CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

SHAPING

B29 WORKING OF PLASTICS; WORKING OF SUBSTANCES IN A PLASTIC STATE IN GENERAL

(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** (B29D 24/00 takes precedence)

7/01 . Films or sheets

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})

11/00009 . {Production of simple or compound lenses}

11/00019 . . {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 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}

30/0061 . {Accessories, details or auxiliary operations not otherwise provided for}

2030/0066 . . {Tyre quality control during manufacturing}

2030/0072 . . {Attaching fasteners to tyres, e.g. patches, in order to connect devices to tyres}

2030/0077 . . {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}

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)}

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 collapsable, 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}

2030/063 . . . . . {the moulds being split in upper and lower halves}

2030/0631 . . . . . {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 herewith}

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 herewith}

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)}

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}
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}
2030/1678 . . . . . {the layers being applied being substantially continuous, i.e. not being cut before the application step}
2030/1685 . . . . . {the layers being applied being already cut to the appropriate length, before the application step}
2030/1692 . . . . . {Changing the orientation of the layers, e.g. plies, to be applied}
30/18 . . . . Fitting the bead-rings or bead-cores; Folding the textile layers around the rings or cores
30/20 . . . by the flat-tyre method, i.e. building on cylindrical drums
2030/201 . . . . {Manufacturing run-flat tyres}

2030/202 . . . . {the building drums being movable, i.e. not permanently connected to a fixed frame}
2030/203 . . . . {the fixtures supporting the cylindrical drums being non displaceable, i.e. substantially fixed to the floor}
2030/204 . . . . {the fixtures supporting the cylindrical drums, e.g. turrets, being displaceable, e.g. movable along a path, rail or the like}
2030/205 . . . . {A single building drum being mounted on a fixture or supporting device, e.g. turret or turntable}
2030/206 . . . . {A plurality of building drums being mounted on a fixture or supporting device, e.g. turret or turntable}
2030/207 . . . . {the drum supporting device being rotatable around a horizontal axis}
2030/208 . . . . {the drum supporting device being rotatable around a vertical axis}
2030/209 . . . . {the drum supporting device being rotatable around an inclined axis}
30/22 . . . . Breaker plies being applied in the unexpanded state
30/24 . . . . Drums
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 blads 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)}
30/246 . . . . . {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)}
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)}
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}
30/26 . . . . . Accessories or details, e.g. membranes, transfer rings
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}
2030/2614 . . . . . {Bladders associated with the building drum, e.g. bladders used for the toroidal expansion, bladders for turning-up the plies}
2030/2621 . . . . . {Means for clamping bladders on the drum shoulders}
2030/2628 . . . . . {Bladders for shaping the inner parts of the tyre beads or sidewalls}
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}
2030/2642 . . . . . {Adjusting the diameter of the drum, to match its circumference with the length of ply}
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}
2030/2657 . . . . . {Radially expandable and contractable drum comprising a set of circumferentially arranged rigid elements, e.g. fingers or arms}
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}
2030/2671 . . . . . {Holding the layers, e.g. the webs or the plies, in position onto the drum}
2030/2678 . . . . . {by using magnets}
2030/2685 . . . . . {by using mechanical means, e.g. jaws, grippers, pressing bars}
2030/2692 . . . . . {by using suction means, e.g. vacuum producing devices}
30/28 . . . . Rolling-down or pressing-down the layers in the building process
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)}

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)}

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)}

30/44 . . . Stretching or treating the layers before application on the drum (during application B29D 30/30)

2030/4406 . . . . {Adjusting the positions of the layers}

2030/4412 . . . . . {angularly}

2030/4418 . . . . . {laterally, e.g. sideways}

2030/4425 . . . . . {longitudinally}

2030/4431 . . . . . {by using gas flows, e.g. air jets blowing onto or underneath or sideways the layers}

