

# 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.

<b>1/00</b>	<b>Producing articles with screw-threads</b>	11/00125	. . . {Auxiliary operations, e.g. removing oxygen from the mould, conveying moulds from a storage to the production line in an inert atmosphere}
1/005	. {fibre reinforced}		
<b>5/00</b>	<b>Producing elements of slide fasteners; Combined making and attaching of elements of slide fasteners</b>	11/00134	. . . . {Curing of the contact lens material}
5/02	. the fasteners having separate interlocking members	11/00144	. . . . {wherein the lens material is not fully polymerized, e.g. by leaving an unpolymerized volume}
5/04	. the interlocking members being formed by continuous meander of filamentary material	11/00153	. . . . {Differential curing, e.g. by differential radiation}
5/06	. the interlocking members being formed by continuous helix	11/00163	. . . . {Movable masks or shutters, e.g. to vary the exposure}
5/08	. the interlocking members being formed by profiled or castellated edge of a stringer	11/00173	. . . . {Conveying moulds}
5/10	. the interlocking members being formed by continuous profiled strip	11/00182	. . . . {using carrier plates}
<b>7/00</b>	<b>Producing flat articles, e.g. films or sheets</b> ( <a href="#">B29D 24/00</a> takes precedence)	11/00192	. . . . {Demoulding, e.g. separating lenses from mould halves}
7/01	. Films or sheets	11/00201	. . . . {using cooling means}
<b>11/00</b>	<b>Producing optical elements, e.g. lenses or prisms</b> ( <a href="#">grinding or polishing of optical elements B24B</a> ; <a href="#">constructional form of optical elements G02B</a> ; <a href="#">optical parts of spectacles G02C 7/00</a> )	11/00211	. . . . {using heating means}
11/00009	. {Production of simple or compound lenses}	11/00221	. . . . {using prying means}
11/00019	. . {with non-spherical faces, e.g. toric faces}	11/0023	. . . . {Transferring contact lenses}
11/00028	. . {Bifocal lenses; Multifocal lenses}	11/0024	. . . . {using a vacuum suction gripper}
11/00038	. . {Production of contact lenses}	11/0025	. . . . {Removing impurities from contact lenses, e.g. leaching}
11/00048	. . . {composed of parts with dissimilar composition ( <a href="#">B29D 11/00057</a> takes precedence)}	11/00259	. . . {Plants for the production of contact lenses}
11/00057	. . . {characterised by the shape or surface condition of the edge, e.g. flashless, burrless, smooth}	11/00269	. . {Fresnel lenses}
11/00067	. . . {Hydrating contact lenses}	11/00278	. . {Lenticular sheets ( <a href="#">B29D 11/00269</a> takes precedence)}
11/00076	. . . {enabling passage of fluids, e.g. oxygen, tears, between the area under the lens and the lens exterior}	11/00288	. . . {made by a rotating cylinder}
11/00086	. . . {methods for matching the anterior surface of the contact lens to the shape of an eyeball}	11/00298	. . . {Producing lens arrays}
11/00096	. . . {for delivering compositions, e.g. drugs to the eye}	11/00307	. . . {Producing lens wafers}
11/00105	. . . {covering a large part of the cornea}	11/00317	. . {Production of lenses with markings or patterns}
11/00115	. . . {made by rotational casting}	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 ( <a href="#">lenticular sheets B29D 11/00278</a> )}
		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)**

<b>17/00</b>	<b>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 <a href="#">G11B</a>); Producing record discs from master stencils</b>	24/008	. . {the structure having hollow ridges, ribs or cores}
17/002	. {Producing phonograph records}	<b>25/00</b>	<b>Producing frameless domes</b>
17/005	. {Producing optically read record carriers, e.g. optical discs}	<b>28/00</b>	<b>Producing nets or the like, {e.g. meshes, lattices}(by knotting <a href="#">D04G</a>)</b>
17/007	. . {Forming the relief pattern on a support larger than the record}	28/005	. {Reticulated structure comprising reinforcements of substantial or continuous length}
<b>19/00</b>	<b>Producing buttons or semi-finished parts of buttons</b>	<b>29/00</b>	<b>Producing belts or bands</b>
19/04	. by cutting, milling, turning, stamping, or perforating moulded parts; Surface treatment of buttons	29/06	. Conveyor belts
19/06	. . Devices for feeding semi-finished parts to the processing machines	29/08	. Toothed driving belts
