**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.

<table>
<thead>
<tr>
<th>1/00</th>
<th>Producing articles with screw-threads</th>
<th>11/00125</th>
<th>{Auxiliary operations, e.g. removing oxygen from the mould, conveying moulds from a storage to the production line in an inert atmosphere}</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/005</td>
<td>{fibre reinforced}</td>
<td>11/00134</td>
<td>{Curing of the contact lens material}</td>
</tr>
<tr>
<td>5/00</td>
<td>Producing elements of slide fasteners; Combined making and attaching of elements of slide fasteners</td>
<td>11/00144</td>
<td>{wherein the lens material is not fully polymerized, e.g. by leaving an unpolymerized volume}</td>
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<tr>
<td>5/02</td>
<td>the fasteners having separate interlocking members</td>
<td>11/00153</td>
<td>{Differential curing, e.g. by differential radiation}</td>
</tr>
<tr>
<td>5/04</td>
<td>the interlocking members being formed by continuous meander of filamentary material</td>
<td>11/00163</td>
<td>{Movable masks or shutters, e.g. to vary the exposure}</td>
</tr>
<tr>
<td>5/06</td>
<td>the interlocking members being formed by continuous helix</td>
<td>11/00173</td>
<td>{Conveying moulds}</td>
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<tr>
<td>5/08</td>
<td>the interlocking members being formed by profiled or castellated edge of a stringer</td>
<td>11/00182</td>
<td>{using carrier plates}</td>
</tr>
<tr>
<td>5/10</td>
<td>the interlocking members being formed by continuous profiled strip</td>
<td>11/00192</td>
<td>{Demoulding, e.g. separating lenses from mould halves}</td>
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<tr>
<td>7/00</td>
<td>Producing flat articles, e.g. films or sheets <em>(B29D 24/00 takes precedence)</em></td>
<td>11/00201</td>
<td>{using cooling means}</td>
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<tr>
<td>7/01</td>
<td>Films or sheets</td>
<td>11/00211</td>
<td>{using heating means}</td>
</tr>
<tr>
<td>11/00</td>
<td>Producing optical elements, e.g. lenses or prisms <em>(grinding or polishing of optical elements B24B; constructional form of optical elements G02B; [optical parts of spectacles G02C 7/00])</em></td>
<td>11/00221</td>
<td>{using prying means}</td>
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<tr>
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<td>{Production of simple or compound lenses}</td>
<td>11/0023</td>
<td>{Transferring contact lenses}</td>
</tr>
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<td>11/00019</td>
<td>{with non-spherical faces, e.g. toric faces}</td>
<td>11/0024</td>
<td>{using a vacuum suction gripper}</td>
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<td>11/00028</td>
<td>{Bifocal lenses; Multifocal lenses}</td>
<td>11/0025</td>
<td>{Removing impurities from contact lenses, e.g. leaching}</td>
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<td>{Production of contact lenses}</td>
<td>11/00259</td>
<td>{Plants for the production of contact lenses}</td>
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<tr>
<td>11/00048</td>
<td>{composed of parts with dissimilar composition <em>(B29D 11/00057 takes precedence)</em>}</td>
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<td>{Fresnel lenses}</td>
</tr>
<tr>
<td>11/00057</td>
<td>{characterised by the shape or surface condition of the edge, e.g. flashless, burrless, smooth}</td>
<td>11/00278</td>
<td>{Lenticular sheets <em>(B29D 11/00269 takes precedence)</em>}</td>
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<tr>
<td>11/00067</td>
<td>{Hydrating contact lenses}</td>
<td>11/00288</td>
<td>{made by a rotating cylinder}</td>
</tr>
<tr>
<td>11/00076</td>
<td>{enabling passage of fluids, e.g. oxygen, tears, between the area under the lens and the lens exterior}</td>
<td>11/00298</td>
<td>{Producing lens arrays}</td>
</tr>
<tr>
<td>11/00086</td>
<td>{methods for matching the anterior surface of the contact lens to the shape of an eyeball}</td>
<td>11/00307</td>
<td>{Producing lens wafers}</td>
</tr>
<tr>
<td>11/00096</td>
<td>{for delivering compositions, e.g. drugs to the eye}</td>
<td>11/00317</td>
<td>{Production of lenses with markings or patterns}</td>
</tr>
<tr>
<td>11/00105</td>
<td>{covering a large part of the cornea}</td>
<td>11/00326</td>
<td>{having particular surface properties, e.g. a micropattern}</td>
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<tr>
<td>11/00115</td>
<td>{made by rotational casting}</td>
<td>11/00336</td>
<td>{by making depressions in the lens surfaces}</td>
</tr>
<tr>
<td>11/00125</td>
<td>{Auxiliary operations, e.g. removing oxygen from the mould, conveying moulds from a storage to the production line in an inert atmosphere}</td>
<td>11/00346</td>
<td>{having nanosize structures or features, e.g. fillers}</td>
</tr>
<tr>
<td>11/00134</td>
<td>{Curing of the contact lens material}</td>
<td>11/00355</td>
<td>{with a refractive index gradient}</td>
</tr>
<tr>
<td>11/00144</td>
<td>{wherein the lens material is not fully polymerized, e.g. by leaving an unpolymerized volume}</td>
<td>11/00365</td>
<td>{Production of microlenses <em>(lenticular sheets B29D 11/00278)</em>}</td>
</tr>
<tr>
<td>11/00153</td>
<td>{Differential curing, e.g. by differential radiation}</td>
<td>11/00375</td>
<td>{by moulding lenses in holes through a substrate}</td>
</tr>
</tbody>
</table>
{Production of light guides}