2030/4437 . . . . {Adjusting the dimensions of the layers}

2030/4443 . . . . . {Increasing the length of the layers, e.g. by stretching}
2030/445 . . . . . {Shortening the layers, e.g. by acting on the lateral edges or on the thickness or by cutting}
2030/4456 . . . . . {by using speed differences, e.g. between conveyors or between conveyor and drum}
2030/4462 . . . . . {by using grasping means}
2030/4468 . . . . {Holding the layers}
2030/4475 . . . . . {by electrostatically charging the layers}
2030/4481 . . . . . {by using magnetic forces, e.g. magnets}
2030/4487 . . . . . {by using mechanical means, e.g. grippers or pressing bars}
2030/4493 . . . . . {by using suction means, e.g. vacuum}
30/46 . . . Cutting textile inserts to required shape
2030/463 . . . . {Holding the textile inserts during cutting; means therefor}
2030/466 . . . . {Cutting the textile inserts between cords}
30/48 . . Bead-rings or bead-cores (from wire B21F 37/00); Treatment thereof prior to building the tyre
2030/481 . . . {Fillers or apexes}
2030/482 . . . {Applying fillers or apexes to bead cores}
2030/483 . . . {Treating the bead cores to increase rubber adhesion}
2030/485 . . . {the bead cores being made using a band containing a plurality of wires embedded in rubber}
2030/486 . . . {Additional components for the tyre bead areas, e.g. cushioning elements, chafers, flippers}
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)
30/52 . . Unvulcanised treads, e.g. on used tyres; Retreading (apparatus for forming {treads by extrusion B29C 48/00; apparatus for} vulcanising treads B29C 35/02; apparatus characterised by the means for holding wheels or parts thereof B60B 30/00)
2030/523 . . . {Ring-shaped treads}
2030/526 . . . {the tread comprising means for discharging the electrostatic charge, e.g. conductive elements or portions having conductivity higher than the tread rubber}
30/54 . . . Retreading
2030/541 . . . . {Abrading the tyre, e.g. buffing, to remove tread and/or sidewalls rubber, to prepare it for retreading}
30/542 . . . . {using envelopes or membranes provided with sealings for curing}
2030/543 . . . . . {Spreading the envelopes or membranes for inserting the tyre therein}
2030/544 . . . . {Applying an intermediate adhesive layer, e.g. cement or cushioning element between carcass and tread}
2030/545 . . . . {Using chambers to apply heat and pressure, e.g. autoclaves for curing the retreaded tyres}
2030/546 . . . . {Measuring, detecting, monitoring, inspecting, controlling}
2030/547 . . . . {Retreading solid tyres}
2030/548 . . . . {Removing the worn out tread from the carcass, e.g. by pulling a continuous wire embedded between tread and carcass}
2030/549 . . . . {Means for holding the tyre on a support}
30/56 . . . . Retreading with prevulcanised tread {(B29D 30/542 takes precedence)}
30/58 . . . Applying bands of rubber treads, i.e. applying camel backs
2030/582 . . . . {Venting air inclusions, e.g. air trapped between tread and carcass}
2030/585 . . . . {Radially expanding annular treads to fit it over carcasses}
2030/587 . . . . {Using isostatic pressure, e.g. bags or bladders, to press tread and carcass against each other}
30/60 . . . . by winding narrow strips
30/62 . . . . by extrusion or injection of the tread on carcass
30/64 . . . Tyre spreaders
30/66 . . . Moulding treads on to tyre casings, e.g. non-skid treads with spikes
2030/662 . . . . {Treads with antiskid properties, i.e. with spikes}
2030/665 . . . . {Treads containing inserts other than spikes, e.g. fibers or hard granules, providing antiskid properties}
2030/667 . . . . {Treads with antiskid properties, e.g. having special patterns or special rubber compositions}
30/68 . . . Cutting profiles into the treads of tyres
2030/685 . . . . {before tread vulcanization}
30/70 . . Annular breakers
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}
30/72 . . Side-walls
2030/722 . . . {Reinforcing the sidewalls, e.g. by using filaments, fibers or additional reinforcing layers}
2030/724 . . . {Stiffening the sidewalls, e.g. by using additional inserts, e.g. made of rubber, plastics or other materials}
2030/726 . . . {Decorating or marking the sidewalls before tyre vulcanization (protecting, decorating, marking tyre sidewalls B60C 13/00)}
2030/728 . . . {Decorating or marking the sidewalls after tyre vulcanization (protecting, decorating, marking tyre sidewalls B60C 13/00)}