19/08	. . Making holes in buttons or in semi-finished parts thereof	29/085	. . {Double-toothed driving belts}
<b>21/00</b>	<b>Producing hair combs or similar toothed or slotted articles</b>	29/10	. Driving belts having wedge-shaped cross-section
21/04	. by sawing, milling, cutting, or similar operations	29/103	. . {Multi-ribbed driving belts}
21/06	. Polishing	29/106	. . {Cogged driving belts}
<b>22/00</b>	<b>Producing hollow articles (tubular articles <a href="#">B29D 23/00</a>; pneumatic tyres <a href="#">B29D 30/00</a>)</b>	<b>30/00</b>	<b>Producing pneumatic or solid tyres or parts thereof (producing inner tubes <a href="#">B29D 23/24</a>; constructional form of tyres or parts thereof <a href="#">B60C</a>; connection of valves to inflatable elastic bodies <a href="#">B60C 29/00</a>; testing of tyres <a href="#">G01M 17/02</a>)</b>
22/003	. {Containers for packaging, storing or transporting, e.g. bottles, jars, cans, barrels, tanks}	30/005	. {Pretreatment of tyres or parts thereof, e.g. preheating, irradiation, curing}
22/006	. . {Hot water bottles}	2030/0011	. . {Surface activation of tyres or parts thereof, e.g. by plasma treatment}
22/02	. Inflatable articles	30/016	. {Handling tyres or parts thereof, e.g. supplying, storing, conveying ( <a href="#">B29D 30/2607</a> takes precedence; loading and unloading vulcanizing presses <a href="#">B29D 30/0603</a> )}
22/023	. . {Air springs; Air bellows (construction of fluid springs <a href="#">F16F 9/00</a> )}	2030/0022	. . {Handling green tyres, e.g. transferring or storing between tyre manufacturing steps}
22/026	. . {Ring shaped inner tubes with ends (endless inner tubes <a href="#">B29D 23/24</a> )}	2030/0027	. . {Handling cured tyres, e.g. transferring or storing after vulcanizing}
22/04	. Spherical articles, e.g. balls ( <a href="#">B29D 22/02</a> takes precedence)	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}
<b>23/00</b>	<b>Producing tubular articles (<a href="#">B29D 24/00</a> takes precedence)</b>	2030/0038	. . {Handling tyre parts or semi-finished parts, excluding beads, e.g., storing, transporting, transferring ( <a href="#">B29D 2030/0044</a> takes precedence)}
23/001	. {Pipes; Pipe joints (pleated hoses <a href="#">B29D 23/18</a> )}	2030/0044	. . {Handling tyre beads, e.g., storing, transporting, transferring and supplying to the toroidal support or to the drum}
23/003	. . {Pipe joints, e.g. straight joints}	30/005	. {General arrangement or lay-out of plants for the processing of tyres or parts thereof (vulcanization presses <a href="#">B29D 30/0601</a> ; round cores or cylindrical drums arranged for a single sequence of tyre building operations <a href="#">B29D 30/10</a> , <a href="#">B29D 30/20</a> )}
23/005	. . . {provided with electrical wiring}	2030/0055	. . {Optimization of the cycle times of the tyre manufacturing process, e.g. adaptation of the tyre building process to the vulcanization process}
23/006	. . . {Elbows}	30/061	. {Accessories, details or auxiliary operations not otherwise provided for}
23/008	. . . {T-joints}	2030/0066	. . {Tyre quality control during manufacturing}
23/14	. Cigar or cigarette holders	2030/0072	. . {Attaching fasteners to tyres, e.g. patches, in order to connect devices to tyres}
23/18	. Pleated {or corrugated} hoses	2030/0077	. . {Directly attaching monitoring devices to tyres before or after vulcanization, e.g. microchips}
23/20	. Flexible squeeze tubes, e.g. for cosmetics	2030/0083	. . {Attaching monitoring devices to tyres before or after vulcanization by inserting them inside tyre cavities}
23/24	. Endless tubes, e.g. inner tubes for pneumatic tyres {(producing ring shaped inner tubes with ends <a href="#">B29D 22/026</a> ; inflatable inner tubes for tyres <a href="#">B60C 5/00</a> )}	2030/0088	. . {Adaptive tyres, i.e. the properties of the tyres, e.g. the stiffness, being changeable during use}
<b>24/00</b>	<b>Producing articles with hollow walls {(<a href="#">B29D 99/0028</a> takes precedence)}</b>	2030/0094	. . {Tyres been capable of generating, e.g. recovering, energy}
24/001	. {formed of hollow ridges or ribs, e.g. separate ridges; continuous corrugated structure ( <a href="#">B29D 24/008</a> takes precedence)}	30/02	. Solid tyres {; Moulds therefor}
