

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

SHAPING

B29 WORKING OF PLASTICS; WORKING OF SUBSTANCES IN A PLASTIC STATE, IN GENERAL (processing doughs [A21C](#); working chocolate [A23G](#); casting of metals [B22](#); working cement, clay [B28](#); chemical aspects, see section [C](#), particularly [C08](#); working glass [C03B](#); candle making [C11C 5/02](#); making soap [C11D 13/00](#); manufacture of artificial filaments, threads, fibres, bristles or ribbons [D01D](#), [D01F](#); manufacture of articles from cellulosic fibrous suspensions or from papier-mâché [D21J](#))

(NOTES omitted)

B29D PRODUCING PARTICULAR ARTICLES FROM PLASTICS OR FROM SUBSTANCES IN A PLASTIC STATE (making granules [B29B 9/00](#); making preforms [B29B 11/00](#))

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00	Producing articles with screw-threads	11/00038	. . {Production of contact lenses}
1/005	. {fibre reinforced}	11/00048	. . . {composed of parts with dissimilar composition (B29D 11/00057 takes precedence)}
5/00	Producing elements of slide fasteners; Combined making and attaching of elements of slide fasteners	11/00057	. . . {characterised by the shape or surface condition of the edge, e.g. flashless, burrless, smooth}
5/02	. the fasteners having separate interlocking members	11/00067	. . . {Hydrating contact lenses}
5/04	. the interlocking members being formed by continuous meander of filamentary material	11/00076	. . . {enabling passage of fluids, e.g. oxygen, tears, between the area under the lens and the lens exterior}
5/06	. the interlocking members being formed by continuous helix	11/00086	. . . {methods for matching the anterior surface of the contact lens to the shape of an eyeball}
5/08	. the interlocking members being formed by profiled or castellated edge of a stringer	11/00096	. . . {for delivering compositions, e.g. drugs to the eye}
5/10	. the interlocking members being formed by continuous profiled strip	11/00105	. . . {covering a large part of the cornea}
7/00	Producing flat articles, e.g. films or sheets (B29D 24/00 takes precedence)	11/00115	. . . {made by rotational casting}
7/01	. Films or sheets	11/00125	. . . {Auxiliary operations, e.g. removing oxygen from the mould, conveying moulds from a storage to the production line in an inert atmosphere}
2009/00	IPC7 Producing layered products	11/00134	. . . . {Curing of the contact lens material}
(Frozen)	WARNING Group B29D 2009/00 is no longer used for classification of documents as January 1, 2019. The content of this group is being reclassified into groups B29C 39/021 , B29C 39/023 , B29C 39/025 , B29C 39/12 , B29C 39/123 , B29C 39/126 , B32B 3/00 and B32B 33/00 . All groups listed in this Warning should be considered in order to perform a complete search.	11/00144	. . . . {wherein the lens material is not fully polymerized, e.g. by leaving an unpolymerized volume}
11/00	Producing optical elements, e.g. lenses or prisms (grinding or polishing of optical elements B24B ; constructional form of optical elements G02B ; {optical parts of spectacles G02C 7/00 })	11/00153	. . . . {Differential curing, e.g. by differential radiation}
11/00009	. {Production of simple or compound lenses}	11/00163	. . . . . {Movable masks or shutters, e.g. to vary the exposure}
11/00019	. . {with non-spherical faces, e.g. toric faces}	11/00173	. . . . {Conveying moulds}
11/00028	. . {Bifocal lenses; Multifocal lenses}	11/00182	. . . . {using carrier plates}
		11/00192	. . . . {Demoulding, e.g. separating lenses from mould halves}
		11/00201	. . . . . {using cooling means}
		11/00211	. . . . . {using heating means}
		11/00221	. . . . . {using prying means}
		11/0023	. . . . {Transferring contact lenses}

- 11/0024 {using a vacuum suction gripper}
 - 11/0025 {Removing impurities from contact lenses, e.g. leaching}
 - 11/00259 . . . {Plants for the production of contact lenses}
 - 11/00269 . . {Fresnel lenses}
 - 11/00278 . . {Lenticular sheets ([B29D 11/00269 takes precedence](#))}
 - 11/00288 . . . {made by a rotating cylinder}
 - 11/00298 . . . {Producing lens arrays}
 - 11/00307 . . . {Producing lens wafers}
 - 11/00317 . . {Production of lenses with markings or patterns}
 - 11/00326 . . . {having particular surface properties, e.g. a micropattern}
 - 11/00336 {by making depressions in the lens surfaces}
 - 11/00346 . . . {having nanosize structures or features, e.g. fillers}
 - 11/00355 . . {with a refractive index gradient}
 - 11/00365 . . {Production of microlenses ([lenticular sheets B29D 11/00278](#))}
 - 11/00375 . . . {by moulding lenses in holes through a substrate}
 - 11/00384 . . . {Local shaping by heating, e.g. local irradiation causing expansion}
 - 11/00394 . . . {Producing solid immersion lenses [SIL]}
 - 11/00403 . . {Producing compound lenses}
 - 11/00413 . . {made by moulding between two mould parts which are not in direct contact with one another, e.g. comprising a seal between or on the edges ([B29D 11/00019 - B29D 11/00355, B29D 11/00423, B29D 11/00432 take precedence](#))}
 - 11/00423 . . {Plants for the production of simple or compound lenses ([B29D 11/00259 takes precedence](#))}
 - 11/00432 . . {Auxiliary operations, e.g. machines for filling the moulds ([B29D 11/00125 takes precedence](#))}
