preparation or production of components [B01D 21/00](#) , [B01D 43/00](#) , [B01D 45/00](#) or [B03C](#))}**
- NOTE**
- In this group, the following term is used with the meaning indicated:
- "conditioning" refers to the adjustment or control of environmental parameters, e.g. temperature or pressure.
- U G01N 30/0005
- {Field flow fractionation}
- G01N 2030/001
- • {hydrodynamic fractionation, e.g. CHDF or HDC}
- G01N 2030/0015
- • {characterised by driving force}
- G01N 2030/002
- • • {sedimentation or centrifugal FFF}
- G01N 2030/0025
- • • {cross flow FFF}
- G01N 2030/003
- • • • {Asymmetrical flow}
- G01N 2030/0035
- • • {electrical field}
- G01N 2030/004
- • {characterised by opposing force}
- G01N 2030/0045
- • • {normal i.e. diffusion or thermal FFF}
- G01N 2030/005
- • • {steric FFF, i.e. diffusion negligible for larger particles; separation due to protrusion depth into carrier flow profile}
- G01N 2030/0055
- • • {hyperlayer i.e. different particle populations in hyperlayers elevated above wall}
- G01N 2030/006
- • • • {lift hyperlayer i.e. hydrodynamic lift forces dominate steric effect}
- G01N 2030/0065
- • • {Dielectric FFF, i.e. opposing forces dominate hydrodynamic lift forces and steric effects}
- G01N 2030/007
- • {programming of driving force(carrier programming [G01N 30/02](#))}
- G01N 2030/0075
- {Separation due to differential desorption}
- G01N 2030/008
- • {Thermal desorption}
- G01N 2030/0085
- • {the desorption energy being adapted to sample, e.g. laser tuned to molecular bonds}
- G01N 2030/009
- ~~Extraction~~{~~Extraction~~}
- G01N 2030/0095
- {Separation specially adapted for use outside laboratory, e.g. field sampling, portable equipments}

- U G01N 30/02
 - Column chromatography
 - G01N 2030/022
 - • {characterised by the kind of separation mechanism}
 - G01N 2030/025
 - • • {Gas chromatography}
 - G01N 2030/027
 - • • {Liquid chromatography}
- U G01N 30/04
 - Preparation or injection of sample to be analysed
 - G01N 2030/042
 - • • Standards{Standards}
 - G01N 2030/045
 - • • • internal{internal}
 - G01N 2030/047
 - • • • external{external}
- U G01N 30/06
 - • Preparation
 - G01N 2030/062
 - • • • {extracting sample from raw material}
 - G01N 2030/065
 - • • • {using different phases to separate parts of sample}
 - G01N 2030/067
 - • • • {by reaction, e.g. derivatising the sample}
- U G01N 30/08
 - • • using an enricher
 - G01N 2030/085
 - • • • {using absorbing precolumn}
- U G01N 30/12
 - • • by evaporation
 - G01N 2030/121
 - • • • • {cooling; cold traps}
 - G01N 2030/122
 - • • • • • {cryogenic focusing}
 - G01N 2030/123
 - • • • • • {using more than one trap}
 - G01N 2030/125
 - • • • • • pyrolysing{pyrolysing}
 - G01N 2030/126
 - • • • • • {evaporating sample}
 - G01N 2030/127
 - • • • • • {PTV evaporation}
 - G01N 2030/128
 - • • • • • {Thermal desorption analysis}
 - U G01N 30/14
 - • • by elimination of some components
 - G01N 2030/143
 - • • • • {selective absorption}
 - G01N 2030/146
 - • • • • {using membranes}
 - U G01N 30/16
 - • Injection([G01N 30/24](#) takes precedence)
 - G01N 2030/162
 - • • • electromigration{electromigration}
 - G01N 2030/165
 - • • • {retention gaps}
 - G01N 2030/167
 - • • • {on-column injection}
 - U G01N 30/18
 - • • using a septum or microsyringe
 - G01N 2030/185
 - • • • • {specially adapted to seal the inlet}
 - U G01N 30/20
 - • • using a sampling valve
 - G01N 2030/201
 - • • • • {multiport valves, i.e. having more than two ports}
 - G01N 2030/202
 - • • • • {rotary valves}
 - G01N 2030/204
 - • • • • {Linearly moving valves, e.g. sliding valves}
 - G01N 2030/205
 - • • • • {Diaphragm valves, e.g. deformed member closing the passage}
 - G01N 2030/207
 - • • • • {with metering cavity, e.g. sample loop}
 - G01N 2030/208
 - • • • • • {with more than one cavity}
 - U G01N 30/26
 - Conditioning of the fluid carrier; Flow patterns
 - U G01N 30/28
 - • Control of physical parameters of the fluid carrier
 - G01N 2030/285
 - • • • {electrically driven carrier}
 - U G01N 30/30
 - • • of temperature
 - G01N 2030/3007
 - • • • • {same temperature for whole column}
 - G01N 2030/3015
 - • • • • {temperature gradients along column}

- G01N 2030/3023 {using cryogenic fluids}
- G01N 2030/303 {using peltier elements}
- G01N 2030/3038 {temperature control of column exit, e.g. of restrictors}
- G01N 2030/3046 {temperature control of column inlet}
- G01N 2030/3053 {using resistive heating}
- G01N 2030/3061 {column or associated structural member used as heater}
- G01N 2030/3069 {electrical resistance used to determine control temperature}
- G01N 2030/3076 {using specially adapted T(t) profile}
- G01N 2030/3084 ~~ovens~~{ovens}
- G01N 2030/3092 {Heat exchange between incoming and outgoing mobile phase}
- U G01N 30/32 of pressure or speed([G01N 30/36](#) takes precedence)
- G01N 2030/322 {pulse dampers}
- G01N 2030/324 {speed, flow rate}
- G01N 2030/326 ~~pumps~~{pumps}
- G01N 2030/328 {valves, e.g. check valves of pumps}
- U G01N 30/34 of fluid composition, e.g. gradient([G01N 30/36](#) takes precedence)
- G01N 2030/342 {fluid composition fixed during analysis}
- G01N 2030/345 {fluid electrical conductivity fixed during analysis}
- G01N 2030/347 ~~mixers~~{mixers}
- U G01N 30/38 Flow patterns
- G01N 2030/381 {centrifugal chromatography}
- G01N 2030/382 {flow switching in a single column}
- G01N 2030/383 {by using auxiliary fluid}
- G01N 2030/385 {by switching valves}
- G01N 2030/386 {Radial chromatography, i.e. with mobile phase traversing radially the stationary phase}
- G01N 2030/387 {Turbulent flow of mobile phase}
- G01N 2030/388 {Elution in two different directions on one stationary phase}
- U G01N 30/40 using back flushing
- G01N 2030/402 {purging a device}
- G01N 2030/405 {re-concentrating or inverting previous separation}
- G01N 2030/407 {carrying out another separation}
- U G01N 30/44 using recycling of the fraction to be distributed
- G01N 2030/445 {heart cut}
- U G01N 30/48 Sorbent materials therefor

WARNING

Groups [G01N 30/48](#) and [G01N 30/482](#) are no longer used for the classification of new documents as from September 1st, 2004. The backlog of these groups is being continuously reclassified to [B01J 20/281](#) and subgroups

- G01N 2030/484 . . . {Solid sorbents}
- G01N 2030/486 . . . ~~gels~~{gels}
- G01N 2030/488 . . . {liquid sorbents}
- U G01N 30/50 . . . Conditioning of the sorbent material or stationary liquid
- U G01N 30/52 . . . Physical parameters

| | | |
|---|----------------|--|
| | G01N 2030/521 | form {form} |
| | G01N 2030/522 | pressure {pressure} |
| | G01N 2030/524 | {structural properties} |
| | G01N 2030/525 | {surface properties, e.g. porosity} |
| | G01N 2030/527 | {sorbent material in form of a membrane} |
| | G01N 2030/528 | {Monolithic sorbent material} |
| U | G01N 30/56 | . . . Packing methods or coating methods |
| | G01N 2030/562 | packing {packing} |
| | G01N 2030/565 | {slurry packing} |
| | G01N 2030/567 | coating {coating} |
| U | G01N 30/58 | . . . the sorbent moving as a whole |
| | G01N 2030/582 | {micellar electrokinetic capillary chromatography (MECC)} |
| | G01N 2030/585 | {Parallel current chromatography} |
| | G01N 2030/587 | {Continuous annular chromatography} |
| U | G01N 30/60 | . . Construction of the column |
| U | G01N 30/6004 | . . . {end pieces} |
| | G01N 2030/6008 | {capillary restrictors} |
| | G01N 2030/6013 | {interfaces to detectors} |
| U | G01N 30/6052 | . . . {body} |
| | G01N 2030/6056 | {using semiconductor micromachining techniques} |
| U | G01N 30/62 | . . Detectors specially adapted therefor |
| | G01N 2030/621 | . . . {signal-to-noise ratio} |
| | G01N 2030/623 | {by modulation of sample feed or detector response} |
| | G01N 2030/625 | {by measuring reference material, e.g. carrier without sample} |
| | G01N 2030/626 | . . . {calibration, baseline} |
| | G01N 2030/628 | . . . {Multiplexing, i.e. several columns sharing a single detector} |
| U | G01N 30/64 | . . . Electrical detectors |
| | G01N 2030/642 | {photoionisation detectors} |
| | G01N 2030/645 | {electrical conductivity detectors} |
| | G01N 2030/647 | {surface ionisation} |
| | G01N 2030/685 | {flame photometry} |
| U | G01N 30/72 | . . . Mass spectrometers{(mass spectrometers per se H01J 49/00)} |
| U | G01N 30/7206 | {interfaced to gas chromatograph(interfaces in general for introducing or extracting samples to be analysed with specially adapted mass spectrometer, see H01J 49/04)} |
| | G01N 2030/7226 | {OWTC, short capillaries or transfer line used as column} |
| U | G01N 30/74 | . . . Optical detectors{ measurement of intensity, velocity, spectral content, polarisation, or phase of infra-red, visible or ultra-violet light G01J } |
| | G01N 2030/743 | FTIR {FTIR} |
| | G01N 2030/746 | {detecting along the line of flow, e.g. axial} |
| U | G01N 30/76 | . . . Acoustical detectors{ measurement of mechanical vibrations or ultrasonic, sonic or infrasonic waves G01H } |
| | G01N 2030/765 | {for measuring mechanical vibrations} |
| | G01N 2030/77 | . . . {detecting radioactive properties} |
| U | G01N 30/84 | . . Preparation of the fraction to be distributed |

- G01N 2030/8405 . . . {using pyrolysis}
- G01N 2030/8411 . . . {Intermediate storage of effluent, including condensation on surface}
- G01N 2030/8417 {the store moving as a whole, e.g. moving wire}
- G01N 2030/8423 . . . {using permeable separator tubes}
- G01N 2030/8429 . . . {adding modifying material}
- G01N 2030/8435 {for chemical reaction}
- G01N 2030/8441 {to modify physical properties}
- G01N 2030/8447 . . . {Nebulising, aerosol formation or ionisation}
- G01N 2030/8452 {Generation of electrically charged aerosols or ions}
- G01N 2030/8458 {of ions or clusters of individual ions}
- G01N 2030/8464 {Uncharged atoms or aerosols}
- G01N 2030/847 {by pneumatic means}
- G01N 2030/8476 {by thermal means}
- G01N 2030/8482 {by electrical or glow discharge}
- G01N 2030/8488 {by electric field}
- G01N 2030/8494 {Desolvation chambers}
- U G01N 30/86 . . Signal analysis
- U G01N 30/8603 . . . {with integration or differentiation}
- G01N 2030/862 {Other mathematical operations for data preprocessing}
- U G01N 30/8624 . . . {Detection of slopes or peaks; baseline correction}
- G01N 2030/8648 {Feature extraction not otherwise provided for}
- U G01N 30/88 . . Integrated analysis systems specially adapted therefor, not covered by a single one of the groups [G01N 30/04](#) to [G01N 30/86](#) (signal analysis systems per se [G06F](#), [G06G](#))
- G01N 2030/8804 . . . {automated systems}
- G01N 2030/8809 . . . {analysis specially adapted for the sample}
- G01N 2030/8813 {biological materials}
- G01N 2030/8818 {involving amino acids}
- G01N 2030/8822 {involving blood}
- G01N 2030/8827 {involving nucleic acids}
- G01N 2030/8831 {involving peptides or proteins}
- G01N 2030/8836 {involving saccharides}
- G01N 2030/884 {organic compounds}
- G01N 2030/8845 {involving halogenated organic compounds}
- G01N 2030/885 {involving polymers}
- G01N 2030/8854 {involving hydrocarbons}
- G01N 2030/8859 {inorganic compounds}
- G01N 2030/8863 Fullerenes {Fullerenes}
- G01N 2030/8868 {elemental analysis; e.g. isotope dilution analysis}
- G01N 2030/8872 impurities {impurities}
- G01N 2030/8877 {optical isomers}
- G01N 2030/8881 . . . {Modular construction, specially adapted therefor}
- G01N 2030/8886 . . . {Analysis of industrial production processes}
- G01N 2030/889 . . . {monitoring the quality of the stationary phase; column performance}
- G01N 2030/8895 . . . {Independent juxtaposition of embodiments; Reviews}

| | | |
|----------|-------------------|--|
| U | G01N 30/90 | • Plate chromatography, e.g. thin layer or paper chromatography |
| | G01N 2030/903 | • • {centrifugal chromatography} |
| | G01N 2030/906 | • • {pressurised fluid phase} |
| U | G01N 30/94 | • • Development |
| | G01N 2030/945 | • • • {Application of reagents to undeveloped plate} |
| U | G01N 30/96 | • using ion-exchange(G01N 30/02 , G01N 30/90 take precedence) |
| | G01N 2030/965 | • • {suppressor columns} |
| U | G01N 33/00 | Investigating or analysing materials by specific methods not covered by the preceding groups |
| | G01N 2033/0003 | • {Composite materials} |
| U | G01N 33/0004 | • {Gaseous mixtures, e.g. polluted air(gaseous biological material G01N 33/497 ; exhaust gas of internal combustion engines G01M 15/102)} |
| U | G01N 33/0009 | • • {General constructional details of gas analysers, e.g. portable test equipment(G01N 1/22 takes precedence)} |
| U | G01N 33/0011 | • • • {Sample conditioning(in general G01N 1/28)} |
| | G01N 2033/0019 | • • • • {by preconcentration} |
| U | G01N 33/0062 | • • • {concerning the measuring method, e.g. intermittent, or the display, e.g. digital} |
| | G01N 2033/0068 | • • • • {using a computer specifically programmed} |
| U | G01N 33/007 | • • • {Arrangements to check the analyser(calibrating G01N 33/0006)} |
| | G01N 2033/0072 | • • • • {by generating a test gas} |
| | G01N 2033/0077 | • {testing material properties on individual granules or tablets} |
| | G01N 2033/0078 | • {testing material properties on manufactured objects} |
| | G01N 2033/008 | • • {sport articles(balls, skis, rackets)} |
| | G01N 2033/0081 | • • {containers; packages; bottles} |
| | G01N 2033/0083 | • • {vehicle parts} |
| | G01N 2033/0085 | • • • wheels{wheels} |
| | G01N 2033/0086 | • • {clothes; hosiery} |
| | G01N 2033/0088 | • • {other articles} |
| | G01N 2033/009 | • • • seals{seals} |
| | G01N 2033/0091 | • Powders{Powders} |
| | G01N 2033/0093 | • {radioactive materials} |
| | G01N 2033/0095 | • {Semiconductive materials} |
| | G01N 2033/0096 | • {testing material properties on thin layers or coatings} |
| U | G01N 33/02 | • food |
| U | G01N 33/10 | • • starch-containing substances, e.g. dough |
| | G01N 2033/105 | • • • Pasta{Pasta} |
| U | G01N 33/18 | • Water{(treatment of water C02F)} |
| U | G01N 33/1826 | • • {organic contamination in water} |
| | G01N 2033/184 | • • • {herbicides, pesticides, fungicides, insecticides, or the like} |
| | G01N 2033/1873 | • • {ice or snow} |
| U | G01N 33/24 | • earth materials(G01N 33/42 takes precedence; { testing the nature of borehole walls, formation testing E21B 49/00 ; investigation of foundation soil in situ E02D 1/00 ; geophysics, e.g. prospecting G01V)} |
| | G01N 2033/243 | • • {for determining biological parameters concerning composting, biodegradability or bioavailability} |

- G01N 2033/245 . . {for agricultural purposes}
- G01N 2033/248 . . {related to manure as a biological product, i.e. excluding artificial fertilizers}
- U G01N 33/48 . biological material, e.g. blood, urine([G01N 33/02](#) to [G01N 33/14](#) , [G01N 33/26](#) , [G01N 33/44](#) , [G01N 33/46](#) take precedence; determining the germinating capacity of seeds [A01C 1/02](#)); Haemocytometers(counting blood corpuscles distributed over a surface by scanning the surface [G06M 11/02](#))
- U G01N 33/483 . . Physical analysis of biological material
- U G01N 33/497 . . . of gaseous biological material, e.g. breath{(for evaluating respiratory organs [A61B 5/08](#))}
- G01N 2033/4975 {other than oxygen, carbon dioxide or alcohol, e.g. organic vapours}
- G01N 2033/4977 {metabolic gass from microbes, cell cultures, plant tissues and the like}
- U G01N 33/50 . . Chemical analysis of biological material, e.g. blood, urine; Testing involving biospecific ligand binding methods; Immunological testing(measuring or testing processes involving enzymes or micro-organisms, compositions or test papers therefor; processes for forming such compositions, condition responsive control in microbiological or enzymological processes [C12Q](#))

NOTES

The expression "involving", when used in relation to a material includes the testing for the material as well as employing the material as a determinant or reactant in a test for a different material.

In groups [G01N 33/52](#) to [G01N 33/96](#) , in the absence of an indication to the contrary, an invention is also classified in the last appropriate place.

Documents relating to new peptides or new DNA or its corresponding mRNA, encoding for the peptides, and their use in measuring or testing processes are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their use in diagnostics. However, if the investigating or analysing aspects are of interest, the documents are classified in this group

- G01N 33/5005 . . . {involving human or animal cells(immunoassay [G01N 33/569](#) [H](#)[G01N 33/56966](#); immunoassays of protozoa [G01N 33/569](#) [B](#)[G01N 33/56905](#); protozoa in screening assays [C12Q 1/02](#) [B](#)[C12Q 1/025](#))}
- U G01N 33/53 . . . Immunoassay; Biospecific binding assay(preparations containing antigens or antibodies for therapeutic purposes [A61K 39/00](#) ; haptens in general, see the relevant places in class [C07](#) ; proteins in general [C07K](#))
- U G01N 33/574 for cancer

NOTE

In this group:

- relevant features relating to a specifically defined cancer are only classified in groups [G01N 33/57407](#) to [G01N 33/57449](#)
- relevant features describing cancer markers related to multiple forms of cancer are classified in groups [G01N 33/57484](#) to [G01N 33/57496](#)

- G01N 2033/57403 {of breast}
- G01N 2033/57453 {of lung}
- G01N 2033/57457 {of skin}
- G01N 2033/57461 {of liver, pancreas or kidney}
- G01N 2033/57465 {of stomach or intestine}

G01N 33/98 . . . involving alcohol, e.g. ethanol in breath

NOTE

In groups [G01N 35/00](#) to [G01N 35/085](#) , the indexing codes of ~~S01N~~**S01N** are added

- U G01N 35/00 Automatic analysis not limited to methods or materials provided for in any single one of groups [G01N 1/00](#) to [G01N 33/00](#) ; Handling materials therefor**
- U G01N 35/00009 . {provided with a sample supporting tape, e.g. with absorbent zones}
- G01N 2035/00019 . . {cassette structures}
- U G01N 35/00029 . {provided with flat sample substrates, e.g. slides([G01N 35/028](#) takes precedence)}
- G01N 2035/00039 . . {Transport arrangements specific to flat sample substrates, e.g. pusher blade}
- G01N 2035/00049 . . . {for loading/unloading a carousel}
- G01N 2035/00059 . . . {vacuum chucks}
- G01N 2035/00079 . . {Evaporation covers for slides}
- G01N 2035/00089 . . ~~Magazines~~{*Magazines*}
- G01N 2035/00099 . . {Characterised by type of test elements}
- G01N 2035/00108 . . . {Test strips, e.g. paper}
- G01N 2035/00118 {for multiple tests}
- G01N 2035/00128 {with pressing or squeezing devices}
- G01N 2035/00138 . . . ~~Slides~~{*Slides*}
- G01N 2035/00148 . . . {Test cards, e.g. Biomerieux or McDonnell multiwell test cards}
- G01N 2035/00158 . . . {Elements containing microarrays, i.e. "biochip"}
- G01N 2035/00168 . . {Manufacturing or preparing test elements}
- G01N 2035/00178 . {Special arrangements of analysers}
- G01N 2035/00188 . . {the analyte being in the solid state}
- G01N 2035/00198 . . . {Dissolution analysers}
- G01N 2035/00207 . . {Handling bulk quantities of analyte}
- G01N 2035/00217 . . . {involving measurement of weight}
- G01N 2035/00227 . . . {Monitoring a process (online)}
- G01N 2035/00237 . . {Handling micro-quantities of analyte, e.g. micro-valves, capillary networks}
- G01N 2035/00247 . . . ~~Microvalves~~{*Microvalves*}
- G01N 2035/00257 {Capillary stop flow circuits}
- G01N 2035/00267 {Meltable plugs}
- G01N 2035/00277 . . {Special precautions to avoid contamination(e.g. enclosures, glove- boxes, sealed sample carriers, disposal of contaminated material)}
- G01N 2035/00287 . . . {movable lid/cover for sample or reaction tubes}
- G01N 2035/00297 . . . {Antistatic arrangements}
- G01N 2035/00306 . . {Housings, cabinets, control panels (details)}
- G01N 2035/00316 . . . {Detecting door closure}
- G01N 2035/00326 . . {Analysers with modular structure}
- G01N 2035/00336 . . . {Analysers adapted for operation in microgravity, i.e. spaceflight}
- G01N 2035/00346 . {Heating or cooling arrangements}
- G01N 2035/00356 . . {Holding samples at elevated temperature (incubation)}
- G01N 2035/00366 . . . {Several different temperatures used}

| | |
|-----------------|---|
| G01N 2035/00376 | • • • {Conductive heating, e.g. heated plates} |
| G01N 2035/00386 | • • • {using fluid heat transfer medium} |
| G01N 2035/00396 | • • • • {where the fluid is a liquid} |
| G01N 2035/00405 | • • • Microwaves {Microwaves} |
| G01N 2035/00415 | • • • {Other radiation} |
| G01N 2035/00425 | • • {Heating or cooling means associated with pipettes or the like, e.g. for supplying sample/reagent at given temperature} |
| G01N 2035/00435 | • • {Refrigerated reagent storage} |
| G01N 2035/00445 | • • {Other cooling arrangements} |
| G01N 2035/00455 | • • {Controlling humidity in analyser} |
| G01N 2035/00465 | • {Separating and mixing arrangements} |
| G01N 2035/00475 | • • Filters {Filters} |
| G01N 2035/00485 | • • • {combined with sample carriers} |
| G01N 2035/00495 | • • Centrifuges {Centrifuges} |
| G01N 2035/00504 | • • • {combined with carousels} |
| G01N 2035/00514 | • • {Stationary mixing elements} |
| G01N 2035/00524 | • • {Mixing by agitating sample carrier} |
| G01N 2035/00534 | • • {Mixing by a special element, e.g. stirrer} |
| G01N 2035/00544 | • • • {using fluid flow} |
| G01N 2035/00554 | • • • {using ultrasound} |
| G01N 2035/00564 | • • {Handling or washing solid phase elements, e.g. beads} |
| G01N 2035/00574 | • • • {Means for distributing beads} |
| U G01N 35/00584 | • {Control arrangements for automatic analysers} |
| U G01N 35/00594 | • • {Quality control, including calibration or testing of components of the analyser} |
| U G01N 35/00613 | • • • {Quality control} |
| U G01N 35/00623 | • • • • {of instruments} |
| G01N 2035/00633 | • • • • • {logging process history of individual samples} |
| G01N 2035/00643 | • • • • • {detecting malfunctions in conveying systems} |
| G01N 2035/00653 | • • • • • {statistical methods comparing labs or apparatuses} |
| U G01N 35/00663 | • • • • {of consumables} |
| G01N 2035/00673 | • • • • • {of reagents} |
| G01N 2035/00683 | • • • • • {of detectors} |
| U G01N 35/00693 | • • • {Calibration} |
| G01N 2035/00702 | • • • • {Curve-fitting; Parameter matching; Calibration constants} |
| U G01N 35/00722 | • • {Communications; Identification} |
| U G01N 35/00732 | • • • {Identification of carriers, materials or components in automatic analysers} |
| G01N 2035/00742 | • • • • {Type of codes} |
| G01N 2035/00752 | • • • • • {bar codes} |
| G01N 2035/00762 | • • • • • {magnetic code} |
| G01N 2035/00772 | • • • • • {mechanical or optical code other than bar code} |
| G01N 2035/00782 | • • • • • {reprogrammable code} |
| G01N 2035/00792 | • • • • {Type of components bearing the codes, other than sample carriers} |
| G01N 2035/00801 | • • • • • {Holders for sample carriers, e.g. trays, caroussel, racks} |

- G01N 2035/00811 {consumable or exchangeable components other than sample carriers, e.g. detectors, flow cells}
- G01N 2035/00821 {nature of coded information}
- G01N 2035/00831 {identification of the sample, e.g. patient identity, place of sampling}
- G01N 2035/00841 {results of the analyses}
- G01N 2035/00851 {process control parameters}
- G01N 2035/00861 {printing and sticking of identifiers}
- U G01N 35/00871 . . . {Communications between instruments or with remote terminals}
- G01N 2035/00881 {network configurations}
- G01N 2035/00891 . . . {Displaying information to the operator}
- G01N 2035/009 {alarms, e.g. audible}
- G01N 2035/0091 {GUI(graphical user interfaces)}
- U G01N 35/0092 . . {Scheduling}
- G01N 2035/0093 . . . {random access not determined by physical position}
- G01N 2035/0094 . . . {optimisation; experiment design}
- G01N 2035/0096 . . . {post analysis management of samples, e.g. marking, removing, storing}
- G01N 2035/0097 . . {monitoring reactions as a function of time}
- U G01N 35/02 . . . using a plurality of sample containers moved by a conveyer system past one or more treatment or analysis stations{([G01N 35/0098](#) and [G01N 35/0099](#) take precedence)}
- U G01N 35/021 . . {having a flexible chain, e.g. "cartridge belt", conveyer for reaction cells or cuvettes}
- G01N 2035/023 . . . { forming cuvettes in situ, e.g. from plastic strip }
- U G01N 35/04 . . . Details of the conveyer system{([G01N 35/021](#) to [G01N 35/028](#) take precedence)}
- G01N 2035/0401 . . . {Sample carriers, cuvettes or reaction vessels}
- G01N 2035/0403 {Sample carriers with closing or sealing means}
- G01N 2035/0405 {manipulating closing or opening means, e.g. stoppers, screw caps, lids or covers}
- G01N 2035/0406 {Individual bottles or tubes}
- G01N 2035/0408 {connected in a flexible chain}
- G01N 2035/041 {lifting items out of a rack for access}
- G01N 2035/0412 {Block or rack elements with a single row of samples}
- G01N 2035/0413 {moving in one dimension}
- G01N 2035/0415 {moving in two dimensions in a horizontal plane}
- G01N 2035/0417 {forming an endless chain in a vertical plane}
- G01N 2035/0418 {Plate elements with several rows of samples}
- G01N 2035/042 {moved independently, e.g. by fork manipulator}
- G01N 2035/0422 {carried on a linear conveyer}
- G01N 2035/0424 {Two or more linear conveyers}
- G01N 2035/0425 {Stacks, magazines or elevators for plates}
- G01N 2035/0427 {nestable or stockable}
- G01N 2035/0429 {Sample carriers adapted for special purposes}
- G01N 2035/0431 {characterised by material of construction}
- G01N 2035/0432 {integrated with measuring devices}
- G01N 2035/0434 {in the form of a syringe or pipette tip}

| | |
|----------------|---|
| G01N 2035/0436 | {with pre-packaged reagents, i.e. test-packs} |
| G01N 2035/0437 | {Cleaning cuvettes or reaction vessels} |
| G01N 2035/0439 | . . . {Rotary sample carriers, i.e. carousels} |
| G01N 2035/0441 | {for samples} |
| G01N 2035/0443 | {for reagents} |
| G01N 2035/0444 | {for cuvettes or reaction vessels} |
| G01N 2035/0446 | {Combinations of the above} |
| G01N 2035/0448 | {composed of interchangeable ring elements} |
| G01N 2035/0449 | {using centrifugal transport of liquid} |
| G01N 2035/0451 | {composed of interchangeable sectors} |
| G01N 2035/0453 | {Multiple carousels working in parallel} |
| G01N 2035/0455 | {Coaxial carousels} |
| G01N 2035/0456 | {Spiral tracks} |
| G01N 2035/0458 | {Multiple concentric rows of wells} |
| G01N 2035/046 | . . . {General conveyer features} |
| G01N 2035/0462 | {Buffers (FIFO) or stacks (LIFO) for holding carriers between operations} |
| G01N 2035/0463 | {in incubators} |
| G01N 2035/0465 | {Loading or unloading the conveyer} |
| G01N 2035/0467 | {Switching points ("aiguillages")} |
| G01N 2035/0468 | {converging, e.g. selecting carriers from multiple incoming streams} |
| G01N 2035/047 | {diverging, e.g. sending carriers to different analysers} |
| G01N 2035/0472 | {for selective recirculation of carriers} |
| G01N 2035/0474 | . . . {Details of actuating means for conveyers or pipettes} |
| G01N 2035/0475 | {electric, e.g. stepper motor, solenoid} |
| G01N 2035/0477 | Magnetic {Magnetic} |
| G01N 2035/0479 | {hydraulic or pneumatic} |
| G01N 2035/0481 | {Pneumatic tube conveyors; Tube mails; "Rohrpost"} |
| G01N 2035/0482 | Transmission {Transmission} |
| G01N 2035/0484 | {Belt or chain} |
| G01N 2035/0486 | {Gearing, cams} |
| G01N 2035/0487 | {Helix or lead screw} |
| G01N 2035/0489 | {Self-propelled units} |
| G01N 2035/0491 | {Position sensing, encoding; closed-loop control} |
| G01N 2035/0493 | {Locating samples; identifying different tube sizes} |
| G01N 2035/0494 | {Detecting or compensating piositioning errors} |
| G01N 2035/0496 | . . . {Other details} |
| G01N 2035/0498 | {Drawers used as storage or dispensing means for vessels or cuvettes} |
| U G01N 35/10 | . Devices for transferring samples{or any liquids}to, in, or from, the analysis apparatus, e.g. suction devices, injection devices{(G01N 35/0099 takes precedence)} |
| G01N 35/1004 | . . {Cleaning sample transfer devices(cleaning laboratory glassware
B01L11/00D)} |
| G01N 2035/1006 | . . . {Rinsing only the inside of the tip} |
| U G01N 35/1009 | . . {Characterised by arrangements for controlling the aspiration or dispense of liquids} |

- U G01N 35/1011 . . . {Control of the position or alignment of the transfer device}
- G01N 2035/1013 {Confirming presence of tip}
- U G01N 35/1016 . . . {Control of the volume dispensed or introduced}
- G01N 2035/1018 {Detecting inhomogeneities, e.g. foam, bubbles, clots}
- G01N 2035/102 {Preventing or detecting loss of fluid by dripping}
- G01N 2035/1023 {using a valve in the tip or nozzle}
- G01N 2035/1025 . . . {Fluid level sensing}
- G01N 2035/1027 . . {General features of the devices}
- G01N 2035/103 . . . {using disposable tips}
- G01N 2035/1032 . . . {Dilution or aliquotting}
- G01N 2035/1034 . . . {Transferring microquantities of liquid}
- G01N 2035/1037 {Using surface tension, e.g. pins or wires}
- G01N 2035/1039 {Micro-pipettes, e.g. microcapillary tubes}
- G01N 2035/1041 {Ink-jet like dispensers}
- G01N 2035/1044 {Using pneumatic means}
- G01N 2035/1046 {Levitated, suspended drops}
- G01N 2035/1048 . . . {using the transfer device for another function}
- G01N 2035/1051 {for transporting containers, e.g. retained by friction}
- G01N 2035/1053 {for separating part of the liquid, e.g. filters, extraction phase}
- G01N 2035/1055 {for immobilising reagents, e.g. dried reagents}
- G01N 2035/1058 {for mixing}
- G01N 2035/106 {by sucking and blowing}
- G01N 2035/1062 {for testing the liquid while it is in the transfer device}
- U G01N 35/1065 . . {Multiple transfer devices}
- U G01N 35/1067 . . . {for transfer to or from containers having different spacing}
- G01N 2035/1069 {by adjusting the spacing between multiple probes of a single transferring head}
- G01N 2035/1076 . . . {plurality or independently movable heads}
- U G01N 35/1081 . . {characterised by the means for relatively moving the transfer device and the containers in an horizontal plane([G01N 35/1011](#) takes precedence)}
- U G01N 35/1083 . . . {with one horizontal degree of freedom}
- G01N 2035/1086 {Cylindrical, e.g. variable angle}
- G01N 2035/1088 {Coaxial with a carousel}
- U G01N 35/109 . . . {with two horizontal degrees of freedom}
- G01N 2035/1093 {Cylindrical, e.g. variable radius and angle}

Project: N/A (G01P)

- U G01P 3/00 **Measuring linear or angular speed; Measuring differences of linear or angular speeds ([G01P 5/00](#) to [G01P 11/00](#) take precedence; {direction and speed indication [G01P 13/045](#)}; counting mechanisms [G06M](#))**

NOTE

The sub-groups of this group are distinguished by the method of measurement which is of major importance. Thus the mere application of other methods for giving a final indication does not affect the classification.

- U G01P 3/42 . . Devices characterised by the use of electric or magnetic means ([G01P 3/66](#) takes precedence; measuring electric or magnetic values in general [G01R](#))

- U G01P 3/56 • • for comparing two speeds
- G01P 3/565 • • • {by measuring or by comparing the phase of generated current or voltage (phase comparators per se ~~H03D 13/00~~[H03D 13/00](#); phase measurement [G01R 25/00](#))}
- U G01P 15/00 Measuring acceleration; Measuring deceleration; Measuring shock, i.e. sudden change of acceleration**
- U G01P 15/02 • by making use of inertia forces { using solid seismic masses}([G01P 15/14](#) takes precedence)
- U G01P 15/08 • • with conversion into electric or magnetic values
- G01P 2015/0805 • • • {being provided with a particular type of spring-mass-system for defining the displacement of a seismic mass due to an external acceleration }
- G01P 2015/0808 • • • • {for defining in-plane movement of the mass, i.e. movement of the mass in the plane of the substrate }
- G01P 2015/0811 • • • • • {for one single degree of freedom of movement of the mass }
- G01P 2015/0814 • • • • • • {for translational movement of the mass, e.g. shuttle type }
- G01P 2015/0817 • • • • • • {for pivoting movement of the mass, e.g. in-plane pendulum }
- G01P 2015/082 • • • • • {for two degrees of freedom of movement of a single mass }
- G01P 2015/0822 • • • • {for defining out-of-plane movement of the mass }
- G01P 2015/0825 • • • • • {for one single degree of freedom of movement of the mass }
- G01P 2015/0828 • • • • • • {the mass being of the paddle type being suspended at one of its longitudinal ends }
- G01P 2015/0831 • • • • • • {the mass being of the paddle type having the pivot axis between the longitudinal ends of the mass, e.g. see-saw configuration }
- G01P 2015/0834 • • • • • • {the mass constituting a pendulum having the pivot axis disposed symmetrically between the longitudinal ends, the center of mass being shifted away from the plane of the pendulum which includes the pivot axis }
- G01P 2015/0837 • • • • • • {the mass being suspended so as to only allow movement perpendicular to the plane of the substrate, i.e. z-axis sensor }
- G01P 2015/084 • • • • • {the mass being suspended at more than one of its sides, e.g. membrane-type suspension, so as to permit multi-axis movement of the mass }
- G01P 2015/0842 • • • • • • {the mass being of clover leaf shape }
- G01P 2015/0845 • • • • {using a plurality of spring-mass systems being arranged on one common planar substrate, the systems not being mechanically coupled and the sensitive direction of each system being different }
- G01P 2015/0848 • • • • {using a plurality of mechanically coupled spring-mass systems, the sensitive direction of each system being different }
- G01P 2015/0851 • • • • {using a plurality of spring-mass systems, each system having a different range of sensitivity to acceleration }
- G01P 2015/0854 • • • • {using a particular shape of the mass, e.g. annular }
- G01P 2015/0857 • • • • {using a particular shape of the suspension spring }
- G01P 2015/086 • • • • • {using a torsional suspension spring }
- G01P 2015/0862 • • • {being provided with particular means being integrated into a MEMS accelerometer structure for providing particular additional functionalities to those of a spring mass system }
- G01P 2015/0865 • • • • {using integrated signal processing circuitry }
- G01P 2015/0868 • • • • {using self-test structures integrated into the microstructure }
- G01P 2015/0871 • • • • {using stopper structures for limiting the travel of the seismic mass }

- G01P 2015/0874 {using means for preventing stiction of the seismic mass to the substrate }
- G01P 2015/0877 {using integrated interconnect structures }
- G01P 2015/088 {for providing wafer-level encapsulation }
- G01P 2015/0882 {for providing damping of vibrations }

Project: N/A (G01R)**U G01R 1/00**

Details of instruments or arrangements of the types included in groups [G01R 5/00](#) to [G01R 13/00](#) and [G01R 31/00](#) (constructional details particular to{ electromechanical } arrangements for measuring the electric consumption [G01R 11/02](#))

- U G01R 1/02 . General constructional details(details of a kind applicable to measuring arrangements not specially adapted for a specific variable [G01D 7/00](#))
- U G01R 1/04 . . Housings; Supporting members; Arrangements of terminals("burn-in" aspects [G01R 31/286](#) ; terminals [H01R](#); terminal strips or boards [H02B](#); housings for electrical apparatus [H05K](#))
- U G01R 1/0408 . . . {Test fixtures or contact fields; Connectors or connecting adaptors; Test clips; Test sockets([G01R 1/067](#) takes precedence; mass production testing systems [G01R 31/01](#) ; testing of connections [G01R 31/04](#) ; for testing printed circuit boards [G01R 31/2808](#))}
- G01R 1/0416 {Connectors, terminals([G01R 1/0425](#) and [G01R 1/0433](#) take precedence; with measurement function for battery poles ~~G01R31/36V9P~~ [G01R 31/3696](#) ; in general [H01R](#))}
- U G01R 1/06 . . Measuring leads; Measuring probes([G01R 19/145](#) , [G01R 19/165](#) take precedence; end pieces for leads [H01R 11/00](#))
- U G01R 1/067 . . . Measuring probes{(plugs, sockets or clips [G01R 1/0408](#) ; testing of connections [G01R 31/04](#) ; contacting IC`s for test purposes when probe design is not the essential feature [G01R 31/2886](#) ; using radiation beam as probe [G01R 31/302](#) ; end pieces for wires terminating in a probe [H01R 11/18](#))}
- U G01R 1/06711 {Probe needles; Cantilever beams; "Bump" contacts; Replaceable probe pins}
- U G01R 1/06716 {Elastic}
- G01R 1/06727 {Cantilever beams}

WARNING

This group is not complete pending a reorganisation; see also other subgroups of ~~G01R-1/067-C~~ [G01R1/067C](#)

U G01R 13/00

Arrangements for displaying electric variables or waveforms(display by mechanical displacement only [G01R 5/00](#) , [G01R 7/00](#) , [G01R 9/00](#) ; recording frequency spectrum [G01R 23/18](#))

- U G01R 13/20 . Cathode-ray oscilloscopes;(Oscilloscopes using other screens than CRT`s, e.g. LCD`s;(control arrangements or circuits for cathode-ray tube indicators [G09G 1/00](#) ; cathode ray tubes [H01J 31/00](#))}
- G01R 13/204 . . {Using means for generating permanent registrations, e.g. photographs(optical or photographic arrangements combined with CRT vessel ~~H01J-29/89~~ [H01J 29/89](#))}

- U G01R 19/00** Arrangements for measuring currents or voltages or for indicating presence or sign thereof([G01R 5/00](#) takes precedence; { voltage measurements using secondary electron emission when testing electronic circuits [G01R 31/305](#) } ; for measuring bio-electric currents or voltages [A61B 5/04](#))
- NOTE
Within groups [G01R 19/02](#) to [G01R 19/32](#) , group [G01R 19/28](#) takes precedence. Groups [G01R 19/18](#) to [G01R 19/257](#) take precedence over groups [G01R 19/02](#) to [G01R 19/17](#) and [G01R 19/30](#) .
- U G01R 19/22** • using conversion of ac into dc
- G01R 2019/24** • • {using thermocouples}
- U G01R 29/00** **Arrangements for measuring or indicating electric quantities not covered by groups [G01R 19/00](#) to [G01R 27/00](#)**
- U G01R 29/02** • Measuring characteristics of individual pulses, e.g. deviation from pulse flatness, rise time, duration(of amplitude [G01R 19/00](#) ; of repetition rate [G01R 23/00](#) ; of phase difference of two cyclic pulse trains [G01R 25/00](#) ; monitoring pattern of pulse trains [H03K 5/19](#))
- G01R 29/023** • • {Measuring pulse width}
- WARNING
This group is incomplete pending a reorganisation. See also [G01R 29/02](#) and ~~G01R-29/027-C~~[G01R29/027C](#)
- U G01R 31/00** **Arrangements for testing electric properties; Arrangements for locating electric faults; Arrangements for electrical testing characterised by what is being tested not provided for elsewhere(measuring leads, measuring probes [G01R 1/06](#) ; { measuring superconductive properties [G01R 33/1238](#) ; data processing equipment for testing or function monitoring ~~G06F15/20B~~ } ; indicating electrical condition of switchgear or protective devices [H01H 71/04](#) , [H01H 73/12](#) , [H02B 11/10](#) , [H02H 3/04](#) ; testing or measuring semiconductors or solid state devices during manufacture [H01L 22/00](#) ; testing substation equipment, e.g. mobile phones [H04M 1/24](#) ; testing or monitoring of control systems [G05B 23/02](#) ; { testing or monitoring transmitters or receivers [H04B 17/00](#) }}**
- U G01R 31/12** • Testing dielectric strength or breakdown voltage;(Testing or monitoring effectiveness or level of insulation, e.g. of a cable or of an apparatus, for example using partial discharge measurements; Electrostatic testing([G01R 31/06](#) , [G01R 31/08](#) and [G01R 31/327](#) take precedence; measuring in plasmas [G01R 19/0061](#) ; Measuring dielectric constants [G01R 27/2617](#) ; ESD, EMC or EMP testing of circuits [G01R 31/002](#)))
- U G01R 31/1227** • • {of components, parts or materials([G01R 31/1209](#) , [G01R 31/1218](#) , [G01R 31/18](#) take precedence; circuits therefor [G01R 31/14](#) ; testing vessels of electrodes [G01R 31/16](#))}
- U G01R 31/1263** • • • {of solid or fluid materials, e.g. insulation films, bulk material; of semiconductors or LV electronic components or parts; of cable, line or wire insulation}
- G01R 31/1272** • • • • {of cable, line or wire insulation, e.g. using partial discharge measurements(locating faults in cables ~~G01R31/08B2~~[G01R 31/083](#))}

- U G01R 31/28
 - Testing of electronic circuits, e.g. by signal tracer({ EMC, EMP or similar testing of electronic circuits [G01R 31/002](#) } ; testing for short-circuits, discontinuities, leakage or incorrect line connection [G01R 31/02](#) ; checking computers { or computer components } [G06F 11/00](#) ; checking static stores for correct operation [G11C 29/00](#) ; { testing receivers or transmitters of transmission systems [H04B 17/00](#) })
- U G01R 31/2801
 - {Testing of printed circuits, backplanes, motherboards, hybrid circuits or carriers for multichip packages (MCP)([G01R 31/318508](#) takes precedence; contactless testing [G01R 31/302](#) ; testing contacts or connections [G01R 31/04](#))}
- U G01R 31/281
 - • {Specific types of tests or tests for a specific type of fault, e.g. thermal mapping, shorts testing([G01R 31/2818](#) takes precedence)}
- G01R 31/2815
 - • • {Functional tests, e.g. boundary scans, using the normal I/O contacts(contacting devices [G01R 31/2808](#) ; testing digital circuits [G01R 31/317](#) , ~~G06F11~~[G06F 11/00](#))}
- U G01R 31/2832
 - {Specific tests of electronic circuits not provided for elsewhere(contains no documents; [G01R 31/2801](#) and [G01R 31/316](#) take precedence)}
- G01R 31/2834
 - • {Automated test systems (ATE); using microprocessors or computers([G01R 31/317](#) takes precedence; ATE for detection of defective computer hardware ~~G06F11/273A~~[G06F 11/2736](#) ; ~~special-purpose computers for testing G06F15/20B~~)}
- U G01R 31/302
 - • Contactless testing(non contact-making probes [G01R 1/07](#))({ [G01R 31/04](#) takes precedence)}
- G01R 31/308
 - • • using non-ionising electromagnetic radiation, e.g. optical radiation({ investigating or analysing materials by the use of optical means ~~G01N 21/00~~[G01N 21/00](#); image analysis [G06T 7/00](#))}
- U G01R 31/317
 - • Testing of digital circuits{ WARNING: The following subgroups of [G01R 31/317](#) are not complete due to an ongoing reorganisation : [G01R 31/31702](#) , [G01R 31/31708](#) , [G01R 31/31711](#) , [G01R 31/31717](#) , [G01R 31/31718](#) , [G01R 31/31728](#) , [G01R 31/31901](#) . See also [G01R 31/317](#) and its other subgroups }
- U G01R 31/31712
 - • • {Input or output aspects}
- G01R 31/31717
 - • • • {Interconnect testing(by scan techniques see ~~G01R31/3185S3L~~ [G01R 31/31855](#))}
- U G01R 31/3181
 - • • Functional testing([G01R 31/3177](#) takes precedence)
- U G01R 31/3185
 - • • • Reconfiguring for testing, e.g. LSSD, partitioning
- G01R 31/318522
 - • • • • {Test of Sequential circuits(test of microprocessors ~~G06F11/267P~~ [G06F 11/2236](#) , test of ALU`s ~~G06F11/267H~~[G06F 11/2226](#))}
- U G01R 31/319
 - • • • Tester hardware, i.e. output processing circuit({ logic analyzers [G01R 31/3177](#) , Memory tester hardware [G11C 29/56](#))}
- U G01R 31/31917
 - • • • • {Stimuli generation or application of test patterns to the device under test (DUT)}
- G01R 31/31919
 - • • • • • {Storing and outputting test patterns(~~G01R 31/31924~~ takes precedence; ~~arithmetic and random test patterns generator G06F11/273G~~ ; [arithmetic and random test patterns generator](#))}

- U G01R 31/36
- Apparatus for testing electrical condition of accumulators or electric batteries, e.g. capacity or charge condition(accumulators combined with arrangements for measuring, testing or indicating condition [H01M 10/48](#) ; circuit arrangements for charging, or depolarising batteries or for supplying loads from batteries [H02J 7/00](#) ; { Coulomb meters [G01R 22/00](#) ; indicating the condition of the power supply in clocks or watches [G04C 10/04](#) ; methods for controlling fuel cells [H01M 8/04298](#) })

NOTE

This group covers arrangements for measuring, testing or indicating electrical conditions or variables of accumulators or electric batteries. Accumulators combined with arrangements for measuring, testing or indicating condition, or arrangements for measuring, testing or indicating conditions or variables other than electrical, e.g. level or density of battery electrolyte, are covered by the group [H01M 10/48](#) and subgroups

G01R 2031/3603

- • Deleted{Deleted}

U G01R 33/00**Arrangements or instruments for measuring magnetic variables**

- U G01R 33/20
- involving magnetic resonance(medical aspects [A61B 5/055](#) ; magnetic resonance gyrometers [G01C 19/00](#) { investigating materials using NMR [G01N 24/00](#) ; prospecting or detecting using NMR [G01V 3/00](#) })
- U G01R 33/44
- • using nuclear magnetic resonance [NMR]([G01R 33/24](#) , [G01R 33/62](#) take precedence)

WARNING

Groups **G01R33/44B** - [G01R 33/443](#) are not complete pending reclassification. See also this group

G01R 33/443

- • {Assessment of an electric or a magnetic field, e.g. spatial mapping, determination of a B0 drift or dosimetry}

WARNING

Groups **G01R33/44M1** [G01R 33/243](#) - **G01R33/44M3** [G01R 33/246](#) are not complete pending reclassification. See also this group

G01R 33/448

- • {Relaxometry, i.e. quantification of relaxation times or spin density([G01R 33/50](#) takes precedence)}

WARNING

Not complete pending reclassification, see also [G01R 33/44](#) and **G01R 33/44 A** **G01R33/44A**

U G01R 33/48

- • • NMR imaging systems

U G01R 33/4808

- • • {Multimodal MR, e.g. MR combined with positron emission tomography [PET], MR combined with ultrasound or MR combined with computed tomography [CT]}

G01R 33/481

- • • {MR combined with positron emission tomography [PET] or single photon emission computed tomography [SPECT]}

WARNING

Not complete pending reclassification, see also **G01R 33/48** **M** **G01R33/48M**

G01R 33/4812

- • • {MR combined with X-ray or computed tomography [CT]}

WARNING

Not complete pending reclassification, see also **G01R 33/48** **M** **G01R33/48M**

- G01R 33/4814 {MR combined with ultrasound}
- WARNING
Not complete pending reclassification, see also [G01R-33/48](#)
~~M~~[G01R33/48M](#)
- U G01R 33/4818 {MR characterised by data acquisition along a specific k-space trajectory or by the temporal order of k-space coverage, e.g. centric or segmented coverage of k-space}
- U G01R 33/4824 {using a non-Cartesian trajectory}
- G01R 33/4826 {in three dimensions}
- WARNING
Not complete pending reclassification, see also [G01R-33/48](#)
~~T~~[G01R33/48T](#)
- U G01R 33/483 with selection of signals or spectra from particular regions of the volume, e.g. in vivo spectroscopy
- U G01R 33/4833 {using spatially selective excitation of the volume of interest, e.g. selecting non-orthogonal or inclined slices}
- G01R 33/4836 {using an RF pulse being spatially selective in more than one spatial dimension, e.g. a 2D pencil-beam excitation pulse}
- WARNING
Not complete pending reclassification, see also [G01R-33/483](#)
~~B~~[G01R33/483B](#)
- U G01R 33/54 Signal processing systems, e.g. using pulse sequences,{Generation or control of pulse sequences(in general [H03K](#)); Operator Console}
- U G01R 33/56 Image enhancement or correction, e.g. subtraction or averaging techniques,{e.g. improvement of signal-to-noise ratio and resolution(image data processing in general [G06T](#))}
- U G01R 33/563 of moving material, e.g. flow contrast angiography
- U G01R 33/56375 {Intentional motion of the sample during MR, e.g. moving table imaging}
- G01R 33/56383 {involving motion of the sample as a whole, e.g. multistation MR or MR with continuous table motion}
- WARNING
Not complete pending reclassification, see also [G01R-33/563](#)
~~T~~[G01R33/563T](#)

Project: N/A (G01S)

- U G01S 7/00 **Details of systems according to groups [G01S 13/00](#) , [G01S 15/00](#) , [G01S 17/00](#) {(apparatus for measuring unknown time-intervals by electronic means, e.g. Vernier method [G04F 10/00](#))}**
- U G01S 7/02 . . of systems according to group [G01S 13/00](#)
- G01S 2007/027 . . {Housing details, e.g. form, type, material, ruggedness}
- G01S 2007/028 . . . {involving miniaturizing aspects, e.g. surface mounted device [SMD] packaging or housing}
- U G01S 7/28 . . Details of pulse systems
- U G01S 7/285 . . . Receivers
- U G01S 7/288 Coherent receivers
- G01S 2007/2883 {using FFT processing}

| | | |
|---|-----------------|---|
| | G01S 2007/2886 | {using I/Q processing} |
| U | G01S 7/35 | . . Details of non-pulse systems |
| U | G01S 7/352 | . . . {Receivers} |
| | G01S 2007/356 | {involving particularities of FFT processing} |
| | G01S 2007/358 | {using I/Q processing} |
| U | G01S 7/40 | . . Means for monitoring or calibrating |
| U | G01S 7/4004 | . . . {of parts of a radar system(see provisionally also G01S 7/40)} |
| U | G01S 7/4008 | {of transmitters} |
| | G01S 2007/4013 | {involving adjustment of the transmitted power} |
| U | G01S 7/4026 | {Antenna boresight} |
| | G01S 2007/403 | {in azimuth, i.e. in the horizontal plane} |
| | G01S 2007/4034 | {in elevation, i.e. in the vertical plane} |
| | G01S 2007/4039 | {of sensor or antenna obstruction, e.g. dirt- or ice-coating} |
| | G01S 2007/4043 | {including means to prevent or remove the obstruction} |
| | G01S 2007/4047 | {heated dielectric lens, e.g. by heated wire} |
| U | G01S 7/4052 | . . . {by simulation of echoes(analogue simulators in general G06G 7/78)} |
| | G01S 2007/406 | {using internally generated reference signals, e.g. via delay line, via RF or IF signal injection or via integrated reference reflector or transponder} |
| | G01S 2007/4065 | {involving a delay line} |
| | G01S 2007/4069 | {involving a RF signal injection} |
| | G01S 2007/4073 | {involving an IF signal injection} |
| | G01S 2007/4078 | {involving an integrated reference reflector or reference transponder} |
| | G01S 2007/4082 | {using externally generated reference signals, e.g. via remote reflector or transponder} |
| | G01S 2007/4086 | {in a calibrating environment, e.g. anechoic chamber} |
| | G01S 2007/4091 | {during normal radar operation} |
| | G01S 2007/4095 | {the external reference signals being modulated, e.g. rotating dihedral reflector or modulating transponder for simulation of a Doppler echo etc.} |
| U | G01S 7/48 | . of systems according to group G01S 17/00 |
| U | G01S 7/497 | . . Means for monitoring or calibrating |
| | G01S 2007/4975 | . . . {of sensor obstruction by e.g. dirt- or ice-coating, e.g. by reflection measurement on front-screen} |
| | G01S 2007/4977 | {including means to prevent or remove the obstruction} |
| U | G01S 7/52 | . of systems according to group G01S 15/00 |
| U | G01S 7/52004 | . . {Means for monitoring or calibrating(short-range imaging G01S 7/5205)} |
| | G01S 2007/52007 | . . . {involving adjustment of transmitted power} |
| | G01S 2007/52009 | . . . {of sensor obstruction, e.g. dirt- or ice-coating} |
| | G01S 2007/52011 | {including means to prevent or remove the obstruction} |
| | G01S 2007/52012 | {involving a reference ground return} |
| | G01S 2007/52014 | . . . {involving a reference reflector integrated in the sensor or transducer configuration} |
| | G01S 7/534 | . . Details of non-pulse systems{(short-range imaging G01S 7/52-S G01S7/52S)} |

- U G01S 13/00** **Systems using the reflection or reradiation of radio waves, e.g. radar systems; Analogous systems using reflection or reradiation of waves whose nature or wavelength is irrelevant or unspecified(using acoustic waves [G01S 15/00](#) ; using electromagnetic waves other than radio waves [G01S 17/00](#))**

NOTES

This group covers :

- systems for detecting the presence of an object, e.g. by reflection or reradiation from the object itself, or from a transponder associated with the object, for determining the distance or relative velocity of an object, for providing a co-ordinated display of the distance and direction of an object or for obtaining an image thereof;
- systems arranged for mounting on a moving craft or vehicle and using the reflection of waves from an extended surface external to the craft, e.g. the surface of the earth, to determine the velocity and direction of motion of the craft relative to the surface.

This group does not cover :

- systems for determining the direction of an object by means not employing reflection or reradiation, which are covered by groups [G01S 1/00](#) or [G01S 3/00](#) ;
- systems for determining distance or velocity of an object by means not employing reflection or reradiation, which are covered by group [G01S 11/00](#) .

- U G01S 13/02** • Systems using reflection of radio waves, e.g. primary radar systems; Analogous systems
- U G01S 13/0218** • {Very long range radars, e.g. surface wave radar, over-the-horizon or ionospheric propagation systems(for meteorological use [G01S 13/95](#))}
- G01S 2013/0227** • • {OTH, Over-The-Horizon radar}
- G01S 2013/0236** • • {Special technical features}
- G01S 2013/0245** • • • {Radar with phased array antenna}
- G01S 2013/0254** • • • • {Active array antenna}
- G01S 2013/0263** • • • • {Passive array antenna}
- G01S 2013/0272** • • • {Multifunction radar}
- G01S 2013/0281** • • • {LPI, Low Probability of Intercept radar}
- G01S 2013/029** • • • {Antistealth radar}
- U G01S 13/06** • • Systems determining position data of a target
- U G01S 13/46** • • Indirect determination of position data

- G01S 2013/462 {using multipath signals}
- G01S 2013/464 {using only the non-line-of-sight signal(s) e.g. to enable survey of scene 'behind' the target only the indirect signal is evaluated}
- G01S 2013/466 {by Trilateration, i.e. two antennas or two sensors determine separately the distance to a target, whereby with the knowledge of the baseline length, i.e. the distance between the antennas or sensors, the position data of the target is determined}
- G01S 2013/468 {by Triangulation, i.e. two antennas or two sensors determine separately the bearing, direction or angle to a target, whereby with the knowledge of the baseline length, the position data of the target is determined}
- U G01S 13/88 . Radar or analogous systems specially adapted for specific applications(electromagnetic prospecting or detecting of objects, e.g. near-field detection, [G01V 3/00](#))
- U G01S 13/89 . . for mapping or imaging
- U G01S 13/90 . . . using synthetic aperture techniques,{e.g. correcting range migration errors(compression in range per se [G01S 13/28](#) ; platform motion compensation for AMTI [G01S 13/5242](#))}
- U G01S 13/9035 {Particular SAR processing techniques not provided for elsewhere, e.g. squint mode, doppler beam-sharpening mode, spotlight mode, bistatic SAR, inverse SAR}
- G01S 2013/9041 {Squint mode}
- G01S 2013/9047 {Doppler beam-sharpening mode}
- G01S 2013/9052 {Spotlight mode}
- G01S 2013/9058 {Bistatic SAR}
- G01S 2013/9064 {Inverse SAR (ISAR)}
- G01S 2013/907 {Forward looking SAR}
- G01S 2013/9076 {Polarimetric features in SAR(see also [G01S 7/024](#))}
- G01S 2013/9082 {rotating SAR(ROSAR), i.e. antennas rotatably mounted}
- G01S 2013/9088 {circular SAR(CSAR, C-SAR)}
- U G01S 13/91 . . for traffic control([G01S 13/93](#) takes precedence)
- G01S 2013/916 . . . {Airport surface monitoring (ASDE)}
- U G01S 13/93 . . for anti-collision purposes
- U G01S 13/931 . . . {between land vehicles; between land vehicles and fixed obstacles}
- G01S 2013/9314 {for parking operations}
- G01S 2013/9317 {for driving backwards}
- G01S 2013/9321 {for velocity regulation, e.g. cruise control}
- G01S 2013/9325 {for intervehicle distance regulation, e.g. navigating in platoons}
- G01S 2013/9328 {for vehicles on rails}
- G01S 2013/9332 {for monitoring blind spots}
- G01S 2013/9335 {on airport surface(taxiing)}
- G01S 2013/9339 {co-operating with reflectors or transponders}
- G01S 2013/9342 {controlling the steering}
- G01S 2013/9346 {controlling the brakes}
- G01S 2013/935 {controlling the accelerator}
- G01S 2013/9353 {using own vehicle data, e.g. ground speed, steering wheel direction}
- G01S 2013/9357 {using additional data, e.g. driver condition, road state, weather data}

- G01S 2013/936 {combined with communication equipment with other vehicles and/or with base stations(s)}
- G01S 2013/9364 {Alternative operation using ultrasonic waves}
- G01S 2013/9367 {Alternative operation using light waves}
- G01S 2013/9371 {Sensor installation details}
- G01S 2013/9375 {in the front of the vehicle}
- G01S 2013/9378 {in the back of the vehicle}
- G01S 2013/9382 {on the top of the vehicle}
- G01S 2013/9385 {on the side(s) of the vehicle}
- G01S 2013/9389 {in the bumper area(ultrasonic transducer in bumper area
[G01S 2015/938](#) ; bumper with obstacle sensor of electric or electronic type [B60R 19/483](#))}
- G01S 2013/9392 {in the windshield area}
- G01S 2013/9396 {in the lights}

U G01S 15/00 Systems using the reflection or reradiation of acoustic waves, e.g. sonar systems

NOTES

This group covers :

- systems for detecting the presence of an object, e.g. by reflection or reradiation from the object itself, or from a transponder associated with the object, for determining the distance or relative velocity of an object, for providing a co-ordinated display of the distance and direction of an object or for obtaining an image thereof;
- systems arranged for mounting on a moving craft or vehicle and using the reflection of waves from an extended surface external to the craft, e.g. the surface of the earth, to determine the velocity and direction of motion of the craft relative to the surface.

This group does not cover :

- systems for determining the direction of an object by means not employing reflection or reradiation, which are covered by groups [G01S 1/00](#) or [G01S 3/00](#) ;
- systems for determining distance or velocity of an object by means not employing reflection or reradiation, which are covered by group [G01S 11/00](#) .

- U G01S 15/02 . using reflection of acoustic waves([G01S 15/66](#) takes precedence)
- U G01S 15/06 . . Systems determining the position data of a target

- U G01S 15/46
 - • • Indirect determination of position data
- G01S 2015/465
 - • • • {by Trilateration, i.e. two transducers determine separately the distance to a target, whereby with the knowledge of the baseline length, i.e. the distance between the transducers, the position data of the target is determined}
- U G01S 15/88
 - Sonar systems specially adapted for specific applications(seismic or acoustic prospecting or detecting [G01V 1/00](#))
- U G01S 15/93
 - • for anti-collision purposes
- U G01S 15/931
 - • • {between land vehicles; between land vehicles and fixed obstacles}
- G01S 2015/932
 - • • • {for parking operations}
- G01S 2015/933
 - • • • • {for measuring the dimensions of the parking space when driving past}
- G01S 2015/934
 - • • • • {for measuring the depth, i.e. width, not length, of the parking space}
- G01S 2015/935
 - • • • • {for measuring the contour, e.g. a trajectory of measurement points, representing the boundary of the parking space}
- G01S 2015/936
 - • • • • {for measuring parking spaces extending transverse or diagonal to the driving direction, i.e. not parallel to the driving direction}
- G01S 2015/937
 - • • • {sensor installation details(constructional features of transducers [G01S 7/521](#) and [B06B](#); casing of transducers, e.g. housing, cover or filler details, [G10K 9/22](#) ; mounting of transducers, i.e. fixture, fitting or holder details, [G10K 11/004](#))}
- G01S 2015/938
 - • • • • {in the bumper area(radar in bumper area [G01S 2013/9389](#) ; bumper with obstacle sensor of electric or electronic type [B60R 19/483](#))}
- G01S 2015/939
 - • • • • {vertical stacking of sensors, e.g. to enable obstacle height determination}

Project: N/A (G01T)

- U G01T 1/00
 - Measuring X-radiation, gamma radiation, corpuscular radiation, or cosmic radiation([G01T 3/00](#) , [G01T 5/00](#) take precedence)**
- U G01T 1/16
 - Measuring radiation intensity([G01T 1/29](#) takes precedence; { self-powered detectors [G01T 3/006](#) ; using an ionisation chamber filled with a liquid or solid, e.g. frozen liquid, dielectric [G01T 3/008](#) })
- U G01T 1/161
 - • Application in the field of nuclear medicine, e.g. in vivo counting({ apparatus for radiation diagnosis [A61B 6/00](#) })
- G01T 1/1611
 - • • {using both transmission and emission sources sequentially(SPECT imaging [G01T 1/1642](#) ; PET imaging [G01T 1/2985](#) ; detecting hidden objects, e.g. weapons, explosives ~~G01V 5/00-D~~ [G01V5/00D](#))}
- G01T 1/1615
 - • • {using both transmission and emission sources simultaneously(SPECT imaging [G01T 1/1642](#) ; PET imaging [G01T 1/2985](#) ; detecting hidden objects, e.g. weapons, explosives ~~G01V 5/00-D~~ [G01V5/00D](#))}
- U G01T 1/164
 - • • Scintigraphy(radioisotopes [G21G 4/00](#) ; tracers [G21H 5/00](#) ; { measurement of spatial distribution [G01T 1/2914](#) ; apparatus for radiation diagnosis in different planes [A61B 6/02](#) })
- U G01T 1/1641
 - • • • {Static instruments for imaging the distribution of radioactivity in one or two dimensions using one or several scintillating elements; Radio-isotope cameras}
- G01T 1/1647
 - • • • • {Processing of scintigraphic data(not related to a particular imaging system [G01T 1/2992](#) ; ~~special purpose computers for nuclear physics~~ [G06F15/52](#))}
- U G01T 1/166
 - • • • involving relative movement between detector and subject({ scanners in general without using scintigraphy [G01T 1/2964](#) })

- G01T 1/1663
- • • • {Processing methods of scan data, e.g. involving contrast enhancement, background reduction, smoothing, motion correction, dual radio-isotope scanning, computer processing(for measuring spatial distribution of radiation [G01T 1/2992](#) ; ~~digital computing or data processing equipment or methods specially adapted for nuclear physics or nuclear engineering G06F15/52~~ ; e.g. for image data processing ~~G06F15/52D~~ ; general purpose image data processing [G06T 1/00](#) ; computerized tomography [G06T 11/003](#)); Ancillary equipment(colour printers [G01T 1/1666](#))}
- U G01T 1/17
- • Circuit arrangements not adapted to a particular type of detector{(pulse-selection circuits [H03K](#) , [G01R](#))}
- G01T 1/172
- • with coincidence circuit arrangements([G01T 1/178](#) takes precedence; { combination of detectors, see [G01T 1/1603](#) , [G01T 1/30](#) , [G01T 1/361](#) ; ~~G01T1/36D2~~ , ~~G01T1/36D3~~ })}
- U G01T 1/24
- • with semiconductor detectors(semiconductor devices per se [H01L 31/00](#))
- G01T 1/249
- • {specially adapted for use in SPECT or PET(SPECT imaging [G01T 1/1642](#) ; PET imaging [G01T 1/2985](#) ; detecting hidden objects, e.g. weapons, explosives ~~G01V 5/00 D~~ ~~G01V5/00D~~)}
- U G01T 1/29
- Measurement performed on radiation beams, e.g. position or section of the beam; Measurement of spatial distribution of radiation(scintigraphy [G01T 1/164](#) ; mass-spectrometers [H01J 49/025](#))
- U G01T 1/2914
- • {Measurement of spatial distribution of radiation}
- G01T 1/2992
- • {Radioisotope data or image processing not related to a particular imaging system; Off-line processing of pictures, e.g. rescanners(for measuring radiation intensity [G01T 1/1663](#) ; digital computing or data processing equipment or methods specially adapted for nuclear physics or nuclear engineering ~~G06F15/52~~ ; e.g. for image data processing ~~G06F15/52D~~ ; general purpose image data processing [G06T 1/00](#) ; computerized tomography [G06T 11/003](#))}
- U G01T 3/00
- Measuring neutron radiation([G01T 5/00](#) takes precedence; { tubes therefor [H01J 47/12](#) ; circuits with such tubes [G01T 1/18](#) ; measuring short time intervals [G04F 10/00](#) ; measuring pulse characteristics [G01R 29/02](#) ; neutron choppers [G21K 1/04](#) ; polarimeters [G01T 1/32](#))}**
- G01T 3/001
- {Spectrometry(~~see provisionally also G01T 1/36 to G01T 1/368 except ~~G01T1/36D3~~~~ , G01T 3/00 ; other sub-groups of G01T 3/00 take precedence)}
- G01T 3/006
- {using self-powered detectors(for neutrons as well as for Y- or X-rays), e.g. using Compton-effect(Compton diodes)or photo-emission or a (n,B) nuclear reaction(photovoltaic semiconductors [H01L 31/00](#) ; photo-tubes [H01J 40/00](#) ; thermionic generators [H01J 45/00](#) ; radioisotopic generators [G21H 1/00](#) , e.g. ~~G21H 1/02~~ ~~G21H 1/02~~ , [G21H 1/04](#))}
- U G01T 5/00
- Recording of movements or tracks of particles(spark chambers [H01J 47/00](#)); Processing or analysis of such tracks**
- G01T 5/02
- Processing of tracks; Analysis of tracks(~~special purpose computers for nuclear physics G06F15/52~~)}
- U G01T 7/00
- Details of radiation-measuring instruments**
- U G01T 7/12
- Provision for actuation of an alarm

G01T 7/125

- {Alarm- or controlling circuits using ionisation chambers, proportional counters or Geiger-Mueller tubes, also functioning as UV detectors(measuring radiation intensity with counting tubes [G01T 1/18](#) ; measuring radiation intensity with ionisation chambers [G01T 1/185](#) ; fire alarms actuated by presence of radiation of particles, e.g. of infra-red radiation, of ions [G08B7/42](#)[G08B 17/11](#) ; flame monitoring in combustion devices [F23Q 7/00](#) , [F23N](#) ; discharge tubes per se [H01J 47/00](#))}

Project: N/A (G01V)**U G01V 1/00****Seismology; Seismic or acoustic prospecting or detecting**NOTE

Groups [G01V 1/44](#) to [G01V 1/52](#) take precedence over groups [G01V 1/001](#) to [G01V 1/393](#) [G01V 1/42](#)

WARNING

Group [G01V 1/159](#) does not correspond to former or current IPC groups.

Concordance ECLA:IPC for this group is as follows: - [G01V 1/159](#) : [G01V 1/02](#)

U G01V 1/16

- Receiving elements for seismic signals(electromechanical transducers [H04R](#)); Arrangements or adaptations of receiving elements

U G01V 1/20

- • Arrangements of receiving elements, e.g. geophone pattern

U G01V 1/201

- • • {Constructional details of seismic cables, e.g. streamers(integrated optoseismic systems [G01V 1/226](#) ; line connectors in general [H01R](#), transducer mountings in general [G10K 11/004](#))}

G01V 2001/204

- • • • {Reinforcements, e.g. by tensioning cables}

G01V 2001/205

- • • • {Internal damping}

G01V 2001/207

- • • • [Buoyancy](#){[Buoyancy](#)}

U G01V 1/40

- specially adapted for well-logging

U G01V 1/52

- • Structural details

G01V 2001/526

- • • {Mounting of transducers}

U G01V 3/00

Electric or magnetic prospecting or detecting(by optical means [G01V 8/00](#)); Measuring magnetic field characteristics of the earth, e.g. declination, deviation(for navigation, for surveying [G01C](#) ;{ measuring direction or magnitude of magnetic fields or magnetic flux in general [G01R 33/02](#))}

U G01V 3/08

- operating with magnetic or electric fields produced or modified by objects or geological structures or by detecting devices(with electromagnetic waves [G01V 3/12](#) ; measuring the magnetic field characteristics of the earth [G01V 3/40](#))

U G01V 3/083

- • {Controlled source electromagnetic [CSEM] surveying}

G01V 2003/084

- • • [Sources](#){[Sources](#)}

G01V 2003/085

- • • [Receivers](#){[Receivers](#)}

G01V 2003/086

- • • [Processing](#){[Processing](#)}

Project: N/A (G01W)**U G01W 1/00****Meteorology**

G01W 2001/003

- {Clear air turbulence detection or forecasting, e.g. for aircrafts }

G01W 2001/006

- {Main server receiving weather information from several sub-stations }

Project: N/A (G02B)

| | | |
|----------|------------------|---|
| U | G02B 1/00 | Optical elements characterised by the material of which they are made(compositions of optical glasses C03C 3/00 ; cements for glass C03C 27/00) |
| U | G02B 1/10 | • {Coatings produced by application to, or surface treatment of, optical elements, e.g. anti-reflection coatings(G02B 1/08 takes precedence; reflecting coatings G02B 5/08 ; coating of glass in general C03C 17/00)} |
| | G02B 1/105 | • • {Protective coatings(anti-fouling arrangements G02B 27/00 G02B27/00C)} |
| U | G02B 3/00 | Simple or compound lenses(artificial eyes A61F 2/14 ; spectacle lenses or contact lenses for the eyes G02C ; watch or clock glasses G04B 39/00) |
| | G02B 2003/0093 | • {characterised by the shape} |
| U | G02B 3/02 | • with non-spherical faces(G02B 3/10 takes precedence) |
| | G02B 3/08 | • • with discontinuous faces, e.g. Fresnel lens{(diffractive Fresnel lenses G02B 5/18 Z G02B5/18Z)} |
| U | G02B 5/00 | Optical elements other than lenses(light guides G02B 6/00 ; optical logic elements G02F 3/00) |
| | G02B 5/18 | • Diffraction gratings{(holographic optical elements G02B 5/32 , G03H ; integrally combined with optical fibres G02B 6/02 G02B6/02G ; for coupling light guides G02B 6/34 ; integrally combined with optical integrated light guides G02B 6/12 ;grating systems G02B 27/44)} |
| | G02B 2005/1804 | • • {Transmission gratings} |
| | G02B 5/1876 | • • {Diffractive Fresnel lenses; Zone plates; Kinoforms(G02B 5/18 L G02B5/18L , G02B 5/1847 take precedence; optical systems having diffractive correction means G02B 27/0037 ; Fresnel lenses operating by refraction G02B 3/08)} |
| U | G02B 6/00 | Light guides |
| | G02B 2006/0098 | • {for scanning} |
| U | G02B 6/02 | • Optical fibre with cladding(with or without a coating){ mechanical structures for providing tensile strength and external protection G02B 6/44) |
| | G02B 6/02052 | • • {comprising optical elements other than gratings, e.g. filters(comprising gratings G02B 6/02 G02B 6/02057)} |
| U | G02B 6/02057 | • • {comprising gratings} |
| U | G02B 6/02076 | • • • {Refractive index modulation gratings, e.g. Bragg gratings} |
| U | G02B 6/0208 | • • • • {characterised by their structure, wavelength response(G02B 6/02114 , G02B 6/02171 , G02B 6/02195 take precedence; multiple layer cores or claddings G02B 6/036 , protective coverings G02B 6/4429)} |
| U | G02B 6/02085 | • • • • • {characterised by the grating profile, e.g. chirped, apodised, tilted, helical} |
| | G02B 2006/0209 | • • • • • {Helical, chiral gratings} |
| U | G02B 6/02123 | • • • • {characterised by the method of manufacture of the grating(photolithography G03F 7/0005)} |
| | G02B 2006/02157 | • • • • • {Grating written during drawing of the fibre} |
| | G02B 2006/02161 | • • • • • {Grating written by radiation passing through the protective fibre coating} |
| | G02B 2006/02166 | • • • • • {Methods of designing the gratings, i.e. calculating the structure, e.g. algorithms, numerical methods} |
| U | G02B 6/032 | • • with non solid core or cladding{ G02B 6/02295 takes precedence } |
| | G02B 2006/0325 | • • • {Fluid core or cladding} |

- U G02B 6/10
- of the optical waveguide type([G02B 6/02](#) , [G02B 6/24](#) take precedence; devices or arrangements for the control of light by electric, magnetic, electro-magnetic or acoustic means [G02F 1/00](#) ; transferring the modulation of modulated light [G02F 2/00](#) ; optical logic elements [G02F 3/00](#) ; optical analogue/digital converters [G02F 7/00](#) ; stores using opto-electronic devices [G11C 11/42](#) , { using electro-optical elements [G11C 13/047](#) } ; electric waveguides [H01P](#); transmission of information by optical means [H04B 10/00](#) ; multiplex systems [H04J 14/00](#))
- U G02B 6/12
- • of the integrated circuit kind(production or processing of single crystals [C30B](#) ; electric integrated circuits [H01L 27/00](#) { coupling fibres and integrated optical circuits [G02B 6/30](#) }
- G02B 2006/12035
- • [Materials](#){[Materials](#)}
- G02B 2006/12038
- • [Glass](#){[Glass](#)(SiO₂ based materials)}
- G02B 2006/1204
- • [Lithium niobate](#){[Lithium niobate](#)(LiNbO₃)}
- G02B 2006/12042
- • [Potassium niobate](#){[Potassium niobate](#)(KNbO₃)}
- G02B 2006/12045
- • [Lithium tantalate](#){[Lithium tantalate](#)(LiTaO₃)}
- G02B 2006/12047
- • [Barium titanate](#){[Barium titanate](#)(BaTiO₃)}
- G02B 2006/1205
- • [Arsenic sulfide](#){[Arsenic sulfide](#)(As₂S₃)}
- G02B 2006/12052
- • [Arsenic selenide](#){[Arsenic selenide](#)(As₂Se₃)}
- G02B 2006/12054
- • [Tantalum pentoxide](#){[Tantalum pentoxide](#)(Ta₂O₅)}
- G02B 2006/12057
- • [Niobium pentoxide](#){[Niobium pentoxide](#)(Nb₂O₅)}
- G02B 2006/12059
- • [Titanium niobate](#){[Titanium niobate](#)(TiNbO₃)}
- G02B 2006/12061
- • [Silicon](#){[Silicon](#)}
- G02B 2006/12064
- • [Zinc sulfide](#){[Zinc sulfide](#)(ZnS)}
- G02B 2006/12066
- • [Calcite](#){[Calcite](#)(CaCO₃)}
- G02B 2006/12069
- • [Organic material](#){[Organic material](#)}
- G02B 2006/12071
- • • [PMMA](#){[PMMA](#)}
- G02B 2006/12073
- • • [Epoxy](#){[Epoxy](#)}
- G02B 2006/12076
- • • [Polyamide](#){[Polyamide](#)}
- G02B 2006/12078
- • [Gallium arsenide or alloys](#){[Gallium arsenide or alloys](#)(GaAs, GaAlAs, GaAsP, GaInAs)}
- G02B 2006/1208
- • [Rare earths](#){[Rare earths](#)}
- G02B 2006/12083
- • [Constructional arrangements](#){[Constructional arrangements](#)}
- G02B 2006/12085
- • [Integrated](#){[Integrated](#)}
- G02B 2006/12088
- • [Monomode](#){[Monomode](#)}
- G02B 2006/1209
- • [Multimode](#){[Multimode](#)}
- G02B 2006/12092
- • [Stepped](#){[Stepped](#)}
- G02B 2006/12095
- • [Graded](#){[Graded](#)}
- G02B 2006/12097
- • [Ridge, rib or the like](#){[Ridge, rib or the like](#)}
- G02B 2006/121
- • [Channel; buried or the like](#){[Channel; buried or the like](#)}
- G02B 2006/12102
- • [Lens](#){[Lens](#)}
- G02B 2006/12104
- • [Mirror; Reflectors or the like](#){[Mirror; Reflectors or the like](#)}
- G02B 2006/12107
- • [Grating](#){[Grating](#)}
- G02B 2006/12109
- • [Filter](#){[Filter](#)}
- G02B 2006/12111
- • [Fibre](#){[Fibre](#)}
- G02B 2006/12114
- • [Prism](#){[Prism](#)}
- G02B 2006/12116
- • [Polariser; Birefringent](#){[Polariser; Birefringent](#)}

| | |
|-----------------|--|
| G02B 2006/12119 | • • Bend { Bend } |
| G02B 2006/12121 | • • Laser { Laser } |
| G02B 2006/12123 | • • Diode { Diode } |
| G02B 2006/12126 | • • Light absorber } |
| G02B 2006/12128 | • • Multiple Quantum Well (MQW) } |
| G02B 2006/1213 | • • comprising photonic band-gap structures or photonic lattices } |
| G02B 2006/12133 | • • Functions { Functions } |
| G02B 2006/12135 | • • Temperature control } |
| G02B 2006/12138 | • • Sensor { Sensor } |
| G02B 2006/1214 | • • Soliton { Soliton } |
| G02B 2006/12142 | • • Modulator { Modulator } |
| G02B 2006/12145 | • • Switch { Switch } |
| G02B 2006/12147 | • • Coupler { Coupler } |
| G02B 2006/1215 | • • Splitter { Splitter } |
| G02B 2006/12152 | • • Mode converter } |
| G02B 2006/12154 | • • Power divider } |
| G02B 2006/12157 | • • Isolator { Isolator } |
| G02B 2006/12159 | • • Interferometer { Interferometer } |
| G02B 2006/12161 | • • Distributed feedback (DFB) } |
| G02B 2006/12164 | • • Multiplexing; Demultiplexing } |
| G02B 2006/12166 | • • Manufacturing methods } |
| G02B 2006/12169 | • • Annealing { Annealing } |
| G02B 2006/12171 | • • • using a laser beam } |
| G02B 2006/12173 | • • Masking { Masking } |
| G02B 2006/12176 | • • Etching { Etching } |
| G02B 2006/12178 | • • Epitaxial growth } |
| G02B 2006/1218 | • • Diffusion { Diffusion } |
| G02B 2006/12183 | • • Ion-exchange } |
| G02B 2006/12185 | • • • field-assisted ion-exchange } |
| G02B 2006/12188 | • • Ion implantation } |
| G02B 2006/1219 | • • Polymerisation { Polymerisation } |
| G02B 2006/12192 | • • Splicing { Splicing } |
| G02B 2006/12195 | • • Tapering { Tapering } |
| G02B 2006/12197 | • • Grinding; Polishing } |
| U G02B 6/24 | • Coupling light guides(for electric waveguides H01P 1/00) |
| U G02B 6/26 | • • Optical coupling means(G02B 6/36 , G02B 6/42 take precedence) |
| U G02B 6/27 | • • • with polarisation selective and adjusting means({ for wavelength selection G02B 6/29302 ; of the integrated waveguide kind G02B 6/126 } ; polarisation; polarisation systems in general G02B 27/28 ; optical polarisation multiplex systems H04J 14/06) |
| U G02B 6/2726 | • • • • {in or on light guides, e.g. polarisation means assembled in a light guide} |
| G02B 6/274 | • • • • {based on light guide birefringence, e.g. due to coupling between light guides(G02B 6/105 , G02B 6/024 take precedence; mechanically induced birefringence G02F1/02M2C G02F 1/0134)} |
| U G02B 6/2753 | • • • • {characterised by their function or use, i.e. of the complete device} |

- G02B 6/278 {Controlling polarisation mode dispersion [PMD], e.g. PMD compensation or emulation(PMD minimised transmission systems **H04B10/18P****H04B 10/2569**)}
- U G02B 6/28 . . . having data bus means, i.e. plural waveguides interconnected and providing an inherently bidirectional system by mixing and splitting signals
- U G02B 6/2804 {forming multipart couplers without wavelength selective elements, e.g. "T" couplers, star couplers}
- U G02B 6/2821 {using lateral coupling between contiguous fibres to split or combine optical signals}
- U G02B 6/2835 {formed or shaped by thermal treatment, e.g. couplers}
- G02B 2006/2839 {fabricated from double or twin core fibres}
- G02B 2006/2865 { couplers of the 3x3 type }
- U G02B 6/293 with wavelength selective means({ [G02B 6/02052](#) , [G02B 6/02057](#) take precedence } ; for optical elements in use, see the relevant subgroups of this subclass; optical wavelength-division multiplexing systems [H04J 14/02](#) ; { in or associated with an integrated waveguide arrangement [G02B 6/12007](#) ; mode multiplexing [G02B 6/14](#) })
- U G02B 6/29371 {operating principle based on material dispersion}
- U G02B 6/29374 {in an optical light guide([G02B 6/02214](#) takes precedence)}
- G02B 6/29376 {coupling light guides for controlling wavelength dispersion, e.g. by concatenation of two light guides having different dispersion properties(dispersion managed optical transmission systems **H04B10/18D2M****H04B 10/25253**)}
- U G02B 6/42 . . Coupling light guides with opto-electronic elements
- NOTE**
In this group, the following expression is used with the meaning indicated:
- "opto-electronic elements" includes light emitting elements, e.g. lasers or LED's, as well as light receiving elements, e.g. photodiodes or phototransistors
- U G02B 6/4201 . . . {Packages, e.g. shape, construction, internal or external details}
- G02B 6/4204 {the coupling comprising intermediate optical elements, e.g. lenses, holograms(encapsulated active devices [H01S 5/02208](#) , **H01L33/00B2** , **H01L33/00B6****H01L 33/52**)}
- U G02B 6/4219 {Mechanical fixtures for holding or positioning the elements relative to each other in the couplings; Alignment methods for the elements, e.g. measuring or observing methods especially used therefor}
- U G02B 6/4228 {Passive alignment, i.e. without a detection of the degree of coupling or the position of the elements([G02B 6/4234](#) takes precedence)}
- G02B 6/4232 {using the surface tension of fluid solder to align the elements, e.g. solder bump techniques(flip-chip mounting techniques in assembly of semiconductor devices **H01L21/60C4****H01L 24/81**)}
- U G02B 6/4296 . . . {coupling with sources of high radiant energy, e.g. high power lasers, high temperature light sources}
- G02B 2006/4297 {having protection means, e.g. protecting humans against accidental exposure to harmful laser radiation}
- U G02B 17/00 Systems with reflecting surfaces, with or without refracting elements(microscopes [G02B 21/00](#) ; telescopes, periscopes [G02B 23/00](#) ; for beam splitting or combining [G02B 27/10](#) ; for optical projection [G02B 27/18](#))**
- U G02B 17/08 . Catadioptric systems({ used in non-imaging applications [G02B 19/00](#) })

- G02B 17/0804
- {using two curved mirrors([G02B 17/0864](#) , ~~G02B1708Z~~~~G02B1708Z~~ takes precedence)}
- U G02B 26/00**
- Optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light, e.g. switching, gating, modulating(specially adapted to measuring characteristics of light [G01J](#) ; using devices or arrangements the optical operation of which is modified by changing the optical properties of the medium of the devices or the arrangements [G02F 1/00](#) ; control of light in general [G05D 25/00](#) ; control of light sources [H01S 3/10](#) , [H05B 37/00](#) to [H05B 43/00](#) ; mechanically operable parts of lighting devices for the control of light [F21V](#))**
- U G02B 26/08
- for controlling the direction of light(in light guides [G02B 6/35](#))
- G02B 26/10
- • Scanning systems(for special applications, see the relevant places, e.g. ~~G03B-27/32~~~~G03B 27/32~~, { [G03F 7/20](#) } , [G03G 15/04](#) , [G09G 3/00](#) , [H04N](#))
- U G02B 26/12
- • • using multifaceted mirrors
- G02B 26/125
- • • {Details of the optical system between the polygonal mirror and the image plane(~~G02B-26/12-D~~~~G02B26/12D~~, [G02B 26/127](#) take precedence; F-Theta lenses ~~G02B-13/00-A~~~~G02B13/00A~~)}
- U G02B 27/00**
- Other optical systems; Other optical apparatus(means for bringing about special optical effects in shop-windows, show-cases [A47F](#) , e.g. [A47F 11/06](#) ; optical toys [A63H 33/22](#) ; designs or pictures characterised by special light effects [B44F 1/00](#))**
- U G02B 27/01
- Head-up displays
- NOTE
- Details of head-up displays covered by [G02B 27/01](#) but not provided for in this group are also to be classified under [G02B 27/01](#) and subgroups
- U G02B 27/0101
- • {characterised by optical features([G02B 27/0172](#) takes precedence)}
- U G02B 27/0103
- • • {comprising holographic elements}
- G02B 27/0105
- • • • {Holograms with particular structures}
- G02B 27/0107
- • • • {with optical power}
- G02B 27/0109
- • • • {comprising details concerning the making of holograms}
- G02B 27/011
- • • {comprising device for correcting geometrical aberrations, distortion}
- G02B 27/0112
- • • {comprising device for generating colour display}
- G02B 27/0114
- • • • {comprising dichroic elements}
- G02B 27/0116
- • • • {comprising devices for correcting chromatic aberration}
- G02B 27/0118
- • • {comprising devices for improving the contrast of the display / brilliance control visibility}
- G02B 27/012
- • • • {comprising devices for attenuating parasitic image effects}
- G02B 27/0121
- • • • • {Parasitic image effect attenuation by suitable positioning of the parasitic images}
- G02B 27/0123
- • • {comprising devices increasing the field of view}
- G02B 27/0125
- • • • {Field-of-view increase by wavefront division}
- G02B 27/0127
- • • {comprising devices increasing the depth of field}
- G02B 27/0129
- • • {comprising devices for correcting parallax}
- G02B 27/013
- • • {comprising a combiner of particular shape, e.g. curvature}
- G02B 27/0132
- • • {comprising binocular systems}
- G02B 27/0134
- • • • {of stereoscopic type}
- G02B 27/0136
- • • • {with a single image source for both eyes}

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| | G02B 2027/0138 | . . . {comprising image capture systems e.g. camera} |
| | G02B 2027/014 | . . . {comprising information/image processing systems} |
| | G02B 2027/0141 | . . . {characterised by the informative content of the display} |
| | G02B 2027/0143 | . . . {the two eyes not being equipped with identical nor symmetrical optical devices} |
| | G02B 2027/0145 | . . . {creating an intermediate image} |
| | G02B 2027/0147 | . . . {comprising a device modifying the resolution of the displayed image} |
| U | G02B 27/0149 | . . {characterised by mechanical features(G02B 27/0176 takes precedence)} |
| | G02B 2027/015 | . . . {involving arrangement aiming to get less bulky devices} |
| | G02B 2027/0152 | . . . {involving arrangement aiming to get lighter or better balanced devices} |
| | G02B 2027/0154 | . . . {with movable elements} |
| | G02B 2027/0156 | {with optionally usable elements} |
| | G02B 2027/0158 | {with adjustable nose pad} |
| | G02B 2027/0159 | {with mechanical means other than scanning means for positioning the whole image} |
| | G02B 2027/0161 | . . . {characterised by the relative positioning of the constitutive elements} |
| | G02B 2027/0163 | {Electric or electronic control thereof} |
| | G02B 2027/0165 | . . . {associated with a head-down display} |
| | G02B 2027/0167 | . . . {Emergency system, e.g. to prevent injuries} |
| | G02B 2027/0169 | . . . {Supporting or connecting means other than the external walls} |
| U | G02B 27/017 | . . {Head mounted} |
| U | G02B 27/0172 | . . . {characterised by optical features} |
| | G02B 2027/0174 | holographic { holographic } |
| | G02B 2027/0178 | . . . {Eyeglass type, eyeglass details G02C } |
| U | G02B 27/0179 | . . {Display position adjusting means not related to the information to be displayed} |
| | G02B 2027/0181 | . . . {Adaptation to the pilot/driver} |
| | G02B 2027/0183 | . . . {Adaptation to parameters characterising the motion of the vehicle} |
| | G02B 2027/0185 | . . . {Displaying image at variable distance} |
| | G02B 2027/0187 | . . . {slaved to motion of at least a part of the body of the user, e.g. head,eye} |
| U | G02B 27/0189 | . . {Sight systems} |
| | G02B 2027/019 | . . . {comprising reticules formed by a mask} |
| | G02B 2027/0192 | . . {Supplementary details} |
| | G02B 2027/0194 | . . . {with combiner of laminated type, for optical or mechanical aspects} |
| | G02B 2027/0196 | . . . {having transparent supporting structure for display mounting, e.g. to a window or a windshield} |
| | G02B 2027/0198 | . . . {System for aligning or maintaining alignment of an image in a predetermined direction} |
| U | G02B 27/02 | . Viewing or reading apparatus(stereoscopic systems per se G02B 27/22 ; of the projection type G03B ; slide-changing apparatus G03B) |
| U | G02B 27/022 | . . {Viewing apparatus(G02B 27/04 , G02B 27/06 , G02B 27/08 take precedence)} |
| | G02B 27/023 | . . . {for viewing X-ray images using image converters, e.g. radiosopes(X-ray screens G21K 4/00 ; X-ray image conversion tubes H01J 31/50 ; circuit arrangements for X-ray apparatus incorporating image intensifiers H05G 1/64 H05G 1/64)} |

- G02B 27/024
- • {comprising a light source, e.g. for viewing photographic slides, X-ray transparencies([G02B 27/023](#) , and photographic, cine and overhead projectors [G03B 21](#)[G03B 21/00](#) and subgroups)}
- G02B 27/09
- Beam shaping, e.g. changing the cross-sectional area, not otherwise provided for(~~adapting the beam shape of a laser diode G02B19/B3D~~; ~~adapting the beam shape of an LED G02B19/B3L~~; ~~adapting the beam shape of a laser diode G02B19/B3D~~; ~~adapting the beam shape of an LED G02B19/B3L~~ ; coupling into light guides using intermediate optical elements [G02B 6/4204](#) ; beam shaping specially adapted for lasers [H01S 3/005](#))}
- U G02B 27/0938
- {Using specific optical elements}
- U G02B 27/095
- • {Refractive optical elements}
- U G02B 27/0955
- • • {Lenses(lenses per se [G02B 3/00](#))}
- G02B 27/0961
- • • • {Lens arrays(lens arrays per se ~~G02B 3/00-A~~ [G02B3/00A](#))}
- G02B 27/18
- for optical projection, e.g. combination of mirror and condenser and objective{ not in use, see the relevant CPC classes according to projector type, e.g. photographic, cine and overhead projectors ~~G03B27/21~~[G03B 21/00](#) and subgroups, photographic projection printing [G03B 27/32](#) , photolithographic projectors [G03F 7/20](#) , projection television [H04N 5/74](#) , colour projection television [H04N 9/31](#) }
- U G02B 27/42
- Diffraction optics{, i.e. systems including a diffractive element being designed for providing a diffractive effect}([G02B 27/60](#) takes precedence)
- G02B 27/4272
- {having plural diffractive elements positioned sequentially along the optical path}
- WARNING
Not complete, see also ~~G02B 5/18-E~~ [G02B5/18E](#)
- G02B 27/44
- • Grating systems; Zone plate systems([G02B 27/46](#) takes precedence; { beam splitting or combining systems operating by diffraction only ~~G02B27/10D~~ [G02B 27/1086](#) }; spectrometry [G01J](#))
- WARNING
This group is no longer used for the classification of new documents as from May 1, 2012. The backlog is being continuously classified to [G02B 27/42](#) and subgroups

Project: N/A (G02F)

- U G02F 1/00
- Devices or arrangements for the control of the intensity, colour, phase, polarisation or direction of light arriving from an independent light source, e.g. switching, gating, or modulating; Non-linear optics(thermometers using change of colour or translucency [G01K 11/12](#) ; using changes in fluorescence [G01K 11/32](#) ; light guide devices [G02B 6/00](#) ; optical devices or arrangements using movable or deformable elements for controlling light independent of the light source [G02B 26/00](#) ; control of light in general [G05D 25/00](#) ; visible signalling systems [G08B 5/00](#) ; indicating arrangements for variable information by selection or combination of individual elements [G09F 9/00](#) ; control arrangements or circuits for visual indicators other than cathode-ray tubes [G09G 3/00](#) ; control of light sources [H01S 3/10](#) , [H05B 33/08](#) , [H05B 35/00](#) to [H05B 43/00](#) ; { photochromic filters [G02B 5/23](#) ; optical logic elements [G02F 3/00](#) })

NOTE

This group covers only :

- devices or arrangements, e.g. cells, the optical operation of

which is modified by changing the optical properties of the medium of the devices or arrangements by the influence or control of physical parameters, e.g. electric fields, electric current, magnetic fields, sound or mechanical vibrations, stress or thermal effects;
- devices or arrangements in which the electric or magnetic field component of the light beams influences the optical properties of the medium, i.e. non-linear optics;
- control of light by electromagnetic waves, e.g. radio waves, or by electrons or other elementary particles.

