B 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
1/005 { fibre reinforced}

5/00 Producing elements of slide fasteners; Combined making and attaching of elements of slide fasteners
5/02 { the fasteners having separate interlocking members
5/04 { the interlocking members being formed by continuous meander of filamentary material
5/06 { the interlocking members being formed by continuous helix
5/08 { the interlocking members being formed by profiled or castellated edge of a stringer
5/10 { the interlocking members being formed by continuous profiled strip

7/00 Producing flat articles, e.g. films or sheets
7/01 { Films or sheets

B29D 24/00 takes precedence

2009/00 IPC7 Producing layered products

11/00 Producing optical elements, e.g. lenses or prisms
(grinding or polishing of optical elements B24B; construcional form of optical elements G02B; optical parts of spectacles G02C 7/00))
11/00009 { Production of simple or compound lenses
11/0019 { with non-spherical faces, e.g. toric faces
11/00028 { Bifocal lenses; Multifocal lenses
11/00038 { Production of contact lenses
11/00048 { composed of parts with dissimilar composition (B29D 11/00057 takes precedence)
11/00057 { characterised by the shape or surface condition of the edge, e.g. flashless, burrless, smooth
11/00067 { Hydrating contact lenses

11/00076 { enabling passage of fluids, e.g. oxygen, tears, between the area under the lens and the lens exterior
11/00086 { methods for matching the anterior surface of the contact lens to the shape of an eyeball
11/00096 { for delivering compositions, e.g. drugs to the eye
11/00105 { covering a large part of the cornea
11/00115 { made by rotational casting
11/00125 { Auxiliary operations, e.g. removing oxygen from the mould, conveying moulds from a storage to the production line in an inert atmosphere
11/00134 { Curing of the contact lens material
11/00144 { wherein the lens material is not fully polymerized, e.g. by leaving an unpolymerized volume
11/00153 { Differential curing, e.g. by differential radiation
11/00163 { Movable masks or shutters, e.g. to vary the exposure
11/00173 { Conveying moulds
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 microrelenses (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 11/00295 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
B29D

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
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]
30/0011 . . . [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))
30/0022 . . . (Handling green tyres, e.g. transferring or storing between tyre manufacturing steps)
30/0027 . . . (Handling cured tyres, e.g. transferring or storing after vulcanizing)
30/0033 . . . (Rotating tyres or their components, e.g. carcasses, belt-tread packages, beads and the like, around their axis, i.e. for preventing deformation)
30/0038 . . . (Handling tyre parts or semi-finished parts, excluding beads, e.g. storing, transporting, transferring (B29D 2030/0044 takes precedence))
30/0044 . . . (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)]
30/0055 . . . (Optimization of the cycle times of the tyre manufacturing process, e.g. adaptation of the tyre building process to the vulcanization process)
30/0061 . . [Accessories, details or auxiliary operations not otherwise provided for]
30/0066 . . [Tyre quality control during manufacturing]
30/0072 . . [Attaching fasteners to tyres, e.g. patches, in order to connect devices to tyres]
30/0077 . . . (Directly attaching monitoring devices to tyres before or after vulcanization, e.g. microchips)
2030/0083 . . . . [Attaching monitoring devices to tyres before or after vulcanization by inserting them inside tyre cavities]

2030/0088 . . . . [Adaptive tyres, i.e. the properties of the tyres, e.g. the stiffness, being changeable during use]

2030/0094 . . . . [Tyres been capable of generating, e.g. recovering, energy]

30/02 . . . . Solid tyres [: Moulds therefor]

30/04 . . . . Resilient fillings for rubber tyres; Filling tyres therewith

30/06 . . . . Pneumatic tyres or parts thereof { (e.g. produced by casting, moulding, compression moulding, injection moulding, centrifugal casting) }

30/0601 . . . . [Vulcanising tyres; Vulcanising presses for tyres]

30/0602 . . . . [the vulcanising medium being in direct contact with the tyre] { [the vulcanising medium being in direct contact with the mould] }

30/0603 . . . . [Loading or unloading the presses]

30/0605 . . . . [Vulcanising presses characterised by moulds integral with the presses having radially movable sectors]

30/0606 . . . . [Vulcanising moulds not integral with vulcanising presses (for solid tyres B29D 30/02)]

2030/0607 . . . . [Constructional features of the moulds (moulds or cores in general B29C 33/00)] { [the moulds being made of a plurality of laminations, e.g. thin plates, adjacent one another, so as to create the moulding cavity] }