 - 11/00442 . . . {Curing the lens material}
 - 11/00451 . . . {Changing a shape by remelting}
 - 11/00461 . . . {Adjusting the refractive index, e.g. after implanting}
 - 11/00471 . . {made by rotational casting ([B29D 11/00115 takes precedence](#))}
 - 11/0048 . . {Moulds for lenses ([moulds for plastic articles in general B29C 33/00](#))}
 - 11/0049 . . . {Double sided moulds}
 - 11/005 . . . {having means for aligning the front and back moulds}
 - 11/00509 {to make toric lenses}
 - 11/00519 . . . {Reusable moulds}
 - 11/00528 . . . {Consisting of two mould halves joined by an annular gasket}
 - 11/00538 . . . {Feeding arrangements}
 - 11/00548 . . . {with surfaces formed by films}
 - 11/00557 . . . {with deformable mould walls, e.g. to make lenses with different shapes}
 - 11/00567 . . . {wherein the mould forms part of the final package for lenses}
 - 11/00576 . . . {with means to engage flash, e.g. HEMA ring}
 - 11/00586 {and removing the flash or HEMA ring}
 - 11/00596 . {Mirrors}
 - 11/00605 . {Production of reflex reflectors}
 - 11/00615 . . {moulded by partially embedding reflective elements, e.g. glass beads, into the surface of a support, e.g. to make prefabricated road markings ([dispensing reflective beads on road markings in situ E01C 23/163](#))}
 - 11/00625 . . {Moulds for reflex reflectors ([moulds for plastic articles in general B29C 33/00](#))}
 - 11/00634 . {Production of filters}
 - 11/00644 . . {polarizing}
 - 11/00653 . . {photochromic}
 - 11/00663 . {Production of light guides}
 - 11/00673 . . {Supports for light guides}
 - 11/00682 . . {with a refractive index gradient}
 - 11/00692 . . {combined with lenses}
 - 11/00701 . . {having an intermediate layer between core and cladding}
 - 11/00711 . . {by shrinking the sleeve or cladding onto the core}
 - 11/00721 . . {involving preforms for the manufacture of light guides}
 - 11/0073 . {Optical laminates}
- NOTE**
- Classification in this group must be supplemented, in so far as any product is concerned, by classification in [B32B](#)
- 11/0074 . {Production of other optical elements not provided for in [B29D 11/00009- B29D 11/0073](#)}
 - 11/0075 . . {Connectors for light guides}
 - 11/00759 . . {Branching elements for light guides}
 - 11/00769 . . {Producing diffraction gratings}
 - 11/00778 . . {Producing hyperlenses, superlenses or "perfect" lenses}
 - 11/00788 . . {Producing optical films}
 - 11/00798 . . {Producing diffusers}
 - 11/00807 . . {Producing lenses combined with electronics, e.g. chips}
 - 11/00817 . . . {Producing electro-active lenses or lenses with energy receptors, e.g. batteries or antennas}
 - 11/00826 {with energy receptors for wireless energy transmission}
 - 11/00836 . . {Producing non-circular, e.g. elliptic lenses}
 - 11/00846 . . {Producing zero power lenses}
 - 11/00855 . . {Producing cylindrical lenses}
 - 11/00865 . {Applying coatings; tinting; colouring ([printing, marking or copying processes B41M](#); [identification in general G09F 3/00](#); [producing decorative effects in general B44C](#); [positioning or marking of lenses B24B 13/0055](#))}
 - 11/00875 . . {on light guides}
 - 11/00884 . . {Spin coating}
 - 11/00894 . . {colouring or tinting}
 - 11/00903 . . . {on the surface}
 - 11/00913 . . . {full body; edge-to-edge}
 - 11/00923 . . {on lens surfaces for colouring or tinting ([printing or marking in general B41M](#))}
 - 11/00932 . {Combined cutting and grinding thereof}
 - 11/00942 . . {where the lens material is mounted in a support for mounting onto a cutting device, e.g. a lathe, and where the support is of machinable material, e.g. plastics}
 - 11/00951 . {Measuring, controlling or regulating}
 - 11/00961 . . {using microprocessors or computers}

- 11/00971 . . . {using CNC machining to make mould surfaces}
- 11/0098 . . {Inspecting lenses}
- 11/0099 . . . {while still attached to the mould}
- 11/02 . Artificial eyes from organic plastic material {[implantable eye parts](#), artificial eyes [A61F 2/14](#)}
- 11/023 . . {Implants for natural eyes}
- 11/026 . . . {Comprising more than one lens}
- 12/00 Producing frames**
- 12/02 . Spectacle frames ([constructional form G02C](#))
- 15/00 Producing gear wheels or similar articles with grooves or projections, e.g. control knobs**
- 16/00 Producing articles with corrugations ([B29D 23/18](#) takes precedence)**
- 17/00 Producing carriers of records containing fine grooves or impressions, e.g. disc records for needle playback, cylinder records ([recording sound or other information using formed grooves or the equivalent G11B](#)); Producing record discs from master stencils**
- 17/002 . {Producing phonograph records}
- 17/005 . {Producing optically read record carriers, e.g. optical discs}
- 17/007 . . {Forming the relief pattern on a support larger than the record}
- 19/00 Producing buttons or semi-finished parts of buttons**
- 19/04 . by cutting, milling, turning, stamping, or perforating moulded parts; Surface treatment of buttons
- 19/06 . . Devices for feeding semi-finished parts to the processing machines
- 19/08 . . Making holes in buttons or in semi-finished parts thereof
- 21/00 Producing hair combs or similar toothed or slotted articles**
