

CPC**COOPERATIVE PATENT CLASSIFICATION****B29D****PRODUCING PARTICULAR ARTICLES FROM PLASTICS OR FROM SUBSTANCES IN A PLASTIC STATE** ([making granules](#)[B29B 9/00](#); [making preforms B29B 11/00](#))**B29D 1/00****Producing articles with screw-threads**[B29D 1/005](#)

- . {[fibre reinforced](#)}

B29D 5/00**Producing elements of slide fasteners; Combined making and attaching of elements of slide fasteners**[B29D 5/02](#)

- . the fasteners having separate interlocking members

[B29D 5/04](#)

- . the interlocking members being formed by continuous meander of filamentary material

[B29D 5/06](#)

- . the interlocking members being formed by continuous helix

[B29D 5/08](#)

- . the interlocking members being formed by profiled or castellated edge of a stringer

[B29D 5/10](#)

- . the interlocking members being formed by continuous profiled strip

B29D 7/00**Producing flat articles, e.g. films or sheets** ([B29D 24/00](#) takes precedence)[B29D 7/01](#)

- . Films or sheets

B29D 2009/00**IPC7 Producing layered products****B29D 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](#)})[B29D 11/00009](#)

- . {[Production of simple or compound lenses](#)}

[B29D 11/00019](#)

- . . {[with non-spherical faces, e.g. toric faces](#)}

[B29D 11/00028](#)

- . . {[Bifocal lenses; Multifocal lenses](#)}

[B29D 11/00038](#)

- . . {[Production of contact lenses](#)}

[B29D 11/00048](#)

- . . . {[composed of parts with dissimilar composition](#) ([B29D 11/00057](#) takes precedence)}

[B29D 11/00057](#)

- . . . {[characterised by the shape or surface condition of the edge, e.g. flashless, burrless, smooth](#)}

[B29D 11/00067](#)

- . . . {[Hydrating contact lenses](#)}

[B29D 11/00076](#)

- . . . {[enabling passage of fluids, e.g. oxygen, tears, between the area under the lens and the lens exterior](#)}

[B29D 11/00086](#)

- . . . {[methods for matching the anterior surface of the contact lens to the shape of an eyeball](#)}

[B29D 11/00096](#)

- . . . {[for delivering compositions, e.g. drugs to the eye](#)}

[B29D 11/00105](#)

- . . . {[covering a large part of the cornea](#)}

[B29D 11/00115](#)

- . . . {[made by rotational casting](#)}

[B29D 11/00125](#)

- . . . {[Auxiliary operations, e.g. removing oxygen from the mould, conveying moulds from a storage to the production line in an inert atmosphere](#)}

B29D 11/00134	. . . . {Curing of the contact lens material}
B29D 11/00144	. . . . . {wherein the lens material is not fully polymerized, e.g. by leaving an unpolymerized volume}
B29D 11/00153	. . . . . {Differential curing, e.g. by differential radiation}
B29D 11/00163	. . . . . {Movable masks or shutters, e.g. to vary the exposure}
B29D 11/00173	. . . . {Conveying moulds}
B29D 11/00182	. . . . . {using carrier plates}
B29D 11/00192	. . . . {Demoulding, e.g. separating lenses from mould halves}
B29D 11/00201	. . . . . {using cooling means}
B29D 11/00211	. . . . . {using heating means}
B29D 11/00221	. . . . . {using prying means}
B29D 11/0023	. . . . {Transferring contact lenses}
B29D 11/0024	. . . . . {using a vacuum suction gripper}
B29D 11/0025	. . . . {Removing impurities from contact lenses, e.g. leaching}
B29D 11/00259	. . . {Plants for the production of contact lenses}
B29D 11/00269	. . {Fresnel lenses}
B29D 11/00278	. . {Lenticular sheets (B29D 11/00269 takes precedence)}
B29D 11/00288	. . . {made by a rotating cylinder}
B29D 11/00298	. . . {Producing lens arrays}
B29D 11/00307	. . . {Producing lens wafers}
B29D 11/00317	. . {Production of lenses with markings or patterns}
B29D 11/00326	. . . {having particular surface properties, e.g. a micro pattern}
B29D 11/00336	. . . . {by making depressions in the lens surfaces}
B29D 11/00346	. . . . {having nano size structures or features, e.g. fillers}
B29D 11/00355	. . {with a refractive index gradient}
B29D 11/00365	. . {Production of microlenses (lenticular sheets B29D 11/00278)}
B29D 11/00375	. . . {by moulding lenses in holes through a substrate}
B29D 11/00384	. . . {Local shaping by heating, e.g. local irradiation causing expansion}
B29D 11/00394	. . . {Producing solid immersion lenses [SIL]}
B29D 11/00403	. . {Producing compound lenses}
B29D 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 to B29D 11/00355 , B29D 11/00423 , B29D 11/00432 take precedence)}
B29D 11/00423	. . {Plants for the production of simple or compound lenses (B29D 11/00259 takes precedence)}
B29D 11/00432	. . {Auxiliary operations, e.g. machines for filling the moulds (B29D 11/00125 takes precedence)}
B29D 11/00442	. . . {Curing the lens material}
B29D 11/00451	. . . {Changing a shape by remelting}
B29D 11/00461	. . . {Adjusting the refractive index e.g. after implanting}
B29D 11/00471	. . {made by rotational casting (B29D 11/00115 takes precedence)}