{Production of filters}

{Production of reflex reflectors}

{Mirrors}

{Involving preforms for the manufacture of light guides}

NOTE

Classification in this group must be supplemented, in so far as any product is concerned, by classification in B32B.

{Local shaping by heating, e.g. local irradiation causing expansion}

{Producing solid immersion lenses [SIL]}

{Producing compound lenses}

{Producing non-circular, e.g. elliptic lenses}

{Producing cylindrical lenses}

{Producing electro-active lenses or lenses with energy receptors, e.g. batteries or antennas}

{(B29D 23/18)
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 99/00 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 30/2603 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. carcases, 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]
30/0083 [Attaching monitoring devices to tyres before or after vulcanization by inserting them inside tyre cavities]
30/0088 Adaptive tyres, i.e. the properties of the tyres, e.g. the stiffness, being changeable during use
30/0094 [Tyres been capable of generating, e.g. recovering, energy]
30/02 Solid tyres [ ]; Moulds therefor
30/06 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\}\}

2030/0607 \{Constructional features of the moulds \{moulds or cores in general\}\}

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\}\}

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 from one 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\}\}

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\}\}

2030/0662 \{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\}\}

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\}
Building tyres

Optimizing the deposition of the layers on the tyre building support, e.g. by using mathematical methods

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

Building the tyre carcass by combining two or more sub-assemblies, e.g. two half-carcasses

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

on round cores, i.e. the shape of the core is approximately identical with the shape of the completed tyre

the cores being moveable

Cores

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 core 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 core

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 53/56)]

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)]

by feeding a continuous band and moving it back and forth (zig-zag) to form an annular element

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

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

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

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

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

the layers being applied being substantially continuous, i.e. not being cut before the application step

the layers being applied being already cut to the appropriate length, before the application step

[Changing the orientation of the layers, e.g. plies, to be applied]

Fitting the bead-rings or bead-cores; Folding the textile layers around the rings or cores by the flat-tire method, i.e. building on cylindrical drums

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 . . . . . . . . . . . . . . . . . . Accessory 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]
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 beadings