- 21/04 . by sawing, milling, cutting, or similar operations
- 21/06 . Polishing
- 22/00 Producing hollow articles ([tubular articles B29D 23/00](#); [pneumatic tyres B29D 30/00](#))**
- 22/003 . {Containers for packaging, storing or transporting, e.g. bottles, jars, cans, barrels, tanks}
- 22/006 . . {Hot water bottles}
- 22/02 . Inflatable articles
- 22/023 . . {Air springs; Air bellows ([construction of fluid springs F16F 9/00](#))}
- 22/026 . . {Ring shaped inner tubes with ends ([endless inner tubes B29D 23/24](#))}
- 22/04 . Spherical articles, e.g. balls ([B29D 22/02](#) takes precedence)
- 23/00 Producing tubular articles ([B29D 24/00](#) takes precedence)**
- 23/001 . {Pipes; Pipe joints ([pleated hoses B29D 23/18](#))}
- 23/003 . . {Pipe joints, e.g. straight joints}
- 23/005 . . . {provided with electrical wiring}
- 23/006 . . . {Elbows}
- 23/008 . . . {T-joints}
- 23/14 . Cigar or cigarette holders
- 23/18 . Pleated {or corrugated} hoses
- 23/20 . Flexible squeeze tubes, e.g. for cosmetics
- 23/24 . Endless tubes, e.g. inner tubes for pneumatic tyres {([producing ring shaped inner tubes with ends B29D 22/026](#); [inflatable inner tubes for tyres B60C 5/00](#))}
- 24/00 Producing articles with hollow walls {([B29D 99/0028](#) takes precedence)}**
- 24/001 . {formed of hollow ridges or ribs, e.g. separate ridges; continuous corrugated structure ([B29D 24/008](#) takes precedence)}
- 24/002 . {formed with structures, e.g. cores placed between two plates or sheets, e.g. partially filled ([totally filled B29D 99/0021](#))}
- 24/004 . . {the structure having vertical or oblique ribs}
- 24/005 . . {the structure having joined ribs, e.g. honeycomb}
- 24/007 . . . {and a chamfered edge}
- 24/008 . . {the structure having hollow ridges, ribs or cores}
- 25/00 Producing frameless domes**
- 28/00 Producing nets or the like, {e.g. meshes, lattices} ([by knotting D04G](#))**
- 28/005 . {Reticulated structure comprising reinforcements of substantial or continuous length}
- 29/00 Producing belts or bands**
- 29/06 . Conveyor belts
- 29/08 . Toothed driving belts
- 29/085 . . {Double-toothed driving belts}
- 29/10 . Driving belts having wedge-shaped cross-section
- 29/103 . . {Multi-ribbed driving belts}
- 29/106 . . {Cogged driving belts}
- 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](#))**
- 30/0005 . {Pretreatment of tyres or parts thereof, e.g. preheating, irradiation, precuring}
- 2030/0011 . . {Surface activation of tyres or parts thereof, e.g. by plasma treatment}
- 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](#))}
- 2030/0022 . . {Handling green tyres, e.g. transferring or storing between tyre manufacturing steps}
- 2030/0027 . . {Handling cured tyres, e.g. transferring or storing after vulcanizing}
- 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}
- 2030/0038 . . {Handling tyre parts or semi-finished parts, excluding beads, e.g., storing, transporting, transferring ([B29D 2030/0044](#) takes precedence)}
- 2030/0044 . . {Handling tyre beads, e.g., storing, transporting, transferring and supplying to the toroidal support or to the drum}
- 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](#))}

2030/0055	. .	{Optimization of the cycle times of the tyre manufacturing process, e.g. adaptation of the tyre building process to the vulcanization process}	2030/0622	. . . . .	{the pressing devices being collapsable, e.g. annular elements consisting of a plurality of sectors}
30/0061	. .	{Accessories, details or auxiliary operations not otherwise provided for}	2030/0623	. . . . .	{the pressing devices being flexible, e.g. annular elements being relatively elastic and deformable}
2030/0066	. .	{Tyre quality control during manufacturing}	2030/0625	. . . . .	{the pressing devices being substantially rigid}
2030/0072	. .	{Attaching fasteners to tyres, e.g. patches, in order to connect devices to tyres}	2030/0626	. . . . .	{the pressing devices being one-piece devices}
2030/0077	. .	{Directly attaching monitoring devices to tyres before or after vulcanization, e.g. microchips}	2030/0627	. . . . .	{the pressing devices being ring-shaped}
2030/0083	. .	{Attaching monitoring devices to tyres before or after vulcanization by inserting them inside tyre cavities}	30/0629	. . . .	{with radially movable sectors}
2030/0088	. .	{Adaptive tyres, i.e. the properties of the tyres, e.g. the stiffness, being changeable during use}	2030/063	. . . . .	{the moulds being split in upper and lower halves}
2030/0094	. .	{Tyres been capable of generating, e.g. recovering, energy}	2030/0631	. . . . .	{Means for forcing adjacent mould sectors away one from another, e.g. using springs or the like, to create repulsive forces}
30/02	. .	Solid tyres {; Moulds therefor}	30/0633	. . .	{After-treatment specially adapted for vulcanising tyres}
30/04	. .	Resilient fillings for rubber tyres; Filling tyres therewith	2030/0634	. . . .	{Measuring, calculating, correcting tyre uniformity, e.g. correcting RFV}
30/06	. .	Pneumatic tyres or parts thereof {(e.g. produced by casting, moulding, compression moulding, injection moulding, centrifugal casting)}	2030/0635	. . . . .	{Measuring and calculating tyre uniformity, e.g. using mathematical methods}