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]

2030/061 . . . . [Means for forming passages under the tread surface, e.g. undercuts, holes, channels, grooves]

2030/0612 . . . . [Means for forming recesses or protrusions in the tyres, e.g. grooves or ribs, to create the tread or sidewalls patterns]

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]

2030/0614 . . . . [Porous moulds, e.g. sintered materials (porous moulds in general B29C 33/3814)]

2030/0616 . . . . [Surface structure of the mould, e.g. roughness, arrangement of slits, grooves or channels]

2030/0617 . . . . [Venting devices, e.g. vent plugs or inserts]

2030/0618 . . . . [Annular elements, e.g. rings, for moulding the tyre shoulder areas]

2030/062 . . . . [Means for sealing the tyre against the mould in the bead areas]

2030/0621 . . . . [to seal the bead portions against the mould i.e. by using pressing devices]

2030/0622 . . . . [the pressing devices being collapsible, e.g. annular elements consisting of a plurality of sectors]

2030/0623 . . . . [the pressing devices being flexible, e.g. annular elements being relatively elastic and deformable]

2030/0625 . . . . [the pressing devices being substantially rigid]

2030/0626 . . . . [the pressing devices being one-piece devices]

2030/0627 . . . . [the pressing devices being ring-shaped]

30/0629 . . . . [with radially movable sectors]

30/063 . . . . [the moulds being split in upper and lower halves]

30/0631 . . . . [Means for forcing adjacent mould sectors away one from another, e.g. using springs or the like, to create repulsive forces]

30/0633 . . . . [After-treatment specially adapted for vulcanising tyres]

2030/0634 . . . . [Measuring, calculating, correcting tyre uniformity, e.g. correcting RFV]

2030/0635 . . . . [Measuring and calculating tyre uniformity, e.g. using mathematical methods]

2030/0637 . . . . [Correcting by adding material]

2030/0638 . . . . [Correcting by removing material, e.g. by grinding]

2030/0639 . . . . [Correcting by heat treatments]

2030/0641 . . . . [Correcting by restraining tyre deformation]

2030/0642 . . . . [Correcting by stretching]

30/0643 . . . . [Cooling during post cure inflation; Post cure inflators used therefor]

30/0645 . . . . [Devices for inserting vulcanising cores, i.e. bladders, into the tyres; Closing the press in combination therewith]

2030/0646 . . . . [Attaching to, or removing the vulcanizing cores or bladders from the center mechanisms]

2030/0647 . . . . [Supporting or transferring tyres using an assembly of a bladder and side rings]

30/0649 . . . . [Devices for removing vulcanising cores, i.e. bladders, from the tyres; Opening the press in combination therewith]

30/065 . . . . [Tyre-vulcanising presses with two or more moulds, e.g. stacked upon each other]

2030/0651 . . . . [the moulds being arranged side by side, or in a circle]

2030/0653 . . . . [Exchanging moulds in the presses]

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)]

2030/0655 . . . . [Constructional or chemical features of the flexible cores]

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)]
Building tyres

30/084 . . . [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]

30/086 . . . [Building the tyre carcass by combining two or more sub-assemblies, e.g. two half-carcasses]

30/088 . . . [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

30/105 . . . [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 (winding and joining, spirally in general B29C 53/562)]

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]

30/1655 . . . [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]

30/1664 . . . [Details, accessories or auxiliary operations not provided for in the other subgroups of B29D 30/00]

30/1671 . . . [Venting air inclusions during the layer applications, e.g. by creating grooves, channels, passages, holes in the band-like tire component to be applied]

30/1678 . . . [the layers being applied being substantially continuous, i.e. not being cut before the application step]
Drums of the undercut type without toroidal expansion, e.g. with provisions for folding down the beads, for positioning the beads under the surface of the drum

Accessories or details, e.g. membranes, transfer rings

Devices for transferring annular tyre components during the building-up stage, e.g. from the first stage to the second stage building drum

Bladders associated with the building drum, e.g. bladders used for the toroidal expansion, bladders for turning-up the plies

Means for clamping bladders on the drum shoulders

Bladders for shaping the inner parts of the tyre beads or sidewalls

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

Adjusting the diameter of the drum, to match its circumference with the length of ply

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

Radially expandable and contractable drum comprising a set of circumferentially arranged rigid elements, e.g. fingers or arms