- U G02F 1/01
 - for the control of the intensity, phase, polarisation or colour([G02F 1/29](#) , [G02F 1/35](#) take precedence; polarising elements per se [G02B 5/30](#) ; static storage per se [G11C](#); image tube screens acting as light valves by shutter operation [H01J 29/12](#) ; such screens acting by discoloration [H01J 29/14](#) ; { projection arrangements for television image reproduction, e.g. using eidophor [H04N 5/74](#) ; recording by light [G11B 7/00](#) to [G11B 11/00](#) })
- U G02F 1/011
 - {in optical waveguides([G02F 1/0134](#) , [G02F 1/01708](#) , [G02F 1/025](#) , [G02F 1/035](#) , [G02F 1/0508](#) , [G02F 1/0553](#) , [G02F 1/065](#) , [G02F 1/073](#) , [G02F 1/095](#) , [G02F 1/125](#) , [G02F 1/1326](#) , [G02F 1/225](#) take precedence; optical waveguides in general [G02B 6/00](#))}
- G02F 2001/0113
 - • {made of glass, e.g. silica-based optical waveguides}
- U G02F 1/0136
 - {for the control of polarisation, e.g. state of polarisation (SOP) control, polarisation scrambling, TE-TM mode conversion or separation([G02F 1/0353](#) takes precedence)}
- G02F 2001/0139
 - • {Polarisation scrambling; Depolarisers}
- G02F 2001/0142
 - • {TE-TM mode conversion}
- G02F 2001/0144
 - • {TE-TM mode separation}
- U G02F 1/015
 - • based on semiconductor elements with at least one potential jump barrier, e.g. PN, PIN junction([G02F 1/03](#) takes precedence)
- G02F 2001/0151
 - • {modulating the refractive index}
- G02F 2001/0152
 - • • {by free carrier effects (Plasma)}
- G02F 2001/0153
 - • • {by electro-refraction(Kramers-Kronig relation)}
- G02F 2001/0154
 - • • {by electro-optic effects(LEO=Pockels, QEO=Kerr)}
- G02F 2001/0155
 - • {modulating the optical absorption}
- G02F 2001/0156
 - • • {by free carrier absorption}
- G02F 2001/0157
 - • • {by electro-absorption effects(FK, Stark, QCSE)}
- G02F 2001/0158
 - • • • {with blue-shift of the absorption band}
- G02F 2001/0159
 - • • • {with red-shift of the absorption band}
- U G02F 1/017
 - • Structures with periodic or quasi periodic potential variation, e.g. superlattices, quantum wells
- U G02F 1/01725
 - • • {with a non-rectangular quantum well structure, e.g. coupled, graded, stepped quantum wells}
- G02F 2001/01733
 - • • • {Coupled or double quantum wells}
- G02F 2001/01741
 - • • • • {Asymmetrically coupled or double quantum wells}
- G02F 2001/0175
 - • • • • {with a spatially varied well profile, e.g. graded, stepped quantum wells}

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| | G02F 2001/01758 | {with an asymmetric well profile, e.g. asymmetrically stepped quantum wells} |
| | G02F 2001/01766 | {Strained superlattice or quantum well devices} |
| | G02F 2001/01775 | {involving an intersubband transition in one well, e.g. e1->e2} |
| | G02F 2001/01783 | {Quantum wire} |
| | G02F 2001/01791 | {Quantum box or dot} |
| U | G02F 1/09 | . . based on magneto-optical elements, e.g. exhibiting Faraday effect |
| | G02F 2001/094 | . . . {Based on magnetophoretic effect} |
| U | G02F 1/13 | . . based on liquid crystals, e.g. single liquid crystal display cells(liquid crystal materials C09K 19/00) |
| | G02F 2001/1316 | . . . {Cleaning methods or materials for cleaning part of liquid crystal cell components during the manufacturing process} |
| U | G02F 1/133 | . . . Constructional arrangements; Operation of liquid crystal cells; Circuit arrangements(arrangements or circuits for control of liquid crystal elements in a{ segment display or a }matrix, not structurally associated with these elements,{ respectively G09G 3/18 and } G09G 3/36) |
| U | G02F 1/13306 | {Circuit arrangements or driving methods for the control of single liquid crystal cells(G02F 1/132 , G02F 1/133382 take precedence)} |
| | G02F 2001/13312 | {Circuits comprising a photodetector not for feedback} |
| | G02F 2001/13324 | {Circuits comprising a solar cell} |
| U | G02F 1/1333 | Constructional arrangements;(Manufacturing methods){ G02F 1/135 , G02F 1/136 take precedence) |
| | G02F 2001/133302 | {rigid substrate, e.g. inorganic} |
| U | G02F 1/133308 | {LCD panel immediate support structure, e.g. front and back frame or bezel} |
| | G02F 2001/133311 | {Environmental protection, e.g. dust, humidity} |
| | G02F 2001/133314 | {Back frame} |
| | G02F 2001/133317 | {Intermediate frame, e.g. between backlight housing and front frame} |
| | G02F 2001/13332 | {Front frame} |
| | G02F 2001/133322 | {Mechanical guiding and alignment of LCD panel support components} |
| | G02F 2001/133325 | {Method of assembling(G02F 2201/465 takes precedence)} |
| | G02F 2001/133328 | {Segmented frame} |
| | G02F 2001/133331 | {Cover glass} |
| | G02F 2001/133334 | {Electromagnetic shield} |
| | G02F 2001/133337 | {Ion-diffusion preventing or absorbing layer} |
| | G02F 2001/133342 | {for double side displays} |
| | G02F 2001/133354 | {Arrangements for aligning or assembling the substrates} |
| | G02F 2001/133357 | {Planarisation layer} |
| | G02F 2001/133368 | {cell having two substrates with different characteristic, e.g. hickness or material} |
| | G02F 2001/133374 | {for displaying permanent signs or marks} |
| | G02F 2001/133388 | {Constructional difference between the display region and the peripheral region} |
| | G02F 2001/133391 | {Constructional arrangement for sub-divided displays} |
| | G02F 2001/133394 | {Piezoelectric element associated with the cell} |
| | G02F 2001/133397 | {for suppressing after-image or image-sticking} |

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| U | G02F 1/1334 | based on polymer dispersed liquid crystals, e.g. microencapsulated liquid crystals{(compositions C09K 19/544)} |
| | G02F 2001/13345 | {Network or three-dimensional gel} |
| | G02F 2001/13347 | {Reverse mode, i.e. clear in the off-state and scattering in the on-state} |
| U | G02F 1/1335 | Structural association of optical devices, e.g. polarisers, reflectors or illuminating devices, with the cell |
| U | G02F 1/133504 | {Diffusing, scattering, diffracting elements(associated to illuminating devices G02F 1/13357)} |
| | G02F 2001/133507 | {Luminance enhancement films} |
| U | G02F 1/133509 | {Filters, e.g. light shielding masks(optical filters G02B 5/20)} |
| | G02F 1/133514 | {Colour filters(luminescent elements G02F1/13357L G02F 1/133617)} |
| | G02F 2001/133519 | {overcoating{overcoating}} |
| | G02F 2001/133521 | {Interference filters} |
| U | G02F 1/133528 | {Polarisers(polarisers per se G02B 5/30)} |
| | G02F 2001/133531 | {Special arrangement of polariser or analyser axes} |
| | G02F 1/133536 | {Reflective polarizers(G02F1/13357P G02F 1/13362 takes precedence)} |
| | G02F 2001/133538 | {with a spatial distribution of the polarisation direction} |
| | G02F 2001/133541 | {Circular polarisers} |
| | G02F 2001/133543 | {Cholesteric polarisers} |
| | G02F 2001/133545 | {Dielectric stack polarisers} |
| | G02F 2001/133548 | {Wire-grid polarisers} |
| | G02F 2001/13355 | {Polarising beam splitters [PBS]} |
| U | G02F 1/133553 | {Reflecting elements(associated to illuminating devices G02F 1/13357)} |
| U | G02F 1/133555 | {Transflectors} |
| | G02F 2001/133557 | {Half-mirror} |
| | G02F 2001/13356 | {Particular location of the optical element} |
| | G02F 2001/133562 | {on the viewer side} |
| | G02F 2001/133565 | {inside the LC element, i.e. between the cell substrates} |
| | G02F 2001/133567 | {on the back side} |
| U | G02F 1/1336 | {Illuminating devices(in general F21V ; associated with display devices for electronic watches G04G 9/0041)} |
| WARNING | | |
| Groups G02F 1/1336 - G02F 1/133621 dos not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - G02F 1/1336 - G02F 1/133621 : G02F 1/13357 | | |
| | G02F 2001/133601 | {for spatial active dimming} |
| U | G02F 1/133602 | {Direct backlight} |
| U | G02F 1/133606 | {including a specially adapted diffusing, scattering or light controlling members} |
| | G02F 2001/133607 | {the light controlling member including light directing or refracting elements, e.g. prisms or lenses} |
| | G02F 2001/133612 | {Electrical details} |
| | G02F 2001/133613 | {including a particular sequence of light sources} |

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| | G02F 2001/133614 | {the light is generated by photoluminescence, e.g. a phosphor is illuminated by UV or blue light} |
| | G02F 2001/133616 | {Front illuminating devices} |
| | G02F 2001/133618 | {for ambient light} |
| U | G02F 1/133621 | {providing coloured light(G02F 1/133617 , G02F 1/133533 take precedence)} |
| | G02F 2001/133622 | {colour sequential illumination} |
| | G02F 2001/133623 | {Inclined coloured light beams} |
| | G02F 2001/133624 | {having a particular spectral emission} |
| | G02F 2001/133625 | {Electron stream lamps} |
| | G02F 2001/133626 | {providing two modes of illumination, e.g. day-night} |
| | G02F 2001/133627 | {Projection-direct viewing} |
| | G02F 2001/133628 | {with cooling means} |
| U | G02F 1/13363 | Birefringent elements, e.g. for optical compensation |
| | G02F 2001/133631 | {with a spatial distribution of the retardation value} |
| | G02F 2001/133633 | {using mesogenic materials} |
| | G02F 2001/133635 | {Multifunctional compensators} |
| | G02F 2001/133637 | {characterized by the wavelength dispersion} |
| | G02F 2001/133638 | {Waveplates, i.e. plates with a retardation value of λ/n } |
| U | G02F 1/1337 | Surface-induced orientation of the liquid crystal molecules, e.g. by alignment layers |
| U | G02F 1/133711 | {by organic films, e.g. polymeric films} |
| | G02F 2001/133715 | {by first depositing a monomer} |
| | G02F 2001/133726 | {made of a mesogenic material} |
| | G02F 2001/13373 | {Disclination line; Reverse tilt} |
| | G02F 2001/133738 | {for homogeneous alignment} |
| | G02F 2001/133742 | {for homeotropic alignment} |
| | G02F 2001/133746 | {for high pretilt angle, i.e. > 15 degrees} |
| | G02F 2001/133749 | {for low pretilt angle, i.e. < 15 degrees} |
| U | G02F 1/133753 | {with different alignment orientations or pretilt angles on a same surface, e.g. for grey scale or improved viewing angle} |
| | G02F 2001/133757 | {with different alignment orientations} |
| | G02F 2001/133761 | {with different pretilt angles} |
| | G02F 2001/133765 | {without a surface treatment} |
| | G02F 2001/133769 | {comprising an active, e.g. switchable alignment layer} |
| | G02F 2001/133773 | {The alignment material or treatment is different for the two opposite substrates} |
| | G02F 2001/133776 | {having structures i.e. unevenness locally influencing the alignment} |
| U | G02F 1/13378 | {by treatment of the surface, e.g. embossing, rubbing, light irradiation(G02F 1/133711 , G02F 1/133734 , G02F 1/133753 take precedence)} |
| | G02F 2001/133792 | {by etching} |
| | G02F 2001/133796 | {having conducting property} |
| U | G02F 1/1339 | Gaskets; Spacers,{also spacers with conducting properties(electric line connectors H01R)}; Sealing of the cell |
| | G02F 2001/13396 | {Spacers having different sizes} |

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|---|------------------|---|
| | G02F 2001/13398 | {Materials and properties of the spacer} |
| U | G02F 1/1341 | Filling or closing of the cell{(G02F 1/133365 , G02F 1/1334 take precedence)} |
| | G02F 2001/13415 | {Drop filling process} |
| U | G02F 1/1343 | Electrodes{(reflective electrodes G02F 1/133553)} |
| U | G02F 1/134309 | {characterised by their geometrical arrangement(G09F 9/302 takes precedence)} |
| | G02F 2001/134318 | {having a patterned common electrode} |
| | G02F 2001/134345 | {Subdivided pixels, e.g. grey scale, redundancy} |
| | G02F 2001/134354 | {the sub-pixels being capacitively coupled} |
| | G02F 2001/134372 | {for fringe field switching [FFS] where the common electrode is not patterned, e.g. planar} |
| | G02F 2001/134381 | {Hybrid switching mode, i.e. for applying an electric field both parallel and orthogonal to the substrates} |
| U | G02F 1/1345 | Conductors connecting electrodes to cell terminals |
| | G02F 2001/13456 | {cell terminals on one side of the display only} |
| U | G02F 1/1347 | Arrangement of liquid crystal layers or cells in which the final condition of one light beam is achieved by the addition of the effects of two or more layers or cells{(colour projection displays with liquid crystal valves H04N 9/3197)} |
| | G02F 2001/13478 | {based on selective reflection} |
| U | G02F 1/135 | Liquid crystal cells structurally associated with a photoconducting or a ferro-electric layer, the properties of which can be optically or electrically varied{(G02F 1/133348 takes precedence)} |
| | G02F 2001/1351 | {light-absorbing or blocking layer} |
| | G02F 2001/1352 | {light-reflecting layer} |
| U | G02F 1/1354 | {having a particular photoconducting structure or material} |
| | G02F 2001/1355 | {material or manufacturing process thereof} |
| | G02F 2001/1357 | {electrode structure} |
| U | G02F 1/136 | Liquid crystal cells structurally associated with a semi-conducting layer or substrate, e.g. cells forming part of an integrated circuit(G02F 1/135 takes precedence) |
| | G02F 2001/13606 | {having means for reducing parasitic capacitance} |
| | G02F 2001/13613 | {the semiconductor element is formed on a first substrate and thereafter transferred to the final cell substrate} |
| U | G02F 1/1362 | Active matrix addressed cells{(G02F 1/134336 , G02F 1/134363 take precedence)} |
| | G02F 2001/136218 | {Shield electrode} |
| | G02F 2001/136222 | {Color filter incorporated in the active matrix substrate} |
| | G02F 2001/136231 | {for reducing the number of lithographic steps} |
| | G02F 2001/136236 | {using a gray or half tone lithographic process} |
| U | G02F 1/13624 | {having more than one switching element per pixel} |
| | G02F 2001/136245 | {having complementary transistors} |
| | G02F 2001/13625 | {Patterning using a multi-mask exposure} |
| | G02F 2001/136254 | {Checking; Testing} |
| U | G02F 1/136259 | {Repairing; Defects} |
| | G02F 2001/136263 | {Line defect} |

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|---|------------------|---|
| | G02F 2001/136268 | {Switch defect} |
| | G02F 2001/136272 | {Auxiliary line} |
| U | G02F 1/136277 | {formed on a semiconductor substrate, e.g. silicon} |
| | G02F 2001/136281 | {having a transmissive semiconductor substrate} |
| U | G02F 1/136286 | {Wiring, e.g. gate line, drain line} |
| | G02F 2001/13629 | {Multi-layer wirings} |
| | G02F 2001/136295 | {Materials; Compositions; Methods of manufacturing} |
| U | G02F 1/1368 | in which the switching element is a three-electrode device({
G02F 1/136277 takes precedence)} |
| | G02F 2001/13685 | {Top gate} |
| U | G02F 1/137 | . . . characterised by a particular electro- or magneto-optical effect, e.g. field-
induced phase transition, orientation effect, guest-host interaction, dynamic
scattering |
| | G02F 2001/13706 | {the LC having positive dielectric anisotropy} |
| | G02F 2001/13712 | {the LC having negative dielectric anisotropy} |
| | G02F 2001/13756 | {the liquid crystal selectively assuming a light-scattering state(
G02F 1/1334 , G02F 1/13718 take precedence)} |
| | G02F 2001/13775 | {Polymer stabilized liquid crystal layers} |
| | G02F 2001/13787 | {Hybrid alignment cells(G02F 1/1393 takes precedence)} |
| | G02F 2001/13793 | {Blue phases} |
| U | G02F 1/139 | based on orientation effects in which the liquid crystal remains
transparent |
| U | G02F 1/1396 | {the liquid crystal being selectively controlled between a twisted
state and a non-twisted state, e.g. TN-LC cell(G02F 1/141 takes
precedence)} |
| | G02F 2001/1398 | {the twist being below 90°C} |
| U | G02F 1/141 | using ferroelectric liquid crystals |
| | G02F 2001/1412 | {Antiferroelectric liquid crystals} |
| | G02F 2001/1414 | {Deformed helix ferroelectric (DHL)} |
| U | G02F 1/15 | . . . based on electrochromic elements({ electrochromic materials C09K 9/00)} |
| | G02F 2001/1502 | . . . {complementary cell} |
| | G02F 2001/1504 | {having an inorganic electrochromic layer and a second solid organic
electrochromic layer} |
| | G02F 2001/151 | . . . {the electrochromic material comprises ferrocene compounds} |
| U | G02F 2001/1512 | . . . {the electrochromic layer comprises a mixture of anodic and cathodic
compounds} |
| | G02F 2001/1515 | . . . {the electrochromic material is made of polymer} |
| | G02F 2001/1517 | . . . {based on cyano complex compound, e.g. Prussian blue} |
| | G02F 2001/1519 | . . . {the electrolyte is made of polymer} |
| U | G02F 1/153 | . . . Constructional arrangements |
| U | G02F 1/1533 | {structural features not otherwise provided for} |
| | G02F 2001/1536 | {additional, e.g. protective, layer inside the cell} |
| U | G02F 1/155 | Electrodes |
| | G02F 2001/1552 | {Inner electrode, e.g. the electrochromic layer being sandwiched
between the inner electrode and the support substrate---- this group,
now to be changed, should already been created by implementation of
a previous DOC14(prior to the one referred to above)----} |

- G02F 2001/1555 {Counter electrode}
- G02F 2001/1557 {Side by side arrangements of working and counter electrodes}
- U G02F 1/163 . . . Operation of electrochromic cells; Circuit arrangements
- G02F 2001/1635 {the pixel comprises active switching elements, e.g. TFT}
- U G02F 1/167 . . based on electrophoresis
- G02F 2001/1672 . . . {of the microcup type}
- G02F 2001/1674 . . . {comprising a dry toner particle}
- G02F 2001/1676 . . . {having a particular electrode}
- G02F 2001/1678 . . . {having a particular composition or particle type}
- G02F 1/19 . . based on variable reflection or refraction elements({ ~~G02F1/01M3~~ },
[G02F 1/015](#) to [G02F 1/167](#) take precedence)
- U G02F 1/21 . . by interference
- G02F 2001/211 . . . {Sagnac type}
- G02F 2001/212 . . . {Mach-Zender type}
- G02F 2001/213 . . . {Fabry-Perot type}
- G02F 2001/215 . . . {Michelson type}
- G02F 2001/217 . . . {Multi mode interference type}
- U G02F 1/29 . . for the control of the position or the direction of light beams, i.e
deflection({ optical coupling means [G02B 6/26](#) ; optical-mechanical scanning
in general [G02B 26/10](#) } ; static stores with electric or magnetic read-in and
optical read-out [G11C](#); lasers provided with means to change the location from
which, or the direction in which, laser radiation is emitted [H01S 3/101](#))
- G02F 2001/291 . . {Two-dimensional analog deflection}
- G02F 2001/294 . . {Variable focal length device}
- U G02F 1/31 . . Digital deflection,{i.e. optical switching}([G02F 1/33](#) takes precedence)
- G02F 2001/311 . . . {Cascade arrangement of plural switches}
- U G02F 1/313 . . . in an optical waveguide structure
- U G02F 1/3132 {of directional coupler type(all-optical modulation, gating or switching
using a non-linear directional coupler [G02F 1/3521](#))}
- G02F 2001/3135 {vertical structure}
- U G02F 1/35 . . Non-linear optics(optical bistable devices [G02F 3/02](#) ; lasers using stimulated
Brillouin or Raman effect [H01S 3/30](#))
- U G02F 1/3501 . . {Constructional arrangements of non-linear optical devices, e.g. shape of
non-linear crystals(constructional arrangements of electro-optic devices
[G02F 1/0305](#))}
- G02F 2001/3503 . . . {Structural association of optical elements, e.g. lenses, with the nonlinear
optical device}
- G02F 2001/3505 . . . {Coatings; Housings; Supports}
- G02F 2001/3507 . . . {Arrangements comprising two or more nonlinear optical devices}
- G02F 2001/3509 . . . {Shape, e.g. shape of end face}
- G02F 2001/3528 . . {for producing a supercontinuum}
- U G02F 1/353 . . {Frequency conversion, i.e. wherein a light beam with frequency components
different from those of the incident light beams is generated(second
harmonic generation [G02F 1/37](#) ; optical parametric generation or
amplification [G02F 1/39](#) ; transferring the modulation of modulated light
[G02F 2/004](#) ; optical pumping of a laser by another laser [H01S 3/094](#) ;
nonlinear optical devices inside a laser cavity [H01S 3/108](#))}
- G02F 2001/354 . . . {Third or higher harmonic generation}

- G02F 2001/3542
 - • • {Multi-pass arrangements, i.e. arrangements to pass light a plurality of times through the same element, e.g. by using an enhancement cavity}
- U G02F 1/3544
 - • • {Particular phase matching techniques}
- G02F 2001/3546
 - • • {Active phase matching, e.g. by electro- or thermo-optic tuning}
- G02F 2001/3548
 - • • {Quasi-phase-matching (QPM), e.g. using a periodic domain inverted structure}
- U G02F 1/37
 - • for second-harmonic generation{([G02F 1/3532](#) takes precedence)}
- G02F 2001/372
 - • • {means for homogenizing the output beam}
- G02F 2001/374
 - • • {Cerenkov radiation}
- U G02F 1/39
 - • for parametric generation or amplification of light, infra-red or ultra-violet waves{([G02F 1/3532](#) takes precedence; } electrical parametric amplifiers [H03F 7/00](#))}
- G02F 2001/392
 - • • {Parametric amplification}
- U **G02F 2/00**

Demodulating light; Transferring the modulation of modulated light; Frequency-changing of light([G02F 1/35](#) takes precedence; photoelectric detecting or measuring devices [G01J](#), [H01J 40/00](#) , [H01L 31/00](#) ; demodulating laser arrangements { e.g. switching, gating } [H01S 3/10](#) ; demodulation or transference of modulation of modulated electro-magnetic waves in general [H03D 9/00](#))
- U G02F 2/004
 - {Transferring the modulation of modulated light, i.e. transferring the information from one optical carrier of a first wavelength to a second optical carrier of a second wavelength, e.g. all-optical wavelength converter}
- G02F 2002/006
 - • {All-optical wavelength conversion}
- G02F 2002/008
 - • {Opto-electronic wavelength conversion, i.e. involving photo-detection of the first optical carrier}
- G02F 2413/00**

Indexing scheme related to ~~G02F1/13363P~~[G02F 1/13363](#) , i.e. to birefringent elements, e.g. for optical compensation, characterised by the number, position, orientation or value of the compensation plates

Project: N/A (G03B)

- U **G03B 17/00**

Details of cameras or camera bodies; Accessories therefor (lens hoods or caps [G03B 11/04](#))
- U G03B 17/56
 - Accessories (camera cases [A45C 11/38](#); { lens caps [G03B 11/041](#); stands or trestles as support for apparatus or articles placed thereon [F16M 11/00](#); means for attachment of apparatus allowing quick-release [F16M 11/041](#); means for supporting on, or holding steady relative to a person [F16M 13/04](#); tripods [F16M 11/24](#); tripods with telescopic legs [F16M 11/32](#); monopod or tripod having a central telescopic column [F16M 11/28](#); heads or undercarriages for supporting an object and allowing movement thereof [F16M 11/043](#) to [F16M 11/14](#) or [F16M 11/2007](#) to [F16M 11/24](#)})
 - WARNING
Groups [G03B 17/561](#) to [G03B 17/568](#) are not complete pending reclassification; see also [G03B 17/56](#)
- G03B 17/568
 - • { Camera accessories not provided in groups ~~G03B17/36B~~[G03B 17/561](#) to [G03B 17/566](#)}
- U **G03B 27/00**

Photographic printing apparatus (film-strip handling [G03B 1/00](#))
- U G03B 27/32
 - Projection printing apparatus, e.g. enlarger, copying camera
- U G03B 27/52
 - • Details

- G03B 27/62
- • • Holders for the original ([G03B 27/53](#) takes precedence; {for electrophotographic copiers [G03G15/00F](#)[G03G 15/60](#)})

G03B 29/00 Combinations of cameras, projectors, or photographic printing apparatus with non-photographic non-optical apparatus, e.g. clocks, weapons; Cameras having the shape of other objects (combinations with flash apparatus [G03B 15/03](#); combinations with instruments for medical examination [A61B 1/04](#), [G03B3/14](#)[A61B 3/14](#); combinations with surveying instruments [G01C](#); combinations with core or moderator structure of nuclear reactors [G21C 17/08](#); structural combinations with electric discharge tubes [H01J 5/16](#), [H01J 29/89](#), [H01J 37/22](#))

U G03B 2215/00 {Special procedures for taking photographs; Apparatus therefor}

- U G03B 2215/05** • Combinations of cameras with electronic flash units
- G03B 2215/0596** • • Combinations of cameras with electronic flash units not provided for in [G03B 2215/0564](#) to [S01B215/05F2](#)[G03B 2215/0592](#)

Project: N/A (G03C)

G03C PHOTSENSITIVE MATERIALS FOR PHOTOGRAPHIC PURPOSES(for photomechanical purposes [G03F](#)); PHOTOGRAPHIC PROCESSES, e.g. CINE, X-RAY, COLOUR, STEREO-PHOTOGRAPHIC PROCESSES; AUXILIARY PROCESSES IN PHOTOGRAPHY(photographic processes characterised by the use or manipulation of apparatus classifiable per se in subclass [G03B](#), see [G03B](#); photomechanical production of textured or patterned surfaces [G03F](#); electrophotography, magnetography [G03G](#))

NOTE

In this subclass, the following expressions are used with the meanings indicated :

- "photosensitive compositions" covers photosensitive substances, e.g. silverhalides, and, if applicable, binders or additives;
- "photosensitive materials" covers the photosensitive compositions, e.g. emulsions, the bases carrying them, and, if applicable, auxiliary layers.

WARNING

The following IPC group is not used in the CPC scheme.

Subject matter covered by this group is classified in the following CPC group:

- [G03C 9/08](#) covered by [G03F 7/00](#)-[S](#)[G03F7/00S](#)

U G03C 1/00 Photosensitive materials(photosensitive materials for multicolour processes [G03C 7/00](#) ; for diffusion transfer processes [G03C 8/00](#) ; photosensitive glass [C03C 4/04](#))

- U G03C 1/005** • Silver halide emulsions; Preparation thereof; Physical treatment thereof; Incorporation of additives therein(catalytic amounts of silver halide in dry silver systems{ or thermographic systems using noble metal compounds } [G03C 1/494](#))

- U G03C 1/0051** • • {Tabular grain emulsions}
- G03C 2001/0055** • • • {Aspect ratio of tabular grains in general; High aspect ratio; Intermediate aspect ratio; Low aspect ratio}
- G03C 2001/0056** • • • [Dislocations](#){[Disclocations](#)}
- G03C 2001/0058** • • • {Twinned crystal}

- U G03C 1/015
 - • Apparatus or processes for the preparation of emulsions(coating, drying [G03C 1/74](#))({ [G03C 1/07](#) takes precedence; special processes for tabular grains [G03C 1/0051](#))}
 - G03C 2001/0151
 - • • {Double jet precipitation}
 - G03C 2001/0152
 - • • ~~Desalting~~{Desalting}
 - G03C 2001/0153
 - • • {Fine grain feeding method}
 - G03C 2001/0155
 - • • ~~Flocculation~~{Flocculation}
 - G03C 2001/0156
 - • • {pAg value; pBr value; pCl value; pI value}
 - G03C 2001/0157
 - • • ~~Ultrafiltration~~{Ultrafiltration}
 - G03C 2001/0158
 - • • {Washing of emulsions}
- U G03C 1/025
 - • Physical treatment of emulsions, e.g. by ultrasonics, refrigeration, pressure(coating, drying [G03C 1/74](#))
 - G03C 2001/0252
 - • • {Electric power or field}
 - G03C 2001/0255
 - • • ~~Refrigeration~~{Refrigeration}
 - G03C 2001/0257
 - • • ~~Ultrasonic~~{Ultrasonic}
- U G03C 1/035
 - • characterised by the crystal form or composition, e.g. mixed grain
 - G03C 2001/03505
 - • • {Shape of the grains}
 - G03C 2001/03511
 - • • {Bromide content}
 - G03C 2001/03517
 - • • {Chloride content}
 - G03C 2001/03523
 - • • {Converted grains}
 - G03C 2001/03529
 - • • {Coefficient of variation}
 - G03C 2001/03535
 - • • {Core-shell grains}
 - G03C 2001/03541
 - • • {Cubic grains}
 - G03C 2001/03547
 - • • {Cubooctahedral grains}
 - G03C 2001/03552
 - • • {Epitaxial junction grains; Protrusions or protruded grains}
 - G03C 2001/03558
 - • • {Iodide content}
 - G03C 2001/03564
 - • • {Mixed grains or mixture of emulsions}
 - G03C 2001/0357
 - • • {Monodisperse emulsion}
 - G03C 2001/03576
 - • • {Containing no iodide}
 - G03C 2001/03582
 - • • {Octahedral grains}
 - G03C 2001/03588
 - • • {Polydisperse emulsion}
 - G03C 2001/03594
 - • • {Size of the grains}
- U G03C 1/04
 - • with macromolecular additives; with layer-forming substances
 - G03C 2001/041
 - • • ~~Binder~~{Binder}
 - G03C 2001/042
 - • • {Natural polymer}
- U G03C 1/047
 - • Proteins, e.g. gelatine derivatives; Hydrolysis or extraction products of proteins
 - G03C 2001/0471
 - • • • {Isoelectric point of gelatine}
 - G03C 2001/0473
 - • • • {Low molecular weight gelatine}
 - G03C 2001/0475
 - • • • {Gelatine characteristics}
 - G03C 2001/0476
 - • • • {Swelling of gelatine}
 - G03C 2001/0478
 - • • • {Oxidising agent}
- U G03C 1/06
 - • with non-macromolecular additives([G03C 1/047](#) takes precedence; { combination of dyes [G03C 1/29](#) })
- U G03C 1/061
 - • • {Hydrazine compounds}

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|---|-----------------|--|
| | G03C 2001/062 | {Hydrazine derivative} |
| | G03C 2001/064 | {Nitro compounds} |
| | G03C 2001/065 | {Quaternary ammonium compound-substituent} |
| U | G03C 1/067 | . . . {Additives for high contrast images, other than hydrazine compounds} |
| | G03C 2001/068 | {Onium compounds} |
| U | G03C 1/07 | . . . Substances influencing grain growth during silver salt formation |
| | G03C 2001/073 | {Grain growth modifier} |
| | G03C 2001/076 | {Silver halide solvent} |
| U | G03C 1/08 | . . . Sensitivity-increasing substances |
| | G03C 2001/0809 | {Chemical sensitiser} |
| | G03C 2001/0818 | {Calcium ion content or calcium compound} |
| | G03C 2001/0827 | Cobalt {Cobalt} |
| | G03C 2001/0836 | {Copper compounds} |
| | G03C 2001/0845 | {Iron compounds} |
| | G03C 2001/0854 | Indium {Indium} |
| | G03C 2001/0863 | {Group VIII metal compound} |
| | G03C 2001/0872 | {Metal dopant -added during precipitation} |
| | G03C 2001/0881 | {Metal complex} |
| | G03C 2001/089 | {Cyano complexes or compounds} |
| U | G03C 1/09 | Noble metals or mercury; Salts or compounds thereof; Sulfur, selenium or tellurium, or compounds thereof, e.g. for chemical sensitising(G03C 1/34 , G03C 1/35 take precedence) |
| | G03C 2001/091 | Gold {Gold} |
| | G03C 2001/092 | Mercury {Mercury} |
| | G03C 2001/093 | Iridium {Iridium} |
| | G03C 2001/094 | Rhodium {Rhodium} |
| | G03C 2001/095 | {Disulfide or dichalcogenide compound} |
| | G03C 2001/096 | {Sulphur sensitiser} |
| | G03C 2001/097 | Selenium {Selenium} |
| | G03C 2001/098 | Tellurium {Tellurium} |
| U | G03C 1/10 | Organic substances((G03C 1/061 , G03C 1/067 take precedence)) |
| | G03C 2001/104 | {Fogging agent or process} |
| | G03C 2001/106 | {Reduction sensitisation or reduction sensitiser} |
| | G03C 2001/108 | {Nucleation accelerating compound} |
| U | G03C 1/30 | . . . Hardeners |
| | G03C 2001/308 | {Vinyl sulfone hardener} |
| U | G03C 1/34 | . . . Fog-inhibitors; Stabilisers; Agents inhibiting latent image regression |
| | G03C 2001/341 | Antifoggant {Antifoggant} |
| | G03C 2001/343 | Benzotriazole {Benzotriazole} |
| | G03C 2001/345 | Stabiliser {Stabiliser} |
| | G03C 2001/348 | Tetrazaindene {Tetrazaindene} |
| U | G03C 1/42 | . . . Developers or their precursors |
| | G03C 2001/425 | {Incorporated developer} |
| U | G03C 1/485 | . . Direct positive emulsions |
| | G03C 2001/48507 | . . . {Internal latent image} |

- U G03C 1/74
 - Applying photosensitive compositions to the base; Drying processes therefor([G03C 1/496](#) takes precedence)
- G03C 2001/7403
 - • {Air jets}
- G03C 2001/7407
 - • {Specific angles in extrusion head-slide hopper}
- G03C 2001/7411
 - • {Beads or bead coating}
- G03C 2001/7414
 - • {Bending support to prevent coating of borders}
- G03C 2001/7418
 - • {Backup roll}
- G03C 2001/7422
 - • {Blowing means}
- G03C 2001/7425
 - • {Coating on both sides}
- G03C 2001/7429
 - • {Cleaning means}
- G03C 2001/7433
 - • {Curtain coating}
- G03C 2001/7437
 - • {Degassing means}
- G03C 2001/744
 - • {Delivering means for slide hopper}
- G03C 2001/7444
 - • {Dip coating}
- G03C 2001/7448
 - • ~~Dispersion~~{Dispersion}
- G03C 2001/7451
 - • {Drying conditions}
- G03C 2001/7455
 - • {Edge bead nonuniformity coated at the border}
- G03C 2001/7459
 - • {Extrusion coating}
- G03C 2001/7462
 - • {Flowing conditions in slots prior to coating}
- G03C 2001/7466
 - • {Geometry and shape of application devices}
- G03C 2001/747
 - • {Lateral edge guiding means for curtain coating}
- G03C 2001/7474
 - • {Impingement conditions curtain onto support}
- G03C 2001/7477
 - • {Lip detail or shape in hopper or extrusion head}
- G03C 2001/7481
 - • {Coating simultaneously multiple layers}
- G03C 2001/7485
 - • {Shielding means against air disturbances}
- G03C 2001/7488
 - • {Sliding layers or means}
- G03C 2001/7492
 - • {Slide hopper for head or curtain coating}
- G03C 2001/7496
 - • {Viscosity range}
- U G03C 1/76
 - Photosensitive materials characterised by the base or auxiliary layers
- G03C 2001/7607
 - • {Support or base}
- U G03C 1/7614
 - • {Cover layers; Backing layers; Base or auxiliary layers characterised by means for lubricating, for rendering anti-abrasive or for preventing adhesion(characterised by the inert particulate additive [G03C 1/95](#))}
- G03C 2001/7621
 - • • ~~Antiabrasion~~{Antiabrasion}
- G03C 2001/7628
 - • • {Back layer}
- G03C 2001/7635
 - • • {Protective layer}
- U G03C 1/795
 - • the base being of macromolecular substances([G03C 1/775](#) takes precedence)
- G03C 2001/7952
 - • • {Cellulose ester}
- U G03C 1/7954
 - • • {Polyesters}
- G03C 2001/7956
 - • • • {Polyethylene naphthalate}
- G03C 2001/7958
 - • • • {Polyethylene terephthalate}
- U G03C 3/00
 - Packages of films for inserting into cameras, e.g. roll-films, film-packs; Wrapping materials for light-sensitive plates, films or papers, e.g. materials characterised by the use of special dyes, printing inks, adhesives(wrapping materials in general [B65D](#))

| | | |
|----------|------------------|---|
| | G03C 2003/006 | • {Film with lens-disposable camera} |
| U | G03C 5/00 | Photographic processes or agents therefor; Regeneration of such processing agents(multicolour processes or agents therefor G03C 7/00 ; diffusion-transfer processes or agents therefor G03C 8/00 ; stereo-photographic processes G03C 9/00 ; photomechanical processes G03F) |
| U | G03C 5/04 | • Photo-taking processes |
| | G03C 2005/045 | • • {Scanning exposure} |
| U | G03C 5/16 | • X-ray, infra-red, or ultra-violet ray processes |
| | G03C 2005/162 | • • {Roomlight material-bright room type material} |
| | G03C 2005/166 | • • {Ultraviolet sensitive material or UV exposure} |
| | G03C 2005/168 | • • {X-ray material or process} |
| U | G03C 5/26 | • Processes using silver-salt-containing photosensitive materials or agents therefor(physical development G03C 5/58) |
| U | G03C 5/29 | • • Development processes or agents therefor(G03C 5/38 , G03C 5/50 take precedence) |
| U | G03C 5/30 | • • • Developers |
| | G03C 2005/3007 | • • • • {Ascorbic acid} |
| U | G03C 5/3028 | • • • • {Heterocyclic compounds(G03C 5/3021 takes precedence)} |
| U | G03C 5/3035 | • • • • • {containing a diazole ring} |
| | G03C 2005/3042 | • • • • • • {Phenidone and analogues} |
| U | G03C 7/00 | Multicolour photographic processes or agents therefor; Regeneration of such processing agents; Photosensitive materials for multicolour processes(diffusion transfer processes G03C 8/00) |
| U | G03C 7/30 | • Colour processes using colour-coupling substances; Materials therefor; Preparing or processing such materials |
| | G03C 2007/3001 | • • Panchromatic { Panchromatic } |
| U | G03C 7/3003 | • • {Materials characterised by the use of combinations of photographic compounds known as such, or by a particular location in the photographic element} |
| | G03C 2007/3015 | • • • {False colour system} |
| U | G03C 7/3022 | • • {Materials with specific emulsion characteristics, e.g. thickness of the layers, silver content, shape of AgX grains} |
| | G03C 2007/3024 | • • • {Ratio silver to coupler} |
| | G03C 2007/3025 | • • • {Silver content} |
| | G03C 2007/3027 | • • • {Thickness of a layer} |
| U | G03C 7/3029 | • • {Materials characterised by a specific arrangement of layers, e.g. unit layers, or layers having a specific function} |
| | G03C 2007/3031 | • • • {Interimage effect} |
| | G03C 2007/3032 | • • • {Non-sensitive AgX or layer containing it} |
| | G03C 2007/3034 | • • • {Unit layer} |
| | G03C 2007/3036 | • • • {Single layer constitution} |
| | G03C 2007/3037 | • • • {At least three unit layers} |
| | G03C 2007/3039 | • • • {Yellow filter} |
| U | G03C 7/3041 | • • {Materials with specific sensitometric characteristics, e.g. gamma, density} |
| | G03C 2007/3043 | • • • {Original suitable to be scanned} |
| | G03C 2007/3044 | • • • Density { Density } |

- U G03C 7/3046
 - • {Processing baths not provided for elsewhere, e.g. final or intermediate washings}
- G03C 2007/3048
 - • • ~~Stabilisation~~{Stabilisation}
- U G03C 7/305
 - • Substances liberating photographically active agents, e.g. development-inhibiting releasing couplers([G03C 7/388](#) takes precedence; { in combination with other additives or included in a specific colour photographic material [G03C 7/3003](#) ; in combination with other couplers [G03C 7/3225](#) })
- G03C 2007/30505
 - • • {Photographic useful group}
- U G03C 7/30541
 - • • {characterised by the released group}
- G03C 2007/30564
 - • • • {Development inhibitor releasing}
- G03C 2007/3057
 - • • • {Developing agent releasing compound}
- U G03C 7/30576
 - • • {characterised by the linking group between the releasing and the released groups, e.g. time-groups}
- G03C 2007/30582
 - • • • {Linking group}
- G03C 2007/30588
 - • • • {Timing group}
- U G03C 7/32
 - • Colour coupling substances([G03C 7/305](#) , [G03C 7/388](#) take precedence; { in combination with other additives or included in a specific colour photographic material [G03C 7/3003](#) ; two-equivalent couplers [G03C 7/30517](#) })
- G03C 2007/3206
 - • • {Concurrent coupler}
- U G03C 7/3212
 - • • {Couplers characterised by a group not in coupling site, e.g. ballast group, as far as the coupling rest is not specific}
- G03C 2007/3219
 - • • • {Ballast group}
- G03C 2007/3238
 - • • {Coupler activity}
- G03C 2007/325
 - • • {One-equivalent coupler}
- G03C 2007/3257
 - • • {Two-equivalent coupler}
- G03C 2007/3263
 - • • {Four-equivalent coupler}
- U G03C 7/34
 - • • Couplers containing phenols([G03C 7/327](#) , [G03C 7/333](#) take precedence)
- U G03C 7/346
 - • • • {Phenolic couplers}
- G03C 2007/348
 - • • • • {Ureido coupler}
- U G03C 7/388
 - • Processes for the incorporation in the emulsion of substances liberating photographically active agents or colour-coupling substances; Solvents therefor{(incorporation of additives other than couplers [G03C 1/005](#))}
- U G03C 7/3885
 - • • {characterised by the use of a specific solvent}
- G03C 2007/3887
 - • • • {High-boiling solvent}
- U G03C 7/392
 - • Additives([G03C 7/30](#) to [G03C 7/32](#) take precedence)
- U G03C 7/39208
 - • • {Organic compounds(macromolecular additives [G03C 7/396](#))}
- U G03C 7/39212
 - • • • {Carbocyclic}
- U G03C 7/39216
 - • • • • {with OH groups}
- G03C 2007/3922
 - • • • • • {Bisphenol compound}
- U G03C 7/407
 - • Development processes or agents therefor{ [G03C 7/3244](#) takes precedence }
- U G03C 7/413
 - • • Developers
- G03C 2007/4133
 - • • • {No benzyl alcohol}
- U G03C 7/42
 - • Bleach-fixing or agents therefor{Desilvering processes}
- U G03C 7/421
 - • • {Additives other than bleaching or fixing agents}
- G03C 2007/422
 - • • • {Bleach accelerator}
- G03C 2007/424
 - • • • {Chelating agent}
- G03C 2007/425
 - • • {Bleach-fixing}

G03C 2007/427 • • • **Bleaching**{*Bleaching*}

G03C 2007/428 • • • **Fixing**{*Fixing*}

U G03C 8/00

Diffusion transfer processes or agents therefor; Photosensitive materials for such processes

U G03C 8/40 • Development by heat{Photo-thermographic processes}

U G03C 8/4013 • • {using photothermographic silver salt systems, e.g. dry silver([G03C 1/4989](#) takes precedence)}

U G03C 8/402 • • • {Transfer solvents therefor}

G03C 2008/4026 • • • • {Heat solvent; Thermal solvent}

U G03C 8/42 • Structural details

U G03C 8/52 • • Bases or auxiliary layers; Substances therefor

G03C 2008/525 • • • {Neutralisation solution or means}

U G03C 9/00

Stereo-photographic or similar processes

G03C 2009/08 • {Producing three-dimensional images}

Project: N/A (G03D)

U G03D 5/00

Liquid processing apparatus in which no immersion is effected; Washing apparatus in which no immersion is effected ([G11B 9/00](#), [G11B 11/00](#) take precedence; application of liquids in general [B05](#))

G03D 5/006 • {Liquid supply by means of a split or a capillarity ([G11B5/04](#) [G03D 5/04](#) takes precedence)}

U G03D 9/00

Diffusion development apparatus

G03D 9/003 • {for colour films ([G11B9/02C](#) [G03D 9/02](#) takes precedence)}

U G03D 13/00

Processing apparatus or accessories therefor, not covered by groups [G11B 3/00](#) to [G11B 11/00](#)

U G03D 13/02 • Containers; Holding-devices

U G03D 13/08 • • Devices for holding exposed material; Devices for supporting exposed material

G03D 13/10 • • • Clips ([G11B13/14](#) [G03D 13/14](#) takes precedence)

G03D 13/12 • • • Frames ([G11B13/14](#) [G03D 13/14](#) takes precedence)

Project: N/A (G03F)

U G03F 7/00

Photomechanical, e.g. photolithographic, production of textured or patterned surfaces, e.g. printing surfaces; Materials therefor, e.g. comprising photoresists; Apparatus specially adapted therefor(using photoresist structures for special production processes, see the relevant places, e.g. [B44C](#), [H01L](#), e.g. [H01L 21/00](#) , [H05K](#))

U G03F 7/20 • Exposure; Apparatus therefor(photographic printing apparatus for making copies [G03B 27/00](#))

G03F 2007/2067 • • {Apparatus for microlithography}

G03F 9/00

Registration or positioning of originals, masks, frames, photographic sheets or textured or patterned surfaces, e.g. automatically([G03F 7/22](#) takes precedence; preparation of photographic masks [G03F 1/00](#) ; within photographic printing apparatus for making copies [G03B 27/00](#))

WARNING

Groups G03F 9/70 -- [G03F9/00T26](#) are no longer used for classification of new documents as from January 1, 2012. The backfile is progressively being

transferred to new groups as it follows:-- G03F 9/70 : G03F 9/70 -- ~~G03F9/00T12~~
: ~~G03F 9/7003~~ -- ~~G03F9/00T14~~ : G03F 9/7049 -- ~~G03F9/00T16~~ : G03F 9/7065 --
~~G03F9/00T18~~ : G03F 9/7069 -- ~~G03F9/00T20~~ : G03F 9/7073 -- ~~G03F9/00T22~~ :
G03F 9/7088 -- ~~G03F9/00T24~~ : G03F 9/7092 -- ~~G03F9/00T26~~ : G03F 9/7096

G03F 2009/005

- {for microlithography}

Project: N/A (G03G)

G03G 15/00

Apparatus for electrographic processes using a charge pattern([G03G 16/00](#)
, [G03G 17/00](#) take precedence; { xerographic printers for data processors
per se [G06K 15/14](#) })

NOTES

This group covers also processes in so far as they are characterised by the use
or manipulation of apparatus classifiable per se in this group.

Groups ~~G03G 15/00 F~~[G03G 15/60](#), [G03G15/00G](#) , [G03G15/00J](#) mostly cover
details which are classifiable in more general groups, e.g. [G03B](#), [B41](#), [B65H](#), and
which are however described in connection with [G03G](#)

WARNING

Groups ~~G03G15/00C~~ to ~~G03G15/00P~~ are no longer used for the classification
of new documents as from Februray,1 2012. The backfile is progressively being
transferred to new groups as it follows ~~G03G15/00C~~ : G03G 15/50 ~~G03G15/00D~~
: G03G 15/55 ~~G03G 15/00 F~~: G03G 15/60 ~~G03G15/00G~~ : G03G 15/65
G03G 15/00 H: G03G 15/70 ~~G03G15/00J~~ : G03G 15/75 ~~G03G15/00P~~ :
G03G 15/80

U G03G 15/02

- for laying down a uniform charge, e.g. for sensitising; Corona discharge
devices([G03G 15/14](#) takes precedence)

G03G 15/0291

- {corona discharge devices, e.g. wires, pointed electrodes, means for cleaning
the corona discharge device}

WARNING

Groups [G03G 15/0291](#) and [G03G 15/025](#) are not complete pending
reorganisation. See also [G03G 15/02](#) - ~~G03G 15/02 B~~[G03G15/02B](#)

U G03G 15/04

- for exposing, i.e. imagewise exposure by optically projecting the original image
on a photoconductive recording material

NOTE

The original image is obtained by direct optical projection or received from other
sources, e.g. by computer modified or generated image data, by scanning , e.g.
digital copiers

U G03G 15/04036

- {Details of illuminating systems, e.g. lamps, reflectors(lamp housings for
copying cameras, reflex exposure lighting [G03B 27/542](#))}

G03G 15/04045

- • {for exposing image information provided otherwise than by directly
projecting the original image onto the photoconductive recording material,
e.g. digital copiers([G03G 15/041](#) , [G03G 15/043](#) take precedence)}

WARNING

Groups [G03G 15/04054](#) to [G03G 15/04081](#) are not complete pending
reorganisation. See also [G03G 15/04](#) , ~~G03G 15/04 L~~[G03G15/04L](#) ,
[G03G 15/043](#) , [G03G 15/0435](#) and ~~G03G 15/32 L~~[G03G15/32L](#)

U G03G 15/06

- for developing

U G03G 15/08

- • using a solid developer, e.g. powder developer

U G03G 15/0822

- • {Arrangements for preparing, mixing, supplying or dispensing developer}

- G03G 15/0865
- • • {Arrangements for supplying new developer}
- WARNING
Groups [G03G 15/0877](#) to ~~G03G15/08H37S3~~[G03G 15/0893](#) are not complete pending reorganisation. See also [G03G 15/0832](#) - [G03G 15/0843](#)
- U G03G 15/22
- involving the combination of more than one step according to groups [G03G 13/02](#) to [G03G 13/20](#) ([G03G 15/01](#) takes precedence)
- U G03G 15/221
- {Machines other than electrographic copiers, e.g. electrophotographic cameras, electrostatic typewriters}
- G03G 15/224
- • {Machines for forming tactile or three dimensional images by electrographic means, e.g. braille, 3d printing}
- WARNING
Group [G03G 15/224](#) is not complete pending reorganisation. See also ~~G03G 15/22-A~~[G03G15/22A](#)
- U G03G 15/50
- {Machine control of apparatus for electrographic processes using a charge pattern, e.g. regulating different parts of the machine, multimode copiers, microprocessor control(sequencing control [G03G 21/14](#))}
- U G03G 15/5016
- {User-machine interface; Display panels; Control console}
- G03G 15/502
- • {relating to the structure of the control menu, e.g. pop-up menus, help screens}
- WARNING
Group ~~G03G15/50F2~~ is not complete, pending reorganisation, see also ~~G03G145/50 F~~
- U G03G 15/5033
- {by measuring the photoconductor characteristics, e.g. temperature, or the characteristics of an image on the photoconductor}
- G03G 15/5041
- • {Detecting a toner image, e.g. density, toner coverage, using a test patch([G03G 15/553](#) takes precedence)}
- WARNING
Groups [G03G 15/5041](#) to [G03G 15/505](#) are not complete, pending reorganisation. See also ~~G03G 15/50-K~~[G03G15/50K](#)
- U G03G 15/5075
- {Remote control machines, e.g. by a host}
- G03G 15/5079
- • {for maintenance}
- WARNING
Groups ~~G03G14/50P2~~ - ~~G03G 15/5091~~ are not complete, pending reorganisation. See also ~~G03G 15/50-P~~
- U G03G 15/55
- {Self-diagnostics; Malfunction or lifetime display}
- U G03G 15/553
- {Monitoring or warning means for exhaustion or lifetime end of consumables, e.g. indication of insufficient copy sheet quantity for a job}
- G03G 15/556
- • {for toner consumption, e.g. pixel counting, toner coverage detection, toner density measurement(detectors [G03G 15/0831](#))}
- WARNING
Group [G03G 15/556](#) is not complete. See also [G03G 15/55](#) - ~~G03G 15/55~~
~~B~~[G03G15/55B](#)
- U G03G 15/65
- {Apparatus which relate to the handling of copy material(handling sheets or webs in general [B65H](#); for photographic purposes in general [G03B](#))}

| | | |
|---|-------------------|--|
| | G03G 15/6532 | <ul style="list-style-type: none"> • {Removing a copy sheet from a xerographic drum, band or plate(removing sheets from printing cylinders B65H29/6<i>removing sheets from printing cylinders B65H29/6</i>)} |
| U | G03G 15/6555 | <ul style="list-style-type: none"> • {Handling of sheet copy material taking place in a specific part of the copy material feeding path} |
| U | G03G 15/6558 | <ul style="list-style-type: none"> • • {Feeding path after the copy sheet preparation and up to the transfer point, e.g. registering; Deskewing; Correct timing of sheet feeding to the transfer point} |
| | G03G 15/6561 | <ul style="list-style-type: none"> • • • {for sheet registration} <p><u>WARNING</u>
Groups G03G 15/6561 - G03G15/64M2DG03G 15/6567 are not complete, pending reorganisation. See also G03G 15/6558</p> |
| U | G03G 15/6582 | <ul style="list-style-type: none"> • {Special processing for irreversibly adding or changing the sheet copy material characteristics or its appearance, e.g. stamping, annotation printing, punching} |
| | G03G 15/6585 | <ul style="list-style-type: none"> • • {by using non-standard toners, e.g. transparent toner, gloss adding devices} <p><u>WARNING</u>
Group G03G 15/6585 is not complete, pending reorganisation. See also G03G 15/65-NG03G15/65N</p> |
| U | G03G 15/6588 | <ul style="list-style-type: none"> • {characterised by the copy material, e.g. postcards, large copies, multi-layered materials, coloured sheet material} |
| | G03G 15/6591 | <ul style="list-style-type: none"> • • {characterised by the recording material, e.g. plastic material, OHP, ceramics, tiles, textiles(details transferring the toner pattern onto particular materials G03G 15/1625)} <p><u>WARNING</u>
Groups G03G 15/6591 to G03G 15/6594 are not complete, pending reorganisation. See also G03G 15/65-PG03G15/65P</p> |
| U | G03G 21/00 | Arrangements not provided for by groups G03G 13/00 to G03G 19/00 , e.g. cleaning, elimination of residual charge |
| U | G03G 21/0005 | <ul style="list-style-type: none"> • {for removing solid developer or debris from the electrographic recording medium} |
| U | G03G 21/0011 | <ul style="list-style-type: none"> • {using a blade; Details of cleaning blades, e.g. blade shape, layer forming} |
| | G03G 21/0017 | <ul style="list-style-type: none"> • • {Details relating to the internal structure or chemical composition of the blades} <p><u>WARNING</u>
Groups G03G 21/0017 to G03G21/00B1S are not complete pending reorganisation. See also G03G 21/0011</p> |
| U | G03G 21/16 | <ul style="list-style-type: none"> • Mechanical means for facilitating the maintenance of the apparatus, e.g. modular arrangements |
| | G03G 21/1604 | <ul style="list-style-type: none"> • {Arrangement or disposition of the entire apparatus} <p><u>WARNING</u>
Groups G03G 21/1604 to G03G21/16P6 are not complete pending reorganisation. See also G03G 21/16</p> |

Project: N/A (G03H)

| | | |
|----------|------------------|---|
| U | G03H 1/00 | Holographic processes or apparatus using light, infra-red or ultra-violet waves for obtaining holograms or for obtaining an image from them; Details peculiar thereto |
| U | G03H 1/0005 | • { Adaptation of holography to specific applications (holographic optical element G02B 5/32 ; holographic scanner G02B 26/106 ; recognition using holographic mask G06K 9/76 ; holographic memories G11B 7/0065 , G11C 13/042)} |
| | G03H 1/0011 | • • { for security or authentication (holograms on information-bearing cards B42D15/10D ; <i>holograms on information-bearing cards B42D15/10D</i> ; testing papers with holograms G07D 7/0013)} |
| | G03H 2001/0016 | • • • {Covert holograms or holobjects requiring additional knowledge to be perceived, e.g. holobject reconstructed only under IR illumination (micro-holograms G03H 2230/10)} |
| | G03H 2001/0022 | • • • {Deciphering being performed with numerical or optical key, e.g. with the optical scrambler used during recording (optical element in object beam G03H 1/041)} |
| | G03H 2001/0027 | • • • {Being copy-protected against fraudulent replication, e.g. by layering a filter rejecting laser lines} |
| | G03H 2001/0033 | • • {in hologrammetry for measuring or analysing} |
| | G03H 2001/0038 | • • • {analogue or digital holobjects (holographic interferometry G01B 9/021 ; investigating particles G01N 15/0227)} |
| | G03H 2001/0044 | • • • {holographic fringes deformations; holographic sensors (holographic rain sensor in vehicles B60S 1/084)} |
| | G03H 2001/005 | • • {in microscopy, e.g. digital holographic microscope [DHM] (microscopes G02B 21/00 ; digital holography G03H 1/0866)} |
| | G03H 2001/0055 | • • {in advertising or decorative art} |
| | G03H 2001/0061 | • • {in haptic applications when the observer interacts with the holobject} |
| | G03H 2001/0066 | • • {for wavefront matching wherein the hologram is arranged to convert a predetermined wavefront into a comprehensive wave, e.g. associative memory (recognition using holographic masks G06K 9/76)} |
| | G03H 2001/0072 | • • {for wavefront conjugation wherein the hologram generates a wavefront conjugating a predetermined object, e.g. null testing, positioning, comparative holography} |
| | G03H 2001/0077 | • • {for optical manipulation, e.g. holographic optical tweezers [HOT]} |
| | G03H 2001/0083 | • • {for restoring distorted objects, e.g. restoring objects through scattering media} |
| | G03H 2001/0088 | • • {for video-holography, i.e. integrating hologram acquisition, transmission and display} |
| | G03H 2001/0094 | • • {for patterning or machining using the holobject as input light distribution (microlithography G03F 7/70283)} |
| U | G03H 1/02 | • Details { of features involved during the holographic process; Replication of holograms without interference recording} |
| | G03H 2001/0204 | • • {Object characteristics (corresponding details, see subgroups of G03H 2210/00)} |
| | G03H 2001/0208 | • • {Individual components other than the hologram} |
| | G03H 2001/0212 | • • • {Light sources or light beam properties (G03H 1/06 , G03H 1/24 take precedence; corresponding details, see subgroups of G03H 2222/00)} |
| | G03H 2001/0216 | • • • {Optical components (G03H 2001/0224 , G03H 1/0256 take precedence; corresponding details, see subgroups of G03H 2223/00)} |
| | G03H 2001/022 | • • • {Writing means other than actinic light wave (corresponding details, see subgroups of G03H 2224/00)} |

- G03H 2001/0224 . . . {Active addressable light modulator, i.e. Spatial Light Modulator [SLM] (corresponding details, see subgroups of [G03H 2225/00](#))}
- G03H 2001/0228 . . . {Electro-optic or electronic components relating to digital holography ([G03H 2001/0224](#) takes precedence; corresponding details, see subgroups of [G03H 2226/00](#))}
- G03H 2001/0232 . . . {Mechanical components or mechanical aspects not otherwise provided for (corresponding details, see subgroups of [G03H 2227/00](#))}
- G03H 2001/026 . . . {Recording materials or recording processes ([G03H 2226/11](#) takes precedence; corresponding details, see subgroups of [G03H 2260/00](#))}
- G03H 2001/0264 . . . {Organic recording material}
- G03H 2001/0268 . . . {Inorganic recording material, e.g. photorefractive crystal [PRC]}
- U G03H 1/0276 . . . {Replicating a master hologram without interference recording (surface relief holograms [G03H 1/0244](#))}
- G03H 2001/0284 . . . {by moulding}
- G03H 2001/0288 . . . {by electroforming}
- G03H 2001/0292 . . . {by masking}
- G03H 2001/0296 . . . {Formation of the master hologram}
- U G03H 1/04 . . . Processes or apparatus for producing holograms ([G03H 1/26](#) takes precedence)
- U G03H 1/0402 . . . {Recording geometries or arrangements ([G03H 1/0443](#), [G03H 1/0476](#), [G03H 1/16](#) take precedence)}
- G03H 2001/0413 . . . {for recording transmission holograms}
- G03H 2001/0415 . . . {for recording reflection holograms}
- G03H 2001/0417 . . . {for recording single beam Lippmann hologram wherein the object is illuminated by reference beam passing through the recording material}
- G03H 2001/0419 . . . {for recording combined transmission and reflection holograms}
- G03H 2001/0421 . . . {Parallax aspect}
- G03H 2001/0423 . . . {Restricted parallax, e.g. horizontal parallax only holograms [HPO]}
- G03H 2001/0426 . . . {Extended parallax, e.g. panoramic or 360deg. holograms}
- G03H 2001/0428 . . . {Image holography, i.e. an image of the object or holobject is recorded ([G03H 1/0406](#) takes precedence; holographic microscope [G03H 2001/005](#))}
- G03H 2001/043 . . . {Non planar recording surface, e.g. curved surface}
- G03H 2001/0432 . . . {Constrained record wherein, during exposure, the recording means undergoes constraints substantially differing from those expected at reconstruction}
- G03H 2001/0434 . . . {In situ recording when the hologram is recorded within the device used for reconstruction}
- G03H 2001/0436 . . . {Holographic camera (portable device [G03H 2227/02](#))}
- G03H 2001/0439 . . . {for recording Holographic Optical Element [HOE] (HOE per se [G02B 5/32](#))}
- G03H 2001/0441 . . . {Formation of interference pattern, not otherwise provided for}
- U G03H 1/0443 . . . {Digital holography, i.e. recording holograms with digital recording means (holobject computation [G03H 1/0866](#))}
- G03H 2001/0445 . . . {Off-axis recording arrangement ([G03H 2001/0456](#) takes precedence)}
- G03H 2001/0447 . . . {In-line recording arrangement}
- G03H 2001/045 . . . {Fourier or lensless Fourier arrangement}
- G03H 2001/0452 . . . {arranged to record an image of the object (holographic microscope [G03H 2001/005](#))}
- G03H 2001/0454 . . . {Arrangement for recovering hologram complex amplitude}

- G03H 2001/0456 {Spatial heterodyne, i.e. filtering a Fourier transform of the off-axis record}
- G03H 2001/0458 {Temporal or spatial phase shifting, e.g. parallel phase shifting method}
- G03H 2001/046 {Synthetic aperture}
- G03H 2001/0463 {Frequency heterodyne, i.e. one beam is frequency shifted}
- U G03H 1/0465 . . { Particular recording light; Beam shape or geometry ([G03H 1/06](#) takes precedence)}
- G03H 2001/0467 {Gated recording using pulsed or low coherence light source, e.g. light in flight, first arriving light}
- G03H 2001/0469 {Object light being reflected by the object}
- G03H 2001/0471 {Object light being transmitted through the object, e.g. illumination through living cells}
- G03H 2001/0473 {Particular illumination angle between object or reference beams and hologram}
- U G03H 1/0476 . . { Holographic printer ([G03H 1/268](#) takes precedence)}
- G03H 2001/0478 {Serial printer i.e. point oriented processing}
- G03H 2001/048 {Parallel printer, i.e. a fringe pattern is reproduced}
- G03H 2001/0482 {Interference based printer}
- G03H 2001/0484 {Arranged to produce three-dimensional fringe pattern}
- U G03H 1/0486 . . { Improving or monitoring the quality of the record, e.g. by compensating distortions, aberrations}
- G03H 2001/0489 {by using phase stabilized beam}
- G03H 2001/0491 {by monitoring the hologram formation, e.g. via a feed-back loop}
- U G03H 1/0493 . . { Special holograms not otherwise provided for, e.g. conoscopic, referenceless holography}
- G03H 2001/0495 {Polarisation preserving holography where amplitude, phase and polarisation state of the original objet wavefront are recorded}
- G03H 2001/0497 {Dot matrix holograms}
- U G03H 1/08 { Synthesising holograms, { i.e. holograms synthesized from objects or objects from holograms}(using electric digital computers [G06F](#); [G06T](#))}
- U G03H 1/0808 { Methods of numerical synthesis, e.g. coherent ray tracing [CRT], diffraction specific}
- G03H 2001/0816 {Iterative algorithms}
- G03H 2001/0825 {Numerical processing in hologram space, e.g. combination of the CGH [computer generated hologram] with a numerical optical element}
- G03H 2001/0833 {Look up table}
- U G03H 1/0841 { Encoding method mapping the synthesized field into a restricted set of values representative of the modulator parameters, e.g. detour phase coding}
- G03H 2001/085 {Kinoform, i.e. phase only encoding wherein the computed field is processed into a distribution of phase differences}
- G03H 2001/0858 {Cell encoding wherein each computed values is represented by at least two pixels of the modulator, e.g. detour phase coding}
- U G03H 1/0866 { Digital holographic imaging, i.e. synthesizing holobjects from holograms}
- G03H 2001/0875 {Solving phase ambiguity, e.g. phase unwrapping}
- G03H 2001/0883 {Reconstruction aspect, e.g. numerical focusing}
- U G03H 1/18 { Particular processing of hologram record carriers, e.g. for obtaining blazed holograms {(photographic processing in general [G03C](#), [G03D](#))}
- U G03H 1/182 { Post-exposure processing, e.g. latensification}

- G03H 2001/183 {Erasing the holographic information}
- G03H 2001/184 {Partially erasing}
- G03H 2001/185 . . . {Applying a curing step}
- G03H 2001/186 . . . {Swelling or shrinking the holographic record or compensation thereof
e.g. for controlling the reconstructed wavelength ([G03H 2001/0033](#),
[G03H 2250/44](#) take precedence)}
- G03H 2001/187 . . . {Trimming process i.e. macroscopically patterning the hologram (shape of
hologram [G03H 1/0236](#))}
- G03H 2001/188 {Demetallisation, i.e. removing the enhancing metallic layer
(enhancement layer [G03H 2250/36](#))}
- U G03H 1/20 . . Copying holograms by holographic { i.e. optical} means
- G03H 2001/205 . . . {Subdivided copy, e.g. scanning transfer}
- G03H 2001/207 . . . {with modification of the nature of the hologram, e.g. changing from volume
to surface relief or from reflection to transmission}
- U G03H 1/22 . . Processes or apparatus for obtaining an optical image from holograms
([G03H 1/26](#) to [G03H 1/34](#) take precedence)
- U G03H 1/2202 . . { Reconstruction geometries or arrangements}
- U G03H 1/2205 . . . { using downstream optical component}
- G03H 2001/2207 {Spatial filter, e.g. for suppressing higher diffraction orders}
- G03H 2001/221 {Element having optical power, e.g. field lens}
- G03H 2001/2213 {Diffusing screen revealing the real holobject, e.g. container filed with gel
to reveal the 3D holobject}
- G03H 2001/2215 {Plane screen}
- G03H 2001/2218 {being perpendicular to optical axis}
- G03H 2001/2221 {Screen having complex surface, e.g. a structured object}
- G03H 2001/2223 . . . {Particular relationship between light source, hologram and observer}
- G03H 2001/2226 {Edge lit holograms (TIR recording [G03H 1/0408](#))}
- G03H 2001/2228 {adapted for reflection and transmission reconstruction }
- G03H 2001/2231 {Reflection reconstruction}
- G03H 2001/2234 {Transmission reconstruction}
- G03H 2001/2236 . . . {Details of the viewing window}
- G03H 2001/2239 {Enlarging the viewing window}
- G03H 2001/2242 {Multiple viewing windows}
- G03H 2001/2244 . . . {Means for detecting or recording the holobject}
- G03H 2001/2247 {for testing the hologram or holobject}
- U G03H 1/2249 . . { Holobject properties}
- G03H 2001/2252 . . . {Location of the holobject}
- G03H 2001/2255 {Holobject out of Fourier or hologram planes}
- G03H 2001/2257 {Straddling the hologram}
- G03H 2001/226 {Virtual or real}
- G03H 2001/2263 . . . {Multicoloured holobject}
- G03H 2001/2265 {Achromatic holobject}
- G03H 2001/2268 {Rainbow hologram}
- G03H 2001/2271 {RGB holobject}
- G03H 2001/2273 . . . {Pseudo-dynamic holobject, e.g. due to angle multiplexing and viewer
motion}

- G03H 2001/2276 . . . {Polarisation dependent holobject ([G03H 2001/0495](#) takes precedence)}
- G03H 2001/2278 . . . {Orthoscopic or pseudoscopic}
- G03H 2001/2281 . . . {Particular depth of field}
- G03H 2001/2284 . . . {Superimposing the holobject with other visual information}
- U G03H 1/2286 . . { Particular reconstruction light ([G03H 1/24](#) takes precedence); Beam properties}
- G03H 2001/2289 . . . {when reconstruction wavelength differs from recording wavelength}
- G03H 2001/2292 . . . {Using scanning means }
- U G03H 1/2294 . . { Addressing the hologram to an active spatial light modulator}
- G03H 2001/2297 . . . {using frame sequential, e.g. for reducing speckle noise}
- U G03H 1/26 . . Processes or apparatus specially adapted to produce multiple { sub-} holograms or to obtain images from them, e.g. multicolour technique
- G03H 2001/2605 . . {Arrangement of the sub-holograms, e.g. partial overlapping}
- G03H 2001/261 . . . {in optical contact}
- G03H 2001/2615 {in physical contact, i.e. layered holograms}
- G03H 2001/262 . . . {not in optical contact ([G03H 1/30](#) takes precedence)}
- G03H 2001/2625 . . {Nature of the sub-holograms}
- G03H 2001/263 . . . {Made of different recording materials}
- G03H 2001/2635 . . . {Mixed volume and surface relief holograms}
- G03H 2001/264 . . . {One hologram being a HOE}
- U G03H 1/2645 . . { Multiplexing processes, e.g. aperture, shift, or wavefront multiplexing}
- G03H 2001/2655 . . . {Time multiplexing, i.e. consecutive records wherein the period between records is pertinent per se}
- G03H 2001/266 . . . {Wavelength multiplexing}
- G03H 2001/2665 . . . {Coherence multiplexing wherein different holobjects are perceived under coherent or incoherent illumination}
- G03H 2001/267 . . . {Polarisation multiplexing}
- G03H 2001/2675 . . . {Phase code multiplexing, wherein the sub-holograms are multiplexed according to spatial modulation of the reference beam (reference beam spatial modulation [G03H 1/12](#))}
- U G03H 1/268 . . { Holographic stereogram}
- G03H 2001/2685 . . . {One step recording process}
- G03H 2001/269 . . . {Two and more than two steps recording process}
- G03H 2001/2695 . . . {Dedicated printer (holographic printers [G03H 1/0476](#))}
- U G03H 1/30 . . discrete holograms only
- G03H 2001/303 . . . {Interleaved sub-holograms, e.g. three RGB sub-holograms having interleaved pixels for reconstructing coloured holobject}
- G03H 2001/306 . . . {Tiled identical sub-holograms}
- U **G03H 2250/00** **Laminate comprising a hologram layer (not used, see subgroups)**
- G03H 2250/43 . . One layer having dispersed particles (~~S02H260/33~~ [G03H 2260/33](#) takes precedence)

Project: N/A (G04B)

- G04B 1/00** Driving mechanisms {driving mechanisms for Turkish time [G04B 19/22](#); driving mechanisms in the hands [G04B 45/043](#); driving mechanisms for phonographic apparatus [G11B 19/00](#); springs, driving weight engines [F03G](#); driving mechanisms for cinematography [G03B 1/00](#); driving mechanisms; driving mechanisms for time fuses for missiles [F42C](#); driving mechanisms for toys [A63H11/23](#) [A63H 29/00](#)}
- U **G04B 1/10** • with mainspring {(synchronous motors with power reserve [G04C 15/0054](#); springs in general [F16F](#))}
- G04B 1/18** • • Constructions for connecting the ends of the mainsprings with the barrel or the arbor {mainsprings and bridles therefor [G04B 1/14](#); clamping the hairspring on the regulator [G04B17/14F](#) [G04B 18/026](#); clamping the hairspring on the arbor [G04B 17/32](#)}
- G04B 1/22** • • Compensation of changes in the motive power of the mainspring (by mechanical shaping of the mainspring [G04B 1/14](#){automatic regulation of the pendulum [G04B17/12B](#) [G04B 18/003](#); of the regulator [G04B 19/28](#)}
- U **G04B 3/00** Normal winding of clockworks by hand or mechanically; Winding up several mainsprings or driving weights simultaneously {automatic winding up [G04B 5/00](#); combined normal and automatic winding up [G04B 7/00](#); Click devices [G04B 11/00](#); winding up the striking mechanism by the clockwork and vice versa [G04B 21/14](#); mechanical devices for setting the time-indication by using the winding means [G04B 27/02](#), [G04B 27/083](#); calibers of which the mainsprings are easily removable [G04B 33/14](#); winding mechanical clocks electrically [G04C 1/00](#); tools for setting springs [G04D 1/04](#); driving mechanisms for gramophones [G11B 19/00](#); driving mechanisms for cinematographs [G03B 1/00](#)}
- G04B 3/12** • by mechanical means e.g. pneumatic motor (winding up with electric or electromechanical means [G04C](#)){liquid or gas driving mechanisms [G04B 1/26](#); automatic winding up by wind power [G04B5/05D](#) [G04B 5/203](#)}
- G04B 15/00** Escapements {magnetic [G04C 5/005](#); in striking mechanisms [G04B 21/06](#)}; ~~in alarm clocks [G04B23/06D](#)~~
- G04B 15/14** • Component parts or constructional details, e.g. construction of the lever or the escape wheel {(assembly and manufacture of the spring [G04B 1/145](#); assembly and manufacture of components, e.g. pinions, spindles [G04B 13/026](#); oils for clockwork bearings in general [G04B31/00T](#) [G04B 31/08](#); lubrication of clockwork bearings [G04B 31/008](#))}
- G04B 17/00** Mechanisms for stabilising frequency {(for setting frequency [G04B 18/00](#); magnetic [G04C 5/005](#); in striking mechanisms [G04B 21/06](#); stopping and regulating of the running [G04B 23/023](#); ~~electrically driven mechanical regulation [G04B3/16](#)~~; ~~electrically driven mechanical regulation [G04C 3/165](#)~~; electrical and thermo-electric regulating mechanisms [G04C 5/00](#))}
- U **G04B 17/02** • Oscillators acting by gravity, e.g. pendulum swinging in a plane {(setting the pendulum to the required length [G04B 18/003](#); temperature compensation for pendulums [G04B 17/225](#); bearings in general, e.g. knife-edge [G04B 31/00](#); clocks fitted in pendulums [G04B 45/043](#); imitation pendulums driven by the clock mechanism [G04B 45/0046](#), [G04B 45/0053](#); pendulum ornamentation [G04B 45/0061](#); contacts actuated by a pendulum [G04C 13/065](#); measurement of force with a pendulum [G01V 7/12](#))}
- G04B 17/025** • • {Composite and multiple pendulums; Synchronisation of mechanical pendulums, e.g. electrical synchronisation [G03C3/02K](#) [G04C 3/025](#); pendulum systems [G04C 13/028](#)}

- U G04B 19/00** **Indicating the time by visual means ({ indicating the time optically by electric means [G04C 17/00](#), e.g.} by electric lamps [G04C 17/02](#); display arrangements in general [G09F](#))**
- U G04B 19/02 • Back-gearing arrangements between gear train and hands {transmissions in general [G04B 13/00](#)}
- G04B 19/025 • { for simultaneous indicating on several dials (indicating means allowing simultaneous indication [G04B 19/048](#); with several separate dials [G04B 19/08](#); extra hands for indicating different local apparent times [G04B19/22B](#) [G04B 19/23](#); with several clockworks [G04B 37/0083](#))}
- U G04B 19/04 • Hands; discs with a single mark or the like {moving indicating arrangements which have scales or numbers with stationary hands or reading means [G04B 19/20](#); optical projection of the position of the hands [G04B 19/34](#)}
- G04B 19/048 • {having the possibility of indicating on more than one scale, e.g. hands with variable length which work on different scales (simultaneous indicating on several dials [G04B 19/025](#); indicating by discs used as hands [G04B19/64D](#) [G04B 19/046](#); used as moving scales [G04B 19/202](#); different indications on several scales or dials e.g. for different local apparent times [G04B19/22B](#) [G04B 19/23](#))}
- G04B 19/06 • Dials ({moving discs [G04B 19/20](#); illuminated dials or hands [G04B 19/30](#);} for time-pieces without clockwork [G04B 49/04](#); { machines and arrangements for the manufacture of dials or hands [G04D3/00F](#) [G04D 3/0048](#)})
- G04B 19/14 • • Fastening the dials to the clock or watch plates {(tools, arrangements and machines for the manufacture of watch plates [G04D3/00F](#) [G04D 3/0048](#))}
- G04B 19/28 • Adjustable guide marks or pointers for indicating determined points of time {inscriptions or pictures moved by hand [G04B 45/003](#)}; ~~measurement of unknown time intervals by regulatable hands, scales or marks [G04F7/00B](#)~~
- G04B 19/30 • Illumination of dials or hands { dials in general [G04B 19/06](#); moving indicating means with numbers or hands, in general [G04B 19/20](#); arrangements for indicating different local apparent times by means of a globe illuminated from inside [G04B 19/22](#); continuous indication of the time by non-electric light sources [G04B 25/00](#); e.g. by electric lamps [G04C 17/02](#); illumination by electric lamps which function at fixed times or periodically [G04C 19/02](#); illuminated panels [G09F 13/00](#); ~~[G04B13/22](#)~~}
- U G04B 21/00** **Indicating the time by acoustic means (at preselected times [G04B 23/00](#); by electro-acoustic means [G04C 21/04](#); { indicating the time by means other than acoustically, or by combined means [G04B 25/00](#); indicating the time by visual means [G04B 19/00](#), [G04C 17/00](#); acoustic signalling arrangements [G08B 3/00](#)})**
- G04B 21/005 • {Periodical acoustic signalling arrangements ([G04B 21/02](#) takes precedence); (adjustment of the frequency by setting the length of the pendulum [G04B17/12B](#) [G04B 18/003](#); metronomes [G04F5/62](#) [G04F 5/02](#))}
- G04B 21/02 • Regular striking mechanisms giving the full hour, half hour, or quarter hour {electrically operating striking mechanisms with choice of repertoire [G04C21/02D](#) [G04C 21/06](#)}
- G04B 21/022 • • {with saw mechanism (with electric drive [G04C21/62B](#) [G04C 21/08](#))}
- G04B 21/027 • • {with locking wheel (electrically driven [G04C21/62C](#) [G04C 21/10](#))}

- G04B 31/00** Bearings; Point suspensions or counter-point suspensions; Pivot bearings; Single parts therefor (bearings in general [F16C](#); {manufacture and composition of springs [G04B 1/145](#); suspension of oscillating weights [G04B5/18B](#) [G04B 5/18](#); suspension of a pendulum [G04B 17/02](#); bearings for electrical measurement apparatus [G01R 1/10](#), [G01R 1/12](#), [G01R 11/12](#), [G01R 11/14](#); inserting jewels [A44C 17/04](#); inserting cutting diamonds [B23P 5/00](#); devices for fixation of bearing jewels, bearing sleeves, or the like [G04D 3/04](#)})
- G04B 31/02** • Shock-damping bearings {(shock damping in the case [G04B37/04B2](#) [G04B 37/052](#), [G04B37/04B3](#) [G04B 37/055](#), [G04B 37/0418](#))}
- U G04B 37/00** Cases {Cases with a special shape [G04B 45/0069](#); ornamentation of the case [G04B 47/04](#); cartridges [A45C 11/00](#) to [A45C 11/38](#)}
- U G04B 37/14** • Suspending devices, supports or stands for time-pieces insofar as they form part of the case {(wrist watch straps, fastening means therefor [A44C 5/00](#); display stands [54G14K](#))}
- U G04B 37/1473** • {Supports and feet for supporting the clockwork (cases for standing clockworks in general [G04B 37/0066](#))}
- G04B 37/148** • • {formed by parts of the case (standing watches by bringing them out of the case or purse-[G04B37/04D4B](#); [G04B 37/0463](#))}
- U G04B 47/00** Time-pieces combined with other articles which do not interfere with the running or the time-keeping of the time-piece ({ clockwork cases for special purposes [G04B 37/12](#); clocks with magnifying glass built in the face [G04B 39/00](#); time-pieces in which parts or cases produce special effects, e.g. aesthetic effects, [G04B 45/00](#), particularly with inscriptions or pictures moved by hand [G04B 45/003](#), with specially shaped cases or parts [G04B 45/0069](#); combination of} writing or drawing implements with devices for indicating time [B43K 29/087](#); combined with cameras, projectors, or photographic painting apparatus [G03B 29/00](#))
- G04B 47/02** • Installations within mirrors, pictures, furniture or other household articles { clock-lamps, globe-clocks with a fixed dial, [G04B 19/04](#); clock in the form of a lamp with a dial mounted upon it, moved by the clockwork [G04B19/20C](#) [G04B 19/21](#); clockwork in the form of a globe for indicating different local apparent times [G04B 19/22](#); illumination of the dial and the hands [G04B 19/30](#); clock-lamps with the lamp switched on and off by the clockwork mechanism [G04C 19/02](#), within keys [G04B 47/005](#), within lighters [G04B 47/006](#), within pens [B43K 29/087](#)}

Project: N/A (G04C)

- U G04C 3/00** Electromechanical clocks or watches independent of other time-pieces and in which the movement is maintained by electric means {Synchronisation [G04C 11/00](#)}
- G04C 3/14** • incorporating a stepping motor ([G04C 3/02](#) to [G04C 3/12](#) take precedence { generating timing pulses [G04F 5/00](#), [G04G 3/00](#); setting [G04G 5/00](#); synchronisation-[G04C11/00K](#), [G04G 7/00](#); synchronisation [G04G 7/00](#); generating commutating pulses in masterclocks [G04C 13/0463](#), [G04C 13/02](#); slave clocks actuated intermittently by electromechanical step advancing mechanisms [G04C 13/10](#); control circuits for stepping motors in general [H02P 8/00](#)})
- U G04C 3/16** • incorporating an electro-dynamic continuously rotating motor ([G04C 3/02](#) to [G04C 3/12](#) take precedence; clocks driven by synchronous motors [G04C 15/00](#); {apparatus which can be set and started to measure-off predetermined or adjustably-fixed time intervals with electric driving means, e.g. incorporating clocks [G04F 3/06](#), [G04F 3/08](#); electromechanical stop watches [G04F 8/00](#)})

- G04C 3/165
- {comprising a mechanical regulating device influencing the electromotor (constructional details of the mechanical regulating device [G04B 17/00](#)[G04B 17/00](#))}

U G04C 10/00 Arrangements of electric power supplies in time pieces {(circuits [G04G 19/00](#); mounting, assembling of components of electromechanical watches [G04C 3/008](#), of electronic watches [G04G 17/00](#))}

- G04C 10/04
- with means for indicating the condition of the power supply {in general [G01R31/00B](#)[G01R 31/36](#)}

Project: N/A (G04D)

U G04D 1/00 Gripping, holding, or supporting devices {stands in general [F16M](#); for instruments [G01D 11/30](#), [B01L](#)}

- U G04D 1/04
- Tools for setting springs]
- U G04D 1/042
- {for coil springs in regulating mechanisms (machines therefor [G04D 3/0041](#))}
- G04D 1/045
- {for fastening the ends (machines therefor [G04D3/00B2K](#)[G04D 3/0007](#), [G04D 3/0041](#))}
- G04D 1/08
- Tools for setting or removing hands {machines therefor [G04D3/00B14B1](#) [G04D 3/0046](#)}

G04D 5/00 Oiling devices; Special lubricant containers for watchmakers {bearings constructed with regard to oiling of the clockwork [G04B31/00T](#)[G04B 31/08](#); oilcans for lubricating in general [F16N 3/04](#)}

Project: N/A (G04F)

U G04F 7/00 Apparatus for measuring unknown time intervals by mechanical means

- U G04F 7/04
- using a mechanical oscillator

WARNING

The subgroups of G04F/04 are not complete pending reclassification; see also this group

- U G04F 7/08
- Watches or clocks with stop devices, e.g. chronograph
- U G04F 7/0866
- { Special arrangements}
- G04F 7/0895
- { with a separate barrel for the chronograph functions (barrel in a separable module [G04F7/08S08](#)[G04F 7/0885](#))}

Project: N/A (G05D)

G05D SYSTEMS FOR CONTROLLING OR REGULATING NON-ELECTRIC VARIABLES(for continuous casting of metals [B22D 11/16](#) ; valves per se [F16K](#); sensing non-electric variables, see the relevant subclasses of [G01](#); for regulating electric or magnetic variables [G05F](#))

NOTES

This subclass does not cover features of general applicability to regulating systems, e.g. anti-hunting arrangements, which are covered by subclass [G05B](#). In this subclass, the following term is used with the meaning indicated:

- "systems" includes self-contained devices such as speed governors, pressure regulators.