30/0601	. .	{Vulcanising tyres; Vulcanising presses for tyres}	2030/0637	. . . . .	{Correcting by adding material}
30/0602	. . .	{the vulcanising medium being in direct contact with the tyre}	2030/0638	. . . . .	{Correcting by removing material, e.g. by grinding}
30/0603	. . .	{Loading or unloading the presses}	2030/0639	. . . . .	{Correcting by heat treatments}
30/0605	. . .	{Vulcanising presses characterised by moulds integral with the presses having radially movable sectors}	2030/0641	. . . . .	{Correcting by restraining tyre deformation}
30/0606	. . .	{Vulcanising moulds not integral with vulcanising presses (for solid tyres B29D 30/02)}	2030/0642	. . . . .	{Correcting by stretching}
2030/0607	. . . .	{Constructional features of the moulds (moulds or cores in general B29C 33/00)}	30/0643	. . . .	{Cooling during post cure inflation; Post cure inflators used therefor}
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}	30/0645	. . .	{Devices for inserting vulcanising cores, i.e. bladders, into the tyres; Closing the press in combination herewith}
2030/061	. . . . .	{Means for forming passages under the tread surface, e.g. undercuts, holes, channels, grooves}	2030/0646	. . . .	{Attaching to, or removing the vulcanizing cores or bladders from the center mechanisms}
2030/0612	. . . . .	{Means for forming recesses or protrusions in the tyres, e.g. grooves or ribs, to create the tread or sidewalls patterns}	2030/0647	. . . .	{Supporting or transferring tyres using an assembly of a bladder and side rings}
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}	30/0649	. . .	{Devices for removing vulcanising cores, i.e. bladders, from the tyres; Opening the press in combination herewith}
2030/0614	. . . . .	{porous moulds, e.g. sintered materials (porous moulds in general B29C 33/3814)}	30/065	. . .	{Tyre-vulcanising presses with two or more moulds, e.g. stacked upon each other}
2030/0616	. . . . .	{Surface structure of the mould, e.g. roughness, arrangement of slits, grooves or channels}	2030/0651	. . . .	{the moulds being arranged side by side, or in a circle}
2030/0617	. . . . .	{Venting devices, e.g. vent plugs or inserts}	2030/0653	. . . .	{Exchanging moulds in the presses}
2030/0618	. . . . .	{Annular elements, e.g. rings, for moulding the tyre shoulder areas}	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)}
2030/062	. . . . .	{Means for sealing the tyre against the mould in the bead areas}	2030/0655	. . . .	{Constructional or chemical features of the flexible cores}
2030/0621	. . . . .	{to seal the bead portions against the mould i.e. by using pressing devices}	2030/0657	. . . .	{Removing the vulcanizing media from the flexible cores, e.g. draining or evacuating}
			2030/0658	. . . .	{Venting devices for the flexible cores}
			2030/0659	. . . .	{Details or accessories for the flexible cores not otherwise provided for}

30/0661	. . .	{Rigid cores therefor, e.g. annular or substantially toroidal cores (cores for building tyres B29D 30/12 ; drums for building tyres B29D 30/24)}
30/0662	. . .	{Accessories, details or auxiliary operations}
2030/0663	. . . .	{Mould maintenance, e.g. cleaning, washing, repairing}
2030/0665	. . . .	{Measuring, calculating and correcting tyre uniformity before vulcanization}
2030/0666	. . . .	{Heating by using fluids (heating, cooling or curing using liquids, gas or steam B29C 35/04)}
2030/0667	. . . . .	{Circulating the fluids, e.g. introducing and removing them into and from the moulds; devices therefor}
2030/0669	. . . . .	{the fluids being circulated by a turbine type pump associated with the mould, e.g. positioned in the mould}
2030/067	. . . . .	{the vulcanizing fluids being gases or vapours}
2030/0671	. . . . .	{the vulcanizing fluids being liquids}
2030/0673	. . . . .	{the vulcanizing fluids being combinations of different kinds of fluids, e.g. steam and nitrogen}
2030/0674	. . . . .	{Heating by using non-fluid means, e.g. electrical heating}
2030/0675	. . . .	{Controlling the vulcanization processes}
2030/0677	. . . . .	{Controlling temperature differences}
30/0678	. .	{Injection moulding specially adapted for tyres or parts thereof (injection moulding in general B29C 45/00)}
30/0679	. .	{Centrifugal casting specially adapted for tyres or parts thereof (centrifugal casting in general B29C 39/08)}
30/0681	. .	{Parts of pneumatic tyres; accessories, auxiliary operations}
2030/0682	. . .	{Inner liners (tubeless tyres with impervious liner or coating on the tyre B60C 5/14)}
2030/0683	. . .	{Additional internal supports to be positioned inside the tyre, as emergency supports for run-flat tyres}
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)}
2030/0686	. . . .	{Incorporating sealants on or into tyres not otherwise provided for; auxiliary operations therefore, e.g. preparation of the tyre}
2030/0687	. . . . .	{by incorporating the sealant into one chamber, e.g. bag, cell, tube or closed cavity}
2030/0689	. . . . .	{by incorporating the sealant into a plurality of chambers, e.g. bags, cells, tubes or closed cavities}
2030/069	. . . . .	{through the use of a cylindrical support, e.g. a drum}
2030/0691	. . . . .	{through the use of a toroidal support, e.g. a core, a part of the tyre or an inner tube}