- B29D 11/0048 . . {Moulds for lenses (moulds for plastic articles in general [B29C 33/00](#))}
- B29D 11/0049 . . . {Double sided moulds}
- B29D 11/005 . . . {having means for aligning the front and back moulds}
- B29D 11/00509 {to make toric lenses}
- B29D 11/00519 . . . {Reusable moulds}
- B29D 11/00528 . . . {Consisting of two mould halves joined by an annular gasket}
- B29D 11/00538 . . . {Feeding arrangements}
- B29D 11/00548 . . . {with surfaces formed by films}
- B29D 11/00557 . . . {with deformable mould walls, e.g. to make lenses with different shapes}
- B29D 11/00567 . . . {wherein the mould forms part of the final package for lenses}
- B29D 11/00576 . . . {with means to engage flash, e.g. HEMA ring}
- B29D 11/00586 {and removing the flash or HEMA ring}
- B29D 11/00596 . {Mirrors}
- B29D 11/00605 . {Production of reflex reflectors}
- B29D 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](#))}
- B29D 11/00625 . . {Moulds for reflex reflectors (moulds for plastic articles in general [B29C 33/00](#))}
- B29D 11/00634 . {Production of filters}
- B29D 11/00644 . . {polarizing}
- B29D 11/00653 . . {photochromic}
- B29D 11/00663 . {Production of light guides}
- B29D 11/00673 . . {Supports for light guides}
- B29D 11/00682 . . {with a refractive index gradient}
- B29D 11/00692 . . {combined with lenses}
- B29D 11/00701 . . {having an intermediate layer between core and cladding}
- B29D 11/00711 . . {by shrinking the sleeve or cladding onto the core}
- B29D 11/00721 . . {involving preforms for the manufacture of light guides}
- B29D 11/0073 . {Optical laminates}

NOTE

Classification in this group must be supplemented, in so far as any product is concerned, by classification in [B32B](#)

- B29D 11/0074 . {Production of other optical elements not provided for in [B29D 11/00009-B29D 11/0073](#)}
- B29D 11/0075 . . {Connectors for light guides}
- B29D 11/00759 . . {Branching elements for light guides}
- B29D 11/00769 . . {Producing diffraction gratings}
- B29D 11/00778 . . {Producing hyperlenses, superlenses or "perfect" lenses}
- B29D 11/00788 . . {Producing optical films}
- B29D 11/00798 . . {Producing diffusers}