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

Holding the layers, e.g. the webs or the plies, in position onto the drum

[by using magnets]

[by using mechanical means, e.g. jaws, grippers, pressing bars]

[by using suction means, e.g. vacuum producing devices]

Rolling-down or pressing-down the layers in the building process

Applying the layers; Guiding or stretching the layers during application [(applying tread bands to carcasses B29D 30/58; retreading B29D 30/54)]

[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)]

[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 cushioning elements 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 15/08; 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))

2030/426 . . . . . . (the joining devices being longitudinally adjustable (joining devices characterized by the movement of the joining tools B29C 66/83))

2030/427 . . . . . . (Positioning the bands at the joining areas (positioning the parts to be joined in general B29C 65/7802))
Positioning the bands at the overlapping joining areas (positioning the parts to be joined by setting the overlap in general B29C 65/7835))

Stretching or treating the layers before application on the drum (during application B29D 30/30)

[Adjusting the positions of the layers]

(angularly)

(laterally, e.g. sideways)

(longitudinally)

(by using gas flows, e.g. air jets blowing onto or underneath or sideways the layers)

[Adjusting the dimensions of the layers]

[Increasing the length of the layers, e.g. by stretching]

[Shortening the layers, e.g. by acting on the lateral edges or on the thickness or by cutting]

(by using speed differences, e.g. between conveyors or between conveyor and drum)

[Holding the layers]

(by electrostatically charging the layers)

(by using magnetic forces, e.g. magnets)

(by using mechanical means, e.g. grippers or pressing bars)

(by using suction means, e.g. vacuum)

[Cutting textile inserts to required shape]

[Holding the textile inserts during cutting; means therefor]

[Cutting the textile inserts between cords]

Bead-rings or bead-cores (from wire B21F 37/00); Treatment thereof prior to building the tyre

Fillers or apexes

[Applying fillers or apexes to bead cores]

[Treating the bead cores to increase rubber adhesion]

(the bead cores being made using a band containing a plurality of wires embedded in rubber)

[Additional components for the tyre bead areas, e.g. cushioning elements, chafers, flippers]

[Forming devices for manufacturing the beads]

[Clamping the wires on the forming devices]

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)

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)

Ring-shaped treads

[the tread comprising means for discharging the electrostatic charge, e.g. conductive elements or portions having conductivity higher than the tread rubber]

Retreading

[Abrading the tyre, e.g. buffing, to remove tread and/or sidewalls rubber, to prepare it for retreading]

[using envelopes or membranes provided with sealings for curing]

[Spreading the envelopes or membranes for inserting the tyre therein]

[Applying an intermediate adhesive layer, e.g. cement or cushioning element between carcass and tread]

[Using chambers to apply heat and pressure, e.g. autoclaves for curing the retreaded tyres]

[Measuring, detecting, monitoring, inspecting, controlling]

[Retreading solid tyres]

[Removing the worn out tread from the carcass, e.g. by pulling a continuous wire embedded between tread and carcass]

[Means for holding the tyre on a support]

Retreading with prevulcanised tread ([B29D 30/542 takes precedence])

Applying bands of rubber treads, i.e. applying camel backs

[Venting air inclusions, e.g. air trapped between tread and carcass]

[Radially expanding annular treads to fit it over carcasses]

[Using isostatic pressure, e.g. bags or bladders, to press tread and carcass against each other]

by winding narrow strips

by extrusion or injection of the tread on carcass

Tyre spreaders

Moulding treads on to tyre casings, e.g. non-skid treads with spikes

[Treads with antiskid properties, i.e. with spikes]

[Treads containing inserts other than spikes, e.g. fibers or hard granules, providing antiskid properties]

[Treads with antiskid properties, e.g. having special patterns or special rubber compositions]

Cutting profiles into the treads of tyres

[before tread vulcanization]

Annular breakers

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]

Side-walls

[Reinforcing the sidewalls, e.g. by using filaments, fibers or additional reinforcing layers]

[Stiffening the sidewalls, e.g. by using additional inserts, e.g. made of rubber, plastics or other materials]

[Decorating or marking the sidewalls before tyre vulcanization (protecting, decorating, marking tyre sidewalls B60C 13/00)]
NOTES
1. Classification is made in this group if the moulding technique is of interest.
2. The assembling of individual parts by mechanical joining is classified in subclass A43D.

subject matter not provided for in other groups of this subclass { (not used, see subgroups) }