2030/0693	. . . . .	{the sealant being in the form of discrete particles, e.g. spheres or balls, filled with sealant}
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}
2030/0695	. . . . .	{the sealant being in the form of one wide strip, e.g. a patch}
2030/0697	. . . . .	{the sealant being in liquid form, e.g. applied by spraying}
2030/0698	. . . . .	{the sealant being applied by injection, e.g. introducing the sealant through a hole}
30/08	. .	Building tyres
2030/082	. . .	{Optimizing the deposition of the layers on the tyre building support, e.g. by using mathematical methods}
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}
2030/086	. . .	{Building the tyre carcass by combining two or more sub-assemblies, e.g. two half-carcasses}
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}
30/10	. . .	on round cores, i.e. the shape of the core is approximately identical with the shape of the completed tyre
2030/105	. . . .	{the cores being movable}
30/12	. . . .	Cores
30/14	. . . .	Rolling-down or pressing-down the layers in the building process
30/16	. . . .	Applying the layers; Guiding or stretching the layers during application {(applying tread bands to carcasses B29D 30/58 ; retreading B29D 30/54)}
30/1607	. . . . .	{by feeding a sheet perpendicular to the core axis and joining the ends to form an annular element (bending sheets and joining the edges B29C 53/42)}
30/1614	. . . . .	{by sliding a preformed tubular layer over the core}
30/1621	. . . . .	{by feeding a continuous band and winding it spirally, i.e. the band is fed without relative movement along the core axis, to form an annular element (winding and joining, spirally in general B29C 53/562)}
30/1628	. . . . .	{by feeding a continuous band and winding it helically, i.e. the band is fed while being advanced along the core axis, to form an annular element (winding and joining, helically in general B29C 53/58)}
30/1635	. . . . .	{by feeding a continuous band and moving it back and forth (zig-zag) to form an annular element}
30/1642	. . . . .	{by feeding cut-to-length pieces in a direction perpendicular to the core axis and in a plane parallel to the core axis, and placing the pieces side-by-side to form an annular element}
30/165	. . . . .	{by feeding cut-to-length pieces in a direction parallel to the core axis and placing the pieces side-by-side to form an annular element}
30/1657	. . . . .	{by feeding cut-to-length pieces in a direction inclined with respect to the core axis and placing the pieces side-by-side to form an annular element}

2030/1664	. . . . .	{Details, accessories or auxiliary operations not provided for in the other subgroups of B29D 30/00 }	30/246	. . . . .	{Drums for the multiple stage building process, i.e. the building-up of the cylindrical carcass is realised on one drum and the toroidal expansion is realised after transferring on another drum (expansion to a toroidal shape B29D 30/36)}
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}	30/247	. . . . .	{Arrangements for the first stage only, e.g. means for radially expanding the drum to lock the beads (B29D 30/245 takes precedence)}
2030/1678	. . . . .	{the layers being applied being substantially continuous, i.e. not being cut before the application step}	30/248	. . . . .	{Drums of the undercut type without toroidal expansion, e.g. with provisions for folding down the plies, for positioning the beads under the surface of the drum}
2030/1685	. . . . .	{the layers being applied being already cut to the appropriate length, before the application step}	30/26	. . . . .	Accessories or details, e.g. membranes, transfer rings
2030/1692	. . . . .	{Changing the orientation of the layers, e.g. plies, to be applied}	30/2607	. . . . .	{Devices for transferring annular tyre components during the building-up stage, e.g. from the first stage to the second stage building drum}
30/18	. . . .	Fitting the bead-rings or bead-cores; Folding the textile layers around the rings or cores	2030/2614	. . . . .	{Bladders associated with the building drum, e.g. bladders used for the toroidal expansion, bladders for turning-up the plies}
30/20	. . .	by the flat-tyre method, i.e. building on cylindrical drums	2030/2621	. . . . .	{Means for clamping bladders on the drum shoulders}
2030/201	. . . .	{Manufacturing run-flat tyres}	2030/2628	. . . . .	{Bladders for shaping the inner parts of the tyre beads or sidewalls}
2030/202	. . . .	{the building drums being movable, i.e. not permanently connected to a fixed frame}	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}
2030/203	. . . .	{the fixtures supporting the cylindrical drums being non displaceable, i.e. substantially fixed to the floor}	2030/2642	. . . . .	{Adjusting the diameter of the drum, to match its circumference with the length of ply}
2030/204	. . . .	{the fixtures supporting the cylindrical drums, e.g. turrets, being displaceable, e.g. movable along a path, rail or the like}	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}
2030/205	. . . .	{A single building drum being mounted on a fixture or supporting device, e.g. turret or turntable}	2030/2657	. . . . .	{Radially expandable and contractable drum comprising a set of circumferentially arranged rigid elements, e.g. fingers or arms}