B29D 11/00807	. . {Producing lenses combined with electronics, e.g. chips}
B29D 11/00817	. . . {Producing electro-active lenses or lenses with energy receptors, e.g. batteries or antennas}
B29D 11/00826	. . . . {with energy receptors for wireless energy transmission}
B29D 11/00836	. . {Producing non-circular, e.g. elliptic lenses}
B29D 11/00846	. . {Producing zero power lenses}
B29D 11/00855	. . {Producing cylindrical lenses}
B29D 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)}
B29D 11/00875	. . {on light guides}
B29D 11/00884	. . {Spin coating}
B29D 11/00894	. . {colouring or tinting}
B29D 11/00903	. . . {on the surface}
B29D 11/00913	. . . {full body; edge-to-edge}
B29D 11/00923	. . {on lens surfaces for colouring or tinting (printing or marking in general B41M)}
B29D 11/00932	. {Combined cutting and grinding thereof}
B29D 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}
B29D 11/00951	. {Measuring, controlling or regulating}
B29D 11/00961	. . {using microprocessors or computers}
B29D 11/00971	. . . {using CNC machining to make mould surfaces}
B29D 11/0098	. . {Inspecting lenses}
B29D 11/0099	. . . {while still attached to the mould}
B29D 11/02	. Artificial eyes from organic plastic material {(implantable eye parts, artificial eyes A61F 2/14)}
B29D 11/023	. . {Implants for natural eyes}
B29D 11/026	. . . {Comprising more than one lens}
B29D 12/00	Producing frames
B29D 12/02	. Spectacle frames (constructional form G02C)
B29D 15/00	Producing gear wheels or similar articles with grooves or projections, e.g. control knobs
B29D 16/00	Producing articles with corrugations (B29D 23/18 takes precedence)
B29D 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
B29D 17/002	. {Producing phonograph records}
B29D 17/005	. {Producing optically read record carriers, e.g. optical discs}

B29D 17/007	<ul style="list-style-type: none"> . . {Forming the relief pattern on a support larger than the record}
B29D 19/00	Producing buttons or semi-finished parts of buttons
B29D 19/04	<ul style="list-style-type: none"> . by cutting, milling, turning, stamping, or perforating moulded parts; Surface treatment of buttons
B29D 19/06	<ul style="list-style-type: none"> . . Devices for feeding semi-finished parts to the processing machines
B29D 19/08	<ul style="list-style-type: none"> . . Making holes in buttons or in semi-finished parts thereof
B29D 21/00	Producing hair combs or similar toothed or slotted articles
B29D 21/04	<ul style="list-style-type: none"> . by sawing, milling, cutting, or similar operations
B29D 21/06	<ul style="list-style-type: none"> . Polishing
B29D 22/00	Producing hollow articles (tubular articles B29D 23/00 ; pneumatic tyres B29D 30/00)
B29D 22/003	<ul style="list-style-type: none"> . {Containers for packaging, storing or transporting, e.g. bottles, jars, cans, barrels, tanks}
B29D 22/006	<ul style="list-style-type: none"> . . {Hot water bottles}
B29D 22/02	<ul style="list-style-type: none"> . Inflatable articles
B29D 22/023	<ul style="list-style-type: none"> . . {Air springs; Air bellows (construction of fluid springs F16F 9/00)}
B29D 22/026	<ul style="list-style-type: none"> . . {Ring shaped inner tubes with ends (endless inner tubes B29D 23/24)}
B29D 22/04	<ul style="list-style-type: none"> . Spherical articles, e.g. balls (B29D 22/02 takes precedence)
B29D 23/00	Producing tubular articles (B29D 24/00 takes precedence)
B29D 23/001	<ul style="list-style-type: none"> . {Pipes; Pipe joints (pleated hoses B29D 23/18)}
B29D 23/003	<ul style="list-style-type: none"> . . {Pipe joints, e.g. straight joints}
B29D 23/005	<ul style="list-style-type: none"> . . . {provided with electrical wiring}
B29D 23/006	<ul style="list-style-type: none"> . . . {Elbows}
B29D 23/008	<ul style="list-style-type: none"> . . . {T-joints}
B29D 23/14	<ul style="list-style-type: none"> . Cigar or cigarette holders
B29D 23/18	<ul style="list-style-type: none"> . Pleated {or corrugated} hoses
B29D 23/20	<ul style="list-style-type: none"> . Flexible squeeze tubes, e.g. for cosmetics
B29D 23/24	<ul style="list-style-type: none"> . 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)}
B29D 24/00	Producing articles with hollow walls {(B29D 99/0028 takes precedence)}
B29D 24/001	<ul style="list-style-type: none"> . {formed of hollow ridges or ribs, e.g. separate ridges; continuous corrugated structure (B29D 24/008 takes precedence)}
B29D 24/002	<ul style="list-style-type: none"> . {formed with structures, e.g. cores placed between two plates or sheets, e.g. partially filled (totally filled B29D 99/0021)}
B29D 24/004	<ul style="list-style-type: none"> . . {the structure having vertical or oblique ribs}
B29D 24/005	<ul style="list-style-type: none"> . . {the structure having joined ribs, e.g. honeycomb}
B29D 24/007	<ul style="list-style-type: none"> . . . {and a chamfered edge}
B29D 24/008	<ul style="list-style-type: none"> . . {the structure having hollow ridges, ribs or cores}