24/002	. {formed with structures, e.g. cores placed between two plates or sheets, e.g. partially filled (totally filled <a href="#">B29D 99/0021</a> )}		
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}		

30/04	. Resilient fillings for rubber tyres; Filling tyres therewith	2030/0635	. . . . . {Measuring and calculating tyre uniformity, e.g. using mathematical methods}
30/06	. Pneumatic tyres or parts thereof {(e.g. produced by casting, moulding, compression moulding, injection moulding, centrifugal casting)}	2030/0637	. . . . . {Correcting by adding material}
30/0601	. . {Vulcanising tyres; Vulcanising presses for tyres}	2030/0638	. . . . . {Correcting by removing material, e.g. by grinding}
30/0602	. . . {the vulcanising medium being in direct contact with the tyre}	2030/0639	. . . . . {Correcting by heat treatments}
30/0603	. . . {Loading or unloading the presses}	2030/0641	. . . . . {Correcting by restraining tyre deformation}
30/0605	. . . {Vulcanising presses characterised by moulds integral with the presses having radially movable sectors}	2030/0642	. . . . . {Correcting by stretching}
30/0606	. . . {Vulcanising moulds not integral with vulcanising presses (for solid tyres <a href="#">B29D 30/02</a> )}	30/0643	. . . . . {Cooling during post cure inflation; Post cure inflators used therefor}
2030/0607	. . . . {Constructional features of the moulds}	30/0645	. . . . {Devices for inserting vulcanising cores, i.e. bladders, into the tyres; Closing the press in combination herewith}
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}	2030/0646	. . . . . {Attaching to, or removing the vulcanizing cores or bladders from the center mechanisms}
2030/061	. . . . . {Means for forming passages under the tread surface, e.g. undercuts, holes, channels, grooves}	2030/0647	. . . . . {Supporting or transferring tyres using an assembly of a bladder and side rings}
2030/0612	. . . . . {Means for forming recesses or protrusions in the tyres, e.g. grooves or ribs, to create the tread or sidewalls patterns}	30/0649	. . . . {Devices for removing vulcanising cores, i.e. bladders, from the tyres; Opening the press in combination herewith}
2030/0613	. . . . . {Means, e.g. sipes or blade-like elements, for forming narrow recesses in the tyres, e.g. cuts or incisions for winter tyres}	30/065	. . . . {Tyre-vulcanising presses with two or more moulds, e.g. stacked upon each other}
2030/0614	. . . . . {porous moulds, e.g. sintered materials}	2030/0651	. . . . . {the moulds being arranged side by side, or in a circle}
2030/0616	. . . . . {Surface structure of the mould, e.g. roughness, arrangement of slits, grooves or channels}	2030/0653	. . . . . {Exchanging moulds in the presses}
2030/0617	. . . . . {Venting devices, e.g. vent plugs or inserts}	30/0654	. . . . {Flexible cores therefor, e.g. bladders, bags, membranes, diaphragms (elastic cores or mandrels for shaping of plastics <a href="#">B29C 33/505</a> ; bags for isostatic pressing in compression moulding <a href="#">B29C 43/12</a> , <a href="#">B29C 43/3642</a> )}
2030/0618	. . . . . {Annular elements, e.g. rings, for moulding the tyre shoulder areas}	2030/0655	. . . . . {Constructional or chemical features of the flexible cores}
2030/062	. . . . . {Means for sealing the tyre against the mould in the bead areas}	2030/0657	. . . . . {Removing the vulcanizing media from the flexible cores, e.g. draining or evacuating}
2030/0621	. . . . . {to seal the bead portions against the mould i.e. by using pressing devices}	2030/0658	. . . . . {Venting devices for the flexible cores}
2030/0622	. . . . . {the pressing devices being collapsable, e.g. annular elements consisting of a plurality of sectors}	2030/0659	. . . . . {Details or accessories for the flexible cores not otherwise provided for}
2030/0623	. . . . . {the pressing devices being flexible, e.g. annular elements being relatively elastic and deformable}	30/0661	. . . . {Rigid cores therefor, e.g. annular or substantially toroidal cores (cores for building tyres <a href="#">B29D 30/12</a> ; drums for building tyres <a href="#">B29D 30/24</a> )}
2030/0625	. . . . . {the pressing devices being substantially rigid}	30/0662	. . . . {Accessories, details or auxiliary operations}