2030/206	. . . .	{A plurality of building drums being mounted on a fixture or supporting device, e.g. turret or turntable}	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}
2030/207	. . . .	{the drum supporting device being rotatable around a horizontal axis}	2030/2671	. . . . .	{Holding the layers, e.g. the webs or the plies, in position onto the drum}
2030/208	. . . .	{the drum supporting device being rotatable around a vertical axis}	2030/2678	. . . . .	{by using magnets}
2030/209	. . . .	{the drum supporting device being rotatable around an inclined axis}	2030/2685	. . . . .	{by using mechanical means, e.g. jaws, grippers, pressing bars}
30/22	. . . .	Breaker plies being applied in the unexpanded state	2030/2692	. . . . .	{by using suction means, e.g. vacuum producing devices}
30/24	. . . .	Drums	30/28	. . . .	Rolling-down or pressing-down the layers in the building process
2030/241	. . . . .	{Auxiliary drums used for temporary storage of the layers before application to the building drums}			
30/242	. . . . .	{for manufacturing substantially cylindrical tyre components without cores or beads, e.g. treads or belts}			
30/243	. . . . .	{and with mechanisms for folding layers}			
30/244	. . . . .	{for manufacturing substantially cylindrical tyre components with cores or beads, e.g. carcasses (mechanisms for folding layers around cores or blades per se B29D 30/32)}			
30/245	. . . . .	{Drums for the single stage building process, i.e. the building-up of the cylindrical carcass and the toroidal expansion of it are realised on the same drum (expansion to a toroidal shape B29D 30/36)}			

30/30	. . . .	Applying the layers; Guiding or stretching the layers during application (applying tread bands to carcasses B29D 30/58 ; retreading B29D 30/54)
30/3007	. . . .	{by feeding a sheet perpendicular to the drum axis and joining the ends to form an annular element (bending sheets and joining the edges B29C 53/42)}
30/3014	. . . .	{by sliding a preformed tubular layer over the drum}
30/3021	. . . .	{by feeding a continuous band and winding it spirally, i.e. the band is fed without relative movement along the drum axis, to form an annular element (winding and joining, spirally in general B29C 53/562)}
30/3028	. . . .	{by feeding a continuous band and winding it helically, i.e. the band is fed while being advanced along the drum axis, to form an annular element (winding and joining, helically in general B29C 53/58)}
30/3035	. . . .	{by feeding a continuous band and moving it back and forth (zig-zag) to form an annular element}
30/3042	. . . .	{by feeding cut-to-length pieces in a direction perpendicular to the drum axis and in a plane parallel to the drum axis, and placing the pieces side-by-side to form an annular element}
30/305	. . . .	{by feeding cut-to-length pieces in a direction parallel to the drum axis and placing the pieces side-by-side to form an annular element}
30/3057	. . . .	{by feeding cut-to-length pieces in a direction inclined with respect to the drum axis and placing the pieces side-by-side to form an annular element}
2030/3064	. . . .	{Details, accessories and auxiliary operations not otherwise provided for}
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}
2030/3078	. . . .	{the layers being applied being substantially continuous, i.e. not being cut before the application step}
2030/3085	. . . .	{the layers being applied being already cut to the appropriate length, before the application step}
2030/3092	. . . .	{Changing the orientation of the layers, e.g. plies, to be applied}
30/32	. . . .	Fitting the bead-rings or bead-cores; Folding the textile layers around the rings or cores
2030/3207	. . . .	{Positioning the beads}
2030/3214	. . . .	{Locking the beads on the drum; details of the drum in the bead locking areas, e.g. drum shoulders}
2030/3221	. . . .	{Folding over means, e.g. bladders or rigid arms}
2030/3228	. . . .	{using one bladder acting on each side of the drum}
2030/3235	. . . .	{using two or more bladders acting on each side of the drum}
2030/3242	. . . .	{and with means for pressing the bladder against the ply material, e.g. bladder guide shoes, cages, arms}
2030/325	. . . .	{the means being radially expandable and contractible}
2030/3257	. . . .	{using pressing rollers}
2030/3264	. . . .	{using radially expandable, contractible mechanical means, e.g. circumferentially spaced arms, spring rollers, cages}
2030/3271	. . . .	{using air blasts}
2030/3278	. . . .	{Folding down the ends of the tubular tyre component, e.g. the carcass, over the drum shoulders}
2030/3285	. . . .	{Placing a cushioning element, e.g. a ring, aside or around the beads}
2030/3292	. . . .	{Interposing trap strips between beads and plies}
30/34	. . .	by jointly covering two bead-rings, located parallel to each other at a distance apart, with fabric or cord layers
30/36	. .	Expansion of tyres in a flat form {, i.e. expansion to a toroidal shape independently of their building-up process}, e.g. of tyres built by the flat-tyres method or by jointly covering two bead-rings
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)
2030/381	. . .	{the inserts incorporating reinforcing parallel cords; manufacture thereof}
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)}