B29D 25/00	Producing frameless domes
B29D 28/00	Producing nets or the like, {e.g. meshes, lattices} (by knotting D04G)
B29D 28/005	<ul style="list-style-type: none"> • {Reticulated structure comprising reinforcements of substantial or continuous length}
B29D 29/00	Producing belts or bands
B29D 29/06	<ul style="list-style-type: none"> • Conveyer belts
B29D 29/08	<ul style="list-style-type: none"> • Toothed driving belts
B29D 29/085	<ul style="list-style-type: none"> • • {Double-toothed driving belts}
B29D 29/10	<ul style="list-style-type: none"> • Driving belts having wedge-shaped cross-section
B29D 29/103	<ul style="list-style-type: none"> • • {Multi-ribbed driving belts}
B29D 29/106	<ul style="list-style-type: none"> • • {Cogged driving belts}
B29D 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)
B29D 30/0005	<ul style="list-style-type: none"> • {Pretreatment of tyres or parts thereof, e.g. preheating, irradiation, precuring}
B29D 2030/0011	<ul style="list-style-type: none"> • • {Surface activation of tyres or parts thereof, e.g. by plasma treatment}
B29D 30/0016	<ul style="list-style-type: none"> • {Handling tyres or parts thereof, e.g. supplying, storing, conveying (B29D 30/2607 takes precedence; loading and unloading vulcanizing presses B29D 30/0603)}
B29D 2030/0022	<ul style="list-style-type: none"> • • {Handling green tyres, e.g. transferring or storing between tyre manufacturing steps}
B29D 2030/0027	<ul style="list-style-type: none"> • • {Handling cured tyres, e.g. transferring or storing after vulcanizing}
B29D 2030/0033	<ul style="list-style-type: none"> • • {Rotating tyres or their components, e.g. carcasses, belt-tread packages, beads and the like, around their axis, i. e. for preventing deformation}
B29D 2030/0038	<ul style="list-style-type: none"> • • {Handling tyre parts or semi-finished parts, excluding beads, e.g., storing, transporting, transferring (B29D 2030/0044 takes precedence)}
B29D 2030/0044	<ul style="list-style-type: none"> • • {Handling tyre beads, e.g., storing, transporting, transferring and supplying to the toroidal support or to the drum}
B29D 30/005	<ul style="list-style-type: none"> • {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)}
B29D 2030/0055	<ul style="list-style-type: none"> • • {Optimization of the cycle times of the tyre manufacturing process, e.g. adaptation of the tyre building process to the vulcanization process}
B29D 30/0061	<ul style="list-style-type: none"> • {Accessories, details or auxiliary operations not otherwise provided for}
B29D 2030/0066	<ul style="list-style-type: none"> • • {Tyre quality control during manufacturing}
B29D 2030/0072	<ul style="list-style-type: none"> • • {Attaching fasteners to tyres, e.g. patches, in order to connect devices to tyres}
B29D 2030/0077	<ul style="list-style-type: none"> • • {Directly attaching monitoring devices to tyres before or after vulcanization, e.g. microchips}
B29D 2030/0083	<ul style="list-style-type: none"> • • {Attaching monitoring devices to tyres before or after vulcanization by inserting them inside tyre cavities}