33/00 Producing bushes for bearings

35/00 Producing footwear

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, e.g. by gluing shoe parts A43D 25/00

35/0009 . {by injection moulding; Apparatus therefor}

35/0018 . . {Moulds}
35/0027 . . . {Last constructions; Mountings therefor}
35/0036 . . . {with displaceable sole plates}
35/0045 . . . {Sealing means for the mould cavity}
35/0054 . {by compression moulding, vulcanising or the like; Apparatus therefor}
35/0063 . . {Moulds}
35/0072 . . . {Last constructions; Mountings therefor}
35/0081 . . . {with displaceable sole plates}
35/009 . . . {Sealing means for the mould cavity}
35/02 . made in one piece using a moulding technique, e.g. by injection moulding or casting
35/04 . . having multilayered parts
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
35/061 . . {by injection moulding}
35/062 . . . {using means to bond the moulding material to the preformed uppers}
35/064 . . . {using particular materials for the preformed uppers}
35/065 . . {by compression moulding, vulcanising or the like}
35/067 . . . {using means to bond the moulding material to the preformed uppers}
35/068 . . . {using particular materials for the preformed uppers}
35/08 . . having multilayered parts
35/081 . . . {by injection moulding}
35/082 . . . . {injecting first the outer sole part}
35/084 . . . . {using exchangeable mould elements}
35/085 . . . {by compression moulding, vulcanising or the like}
35/087 . . . . {forming first the outer sole part}
35/088 . . . . {using exchangeable mould elements}
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
35/12 . Producing parts thereof, e.g. soles, heels, uppers, by a moulding technique
35/122 . . {Soles}
35/124 . . {Heels}
35/126 . . {Uppers}
35/128 . . {Moulds or apparatus therefor}
35/14 . . Multilayered parts
35/142 . . . {Soles}
35/144 . . . {Heels}
35/146 . . . {Uppers}
35/148 . . . {Moulds or apparatus therefor}

99/00 Subject matter not provided for in other groups of this subclass

99/0003 . {Producing profiled members, e.g. beams}
99/0005 . . {Producing noodles, i.e. composite gap fillers, characterised by their construction}
99/0007 . . {having a variable cross-section}
99/001 . {Producing wall or panel-like structures, e.g. for hulls, fuselages, or buildings (articles with hollow walls B29D 24/00)}
99/0014 . . {provided with ridges or ribs, e.g. joined ribs}
99/0017 . . . {with filled hollow ridges}
99/0021 . . {provided with plain or filled structures, e.g. cores, placed between two or more plates or sheets, e.g. in a matrix}
99/0025 . {Producing blades or the like, e.g. blades for turbines, propellers, or wings}
99/0028 . . {hollow blades}
99/0032 . {Producing rolling bodies, e.g. rollers, wheels, pulleys or pinions (bushes for bearings B29D 33/00; gear wheels B29D 15/00)}
99/0035 . . {rollers or cylinders having an axial length of several times the diameter, e.g. for embossing, pressing, or printing}
99/0039 . {Producing countertops}
99/0042 . {Producing plain balls (hollow balls B29D 22/04)}
99/0046 . {Producing rods (connecting-rods formed from fiber-reinforced resins F16C 7/026)}
99/005 . {Producing membranes}
99/0053 . {Producing sealings (B29D 99/0085 takes precedence)}
99/0057 . {Producing floor coverings}
99/006 . {Producing casings, e.g. accumulator cases}
99/0064 . {Producing wearing apparel}
99/0067 . . {Gloves}
99/0071 . . {Masks, e.g. gas masks}
99/0075 . . {Bathing caps}
99/0078 . {Producing filamentary materials}
99/0082 . {Producing articles in the form of closed loops, e.g. rings (B29D 29/00 takes precedence)}
99/0085 . . {for sealing purposes}
99/0089 . {Producing honeycomb structures (consisting of porous ceramic ware C04B 38/0006)}
99/0092 . {Producing upholstery articles, e.g. cushions, seats (B29C 63/025 takes precedence)}
99/0096 . {Producing closure members for containers, e.g. closure caps or stoppers}