Control systems specially adapted for particular apparatus, machines or processes are classified in the subclasses for the apparatus, machines or processes, provided that there is specific provision for control or regulation relevant to the special adaptation, either at a detailed level, (e.g. [A21B 1/40](#)

: "for regulating temperature in bakers` ovens") or at a general level, (e.g. [B23K 9/095](#) : "for automatic control of welding parameters in arc welding"). Otherwise, classification is made in the most appropriate place in this subclass. The following are lists of places where there is specific provision of the kind referred to above. Where such provision is at a detailed level, the places have been grouped according to the main groups of this subclass. Where the provision is at a general level (e.g. of a kind appropriate to more than one of the main groups specified in the lists, or to main groups [G05D 27/00](#) or [G05D 29/00](#)), the places are listed under the title "General References". Places related to [G05D 1/00](#)

| | |
|-----------------------------|--|
| A01B 69/00 | Agricultural machines or implements |
| A63H 17/36 | Toy vehicles |
| B60V 1/11 | Air-cushion vehicles |
| B62D 1/00 | Steering controls of motor vehicles or trailers, i.e. means for initiating a change of direction |
| B62D 6/00 | Arrangements for automatically controlling the steering depending on driving conditions |
| B62D 55/116 | Chassis of endless-tracked vehicles |
| B63H 25/00 | Marine steering; control of waterborne vessels |
| B64C 13/00 | to B64C 15/00 Controlling aircraft |
| B64D 25/11 | Controlling attitude or direction of aircraft ejector seats |
| B64G 1/24 | Cosmonautic vehicles |
| F41G 7/00 | Self-propelled missiles |
| F42B 15/01 | Guided missiles |
| F42B 19/01 | Marine torpedoes |
| | Places related to G05D 3/00 |
| A43D 119/00 | Footwear manufacture |
| B21K 31/00 | Tool carriers in forging or pressing |
| B23B 39/26 | Pattern-controlled boring or drilling tools |
| B23D 1/30 | , B23D 3/06 , B23D 5/04 |
| | Planing or slotting machines controlled by copying device |
| B23H 7/18 | Electrode to workpiece spacing in electric discharge and electrochemical machining |
| B23K 26/02 | Workpiece in laser welding or cutting |
| B23K 37/04 | Workpiece in welding |
| B23K 37/06 | Molten metal in welding |
| B23Q 5/20 | Spindles in machine tools |
| B23Q 15/00 | , B23Q 16/00 Tool or work position in machine tools |
| B23Q 35/00 | Tools controlled by pattern or master model |
| B24B 17/00 | Grinding controlled by patterns, drawings, magnetic tape or the like |
| B24B 47/22 | Starting position in grinding |
| B30B 15/24 | Actuating members in presses |
| B62D 55/116 | Chassis of tracked vehicles |
| B65H 23/18 | Web-advancing mechanisms |
| E02F 3/43 | Dippers or buckets in dredgers |
| F15B 9/00 | Fluid-pressure servomotors with follow-up |

action
[F24J 2/38](#) Tracking of solar haet collectors
[G03F 9/00](#) Photomechanical production of patterned
or
textured surfaces
[G11B 5/588](#) Rotating heads in information storage
systems
[G21C 7/12](#) Movement of control elements in
nuclear
reactors

Places related to [G05D 5/00](#)
[A24B 7/14](#) Tobacco cutting
[B05C 11/02](#) Thickness of coating of fluent material
on
surface
[B21B 37/16](#) Thickness, width, diameter or other
transverse dimensions of the products of
metal-rolling mills
[C03B 18/04](#) Dimension of glass ribbon
[D21F 7/06](#) Thickness of layer in paper making
Places related to [G05D 7/00](#)
[A45D 20/26](#) Air in hair drying helmets
[A61M 5/168](#) Flow of media to the human body
[B03C 3/36](#) Gases or vapour in electrostatic
separators
[B05C 11/10](#) Fluent material in coating devices
[B67D 1/12](#) Dispensing beverages on draught
[B67D5/28](#)[B67D 7/28](#) Transferring liquids
[C10K 1/28](#) Gas purifiers
[E21B 21/08](#) Flushing boreholes
[E21B 43/12](#) Obtaining liquids from wells
[F01D 17/00](#) Flow in non-positive-displacement
machines
or systems
[F01M 1/16](#) Lubrication arrangements
[F01P 7/00](#) Coolant flow in cooling devices
[F02C 9/16](#) ,
[F02C 9/50](#) Gas-turbine working fluid
[F16L 55/027](#) Throttle passages in pipes
[F24F 11/00](#) Air-flow or supply of heating or
cooling
fluids in air treatment arrangements
[F26B 21/12](#) Air or gas flow in dryers
[G01G 11/08](#) Continuous flow weighing apparatus
[G21D 3/14](#) Coolant in nuclear power plant
Places related to [G05D 9/00](#)
[B01D 21/34](#) Liquid level in sedimentation
arrangements
[B41L 27/04](#) Ink level in printing, manifolding
or
duplicating arrangements
[F22D 5/00](#) Feed water for boilers
[H01J 1/10](#) , [H01J 13/14](#) Liquid pool
electrodes in electric discharge
tubes or lamps Places related to
[G05D 11/00](#)
[B01D 21/32](#) Density in sedimentation
arrangements
[B01F 15/04](#) Mixers
[B24C 7/00](#) Abrasive blasts

[B28C 7/00](#) Mixtures of clays or cements
[B65G 53/66](#) Bulk material conveyers
[F02K 3/075](#) Flow ratio in jet-propulsion plants
 Places related to [G05D 13/00](#)
[B21C 1/12](#) Drum speed in metal drawing
[B23Q 15/00](#) Cutting velocity of tool or work
[B30B 15/20](#) Ram speed in presses
[B60K 31/00](#) Setting or limiting speed of vehicles
[B60L 15/00](#) Electrically-propelled vehicles
[B64D 31/08](#) Cruising speed of aircraft
[D01D 1/09](#) Feed rate in manufacture of artificial filaments, threads, fibres, bristles or ribbons
[D01G 15/36](#) Carding machines
[D02H 13/14](#) Warping, beaming or leasing machines
[D03D 51/16](#) Cyclically varying speed of looms
[G01N 30/32](#) Speed of fluid carrier in chemical analysis
[G11B 15/46](#) Filamentary or web record carriers or heads for such carriers in information storage systems
[G11B 19/28](#) Non-filamentary, non-web record carriers, or heads for such carriers in information storage systems
 Places related to [G05D 15/00](#)
[B25D 9/26](#) Portable percussive tools
[B30B 15/22](#) Ram pressure in presses
[B65H 59/00](#) Tension in filamentary material
 { [B65H 23/00](#) , [B65H 59/00](#) }
 Tension in webs, tapes, filamentary material
[B66D 1/50](#) Rope, cable or chain tension
[D03D 49/04](#) Tension in looms
[D05B 47/04](#) Tension in sewing machines
[D21F 3/06](#) Pressure in paper-making machines
[F26B 13/12](#) Drying fabrics
[F26B 21/10](#) Pressure in dryers
[G11B 15/43](#) Record carrier tension in information storage arrangements
 Places related to [G05D 16/00](#)
[B60C 23/00](#) Tyre pressure
[B63C 11/08](#) Air within diving suit
[B64D 13/00](#) Aircraft air-pressure
[B65G 53/66](#) Bulk material conveyers
[D01D 1/09](#) Manufacture of artificial filaments, threads, fibres, bristles or ribbons
[E21B 21/08](#) Flushing boreholes
[F01M 1/16](#) Lubrication arrangements
[G01N 30/32](#) Pressure of fluid carrier in chemical analysis
[H01J 7/14](#) Pressure in electric discharge tubes or lamps
[H01K 1/52](#) Pressure in electric incandescent lamps
 Places related to [G05D 19/00](#)
[B25D 9/26](#) Portable percussion tools

| | | |
|--------------------------------------|---------------------------------------|-------------------|
| B65G 27/32 | Jigging conveyers | Places |
| related to | G05D 21/00 | |
| B01D 21/32 | Density in sedimentation | |
| arrangements | | |
| B01D 53/30 | Treating gases or vapours | |
| G01N 30/34 | Composition of fluid carrier in | |
| chemical | | |
| analysis | | |
| Places related to | G05D 22/00 | |
| A01G 25/16 | Watering gardens, fields, sports | |
| grounds | | |
| or the like | | |
| A01K 41/04 | Poultry incubators | |
| A24B 9/00 | Tobacco products | |
| F24F 11/00 | Air conditioning | |
| F26B 21/08 | Dryers | Places related to |
| G05D 23/00 | | |
| A21B 1/40 | Bakers` ovens | |
| A45D 6/20 | Hair curlers | |
| B21C 31/00 | Metal extruding | |
| B60C 23/00 | Tyre temperature | |
| B64G 1/50 | Cosmonautic vehicles | |
| C03B 18/18 | , | |
| C03B 18/22 | Float baths in glass making | |
| D01D 1/09 | Manufacture of artificial filaments, | |
| threads, fibres, bristles or ribbons | | |
| D04B 35/30 | Knitting machines | |
| D06F 75/26 | Hand irons | |
| D21F 5/06 | Paper-making machines | |
| F01M 5/00 | Lubricant in lubrication arrangements | |
| F16N 7/08 | Arrangements for supplying oil or | |
| unspecified | | |
| lubricant from a reservoir | | |
| F22G 5/00 | Steam superheat | |
| F26B 21/10 | Dryers | |
| G01N 30/30 | Temperature of fluid carrier in | |
| chemical | | |
| analysis | | |
| H01M 10/50 | Electric storage cells | |
| H05B 6/06 | , | |
| H05B 6/50 | , | |
| H05B 6/68 | Dielectric, induction or microwave | |
| heating | | |
| H05G 1/36 | Anode of X-ray tube | Places |
| related to | G05D 25/00 | |
| B41B 21/08 | Photographic composing machines | |
| H01S 3/10 | , | |
| H05B 33/08 | , | |
| H05B 35/00 | to | |
| H05B 43/00 | Lasers and other light sources | |
| General references | | |
| A01J 5/007 | Milking machines | |
| B23K 9/095 | Welding parameters | |
| B23Q 35/00 | Copying | |
| B24B 17/00 | , | |
| B24B 49/00 | Grinding or polishing | |
| B24C 7/00 | Abrasive blasts | |
| B67D 1/12 | Dispensing beverages on draught | |

[G03G 21/20](#) Electrographic, electrophotographic
or
magnetographic processes
[H02P 5/00](#) to
[H02P 9/00](#) Dynamo-electric motors or generators

Project: N/A (G05G)

U G05G 9/00 Manually-actuated control mechanisms provided with one single controlling member co-operating with two or more controlled members, e.g. selectively, simultaneously

- U G05G 9/02
 - the controlling member being movable in different independent ways, movement in each individual way actuating one controlled member only
- U G05G 9/04
 - • in which movement in two or more ways can occur simultaneously
- U G05G 9/047
 - • • the controlling member being movable by hand about orthogonal axes, e.g. joysticks {(for switches [H01H 25/04](#))}
- G05G 2009/04703
 - • • • {Mounting of controlling member }
- G05G 2009/04707
 - • • • • {with ball joint }
- G05G 2009/04711
 - • • • • {with substantially hemispherical bearing part forced into engagement, e.g. by a spring }
- G05G 2009/04714
 - • • • • {with orthogonal axes }
- G05G 2009/04718
 - • • • • • {with cardan or gimbal type joint }
- G05G 2009/04722
 - • • • • {elastic, e.g. flexible shaft }
- G05G 2009/04725
 - • • • • • {with coil spring }
- G05G 2009/04729
 - • • • • • ~~melastomeric~~ {~~melastomeric~~ }
- G05G 2009/04733
 - • • • • {with a joint having a nutating disc, e.g. forced by a spring }
- G05G 2009/0474
 - • • • {characterised by means converting mechanical movement into electric signals }
- G05G 2009/04744
 - • • • • ~~Switches~~ {~~Switches~~ }
- G05G 2009/04748
 - • • • • {Position sensor for rotary movement, e.g. potentiometer }
- G05G 2009/04751
 - • • • • {Position sensor for linear movement }
- G05G 2009/04755
 - • • • • {Magnetic sensor, e.g. hall generator, pick-up coil }
- G05G 2009/04759
 - • • • • {Light-sensitive detector, e.g. photoelectric }
- G05G 2009/04762
 - • • • • {Force transducer, e.g. strain gauge }
- G05G 2009/04766
 - • • • {providing feel, e.g. indexing means, means to create counterforce }
- G05G 2009/0477
 - • • • • {holding the member in a number of definite positions }
- G05G 2009/04774
 - • • • {with additional switches or sensors on the handle }
- G05G 2009/04777
 - • • • {with additional push or pull action on the handle }
- G05G 2009/04781
 - • • • {with additional rotation of the controlling member }

NOTE

Provisional indexing codes related to scheme of trilateral project T021

- G05G 9/053
 - • • • the controlling member comprising a ball {(~~graph-reading using a tracing ball or mouse~~ [G06K 11/18](#) ~~graph-reading using a tracing ball or mouse~~ [G06F 3/033](#))}
- G05G 9/08
 - the controlled members being actuated successively by progressive movement of the controlling member {(Single lever throttle and clutch control for marine engines [B63H 21/22B](#) [B63H 21/213](#))}

Project: N/A (G06F)

- U G06F 3/00** Input arrangements for transferring data to be processed into a form capable of being handled by the computer; Output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements(typewriters [B41J](#); conversion of physical variables [F15B 5/00](#) , [G01](#); image acquisition [G06T 1/00](#) , [G06F 9/00](#) ; coding, decoding or code conversion in general [H03M](#) ; transmission of digital information [H04L](#); { in regulating or control systems [G05B](#) })
- U G06F 3/01 • Input arrangements or combined input and output arrangements for interaction between user and computer([G06F 3/16](#) takes precedence)
- U G06F 3/03 • • Arrangements for converting the position or the displacement of a member into a coded form
- U G06F 3/0304 • • • {Detection arrangements using opto-electronic means(constructional details of pointing devices not related to the detection arrangement using opto-electronic means [G06F 3/033](#) and subgroups; optical digitisers [G06F 3/042](#))}
- WARNING**
Groups [G06F 3/0304](#) and [G06F 3/0317](#) are not complete, pending a reorganisation. See also [G06F 3/042](#) and subgroups
- G06F 3/0312 • • • • {for tracking the rotation of a spherical or circular member, e.g. optical rotary encoders used in mice or trackballs using a tracking ball or in mouse scroll wheels(tracking relative movement in co-operation with a regularly or irregularly patterned surface, e.g. as in optical mice [G06F 3/0317](#) ; constructional details of scroll or thumb-wheels [G06F 3/03362](#)[G06F3/03362](#) ; optical rotary encoders [G01D 5/3473](#) ; thumb wheel switches [H01H 19/001](#))}
- U G06F 3/06 • Digital input from or digital output to record carriers,{e.g. RAID, emulated record carriers, networked record carriers(recording or reproducing devices per se [G11B](#); error detection, error correction, monitoring per se regarding storage systems [G06F 11/00](#); accessing or addressing within memory systems or architectures [G06F 12/00](#); information retrieval [G06F 17/30](#))}
- G06F 2003/0691 • • {buffering arrangements}
- G06F 2003/0692 • • {digital I/O from or to direct access storage devices, e.g. magnetic, optical, magneto-optical disc}
- G06F 2003/0694 • • {emulating arrangements, e.g. RAM-disc}
- G06F 2003/0695 • • {formatting arrangements}
- G06F 2003/0697 • • {device management, e.g. handlers, drivers, I/O schedulers}
- G06F 2003/0698 • • {digital I/O from or to serial access storage devices, e.g. magnetic tape}
- U G06F 3/12 • Digital output to print unit,{e.g. line printer, chain printer}(digital output to typewriter [G06F 3/09](#) ; printing of alphanumeric characters [G06K 15/02](#))
- G06F 3/1296 • • {Printer job scheduling or printer resource handling(~~Allocation of resources to tasks~~ [G06F9/46A2](#))}
- U G06F 7/00** **Methods or arrangements for processing data by operating upon the order or content of the data handled(logic circuits [H03K 19/00](#))**
- U G06F 7/38 • Methods or arrangements for performing computations using exclusively denominational number representation, e.g. using binary, ternary, decimal representation
- U G06F 7/48 • • using non-contact-making devices, e.g. tube, solid state device; using unspecified devices
- U G06F 7/491 • • • Computations with decimal numbers{radix 12 or 20.([G06F 7/4824](#) takes precedence)}

- U G06F 7/492 using a binary weighted representation within each denomination{
 [G06F 7/498](#) takes precedence }
- U G06F 7/493 the representation being the natural binary coded representation, i.e.
 8421-code
 WARNING
 Not complete. See provisionally also [G06F 7/491](#)
- G06F 7/496 Multiplying; Dividing
 WARNING
 Not complete. See provisionally also ~~G06F 7/491~~ **BG06F7/491B**,
 [G06F 7/4917](#)
- G06F 7/499 . . . Denomination or exception handling, e.g. rounding, overflow{ Note:
 documents published before 12-2005 are not systematically classified in the
 sugroups of [G06F 7/499](#) : See the relevant subgroup of [G06F 7/48](#) and the
 ICOs ~~S06F7:499~~[G06F 7/499](#) + }
- U G06F 7/52 . . . Multiplying; Dividing([G06F 7/483](#) to [G06F 7/491](#) , [G06F 7/544](#) take
 precedence)
- U G06F 7/535 Dividing only
- U G06F 7/537 Reduction of the number of iteration steps or stages, e.g. using the
 Sweeny-Robertson-Tocher (SRT) algorithm{ not used, see [G06F 7/535](#)
 or [G06F 7/5375](#) }
- G06F 7/5375 { Non restoring calculation, where each digit is either negative, zero
 or positive, e.g. SRT; WARNING: Not complete. Provisionally see
 [G06F 7/535](#) + ~~S06F7:537S~~[G06F 7/5375](#) }
- U **G06F 8/00** {Arrangements for software engineering(execution of stored program
 [G06F 9/06](#) ; testing or debugging [G06F 11/36](#) ; hardware/software co-design
 [G06F 17/50](#) ; software project management ~~G06Q10/00C~~)}
- U G06F 8/40 . {Transformations of program code}
- U G06F 8/41 . . {Compilation}
- U G06F 8/45 . . . {Exploiting coarse grain parallelism in compilation, i.e. parallelism between
 groups of instructions}
- G06F 8/457 {Communication(intertask communication ~~G06F9/46R6~~[G06F 9/54](#))}
- G06F 8/458 {Synchronisation, e.g. post-wait, barriers, locks(synchronisation among
 tasks ~~G06F9/46R2~~[G06F 9/52](#))}
- U **G06F 9/00** **Arrangements for programme control, e.g. control unit(programme control
for peripheral devices [G06F 13/10](#) ; in regulating or control systems [G05B](#))**
- U G06F 9/06 . using stored programme, i.e. using internal store of processing equipment to
 receive and retain programme
- U G06F 9/30 . . Arrangements for executing machine-instructions, e.g. instruction decode(for
 executing micro-instructions [G06F 9/22](#) ; for executing subprogrammes
 [G06F 9/40](#))
- U G06F 9/38 . . . Concurrent instruction execution, e.g. pipeline, look ahead
- U G06F 9/3836 {Instruction issuing, e.g. dynamic instruction scheduling, out of order
 instruction execution}
- G06F 9/3851 {from multiple instruction streams, e.g. multistreaming(initiation or
 dispatching of multiple tasks or threads ~~G06F9/46C4~~[G06F 9/48](#))}
- G06F 9/3877 {using a slave processor, e.g. coprocessor(peripheral processor
 [G06F 13/12](#) ; vector processor ~~G06F15/78V~~[G06F 15/8053](#))}
- G06F 2009/3883 {Two-engine architectures, i.e. stand-alone processor acting as a slave
 processor}

- U G06F 9/44
 - • Arrangements for executing specific programmes
 - G06F 2009/4441
 - • • {Programme partitioning, e.g. concurrency or parallelism detection, programming parallel machines in general}
- U G06F 9/445
 - • • Programme loading or initiating{(bootstrapping [G06F 9/4401](#) ; movement of software or configuration parameters for network-specific applications [H04L 67/34](#))}
 - G06F 2009/44515
 - • • • {using non-volatile memory from which the program can be directly executed, e.g. EEPROM}
 - G06F 2009/44531
 - • • • {involving multiple processors}
- U G06F 9/455
 - • • Emulation; Software simulation{, i.e. virtualisation or emulation of application or operating system execution engines(instruction translation at instruction execution time [G06F 9/3017](#) ; multiprogramming in general [G06F 9/46](#) ; logical partitioning of resources or management or configuration of virtualized resources [G06F 9/5077](#) ; in-circuit emulation [G06F 11/3652](#) ; environments for testing or debugging software [G06F 11/3664](#))}
- U G06F 9/45533
 - • • • {Hypervisors; Virtual machine monitors}
- U G06F 9/45558
 - • • • • {Hypervisor-specific management and integration aspects}
- U G06F 2009/45562
 - • • • • {Creating, deleting, cloning virtual machine instances}
- U G06F 2009/45566
 - • • • • {Nested virtual machines}
- U G06F 2009/4557
 - • • • • {Distribution of virtual machine instances; Migration and load balancing aspects(load distribution or balancing [G06F 9/505](#) , [G06F 9/5083](#) ; Task migration [G06F 9/4856](#))}
- U G06F 2009/45575
 - • • • • {Starting, stopping, suspending, resuming virtual machine instances(programme initiating [G06F 9/445](#) ; task life-cycle in general [G06F 9/485](#))}
- G06F 2009/45579
 - • • • • {I/O management(device drivers, storage access)(internal functioning of device drivers [G06F 13/102](#) , loading of device drivers ~~G06F9/4424~~ [G06F 9/4411](#))}
- U G06F 2009/45583
 - • • • • {Memory management, e.g. access, allocation(memory management in general [G06F 12/00](#); allocation of memory to service a request [G06F 9/5016](#))}
- G06F 2009/45587
 - • • • • {Isolation or security of virtual machine instances(security arrangements ~~G06F21/00N~~[G06F 21/00](#))}
- U G06F 2009/45591
 - • • • • {Monitoring or debugging support(monitoring and debugging in general in [G06F 11/30](#) , [G06F 11/36](#))}
- U G06F 2009/45595
 - • • • • {Network integration; enabling network access in virtual machine instances(network-specific arrangements for supporting networked applications [H04L 67/00](#))}
- U G06F 9/46
 - • Multiprogramming arrangements
- U G06F 9/50
 - • • Allocation of resources, e.g. of the central processing unit (CPU)
- U G06F 9/5061
 - • • • {Partitioning or combining of resources}
- G06F 9/5066
 - • • • • {Algorithms for mapping a plurality of inter-dependent sub-tasks onto a plurality of physical CPUs(mappping at compile time, see ~~G06F9/45M1~~ [G06F 8/451](#))}
- U G06F 9/54
 - • • Interprogramme communication;{Intertask communication}
- U G06F 9/547
 - • • • {Remote procedure calls [RPC]; Web services}
- G06F 9/548
 - • • • • {Object oriented; Remote method invocation [RMI] (non-remote method invocation ~~G06F9/42M~~[G06F 9/443](#))}

| | | |
|---|----------------|---|
| U | G06F 11/00 | <p>Error detection; Error correction; Monitoring(methods or arrangements for verifying the correctness of marking on a record carrier G06K 5/00 ; in information storage based on relative movement between record carrier and transducer G11B , e.g. G11B 20/18 ; in static stores G11C ; coding, decoding or code conversion, for error detection or error correction, in general H03M 13/00)</p> <p><u>NOTE</u></p> <p>In this group the indexing codes of G06F 1/00 to G06F 15/00 are added</p> |
| | G06F 11/006 | <ul style="list-style-type: none"> • {Identification(G06F11/22M1CG06F 11/2289 takes precedence)} |
| U | G06F 11/07 | <ul style="list-style-type: none"> • responding to the occurrence of a fault, e.g. fault tolerance |
| U | G06F 11/0703 | <ul style="list-style-type: none"> • • {Error or fault processing not based on redundancy, i.e. by taking additional measures to deal with the error or fault not making use of redundancy in operation, in hardware, or in data representation} |
| U | G06F 11/0706 | <ul style="list-style-type: none"> • • • {the processing taking place on a specific hardware platform or in a specific software environment} |
| | G06F 11/0748 | <ul style="list-style-type: none"> • • • • {in a remote unit communicating with a single-box computer node experiencing an error/fault(remote testing G06F11/273RG06F 11/2294)} |
| U | G06F 11/16 | <ul style="list-style-type: none"> • • Error detection or correction of the data by redundancy in hardware |
| U | G06F 11/1658 | <ul style="list-style-type: none"> • • • {Data re-synchronization of a redundant component, or initial sync of replacement, additional or spare unit} |
| | G06F 11/1662 | <ul style="list-style-type: none"> • • • • {the resynchronized component or unit being a persistent storage device(re-synchronization of failed mirror storage G06F 11/2082 ; rebuild or reconstruction of parity RAID storage G06F 11/1008)} <p><u>WARNING</u></p> <p>Not complete pending a reclassification. See also G06F11/16
G06F11/16D</p> |
| | G06F 11/1666 | <ul style="list-style-type: none"> • • • {where the redundant component is memory or memory area} <p><u>WARNINGS</u></p> <p>Not complete. See also G06F11/00C and G06F11/20L and respective subgroups</p> |
| U | G06F 11/20 | <ul style="list-style-type: none"> • • • using active fault-masking, e.g. by switching out faulty elements or by switching in spare elements |
| | G06F 11/2017 | <ul style="list-style-type: none"> • • • • {where memory access, memory control or I/O control functionality is redundant(redundant communication control functionality G06F 11/2005 ; redundant storage control functionality G06F 11/2089)} <p><u>WARNING</u></p> <p>Not complete pending a reclassification. See also G06F11/20
G06F11/20L</p> |
| U | G06F 11/22 | <ul style="list-style-type: none"> • Detection or location of defective computer hardware by testing during standby operation or during idle time, e.g. start-up testing(testing of digital circuits, e.g. of separate computer components G01R 31/317) |
| U | G06F 11/2273 | <ul style="list-style-type: none"> • • {Test methods} |
| | G06F 2011/2278 | <ul style="list-style-type: none"> • • • {Power-On Test, e.g. POST} |
| U | G06F 11/36 | <ul style="list-style-type: none"> • Preventing errors by testing or debugging software |
| | G06F 11/3604 | <ul style="list-style-type: none"> • • {Software analysis for verifying properties of programs(structural analysis for program understanding G06F9/44G4M6 ; byte-code verification G06F 9/44589)} |

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|---|-------------------|--|
| | G06F 11/3608 | <ul style="list-style-type: none"> • • {using formal methods, e.g. model checking, abstract interpretation(fault-tolerant software G06F11/16S; theorem proving G06N 5/006)} |
| U | G06F 11/362 | <ul style="list-style-type: none"> • • {Software debugging} |
| | G06F 11/3628 | <ul style="list-style-type: none"> • • • {of optimised code(optimisation G06F9/45E3G06F 8/443)} |
| | G06F 11/3644 | <ul style="list-style-type: none"> • • • {by instrumenting at runtime(for security G06F21/00N3E2)} |
| U | G06F 11/3648 | <ul style="list-style-type: none"> • • • {using additional hardware} |
| | G06F 11/3652 | <ul style="list-style-type: none"> • • • • {in-circuit-emulation [ICE]arrangements/(emulators G06F11/26S2)} |
| U | G06F 13/00 | Interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units(interface circuits for specific input/output devices G06F 3/00 ; multiprocessor systems G06F 15/16 ; transmission of digital information in general H04L; selecting H04Q; { multiprogramme control therefor G06F 9/46)} |
| U | G06F 13/10 | <ul style="list-style-type: none"> • Programme control for peripheral devices(G06F 13/14 to G06F 13/42 take precedence) |
| | G06F 13/102 | <ul style="list-style-type: none"> • • {where the programme performs an interfacing function, e.g. device driver(G06F 13/105 takes precedence; scheduling within device drivers G06F9/46C4SG06F 9/52 ; contention policies within device drivers G06F9/46R2G06F 9/4881)} |
| U | G06F 13/38 | <ul style="list-style-type: none"> • Information transfer, e.g. on bus(G06F 13/14 takes precedence) |
| | G06F 13/40 | <ul style="list-style-type: none"> • • Bus structure{(for computer networks G06F15/16B4G06F 15/163 ; for optical bus networks H04B 10/20)} |
| U | G06F 15/00 | Digital computers in general(details G06F 1/00 to G06F 13/00); Data processing equipment in general(neural networks for image data processing G06T) |
| | G06F 15/16 | <ul style="list-style-type: none"> • Combinations of two or more digital computers each having at least an arithmetic unit, a programme unit and a register, e.g. for a simultaneous processing of several programmes{(coordinating programme control therefor G06F9/44PG06F 9/52 ; in regulating and control system G05B)} |
| | G06F 15/161 | <ul style="list-style-type: none"> • • {Computing infrastructure, e.g. computer clusters, blade chassis or hardware partitioning(casings, cabinets, racks or drawers for data centers H05K5/14S H05K 5/00)} |
| | G06F 15/177 | <ul style="list-style-type: none"> • • {Initialisation or configuration control(processor initialisation G06F9/445B2 G06F 9/4405)} |
| | G06F 15/18 | <ul style="list-style-type: none"> • in which a programme is changed according to experience gained by the computer itself during a complete run; Learning machines(adaptive control systems G05B 13/00){ not used, see G06N1/00LG06N 99/005 } |
| U | G06F 15/76 | <ul style="list-style-type: none"> • Architectures of general purpose stored programme computers(with programme plugboard G06F 15/08 ; multicomputers G06F 15/16 , general purpose image data processing G06T 1/00) |
| | G06F 2015/761 | <ul style="list-style-type: none"> • • {Indexing scheme relating to architectures of general purpose stored programme computers} |
| | G06F 2015/763 | <ul style="list-style-type: none"> • • • ASIC{ASIC} |
| | G06F 2015/765 | <ul style="list-style-type: none"> • • • Cache{Cache} |
| | G06F 2015/766 | <ul style="list-style-type: none"> • • • {Flash EPROM} |
| | G06F 2015/768 | <ul style="list-style-type: none"> • • • {Gate array} |
| | G06F 15/80 | <ul style="list-style-type: none"> • • comprising an array of processing units with common control, e.g. single instruction multiple data processors(G06F 15/82 takes precedence; { for correlation function computation G06F17/15CG06F 17/15)} |
| U | G06F 17/00 | Digital computing or data processing equipment or methods, specially adapted for specific functions |

- U G06F 17/20 · Handling natural language data(speech analysis or synthesis [G10L](#))
- U G06F 17/21 · · Text processing([G06F 17/27](#) , [G06F 17/28](#) take precedence; systems for composing machines [B41B 27/00](#))
- U G06F 17/24 · · · Editing, e.g. insert/delete([G06F 17/22](#) takes precedence)}
- G06F 17/246 · · · · {Spreadsheets(relational data bases [G06F17/30R](#)[G06F 17/30595](#) ; form-filling [G06F 17/243](#))}
- U G06F 17/30 · Information retrieval; Database structures therefor;{File system structures therefor(data processing systems or methods specially adapted for administrative, commercial, financial managerial, supervisory or forecasting purposes [G06Q](#))}
- G06F 17/30017 · · {Multimedia data retrieval; Retrieval of more than one type of audiovisual media(retrieval of image data [G06F 17/30244](#) ; retrieval of video data [G06F 17/30781](#) ; retrieval of audio data [G06F 17/3074](#) ; ~~editing or indexing of data stored based on relative movement between record carrier and transducer G11B27~~ ; *editing or indexing of data stored based on relative movement between record carrier and transducer G11B 27/00*)}[1207]
- WARNING
Groups [G06F 17/3002](#) - [G06F 17/30064](#) are not complete pending reclassification. See also [G06F 17/30017](#)
- U G06F 17/30023 · · · {Querying(programmed access in sequence to addressed parts of tracks of operating discs [G11B 27/105](#))}
- G06F 17/30026 · · · · {using audio data(details of audio retrieval [G06F 17/3074](#) ; general determination or detection of speech characteristics [G10L 11/00](#)[G10L 11/00](#); speech recognition [G10L 15/00](#); speaker recognition [G10L 17/00](#); electrophonic musical instruments [G10H](#))}
- U G06F 17/30067 · · {File systems; File servers([G06F 17/3061](#) , [G06F 17/30017](#) , [G06F 17/30244](#) , [G06F 17/3074](#) , [G06F 17/30781](#) take precedence; dedicated interfaces to storage systems [G06F 3/0601](#) ; error detection, correction or monitoring [G06F 11/00](#))}
- WARNING
Groups [G06F 17/3007](#) to [G06F 17/30238](#) are not complete pending reclassification. See also this group
- U G06F 17/30182 · · · {File system types}
- G06F 17/30221 · · · · {Details of hierarchical storage management (HSM) systems, e.g. file migration and policies thereof(details of archiving [G06F17/30F6A](#) [G06F 17/30073](#) ; life cycle management [G06F 3/0649](#) ; hybrid storage combining heterogeneous device types [G06F 3/0685](#))}
- G06F 17/30241 · · {in geographical information databases(instruments for geographical navigation [G01C 21/00](#) ; ~~combinations of GPS with other systems G01S5/14B3~~ ; three dimensional geographic models [G06T17/50](#)[G06T 17/05](#))}
- G06F 17/30286 · · {in structured data stores}
- WARNING
Not complete pending the completion of a reclassification; see also [G06F 17/30-B](#)[G06F17/30B](#) , [G06F 17/30008](#) and [G06F 17/30283](#)
- U G06F 17/30289 · · · {Database design, administration or maintenance}
- G06F 17/30306 · · · · {Database tuning([G06F17/30S2D](#) , [G06F 17/30339](#) ~~take~~[takes](#) precedence; database performance monitoring [G06F 11/3409](#))}

- G06F 17/3074
- {Audio data retrieval(retrieval of video data [G06F 17/30781](#) ; retrieval of multimedia data [G06F 17/30017](#) ; general determination or detection of speech characteristics ~~G10L 11/00~~[G10L 11/00](#); speech recognition [G10L 15/00](#); speaker recognition [G10L 17/00](#); electrophonic musical instruments [G10H](#); editing or indexing of data stored based on relative movement between record carrier and transducer [G11B 27/00](#))}
- WARNING**
Groups [G06F 17/30743](#) - [G06F 17/30778](#) are not complete pending reclassification. See also [G06F 17/3074](#)
- G06F 17/30743
- • {using features automatically derived from the audio content, e.g. descriptors, fingerprints, signatures, MEP-cepstral coefficients, musical score, tempo(content oriented musical parameter indexing, e.g. tempo [G10H](#); determination or detection of speech characteristics ~~G10L 11/00~~[G10L 11/00](#); audio watermarking, e.g. by inserting fingerprints [G10L 19/00W](#) ; indexing by using information signals detectable on the record carrier and recorded by the same method as the main recording [G11B 27/28](#))}
- G06F 17/30775
- • {Browsing(generation of a list or set of audio data ~~G06F 17/30743~~[G06F 17/30772](#) ; trick modes [G11B 27/005](#) ; browsing through audio recorded on operating discs [G11B 27/105](#))}

Project: N/A (G06G)

- U G06G 7/00** **Devices in which the computing operation is performed by varying electric or magnetic quantities**
- U G06G 7/12
- Arrangements for performing computing operations, e.g. operational amplifiers (amplifiers in general [H03F](#); {adapted for telemeasuring or for indicating or recording the results of the measurement [G01D 1/10](#), [G01D 1/16](#); for fuzzy computing [G06N 7/02](#)})
- U G06G 7/19
- • for forming integrals of products, e.g. Fourier integrals, Laplace integrals, correlation integrals; for analysis or synthesis of functions using orthogonal functions (Fourier or spectrum analysis [G01R 23/16](#); sound analysis or synthesis [G10L](#))
- G06G 7/1921
- • {for forming Fourier integrals, harmonic analysis and synthesis (spectrum analysis [G01R 23/00](#); ~~G01R 7/195~~ and ~~G01R 7/19C~~ take precedence)}

Project: N/A (G06K)

- U G06K 7/00** **Methods or arrangements for sensing record carriers,{e.g. for reading patterns}([G06K 9/00](#) takes precedence)**
- U G06K 7/08
- by means detecting the change of an electrostatic or magnetic field, e.g. by detecting change of capacitance between electrodes
- U G06K 7/082
- • {using inductive or magnetic sensors}
- G06K 7/083
- • {inductive(~~G06K 7/08C6~~[G06K 7/10336](#) takes precedence)}
- G06K 7/087
- • {flux-sensitive, e.g. magnetic, detectors(~~G06K 7/08C6~~[G06K 7/10336](#) takes precedence)}
- U G06K 7/10
- by electromagnetic radiation, e.g. optical sensing; by corpuscular radiation
- G06K 2007/10485
- • {Arrangement of optical elements}
- G06K 2007/10495
- • {Circuits for pulse forming, amplifying}
- G06K 2007/10504
- • {Data fields affixed to objects or articles}
- G06K 2007/10514
- • {Randomly orientated data fields}
- G06K 2007/10524
- • {Hand-held scanners}
- G06K 2007/10534
- • {Scanner to be worn on a finger or on a wrist}

- U G06K 7/10544 · · {by scanning of the records by radiation in the optical part of the electromagnetic spectrum}
- U G06K 7/10554 · · · {Moving beam scanning}
- U G06K 7/10594 · · · · {Beam path}
- U G06K 7/10683 · · · · · {Arrangement of fixed elements}
- G06K 7/10702 · · · · · {Particularities of propagating elements, e.g. lenses, mirrors(~~G06K7/10B~~ [G06K 7/10831](#) takes precedence)}

G06K 9/00

Methods or arrangements for reading or recognising printed or written characters or for recognising patterns, e.g. fingerprints(processing or analysis of tracks of nuclear particles [G01T 5/02](#) ; { information retrieval [G06F 17/30](#) ; medical diagnosis [G06F19/00A2](#) [G06F 19/34](#) ; recognition of molecular sequences [G06F19/00G](#) [G06F 19/70](#) ; radio frequency identification [G06K 7/00](#) ; recognition of barcodes and similar code images [G06K 7/10](#) ; computer systems based on specific computational models [G06N](#); image analysis, inspection, positioning or tracking [G06T 7/00](#) ; recognition of acoustic speech signals [G10L 15/00](#) ; acoustic speaker identification [G10L 17/00](#))}

NOTE

1. In this group, the following term is used with the meaning indicated:
- "recognising" includes several functions such as extracting features, clustering, classifying or matching.
2. IPC subgroups [G06K 9/20](#) , [G06K 9/36](#) , [G06K 9/62](#) and [G06K 9/74](#) refer to methods or arrangements that can be applied to a pattern independently of its nature or to that are applied to specific patterns not included in the subgroups in the range [G06K 9/00006](#) to [G06K 9/00852](#) . The CPC subgroups in the range [G06K 9/00006](#) to [G06K 9/00852](#) refer to the same methods or arrangements when applied or specially adapted to the specific patterns to which these subgroups relate.
3. The present group does not cover the use of recognised patterns in specific applications, e.g. the use of traced gestures recognised as commands to be input to a computer is covered by the groups under [G06F 3/00](#)

- U G06K 9/00006 · {Acquiring or recognising fingerprints or palmprints(non-computerised biometric identification [A61B 5/00](#) ; means for preventing unauthorised use of vehicles [B60R 25/00](#) ; security in computer systems [G06F 21/00](#) ; secure access to buildings [G07C 9/00](#) ; secret or secure communication [H04L 9/00](#) ; means for preventing unauthorised telephone calls [H04M 1/667](#))}
- U G06K 9/00013 · · {Image acquisition(materials for developing fingerprints, means for visual identification [A61B 5/1172](#))}
- G06K 2009/0006 · · · {with light passing through the finger}
- U G06K 9/00221 · {Acquiring or recognising human faces, facial parts, facial sketches, facial expressions}
- G06K 2009/00322 · · {estimating age from face image; using age information for improving recognition}
- G06K 2009/00328 · · {metadata assisted face recognition}
- U G06K 9/00362 · {Recognising human body or animal bodies, e.g. vehicle occupant, pedestrian; Recognising body parts, e.g. hand(passenger detection systems [B60N 2/002](#) ; handprints [G06K 9/00006](#) ; face and facial components [G06K 9/00221](#) ; eyes [G06K 9/00597](#) ; determining position of passenger [G06T 7/004](#))}
- G06K 2009/00395 · · {Biometrics derived from hands; static hand pose gestures}
- U G06K 9/00442 · {Document analysis and understanding; Document recognition}
- G06K 2009/00489 · · {Editing text-bitmaps, e.g. alignment, spacing; Semantic analysis of bitmaps of text without OCR}

- G06K 9/00496
- {Recognising patterns in signals and combinations thereof(signature verification [G06K 9/00154](#) ; analysing specific medical signals, e.g. bioelectric signals, blood pressure [A61B 5/00](#) ; processing radar and similar signals [G01S](#) ; analysis of chromatographic signals [G01N 30/86](#) ; processing seismic signals [G01V 1/28](#) , [G01V 1/46](#) ; acoustic speech processing [G10L](#) ; transmission systems [H04B 1/00](#))}
- WARNING**
not complete, see **G06F17/00D**
- U G06K 9/00577
- {Recognising objects characterised by unique random properties, i.e. objects having a physically unclonable function [PUF], e.g. authenticating objects based on their unclonable texture(verifying genuineness of valuable papers [G07D 7/00](#))}
- G06K 2009/00583
- • {Recognition of the sensor which acquired the data, e.g. based on sensor idiosyncrasies}
- G06K 2009/0059
- • {markers for authenticating, copy prevention}
- U G06K 9/00624
- {Recognising scenes, i.e. recognition of a whole field of perception; recognising scene-specific objects(image retrieval [G06F 17/30244](#) ; video retrieval [G06F 17/30781](#) ; image analysis and image segmentation, e.g. pixel labelling [G06T 7/00](#) ; alarm systems [G08B](#); traffic control [G08G](#); pictorial communication [H04N](#))}
- U G06K 9/0063
- • {Recognising patterns in remote scenes, e.g. aerial images, vegetation versus urban areas(radar and similar technologies [G01S](#); segmentation for general image processing [G06T 7/0079](#))}
- G06K 2009/00644
- • • {using hyperspectral data, i.e. more or other wavelengths than RGB}
- U G06K 9/00711
- • {Recognising video content, e.g. extracting audiovisual features from movies, extracting representative key-frames, discriminating news vs. sport content(information retrieval in video databases [G06F 17/30781](#) ; recognition of movements or behaviour [G06K 9/00335](#) ; extracting overlay text **G06K9/32R1T2** ; fusion techniques [G06K 9/6288](#) ; speech recognition [G10L 15/00](#); indexing of audio and video or audiovisual data on record media using extracted features or characteristics [G11B 27/28](#))}
- G06K 2009/00738
- • • {Event detection}
- G06K 9/00771
- • {Recognising scenes under surveillance, e.g. with Markovian modelling of scene activity([G06K 9/00785](#) takes precedence; recognition of movements or behaviour [G06K 9/00335](#) ; motion analysis using general image processing [G06T 7/20](#) ; intruder alarms using image scanning and comparing systems **G08B13/194C** [G08B 13/194](#) ; circuitry for movement detection and estimation for pictorial communication [H04N 5/144](#) ; closed circuit television systems [H04N 7/18](#))}
- U G06K 9/00885
- { Biometric patterns not provided for under [G06K 9/00006](#) , [G06K 9/00154](#) , [G06K 9/00335](#) , [G06K 9/00362](#) , [G06K 9/00597](#) ; Biometric specific functions not specific to the kind of biometric }
- G06K 2009/00932
- • {Subcutaneous biometric features; Blood vessel patterns}
- G06K 2009/00939
- • {Biometric patterns based on physiological signals, e.g. heartbeat, blood flow}
- G06K 2009/00946
- • {for forensic purposes}
- G06K 2009/00953
- • {Measures to keep reference information secret, e.g. cancellable biometrics}
- G06K 2009/00959
- • • {Performing matching on a personal external card, e.g. to avoid submitting reference information}
- G06K 2009/00966
- • {Solutions for unknown imposter distribution}
- U G06K 9/20
- Image acquisition
- G06K 2009/2045
- • {using multiple overlapping images}

- U G06K 9/22
 - • using hand-held instruments
 - G06K 2009/226
 - • • {by sensing position defining codes on a support}
 - U G06K 9/32
 - • Aligning or centering of the image pick-up or image-field
 - U G06K 9/3216
 - • • {by locating a pattern([G06K 9/3208](#) , [G06K 9/3275](#) take precedence; centering within a document with a marking [G06K 9/2063](#))}
 - G06K 2009/3225
 - • • • {Special marks for positioning}
 - G06K 2009/3291
 - • • {Pattern tracking}
 - U G06K 9/36
 - Image preprocessing, i.e. processing the image information without deciding about the identity of the image(image data processing or generation, in general [G06T](#))
- NOTE
Group [G06K 9/58](#) takes precedence over groups [G06K 9/38](#) to [G06K 9/54](#)
- G06K 2009/363
 - • {Correcting image deformation, e.g. trapezoidal deformation caused by perspective}
 - G06K 2009/366
 - • {Interactive preprocessing or shape modelling, e.g. assignment of feature points by a user}
 - U G06K 9/46
 - • Extraction of features or characteristics of the image{(segmentation of touching or overlapping patterns [G06K 9/34](#) ; edge detection for feature extraction [G06K 9/4604](#) ; segmentation or edge detection for general image processing [G06T 7/0079](#))}
 - G06K 2009/4657
 - • • {involving specific hyperspectral computations of features}
 - G06K 2009/4666
 - • • {regional/local feature not essentially salient, e.g. local binary pattern}
 - G06K 2009/4695
 - • • {sparse representation}
 - U G06K 9/48
 - • • by coding the contour of the pattern{contour related features or features from contour like patterns, e.g. hand-drawn point-sequence}
 - G06K 2009/484
 - • • • {using an approximation function}
 - G06K 2009/485
 - • • • {using a gradient analysis}
 - G06K 2009/487
 - • • • {using statistical shape modelling, e.g. point distribution model}
 - G06K 2009/488
 - • • • {using wavelet analysis}
 - U G06K 9/58
 - • using optical means
 - G06K 2009/585
 - • • {using a wedge-ring detector, e.g. in Fourier space}
 - U G06K 9/62
 - Methods or arrangements for recognition using electronic means(learning machines [G06F 15/18](#) ; digital correlation [G06F 17/15](#) ; analogue correlation [G06G 7/19](#))
 - U G06K 9/6201
 - • {Matching; Proximity measures}
 - G06K 2009/6213
 - • • {region based matching}
 - U G06K 9/6217
 - • {Design or setup of recognition systems and techniques; Extraction of features in feature space; Clustering techniques; Blind source separation(regression analysis [G06F 17/18](#))}
 - U G06K 9/6232
 - • • {Extracting features by transforming the feature space, e.g. multidimensional scaling; Mappings, e.g. subspace methods}
 - U G06K 9/6234
 - • • • {based on a discrimination criterion, e.g. discriminant analysis(discriminant functions [G06K 9/6227](#))}
 - U G06K 9/6235
 - • • • • {Rendering the within-class scatter matrix nonsingular}
 - G06K 2009/6236
 - • • • • • {involving a first projection stage, e.g. Fisherface techniques}
 - G06K 2009/6237
 - • • • • • {involving an optimisation, e.g. using regularisation techniques}
 - G06K 2009/6238
 - • • • • • {involving a subspace restriction, e.g. nullspace techniques}
 - U G06K 9/6267
 - • {Classification techniques}

- U G06K 9/6279
 - . . {relating to the number of classes}
- G06K 9/628
 - . . . {Multiple classes(~~hierarchical organisation G06K9/62B8~~)}
- U G06K 9/6288
 - . {Fusion techniques, i.e. combining data from various sources, e.g. sensor fusion(bootstrap techniques, e.g. boosting [G06K 9/6256](#) ; data unmixing [G06K 9/624](#) ; image matching [G06K 9/64](#) ; fusion of acoustic speaker inputs [G10L17/00B8M](#))}
- G06K 2009/6294
 - . . {belief theory, e.g. Dempster-Shafer}
- G06K 2009/6295
 - . . {fusion by voting}
- U G06K 9/68
 - . using sequential comparisons of the image signals with a plurality of references{in which the sequence of the image signals or the references is relevant}, e.g. addressable memory
- U G06K 9/685
 - . . {Involving plural approaches, e.g. verification by template match; resolving confusion among similar patterns, e.g. O & Q([G06K 9/6807](#) takes precedence)}
- G06K 2009/6864
 - . . . {Combination of methods, e.g. classifiers, working on the same input data}
- G06K 2009/6871
 - . . . {Combination of methods, e.g. classifiers, working on different input data, e.g. sensor fusion}
- U **G06K 11/00**

Methods or arrangements for graph-reading or for converting the pattern of mechanical parameters, e.g. force or presence, into electrical signal(combined with character or pattern recognition [G06K 9/00](#) ; feelers for copying devices on machine tools [B23Q 35/00](#) ; arrangements for measuring areas [G01B](#); measuring force [G01L](#); adapted as input devices to computers [G06F 3/00](#) ; systems for transmitting the position of an object with respect to a predetermined reference system, e.g. tele-autographic system, [G08C 21/00](#))

WARNING

This group and its subgroups are no longer used for the classification of new documents as from 1 January 2006. Documents relating to methods and arrangements for input to a computer are classified under [G06F 3/033](#) and [G06F 3/041](#)
- G06K 11/06
 - Devices for converting the position of a manually operated writing or tracing member into an electrical signal{(not used, see ~~G06F3/033Z4~~ [G06F 3/03](#))}
- U **G06K 17/00**

Methods or arrangements for effecting co-operative working between equipments covered by two or more of the preceding main groups, e.g. automatic card files incorporating conveying and reading operations
- G06K 2017/0035
 - {Aspects not covered by other subgroups}
- G06K 2017/0038
 - . {Processing documents, e.g. checks, formulars}
- G06K 2017/0041
 - . {Personalising cards or checks, issuing personal tickets, passbooks or the like}
- G06K 2017/0045
 - . {Tracking objects or persons}
- G06K 2017/0048
 - . {Grouping, sorting, transporting, distributing documents or goods}
- G06K 2017/0051
 - . {Stock management, inventory systems}
- G06K 2017/0054
 - . {for collecting waste}
- G06K 2017/0058
 - . {for collecting milk}
- G06K 2017/0061
 - . {for processing photo orders}
- G06K 2017/0064
 - . {for fraud control purposes}
- G06K 2017/0067
 - . {for commercial purposes, e.g. transactions, payments, ordering, games}
- G06K 2017/007
 - . {for multiple use or various applications}

- G06K 2017/0074 • • {for use in library or the like systems}
- G06K 2017/0077 • • {for checking, inspecting or history purposes, e.g. histograms}
- G06K 2017/008 • • {for use in word processing or the like systems}
- G06K 2017/0083 • • {Generating labels}
- G06K 2017/0087 • • {for automatic, e.g. process, control purposes}
- G06K 2017/009 • • {for use in medical applications}
- G06K 2017/0093 • • {Information-providing systems}
- G06K 2017/0096 • • {Information-recording systems, e.g. data logging}

U G06K 19/00

Record carriers for use with machines and with at least a part designed to carry digital markings(record carriers adapted for controlling specific machines, see the appropriate subclass for the machine, e.g. [B23Q](#), [D03C](#), [G10F](#), [H04L](#); form printing [B41](#); file cards [B42F 19/00](#) ; record carriers in general [G11](#))

- U G06K 19/06 • characterised by the kind of the digital marking, e.g. shape, nature, code
- G06K 2019/06215 • • {Aspects not covered by other subgroups}
- G06K 2019/06225 • • • {using wavelength selection, e.g. colour code}
- G06K 2019/06234 • • • {miniature-code}
- G06K 2019/06243 • • • {concentric-code}
- G06K 2019/06253 • • • {for a specific application}
- G06K 2019/06262 • • • {with target- or other orientation-indicating feature}
- G06K 2019/06271 • • • {Relief-type marking}
- G06K 2019/06281 • • • rewritable{rewritable}
- G06K 2019/0629 • • • {Holographic, diffractive or retroreflective recording}

Project: N/A (G06M)**U G06M 1/00**

Design features of general application

- U G06M 1/22 • for visual indication of the result of count on counting mechanisms, e.g. by window with magnifying lens
- G06M 1/24 • • Drums; Dials; Pointers (for measuring instruments in general [G01D](#); {for time measuring instruments [G04B 19/00](#), including drums [G04B19/20C](#) [G04B 19/21](#), [G04C 19/04](#); date indicating [G04B 19/24](#)})

Project: N/A (G06N)**U G06N 5/00**

Computer systems utilising knowledge based models

- G06N 5/003 • { Dynamic search techniques, heuristics, branch-and-bound ([G06F9/44L3B](#), [G06N 5/046](#) take precedence; for optimisation [G06Q10/00B](#) [G06Q 10/04](#); for game-playing [G06F19/00B](#))}

Project: N/A (G06T)**U G06T 5/00**

Image enhancement or restoration, e.g. from bit-mapped to bit-mapped creating a similar image

- U G06T 5/001 • {Image restoration}

| | |
|--------------------|--|
| G06T 5/002 | <ul style="list-style-type: none"> • {Denoising; Smoothing(noise processing or correction adapted to be used in an image pickup device containing an electronic image sensor H04N 5/217 , H04N 5/357 to H04N 5/365)} <p><u>WARNING</u>
Not complete pending reclassification; see also group G06T-5/00
D G06T5/00D</p> |
| G06T 5/003 | <ul style="list-style-type: none"> • {Deblurring; Sharpening(vibration or motion blur correction for cameras comprising an electronic image sensor H04N 5/23264)} <p><u>WARNING</u>
Not complete pending reclassification; see also group G06T-5/00
D G06T5/00D</p> |
| G06T 5/004 | <ul style="list-style-type: none"> • • {Unsharp masking} <p><u>WARNING</u>
Not complete pending reclassification; see also group G06T-5/00
D G06T5/00D</p> |
| G06T 5/005 | <ul style="list-style-type: none"> • {Retouching; Inpainting; Scratch removal(detecting, correction, reducing or removing defects, e.g. non-responsive pixels of solid state image sensors H04N 5/367 , scratch removal for cinematographic films scanned by electronic image sensor H04N 5/253)} <p><u>WARNING</u>
Not complete pending reclassification; see also group G06T-5/00
D G06T5/00D</p> |
| U G06T 5/007 | <ul style="list-style-type: none"> • {Dynamic range modification(applied in cameras using an electronic image sensor H04N 5/2355 , H04N 5/2356)} <p><u>WARNING</u>
Not complete pending reclassification; see also groups G06T 5/001 and G06T 5/40</p> |
| G06T 5/008 | <ul style="list-style-type: none"> • {Local, e.g. shadow enhancement} <p><u>WARNING</u>
Not complete pending reclassification; see also group G06T-5/00
D G06T5/00D</p> |
| U G06T 7/00 | Image analysis, e.g. from bit-mapped to non bit-mapped |
| U G06T 7/0002 | <ul style="list-style-type: none"> • {Inspection of images, e.g. flaw detection(G06T 7/004 takes precedence)} <p><u>WARNING</u>
This group is being reorganised in the 5 following sub-groups</p> |
| U G06T 7/0004 | <ul style="list-style-type: none"> • {Industrial image inspection} |
| G06T 7/001 | <ul style="list-style-type: none"> • • {using an image reference approach(image matching for pattern recognition or image matching in general G06K9/64A2G06K 9/6203)} |
| U G06T 7/0012 | <ul style="list-style-type: none"> • {Biomedical image inspection} <p><u>WARNING</u>
Groups G06T/00B2R and G06T 7/0016 are not complete pending reclassification. See also this group</p> |
| G06T 7/0014 | <ul style="list-style-type: none"> • • {using an image reference approach(image matching for pattern recognition or image matching in general G06K9/64A2G06K 9/6203)} |
| U G06T 7/0018 | <ul style="list-style-type: none"> • {Camera calibration, e.g. determining intrinsic or extrinsic parameters} |

| | | |
|---|-------------|--|
| | G06T 7/002 | <ul style="list-style-type: none"> • {Stereo camera calibration, e.g. determination of the transformation between left camera coordinate system and right camera coordinate system(-calibration-aspects for stereoscopic image generation H04N13/00S2A7)} |
| U | G06T 7/0022 | <ul style="list-style-type: none"> • {Determining parameters from multiple pictures(depth or shape from stereo images G06T 7/0075 ; depth or shape from multiple images G06T 7/0065 ; stereo camera calibration G06T 7/002)} |
| | G06T 7/0024 | <ul style="list-style-type: none"> • {Registration of images, e.g. alignment of images(image matching for pattern recognition or image matching in general G06K9/64A2G06K 9/6203)} |
| U | G06T 7/0028 | <ul style="list-style-type: none"> • • {using feature-based methods} |
| | G06T 7/003 | <ul style="list-style-type: none"> • • • {involving reference images or patches(image matching for pattern recognition or image matching in general G06K9/64A2G06K 9/6203)} |
| | G06T 7/0032 | <ul style="list-style-type: none"> • • • {involving models(model matching for pattern recognition G06K9/64A2C G06K 9/6204 , G06K 9/6878)} |
| | G06T 7/0034 | <ul style="list-style-type: none"> • • {using statistical methods(image matching by comparing statistics of regions for pattern recognition G06K9/64SG06K 9/6212)} |
| U | G06T 7/004 | <ul style="list-style-type: none"> • {Determining position or orientation of objects} |
| U | G06T 7/0042 | <ul style="list-style-type: none"> • {using feature-based methods} |
| | G06T 7/0044 | <ul style="list-style-type: none"> • • {involving reference images or patches(image matching for pattern recognition or image matching in general G06K9/64A2G06K 9/6203)} |
| | G06T 7/0046 | <ul style="list-style-type: none"> • • {involving models(model matching for pattern recognition G06K9/64A2C G06K 9/6204 , G06K 9/6878)} |
| | G06T 7/0048 | <ul style="list-style-type: none"> • {using statistical methods(image matching by comparing statistics of regions for pattern recognition G06K9/64SG06K 9/6212)} |
| U | G06T 7/0079 | <ul style="list-style-type: none"> • {Segmentation or edge detection(image analysis based on texture or colour features G06T 7/40 ; motion-based segmentation G06T 7/2006 ; separation of touching or overlapping patterns for pattern recognition G06K 9/34 ; extraction of features or characteristics of the image for pattern recognition G06K 9/46)} |
| | G06T 7/0089 | <ul style="list-style-type: none"> • {involving deformable models, e.g. active contour(pattern recognition techniques involving a deformation of the sample or reference pattern or elastic matching G06K9/64A2DG06K 9/6206)} |
| U | G06T 7/20 | <ul style="list-style-type: none"> • Analysis of motion{(movement detection in television systems H04N 5/144 ; motion estimation for digital video signal compression H04N 7/2676 ; recognizing scenes under surveillance and traffic patterns G06K 9/00771 , G06K 9/00785)} <p><u>WARNING</u>
This group is being reorganised. Documents dealing with shape from motion are reclassified to G06T 7/0071 and a sub-group G06T 7/2006 is created</p> |
| U | G06T 7/2033 | <ul style="list-style-type: none"> • {using feature-based methods, e.g. corners, segments} |
| | G06T 7/204 | <ul style="list-style-type: none"> • • {involving reference images or patches(image matching for pattern recognition or image matching in general G06K9/64A2G06K 9/6203)} <p><u>WARNING</u>
Not complete pending reclassification; see also group G06T 7/20</p> |
| | G06T 7/2046 | <ul style="list-style-type: none"> • • {involving models(model matching for pattern recognition G06K9/64A2C G06K 9/6204 , G06K 9/6878)} <p><u>WARNING</u>
Not complete pending reclassification; see also group G06T 7/20</p> |
| U | G06T 11/00 | 2D [Two Dimensional] image generation |

- U G06T 11/003 • {Reconstruction from projections, e.g. tomography}
- WARNINGS
As from 06.2011 documents of this group are being continuously reclassified to its subgroups
- G06T 11/006 • • {Inverse problem, transformation from projection-space into object-space, e.g. transform methods, back-projection, algebraic methods}
- WARNINGS
Not complete pending the completion of a reclassification; see also ~~G06T 11/00~~ ~~T~~ **G06T11/00T**
- G06T 11/008 • • {Specific post-processing after tomographic reconstruction, e.g. voxelisation, metal artifact correction}
- WARNINGS
Not complete pending the completion of a reclassification; see also ~~G06T 11/00~~ ~~T~~ **G06T11/00T**
- G06T 19/00 Manipulating 3D models or images for computer graphics**
- WARNING
As from August 1, 2011, documents relating to subject matter covered by subgroups ~~G06T 19/00~~ ~~N~~ **G06T19/00N**, [G06T 19/006](#) are continuously reclassified to said subgroups
- U **G06T 2207/00 Indexing scheme for image analysis or image enhancement**
- U G06T 2207/20 • Special algorithmic details
- G06T 2207/20072 • • Graph-based image processing~~;~~

Project: N/A (G07B)

- U **G07B 17/00 Franking apparatus(printing aspects [B41](#))**
- U G07B 17/00016 • {Relations between apparatus, e.g. franking machine at customer or apparatus at post office, in a franking system}
- U G07B 17/00024 • • {Physical or organizational aspects of franking systems}
- G07B 2017/00032 • • • {Determining the location of apparatus}
- G07B 2017/0004 • • • {Determining the location of mailpieces outside apparatus}
- G07B 2017/00048 • • • {Software architecture}
- G07B 2017/00056 • • • • {Client-server}
- G07B 2017/00064 • • • • • {Virtual meter, online stamp; PSD functions or indicia creation not at user's location}
- G07B 2017/00072 • • • {Hybrid mail, i.e. mail delivered using different physical means along the mail delivery path, e.g. email and envelope}
- G07B 17/0008 • • {Communication details outside or between apparatus(coin-freed apparatus for franking per se [G07F 17/26](#) ; ~~Mechanisms actuated by objects other than coins to free or to actuate vending, hiring, coin or paper currency dispensing or refunding apparatus for cashless transactions only~~ ~~G07F19/00F~~)}
- G07B 2017/00088 • • • {via landlines}
- G07B 2017/00096 • • • • {via phone lines}
- G07B 2017/00104 • • • • {via TV cable}
- G07B 2017/00112 • • • • ~~Wireless~~ **{Wireless}**
- G07B 2017/0012 • • • • {in a mobile phone system}

- G07B 2017/00129 . . . {Satellite communication}
- G07B 2017/00137 . . . {In a LAN}
- G07B 2017/00145 . . . {via the Internet}
- G07B 2017/00153 . . . {for sending information}
- G07B 2017/00161 . . . {from a central, non-user location, e.g. for updating rates or software, or for refilling funds}
- G07B 2017/00169 . . . {from a franking apparatus, e.g. for verifying accounting}
- G07B 2017/00177 . . . {from a portable device, e.g. a card or a PCMCIA}
- U G07B 17/00185 . {Details internally of apparatus in a franking system, e.g. franking machine at customer or apparatus at post office(digital data processing [G06F](#) ; coin-freed apparatus for franking per se [G07F 17/26](#))}
- U G07B 17/00193 . {Constructional details of apparatus in a franking system}
- G07B 2017/00201 . . . {Open franking system, i.e. the printer is not dedicated to franking only, e.g. PC(Personal Computer)}
- G07B 2017/00209 . . . {Mailbox, i.e. container for outgoing mail}
- G07B 2017/00217 . . . {Portable franking apparatus, i.e. the whole franking apparatus, not parts alone}
- G07B 2017/00225 . . . {Vending machine or POS(Point Of Sale)apparatus}
- G07B 2017/00233 . . . {Housing, e.g. lock or hardened casing}
- G07B 2017/00241 . . . {Modular design}
- G07B 2017/0025 . . . {Storage of e.g. ribbon}
- G07B 2017/00258 . . . {Electronic hardware aspects, e.g. type of circuits used}
- G07B 2017/00266 . . . {Man-machine interface on the apparatus}
- G07B 2017/00274 . . . {Mechanical, e.g. keyboard}
- G07B 2017/00282 {Touch screen}
- G07B 2017/0029 {Soft buttons; buttons that can change function}
- G07B 2017/00298 {Visual, e.g. screens and their layouts}
- G07B 2017/00306 {Acoustic, e.g. voice control or speech prompting}
- U G07B 17/00314 . {Communication within apparatus, personal computer (PC) system, or server, e.g. between printhead and central unit in a franking machine}
- G07B 2017/00322 . . . {Communication between components/modules/parts, e.g. printer, printhead, keyboard, conveyor or central unit}
- G07B 2017/0033 . . . {Communication with software component, e.g. dll or object}
- G07B 2017/00338 . . . {Error detection or handling}
- G07B 2017/00346 . . . {Power handling, e.g. power-down routine}
- G07B 2017/00354 . . . {Setting of date}
- U G07B 17/00362 . {Calculation or computing within apparatus, e.g. calculation of postage value}
- G07B 2017/0037 . . . {Calculation of postage value}
- G07B 2017/00379 . . . {Calculation of different sending options for a mail piece}
- G07B 2017/00387 . . . {Currency calculation, e.g. from DEM to EUR}
- G07B 2017/00395 . . . {Memory organization}
- G07B 2017/00403 {Memory zones protected from unauthorized reading or writing}
- G07B 2017/00411 {Redundant storage, e.g. back-up of registers}
- G07B 2017/00419 . . . {Software organization, e.g. separation into objects}
- G07B 2017/00427 . . . {Special accounting procedures, e.g. storing special information}

- U G07B 17/00435
 - {Details specific to central, non-customer apparatus, e.g. servers at post office or vendor}
- G07B 2017/00443
 - • • {Verification of mailpieces, e.g. by checking databases}
- G07B 2017/00451
 - • • {Address hygiene, i.e. checking and correcting addresses to be printed on mail pieces using address databases}
- U G07B 17/00459
 - {Details relating to mailpieces in a franking system}
- U G07B 17/00467
 - • {Transporting mailpieces(postal sorting [B07C](#))}
- G07B 2017/00475
 - • • {Sorting mailpieces}
- G07B 2017/00483
 - • • {Batch processing of mailpieces}
- G07B 2017/00491
 - • • {Mail/envelope/insert handling system}
- G07B 2017/005
 - • • {Measures for preventing or handling mailpieces stoppages}
- U G07B 17/00508
 - • {Printing or attaching on mailpieces(printing mechanisms [B41J](#) ; security printing [B41M 3/14](#) ; marking methods [B41M 5/00](#) ; inks [C09D 11/00](#) ; record carriers with at least a part designed to carry digital markings [G06K 19/00](#))}
- G07B 2017/00516
 - • • {Details of printing apparatus}
- G07B 2017/00524
 - • • • ~~Printheads~~{[Printheads](#)}
- G07B 2017/00532
 - • • • • ~~Inkjet~~{[Inkjet](#)}
- G07B 2017/0054
 - • • • • {Thermal printhead}
- G07B 2017/00548
 - • • • • {Mechanical printhead}
- G07B 2017/00556
 - • • • {Ensuring quality of print}
- G07B 2017/00564
 - • • • • {Ensuring correct position of print on mailpiece}
- G07B 2017/00572
 - • • {Details of printed item}
- G07B 2017/0058
 - • • • {Printing of code}
- G07B 2017/00588
 - • • • • ~~Barcode~~{[Barcode](#)}
- G07B 2017/00596
 - • • • {Printing of address}
- G07B 2017/00604
 - • • • {Printing of advert or logo}
- G07B 2017/00612
 - • • {Attaching item on mailpiece}
- G07B 2017/0062
 - • • • ~~Label~~{[Label](#)}
- G07B 2017/00629
 - • • • {Circuit, e.g. transponder}
- G07B 2017/00637
 - • • {Special printing techniques, e.g. interlacing}
- G07B 2017/00645
 - • • • {Separating print into fixed and variable parts}
- G07B 2017/00653
 - • • {Special inks, e.g. fluorescent}
- U G07B 17/00661
 - • {Sensing or measuring mailpieces(weighing [G01G 19/00](#) ; methods or arrangements for reading or recognising printed or written characters or for recognising patterns [G06K 9/00](#))}
- G07B 2017/00669
 - • • {Sensing the position of mailpieces}
- G07B 2017/00677
 - • • • {Keeping track of mailpieces inside apparatus}
- G07B 2017/00685
 - • • • {Measuring the dimensions of mailpieces}
- G07B 2017/00693
 - • • • {Measuring the speed of mailpieces inside apparatus}
- G07B 2017/00701
 - • • • {Measuring the weight of mailpieces}
- G07B 2017/00709
 - • • • {Scanning mailpieces}
- G07B 2017/00717
 - • • • {Reading barcodes}
- G07B 2017/00725
 - • • • {Reading symbols, e.g. OCR}

- U G07B 17/00733 • {Cryptography or similar special procedures in a franking system}
- NOTE**
References listed below indicate CPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:
- secret or secure communication
[H04L 9/00](#)
 - mechanisms actuated by objects other than coins
to free or to actuate vending, hiring, coin or
paper currency dispensing or refunding apparatus
for cashless transactions only
G07F7/10F6
 - access-control involving the use of a pass in
combination with an identity-check of the pass-
holder by means of personal physical data, e.g.
characteristic facial curves, hand geometry, voice spectrum, fingerprints
[G07C 9/00](#)
 - methods or arrangements for reading or recognising printed or written characters or for
recognising patterns [G06K 9/00](#)
 - random or pseudo-random generators
[G06F 7/58](#)
 - circuits generating pulses having a predetermined statistical distribution
[H03K 3/84](#)
 - multiple service credit cards with protecting
memory zones **G07F7/10D10M**
 - security arrangements for protecting computers or computer systems against unauthorised activity
[G06F 21/00](#)
 - record carriers with conductive marks and special arrangements for circuits, e.g. for protecting identification code in memory
[G06K 19/073](#)
 - error detection and error correction
[G06F 11/00](#)
 - coding, decoding or code conversion, for error
detection or error correction [H03M 13/00](#)
-]
- G07B 2017/00741 • • {using specific cryptographic algorithms or functions}
- G07B 2017/0075 • • • {Symmetric, secret-key algorithms, e.g. DES, RC2, RC4, IDEA, Skipjack, CAST, AES}
- G07B 2017/00758 • • • {Asymmetric, public-key algorithms, e.g. RSA, Elgamal}
- G07B 2017/00766 • • • • {Digital signature, e.g. DSA, DSS, ECDSA, ESIGN}
- G07B 2017/00774 • • • • {MAC(Message Authentication Code), e.g. DES-MAC}
- G07B 2017/00782 • • • • {Hash function, e.g. MD5, MD2, SHA}
- G07B 2017/0079 • • {Time-dependency}

- G07B 2017/00798 . . . {using timestamps, i.e. recording time in message}
- G07B 2017/00806 . . . {Limited validity time}
- G07B 2017/00814 . . . {Continuous communication, e.g. answer within a limited time period}
- G07B 2017/00822 . . {including unique details}
- G07B 2017/0083 . . . {Postal data, e.g. postage, address, sender, machine ID, vendor}
- G07B 2017/00838 . . . {Personal data, i.e. biometrics}
- G07B 2017/00846 . . {Key management}
- G07B 2017/00854 . . . {Key generation}
- G07B 2017/00862 . . . {Key storage, e.g. escrowing by trusted third party}
- G07B 2017/0087 . . . {Key distribution}
- G07B 2017/00879 {using session key}
- G07B 2017/00887 {using look-up tables, also called master tables with pointers}
- G07B 2017/00895 . . . {Key verification, e.g. by using trusted party}
- G07B 2017/00903 . . . {Key destruction or retirement}
- G07B 2017/00911 . . {Trusted party}
- G07B 2017/00919 . . {Random number generator}
- G07B 2017/00927 . . {Certificates, e.g. X.509}
- G07B 2017/00935 . . Passwords {Passwords}
- G07B 2017/00943 . . {Compression techniques}
- G07B 2017/00951 . . {Error handling, e.g. EDC(Error Detection Codes)}
- G07B 2017/00959 . . {Cryptographic modules, e.g. a PC encryption board}
- G07B 2017/00967 . . . {PSD(Postal Security Device)as defined by the USPS(US Postal Service)}

Project: N/A (G07C)**U G07C 5/00**

Registering or indicating the working of vehicles (for measuring distance travelled or combinations of speed and distance [G01C](#); engine indicators [G01L](#); devices for measuring speed or acceleration [G01P](#))

U G07C 5/08

- . Registering or indicating performance data other than driving, working, idle, or waiting time, with or without registering driving, working, idle or waiting time

G07C 5/0808

- . . {Diagnosing performance data (testing of vehicles [G01M 17/00](#); testing of electrical installation on vehicles [G01R31/00D](#)[G01R 31/005](#))}

U G07C 9/00**Individual entry or exit registers**NOTES

This group covers:

- controlling and registering access of persons to restricted areas or devices

This group does not cover:

- electric permutation locks using mechanical keys, covered by [E05B 49/00](#);
- apparatus actuated by coded identity cards or credit cards, to free or actuate vending, hiring or money-dispensing, covered by [G07F 7/08](#);
- access to facilities or services by means of coins or tokens, covered by [G07F 17/00](#);
- arrangements actuated by coded cards for dispensing or receiving money and posting such transactions to existing accounts, e.g. automatic teller machines, covered by [G07F 19/00](#)

Attention is drawn to the following places, which may be of interest for search:

- [G06K 7/00](#), [G06K 19/00](#) arrangements for sensing or reading record carriers
 - [H03K 17/00](#) electronic switching
 - [G06K 9/00](#) biometric sensors, recognising biometric patterns
 - [A61B 5/117](#) biometric identification used for diagnostic purposes
 - [G06F 1/00](#) access to data processing equipment
- U G07C 9/00007 . {Access-control involving the use of a pass (for electromagnetical or electronical keys and locks, see [E05B 49/00](#))}
- U G07C 9/00031 . . {in combination with an identity-check of the pass-holder (recognizing patterns, e.g. fingerprints or signatures [G06K 9/00](#))}
- U G07C 9/00071 . . . { by means of personal physical data, e.g. characteristic facial curves, hand geometry, voice spectrum, fingerprints (measuring or recording devices for testing the shape, pattern, size or movement of the body or parts thereof per se [A61B 5/103](#))}
- U G07C 9/00087 {electronically}
- G07C 2009/00095 {comprising a biometric sensor on the pass }
- G07C 9/00111 . . {the pass performing a presence indicating function, e.g. identification tag or transponder (identification by using radar means [G01S13/02A](#)[G01S 13/02](#), [G01S 13/74](#); detecting presence by using magnetic or electric fields produced or modified by objects in general [G01V 3/08](#), [G01V 3/165](#); means for indicating the location of accidentally buried persons [A63B 29/02](#))}
- U G07C 9/00174 . {Electronically operated locks; Circuits therefor; Nonmechanical keys therefor, e.g. passive or active electrical keys or other data carriers without mechanical keys (mechanical locks with electric permutation [E05B 49/00](#); arrangements for sensing or reading record carriers [G06K 7/00](#), [G06K 9/00](#); electronic switching [H03K 17/00](#))}
- U G07C 9/00182 . . { operated with unidirectional data transmission between data carrier and locks}
- G07C 2009/0019 . . . {the keyless data carrier having only one limited data transmission ranges }
- G07C 2009/00198 . . . {the keyless data carrier having more than one limited data transmission ranges }
- G07C 2009/00206 . . . {the keyless data carrier being hand operated }
- G07C 2009/00214 {by one push button }
- G07C 2009/00222 {by more than one push button }
- G07C 2009/0023 . . . {with encryption of the transmitted data signal }
- G07C 2009/00238 . . . {the transmitted data signal containing a code which is changed }
- G07C 2009/00246 {periodically, e.g. after a time period }
- G07C 2009/00253 {dynamically, e.g. variable code - rolling code }
- G07C 2009/00261 . . . {the keyless data carrier having more than one function }
- G07C 2009/00269 {opening and locking of all locks at the same time }
- G07C 2009/00277 {opening of different locks separately }
- G07C 2009/00285 immobilizer-{[immobilizer](#) }
- G07C 2009/00293 {anti-theft }
- G07C 2009/00301 {starting ignition }
- U G07C 9/00309 . . { operated with bidirectional data transmission between data carrier and locks}
- G07C 2009/00317 . . . {keyless data carrier having only one limited data transmission range }
- G07C 2009/00325 {and the lock having only one limited data transmission range }

| | |
|-----------------|---|
| G07C 2009/00333 | {and the lock having more than one limited data transmission ranges } |
| G07C 2009/00341 | {keyless data carrier having more than one limited data transmission ranges } |
| G07C 2009/00349 | {and the lock having only one limited data transmission range } |
| G07C 2009/00357 | {and the lock having more than one limited data transmission ranges } |
| G07C 2009/00365 | {in combination with a wake-up circuit } |
| G07C 2009/00373 | {whereby the wake-up circuit is situated in the lock } |
| G07C 2009/0038 | {whereby the wake-up circuit is situated in the keyless data carrier } |
| G07C 2009/00388 | {code verification carried out according to the challenge/response method } |
| G07C 2009/00396 | {starting with prompting the keyless data carrier } |
| G07C 2009/00404 | {starting with prompting the lock } |
| G07C 2009/00412 | {the transmitted data signal being encrypted } |
| G07C 2009/0042 | {the transmitted data signal containing a code which is changed } |
| G07C 2009/00428 | {periodically after a time period } |
| G07C 2009/00436 | {by the system } |
| G07C 2009/00444 | {by the key } |
| G07C 2009/00452 | {by the lock } |
| G07C 2009/0046 | randomly {randomly } |
| G07C 2009/00468 | {after n uses } |
| G07C 2009/00476 | dynamically {dynamically } |
| G07C 2009/00484 | {whereby the code is a variable code } |
| G07C 2009/00492 | {whereby the code is a rolling code } |
| G07C 2009/005 | {whereby the code is a random code } |
| G07C 2009/00507 | {keyless data carrier having more than one function } |
| G07C 2009/00515 | {opening and locking of all locks at the same time } |
| G07C 2009/00523 | {opening of different locks separately } |
| G07C 2009/00531 | immobilizer {immobilizer } |
| G07C 2009/00539 | {anti-theft } |
| G07C 2009/00547 | {starting ignition } |
| G07C 2009/00555 | {comprising means to detect or avoid relay attacks } |
| G07C 2009/00579 | . . {Power supply for the keyless data carrier } |
| G07C 2009/00587 | . . . {by battery } |
| G07C 2009/00595 | . . . {by solar energy } |
| G07C 2009/00603 | . . . {by power transmission from lock } |
| G07C 2009/00611 | {by using inductive transmission } |
| G07C 2009/00619 | {by using capacitive transmission } |
| G07C 2009/00626 | {by using optical transmission } |
| G07C 2009/00634 | . . {Power supply for the lock } |
| G07C 2009/00642 | . . . {by battery } |
| G07C 2009/0065 | . . . {by solar energy } |
| U G07C 9/00658 | . . {operated by passive electrical keys } |
| G07C 2009/00746 | . . . {by knocking on a surface for inputting the code e.g. detecting a series of taps on a surface } |
| G07C 2009/00753 | . . {operated by active electrical keys } |

- G07C 2009/00761 . . . {with data transmission performed by connected means, e.g. mechanical contacts, plugs, connectors }
- G07C 2009/00769 . . . {with data transmission performed by wireless means }
- G07C 2009/00777 . . . {by induction }
- G07C 2009/00785 . . . {by light }
- G07C 2009/00793 . . . {by Hertzian waves }
- G07C 2009/00801 . . . {by acoustic waves }
- G07C 2009/00809 . . . {with data transmission through the human body }
- U G07C 9/00817 . . {where the code of the lock can be programmed}
- G07C 2009/00825 . . . {remotely by lines or wireless communication }
- G07C 2009/00833 . . . {by code input from switches }
- G07C 2009/00841 . . . {by a portable device }
- G07C 2009/00849 . . . {programming by learning }
- U G07C 9/00857 . . {where the code of the data carrier can be programmed}
- G07C 2009/00865 . . . {remotely by wireless communication }
- G07C 2009/00873 . . . {by code input from the lock }
- G07C 2009/0088 . . . ~~centrally~~ {centrally }
- G07C 2009/00888 . . . {programming by learning }
- U G07C 9/00896 . . {specially adapted for particular uses}
- G07C 2009/0092 . . . {for cargo, freight or shipping containers and applications therefore in general }
- G07C 2009/00928 . . . {for garage doors }
- G07C 2009/00936 . . . {for key cabinets }
- U G07C 9/00944 . . {Details of construction or manufacture}
- G07C 2009/00952 . . . {Electronic keys comprising a mechanical key within their housing, e.g. extractable or retractable emergency key }
- G07C 2009/0096 . . . {Electronic keys comprising a non-biometric sensor }
- G07C 2009/00968 . . {shape of the data carrier }
- G07C 2009/00976 . . . ~~card~~ {card }
- G07C 2009/00984 . . . ~~fob~~ {fob }
- G07C 2009/00992 . . . {mechanical key }
- U G07C 11/00 **Arrangements, systems, or apparatus for checking, e.g. the occurrence of a condition, not provided for elsewhere (signalling or alarm arrangements [G08B](#))**
- G07C 2011/02 . . {related to amusement parks }
- G07C 2011/04 . . {related to queuing systems }

Project: N/A (G07F)

G07F **COIN-FREED OR LIKE APPARATUS(coin sorting [G07D 3/00](#) ; coin testing [G07D 5/00](#) ; { handling coins or paper currencies apart from payment activated apparatus [G07D](#); payment architectures, schemes or protocols [G06Q 20/00](#) })**

NOTES

This subclass does not cover constructions or details of apparatus which includes, or is combined with, coin-actuated mechanisms but is not specially

adapted or modified for use therewith. Such constructions or details are covered by the relevant subclass for the particular apparatus.

In this subclass, the following term are used with the meaning indicated: o {- "coin-freed" means "payment activated"} o "coins" covers also tokens or the like.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:-
-G07F 7/12 covered by **G07F7/08E**

- U G07F 15/00** Coin-freed apparatus with meter-controlled dispensing of liquid, gas or electricity(tariff-metering apparatus in general [G01D 4/00](#))
- U G07F 15/003**
 - {for electricity}
- G07F 15/005**
 - · {dispensed for the electrical charging of vehicles(~~electrical charging as such, B60L11~~*electrical charging as such, B60L 11/00*)}

Project: N/A (G08B)

G08B

SIGNALLING OR CALLING SYSTEMS; ORDER TELEGRAPHS; ALARM SYSTEMS (signalling arrangements on vehicles [B60Q](#), [B62D 41/00](#); railway signalling systems or devices [B61L](#); on cycles [B62J 3/00](#), [B62J 6/00](#); safes or strong-rooms with alarm devices [E05G](#); signalling or alarm devices in mines [E21F 17/18](#); lamps or shutters therefor [F21](#); sensitive measuring elements, see the appropriate subclasses of [G01](#); traffic control systems [G08G](#); visual indicating means [G09](#); sound-producing devices [G10](#); radio or near-field calling systems [H04B 5/00](#), [H04B 7/00](#); selecting arrangements ~~H04Q 7/00~~[H04Q 7/00](#), [H04Q 9/00](#); loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers [H04R](#))

NOTES

This subclass covers also means for identifying or incapacitating burglars or the like.

This subclass does not cover:

- the mere provision of an audible or visible signalling device on measuring or switching apparatus;
- alarm systems for indicating that a specific variable has exceeded, or fallen below, a predetermined value, which are covered by the relevant subclasses of class [G01](#) for the measurement of that variable.
- alarms for specific processes or types of machines or apparatus, which are covered by the relevant subclasses for the processes, machines, or apparatus.

In this subclass, the following term is used with the meaning indicated:

- "systems" may cover also devices peculiar thereto.