- B29D 2030/0088 . . {Adaptive tyres, i.e. the properties of the tyres, e.g. the stiffness, being changeable during use}
- B29D 2030/0094 . . {Tyres been capable of generating, e.g. recovering, energy}
- B29D 30/02 . Solid tyres
- B29D 30/04 . Resilient fillings for rubber tyres; Filling tyres therewith
- B29D 30/06 . Pneumatic tyres or parts thereof {(e.g. produced by casting, moulding, compression moulding, injection moulding, centrifugal casting)}
- B29D 30/0601 . . {Vulcanising tyres; Vulcanising presses for tyres}
- B29D 30/0602 . . . {the vulcanising medium being in direct contact with the tyre}
- B29D 30/0603 . . . {Loading or unloading the presses}
- B29D 30/0605 . . . {Vulcanising presses characterised by moulds integral with the presses having radially movable sectors}
- B29D 30/0606 . . . {Vulcanising moulds not integral with vulcanising presses}
- B29D 2030/0607 {Constructional features of the moulds (moulds or cores in general [B29C 33/00](#))}
- B29D 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}
- B29D 2030/061 {Means for forming passages under the tread surface, e.g. undercuts, holes, channels, grooves}
- B29D 2030/0612 {Means for forming recesses or protrusions in the tyres, e.g. grooves or ribs, to create the tread or sidewalls patterns}
- B29D 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}
- B29D 2030/0614 {porous moulds, e.g. sintered materials ([porous moulds in general B29C 33/3814](#))}
- B29D 2030/0616 {Surface structure of the mould e.g. roughness, arrangement of slits, grooves or channels}
- B29D 2030/0617 {Venting devices, e.g. vent plugs or inserts}
- B29D 2030/0618 {Annular elements, e.g. rings, for moulding the tyre shoulder areas}
- B29D 2030/062 {Means for sealing the tyre against the mould in the bead areas}
- B29D 2030/0621 {to seal the bead portions against the mould i. e. by using pressing devices}
- B29D 2030/0622 {the pressing devices being collapsable, e.g. annular elements consisting of a plurality of sectors}
- B29D 2030/0623 {the pressing devices being flexible, e.g. annular elements being relatively elastic and deformable}
- B29D 2030/0625 {the pressing devices being substantially rigid}
- B29D 2030/0626 {the pressing devices being one-piece devices}
- B29D 2030/0627 {the pressing devices being ring-shaped}
- B29D 30/0629 {with radially movable sectors}
- B29D 2030/063 {the moulds being split in upper and lower halves}
- B29D 2030/0631 {Means for forcing adjacent mould sectors away one from another, e.g. using springs or the like, to create repulsive forces}
- B29D 30/0633 . . . {After-treatment specially adapted for vulcanising tyres}

B29D 2030/0634	. . . .	{Measuring, calculating, correcting tyre uniformity, e.g. correcting RFV}
B29D 2030/0635	. . . . .	{Measuring and calculating tyre uniformity, e.g. using mathematical methods}
B29D 2030/0637	. . . . .	{Correcting by adding material}
B29D 2030/0638	. . . . .	{Correcting by removing material, e.g. by grinding}
B29D 2030/0639	. . . . .	{Correcting by heat treatments}
B29D 2030/0641	. . . . .	{Correcting by restraining tyre deformation}
B29D 2030/0642	. . . . .	{Correcting by stretching}
B29D 30/0643	. . . .	{Cooling during post cure inflation; Post cure inflators used therefor}
B29D 30/0645	. . .	{Devices for inserting vulcanising cores, i.e. bladders, into the tyres; Closing the press in combination herewith}
B29D 2030/0646	. . . .	{Attaching to, or removing the vulcanizing cores or bladders from the center mechanisms}
B29D 2030/0647	. . . .	{Supporting or transferring tyres using an assembly of a bladder and side rings}
B29D 30/0649	. . .	{Devices for removing vulcanising cores, i.e. bladders, from the tyres; Opening the press in combination herewith}
B29D 30/065	. . .	{Tyre-vulcanising presses with two or more moulds, e.g. stacked upon each other}
B29D 2030/0651	. . . .	{the moulds being arranged side by side, or in a circle}
B29D 2030/0653	. . . .	{Exchanging moulds in the presses}
B29D 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)}
B29D 2030/0655	. . . .	{Constructional or chemical features of the flexible cores}
B29D 2030/0657	. . . .	{Removing the vulcanizing media from the flexible cores, e.g. draining or evacuating}
B29D 2030/0658	. . . .	{Venting devices for the flexible cores}
B29D 2030/0659	. . . .	{Details or accessories for the flexible cores not otherwise provided for}
B29D 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)}
B29D 30/0662	. . .	{Accessories, details or auxiliary operations}
B29D 2030/0663	. . . .	{Mould maintenance, e.g. cleaning, washing, repairing}
B29D 2030/0665	. . . .	{Measuring, calculating and correcting tyre uniformity before vulcanization}
B29D 2030/0666	. . . .	{Heating by using fluids (heating, cooling or curing using liquids, gas or steam B29C 35/04)}
B29D 2030/0667	. . . . .	{Circulating the fluids, e.g. introducing and removing them into and from the moulds; devices therefor}
B29D 2030/0669	. . . . .	{the fluids being circulated by a turbine type pump associated with the mould, e.g. positioned in the mould}
B29D 2030/067	. . . . .	{the vulcanizing fluids being gases or vapours}
B29D 2030/0671	. . . . .	{the vulcanizing fluids being liquids}