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}
2030/386	. . . .	{the tubular article being cut to obtain a flat, single-layer insert}
2030/388	. . . .	{the tubular article being flattened to obtain a two-layer insert}
30/40	. . .	Chemical pretreatment of textile inserts before building the tyre
30/42	. . .	Endless textile bands without bead-rings
2030/421	. . . .	{General aspects of the joining methods and devices for creating the bands (joining of preformed parts in general B29C 65/00)}
2030/422	. . . .	{Butt joining (single butt to butt joints in general B29C 66/1142)}
2030/423	. . . .	{Joining by overlapping (single lap to lap joints in general B29C 66/1122 ; single bevel to bevel joints in general B29C 66/1162)}
2030/424	. . . .	{the joining devices being angularly adjustable (joining devices characterized by the movement of the joining tools B29C 66/83)}

2030/425	. . . . .	{the joining devices being laterally adjustable (joining devices characterized by the movement of the joining tools B29C 66/83)}	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)
2030/426	. . . . .	{the joining devices being longitudinally adjustable (joining devices characterized by the movement of the joining tools B29C 66/83)}	2030/523	. . .	{Ring-shaped treads}
2030/427	. . . . .	{Positioning the bands at the joining areas (positioning the parts to be joined in general B29C 65/7802)}	2030/526	. . .	{the tread comprising means for discharging the electrostatic charge, e.g. conductive elements or portions having conductivity higher than the tread rubber}
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)}	30/54	. . .	Retreading
30/44	. . .	Stretching or treating the layers before application on the drum (during application B29D 30/30)	2030/541	. . . .	{Abrading the tyre, e.g. buffing, to remove tread and/or sidewalls rubber, to prepare it for retreading}
2030/4406	. . . . .	{Adjusting the positions of the layers}	30/542	. . . .	{using envelopes or membranes provided with sealings for curing}
2030/4412	. . . . .	{angularly}	2030/543	. . . . .	{Spreading the envelopes or membranes for inserting the tyre therein}
2030/4418	. . . . .	{laterally, e.g. sideways}	2030/544	. . . . .	{Applying an intermediate adhesive layer, e.g. cement or cushioning element between carcass and tread}
2030/4425	. . . . .	{longitudinally}	2030/545	. . . . .	{Using chambers to apply heat and pressure, e.g. autoclaves for curing the retreaded tyres}
2030/4431	. . . . .	{by using gas flows, e.g. air jets blowing onto or underneath or sideways the layers}	2030/546	. . . . .	{Measuring, detecting, monitoring, inspecting, controlling}
2030/4437	. . . . .	{Adjusting the dimensions of the layers}	2030/547	. . . . .	{Retreading solid tyres}
2030/4443	. . . . .	{Increasing the length of the layers, e.g. by stretching}	2030/548	. . . . .	{Removing the worn out tread from the carcass, e.g. by pulling a continuous wire embedded between tread and carcass}
2030/445	. . . . .	{Shortening the layers, e.g. by acting on the lateral edges or on the thickness or by cutting}	2030/549	. . . . .	{Means for holding the tyre on a support}
2030/4456	. . . . .	{by using speed differences, e.g. between conveyors or between conveyor and drum}	30/56	. . . .	Retreading with prevulcanised tread (B29D 30/542 takes precedence)
2030/4462	. . . . .	{by using grasping means}	30/58	. . .	Applying bands of rubber treads, i.e. applying camel backs
2030/4468	. . . . .	{Holding the layers}	2030/582	. . . . .	{Venting air inclusions, e.g. air trapped between tread and carcass}
2030/4475	. . . . .	{by electrostatically charging the layers}	2030/585	. . . . .	{Radially expanding annular treads to fit it over carcasses}
2030/4481	. . . . .	{by using magnetic forces, e.g. magnets}	2030/587	. . . . .	{Using isostatic pressure, e.g. bags or bladders, to press tread and carcass against each other}
2030/4487	. . . . .	{by using mechanical means, e.g. grippers or pressing bars}	30/60	. . . . .	by winding narrow strips
2030/4493	. . . . .	{by using suction means, e.g. vacuum}	30/62	. . . . .	by extrusion or injection of the tread on carcass
30/46	. . .	Cutting textile inserts to required shape	30/64	. . .	Tyre spreaders
2030/463	. . . . .	{Holding the textile inserts during cutting; means therefor}	30/66	. . .	Moulding treads on to tyre casings, e.g. non-skid treads with spikes
2030/466	. . . . .	{Cutting the textile inserts between cords}	2030/662	. . . . .	{Treads with antiskid properties, i.e. with spikes}
30/48	. .	Bead-rings or bead-cores (from wire B21F 37/00); Treatment thereof prior to building the tyre	2030/665	. . . . .	{Treads containing inserts other than spikes, e.g. fibers or hard granules, providing antiskid properties}
2030/481	. . .	{Fillers or apexes}	2030/667	. . . . .	{Treads with antiskid properties, e.g. having special patterns or special rubber compositions}
2030/482	. . .	{Applying fillers or apexes to bead cores}	30/68	. . .	Cutting profiles into the treads of tyres
2030/483	. . .	{Treating the bead cores to increase rubber adhesion}	2030/685	. . . . .	{before tread vulcanization}
2030/485	. . .	{the bead cores being made using a band containing a plurality of wires embedded in rubber}	30/70	. .	Annular breakers