2030/0626	. . . . . {the pressing devices being one-piece devices}	2030/0663	. . . . . {Mould maintenance, e.g. cleaning, washing, repairing}
2030/0627	. . . . . {the pressing devices being ring-shaped}	2030/0665	. . . . . {Measuring, calculating and correcting tyre uniformity before vulcanization}
30/0629	. . . . {with radially movable sectors}	2030/0666	. . . . . {Heating by using fluids}
2030/063	. . . . . {the moulds being split in upper and lower halves}	2030/0667	. . . . . {Circulating the fluids, e.g. introducing and removing them into and from the moulds; devices therefor}
2030/0631	. . . . . {Means for forcing adjacent mould sectors away one from another, e.g. using springs or the like, to create repulsive forces}	2030/0669	. . . . . {the fluids being circulated by a turbine type pump associated with the mould, e.g. positioned in the mould}
30/0633	. . . {After-treatment specially adapted for vulcanising tyres}	2030/067	. . . . . {the vulcanizing fluids being gases or vapours}
2030/0634	. . . . {Measuring, calculating, correcting tyre uniformity, e.g. correcting RFV}	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}	30/14	. . . .	Rolling-down or pressing-down the layers in the building process
2030/0677	. . . .	{Controlling temperature differences}	30/16	. . . .	Applying the layers; Guiding or stretching the layers during application {(applying tread bands to carcasses <a href="#">B29D 30/58</a> ; retreading <a href="#">B29D 30/54</a> )}
30/0678	. .	{Injection moulding specially adapted for tyres or parts thereof ( <a href="#">injection moulding in general B29C 45/00</a> )}	30/1607	. . . . .	{by feeding a sheet perpendicular to the core axis and joining the ends to form an annular element ( <a href="#">bending sheets and joining the edges B29C 53/42</a> )}
30/0679	. .	{Centrifugal casting specially adapted for tyres or parts thereof ( <a href="#">centrifugal casting in general B29C 39/08</a> )}	30/1614	. . . . .	{by sliding a preformed tubular layer over the core}
30/0681	. .	{Parts of pneumatic tyres; accessories, auxiliary operations}	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 ( <a href="#">winding and joining, spirally in general B29C 53/562</a> )}
2030/0682	. . .	{Inner liners}	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 ( <a href="#">winding and joining, helically in general B29C 53/58</a> )}
2030/0683	. . .	{Additional internal supports to be positioned inside the tyre, as emergency supports for run-flat tyres}	30/1635	. . . . .	{by feeding a continuous band and moving it back and forth (zig-zag) to form an annular element}
30/0685	. . .	{Incorporating auto-repairing or self-sealing arrangements or agents on or into tyres ( <a href="#">auto-repairing or self-sealing arrangements or agents B29C 73/16</a> ; <a href="#">puncture preventing arrangements B60C 19/12</a> )}	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}
2030/0686	. . . .	{Incorporating sealants on or into tyres not otherwise provided for; auxiliary operations therefore, e.g. preparation of the tyre}	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}
2030/0687	. . . . .	{by incorporating the sealant into one chamber, e.g. bag, cell, tube or closed cavity}	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}
2030/0689	. . . . .	{by incorporating the sealant into a plurality of chambers, e.g. bags, cells, tubes or closed cavities}	2030/1664	. . . . .	{Details, accessories or auxiliary operations not provided for in the other subgroups of <a href="#">B29D 30/00</a> }
2030/069	. . . . .	{through the use of a cylindrical support, e.g. a drum}	2030/1671	. . . . .	{Venting air inclusions during the layer applications, e.g. by creating grooves, channels, passages or holes in the band-like tyre component to be applied}
2030/0691	. . . . .	{through the use of a toroidal support, e.g. a core, a part of the tyre or an inner tube}	2030/1678	. . . . .	{the layers being applied being substantially continuous, i.e. not being cut before the application step}
2030/0693	. . . . .	{the sealant being in the form of discrete particles, e.g. spheres or balls, filled with sealant}	2030/1685	. . . . .	{the layers being applied being already cut to the appropriate length, before the application step}