- U G08B 1/00** **Systems for signalling characterised solely by the form of transmission of the signal**
- U G08B 1/08**
 - using electric transmission; { transformation of alarm signals to electrical signals from a different medium, e.g. transmission of an electric alarm signal upon detection of an audible alarm signal}
- G08B 2001/085**
 - · {Partner search devices}
- U G08B 13/00** **Burglar, theft, or intruder alarms (vehicle theft alarms [B60R 25/10](#); cycle theft alarms [B62H 5/00](#)){(fire or police telegraphic systems [G08B 25/00](#), [G08B 26/00](#), [H04M 11/04](#))}**
- U G08B 13/02**
 - Mechanical actuation

- U G08B 13/12
 - • by the breaking or disturbance of stretched cords or wires
 - U G08B 13/126
 - • • { for a housing, e.g. a box, a safe, a room (anti-theft means in containers [B65D 2211/00](#))}
 - G08B 13/128
 - • • • { the housing being an electronic circuit unit, e.g. memory or CPU chip (protecting computer components in secure or tamper resistant housings [G06F21/00N1T](#)[G06F 21/86](#); protecting computer input devices, e.g. keyboards [G06F21/00N1V1](#)[G06F 21/83](#))}
 - U G08B 13/14
 - • by lifting or attempted removal of hand-portable articles {(devices to prevent theft or loss of purses, luggage or hand carried bags [A45C 13/18](#))}
 - G08B 13/1427
 - • • { with transmitter-receiver for distance detection}
- NOTE
- Details thereof are further classified in the subgroups of [G08B21/02A](#)
[G08B 21/0202](#)
-
- U G08B 21/00

Alarms responsive to a single specified undesired or abnormal operating condition and not elsewhere provided for {(alarms on gas pipes [F17D 3/01](#))}
 - U G08B 21/18
 - Status alarms ([G08B 21/02](#) takes precedence)
 - U G08B 21/24
 - • Reminder alarms, e.g. anti-loss alarms (devices to prevent loss of bags or the like [A45C 13/24](#))
 - G08B 21/245
 - • • { Reminder of hygiene compliance policies, e.g. of washing hands (Measuring quality of medical staff, [G06F19/00M5S](#)[G06F 19/327](#))}

Project: N/A (G08G)**G08G 1/00**

Traffic control systems for road vehicles (arrangement of road signs or traffic signals [E01F 9/00](#); {(automatic vehicle control [B62D](#))})

WARNING

Groups [G08G1/18](#)[G08G 1/22](#) - [G08G 1/20](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [G08G 1/20](#) : [G08G 1/123](#) - [G08G 1/22](#) : [G08G 1/16](#)

U G08G 5/00

Traffic control systems for aircraft, { e.g. air-traffic control [ATC] }

NOTES

1. This groups covers arrangements, located in the aircraft or on the ground, for controlling aircraft within a traffic environment.
2. This group does not cover arrangements for control of position, course, altitude or attitude of aircraft not specific to a traffic environment, e.g. automatic pilots, which are covered by group [G05D 1/00](#).
3. In this group the following term is used with the meaning indicated: - "traffic" includes traffic on the ground and in the air.
4. Attention is drawn to the following places which might be interesting for search:
 - mechanical aspects of equipment for fitting in or to aircraft [B64D](#)
 - combined instruments indicating more than one navigational value [G01C 23/00](#)

G08G 5/0043

- { Traffic management of multiple aircrafts from the ground ([G08G 5/003](#) takes precedence; data processing specially designed for resource management, e.g. scheduling or allocating time, human or machine resources [G06Q10/00C](#)[G06Q 10/06](#))}

Project: N/A (G09B)

- U G09B 19/00** Teaching not covered by other main groups of this subclass (teaching or practice apparatus for gun-aiming or gun-laying [F41G 3/26](#))
- G09B 19/0053 • {Computers, e.g. programming (~~Computer models G09B 23/186, data processing equipment used in education G06F5/20K~~)}

Project: N/A (G09F)

- U G09F 1/00** Cardboard or like show-cards of foldable or flexible material
- U G09F 1/08 • wholly or partly imitating the form of an object, e.g. of the article to be advertised
- G09F 2001/085 • • {actuated by a sliding tongue }
- U G09F 1/10 • Supports or holders for show-cards
- G09F 2001/106 • • {made of metal }
- U G09F 3/00** Labels, tag tickets, or similar identification or indication means (medals or badges [A44C 3/00](#); making labels [B31D 1/02](#); sheets temporarily attached together [B42F](#); labelling [B65C](#); labels on record carriers [G11B 23/38](#), [G11B 23/40](#); Seals; Postage or like stamps
- U G09F 3/02 • Forms or constructions (layered products [B32B](#))
- G09F 2003/0201 • • {Label sheets intended to be introduced in a printer, e.g. laser printer }
- G09F 2003/0202 • • {printed before use }
- G09F 2003/0204 • • • {Tax-disc }
- G09F 2003/0205 • • • ~~Coupon~~ {Coupon }
- G09F 2003/0207 • • • ~~Ticket~~ {Ticket }
- G09F 2003/0208 • • • ~~Indicia~~ {Indicia }
- G09F 2003/021 • • • {Indicia behind the front foil }
- G09F 2003/0211 • • • {Transfer or thermo-sensitive }
- G09F 2003/0213 • • • {Concealed data }
- G09F 2003/0214 • • • {Stock management }
- G09F 2003/0216 • • • {for containers }
- G09F 2003/0217 • • • {for envelopes }
- G09F 2003/0219 • • • {to keep record of the use of a product }
- G09F 2003/022 • • • ~~Shipment~~ {Shipment }
- G09F 2003/0222 • • • {Features for removal or adhesion, e.g. tabs }
- G09F 2003/0223 • • • ~~recyclable~~ {recyclable }
- G09F 2003/0225 • • • {Carrier web }
- G09F 2003/0226 • • • {Carrier sheet }
- G09F 2003/0227 • • • {Carrier strip }
- G09F 2003/0229 • • • {Carrier roll }
- G09F 2003/023 • • • ~~Adhesive~~ {Adhesive }
- G09F 2003/0232 • • • {Resistance to heat }
- G09F 2003/0233 • • • {Resistance to humidity }
- G09F 2003/0235 • • • {Resistance to chemicals }
- G09F 2003/0236 • • • • ~~Permeability~~ {Permeability }
- G09F 2003/0238 • • • {Stress resistant }
- G09F 2003/0239 • • • {Permanent adhesive }

| | |
|--------------------|---|
| G09F 2003/0241 | • • {Repositionable or pressure sensitive adhesive } |
| G09F 2003/0242 | • • {Adhesive soluble in water } |
| G09F 2003/0244 | • • {Adhesive soluble in chemicals } |
| G09F 2003/0245 | • • {Differential adhesive strength } |
| G09F 2003/0247 | • • {Non-strippable anti-stick coatings } |
| G09F 2003/0248 | • • {Variable density of distribution of adhesive spots } |
| G09F 2003/025 | • • {Activatable adhesive } |
| G09F 2003/0251 | • {Sleeve shaped label, i.e. wrapped around a device } |
| G09F 2003/0252 | • {associated with a leaflet } |
| G09F 2003/0254 | • {Luggage tag } |
| G09F 2003/0255 | • laminated {laminated } |
| G09F 2003/0257 | • Multilayer {Multilayer } |
| G09F 2003/0258 | • • {without carrier } |
| G09F 2003/026 | • • {without silicon backing } |
| G09F 2003/0261 | • • {encapsulated in polymer } |
| G09F 2003/0263 | • • {Different patterns for carrier web and label web } |
| G09F 2003/0264 | • {Shapes or borders } |
| G09F 2003/0266 | • • {Shapes other than rectangular } |
| G09F 2003/0267 | • • {die cut } |
| G09F 2003/0269 | • • perforated {perforated } |
| G09F 2003/027 | • {used to hang up an item, e.g. a perfusion bottle } |
| G09F 2003/0272 | • {Labels for containers } |
| G09F 2003/0273 | • • {Labels for bottles, flasks } |
| G09F 2003/0275 | • • {Shock absorbing labels } |
| G09F 2003/0276 | • {Safety features, e.g. colour, prominent part, logo } |
| G09F 2003/0277 | • • {Tamper resistant } |
| G09F 2003/0279 | • {Card, e.g. plastic } |
| G09F 2003/028 | • {Labels containing microcapsules, e.g. ink microcapsules for indicia transfer } |
| G09F 2003/0282 | • {for textiles, e.g. clothing } |
| G09F 2003/0283 | • {food-compatible or edible } |
| G09F 2003/0285 | • {Stamp-like labels } |
| U G09F 5/00 | Means for displaying samples (packaging per se B65) |
| U G09F 5/04 | • Cards of samples; Books of samples (packages comprising articles attached to cards, sheets, or webs for removal therefrom B65D 73/00) |
| G09F 2005/041 | • • {Back covers for books of samples } |
| G09F 2005/043 | • • {for wood } |
| G09F 2005/045 | • • {for carpets } |
| G09F 2005/046 | • • {for perfumes } |
| G09F 2005/047 | • • {for furniture } |
| G09F 2005/048 | • • {for fabrics } |
| U G09F 7/00 | Signs, name or number plates, letters, numerals, or symbols (vehicle registration number plates B60R 13/10); Panels or boards (show-cards G09F 1/00; indicating arrangements for variable information G09F 9/00, G09F 11/00; illuminated signs G09F 13/00; boards for notices or posters G09F 15/00) |

| | | |
|---|------------------|---|
| | G09F 2007/005 | • {Signs associated with a sensor } |
| | G09F 2007/007 | • {Signs without covering windows } |
| U | G09F 7/02 | • Signs, plates, panels or boards using readily-detachable elements bearing or forming symbols |
| U | G09F 7/12 | • • the elements being secured or adapted to be secured by self-adhesion, moisture, suction, slow-drying adhesive or the like |
| | G09F 2007/122 | • • • {by suction } |
| | G09F 2007/125 | • • • {by electrostatic force } |
| | G09F 2007/127 | • • • {by adhesive } |
| U | G09F 7/18 | • Means for attaching signs, plates, panels, or boards to a supporting structure |
| | G09F 2007/1804 | • • {for fastening to a post } |
| | G09F 2007/1808 | • • • {using tensioned bonds, e.g. metallic } |
| | G09F 2007/1813 | • • • {using brackets having two parts for clamping the post } |
| | G09F 2007/1817 | • • • {using fastening means to grip the post } |
| | G09F 2007/1821 | • • • {the post having slots or flanges to fasten the sign } |
| | G09F 2007/1826 | • • • {using channels on the rear of the sign board to be connected to the post, e.g. via clamps } |
| | G09F 2007/183 | • • • {the sign being formed by two parts clamping the post } |
| | G09F 2007/1834 | • • {Signs or the like supported by two lateral posts } |
| | G09F 2007/1839 | • • {for fastening to cables } |
| | G09F 2007/1843 | • • {Frames or housings to hold signs } |
| | G09F 2007/1847 | • • {Brackets to grip the sign board } |
| | G09F 2007/1852 | • • {for fastening magnetically or by suction or the like } |
| | G09F 2007/1856 | • • {characterised by the supporting structure } |
| | G09F 2007/186 | • • • {suspended, e.g. secured to the ceiling } |
| | G09F 2007/1865 | • • • {on vehicles } |
| | G09F 2007/1869 | • • • {plates fixed to instruments } |
| | G09F 2007/1873 | • • {characterised by the type of sign } |
| | G09F 2007/1878 | • • • {Traffic orientation, street markers } |
| | G09F 2007/1882 | • • • {Emblems, e.g. fixed by pins or screws } |
| | G09F 2007/1886 | • • • {Tensioned flexible signs } |
| | G09F 2007/1891 | • • • modular -{modular } |
| | G09F 2007/1895 | • • • {Licence number plates } |
| U | G09F 9/00 | Indicating arrangements for variable information in which the information is built-up on a support by selection or combination of individual elements (in which the variable information is permanently attached to a movable support G09F 11/00; abacus G06C 1/00; slide-rules G06G 1/00) |
| U | G09F 9/30 | • in which the desired character or characters are formed by combining individual elements (panels comprising a number of electrodes in a single cell controlling light arriving from an independent light source, e.g. electro-optical or magneto-optical cell, G02F 1/00) |
| U | G09F 9/305 | • • being the ends of optical fibres (G09F 9/302 takes precedence) |
| | G09F 2009/3055 | • • • {for traffic signs } |

- U G09F 11/00** Indicating arrangements for variable information in which the complete information is permanently attached to a movable support which brings it to the display position (showcases or showcabinets with arrangements for continuously or intermittently moving the merchandise [A47F 3/08](#); using static means to present variable information [G09F 9/00](#))
- G09F 2011/0009 · {Roller-band displays}
 - G09F 2011/0018 · · {having one motor for each roller}
 - G09F 2011/0027 · · ~~illuminated~~{illuminated}
 - G09F 2011/0036 · · {Multiple-loop bands}
 - G09F 2011/0045 · · {Methods of fixing the images on a rolling band}
 - G09F 2011/0054 · · · {using a support in the form of an envelope}
 - G09F 2011/0063 · · {Markings on a roller-band}
 - G09F 2011/0072 · · {Methods of keeping tensioned a roller-band}
 - G09F 2011/0081 · · {Roller-band displays used on vehicles}
 - G09F 2011/009 · · {Means to prevent misalignment during the rolling of the band}
- U G09F 13/00** Illuminated signs; Luminous advertising ([G09F 9/00](#), [G09F 11/00](#) take precedence; control of displays in general using static means to present variable information [G09G](#))
- U G09F 13/04** · Signs, boards or panels, illuminated from behind the insignia
- G09F 2013/0418 · · {Constructional details }
 - G09F 2013/0422 · · · {characterised by the presence of reflectors }
 - G09F 2013/0427 · · · {in the form of buttons }
 - G09F 2013/0431 · · · {connected to a pole }
 - G09F 2013/0436 · · · {attached to ceilings }
 - G09F 2013/044 · · · {on vehicles }
 - G09F 2013/0445 · · · {Frame details }
 - G09F 2013/045 · · · {Presence of a door }
 - G09F 2013/0454 · · · {With slidable panels or parts }
 - G09F 2013/0459 · · · {Indicating exit way or orientation }
 - G09F 2013/0463 · · · ~~Portable~~{Portable }
 - G09F 2013/0468 · · · {With tensioned or flexible display surface }
 - G09F 2013/0472 · · · {Traffic signs }
 - G09F 2013/0477 · · · {on containers }
 - G09F 2013/0481 · · · {Curved shape }
 - G09F 2013/0486 · · · {With neon tubes }
 - G09F 2013/049 · · · {Edge illuminated }
 - G09F 2013/0495 · · · {In the ground }
- U G09F 13/14** · Arrangements of reflectors thereon
- G09F 2013/142 · · · {multiple reflectors }
 - G09F 2013/145 · · · {curved reflectors }
 - G09F 2013/147 · · · {plane reflectors }
- U G09F 13/18** · edge-illuminated signs
- G09F 2013/1804 · · {Achieving homogeneous illumination }
 - G09F 2013/1809 · · · {using a non-homogeneous front window }
 - G09F 2013/1813 · · · · {provided with a coating showing a pattern of dots of variable density }

- G09F 2013/1818 . . . {provided with a coating of variable thickness }
- G09F 2013/1822 . . . {Stair-cased profiled window }
- G09F 2013/1827 . . . {Prismatic window }
- G09F 2013/1831 . . . {using more than one light source }
- G09F 2013/1836 . . . {using a frame-like light source }
- G09F 2013/184 . . . {Information to display }
- G09F 2013/1845 . . . {Interchangeable poster }
- G09F 2013/185 . . . {Embossed marks }
- G09F 2013/1854 . . . {Light diffusing layer }
- G09F 2013/1859 . . . {Frosted surface }
- G09F 2013/1863 . . . {Layer with different refractive index }
- G09F 2013/1868 . . . {Fluorescent pencil }
- G09F 2013/1872 . . . ~~Casing~~ {Casing }
- G09F 2013/1877 . . . {Stand-like }
- G09F 2013/1881 . . . {Frame-like }
- G09F 2013/1886 . . . {Special effects }
- G09F 2013/189 . . . {Three dimensional effects }
- G09F 2013/1895 . . . {Imitating a neon tube }
- U G09F 13/20 . . . with luminescent surfaces or parts (luminescent compositions [C09K 11/00](#); light sources using luminescence [F21K 2/00](#))
- U G09F 13/22 . . . electroluminescent (electroluminescent light sources per se [H05B 33/00](#))
- G09F 2013/222 . . . {with LEDs }
- G09F 2013/225 . . . {with electroluminescent lamps }
- G09F 2013/227 . . . {Electroluminescent displays for vehicles }
- U **G09F 15/00** **Boards, hoardings, pillars, or like structures for notices, placards, posters, or the like**
- G09F 2015/0093 . . . {Tensioned structures }
- U **G09F 17/00** **Flags; Banners; Mountings therefor**
- G09F 2017/0008 . . . {Devices for avoiding twisting of the flag }
- G09F 2017/0016 . . . {using ventilators }
- G09F 2017/0025 . . . {Raising or lowering devices }
- G09F 2017/0033 . . . {Flag materials }
- G09F 2017/0041 . . . {Suspended banners }
- G09F 2017/005 . . . {Means for mounting flags to masts }
- G09F 2017/0058 . . . {holding rings }
- G09F 2017/0066 . . . {Stands for flags }
- G09F 2017/0075 . . . {Flags on vehicles }
- G09F 2017/0083 . . . {Safety flags }
- U **G09F 19/00** **Miscellaneous advertising or display means not provided for elsewhere**
- U G09F 19/02 . . . incorporating moving display members
- U G09F 19/08 . . . Dolls, faces, or other representations of living forms with moving parts (in the nature of toys [A63H](#))
- G09F 2019/081 . . . ~~Fish~~ {Fish }
- G09F 2019/083 . . . ~~Plants~~ {Plants }

- G09F 2019/085 • • • ~~Birds~~ {Birds }
- G09F 2019/086 • • • ~~Dolls~~ {Dolls }
- G09F 2019/088 • • • ~~Faces~~ {Faces }
- U G09F 19/22 • Advertising or display means on roads, walls, or similar surfaces, e.g. illuminated (illuminated signs in general [G09F 13/00](#))
- G09F 2019/221 • • {on tunnel walls for underground trains }
- G09F 2019/223 • • {in pavement panels }
- G09F 2019/225 • • {Fire evacuation route indicating means }
- U G09F 21/00 Mobile visual advertising**
- U G09F 21/02 • by a carrier person or animal
- G09F 2021/023 • • {fixed on human dresses }
- U G09F 21/04 • by land vehicles
- G09F 2021/041 • • {magnetically fixed on the vehicles }
- U G09F 23/00 Advertising on or in specific articles, e.g. ashtrays, letter-boxes (on or in vehicles [G09F 21/00](#); containers, packaging-elements, or packages, with auxiliary means or provisions for displaying articles [B65D](#))**
- G09F 2023/0008 • {on parking meters }
- G09F 2023/0016 • {on pens }
- G09F 2023/0025 • {on containers }
- G09F 2023/0033 • • {on refrigerated containers }
- G09F 2023/0041 • {on cigarette lighters }
- G09F 2023/005 • {on seats }
- U G09F 25/00 Audible advertising (sound recording or reproducing per se [G11B](#); public address systems [H04R 27/00](#))**
- G09F 2025/005 • {Message recorded in a memory device }
- U G09F 27/00 Combined visual and audible advertising or displaying, e.g. for public address**
- G09F 2027/001 • {Comprising a presence or proximity detector }
- G09F 2027/002 • {Advertising message recorded in a memory device }

Project: N/A (G09G)

- U G09G 5/00 Control arrangements or circuits for visual indicators common to cathode-ray tube indicators and other visual indicators (image data processing or generation, in general [G06T](#))**
- U G09G 5/36 • characterised by the display of a graphic pattern, e.g. using an all-points-addressable (APA) memory
- G09G 5/37 • • Details of the operation on graphic patterns (~~G09G5/38T~~akes precedence [G09G 5/38](#) takes precedence)
- G09G 5/377 • • • for mixing or overlaying two or more graphic patterns (~~G09G-5/02~~;
~~G09G5/397T~~ake precedence [G09G 5/02](#) , [G09G 5/397](#) take precedence)

Project: N/A (G10H)

- U G10H 2210/00 Aspects or methods of musical processing having intrinsic musical character, i.e. involving musical theory or musical parameters or relying on musical knowledge, as applied in electrophonic musical tools or instruments (processing aspects without intrinsic musical character [G10H 2250/00](#))**

- U G10H 2210/155 • Musical effects
- U G10H 2210/195 • • Modulation effects, i.e. smooth non-discontinuous variations over a time interval, e.g. within a note, melody or musical transition, of any sound parameter, e.g. amplitude, pitch, spectral response, playback speed (stepwise or discontinuous variations over time, e.g. sequence effects [G10H 2210/161](#))
- G10H 2210/221 • • Glissando, i.e. pitch smoothly sliding from one note to another, e.g. gliss, glide, slide, bend, smear, sweep; (~~"discrete glissando" on instruments not permitting continuous glissando, like the xylophone or the piano, e.g. arpeggio~~ ~~S10H210/186~~ *"discrete glissando" on instruments not permitting continuous glissando, like the xylophone or the piano, e.g. arpeggio* [G10H 2210/185](#))
- G10H 2210/325 • Musical pitch modification (~~pitch analysis~~ ~~S10H210/065~~; *pitch analysis* [G10H 2210/066](#); musical effects [G10H 2210/155](#))
- U G10H 2210/331 • • Note pitch correction, i.e. modifying a note pitch or replacing it by the closest one in a given scale
- G10H 2210/335 • • Chord correction, i.e. modifying one or several notes within a chord, e.g. to correct wrong fingering or to improve harmony (~~natural chords~~ ~~S10H210/585~~ *natural chords* [G10H 2210/586](#))

Project: RP0063 (G10H)

- U G10H 2220/00 **Input/output interfacing specifically adapted for electrophonic musical tools or instruments**
- U G10H 2220/155 • User input interfaces for electrophonic musical instruments (graphical user interfaces specifically adapted for electrophonic musical instruments [G10H 2220/091](#); input means in general [G06F 3/00](#))
- G10H 2220/315 • • for joystick-like proportional control of musical input; Videogame input devices used for musical input or control, e.g. gamepad, joysticks (joysticks per se [G06F 3/033](#), [G05G 9/047](#), ~~A63F 13/06~~ *A63F 13/20*)

Project: N/A (G10H)

- G10H 2220/321 • • Garment sensors, i.e. musical control means with trigger surfaces or joint angle sensors, worn as a garment by the player e.g. bracelet, intelligent clothing (vital parameter sensing [G10H 2220/371](#); ~~wearable interfaces in general~~ ~~G06F3~~; *wearable interfaces in general* [G06F 3/00](#))
- U G10H 2220/341 • • Floor sensors, e.g. platform or groundsheet with sensors to detect foot position, balance or pressure, steps, stepping rhythm, dancing movements or jumping (shoe sensors [G10H 2220/336](#))
- G10H 2220/346 • • Hopscotch sensing mats, i.e. including several step sensing zones, e.g. for detection of rhythmic dancing in time to background music according to stepping indications (games involving music [G10H 2220/135](#); performance evaluation or scoring [G10H 2210/091](#), videogames in general ~~A63F13~~ *A63F 13/00*)
- U G10H 2240/00 **Data organisation or data communication aspects, specifically adapted for electrophonic musical tools or instruments**
- U G10H 2240/011 • Files or data streams containing coded musical information, e.g. for transmission (audio coding [G10L 19/00](#))
- G10H 2240/041 • • File watermark, i.e. embedding a hidden code in an electrophonic musical instrument file or stream for identification or authentication purposes (audio watermarking ~~G10L19/00W~~ *G10L 19/018*)
- U G10H 2240/075 • Musical metadata derived from musical analysis or for use in electrophonic musical instruments (additional information unrelated to its juxtaposed musical file data [G10H 2240/091](#); audio retrieval [G06F 17/3074](#))

- G10H 2240/081
- Genre classification, i.e. descriptive metadata for classification or selection of musical pieces according to style (~~analysis-genre S10H210/035~~ *analysis genre G10H 2210/036*)
- U G10H 2250/00 Aspects of algorithms or signal processing methods without intrinsic musical character, yet specifically adapted for or used in electrophonic musical processing (methods with intrinsic musical character G10H 2210/00)**
- G10H 2250/131
- Mathematical functions for musical analysis, processing, synthesis or composition (~~algorithms for musical processing S10H250/05~~; *algorithms for musical processing G10H 2250/005*; computation of mathematical functions [G06F 17/10](#) and [G06F 7/544](#))
- G10H 2250/295
- Noise generation, its use, control or rejection for music processing (white noise or pseudorandom generators [G10H 2250/211](#); use of noise in formant synthesis [G10H 2250/495](#); automatic gain control [H03G 3/32](#); speech or noise detection ~~G10L1/02~~ *G10L 25/84*)
- U G10H 2250/315**
- Sound category-dependent sound synthesis processes [Gensound] for musical use (details of musical waveform synthesis [G10H 2250/541](#); general musical sound synthesis principles [G10H 2250/471](#); Sound category-specific synthesis-controlling parameters or control means therefor
- G10H 2250/455
- Gensound singing voices, i.e. generation of human voices for musical applications, vocal singing sounds or intelligible words at a desired pitch or with desired vocal effects, e.g. by phoneme synthesis (formant synthesis [G10H 2250/481](#); parcor synthesis [G10H 2250/505](#); modulation effects [G10H 2210/195](#); ensemble effects [G10H 2210/245](#); ~~speech-synthesis in general G10L13~~; *speech synthesis in general G10L 13/00*)

Project: N/A (G10K)

- U G10K 11/00 Methods or devices for transmitting, conducting or directing sound in general; Methods or devices for protecting against, or for damping, noise or other acoustic waves in general({ protective devices for the ears [A61F 11/06](#) } ; sound insulation for vehicles [B60R 13/08](#) ; sound insulation for aircraft [B64C 1/40](#) ; sound insulating materials, see the relevant places, e.g. [C04B 26/00](#) to [C04B 38/00](#) ; reduction of noise on permanent way [E01B 19/00](#) ; absorption of air-transmitted noise from road or railway traffic [E01F 8/00](#) ; noise insulation, absorption or reflection in buildings [E04B 1/74](#) ; room acoustics [E04B 1/99](#) ; sound insulation in floors [E04F 15/20](#) ; gas-flow silencers or exhaust apparatus for machines or engines in general, for internal-combustion engines [F01N](#) ; intake silencers for internal-combustion engines [F02M 35/00](#) ; suppression of undesired vibrations [F16F 7/00](#) to [G10K 15/00](#) ; preventing noise in valves [F16K 47/02](#) ; noise absorbers in pipes [F16L 55/02](#) ; arrangements for suppressing noise in direct-contact trickle coolers [F28C 1/10](#) ; silencers for weapons [F41](#))**
- U G10K 11/16**
- Methods or devices for protecting against, or damping of, acoustic waves, e.g. sound([G10K 11/36](#) takes precedence)
- NOTE**
- This group does not cover protecting against, or damping of, acoustic waves adapted for particular applications, which are covered by the subclasses for these applications, provided that there is a specific provision for this aspect.
- G10K 11/161
- (in systems with fluid flow(~~G10K11/16B~~ *G10K 11/162* takes precedence; gas flow silencers or exhaust apparatus for machines or engines in general or for internal combustion engine [F01N](#) , noise absorbers in pipes or pipe systems [F16L 55/02](#) ; noise absorption in air conditioning and ventilation ~~F24F13/00C~~ *F24F 13/24* ; silencing exhaust or propulsion jets in aircraft [B64D 33/06](#))}

Project: N/A (G10L)**U G10L 13/00****Speech synthesis; Text to speech systems**

U G10L 13/02

- Methods for producing synthetic speech; Speech synthesisers

U G10L 2013/021

- • { Overlap-add techniques }

U G10L 13/08

- Text analysis or generation of parameters for speech synthesis out of text, e.g. grapheme to phoneme translation, prosody generation or stress or intonation determination

U G10L 2013/083

- • { Special characters, e.g. punctuation marks }

U G10L 13/10

- • Prosody rules derived from text; Stress or intonation

U G10L 2013/105

- • • { Duration }

U G10L 15/00**Speech recognition ([G10L 17/00](#) takes precedence)**

U G10L 15/02

- Feature extraction for speech recognition; Selection of recognition unit

U G10L 2015/022

- • { Demisyllables, biphones or triphones being the recognition units }

U G10L 2015/025

- • { Phonemes, fenemes or fenones being the recognition units }

U G10L 2015/027

- • { Syllables being the recognition units }

U G10L 15/06

- Creation of reference templates ; Training of speech recognition systems, e.g. adaptation to the characteristics of the speaker's voice ([G10L 15/14](#) takes precedence)

U G10L 15/063

- • { Training }

U G10L 2015/0631

- • • { Creating reference templates; Clustering }

U G10L 2015/0635

- • • { updating or merging of old and new templates; Mean values; Weighting }

U G10L 2015/0638

- • • { Interactive procedures }

U G10L 15/08

- Speech classification or search

U G10L 2015/081

- • { Search algorithms, e.g. Baum-Welch or Viterbi }

U G10L 2015/085

- • { Methods for reducing search complexity, pruning }

U G10L 2015/086

- • { Recognition of spelled words }

U G10L 2015/088

- • { Word spotting }

U G10L 15/22

- Procedures used during a speech recognition process, e.g. man-machine dialogue

G10L 2015/221

- • { Announcement of recognition results }

G10L 2015/223

- • { Execution procedure of a spoken command }

G10L 2015/225

- • { Feedback of the input speech }

G10L 2015/226

- • { Taking into account non-speech characteristics }

G10L 2015/227

- • • { of the speaker; Human-factor methodology }

G10L 2015/228

- • • { of application context }

U G10L 19/00**Speech or audio signal analysis-synthesis techniques for redundancy reduction, e.g. in vocoders; Coding or decoding of speech or audio signal, using source filter models or psychoacoustic analysis (in musical instruments [G10H](#))**

U G10L 2019/0001

- { Codebooks }

U G10L 21/00**Processing of the speech or voice signal to produce another audible or non-audible signal, e.g. visual or tactile, in order to modify its quality or its intelligibility ([G10L 19/00](#) takes precedence)**

U G10L 21/003

- Changing voice quality, e.g. pitch or formants

U G10L 21/007

- • characterised by the process used

U G10L 21/013

- • • Adapting to target pitch

| | | |
|----------|-------------------|---|
| U | G10L 2021/0135 | • • • { Voice conversion or morphing} |
| U | G10L 21/02 | • Speech enhancement, e.g. noise reduction or echo cancellation (reducing echo effects in line transmission systems H04B 3/20 ; echo suppression in hands-free telephones H04M 9/08) |
| U | G10L 21/0208 | • • Noise filtering |
| U | G10L 2021/02082 | • • • { the noise being echo, reverberation of the speech} |
| U | G10L 2021/02085 | • • • { Periodic noise} |
| U | G10L 2021/02087 | • • • { the noise being separate speech, e.g. cocktail party} |
| U | G10L 21/0216 | • • • characterised by the method used for estimating noise |
| U | G10L 2021/02161 | • • • • { Number of inputs available containing the signal or the noise to be suppressed} |
| U | G10L 2021/02168 | • • • • { the estimation exclusively taking place during speech pauses} |
| U | G10L 21/0316 | • • by changing the amplitude |
| U | G10L 21/0364 | • • • for improving intelligibility |
| U | G10L 2021/03643 | • • • • { Diver speech} |
| U | G10L 2021/03646 | • • • • { Stress or Lombard effect} |
| U | G10L 21/04 | • Time compression or expansion |
| U | G10L 21/057 | • • for improving intelligibility |
| U | G10L 2021/0575 | • • • { Aids for the handicapped in speaking} |
| U | G10L 21/06 | • Transformation of speech into a non-audible representation, e.g. speech visualisation or speech processing for tactile aids (G10L 15/26 takes precedence) |
| U | G10L 2021/065 | • • { Aids for the handicapped in understanding} |
| U | G10L 21/10 | • • transforming into visible information |
| U | G10L 2021/105 | • • • { Synthesis of the lips movements from speech, e.g. for talking heads} |
| U | G10L 25/00 | Speech or voice analysis techniques not restricted to a single one of groups G10L 15/00-G10L 21/00 |
| U | G10L 25/78 | • Detection of presence or absence of voice signals (switching of direction of transmission by voice frequency in two-way loud-speaking telephone systems H04M 9/10) |
| U | G10L 2025/783 | • • { based on threshold decision} |
| U | G10L 25/90 | • Pitch determination of speech signals |
| U | G10L 2025/903 | • • { using a laryngograph} |
| U | G10L 2025/906 | • • { Pitch tracking} |
| U | G10L 25/93 | • Discriminating between voiced and unvoiced parts of speech signals (G10L 25/90 takes precedence) |
| U | G10L 2025/932 | • • { Decision in previous or following frames} |
| U | G10L 2025/935 | • • { Mixed voiced class; Transitions} |
| U | G10L 2025/937 | • • { Signal energy in various frequency bands} |

Project: N/A (G11B)

G11B

INFORMATION STORAGE BASED ON RELATIVE MOVEMENT BETWEEN RECORD CARRIER AND TRANSDUCER{ producing carriers of sound records for needle playback [B29C 39/00](#) } ; recording measured values in a way that does not require playback through a transducer [G01D](#); photosensitive materials or processes for photographic purposes [G03C](#); electrography, electrophotography, magnetography [G03G](#); recording or playback apparatus using mechanically marked tape, e.g. punched paper tape, or using unit records, e.g. punched or magnetically marked cards, [G06K](#); transferring data from one type of record carrier to another [G06K 1/18](#) ; printing of data from record carriers [G06K 3/00](#) ; arrangements for producing a permanent visual presentation of the output data [G06K 15/00](#) ; arrangements or circuits for control of indicating devices using static means to present variable information [G09G](#); coding, decoding or code conversion, in general [H03M](#); circuits for coupling output of reproducer to radio receiver [H04B 1/20](#) ; circuits {or arrangements} specially adapted for {pictorial or} television signal recording{ [H04N 1/21](#) } , [H04N 5/76](#) , [H04N 9/79](#) ; loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers or circuits therefor [H04R](#))

NOTES

This subclass covers :

- recording or playback of information by relative movement between a record track and a transducer, the transducer directly producing, or being directly actuated by, modulation in the track being recorded or played-back, and the extent of modulation corresponding to the signal being recorded or played-back;
- apparatus and machines for recording or playback, and parts thereof such as heads;
- record carriers for use with such apparatus and machines;
- associated working of other apparatus with such apparatus and machines;
- { relative positioning or movement of transducers and record carriers before, during or after transducing operation, e.g. for accessing record carriers or parts thereof, or for track change, selection or acquisition or for track following or for accessing parts of tracks; }
- { driving or moving of heads or record carriers or both heads and record carriers for increasing, maintaining or decreasing the relative speed before, during or after transducing operation }

In this subclass, the following terms or expressions are used with the meanings indicated :

- "head" includes any means for converting sinusoidal or non-sinusoidal electric wave-forms into variations of the physical condition of at least the adjacent surface of the record carrier, or vice versa;
- "record carrier" means a body, such as a cylinder, disc, card, tape, or wire, capable of permanently holding information, which can be read-off by a sensing element

movable relatively to the record carrier.

Documents concerning relative positioning or movement of transducers and record carriers are classified in groups [G11B 3/00](#) to [G11B 7/00](#) and [G11B 21/00](#) when only the transducer is controlled and in groups [G11B 15/00](#), [G11B 17/00](#) and [G11B 19/00](#) when only the record carrier is controlled. When both record carrier and head are controlled, the documents are classified in [G11B 15/18](#), [B G11B 15/18 B](#), [G11B 15/1816](#), [G11B 19/00](#) and [G11B 27/00 A G11B 27/00 A](#). When a plurality of record carriers are controlled, the documents are classified in [G11B 15/68](#), [G11B 17/08](#), [G11B 17/22](#) and [G11B 27/00 A G11B 27/00 A](#).

By "access" is meant an operation including a relative movement for positioning between record carrier and head before, during or after transducing; this operation including "seek", "select", "change", "acquire" and "follow" functions for at least a part of a track on at least one record carrier. By "programmed access" is meant a sequence of access operations the result of the sequence being to acquire a wanted sequence of parts of tracks or a wanted sequence of tracks. Relative movement between head and record carrier also covers the movement of a coupling beam such as a light beam between the head and a stationary record carrier.

"Movement of the head" also covers any virtual movement or any physical movement such as obtained by switching between successive transducing parts of the head or by moving the transducing zone of the head, i.e. by "scanning". If different transducing parts of the head are switchable, the number of transducing parts should be much smaller than the number of individual storage areas of the record carrier.

Attention is drawn to the notes of subclass [G11C](#).

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

| | | | |
|-----------------------------|------------|----------------------------|------------|
| G11B 5/65 | covered by | G11B 5/64 | to |
| G11B 5/64D3 | | | |
| G11B 5/667 | covered by | G11B 5/66 | |
| G11B 5/673 | covered by | G11B 5/66 | |
| G11B 7/16 | covered by | G11B 7/135 | |
| G11B 7/18 | covered by | G11B 7/135 | |
| G11B 7/30 | covered by | G11B 7/00 | |
| G11B 9/12 | - | G11B 9/14 | covered by |
| G11B 9/00 | | | |
| G11B 11/24 | - | G11B 11/26 | covered by |
| G11B 11/00 | | | |
| G11B 13/08 | covered by | G11B | |

U G11B 5/00

Recording by magnetisation or demagnetisation of a record carrier; Reproducing by magnetic means; Record carriers therefor([G11B 11/00](#) { and [G11B 13/00](#) }take precedence)

NOTE

Subgroups [G11B 5/02](#) to [G11B 5/86](#) take precedence over subgroups [G11B 5/004](#) to [G11B 5/016](#)

- G11B 2005/0002 . {Special dispositions or recording techniques}
- G11B 2005/0005 . . {Arrangements, methods or circuits}
- G11B 2005/0008 . . . {Magnetic conditioning of heads, e.g. biasing}
- G11B 2005/001 . . . {Controlling recording characteristics of record carriers or transducing characteristics of transducers by means not being part of their structure}
- G11B 2005/0013 {of transducers, e.g. linearisation, equalisation}

| | | |
|---|------------------|---|
| | G11B 2005/0016 | • • • • {of magnetoresistive transducers} |
| | G11B 2005/0018 | • • • • • {by current biasing control or regulation} |
| | G11B 2005/0021 | • • {Thermally assisted recording using an auxiliary energy source for heating the recording layer locally to assist the magnetization reversal} |
| | G11B 2005/0024 | • • {Microwave assisted recording} |
| | G11B 2005/0026 | • • {Pulse recording} |
| | G11B 2005/0029 | • • • {using magnetisation components of the recording layer disposed mainly perpendicularly to the record carrier surface} |
| | G11B 2005/0032 | • • {Transducing means or record carriers including or interacting with each other through interposition of, a physically controllable magnetic flux masking or focusing element} |
| | G11B 2005/0034 | • • • {switchable at least locally between two different physical states, e.g. magnetic and non-magnetic} |
| | G11B 2005/0037 | • • • • {using superconductive elements} |
| U | G11B 5/008 | • Recording on, or reproducing or erasing from, magnetic tapes,{sheets, e.g. cards,}or wires(G11B 15/00 { G11B 19/00 }take precedence;{ bulk transferring of information magnetisation for re-recording G11B 5/865 ; marking record carriers in digital fashion G06K }) |
| U | G11B 5/00813 | • • {magnetic tapes} |
| U | G11B 5/00817 | • • • {on longitudinal tracks only, e.g. for serpentine format recording} |
| | G11B 2005/00843 | • • • • {allowing digital compact cassette (DCC) format recording} |
| U | G11B 5/127 | • Structure or manufacture of heads, e.g. inductive |
| U | G11B 5/33 | • • Structure or manufacture of flux-sensitive heads,{i.e. for reproduction only; Combination of such heads with means for recording or erasing only} ({ Single head using magnetic domains for scanning G11B 5/4946 ; multiple head for scanning G11B 5/4907 and subgroups } ; general details therefor G11B 5/133 to G11B 5/255) |
| U | G11B 5/39 | • • • using magneto-resistive devices{or effects} |
| | G11B 2005/3996 | • • • • {large or giant magnetoresistive effects (GMR), e.g. as generated in spin-valve (SV) devices} |
| U | G11B 7/00 | Recording or reproducing by optical means, e.g. recording using a thermal beam of optical radiation{by modifying optical properties or the physical structure}, reproducing using an optical beam at lower power{by sensing optical properties}; Record carriers therefor;(G11B 11/00 , G11B 13/00 take precedence) |
| | G11B 2007/0003 | • {Recording, reproducing or erasing systems characterised by the structure or type of the carrier} |
| | G11B 2007/0006 | • • {adapted for scanning different types of carrier, e.g. CD & DVD} |
| | G11B 2007/0009 | • • {for carriers having data stored in three dimensions, e.g. volume storage} |
| | G11B 2007/0013 | • • • {for carriers having multiple discrete layers} |
| | G11B 2007/0016 | • • {for carriers adapted to have label information written on the non-data side by the optical head used for data recording, e.g. lightscribe, labelflash} |
| U | G11B 7/004 | • Recording, reproducing or erasing methods; Read, write or erase circuits therefor{(magneto-optical systems G11B 11/105)} |
| U | G11B 7/0045 | • • Recording(G11B 7/006 . G11B 7/0065 take precedence) |
| | G11B 2007/00457 | • • • {Two photon recording} |
| U | G11B 7/0065 | • • Recording, reproducing or erasing by using optical interference patterns, e.g. holograms |
| | G11B 2007/00653 | • • • {Collinear holography} |

- G11B 2007/00656
 - • • {Counterpropagating holography}
- U G11B 7/007
 - Arrangement of the information on the record carrier, e.g. form of tracks, {actual track shape, e.g. wobbled, or cross-section, e.g. v-shaped; Sequential information structures, e.g. sectoring or header formats within a track}
- G11B 2007/00709
 - • {Dimensions of grooves or tracks, e.g. groove depth, track pitch}
- G11B 2007/00727
 - • {where the information is modified to form a visible pattern, e.g. forming a label by modifying the width of pits or grooves}
- G11B 7/00736
 - • {Auxiliary data, e.g. lead-in, lead-out, Power Calibration Area(PCA), Burst Cutting Area (BCA), control information(sector headers or addresses in prepits **G11B 7/007-SG11B7/007S**; address data in track wobble **G11B 7/007-TG11B7/007T**)}
 - WARNING
Not complete, see also [G11B 7/007](#) and **G11B 7/007-SG11B7/007S**
- G11B 2007/00754
 - • {Track shape, e.g. address or synchronisation information in wobbled track or sidewall}
- G11B 2007/00763
 - • {Track cross-section, e.g. V-shaped, trapezoidal}
- U G11B 7/013
 - • for discrete information, i.e. where each information unit is stored at a distinct discrete location{e.g. digital information formats within a data block or sector}
- G11B 2007/0133
 - • • {Details of discrete information structures, e.g. shape or dimensions of pits, prepits}
- G11B 2007/0136
 - • • {where each location can have more than two values ('multivalue'), for data or prepits}
- U G11B 7/08
 - Disposition or mounting of heads or light sources relatively to record carriers
- U G11B 7/09
 - • with provision for moving the light beam or focus plane for the purpose of maintaining alignment of the light beam relative to the record carrier during transducing operation, e.g. to compensate for surface irregularities of the latter or for track following
- U G11B 7/0908
 - • • {for focusing only([G11B 7/0925](#) , [G11B 7/094](#) , [G11B 7/0941](#) , [G11B 7/0943](#) , [G11B 7/0945](#) , [G11B 7/0946](#) , [G11B 7/0948](#) take precedence)}
- U G11B 7/0917
 - • • • { Focus-error methods other than those covered by [G11B 7/0909](#) to [G11B 7/0916](#) }
- G11B 2007/0919
 - • • • • {Critical angle methods}
- G11B 2007/092
 - • • • • {Dither methods}
- G11B 2007/0922
 - • • • • {Far-field methods}
- G11B 2007/0924
 - • • • • {Skewed beams methods(using an angled beam, i.e. a beam which is reflected from the disc at an angle different from 90°)}
- U G11B 7/12
 - Heads, e.g. forming of the optical beam spot or modulation of the optical beam(disposition or mounting of head elements within housing or with provision for moving of light source, optical beam or detector, irrelevant to the transducing method [G11B 7/08](#) ; { modulating lasers [H01S 3/10](#) ; controlling the intensity, colour, phase, polarisation or direction of light beams arriving from an independent light source, e.g. switching gating or modulating [G02F 1/00](#) })
- U G11B 7/135
 - • Means for guiding the beam from the source to the record carrier or from the record carrier to the detector
 - WARNING
For all subgroups of [G11B 7/135](#) , see provisional also [G11B 7/135](#)
- U G11B 7/1372
 - • • Lenses
- G11B 2007/13722
 - • • • {Fresnel lenses}

- G11B 2007/13725 {Catadioptric lenses, i.e. having at least one internal reflective surface}
- G11B 2007/13727 {Compound lenses, i.e. two or more lenses co-operating to perform a function, e.g. compound objective lens including a solid immersion lens, positive and negative lenses either bonded together or with adjustable spacing}
- U G11B 7/24 . Record carriers characterised by shape, structure or physical properties, or by the selection of the material(characterised by the arrangement of information on the carrier [G11B 7/007](#))
- G11B 2007/240004 . . {characterised by the form of the carrier}
- G11B 2007/240008 . . . Cards{Cards}
- G11B 2007/240012 {intended for rotation}
- G11B 2007/240017 . . . Tapes{Tapes}
- G11B 2007/240021 . . . Cylinders{Cylinders}
- G11B 2007/240025 . . {for storing optical interference patterns, e.g. holograms}
- U G11B 7/241 . . characterised by the selection of the material
- U G11B 7/242 . . . of recording layers
- U G11B 7/243 comprising inorganic materials only, e.g. ablative layers
- G11B 2007/24302 {Metals or metalloids}
- G11B 2007/24304 {group 2 or 12 elements(e.g. Be, Ca, Mg, Zn, Cd)}
- G11B 2007/24306 {transition metal elements of groups 3-10}
- G11B 2007/24308 {transition metal elements of group 11(Cu, Ag, Au)}
- G11B 2007/2431 {group 13 elements(B, Al, Ga, In)}
- G11B 2007/24312 {group 14 elements(e.g. Si, Ge, Sn)}
- G11B 2007/24314 {group 15 elements(e.g. Sb, Bi)}
- G11B 2007/24316 {group 16 elements(i.e. chalcogenides, Se, Te)}
- G11B 2007/24318 {Non-metallic elements}
- G11B 2007/2432 Oxygen{Oxygen}
- G11B 2007/24322 Nitrogen{Nitrogen}
- G11B 2007/24324 Sulfur{Sulfur}
- G11B 2007/24326 {Halides(F, Cl, Br...)}
- G11B 2007/24328 Carbon{Carbon}
- U G11B 7/244 comprising organic materials only
- G11B 2007/2445 {containing an azulene compound}
- U G11B 7/246 containing dyes
- G11B 2007/24606 {Azo- dyes}
- G11B 2007/24612 {two or more dyes in one layer}
- G11B 2007/24618 {two or more dyes in two or more different layers, e.g. one dye absorbing at 405 nm in layer one and a different dye absorbing at 650 nm in layer two}
- G11B 2007/24624 {fluorescent dyes}
- U G11B 7/247 methine or polymethine dyes
- G11B 2007/24705 Cyanine{Cyanine}
- G11B 2007/2471 Merocyanine{Merocyanine}
- G11B 2007/24715 Oxonol{Oxonol}
- U G11B 7/249 containing organometallic compounds([G11B 7/246](#) takes precedence)
- G11B 2007/24905 neutral{neutral}

- G11B 2007/2491 {as anion}
 - G11B 2007/24915 {as cation}
 - U G11B 7/252 . . . of layers other than recording layers
- NOTE**
In group [G11B 7/252](#) , multi-aspect classification is applied, so that if subject matter is characterised by aspects covered by more than one of its subgroups, the subject matter should be classified in each of those subgroups.
- U G11B 7/253 of substrates
 - G11B 2007/25301 {comprising glass}
 - G11B 2007/25302 {comprising metals}
 - G11B 2007/25303 {comprising resins}
 - G11B 2007/25304 {Polycarbonate (PC)}
 - G11B 2007/25305 {Polyester, e.g. PET, PETG, PEN}
 - G11B 2007/25306 {Polystyrene (PS)}
 - G11B 2007/25307 {Polycycloolefines (COCs)}
 - G11B 2007/25308 {Biodegradable polymers, cellulose included}
 - U G11B 7/254 of protective topcoat layers
 - G11B 2007/25402 {consisting essentially of organic resins}
 - G11B 2007/25405 {comprising inorganic filler, e.g. particles, fibres}
 - G11B 2007/25408 {consisting essentially of inorganic materials}
 - G11B 2007/25411 {containing transition metal elements(Zn, Fe, Co, Ni, Pt)}
 - G11B 2007/25414 {containing Group 13 elements(B, Al, Ga)}
 - G11B 2007/25417 {containing Group 14 elements(C, Si, Ge, Sn)}
 - U G11B 7/257 of layers having properties involved in recording or reproduction, e.g. optical interference layers or sensitising layers or dielectric layers, which are protecting the recording layers
 - G11B 2007/25701 {consisting essentially of organic materials}
 - G11B 2007/25703 **Resins**{**Resins**}
 - G11B 2007/25705 {consisting essentially of inorganic materials}
 - G11B 2007/25706 {containing transition metal elements(Zn, Fe, Co, Ni, Pt)}
 - G11B 2007/25708 {containing group 13 elements(B, Al, Ga)}
 - G11B 2007/2571 {containing group 14 elements except carbon(Si, Ge, Sn, Pb)}
 - G11B 2007/25711 {containing carbon}
 - G11B 2007/25713 {containing nitrogen}
 - G11B 2007/25715 {containing oxygen}
 - G11B 2007/25716 {containing sulfur}
 - G11B 2007/25718 {containing halides(F, Cl, Br, I)}
 - U G11B 7/258 of reflective layers
 - G11B 2007/2581 {based on aluminium}
 - G11B 2007/2582 {based on silver}
 - G11B 2007/2583 {based on gold}
 - U G11B 7/26 . . . Apparatus or processes specially adapted for the manufacture of record carriers(processes involving a single technical art and for which provision exists elsewhere, see the relevant class, e.g. [B29](#) , [G03](#)){ manufacture of intermediate mediums, e.g. matrixes for processing [G11B 23/0057](#) }

- G11B 7/268
- • • {Post-production operations, e.g. initialising phase-change recording layers, checking for defects(investigating the presence of flaws or contamination in optical discs ~~G01N 21/95 B~~ ~~G01N21/95B~~)}
- WARNING
Not complete, see also [G11B 7/26](#)
- U G11B 19/00** **Driving, starting, stopping record carriers not specifically of filamentary or web form, or of supports therefor; Control thereof; Control of operating function(guiding such record carriers [G11B 17/00](#));(Driving both disc and head}**
- U G11B 19/02
- Control of operating function, e.g. switching from recording to reproducing
- U G11B 19/12
- • by sensing distinguishing features of{or on}records, e.g. diameter{end mark}
- G11B 2019/121
- • • {by photo-electric sensing}
- U G11B 20/00** **Signal processing not specific to the method of recording or reproducing; Circuits therefor**
- U G11B 20/00007
- {Time or data compression or expansion(audio compression based on psychoacoustics [G10L 19/00](#) ; data processing for reproducing audio data at different playback speeds [G10L 21/04](#) ; video compression [H04N 7/26](#) ; data compression per se [H03M 7/30](#))}
- G11B 2020/00014
- • {the compressed signal being an audio signal}
- G11B 2020/00021
- • • {lossless audio compression}
- G11B 2020/00028
- • • {Advanced audio coding [AAC]}
- G11B 2020/00036
- • • {AC-3, i.e. ATSC digital audio compression standard}
- G11B 2020/00043
- • • {Adaptive transform acoustic coding [ATRAC]}
- G11B 2020/0005
- • • {DTS audio codecs}
- G11B 2020/00057
- • • {MPEG-1 or MPEG-2 audio layer III [MP3]}
- G11B 2020/00065
- • • {Sigma-delta audio encoding}
- G11B 2020/00072
- • {the compressed signal including a video signal}
- G11B 2020/00079
- • {the compression ratio or quality level being adapted to circumstances, e.g. to the available recording space}
- U G11B 20/10
- Digital recording or reproducing(digital computers in which at least part of the computation is effected electrically, arrangements for handling digital data [G06F](#) ; transmission of digital information [H04L](#))
- U G11B 20/10527
- • {Audio or video recording; Data buffering arrangements([G11B 20/12](#) to [G11B 20/18](#) take precedence)}
- G11B 2020/10537
- • • {Audio or video recording}
- G11B 2020/10546
- • • • {specifically adapted for audio data}
- G11B 2020/10555
- • • • • {wherein the frequency, the amplitude, or other characteristics of the audio signal is taken into account}
- G11B 2020/10564
- • • • • frequency{frequency}
- G11B 2020/10574
- • • • • {volume or amplitude}
- G11B 2020/10583
- • • • • {parameters controlling audio interpolation processes}
- G11B 2020/10592
- • • • {specifically adapted for recording or reproducing multichannel signals}
- G11B 2020/10601
- • • • • {surround sound signal}
- G11B 2020/10611
- • • • • {3D video data}
- G11B 2020/1062
- • • {Data buffering arrangements, e.g. recording or playback buffers}
- G11B 2020/10629
- • • • {the buffer having a specific structure}
- G11B 2020/10638
- • • • • {First-in-first-out memories [FIFO] buffers}

- G11B 2020/10648 {First-in-last-out memories [LIFO] buffers}
- G11B 2020/10657 {Cache memories for random data access, e.g. buffers wherein the data output is controlled by a priority parameter other than retention time}
- G11B 2020/10666 {Ring buffers, e.g. buffers wherein an iteratively progressing read or write pointer moves back to the beginning of the buffer when reaching the last storage cell}
- G11B 2020/10675 {aspects of buffer control}
- G11B 2020/10685 {input interface, i.e. the way data enter the buffer, e.g. by informing the sender that the buffer is busy}
- G11B 2020/10694 {output interface, i.e. the way data leave the buffer, e.g. by adjusting the clock rate}
- G11B 2020/10703 {processing rate of the buffer, e.g. by accelerating the data output}
- G11B 2020/10712 {buffer capacity, e.g. when the buffer capacity is exhausted, buffered data are overwritten with more recent data, accepting that the old data are lost}
- G11B 2020/10722 {wherein the size of the buffer is variable, e.g. by adding additional memory cells for coping with input streams that have high bit rates}
- G11B 2020/10731 {wherein the buffer I/O can be temporarily suspended, e.g. by refusing to accept further data to be buffered}
- G11B 2020/1074 {involving a specific threshold value}
- G11B 2020/1075 {the usage of the buffer being restricted to a specific kind of data}
- G11B 2020/10759 {content data}
- G11B 2020/10768 {by pre-caching the initial portion of songs or other recorded or downloaded data for starting playback instantly}
- G11B 2020/10777 {instructions or commands}
- G11B 2020/10787 {parameters, e.g. for decoding or encoding}
- G11B 2020/10796 {address data}
- G11B 2020/10805 {involving specific measures to prevent a buffer overflow}
- G11B 2020/10814 {involving specific measures to prevent a buffer underrun}
- G11B 2020/10824 {the buffer being used to prevent vibrations or shocks from causing delays}
- G11B 2020/10833 . . {Copying or moving data from one record carrier to another}
- G11B 2020/10842 . . . {wherein not all recorded data are copied or moved}
- G11B 2020/10851 . . {Erasing data on the record carrier}
- G11B 2020/10861 . . {Finalising a record carrier after a recording operation, e.g. to ensure compatibility with a ROM medium}
- G11B 2020/1087 . . {wherein a selection is made among at least two alternative ways of processing}
- G11B 2020/10879 . . . {the kind of record carrier being the selection criterion}
- G11B 2020/10888 . . . {the kind of data being the selection criterion}
- G11B 2020/10898 . . {Overwriting or replacing recorded data}
- G11B 2020/10907 . . . {using pseudo-overwriting, i.e. virtually or logically overwriting data on WORM media by remapping recorded blocks to alternate areas}
- G11B 2020/10916 . . {Seeking data on the record carrier for preparing an access to a specific address}
- G11B 2020/10925 . . . {involving an inter-layer jump, i.e. changing from one recording layer to another}

- G11B 2020/10935 . . {wherein a time constraint must be met}
- G11B 2020/10944 . . . {Real-time recording or reproducing, e.g. for ensuring seamless playback of AV data}
- G11B 2020/10953 . . . {Concurrent recording or playback of different streams or files}
- G11B 2020/10962 {wherein both recording and playback take place simultaneously}
- G11B 2020/10972 . . . {Management of interruptions, e.g. due to editing}
- G11B 2020/10981 . . . {Recording or reproducing data when the data rate or the relative speed between record carrier and transducer is variable}
- G11B 2020/1099 {wherein a disc is spun at a variable speed}
- U G11B 20/12 . . Formatting, e.g. arrangement of data block or words on the record carriers{(within interface between computers and data recorders [G06F 3/06](#))}
- U G11B 20/1217 . . . {on discs}
- G11B 2020/1218 {wherein the formatting concerns a specific area of the disc}
- G11B 2020/122 {Burst cutting area [BCA]}
- G11B 2020/1221 {cluster, i.e. a data structure which consists of a fixed number of sectors or ECC blocks}
- G11B 2020/1222 {ECC block, i.e. a block of error correction encoded symbols which includes all parity data needed for decoding(pure error correction aspects [G11B 20/18](#))}
- G11B 2020/1224 {extent, i.e. a set of sectors which numbers form a continuous ascending sequence}
- G11B 2020/1225 {frame, i.e. a subunit of a sector containing user data, e.g. a sync frame}
- G11B 2020/1227 {one layer of multilayer disc}
- G11B 2020/1228 {middle zone or outer guard area of a multilayer disc}
- G11B 2020/1229 {lead-in area}
- G11B 2020/1231 {lead-out area}
- G11B 2020/1232 {sector, i.e. the minimal addressable physical data unit}
- G11B 2020/1234 {wherein the sector is a headerless sector, i.e. it does not comprise an ID field}
- G11B 2020/1235 {session, i.e. a contiguous area having its own lead-in area, program area and lead-out area}
- G11B 2020/1237 {recording side of a single layer medium}
- G11B 2020/1238 {track, i.e. the entire a spirally or concentrically arranged path on which the recording marks are located}
- G11B 2020/1239 {the track being a pregroove, e.g. the wobbled track of a recordable optical disc}
- G11B 2020/1241 {user area, i.e. the area of a disc where user data are to be recorded}
- G11B 2020/1242 {the area forming one or more zones, wherein each zone is shaped like an annulus or a circular sector}
- G11B 2020/1244 {CAV zone, in which a constant angular velocity is used}
- G11B 2020/1245 {CLV zone, in which a constant linear velocity is used}
- G11B 2020/1247 {rewritable zone, e.g. a RAM zone of a hybrid disc having ROM and RAM areas}
- G11B 2020/1248 {ROM zone, i.e. an unrewritable zone}
- G11B 2020/1249 {wherein the bits are arranged on a two-dimensional hexagonal lattice}
- G11B 2020/1255 {Fixed Block Architecture (FBA) format}

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| G11B 2020/1257 | {Count Key Data (CKD) format} |
| G11B 2020/1259 | {with ROM/RAM areas} |
| G11B 2020/1264 | {wherein the formatting concerns a specific kind of data} |
| G11B 2020/1265 | {Control data, system data or management information, i.e. data used to access or process user data} |
| G11B 2020/1267 | {Address data} |
| G11B 2020/1268 | {Address in pregroove [ADIP] information} |
| G11B 2020/1269 | {Absolute time in pregroove [ATIP] information} |
| G11B 2020/1271 | {the address data being stored in a subcode, e.g. in the Q channel of a CD} |
| G11B 2020/1272 | {Burst indicator subcode [BIS]} |
| G11B 2020/1274 | {stored in pre-pits, i.e. in embossed pits, ROM marks or prepits} |
| G11B 2020/1275 | {Calibration data, e.g. specific training patterns for adjusting equalizer settings or other recording or playback parameters} |
| G11B 2020/1277 | {for managing gaps between two recordings, e.g. control data in linking areas, run-in or run-out fields, guard or buffer zones} |
| G11B 2020/1278 | {Physical format specifications of the record carrier, e.g. compliance with a specific standard, recording density, number of layers, start of data zone or lead-out} |
| G11B 2020/1279 | {Permanent information and control data stored in the PIC zone of a Blu-Ray disc} |
| G11B 2020/1281 | {Servo information} |
| G11B 2020/1282 | {in embedded servo fields} |
| G11B 2020/1284 | {in servo fields which split data fields} |
| G11B 2020/1285 | {Status of the record carrier, e.g. space bit maps, flags indicating a formatting status or a write permission} |
| G11B 2020/1287 | {Synchronisation pattern, e.g. VCO fields(specific bit sequences of sync patterns G11B 20/1403 ; A/V-synchronisation G11B27 ; A/V synchronisation G11B 27/00)} |
| G11B 2020/1288 | {Formatting by padding empty spaces with dummy data, e.g. writing zeroes or random data when de-icing optical discs} |
| G11B 2020/1289 | {Formatting of user data} |
| G11B 2020/1291 | . . . {wherein the formatting serves a specific purpose} |
| G11B 2020/1292 | {Enhancement of the total storage capacity} |
| G11B 2020/1294 | {Increase of the access speed} |
| G11B 2020/1295 | {wherein the focus is on the read access speed} |
| G11B 2020/1297 | {wherein the focus is on the write access speed} |
| G11B 2020/1298 | {Enhancement of the signal quality} |
| U G11B 20/14 | . . using self-clocking codes |
| U G11B 20/1403 | . . . {characterised by the use of two levels} |
| U G11B 20/1423 | {Code representation depending on subsequent bits, e.g. delay modulation, double density code, Miller code} |
| U G11B 20/1426 | {conversion to or from block codes or representations thereof} |
| G11B 2020/143 | {4 to 6 modulation} |
| G11B 2020/1434 | {8 to 9 modulation} |
| G11B 2020/1438 | {8 to 10 modulation} |
| G11B 2020/1442 | {8 to 12 modulation} |

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| | G11B 2020/1446 | {16 to 17 modulation} |
| | G11B 2020/1449 | {24 to 25 modulation} |
| | G11B 2020/1453 | {17PP modulation, i.e. the parity preserving RLL(1,7) code with rate 2/3 used on Blu-Ray discs} |
| | G11B 2020/1457 | {wherein DC control is performed by calculating a digital sum value [DSV]} |
| | G11B 2020/1461 | {8 to 14 modulation, e.g. the EFM code used on CDs or mini-discs} |
| | G11B 2020/1465 | {8 to 16 modulation, e.g. the EFM+ code used on DVDs} |
| | G11B 2020/1469 | {modulation code with one or more merging bits between consecutive codewords} |
| | G11B 2020/1473 | {modulation code without any merging bits} |
| | G11B 2020/1476 | {Synchronisation patterns; Coping with defects thereof} |
| | G11B 2020/148 | {using error detecting or error correcting codes} |
| | G11B 2020/1484 | {Codewords used in servo patterns} |
| U | G11B 20/18 | . . Error detection or correction; Testing, {e.g. of drop-outs} |
| U | G11B 20/1816 | . . . {Testing} |
| | G11B 2020/1823 | {wherein a flag is set when errors are detected or qualified} |
| | G11B 2020/1826 | {wherein a defect list or error map is generated} |
| | G11B 2020/183 | {wherein at least one additional attempt is made to read or write the data when a first attempt is unsuccessful} |
| U | G11B 20/1833 | . . . {by adding special lists or symbols to the coded information(G11B 20/1806 , G11B 20/1866 take precedence)} |
| | G11B 2020/1836 | {using a Reed Solomon [RS] code} |
| | G11B 2020/184 | {using a cross-interleaved Reed Solomon [CIRC]} |
| | G11B 2020/1843 | {using a cyclic redundancy check [CRC]} |
| | G11B 2020/1846 | {using a picket code, i.e. a code in which a long distance code [LDC] is arranged as an array and columns containing burst indicator subcode [BIS] are multiplexed for erasure decoding} |
| | G11B 2020/185 | {using an low density parity check [LDPC] code} |
| | G11B 2020/1853 | {using a product code which has inner and outer parity symbols} |
| | G11B 2020/1856 | {using a turbo code} |
| | G11B 2020/1859 | {wherein a trellis is used for decoding the error correcting code} |
| | G11B 2020/1863 | {wherein the Viterbi algorithm is used for decoding the error correcting code} |
| | G11B 2020/1869 | {Preventing ageing phenomena from causing data loss, e.g. by monitoring the age of record carriers or by recognising wear, and by copying information elsewhere when a record carrier becomes unreliable} |
| | G11B 2020/1873 | {Temporary defect structures for write-once discs, e.g. TDDS, TDMA or TDFL} |
| U | G11B 20/1883 | . . . {Methods for assignment of alternate areas for defective areas} |
| | G11B 2020/1893 | {using linear replacement to relocate data from a defective block to a non-contiguous spare area, e.g. with a secondary defect list [SDL]} |
| | G11B 2020/1896 | {using skip or slip replacement to relocate data from a defective block to the next usable block, e.g. with a primary defect list [PDL]} |
| U | G11B 21/00 | Head arrangements not specific to the method of recording or reproducing |
| U | G11B 21/02 | . Driving or moving of heads |

- G11B 21/03
 - for correcting time base error{during transducing operation, by driving or moving the head in a direction more or less parallel to the direction of travel of the recording medium, e.g. tangential direction on a rotating disc(by driving or moving the head in a direction which cuts across the direction of travel of the recording medium [G11B 15/1808](#) , [G11B 15/467](#) , ~~G11B19/20B2~~-)}
- G11B 21/04
 - Automatic feed mechanism producing a{progressive}transducing traverse of the head in a direction which cuts across the direction of travel of the recording medium, e.g. helical scan,{e.g. by lead-screw(~~G11B19/20B~~ [G11B 19/20](#) , [G11B 21/08](#) and [G11B 21/10](#) take precedence)}

Project: N/A (G11C)**U G11C 13/00**

Digital stores characterised by the use of storage elements not covered by groups [G11C 11/00](#) , [G11C 23/00](#) to [G11C 25/00](#)

- U G11C 13/0002
 - {using resistance random access memory [RRAM]elements}
- U G11C 13/0021
 - {Auxiliary circuits}
- U G11C 13/004
 - • {Reading or sensing circuits or methods}
- G11C 2013/0042
 - • • {Read using differential sensing, e.g. bit line (BL) and bit line bar (BLB)}
- G11C 2013/0045
 - • • {Read using current through the cell}
- G11C 2013/0047
 - • • {Read destroying or disturbing the data}
- G11C 2013/005
 - • • {Read using potential difference applied between cell electrodes}
- G11C 2013/0052
 - • • {Read process characterized by the shape, e.g. form, length, amplitude of the read pulse}
- G11C 2013/0054
 - • • {Read is performed on a reference element, e.g. cell, and the reference sensed value is used to compare the sensed value of the selected cell}
- G11C 2013/0057
 - • • {Read done in two steps, e.g. wherein the cell is read twice and one of the two read values serving as a reference value}
- U G11C 13/0064
 - • {Verifying circuits or methods}
- G11C 2013/0066
 - • • {Verify correct writing whilst writing is in progress, e.g. by detecting onset or cessation of current flow in cell and using the detector output to terminate writing}
- U G11C 13/0069
 - • {Writing or programming circuits or methods}
- G11C 2013/0071
 - • • {Write using write potential applied to access device gate}
- G11C 2013/0073
 - • • {Write using bi-directional cell biasing}
- G11C 2013/0076
 - • • {Write operation performed depending on read result}
- G11C 2013/0078
 - • • {Write using current through the cell}
- G11C 2013/008
 - • • {Write by generating heat in the surroundings of the memory material, e.g. thermowrite}
- G11C 2013/0083
 - • • {Write to perform initialising, forming process, electro forming or conditioning}
- G11C 2013/0085
 - • • {Write a page or sector of information simultaneously, e.g. a complete row or word line}
- G11C 2013/0088
 - • • {Write with the simultaneous writing of a plurality of cells}
- G11C 2013/009
 - • • {Write using potential difference applied between cell electrodes}
- G11C 2013/0092
 - • • {Write characterized by the shape, e.g. form, length, amplitude of the write pulse}
- G11C 2013/0095
 - • • {Write using strain induced by, e.g. piezoelectric, thermal effects}

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| | <p>Digital stores in which the information is moved stepwise, e.g. shift register(counting chains H03K 23/00){stack stores, push-down stores(linear pulse counters H03K23/02H03K 23/54 , pulse distributors H03K 5/15 , methods and arrangements for shifting data G06F 5/01)}</p> |
| U G11C 29/00 | <p>Checking stores for correct operation;{Subsequent repair}; Testing stores during standby or offline operation{(testing of electronic circuits in general G01R 31/28 ; error detection or error correction in computer memories during normal operation G06F 11/1008 , G06F 11/1666 ; testing of computers during standby G06F 11/22)}</p> <p><u>WARNING</u></p> <p>Groups G11C 29/70 to G11C 29/886 do not correspond to former or current IPC groups.</p> <p>Concordance CPC : IPC for these groups is the following: - G11C 29/70 - G11C 29/886 : G11C 29/00</p> |
| U G11C 29/04 | <ul style="list-style-type: none"> • Detection or location of defective memory elements,{e.g. cell construction details, timing of test signals} |
| G11C 29/0401 | <ul style="list-style-type: none"> • • {in embedded memories} |
| G11C 29/0403 | <ul style="list-style-type: none"> • • {during or with feedback to manufacture} |
| G11C 29/0405 | <ul style="list-style-type: none"> • • {comprising complete test loop} |
| G11C 29/0407 | <ul style="list-style-type: none"> • • {on power on} |
| G11C 29/0409 | <ul style="list-style-type: none"> • • {Online test} |
| G11C 29/0411 | <ul style="list-style-type: none"> • • {Online error correction} |
| U G11C 29/08 | <ul style="list-style-type: none"> • • Functional testing, e.g. testing during refresh, power-on self testing (POST) or distributed testing |
| U G11C 29/12 | <ul style="list-style-type: none"> • • • Built-in arrangements for testing, e.g. built-in self testing (BIST){or interconnection details} |
| G11C 29/1202 | <ul style="list-style-type: none"> • • • • {Word line control} |
| G11C 29/1204 | <ul style="list-style-type: none"> • • • • {Bit line control} |
| G11C 29/1206 | <ul style="list-style-type: none"> • • • • {Location of test circuitry on chip or wafer} |
| G11C 29/1208 | <ul style="list-style-type: none"> • • • • {Error catch memory} |
| U G11C 29/18 | <ul style="list-style-type: none"> • • • • Address generation devices; Devices for accessing memories, e.g. details of addressing circuits |
| G11C 29/1802 | <ul style="list-style-type: none"> • • • • • {Address decoder} |
| G11C 29/1804 | <ul style="list-style-type: none"> • • • • • {Manipulation of word size} |
| G11C 29/1806 | <ul style="list-style-type: none"> • • • • • {Address conversion or mapping, i.e. logical to physical address} |
| U G11C 29/26 | <ul style="list-style-type: none"> • • • • • Accessing multiple arrays(G11C 29/24 takes precedence) |
| G11C 29/2602 | <ul style="list-style-type: none"> • • • • • • {Concurrent test} |
| U G11C 29/30 | <ul style="list-style-type: none"> • • • • • Accessing single arrays |
| G11C 29/3202 | <ul style="list-style-type: none"> • • • • • • {Scan chain} |
| U G11C 29/36 | <ul style="list-style-type: none"> • • • • • Data generation devices, e.g. data inverters |
| G11C 29/3602 | <ul style="list-style-type: none"> • • • • • • {Pattern generator} |
| U G11C 29/38 | <ul style="list-style-type: none"> • • • • • Response verification devices |
| U G11C 29/40 | <ul style="list-style-type: none"> • • • • • using compression techniques |
| G11C 29/4002 | <ul style="list-style-type: none"> • • • • • • {Comparison of products, i.e. test results of chips or with golden chip} |
| G11C 29/4402 | <ul style="list-style-type: none"> • • • • • {Internal storage of test result, quality data, chip identification, repair information} |
| U G11C 29/50 | <ul style="list-style-type: none"> • • Marginal testing, e.g. race, voltage or current testing |

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| G11C 2029/5002 | • • • Characteristic {Characteristic} |
| G11C 2029/5004 | • • • Voltage {Voltage} |
| G11C 2029/5006 | • • • Current {Current} |
| U G11C 29/56 | • External testing equipment for static stores, e.g. automatic test equipment (ATE); Interfaces therefor |
| G11C 2029/5602 | • • {Interface to device under test} |
| G11C 2029/5604 | • • {Display of error information} |
| G11C 2029/5606 | • • {Error catch memory} |

Project: N/A (G12B)**G12B****CONSTRUCTIONAL DETAILS OF INSTRUMENTS, OR COMPARABLE DETAILS OF OTHER APPARATUS, NOT OTHERWISE PROVIDED FOR****NOTES**

This subclass covers only details which are not restricted to measuring instruments or to any other apparatus covered by a single class.

This subclass does not cover:

- details covered by any other subclass in section A, F, G or H. In particular, details restricted to the measuring instruments are covered by the relevant subclasses of class [G01](#), e.g. [G01D](#);
- constructional details restricted to electric apparatus, e.g. casings, screenings, which are covered by subclass [H05K](#) or the relevant subclass in section H.

Attention is drawn to the Notes following the title of section G, especially as regards to the definition of the term "measuring" in Note (2) following the title of class [G01](#).

Project: N/A (G21C)

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| U G21C 1/00 | Reactors |
| U G21C 1/04 | • Thermal reactors; { Epithermal reactors} |
| U G21C 1/06 | • • Heterogeneous reactors, i.e. in which fuel and moderator are separated |
| U G21C 1/08 | • • • moderator being highly pressurised, e.g. boiling water reactor, integral super-heat reactor, pressurised water reactor (G21C 1/22 takes precedence) |
| G21C 2001/088 | • • • • {Inherently safe boiling water reactors} |
| U G21C 3/00 | Reactor fuel elements and their assemblies; Selection of substances for use as reactor fuel elements |
| U G21C 3/02 | • Fuel elements {(manufacture thereof G21C 21/02)} |
| U G21C 3/04 | • • Constructional details |
| G21C 2003/045 | • • • Pellets {Pellets} |
| G21C 2003/047 | • • • • {Pellet-clad interaction } |
| G21C 2003/048 | • • • • {Shape of pellets } |
| U G21C 3/30 | • Assemblies of a number of fuel elements in the form of a rigid unit |
| U G21C 3/32 | • • Bundles of parallel pin-, rod-, or tube-shaped fuel elements |
| U G21C 3/322 | • • • Means to influence the coolant flow through or around the bundles |
| G21C 2003/3225 | • • • • {by waterrods} |
| U G21C 3/326 | • • • comprising fuel elements of different composition; comprising, in addition to the fuel elements, other pin-, rod-, or tube-shaped elements, e.g. control rods, grid support rods, fertile rods, poison rods or dummy rods |

- G21C 2003/3262 {Enrichment distribution in zones }
- G21C 2003/3265 {Radial distribution }
- G21C 2003/3267 {Axial distribution }
- U G21C 3/34 . . . Spacer grids
- G21C 2003/3432 {Grids designed to influence the coolant, i.e. coolant mixing function}
- U G21C 13/00 Pressure vessels; Containment vessels; Containment in general (for chemical or physical processes [B01J 3/00](#); pressure vessels in general [F16J 12/00](#))**
- U G21C 13/02 . Details
- U G21C 13/06 . . Sealing-plugs (for pressure vessels in general [F16J 13/00](#))
- G21C 2013/063 . . . {Seals for closures or for rotatable closures}
- U G21C 15/00 Cooling arrangements within the pressure vessel containing the core; Selection of specific coolants**
- U G21C 15/18 . Emergency cooling arrangements; Removing shut-down heat
- U G21C 15/182 . . {comprising powered means, e.g. pumps}
- G21C 2015/185 . . . {using energy stored in reactor system}
- G21C 2015/187 . . . {using energy from the electric grid}

Project: N/A (G21D)

- U G21D 3/00 Control of nuclear power plant (control of nuclear reaction in general [G21C 7/00](#))**
- U G21D 3/001 . { Computer implemented control}
- G21D 2003/002 . . {Core design; Core simulations }
- G21D 2003/004 . . {Fuel shuffle simulations }
- G21D 2003/005 . . {Thermo-hydraulic simulations }
- G21D 2003/007 . {Expert systems}

Project: N/A (G21F)

- G21F PROTECTION AGAINST X-RADIATION, GAMMA RADIATION, CORPUSCULAR RADIATION OR PARTICLE BOMBARDMENT; TREATING RADIOACTIVELY CONTAMINATED MATERIAL; DECONTAMINATION ARRANGEMENTS THEREFOR (radiation protection by pharmaceutical means [A61K7/40](#) [A61K 8/00](#); in cosmonautic vehicles [B64G](#); combined with a reactor [G21C 11/00](#); combined with X-ray tubes [H01J 35/16](#); combined with X-ray apparatus [H05G 1/02](#))**
- U G21F 5/00 Transportable or portable shielded containers**
- U G21F 5/06 . Details of, or accessories to, the containers
- U G21F 5/12 . . Closures for containers; Sealing arrangements
- G21F 2005/125 . . . {Means to monitor or detect the leak-tightness of the closure}

Project: N/A (G21G)

- U G21G 1/00 Arrangements for converting chemical elements by electromagnetic radiation, corpuscular radiation or particle bombardment, e.g. producing radioactive isotopes (separation of different isotopes of the same element [B01D 59/00](#))**
- U G21G 1/001 . { Recovery of specific isotopes from irradiated targets}
- G21G 2001/0015 . . ~~Fluorine~~ {[Fluorine](#) }

| | |
|----------------|---|
| G21G 2001/0021 | • • Gallium-{Gallium } |
| G21G 2001/0026 | • • Arsenic-{Arsenic } |
| G21G 2001/0031 | • • Rubidium-{Rubidium } |
| G21G 2001/0036 | • • Molybdenum-{Molybdenum } |
| G21G 2001/0042 | • • Technetium-{Technetium } |
| G21G 2001/0047 | • • Rhodium-{Rhodium } |
| G21G 2001/0052 | • • Palladium-{Palladium } |
| G21G 2001/0057 | • • Indium-{Indium } |
| G21G 2001/0063 | • • Iodine-{Iodine } |
| G21G 2001/0068 | • • Cesium-{Cesium } |
| G21G 2001/0073 | • • Rhenium-{Rhenium } |
| G21G 2001/0078 | • • Thallium-{Thallium } |
| G21G 2001/0084 | • • Bismuth-{Bismuth } |
| G21G 2001/0089 | • • Actinium-{Actinium } |
| G21G 2001/0094 | • • {Other isotopes not provided for in the groups listed above } |

Project: N/A (G21H)**U G21H 5/00**

Applications of radiation from radioactive sources or arrangements therefor (producing mutation in plants [A01H 1/06](#); preservation of dairy products [A23C](#); preservation of foodstuffs [A23L 3/26](#); for therapeutic purposes [A61N 5/10](#); in chemical, physical or physicochemical processes in general [B01J 19/08](#); in electrostatic separation [B03C 3/38](#); for after-treatment of coatings applied as liquids or other fluent materials [B05D 3/06](#); for action between electric vehicles and tracked apparatus [B61L 1/10](#), [B61L 3/06](#); introducing isotopes into organic compounds [C07B 59/00](#); for preparation of organic chemical compounds [C07](#), [C08](#), e.g. [C08F 2/46](#); for treating macromolecular substances or articles made therefrom [B29C 71/04](#), [C08J 3/28](#), [C08J 7/18](#); for cracking of hydrocarbon oils [C10G 15/00](#), [C10G 32/04](#); for reforming naphtha [C10G 35/16](#); preservation or ageing of products obtained from fermentation processes [C12H 1/06](#), [C12H 1/16](#); for bleaching fibres [D06L 3/04](#); measuring [G01](#); irradiation devices, gamma- or X-ray microscopes [G21K](#); in discharge tubes [H01J](#); apparatus for generating ions to be introduced into non-enclosed gases, e.g. into the atmosphere, [H01T 23/00](#); for carrying-off electrostatic charges [H05F 3/06](#))

| | |
|-----------|---|
| G21H 5/02 | • as tracers {(medicinal preparations containing radioactive substances A61K43/00 A61K 51/00 ; investigating or analysing biological material G01N 33/48)} |
|-----------|---|

Project: N/A (G21K)**U G21K 4/00**

Conversion screens for the conversion of the spatial distribution of X-rays or particle radiation into visible images, e.g. fluoroscopic screens(photographic processes using X-ray intensifiers [G03C 5/17](#) ; discharge tubes comprising luminescent screens [H01J 1/62](#) ; cathode ray tubes for X-ray conversion with optical output [H01J 31/50](#))

| | |
|--------------|---|
| G21K 2004/02 | • {characterised by the external panel structure} |
| G21K 2004/04 | • {with an intermediate layer} |
| G21K 2004/06 | • {with a phosphor layer} |
| G21K 2004/08 | • {with a binder in the phosphor layer} |
| G21K 2004/10 | • {with a protective film} |
| G21K 2004/12 | • {with a support} |

Project: N/A (H01C)**U H01C 10/00****Adjustable resistors**

U H01C 10/10
H01C 10/106

- adjustable by mechanical pressure of force
- • {on resistive material dispersed in an elastic material ([H01C 10/103](#) and [H01C 10/12](#) take precedence; for electric switches [H01H1/02B](#) [H01H 1/029](#))}

Project: N/A (H01F)**U H01F 1/00****Magnets or magnetic bodies characterised by the magnetic materials therefor; Selection of materials for their magnetic properties**

H01F 1/0009

- {Antiferromagnetic materials, i.e. materials exhibiting a Néel transition temperature([H01F 1/0036](#) takes precedence)}

WARNING

This groups is not complete pending the completion of reclassification; see provisionally also [H01F 1/00](#) - [H01F 1/44](#) [RH01F1/44R](#)

U H01F 1/01

- of inorganic materials([H01F 1/44](#) takes precedence)

U H01F 1/03

- • characterised by their coercivity{([H01F 1/40](#) takes precedence)}

U H01F 1/032

- • • of hard-magnetic materials

U H01F 1/04

- • • • Metals or alloys

U H01F 1/06

- • • • • in the form of particles, e.g. powder([H01F 1/047](#) takes precedence; { record carriers [G11B 5/70605](#) })

H01F 1/068

- • • • • {having a L10 crystallographic structure, e.g. [Co,Fe][Pt,Pd] (nano)particles}

WARNING

This groups is not complete pending the completion of reclassification; see provisionally also [H01F 1/06](#) - [H01F 1/06](#) [EH01F1/06E](#)

U H01F 3/00**Cores, Yokes, or armatures(magnetic materials [H01F 1/00](#) ; permanent magnets [H01F 7/02](#))**

H01F 2003/005

- {Magnetic cores for receiving several windings with perpendicular axes, e.g. for antennae or inductive power transfer}

U H01F 3/10

- Composite arrangements of magnetic circuits

H01F 2003/103

- • {Magnetic circuits with permanent magnets}

H01F 2003/106

- • {Magnetic circuits using combinations of different magnetic materials}

U H01F 5/00**Coils(superconducting coils [H01F 6/06](#) ; fixed inductances of the signal type [H01F 17/00](#))**

H01F 2005/006

- {with conical spiral form}

U H01F 5/02

- wound on non-magnetic supports, e.g. formers

H01F 2005/022

- • {wound on formers with several winding chambers separated by flanges, e.g. for high voltage applications}

H01F 2005/025

- • {wound on coaxial arrangement of two or more formers}

H01F 2005/027

- • {wound on formers for receiving several coils with perpendicular winding axes, e.g. for antennae or inductive power transfer}

U H01F 5/04

- Arrangements of electric connections to coils, e.g. leads

H01F 2005/043

- • {having multiple pin terminals, e.g. arranged in two parallel lines at both sides of the coil}

H01F 2005/046

- • {Details of formers and pin terminals related to mounting on printed circuits}

- U H01F 6/00** Superconducting magnets; Superconducting coils{(magnetic resonance assemblies using superconducting coil systems [G01R 33/3815](#))}
- H01F 2006/001 - {Constructive details of inductive current limiters}
- U H01F 7/00** Magnets(superconducting magnets [H01F 6/00](#) ; for separation of solid materials or fluids [B03C 1/00](#) ; for bench or like work-holders [B23B 31/28](#) , [B23Q 3/00](#) ; work-holding devices [B25B 11/00](#) ; lifting magnets [B66C 1/00](#) ; { operating or controlling locks using permanent magnets [E05B 47/0038](#) ; devices for holding a wing, e.g. door or window, by magnetic or electromagnetic attraction [E05C 19/16](#) ; relieving load or bearings using magnetic means [F16C 39/06](#) } ; for electric meters [G01R](#) ; for relays [H01H](#) ; { for electric discharge tubes [H01J](#) , e.g. [H01J 3/24](#) , [H01J 23/10](#) , [H01J 29/68](#) } ; for dynamo-electric machines [H02K](#))
- U H01F 7/06** - Electromagnets; Actuators including electromagnets{(electric coils [H01F 5/00](#) ; devices for holding workpieces using electric force [B23Q 3/15](#) ; load-engaging elements for lifting articles electromagnetically [B66C 1/06](#) ; electromagnetic couplings [F16D 27/00](#) ; magnetic brakes [F16D 63/002](#) ; electromagnetically operated valves [F16K 11/24](#) , [F16K 31/00](#) ; magnetically locked mine lamps [F21L 11/00](#) ; analysing materials by magnetic means [G01N 27/72](#) , [G01N 27/80](#) to [G01N 27/88](#) ; electromagnets for winding mechanical clocks [G04C 1/02](#) ; electromagnetic relays [H01H 51/00](#) ; windings for salient poles of dynamo-electric machines [H02K 3/18](#) ; electromagnets for telegraphic communication [H04L](#) ; for arc lamps [H05B 31/28](#))}
- H01F 2007/062 - {Details of terminals or connectors for electromagnets}
- H01F 2007/068 - {using printed circuit coils}
- U H01F 7/08** - {with armatures}
- U H01F 7/081** - {Magnetic constructions}
- H01F 2007/083 - {External yoke surrounding the coil bobbin, e.g. made of bent magnetic sheet}
- H01F 2007/085 - {Yoke or polar piece between coil bobbin and armature having a gap, e.g. filled with nonmagnetic material}
- H01F 2007/086 - {Structural details of the armature}
- U H01F 7/16** - Rectilinearly-movable armatures([H01F 7/17](#) takes precedence)
- U H01F 7/1607** - {Armatures entering the winding}
- H01F 2007/163 - {with axial bearing}
- H01F 2007/1661 - {Electromagnets or actuators with anti-stick disc}
- H01F 2007/1669 - {Armatures actuated by current pulse, e.g. bistable actuators}
- H01F 2007/1676 - {Means for avoiding or reducing eddy currents in the magnetic circuit, e.g. radial slots}
- H01F 2007/1684 - {Armature position measurement using coils}
- H01F 2007/1692 - {Electromagnets or actuators with two coils}
- U H01F 7/18** - Circuit arrangements for obtaining desired operating characteristics, e.g. for slow operation, for sequential energisation of windings, for high-speed energisation of windings
- U H01F 7/1805** - {Circuit arrangements for holding the operation of electromagnets or for holding the armature in attracted position with reduced energising current(for holding relay armature in attracted position with reduced energising current [H01H 47/04](#) ; quick energising of electro-dynamic machines [H02P 9/08](#) ; for quickly de-energising of dynamo-electric generators [H02P 9/123](#))}
- U H01F 7/1816** - {making use of an energy accumulator(for relays [H01H 47/043](#))}
- H01F 2007/1822 - {using a capacitor to produce a boost voltage}

- U H01F 7/1844
 - • • {Monitoring or fail-safe circuits(for relays [H01H 47/002](#))}
- H01F 2007/185
 - • • • {with armature position measurement}
- H01F 2007/1855
 - • • • {using a stored table to deduce one variable from another}
- H01F 2007/1861
 - • • • {using derivative of measured variable}
- H01F 2007/1866
 - • • • {with regulation loop}
- H01F 2007/1888
 - • • {using pulse width modulation}
- H01F 2007/1894
 - • • {minimizing impact energy on closure of magnetic circuit}
- U H01F 7/20
 - • without armatures(cores [H01F 3/00](#) ; coils [H01F 5/00](#) ; { shaping metal by applying magnetic forces [B21D 26/14](#) ; analysing methods using magnetic fields [G01N 24/06](#) ; electromagnets specially adapted for NMR applications [G01R 33/381](#))}
- H01F 7/206
 - • {Electromagnets for lifting, handling or transporting of magnetic pieces or material(~~electromagnets for guidance of vehicles, workpieces [B61B 31/08](#) ; [B65G 21/2009](#) ;~~ *electromagnets for guidance of vehicles, workpieces [B65G 21/2009](#)* ; for magnetic suspension or levitation [H02N 15/00](#))}
- H01F 2007/208
 - • • {combined with permanent magnets}
- U H01F 17/00**

Fixed inductances of the signal type(coils in general [H01F 5/00](#) { inductors without a potential-jump or surface barrier specially adapted for integrated circuits, details thereof and multistep manufacturing processes therefor [H01L 28/10](#))}
- U H01F 17/0006
 - {Printed inductances(printed coils for dynamo-electric machines [H02K 3/26](#) ; printed circuits [H05K](#))}
- U H01F 17/0013
 - • {with stacked layers([H01F 27/2804](#) takes precedence)}
- H01F 2017/002
 - • • {Details of via holes for interconnecting the layers}
- H01F 2017/0026
 - • • {Multilayer LC-filter}
- H01F 2017/004
 - • {with the coil helically wound around an axis without a core}
- H01F 2017/0046
 - • {with a conductive path having a bridge}
- H01F 2017/0053
 - • {with means to reduce eddy currents}
- H01F 2017/006
 - • {flexible printed inductors}
- H01F 2017/0066
 - • {with a magnetic layer}
- H01F 2017/0073
 - • {with a special conductive pattern, e.g. flat spiral}
- H01F 2017/008
 - • {Electric or magnetic shielding of printed inductances}
- H01F 2017/0086
 - • {on semiconductor substrate(inductors for integrated circuits [H01L 28/10](#))}
- H01F 2017/0093
 - {Common mode choke coil}
- U H01F 17/04
 - with magnetic core
- U H01F 17/045
 - • {with core of cylindric geometry and coil wound along its longitudinal axis, i.e. rod or drum core}
- H01F 2017/046
 - • • {helical coil made of flat wire, e.g. with smaller extension of wire cross section in the direction of the longitudinal axis}
- H01F 2017/048
 - • {with encapsulating core, e.g. made of resin and magnetic powder}
- U H01F 17/06
 - • with core substantially closed in itself, e.g. toroid
- H01F 2017/065
 - • • {Core mounted around conductor to absorb noise, e.g. EMI filter}
- H01F 2017/067
 - • • {Core with two or more holes to lead through conductor}
- U H01F 19/00**

Fixed transformers or mutual inductances of the signal type([H01F 36/00](#) takes precedence)
- U H01F 19/04
 - Transformers or mutual inductances suitable for handling frequencies considerably beyond the audio range(resonant circuits [H03H](#))

- U H01F 19/08
 - • Transformers having magnetic bias, e.g. for handling pulses
 - • • {Transformer for galvanic isolation}
- U H01F 21/00
 - • Variable inductances or transformers of the signal type([H01F 36/00](#) takes precedence)
- U H01F 21/12
 - discontinuously variable, e.g. tapped
 - • {Printed variable inductor with taps, e.g. for VCO}
- U H01F 27/00
 - • Details of transformers or inductances, in general
- U H01F 27/06
 - Mounting, supporting or suspending transformers, reactors or choke coils(not being of the signal type)
 - • {Mounting on printed circuit boards}
- U H01F 27/28
 - Coils; Windings; Conductive connections
- U H01F 27/2804
 - • {Printed windings}
 - • • {on stacked layers}
 - • • {with only part of the coil or of the winding in the printed circuit board, e.g. the remaining coil or winding sections can be made of wires or sheets}
 - • • {Planar transformers with printed windings, e.g. surrounded by two cores and to be mounted on printed circuit}
- U H01F 27/2823
 - • {Wires([H01F 27/2866](#) takes precedence)}
 - • • {using coaxial cable as wire}
 - • • {using transposed wires}
 - • • {Wire coils wound in conical zigzag to reduce voltage between winding turns}
- U H01F 27/2833
 - • • {using coaxial cable as wire}
- U H01F 27/2838
 - • • {using transposed wires}
- U H01F 27/2842
 - • • {Wire coils wound in conical zigzag to reduce voltage between winding turns}
- U H01F 27/2847
 - • {Sheets; Strips([H01F 27/2866](#) takes precedence)}
 - • • {Coil formed from wound foil conductor}
 - • • {Coil formed by folding a blank}
- U H01F 27/2857
 - • • {Coil formed by folding a blank}
- U H01F 27/2861
 - • • {Coil formed by folding a blank}
- U H01F 27/29
 - • Terminals; Tapping arrangements{for signal inductances}
- U H01F 27/292
 - • • {Surface mounted devices}
 - • • • {with flexible terminals}
 - • • {with pin-like terminal to be inserted in hole of printed path}
- U H01F 27/297
 - • • {with pin-like terminal to be inserted in hole of printed path}
- U H01F 27/32
 - • Insulating of coils, windings, or parts thereof
- U H01F 27/327
 - • • {Encapsulating or impregnating(encapsulating coil and core [H01F 27/022](#))}
 - • • • {Dry-type transformer with encapsulated foil winding, e.g. windings coaxially arranged on core legs with spacers for cooling and with three phases}
 - • • {Insulation with semiconducting layer, e.g. to reduce corona effect}
- U H01F 27/329
 - • • {Insulation with semiconducting layer, e.g. to reduce corona effect}
- U H01F 27/34
 - Special means for preventing or reducing unwanted electric or magnetic effects, e.g. no-load losses, reactive currents, harmonics, oscillations, leakage fields
 - • {Preventing eddy currents}
- U H01F 27/348
 - • {Preventing eddy currents}
- U H01F 27/40
 - Structural association with built-in electric component, e.g. fuse
- U H01F 27/402
 - • {Association of measuring or protective means}
 - • • {Protective devices specially adapted for fluid filled transformers}
 - • • {Temperature sensor or protection}
 - • {Association with diode or rectifier}
- U H01F 27/404
 - • • {Protective devices specially adapted for fluid filled transformers}
- U H01F 27/406
 - • • {Temperature sensor or protection}
- U H01F 27/408
 - • {Association with diode or rectifier}
- U H01F 29/00
 - • Variable transformers or inductances not covered by group [H01F 21/00](#) {{ tap change devices [H01H 9/0005](#) }}

- U H01F 29/14
 - with variable magnetic bias({ amplitude modulation by means of variable impedance element [H03C 1/08](#) } ; magnetic amplifiers [H03F](#) ; { circuits for automatic telephonic communication [H04M 3/00](#) })
- H01F 2029/143
 - • {with control winding for generating magnetic bias}
- U H01F 38/00 Adaptations of transformers or inductances for specific applications or functions**
- H01F 2038/003
 - {High frequency transformer for microwave oven}
- H01F 2038/006
 - {matrix transformer consisting of several interconnected individual transformers working as a whole}
- U H01F 38/02
 - for non-linear operation
- U H01F 38/023
 - • {of inductances}
- H01F 2038/026
 - • • {non-linear inductive arrangements for converters, e.g. with additional windings}
- U H01F 38/12
 - Ignition, e.g. for IC engines
- H01F 2038/122
 - • {with rod-shaped core}
- H01F 2038/125
 - • {with oil insulation}
- H01F 2038/127
 - • {with magnetic circuit including permanent magnet}
- U H01F 38/14
 - Inductive couplings({ for charging batteries from ac mains by converters [H02J 7/025](#) })
- H01F 2038/143
 - • {for signals}
- H01F 2038/146
 - • {in combination with capacitive coupling}
- U H01F 38/20
 - Instruments transformers
- U H01F 38/22
 - • for single phase ac
- U H01F 38/28
 - • • Current transformers
- U H01F 38/30
 - • • • Constructions
- H01F 2038/305
 - • • • • {with toroidal magnetic core}
- U H01F 38/42
 - Flyback transformers
- H01F 2038/423
 - • {with adjusting potentiometers}
- H01F 2038/426
 - • {with gap in transformer core}
- U H01F 41/00 Apparatus or processes specially adapted for manufacturing or assembling the devices covered by this subclass**
- U H01F 41/02
 - for manufacturing cores, coils, or magnets([H01F 41/14](#) takes precedence; for dynamo-electric machines [H02K 15/00](#))
- U H01F 41/04
 - • for manufacturing coils({ coils for transformer or inductances [H01F 27/28](#) })
- U H01F 41/06
 - • • Winding
- U H01F 41/065
 - • • • {Winding coils of special form}
- H01F 2041/0662
 - • • • • {Winding saddle or deflection coils}

Project: N/A (H01G)

- U H01G 4/00 Fixed capacitors; Processes of their manufacture (electrolytic capacitors [H01G 9/00](#))**
- U H01G 4/002
 - Details
- U H01G 4/018
 - • Dielectrics
- U H01G 4/06
 - • • Solid dielectrics
- D H01G 2004/24
 - • • • {D0608}

- U H01G 5/00** Capacitors in which the capacitance is varied by mechanical means, e.g. by turning a shaft; Processes of their manufacture
- H01G 2005/02 · {IPC5 having air, gas, or vacuum as the dielectric }
- U H01G 9/00** Electrolytic capacitors, rectifiers, detectors, switching devices, light-sensitive or temperature-sensitive devices; Processes of their manufacture
- H01G 2009/0007 · {Double layer capacitors}
- H01G 2009/001 · {Temperature sensitive devices}
- H01G 2009/0014 · {Solid electrolytic capacitors}
- H01G 2009/0018 · · {with wound foil electrodes}
- H01G 2009/0021 · · {Skin fibre}
- H01G 2009/0025 · {Liquid electrolytic capacitors}
- U H01G 9/004** · Details
- U H01G 9/04** · · Electrodes { or formation of dielectric layers thereon}
- H01G 2009/0404 · · · {characterised by the material (alloys in general see [C22C](#))}
- H01G 2009/0408 · · · · {on Al basis}
- H01G 2009/0412 · · · {characterised by the structure}
- H01G 2009/0416 · · · · {Etched foil electrodes (etching of metal in general [C23F](#); electro-etching of metal in general [C25F](#))}
- U H01G 9/048** · · · characterised by their structure ([H01G 11/22](#) takes precedence)
- H01G 2009/05 · · · · {IPC5 consisting of tantalum, niobium, or sintered material; Combinations of such electrodes with solid semiconductive electrolytes, e.g. manganese dioxide not used, see subgroups and **H01G9/00F**, **H01G9/04B**}
- D H01G 2009/0503** · · · · characterised by the material
- D H01G 2009/0506** · · · · · specially adapted for cathode
- D H01G 2009/0509** · · · · characterised by the structure
- D H01G 2009/0513** · · · · · sintered
- D H01G 2009/0516** · · · · · Powder therefor (metallic powder in general [B22F](#))

H01G 11/00 Hybrid capacitors, i.e. capacitors having different positive and negative electrodes; Electric double-layer [EDL] capacitors [EDLCs]; Processes specially adapted for the manufacture thereof or of parts thereof

NOTE

Group [H01G 11/02](#) takes precedence over groups [H01G 11/04](#) - [H01G 11/14](#)

WARNING

Groups [H01G 11/00](#) to ~~11/86~~[H01G 11/86](#) correspond to IPC 2013.01.