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]
B29D

2030/443  . . .  [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]
2030/446  . . .  [by using speed differences, e.g. between conveyors or between conveyor and drum]
2030/448  . . .  [by using mechanical means, e.g. grippers or pressing bars]
2030/453  . . .  [by using grasping means]
30/46  . . .  Cutting textile inserts to required shape
30/46  . . .  [Holding the textile inserts during cutting; means therefor]
30/48  . . .  [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
30/48  . . .  [Fillers or apexes]
30/48  . . .  [Applying fillers or apexes to bead cores]
30/48  . . .  [Treating the bead cores to increase rubber adhesion]
30/48  . . .  [the bead cores being made using a band containing a plurality of wires embedded in rubber]
30/48  . . .  [Additional components for the tyre bead areas, e.g. cushioning elements, chafers, flippers]
30/48  . . .  [Forming devices for manufacturing the beads]
30/48  . . .  [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 48/10; apparatus for] vulcanising treads B29C 35/02; apparatus characterised by the means for holding wheels or parts thereof B60B 30/00)
30/52  . . .  [Ring-shaped treads]
30/52  . . .  [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]
30/54  . . .  [Abrading the tyre, e.g. buffing, to remove tread and/or sidewalls rubber, to prepare it for retreading]
30/54  . . .  [using envelopes or membranes provided with sealings for curing]
30/54  . . .  [Spreading the envelopes or membranes for inserting the tyre therein]
30/54  . . .  [Applying an intermediate adhesive layer, e.g. cement or cushioning element between carcass and tread]
30/54  . . .  [Using chambers to apply heat and pressure, e.g. autoclaves for curing the retreaded tyres]
30/56  . . .  Retreading with prevulcanised tread (B29D 30/542 takes precedence)
30/56  . . .  [Measuring, detecting, monitoring, inspecting, controlling]
30/58  . . .  Applying bands of rubber treads, i.e. applying camel backs
30/58  . . .  [Retreading solid tyres]
30/58  . . .  [Removing the worn out tread from the carcass, e.g. by pulling a continuous wire embedded between tread and carcass]
30/58  . . .  [Means for holding the tyre on a support]
30/58  . . .  [Venting air inclusions, e.g. air trapped between tread and carcass]
30/58  . . .  [Radially expanding annular treads to fit it over carcasses]
30/58  . . .  [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
30/66  . . .  [Treads containing inserts other than spikes, e.g. fibers or hard granules, providing antiskid properties]
30/66  . . .  [Treads with antiskid properties, e.g. having special patterns or special rubber compositions]
30/68  . . .  Cutting profiles into the treads of tyres
30/68  . . .  [before tread vulcanization]
30/70  . . .  Annular breakers
30/72  . . .  [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
30/72  . . .  [Reinforcing the sidewalls, e.g. by using filaments, fibers or additional reinforcing layers]
30/72  . . .  [Stiffening the sidewalls, e.g. by using additional inserts, e.g. made of rubber, plastics or other materials]
30/72  . . .  [Decorating or marking the sidewalls before tyre vulcanization (protecting, decorating, marking tyre sidewalls B60C 13/00)]
30/72  . . .  [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]
99/0096. . . [Moulds]
99/0092. . . [Last constructions; Mountings therefor]
99/0089. . . [with replaceable sole plates]
99/0085. . . [Sealing means for the mould cavity]
99/0082. . . [by compression moulding, vulcanising or the like; Apparatus therefor]
99/0078. . . [Moulds]
99/0075. . . [Last constructions; Mountings therefor]
99/0071. . . [with replaceable sole plates]
99/0067. . . [by injection moulding, pressing and vulcanising]
99/0064. . . [by injection moulding]
99/0061. . . [using means to bond the moulding material to the preformed uppers]
99/0060. . . [using particular materials for the preformed uppers]
99/0056. . . [by compression moulding, vulcanising or the like]
99/0052. . . [using means to bond the moulding material to the preformed uppers]
99/0048. . . [using particular materials for the preformed uppers]
99/0044. . . [having multilayered parts]
99/0040. . . [having soles or heels formed and joined on to preformed uppers using a moulding technique, e.g. by injection moulding, pressing and vulcanising]
99/0036. . . [by injection moulding]
99/0032. . . [by injection moulding]
99/0028. . . [using means to bond the moulding material to the preformed uppers]
99/0024. . . [using particular materials for the preformed uppers]
99/0020. . . [as forming first the outer sole part]
99/0016. . . [using exchangeable mould elements]
99/0012. . . [by injection moulding]
99/0008. . . [by injection moulding]
99/0004. . . [injecting first the outer sole part]
99/0000. . . [several times the diameter, e.g. for embossing, pressing, or printing]

50/00 Subject matter not provided for in other groups of this subclass

99/0003. . . [Moulds]
99/0005. . . [Last constructions; Mountings therefor]
99/0007. . . [with replaceable sole plates]
99/001. . . [Sealing means for the mould cavity]
99/0003. . . [by compression moulding, vulcanising or the like; Apparatus therefor]
99/0001. . . [by injection moulding, pressing and vulcanising]
99/0000. . . [by injection moulding]