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}	2030/1692	. . . . .	{Changing the orientation of the layers, e.g. plies, to be applied}
2030/0695	. . . . .	{the sealant being in the form of one wide strip, e.g. a patch}	30/18	. . . .	Fitting the bead-rings or bead-cores; Folding the textile layers around the rings or cores
2030/0697	. . . . .	{the sealant being in liquid form, e.g. applied by spraying}	30/20	. . .	by the flat-tyre method, i.e. building on cylindrical drums
2030/0698	. . . . .	{the sealant being applied by injection, e.g. introducing the sealant through a hole}	2030/201	. . . .	{Manufacturing run-flat tyres}
30/08	. .	Building tyres	2030/202	. . . .	{the building drums being movable, i.e. not permanently connected to a fixed frame}
2030/082	. . .	{Optimizing the deposition of the layers on the tyre building support, e.g. by using mathematical methods}	2030/203	. . . .	{the fixtures supporting the cylindrical drums being non displaceable, i.e. substantially fixed to the floor}
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			

2030/204	. . . .	{the fixtures supporting the cylindrical drums, e.g. turrets, being displaceable, e.g. movable along a path, rail or the like}	2030/2628	. . . . .	{Bladders for shaping the inner parts of the tyre beads or sidewalls}
2030/205	. . . .	{A single building drum being mounted on a fixture or supporting device, e.g. turret or turntable}	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}
2030/206	. . . .	{A plurality of building drums being mounted on a fixture or supporting device, e.g. turret or turntable}	2030/2642	. . . . .	{Adjusting the diameter of the drum, to match its circumference with the length of ply}
2030/207	. . . .	{the drum supporting device being rotatable around a horizontal axis}	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}
2030/208	. . . .	{the drum supporting device being rotatable around a vertical axis}	2030/2657	. . . . .	{Radially expandable and contractable drum comprising a set of circumferentially arranged rigid elements, e.g. fingers or arms}
2030/209	. . . .	{the drum supporting device being rotatable around an inclined axis}	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}
30/22	. . . .	Breaker plies being applied in the unexpanded state	2030/2671	. . . . .	{Holding the layers, e.g. the webs or the plies, in position onto the drum}
30/24	. . . .	Drums	2030/2678	. . . . .	{by using magnets}
2030/241	. . . . .	{Auxiliary drums used for temporary storage of the layers before application to the building drums}	2030/2685	. . . . .	{by using mechanical means, e.g. jaws, grippers, pressing bars}
30/242	. . . . .	{for manufacturing substantially cylindrical tyre components without cores or beads, e.g. treads or belts}	2030/2692	. . . . .	{by using suction means, e.g. vacuum producing devices}
30/243	. . . . .	{and with mechanisms for folding layers}	30/28	. . . .	Rolling-down or pressing-down the layers in the building process
30/244	. . . . .	{for manufacturing substantially cylindrical tyre components with cores or beads, e.g. carcasses (mechanisms for folding layers around cores or blades <a href="#">per se B29D 30/32</a> )}	30/30	. . . .	Applying the layers; Guiding or stretching the layers during application {(applying tread bands to carcasses <a href="#">B29D 30/58</a> ; retreading <a href="#">B29D 30/54</a> )}
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 <a href="#">B29D 30/36</a> )}	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 <a href="#">B29C 53/42</a> )}
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 <a href="#">B29D 30/36</a> )}	30/3014	. . . . .	{by sliding a preformed tubular layer over the drum}
30/247	. . . . .	{Arrangements for the first stage only, e.g. means for radially expanding the drum to lock the beads ( <a href="#">B29D 30/245 takes precedence</a> )}	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 <a href="#">B29C 53/562</a> )}
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}	30/3028	. . . . .	{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 <a href="#">B29C 53/58</a> )}
30/26	. . . . .	Accessories or details, e.g. membranes, transfer rings	30/3035	. . . . .	{by feeding a continuous band and moving it back and forth (zig-zag) to form an annular element}