Concordance CPC - IPC 2012.01 for these groups is as follows: - [H01G 11/00](#) : ~~H01G 9/155~~[H01G 9/155](#) - [H01G 11/02](#) : ~~H01G 9/28~~[H01G 9/28](#); - [H01G 11/04](#) - ~~11/20~~[H01G 11/20](#): [H01G 9/155](#); - [H01G 11/22](#) - ~~11/50~~[H01G 11/50](#): [H01G 9/058](#); - [H01G 11/52](#) : [H01G 9/155](#); - [H01G 11/54](#) - ~~11/64~~[H01G 11/64](#) : [H01G 9/038](#); - [H01G 11/66](#) - ~~11/76~~[H01G 11/76](#) : [H01G 9/016](#); - [H01G 11/78](#) - ~~11/84~~[H01G 11/84](#) : [H01G 9/155](#); - [H01G 11/86](#) : [H01G 9/058](#)

Project: N/A (H01H)

- U H01H 1/00** Contacts (liquid contacts [H01H 29/04](#))
- H01H 2001/0005 · {Redundant contact pairs in one switch for safety reasons }
- H01H 2001/001 · {providing easy replacement of contacts }
- U H01H 1/0015** · { Means for testing or for inspecting contacts, e.g. wear indicator (measuring circuits [G01R 31/3274](#))}

- H01H 2001/0021 . . {Camera or endoscope for monitoring contacts, their position or mechanism }
- H01H 2001/0026 . . {wherein one or both contacts contain embedded contact wear signal material e.g. radioactive material being released as soon as the contact wear reaches the embedded layer }
- H01H 2001/0031 . . {by analysing radiation emitted by arc or trace material }
- U H01H 1/0036 . { Switches making use of microelectromechanical systems (MEMS); (for electrostatic relays [H01H 59/0009](#), for electromagnetic relays [H01H 50/005](#); MEMS manufacturing processes [B81C](#)) }
- H01H 2001/0042 . . {Bistable switches, i.e. having two stable positions requiring only actuating energy for switching between them, e.g. with snap membrane or by permanent magnet }
- H01H 2001/0047 . . . {operable only by mechanical latching }
- H01H 2001/0052 . . {Special contact materials used for MEMS }
- H01H 2001/0057 . . . {the contact materials containing refractory materials, e.g. tungsten }
- H01H 2001/0063 . . {having electrostatic latches, i.e. the activated position is kept by electrostatic forces other than the activation force }
- H01H 2001/0068 . . {with multi dimensional movement, i.e. the movable actuator performing movements in at least two different directions }
- H01H 2001/0073 . . {Solutions for avoiding the use of expensive silicon technologies in micromechanical switches }
- H01H 2001/0078 . . {with parallel movement of the movable contact relative to the substrate }
- H01H 2001/0084 . . {with perpendicular movement of the movable contact relative to the substrate }
- H01H 2001/0089 . . {Providing protection of elements to be released by etching of sacrificial element; Avoiding stiction problems, e.g. of movable element to substrate }
- U H01H 1/02 . characterised by the material thereof {(containing gas-evolving material [H01H 33/765](#)) }
- U H01H 1/0203 . . {specially adapted for vacuum switches}
- H01H 2001/0205 . . . {Conditioning of the contact material through arcing during manufacturing, e.g. vacuum-depositing of layer on contact surface }
- H01H 2001/0208 . . {containing rhenium }
- U H01H 1/021 . . Composite materials

NOTE

In this group, the following expression is used with the meaning indicated :

"composite material" is a material made of two or more different materials, e.g. coated material, layered materials or carbon fibres in a copper base or matrix

Subject matter classifiable in more than one of the groups 1/023 to 1/029 should be classified in all relevant groups.

- U H01H 1/023 . . . having a noble metal as the basic material
- U H01H 1/0237 and containing oxides
- H01H 2001/02378 {containing iron-oxide as major component }
- U H01H 1/12 . characterised by the manner in which co-operating contacts engage
- H01H 2001/125 . . {whereby the contacts of the switch are formed by teeth of a zipper }
- U H01H 1/14 . . by abutting
- H01H 2001/145 . . . {by crossing each other, the cooperating contacts each having a contact making ridge perpendicular to each other }
- U H01H 1/20 . . . Bridging contacts {(for circuit breakers [H01H 73/045](#)) }

- U H01H 1/2025 . . . {comprising two-parallel bridges}
- H01H 2001/2033 {with a contact bridge on both opposite sides of a fixed contact pair, each contact bridge being moved to close or open the circuit }
- H01H 2001/2091 {having two pivotally and electrically connected halve bridges }
- U H01H 1/22 . . . with rigid pivoted member carrying the moving contact
- U H01H 1/221 {and a contact pressure spring acting between the pivoted member and a supporting member}
- H01H 2001/223 {using a torsion spring }
- U H01H 1/226 {having a plurality of parallel contact bars}
- H01H 2001/228 {with insulating spacers between the contact bars }
- U H01H 1/24 . . . with resilient mounting
- H01H 2001/247 {using an elastic hinge, the contact being composed of rigid parts connected by thinned flexible hinge parts }
- U H01H 1/26 with spring blade support
- H01H 2001/265 {having special features for supporting, locating or pre-stressing the contact blade springs }
- U H01H 1/36 . . . by sliding (by rolling or wrapping [H01H 1/16](#))
- U H01H 1/40 . . . Contact mounted so that its contact-making surface is flush with adjoining insulation
- H01H 1/403 {Contacts forming part of a printed circuit (multilayer keyboard switches ~~H01H13/70B~~ [H01H 13/702](#); thumbwheel switches [H01H 19/001](#); for rotary switches with axial contact pressure [H01H 19/585](#); printed contacts per se [H05K](#))}
- H01H 2001/406 {with holes or recesses between adjacent contacts, e.g. to collect abrasion powder }
- U H01H 1/42 . . . Knife-and-clip contacts
- H01H 2001/425 {with separate contact pressure spring confined between two contact knives and urging the knives onto a mating contact }
- U H01H 1/50 . Means for increasing contact pressure, preventing vibration of contacts, holding contacts together after engagement, or biasing contacts to the open position
- H01H 2001/506 . . {Fail safe contacts, i.e. the contacts being kept in a safe position, usually in an open circuit position, at end of life time of switch }
- H01H 2001/508 . . {with mechanical means to prevent return/reverse movement of movable contact once opening or closing cycle has started }
- U H01H 1/54 . . . by magnetic force {(combined with electrodynamic opening [H01H 77/101](#))}
- H01H 2001/545 . . . {having permanent magnets directly associated with the contacts }
- U H01H 1/58 . Electric connections to or between contacts; Terminals {(for high tension switches [H01H 33/025](#); for electromagnetic relays [H01H 50/14](#); for circuit breakers [H01H 71/08](#)); electric connections in general [H01R](#))}
- U H01H 1/5805 . . {Connections to printed circuits (for slide switches [H01H 15/005](#); for tumbler switches [H01H 23/006](#))}
- H01H 2001/5811 . . . {both fixed and movable contacts being formed by blank stamping and mounted or soldered on printed circuit board without any other housing elements }
- H01H 2001/5816 . . . {Connections to flexible or curved printed circuit boards }
- U H01H 1/5822 . . {Flexible connections between movable contact and terminal}
- H01H 2001/5827 . . . {Laminated connections, i.e. the flexible conductor is composed of a plurality of thin flexible conducting layers }

- U H01H 1/5833
 - {comprising an articulating, sliding or rolling contact between movable contact and terminal}
- H01H 2001/5838
 - • {using electrodynamic forces for enhancing the contact pressure between the sliding surfaces }
- U H01H 1/5855
 - {characterised by the use of a wire clamping screw or nut}
- H01H 2001/5861
 - • {Box connector with a collar or lug for clamping internal rail and external conductor together by a tightening screw }
- U H01H 1/5866
 - {characterised by the use of a plug and socket connector}
- H01H 2001/5872
 - • {including means for preventing incorrect coupling }
- H01H 2001/5877
 - • {with provisions for direct mounting on a battery pole }
- H01H 2001/5883
 - • {the extension of the contact being crimped around a wire }
- H01H 2001/5888
 - • {Terminals of surface mounted devices (SMD) }
- H01H 2001/5894
 - • {the extension of the contact being welded to a wire or a bus }
- U H01H 1/64
 - Protective enclosures, baffle plates, or screens for contacts (for arc-extinguishing [H01H 9/30](#); for mercury contacts [H01H 29/04](#))
- H01H 1/645
 - • {containing getter material (for explosion inhibiting in explosion-proofcases [H01H 9/046](#); ~~for vacuum switches H01H33/66E1~~; *for vacuum switches H02H33/6683*)}
- U H01H 3/00**
 - Mechanisms for operating contacts (snap-action arrangements [H01H 5/00](#); devices for introducing a predetermined time delay [H01H 7/00](#); {for tap changers [H01H 9/0027](#)}; thermal actuating or release means [H01H 37/02](#))**
- U H01H 3/001
 - {Means for preventing or breaking contact-welding}
- H01H 2003/002
 - • {with lockout, e.g. two contact pairs in series }
- H01H 2003/007
 - {the contacts being actuated by deformation of a flexible housing }
- H01H 2003/008
 - {with a haptic or a tactile feedback controlled by electrical means, e.g. a motor or magnetofriction }
- U H01H 3/02
 - Operating parts, i.e. for operating driving mechanism by a mechanical force external to the switch
- U H01H 3/022
 - • {Emergency operating parts, e.g. for stop-switch in dangerous conditions}
- H01H 2003/0233
 - • • {for alarm triggering, e.g. fire alarm, emergency off switches operated by breaking a glass }
- H01H 2003/024
 - • • {Resetting of bistable emergency operating part by pulling it }
- H01H 2003/0246
 - • • {Resetting of bistable emergency operating part by rotating itself or an accessory }
- H01H 2003/026
 - • {specially adapted to avoid injury to occupants of a car during an accident }
- H01H 2003/0266
 - • {Operating part bringable in an inoperative position by an electrical drive }
- H01H 2003/0273
 - • {Manually irreversibly actuated switch }
- H01H 2003/028
 - • {Rotating knob or lever or tumbler that can be turned or pushed by hand in only one direction, e.g. by making inaccessible one side of a tumbler }
- H01H 2003/0286
 - • {having a weak point breaking or uncoupling on abnormal external force }
- H01H 2003/0293
 - • {with an integrated touch switch }
- U H01H 3/08
 - Turn knobs
- H01H 2003/085
 - • • {Retractable turn knobs, e.g. flush mounted }
- U H01H 3/10
 - • • Means for securing to shaft of driving mechanism
- H01H 2003/105
 - • • {with compensation of misalignment in the link between the operating part, the driving mechanism and the switch, e.g. misalignment between two axis }
- U H01H 3/12
 - • Push-buttons

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| | H01H 2003/127 | <ul style="list-style-type: none"> • • • {Details of the key cap concerning the actuation by fingernails or having provision to allow usage with long fingernails } |
| U | H01H 3/14 | <ul style="list-style-type: none"> • • adapted for operation by a part of the human body other than the hand, e.g. by foot |
| U | H01H 3/141 | <ul style="list-style-type: none"> • • • {Cushion or mat switches} |
| U | H01H 3/142 | <ul style="list-style-type: none"> • • • • {of the elongated strip type} |
| | H01H 2003/143 | <ul style="list-style-type: none"> • • • • • {provisions for avoiding the contact actuation when the elongated strip is bended } |
| | H01H 2003/145 | <ul style="list-style-type: none"> • • • • {provisions for avoiding closure or contact damage during manufacturing or mounting } |
| | H01H 2003/146 | <ul style="list-style-type: none"> • • • • {being normally closed } |
| | H01H 2003/147 | <ul style="list-style-type: none"> • • • • {Special aspects regarding the peripheral edges of the mat switches } |
| | H01H 2003/148 | <ul style="list-style-type: none"> • • • • {the mat switch being composed by independently juxtaposed contact tiles, e.g. for obtaining a variable protected area } |
| U | H01H 3/16 | <ul style="list-style-type: none"> • • adapted for actuation at a limit or other predetermined position in the path of a body, the relative movement of switch and body being primarily for a purpose other than the actuation of the switch, e.g. for a door switch, a limit switch, a floor-levelling switch of a lift |
| U | H01H 3/161 | <ul style="list-style-type: none"> • • • {for actuation by moving a closing member, e.g. door, cover, lid (H01H 27/002 takes precedence; the switch controlling enclosed equipment H01H 9/226; safety arrangements on doors of dishwashers A47L 15/4236, of laundry washing machines D06F 37/42, of ovens F24C 14/00, F24C 15/022; locks with means for operating switches E05B 17/22; alarm locks E05B 45/06; safety edges for power-operated wings E05F 15/0004; safety devices in connection with the locking of doors, covers, guards, or like members giving access to movable machine parts F16P 3/08; of microwave ovens H05B 6/76)} |
| | H01H 2003/165 | <ul style="list-style-type: none"> • • • • {associated with an edge of the closing member} |
| U | H01H 3/166 | <ul style="list-style-type: none"> • • • {Self-adjusting mountings, transmissions and the like} |
| | H01H 2003/167 | <ul style="list-style-type: none"> • • • • {with locking of the adjusted parts in the adjusted position by a separate action } |
| U | H01H 3/22 | <ul style="list-style-type: none"> • Power arrangements internal to the switch for operating the driving mechanism |
| U | H01H 3/222 | <ul style="list-style-type: none"> • • {using electrodynamic repulsion} |
| | H01H 2003/225 | <ul style="list-style-type: none"> • • • {with coil contact, i.e. the movable contact itself forms a secondary coil in which the repulsing current is induced by an operating current in a stationary coil } |
| U | H01H 3/26 | <ul style="list-style-type: none"> • • using dynamo-electric motor (for storing energy in a spring motor H01H 3/30) |
| | H01H 2003/266 | <ul style="list-style-type: none"> • • • {having control circuits for motor operating switches, e.g. controlling the opening or closing speed of the contacts } |
| | H01H 2003/268 | <ul style="list-style-type: none"> • • • • {using a linear motor } |
| U | H01H 3/30 | <ul style="list-style-type: none"> • • using spring motor |
| U | H01H 3/3031 | <ul style="list-style-type: none"> • • • {Means for locking the spring in a charged state} |
| | H01H 2003/3036 | <ul style="list-style-type: none"> • • • • {using of balls or rollers in the locking device } |
| | H01H 2003/3057 | <ul style="list-style-type: none"> • • • {provisions for avoiding idling, e.g. preventing release of stored energy when a breaker is closed, or when the springs are not fully charged } |
| | H01H 2003/3063 | <ul style="list-style-type: none"> • • • {Decoupling charging handle or motor at end of charging cycle or during charged condition } |
| | H01H 2003/3068 | <ul style="list-style-type: none"> • • • {Housing support frame for energy accumulator and cooperating mechanism } |
| | H01H 2003/3073 | <ul style="list-style-type: none"> • • • {Indication of the charge on the spring motor } |

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| | H01H 2003/3078 | <ul style="list-style-type: none"> • • {using an inertia element, e.g. a flywheel, to control the energy released by the spring } |
| | H01H 2003/3084 | <ul style="list-style-type: none"> • • {Kinetic energy of moving parts recuperated by transformation into potential energy in closing or opening spring to be used in next operation } |
| | H01H 2003/3089 | <ul style="list-style-type: none"> • • {Devices for manual releasing of locked charged spring motor; Devices for remote releasing } |
| | H01H 2003/3094 | <ul style="list-style-type: none"> • • {allowing an opening - closing - opening (OCO) sequence } |
| U | H01H 3/32 | <ul style="list-style-type: none"> • Driving mechanisms, i.e. for transmitting driving force to the contacts (snap-action arrangements H01H 5/00; introducing a predetermined time delay H01H 7/00) |
| | H01H 2003/323 | <ul style="list-style-type: none"> • • {the mechanisms being adjustable } |
| | H01H 2003/326 | <ul style="list-style-type: none"> • • {using bearings } |
| U | H01H 3/40 | <ul style="list-style-type: none"> • • using friction, toothed, or screw-and-nut gearing |
| | H01H 2003/405 | <ul style="list-style-type: none"> • • {using a walking nut } |
| U | H01H 3/46 | <ul style="list-style-type: none"> • • using rod or lever linkage, e.g. toggle |
| | H01H 2003/463 | <ul style="list-style-type: none"> • • {using a blade spring lever for perpendicular force transmission } |
| | H01H 2003/466 | <ul style="list-style-type: none"> • • {using a living hinge to connect the levers } |
| U | H01H 3/50 | <ul style="list-style-type: none"> • • with indexing or locating means, e.g. indexing by ball and spring |
| | H01H 2003/506 | <ul style="list-style-type: none"> • • {making use of permanent magnets } |
| U | H01H 9/00 | Details of switching devices, not covered by groups H01H 1/00 to H01H 7/00 (casings for switchgear H02B 1/26; casings for electrical apparatus in general H05K 5/00) |
| U | H01H 9/0005 | <ul style="list-style-type: none"> • {Tap change devices} |
| U | H01H 9/0016 | <ul style="list-style-type: none"> • • {Contact arrangements for tap changers} |
| | H01H 2009/0022 | <ul style="list-style-type: none"> • • {Mounting of the fixed contacts or taps on cylindrical wall of oil vessel containing the tap changer; Details of screening } |
| U | H01H 9/0044 | <ul style="list-style-type: none"> • • {Casings; Mountings; Disposition in transformer housing} |
| | H01H 2009/005 | <ul style="list-style-type: none"> • • {Details concerning the sealing of the oil filled casings } |
| | H01H 2009/0055 | <ul style="list-style-type: none"> • • {Oil filters for tap change devices } |
| | H01H 2009/0061 | <ul style="list-style-type: none"> • • {Monitoring tap change switching devices } |
| | H01H 2009/0077 | <ul style="list-style-type: none"> • {using recyclable materials, e.g. for easier recycling or minimising the packing material } |
| | H01H 2009/0083 | <ul style="list-style-type: none"> • {using redundant components e.g. two pressure tubes for pressure switch } |
| | H01H 2009/0088 | <ul style="list-style-type: none"> • {Details of rotatable shafts common to more than one pole or switch unit } |
| | H01H 2009/0094 | <ul style="list-style-type: none"> • {Details of rotatable shafts which are subdivided; details of the coupling means thereof } |
| U | H01H 9/02 | <ul style="list-style-type: none"> • Bases, casings, or covers (accommodating more than one switch or a switch and another electrical component H02B 1/26) |
| U | H01H 9/0214 | <ul style="list-style-type: none"> • • {Hand-held casings} |
| | H01H 2009/0221 | <ul style="list-style-type: none"> • • {the switches being fixed to the operator's hand, e.g. integrated in a glove or fixed to a ring } |
| U | H01H 9/0235 | <ul style="list-style-type: none"> • • {specially adapted for remote control, e.g. of audio or video apparatus} |
| | H01H 2009/0257 | <ul style="list-style-type: none"> • • {Multisided remote control, comprising control or display elements on at least two sides, e.g. front and back surface } |
| | H01H 2009/0278 | <ul style="list-style-type: none"> • • {Casings containing special noise reduction means, e.g. elastic foam between inner and outer casing } |
| | H01H 2009/0285 | <ul style="list-style-type: none"> • • {Casings overmoulded over assembled switch or relay } |

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| | H01H 2009/0292 | <ul style="list-style-type: none"> • • {Transparent window or opening, e.g. for allowing visual inspection of contact position or contact condition } |
| U | H01H 9/04 | <ul style="list-style-type: none"> • • Dustproof, splashproof, drip-proof, waterproof, or flameproof casings |
| | H01H 2009/048 | <ul style="list-style-type: none"> • • • {using a sealing boot, e.g. the casing having separate elastic body surrounding the operating member and hermetically closing the opening for it } |
| U | H01H 9/06 | <ul style="list-style-type: none"> • • Casing of switch constituted by a handle serving a purpose other than the actuation of the switch, e.g. by the handle of a vacuum cleaner |
| | H01H 2009/065 | <ul style="list-style-type: none"> • • • {Battery operated hand tools in which the battery and the switch are directly connected } |
| | H01H 2009/066 | <ul style="list-style-type: none"> • • • {having switches mounted on a control handle, e.g. gear shift lever } |
| | H01H 2009/068 | <ul style="list-style-type: none"> • • • {with switches mounted on a handlebar, e.g. for motorcycles, fork lift trucks, etc. } |
| U | H01H 9/10 | <ul style="list-style-type: none"> • Adaptation for built-in fuses (mounting switch and fuse separately on, or in, common support H02B) |
| | H01H 2009/108 | <ul style="list-style-type: none"> • • {Building a sliding and/or a removable bridging connector for batteries } |
| U | H01H 9/16 | <ul style="list-style-type: none"> • Indicators for switching condition, e.g. "on" or "off" |
| U | H01H 9/161 | <ul style="list-style-type: none"> • • {comprising light emitting elements} |
| | H01H 2009/164 | <ul style="list-style-type: none"> • • • {the light emitting elements being incorporated in and movable with the operating part } |
| U | H01H 9/18 | <ul style="list-style-type: none"> • Distinguishing marks on switches, e.g. for indicating switch location in the dark; Adaptation of switches to receive distinguishing marks |
| U | H01H 9/182 | <ul style="list-style-type: none"> • • {Illumination of the symbols or distinguishing marks (H01H 9/181 takes precedence)} |
| | H01H 2009/183 | <ul style="list-style-type: none"> • • • {Provisions for enhancing the contrast between the illuminated symbol and the background or between juxtaposed symbols } |
| | H01H 2009/184 | <ul style="list-style-type: none"> • • • {Illumination of symbols by using laser light } |
| | H01H 2009/186 | <ul style="list-style-type: none"> • • {using an electroluminescent panel } |
| | H01H 2009/187 | <ul style="list-style-type: none"> • • {having symbols engraved or printed by laser } |
| | H01H 2009/188 | <ul style="list-style-type: none"> • • {with indication of rating } |
| | H01H 2009/189 | <ul style="list-style-type: none"> • • {with a tactile symbol or indication, e.g. for blind people } |
| U | H01H 9/20 | <ul style="list-style-type: none"> • Interlocking, locking, or latching mechanisms (contacts adapted to act as latches H01H 1/52; by an auxiliary movement of the operating part or of an attachment thereto H01H 3/20; {for withdrawable switchgear H02B 11/00}) |
| U | H01H 9/26 | <ul style="list-style-type: none"> • • for interlocking two or more switches ({H01H 13/568 takes precedence}; by a detachable member H01H 9/28; {for electromagnetic relays H01H 50/323}) |
| | H01H 2009/265 | <ul style="list-style-type: none"> • • • {with interlocking of more than two switches } |
| | H01H 2009/267 | <ul style="list-style-type: none"> • • • {with interlocking of two out of three switches, e.g. two switches each connecting a power supply to a busbar and a bus coupling switch interlocked in such a way that the power supplies are never connected in parallel } |
| U | H01H 9/28 | <ul style="list-style-type: none"> • • for locking switch parts by a key or equivalent removable member (switches operated by a key H01H 27/00; locking by removable part of two-part coupling device H01R) |
| | H01H 2009/288 | <ul style="list-style-type: none"> • • • {Provisions relating to welded contacts } |
| U | H01H 9/30 | <ul style="list-style-type: none"> • Means for extinguishing or preventing arc between current-carrying parts |
| | H01H 2009/305 | <ul style="list-style-type: none"> • • {including means for screening for arc gases as protection of mechanism against hot arc gases or for keeping arc gases in the arc chamber } |
| | H01H 2009/307 | <ul style="list-style-type: none"> • • {with slow break, e.g. for AC current waiting for a zero crossing } |

- U H01H 9/34
 - • Stationary parts for restricting or subdividing the arc, e.g. barrier plate
- U H01H 9/342
 - • • {Venting arrangements for arc chutes}
- H01H 2009/343
 - • • {with variable venting aperture function of arc chute internal pressure, e.g. resilient flap-valve or check-valve }
- H01H 2009/347
 - • • {using lids for closing the arc chamber after assembly }
- H01H 2009/348
 - • • {Provisions for recirculation of arcing gasses to improve the arc extinguishing, e.g. move the arc quicker into the arcing chamber }
- U H01H 9/36
 - • • Metal parts
- H01H 2009/365
 - • • • {using U-shaped plates }
- H01H 2009/367
 - • • • {defining a recurrent path, e.g. the subdivided arc is moved in a closed path between each pair of splitter plates }
- U H01H 9/52
 - Cooling of switch parts (cooling of contacts [H01H 1/62](#))
- H01H 2009/523
 - • {by using heat pipes }
- H01H 2009/526
 - • {of the high voltage switches }
- U H01H 9/54
 - Circuit arrangements not adapted to a particular application of the switching device and for which no provision exists elsewhere
- U H01H 9/541
 - • {Contacts shunted by semiconductor devices}
- U H01H 9/542
 - • • {Contacts shunted by static switch means}
- H01H 2009/543
 - • • • {third parallel branch comprising an energy absorber, e.g. MOV, PTC, Zener }
- H01H 2009/544
 - • • • {the static switching means being an insulated gate bipolar transistor, e.g. IGBT, Darlington configuration of FET and bipolar transistor }
- H01H 2009/545
 - • • • {comprising a parallel semiconductor switch being fired optically, e.g. using a photocoupler, }
- H01H 2009/546
 - • • • {the static switching means being triggered by the voltage over the mechanical switch contacts }
- U H01H 9/56
 - • for ensuring the operation of the switch at a predetermined point in the cycle
- H01H 2009/566
 - • • {with self learning, e.g. measured delay is used in later actuations }
- U H01H 11/00
 - **Apparatus or processes specially adapted for manufacture of electric switches (processes specially adapted for manufacture of rectilinearly movable switches having a plurality of operating members associated with different sets of contacts, e.g. keyboards, [H01H 13/88](#); processes or apparatus specially adapted for the manufacture or treatment of micro-structural devices or systems, e.g. in combination with electrical devices, [B81C](#))**
- U H01H 11/0006
 - {for converting electric switches ([H01H 13/564](#) takes precedence)}
- U H01H 11/0018
 - • {for allowing different operating parts}
- H01H 2011/0025
 - • • {with provisions for allowing different orientation of the operating part, e.g. turning knob can be mounted in different positions }
- U H01H 11/0031
 - • {for allowing different types or orientation of connections to contacts}
- H01H 2011/0037
 - • • {with removable or replaceable terminal blocks }
- H01H 2011/0043
 - • {for modifying the number or type of operating positions, e.g. momentary and stable }
- H01H 11/0062
 - {Testing or measuring non-electrical properties of switches, e.g. contact velocity (monitoring contacts [H01H 1/0015](#); monitoring gas density [H01H 33/563](#); ~~monitoring vacuum H01H33/66E~~; ~~monitoring vacuum H02H33/668~~; calibrating [H01H 69/01](#); adjusting [H01H 71/74](#); testing of electrical properties [G01R 31/333](#))}
- H01H 2011/0068
 - • {measuring the temperature of the switch or parts thereof }

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| | H01H 2011/0075 | • {calibrating mechanical switching properties, e.g. "snap or switch moment", by mechanically deforming a part of the switch, e.g. elongating a blade spring by puncturing it with a laser } |
| | H01H 2011/0081 | • {using double shot moulding, e.g. for forming elastomeric sealing elements on form stable casing } |
| | H01H 2011/0087 | • {Welding switch parts by use of a laser beam } |
| | H01H 2011/0093 | • {Standardization, e.g. limiting the factory stock by limiting the number of unique, i. e. different components } |
| U | H01H 11/04 | • of switch contacts |
| U | H01H 11/041 | • • {by bonding of a contact marking face to a contact body portion} |
| | H01H 11/045 | • • • {with the help of an intermediate layer (contacts provided with a solder layer H01H1/02A1B H01H 1/0231)} |
| | H01H 2011/046 | • • • {by plating } |
| | H01H 2011/047 | • • • {on both sides of the contact body portion } |
| U | H01H 11/06 | • • Fixing of contacts to carrier; {Fixing of contacts to insulating carrier} |
| | H01H 2011/062 | • • • {by inserting only } |
| | H01H 2011/065 | • • • {by plating metal or conductive rubber on insulating substrate, e.g. Molded Interconnect Devices (MID) } |
| | H01H 2011/067 | • • • {by deforming, e.g. bending, folding or caulking, part of the contact or terminal which is being mounted } |
| U | H01H 13/00 | Switches having rectilinearly-movable operating part or parts adapted for pushing or pulling in one direction only, e.g. push-button switch (wherein the operating part is flexible H01H 17/00) |
| U | H01H 13/02 | • Details (specially adapted for rectilinearly movable switches having operating members associated with different sets of contacts, e.g. keyboards, H01H 13/70) |
| U | H01H 13/023 | • • { Light-emitting indicators (for multi-layer switches H01H 13/83)} |
| | H01H 2013/026 | • • • {with two or more independent lighting elements located inside the push button switch that illuminate separate zones of push buttons } |
| U | H01H 13/04 | • • Cases; Covers |
| U | H01H 13/06 | • • • Dustproof, splashproof, drip-proof, waterproof or flameproof casings |
| | H01H 2013/066 | • • • • {using bellows } |
| U | H01H 13/50 | • having a single operating member |
| U | H01H 13/52 | • • the contact returning to its original state immediately upon removal of operating force, e.g. bell-push switch |
| | H01H 2013/525 | • • • {using a return spring acting perpendicular to the actuating direction } |
| U | H01H 13/56 | • • the contact returning to its original state upon the next application of operating force |
| U | H01H 13/562 | • • • {making use of a heart shaped cam} |
| U | H01H 13/564 | • • • • {convertible to momentary push button switches} |
| | H01H 2013/566 | • • • • • {by removable or exchangeable parts } |
| U | H01H 19/00 | Switches operated by an operating part which is rotatable about a longitudinal axis thereof and which is acted upon directly by a solid external to the switch, e.g. by a hand (rotary current collectors, distributors or interrupters H01R 39/00) |
| U | H01H 19/005 | • {Electromechanical pulse generators (integrated in time-pieces G04C 3/007)} |
| | H01H 2019/006 | • • {being rotation direction sensitive, e.g. the generated pulse or code depends on the direction of rotation of the operating part } |

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| | H01H 2019/008 | <ul style="list-style-type: none"> • {with snap mounting of rotatable part on fixed part, e.g. rotor on stator, operating knob on switch panel } |
| U | H01H 19/02 | <ul style="list-style-type: none"> • Details |
| U | H01H 19/10 | <ul style="list-style-type: none"> • • Movable parts; Contacts mounted thereon |
| U | H01H 19/14 | <ul style="list-style-type: none"> • • • Operating parts, e.g. turn knob |
| | H01H 2019/143 | <ul style="list-style-type: none"> • • • • {having at least two concentric turn knobs } |
| | H01H 2019/146 | <ul style="list-style-type: none"> • • • • {Roller type actuators } |
| U | H01H 21/00 | Switches operated by an operating part in the form of a pivotable member acted upon directly by a solid body, e.g. by a hand (tumbler or rocker switches H01H 23/00; switches having an operating part movable angularly in more than one plane H01H 25/04) |
| U | H01H 21/02 | <ul style="list-style-type: none"> • Details |
| U | H01H 21/18 | <ul style="list-style-type: none"> • • Movable parts; Contacts mounted thereon |
| U | H01H 21/22 | <ul style="list-style-type: none"> • • • Operating parts, e.g. handle |
| | H01H 2021/225 | <ul style="list-style-type: none"> • • • • {with push-pull operation, e.g. which can be pivoted in both directions by pushing or pulling on the same extremity of the operating member } |
| U | H01H 21/24 | <ul style="list-style-type: none"> • • • • biased to return to normal position upon removal of operating force |
| U | H01H 21/28 | <ul style="list-style-type: none"> • • • • • adapted for actuation at a limit or other predetermined position in the path of a body, the relative movement of switch and body being primarily for a purpose other than the actuation of the switch, e.g. door switch, limit switch, floor-levelling switch of a lift |
| | H01H 2021/287 | <ul style="list-style-type: none"> • • • • • • {with adjustable head, e.g. the actuator head can have different positions in relation to the limit switch itself } |
| U | H01H 25/00 | Switches with compound movement of handle or other operating part |
| U | H01H 25/002 | <ul style="list-style-type: none"> • {having an operating member rectilinearly slidable in different directions} |
| | H01H 2025/004 | <ul style="list-style-type: none"> • • {the operating member being depressable perpendicular to the other directions } |
| U | H01H 25/04 | <ul style="list-style-type: none"> • Operating part movable angularly in more than one plane, e.g. joystick |
| U | H01H 25/041 | <ul style="list-style-type: none"> • • {having a generally flat operating member depressible at different locations to operate different controls} |
| | H01H 2025/043 | <ul style="list-style-type: none"> • • • {the operating member being rotatable around wobbling axis for additional switching functions } |
| | H01H 2025/045 | <ul style="list-style-type: none"> • • • {having a rotating dial around the operating member for additional switching functions } |
| | H01H 2025/046 | <ul style="list-style-type: none"> • • • {having a spherical bearing between operating member and housing or bezel } |
| | H01H 2025/048 | <ul style="list-style-type: none"> • • {having a separate central push, slide or tumbler button which is not integral with the operating part that surrounds it } |
| U | H01H 27/00 | Switches operated by a removable member, e.g. key, plug, plate; Switches operated by setting members according to a single predetermined combination out of several possible settings (locking switch parts to prevent operation H01H 9/28; combined with plug-and-socket connectors H01R; with current-carrying plug H01R 31/08) |
| U | H01H 27/002 | <ul style="list-style-type: none"> • {wherein one single insertion movement of a key comprises an unlocking stroke and a switch actuating stroke, e.g. security switch for safety guards} |
| | H01H 2027/005 | <ul style="list-style-type: none"> • • {the key receiving part having multiple openings to allow keys from different directions to operate the switch } |
| | H01H 27/06 | <ul style="list-style-type: none"> • Key inserted and then turned to effect operation of the switch {IC integrated in key and connected by turning key E05B49/00J4E05B 49/004} |

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| | H01H 2027/066 | • • {having anti-tamper provisions, e.g. avoiding the removal of the lock cylinder } |
| | H01H 27/08 | • • wherein the key cannot be removed until the switch is returned to its original position {(H01H 27/063, H01H27/06G H01H 27/063 take precedence)} |
| U | H01H 29/00 | Switches having at least one liquid contact (solid contacts wetted or soaked with mercury H01H 1/08) |
| | H01H 2029/008 | • {using micromechanics, e.g. micro mechanical liquid contact switches or [LIMMS] } |
| U | H01H 31/00 | Air-break switches for high tension without arc-extinguishing or arc-preventing means (in combination with high tension or heavy-current switches with arc-extinguishing or arc-preventing means H01H 33/00; switching arrangements for the supply or distribution of electric power H02B) |
| U | H01H 31/26 | • with movable contact that remains electrically connected to one line in open position of switch |
| U | H01H 31/28 | • • with angularly-movable contact |
| | H01H 2031/286 | • • • {wherein the contact is rotatable around its own longitudinal axis } |
| U | H01H 33/00 | High-tension or heavy-current switches with arc-extinguishing or arc-preventing means |
| U | H01H 33/02 | • Details |
| U | H01H 33/022 | • • {particular to three-phase circuit breakers (synchronous switching H01H 9/563)} |
| | H01H 2033/024 | • • • {with a triangular setup of circuit breakers } |
| | H01H 33/025 | • • {Terminal arrangements (for vacuum switches H01H33/66G H01H 33/6606)} |
| | H01H 2033/028 | • • {the cooperating contacts being both actuated simultaneously in opposite directions } |
| U | H01H 33/04 | • • Means for extinguishing or preventing arc between current-carrying parts (for switches in general H01H 9/30) |
| U | H01H 33/08 | • • • Stationary parts for restricting or subdividing the arc, e.g. barrier plate |
| | H01H 2033/085 | • • • • {using a flat arc chute, the width of arc chamber being only slightly greater than thickness of switch blade } |
| U | H01H 33/14 | • • • Multiple main contacts for the purpose of dividing the current through, or potential drop along, the arc |
| | H01H 2033/146 | • • • • {using capacitors, e.g. for the voltage division over the different switches } |
| U | H01H 33/16 | • • • Impedances connected with contacts |
| U | H01H 33/161 | • • • • {Variable impedances} |
| | H01H 2033/163 | • • • • • {using PTC elements } |
| | H01H 33/18 | • • • using blow-out magnet {(for vacuum switches H01H33/66G H01H 33/664; pressure-generated arcs rotated by a magnetic field H01H 33/982)} |
| U | H01H 33/28 | • • Power arrangements internal to the switch for operating the driving mechanism |
| U | H01H 33/30 | • • • using fluid actuator |
| | H01H 2033/306 | • • • • {monitoring the pressure of the working fluid, e.g. for protection measures } |
| | H01H 2033/308 | • • • • {comprising control and pilot valves } |
| U | H01H 33/42 | • • Driving mechanisms |
| | H01H 2033/426 | • • • {Details concerning the connection of the isolating driving rod to a metallic part } |

- U H01H 33/53
 - • Cases (for switchgear [H02B 1/26](#)); Reservoirs, tanks, piping or valves, for arc-extinguishing fluid; Accessories therefor, e.g. safety arrangements, pressure relief devices
- U H01H 33/56
 - • • Gas reservoirs
- H01H 2033/566
 - • • • {Avoiding the use of SF6 }
- H01H 2033/567
 - • • • {Detection of decomposition products of the gas }
- H01H 2033/568
 - • • • {with overpressure release, e.g. rupture membranes }
- U H01H 33/60
 - Switches wherein the means for extinguishing or preventing the arc do not include separate means for obtaining or increasing flow of arc-extinguishing fluid
- U H01H 33/66
 - • Vacuum switches
- U H01H 33/6606
 - • • { Terminal arrangements }
- H01H 2033/6613
 - • • • {Cooling arrangements directly associated with the terminal arrangements }
- U H01H 33/662
 - • • Housings or protective screens
- U H01H 33/66207
 - • • • { Specific housing details, e.g. sealing, soldering or brazing }
- H01H 2033/66215
 - • • • • {Details relating to the soldering or brazing of vacuum switch housings }
- H01H 2033/66223
 - • • • • {Details relating to the sealing of vacuum switch housings }
- H01H 2033/6623
 - • • • • {Details relating to the encasing or the outside layers of the vacuum switch housings }
- U H01H 33/66238
 - • • • { Specific bellows details }
- H01H 2033/66246
 - • • • • {Details relating to the guiding of the contact rod in vacuum switch bellows }
- H01H 2033/66253
 - • • • • {Details relating to the prevention of unwanted rotation of the contact rod in vacuum switch bellows }
- U H01H 33/66261
 - • • • { Specific screen details, e.g. mounting, materials, multiple screens or specific electrical field considerations }
- H01H 2033/66269
 - • • • • {Details relating to the materials used for screens in vacuum switches }
- H01H 2033/66276
 - • • • • {Details relating to the mounting of screens in vacuum switches }
- H01H 2033/66284
 - • • • • {Details relating to the electrical field properties of screens in vacuum switches }
- H01H 2033/66292
 - • • • • {Details relating to the use of multiple screens in vacuum switches }
- U H01H 33/664
 - • • Contacts; Arc-extinguishing means, e.g. arcing rings
- H01H 2033/6648
 - • • • {Contacts containing flexible parts, e.g. to improve contact pressure }
- U H01H 33/666
 - • • Operating arrangements
- H01H 2033/6665
 - • • • {Details concerning the mounting or supporting of the individual vacuum bottles }
- H01H 2033/6667
 - • • • {Details concerning lever type driving rod arrangements }
- H01H 2033/6668
 - • • • {with a plurality of interruptible circuit paths in single vacuum chamber }
- U H01H 33/668
 - • • Means for obtaining or monitoring the vacuum
- H01H 2033/6686
 - • • • {by emitting and receiving reflected sound or ultrasound signals }
- U H01H 33/70
 - Switches with separate means for directing, obtaining, or increasing flow of arc-extinguishing fluid
- U H01H 33/88
 - • the flow of arc-extinguishing fluid being produced or increased by movement of pistons or other pressure-producing parts
- H01H 2033/888
 - • • {Deflection of hot gasses and arcing products }
- U H01H 33/90
 - • • this movement being effected by or in conjunction with the contact-operating mechanism

- U H01H 33/901
 - • • {making use of the energy of the arc or an auxiliary arc}
- H01H 2033/902
 - • • • {with the gases from hot space and compression volume following different paths to arc space or nozzle, i.e. the compressed gases do not pass through hot volume }
- H01H 2033/906
 - • • • {with pressure limitation in the compression volume, e.g. by valves or bleeder openings }
- H01H 2033/907
 - • • • {using tandem pistons, e.g. several compression volumes being modified in conjunction or sequential }
- H01H 2033/908
 - • • • {using valves for regulating communication between e.g. arc space, hot volume, compression volume, surrounding volume }
- U H01H 33/91
 - • • • the arc-extinguishing fluid being air or gas
- H01H 2033/912
 - • • • • {Liquified gases, e.g. liquified SF6 }
- U **H01H 36/00**

Switches actuated by change of magnetic field or of electric field, e.g. by change of relative position of magnet and switch, by shielding {(specially adapted for electromechanical clocks or watches [G04C 3/004](#))}
- H01H 2036/0086
 - {Movable or fixed contacts formed by permanent magnets }
- H01H 2036/0093
 - {Micromechanical switches actuated by a change of the magnetic field }
- U **H01H 37/00**

Thermally-actuated switches (electrothermal relays operated by electrical input [H01H 61/00](#); protective switches with electrothermal release or actuation [H01H 73/00](#) to [H01H 83/00](#))
- H01H 2037/008
 - {Micromechanical switches operated thermally }
- U H01H 37/02
 - Details
- U H01H 37/04
 - • Bases; Housings; Mountings {[H01H 37/5427](#) takes precedence}
- H01H 2037/046
 - • • {being soldered on the printed circuit to be protected }
- U H01H 37/32
 - • Thermally-sensitive members (temperature responsive elements in general [G01K](#))
- H01H 2037/326
 - • • {with radiative heat transfer to the switch, e.g. special absorption surfaces }
- U H01H 37/52
 - • • actuated due to deflection of bimetallic element
- H01H 2037/523
 - • • • {using a corrugated bimetal }
- H01H 2037/525
 - • • • {Details of manufacturing of the bimetals, e.g. connection to non bimetallic elements or insulating coatings }
- H01H 2037/526
 - • • • {Materials for bimetals }
- H01H 2037/528
 - • • • {the bimetallic element being composed of more than two layers }
- U H01H 37/54
 - • • • wherein the bimetallic element is inherently snap acting
- H01H 2037/5445
 - • • • • {with measures for avoiding slow break of contacts during the creep phase of the snap bimetal }
- H01H 2037/5454
 - • • • • {with separate spring biasing the bimetal snap element against the heat transfer surface }
- H01H 2037/5463
 - • • • • {the bimetallic snap element forming part of switched circuit }
- H01H 2037/5472
 - • • • • {having an omega form, e.g. the bimetallic snap element having a ring shape with a central tongue }
- H01H 2037/5481
 - • • • • {the bimetallic snap element being mounted on the contact spring }
- H01H 2037/549
 - • • • • {Details of movement transmission between bimetallic snap element and contact }
- U H01H 37/64
 - • Contacts
- U H01H 37/70
 - • • Resetting means {([H01H 37/5409](#) takes precedence)}
- H01H 2037/705
 - • • • {wherein the switch cannot be closed when the temperature is above a certain value }

- U H01H 37/74
 - Switches in which only the opening movement or only the closing movement of a contact is effected by heating or cooling (for the electrical protection of electric lines or electric apparatus [H01H 73/00](#) to [H01H 83/00](#))
- U H01H 37/76
 - • Contact member actuated by melting of fusible material, actuated due to burning of combustible material or due to explosion of explosive material (fuses [H01H 85/00](#))
- U H01H 37/761
 - • • {with a fusible element forming part of the switched circuit ([H01H 37/767](#) takes precedence)}
- H01H 2037/762
 - • • • {using a spring for opening the circuit when the fusible element melts }
- H01H 2037/763
 - • • • • {the spring being a blade spring }
- H01H 2037/768
 - • • {characterised by the composition of the fusible material }
- H01H 2037/769
 - • • {characterised by the composition of insulating fusible materials, e.g. for use in the thermal pellets }
- U **H01H 39/00**

Switching devices actuated by an explosion produced within the device and initiated by an electric current
- H01H 2039/008
 - {using the switch for a battery cutoff }
- U **H01H 43/00**

Time or time-programme switches providing a choice of time intervals for executing one or more switching actions and automatically terminating their operations after the programme is completed (clocks with attached or built-in means operating any device at preselected times or after preselected time-intervals [G04C 23/00](#); {apparatus which can be set and started to measure-off predetermined intervals [G04F 3/06](#)}; programme-control systems [G05B 19/00](#))
- U H01H 43/10
 - with timing of actuation of contacts due to a part rotating at substantially constant speed
- U H01H 43/106
 - • {Manual programme selecting means}
- H01H 2043/107
 - • • {Bidirectional selecting means, e.g. the program selecting knob being turnable in both directions }
- H01H 2043/108
 - • {where at least some contacts of electromechanical timer give instructions to electronic timer and/or the timing motor is under control of electronic timer, e.g. hybrid timer }
- U **H01H 47/00**

Circuit arrangements not adapted to a particular application of the relay and designed to obtain desired operating characteristics or to provide energising current (circuit arrangements for electro-magnets in general [H01F 7/18](#))
- U H01H 47/002
 - {Monitoring or fail-safe circuits}
- H01H 2047/003
 - • {Detecting welded contacts and applying weld break pulses to coil }
- H01H 2047/006
 - • {Detecting unwanted movement of contacts and applying pulses to coil for restoring to normal status }
- H01H 2047/008
 - {with a drop in current upon closure of armature or change of inductance }
- H01H 2047/009
 - {with self learning features, e.g. measuring the attracting current for a relay and memorising it }
- U H01H 47/02
 - for modifying the operation of the relay
- H01H 2047/025
 - • {with taking into account of the thermal influences, e.g. change in resistivity of the coil or being adapted to high temperatures }
- U H01H 47/04
 - • for holding armature in attracted position, e.g. when initial energising circuit is interrupted; for maintaining armature in attracted position, e.g. with reduced energising current {(with switching regulator [H01H 47/325](#))}
- H01H 2047/046
 - • • {with measuring of the magnetic field, e.g. of the magnetic flux, for the control of coil current }

- U H01H 50/00** Details of electromagnetic relays ({ [H01H 51/28](#) takes precedence;} electric circuit arrangements [H01H 47/00](#); details of electrically-operated select or switches [H01H 63/00](#); { testing of relays [G01R 31/00](#); electromagnets in general [H01F 7/06](#); relays for emergency protective circuit arrangements [H02H](#)})
- U H01H 50/005
H01H 2050/007
 - {using micromechanics}
 - • {Relays of the polarised type, e.g. the MEMS relay beam having a preferential magnetisation direction }
- U H01H 50/02
 - Bases; Casings; Covers (frames for mounting two or more relays or for mounting a relay and another electric component [H02B 1/01](#), [H04Q 1/08](#), [H05K](#))
- U H01H 50/023
 - • {Details concerning sealing, e.g. sealing casing with resin (in general [H01H 9/04](#))}
- H01H 2050/025
 - • • {containing inert or dielectric gasses, e.g. SF6, for arc prevention or arc extinction }
- H01H 2050/028
 - • {Means to improve the overall withstanding voltage, e.g. creepage distances }
- U H01H 50/04
 - • Mounting complete relay or separate parts of relay on a base or inside a case
- U H01H 50/041
 - • • {Details concerning assembly of relays}
- U H01H 50/043
 - • • • {Details particular to miniaturised relays ([H01H 50/042](#) takes precedence)}
- H01H 2050/044
 - • • • • {Special measures to minimise the height of the relay }
- H01H 2050/046
 - • • • • {Assembling parts of a relay by using snap mounting techniques }
- H01H 2050/049
 - • • • {Assembling or mounting multiple relays in one common housing }
- U H01H 50/16
 - Magnetic circuit arrangements (cores, yokes, or armatures in general [H01F 3/00](#); magnets in general [H01F 7/00](#))
- H01H 2050/166
 - • {wherein the magnetic circuit parts are molded in a magnetic plastic material }
- U H01H 50/18
 - • Movable parts of magnetic circuits, e.g. armature
- U H01H 50/20
 - • • movable inside coil and substantially lengthwise with respect to axis thereof; movable coaxially with respect to coil
- U H01H 50/22
 - • • • wherein the magnetic circuit is substantially closed
- H01H 2050/225
 - • • • • {with yoke and armature formed by identical stacked laminates, e.g. punched in one and the same tool }
- U H01H 50/32
 - • • Latching movable parts mechanically
- U H01H 50/323
 - • • • {for interlocking two or more relays (in general [H01H 9/26](#))}
- H01H 2050/325
 - • • • • {Combined electrical and mechanical interlocking, e.g. usually for auxiliary contacts }
- U H01H 50/326
 - • • • {with manual intervention, e.g. for testing, resetting or mode selection}
- H01H 2050/328
 - • • • • {with manual locking means having three positions, e.g. on-off-automatic }
- U H01H 50/36
 - • Stationary parts of magnetic circuit, e.g. yoke
- H01H 2050/362
 - • • {Part of the magnetic circuit conducts current to be switched or coil current, e.g. connector and magnetic circuit formed of one single part }
- H01H 2050/365
 - • • {formed from a single sheet of magnetic material by punching, bending, plying }
- H01H 2050/367
 - • • {Methods for joining separate core and L-shaped yoke }
- U H01H 50/44
 - Magnetic coils or winding (circuit arrangements [H01H 47/00](#); in general [H01F 5/00](#))
- H01H 2050/446
 - • {Details of the insulating support of the coil, e.g. spool, bobbin, former }

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| U | H01H 51/00 | Electromagnetic relays (relays using the dynamo-electric effect H01H 53/00) |
| U | H01H 51/22 | • Polarised relays ({ H01H 51/28 takes precedence}) |
| U | H01H 51/2209 | • {with rectilinearly movable armature} |
| | H01H 2051/2218 | • • • {having at least one movable permanent magnet } |
| U | H01H 57/00 | Electrostrictive relays; Piezo-electric relays |
| | H01H 2057/003 | • {the relay being latched in actuated position by magnet } |
| | H01H 2057/006 | • {Micromechanical piezoelectric relay } |
| U | H01H 59/00 | Electrostatic relays; Electro-adhesion relays ({electrostatic measuring instruments G01R 5/28}; clutches in general using the Johnson-Rahbek effect H02N 13/00; {electrostatic transducers H04R 19/00; systems for preventing the formation of electrostatic charges H05F}) |
| U | H01H 59/0009 | • {making use of micromechanics} |
| | H01H 2059/0018 | • • {Special provisions for avoiding charge trapping, e.g. insulation layer between actuating electrodes being permanently polarised by charge trapping so that actuating or release voltage is altered } |
| | H01H 2059/0027 | • • {Movable electrode connected to ground in the open position, for improving isolation } |
| | H01H 2059/0036 | • • {Movable armature with higher resonant frequency for faster switching } |
| | H01H 2059/0045 | • • {with s-shaped movable electrode, positioned and connected between two driving fixed electrodes, e.g. movable electrodes moving laterally when driving voltage being applied } |
| | H01H 2059/0054 | • • {Rocking contacts or actuating members } |
| | H01H 2059/0063 | • • {with stepped actuation, e.g. actuation voltages applied to different sets of electrodes at different times or different spring constants during actuation } |
| | H01H 2059/0072 | • • {with stoppers or protrusions for maintaining a gap, reducing the contact area or for preventing stiction between the movable and the fixed electrode in the attracted position } |
| | H01H 2059/0081 | • • {with a tapered air-gap between fixed and movable electrodes } |
| | H01H 2059/009 | • {using permanently polarised dielectric layers } |
| U | H01H 61/00 | Electrothermal relays (thermal switches not operated by electrical input, thermal switches with anticipating electrical input H01H 37/00; thermally-sensitive members H01H 37/32) |
| U | H01H 61/002 | • {Structural combination of a time delay electrothermal relay with an electrothermal protective relay, e.g. a start relay} |
| | H01H 2061/004 | • • {PTC resistor in series with start winding. e.g. adapted for being switched off after starting for limiting power dissipation } |
| | H01H 2061/006 | • {Micromechanical thermal relay } |
| | H01H 2061/008 | • • {Micromechanical actuator with a cold and a hot arm, coupled together at one end } |
| U | H01H 61/01 | • Details |
| U | H01H 61/0107 | • • {making use of shape memory materials (in general H01H 37/323)} |
| | H01H 2061/0115 | • • • {Shape memory alloy [SMA] actuator formed by coil spring } |
| | H01H 2061/0122 | • • • {Two SMA actuators, e.g. one for closing or resetting contacts and one for opening them } |
| U | H01H 69/00 | Apparatus or processes for the manufacture of emergency protective devices (manufacture of switches in general H01H 11/00; manufacture of relays in general H01H 49/00) |

- U H01H 69/01
 - for calibrating or setting of devices to function under predetermined conditions (measuring electric values [G01R](#))
- H01H 2069/013
 - • {with calibrating screws in trip bar }
- H01H 2069/016
 - • {with single separate parts mountable or insertable in different orientations or positions, e.g. to obtain desired trip conditions }
- U H01H 69/02
 - Manufacture of fuses
- H01H 2069/025
 - • {using lasers }
- H01H 2069/027
 - • {using ultrasonic techniques }
- U H01H 71/00**
Details of the protective switches or relays covered by groups [H01H 73/00](#) to [H01H 83/00](#)
- U H01H 71/002
 - {with provision for switching the neutral conductor}
- H01H 2071/004
 - • {with a tripping or current sensing device in the neutral wire, e.g. for third harmonics in a three phase system }
- H01H 2071/006
 - {Provisions for user interfaces for electrical protection devices }
- H01H 2071/008
 - {Protective switches or relays using micromechanics }
- U H01H 71/02
 - Housings; Casings; Bases; Mountings
- U H01H 71/0207
 - • {Mounting or assembling the different parts of the circuit breaker}
- H01H 2071/0242
 - • • {Assembling parts of a circuit breaker by using snap mounting techniques }
- U H01H 71/0264
 - • {Mountings or coverplates for complete assembled circuit breakers, e.g. snap mounting in panel}
- U H01H 71/0271
 - • • {Mounting several complete assembled circuit breakers together (interconnected mechanisms [H01H 71/1009](#))}
- H01H 2071/0278
 - • • • {with at least one of juxtaposed casings dedicated to an auxiliary device, e.g. for undervoltage or shunt trip }
- H01H 2071/0285
 - • • • {Provisions for an intermediate device between two adjacent circuit breakers having the same general contour but an auxiliary function, e.g. cooling, isolation, wire guiding, magnetic isolation or screening }
- H01H 2071/0292
 - • {Housing or frames containing grooves or slots for guiding movable parts }
- U H01H 71/04
 - Means for indicating condition of the switching device {(by means of an auxiliary contact [H01H 71/46](#))}
- H01H 2071/042
 - • {with different indications for different conditions, e.g. contact position, overload, short circuit or earth leakage }
- H01H 2071/044
 - • {Monitoring, detection or measuring systems to establish the end of life of the switching device, can also contain other on-line monitoring systems, e.g. for detecting mechanical failures }
- H01H 2071/046
 - • {exclusively by position of operating part, e.g. with additional labels or marks but no other movable indicators }
- H01H 2071/048
 - • {containing non-mechanical switch position sensor, e.g. HALL sensor }
- U H01H 71/08
 - Terminals; Connections (in general [H01R](#))
- H01H 2071/084
 - • {specially adapted for avoiding decalibration of trip unit, e.g. bimetal, when fixing conductor wire to connector }
- H01H 2071/086
 - • {Low power connections for auxiliary switches, e.g. shunt trip }
- H01H 2071/088
 - • {Terminals for switching devices which make the devices interchangeable, e.g. with fuses }
- U H01H 71/10
 - Operating or release mechanisms
- U H01H 71/1009
 - • {Interconnected mechanisms ([H01H 71/1045](#) takes precedence; operated by excess current and other electrical conditions [H01H 83/20](#))}
- H01H 2071/1036
 - • • {having provisions for four or more poles }

- U H01H 71/1054 . . {Means for avoiding unauthorised release}
- H01H 2071/1063 . . . {making use of an equilibrating mass }
- H01H 2071/109 . . {with provisions for selecting between automatic or manual reset }
- U H01H 71/12 . . Automatic release mechanisms with or without manual release
- U H01H 71/123 . . . {using a solid-state trip unit (circuits [H02H](#))}
- H01H 2071/124 {with a hybrid structure, the solid state trip device being combined with a thermal or a electromagnetic trip }
- U H01H 71/14 . . . Electrothermal mechanisms {(combined with a electro-thermal time delay relay [H01H 61/002](#))}
- H01H 2071/147 {Thermal release by expansion of a fluid }
- U H01H 71/16 with bimetal element {(combined with detection of imbalance of two or more currents [H01H 83/223](#))}
- U H01H 71/164 {Heating elements}
- H01H 2071/165 {the bimetal being inductively heated, e.g. load current does not pass through bimetal }
- H01H 2071/167 {Multiple bimetals working in parallel together, e.g. laminated together }
- H01H 2071/168 {Provisions for avoiding permanent deformation and thus decalibration of bimetal, e.g. due to overheating or action of a magnet }
- U H01H 71/24 . . . Electromagnetic mechanisms
- U H01H 71/2418 {combined with an electrodynamic current limiting mechanism}
- H01H 2071/2427 {with blow-off movement tripping mechanism, e.g. electrodynamic effect on contacts trips the traditional trip device before it can unlatch the spring mechanism by itself }
- H01H 2071/249 {with part of the magnetic circuit being in the normal current path in the circuit breaker, e.g. yoke, fixed contact and arc-runner are made out of one single conductive element }
- U H01H 71/32 having permanently magnetised part
- H01H 2071/328 {using a spring for having minimal force on armature while maximal force on trip pin }
- U H01H 71/40 . . . Combined electrothermal and electromagnetic mechanisms
- H01H 2071/407 {the thermal element being heated by the coil of the electromagnetic mechanism }
- U H01H 71/46 . . . having means for operating auxiliary contacts additional to the main contacts
- H01H 2071/467 {with history indication, e.g. of trip and/or kind of trip, number of short circuits etc. }
- U H01H 71/50 . . Manual reset mechanisms {which may be also used for manual release}
- U H01H 71/501 . . . {Means for breaking welded contacts; Indicating contact welding or other malfunction of the circuit breaker}
- H01H 2071/502 {with direct contact between manual operator and welded contact structure }
- U H01H 71/505 . . . {Latching devices between operating and release mechanism}
- H01H 2071/506 {using balls or rollers in the latching device }
- H01H 2071/507 {being collapsible, e.g. yielding elastically, when the opening force is higher than a predetermined value }
- H01H 2071/508 {with serial latches, e.g. primary latch latched by secondary latch for requiring a smaller trip force }
- U H01H 71/56 . . . actuated by rotatable knob or wheel

| | | |
|---|-------------------|---|
| | H01H 2071/565 | <ul style="list-style-type: none"> • • • {using a add on unit, e.g. a separate rotary actuator unit, mounted on lever actuated circuit breakers } |
| U | H01H 71/66 | <ul style="list-style-type: none"> • • Power reset mechanisms |
| | H01H 2071/665 | <ul style="list-style-type: none"> • • • {the reset mechanism operating directly on the normal manual operator, e.g. electromagnet pushes manual release lever back into "ON" position } |
| U | H01H 71/74 | <ul style="list-style-type: none"> • Means for adjusting the conditions under which the device will function to provide protection |
| U | H01H 71/7427 | <ul style="list-style-type: none"> • • {Adjusting only the electrothermal mechanism} |
| | H01H 2071/7454 | <ul style="list-style-type: none"> • • • {with adjustable axis of transmission lever between bimetal element and trip lever } |
| | H01H 2071/7472 | <ul style="list-style-type: none"> • • {with antitamper means for avoiding unauthorised setting } |
| | H01H 2071/7481 | <ul style="list-style-type: none"> • • {with indexing means for magnetic or thermal tripping adjustment knob } |
| | H01H 2071/749 | <ul style="list-style-type: none"> • • {with a shunt element connected in parallel to magnetic or thermal trip elements, e.g. for adjusting trip current } |
| U | H01H 77/00 | Protective overload circuit-breaking switches operated by excess current and requiring separate action for resetting (H01H 73/00, H01H 75/00 take precedence) |
| U | H01H 77/02 | <ul style="list-style-type: none"> • in which the excess current itself provides the energy for opening the contacts, and having a separate reset mechanism |
| | H01H 2077/025 | <ul style="list-style-type: none"> • • {with pneumatic means, e.g. by arc pressure } |
| U | H01H 83/00 | Protective switches, e.g. circuit-breaking switches, or protective relays operated by abnormal electrical conditions otherwise than solely by excess current |
| U | H01H 83/02 | <ul style="list-style-type: none"> • operated by earth fault currents (H01H 83/14 takes precedence) |
| U | H01H 83/04 | <ul style="list-style-type: none"> • • with testing means for indicating the ability of the switch or relay to function properly |
| | H01H 2083/045 | <ul style="list-style-type: none"> • • • {Auxiliary switch opening testing circuit in synchronism with the main circuit } |
| U | H01H 83/14 | <ul style="list-style-type: none"> • operated by unbalance of two or more currents or voltages, e.g. for differential protection |
| U | H01H 83/144 | <ul style="list-style-type: none"> • • {with differential transformer} |
| | H01H 2083/146 | <ul style="list-style-type: none"> • • • {Provisions for avoiding disadvantages of having asymmetrical primaries, e.g. induction of a magnetic field even by zero difference current } |
| | H01H 2083/148 | <ul style="list-style-type: none"> • • • {with primary windings formed of rigid copper conductors } |
| U | H01H 83/20 | <ul style="list-style-type: none"> • operated by excess current as well as by some other abnormal electrical condition |
| | H01H 2083/201 | <ul style="list-style-type: none"> • • {the other abnormal electrical condition being an arc fault } |
| | H01H 2083/203 | <ul style="list-style-type: none"> • • {with shunt trip circuits, e.g. NC contact in an undervoltage coil circuit } |
| | H01H 2083/205 | <ul style="list-style-type: none"> • • {having shunt or UVR tripping device with integrated mechanical energy accumulator } |
| | H01H 2083/206 | <ul style="list-style-type: none"> • • {with thermal shunt trip } |
| | H01H 2083/208 | <ul style="list-style-type: none"> • • {Converting under voltage release [UVR] and shunt release } |
| U | H01H 85/00 | Protective devices in which the current flows through a part of fusible material and this current is interrupted by displacement of the fusible material when this current becomes excessive (switches actuated by melting of fusible material H01H 37/76; automatic release of protective switches due to fusion of a mass H01H 73/00 to H01H 83/00; disposition or arrangement of fuses on boards H02B 1/18) |

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|---|----------------|--|
| | H01H 2085/0004 | • {making use of shape-memory material } |
| | H01H 2085/0008 | • {making use of heat shrinkable material } |
| U | H01H 85/0013 | • {Means for preventing damage, e.g. by ambient influences to the fuse} |
| U | H01H 85/0021 | • • {water or dustproof devices} |
| | H01H 2085/0034 | • • • {with molded casings } |
| U | H01H 85/02 | • Details (electrical connections in general H01R) |
| | H01H 2085/0216 | • • {Tools for controlling fuses or the line associated with the fuses } |
| | H01H 2085/0225 | • • {Means for preventing discharge, e.g. corona ring } |
| | H01H 2085/0233 | • • {with common casing for fusible elements inserted in more than one phase or more than one circuit } |
| U | H01H 85/0241 | • • { Structural association of a fuse and another component or apparatus (switches with built-in fuses H01H 9/10 , spark-gap arresters H01H 85/44 , transformers and inductances H01F 27/402 , capacitors H01G 2/14 , lamps H01K 1/66 , semiconductors H01L 23/5256 or H01L 23/62) } |
| | H01H 2085/025 | • • • {Structural association with a binding post of a storage battery } |
| | H01H 2085/0258 | • • • {Structural association of a fuse or a fuse holder with a bimetallic element } |
| | H01H 2085/0266 | • • • {Structural association with a measurement device, e.g. a shunt } |
| | H01H 2085/0275 | • • • {Structural association with a printed circuit board } |
| | H01H 2085/0283 | • • • {Structural association with a semiconductor device } |
| | H01H 2085/0291 | • • • {Structural association with a current transformer } |
| U | H01H 85/04 | • • Fuses, i.e. expendable parts of the protective device, e.g. cartridges |
| U | H01H 85/041 | • • • characterised by the type |
| U | H01H 85/0411 | • • • • {Miniature fuses} |
| | H01H 2085/0412 | • • • • • {specially adapted for being mounted on a printed circuit board } |
| | H01H 2085/0414 | • • • • • {Surface mounted fuses } |
| U | H01H 85/048 | • • • • Fuse resistors |
| | H01H 2085/0483 | • • • • • {with temperature dependent resistor, e.g. thermistor } |
| | H01H 2085/0486 | • • • • • {with voltage dependent resistor, e.g. varistor } |
| U | H01H 85/05 | • • • Component parts thereof |
| U | H01H 85/055 | • • • • Fusible members |
| | H01H 2085/0555 | • • • • • {Input terminal connected to a plurality of output terminals, e.g. multielectrode } |
| U | H01H 85/20 | • • Bases for supporting the fuse; Separate parts thereof (bases, casings for connectors, in general H01R) |
| U | H01H 85/205 | • • • {Electric connections to contacts on the base} |
| | H01H 2085/2055 | • • • • {Connections to bus bars in an installation with screw in type fuses or knife blade fuses } |
| | H01H 2085/206 | • • • • {being tappable, e.g. terminals on the fuse or base being arranged so as to permit an additional connector to be engaged therewith } |
| | H01H 2085/2065 | • • • • {with base contacts adapted or adaptable to fuses of different lengths; bases with self-aligning contacts; intermediate adaptation pieces } |
| | H01H 2085/207 | • • • • {Bases adapted to fuses with different end contacts or to other components, e.g. circuit breakers; intermediate adaptation pieces } |
| | H01H 2085/2075 | • • • • {Junction box, having holders integrated with several other holders in a particular wiring layout } |
| | H01H 2085/208 | • • • • {specially adapted for vehicles } |
| | H01H 2085/2085 | • • • • {Holders for mounting a fuse on a printed circuit } |

- H01H 2085/209
 - • • {Modular assembly of fuses or holders, e.g. side by side; combination of a plurality of identical fuse units }
- H01H 2085/2095
 - • • {Triangular setup of fuses, e.g. for space saving }
- U H01H 85/26
 - • Magazine arrangements
- H01H 2085/266
 - • • {with replacement of a fuse which is part of a printed circuit }
- U H01H 85/38
 - • Means for extinguishing or suppressing arc (by powder filling [H01H 85/18](#); by mechanical tension applied to fusible member [H01H 85/36](#))
- H01H 2085/381
 - • • {with insulating body insertable between the end contacts of the fusible element }
- H01H 2085/383
 - • • {with insulating stationary parts }
- H01H 2085/385
 - • • {Impedances connected with the end contacts of the fusible element }
- H01H 2085/386
 - • • {with magnetic or electrodynamic arc-blowing }
- H01H 2085/388
 - • • {using special materials }
- U H01H 85/46
 - • Circuit arrangements not adapted to a particular application of the protective device
- H01H 2085/466
 - • • {with remote controlled forced fusing }
- U **H01H 89/00**

Combinations of two or more different basic types of electric switches, relays, selectors and emergency protective devices, not covered by a single one of the preceding main groups
- H01H 2089/005
 - {Multi-purpose combinations, e.g. LS/DI, LS/FI, of normal protective circuit breakers with known other forms of protection, e.g. earthfaults, differential, unbalance }
- U H01H 89/06
 - Combination of a manual reset circuit breaker with a contactor, i.e. the same circuit controlled by both a protective and a remote control device
- H01H 2089/065
 - • {Coordination between protection and remote control, e.g. protection job repartition, mutual assistance or monitoring }

Project: N/A (H01J)

- U **H01J 31/00**

Cathode ray tubes; Electron beam tubes([H01J 25/00](#) , [H01J 35/00](#) , [H01J 37/00](#) take precedence; cathode ray or electron stream lamps [H01J 63/00](#) ; details of cathode ray tubes or of electron beam tubes [H01J 29/00](#))
- H01J 31/02
 - having one or more output electrodes which may be impacted selectively by the ray or beam, and onto, from, or over which the ray or beam may be deflected or de-focused{ pulse counting circuits therewith [H03K29/02](#)[H03K 29/06](#) }
- U H01J 31/08
 - having a screen on or from which an image or pattern is formed, picked up, converted, or stored
- U H01J 31/10
 - • Image or pattern display tubes, i.e. having electrical input and optical output; Flying-spot tubes for scanning purposes
- U H01J 31/12
 - • • with luminescent screen
- H01J 31/16
 - • • • with mask carrying a number of selectively displayable signs, e.g. charactron, numeroscope{(tubes with a mask carrying a matrix of openings, a selection of which permits a sign to be displayed [H01J31/12L](#) [H01J 31/128](#))}
- U **H01J 37/00**

Discharge tubes with provision for introducing objects or material to be exposed to the discharge, e.g. for the purpose of examination or processing thereof([H01J 33/00](#) , [H01J 40/00](#) , [H01J 41/00](#) , [H01J 47/00](#) , [H01J 49/00](#) take precedence; { scanning-probe techniques or apparatus [G01Q](#) } ; contactless testing of electronic circuits using electron beams [G01R 31/305](#) ; { particle accelerators [H05H](#) }

- U H01J 37/02 • Details
- H01J 37/04 • • Arrangements of electrodes and associated parts for generating or controlling the discharge, e.g. electron-optical arrangement, ion-optical arrangement{ electron or ion-optical systems for localised treatment of materials [H01J 37/3007](#) ; discharge control means in gas filled discharge tubes ~~H01J37/32D1~~[H01J 37/32009](#) }
- H01J 37/32 • Gas-filled discharge tubes,{e.g. for surface treatment of objects such as coating, plating, etching, sterilising or bringing about chemical reactions} ({ general methods or devices for heat treatments of ferrous or non-ferrous metals or alloys by cathodic discharges [C21D 1/38](#) ; methods of carburising or nitriding of metals in general [C23C 8/00](#) ; methods for coating, plating or surface treating of or with metallic material [C23C 8/36](#) , [C23C 14/32](#) , [C23C 16/50](#) ; methods for coating, plating or surface treating of or with semiconductors [H01L 21/00](#) ; }heating by discharge [H05B](#))

WARNING

Subgroups H01J ~~H01J37/32D~~ and H01J ~~H01J37/32D1~~ are no longer used for the classification of new documents as from 1 November 2011. The backlog of these groups is being continuously reclassified to the subgroups H01J ~~H01J 37/32009~~ -H01J ~~H01J 37/32917~~ . Pending reorganisation, the subgroups H01J ~~H01J 37/32009~~ -H01J ~~H01J 37/3299~~ are not complete, see provisionally also H01J ~~H01J37/32D~~ and H01J ~~H01J37/32D1~~

- U **H01J 2217/00** **Gas-filled discharge tubes([H01J 2211/00](#) takes precedence)**
- U H01J 2217/38 • Cold-cathode tubes
- H01J 2217/49 • • Display panels, e.g. not making use of alternating current(~~H01J2211/10~~ [H01J 2211/10](#) takes precedence)
- U H01J 2217/492 • • • Details
- U H01J 2217/49264 • • • • Vessels
- H01J 2217/49278 • • • • • Coatings(~~T01J217/492C6~~[H01J 2217/49292](#) takes precedence)]
- H01J 2217/49285 • • • • Associated optical means(~~combined with electromagnetic screens~~ ~~T01J217/492C6~~ ~~combined with electromagnetic screens~~ [H01J 2217/49292](#))

Project: N/A (H01L)

H01L

SEMICONDUCTOR DEVICES; ELECTRIC SOLID STATE DEVICES NOT OTHERWISE PROVIDED FOR(use of semiconductor devices for measuring [G01](#); resistors in general [H01C](#); magnets, inductors{in general} , transformers [H01F](#); capacitors in general [H01G](#); electrolytic devices [H01G 9/00](#) ; batteries, accumulators [H01M](#); waveguides, resonators or lines of the waveguide type [H01P](#); line connectors, current collectors [H01R](#); stimulated emission devices [H01S](#); electromechanical resonators [H03H](#); loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers [H04R](#); electric light sources in general [H05B](#); printed circuits, hybrid circuits, casings or constructional details of electric apparatus, manufacture of assemblages of electrical components [H05K](#); use of semiconductor devices in circuits having a particular application, see the subclass for the application)

NOTES

This subclass covers electric solid state devices which are not provided for in any other subclass and details thereof. This includes:

- semiconductor devices adapted for rectifying, amplifying, oscillating or switching;
- semiconductor devices sensitive to radiation;
- electric solid state devices using thermoelectric, superconductive, piezo-electric, electrostrictive,

magnetostrictive, galvano-magnetic or bulk negative resistance effects and integrated circuit devices.

Also covered by this subclass are photo-resistors, magnetic field dependent resistors, field effect resistors, capacitors with potential-jump barrier, resistors with potential-jump barrier or surface barrier, incoherent light emitting diodes, electromechanical solid state transducers and thin-film or thick-film circuits. Furthermore, it provides for processes and apparatus adapted for the manufacture or treatment of such devices, except where such processes relate to single step processes for which provision exists elsewhere.

In this subclass:

The expression "solid state body" refers to the body of material within which, or at the surface of which, the physical effects characteristic of the device occur. In thermoelectric devices it includes all materials in the current path.

Regions in or on the body of the device (other than the solid state body itself), which exert an influence on the solid state body electrically, are considered to be "electrodes" whether or not an external electrical connection is made thereto. {Electrodes are often referred to as "contacts" in the literature.} An electrode may include several portions and the term includes metallic regions which exert influence on the solid state body through an insulating region, (e.g. capacitive coupling) and inductive coupling arrangements to the body. The dielectric region in a capacitive arrangement is regarded as part of the electrode. In arrangements including several portions only those portions which exert an influence on the solid state body by virtue of their shape, size or disposition or the material of which they are formed are considered to be part of the electrode. The other portions are considered to be "arrangements for conducting electric current to or from the solid state body" or "interconnections between solid state components formed in or on a common substrate", i.e. leads.

The word "device" refers to an electric circuit element; where an electric circuit element is one of a plurality of elements formed in or on a common substrate it is referred to as a "component".

A "complete device" is a device in its fully assembled state which may or may not require further treatment, e.g. electro-forming, before it is ready for use but which does not require the addition of further structural units.

The word "parts" includes all structural units which are included in a complete device.

A "container" is an enclosure forming part of the complete device and is essentially a solid construction in which the body of the device is placed, or which is formed around the body without forming an intimate layer thereon. An enclosure which consists of one or more layers formed on the body and in intimate contact therewith is referred to as an "encapsulation".

"Integrated circuit" is a device where all components, e.g. diodes, resistors, are built up on a common substrate and form the device including interconnections between the components.

"Integration processes" are processes for the manufacture of at least two different components where the process is especially adapted to their integration, e.g. to take advantage of it or to reduce their manufacturing cost. Example: in a CMOS process, the same ion implant dopes the p-MOS gate and the n-MNOS source and drain.

Consequently, a process for the manufacture of a component per se is not considered as an integration process, even though that component will be part of an integrated circuit.

"Assembly" of a device is the building up of the device from its component constructional units and includes the provision of fillings in containers.

When referring to the periodic table of the elements, either the new IUPAC notation, i.e. numbering system from 1 to 18, or the previous IUPAC form may be used to indicate an element group, e.g. group IV elements according to the

previous IUPAC form correspond to group 14 elements according to the new notation

WARNINGS

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups

H01L 21/301 covered by [H01L 21/30](#)
H01L 21/328 covered by [H01L 29/66075](#) H01L 21/329 covered by [H01L 29/66083](#) H01L 21/33 covered by [H01L 29/66227](#) H01L 21/331 covered by [H01L 29/66234](#) H01L 21/332 covered by [H01L 29/66363](#) H01L 21/334 covered by [H01L 29/66075](#) H01L 21/335 covered by [H01L 29/66409](#)
H01L 21/336 covered by [H01L 29/66477](#) H01L 21/337 covered by [H01L 29/66893](#) H01L 21/338 covered by [H01L 29/66848](#) H01L 21/339 covered by [H01L 29/66946](#) H01L 21/58 covered by [H01L 24/80](#)
[H01L 21/8239](#) covered by ~~H01L 27/105M~~ [H01L 27/1052](#) H01L 21/60 covered by [H01L 24/80](#)
H01L 21/66 covered by [H01L 22/34](#) H01L 21/603 covered by [H01L 24/80](#)
H01L 21/607 covered by [H01L 24/80](#)
H01L 21/8242 covered by [H01L 27/10844](#)
H01L 21/8244 covered by [H01L 27/11](#) H01L 21/8246 covered by [H01L 27/112](#)
H01L 21/8247 covered by [H01L 27/11517](#) H01L 21/98 covered by [H01L 25/50](#)
H01L 29/38 covered by [H01L 29/04](#) to ~~H01L 29/36 D~~ ~~H01L 29/36D~~
H01L 29/96 covered by [H01L 29/68](#) to [H01L 29/945](#) H01L 51/30 covered by [H01L 51/0032](#)
H01L 51/40 covered by ~~H01L 51/00 A~~ ~~H01L 51/00A~~
H01L 51/46 covered by [H01L 51/0032](#)
H01L 51/48 covered by ~~H01L 51/00 A~~ ~~H01L 51/00A~~
H01L 51/54 covered by [H01L 51/0032](#)

Groups [H01L 23/562](#) to ~~H01L 23/576~~ do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H01L 23/562](#) - [H01L 23/564](#) : [H01L 23/00](#) - [H01L 23/57](#) : [H01L 23/58](#)

Groups [H01L 22/00](#) to [H01L 22/34](#) do not correspond to a former or current IPC group. Concordance CPC : IPC for these groups is as follows: - [H01L 22/00](#) - [H01L 22/34](#) : [H01L 21/66](#)

Groups [H01L 24/00](#) to [H01L 24/98](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H01L 24/00](#) - [H01L 24/98](#) : [H01L 23/00](#)

Group [H01L 25/50](#) does not correspond to a former or current IPC group. Concordance CPC : IPC for this group is as follows: - [H01L 25/50](#) : [H01L 21/98](#)

Groups [H01L 28/00](#) - [H01L 28/92](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H01L 28/00](#) - [H01L 28/92](#) : [H01L 49/02](#)

U H01L 21/00

Processes or apparatus adapted for the manufacture or treatment of semiconductor or solid state devices or of parts thereof ({ testing or measuring during manufacture or treatment, or reliability measurements [H01L 22/00](#) ; multistep manufacturing processes for passive two-terminal components without a potential-jump or surface barrier for integrated circuits [H01L 28/00](#) ; } processes or apparatus peculiar to the manufacture or treatment of devices provided for in groups [H01L 31/00](#) to [H01L 51/00](#) or of parts thereof, see these groups; single-step processes covered by other subclasses, see the relevant subclasses, e.g. [C23C](#), [C30B](#); photomechanical production of textured or patterned surfaces, materials or originals therefor, apparatus specially adapted therefor, in general [G03F](#)))

U H01L 21/02

• Manufacture or treatment of semiconductor devices or of parts thereof

- U H01L 21/04
 - the devices having at least one potential-jump barrier or surface barrier, e.g. PN junction, depletion layer, carrier concentration layer{(multistep processes specially adapted for the manufacture of said devices [H01L 29/66007](#) , [H01L 29/401](#) ; details of semiconductor bodies [H01L 29/02](#))}
- U H01L 21/18
 - the devices having semiconductor bodies comprising elements of the fourth group of the Periodic System or IIIIV compounds with or without impurities, e.g. doping materials{([H01L 21/041](#) to [H01L 21/0425](#) , [H01L 21/045](#) to [H01L 21/048](#) take precedence)}

NOTE

This group covers also processes and apparatus which, by using the appropriate technology, are clearly suitable for manufacture or treatment of devices whose bodies comprise elements of the fourth group of the Periodic System or IIIIV compounds, even if the material used is not explicitly specified.