2030/486	. . .	{Additional components for the tyre bead areas, e.g. cushioning elements, chafers, flippers}	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}
2030/487	. . .	{Forming devices for manufacturing the beads}			
2030/488	. . .	{Clamping the wires on the forming devices}			
30/50	. . .	Covering, e.g. by winding, the separate bead-rings or bead-cores with textile material, e.g. with flipper strips (folding textile layers around bead-rings or bead-cores B29D 30/18 , B29D 30/32 ; jointly covering bead-rings or bead cores B29D 30/34)			

30/72	. . Side-walls	35/12	. Producing parts thereof, e.g. soles, heels, uppers, by a moulding technique
2030/722	. . . {Reinforcing the sidewalls, e.g. by using filaments, fibers or additional reinforcing layers}	35/122	. . {Soles}
2030/724	. . . {Stiffening the sidewalls, e.g. by using additional inserts, e.g. made of rubber, plastics or other materials}	35/124	. . {Heels}
2030/726	. . . {Decorating or marking the sidewalls before tyre vulcanization (protecting, decorating, marking tyre sidewalls B60C 13/00)}	35/126	. . {Uppers}
2030/728	. . . {Decorating or marking the sidewalls after tyre vulcanization (protecting, decorating, marking tyre sidewalls B60C 13/00)}	35/128	. . {Moulds or apparatus therefor}
		35/14	. . Multilayered parts
33/00	Producing bushes for bearings	35/142	. . . {Soles}
35/00	Producing footwear	35/144	. . . {Heels}
	NOTES	35/146	. . . {Uppers}
	1. Classification is made in this group if the moulding technique is of interest.	35/148	. . . {Moulds or apparatus therefor}
	2. The assembling of individual parts by mechanical joining is classified in subclass A43D , e.g. by gluing shoe parts A43D 25/00	99/00	Subject matter not provided for in other groups of this subclass {(not used, see subgroups)}
35/0009	. {by injection moulding; Apparatus therefor}	99/0003	. {Producing profiled members, e.g. beams}
35/0018	. . {Moulds}	99/0007	. . {having a variable cross-section}
35/0027	. . . {Last constructions; Mountings therefor}	99/001	. {Producing wall or panel-like structures, e.g. for hulls, fuselages, or buildings (articles with hollow walls B29D 24/00)}
35/0036	. . . {with displaceable sole plates}	99/0014	. . {provided with ridges or ribs, e.g. joined ribs}
35/0045	. . . {Sealing means for the mould cavity}	99/0017	. . . {with filled hollow ridges}
35/0054	. {by compression moulding, vulcanising or the like; Apparatus therefor}	99/0021	. . {provided with plain or filled structures, e.g. cores, placed between two or more plates or sheets, e.g. in a matrix}
35/0063	. . {Moulds}	99/0025	. {Producing blades or the like, e.g. blades for turbines, propellers, or wings}
35/0072	. . . {Last constructions; Mountings therefor}	99/0028	. . {hollow blades}
35/0081	. . . {with displaceable sole plates}	99/0032	. {Producing rolling bodies, e.g. rollers, wheels, pulleys or pinions (bushes for bearings B29D 33/00 ; gear wheels B29D 15/00)}
35/009	. . . {Sealing means for the mould cavity}	99/0035	. . {rollers or cylinders having an axial length of several times the diameter, e.g. for embossing, pressing, or printing}
35/02	. made in one piece using a moulding technique, e.g. by injection moulding or casting	99/0039	. {Producing countertops}
35/04	. . having multilayered parts	99/0042	. {Producing plain balls (hollow balls B29D 22/04)}
35/06	. having soles or heels formed and joined on to preformed uppers using a moulding technique, e.g. by injection moulding, pressing and vulcanising	99/0046	. {Producing rods (connecting-rods formed from fiber-reinforced resins F16C 7/026)}
35/061	. . {by injection moulding}	99/005	. {Producing membranes}
35/062	. . . {using means to bond the moulding material to the preformed uppers}	99/0053	. {Producing sealings (B29D 99/0085 takes precedence)}
35/064	. . . {using particular materials for the preformed uppers}	99/0057	. {Producing floor coverings}
35/065	. . {by compression moulding, vulcanising or the like}	99/006	. {Producing casings, e.g. accumulator cases}
35/067	. . . {using means to bond the moulding material to the preformed uppers}	99/0064	. {Producing wearing apparel}
35/068	. . . {using particular materials for the preformed uppers}	99/0067	. . {Gloves}
35/08	. . having multilayered parts	99/0071	. . {Masks, e.g. gas masks}
35/081	. . . {by injection moulding}	99/0075	. . {Bathing caps}
35/082	. . . . {injecting first the outer sole part}	99/0078	. {Producing filamentary materials}
35/084	. . . . {using exchangeable mould elements}	99/0082	. {Producing articles in the form of closed loops, e.g. rings (B29D 29/00 takes precedence)}
35/085	. . . {by compression moulding, vulcanising or the like}	99/0085	. . {for sealing purposes}
35/087	. . . . {forming first the outer sole part}	99/0089	. {Producing honeycomb structures (consisting of porous ceramic ware C04B 38/0006)}
35/088	. . . . {using exchangeable mould elements}	99/0092	. {Producing upholstery articles, e.g. cushions, seats (B29C 63/025 takes precedence)}
35/10	. having preformed soles or heels joined on to preformed uppers using a moulding technique, e.g. by feeding or injecting plastics material between the parts to be joined	99/0096	. {Producing closure members for containers, e.g. closure caps or stoppers}