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}
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}			

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}	30/38	. . .	Textile inserts, e.g. cord or canvas layers, for tyres ( <a href="#">making woven fabrics D03D</a> ); Treatment of inserts prior to building the tyre ( <a href="#">pretreatment of inserts B29B 15/00</a> ; manufacture of layers comprising fibrous parallel reinforcements of substantial or continuous length <a href="#">B29C 70/20</a> )
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}	2030/381	. . .	{the inserts incorporating reinforcing parallel cords; manufacture thereof}
2030/3064	. . . . .	{Details, accessories and auxiliary operations not otherwise provided for}	2030/383	. . .	{Chemical treatment of the reinforcing elements, e.g. cords, wires and filamentary materials, to increase the adhesion to the rubber}
2030/3071	. . . . .	{Venting air inclusions during the layer applications, e.g. by creating grooves, channels, passages or holes in the band-like tyre component to be applied}	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}
2030/3078	. . . . .	{the layers being applied being substantially continuous, i.e. not being cut before the application step}	2030/386	. . . . .	{the tubular article being cut to obtain a flat, single-layer insert}
2030/3085	. . . . .	{the layers being applied being already cut to the appropriate length, before the application step}	2030/388	. . . . .	{the tubular article being flattened to obtain a two-layer insert}
2030/3092	. . . . .	{Changing the orientation of the layers, e.g. plies, to be applied}	30/40	. . .	Chemical pretreatment of textile inserts before building the tyre
30/32	. . . . .	Fitting the bead-rings or bead-cores; Folding the textile layers around the rings or cores	30/42	. . .	Endless textile bands without bead-rings
2030/3207	. . . . .	{Positioning the beads}	2030/421	. . . . .	{General aspects of the joining methods and devices for creating the bands}
2030/3214	. . . . .	{Locking the beads on the drum; details of the drum in the bead locking areas, e.g. drum shoulders}	2030/422	. . . . .	{Butt joining}
2030/3221	. . . . .	{Folding over means, e.g. bladders or rigid arms}	2030/423	. . . . .	{Joining by overlapping}
2030/3228	. . . . .	{using one bladder acting on each side of the drum}	2030/424	. . . . .	{the joining devices being angularly adjustable}
2030/3235	. . . . .	{using two or more bladders acting on each side of the drum}	2030/425	. . . . .	{the joining devices being laterally adjustable}
2030/3242	. . . . .	{and with means for pressing the bladder against the ply material, e.g. bladder guide shoes, cages, arms}	2030/426	. . . . .	{the joining devices being longitudinally adjustable}
2030/325	. . . . .	{the means being radially expandable and contractible}	2030/427	. . . . .	{Positioning the bands at the joining areas}
2030/3257	. . . . .	{using pressing rollers}	2030/428	. . . . .	{Positioning the bands at the overlapping joining areas}
2030/3264	. . . . .	{using radially expandable, contractible mechanical means, e.g. circumferentially spaced arms, spring rollers, cages}	30/44	. . .	Stretching or treating the layers before application on the drum ( <a href="#">during application B29D 30/30</a> )
2030/3271	. . . . .	{using air blasts}	2030/4406	. . . . .	{Adjusting the positions of the layers}
2030/3278	. . . . .	{Folding down the ends of the tubular tyre component, e.g. the carcass, over the drum shoulders}	2030/4412	. . . . .	{angularly}
2030/3285	. . . . .	{Placing a cushioning element, e.g. a ring, aside or around the beads}	2030/4418	. . . . .	{laterally, e.g. sideways}
2030/3292	. . . . .	{Interposing trap strips between beads and plies}	2030/4425	. . . . .	{longitudinally}
30/34	. . .	by jointly covering two bead-rings, located parallel to each other at a distance apart, with fabric or cord layers	2030/4431	. . . . .	{by using gas flows, e.g. air jets blowing onto or underneath or sideways the 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	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}	30/60	. . . . by winding narrow strips