- U H01L 21/26
 - Bombardment with radiation{([H01L 21/3105](#) takes precedence)}
- U H01L 21/263
 - with high-energy radiation([H01L 21/261](#) takes precedence)
- H01L 21/265
 - producing ion implantation(ion beam tubes for localised treatment [H01J 37/30](#))

WARNING

The groups ~~H01L 21/265~~ [H10L 21/26566](#), [H01L 21/2658](#) and [H01L 21/26593](#) are not complete, see provisionally also [H01L 21/26506](#) and [H01L 21/2654](#) and their subgroups

- H01L 2021/26573
 - {in diamond}
- U H01L 21/28
 - Manufacture of electrodes on semiconductor bodies using processes or apparatus not provided for in [H01L 21/20](#) to [H01L 21/268](#) ; { etching for patterning the electrodes [H01L 21/311](#) and [H01L 21/3213](#) }
- U H01L 21/283
 - Deposition of conductive or insulating materials for electrodes{conducting electric current}
- U H01L 21/285
 - from a gas or vapour, e.g. condensation
- U H01L 21/28506
 - {of conductive layers}
- U H01L 21/28512
 - {on semiconductor bodies comprising elements of the fourth group of the Periodic System}
- H01L 2021/28543
 - {on semiconductor bodies comprising diamond}
- U H01L 21/30
 - Treatment of semiconductor bodies using processes or apparatus not provided for in groups [H01L 21/20](#) to [H01L 21/26](#) (manufacture of electrodes thereon [H01L 21/28](#))
- U H01L 21/31
 - to form insulating layers thereon, e.g. for masking or by using photolithographic techniques(layers forming electrodes [H01L 21/28](#) ; encapsulating layers [H01L 21/56](#)); After treatment of these layers
- U H01L 21/314
 - Inorganic layers([H01L 21/3105](#) , [H01L 21/32](#) take precedence)

WARNING

This group and subgroups are no longer used for the classification of new documents as from May 1, 2011. The backlog of this group is being continuously reclassified to [H01L 21/02107](#) and subgroups thereof

- U H01L 21/3148
 - {Silicon Carbide layers}
- H01L 2021/3149
 - {Langmuir-Blodgett techniques}

- U H01L 21/50
- • • Assembly of semiconductor devices using processes or apparatus not provided for in a single one of the subgroups [H01L 21/06](#) to [H01L 21/326](#), {e.g. sealing of a cap to a base of a container}
- NOTE
- Arrangements for connecting or disconnecting semiconductor or other solid state bodies, or methods related thereto, other than those arrangements or methods covered by the following subgroups, are covered by [H01L 24/00](#)
- H01L 2021/60
- • • • {Attaching or detaching leads or other conductive members, to be used for carrying current to or from the device in operation}
- H01L 2021/60007
- • • • • {involving a soldering or an alloying process}
- H01L 2021/60015
- • • • • • {using plate connectors, e.g. layer, film}
- H01L 2021/60022
- • • • • • {using bump connectors, e.g. for flip chip mounting}
- H01L 2021/6003
- • • • • • • {Apparatus therefor}
- H01L 2021/60037
- • • • • • • {Right-up bonding}
- H01L 2021/60045
- • • • • • • {Pre-treatment step of the bump connectors prior to bonding}
- H01L 2021/60052
- • • • • • • {Oxide removing step, e.g. flux, rosin}
- H01L 2021/6006
- • • • • • • {with temporary supporting member not part of an apparatus, e.g. removable coating, film or substrate}
- H01L 2021/60067
- • • • • • • {Aligning the bump connectors with the mounting substrate}
- H01L 2021/60075
- • • • • • • {involving active alignment, i.e. by apparatus steering, e.g. using alignment marks, sensors}
- H01L 2021/60082
- • • • • • • {involving passive alignment, e.g. using surface energy, chemical reactions, thermal equilibrium}
- H01L 2021/6009
- • • • • • • {involving guiding structures, e.g. structures that are left at least partly in the bonded product, spacers}
- H01L 2021/60097
- • • • • • • {Applying energy, e.g. for the soldering or alloying process}
- H01L 2021/60105
- • • • • • • {using electromagnetic radiation}
- H01L 2021/60112
- • • • • • • • {Coherent radiation, i.e. laser beam}
- H01L 2021/6012
- • • • • • • • {Incoherent radiation, e.g. polychromatic heating lamp}
- H01L 2021/60127
- • • • • • • • {Induction heating, i.e. eddy currents}
- H01L 2021/60135
- • • • • • • • {using convection, e.g. reflow oven}
- H01L 2021/60142
- • • • • • • • {with a graded temperature profile}
- H01L 2021/6015
- • • • • • • • {using conduction, e.g. chuck heater, thermocompression}
- H01L 2021/60157
- • • • • • • • {with a graded temperature profile}
- H01L 2021/60165
- • • • • • • • {using an electron beam}
- H01L 2021/60172
- • • • • • • • {using static pressure}
- H01L 2021/6018
- • • • • • • • {Unidirectional static pressure}
- H01L 2021/60187
- • • • • • • • {Isostatic pressure, e.g. degassing using vacuum or pressurised liquid}
- H01L 2021/60195
- • • • • • • • {using dynamic pressure, e.g. ultrasonic or thermosonic bonding}
- H01L 2021/60202
- • • • • • • • {using a protective atmosphere, e.g. with forming or shielding gas}
- H01L 2021/6021
- • • • • • • • {using an autocatalytic reaction}
- H01L 2021/60217
- • • • • • • • {Detaching bump connectors, e.g. after testing}
- H01L 2021/60225
- • • • • • • • {Arrangement of bump connectors prior to mounting}
- H01L 2021/60232
- • • • • • • • {wherein the bump connectors are disposed only on the semiconductor chip}

- H01L 2021/6024 {wherein the bump connectors are disposed only on the mounting substrate}
 - H01L 2021/60247 {wherein the bump connectors are disposed on both the semiconductor chip and the mounting substrate, e.g. bump to bump}
 - H01L 2021/60255 {wherein the bump connectors are provided as prepeg, e.g. are provided in an insulating plate member}
 - H01L 2021/60262 {Lateral distribution of bump connectors prior to mounting}
 - H01L 2021/6027 {Mounting on semiconductor conductive members}
 - H01L 2021/60277 {involving the use of conductive adhesives}
 - H01L 2021/60285 {involving the use of mechanical auxiliary parts without the use of an alloying of soldering process, e.g. pressure contacts}
 - H01L 2021/60292 {involving the use of an electron or laser beam}
 - H01L 2021/603 {involving the application of pressure, e.g. thermo-compression bonding}
 - H01L 2021/607 {involving the application of mechanical vibrations, e.g. ultrasonic vibrations}
 - U H01L 21/67 . Apparatus specially adapted for handling semiconductor or electric solid state devices during manufacture or treatment thereof; Apparatus specially adapted for handling wafers during manufacture or treatment of semiconductor or electric solid state devices or components; {Apparatus not specifically provided for elsewhere(processes per se [H01L 21/30](#) , [H01L 21/46](#) , [H01L 23/00](#) ; simple temporary support means, e.g. using adhesives, electric or magnetic means [H01L 21/68](#) , [H01L 21/302](#) ; apparatus for manufacturing arrangements for connecting or disconnecting semiconductor or solid-state bodies and for methods related thereto [H01L 24/74](#) ;)}
- NOTE**
- In this subgroup the term substrate designates a semiconductor or electric solid state device or component, or a wafer
- H01L 21/68 . . for positioning, orientation or alignment(for conveying [H01L 21/677](#))
- WARNING**
- This group is in reorganisation. See provisionally also group ~~H01L 21/68~~ [H01L 21/6835](#)
- U H01L 21/683 . . for supporting or gripping(for conveying [H01L 21/677](#) , for positioning, orientation or alignment [H01L 21/68](#))
 - H01L 21/687 . . . using mechanical means, e.g. chucks, clamps or pinches{(using electrostatic chucks ~~H01L 21/683 C~~ [H01L 21/683C](#))}
 - U H01L 21/70 . Manufacture or treatment of devices consisting of a plurality of solid state components formed in or on a common substrate or of parts thereof; Manufacture of integrated circuit devices or of parts thereof({ multistep manufacturing processes of assemblies consisting of a plurality of individual semiconductor or other solid state devices [H01L 25/00](#) } , manufacture of assemblies consisting or preformed electrical components [H05K 3/00](#) , [H05K 13/00](#))
 - U H01L 21/71 . . Manufacture of specific parts of devices defined in group [H01L 21/70](#) ({ [H01L 21/0405](#) , [H01L 21/0445](#) } , [H01L 21/28](#) , [H01L 21/44](#) , [H01L 21/48](#) take precedence)

- H01L 21/768
- • Applying interconnections to be used for carrying current between separate components within a device{comprising conductors and dielectrics}
- NOTE
Groups [H01L 21/768](#) to [H01L 21/76898](#) cover multi-step processes for manufacturing interconnections.
Information peculiar to single-step processes should also be classified in the corresponding group, e.g.
- cleaning [H01L 21/02 F](#) [H02L 21/02041](#)
 - etching [H01L 21/311](#) , [H01L 21/3213](#)
 - masking [H01L 21/027](#) , [H01L 21/033](#) , [H01L 21/311 D](#) [H01L 21/31144](#) , [H01L 21/3213 D](#) [H01L 21/32139](#)
 - planarizing [H01L 21/3105](#) , [H01L 21/321](#)
- H01L 21/77
- • Manufacture or treatment of devices consisting of a plurality of solid state components or integrated circuits formed in, or on, a common substrate
- NOTE
Integration processes for the manufacture of devices of the type classified in [H01L 27/14](#) to [H01L 27/32](#) are not classified in this group and its sub-groups. Instead, as they are peculiar to said devices, they are classified together with the devices Multistep processes for manufacturing memory structures in general using field effect technology are covered by [H01L 27/105 M](#) [H01L 27/1052](#); Multistep processes for manufacturing dynamic random access memory structures are covered by [H01L 27/108 M](#) [H01L 27/10844](#); Multistep processes for manufacturing static random access memory structures are covered by [H01L 27/11](#) ; Multistep processes for manufacturing read-only memory structures are covered by [H01L 27/112](#) ; Multistep processes for manufacturing electrically programmable read-only memory structures are covered by [H01L 27/115](#)
- H01L 2021/775
- • {comprising a plurality of TFTs on a non-semiconducting substrate, e.g. driving circuits for AMLCDs}
- U H01L 22/00** {Testing or measuring during manufacture or treatment; Reliability measurements, i.e. testing of parts without further processing to modify the parts as such; Structural arrangements therefor(detecting or counting or handling [H01L 21/67005](#) ; marks applied to semiconductor devices [H01L 23/544](#) ; testing methods or structures peculiar to devices provided for in groups [H01L 31/00](#) to [H01L 51/00](#) , see these groups; investigating or analysing materials by the use of optical means [G01N 21/00](#) ; testing electrical properties of individual semiconductor devices [G01R 31/26](#) ; testing of photovoltaic systems [H02S 50/00](#))}
- U H01L 22/20**
- {Sequence of activities consisting of a plurality of measurements, corrections, marking or sorting steps}
- H01L 22/26
- • {Acting in response to an ongoing measurement without interruption of processing, e.g. endpoint detection, in-situ thickness measurement(endpoint detection arrangements in CMP apparatus [B24B 37/013](#) , in discharge apparatus [H01J37/32D1C1](#) [H01J 37/32](#))}
- U H01L 22/30**
- {Structural arrangements specially adapted for testing or measuring during manufacture or treatment, or specially adapted for reliability measurements}
- H01L 22/34
- • {Circuits for electrically characterising or monitoring manufacturing processes, e. g. whole test die, wafers filled with test structures, on-board-devices incorporated on each die, process control monitors or pad structures thereof, devices in scribe line(switching, multiplexing, gating devices [G01R 19/25](#) ; process control with lithography, e.g. dose control, [G03F 7/20](#) ; structures for alignment control by optical means [G03F7/20T8](#) [G03F 7/70633](#))}

- U H01L 23/00** Details of semiconductor or other solid state devices([H01L 25/00](#) takes precedence; { structural arrangements for testing or measuring during manufacture or treatment, or for reliability measurements [H01L 22/00](#) ; arrangements for connecting or disconnecting semiconductor or solid-state bodies, or methods related thereto [H01L 24/00](#) ; finger print sensors [G06K 9/00006](#) })
- NOTE**
This group does not cover:
- details of semiconductor bodies or of electrodes of devices provided for in group [H01L 29/00](#) , which details are covered by that group;
 - details peculiar to devices provided for in a single main group of groups [H01L 31/00](#) to [H01L 51/00](#) , which details are covered by those groups.
- U H01L 23/34** • Arrangements for cooling, heating, ventilating or temperature compensation; {Temperature sensing arrangements(thermal treatment apparatus [H01L 21/00](#))}
- U H01L 23/40** • • Mountings or securing means for detachable cooling or heating arrangements{(heating [H01L 23/345](#)); fixed by friction, plugs or springs}
- U H01L 23/4006** • • • {with bolts or screws}
- H01L 2023/4018** • • • • {characterised by the type of device to be heated or cooled}
- H01L 2023/4025** • • • • • {Base discrete devices, e.g. presspack, disc-type transistors}
- H01L 2023/4031** • • • • • {Packaged discrete devices, e.g. to-3 housings, diodes}
- H01L 2023/4037** • • • • • {characterised by thermal path or place of attachment of heatsink}
- H01L 2023/4043** • • • • • {heatsink to have chip}
- H01L 2023/405** • • • • • {heatsink to package}
- H01L 2023/4056** • • • • • {heatsink to additional heatsink}
- H01L 2023/4062** • • • • • {heatsink to or through board or cabinet}
- H01L 2023/4068** • • • • • {Heatconductors between device and heatsink, e.g. compliant heat-spreaders, heat-conducting bands}
- H01L 2023/4075** • • • • • {Mechanical elements}
- H01L 2023/4081** • • • • • {Compliant clamping elements not primarily serving heat-conduction}
- H01L 2023/4087** • • • • • {Mounting accessories, interposers, clamping or screwing parts}

H01L 24/00

{Arrangements for connecting or disconnecting semiconductor or solid-state bodies; Methods or apparatus related thereto}

NOTE

1. This group does not cover: - details of semiconductor bodies or of electrodes of devices provided for in group [H01L 29/00](#) , which details are covered by that group; - details peculiar to devices provided for in a single main group of groups [H01L 31/00](#) to [H01L 51/00](#) , which details are covered by those groups. - printed circuits, which are covered by groups [H05K 1/00](#) to ~~[H05K 1/18](#)~~ ~~[FH05K1/18F](#)~~; - apparatus or manufacturing processes for printed circuits, which are covered by groups [H05K 3/00](#) to ~~[H05K 3/46](#)~~ ~~[DH05K3/46D](#)~~; - manufacture or treatment of parts, which are covered by group [H01L 21/48](#) and subgroups except [H01L 21/4885](#) to [H01L 21/4896](#) ; - assemblies of semiconductor devices, which are covered by groups [H01L 21/50](#) to ~~[H01L 21/56](#)~~ ~~[TH01L21/56T](#)~~; - applying interconnections to be used for carrying current between separate components within a device, which is covered by group [H01L 21/768](#) and subgroups; - containers or seals, which are covered by groups [H01L 23/02](#) to [H01L 23/10](#) ; - mountings, which are covered by groups [H01L 23/12](#) to [H01L 23/15](#) and subgroups; - arrangements for cooling, heating, ventilating or temperature

compensation, which are covered by groups [H01L 23/34](#) to ~~H01L 23/473~~ **JH01L23/473J**; - arrangements for conducting electric current, which are covered by groups [H01L 23/48](#) to [H01L 23/50](#), and by groups [H01L 23/52](#) to ~~H01L 23/538~~ **VH01L23/538V**; - structural electrical arrangements, which are covered by groups [H01L 23/58](#) to [H01L 23/66](#); - assemblies of semiconductor or other solid state devices, which are covered by groups [H01L 25/00](#) to [H01L 25/18](#). 2. In this group the following indexing codes are used : [H01L 24/00](#) [H01L 2224/00](#), [H01L 2924/00](#), and subgroups thereof

WARNING

[H01L 21/4885](#), [H01L 21/58](#), [H01L 23/48](#), [H01L 23/482](#), [H01L 23/485](#), [H01L 23/488](#)

U H01L 24/01

- {Means for bonding being attached to, or being formed on, the surface to be connected, e.g. chip-to-package, die-attach, "first-level" interconnects; Manufacturing methods related thereto}

WARNING

1. Not complete, see provisionally also [H01L 23/482](#), [H01L 23/485](#) and subgroups 2. Pending reorganisation subgroups of this group are not complete; see also this group and the other subgroups

H01L 24/18

- {High density interconnect [HDI]connectors; Manufacturing methods related thereto(interconnection structure between a plurality of semiconductor chips [H01L 23/5389](#))}

WARNING

1. Pending reorganisation, see provisionally also ~~H01L 24/82~~ **H01L24/822**
2. Pending reorganisation, subgroups of this group are not complete; see also this group . *Pending reorganisation, subgroups of this group are not complete; see also this group*

U H01L 24/80

- {Methods for connecting semiconductor or other solid state bodies using means for bonding being attached to, or being formed on, the surface to be connected}

WARNING

1. Pending reorganisation see provisionally also [H01L 21/60](#) 2. Subgroups of this group are not complete; see also this group and the other subgroups

H01L 24/81

- {using a bump connector}

WARNING

~~H01L21/60G4~~

[H01L 24/81](#)

H01L 24/83

- {using a layer connector}

WARNING

~~H01L21/60G2~~

H01L 24/90

- {Methods for connecting semiconductor or solid state bodies using means for bonding not being attached to, or not being formed on, the body surface to be connected, e.g. pressure contacts using springs or clips}

WARNING

~~H01L 21/60-E~~

H01L21/60E

- U H01L 27/00** Devices consisting of a plurality of semiconductor or other solid state components formed in or on a common substrate(processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof [H01L 21/70](#) , [H01L 31/00](#) to [H01L 51/00](#) ; details thereof [H01L 23/00](#) , [H01L 29/00](#) to [H01L 51/00](#) ; assemblies consisting of a plurality of individual solid state devices [H01L 25/00](#) ; assemblies of electrical components in general [H05K](#))

NOTE

In this group, in the absence of an indication to the contrary, classification is made in the last appropriate place.

- U H01L 27/02** . including semiconductor components specially adapted for rectifying, oscillating, amplifying or switching and having at least one potential-jump barrier or surface barrier; including integrated passive circuit elements with at least one potential-jump barrier or surface barrier
- U H01L 27/04** . . the substrate being a semiconductor body
- U H01L 27/10** . . . including a plurality of individual components in a repetitive configuration
- U H01L 27/118** Masterslice integrated circuits
- U H01L 27/11803** {using field effect technology}
- H01L 2027/11805** {A3B5 or A3B6 gate arrays}
- U H01L 27/11807** {CMOS gate arrays}
- H01L 2027/11809** {Micro-architecture}
- H01L 2027/11811** {Basic cell P to N transistor count}
- H01L 2027/11812** {4-T CMOS basic cell}
- H01L 2027/11814** {5-T CMOS basic cell}
- H01L 2027/11816** {6-T CMOS basic cell}
- H01L 2027/11818** {7-T CMOS basic cell}
- H01L 2027/1182** {8-T CMOS basic cell}
- H01L 2027/11822** {relative P to N transistor sizes}
- H01L 2027/11824** {for current drive capability}
- H01L 2027/11825** {for delay time adaptation}
- H01L 2027/11827** {for capacitive loading}
- H01L 2027/11829** {Isolation techniques}
- H01L 2027/11831** {FET isolation}
- H01L 2027/11833** **LOCOS**{**LOCOS**}
- H01L 2027/11835** {Degree of specialisation for implementing specific functions}
- H01L 2027/11837** {Implementation of digital circuits}
- H01L 2027/11838** {Implementation of memory functions}
- H01L 2027/1184** {Implementation of analog circuits}
- H01L 2027/11842** {Resistors and capacitors}
- H01L 2027/11844** {Hybrid analog or digital}
- H01L 2027/11846** {Embedded IO cells}
- H01L 2027/11848** {Transmission gate}
- H01L 2027/1185** {Porous cells, i.e. pass-through elements}
- H01L 2027/11851** {Technology used, i.e. design rules}
- H01L 2027/11853** {Sub-micron technology}
- H01L 2027/11855** {Twin-tub technology}

| | |
|-----------------|---|
| H01L 2027/11857 | {SOS, SOI technology} |
| H01L 2027/11859 | {Connectability characteristics, i.e. diffusion and polysilicon geometries} |
| H01L 2027/11861 | {Substrate and well contacts} |
| H01L 2027/11862 | {Horizontal or vertical grid line density} |
| H01L 2027/11864 | {Yield or reliability} |
| H01L 2027/11866 | {Gate electrode terminals or contacts} |
| H01L 2027/11868 | {Macro-architecture} |
| H01L 2027/1187 | {Number of core or basic cells in the macro(RAM, ROM)} |
| H01L 2027/11872 | {Distribution function, e.g. Sea of Gates} |
| H01L 2027/11874 | {Layout specification, i.e. inner core region} |
| H01L 2027/11875 | {Wiring region, routing} |
| H01L 2027/11877 | {Avoiding clock-skew or clock-delay} |
| H01L 2027/11879 | {Data lines (buses)} |
| H01L 2027/11881 | {Power supply lines} |
| H01L 2027/11883 | {Levels of metallisation} |
| H01L 2027/11885 | {Two levels of metal} |
| H01L 2027/11887 | {Three levels of metal} |
| H01L 2027/11888 | {More than 3 levels of metal} |
| H01L 2027/1189 | {Latch-up prevention} |
| H01L 2027/11892 | {Noise prevention (crosstalk)} |
| H01L 2027/11894 | {Radiation hardened circuits} |

- U H01L 29/00** Semiconductor devices adapted for rectifying, amplifying, oscillating or switching, or capacitors or resistors with at least one potential-jump barrier or surface barrier, e.g. PN junction depletion layer or carrier concentration layer; Details of semiconductor bodies or of electrodes thereof; {Multistep manufacturing processes therefor} ([H01L 31/00](#) - [H01L 47/00](#) , [H01L 51/05](#) take precedence; processes or apparatus adapted for the manufacture or treatment thereof or of parts thereof [H01L 21/00](#) ; details other than of semiconductor bodies or of electrodes thereof [H01L 23/00](#) ; devices consisting of a plurality of solid state components formed in or on a common substrate [H01L 27/00](#) ; { passive two-terminal components without a potential-jump or surface barrier for integrated circuits, details thereof and multistep manufacturing processes therefor [H01L 28/00](#) ; } resistors in general [H01C](#); capacitors in general [H01G](#), { e.g. ceramic barrier-layer capacitors [H01G 4/1272](#) })

NOTE

In this main group, classification is made both in groups [H01L 29/02](#) to [H01L 29/51](#) and in groups [H01L 29/66](#) to [H01L 29/94](#) if both of these sets of groups are relevant.

- | | |
|-----------------|---|
| U H01L 29/40 | . Electrodes; {Multistep manufacturing processes therefor} |
| U H01L 29/41 | . . characterised by their shape, relative sizes or dispositions |
| U H01L 29/423 | . . . not carrying the current to be rectified, amplified or switched |
| U H01L 29/42312 | {Gate electrodes for field effect devices} |
| U H01L 29/42316 | {for field-effect transistors} |
| U H01L 29/4232 | {with insulated gate} |

- U H01L 29/42384 {for thin film field effect transistors, e.g. characterised by the thickness or the shape of the insulator or the dimensions, the shape or the lay-out of the conductor}
- H01L 2029/42388 {characterised by the shape of the insulating material}

Project: RP0032 (H01L)

- U H01L 29/66 . Types of semiconductor device;{Multistep manufacturing processes therefor}
- U H01L 29/68 . . controllable by only the electric current supplied, or only the electric potential applied, to an electrode which does not carry the current to be rectified, amplified or switched
- U H01L 29/76 . . . Unipolar devices,{e.g. field effect transistors}
- H01L 29/778 with two-dimensional charge carrier gas channel, e.g. HEMT; {with two-dimensional charge-carrier layer formed at a heterojunction interface([H01L 29/804](#) [H01L 29/803](#) takes precedence)}

Project: N/A (H01L)

- H01L 29/7781 {with inverted single heterostructure, i.e. with active layer formed on top of wide bandgap layer, e.g. IHEMT}
- H01L 29/7782 {with confinement of carriers by at least two heterojunctions, e.g. DHHEMT, quantum well HEMT, DHMODFET}
- H01L 29/7783 {using III-V semiconductor material}
- H01L 29/7784 {with delta or planar doped donor layer([H01L 29/7785](#) takes precedence)}
- H01L 29/7785 {with more than one donor layer}
- H01L 29/7786 {with direct single heterostructure, i.e. with wide bandgap layer formed on top of active layer, e.g. direct single heterostructure MIS-like HEMT}
- H01L 29/7787 {with wide bandgap charge-carrier supplying layer, e.g. direct single heterostructure MODFET}
- H01L 29/7788 {Vertical transistors}
- H01L 29/7789 {the two-dimensional charge carrier gas being at least partially not parallel to a main surface of the semiconductor body}
- U H01L 29/78 with field effect produced by an insulated gate{([H01L 29/7725](#) , [H01L 29/775](#) , [H01L 29/778](#) take precedence)}
- N H01L 29/78391 {the gate comprising a layer which is used for its ferroelectric properties}
- D H01L 29/784 {the gate comprising a layer which is used for its ferroelectric properties}
- U H01L 29/785 {having a channel with a horizontal current flow in a vertical sidewall of a semiconductor body, e.g. FinFET, MuGFET}
- H01L 2029/7857 {of the accumulation type}
- H01L 2029/7858 {having contacts specially adapted to the FinFET geometry, e.g. wrap-around contacts}
- U H01L 29/786 Thin film transistors,{i.e. transistors with a channel being at least partly a thin film(transistors having only the source or the drain region on an insulator layer [H01L 29/0653](#) ; thin film FinFETs [H01L 29/785](#))}
- U H01L 29/78606 {with supplementary region or layer in the thin film or in the insulated bulk substrate supporting it for controlling or increasing the safety of the device([H01L 29/78642](#) , [H01L 29/78645](#) take precedence)}

- U H01L 29/78618 {characterised by the drain or the source properties, e.g. the doping structure, the composition, the sectional shape or the contact structure(silicide contacts, electrodes in general [H01L 29/458](#))}
- U H01L 29/78621 {with LDD structure or an extension or an offset region or characterised by the doping profile}
- H01L 2029/7863 {with an LDD consisting of more than one lightly doped zone or having a non-homogeneous dopant distribution, e.g. graded LDD}

Project: RP0032 (H01L)

- H01L 29/788 with floating gate{(~~H01L 29/784~~[H01L 29/78391](#) takes precedence)}

Project: N/A (H01L)

- U H01L 29/80 with field effect produced by a PN or other rectifying junction gate,{i.e. potential-jump barrier}
- U H01L 29/802 {with heterojunction gate, e.g. transistors with semiconductor layer acting as gate insulating layer, MIS-like transistors([H01L 29/806](#) takes precedence; with one dimensional electron gas [H01L 29/775](#) ; with dimensional electron gas [H01L 29/778](#))}
- N H01L 29/803 {Programmable transistors, e.g. with charge-trapping quantum well}
- D H01L 29/804 {Programmable transistors, e.g. with charge-trapping quantum well}
- U H01L 31/00 **Semiconductor devices sensitive to infra-red radiation, light, electromagnetic radiation of shorter wavelength or corpuscular radiation and adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation; Processes or apparatus peculiar to the manufacture or treatment thereof or of parts thereof; Details thereof([H01L 51/42](#) takes precedence; devices consisting of a plurality of solid state components formed in, or on, a common substrate, other than combinations of radiation-sensitive components with one or more electric light sources, [H01L 27/00](#) ; production of heat using solar heat [F24J 2/00](#) ; measurement of X-radiation, gamma radiation, corpuscular radiation or cosmic radiation with semiconductor detectors [G01T 1/24](#) , with resistance detectors [G01T 1/26](#) ; measurement of neutron radiation with semiconductor detectors [G01T 3/08](#) ; couplings of light guides with optoelectronic elements [G02B 6/42](#) ; obtaining energy from radioactive sources [G21H](#))**
- U H01L 31/0248 . . . characterised by their semiconductor bodies
- U H01L 31/0256 . . . characterised by the material
- H01L 2031/0344 . . . {Organic materials}
- U H01L 31/04 . . . adapted as conversion devices
- U H01L 31/06 . . . characterised by at least one potential-jump barrier or surface barrier

NOTE

Groups [H01L 31/061](#) to 31/078 are based on IPC2012.01]

- U H01L 31/072 . . . the potential barriers being only of the PN heterojunction type
- U H01L 31/0745 . . . comprising a AIVBIV heterojunction, e.g. Si/Ge, SiGe/Si or Si/SiC solar cells
- H01L 31/0747 . . . comprising a heterojunction of crystalline and amorphous materials, e.g. heterojunction with intrinsic thin layer or HIT~~®~~[solar cells](#); solar cells

| | |
|----------------|--|
| H01L 41/00 | <p>Piezo-electric devices in general; Electrostrictive devices in general; Magnetostrictive devices in general; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof; Details thereof(devices consisting of a plurality of solid-state components formed in or on a common substrate H01L 27/00)</p> <p><u>WARNING</u></p> <p>1. Groups H01L 41/22 - 41/47H01L 41/47 correspond to IPC2013.01.
Concordance CPC : IPC for these groups is as follows: - H01L 41/22 - 41/37H01L 41/37 : H01L 41/22 - H01L 41/39 - 41/43H01L 41/43 : H01L 41/24 - H01L 41/45 : H01L 41/26 - H01L 41/47 : H01L 41/22 2. Pending reorganisation, the groups H01L 41/23 to H01L 41/47 are not complete; see provisionally also H01L 41/22</p> |
| H01L 41/08 | <ul style="list-style-type: none"> • Piezo-electric or electrostrictive devices <p><u>WARNING</u></p> <p>Pending reorganisation, the groups H01L 41/08 CH01L 41/08C, H01L 41/08 FH01L 41/08F, and H01L 41/0825 are not complete, see provisionally also H01L 41/08</p> |
| H01L 41/09 | <ul style="list-style-type: none"> • {with electrical input and mechanical output e.g. actuators, vibrators}
(in frequency selective networks H03H9in frequency selective networks H03H 9/00) |
| H01L 41/0906 | <ul style="list-style-type: none"> • • {using longitudinal or thickness displacement combined with bending, shear or torsion displacement} <p><u>WARNING</u></p> <p>Pending reorganisation, the groups H01L 41/0913 to H01L 41/092 are not complete, see provisionally also H01L 41/09 BH01L 41/09B</p> |
| U H01L 51/00 | <p>Solid state devices using organic materials as the active part, or using a combination of organic materials with other materials as the active part; Processes or apparatus specially adapted for the manufacture or treatment of such devices, or of parts thereof(devices consisting of a plurality of components formed in or on a common substrate H01L 27/28 ; thermoelectric devices using organic material H01L 35/00 , H01L 37/00 ; piezoelectric, electrostrictive or magnetostrictive elements using organic material H01L 41/00)</p> |
| H01L 51/0001 | <ul style="list-style-type: none"> • {Processes specially adapted for the manufacture or treatment of devices or of parts thereof(multistep processes H01L 51/0098 , H01L 51/05 , H01L 51/12H01L 51/42 , H01L 51/50)} |
| U H01L 51/0032 | <ul style="list-style-type: none"> • {Selection of organic semiconducting materials, e.g. organic light sensitive or organic light emitting materials} <p><u>NOTE</u></p> <p>This group only covers the selection of organic materials for their electrical or other properties insofar as they are specific for their use in devices covered by the group H01L 51/00 .</p> <p>For the materials per se, see the relevant subclasses.</p> <p>Attention is drawn to the following places:</p> <ul style="list-style-type: none"> - organic materials in general C07C, C07D, C07F, C08L; - organic materials as electrical conductors H01B 1/12 ; - organic materials as electrical insulators H01B 3/18 |
| U H01L 51/005 | <ul style="list-style-type: none"> • • {Macromolecular systems with low molecular weight, e.g. cyanine dyes, coumarine dyes, tetrathiafulvalene(H01L 51/0045 , H01L 51/0077 , H01L 51/0093 , H01L 51/0094 take precedence)} |
| U H01L 51/0062 | <ul style="list-style-type: none"> • • • {aromatic compounds comprising a hetero atom, e.g.: N,P,S} |

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| | H01L 2051/0063 | • • • • {Oxadiazole Compounds} |
| U | H01L 2224/00 | Indexing scheme for arrangements for connecting or disconnecting semiconductor or solid-state bodies and methods related thereto as covered by H01L24 |
| U | H01L 2224/01 | • Means for bonding being attached to, or being formed on, the surface to be connected, e.g. chip-to-package, die-attach, "first-level" interconnects; Manufacturing methods related thereto |
| U | H01L 2224/02 | • • Bonding areas; Manufacturing methods related thereto |
| U | H01L 2224/07 | • • • Structure, shape, material or disposition of the bonding areas after the connecting process |
| U | H01L 2224/08 | • • • • of an individual bonding area |
| U | H01L 2224/081 | • • • • • Disposition |
| | H01L 2224/08111 | • • • • • the bonding area being disposed in a recess of the surface of the body (embedded bonding area T01L224/08122) |
| U | H01L 2224/10 | • • Bump connectors; Manufacturing methods related thereto |
| U | H01L 2224/12 | • • • Structure, shape, material or disposition of the bump connectors prior to the connecting process |
| U | H01L 2224/13 | • • • • of an individual bump connector |
| U | H01L 2224/13001 | • • • • • Core members of the bump connector |
| U | H01L 2224/13099 | • • • • • Material |
| | H01L 2224/13193 | • • • • • with a principal constituent of the material being a solid not provided for in groups T01L224/44100 <u>H01L 2224/131</u> to T01L224/44191 <u>H01L 2224/13191</u> , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond |
| | H01L 2224/13194 | • • • • • with a principal constituent of the material being a liquid not provided for in groups T01L224/44100 <u>H01L 2224/131</u> to T01L224/44191 <u>H01L 2224/13191</u> |
| | H01L 2224/13195 | • • • • • with a principal constituent of the material being a gas not provided for in groups T01L224/44100 <u>H01L 2224/131</u> to T01L224/44191 <u>H01L 2224/13191</u> |
| U | H01L 2224/1354 | • • • • • Coating |
| U | H01L 2224/13599 | • • • • • Material |
| U | H01L 2224/13698 | • • • • • with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams |
| U | H01L 2224/13798 | • • • • • • Fillers |
| U | H01L 2224/13799 | • • • • • • Base material |
| | H01L 2224/13893 | • • • • • • with a principal constituent of the material being a solid not provided for in groups T01L224/44800 <u>H01L 2224/138</u> to T01L224/44891 <u>H01L 2224/13891</u> , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond |
| | H01L 2224/13894 | • • • • • • with a principal constituent of the material being a liquid not provided for in groups T01L224/44800 <u>H01L 2224/138</u> to T01L224/44891 <u>H01L 2224/13891</u> |
| | H01L 2224/13895 | • • • • • • with a principal constituent of the material being a gas not provided for in groups T01L224/44800 <u>H01L 2224/138</u> to T01L224/44891 <u>H01L 2224/13891</u> |
| U | H01L 2224/13899 | • • • • • • Coating material |

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| | H01L 2224/13993 | with a principal constituent of the material being a solid not provided for in groups T01L224/44900 H01L 2224/139 to T01L224/44991 H01L 2224/13991 , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond |
| | H01L 2224/13994 | with a principal constituent of the material being a liquid not provided for in groups T01L224/44900 H01L 2224/139 to T01L224/44991 H01L 2224/13991 |
| | H01L 2224/13995 | with a principal constituent of the material being a gas not provided for in groups T01L224/44900 H01L 2224/139 to T01L224/44991 H01L 2224/13991 |
| U | H01L 2224/15 | . . . Structure, shape, material or disposition of the bump connectors after the connecting process |
| U | H01L 2224/16 | of an individual bump connector |
| U | H01L 2224/161 | Disposition |
| | H01L 2224/16111 | the bump connector being disposed in a recess of the surface(embedded bump connector T01L224/16122) |
| U | H01L 2224/26 | . . Layer connectors, e.g. plate connectors, solder or adhesive layers; Manufacturing methods related thereto |
| U | H01L 2224/31 | . . . Structure, shape, material or disposition of the layer connectors after the connecting process |
| U | H01L 2224/32 | of an individual layer connector |
| U | H01L 2224/321 | Disposition |
| | H01L 2224/32111 | the layer connector being disposed in a recess of the surface(embedded layer connector T01L224/32122) |
| U | H01L 2224/34 | . . Strap connectors, e.g. copper straps for grounding power devices; Manufacturing methods related thereto |
| U | H01L 2224/36 | . . . Structure, shape, material or disposition of the strap connectors prior to the connecting process |
| U | H01L 2224/37 | of an individual strap connector |
| U | H01L 2224/3754 | Coating |
| U | H01L 2224/37599 | Material |
| U | H01L 2224/37698 | with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams |
| U | H01L 2224/37798 | Fillers |
| U | H01L 2224/37799 | Base material |
| | H01L 2224/37893 | with a principal constituent of the material being a solid not provided for in groups T01L224/44800 H01L 2224/378 to T01L224/44891 H01L 2224/37891 , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond |
| | H01L 2224/37894 | with a principal constituent of the material being a liquid not provided for in groups T01L224/44800 H01L 2224/378 to T01L224/44891 H01L 2224/37891 |
| | H01L 2224/37895 | with a principal constituent of the material being a gas not provided for in groups T01L224/44800 H01L 2224/378 to T01L224/44891 H01L 2224/37891 |
| U | H01L 2224/37899 | Coating material |
| | H01L 2224/37993 | with a principal constituent of the material being a solid not provided for in groups T01L224/44900 H01L 2224/379 to T01L224/44991 H01L 2224/37991 , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond |

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| | H01L 2224/37994 | • • • • • with a principal constituent of the material being a liquid not provided for in groups T01L224/44900 <u>H01L 2224/379</u> to T01L224/44991 <u>H01L 2224/37991</u> |
| | H01L 2224/37995 | • • • • • with a principal constituent of the material being a gas not provided for in groups T01L224/44900 <u>H01L 2224/379</u> to T01L224/44991 <u>H01L 2224/37991</u> |
| U | H01L 2224/42 | • • Wire connectors; Manufacturing methods related thereto |
| U | H01L 2224/44 | • • • Structure, shape, material or disposition of the wire connectors prior to the connecting process |
| U | H01L 2224/45 | • • • • of an individual wire connector |
| U | H01L 2224/45001 | • • • • • Core members of the connector |
| U | H01L 2224/45099 | • • • • • Material |
| | H01L 2224/45193 | • • • • • with a principal constituent of the material being a solid not provided for in groups T01L224/44100 <u>H01L 2224/451</u> to T01L224/44191 <u>H01L 2224/45191</u> , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond |
| | H01L 2224/45194 | • • • • • with a principal constituent of the material being a liquid not provided for in groups T01L224/44100 <u>H01L 2224/451</u> to T01L224/44191 <u>H01L 2224/45191</u> |
| | H01L 2224/45195 | • • • • • with a principal constituent of the material being a gas not provided for in groups T01L224/44100 <u>H01L 2224/451</u> to T01L224/44191 <u>H01L 2224/45191</u> |
| U | H01L 2224/4554 | • • • • • Coating |
| U | H01L 2224/45599 | • • • • • Material |
| U | H01L 2224/45698 | • • • • • with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams |
| U | H01L 2224/45798 | • • • • • • Fillers |
| U | H01L 2224/45799 | • • • • • • Base material |
| | H01L 2224/45893 | • • • • • with a principal constituent of the material being a solid not provided for in groups T01L224/44800 <u>H01L 2224/458</u> to T01L224/44891 <u>H01L 2224/45891</u> , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond |
| | H01L 2224/45894 | • • • • • with a principal constituent of the material being a liquid not provided for in groups T01L224/44800 <u>H01L 2224/458</u> to T01L224/44891 <u>H01L 2224/45891</u> |
| | H01L 2224/45895 | • • • • • with a principal constituent of the material being a gas not provided for in groups T01L224/44800 <u>H01L 2224/458</u> to T01L224/44891 <u>H01L 2224/45891</u> |
| U | H01L 2224/45899 | • • • • • • Coating material |
| | H01L 2224/45993 | • • • • • with a principal constituent of the material being a solid not provided for in groups T01L224/44900 <u>H01L 2224/459</u> to T01L224/44991 <u>H01L 2224/45991</u> , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond |
| | H01L 2224/45994 | • • • • • with a principal constituent of the material being a liquid not provided for in groups T01L224/44900 <u>H01L 2224/459</u> to T01L224/44991 <u>H01L 2224/45991</u> |
| | H01L 2224/45995 | • • • • • with a principal constituent of the material being a gas not provided for in groups T01L224/44900 <u>H01L 2224/459</u> to T01L224/44991 <u>H01L 2224/45991</u> |

- U H01L 2224/80
 - Methods for connecting semiconductor or other solid state bodies using means for bonding being attached to, or being formed on, the surface to be connected
- U H01L 2224/80001
 - • by connecting a bonding area directly to another bonding area, i.e. connectorless bonding, e.g. bumpless bonding
- U H01L 2224/802
 - • • Applying energy for connecting
- H01L 2224/80237
 - • • • using an electron beam(~~electron beam welding in general B23K15~~*electron beam welding in general B23K 15/00*)
- U H01L 2224/81
 - • using a bump connector
- U H01L 2224/812
 - • • Applying energy for connecting
- H01L 2224/81237
 - • • • using an electron beam(~~electron beam welding in general B23K15~~*electron beam welding in general B23K 15/00*)
- U H01L 2224/83
 - • using a layer connector
- U H01L 2224/832
 - • • Applying energy for connecting
- H01L 2224/83237
 - • • • using an electron beam(~~electron beam welding in general B23K15~~*electron beam welding in general B23K 15/00*)
- U H01L 2224/839
 - • • with the layer connector not providing any mechanical bonding
- H01L 2224/83901
 - • • • Pressing the layer connector against the bonding areas by means of another connector(~~detachable pressure contact H01L224/72~~)
- U H01L 2224/84
 - • using a strap connector
- U H01L 2224/842
 - • • Applying energy for connecting
- H01L 2224/84237
 - • • • using an electron beam(~~electron beam welding in general B23K15~~*electron beam welding in general B23K 15/00*)
- U H01L 2224/85
 - • using a wire connector
- U H01L 2224/858
 - • • Bonding techniques
- H01L 2224/85899
 - • • • Combinations of bonding methods provided for in at least two different groups from [H01L 2224/858](#) to ~~T01L224/85896~~*H01L 2224/85898*
- U H01L 2924/00**
Indexing scheme for arrangements or methods for connecting or disconnecting semiconductor or solid-state bodies as covered by [H01L 24/00](#)
- U H01L 2924/15
 - Details of package parts other than the semiconductor or other solid state devices to be connected
- U H01L 2924/161
 - • Cap
- U H01L 2924/166
 - • • Material
- U H01L 2924/16786
 - • • • with a principal constituent of the material being a non metallic, non metalloid inorganic material
- H01L 2924/16787
 - • • • • Ceramics, e.g. crystalline carbides, nitrides or oxides(~~glass ceramics T01L224/16788~~)

Project: N/A (H01M)

- U H01M 2/00**
Constructional details or processes of manufacture of the non-active parts
- U H01M 2/02
 - Cases, jackets or wrappings (working of plastics or substances in plastic stateB29)
- U H01M 2/0202
 - • {for small-sized cells or batteries, e.g. miniature battery or power cells, batteries or cells for portable equipment ([H01M 2/025](#) takes precedence)}
- H01M 2002/0205
 - • • {Cases with a shape not covered by groups [H01M 2/0207](#) to ~~T01M2/02B6~~*-H01M 2/0235*}
- U H01M 2/0257
 - • {characterised by the material}
- H01M 2002/0297
 - • • {characterised by physical parameters }

- U H01M 4/00** **Electrodes (electrodes for electrolytic processes [C25](#), { electrodes for hybrid or electric double capacitor [H01G 11/22](#)})**
- U H01M 4/02
 - H01M 2004/021
 - {Physical characteristics, e.g. porosity, surface area }
 - H01M 2004/022
 - {Electrodes made of one single microscopic fiber }
 - H01M 2004/023
 - {Gel electrode }
 - H01M 2004/024
 - {Insertable electrodes }
 - H01M 2004/025
 - {with shapes other than plane or cylindrical }
 - H01M 2004/026
 - {characterised by the polarity }
 - H01M 2004/027
 - • {Negative electrodes }
 - H01M 2004/028
 - • {Positive electrodes }
 - H01M 2004/029
 - • {Bipolar electrodes }
 - U H01M 4/86
 - H01M 2004/8678
 - {characterised by the polarity }
 - H01M 2004/8684
 - • {Negative electrodes }
 - H01M 2004/8689
 - • {Positive electrodes }
 - H01M 2004/8694
 - • {Bipolar electrodes }
 - U H01M 4/88
 - H01M 4/8803
 - • { Supports for the deposition of the catalytic active composition ([H01M 4/90](#) takes precedence)}

WARNING

Groups H01M 4/8803 to H01M 4/8896 are not complete, pending a reorganization. See also H01M 4/88, **H01M4/88F**, **H01M8/10B2A** and **H01M 8/1006**

- U H01M 6/00** **Primary cells; Manufacture thereof**
- NOTE
In this group, primary cells are electrochemical generators in which the cell energy is present in chemical form and is not regenerated.
- U H01M 6/04
 - Cells with aqueous electrolyte
 - U H01M 6/06
 - • Dry cells, i.e. cells wherein the electrolyte is rendered non-fluid
 - U H01M 6/10
 - • • with wound or folded electrodes
 - H01M 2006/106
 - • • • {Elliptic wound cells }
 - H01M 6/14
 - Cells with non-aqueous electrolyte {**H01M10/36C** [H01M 10/05](#) takes precedence}
 - H01M 6/16
 - • with organic electrolyte ([H01M 6/18](#) ,{**H01M10/40** [H01M 10/05](#) take precedence)}
 - U H01M 6/30
 - Deferred-action cells
 - H01M 6/36
 - • containing electrolyte and made operational by physical means, e.g. thermal cells (thermoelectric solid state devices [H01L 35/00](#), **H01M37/00** [H01L 37/00](#))
 - U H01M 6/50
 - Methods or arrangements for servicing or maintenance, e.g. maintaining operating temperature {(cells or batteries combined with safety devices [H01M 2200/00](#))}
 - H01M 2006/5094
 - {Aspects relating to capacity ratio of electrolyte/electrodes or anode/cathode }

U H01M 8/00 Fuel cells; Manufacture thereofNOTE

Fuel cells are electrochemical generators wherein the reactants are supplied from outside

- U H01M 8/10
 - Fuel cells with solid electrolytes
- H01M 2008/1095
 - • {Fuel cells with polymeric electrolytes}
- U H01M 8/12
 - • operating at high temperature, e.g. with stabilised ZrO₂ electrolyte
- H01M 2008/128
 - • • {Fuel cells with solid halide electrolytes}
- H01M 2008/1293
 - • • {Fuel cells with solid oxide electrolytes}
- U H01M 8/14
 - Fuel cells with fused electrolytes
- H01M 2008/147
 - • {Fuel cells with molten carbonates}

U H01M 10/00 Secondary cells; Manufacture thereofNOTE

Secondary cells are accumulators receiving and supplying electrical energy by means of reversible electrochemical reactions.

- U H01M 10/04
 - Construction or manufacture in general ([H01M 10/12](#), [H01M 10/28](#), [H01M 10/38](#) take precedence)
- H01M 2010/0495
 - • ~~Nanobatteries~~ {~~Nanobatteries~~}
- U H01M 10/42
 - Methods or arrangements for servicing or maintenance of secondary cells or secondary half-cells
- U H01M 10/425
 - • { Structural combination with electronic components, e.g. electronic circuits integrated to the outside of the casing (printed circuits [H05K 1/00](#))}
- H01M 2010/4271
 - • • {Battery management systems including electronic circuits, e.g. control of current or voltage to keep battery in healthy state, cell balancing }
- H01M 2010/4278
 - • • {Systems for data transfer from batteries, e.g. transfer of battery parameters to a controller, data transferred between battery controller and main controller }
- H01M 2010/4292
 - • {Aspects relating to capacity ratio of electrodes/electrolyte or anode/cathode }
- U H01M 10/50
 - Heating or cooling or regulating temperature (control of temperature in general [G05D 23/00](#))
- H01M 10/5002
 - • • { Types of temperature regulation }

WARNINGS

Groups [H01M 10/5002](#) to [H01M 10/5097](#) are not complete, pending reclassification. See also [H01M 10/50](#), **[H01M10/50B](#)**, **[T01M6/50S2](#)** **[H01M 2200/10-T01M6/50S2R](#)** **[H01M 2200/108](#)**

Project: N/A (H01Q)**U H01Q 3/00 Arrangements for changing or varying the orientation or the shape of the directional pattern of the waves radiated from an aerial or aerial system({ means for positioning [H01Q 1/125](#) })**

- H01Q 3/26
 - varying the relative phase or relative amplitude of energisation between two or more active radiating elements; varying the distribution of energy across a radiating aperture({ [H01Q 3/12](#) } , [H01Q 3/22](#) , [H01Q 3/24](#) take precedence; { use of steered beams for mobile service area coverage **[H04Q 7/3615](#)****[H04Q7/3615](#)** })

- U H01Q 5/00** Arrangements for simultaneous operation of aerials on two or more different wavebands,{e.g. dual- or multi-band like arrangements for broad wavebands}(length of elements adjustable [H01Q 9/14](#) ; combinations of separate active aerial units operating in different wavebands and connected to a common feeder system [H01Q 21/30](#) ; { non-simultaneous operation of aerials with adjustable lengths or elements [H01Q 9/14](#) ; broad/multi-band operation in general without specific features [H01Q 5/00](#))}
- H01Q 5/0003 · {Single aerial units operating on two or more wavebands([H01Q 5/02](#) takes precedence)}
- WARNING
This group is no longer used for the classification of new documents as from September 1, 2011. The back log of this group is being continuously reclassified to subgroups [H01Q 5/00-GH01Q5/00G](#), [H01Q 5/0024](#) , [H01Q 5/0072](#) and [H01Q 5/00-PH01Q5/00P](#)
- H01Q 5/0006 · {Imbricated structures([H01Q 5/02](#) takes precedence)}
- WARNING
This group and subgroups thereof are no longer used for the classification of new documents as from September 1, 2011. The back log of these groups is being continuously reclassified to subgroups [H01Q 5/00-GH01Q5/00G](#), [H01Q 5/0024](#) , [H01Q 5/0072](#) and [H01Q 5/0093](#)
- H01Q 5/0093 · {Arrangement for broad- or multi-band operation concerning feeding or matching([H01Q9/04K2A6H01Q 5/0041](#) takes precedence)}
- WARNING
Not complete, pending reclassification. See also [H01Q 5/0003](#) and [H01Q 5/0006](#)
- U H01Q 19/00** Combinations of primary active aerial elements and units with secondary devices, e.g. with quasi-optical devices, for giving the aerial a desired directional characteristic{(combination of horns with slotted waveguide array [H01Q 13/0233](#))}
- U H01Q 19/10 · using reflecting surfaces
- H01Q 19/104 · {using a substantially flat reflector for deflecting the radiated beam, e.g. periscopic antennas(periscopic fed Cassegrain antennas [H01Q19/19C3H01Q 19/191](#) ; passive relays [H04B 7/145](#))}
- U H01Q 25/00** Aerials or aerial systems providing at least two radiating patterns(arrangements for changing or varying the orientation or the shape of the directional pattern [H01Q 3/00](#))
- H01Q 25/007 · {using two or more primary active elements in the focal region of a focusing device(for operation on different wavebands [H01Q5/00C2H01Q 5/0079](#))}

Project: N/A (H01R)**H01R**

LINE CONNECTORS; CURRENT COLLECTORS (switches, fuses [H01H](#); coupling devices of the waveguide type [H01P 5/00](#); switching arrangements for the supply or distribution of electric power [H02B](#); installations of electric lines, cables or auxiliary apparatus [H02G](#); printed means for providing electric connections to or between printed circuits [H05K](#))

NOTES

This subclass covers:

- all kinds of contact-making disconnectible and non-disconnectible electric line connectors, coupling devices, lamp

or similar holders or current collectors for all kinds of electric lines, cables or apparatus;
- non-printed means for electric connections to or between printed circuits.

This subclass does not cover mounting of connections in or specified apparatus. Such mounting is covered by the relevant subclass for such apparatus, e.g. mounting in junction or distribution boxes is covered by subclass [H02B](#) or [H02G](#), high-temperature connections for heating elements is covered by group [H05B 3/08](#). Structural association of one part of a two-part coupling device with specific electric apparatus is classified with the apparatus e.g. association of cap with incandescent lamp is covered by subclass [H01K](#).

In this subclass, a contact in a coupling device is only regarded as an additional earth contact if this contact is clearly designed for that purpose.

General details are classified in groups [H01R 4/00](#), [H01R 9/00](#), [H01R 11/00](#).

U H01R 4/00

Electrically-conductive connections between two or more conductive members in direct contact and means for effecting or maintaining such contact (details of disengageable contacts of two-part coupling devices [H01R 13/00](#); two-part coupling devices [H01R 12/70](#), [H01R 24/00](#) - [H01R 33/00](#); flexible or turnable line connectors [H01R 35/00](#); non rotary current collectors [H01R 41/00](#))

U H01R 4/10

• effected solely by twisting, wrapping, bending, crimping, or other permanent deformation

U H01R 4/18

• • by crimping {([H01R 4/01](#), [H01R 4/2495](#) take precedence; for coaxial cables [H01R 9/0518](#))}

H01R 2004/181

• • • {using memory material}

U H01R 13/00

Details of coupling devices of the kinds covered by groups [H01R 12/70](#) or [H01R 24/00](#)-[H01R 33/00](#) {(electro-optical connectors [G02B 6/24](#))}

H01R 13/646

• Specially adapted for high-frequency, e.g. structures providing an impedance match or phase match (non-coaxed protective earth or shield arrangements [H01R 13/648](#) -[H01R 13/6599](#); coaxed connectors specifically adapted for high frequency [H01R 24/40](#)- [H01R 24/56](#))

WARNING

This group and its subgroups are not complete pending completion of a reclassification, see also [H01R 9/035](#), [H01R 13/6658](#), [H01R17/12H2](#) [H01R 24/44](#), [H01R23/00B](#), [H01R23/68D](#), [H01R 23/688](#)

Project: N/A (H01S)

H01S

DEVICES USING STIMULATED EMISSION

NOTE

This subclass covers:

devices for the generation or amplification, by using stimulated emission, of coherent electromagnetic waves or other forms of wave energy;
such functions as modulating, demodulating, controlling, or stabilising such waves.

WARNING

The following IPC groups are not used in the CPC scheme.

Subject matter covered by these groups is classified in the following CPC groups:

- [H01S 3/098](#) covered by [H01S 3/08](#) - [MH01S3/08M](#), [H01S 3/11](#) and s.gr.

Project: N/A (H02B)

- U H02B 1/00 Frameworks, boards, panels, desks, casings; Details of substations or switching arrangements**
- U H02B 1/015 · Boards, panels, desks; Parts thereof or accessories therefor
- H02B 2001/0155 · · {Removable shutters for non-used openings }

Project: N/A (H02G)**H02G**

INSTALLATION OF ELECTRIC CABLES OR LINES, OR OF COMBINED OPTICAL AND ELECTRIC CABLES OR LINES(distribution points incorporating switches [H02B](#); guiding telephone cords [H04M 1/15](#) ; cable ducts or mountings for telephone or telegraph exchange installations [H04Q 1/06](#))

NOTES

1. This subclass covers installation of communication cables or lines, including those comprising a combination of optical and electrical conductors, or of lightning conductors as well as installation of power cables or lines.

2. This subclass does not cover installation of purely optical cables, which is covered by groups { ~~G02B 6/44 C~~ ~~G02B6/44C~~ } , [G02B 6/46](#) .

3. In this subclass, the following expression is used with the meaning indicated:

- "electric cable" includes cables comprising optical conductors, e.g. fibres, in combination with electrical conductors.

In this subclass it is desirable to add indexing codes of group [H02G 2200/00](#) whenever appropriate

- U H02G 5/00 Installations of bus-bars**
- U H02G 5/06 · Totally-enclosed installations, e.g. in metal casings
- U H02G 5/063 · · {filled with oil or gas}
- H02G 5/065 · · · {Particle traps(gettering in vacuum switches ~~H01H 33/66E1~~ ~~H01H33/66E1~~; in discharge or vacuum tubes [H01J 7/18](#) , [H01J 19/70](#))}

Project: N/A (H02H)

- U H02H 3/00 Emergency protective circuit arrangements for automatic disconnection directly responsive to an undesired change from normal electric working condition with or without subsequent reconnection (specially adapted for specific types of electric machines or apparatus or for sectionalised protection of cable of line systems [H02H 7/00](#); systems for change-over to standby supply [H02J 9/00](#)){integrated protection (for motors [H02H 7/0822](#))}**
- U H02H 3/02 · Details
- H02H 3/021 · · {concerning the disconnection itself, e.g. at a particular instant, particularly at zero value of current, disconnection in a predetermined order (disconnection at zero value in general ~~H03K 17/18~~ ~~H03K 17/18~~)}

- U H02H 5/00** Emergency protective circuit arrangements for automatic disconnection directly responsive to an undesired change from normal non-electric working conditions with or without subsequent reconnection (using simulators of the apparatus being protected [H02H 6/00](#); specially adapted for specific types of electric machines or apparatus or for sectionalised protection of cable or line systems [H02H 7/00](#))
- U H02H 5/08** • responsive to abnormal fluid pressure, liquid level or liquid displacement, e.g. Buchholz relays
- H02H 5/083** • {responsive to the entry or leakage of a liquid into an electrical appliance (moisture alarm ~~G08B21/00B1~~ [G08B 21/20](#))}
- U H02H 7/00** Emergency protective circuit arrangements specially adapted for specific types of electric machines or apparatus or for sectionalised protection of cable or line systems, and effecting automatic switching in the event of an undesired change from normal working conditions (structural association of protective devices with specific machines or apparatus and their protection without automatic disconnection, see the relevant subclass for the machine or apparatus)
- U H02H 7/10** • for converters; for rectifiers {(forming part of the control circuit of the converter, see the relevant group in [H02M](#))}
- U H02H 7/12** • • for static converters or rectifiers {(for discharge lamp power supplies using static converters [H05B 41/2851](#), [H05B 41/2921](#), [H05B 41/2981](#))}
- U H02H 7/122** • • • for inverters, i.e. dc/ac converters
- H02H 7/1225** • • • {responsive to internal faults, e.g. shoot-through (avoiding shoot-through ~~H02M1/00P2~~ [H02M 1/38](#))}

Project: N/A (H02J)

- U H02J 1/00** **Circuit arrangements for dc mains or dc distribution networks**
- H02J 2001/002** • {Intermediate ac, e.g. dc supply with intermediated ac distribution }
- H02J 2001/004** • {Distribution of power generated by fuel cells }
- H02J 2001/006** • {Provisions for temporary connection of dc sources of essentially the same voltage, e.g. jumpstart cables }
- H02J 2001/008** • {Plural dc voltage, e.g. dc supply voltage with at least two different dc voltage levels }
- U H02J 1/10** • Parallel operation of dc sources (involving batteries [H02J 7/34](#))
- U H02J 1/102** • • {being switching converters ([H02J 1/108](#), [H02J 1/12](#) take precedence)}
- H02J 2001/104** • • • {for synchronisation }
- H02J 2001/106** • • • {for load balancing or load symmetrisation }
- U H02J 3/00** **Circuit arrangements for ac mains or ac distribution networks**
- H02J 2003/001** • {Emergency control, e.g. method to deal with contingencies }
- H02J 2003/002** • {Flicker reduction, e.g. compensation of flicker introduced by non linear load }
- H02J 2003/003** • {Load forecast, e.g. method and systems for forecasting future load demand }
- H02J 2003/007** • {Simulating, e. g. planning, reliability check, modeling }
- U H02J 3/12** • for adjusting voltage in ac networks by changing a characteristic of the network load
- U H02J 3/14** • • by switching loads on to, or off from, network, e.g. progressively balanced loading
- H02J 2003/143** • • • {Household appliances management }
- H02J 2003/146** • • • {Tariff based load management }

- U H02J 3/36
 - Arrangements for transfer of electric power between ac networks via a high-tension dc link
- H02J 2003/365
 - • {Reducing harmonics or oscillations in HVDC }
- U H02J 3/38
 - Arrangements for parallelly feeding a single network by two or more generators, converters or transformers
- U H02J 3/381
 - • { Dispersed generators}
- U H02J 3/382
 - • • { the generators exploiting renewable energy}
- U H02J 3/383
 - • • • { Solar energy, e.g. photovoltaic energy (generation of electric power by conversion of light [H02S](#))}
- H02J 3/385
 - • • • • { Maximum power point tracking control for photovoltaic sources
(inverter means associated with the PV module [H02S40/32](#))}
- H02J 2003/388
 - • {Islanding, i.e. disconnection of local power supply from the network }
- U H02J 7/00**

Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries
- H02J 2007/0001
 - {Authentication, i.e. circuits for checking compatibility between one component, e.g. a battery or a battery charger, and another component , e.g. a power source }
- U H02J 7/0029
 - {with safety devices ([H02J 7/0026](#) takes precedence)}
- H02J 2007/0037
 - • {Overcharge protection }
- H02J 2007/0039
 - • {Overcurrent protection }
- H02J 2007/004
 - • {Overdischarge protection }
- U H02J 7/0047
 - {with indicating devices ([H02J 7/0021](#) takes precedence)}
- H02J 2007/0049
 - • {Detection of fully charged condition }
- H02J 2007/005
 - • {Detection of remaining charge capacity }
- U H02J 7/0052
 - {Charge circuits only ([H02J 7/0003](#), [H02J 7/0013](#), [H02J 7/007](#) take precedence)}
- H02J 2007/0059
 - • {characterised by the converter }
- H02J 2007/006
 - • {Charge provided using dc bus or data bus of a computer }
- H02J 2007/0062
 - • {Charge provided using USB port connectors }
- U H02J 7/0063
 - {Circuits adapted for supplying loads only}
- H02J 2007/0067
 - • {Discharge management, i.e. discharge current reduction at low state of charge, sequential battery discharge in systems with a plurality of battery }
- H02J 2007/0095
 - {Control circuit supply, e.g. means for supplying power to the control circuit }
- H02J 2007/0096
 - {Charger exchanging data with an electronic device, i.e. telephone, whose internal battery is under charge }
- H02J 2007/0098
 - {Smart battery, e.g. battery with means for data exchanging with charger }
- U H02J 7/02
 - for charging batteries from ac mains by converters
- U H02J 7/04
 - • Regulation of charging current or voltage
- U H02J 7/06
 - • • using discharge tubes or semiconductor devices
- H02J 2007/10
 - • • • {using semiconductor devices only }
- H02J 2007/105
 - • • • • {with introduction of pulses during the charging process }
- U H02J 7/14
 - for charging batteries from dynamo-electric generators driven at varying speed, e.g. on vehicle
- U H02J 7/1423
 - • {with multiple batteries or generators}
- H02J 2007/143
 - • • {Multiple generators }
- U H02J 9/00**

Circuit arrangement for emergency or standby power supply, e.g. for emergency lighting (with provision for charging standby battery [H02J 7/00](#))

- H02J 9/005 • {using a power saving mode (for copiers ~~G03G15/00C1~~ [G03G 15/5004](#))}
- H02J 2009/007 • • {Detection of the absence of a load }
- U H02J 9/04 • in which the distribution system is disconnected from the normal source and connected to a standby source
- U H02J 9/06 • • with automatic change-over
- U H02J 9/062 • • • {involving non rotating DC/AC converters}
- H02J 2009/063 • • • • {Common neutral, e.g. ac input neutral line connected to ac output neutral line and dc middle point }
- H02J 2009/067 • • • {using multi-primary transformers, e.g. transformer having one primary for each ac energy source and a secondary for the loads }
- H02J 2009/068 • • • {Electronic means for switching from one power supply to another power supply , e.g. to avoid parallel connection }

Project: N/A (H02K)

- U H02K 5/00 **Casings; Enclosures; Supports (casings for electric apparatus in general [H05K 5/00](#))**
- U H02K 5/04 • Casings or enclosures characterised by the shape, form or construction thereof
- U H02K 5/12 • • specially adapted for operating in liquid or gas (combined with cooling arrangements [H02K 9/00](#))
- U H02K 5/128 • • • using air-gap sleeve or air-gap disc
- H02K 2005/1287 • • • • {Details of sleeves or discs }

Project: N/A (H02M)

- U H02M 1/00 **Details of apparatus for conversion**
- H02M 2001/0003 • {Details of control, feedback and regulation circuits }
- H02M 2001/0006 • • {Arrangements for supplying an adequate voltage to the control circuit of a converter }
- H02M 2001/0009 • • {Devices and circuits for detecting current in a converter }
- H02M 2001/0012 • • {Control circuits using digital or numerical techniques (in dc/dc converters [H02M 3/157](#), [H02M 3/33515](#); in dc-ac converters [H02M 7/53873](#))}
- H02M 2001/0016 • • {Control circuits providing compensation of output voltage deviations using feedforward of disturbance parameter }
- H02M 2001/0019 • • • {the disturbance parameter being load current fluctuations }
- H02M 2001/0022 • • • {the disturbance parameter being input voltage fluctuations }
- H02M 2001/0025 • • {Arrangements for modifying reference value, feedback value or error value in the control loop of a converter }
- H02M 2001/0029 • • {Circuits or arrangements for limiting the slope ("slew rate") of switching signals }
- H02M 2001/0032 • • {Control circuits allowing low power mode operation, e.g. "standby" }
- H02M 2001/0035 • • • {by burst mode control }
- H02M 2001/0038 • • {Circuits or arrangements for suppressing, e.g. by masking incorrect turn-on or turn-off signals, e.g. due to current spikes in current mode control }
- H02M 2001/0041 • • {Control circuits in which a clock signal is selectively enabled or disabled }
- H02M 2001/0045 • {Converters combining the concepts of switch-mode regulation and linear regulation, e.g. linear preregulator to switching converter, linear and switching converter in parallel, same converter or same transistor operating either in linear or switching mode }
- H02M 2001/0048 • {Circuits or arrangements for reducing losses (using snubbers [H02M 1/34](#))}

- H02M 2001/0051 • • {Diode reverse recovery losses }
- H02M 2001/0054 • • {Transistor switching losses (periodically suspending operation of switching converter in low power mode [H02M 2001/0035](#))}
- H02M 2001/0058 • • • {by employing soft switching techniques, i.e. commutation of transistor when voltage applied to it is zero and/or when current flowing through it is zero (in resonant inverters [H02M 2007/4815](#); in inverters operating from a resonant dc source [H02M 7/4826](#); using an auxiliary actively switched resonant commutation circuit connected to an intermediate dc voltage or between two push-pull branches of an inverter bridge [H02M 2007/4811](#))}
- H02M 2001/0064 • {Magnetic structures combining different functions, e.g. storage, filtering, transformation }
- H02M 2001/0067 • {Converter structures employing plural converter units, other than for parallel operation of the units on a single load }
- H02M 2001/007 • • {Plural converter units in cascade (push-pull dc/dc converters with preregulator [H02M 3/3374](#); dc-ac converters following a dc-dc stage which includes a high frequency transformer [H02M 7/4807](#), dc-ac converters following a dc-dc conversion stage which generates a periodically varying voltage [H02M 7/4826](#))}
- H02M 2001/0074 • • {Plural converter units whose inputs are connected in series }
- H02M 2001/0077 • • {Plural converter units whose outputs are connected in series }
- H02M 2001/008 • • {Plural converter units for generating at least two independent, non-parallel outputs, e.g. systems with plural point of load switching regulators }
- H02M 2001/0083 • {Converters characterized by their input or output configuration }
- H02M 2001/0087 • • {adapted for receiving as input a current source }
- H02M 2001/009 • • {having more than one output with independent control (for dc-dc converter with intermediate ac [H02M 3/33561](#))}
- H02M 2001/0093 • • {wherein the output is created by adding a regulated voltage to or subtracting it from an unregulated input }
- H02M 2001/0096 • {Means for increasing hold-up time, i.e. the duration of time that a converter's output will remain within regulated limits following a loss of input power }
- U H02M 1/12 • Arrangements for reducing harmonics from ac input or output
- H02M 2001/123 • • {Suppression of common mode voltage or current }
- U H02M 1/32 • Means for protecting converters other than automatic disconnection (emergency protective circuit arrangements specially adapted for converters with automatic disconnection [H02H 7/10](#))

WARNINGS

Group [H02M 1/32](#) and its subgroup are not complete, see provisionally also [H02M 1/32](#), [H02M 3/00](#) and subgroups, [H02M 7/00](#) and subgroups

- H02M 2001/322 • • {Means for rapidly discharging a capacitor of the converter, in order to protect electrical components or prevent electrical shock }
- H02M 2001/325 • • {with means for allowing continuous operation despite a fault, i.e. fault tolerant converters }
- H02M 2001/327 • • {against abnormal temperatures }
- U H02M 1/34 • • Snubber circuits
- H02M 2001/342 • • • {Active non-dissipative snubbers }
- H02M 2001/344 • • • {Active dissipative snubbers }
- H02M 2001/346 • • • {Passive non-dissipative snubbers }
- H02M 2001/348 • • • {Passive dissipative snubbers }

- U H02M 1/38
- Means for preventing simultaneous conduction of switches
- WARNINGS
- Group [H02M 1/38](#) is not complete, see provisionally also **H02M1/00P2**, [H02M 3/337](#) and subgroups, [H02M 7/538](#) and subgroups
- H02M 2001/385
- {with means for correcting output voltage deviations introduced by the dead time }
- U H02M 1/42
- Circuits or arrangements for compensating for or adjusting power factor in converters or inverters
- WARNINGS
- Group [H02M 1/42](#) is not complete, see provisionally also [H02M 1/32](#) and subgroups
- U H02M 1/4208
- { Arrangements for improving power factor of AC input}
- H02M 2001/4275
- • {by adding an auxiliary output voltage in series to the input }
- H02M 2001/4283
- • {by adding a controlled rectifier in parallel to a first rectifier feeding a smoothing capacitor }
- H02M 2001/4291
- • {by using a Buck converter to switch the input current }
- U H02M 3/00**
- Conversion of dc power input into dc power output {(converters specially adapted for use in combination with a battery [H02J 7/0065](#))}**
- U H02M 3/02
- without intermediate conversion into ac
- U H02M 3/04
- • by static converters
- U H02M 3/06
- • • using resistors or capacitors, e.g. potential divider
- U H02M 3/07
- • • • using capacitors charged and discharged alternately by semiconductor devices with control electrode, { e.g. charge pumps (for substrate bias voltage generators [G05F 3/205](#); for static stores [G11C 5/145](#), [G11C 16/06](#); charge pumping structures for internal polarisation [H01L 27/0222](#))}
- H02M 2003/071
- • • • {adapted to generate a negative voltage output from a positive voltage source }
- H02M 2003/072
- • • • {adapted to generate an output voltage whose value is lower than the input voltage }
- U H02M 3/073
- • • • {Charge pumps of the SCHENKEL type}
- H02M 2003/075
- • • • • {including a plurality of stages and two sets of clock signals, one set for the odd and one set for the even numbered stages }
- H02M 2003/076
- • • • • {the clock signals being boosted to a value which is higher than input voltage value }
- H02M 2003/077
- • • • • {with parallel connected charge pump stages }
- H02M 2003/078
- • • • • {with means for reducing the back bias effect, i.e. the effect which causes the threshold voltage of transistors to increase as more stages are added to the converter }
- U H02M 3/10
- • • using discharge tubes with control electrode or semiconductor devices with control electrode ([H02M 3/07](#) takes precedence)
- U H02M 3/145
- • • • using devices of a triode or transistor type requiring continuous application of a control signal
- U H02M 3/155
- • • • • using semiconductor devices only
- H02M 2003/1552
- • • • • {Boost converters exploiting the leakage inductance of a transformer or of an alternator as boost inductor }
- H02M 2003/1555
- • • • • {for the generation of a regulated current to a load whose impedance is substantially inductive }

| | | |
|----------|------------------|--|
| | H02M 2003/1557 | • • • • • {Single ended primary inductor converters [SEPIC] } |
| U | H02M 3/156 | • • • • • with automatic control of output voltage or current, e.g. switching regulators |
| | H02M 2003/1566 | • • • • • {with means for compensating against rapid load changes, e.g. with auxiliary current source, with dual mode control, with inductance variation } |
| U | H02M 3/158 | • • • • • including plural semiconductor devices as final control devices for a single load |
| U | H02M 3/1584 | • • • • • {with a plurality of power processing stages connected in parallel} |
| | H02M 2003/1586 | • • • • • {switched with a phase shift, i.e. interleaved } |
| U | H02M 5/00 | Conversion of ac power input into ac power output, e.g. for change of voltage, for change of frequency, for change of number of phases |
| U | H02M 5/02 | • without intermediate conversion into dc |
| U | H02M 5/04 | • • by static converters (controlling transformers, reactors or choke coils, e.g. by tap changing H02P 13/00) |
| U | H02M 5/22 | • • • using discharge tubes with control electrode or semiconductor devices with control electrode |
| U | H02M 5/275 | • • • • using devices of a triode or transistor type requiring continuous application of a control signal ({ H02M 5/225 }, H02M 5/297 take precedence) |
| U | H02M 5/293 | • • • • • using semiconductor devices only |
| | H02M 2005/2932 | • • • • • {with automatic control of output voltage, current or power } |
| | H02M 2005/2935 | • • • • • {using reverse phase control, i.e. turn-on of switch in series with load at zero crossing of input voltage, turn-off before next zero crossing } |
| | H02M 2005/2937 | • • • • • {using whole cycle control, i.e. switching an integer number of whole (half) cycles of the ac input voltage } |
| U | H02M 7/00 | Conversion of ac power input into dc power output; Conversion of dc power input into ac power output |
| U | H02M 7/02 | • Conversion of ac power input into dc power output without possibility of reversal |
| U | H02M 7/04 | • • by static converters |
| U | H02M 7/12 | • • • using discharge tubes with control electrode or semiconductor devices with control electrode |
| U | H02M 7/21 | • • • • using devices of a triode or transistor type requiring continuous application of a control signal |
| U | H02M 7/217 | • • • • • using semiconductor devices only |
| U | H02M 7/219 | • • • • • in a bridge configuration |
| | H02M 2007/2195 | • • • • • {the switches being synchronously commutated at the same frequency of the AC input voltage } |
| U | H02M 7/42 | • Conversion of dc power input into ac power output without possibility of reversal |
| U | H02M 7/44 | • • by static converters |
| U | H02M 7/48 | • • • using discharge tubes with control electrode or semiconductor devices with control electrode |
| | H02M 2007/4803 | • • • • {with means for reducing dc component from AC output voltage } |
| | H02M 2007/4811 | • • • • {having an auxiliary actively switched resonant commutation circuit connected to an intermediate dc voltage or between two push-pull branches } |
| | H02M 2007/4815 | • • • • {Resonant converters (H02M 2007/4811 and H02M 7/4826 take precedence)} |

- H02M 2007/4818 {with means for adaptation of resonance frequency, e.g. by modification of capacitance or inductance of resonance circuit }
- H02M 2007/4822 {arranged for operation in parallel }
- U H02M 7/483 Converters with outputs that each can have more than two voltages levels
- H02M 2007/4835 {comprising a plurality of cells, each including a switchable capacitor, the capacitors having a nominal charge voltage which corresponds to a given fraction of the input voltage, the capacitors being selectively connected in series to determine the instantaneous output voltage }
- U H02M 7/53 using devices of a triode or transistor type requiring continuous application of a control signal ({[H02M 7/4807](#), [H02M 7/493](#) and [H02M 7/4826](#) take precedence)}
- U H02M 7/537 using semiconductor devices only, e.g. single switched pulse inverters
- U H02M 7/5387 in a bridge configuration
- U H02M 7/53871 {with automatic control of output voltage or current}
- U H02M 7/53875 {with analogue control of three-phase output}
- H02M 2007/53876 {based on synthesising a desired voltage vector via the selection of appropriate fundamental voltage vectors, and corresponding dwelling times }
- H02M 2007/53878 {by time shifting switching signals of one diagonal pair of the bridge with respect to the other diagonal pair }

Project: N/A (H02P)**H02P**

CONTROL OR REGULATION OF ELECTRIC MOTORS, GENERATORS, OR DYNAMO-ELECTRIC CONVERTERS; CONTROLLING TRANSFORMERS, REACTORS OR CHOKE COILS ({ specially adapted for electrically propelled vehicles [B60L](#)}; structure of the starter, brake, or other control devices, see the relevant subclasses, e.g. mechanical brake [F16D](#), mechanical speed regulator [G05D](#), variable resistor [H01C](#), starter switch [H01H](#); systems for regulating electric or magnetic variables using transformers, reactors or choke coils [G05F](#); arrangements structurally associated with motors, generators, dynamo-electric converters, transformers, reactors or choke coils, see the relevant subclasses, e.g. [H01F](#), [H02K](#); connection or control of one generator, transformer, reactor, choke coil, or dynamo-electric converter with regard to conjoint operation with similar or other source of supply [H02J](#); control or regulation of static converters [H02M](#))

NOTES

This subclass covers arrangements for starting, regulating, electronically commutating, braking, or otherwise controlling motors, generators, dynamo-electric converters, clutches, brakes, gears, transformers, reactors or choke coils, of the types classified in the relevant subclasses, e.g. [H01F](#), [H02K](#).

This subclass does not cover similar arrangements for the apparatus of the types classified in subclass [H02N](#), which arrangements are covered by that subclass.

In this subclass, the following terms or expressions are used with the meanings indicated:

- "control" means influencing a variable in any way, e.g. changing its direction or its value (including changing it to or from zero), maintaining it constant, limiting its range of variation;
- "regulation" means maintaining a variable at a desired value, or within a desired range of values, by comparison of the actual value with the desired value.

U H02P 5/00

Arrangements specially adapted for regulating or controlling the speed or torque of two or more electric motors (starting [H02P 1/00](#); stopping or slowing [H02P 3/00](#); { synchronous motors or other dynamo-electric motors with electronic commutators in dependence on the rotor position [H02P 6/00](#); motors rotating step by step [H02P 8/00](#);} vector control [H02P 21/00](#))

- H02P 2005/001 • {Control of angular speed of one shaft by controlling the prime mover }
- H02P 2005/002 • {Control of angular speed together with angular position or phase }
- H02P 2005/004 • • {of one shaft without controlling the prime mover }
- H02P 2005/005 • • {of one shaft by controlling the prime mover }
- H02P 2005/007 • {Control of acceleration or deceleration }
- H02P 2005/008 • {Digital speed control using a reference oscillator, a speed proportional pulse rate feedback and a digital comparator }
- H02P 2005/04 • {for speed regulation of an individual motor by means of a separate brake }
- H02P 2005/05 • {characterised by the use of reluctance motors }
- H02P 2005/055 • • {Modifications for increasing the switching speed from one coil to the next one }
- H02P 2005/06 • {for speed regulation of an individual dc dynamo-electric motor by varying field or armature current }
- H02P 2005/08 • • {using centrifugal devices, e.g. switch, resistor }
- H02P 2005/10 • • {using a periodic interrupter, e.g. Tirrill regulator }
- H02P 2005/12 • • {using discharge tubes or semiconductor devices }
- H02P 2005/14 • • • {using discharge tubes }
- H02P 2005/16 • • • {using semiconductor devices }
- H02P 2005/1603 • • • • {the DC-motor is operated in the four quadrants }
- H02P 2005/1606 • • • • • {controlling armature and field supply }
- H02P 2005/1609 • • • • • {controlling field supply only }
- H02P 2005/1613 • • • • • {controlling armature supply only }
- H02P 2005/1616 • • • • • • {using AC-DC or DC-AC-DC converters }
- H02P 2005/162 • • • • {controlling field supply only }
- H02P 2005/165 • • • • {controlling armature supply only }
- H02P 2005/168 • • • • • {using variable impedance }
- H02P 2005/17 • • • • • {using pulse modulation }
- H02P 2005/171 • • • • • • {with on-off control between two setpoints }
- H02P 2005/172 • • • • • {using static converters, e.g. ac to dc }
- H02P 2005/1725 • • • • • • {using phase control }
- H02P 2005/175 • • • • • • {of the kind having one thyristor or the like in series with the power supply and the motor }
- H02P 2005/178 • • • • {controlling armature and field supply }
- H02P 2005/18 • • {using magnetic devices with controllable degree of saturation, i.e. transducers }
- H02P 2005/20 • • {using armature-reaction-excited machines, e.g. metadyne, amplidyne, rototrol }
- H02P 2005/22 • • {using Ward-Leonard set }
- H02P 2005/24 • • • {in which only the generator field is controlled }
- H02P 2005/26 • • • {in which both generator and motor fields are controlled }

- H02P 2005/28 • {for speed regulation of an individual ac motor by varying stator or rotor current }
- H02P 2005/30 • • {using centrifugal devices, e.g. switch, resistor }
- H02P 2005/32 • • {using a periodic interrupter }
- H02P 2005/34 • • {by varying frequency of supply to rotor or stator }
- H02P 2005/36 • • {using discharge tubes or semiconductor devices }
- H02P 2005/38 • • • {using discharge tubes }
- H02P 2005/40 • • • {using semiconductor devices }
- H02P 2005/4001 • • • • {the AC-motor being operated in the four quadrants }
- H02P 2005/4002 • • • • • {Polyphase or monophas asynchronous induction motors }
- H02P 2005/4003 • • • • • {controlled by variable supply frequency }
- H02P 2005/4005 • • • • • {controlled by variable supply voltage }
- H02P 2005/4006 • • • • • {controlled by controlling the exchange of slip-energy between the motor and the power supply }
- H02P 2005/4007 • • • • • {Synchronous motors }
- H02P 2005/4008 • • • • • {Polyphase or monophas commutator motors }
- H02P 2005/401 • • • • {Synchronous motors }
- H02P 2005/4011 • • • • • {controlled by supply frequency }
- H02P 2005/4012 • • • • • {thereby detecting the rotor position }
- H02P 2005/4013 • • • • • {with brushless excitation }
- H02P 2005/4015 • • • • {by methods not covered by groups [H02P 2005/4016](#) to [H02P 2005/415](#) }
- H02P 2005/4016 • • • • {controlled according to a desired slip setting }
- H02P 2005/4017 • • • • {controlled by superposition of DC-current upon the AC supply }
- H02P 2005/4018 • • • • {controlled by the switch frequency of the switches connected a DC supply and the motorphases }
- H02P 2005/402 • • • • {controlling supply voltage }
- H02P 2005/405 • • • • {controlling secondary impedance }
- H02P 2005/408 • • • • {controlling supply frequency }
- H02P 2005/4083 • • • • • {thereby changing the voltage according to the frequency }
- H02P 2005/4086 • • • • • {thereby changing the current according to the frequency }
- H02P 2005/41 • • • • • {using dc to ac converters }
- H02P 2005/412 • • • • • {using ac to ac converters without intermediate conversion to dc }
- H02P 2005/415 • • • • {controlling slip energy }
- H02P 2005/418 • • • • {for regulating commutator motors }
- H02P 2005/4183 • • • • • {Series motors; Universal motors }
- H02P 2005/4186 • • • • • {Repulsion motors }
- H02P 2005/42 • • {using magnetic devices with controllable degree of saturation, i.e. transducers }
- H02P 2005/44 • • {using brush shifting arrangements }

- U H02P 6/00** Arrangements for controlling synchronous motors or other dynamo-electric motors with electronic commutators in dependence on the rotor position; Electronic commutators therefor (stepping motors [H02P 8/00](#); vector control [H02P 21/00](#); reluctance motors [H02P 25/08](#))
- NOTE**
Groups [H02P 6/006](#) and [H02P 6/008](#) take precedence over groups [H02P 6/001](#) to [H02P 6/005](#) and [H02P 6/04](#) to [H02P 6/24](#)
- U H02P 6/04** • Arrangements for controlling or regulating speed or torque of more than one motor
- H02P 2006/045 • • {Control of current }
- U H02P 7/00** Arrangements for regulating or controlling the speed or torque of electric DC motors (starting [H02P 1/00](#); stopping or slowing [H02P 3/00](#); { synchronous motors or other dynamo-electric motors with electronic commutators in dependence on the rotor position [H02P 6/00](#); motors rotating step by step [H02P 8/00](#);} vector control [H02P 21/00](#))
- H02P 2007/0005 • {for preventing over- or under speed }
- H02P 2007/0011 • {for controlling one motor used for different sequential operations }
- H02P 2007/0016 • {Control of angular speed of one shaft without controlling the prime mover }
- H02P 2007/0022 • • {Controlling a brake between the prime mover and the load }
- H02P 2007/0027 • • {Controlling a clutch between the prime mover and the load }
- H02P 2007/0033 • {Controlling the mechanical load according to the amount of current drawn or delivered by the motor }
- U H02P 7/0038** • {Controlling the direction of rotation of DC motors}
- H02P 2007/005 • • {of DC motors only }
- H02P 2007/0055 • • • {by means of a H-bridge circuit }
- H02P 2007/0061 • • • {by means of electronic switching }
- H02P 2007/0072 • • {of AC motors only }
- H02P 2007/0077 • {Control of reciprocating, oscillating or vibrating motors }
- H02P 2007/0083 • {Control of voice coil motors }
- H02P 2007/0088 • {Microprocessor-controlled motors }
- H02P 2007/01 • {adapted to be connected to two or more voltage or current supplies }
- H02P 2007/04 • {for controlling an individual motor by means of a separate brake }
- H02P 2007/05 • {characterised by the use of reluctance motors }
- H02P 2007/052 • • {Arrangements for reducing torque ripple }
- H02P 2007/054 • • ~~Commutation~~-{Commutation }
- H02P 2007/056 • • • {Sensorless control }
- H02P 2007/058 • • {Converters specially adapted for controlling reluctance motors }
- U H02P 7/06** • for regulating or controlling an individual dc dynamo-electric motor by varying field or armature current
- U H02P 7/18** • • by master control with auxiliary power
- N H02P 7/348** • • • *for changing between series and parallel connections of motors*
- H02P 2007/36 • {for controlling an individual ac dynamo-electric motor by varying stator or rotor current }
- H02P 2007/38 • • {by manual control without auxiliary power }
- H02P 2007/40 • • • {using variable impedance in stator or rotor circuit }
- H02P 2007/42 • • • {using variable-frequency supply }

- H02P 2007/44 . . . {wherein only rotor or only stator circuit is supplied with ac }
- H02P 2007/46 . . . {wherein both rotor and stator circuits are supplied with ac, the frequency of supply to one circuit being variable }
- H02P 2007/48 . . . {by pole-changing }
- H02P 2007/50 . . . {by shifting the brushes of a commutator motor }
- H02P 2007/52 . . . {by master control with auxiliary power }
- H02P 2007/54 . . . {using multi-position switch, e.g. drum, controlling motor circuit by means of relays }
- H02P 2007/56 . . . {using multi-position switch, e.g. drum, controlling motor circuit by means of pilot-motor-operated multi-position switch or pilot-motor-operated variable resistance }
- H02P 2007/58 . . . {using discharge tubes or semiconductor devices }
- H02P 2007/60 . . . {using discharge tubes }
- H02P 2007/62 . . . {using semiconductor devices }
- H02P 2007/6202 {the AC-motor being operated in the four quadrants }
- H02P 2007/6204 {Synchronous motors }
- H02P 2007/6206 {controlled by supply frequency }
- H02P 2007/6208 {thereby detecting the rotor position }
- H02P 2007/6211 {by methods not covered by [H02P 2007/6213](#) to [H02P 2007/635](#) }
- H02P 2007/6213 {controlled according to a desired slip-setting }
- H02P 2007/6215 {controlled by superposition of DC-current upon the AC-supply }
- H02P 2007/6217 {controlled by the switch frequency of the switches connected between a DC-supply and the motorphases }
- H02P 2007/622 {controlling supply voltage }
- H02P 2007/6223 {power factor control }
- H02P 2007/6226 {for single-phase motors }
- H02P 2007/625 {controlling secondary impedance }
- H02P 2007/628 {controlling supply frequency }
- H02P 2007/6283 {thereby changing voltage according to frequency }
- H02P 2007/6286 {thereby changing current according to frequency }
- H02P 2007/63 {using dc to ac converters }
- H02P 2007/6305 {with pulse width modulation (PWM) }
- H02P 2007/631 {with bang-bang controllers }
- H02P 2007/6315 {with three or more levels }
- H02P 2007/632 {using ac to ac converters without intermediate conversion to dc }
- H02P 2007/6325 {varying the frequency by omitting half waves }
- H02P 2007/635 {controlling slip energy }
- H02P 2007/638 {for controlling commutator motors }
- H02P 2007/6383 {Series motors; Universal motors }
- H02P 2007/6386 {Repulsion motors }
- H02P 2007/64 . . . {using magnetic devices with controllable degree of saturation, i.e. transducers }
- H02P 2007/66 . . . {using an ac generator to supply the motor, the motor being controlled by a control effected upon the generator }
- H02P 2007/67 . . . {for controlling two or more dynamo-electric motors }
- H02P 2007/68 . . . {for controlling two or more dc dynamo-electric motors }

| | | |
|---|---|--|
| | H02P 2007/685 | • • • {electrically connected in series, i.e. carrying the same current } |
| | H02P 2007/69 | • • • {mechanically coupled by gearing } |
| | H02P 2007/695 | • • • • {Differential gearing } |
| D | H02P 7/72 | • • • for changing between series and parallel connections of motors |
| | H02P 2007/74 | • • {for controlling two or more ac dynamo-electric motors } |
| | H02P 2007/747 | • • • {mechanically coupled by gearing } |
| | H02P 2007/753 | • • • • {Differential gearing } |
| | H02P 2007/78 | • • • {for cascade connection between motors, e.g. motors permanently connected in cascade, motors switched from parallel to cascade connection } |
| | H02P 2007/80 | • • {for controlling combinations of dc and ac dynamo-electric motors } |
| U | H02P 9/00 | Arrangements for controlling electric generators for the purpose of obtaining a desired output (Ward-Leonard arrangements H02P 7/34; vector control H02P 21/00; feeding a network by two or more generators H02J; for charging batteries H02J 7/14) |
| | H02P 2009/001 | • {Controlling arrangements characterised by their applications } |
| | H02P 2009/002 | • • {Control of generators for motor vehicles e.g. car alternators } |
| | H02P 2009/003 | • • {Control of generators for water driven turbines } |
| | H02P 2009/004 | • • {Control of generators for wind turbines } |
| | H02P 2009/005 | • • {Control of generators for aircrafts } |
| U | H02P 21/00 | Arrangements or methods for the control of electric machines by vector control, e.g. by control of field orientation |
| | <u>NOTES</u> | |
| | 1. Groups H02P 21/06 to H02P 21/12 cover vector control arrangements or methods involving the use of rotor position or speed sensors. | |
| | 2. Vector control arrangements or methods not involving the use of rotor position or speed sensors are classified in groups H02P 21/0039 and subgroups | |
| | When classifying in this group, it is desirable to also classify in groups 25/00 to 27/00 if the kind of AC motor, structural details, or the kind of supply voltage are of interest. | |
| U | H02P 21/0003 | • { Control strategies in general, e.g. linear type e.g. P, PI, PID, using robust control } |
| | H02P 2021/0028 | • • {Direct torque control (DTC); Field acceleration method (FAM) } |
| | H02P 2021/0057 | • {Internal or external parameter adaptation; Modelling } |
| | H02P 2021/006 | • • {Estimation, e.g. observer } |
| | H02P 2021/0064 | • • • {Flux estimation } |
| | H02P 2021/0067 | • • • {Sensorless speed estimation } |
| | H02P 2021/0071 | • {Rotor flux based control } |
| | H02P 2021/0075 | • • {Direct control of flux } |
| | H02P 2021/0078 | • • {Indirect control of flux } |
| | H02P 2021/0082 | • • • {Slip control } |

- U H02P 25/00** Arrangements or methods for the control of AC motors characterised by the kind of AC motor or by structural details (starting [H02P 1/00](#); stopping or slowing [H02P 3/00](#); of two or more motors [H02P 5/00](#); of synchronous motors with electronic commutators [H02P 6/00](#); of DC motors [H02P 7/00](#); of stepping motors [H02P 8/00](#))

NOTE

When classifying in this group, it is desirable to also classify in groups [H02P 21/00](#), [H02P 23/00](#) or [H02P 27/00](#) if the control method or the kind of supply voltage are of interest.

- U H02P 25/16 · characterised by the circuit arrangement or by the kind of wiring
- U H02P 25/18 · · with arrangements for switching the windings, e.g. with mechanical switches or relays
- H02P 25/186 · · · {whereby the speed is regulated by using a periodic interrupter (~~H02P 5/30~~ [H02P 25/30](#) takes precedence)}

Project: N/A (H03B)

- U H03B 1/00** **Details**
- H03B 1/02 · Structural details of power oscillators, e.g. for heating{(construction of transmitters [H04B](#) ; features of generators for heating by electromagnetic fields ~~H05B 6/00~~ [H05B 6/00](#))}
- U H03B 9/00** **Generation of oscillations using transit-time effects{(construction of tube and circuit arrangements not adapted to a particular application [H01J](#) ; construction of the semiconductor devices [H01L](#))}**
- U H03B 9/12 · using solid state devices, e.g. Gunn-effect devices
- H03B 2009/123 · · {using Gunn diodes}
- H03B 2009/126 · · {using impact ionization avalanche transit time (IMPATT) diodes}

Project: N/A (H03D)

- U H03D 1/00** **Demodulation of amplitude-modulated oscillations ([H03D 5/00](#), [H03D 9/00](#), [H03D 11/00](#) take precedence)**
- U H03D 1/22 · Homodyne or synchrodyne circuits {(receiver circuits [H04B 1/30](#))}
- U H03D 1/2245 · · {using two quadrature channels ([H03D 1/2209](#) takes precedence)}
- U H03D 1/2254 · · · {and a phase locked loop}
- H03D 2001/2263 · · · · {including a counter or a divider in the PLL }
- U H03D 9/00** **Demodulation or transference of modulation of modulated electromagnetic waves (demodulating light, transferring modulation in light waves [G02F 2/00](#))**
- U H03D 9/06 · Transference of modulation using distributed inductance and capacitance
- H03D 2009/0691 · · {by means of superconductive devices }

Project: N/A (H03F)

- U H03F 3/00** **Amplifiers with only discharge tubes or only semiconductor devices as amplifying elements**
- U H03F 3/30 · Single-ended push-pull {(SEPP)} amplifiers {(single-ended sense amplifiers [G11C 7/067](#))}; Phase-splitters therefor
- U H03F 3/3001 · · {with field-effect transistors}
- H03F 2003/3003 · · · {with MOSFET`s}
- H03F 2003/3005 · · · {with junction-FET`s}

| | | |
|---|-----------------|--|
| | H03F 2003/3006 | • • • {in a bridge configuration} |
| U | H03F 3/45 | • Differential amplifiers (differential sense amplifiers G11C 7/062) |
| | H03F 2003/45004 | • • {with semiconductor devices only} |
| | H03F 2003/45008 | • • • {with field-effect devices} |
| | H03F 2003/45013 | • • • {Integrated circuits} |
| | H03F 2003/45017 | • • • • {with field-effect devices} |
| | H03F 2003/45022 | • • • {Rejection of common mode signals; Modifications of differential amplifiers to reduce the influence of variations of physical parameters, e.g. temperature, age} |
| | H03F 2003/45026 | • • • • {MOSFET amplifiers} |
| | H03F 2003/45031 | • • • • • {using switching means} |
| | H03F 2003/45035 | • • • • • {with a combination of P-MOS and N-MOS differential amplifiers as input stage} |
| | H03F 2003/4504 | • • • • {using feedback means} |
| | H03F 2003/45044 | • • • • • {feedback on the differential amplifier in series with the Dc current supply} |
| | H03F 2003/45049 | • • • • • {feedback on the input leads of the differential amplifier} |
| | H03F 2003/45053 | • • • • • • {using a capacitor in the feedback loop} |
| | H03F 2003/45058 | • • • • {in junction-FET amplifiers} |
| | H03F 2003/45062 | • • • • • {using switching means} |
| | H03F 2003/45067 | • • • • {using switching means} |

Project: N/A (H03H)

| | | |
|---|----------------|---|
| U | H03H 1/00 | Constructional details of impedance networks whose electrical mode of operation is not specified or applicable to more than one type of network(constructional details of electromechanical transducers H03H 9/00) |
| | H03H 2001/0014 | • {Capacitor filters, i.e. capacitors whose parasitic inductance is of relevance to consider it as filter} |
| | H03H 2001/0021 | • {Constructional details} |
| | H03H 2001/0028 | • • {RFI filters with housing divided in two bodies} |
| | H03H 2001/0035 | • • {Wound magnetic core} |
| | H03H 2001/0042 | • • {Wound, ring or feed-through type capacitor} |
| | H03H 2001/005 | • • {Wound, ring or feed-through type inductor} |
| | H03H 2001/0057 | • • {comprising magnetic material} |
| | H03H 2001/0064 | • • {comprising semiconductor material} |
| | H03H 2001/0071 | • • {comprising zig-zag inductor} |
| | H03H 2001/0078 | • • {comprising spiral inductor on a substrate} |
| | H03H 2001/0085 | • • {Multilayer, e.g. LTCC, HTCC, green sheets(inside PCB filters H05K)} |
| | H03H 2001/0092 | • {Inductor filters, i.e. inductors whose parasitic capacitance is of relevance to consider it as filter} |
| U | H03H 3/00 | Apparatus or processes specially adapted for the manufacture of impedance networks, resonating circuits, resonators |
| U | H03H 3/007 | • for the manufacture of electromechanical resonators or networks |
| | H03H 2003/0071 | • • {of bulk acoustic wave and surface acoustic wave elements in the same process} |

| | | |
|---|------------------|---|
| | H03H 3/0072 | <ul style="list-style-type: none"> • {of micro-electro-mechanical resonators or networks(micro-membranes or micro-beams B81B3/00M2B81B 2203/01 ; manufacture of micro-structural devices in general B81C)} |
| U | H03H 3/02 | <ul style="list-style-type: none"> • for the manufacture of piezo-electric or electrostrictive resonators or networks(H03H 3/08 takes precedence) |
| | H03H 2003/021 | <ul style="list-style-type: none"> • • {the resonators or networks being of the air-gap type} |
| | H03H 2003/022 | <ul style="list-style-type: none"> • • {the resonators or networks being of the cantilever type} |
| | H03H 2003/023 | <ul style="list-style-type: none"> • • {the resonators or networks being of the membrane type} |
| | H03H 2003/025 | <ul style="list-style-type: none"> • • {the resonators or networks comprising an acoustic mirror} |
| | H03H 2003/026 | <ul style="list-style-type: none"> • • {the resonators or networks being of the tuning fork type} |
| | H03H 2003/027 | <ul style="list-style-type: none"> • • {the resonators or networks being of the micro-electro-mechanical [MEMS] type} |
| | H03H 2003/028 | <ul style="list-style-type: none"> • • {for obtaining desired values of other parameters} |
| U | H03H 3/04 | <ul style="list-style-type: none"> • • for obtaining desired frequency or temperature coefficient |
| | H03H 2003/0407 | <ul style="list-style-type: none"> • • • {Temperature coefficient} |
| | H03H 2003/0414 | <ul style="list-style-type: none"> • • • {Resonance frequency} |
| | H03H 2003/0421 | <ul style="list-style-type: none"> • • • • {Modification of the thickness of an element} |
| | H03H 2003/0428 | <ul style="list-style-type: none"> • • • • • {of an electrode} |
| | H03H 2003/0435 | <ul style="list-style-type: none"> • • • • • {of a piezoelectric layer} |
| | H03H 2003/0442 | <ul style="list-style-type: none"> • • • • • {of a non-piezoelectric layer} |
| | H03H 2003/045 | <ul style="list-style-type: none"> • • • • {Modification of the area of an element} |
| | H03H 2003/0457 | <ul style="list-style-type: none"> • • • • • {of an electrode} |
| | H03H 2003/0464 | <ul style="list-style-type: none"> • • • • {operating on an additional circuit element, e.g. a passive circuit element connected to the resonator} |
| | H03H 2003/0471 | <ul style="list-style-type: none"> • • • • {of a plurality of resonators at different frequencies} |
| | H03H 2003/0478 | <ul style="list-style-type: none"> • • • • {in a process for mass production} |
| | H03H 2003/0485 | <ul style="list-style-type: none"> • • • • {during the manufacture of a cantilever} |
| | H03H 2003/0492 | <ul style="list-style-type: none"> • • • • {during the manufacture of a tuning-fork} |
| U | H03H 7/00 | <p>Multiple-port networks comprising only passive electrical elements as network components(receiver input circuits H04B 1/18 ; networks simulating a length of communication cable H04B 3/40)</p> |
| | H03H 2007/006 | <ul style="list-style-type: none"> • MEMS{MEMS} |
| | H03H 2007/008 | <ul style="list-style-type: none"> • {the MEMS being trimmable} |
| U | H03H 7/01 | <ul style="list-style-type: none"> • Frequency selective two-port networks |
| | H03H 2007/013 | <ul style="list-style-type: none"> • {Notch or bandstop filters} |
| | H03H 2007/0192 | <ul style="list-style-type: none"> • {Complex filters} |
| | H03H 7/17 | <ul style="list-style-type: none"> • {Structural details of sub-circuits of frequency selective networks} <p><u>WARNING</u>
not complete, pending reorganisation, see provisionally also H03H-7/01 AH03H7/01A, H03H 7/0123 to H03H 7/07 , H03H 7/09 to H03H 7/13 and H03H 7/42</p> |
| U | H03H 7/38 | <ul style="list-style-type: none"> • Impedance-matching networks |
| | H03H 2007/386 | <ul style="list-style-type: none"> • {Multiple band impedance matching} |
| U | H03H 7/42 | <ul style="list-style-type: none"> • Balance/unbalance networks |

| | |
|-----------------------|---|
| H03H 7/425 | <ul style="list-style-type: none"> • {Balance-balance networks} <p><u>WARNING</u>
not complete, pending reorganisation, see provisionally also H03H 1/00 to H03H 1/00 AH03H1/00A, H03H 7/01 AH03H7/01A, H03H 7/0123 to H03H 7/07, H03H 7/09 to H03H 7/13, H03H 7/42 and H03H 7/42 BH03H7/42B</p> |
| H03H 7/427 | <ul style="list-style-type: none"> • • {Common-mode filters(H02J 3/01 and H02M 1/126 takes precedence)} <p><u>WARNING</u>
not complete, pending reorganisation, see provisionally also H03H 1/00 to H03H 1/00 AH03H1/00A, H03H 7/01 AH03H7/01A, H03H 7/0123 to H03H 7/07, H03H 7/09 to H03H 7/13 and H03H 7/42</p> |
| U H03H 9/00 | Networks comprising electromechanical or electro-acoustic devices; Electromechanical resonators(making single crystals C30B; selection of materials thereof H01L; piezo-electric, electrostrictive or magnetostrictive devices per se H01L 41/00 ; electromechanical transducers H04R) |
| H03H 2009/0019 | <ul style="list-style-type: none"> • {Surface acoustic wave multichip} |
| U H03H 9/02 | <ul style="list-style-type: none"> • Details |
| H03H 2009/02165 | <ul style="list-style-type: none"> • • Tuning{Tuning} |
| H03H 2009/02173 | <ul style="list-style-type: none"> • • • {of film bulk acoustic resonators [FBAR]} |
| H03H 2009/02181 | <ul style="list-style-type: none"> • • • • {by application of heat from a heat source} |
| H03H 2009/02188 | <ul style="list-style-type: none"> • • • • {Electrically tuning} |
| H03H 2009/02196 | <ul style="list-style-type: none"> • • • • • {operating on the FBAR element, e.g. by direct application of a tuning DC voltage} |
| H03H 2009/02204 | <ul style="list-style-type: none"> • • • • • {operating on an additional circuit element, e.g. applying a tuning DC voltage to a passive circuit element connected to the resonator} |
| H03H 2009/02212 | <ul style="list-style-type: none"> • • • • {Magnetically tuning} |
| U H03H 9/02244 | <ul style="list-style-type: none"> • • {of micro-electro-mechanical resonators} |
| H03H 2009/02251 | <ul style="list-style-type: none"> • • • Design{Design} |
| U H03H 9/02259 | <ul style="list-style-type: none"> • • • {Driving or detection means} |
| H03H 2009/02267 | <ul style="list-style-type: none"> • • • • {having dimensions of atomic scale, e.g. involving electron transfer across vibration gap} |
| H03H 2009/02283 | <ul style="list-style-type: none"> • • • {Vibrating means} |
| H03H 2009/02291 | <ul style="list-style-type: none"> • • • • Beams{Beams} |
| H03H 2009/02299 | <ul style="list-style-type: none"> • • • • • {Comb-like, i.e. the beam comprising a plurality of fingers or protrusions along its length} |
| H03H 2009/02307 | <ul style="list-style-type: none"> • • • • • {Dog-bone-like structure, i.e. the elongated part of the "bone" is doubly clamped} |
| H03H 2009/02314 | <ul style="list-style-type: none"> • • • • • {forming part of a transistor structure} |
| H03H 2009/02322 | <ul style="list-style-type: none"> • • • • • Material{Material} |
| H03H 2009/0233 | <ul style="list-style-type: none"> • • • • {comprising perforations} |
| U H03H 9/02338 | <ul style="list-style-type: none"> • • • {Suspension means} |
| H03H 2009/02346 | <ul style="list-style-type: none"> • • • • {Anchors for ring resonators} |
| H03H 2009/02354 | <ul style="list-style-type: none"> • • • • • {applied along the periphery, e.g. at nodal points of the ring} |
| U H03H 9/02362 | <ul style="list-style-type: none"> • • • • {Folded-flexure} |
| H03H 2009/0237 | <ul style="list-style-type: none"> • • • • • {applied at the center} |
| H03H 2009/02385 | <ul style="list-style-type: none"> • • • • {Anchors for square resonators, i.e. resonators comprising a square vibrating membrane} |

- U H03H 9/02433 . . . {Means for compensation or elimination of undesired effects}
- H03H 2009/0244 . . . {Anchor loss}
- H03H 2009/02456 . . . {Parasitic elements or effects, e.g. parasitic capacitive coupling between input and output}
- H03H 2009/02464 . . . {Pull-in}
- H03H 2009/02472 . . . ~~Stiction~~{Stiction}
- H03H 2009/0248 . . . ~~Strain~~{Strain}
- H03H 2009/02488 . . . {Vibration modes}
- H03H 2009/02496 . . . {Horizontal, i.e. parallel to the substrate plane}
- H03H 2009/02503 . . . {Breath-like, e.g. Lam? mode, wine-glass mode}
- H03H 2009/02511 . . . {Vertical, i.e. perpendicular to the substrate plane}
- H03H 2009/02519 . . . ~~Torsional~~{Torsional}
- H03H 2009/02527 . . . ~~Combined~~{Combined}
- U H03H 9/15 . Constructional features of resonators consisting of piezo-electric or electrostrictive material([H03H 9/25](#) takes precedence)
- H03H 2009/155 . . {using MEMS techniques}
- U H03H 9/24 . Constructional features of resonators of material which is not piezo-electric, electrostrictive, or magnetostrictive
- U H03H 9/2405 . . {of micro-electro-mechanical resonators}
- H03H 2009/241 . . . {Bulk-mode MEMS resonators}
- H03H 2009/2415 . . . {with concave shape [CBAR]}
- H03H 2009/2421 . . . {with I shape [IBAR]}
- H03H 2009/2442 . . . {Square resonators}
- U **H03H 11/00** **Networks using active elements**
- WARNING
- Group [H03H 11/11](#) does not correspond to former or current IPC groups.
- Concordance CPC : IPC for these groups is as follows: - [H03H 11/11](#) - [H03H 11/04](#)
- U H03H 11/02 . Multiple-port networks
- U H03H 11/04 . . Frequency selective two-port networks
- U H03H 11/0405 . . . {Non-linear filters}
- H03H 2011/0411 . . . {Rank order or median filters}
- U H03H 11/0422 . . . {using transconductance amplifiers, e.g. gmC filters}
- H03H 11/0427 . . . {Filters using a single transconductance amplifier; Filters derived from a single transconductor filter, e.g. by element substitution, cascading, parallel connection([H03H 11/0433](#) to ~~H03H11/C10~~**H03H11/C10** take precedence)}
- H03H 2011/0477 . . . {using current feedback operational amplifiers}
- H03H 2011/0483 . . . {using operational transresistance amplifiers [OTRA]}
- H03H 2011/0488 . . . {Notch or bandstop filters}
- H03H 2011/0494 . . . {Complex filters}
- U **H03H 15/00** **Transversal filters(electromechanical filters [H03H 9/46](#) , [H03H 9/70](#))**
- H03H 2015/002 . {Computation saving measures}
- H03H 2015/005 . {comprising capacitors implemented with MEMS technology}
- H03H 2015/007 . {Programmable filters}

| | | |
|----------|-------------------|--|
| | H03H 2015/026 | • {Matched filters in charge domain} |
| U | H03H 17/00 | Networks using digital techniques |
| | H03H 2017/0072 | • {Theoretical filter design} |
| | H03H 2017/0081 | • • {of FIR filters} |
| | H03H 2017/009 | • • {of IIR filters} |
| U | H03H 17/02 | • Frequency selective networks((digital computers for complex mathematical operations G06F 17/10)) |
| U | H03H 17/0202 | • • {Two or more dimensional filters; Filters for complex signals(multidimensional convolutions G06F 17/153)} |
| | H03H 2017/0204 | • • • {Comb filters} |
| | H03H 2017/0205 | • • • {Kalman filters} |
| | H03H 2017/0207 | • • • {Median filters} |
| | H03H 2017/0208 | • • • {using neural networks} |
| | H03H 2017/021 | • • • {Wave digital filters} |
| U | H03H 17/0211 | • • {using specific transformation algorithms, e.g. WALSH functions, Fermat transforms, Mersenne transforms, polynomial transforms, Hilbert transforms(correlation computation G06F 17/156)} |
| U | H03H 17/0213 | • • • {Frequency domain filters using Fourier transforms} |
| | H03H 2017/0214 | • • • • {with input-sampling frequency and output-delivery frequency which differ, e.g. interpolation, extrapolation; anti-aliasing} |
| U | H03H 17/0219 | • • {Compensation of undesirable effects, e.g. quantisation noise, overflow(stability problems H03H 17/0461)} |
| | H03H 2017/022 | • • • {Rounding error} |
| | H03H 2017/0222 | • • • {Phase error} |
| U | H03H 17/0223 | • • {Computation saving measures; Accelerating measures(computations per se G06F)} |
| U | H03H 17/0227 | • • • {Measures concerning the coefficients} |
| U | H03H 17/023 | • • • • {reducing the wordlength, the possible values of coefficients} |
| | H03H 2017/0232 | • • • • • {Canonical signed digit [CSD] or power of 2 coefficients} |
| | H03H 2017/0244 | • • • {Measures to reduce settling time} |
| | H03H 2017/0245 | • • • {Measures to reduce power consumption(H03H 17/0223 takes preference)} |
| | H03H 2017/0247 | • • • {Parallel structures using a slower clock} |
| U | H03H 17/0294 | • • {Variable filters; Programmable filters} |
| | H03H 2017/0295 | • • • {Changing between two filter characteristics} |
| | H03H 2017/0297 | • • • {Coefficients derived from input parameters} |
| | H03H 2017/0298 | • • {DSP implementation} |
| U | H03H 17/04 | • • Recursive filters |
| U | H03H 17/0461 | • • • {Quantisation; Rounding; Truncation; Overflow oscillations or limit cycles eliminating measures} |
| | H03H 2017/0466 | • • • • {Reduction of limit cycle oscillation} |
| | H03H 2017/0472 | • • • • {based on allpass structures} |
| | H03H 2017/0477 | • • • • {Direct form I} |
| | H03H 2017/0483 | • • • • Transposed { Transposed } |
| | H03H 2017/0488 | • • • • {Direct form II} |
| | H03H 2017/0494 | • • • • Transposed { Transposed } |

- U H03H 17/06
 - • Non-recursive filters
- U H03H 17/0621
 - • • {with input-sampling frequency and output-delivery frequency which differ, e.g. extrapolation; Anti-aliasing}
- U H03H 17/0635
 - • • • {characterized by the ratio between the input-sampling and output-delivery frequencies}
- U H03H 17/0671
 - • • • • {Cascaded integrator-comb [CIC]filters}
- H03H 2017/0678
 - • • • • • {with parallel structure, i.e. parallel CIC [PCIC]}
- H03H 2017/0692
 - • • ~~Transposed~~{*Transposed*}
- U H03H 21/00**
 - Adaptive networks**
- U H03H 21/0001
 - {Analogue adaptive filters}
- H03H 2021/0009
 - • ~~Details~~{*Details*}
- H03H 2021/001
 - • • {Analog multipliers}
- U H03H 21/0012
 - {Digital adaptive filters}
- U H03H 21/0025
 - • {Particular filtering methods}
- H03H 2021/0034
 - • • {Blind source separation}
- H03H 2021/0036
 - • • • {of convolutive mixtures}
- H03H 2021/0038
 - • • • {of instantaneous mixtures}
- H03H 2021/004
 - • • • {using state space representation}
- H03H 2021/0041
 - • • {Subband decomposition}
- U H03H 21/0043
 - • {Adaptive algorithms}
- H03H 2021/0045
 - • • {Equation error}
- H03H 2021/0047
 - • • • {Combined output and equation error}
- H03H 2021/0049
 - • • {Recursive least squares algorithm}
- H03H 2021/005
 - • • • {with forgetting factor}
- H03H 2021/0052
 - • • • {combined with stochastic gradient algorithm}
- H03H 2021/0054
 - • • • • {Affine projection}
- H03H 2021/0056
 - • • {Non-recursive least squares algorithm [LMS]}
- H03H 2021/0058
 - • • • {Block LMS, i.e. in frequency domain}
- H03H 2021/0059
 - • • • {Delayed LMS}
- H03H 2021/0061
 - • • • • {Normalized LMS [NLMS]}
- H03H 2021/0063
 - • • • • {Proportionate NLMS}
- H03H 2021/0065
 - • • • {Sign-sign LMS}
- U H03H 21/0067
 - • {Means or methods for compensation of undesirable effects}
- H03H 2021/0069
 - • • {Finite wordlength}
- H03H 2021/007
 - • {Computation saving measures; Accelerating measures}
- H03H 2021/0072
 - • • {Measures relating to the coefficients}
- H03H 2021/0074
 - • • • {Reduction of the update frequency}
- H03H 2021/0076
 - • • {Measures relating to the convergence time([H03H 2021/0072](#) takes preference)}
- H03H 2021/0078
 - • • • {varying the step size}
- H03H 2021/0079
 - • • {using look-up tables}
- H03H 2021/0081
 - • ~~Details~~{*Details*}
- H03H 2021/0083
 - • • {Shadow filter, i.e. one of two filters which are simultaneously adapted, wherein the results of adapting the shadow filter are used for adapting the other filter}

- H03H 2021/0085 . . **Applications**{Applications}
- H03H 2021/0087 . . . **Prediction**{Prediction}
- H03H 2021/0089 . . . {System identification, i.e. modeling}
- H03H 2021/009 {with recursive filters}
- H03H 2021/0092 . . . {Equalization, i.e. inverse modeling}
- H03H 2021/0094 . . . {Interference Cancelling}
- H03H 2021/0096 . . {with input-sampling frequency and output-delivery frequency which differ, e.g. extrapolation; anti-aliasing}
- H03H 2021/0098 . {Adaptive filters comprising analog and digital structures}

Project: N/A (H03K)**U H03K 5/00**

Manipulating pulses not covered by one of the other main groups in this subclass (circuits with regenerative action [H03K 3/00](#), [H03K 4/00](#); by the use of non-linear magnetic or dielectric devices [H03K 3/45](#))

NOTE

In this group, the input signals are of the pulse type.

- H03K 2005/00013 . {Delay, i.e. output pulse is delayed after input pulse and pulse length of output pulse is dependent on pulse length of input pulse }
- H03K 2005/00019 . . {Variable delay }
- H03K 2005/00026 . . . {controlled by an analog electrical signal, e.g. obtained after conversion by a D/A converter }
- H03K 2005/00032 {Dc control of switching transistors }
- H03K 2005/00039 {having four transistors serially }
- H03K 2005/00045 {Dc voltage control of a capacitor or of the coupling of a capacitor as a load }
- H03K 2005/00052 {by mixing the outputs of fixed delayed signals with each other or with the input signal }
- H03K 2005/00058 . . . {controlled by a digital setting }
- H03K 2005/00065 {by current control, e.g. by parallel current control transistors }
- H03K 2005/00071 {by adding capacitance as a load }
- H03K 2005/00078 . . {Fixed delay }
- H03K 2005/00084 . . . {by trimming or adjusting the delay }
- H03K 2005/00091 {using fuse links }
- H03K 2005/00097 . . . {Avoiding variations of delay using feedback, e.g. controlled by a PLL }
- H03K 2005/00104 {using a reference signal, e.g. a reference clock }
- H03K 2005/0011 {using a separate time interval to calibrate the delay }
- H03K 2005/00117 . . . {Avoiding variations of delay due to line termination }
- H03K 2005/00123 . . . {Avoiding variations of delay due to integration tolerances }
- H03K 2005/0013 . . . {Avoiding variations of delay due to power supply }
- H03K 2005/00136 . . . {Avoiding asymmetry of delay for leading or trailing edge; Avoiding variations of delay due to threshold }
- H03K 2005/00143 . . . {Avoiding variations of delay due to temperature }
- H03K 2005/0015 . . {Layout of the delay element }
- H03K 2005/00156 . . . {using opamps, comparators, voltage multipliers or other analog building blocks }
- H03K 2005/00163 . . . {using bipolar transistors }

| | |
|---------------------|---|
| H03K 2005/00169 | • • • {using current mirrors } |
| H03K 2005/00176 | • • • {using differential stages } |
| H03K 2005/00182 | • • • {using constant current sources } |
| H03K 2005/00189 | • • • {in BiCMOS technology } |
| H03K 2005/00195 | • • • {using FET`s } |
| H03K 2005/00202 | • • • {using current mirrors } |
| H03K 2005/00208 | • • • {using differential stages } |
| H03K 2005/00215 | • • • {where the conduction path of multiple FET`s is in parallel or in series, all having the same gate control } |
| H03K 2005/00221 | • • • {where the conduction path of the different output FET`s is connected in parallel with different gate control, e.g. having different sizes or thresholds, or coupled through different resistors } |
| H03K 2005/00228 | • • • {having complementary input and output signals } |
| H03K 2005/00234 | • • • {using circuits having two logic levels } |
| H03K 2005/00241 | • • • {using shift registers } |
| H03K 2005/00247 | • • • {using counters } |
| H03K 2005/00254 | • • • {using microprocessors } |
| H03K 2005/0026 | • • • {using memories or FIFO`s } |
| H03K 2005/00267 | • • • {using D/A or A/D converters } |
| H03K 2005/00273 | • • • {using digital comparators } |
| H03K 2005/0028 | • • • {using varicaps, e.g. gate capacity of a FET with specially defined threshold, as delaying capacitors } |
| H03K 2005/00286 | • {Phase shifter, i.e. the delay between the output and input pulse is dependent on the frequency, and such that a phase difference is obtained independent of the frequency } |
| H03K 2005/00293 | • {Output pulse is a delayed pulse issued after a rising or a falling edge, the length of the output pulse not being in relation with the length of the input triggering pulse } |
| U H03K 17/00 | Electronic switching or gating, i.e. not by contact-making or -braking (selection of the stylus or auxiliary electrode in electric printing B41J 2/405; sample-and-hold arrangements G11C 27/02; switching or interrupting devices in waveguides H01P; gated amplifiers H03F 3/72; switching arrangements for exchange systems using static devices H04Q 3/52) |
| U H03K 17/06 | • Modifications for ensuring a fully conducting state |
| H03K 2017/066 | • • {Maximizing the OFF-resistance instead of minimizing the ON-resistance } |
| U H03K 17/08 | • Modifications for protecting switching circuit against overcurrent or overvoltage |
| H03K 2017/0803 | • • {against radiation hardening } |
| H03K 2017/0806 | • • {against excessive temperature } |
| U H03K 17/22 | • Modifications for ensuring a predetermined initial state when the supply voltage has been applied (bi-stable generators H03K 3/12) |
| H03K 2017/226 | • • {in bipolar transistor switches } |
| U H03K 17/30 | • Modifications for providing a predetermined threshold before switching (shaping pulses by thresholding H03K 5/08 ; {for logic circuits H03K 19/0021 }) |
| H03K 2017/307 | • • {circuits simulating a diode, e.g. threshold zero } |
| U H03K 17/51 | • characterised by the components used (H03K 17/04 to H03K 17/30 , H03K 17/94 take precedence) |
| H03K 2017/515 | • • {Mechanical switches; Electronic switches controlling mechanical switches, e.g. relais } |

- U H03K 17/56
 - • using semiconductor devices (using diodes [H03K 17/74](#))
- U H03K 17/687
 - • • using field-effect transistors
- H03K 2017/6875
 - • • • {using self-conductive, depletion FETs }
- H03K 2017/6878
 - • • • {using multi-gate field-effect transistors}
- U H03K 17/94
 - characterised by the way in which the control signal is generated (mechanical structural details of control members of switches or keyboards, such as keys, push-buttons, levers or other mechanisms for transferring force to the activated elements, not directly producing electronic effects [H01H](#); keyboards for special applications, see the relevant places, e.g. [B41J](#), [G06F 3/023](#), [H04L 15/00](#), [H04L 17/00](#), [H04M 1/00](#))
- U H03K 17/945
 - • Proximity switches ([H03K 17/96](#) takes precedence; {proximity fuzes [F42C 13/00](#); detecting masses or objects, e.g. by using a magnetic or optical detector [G01V](#), e.g. [G01V 3/00](#), [G01V 8/10](#)})
- H03K 2017/9455
 - • • {constructional details (of proximity switches using a magnetic detector [H03K 17/9505](#))}
- U H03K 17/95
 - • • using a magnetic detector
- U H03K 17/9505
 - • • • {Constructional details}
- H03K 2017/9507
 - • • • • {with illumination}
- U H03K 17/952
 - • • • {using inductive coils}
- H03K 2017/9527
 - • • • • {Details of coils in the emitter or receiver; Magnetic detector comprising emitting and receiving coils }
- U H03K 17/96
 - • Touch switches
- H03K 2017/9602
 - • • {characterised by the type or shape of the sensing electrodes }
- H03K 2017/9604
 - • • • {characterised by the number of electrodes }
- H03K 2017/9606
 - • • • • {using one electrode only per touch switch }
- H03K 2017/9609
 - • • • • • {where the electrode is the object to be switched }
- H03K 2017/9611
 - • • • • • {where the electrode is a plant }
- H03K 2017/9613
 - • • • • {using two electrodes per touch switch }
- H03K 2017/9615
 - • • • • {using three electrodes per touch switch }
- U H03K 17/9627
 - • • {Optical touch switches}
- U H03K 17/9631
 - • • • {using a light source as part of the switch}
- H03K 2017/9634
 - • • • • {using organic light emitting devices, e.g. light emitting polymer [OEP] or OLED }
- U H03K 17/965
 - • Switches controlled by moving an element forming part of the switch
- U H03K 17/97
 - • • using a magnetic movable element
- H03K 2017/9706
 - • • • {Inductive element }
- H03K 2017/9713
 - • • • {Multiposition, e.g. involving comparison with different thresholds }
- U H03K 17/975
 - • • using a capacitive movable element
- H03K 2017/9755
 - • • • {Ohmic switch; }
- U H03K 23/00
 - **Pulse counters comprising counting chains; Frequency dividers comprising counting chains ([H03K 29/00](#) takes precedence)**
- H03K 23/40
 - Gating or clocking signals applied to all stages, i.e. synchronous counters {([H03K 23/74](#) to [H03K 23/84](#) take precedence)}

WARNING

Groups H03K 23/40 and subgroups are not complete, see also groups H03K23/24 to H03K23/30

H03K 23/58

- Gating or clocking signals not applied to all stages, i.e. asynchronous counters ([H03K 23/74](#) to [H03K 23/84](#) take precedence)

WARNING

Groups ~~H03K 23/58~~ and subgroups are not complete, see also groups ~~H03K23/02~~ to ~~H03K23/08~~

Project: N/A (H03M)**U H03M 1/00**

Analogue/digital conversion; Digital/analogue conversion(conversion of analogue values to or from differential modulation [H03M 3/00](#))

U H03M 1/06

- Continuously compensating for, or preventing, undesired influence of physical parameters(periodically,{ e.g. by using stored correction values, } [H03M 1/10](#))

U H03M 1/0617

- {characterised by the use of methods or means not specific to a particular type of detrimental influence}

U H03M 1/0634

- • {by averaging out the errors, e.g. using sliding scale}

U H03M 1/0636

- • • {in the amplitude domain}

H03M 1/0639

- • • • {using dither(for increasing resolution ~~H03M 1/20 D~~ [H03M 1/201](#))}

U H03M 13/00

Coding, decoding or code conversion, for error detection or error correction; Coding theory basic assumptions; Coding bounds; Error probability evaluation methods; Channel models; Simulation or testing of codes(error detection or error correction for analogue/digital, digital/ analogue or code conversion [H03M 1/00](#) to [H03M 11/00](#) ; specially adapted for digital computers [G06F 11/08](#) , for information storage based on relative movement between record carrier and transducer [G11B](#), e.g. [G11B 20/18](#) , for static stores [G11C](#); { use of error detection or error correction in transmission systems [H04L 1/004](#) , in television systems [H04N 7/0357](#))}

U H03M 13/03

- Error detection or forward error correction by redundancy in data representation, i.e. code words containing more digits than the source words

U H03M 13/05

- • using block codes, i.e. a predetermined number of check bits joined to a predetermined number of information bits{([H03M 13/2906](#) takes precedence)}

H03M 13/07

- • • Arithmetic codes

WARNING

Not complete, see also ~~G06F11/10C~~ [G06F 11/104](#)

H03M 13/09

- • • Error detection only, e.g. using cyclic redundancy check [CRC] codes or single parity bit{(error detection or correction by redundancy in data representation [G06F 11/08](#))}

WARNING

Not complete, see also ~~G06F 11/10 B~~ [G06F11/10B](#)

U H03M 13/29

- combining two or more codes or code structures, e.g. product codes, generalised product codes, concatenated codes, inner and outer codes

U H03M 13/2957

- • {Turbo codes and decoding}

NOTE

This group covers also aspects when a component code is replaced by a non-coded constraint, e.g. like in joint turbo decoding and detection

H03M 13/2975

- • • {Judging correct decoding, e.g. iteration stopping criteria(stopping criteria for iterative decoding, see also ~~H04L1/00B5T1~~ [H04L 1/0051](#))}

U H03M 2201/00**Indexing scheme relating to A/D or D/A conversion**NOTE

As this scheme is obtained by conversion from the former deep indexing system RM03 it reflects the several editions of that system in the following way:

- code symbols added at subsequent editions are indicated by numbers [2] or [3] in square brackets, the code symbols present from the first edition on having no indication;
- headers which did not have a code symbol in the RM03 system and thus could not be assigned to documents, but which need a code symbol in the ICO system for the purpose of a correct hierarchical order, are indicated by the symbol [H];
- the edition according to which a document has been indexed is indicated by the assignment of one of code symbols [H03M 2201/01](#) through [H03M 2201/03](#) to that document.

In principle, therefore, a search should include a separate combination of appropriate code symbols for each edition, each combination including one of codes [H03M 2201/01](#) through [H03M 2201/03](#).

On an incidental base, however, code symbols from later editions have been assigned to documents indexed according to an earlier edition.

WARNING

The use of this indexing scheme has been discontinued for all documents published later than 1989.

U H03M 2201/60

- Fidelity improvement

U H03M 2201/61

- • Adjustment or control means [H]

U H03M 2201/6142

- • • Means used [H]

H03M 2201/6185

- • • • Interpolation(for fine conversions [H03M 2201/1172](#) , ~~[T03M201/12B](#)~~, [H03M 2201/162](#)) [3]

Project: N/A (H04B)**U H04B 1/00**

Details of transmission systems, not covered by a single one of groups [H04B 3/00](#) to [H04B 13/00](#) ; Details of transmission systems not characterised by the medium used for transmission(tuning resonant circuits [H03J](#))

NOTE

In this group, group [H04B 1/0003](#) takes precedence over groups [H04B 1/005](#) to [H04B 1/76](#)

- U H04B 1/02
 - Transmitters(spatial arrangements of component circuits in radio pills for living beings [A61B 5/07](#))
- H04B 1/04
 - • Circuits(of television transmitters [H04N 5/38](#) [H04N 5/38](#); { oscillators [H03B](#) ; modulators [H03C 1/00](#) , [H03C 3/00](#) , [H03C 5/00](#) ; amplifiers [H03F](#) ; power supplies [H04B 1/1607](#) })
- H04B 2001/0408
 - • • {with power amplifiers}
- H04B 2001/0416
 - • • • {having gain or transmission power control}
- H04B 2001/0425
 - • • • {with linearisation using predistortion}
- H04B 2001/0433
 - • • • {with linearisation using feedback}
- H04B 2001/0441
 - • • • {with linearisation using feed-forward}
- H04B 2001/045
 - • • • {with means for improving efficiency}
- H04B 2001/0491
 - • • {with frequency synthesizers, frequency converters or modulators}
- U H04B 1/06
 - Receivers(control of amplification [H03G](#) ; television receivers [H04N 5/44](#) , [H04N 5/64](#))
- U H04B 1/08
 - • Constructional details, e.g. cabinet
- U H04B 1/082
 - • • {to be used in vehicles([H04B 1/086](#) takes precedence; holding or mounting accessories [B60R 11/02](#))}
- H04B 2001/084
 - • • • {with removable front panel}
- H04B 1/10
 - • Means associated with receiver for limiting or suppressing noise or interference(induced by transmission(interference reduction in spread spectrum systems [H04B1/707F](#) [H04B 1/7097](#) ; equalising on HF or IF [H04B 7/005](#) ; diversity systems [H04B 7/02](#) ; elimination of image frequencies [H03D 7/18](#) ; noise suppression by control of amplification [H03G 3/00](#) , [H03G 5/00](#) , [H03G 7/00](#) ; squelching [H03G 3/26](#) , [H03G 3/34](#))}
- U H04B 1/1027
 - • • {assessing signal quality or detecting noise/interference for the received signal}
- H04B 2001/1045
 - • • • {Adjacent-channel interference}
- H04B 2001/1054
 - • • • {by changing bandwidth}
- H04B 2001/1063
 - • • • {using a notch filter}
- H04B 2001/1072
 - • • • {by tuning the receiver frequency}
- U H04B 1/16
 - • Circuits{(demodulators [H03D](#))}
- U H04B 1/30
 - • • for homodyne or synchrodyne receivers(demodulator circuits [H03D 1/22](#))
- H04B 2001/305
 - • • • {using dc offset compensation techniques}
- H04B 2001/307
 - • • • {using n-port mixer}
- H04B 1/38
 - Transceivers, i.e. devices in which transmitter and receiver form a structural unit and in which at least one part is used for functions of transmitting and receiving{(construction of portable transceivers [H04B 1/034](#) ; specially adapted to be fitted into airplanes [B64D 43/00](#) ; paging systems [G08B 3/10](#) ; traffic between a small number of stations with amplifiers or loudspeakers [H04M 9/00](#) [AH04M9/00A](#) ; selecting arrangements for radio-calling systems [H04W](#) ; wireless communication networks [H04W](#))}
- U H04B 1/3805
 - • {with built-in auxiliary receivers}
- H04B 2001/3811
 - • • {Split configuration of transmission devices}
- U H04B 1/3827
 - • {Portable transceivers}
- U H04B 1/3833
 - • • {Hand-held transceivers}
- U H04B 1/3838
 - • • • {arrangements for reducing RF exposure to the user, e.g. by changing the shape of the transceiver while in use(means for shaping the antenna pattern [H01Q 1/245](#))}
- H04B 2001/3844
 - • • • • {with an alert to the user that a certain exposure has been reached}

- U H04B 1/385
 - • • {Transceivers carried on the body, e.g. in helmets}
- H04B 2001/3855
 - • • • {Portable transmission device carried in a belt or harness}
- H04B 2001/3861
 - • • • {Portable transmission device carried on a hand or finger}
- H04B 2001/3866
 - • • • {Portable transmission device or transceiver carried on the head}
- H04B 2001/3872
 - • • • {Portable transmission device with extendable microphone or earphone}
- H04B 2001/3894
 - • {Waterproofing of transmission device}
- U H04B 1/40
 - • Circuits
- U H04B 1/44
 - • • Transmit/receive switching({ in radar systems [G01S 7/034](#) } ; tubes therefor [H01J 17/64](#) ; waveguide switches [H01P 1/10](#))
- U H04B 1/48
 - • • • in circuit for connecting transmitter and receiver to a common transmission path, e.g. by energy of transmitter(in radar systems [G01S](#) ; { [H04B 1/46](#) takes precedence })
- H04B 2001/485
 - • • • • {inhibiting unwanted transmission}
- U H04B 1/50
 - • • using different frequencies for the two directions of communication
- U H04B 1/52
 - • • • Hybrid arrangements, i.e. for transition from single-path two-way transmission to single transmission on each of two path, or vice-versa({ multiport networks [H03H 7/46](#) ; microwave multiplexers [H01P 1/213](#) })
- H04B 1/525
 - • • • • {with means for reducing leakage of transmitter signal into the receiver(for repeater stations ~~H04B7/155B~~[H04B 7/15564](#))}
- H04B 1/62
 - for providing a predistortion of the signal in the transmitter and corresponding correction in the receiver, e.g. for improving the signal/noise ratio({ for optical transmitters ~~H04B10/155L~~[H04B 10/58](#) })
- U H04B 1/69
 - Spread spectrum techniques
- H04B 2001/6904
 - • {using code hopping}
- H04B 2001/6908
 - • {using time hopping}
- H04B 2001/6912
 - • {using chirp}
- H04B 2001/6916
 - • {Related theory}
- U H04B 1/707
 - • using direct sequence modulation
- H04B 2001/70706
 - • • {using a code tracking loop, e.g. a delay locked loop}
- H04B 2001/70724
 - • • {featuring pilot assisted reception}
- U H04B 1/7073
 - • • Synchronisation aspects
- U H04B 1/7085
 - • • • using a code tracking loop, e.g. a delay-locked loop
- H04B 2001/70855
 - • • • • ~~Dithering~~{[Dithering](#)}
- U H04B 1/709
 - • • Correlator structure
- U H04B 1/7093
 - • • • Matched filter type
- H04B 2001/70935
 - • • • • {using a bank of matched fileters, e.g. Fast Hadamard Transform}
- U H04B 1/7097
 - • • Interference-related aspects
- U H04B 1/7103
 - • • • the interference being multiple access interference
- U H04B 1/7107
 - • • • • Subtractive interference cancellation
- H04B 2001/71077
 - • • • • • {Partial interference cancellation}
- U H04B 1/713
 - • using frequency hopping
- U H04B 1/7136
 - • • Arrangements for generation of hop frequencies, e.g. using a bank of frequency sources, using continuous tuning or using a transform
- H04B 2001/71362
 - • • • {using a bank of frequency sources}
- H04B 2001/71365
 - • • • {using continuous tuning of a single frequency source}
- H04B 2001/71367
 - • • • {using a transform}

- U H04B 1/715
 - • • Interference-related aspects
- H04B 2001/7152
 - • • • {with means for suppressing interference}
- H04B 2001/7154
 - • • • {with means for preventing interference}
- U H04B 1/7156
 - • • Arrangements for sequence synchronisation
- H04B 2001/71563
 - • • • Acquisition{Acquisition}
- H04B 2001/71566
 - • • • Tracking{Tracking}
- U H04B 3/00** **Line transmission systems(combined with near-field transmission systems [H04B 5/00](#) ; constructional features of cables [H01B 11/00](#))**
- U H04B 3/54
 - Systems for transmission via power distribution lines
- H04B 3/548
 - {the power on the line being DC(-arrangements for feeding power ~~H04B10/00P~~ ; arrangements for feeding power [H04L 12/10](#) ; extracting feeding power from signals [H04L 25/02](#))}
- U H04B 7/00** **Radio transmission systems, i.e. using radiation field([H04B 10/00](#) , [H04B 15/00](#) take precedence)**
- H04B 7/02
 - Diversity systems(for direction finding [G01S 3/72](#) ; aerial arrays or systems [H01Q](#); { reducing multipath interference in spread spectrum systems ~~H04B1/707F3~~[H04B 1/7115](#) ; specially adapted for satellite systems [H04B 7/18534](#) ; for telegraphy or data transmission [H04L 1/02](#))}
- U H04B 7/04
 - • using a plurality of spaced independent aerials
- H04B 7/0413
 - • • {Multiple input multiple output [MIMO]systems}
- WARNING**
Group [H04B 7/0413](#) and subgroups are not complete pending reorganisation. See also ~~H04B7/005B4D2~~[H04W 52/42](#)
- U H04B 7/06
 - • • at transmitting station, e.g. time diversity
- U H04B 7/0613
 - • • • {using simultaneous transmission([H04B 7/0686](#) takes precedence)}
- H04B 7/0678
 - • • • • {using different spreading codes between antennas(-code allocation ~~T04J11/00B4~~ and ~~T04J13/00B4~~ -code allocation [H04J 13/16](#))}
- U H04B 7/08
 - • • at receiving station, e.g. space diversity
- U H04B 7/0837
 - • • • {using pre-detection combining([H04B 7/0868](#) takes precedence)}
- U H04B 7/0842
 - • • • • {Weighted combining}
- H04B 7/0845
 - • • • • • {per branch equalization, e.g. by an FIR-filter or RAKE receiver per antenna branch(rake receivers as such ~~H04B1/707F3~~[H04B 1/7115](#))}
- H04B 7/0891
 - • • • {Space-time diversity(rake receivers ~~H04B1/707F3~~[H04B 1/7115](#) ; space-time decoding [H04L 1/0631](#))}
- U H04B 7/14
 - Relay systems(interrogator-responder radar systems [G01S 13/74](#) ; { CATV (community antenna television) systems [H04H 20/78](#) ; adapted for television [H04N 7/20](#))}
- H04B 7/145
 - • Passive relay systems{(construction of passive reflectors ~~G01S13/02A~~ [G01S 13/02](#))}
- U H04B 7/15
 - • Active relay systems
- U H04B 7/155
 - • • Ground-based stations([H04B 7/204](#) takes precedence; { for satellite systems [H04B 7/18517](#))}
- U H04B 7/15528
 - • • • {Control of operation parameters of a relay station to exploit the physical medium}

- H04B 7/15542 {Selecting at relay station its transmit and receive resources(selection of wireless resources by user or terminal **H04W72/04B**[H04W 72/02](#) ; arrangements affording multiple use of the transmission path by two-dimensional division of the resources [H04L 5/0003](#) , or by allocating sub-channels [H04L 5/003](#))}
- U H04B 7/24 . for communication between two or more posts(for selecting [H04W](#) ; { wireless communication networks [H04W](#) })
- U H04B 7/26 . . at least one of which is mobile
- U H04B 7/2662 . . . {Arrangements for Wireless System Synchronisation}
- H04B 7/2668 { Arrangements for Wireless Code-Division Multiple Access (CDMA) System Synchronisation, for code acquisition **H04B1/707A**[H04B 1/7075](#) , for code tracking **H04B1/707B**[H04B 1/7085](#) }

Project: N/A (H04H)

H04H

BROADCAST COMMUNICATION (multiplex communication [H04J](#); pictorial communication aspects of broadcast systems [H04N](#))

NOTE

1. In this subclass, the following terms or expressions are used with the meaning indicated:
- "broadcast" is simultaneous distribution of identical signals to plural receiving stations. The term "broadcast" does not include distribution to receiving stations which is controlled by requests or responses from the receiving stations;
 - "broadcast information" covers all kinds of information distributed by broadcast systems;
 - "broadcast-related information" is information required by services provided via broadcast systems, other than broadcast information;
 - "broadcast time" is a time when particular broadcast information exists and is available;
 - "broadcast channel" is a channel via which broadcast information is distributed, e.g. carrier waves, time slots, cables or wireless broadcast service areas;
 - "broadcast space" is either a set of broadcast channels in which particular broadcast information exists and is available or a geographical area determined by the set of broadcast channels;
 - "broadcast space-time" is space-time determined by broadcast space and broadcast time in which particular broadcast information exists and is available;
 - "broadcast system" is a system which consists of transmitter, transponder and receiver for broadcast;
 - "broadcast-related system" is a system which is directly affected by generation, broadcast, reception or use of broadcast information;
 - "broadcast service" is a service directly provided by a broadcast system, i.e. distribution service of broadcast information;
 - "broadcast-related service" is a service provided by broadcast-related systems;
 - "A with a direct linkage to B" means that A directly affects B or that A is directly affected by B.
2. In this subclass, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups, which is considered to represent information of interest for search, may also be classified in each of those groups.

Project: N/A (H04J)

| | | |
|----------|---------------------|--|
| U | H04J 11/00 | Orthogonal multiplex systems,{e.g. using WALSH codes}(H04J 13/00 takes precedence) |
| | H04J 2011/0003 | • {Combination with other multiplexing techniques} |
| | H04J 2011/0006 | • • {with CDM/CDMA} |
| | H04J 2011/0009 | • • {with FDM/FDMA} |
| | H04J 2011/0013 | • • {with TDM/TDMA} |
| | H04J 2011/0016 | • • {with FDM/FDMA and TDM/TDMA} |
| | H04J 2011/002 | • • {Delay multiplexing} |
| | H04J 11/0023 | • {Interference mitigation or co-ordination(traffic scheduling H04W 72/082 , H04W 72/1226 ; power management H04W 52/00 ; allocation criteria for ingress interference avoidance H04L 5/0062 ; frequency allocation criteria for requirements on out-of-channel emissions H04L 5/0066 ; peak power aspects in multicarrier modulation H04L 27/2614 ; arrangements for removing intersymbol interference or baseband equalisers H04L 25/03006 ; direct sequence spread spectrum (DSSS) systems H04B1/707F H04B 1/7097 ; frequency hopping H04B 1/713)} |
| | H04J 11/0069 | • {Cell search, i.e. determining cell identity [cell-ID] (design of multiplexing codes H04J 13/00 ; processing access restriction or access information H04W 48/16 ; discovery of network devices for network data management H04W08/00D H04W 8/005 ; sounding signals for channel estimation H04L 25/0226 ; structure of reference signals in multicarrier modulation systems H04L 27/2613 ; frame, time or carrier synchronisation in multicarrier modulation systems H04L 27/2655)} |
| | H04J 11/0086 | • • {Search parameters, e.g. search strategy, accumulation length, range of search, thresholds(code acquisition in DSSS H04B1/707A H04B 1/7075)} |
| | H04J 2011/0096 | • {Network synchronisation} |
| U | H04J 13/00 | Code division multiplex systems(for frequency hopping H04B 1/713) |
| | | NOTE |
| | | When classifying in this group, any aspect of spread spectrum techniques not specific to frequency hopping, and which is considered to represent information of interest for search, may also be classified in group H04B 1/69 . |
| U | H04J 13/0007 | • {Code type} |
| | | NOTE |
| | | Code type information should be classified in addition to other relevant aspects. This should also be done in cases where the other relevant symbol refers to code type, e.g. H04J 13/14 , H04J 13/20) |
| | H04J 2013/0037 | • • {Multilevel codes} |
| U | H04J 13/0077 | • {Multicode, e.g. multiple codes assigned to one user} |
| | H04J 2013/0081 | • • {with FDM/FDMA} |
| | H04J 2013/0085 | • • {with TDM/TDMA} |
| | H04J 2013/0088 | • • {with FDM/FDMA and TDM/TDMA} |
| | H04J 2013/0092 | • • {Delay multiplexing} |
| | H04J 2013/0096 | • {Network synchronisation} |
| U | H04J 13/16 | • Code allocation |
| | H04J 2013/165 | • • {Joint allocation of code together with frequency or time} |
| U | H04J 14/00 | Optical multiplex systems(optical coupling, mixing or splitting, per se G02B) |

- U H04J 14/02 · Wavelength-division multiplex systems
- U H04J 14/0227 · · {Operation, administration, maintenance or provisioning [OAMP] of WDM network, e.g. media access, routing or wavelength allocation(monitoring of optical transmission parameters in general [H04B 10/07](#))}
- U H04J 14/0241 · · · {Wavelength allocation for communications one to one, e.g. unicasting wavelengths}
- U H04J 14/0242 · · · · {in WDM-PON}
- U H04J 14/0243 · · · · ·
- U H04J 2014/0253 · · · · · {Allocation of downstream wavelengths for upstream transmission(optical transmission using a single light source for multiple stations [H04B 10/2587](#))}
- U H04J 14/0254 · · · {Optical medium access}
- U H04J 14/0267 · · · · {Optical signalling or routing,(routing in packet switched systems [H04L 12/5689](#))}
- H04J 14/0268 · · · · · {Restoration of optical paths, e.g. p-cycles(route fault recovery in packet switched systems [H04L12/56C108H04L 45/28](#))}
- H04J 14/0269 · · · · · {using tables for routing(organization of routing tables in packet switched systems [H04L12/56C123H04L 45/54](#))}

Project: N/A (H04K)**H04K****SECRET COMMUNICATION; JAMMING OF COMMUNICATION**NOTE

In this subclass, the following expression is used with the meaning indicated:

- "secret communication" includes secret line and radiation transmission systems, i.e. those in which apparatus at the transmitting station modifies the signal in such a way that the information cannot be intelligibly received without corresponding modifying apparatus at the receiving station.

U H04K 3/00

Jamming of communication; Counter-measures (counter-measures used in radar or analogous systems [G01S 7/00](#); { in radar [G01S 7/36](#), [G01S 7/38](#); in lidar [G01S 7/495](#); in sonar [G01S 7/537](#))}

NOTE

1. This group covers: "Jamming", only when it means purposefully trying to interfere with the physical transmission and reception of communication. Provided this condition is met, this group covers devices and methods for: (a) jamming of communication: i. jamming by intentionally decreasing the signal to noise ratio ii. deceptive jamming iii. passive jamming iiiii. destructive jamming (b) countermeasures against jamming (c) countermeasures against undesired self-jamming resulting from jamming (d) countermeasures against surveillance, interception or detection (e) other electronic countermeasures using or against electromagnetic or acoustic waves (f) signal detection techniques used in relation to i. jamming: for interception and monitoring of the jamming target signal ii. anti-jamming: for jamming detection, iii. anti-surveillance: for surveillance detection (g) jamming for testing or assessing countermeasures (h) jamming used to prevent: - cellular phone communication i. in a vehicle during motion ii. in particular areas, including prisons, hospitals, planes, petrol stations, theatres iii. to trigger RCIEDs - reception of positioning data using GPS - wireless communication in ad hoc networks or in sensor networks - exchange of data between wirelessly connected devices or device units, on Bluetooth, infrared or near field links - unauthorized access to network, service or information, including: i. access to a WLAN network ii. access to information stored in contactless carriers, including RFID carriers - transmission of an alarm, against burglary or vehicle theft - remote control

of devices - surveillance i. of speech in meeting rooms ii. of electromagnetic emissions from a computer screen - interception or detection of a wirelessly transmitted signal] 2. In this group, the following acronyms are used: GPS = global positioning system RCIED = remote controlled improvised explosive device RFID = radio frequency identification WLAN= wireless local area network

WARNING

Groups [H04K 3/00](#) -[H04K 3/94](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H04K 3/00](#) - [H04K 3/94](#) : [H04K 3/00](#)

- U H04K 3/20
 - { Countermeasures against jamming (in radar [G01S 7/36](#); interference suppression in receivers [H04B 1/10](#))}
- H04K 3/25
 - { based on characteristics of target signal or of transmission (as countermeasure against surveillance [H04K3/00Z2T](#)[H04K 3/827](#)), e.g. using direct sequence spread spectrum or fast frequency hopping (spread spectrum techniques [H04B 1/69](#))}
- U H04K 3/40
 - { Jamming having variable characteristics}
- H04K 3/41
 - { characterized by the control of the jamming activation or deactivation time (control of jamming activation and deactivation time only for the purpose of alternating between jamming mode and target monitoring mode [H04K3/00C10](#)[H04K 3/45](#))}
- U H04K 3/80
 - { Jamming or countermeasure characterized by its function}
- U H04K 3/82
 - { related to preventing surveillance, interception or detection}
- H04K 3/827
 - { using characteristics of target signal or of transmission (as countermeasure against jamming [H04K3/00A4](#)[H04K 3/25](#)), e.g. using direct sequence spread spectrum or fast frequency hopping (spread spectrum techniques [H04B 1/69](#))}

Project: N/A (H04L)

H04L

TRANSMISSION OF DIGITAL INFORMATION, e.g. TELEGRAPHIC COMMUNICATION(typewriters [B41J](#); order telegraphs, fire or police telegraphs [G08B](#); visual telegraphy [G08B](#), [G08C](#); teleautographic systems [G08C](#); ciphering or deciphering apparatus per se [G09C](#); coding, decoding or code conversion, in general [H03M](#); arrangements common to telegraphic and telephonic communication [H04M](#); selecting [H04Q](#))

NOTE

This subclass covers transmission of signals having been supplied in digital form and includes data transmission, telegraphic communication and methods or arrangements for monitoring.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

| | | |
|----------------------------|------------|------------------------------|
| H04L 12/20 | covered by | H04L 29/00 |
| H04L 25/04 | " | H04L 25/03 |
| H04L 25/17 | " | H03H |
| H04L 25/18 | " | H04L25/02G1C |
| H04L 25/28 | " | H04L25/02G1A |
| H04L 25/30 | " | H04L 25/061 |
| H04L 25/32 | " | H04L 25/49 |
| H04L 25/34 | " | H04L 25/4917 |
| H04L25/36 | " | H04L25/02A |
| H04L 25/48 | " | H04L 25/49 |
| H04L25/50 | " | H04L25/02A |
| H04L 25/52 | " | H04L 25/20 |

| | | |
|------------|---|-----------------------------|
| H04L 25/54 | " | H04L 25/20 |
| H04L 25/56 | " | H04L 25/202 |
| H04L 25/58 | " | H04L 25/20 |
| H04L 25/60 | " | H04L 25/207 |
| H04L 25/62 | " | H04L 25/205 |
| H04L 25/64 | " | H04L 25/245 |
| H04L 25/66 | " | H04L 25/247 |

- U H04L 1/00** Arrangements for detecting or preventing errors in the information received(correcting synchronisation [H04L 7/00](#) ; { for digital computers [G06F 11/00](#) } ; arrangements in the transmission path [H04B](#))
- H04L 2001/0092 • {Error control systems characterised by the topology of the transmission link}
 - H04L 2001/0093 • • {Point-to-multipoint}
 - H04L 2001/0094 • • [Bus{Bus}](#)
 - H04L 2001/0095 • • [Ring{Ring}](#)
 - H04L 2001/0096 • • {Channel splitting in point-to-point links}
 - H04L 2001/0097 • • [Relays{Relays}](#)
 - H04L 2001/0098 • {Unequal error protection}
- U H04L 1/12** • by using return channel
- H04L 2001/125 • • {Arrangements for preventing errors in the return channel}
- U H04L 5/00** Arrangements affording multiple use of the transmission path(multiplex communication in general [H04J](#) ;{ orthogonal multiplex systems [H04J 11/00](#) })
- U H04L 5/003** • {Arrangements for allocating sub-channels of the transmission path}
 - U H04L 5/0058** • • {Allocation criteria}
 - H04L 5/0069 • • • {Allocation based on distance or geographical location(allocation based on terminal or device properties in general, [H04W72/04S2H04W 72/048](#))}
- U H04L 7/00** Arrangements for synchronising receiver with transmitter{(synchronisation of electronic time-pieces [G04G 7/00](#) ; synchronisation of generators of electric oscillations or pulses [H03L](#) ; synchronising in TV system [H04N 5/04](#) ; regeneration of clock signals for television systems [H04N 7/0352](#))}
- U H04L 7/04** • Speed or phase control by synchronisation signals{([H04L 7/0075](#) takes precedence)}
 - U H04L 7/041** • • {using special codes as synchronising signal}
 - H04L 2007/045 • • • {Fill bit or bits, idle words}
 - H04L 2007/047 • • • {using a sine signal or unmodulated carrier}
- H04L 9/00** {Cryptographic mechanisms or cryptographic}arrangements for secret or secure communication{(network architectures or network communication protocols for network security [H04L 63/00](#) or for wireless network security [H04W 12/00](#) ; security arrangements for protecting computers or computer systems against unauthorized activity [G06F 21/00](#))}

NOTE

1. This group covers: 1.1 Cryptographic mechanisms including cryptographic protocols and cryptographic algorithms, whereby a cryptographic protocol is a distributed cryptographic algorithm defined by a sequence of steps precisely specifying the actions required of two or more entities to achieve specific security objectives (e.g. cryptographic protocol for key agreement), and whereby a cryptographic algorithm is specifying the steps followed by a single entity to achieve specific security objectives (e.g. cryptographic algorithm for symmetric key encryption). 1.2

[H04L 9/00](#) focuses on cryptographic mechanisms such as encryption schemes, digital signatures, hash functions, random number generation, key management, said cryptographic mechanisms providing information security such as privacy or confidentiality, data integrity, message authentication, entity authentication, authorization, validation, certification, time-stamping, anonymity, revocation, non-repudiation. 1.3 [H04L 9/00](#) covers also countermeasures against attacks on cryptographic mechanisms. 2. This group does not cover: 2.1 Networking architectures or network communication protocols for securing the traffic flowing through data packet networks and providing secure exchanges among applications communicating through data packet networks, which are covered by [H04L 63/00](#). Attention is drawn to the Note 1. after group [H04L 63/00](#) 2.2 Security arrangements for protecting computers or computer systems against unauthorised activity, which are covered by ~~G06F21/00N~~[G06F 21/00](#)

- U H04L 12/00 **Data switching networks(interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units [G06F 13/00](#))**
- U H04L 12/02 . Details
- U H04L 12/16 . . Arrangements for providing special services to substations{contains provisionally no documents}
- H04L 12/18 . . . for broadcast or conference{, e.g. multicast(multicast or broadcast switches ~~H04L12/56S3A~~[H04L 49/201](#))}
- U H04L 12/24 . . Arrangements for maintenance or administration
WARNING
 This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to subgroups of [H04L 41/00](#)
- U H04L 12/2414 . . . {involving network analysis}
WARNING
 This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to subgroups of [H04L 41/14](#)
- H04L 12/2416 {for automatically determining the actual topology of a network(Topology discovery in routers ~~H04L12/56C1~~[H04L 45/02](#))}
WARNING
 This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to [H04L 41/12](#)
- U H04L 12/2424 . . . {Configuration management of network or network elements(management of devices network applications for proprietary or special purpose network environments [H04L 29/08567](#) ; automatic configuration in wireless networks [H04W 24/02](#))}
WARNING
 This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to subgroups of [H04L 41/08](#)

- U H04L 12/2425 . . . Configuration setting of network or network elements]
WARNING
 This subgroup is no longer used for classification as from 01.05.2012.
 The backlog of this subgroup is being continuously reclassified to
[H04L 41/0803](#)
- U H04L 12/2428 {Changing of configuration}
WARNING
 This subgroup is no longer used for classification as from 01.05.2012.
 The backlog of this subgroup is being continuously reclassified to
 subgroups of [H04L 41/0813](#)
- H04L 12/243 {due to updating or upgrading of network functionality, e.g.
 firmware(topology update or discovery for routing purposes
~~H04L 12/56C1~~ [H04L 45/02](#))}
WARNING
 This subgroup is no longer used for classification as from 01.05.2012.
 The backlog of this subgroup is being continuously reclassified to
 subgroups of [H04L 41/085](#)
- U H04L 12/2464 . . . {Network service management, ensuring proper service fulfilment according
 to an agreement or contract between two parties, e.g. between an IT-
 provider and a customer}
WARNING
 This subgroup is no longer used for classification as from 01.05.2012. The
 backlog of this subgroup is being continuously reclassified to subgroups of
[H04L 41/50](#)
- U H04L 12/2465 {Managing SLA [Service Level Agreement] or interaction between SLA
 and QoS [Quality of Service]}
WARNING
 This subgroup is no longer used for classification as from 01.05.2012.
 The backlog of this subgroup is being continuously reclassified to
[H04L 41/5003](#)
- H04L 12/2472 {Ensuring SLA(flow or congestion control at network level [H04L 12/569](#)
)}
WARNING
 This subgroup is no longer used for classification as from 01.05.2012.
 The backlog of this subgroup is being continuously reclassified to
 subgroups of ~~H04L 41/50-B~~ [H04L 41/50B](#)
- H04L 12/2476 {Generating service level reports}
WARNING
 This subgroup is no longer used for classification as from 01.05.2012.
 The backlog of this subgroup is being continuously reclassified to
~~H04L 41/50-D~~ [H04L 41/50D](#)

- H04L 12/2484
- • • {Service discovery by the Service Manager(automatically determining the actual topology of a network [H04L 12/2416](#) ; topology discovery in routers ~~H04L12/56C1~~ [H04L 45/02](#) ; arrangements for service discovery, e.g. Service Location Protocol (SLP) [H04L 29/08648](#))}
- WARNING
This subgroup is no longer used for classification as from 01.05.2012.
The backlog of this subgroup is being continuously reclassified to [H04L 41/5058](#)
- H04L 12/2485
- • • {Customer care}
- WARNING
This subgroup is no longer used for classification as from 01.05.2012.
The backlog of this subgroup is being continuously reclassified to ~~H04L 41/50 J~~ [H04L41/50J](#)
- U H04L 12/2491
- • • {based on type of value added network service under agreement}
- WARNING
This subgroup is no longer used for classification as from 01.05.2012.
The backlog of this subgroup is being continuously reclassified to [H04L 41/508](#)
- H04L 12/2494
- • • • {wherein the managed service relates to audio / video / TV(protocols for real-time multimedia communications [H04L 29/06176](#) ; ~~interactive television or VoD H04N21~~ ; [interactive television or VoD H04N 21/00](#))}
- WARNING
This subgroup is no longer used for classification as from 01.05.2012.
The backlog of this subgroup is being continuously reclassified to [H04L 41/509](#)
- U H04L 12/28
- characterised by path configuration, e.g. local area networks (LAN), wide area networks (WAN)
- U H04L 12/2803
- • {Home automation networks}
- U H04L 12/2807
- • • {Exchanging configuration information on appliance services in a home automation network(adress allocation [H04L 29/12207](#) ; arrangements for maintenance or administration involving network analysis for automatically determining the actual topology of a network [H04L 12/2416](#) ; hardware or software tools for network management using graphical user interfaces [H04L 12/2458](#))}
- H04L 12/2812
- • • • {describing content present in a home automation network, e.g. audio video content(retrieval from the Internet ~~G06F 17/30 W~~ [G06F17/30W](#))}
- H04L 12/2814
- • • • {Exchanging control software or macros for controlling appliance services in a home automation network(arrangements for maintenance or administration involving configuration of the network and network elements ~~H04L 12/24 E~~ [H04L 12/24E](#))}
- U H04L 12/2816
- • • {Controlling appliance services of a home automation network by calling their functionalities(arrangements in telecontrol or telemetry systems for selectively calling a substation from a main station; in which substation desired apparatus is selected for applying a control signal thereto or for obtaining measured values therefrom [H04Q 9/00](#))}

- H04L 12/2818
 - • • {from a device located outside both the home and the home network(access arrangements [H04L 12/2856](#) ; protocols for network applications involving the use of web-based technology for remote control or remote monitoring [H04L 29/08099](#) ; telephonic communication systems adapted for combination with remote control systems [H04M 11/00 B H04M 11/00 B](#); arrangements for transmitting signals characterised by the use of a wireless electrical link [G08C 17/00](#))}
- H04L 12/282
 - • • {based on user interaction within the home(receiver circuitry for displaying additional information being controlled by a remote control apparatus [H04N 5/445 R H04N 5/445 R](#))}
- H04L 12/2821
 - • • {Avoiding conflicts related to the use of home appliances(arrangements for network security [H04L 29/06 S H04L 29/06 S](#))}
- H04L 12/2823
 - • • {Reporting information sensed by appliance or service execution status of appliance services in a home automation network(device-related reporting [H04L 1/26 M 2 B 2 H04L 43/065](#) ; arrangements in telecontrol or telemetry systems for selectively calling a substation from a main station, in which substation desired apparatus is selected for applying a control signal thereto or for obtaining measured values therefrom [H04Q 9/00](#))}
- H04L 12/2825
 - • • {Reporting to a device located outside the home and the home network(access arrangements [H04L 12/2856](#) ; protocols for network applications involving the use of web-based technology for remote control or remote monitoring [H04L 29/08099](#) ; telephonic communication systems adapted for combination with telemetering systems [H04M 11/00 A H04M 11/00 A](#))}
- U H04L 12/283
 - • • {Processing of data at an internetworking point of a home automation network}
- H04L 12/2836
 - • • {Protocol conversion between an external network and a home network(protocol conversion [H04L 29/06 E H04L 29/06 E](#); adaptation of digital video signals for transport over a specific home network [H04N 7/24 T 6](#) ; controlling appliance services of a home automation network from a device located outside the home and the home network [H04L 12/2818](#))}
- H04L 12/2838
 - • • {Distribution of signals within a home automation network, e.g. involving splitting/multiplexing signals to/from different paths(adaptations of television systems for transmission by electric cable for domestic distribution [H04N 7/10 H H04N 7/10 H](#); hybrid transport [H04L 12/64 B H04L 12/64 B](#); home network arrangements specially adapted for distribution of digital video signals [H04N 7/24 N H04N 7/24 N](#))}
- H04L 2012/284
 - • • {characterised by the type of medium used}
- H04L 2012/2841
 - • • {Wireless{Wireless}}
- H04L 2012/2843
 - • • {Mains power line}
- H04L 2012/2845
 - • • {Telephone line}
- H04L 2012/2847
 - • • {characterised by the type of home appliance used}
- H04L 2012/2849
 - • • {Audio/video appliances}
- H04L 2012/285
 - • • {Generic home appliances, e.g. refrigerators}
- U H04L 12/2854
 - • {Wide area networks, e.g. public data networks}

H04L 12/2856

- • • {Access arrangements, e.g. Internet access(asynchronous transfer mode networks [H04L 12/5601](#) ; broadband local area networks [H04L 12/2801](#) ; optical access or distribution networks [H04Q 11/0067](#) ; access to open networks [H04L 12/5691](#) ; digital subscriber line end-user equipment and bit-level processing of data on a PSTN-based network [H04M 11/00](#) ; home network gateways [H04L 12/2834](#) ; wireless access networks [H04W](#))}

NOTE

(1) This group covers:

- access to a public data network, such as an IP network, for subscribers, i.e. customers of a network service provider, over a wired network.
- communication of generic types of data between end-user equipments, located typically at the subscriber premises, and an access server, which acts as interface between the access network and the public data network.

(2) This group does not cover:

- wireless access networks, which are covered by [H04W](#)
- optical distribution networks, which are covered by [H04Q 11/0067](#)
- bit-level, or PHY layer, processing of data between digital subscriber line equipments, which is covered by [H04M 11/06](#)
- design of DSL, digital subscriber line, modems, which is covered by [H04M 11/06](#)
- exchange of data related to functionalities of home network appliances between a home network and an external network, which is covered by ~~H04L 12/28 H~~ [H04L 12/28H](#)
- management of WDM parameters in optical multiplex systems, which is covered by [H04J 14/02](#)
- circuit-switched access networks, which are covered by ~~H04M 7/12 H~~ [H04M 7/12H](#)
- access arrangements for providing telephone service in networks other than PSTN/ISDN, which are covered by [H04M 7/0066](#)

(3) In this group the following terms or expressions are used with the meaning indicated:

- ATM means Asynchronous Transfer Mode
- LAN means Local Area Network
- BRAS means Broadband Remote Access Server
- DSLAM means Digital Subscriber Line Access Multiplexer
- MSAN means MultiService Access Node
- DSL means Digital Subscriber Line
- IP means Internet Protocol
- WDM means Wavelength Division Multiplexing
- SDH means Synchronous Digital Hierarchy
- OTN means Optical Transport Network
- PSTN means Public Switched Telephone Network
- ISDN means Integrated Services Digital Network
- TDM means Time-Division Multiplexing
- TDMA means Time Division Multiple Access

WARNING

Subgroups of [H04L 12/2856](#) are not complete pending reorganisation. See also [H04L 12/5691](#)

U H04L 12/40

- • • Bus networks

U H04L 12/40052

- • • {High-speed IEEE 1394 serial bus(bus transfer protocol on a daisy chain bus using an embedded synchronisation [G06F 13/426](#))}

H04L 12/40065

- • • {Bandwidth and channel allocation(home automation networks ~~H04L 12/28 H~~ [H04L 12/28H](#) ; flow control ~~H04L 12/56 D~~ [H04L 12/56D](#))}

- H04L 12/40071 . . . {Packet processing; Packet format(packet switches [H04L 12/56](#) [SH04L 12/56S](#); intermediate storage or scheduling [H04L 12/56](#) [QH04L 12/56Q](#); Adaptation of digital video signals for transport over a specific network [H04N7/24T6](#))}
- H04L 12/40078 . . . {Bus configuration(home automation networks [H04L 12/28](#) [HH04L 12/28H](#); Arrangements for maintenance or administration [H04L 12/24](#))}
- H04L 12/40104 . . . {Security; Encryption; Content protection(arrangements for network security [H04L 29/06 S](#) [H04L 29/06S](#))}
- H04L 12/40117 . . . {Interconnection of audio or video/imaging devices(home automation networks [H04L 12/28](#) [HH04L 12/28H](#); bitstream network arrangements specially adapted for distribution of digital video signals [H04N 7/24 N](#) [H04N7/24N](#))}
- H04L 12/40123 . . . {Interconnection of computers and peripherals(printer information exchange with computer [G06F 3/12 C](#) [G06F3/12C](#))}
- U H04L 12/4013 . . . {Management of data rate on the bus(systems modifying transmission characteristics according to link quality [H04L 1/0001](#) ; negotiation of transmission parameters of transmission speed prior to communication [H04L 5/1446](#) ; adaptive data allocation for multicarrier modulation [H04L 27/2608](#))}
- H04L 12/40136 . . . {Nodes adapting their rate to the physical link properties(LAN switches [H04L 12/56S8A](#) [H04L 49/351](#))}
- H04L 2012/40208 . . . {characterized by the use of a particular bus standard}

NOTE

In this group the following terms or expressions are used with the meaning indicated: . Controller-area network (CAN or CAN-bus) designates a computer network protocol and bus standard developed in 1983 by Intel Corporation and Robert Bosch GmbH to allow microcontrollers and devices to communicate with each other without a host computer; . PROFIBUS (Process Field Bus) designates a standard for field bus communication in automation technology first implemented in 1989 by BMBF, the german department of education and research; . Modbus designates a serial communications protocol published by Modicon in 1979 for use with its programmable logic controller; . LIN-Bus (Local Interconnect Network) designates a computer networking bus-system released in 1999 used within current automotive network architectures; . FlexRay designates an automotive network communications protocol developed by the FlexRay Consortium; . LON or LonWorks designates a network standard operating on twisted pair or electrical wiring or coaxial cable and used for building automation; . ASI or AS-Interface (Actuator Sensor Interface) designates the simplest of the industrial networking protocols used in programmable logic controller systems

- H04L 2012/40215 . . . {Controller Area Network CAN}
- H04L 2012/40221 . . . Profibus{Profibus}
- H04L 2012/40228 . . . Modbus{Modbus}
- H04L 2012/40234 . . . {Local Interconnect Network LIN}
- H04L 2012/40241 . . . Flexray{Flexray}
- H04L 2012/40247 . . . LON{LON}
- H04L 2012/40254 . . . {Actuator Sensor Interface ASI}
- H04L 2012/4026 . . . {Bus for use in automation systems}
- H04L 2012/40267 . . . {Bus for use in transportation systems}
- H04L 2012/40273 . . . {the transportation system being a vehicle}

- H04L 2012/4028 {the transportation system being an aircraft}
- H04L 2012/40286 {the transportation system being a waterborne vessel}
- H04L 2012/40293 {the transportation system being a train}
- U H04L 12/403 . . . with centralised control, e.g. polling
- H04L 12/4035 {in which slots of a TDMA packet structure are assigned based on a contention resolution carried out at a master unit(TDM/TDMA multiplex systems per se ~~H04J 3/16-D~~~~H04J3/16D~~; hybrid switching systems [H04L 12/64](#))}
- U H04L 12/42 . . Loop networks
- H04L 2012/421 . . . {Interconnected ring systems}
- H04L 12/422 . . . {Synchronisation for ring networks(Time Division Multiplex ring networks, e.g. SDH/SONET ~~H04J 3/08-A~~~~H04J3/08A~~)}
- U H04L 12/44 . . Star or tree networks
- H04L 2012/445 . . . {with switching in a hub, e.g. ETHERNET switch}
- U H04L 12/46 . . Interconnection of networks
- U H04L 12/4604 . . . {LAN interconnection over a backbone network, e.g. Internet, Frame Relay}
- H04L 2012/4629 {using multilayer switching, e.g. layer 3 switching}
- U H04L 12/4641 . . . {Virtual LANs, VLANs, e.g. virtual private networks [VPN](virtual private networks for security [H04L 29/06612](#) ; routing of packets [H04L 12/5689](#) ; encapsulation techniques [H04L 12/4633](#) ; LAN interconnection over a bridge based backbone [H04L 12/462](#) ; packet switches [H04L 12/5696](#))}

NOTES

(1) This group covers: - a group of hosts with a common set of requirements that communicate as if they were attached to the same broadcast domain, regardless of their physical location. (2) This group does not cover: - group multicasting, which is covered by [H04L 12/18](#) - configuration of switches supporting VLANs, which is covered by [H04L 12/2424](#) - multiprotocol label switching [MPLS], which is covered by [H04L 12/5689](#) - spanning tree protocol [STP], which is covered by [H04L 12/462](#) - arrangements for network security, which is covered by [H04L 29/06612](#) - encapsulation techniques, which is covered by [H04L 12/4633](#) - access arrangements, which is covered by [H04L 12/2856](#)

(3) In this group the following terms or expressions are used with the meaning indicated: - B-Tag means Backbone VLAN Tag - C-Tag means Customer VLAN Tag - GARP means Generic Attribute Registration Protocol - GVRP means GARP VLAN Registration Protocol - I-SID means Service Instance Identifier - MVRP means Multiple VLAN Registration Protocol - PBB means Provider Backbone Bridges - S-Tag means Service VLAN Tag - VLAN means Virtual Local Area Network - VPN means Virtual Private Network - VTP means VLAN Trunking Protocol]

- H04L 12/4645 {Details on frame tagging(routing of packets [H04L 12/5689](#) ; support for virtual LAN ~~H04L12/56S8D~~~~H04L 49/354~~)}
- U H04L 12/54 . . Store-and-forward switching systems(packet switching systems ~~H04L12/70~~)
- U H04L 12/56 . . {Packet switching systems}
- U H04L 12/5601 . . . {Transfer mode dependent, e.g. ATM}
- H04L 2012/5603 {Access techniques}
- H04L 2012/5604 {Medium of transmission, e.g. fibre, cable, radio}
- H04L 2012/5605 Fibre{Fibre}
- H04L 2012/5606 Metallic{Metallic}
- H04L 2012/5607 Radio{Radio}

| | |
|----------------|--|
| H04L 2012/5608 | Satellite{Satellite} |
| H04L 2012/5609 | Topology{Topology} |
| H04L 2012/561 | {Star, e.g. cross-connect, concentrator, subscriber group equipment, remote electronics} |
| H04L 2012/5612 | Ring{Ring} |
| H04L 2012/5613 | {Bus(including DQDB)} |
| H04L 2012/5614 | {User Network Interface} |
| H04L 2012/5615 | {Network termination, e.g. NT1, NT2, PBX} |
| H04L 2012/5616 | {Terminal equipment, e.g. codecs, synch.} |
| H04L 2012/5617 | {Virtual LANs; Emulation of LANs} |
| H04L 2012/5618 | {Bridges, gateways (GW) or interworking units (IWU)} |
| H04L 2012/5619 | {Network Node Interface, e.g. tandem connections, transit switching} |
| H04L 2012/562 | Routing{Routing} |
| H04L 2012/5621 | {Virtual private network (VPN); Private-network - network-interface (P-NNI)} |
| H04L 2012/5623 | {Network design, dimensioning, topology or optimisation} |
| H04L 2012/5624 | {Path aspects, e.g. path bundling} |
| H04L 2012/5625 | {Operations, administration and maintenance (OAM)} |
| H04L 2012/5626 | {Network management, e.g. Intelligent nets} |
| H04L 2012/5627 | {Fault tolerance and recovery} |
| H04L 2012/5628 | Testing{Testing} |
| H04L 2012/5629 | {Admission control} |
| H04L 2012/563 | {Signalling, e.g. protocols, reference model} |
| H04L 2012/5631 | {Resource management and allocation} |
| H04L 2012/5632 | {Bandwidth allocation} |
| H04L 2012/5634 | {In-call negotiation} |
| H04L 2012/5635 | {Backpressure, e.g. for ABR} |
| H04L 2012/5636 | {Monitoring or policing, e.g. compliance with allocated rate, corrective actions} |
| H04L 2012/5637 | {Leaky Buckets} |
| H04L 2012/5638 | {Services, e.g. multimedia, GOS, QOS} |
| H04L 2012/5639 | {Tariffs or charging} |
| H04L 2012/564 | {Connection-oriented} |
| H04L 2012/5641 | {Unicast/point-to-point} |
| H04L 2012/5642 | {Multicast/broadcast/point-multipoint, e.g. VOD} |
| H04L 2012/5643 | {Concast/multipoint-to-point} |
| H04L 2012/5645 | Connectionless{Connectionless} |
| H04L 2012/5646 | {Cell characteristics, e.g. loss, delay, jitter, sequence integrity} |
| H04L 2012/5647 | {Cell loss} |
| H04L 2012/5648 | {Packet discarding, e.g. EPD, PTD} |
| H04L 2012/5649 | {Cell delay or jitter} |
| H04L 2012/565 | {Sequence integrity} |
| H04L 2012/5651 | {Priority, marking, classes} |
| H04L 2012/5652 | {Cell construction, e.g. including header, packetisation, depacketisation, assembly, reassembly} |

| | |
|----------------|---|
| H04L 2012/5653 | {using the ATM adaptation layer (AAL)} |
| H04L 2012/5654 | {using the AAL1} |
| H04L 2012/5656 | {using the AAL2} |
| H04L 2012/5657 | {using the AAL3/4} |
| H04L 2012/5658 | {using the AAL5} |
| H04L 2012/5659 | {using the AALX} |
| H04L 2012/566 | {using the ATM layer} |
| H04L 2012/5661 | Minicells {Minicells} |
| H04L 2012/5662 | {Macrocells or frames} |
| H04L 2012/5663 | {Support of N-ISDN} |
| H04L 2012/5664 | {Support of Video, e.g. MPEG} |
| H04L 2012/5665 | {Interaction of ATM with other protocols} |
| H04L 2012/5667 | {IP over ATM} |
| H04L 2012/5668 | {Next hop resolution protocol (NHRP)} |
| H04L 2012/5669 | {Multiprotocol over ATM (MPOA)} |
| H04L 2012/567 | {Frame Relay over ATM} |
| H04L 2012/5671 | {Support of voice} |
| H04L 2012/5672 | {Multiplexing, e.g. coding, scrambling} |
| H04L 2012/5673 | {Coding or scrambling} |
| H04L 2012/5674 | {Synchronisation, timing recovery or alignment} |
| H04L 2012/5675 | {Timeslot assignment, e.g. TDMA} |
| H04L 2012/5676 | {Code Division Multiple Access (CDMA)} |
| H04L 2012/5678 | {Traffic aspects, e.g. arbitration, load balancing, smoothing, buffer management} |
| H04L 2012/5679 | {Arbitration or scheduling} |
| H04L 2012/568 | {Load balancing, smoothing or shaping} |
| H04L 2012/5681 | {Buffer or queue management} |
| H04L 2012/5682 | {Threshold; Watermark} |
| H04L 2012/5683 | {for avoiding head of line blocking} |
| H04L 2012/5684 | {Characteristics of traffic flows} |
| H04L 2012/5685 | {Addressing issues} |
| H04L 2012/5686 | {Use of neural networks} |
| H04L 2012/5687 | {Security aspects} |
| H04L 2012/5697 | . . . {Indexing scheme relating to flow control in packet switching networks} |
| H04L 2012/5698 | . . . {Indexing scheme relating to packet switching systems} |
| U H04L 12/64 | . Hybrid switching systems |
| U H04L 12/6402 | . . {Hybrid switching fabrics} |
| H04L 2012/6405 | . . . Space {Space} |
| H04L 2012/6408 | . . . {Shared Medium, e.g. memory, bus, ring} |
| H04L 2012/641 | . . . {Time switching} |
| H04L 2012/6413 | . . . {Switch peripheries} |
| H04L 2012/6416 | . . . {Switch multicast} |
| U H04L 12/6418 | . . {Hybrid transport} |
| H04L 2012/6421 | . . . {Medium of transmission, e.g. fibre, cable, radio, satellite} |

- H04L 2012/6424 . . . {Access arrangements}
- H04L 2012/6427 . . . {Subscriber Access Module; Concentrator; Group equipment}
- H04L 2012/6429 . . . {Terminal adapters}
- H04L 2012/6432 . . . ~~Topology~~{Topology}
- H04L 2012/6435 . . . ~~Bus~~{Bus}
- H04L 2012/6437 . . . ~~Ring~~{Ring}
- H04L 2012/644 . . . ~~Star~~{Star}
- H04L 2012/6443 . . . {Network Node Interface, e.g. Routing, Path finding}
- H04L 2012/6445 . . . {Admission control}
- H04L 2012/6448 . . . {Medium Access Control (MAC)}
- H04L 2012/6451 {Deterministic, e.g. Token, DQDB}
- H04L 2012/6454 {Random, e.g. Ethernet}
- H04L 2012/6456 . . . {Channel and bandwidth allocation}
- H04L 2012/6459 . . . {Multiplexing, e.g. TDMA, CDMA}
- H04L 2012/6462 . . . {Movable boundaries in packets or frames}
- H04L 2012/6464 . . . ~~Priority~~{Priority}
- H04L 2012/6467 . . . {Information loss recovery, e.g. error correction, prediction}
- H04L 2012/647 . . . {Frame Relay, X.25}
- H04L 2012/6472 . . . ~~Internet~~{Internet}
- H04L 2012/6475 . . . {N-ISDN, Public Switched Telephone Network (PSTN)}
- H04L 2012/6478 . . . {Digital subscriber line, e.g. DSL, ADSL, HDSL, XDSL, VDSL}
- H04L 2012/6481 . . . {Speech, voice}
- H04L 2012/6483 . . . {Video, e.g. MPEG}
- H04L 2012/6486 . . . {Signalling Protocols}
- H04L 2012/6489 . . . {Buffer Management, Threshold setting, Scheduling, Shaping}
- H04L 2012/6491 . . . {Echo cancellation}
- H04L 2012/6494 . . . {Silence suppression}
- H04L 2012/6497 . . . {Feedback to the source}

U H04L 25/00**Baseband systems**

- U H04L 25/02 . Details(circuits in general for handling pulses [H03K](#) ; in line transmission systems in general [H04B 3/02](#));{Arrangements for supplying electrical power along data transmission lines(systems for transmitting signals via power distribution lines [H04B 3/54](#))}
- U H04L 25/03 . . Shaping networks in transmitter or receiver, e.g. adaptive shaping networks(impedance networks per se [H03H](#));{Receiver end arrangements for processing baseband signals}
- U H04L 25/03006 . . . {Arrangements for removing intersymbol interference}
- U H04L 25/03178 {Arrangements involving sequence estimation techniques}
- U H04L 25/03248 {Arrangements for operating in conjunction with other apparatus}

NOTE

This group covers arrangements in which the sequence estimator is specially adapted to provide signals to, or receive signals from, the other apparatus. The group does not cover the mere juxtaposition of elements

| | |
|-----------------|---|
| H04L 25/0328 | {with interference cancellation circuitry(adaptations for interference cancellation within a sequence estimator H04L 25/03305 ; interference related aspects of direct sequence spread spectrum H04B1/707F H04B 1/7097 ; interference related aspects of frequency hopping spread spectrum H04B1/713F H04B 1/715 ; see also H04B 1/10)} |
| H04L 2025/0335 | {characterised by the type of transmission} |
| H04L 2025/03356 | {Baseband transmission} |
| H04L 2025/03363 | {Multilevel(H04L 2025/03369 takes precedence)} |
| H04L 2025/03369 | {Partial response} |
| H04L 2025/03375 | {Passband transmission} |
| H04L 2025/03382 | {Single of vestigial sideband} |
| H04L 2025/03388 | ASK { ASK } |
| H04L 2025/03394 | FSK { FSK } |
| H04L 2025/03401 | PSK { PSK } |
| H04L 2025/03407 | {Continuous phase} |
| H04L 2025/03414 | Multicarrier { Multicarrier } |
| H04L 2025/0342 | QAM { QAM } |
| H04L 2025/03426 | {transmission using multiple-input and multiple-output channels} |
| H04L 2025/03433 | {characterised by equaliser structure} |
| H04L 2025/03439 | {Fixed structures} |
| H04L 2025/03445 | {Time domain} |
| H04L 2025/03452 | {Systolic arrays} |
| H04L 2025/03458 | Lattice { Lattice } |
| H04L 2025/03464 | {Neural networks} |
| H04L 2025/03471 | {Tapped delay lines(T04L25/0B13F1N takes precedence)} |
| H04L 2025/03477 | {not time-recursive} |
| H04L 2025/03484 | {time-recursive} |
| H04L 2025/0349 | {as a feedback filter} |
| H04L 2025/03496 | {as a prediction filter} |
| H04L 2025/03503 | {as a combination of feedback and prediction filters} |
| H04L 2025/03509 | {fractionally spaced(H04L 2025/03515 takes precedence)} |
| H04L 2025/03515 | {irregularly spaced} |
| H04L 2025/03522 | {Frequency domain} |
| H04L 2025/03528 | {Other transform domain} |
| H04L 2025/03535 | {Variable structures} |
| H04L 2025/03541 | {Switching between domains, e.g. between time and frequency} |
| H04L 2025/03547 | {Switching between time domain structures} |
| H04L 2025/03554 | {between neural networks and tapped delay lines} |
| H04L 2025/0356 | {Switching the time direction of equalisation} |
| H04L 2025/03566 | {between different tapped delay line structures} |
| H04L 2025/03573 | {between recursive and non-recursive} |
| H04L 2025/03579 | {Modifying the tap spacing} |
| H04L 2025/03585 | {Modifying the length} |
| H04L 2025/03592 | {Adaptation methods} |

| | |
|-----------------|--|
| H04L 2025/03598 | Algorithms { <i>Algorithms</i> } |
| H04L 2025/03605 | {Block algorithms} |
| H04L 2025/03611 | {Iterative algorithms} |
| H04L 2025/03617 | {Time recursive algorithms(T04L25: T04L25: 03B15A3C
03B15A3C takes precedence)} |
| H04L 2025/03624 | {Zero-forcing} |
| H04L 2025/0363 | {Feature restoration, e.g. constant modulus} |
| H04L 2025/03636 | {Algorithms using least mean square [LMS]} |
| H04L 2025/03643 | {Order recursive} |
| H04L 2025/03649 | {Algorithms using recursive least square [RLS]} |
| H04L 2025/03656 | Initialisation { <i>Initialisation</i> } |
| H04L 2025/03662 | {to a fixed value} |
| H04L 2025/03668 | {to the value at the end of a previous adaptation period} |
| H04L 2025/03675 | {Blind algorithms using gradient methods} |
| H04L 2025/03681 | {Control of adaptation} |
| H04L 2025/03687 | {of step size} |
| H04L 2025/03694 | {Stop and go} |
| H04L 2025/037 | {Detection of convergence state} |
| H04L 2025/03707 | {Detection or avoidance of local extrema} |
| H04L 2025/03713 | {Subspace algorithms} |
| H04L 2025/03719 | {Super-exponential} |
| H04L 2025/03726 | {Switching between algorithms} |
| H04L 2025/03732 | {according to the convergence state} |
| H04L 2025/03738 | {Manual adaptation} |
| H04L 2025/03745 | {Timing of adaptation} |
| H04L 2025/03751 | {only once, at installation(T04L25: T04L25: 03B15M 03B15M takes
precedence)} |
| H04L 2025/03757 | {only on the request of a user} |
| H04L 2025/03764 | {only during predefined intervals} |
| H04L 2025/0377 | {during the reception of training signals} |
| H04L 2025/03777 | {characterised by the signalling} |
| H04L 2025/03783 | {Details of reference signals} |
| H04L 2025/03789 | {Codes therefore} |
| H04L 2025/03796 | {Location of reference signals} |
| H04L 2025/03802 | {Signalling on the reverse channel} |
| H04L 2025/03808 | {Transmission of equaliser coefficients} |
| H04L 2025/03815 | {Transmission of a training request} |
| U H04L 25/06 | Dc level restoring means; Bias distortion correction{decision circuits providing
symbol by symbol detection(detection of unique words or other known
elements H04L 7/00 , H04J 3/0602)} |
| H04L 25/061 | {providing hard decisions only; arrangements for tracking or suppressing
unwanted low frequency components, e.g. removal of dc offset(removal
of dc offset in coupling arrangements H04L 25/029 , H04L25/02K9G
H04L 25/0296)} |

| | | |
|---|--------------|--|
| U | H04L 27/00 | Modulated-carrier systems{(code shift keying in combination with frequency multiplexing H04L 5/06 ; simultaneous bidirectional transmission of ac signals H04L 5/143 ; code shift keying H04L 23/02 ; polarisation shift keying H04B 14/008 ; transmission of data during the active part of a television frame H04N 7/025)} |
| U | H04L 27/0014 | · {Carrier regulation(of chaotic carriers H04L 27/001 ; for multicarrier receivers H04L 27/2657)} |
| | H04L 27/0016 | · · {Stabilisation of local oscillators} |
| | H04L 27/0018 | · · {Arrangements at the transmitter end} |
| | H04L 27/002 | · · · {using feedback from a remote receiver} |
| | H04L 27/0022 | · · · {using the carrier of the associated receiver of a transceiver} |
| | H04L 27/0024 | · · {at the receiver end} |
| | H04L 27/0026 | · · · {Correction of carrier offset} |
| | H04L 27/0028 | · · · · {at passband only} |
| | H04L 27/003 | · · · · {at baseband only} |
| | H04L 27/0032 | · · · · {at baseband and passband} |
| | H04L 27/0034 | · · · · {using hypothesis testing} |
| | H04L 27/0036 | · · · · {using a recovered symbol clock} |
| | H04L 27/0038 | · · · · {using an equaliser} |
| | H04L 27/004 | · · · · · {the equaliser providing control signals} |
| | H04L 27/0042 | · · · · · {the equaliser providing the offset correction per se} |
| | H04L 27/0044 | · · {Control loops for carrier regulation} |
| | H04L 27/0046 | · · · {Open loops} |
| | H04L 27/0048 | · · · · {Frequency multiplication} |
| | H04L 27/0051 | · · · · {Harmonic tracking} |
| | H04L 27/0053 | · · · {Closed loops} |
| | H04L 27/0055 | · · · · {single phase} |
| | H04L 27/0057 | · · · · {quadrature phase} |
| | H04L 27/0059 | · · · · {more than two phases} |
| | H04L 27/0061 | · · · · remodulation{remodulation} |
| | H04L 27/0063 | · · · {Elements of loops} |
| | H04L 27/0065 | · · · · {Frequency error detectors(T04L27: T04L27: 00R7E3 00R7E3 takes precedence)} |
| | H04L 27/0067 | · · · · {Phase error detectors} |
| | H04L 27/0069 | · · · · {Loop filters} |
| | H04L 27/0071 | · · · {Control of loops} |
| | H04L 27/0073 | · · · · {Detection of synchronisation state} |
| | H04L 27/0075 | · · · · {Error weighting} |
| | H04L 27/0077 | · · · · · {stop and go} |
| | H04L 27/0079 | · · · · {Switching between loops} |
| | H04L 27/0081 | · · · · · {between loops of different bandwidths} |
| | H04L 27/0083 | · · {Signalling arrangements} |
| | H04L 27/0085 | · · · {with no special signals for synchronisation} |
| | H04L 27/0087 | · · · {Out-of-band signals,(e.g. pilots)} |
| | H04L 27/0089 | · · · {In-band signals} |

- H04L 2027/0091 {Continuous signals}
 - H04L 2027/0093 {Intermittant signals}
 - H04L 2027/0095 {in a preamble or similar structure}
 - H04L 2027/0097 . . . {Adaptive synchronisation signals}
- U H04L 29/00 Arrangements, apparatus, circuits or systems, not covered by a single one of groups [H04L 1/00](#) to [H04L 27/00](#) (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units [G06F 13/00](#)){contains provisionally no documents}**
- U H04L 29/02 . Communication control(in satellite networks [H04B 7/185](#)); Communication processing([H04L 29/12](#) , [H04L 29/14](#) take precedence){contains provisionally no documents}
 - U H04L 29/06 . . characterised by a protocol
 - H04L 29/06013 . . . {Protocol definition or specification(protocol conformance testing [H04L 1/244](#) ; ~~specification techniques [G06F9/44G4S](#)~~)}
 - U H04L 29/0602 . . . {Protocols characterised by their application([H04L 29/08081](#) takes precedence)}
 - U H04L 29/06047 {Protocols for client-server architecture}
 - H04L 2029/06054 {Access to distributed or replicated servers, e.g. using brokers}
 - U H04L 29/06095 . . . {Special adaptations or provisions of the transmission control protocol/ internet protocol [TCP/IP] or the user datagram protocol [UDP](network layer protocol adaptations for supporting mobility, e.g. mobile IP [H04W 80/04](#) ; flow control in data switching networks in general [H04L 12/569](#) ; adapting video multiplex streams to a specific network [H04N 21/2381](#))}
 - H04L 29/06115 {Adaptation of TCP data exchange control procedures(generic OSI layer 4 protocols, e.g. SCTP [H04L 29/08045](#) ; TCP or UDP flow control procedures ~~[H04L12/56D10](#)~~[H04L 47/19](#) ; error control procedures in general [H04L 1/18](#))}
 - H04L 29/06136 {IP fragmentation or TCP segmentation aspects(evaluation of maximum transfer unit ~~[H04L12/56D27](#)~~[H04L 47/36](#) ; assembly or disassembly of packets in wireless networks [H04W 28/065](#))}
 - U H04L 29/08 . . . Transmission control procedure, e.g. data link level control procedure
 - U H04L 29/08081 {Protocols for network applications(message switching systems [H04L 12/58](#) ; protocols for multimedia communication [H04L 29/06027](#) ; protocols for telewriting [H04L 29/06034](#))}
 - U H04L 29/08135 {in which application tasks are distributed across nodes in the network(multiprogramming arrangements [G06F 9/46](#))}
 - H04L 29/08144 {Network arrangements or communication protocol arrangements for accessing one among a plurality of replicated servers, e.g. load balancing(rebalancing the processing load in a distributed system [G06F 9/5083](#) ; arrangements for peer-to-peer networking [H04L 29/08306](#) ; wireless network traffic load balancing [H04W 28/08](#) ; network load balancing, traffic engineering ~~[H04L12/56D2B](#)~~[H04L 47/125](#) ; video servers using load balancing strategies [H04N 21/23103](#))}[M1111}

NOTE

In this group and its subgroups, the term "servers" includes non-dedicated servers, such as peer nodes in a peer-to-peer architecture

Project: RP0063 (H04L)

- H04L 29/08306 {Arrangements for peer-to-peer networking [P2P]; functionalities, architectural details or applications of P2P networks(provisions for file transfer, upload, download [H04L 29/08117](#) ; provisions for accessing replicated servers [H04L 29/08144](#) ; security provisions [H04L 29/06551](#) ; addressing provisions [H04L 29/12009](#) ; scheduling provisions [H04L 29/08945](#) ; presence management provisions [H04L 29/08684](#) ; multimedia provisions [H04L 29/06176](#) ; information retrieval provisions, file indexing, file systems [G06F 17/30](#) ; wireless interfaces between terminal devices [H04W 92/18](#) ; small scale hierarchical wireless network topologies [H04W 84/10](#) ; peer-to-peer connection between video clients [H04N 21/632](#) ; peer-to-peer connection between video game machines [A63F 13/12](#) [A63F 13/34](#))}

Project: N/A (H04L)

- H04L 29/08396 {involving resource based peer discovery mechanisms(access to replicated servers [H04L 29/08144](#) ; arrangements for service discovery [H04L 29/08648](#) ; topology discovery for routing [H04L12/56C1](#) [H04L 45/02](#))}
- H04L 29/0845 {involving resource distribution mechanisms(~~routing over an overlay routing layer~~ [H04L12/56C128](#))}

Project: RP0063 (H04L)

- H04L 29/08558 {adapted for proprietary or special purpose networking environments, e.g. medical networks, sensor networks, networks in a car(digital computing or data processing equipment or methods, specially adapted for specific applications [G06F 19/00](#) ; home automation networks [H04L 12/28](#) ~~H04L 12/28H~~ ; total factory control characterised by the network communication ~~G05B 19/418~~ [NG05B19/418N](#) ; games involving transmission [A63F 13/12](#) [A63F 13/30](#))}

Project: N/A (H04L)

- H04L 29/08648 {Arrangements for service discovery, e.g. Service Location Protocol(SLP)(address allocation to terminals or nodes connected to a network ~~H04L 29/12 A~~ [H04L29/12A](#))}
- H04L 29/08675 {Arrangements for tracking the activity of the application user(monitoring arrangements in general ~~H04L 12/26 M~~ [H04L 12/26M](#) ; e-commerce [G06Q 30/00](#))}
- H04L 29/08684 {Arrangements for presence management(instant messaging ~~H04L 12/58 B~~ [H04L 12/58B](#))}
- U H04L 29/08702 {involving intermediate processing or storage in the network, e.g. proxy(billing provisions [H04L 12/14](#) ; network management provisions [H04L 12/24](#) ; monitoring provisions [H04L 12/2602](#) ; multimedia network architectures; gateways and control entities [H04L 29/0621](#) ; multimedia handling; encoding and conversion [H04L 29/06476](#) ; security provisions [H04L 29/06551](#) ; addressing provisions [H04L 29/12009](#))}

WARNING

The subgroups [H04L 29/08711](#) , [H04L 29/08738](#) to [H04L 29/08783](#) , and [H04L 29/08801](#) to [H04L 29/08855](#) are not complete pending reorganisation. See also [H04L 29/0872](#) , [H04L 29/08729](#) and [H04L 29/08792](#))

- H04L 29/08738 {Arrangements for data redirection(load balancing [H04L 29/08144](#) ; access network selection ~~H04L12/28P1A~~[H04L 12/5691](#) ; routing path selection [H04L 12/5689](#) ; context based routing [H04L 29/08972](#) ; addressing aspects [H04L 29/12009](#))}
- H04L 29/08945 {Arrangements for scheduling and organising the servicing of requests, e.g. requests for data transmissions involving the analysis and optimisation of the requires network resources(broadcast or conference with schedule organisation ~~H04L12/18 S~~ [H04L12/18S](#))}
- U H04L 29/12 . characterised by the data terminal{contains provisionally no documents}
- U H04L 29/12009 . . {Arrangements for addressing and naming in data networks}

NOTE

(1) [H04L 61/00](#) covers aspects of data networks, excluding pure telephone solutions ([H04M 7/00](#)) or addressing within a device, e.g. process, memory etc. ([G06F 13/42](#) or [G06F 12/00](#)) . (2) Aspects relating to switching and routing are classified in [H04L 12/56](#) . (3) Main aspects covered by this groups are: address resolution; directories and name-to-address resolution; allocation of addresses; conversion of addresses; logical names and non-standard use of addresses

WARNING

This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to [H04L 61/00](#)

- U H04L 29/12047 . . . {Directories; name-to-address mapping(telephone directories in user terminals [H04M 1/27](#))}

WARNING

This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to [H04L 61/15](#)

- H04L 29/12169 {Metadirectories, i.e. all encompassing global directory which interfaces to various underlying directories}

WARNING

This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to ~~H04L 61/15~~ [H04L61/15I](#)

- H04L 29/12198 {Address books, i.e. directories containing contact information about correspondents, e.g. on a user device(directories providing the best way to reach a correspondent [H04L 29/12122](#))}

WARNING

This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to ~~H04L 61/15 L~~ [H04L61/15L](#)

- U H04L 29/12207 . . . {Address allocation}

WARNING

This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to [H04L 61/20](#)

- H04L 29/12264
- • • {involving the solving of address allocation conflicts; involving testing of addresses}
- WARNING
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to ~~H04L 61/20 G~~ **H04L 61/20C**
- U H04L 29/1233
- • • {Mapping of addresses of the same type; Address translation}
- WARNING
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to [H04L 61/25](#)
- H04L 29/12339
- • • {Internet Protocol (IP) address translation}
- WARNING
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to ~~H04L 61/25 A~~ **H04L 61/25A**
- H04L 29/12584
- • • {Non-IP address translation}
- WARNING
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to ~~H04L 61/25 B~~ **H04L 61/25B**
- U H04L 29/12792
- • • {Details}
- WARNING
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to [H04L 61/60](#)
- H04L 29/12943
- • • {Short addresses}
- WARNING
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to ~~H04L 61/60 G~~ **H04L 61/60G**
- U H04L 41/00
- {Arrangements for maintenance or administration or management of packet switching networks}{ WARNINGGroups [H04L 41/00](#) - [H04L 41/5096](#) do not correspond to former or current IPC groups.Concordance CPC : IPC for these groups is as follows:- [H04L 41/00](#) - [H04L 41/5096](#) : [H04L 12/24](#) }**
- U H04L 41/06
- {involving management of faults or events or alarms}
- H04L 41/0654
- • {Network fault recovery(backup route selection ~~H04L 12/56C104~~ **H04L 45/22** ; route fault recovery ~~H04L 12/56C108~~ **H04L 45/28** ; techniques for recovering from a failure of a protocol instance or entity [H04L 69/40](#))}
- U H04L 41/08
- {Configuration management of network or network elements(proprietary application protocols for remote control of end-devices in special networking environments [H04L 67/125](#) ; automatic configuration specially adapted for wireless networks [H04W 24/02](#))}
- U H04L 41/0803
- • {Configuration setting of network or network elements(communication protocols supporting networked applications involving the movement of software or networked applications configuration parameters [H04L 67/34](#))}
- U H04L 41/0813
- • • {Changing of configuration}

- H04L 41/082 • • • {due to updating or upgrading of network functionality, e.g. firmware(topology update or discovery for routing purposes **H04L12/56C1**[H04L 45/02](#))}
- H04L 41/0896 • • {Bandwidth or capacity management, i.e. automatically increasing or decreasing capacities, e.g. bandwidth on demand(reallocation of resources, renegotiation of resources, e.g. in-call **H04L12/56R5**[H04L 47/76](#))}
- H04L 41/12 • {network topology discovery or management(topology discovery for routing **H04L12/56C1**[H04L 45/02](#))}
- U H04L 41/50 • {Network service management, i.e. ensuring proper service fulfillment according to an agreement or contract between two parties, e.g. between an IT-provider and a customer}
- H04L 41/5058 • • {Service discovery by the service manager(automatically determining the actual topology of a network [H04L 41/12](#) ; topology discovery for routing **H04L12/56C1**[H04L 45/02](#) ; arrangements for service discovery, e.g. service location protocol [H04L 67/16](#))}
- U H04L 41/508 • • {based on type of value added network service under agreement}
- H04L 41/509 • • • {wherein the managed service relates to media content delivery, e.g. audio / video / TV(protocols for real-time multimedia communications [H04L 65/00](#) ; **interactive television or VoD H04N21** ; **interactive television or VoD H04N 21/00**)}
- H04L 47/00** **{Traffic regulation in packet switching networks(arrangements for detecting or correcting errors in the information received [H04L 1/00](#))}**

NOTE

This group covers:1. Flow control or congestion control
2. Queue scheduling 3. Admission control or resource allocation

WARNING

Groups [H04L 47/00](#) -47/82J do not correspond to former or current IPC groups.
Concordance CPC : IPC for this groups is as follows:
- [H04L 47/00](#) - **47/82J****H04L47/82J** : [H04L 12/56](#)

- U H04L 47/50 • {Queue scheduling}
- U H04L 47/62 • • {General aspects}
- U H04L 47/622 • • • {Queue service order}
- H04L 47/623 • • • • {weighted service order(**H04L47/201**[H04L 47/52](#) , **H04L47/202**
[H04L 47/54](#) , **H04L47/203**[H04L 47/56](#) take precedence)}

H04L 61/00 {Network arrangements or network protocols for addressing or naming}NOTE

This group does not cover:

Aspects relating to switching or routing which are classified in [H04L 12/56](#)
.Aspects relating to configuration management of data networks or network elements in general which are classified in **H04L 12/24 E**.Aspects **H04L12/24E**.Aspects of addressing in telephony which are classified in [H04M 7/00](#) .Aspects of addressing within devices, e.g. process or memory, which are classified in [G06F 13/42](#) or [G06F 12/00](#) .