30/48	. . Bead-rings or bead-cores (from wire <a href="#">B21F 37/00</a> ); Treatment thereof prior to building the tyre	30/62	. . . . by extrusion or injection of the tread on carcass
2030/481	. . . {Fillers or apexes}	30/64	. . . Tyre spreaders
2030/482	. . . {Applying fillers or apexes to bead cores}	30/66	. . . Moulding treads on to tyre casings, e.g. non-skid treads with spikes
2030/483	. . . {Treating the bead cores to increase rubber adhesion}	2030/662	. . . . {Treads with antiskid properties, i.e. with spikes}
2030/485	. . . {the bead cores being made using a band containing a plurality of wires embedded in rubber}	2030/665	. . . . {Treads containing inserts other than spikes, e.g. fibers or hard granules, providing antiskid properties}
2030/486	. . . {Additional components for the tyre bead areas, e.g. cushioning elements, chafers, flippers}	2030/667	. . . . {Treads with antiskid properties, e.g. having special patterns or special rubber compositions}
2030/487	. . . {Forming devices for manufacturing the beads}	30/68	. . . Cutting profiles into the treads of tyres
2030/488	. . . {Clamping the wires on the forming devices}	2030/685	. . . . {before tread vulcanization}
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 <a href="#">B29D 30/18</a> , <a href="#">B29D 30/32</a> ; jointly covering bead-rings or bead cores <a href="#">B29D 30/34</a> )	30/70	. . Annular breakers
30/52	. . Unvulcanised treads, e.g. on used tyres; Retreading (apparatus for forming {treads by extrusion <a href="#">B29C 48/00</a> ; apparatus for} vulcanising treads <a href="#">B29C 35/02</a> ; apparatus characterised by the means for holding wheels or parts thereof <a href="#">B60B 30/00</a> )	2030/705	. . . {the breakers being obtained by cutting a continuous reinforced strip into predefined lengths and placing the cut strips side by side on a suitable support, e.g. a toroidal core or a carcass}
2030/523	. . . {Ring-shaped treads}	30/72	. . Side-walls
2030/526	. . . {the tread comprising means for discharging the electrostatic charge, e.g. conductive elements or portions having conductivity higher than the tread rubber}	2030/722	. . . {Reinforcing the sidewalls, e.g. by using filaments, fibers or additional reinforcing layers}
30/54	. . . Retreading	2030/724	. . . {Stiffening the sidewalls, e.g. by using additional inserts, e.g. made of rubber, plastics or other materials}
2030/541	. . . . {Abrading the tyre, e.g. buffing, to remove tread and/or sidewalls rubber, to prepare it for retreading}	2030/726	. . . {Decorating or marking the sidewalls before tyre vulcanization}
30/542	. . . . {using envelopes or membranes provided with sealings for curing}	2030/728	. . . {Decorating or marking the sidewalls after tyre vulcanization}
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}	<b>33/00</b>	<b>Producing bushes for bearings</b>
2030/545	. . . . {Using chambers to apply heat and pressure, e.g. autoclaves for curing the retreaded tyres}	<b>35/00</b>	<b>Producing footwear</b>
2030/546	. . . . {Measuring, detecting, monitoring, inspecting, controlling}		<b>NOTES</b>
2030/547	. . . . {Retreading solid tyres}		1. Classification is made in this group if the moulding technique is of interest.
2030/548	. . . . {Removing the worn out tread from the carcass, e.g. by pulling a continuous wire embedded between tread and carcass}		2. The assembling of individual parts by mechanical joining is classified in subclass <a href="#">A43D</a> , e.g. by gluing shoe parts <a href="#">A43D 25/00</a>
2030/549	. . . . {Means for holding the tyre on a support}	35/0009	. {by injection moulding; Apparatus therefor}
30/56	. . . . Retreading with prevulcanised tread ( <a href="#">B29D 30/542</a> takes precedence)	35/0018	. . {Moulds}
30/58	. . . Applying bands of rubber treads, i.e. applying camel backs	35/0027	. . . {Last constructions; Mountings therefor}
2030/582	. . . . {Venting air inclusions, e.g. air trapped between tread and carcass}	35/0036	. . . {with displaceable sole plates}
2030/585	. . . . {Radially expanding annular treads to fit it over carcasses}	35/0045	. . . {Sealing means for the mould cavity}
2030/587	. . . . {Using isostatic pressure, e.g. bags or bladders, to press tread and carcass against each other}	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}