WARNING

Groups [H04L 61/00](#) - [H04L 61/6095](#) do not correspond to former or current IPC groups.
Concordance CPC : IPC for these groups is as follows:

- [H04L 61/00](#) - 61/60L : **H04L61/60L**
- **61/60L** : [H04L 29/12](#)

H04L 65/00

{Network arrangements or protocols for real-time communications(computer conference [H04L 12/1813](#) ; real time or near real time messaging in message switching systems e.g. instant messaging [H04L 12/581](#) ; television systems [H04N 7/00](#) ; selective video distribution [H04N 21/00](#); interconnection arrangements between switching centres for working between exchanges having different types of switching equipment where the types of switching equipment comprise PSTN/ISDN equipment and equipment of networks other than PSTN/ISDN [H04M 7/1205](#) ; systems providing special services to telephonic subscribers [H04M 3/42](#) ; network applications in general [H04L 67/00](#))}

NOTEWARNING

Groups [H04L 65/00](#) - [H04L 65/80](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H04L 65/00](#) - [H04L 65/80](#) : [H04L 29/06](#)] Notes 1. This group covers: - only communications which fulfill the following two conditions: i. they are based on packet data; ii. there is real-time or pseudo-real-time temporal association between source and destination, or source and network, or destination and network; - provided that the above two conditions are met, this group covers arrangements relating to a. the transmission of the multimedia data itself, b. the user-to-user, user-to-network, inter-network or intra-network signalling supporting: b1. the establishment of a session for the subsequent transmission of the multimedia data, or b2. the maintenance of the session or b3. the application services available to the user during the session (unless explicitly excluded in certain cases). 2. This group does not cover: - non-real-time multimedia file transfer, which is covered by [H04L 67/06](#) - multimedia store or forward messaging as in e-mail, MMS or the like, which is covered by [H04L 12/58](#) - analogue video streaming, as in analogue television systems, which is covered by [H04N 7/00](#) - selective distribution of MPEG elementary or transport streams, containing video and additional data, which is covered by [H04N 21/00](#) - bit streaming, i.e. not packet-based, as in ISDN which is covered by ~~H04Q 11/40~~ [H04Q 11/0428](#) - instant messaging, which is covered by [H04L 12/581](#) - any other multimodal data communications which do not meet the conditions of being packet-based and real-time or pseudo-real-time - flow control in packet switching networks, which is covered by ~~H04L 12/56~~ ~~D~~ [H04L 12/56D](#). 3. In this group the following terms or expressions are used with the meaning indicated: - H.323 means International Telecommunication Union Recommendation no. 323, series H, entitled "Packet-based multimedia communications systems" - IP means Internet Protocol - IMS means IP Multimedia Subsystem - ISDN means Integrated Services Digital Network - MGC means Media Gateway Control/Controller - MGCP means Media Gateway Control Protocol - MMS means Multimedia Messaging Service - PBX means Private Branch Exchange - PSTN means Public Switched Telephone Network - QoS means Quality of Service - RTP means Real Time Protocol - RTCP means Real Time Control Protocol - RTSP means Real Time Streaming Protocol. - SIP means Session Initiation Protocol - SPAM means unsolicited electronic mail - SPIT means SPAM Prevention in IP Telephony]

U H04L 65/10

- {Signalling, control or architecture(selecting or control in telephonic networks [H04Q 3/00](#) ; data network management [H04L 12/24](#) ; data network testing or monitoring [H04L 12/26](#) ; admission control or resource reservation in packet switching networks [H04L 12/5695](#) ; control signalling related to video distribution [H04N 21/63](#))}

U H04L 65/1066

- {Session control(conducting a computer conference e.g. admission, detection, selection or grouping of participants, correlating users to one or more conference session or prioritising transmission [H04L 12/1822](#) ; admission control/resource reservation in packet switching networks [H04L 12/5695](#))}

- H04L 65/1076
 - • {Screening(arrangements for screening incoming telephone calls [H04M 3/436](#) ; ~~arrangements for network security H04L63~~ ; *arrangements for network security H04L 63/00*)}
- H04L 65/1083
 - • {In-session procedures(computer conferences, network arrangements for conference optimisation or adaptation [H04L 12/1827](#) ; reactions to resource unavailability in packet switching networks ~~H04L12/56R3~~[H04L 47/74](#) ; reallocation or renegotiation of resources in packet switching networks ~~H04L12/56R5~~[H04L 47/76](#))}
- U H04L 65/40
 - {Services or applications(systems providing special services to telephonic subscribers [H04M 3/42](#) ; contact center services [H04M 3/51](#) ; information services comprising voice [H04M 3/487](#) ; network service management for ensuring proper service fulfilment [H04L 12/2464](#))}
- H04L 65/4061
 - {"Push-to-X" services(push-to-talk services in wireless networks [H04W 4/10](#) ; connection management, e.g. connection set-up, manipulation or release for push-to-talk or push-on-call services in wireless communication networks ~~H04W76/08A~~[H04W 76/005](#))}
- U H04L 65/4069
 - {Services related to one way streaming}
- H04L 65/4092
 - • {Control of source by destination, e.g. user controlling streaming rate of server(explicit feedback from the destination to the source to modify data rate for flow control or congestion control in packet switching networks, e.g. choke packet ~~H04L12/56D17~~[H04L 47/26](#) ; end-to-end flow control in packet switching networks ~~H04L12/56D8~~[H04L 47/18](#) ; analog television systems using two way working [H04N 7/173](#) ; control signals to video servers issued by video clients [H04N 21/6377](#))}
- H04L 65/80
 - {QoS aspects(traffic-type related flow control in packet switching networks, e.g. priorities or QoS ~~H04L12/56D15~~[H04L 47/24](#) ; admission control/ resource reservation in packet switching networks based on QoS or priority awareness ~~H04L12/56R9C~~[H04L 47/805](#) , monitoring arrangements, testing arrangements, with monitoring of QoS metrics [H04L 12/2634](#) ; arrangements for scheduling or organising the servicing of requests whereby quality of service or priority requirements are taken into account [H04L 67/322](#) ; network service management, ensuring proper service fulfillment according to an agreement or contract between two parties, e.g. between an IT-provider and a customer [H04L 12/2464](#) ; adaptation for terminals or networks with limited resources, or for terminal portability [H04L 67/04](#) ; reducing the amount or size of exchanged application data ~~H04L67/28L~~[H04L 67/2828](#) ; network application adapted for the location of the user terminal [H04L 67/18](#) ; monitoring of the downstream path of a video distribution network [H04N 21/2402](#) , [H04N 21/44209](#))}
- U H04L 67/00
 - {Network-specific arrangements or communication protocols supporting networked applications(message switching systems [H04L 51/00](#) ; network management protocols [H04L 41/00](#) ; routing or path finding of packets in data switching networks [H04L 45/00](#) ; protocols for real-time multimedia communication [H04L 65/00](#) ; information retrieval [G06F 17/30](#) ; services or facilities specially adapted for wireless communication networks [H04W 4/00](#) ; network structures or processes for video distribution between server and client or between remote clients [H04N 21/00](#) ; exchange systems providing special services or facilities to subscribers involving telephonic communications [H04M 3/42](#) ; distributed information systems [G06F 9/00](#) , [G06F 17/00](#) ; lower layer network functionalities which support application layer provisions [H04L 12/00](#))}**

NOTE

This group covers: (1) Networking arrangements or communication protocols to support networked applications which occur at the abstract network layers 5 to 7 of the OSI layer model. The higher layers constitute the interface between the network and the computer applications that use the network to communicate.

(2) Network-specific aspects of client-server applications as well as of networking arrangements supporting networked/distributed applications, e.g. data transport, scheduling. This group also covers specific networked application layer protocols, e.g. FTP, WAP, HTTP. This group does not cover:
(1) Distributed applications which are network-agnostic, i.e. distributed information systems for which the network functions are transparent. These field are covered, e.g. by [G06F 9/00](#), [G06F 17/00](#). Data switching network provisions in general and the lower layer network functionalities which support application layer provisions are covered by [H04L 12/00](#)
]

WARNING

Groups [H04L 67/00](#) - [H04L 67/42](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H04L 67/00](#) - [H04L 67/36](#) : [H04L 29/08](#) - [H04L 67/38](#) - [H04L 67/42](#) : [H04L 29/06](#)]

- U H04L 67/10 • {in which an application is distributed across nodes in the network(multiprogramming arrangements [G06F 9/46](#))}
- H04L 67/1002 • • [N: for accessing one among a plurality of replicated servers, e.g. load balancing(arrangements or protocols for peer-to-peer networking [H04L 67/104](#) ; protocols for client-server architectures [H04L 67/42](#) ; allocation of processing resources to service requests in a distributed system [G06F 9/5027](#) ; rebalancing the processing load in a distributed system [G06F 9/5083](#) ; wireless network traffic load balancing [H04W 28/08](#) ; network load balancing, traffic engineering [H04L12/56D2B](#) [H04L 47/125](#) ; video servers using load balancing strategies [H04N 21/23103](#) ; error detection or correction of the data by redundancy in hardware [G06F 11/16](#))

Project: RP0063 (H04L)

- H04L 67/104 • • {for peer-to-peer [P2P] networking; Functionalities or architectural details of P2P networks(file transfer, upload, download [H04L 67/06](#) ; accessing replicated servers [H04L 67/1002](#) ; presence management [H04L 67/24](#) ; scheduling provisions [H04L 67/32](#) ; real-time communications [H04L 65/00](#) ; information retrieval using distributed database systems [G06F 17/30283](#) ; small scale hierarchical wireless network topologies [H04W 84/10](#) ; wireless interfaces between terminal devices [H04W 92/18](#) ; P2P connections between video clients [H04N 21/632](#) ; P2P connections between video game machines [A63F 13/12](#) [A63F 13/34](#))}

Project: N/A (H04L)

- H04L 67/1095 • • {for supporting replication or mirroring of data, e.g. scheduling or transport for data synchronisation between network nodes or user terminals or syncML(synchronisation in information retrieval in file systems [G06F 17/30067](#) ; ~~synchronisation in structured data stores~~ [G07F17/30S](#) ; ~~synchronisation in structured data stores~~ [G06F 17/30575](#) ; mass storage redundancy by mirroring for error detection or correction of data [G06F 11/2056](#))}

Project: RP0063 (H04L)

- H04L 67/12 • {adapted for proprietary or special purpose networking environments, e.g. medical networks, sensor networks, networks in a car or remote metering networks(digital computing or data processing equipment or methods, specially adapted for specific applications in healthcare or life sciences [G06F 19/00](#) ; home automation networks [H04L 12/2803](#) ; total factory control characterised by the network communication [G05B 19/4185](#) ; games involving transmission systems [A63F 13/12](#) [A63F 13/30](#))}

Project: N/A (H04L)

- U H04L 67/28
- {for the provision of proxy services, e.g. intermediate processing or storage in the network(network management provisions [H04L 12/24](#) ; network monitoring provisions [H04L 12/2602](#) ; media manipulation, adaptation or conversion in real-time communications [H04L 65/601](#) ; protocol conversion [H04L 69/08](#) ; proxies for network security [H04L 63/0281](#))}
- H04L 67/2814
- {for data redirection(load balancing of replicated servers [H04L 67/1002](#) ; access network selection [H04L12/28P1A](#)[H04L 12/5691](#) ; routing or path finding of packets [H04L 45/00](#) ; content or context based routing [H04L 67/327](#) ; network addressing or naming provisions [H04L 61/00](#))}
- U H04L 69/00
- {Application independent communication protocol aspects or techniques in packet data networks(interconnection arrangements between CPUs, memories, or peripherals within a single computer [G06F 13/00](#) ; data switching networks [H04L 12/00](#); flow control [H04L 12/569](#) ; routing of packets [H04L 12/5689](#) ; network management [H04L 12/24](#) ; network monitoring or testing [H04L 12/26](#) ; network topologies, i.e. networks characterized by the path configuration, media access control [H04L 12/28](#) ; intermediate storage or scheduling [H04L 12/5694](#) ; packet switches and switching fabrics [H04L 12/5696](#) ; message switching systems, e.g. email, [H04L 12/58](#) ; broadcast or multicast [H04L 12/18](#) ; hybrid switching systems [H04L 12/64](#) ; gateways [H04L 12/66](#) ; networks specially adapted for wireless communication [H04W](#); transmission systems [H04B](#))}**
- WARNING
- Groups [H04L 69/00](#) - [H04L 69/40](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H04L 69/00](#) -
- | | | | | |
|----------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|
| H04L 69/28 | : | H04L 29/06 | - | H04L 69/30 |
| - | H04L 69/329 | : | H04L 29/08 | - |
| H04L 69/40 | : | H04L 29/14 |] | |
- U H04L 69/16
- {Transmission control protocol/internet protocol [TCP/IP] or user datagram protocol [UDP](transport layer addressing aspects [H04L 61/6063](#) ; network layer protocol adaptations for supporting mobility, e.g. mobile IP, [H04W 80/04](#) ; flow control or congestion control in data switching networks [H04L 12/569](#) ; adapting video multiplex streams to a specific network [H04N 21/2381](#) ; special adaptations of TCP, UDP or IP for interworking of IP based networks with other networks [H04L 69/169](#))}
- H04L 69/163
- {Adaptation of TCP data exchange control procedures(generic OSI layer 4 protocols, e.g. SCTP [H04L 69/326](#) ; TCP or UDP flow control procedures [H04L12/56D10](#)[H04L 47/19](#) ; error control procedures in general [H04L 1/18](#))}
- H04L 69/166
- {IP fragmentation or TCP segmentation aspects(evaluation of maximum transfer unit [MTU] [H04L12/56D27](#)[H04L 47/36](#) ; assembly or disassembly of packets in wireless networks [H04W 28/065](#))}
- H04L 69/168
- {Special adaptations of TCP, UDP or IP to match specific link layer protocols, e.g. ATM, SONET or PPP(IP over ATM [H04L12/56A18P1](#)[H04L 2012/5667](#) ; special adaptation of TCP protocol for wireless media [H04W 80/06](#))}
- H04L 69/18
- {Multi-protocol handler, e.g. single device capable of handling multiple protocols(multilayer or multiprotocol switches [H04L12/56S14E](#)[H04L 49/602](#))}
- H04L 69/22
- {Header parsing or analysis(traffic monitoring by flow aggregation or filtering [H04L 12/2605](#) ; flow identification in packet switching networks [H04L12/56D15J](#)[H04L 47/2483](#))}

H04L 69/40

- {Techniques for recovering from a failure of a protocol instance or entity, e.g. failover routines, service redundancy protocols, protocol state redundancy or protocol service redirection in case of a failure or disaster recovery(reactions to failures of replicated servers by a load balancer [H04L 67/1034](#) ; departure or maintenance mechanisms in peer-to-peer networks [H04L 67/1048](#) ; intermediate processing of operational support to end devices when they are unavailable, [H04L 67/2861](#) ; network fault management [H04L 12/2419](#) ; route fault recovery in network routing [H04L12/56C108](#)[H04L 45/28](#) ; fault recovery in packet switches [H04L12/56S12C](#)[H04L 49/557](#))}

Project: N/A (H04M)**U H04M 1/00**

Substation equipment, e.g. for use by subscribers; Analogous equipment at exchanges (prepayment telephone coin boxes [H04M 17/00](#); current supply arrangements [H04M 19/00](#); {telephone sets particularly adapted for data transmission [H04M 11/066](#); network interface devices [H04Q 1/028](#)})

U H04M 1/02

- Constructional features of telephone sets

U H04M 1/0202

- { Portable telephone sets, e.g. cordless phones, mobile phones or bar type handsets (constructional features of telephone transmitters or receivers, e.g. of speakers or microphones [H04M 1/03](#); mounting of the dialing module [H04M 1/23](#); with protection against RF exposure [H04B 1/3838](#))}

WARNING

Groups [H04M 1/0249](#) to [H04M 1/0285](#) are not complete pending a reorganisation. See also group [H04M 1/0202](#)

H04M 2001/0204

- • • {including a battery compartment }

U H04M 1/26

- Devices for signalling identity of wanted subscriber (constructional features [H04M 1/23](#))

U H04M 1/27

- • Devices whereby a plurality of signals may be stored simultaneously {(devices disposed in the exchange [H04M 3/424](#), [H04M 3/44](#))}

U H04M 1/274

- • • with provision for storing more than one subscriber number at a time, e.g. using toothed disc

U H04M 1/2745

- • • • using static electronic memories, i.e. memories whose operation does not require relative movement between storage means and a transducer, e.g. chip; {(Fax machines [H04N 1/32037](#))}

H04M 2001/274541

- • • • • {Predictive input, predictive dialling by comparing the dialled sequence with the content of a telephone directory }

U H04M 3/00

Automatic or semi-automatic exchanges {(constructional details of telephone exchanges [H04Q 1/02](#))}

U H04M 3/22

- Supervisory, monitoring, {management, i.e. operation, administration, maintenance} or testing arrangements

U H04M 3/24

- • with provision for checking the normal operation

H04M 3/244

- • • {for multiplex systems (~~H04M3/30B takes precedence~~)}

U H04M 7/00

Interconnection arrangements between switching centres (transmission arrangements in general [H04B](#); { interconnection arrangements between PSTN/ISDN switching centres [H04Q 3/00](#)})

U H04M 7/0024

- { Services and arrangements where telephone services are combined with data services (arrangements which combine a telephonic equipment and a computer [H04M 7/0012](#))}

- H04M 7/0039
- { where the data service is provided by a stream of packets which are rendered in real time by the receiving terminal (~~audio-streaming or audio streaming details of combined audio and video streaming~~ **H04M7/00M26** *audio streaming or audio streaming details of combined audio and video streaming H04L 29/06476*)}

U H04M 17/00

Prepayment { of wireline communication systems, wireless communication systems or} telephone systems (using a coded card to authorise calls from a telephone set [H04M 1/675](#))

- H04M 2017/12 • {using calling, telephone credit/debit cards }
- H04M 2017/14 • {using commercial credit/debit cards, e.g. VISA, AMEX }
- H04M 2017/22 • {with automatic recharging of account/card, e.g. if limit is reached during connection the account is recharged automatically }
- H04M 2017/222 • • {at threshold}
- H04M 2017/225 • • {with predetermined amount}
- H04M 2017/227 • • {with amount selected interactively}
- H04M 2017/24 • {with on-line recharging of an account or card, e.g. cashless}
- H04M 2017/241 • • {by calling a service number IVR, menu}
- H04M 2017/243 • • {by sending a message, e.g. SMS,MMS, EMS}
- H04M 2017/245 • • {using money , i.e. physical input of coins or bank notes}
- H04M 2017/246 • • {using signalling, e.g. USSD, UUS, DTMF}
- H04M 2017/248 • • {using WAP or Internet , i.e. including electronic payment, e-cash, etc.}
- H04M 2017/25 • {using a code}
- H04M 2017/2506 • • {code input or reading}
- H04M 2017/2512 • • • {from communication terminal display}
- H04M 2017/2518 • • • {from material card, using a magnetic stripe card}
- H04M 2017/2525 • • • {optical code recognition (OCR), e.g. bar code reader }
- H04M 2017/2531 • • • {wireless, e.g. Bluetooth, RFID}
- H04M 2017/2537 • • {code reader}
- H04M 2017/2543 • • • {public, e.g. public recharge point}
- H04M 2017/255 • • • {local at the terminal itself}
- H04M 2017/2556 • • {code type}
- H04M 2017/2562 • • • ~~alphanumeric~~ *{alphanumeric}*
- H04M 2017/2568 • • • {bar code}
- H04M 2017/2575 • • • {pattern, i.e. single or changing sequences of pictures or patterns}
- H04M 2017/2581 • • • {punched holes}
- H04M 2017/2587 • • • {temporarily valid code }
- H04M 2017/2593 • • {code management}
- H04M 2017/26 • {with real-time recharging of account/card, e.g. if limit is reached during connection user is asked if he wants to recharge or not }

Project: N/A (H04N)**U H04N 1/00**

Scanning, transmission or reproduction of documents or the like, e.g. facsimile transmission; Details thereof{(recording arrangements for measuring instruments [G01D](#) ; sensing record carriers [G06K 7/00](#) ; character or pattern recognition [G06K 9/00](#) ; mosaïc printer telegraph systems [H04L 21/00](#))}

- U H04N 1/00127 • {Connection or combination of a still picture apparatus with another apparatus, e.g. for storage, processing or transmission of still picture signals or of information associated with a still picture}
- U H04N 1/00281 • • {with a telecommunication apparatus, e.g. a switched network of teleprinters for the distribution of text-based information, a selective call terminal(details of transmission [H04N 1/00095](#) ; establishing a communication with one of a facsimile machine or another apparatus sharing a single line [H04N 1/32704](#) ; interfacing cordless telephone terminals with an accessory to increase the functionality of user interface [H04M 1/72527](#))}
- H04N 1/00307 • • {with a mobile telephone apparatus(constructional features of portable telephone sets ~~H04M 1/02 A~~[H04M 1/02A](#); mobile radio systems [H04W 84/00](#))}
- H04N 1/00344 • • {with a management, maintenance, service or repair apparatus(monitoring ~~H04N 1/00 A~~ [H04N 1/00A](#))}
- U H04N 1/0035 • {User-machine interface; Control console(input or output arrangements for computers [G06F 3/00](#))}
- U H04N 1/00405 • • {Output means(output arrangements for computers [G06F 3/00](#))}
- H04N 1/00477 • • • {Indicating status, e.g. of a job(for control or supervision between transmitter and receiver or between image input and image output device ~~H04N 1/3219~~[H04N 1/3219](#))}
- U H04N 5/00 Details of television systems(scanning details or combination thereof with generation of supply voltages [H04N 3/00](#) ; specially adapted for colour television [H04N 9/00](#) ; { servers specially adapted for the distribution of content [H04N 21/20](#) ; client devices specially adapted for the reception of or interaction with content [H04N 21/40](#))}**
- NOTE**
- Groups [H04N 5/341](#) to [H04N 5/378](#) are based on IPC2012.01**
- U H04N 5/222 • Studio circuitry; Studio devices; Studio equipment;{Cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, TV cameras, video cameras, camcorders, webcams, camera modules for embedding in other devices e.g. mobile phones, computers or vehicles}
- U H04N 5/225 • • Television cameras;{Cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, video cameras, camcorders, webcams, camera modules for embedding in other devices e.g. mobile phones, computers or vehicles(optical systems [G02B](#); associated working of recording or reproducing apparatus with TV camera or receiver in which the television signal is not significantly involved [G11B 31/006](#) ; tubes [H01J](#))}
- H04N 2005/2255 • • • {for picking-up images in sites, inaccessible due to their dimensions or hazardous conditions, e.g. endoscope, borescope}
- U H04N 5/262 • • Studio circuits, e.g. for mixing, switching-over, change of character of image, other special effect ;{Cameras specially adapted for the electronic generation of special effects}
- U H04N 5/272 • • • Means for inserting a foreground image in a background image, i.e. inlay, outlay
- H04N 2005/2726 • • • • {for simulating a person`s appearance, e.g. hair style, glasses, clothes}
- U H04N 5/44 • Receiver circuitry([H04N 5/14](#) takes precedence)

- U H04N 5/4403
- {User interfaces for controlling a television receiver or set top box(STB)through a remote control device, e.g. graphical user interfaces (GUI); Remote control devices therefor(user interfaces for controlling a tuning device of a television receiver through a remote control [H03J 9/00](#) ; constructive details of casings for the remote control device [H01H 9/0235](#) ; remote control of peripheral devices connected to a television receiver through the remote control device of the television receiver [H04B 1/205](#) ; remote control devices in general [G08C](#))}
- H04N 2005/4405
- • • {Hardware details of remote control devices}
- H04N 2005/4407
- • • • {concerning bidirectional operation of the remote control device}
- H04N 2005/4408
- • • • Display{Display}
- H04N 2005/441
- • • • • {for the display of non-command information, e.g. electronic program guide (EPG), e-mail, messages or a second television channel}
- H04N 2005/4412
- • • • {Dedicated function buttons, e.g. for the control of an electronic program guide (EPG), subtitles, aspect ratio, picture-in-picture or teletext}
- H04N 2005/4414
- • • • • {for controlling a communication function, e.g. e-mail, teleshopping or an Internet browser}
- H04N 2005/4416
- • • • Keyboard{Keyboard}
- H04N 2005/4417
- • • • • {Data entry}
- H04N 2005/4419
- • • • • • {Alphanumerical data entry}
- H04N 2005/4421
- • • • • • {Measuring key press duration}
- H04N 2005/4423
- • • • {Remote control device emulator integrated in a peripheral device}
- H04N 2005/4425
- • • • {Remote control device emulator integrated into a non-television apparatus, e.g. a PDA, media center or smart toy(remote control device for a television receiver integrated into a mobile phone [H04M 1/72533](#))}
- H04N 2005/4426
- • • • {Transmission circuitry, e.g. infrared (IR) or radio frequency (RF)}
- H04N 2005/4428
- • • • {Non-standard components, e.g. timer, speaker, sensors for detecting position, direction or movement of the remote control, microphone, battery charging device}
- H04N 2005/443
- • • • {Touch pad or touch panel}
- H04N 2005/4432
- • • • {Remote control devices equipped or combined with PC-like input means, e.g. voice recognition or pointing device}
- H04N 2005/4433
- • • • {for the control of devices in remote rooms}
- H04N 2005/4435
- • • {Reprogrammable remote control devices}
- H04N 2005/4437
- • • • {capable of upgrading firmware, e.g. in case of hardware upgrades or bug fixes}
- H04N 2005/4439
- • • • {the keys being reprogrammable, e.g. soft keys}
- H04N 2005/4441
- • • • • {the reprogrammable keys being displayed on a display screen in order to reduce the number of keys on the remote control device itself}
- H04N 2005/4442
- • • {Remote control devices for a multi-user environment}
- H04N 2005/4444
- • • {Intelligent remote control devices capable of taking into account user habits, preferences or profiles}
- U H04N 5/445
- • for displaying additional information([H04N 5/50](#) takes precedence)
- U H04N 5/44513
- • • {for displaying or controlling a single function of one single apparatus, e.g. TV receiver or VCR}
- H04N 2005/44517
- • • • {for displaying or controlling status parameters of the television receiver, e.g. brightness, contrast, sound volume, channel number, time, stereo or mono sound modes}

- H04N 2005/44521 {for displaying information which has no relation with a video programme, e.g. subliminal info, commercial messages, notebook, calendar, cooking recipes}
 - H04N 2005/44526 {for displaying subtitles}
 - H04N 2005/4453 {for displaying teletext characters}
 - H04N 2005/44534 {for displaying information generated by a single external video device, e.g. VCR, set top converter}
 - H04N 2005/44539 {involving multilingual on screen display (OSD) options}
 - U H04N 5/44543 {Menu-type displays([H04N 5/44582](#) , [H04N 5/44591](#) take precedence)}
 - H04N 2005/44547 {for scheduling the TV programmes to be recorded by a video tape recorder or to be viewed on the TV receiver}
 - H04N 2005/44552 {involving the use of teletext programme scheduling codes, e.g. VPS codes, G-codes}
 - H04N 2005/44556 {for programme selection}
 - H04N 2005/4456 {as a user interface for communicating with the broadcast station via a return link, e.g. for subscription or transaction terminal, for teleshopping, or as an interactive entertainment terminal, e.g. for quiz, for interactive games}
 - H04N 2005/44565 {the menu or graphical user interface display parameters being downloaded by the service provider or by the broadcast station}
 - H04N 2005/44569 {whereby user selections, preferences, or profile have an impact on the menu content}
 - H04N 2005/44573 {for using the television receiver as a multimedia terminal}
 - H04N 2005/44578 {involving the communication via a network, e.g. local area network (LAN), wide area network (WAN), internet, intranet}
 - U H04N 5/44582 {the additional information being controlled by a remote control apparatus}
 - H04N 2005/44586 {whereby remote controller buttons have been transferred to the on screen display (OSD) menu}
 - U H04N 5/44591 {the additional information being displayed in a separate window, e.g. by using splitscreen display}
 - H04N 2005/44595 {the separate window being opened at the occurrence of a selection of a menu option or item}
 - U H04N 5/74 {Projection arrangements for image reproduction, e.g. using eidophor(optical systems in general [G02B](#))}
- WARNING
[H04N 5/74](#) and subgroups are no longer used for the classification of new documents as from October 1, 2008. The backlog is being continuously reclassified to subgroups of [H04N 9/31](#)
- U H04N 5/7416 {involving the use of a spatial light modulator, e.g. a light valve, controlled by a video signal}
 - U H04N 5/7425 {the modulator being a dielectric deformable layer controlled by an electron beam, e.g. eidophor projector}
 - H04N 2005/7433 {Control circuits therefor}
 - U H04N 5/7441 {the modulator being an array of liquid crystal cells}
 - H04N 2005/745 {Control circuits therefor}
 - U H04N 5/7458 {the modulator being an array of deformable mirrors, e.g. digital micromirror device (DMD)}
 - H04N 2005/7466 {Control circuits therefor}
 - U H04N 5/7475 {Constructional details of television projection apparatus}

- H04N 2005/7483
 - • • {for colour television}
- U H04N 5/76
 - Television signal recording(diagnosis, testing or measuring for television signal recorders [H04N 17/06](#) ; recording in connection with measuring [G01D](#) ; information storage { in which the television signal is not involved, driving, starting, stopping, head switching, editing, indexing } in general [G11](#) , e.g. [G11B](#))
- U H04N 5/91
 - • Television signal processing therefor(of colour signals [H04N 9/79](#))
- U H04N 5/913
 - • • for scrambling;{for copy protection}(scrambling of a television signal for transmission [H04N 7/167](#))
- H04N 2005/91307
 - • • • {by adding a copy protection signal to the video signal}
- H04N 2005/91314
 - • • • • {the copy protection signal being a pulse signal inserted in blanking intervals of the video signal, e.g. pseudo-AGC pulses, pseudo-sync pulses}
- H04N 2005/91321
 - • • • • {the copy protection signal being a copy protection control signal, e.g. a record inhibit signal}
- H04N 2005/91328
 - • • • • {the copy protection signal being a copy management signal, e.g. a copy generation management signal (CGMS)}
- H04N 2005/91335
 - • • • • {the copy protection signal being a watermark}
- H04N 2005/91342
 - • • • • {the copy protection signal being an authentication signal}
- H04N 2005/9135
 - • • • • {by superimposing the spectrally spread copy protection signal onto the video signal}
- H04N 2005/91357
 - • • • {by modifying the video signal}
- H04N 2005/91364
 - • • • • {the video signal being scrambled}
- H04N 2005/91371
 - • • • • {the video color burst signal being modified}
- H04N 2005/91378
 - • • • • {the video line number being modulated}
- H04N 2005/91385
 - • • • • {the video frame number being modulated}
- H04N 2005/91392
 - • • • {using means for preventing making copies of projected video images}
- U H04N 7/00
 - Television systems(details [H04N 3/00](#) , [H04N 5/00](#) ; systems specific to colour television [H04N 11/00](#) ; stereoscopic television systems [H04N 13/00](#) ; selective content distribution [H04N 21/00](#))**
- U H04N 7/14
 - Systems for two-way working({ [H04N 7/12](#) , } [H04N 7/173](#) take precedence)
- U H04N 7/141
 - • {between two video terminals, e.g. videophone(telephonic communication systems combined with television receiver for reception of entertainment or information matter [H04M 11/085](#))}
- U H04N 7/142
 - • • {Constructional details of the terminal equipment, e.g. arrangements of the camera and the display}
- H04N 2007/145
 - • • • {Handheld terminals}
- U H04N 7/16
 - Analogue secrecy systems; Analogue subscription systems
- U H04N 7/173
 - • with two-way working, e.g. subscriber sending a programme selection signal
- H04N 2007/17372
 - • • {the upstream transmission being initiated or timed by a signal from upstream of the user terminal}
- H04N 2007/17381
 - • • {the upstream transmission being initiated by the user terminal}
- H04N 2007/1739
 - • • {the upstream communication being transmitted via a separate link, e.g. telephone line}
- H04N 7/18
 - Closed circuit television systems, i.e. systems in which the signal is not broadcast({ television transmission of measured quantities [G01D 5/39](#) ; intruder alarm or detection by television surveillance [G08B 13/196](#) , ~~[G08B15/00B](#)~~)}
- U H04N 7/24
 - Systems for the transmission of television signals using pulse code modulation([H04N 21/00](#) takes precedence)

- H04N 2007/243 • • {Bitstream control arrangements}
- H04N 2007/246 • • {Bitstream transport arrangements}
- H04N 7/26 • • using bandwidth reduction; {Source coding or decoding of digital video signal, e.g. digital video signal compression; Pre- or postprocessing therefor} (information reduction by code conversion in general [H03M 7/30](#))

NOTE

In this group classification is done in all relevant subgroups, e.g. a document disclosing a motion-adaptive MPEG bitrate transcoder using vector quantisation must be classified in ~~H04N 7/26~~ ~~H04N 7/26T~~, [H04N 7/28](#) , [H04N 7/50](#) , [H04N 7/26053](#) , [H04N 7/26132](#) and any other relevant group

WARNING

This subgroup is no longer used for the classification of new documents as from 01.06.2012 and the backlog is being continuously reclassified in [H04N 19/00](#) and subgroups

- U H04N 7/26345 • • • {involving coding of different picture or data components([H04N 7/26638](#) takes precedence)}
- H04N 2007/26367 • • • • {involving a plurality of video object planes}
- U H04N 7/26388 • • • {involving sub-band coding}
- U H04N 7/26393 • • • • {of a single image}
- H04N 7/26489 • • • • • {with details relating to the sub-band filter(data processing equipment for wavelet transforms [G06F 17/148](#) ; ~~bandwidth reduction for documents of or the like by decomposition into components~~ ~~H04N1/41C4~~)}
- U H04N 7/26882 • • • {involving preprocessing or postprocessing therefor}
- H04N 2007/26904 • • • • {involving motion}
- H04N 2007/26909 • • • • • {Devices for motion estimation}
- H04N 2007/26914 • • • • • • {Dataflow techniques}
- H04N 2007/2692 • • • • • • {Memory access techniques}
- U H04N 7/30 • • • involving transform coding(, e.g. using discrete cosine transform (DCT)){([H04N 7/26388](#) , [H04N 7/26638](#) and } [H04N 7/50](#) take precedence; digital computers for performing complex mathematical operations, e.g. domain transformation [G06F 17/14](#))}
- H04N 2007/3094 • • • • {Intraframe prediction of transform coefficients, e.g. of AC coefficients from DC coefficients}

U H04N 9/00**Details of colour television systems**

- U H04N 9/12 • Picture reproducers(devices or arrangements for the electro-, magneto- or acousto-optical modulation or deflection of light beams [G02F](#))
- H04N 9/16 • • using cathode ray tubes(~~H04N9/11~~ [H04N 9/11](#) takes precedence; cathode-ray tubes [H01J 31/00](#))
- U H04N 9/79 • Processing of colour television signals in connection with recording
- U H04N 9/80 • • Transformation of the television signal for recording, e.g. modulation, frequency changing; Inverse transformation for playback
- U H04N 9/808 • • • involving pulse code modulation of the composite colour video-signal
- U H04N 9/8081 • • • • {involving data reduction}
- H04N 2009/8084 • • • • • {using transform coding}

U H04N 13/00**Stereoscopic{or multiview}television systems; Details thereof**NOTE

This group covers systems where a three-dimensional effect or different views according to the viewpoint location are provided to one or more viewers by means of electronic signals representing a plurality of images or signals including depth information, e.g. taken from different viewpoint locations representing the interocular distance (optical systems for producing stereoscopic or other three dimensional effects [G02B 27/22](#))]

- H04N 2013/0074 . {Stereoscopic image analysis}
- H04N 2013/0077 . . {Colour aspects}
- H04N 2013/0081 . . {Depth or disparity estimation from stereoscopic image signals}
- H04N 2013/0085 . . {Motion estimation from stereoscopic image signals}
- H04N 2013/0088 . . {Synthesising a monoscopic image signal from stereoscopic images, e.g. synthesising a panoramic or high resolution monoscopic image}
- H04N 2013/0092 . . {Image segmentation from stereoscopic image signals}
- H04N 2013/0096 . . {Synchronisation or controlling aspects}

U H04N 13/02

- . Picture signal generators

- H04N 13/0285 . . {having a monoscopic mode and a separate stereoscopic mode}

WARNING

this group is not complete, pending a reorganization. Documents classified before 6/10/2011 which, in the present scheme, should be classified in this group can be found in ~~H04N 13/02~~ **NH04N13/02N**.

- H04N 13/0289 . . . {details relating to the switching between said modes}

WARNING

this group is not complete, pending a reorganization. Documents classified before 6/10/2011 which, in the present scheme, should be classified in this group can be found in ~~H04N 13/02~~ **NH04N13/02N**.

U H04N 13/04

- . Picture reproducers{(optical systems for producing stereoscopic or other three dimensional effects [G02B 27/22](#))}

- H04N 13/0452 . . {having a monoscopic mode and a separate stereoscopic mode}

WARNING

this group is not complete, pending a reorganization. Documents classified before 6/10/2011 which, in the present scheme, should be classified in this group are provisionally classified in ~~H04N 13/04~~ **NH04N13/04N**.

- H04N 13/0454 . . . {details of mode switching}

WARNING

this group is not complete, pending a reorganization. Documents classified before 6/10/2011 which, in the present scheme, should be classified in this group are provisionally classified in ~~H04N 13/04~~ **NH04N13/04N**.

- H04N 2013/0461 . . {Privacy aspects, i.e. devices showing different images to different viewers, the images not being viewpoints of the same scene(not used, see subgroups)}

- H04N 2013/0463 . . . {the images being monoscopic}

- H04N 2013/0465 . . . {the images being stereoscopic or three dimensional}

U H04N 17/00**Diagnosis, testing or measuring for television systems or their details**

- H04N 2017/006 . {for television sound}

H04N 2017/008

• {for television teletext}

U H04N 21/00

Selective content distribution, e.g. interactive television, VOD [Video On Demand](broadcast communication [H04H](#) ; arrangements, apparatus, circuits or systems for communication control or processing being characterised by a protocol [H04L 29/06](#) ; { broadcast or conference over packet-switching networks [H04L 12/18](#) , } real-time bi-directional transmission of motion video data [H04N 7/14](#))

NOTES

1. This group covers : • interactive video distribution processes, systems, or elements thereof, which are characterised by point-to-multipoint system configurations, and which are mainly used for motion video data unidirectional distribution or delivery resulting from interactions between systems operators, e.g. access or service providers, or users e.g. subscribers, and system elements. • such systems include dedicated communication systems, such as television distribution systems, which primarily distribute or deliver motion video data in the manner indicated, which may, in addition, provide a framework for further, diverse data communications or services in either unidirectional or bi-directional form. However, video will occupy most of the downlink bandwidth in the distribution process. • typically, system operators interface with transmitter-side elements or users' interface with receiver-side elements in order to facilitate, through interaction with such elements, the dynamic control of data processing or data flow at various points in the system. This interaction is typically occasional or intermittent in nature. • processes, systems or elements thereof specially adapted to the generation, distribution and processing of data, which is either associated with video content, e.g. metadata, ratings, or related to the user or his environment and which has been actively or passively gathered. This data is either used to facilitate interaction or to alter or target the content. 2. In this main group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place 3. In this main group, the following terms and expressions are used with the meaning indicated:

additional data - designates still pictures, textual, graphical or executable data such as software. It is used to convey supplemental information and can be generated prior to or during the distribution process itself, e.g. metadata, keys. content designates video or audio streams, which may be combined with additional data. Video data will always be present and occupy most of the downlink bandwidth in the distribution process

server - designates an apparatus designed for adapting the content received from the content provider to the distribution network. It also manages the distribution to client devices or intermediate components over a network. Further servers may also be present for gathering or generating additional data, e.g. rights management server

additional data server - designates a server, which sole purpose is the distribution or management of additional data. It is not in charge of the distribution of video or audio data

client - designates an apparatus such as a TV receiver, a set-top-box, a PC-TV, a mobile appliance (e.g. mobile phone or receiver in a vehicle), for receiving video, audio and possibly additional data from one or several servers or intermediate components via a network for further processing, storing or displaying. It can also transmit this data on a home-based local network to further devices, e.g. a home server transmitting video to PCs and set-top-boxes within a home.

local network - pertains to a restricted area, e.g. a home or a vehicle, and designates the link between a client and its peripheral devices

network - is to be distinguished from "local network": "network" designates the link between the server and the clients, or between the server and the

intermediate components, or between the intermediate components and the clients, or between remotely located clients
distribution - encompasses broadcasting, multicasting and unicasting techniques for transmitting content from one or more sources to one or more receiving stations. The distribution follows a request by a receiving station to the source, e.g. VOD or from a customization of the content by the source, e.g. targeting advertisements to a demographic group in a unidirectional or bidirectional system. Additionally, distribution encompasses techniques where the client acts as a source and another client acts as a receiving station, e.g. a peer-to-peer system for sharing video among client devices

end-user - designates a physical person, e.g. a TV viewer, who consumes the content using the client device. He is the final recipient of the content distributed by the server

interaction - covers actions occurring between or among two or more objects that have an effect upon one another, wherein objects comprise users, system operators, system elements, or content. The user may interact with content locally at the client device, e.g. for requesting additional data stored within the client device. The user may interact with content remotely through a server e.g. for VOD playback control or for uploading video to a server. The client device may interact with the content e.g. selecting content based upon the user profile. The client device may interact with a server using a return channel, e.g. for authenticating client or uploading client hardware capabilities. The server may interact with a client device, e.g. to force a client to tune to an advertisement channel

upstream - designates the direction of data flow towards the source, e.g. a server receiving a request via a mobile phone network

downstream - designates the direction of data flow towards a client, e.g. a client receiving data originating from a server elementary stream An elementary stream (ES) as defined by the MPEG system layer designates the output of an audio or video encoder

- U H04N 21/20
 - {Servers specifically adapted for the distribution of content, e.g. VOD servers; Operations thereof}
- U H04N 21/21
 - • {Server components or server architectures}
- H04N 21/218
 - • • [Source of audio or video content, e.g. local disk arrays(details of retrieval in video databases [G06F17/30M5](#) [G06F 17/30843](#))]
- U H04N 21/222
 - • • {Secondary servers, e.g. proxy server, cable television head-end(intermediate processing or storage in data networks [H04L 29/08702](#))}
- H04N 2021/225
 - • • • {local VOD servers}
- U H04N 21/23
 - • {Processing of content or additional data; Elementary server operations; Server middleware}
- U H04N 21/231
 - • • {Content storage operation, e.g. caching movies for short term storage, replicating data over plural servers, prioritizing data for deletion}
- H04N 21/23109
 - • • • {by placing content in organized collections, e.g. EPG data repository(details of retrieval of video data and associated meta data in video databases [G06F17/30M5](#) [G06F 17/30843](#))}
- H04N 21/232
 - • • {Content retrieval operation{locally}within server, e.g. reading video streams from disk arrays(storage management [G06F 3/0604](#) ; details of querying and searching of video data from a database [G06F17/30M5](#) [G06F 17/30843](#))}
- U H04N 21/25
 - • {Management operations performed by the server for facilitating the content distribution or administrating data related to end-users or client devices, e.g. end-user or client device authentication, learning user preferences for recommending movies(maintenance or administration in data networks [H04L 12/24](#))}

- | | | |
|---|---------------|---|
| | H04N 21/251 | <ul style="list-style-type: none"> • • {Learning process for intelligent management, e.g. learning user preferences for recommending movies(details of learning user preferences for the retrieval of video data in a video database G06F17/30M5 G06F 17/30843 ; computer systems using learning methods G06N 3/08)} |
| U | H04N 21/258 | <ul style="list-style-type: none"> • • {Client or end-user data management, e.g. managing client capabilities, user preferences or demographics, processing of multiple end-users preferences to derive collaborative data(arrangements for services using the result on the distributing side of broadcast systems H04H 60/66 ; data switching network applications involving user or terminal profiles H04L 29/08918)} |
| U | H04N 21/25866 | <ul style="list-style-type: none"> • • • {Management of end-user data(customer care in data networks H04L 12/249)} |
| | H04N 21/25891 | <ul style="list-style-type: none"> • • • • {being end-user preferences(retrieval of video data in a video database based on user preferences G06F17/30M5 G06F 17/30843 ; arrangements for recognizing users' preferences H04H 60/46 ; protocols involving user profiles for network applications in communication control or processing H04L 29/08936 ; processing of user preferences or user profiles in wireless networks H04W 8/18)} |
| U | H04N 21/27 | <ul style="list-style-type: none"> • • {Server based end-user applications} |
| | H04N 21/278 | <ul style="list-style-type: none"> • • {Content descriptor database or directory service for end-user access(details of content or meta data based information retrieval of video data in video databases G06F17/30M5 G06F 17/30843)} |
| U | H04N 21/40 | <ul style="list-style-type: none"> • {Client devices specifically adapted for the reception of or interaction with content, e.g. set-top-box [STB]; Operations thereof(arrangements for distribution where lower stations, e.g. receivers, interact with the broadcast H04H 20/38 ; arrangements specially adapted for receiving broadcast information H04H 40/00)} |
| U | H04N 21/43 | <ul style="list-style-type: none"> • {Processing of content or additional data, e.g. demultiplexing additional data from a digital video stream; Elementary client operations, e.g. monitoring of home network, synchronizing decoder's clock; Client middleware(demultiplexing of data packets for data networks, e.g. RTP/UDP H04L 29/06176)} |
| | H04N 21/432 | <ul style="list-style-type: none"> • • {Content retrieval operation from a local storage medium, e.g. hard-disk(details of retrieval of video data and associated meta data in video databases G06F17/30M5 G06F 17/30843)} |
| U | H04N 21/433 | <ul style="list-style-type: none"> • • {Content storage operation, e.g. storage operation in response to a pause request, caching operations} |
| | H04N 21/4332 | <ul style="list-style-type: none"> • • • {by placing content in organized collections, e.g. local EPG data repository(interfaces, Database management systems or updating for information retrieval G06F 17/30002 ; details of retrieval of video data and associated meta data in video database G06F17/30M5 G06F 17/30843)} |
| | H04N 21/442 | <ul style="list-style-type: none"> • • {Monitoring of processes or resources, e.g. detecting the failure of a recording device, monitoring the downstream bandwidth, the number of times a movie has been viewed, the storage space available from the internal hard disk(arrangements for monitoring broadcast services or broadcast-related services H04H 60/29 ; arrangements for identifying or recognising characteristics with a direct linkage to broadcast information H04H 60/35 ; monitoring of user activities for profile generation for accessing a video database G06F17/30M5 G06F 17/30843 ; monitoring in wireless networks H04W 24/00)} |

- H04N 21/44204
 - • • {Monitoring of content usage, e.g. the number of times a movie has been viewed, copied or the amount which has been watched(monitoring of user activities for profile generation for accessing a video database **G06F17/30M5**[G06F 17/30843](#) ; Protecting generic digital content where the protection is independent of the precise nature of the content [G06F 21/10](#) ; arrangements for monitoring the use made of the broadcast services in broadcast systems [H04H 60/31](#))}
- U H04N 21/44213
 - • • {Monitoring of end-user related data(arrangements for monitoring the users' behaviour or opinions in broadcast systems [H04H 60/33](#))}
- H04N 21/44222
 - • • • {Monitoring of user selections, e.g. selection of programs, purchase activity(monitoring of user selections in data processing systems [G06F 11/34](#) ; monitoring of user activities for profile generation for accessing a video database **G06F17/30M5**[G06F 17/30843](#) ; tracking the activity of the end-user [H04L 29/08675](#) ; arrangements for monitoring the user's behaviour or opinions in broadcast systems [H04H 60/33](#))}
- U H04N 21/45
 - • {Management operations performed by the client for facilitating the reception of or the interaction with the content or administrating data related to the end-user or to the client device itself, e.g. learning user preferences for recommending movies, resolving scheduling conflicts}
- U H04N 21/4508
 - • • {Management of client or end-user data}
- H04N 21/4532
 - • • • {involving end-user characteristics, e.g. viewer profile, preferences(monitoring of user activities for profile generation for accessing a video database **G06F17/30M5**[G06F 17/30843](#) ; protocols involving user profiles for network applications in communication control or processing [H04L 29/08936](#) ; processing of user preferences or user profiles in wireless networks [H04W 8/18](#))}
- H04N 21/466
 - • • {Learning process for intelligent management, e.g. learning user preferences for recommending movies(monitoring of user activities for profile generation for accessing a video database **G06F17/30M5**[G06F 17/30843](#) ; computer systems using learning methods [G06N 3/08](#) ; services using the results of monitoring in broadcast systems [H04H 60/61](#))}
- U H04N 21/47
 - • {End-user applications(interaction techniques for graphical user interfaces [G06F 3/048](#) ; receiver circuitry for displaying additional information [H04N 5/445](#) ; software engineering for user interfaces [G06F 8/20](#) ; services or applications for real-time multimedia communications [H04L 29/06387](#))}
- H04N 21/472
 - • • {End-user interface for requesting content, additional data or services; End-user interface for interacting with content, e.g. for content reservation or setting reminders, for requesting event notification, for manipulating displayed content(end-user interfaces for retrieving video data from a database **G06F17/30M5**[G06F 17/30843](#) ; content on demand in one way streaming for real-time multimedia communications [H04L 29/06462](#))}
- H04N 21/47211
 - • • • {for requesting pay-per-view content(~~payment schemes~~ ~~payment architectures or payment protocols~~ **G06Q20**, **G07F** ~~payment schemes~~ ~~payment architectures or payment protocols~~ [G06Q 20/00](#), [G07F](#))}
- U H04N 21/475
 - • • {End-user interface for inputting end-user data, e.g. personal identification number [PIN], preference data]
- H04N 21/4755
 - • • • {for defining user preferences, e.g. favourite actors or genre(retrieval personalisation and generation of user profiles for the retrieval of video data **G06F17/30M5**[G06F 17/30843](#) ; Data switching network applications using user profiles [H04L 29/08936](#))}
- U H04N 21/482
 - • • {End-user interface for program selection(systems specially adapted for using EPGs in broadcast systems [H04H 60/72](#))}

- H04N 21/4828 . . . {for searching program descriptors(retrieval of video data **G06F17/30M5**
G06F 17/30843)}
- U H04N 21/80 . {Generation or processing of content or additional data by content creator
independently of the distribution process; Content per se(arrangements for
generating broadcast information [H04H 60/02](#))}
- U H04N 21/85 . {Assembly of content; Generation of multimedia applications}
- U H04N 21/854 . . {Content Authoring}
- H04N 21/8549 . . . {Creating video summaries, e.g. movie trailer(retrieval in video databases
by using presentations in form of a video summary **G06F17/30M5**
G06F 17/30843)}
- U H04N 2201/00 Indexing scheme relating to scanning, transmission or reproduction of
documents or the like, and to details thereof**
- U H04N 2201/024 . deleted
- H04N 2201/02402 . . Arrangements for positioning heads, e.g. with respect to other elements of the
apparatus
- NOTE**
Subgroups [H04N 2201/02402](#) to [H04N 2201/02404](#) and [H04N 2201/02487](#)
to [H04N 2201/02497](#) are for use with subgroups [H04N 1/024](#) to **H04N 1/031E**
E H04N1/031E

Project: N/A (H04Q)

- H04Q SELECTING (switches, relays, selectors [H01H](#); electronic switches
[H03K 17/00](#))**
- NOTES**
This subclass covers:
- methods, circuits, or apparatus for establishing selectively
a connection between a desired number of stations (normally
two), or between a main station and a desired number of
substations (normally one) for the purpose of transferring
information via this connection after it has been established;
- selective calling arrangements over connections already
established.
In either case, the connection may be made by means of electric conductors or
electromagnetic waves.
In this subclass, the following terms or expressions are used with the meanings
indicated:
- "subscriber" is a general term for terminal equipment, e.g.
telephone for public use; - "substation" means a subscriber or
monitoring equipment which may connect a single subscriber to a
line without choice as to subscriber; - "satellite" is a kind
of exchange the operation of which depends upon control signals
received from a supervisory exchange; - "switching centres"
includes exchanges and satellites.
- U H04Q 1/00 Details of selecting apparatus or arrangements { for establishing
connections among stations for the purpose of transferring information via
these connections}**
- U H04Q 1/02 . Constructional details
- H04Q 1/028 . {Subscriber network interface devices (line interfacing in the subscriber set
H04M1/00L**H04M 1/0293**)}
- U H04Q 11/00 Selecting arrangements for multiplex systems (multiplex systems [H04J](#))**
- U H04Q 11/0001 . {using optical switching}

- U H04Q 11/0005 . . {Switch and router aspects}
- H04Q 2011/0007 . . . ~~Construction~~ {Construction }
- H04Q 2011/0009 {using wavelength filters }
- H04Q 2011/0011 {using wavelength conversion }
- H04Q 2011/0013 {using gating amplifiers }
- H04Q 2011/0015 {using splitting combining }
- H04Q 2011/0016 {using wavelength multiplexing or demultiplexing }
- H04Q 2011/0018 {using tunable transmitters or receivers }
- H04Q 2011/002 {using optical delay lines or optical buffers or optical recirculation }
- H04Q 2011/0022 {using fibre gratings }
- H04Q 2011/0024 {using space switching }
- H04Q 2011/0026 {using free space propagation (e.g. lenses, mirrors)}
- H04Q 2011/0028 {using holograms }
- H04Q 2011/003 {using switches based on micro-electro-mechanical systems (MEMS) }
- H04Q 2011/0032 {using static wavelength routers (e.g. arrayed waveguide grating router (AWGR))}
- H04Q 2011/0033 {using time division switching }
- H04Q 2011/0035 {using miscellaneous components, e.g. circulator, polarisation, acousto/thermo optical }
- H04Q 2011/0037 . . . ~~Operation~~ {Operation }
- H04Q 2011/0039 {Electrical control }
- H04Q 2011/0041 {Optical control }
- H04Q 2011/0043 {Fault tolerance }
- H04Q 2011/0045 ~~Synchronisation~~ {Synchronisation }
- H04Q 2011/0047 {Broadcast; Multicast }
- H04Q 2011/0049 {Crosstalk reduction; Noise; Power budget }
- H04Q 2011/005 {Arbitration and scheduling }
- H04Q 2011/0052 {Interconnection of switches }
- H04Q 2011/0054 {Distribute-route }
- H04Q 2011/0056 ~~Clos~~ {Clos }
- H04Q 2011/0058 {Crossbar; Matrix }
- H04Q 2011/006 {Full mesh }
- U H04Q 11/0062 . . {Network aspects}
- H04Q 2011/0064 . . . {Arbitration, scheduling or medium access control aspects }
- H04Q 2011/0069 . . . {using dedicated optical channels }
- H04Q 2011/0073 . . . {Provisions for forwarding or routing, e.g. lookup tables }
- H04Q 2011/0075 . . . {Wavelength grouping or hierarchical aspects }
- H04Q 2011/0077 . . . {Labelling aspects, e.g. multiprotocol label switching (MPLS), G-MPLS, MPAS }
- H04Q 2011/0079 . . . {Operation or maintenance aspects }
- H04Q 2011/0081 {Fault tolerance; Redundancy; Recovery; Reconfigurability }
- H04Q 2011/0083 {Testing; Monitoring }
- H04Q 2011/0084 . . . {Quality of service aspects }
- H04Q 2011/0086 . . . {Network resource allocation, dimensioning or optimisation }
- H04Q 2011/0088 . . . {Signalling aspects }

- H04Q 2011/009 . . . {Topology aspects }
- H04Q 2011/0092 Ring {Ring }
- H04Q 2011/0094 Star {Star }
- H04Q 2011/0096 Tree {Tree }
- H04Q 2011/0098 Mesh {Mesh }

Project: N/A (H04R)

- U H04R 1/00 Details of transducers,{loudspeakers or microphones}**
- U H04R 1/20 . Arrangements for obtaining desired frequency or directional characteristics(for stereophonic purpose [H04R 5/00](#))**
- H04R 1/22 . . for obtaining desired frequency characteristic only(circuit for combining transducers having different responses [H04R 3/00](#) { for hearing aids [H04R25/00F](#)[H04R 25/407](#) })**
- U H04R 25/00 Deaf-aid sets{providing an auditory perception; Electric tinnitus maskers providing an auditory perception}{ constructions of transducers per se [H04R 9/00](#) to [H04R 23/00](#) ; { non-electric hearing aids [A61F 11/008](#) ; replacing direct auditory perception by another kind of perception [A61F 11/04](#) ; electrical stimulation of auditory nerves to promote the auditory function [A61N 1/36032](#) } ; structural combination with spectacle frames [G02C 11/06](#) ; processing of speech signals [G10L 21/00](#))**
- NOTE**
Classification should be directed to groups [H04R 25/02](#) , [H04R 25/04](#) or [H04R 25/50](#) and its subgroups, if and only if the technical subject in consideration cannot be classified elsewhere under the main group [H04R 25/00](#)
- WARNING**
Groups [H04R 25/30](#) to [H04R 25/75](#) do not correspond to former or current IPC groups.
- U H04R 25/65 . {Housing parts, e.g. shells, tips or moulds, or their manufacture}**
- U H04R 25/652 . . {Ear tips; Ear moulds}**
- H04R 25/656 . . . {Non-customized, universal ear tips, i.e. ear tips which are not specifically adapted to the size or shape of the ear or ear canal}**
- WARNING**
Not complete pending a reorganization, see also [H04R-25/65](#)
[BH04R25/65B](#)

Project: N/A (H04T)**H04T****INDEXING SCHEME RELATING TO STANDARDS FOR ELECTRIC COMMUNICATION TECHNIQUE(CLASS [H04](#))****NOTES**

This scheme constitutes an non-associated internal scheme for indexing exclusively documents issued by standardisation bodies (herein called standards) for electric communication technique (H04).

As standardisation bodies organize their documents in different ways, the present scheme is subdivided into main groups related to a particular CPC range to allow different indexing approaches.

Scheme index:

Wireless communication standards [H04T 2001/00](#) -
[T04T1/999](#)[H04T 2001/999](#)
Standards related to data switching

| | | | |
|---|------------------------------|---|----------------------|
| networks in general | H04T 2012/00 | - | |
| T04T12/99 H04T 2012/99 | | | |
| Internet standards | H04T 2029/00 | - | T04T29/99 |
| H04T 2029/99 | | | |

H04T 2001/00

Standards for wireless communication networks

NOTE

The indexing codes of this scheme are to be used mainly with classification in CPC subgroups [H04W](#) , ~~H04L12/56B~~ , [H04Q 7/20](#) to [H04Q 7/3883](#) .

In order to keep the structure adopted by the standardisation bodies considered, a matrix type of scheme is used as indicated below:

- [H04T 2001/101](#) to ~~T04T1/199~~[H04T 2001/199](#)

codes are used for information relating to the physical aspects,

e.g. radio resources, core network resources...

- [H04T 2001/201](#) to ~~T04T1/299~~

[H04T 2001/299](#) codes are used for information relating to functional aspects, e.g.

physical layer, traffic/transport...

For complete indexing it is mandatory to allocate at least one and preferably only one combination of ~~T04T1/1**~~[H04T 2001/100](#) and ~~T04T1/2**~~[H04T 2001/200](#) codes to a document.

Searching in this scheme is done by combining the above indicated codes, i.e.

~~T04T1/1**~~[H04T 2001/100](#) and ~~T04T1/2**~~[H04T 2001/200](#)

U H04T 2029/00

Standards related to data transmission protocols not covered by any of the codes [H04T 2001/00](#) to [H04T 2012/00](#)

H04T 2029/06

• Internet Standards

NOTE

The indexing codes of this scheme are to be used mainly with classification in subgroups [H04L 29/06](#) to ~~H04L 29/06 R~~~~H04L29/06R~~. In this scheme [H04T 2029/06](#) codes are mapped whenever possible or appropriate to the corresponding entries and have the same meaning

Project: N/A (H04W)

U H04W 4/00

{Mobile application}services or facilities specially adapted for wireless communication networks{(network arrangements or communication protocols for networked applications [H04L 67/00](#) ; network arrangements or protocols for real-time communications [H04L 65/00](#) ; network arrangements or network protocols for addressing or naming [H04L 61/00](#) ; application independent communication protocol aspects and techniques in packet data networks [H04L 69/00](#) ; network architectures or network communication protocols for network security [H04L 63/00](#) ; wireless network security [H04W 12/00](#) ; message switching systems [H04L 12/58](#) ; arrangements for broadcast or conference [H04L 12/18](#) ; telephonic communication, substation extension arrangements, cordless telephones, portable communication terminals with improved user interface to control a main telephone operation mode or to indicate the communication status [H04M 1/72522](#) ; automatic or semi-automatic exchanges for telephonic communication - systems providing special services or facilities to subscribers [H04M 3/42](#))}

NOTE

1. This groups covers mobile application services or application service signalling for communication over wireless networks. 2. This group focuses on application

services specially adapted for wireless networks or adjusted to the wireless environment

- H04W 4/06
 - Selective distribution or broadcast{application services; Mobile application}services to user groups; One-way selective calling services{(connection management for selective distribution or broadcast ~~H04W76/08~~[H04W 76/002](#) ; resource management for broadcast services ~~H04W72/01~~[H04W 72/005](#))}
- H04W 4/10
 - • Push-to-Talk{mobile application services}or Push-on-Call{mobile application}services{(arrangements for real-time multimedia Push-to-X-Services [H04L 65/4061](#) ; connection management for Push-to-Talk or Push-on-Call services ~~H04W76/08A~~[H04W 76/005](#))}
- U H04W 4/20
 - {Signalling of application services or}auxiliary data signalling, i.e. transmitting data via a non-traffic channel
- H04W 4/206
 - • {for socializing or targeting users of the same wireless application service, e.g. joint gesture signalling or mobile advertising signalling(marketing ~~G06Q30/00A~~[G06Q 30/02](#) ; input arrangements for transferring data to be processed into a form capable of being handled by the computer for entering handwritten data [G06F 3/04883](#))}
- H04W 4/22
 - {Mobile application service}emergency connection handling{or mobile application services handling urgent or hazardous situations, e.g. 3GPP earthquake and tsunami warning system [ETWS](connection management for emergency connection handling ~~H04W76/10~~[H04W 76/007](#) ; centralised arrangements for answering calls for emergency applications requiring operator intervention [H04M 3/5116](#))}

Project: N/A (H05B)

- U H05B 3/00 **Ohmic-resistance heating**
- U H05B 3/10
 - Heater elements characterised by the composition or nature of the materials or by the arrangement of the conductor (compositions per se see the relevant subclasses)
- U H05B 3/12
 - • characterised by the composition or nature of the conductive material {electric conductive compositions characterised by PTC or NTC resistance, per se [H01C 7/02](#), [H01C 7/04](#)}
- U H05B 3/14
 - • • the material being non-metallic {(non-metallic, non-adjustable resistors [H01C 7/022](#), [H01C 7/042](#))}
- U H05B 3/141
 - • • • {Conductive ceramics, e.g. metal oxides, metal carbides, barium titanate, ferrites, zirconia, vitrous compounds}
- H05B 3/143
 - • • • • {applied to semi conductors, e.g. wafers heating (apparatus for thermal treatment of semiconductor or solid-state devices or of parts thereof ~~H01L21/00S2H~~[H01L 21/67098](#))}
- U H05B 3/84
 - Heating arrangements specially adapted for transparent or reflecting areas, e.g. for demisting or de-icing windows, mirrors or vehicle windshields
- H05B 3/86
 - • the heating conductors being embedded in the transparent or reflecting material {(~~H05B3/84C~~, [H05B 3/845](#), ~~H05B3/84P~~ [take](#)[takes](#) precedence)}
- U H05B 6/00 **Heating by electric, magnetic, or electromagnetic fields (for therapeutic purposes [A61N 5/00](#); joining of preformed parts by heating of plastics or substances in a plastic state [B29C 65/02](#))**
- U H05B 6/64
 - Heating using microwaves {(containers, packaging elements or packages specially adapted to be heated by microwaves [B65D 81/3446](#))}
- U H05B 6/80
 - • Apparatus for specific applications (stoves or ranges [F24C 7/02](#))
- H05B 6/802
 - • • { for heating fluids (methods of heating fluids in conventional microwave ovens ~~H05B6/66M~~[H05B 6/687](#))}

- U H05B 41/00** Circuit arrangements or apparatus for igniting or operating discharge lamps {(circuit elements structurally associated with discharge lamps [H01J 7/44](#), [H01J 19/78](#); discharge lamps per se [H01J 61/00](#) to [H01J 65/00](#); arc lamps with consumable electrodes [H05B 31/00](#); transformers or chokes for supplying discharge lamps [H01F 38/08](#))}
- U H05B 41/14 . Circuit arrangements
- H05B 41/16 . . in which the lamp is fed by dc or by low-frequency ac, e.g. by 50 cycles/sec ac, { or with network frequencies} ~~(H01J41/26 takes precedence)~~

Project: N/A (H05H)

- U H05H 1/00** **Generating plasma; Handling plasma**
- U H05H 1/0006 . {Investigating plasma, e.g. degree of ionisation (electron temperature)}
- U H05H 1/0012 . . {by using radiation}
- H05H 1/0062 . . . {by using microwaves (see [G01N23/34](#) [G01N 23/223](#))}
- U H05H 1/24 . Generating plasma {(gas-filled discharge reactors [H01J 37/32](#); nuclear fusion reactors [G21B 1/00](#); ohmic heating [H05H 1/20](#); injection heating [H05H 1/22](#))}
- U H05H 1/2406 . . { Dielectric barrier discharges}
- H05H 2001/2412 . . . {the dielectric being interposed between the electrodes }
- H05H 2001/2418 . . . {the electrodes being embedded in the dielectric }
- H05H 2001/2425 . . . {the electrodes being flush with the dielectric }
- H05H 2001/2431 . . . {Cylindrical electrodes }
- H05H 2001/2437 . . . {Multilayer systems }
- H05H 2001/2443 . . . {Flow through, i.e. the plasma fluid flowing in a dielectric tube }
- H05H 2001/245 {Internal electrodes }
- H05H 2001/2456 {External electrodes }
- H05H 2001/2462 {Ring electrodes }
- H05H 2001/2468 {Spiral electrodes }
- U H05H 1/2475 . . { Acoustic pressure discharge}
- H05H 2001/2481 . . . {Piezoelectric actuators }
- H05H 2001/2487 . . . {Mechanical actuators }
- H05H 2001/2493 . . . ~~Horns~~ {Horns }
- U H05H 1/26 . . Plasma torches {(metal working with constricted arc [B23K 10/00](#), [H05H10/02](#); metal spraying [B05B 7/18](#), [B05B 7/20](#))}
- U H05H 1/32 . . . using an arc ([H05H 1/28](#) takes precedence)
- U H05H 1/34 Details, e.g. electrodes, nozzles {cf. [B23K 9/24](#)}
- H05H 2001/3415 {indexing scheme associated with [H05H 1/34](#)}
- H05H 2001/3421 {transferred arc mode}
- H05H 2001/3426 {pilot arc}
- H05H 2001/3431 {coaxial cylindrical electrodes}
- H05H 2001/3436 {hollow cathode with internal coolant flow }
- H05H 2001/3442 {cathode with inserted tip}
- H05H 2001/3447 {rod-like cathode }
- H05H 2001/3452 {supplementary electrodes between cathode and anode, e.g. cascade }
- H05H 2001/3457 {nozzle protection devices}
- H05H 2001/3463 {oblique nozzle}

- H05H 2001/3468 {vortex generator}
- H05H 2001/3473 {safety means}
- H05H 2001/3478 {geometrical details}
- H05H 2001/3484 {convergent/divergent nozzle}
- H05H 2001/3489 {contact starting}
- H05H 2001/3494 {discharge parameter control }
- H05H 1/40 using applied magnetic fields, e.g. for focusing or rotating the arc {cf. [B23K 9/08](#), [B23K9/06C5](#) [B23K 9/073](#)}
- U H05H 1/46 . . using applied electromagnetic fields, e.g. high frequency or microwave energy ([H05H 1/26](#) takes precedence)
 - H05H 2001/4607 . . . {Microwave discharges }
 - H05H 2001/4615 . . . {Surface waves }
 - H05H 2001/4622 . . . ~~Waveguides~~ {Waveguides }
 - H05H 2001/463 . . . {Antennas or applicators }
 - H05H 2001/4637 . . . ~~Cables~~ {Cables }
 - H05H 2001/4645 . . . {Radiofrequency discharges }
 - H05H 2001/4652 . . . {Inductively coupled }
 - H05H 2001/466 ~~Electrodes~~ {Electrodes }
 - H05H 2001/4667 {Coiled antennas }
 - H05H 2001/4675 . . . {Capacitively coupled }
 - H05H 2001/4682 . . . {Associated power generators, e. G. Circuits, matching networks }
 - H05H 2001/469 . . . {Flow through, i.e the plasma fluid flowing in a non-dielectric vessel }
 - H05H 2001/4692 . . . {dielectric barrier discharge ([H05H 1/2406](#) takes precedence)}
 - H05H 2001/4695 . . . {Arc discharge }
 - H05H 2001/4697 . . . {Glow discharge }
- U H05H 1/48 . . using an arc ([H05H 1/26](#) takes precedence)
 - H05H 2001/481 . . . {Corona discharges }
 - H05H 2001/483 . . . {Pointed electrodes }
 - H05H 2001/485 . . . {Cylindrical electrodes, e.g. Rotary drums electrodes }
 - H05H 2001/486 . . . {Filamentary electrodes }
 - H05H 2001/488 . . . {Segmented electrodes }
- U H05H 6/00 **Targets for producing nuclear reactions (supports for targets or objects to be irradiated [G21K 5/08](#){preparation of tritium [C01B 4/00](#)}; {targets, e.g. pellets for fusion reactions by laser or charged particles beam injection [H05H 1/22](#)}**
 - H05H 2006/002 . ~~Windows~~ {Windows }
 - H05H 2006/007 . {Radiation protection arrangements , e.g. screens }
- U H05H 7/00 **Details of devices of the types covered by groups [H05H 9/00](#), [H05H 11/00](#), [H05H 13/00](#)**
- U H05H 7/001 . { Arrangements for beam delivery or irradiation (irradiation systems per se [G21K 5/00](#))}
 - H05H 2007/002 . . {for modifying beam trajectory , e.g. gantries }
 - H05H 2007/004 . . {for modifying beam energy, e.g. spread out Bragg peak devices }
 - H05H 2007/005 . . {for modifying beam emittance , e.g. stochastic cooling devices, stripper foils }
 - H05H 2007/007 . . {for focusing the beam to irradiation target }

- H05H 2007/008
 - • {for measuring beam parameters }
- U H05H 7/02
 - Circuits or systems for supplying or feeding radio-frequency energy (radio-frequency generators [H03B](#))
- H05H 2007/022
 - • {Pulsed systems }
- H05H 2007/025
 - • {Radiofrequency systems }
- H05H 2007/027
 - • {Microwave systems }
- U H05H 7/04
 - Magnet systems {e.g. undulators, wigglers (free-electron laser [H01S 3/0903](#))}; Energisation thereof
- H05H 2007/041
 - • {for beam bunching , e.g. undulators }
- H05H 2007/043
 - • {for beam focusing }
- H05H 2007/045
 - • {for beam bending }
- H05H 2007/046
 - • {for beam deflection }
- H05H 2007/048
 - • {for modifying beam trajectory , e.g. gantry systems }
- U H05H 7/06
 - Two-beam arrangements; Multi-beam arrangements {storage rings}; Electron rings
- H05H 2007/065
 - • {Multi-beam merging , e.g. funneling }
- U H05H 7/08
 - Arrangements for injecting particles into orbits
- H05H 2007/081
 - • ~~Sources~~ {Sources }
- H05H 2007/082
 - • • {Ion sources, e.g. ECR, duoplasmatron, PIG, laser sources }
- H05H 2007/084
 - • • {Electron sources }
- H05H 2007/085
 - • {by electrostatic means }
- H05H 2007/087
 - • {by magnetic means }
- H05H 2007/088
 - • {by mechanical means, e.g. stripping foils }
- U H05H 7/12
 - Arrangements for varying final energy of beam
- H05H 2007/122
 - • {by electromagnetic means , e.g. RF cavities }
- H05H 2007/125
 - • {by mechanical means , e.g. stripping foils }
- H05H 2007/127
 - • {by emittance variation , e.g. stochastic cooling }
- U H05H 7/22
 - Details of linear accelerators, e.g. drift tubes ([H05H 7/02](#) to [H05H 7/20](#) take precedence)
- H05H 2007/222
 - • {drift tubes }
- H05H 2007/225
 - • {coupled cavities arrangements }
- H05H 2007/227
 - • {power coupling , e.g. coupling loops }

Project: N/A (H05K)

- U H05K 1/00
 - Printed circuits(assemblies of a plurality of individual semiconductor or solid state devices [H01L 25/00](#) ; devices consisting of a plurality of solid state components formed in or on a common substrate, e.g. integrated circuits, thin-film or thick-film circuits, [H01L 27/00](#))
- U H05K 1/02
 - Details
- U H05K 1/0213
 - • {Electrical arrangements not otherwise provided for(screening [H05K 9/00](#) ; emergency protective circuits [H02H](#))}
- H05K 1/0263
 - • • {High current adaptations, e.g. printed high current conductors or using auxiliary non-printed means; Fine and coarse circuit patterns on one circuit board([H05K 1/0293](#) takes precedence)(~~H05K1/00E6 takes precedence~~)}

| | | |
|----------|------------------|--|
| U | H05K 3/00 | Apparatus or processes for manufacturing printed circuits(photomechanical production of textured or patterned surfaces, materials or originals therefor, apparatus specially adapted therefor, in general G03F ; involving the manufacture of semiconductor devices H01L) |
| U | H05K 3/40 | • Forming printed elements for providing electric connections to or between printed circuits |
| U | H05K 3/4007 | • {Surface contacts, e.g. bumps(H05K 3/4092 takes precedence; deposition of finish layers on pads H05K 3/24 ; forming solder bumps H05K 3/3457)} |
| | H05K 2003/4023 | • • • {combined with holes through the substrate} |
| U | H05K 7/00 | Constructional details common to different types of electric apparatus(casings, cabinets, drawers H05K 5/00) |
| U | H05K 7/20 | • Modifications to facilitate cooling, ventilating, or heating{(of printed circuits H05K 1/0201 ; of resistors H01C ; of capacitors H01G ; of individual semiconductor components H01L 23/34 , H01L 31/024 ; of LEDs H01L 33/64 ; of personal computers G06F 1/20)} |
| U | H05K 7/20009 | • {using a gaseous coolant in electronic enclosures(in cabinets of standardized dimensions H05K 7/20536 ; in server cabinets H05K 7/20709 ; in vehicle electronic casings H05K 7/20845 ; in power control electronics H05K 7/2089 ; in displays H05K 7/20954)} |
| | H05K 2007/20018 | • • • {with forced ventilation, e.g. by fans} |
| | H05K 2007/20027 | • • • • {in enclosures} |
| | H05K 2007/20036 | • • • • {in cabinets or racks} |
| | H05K 2007/20045 | • • • • • {Drawers for fans} |
| | H05K 2007/20054 | • • • • • {with directed air flow, e.g. ducts, plenums} |
| | H05K 2007/20063 | • • • • • • {divided into a plurality of air streams} |
| | H05K 2007/20072 | • • • • {directly onto components; Baffles} |
| | H05K 2007/20081 | • • • • {in combination with heat sinks} |
| | H05K 2007/2009 | • • • • {Fan mounting or specification; Filters} |
| | H05K 2007/201 | • • • • {Fail safe systems, e.g. for non stop cooling} |
| | H05K 2007/20109 | • • • • {Control circuits therefor} |
| | H05K 2007/20118 | • • • {using an internal cooling separated from the external cooling, e.g. with heat-exchange} |
| U | H05K 7/20218 | • {using a liquid coolant without phase change in electronic enclosures(in cabinets of standardized dimensions H05K 7/20536 ; in server cabinets H05K 7/20709 ; in vehicle electronic casings H05K 7/20845 ; in power control electronics H05K 7/2089 ; in displays H05K 7/20954)} |
| | H05K 2007/20227 | • • • {using evaporating liquids, e.g. freon cooling, heat pipes} |
| U | H05K 7/2039 | • {characterised by the heat transfer by conduction from the heat generating element to a dissipating body(arrangements for increasing/decreasing heat-transfer, e.g. fins details, F28F 13/00)} |
| | H05K 2007/204 | • • • {from one or a few components} |
| | H05K 2007/20527 | • • {characterised by a construction combining different cooling means, e.g. heat sinks in combination with heat pipes} |
| U | H05K 9/00 | Screening of apparatus or components against electric or magnetic fields(devices for absorbing radiation from an aerial H01Q 17/00 ; { screening of semiconductor devices H01L 24/00 , H01L 23/58 ; screening structurally associated with dynamo-electric machines H02K 11/00 ; shielding against nuclear radiation G21F)} |
| | H05K 9/0007 | • {Casings(standardised racks H05K 9/00 - H05K9/00C)} |

- U H05K 9/0009
 - ▪ {with provisions to reduce EMI leakage through the joining parts}
- H05K 2009/0011
 - ▪ ▪ {Containing synthetic resin}
- H05K 2009/0013
 - ▪ ▪ {superconductor achieving a magnetic shielding}