B29D 2030/0673	. . . . .	{the vulcanizing fluids being combinations of different kinds of fluids, e.g. steam and nitrogen}
B29D 2030/0674	. . . . .	{Heating by using non-fluid means, e.g. electrical heating}
B29D 2030/0675	. . . . .	{Controlling the vulcanization processes}
B29D 2030/0677	. . . . .	{Controlling temperature differences}
B29D 30/0678	. .	{Injection moulding specially adapted for tyres or parts thereof (injection moulding in general B29C 45/00)}
B29D 30/0679	. .	{Centrifugal casting specially adapted for tyres or parts thereof (centrifugal casting in general B29C 39/08)}
B29D 30/0681	. .	{Parts of pneumatic tyres; accessories, auxiliary operations}
B29D 2030/0682	. . .	{Inner liners (tubeless tyres with impervious liner or coating on the tyre B60C 5/14)}
B29D 2030/0683	. . .	{Additional internal supports to be positioned inside the tyre, as emergency supports for run-flat tyres}
B29D 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)}
B29D 2030/0686	. . . .	{Incorporating sealants on or into tyres not otherwise provided for; auxiliary operations therefore, e.g. preparation of the tyre}
B29D 2030/0687	. . . . .	{by incorporating the sealant into one chamber, e.g. bag, cell, tube or closed cavity}
B29D 2030/0689	. . . . .	{by incorporating the sealant into a plurality of chambers, e.g. bags, cells, tubes or closed cavities}
B29D 2030/069	. . . . .	{through the use of a cylindrical support, e.g. a drum}
B29D 2030/0691	. . . . .	{through the use of a toroidal support, e.g. a core, a part of the tyre or an inner tube}
B29D 2030/0693	. . . . .	{the sealant being in the form of discrete particles, e.g. spheres or balls, filled with sealant}
B29D 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}
B29D 2030/0695	. . . . .	{the sealant being in the form of one wide strip, e.g. a patch}
B29D 2030/0697	. . . . .	{the sealant being in liquid form, e.g. applied by spraying}
B29D 2030/0698	. . . . .	{the sealant being applied by injection, e.g. introducing the sealant through a hole}
B29D 30/08	. .	Building tyres
B29D 2030/082	. . .	{Optimizing the deposition of the layers on the tyre building support, e.g. by using mathematical methods}
B29D 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}
B29D 2030/086	. . .	{Building the tyre carcass by combining two or more sub-assemblies, e.g. two half-carcasses}
B29D 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}

B29D 30/10	. . .	on round cores, i.e. the shape of the core is approximately identical with the shape of the completed tyre
B29D 2030/105	. . . .	{the cores being movable}
B29D 30/12	. . . .	Cores
B29D 30/14	. . . .	Rolling-down or pressing-down the layers in the building process
B29D 30/16	. . . .	Applying the layers; Guiding or stretching the layers during application {(applying tread bands to carcasses B29D 30/58 ; retreading B29D 30/54)}
B29D 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)}
B29D 30/1614	. . . . .	{by sliding a preformed tubular layer over the core}
B29D 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)}
B29D 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)}
B29D 30/1635	. . . . .	{by feeding a continuous band and moving it back and forth (zig-zag) to form an annular element}
B29D 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}
B29D 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}
B29D 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}
B29D 2030/1664	. . . . .	{Details, accessories or auxiliary operations not provided for in the other subgroups of B29D 30/00 }
B29D 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}
B29D 2030/1678	. . . . .	{the layers being applied being substantially continuous, i. e. not being cut before the application step}
B29D 2030/1685	. . . . .	{the layers being applied being already cut to the appropriate length, before the application step}
B29D 2030/1692	. . . . .	{Changing the orientation of the layers, e.g. plies, to be applied}
B29D 30/18	. . . .	Fitting the bead-rings or bead-cores; Folding the textile layers around the rings or cores
B29D 30/20	. . .	by the flat-tyre method, i.e. building on cylindrical drums
B29D 2030/201	. . . .	{Manufacturing run-flat tyres}
B29D 2030/202	. . . .	{the building drums being movable, i.e. not permanently connected to a fixed frame}

B29D 2030/203	. . . .	{the fixtures supporting the cylindrical drums being non displaceable, i.e. substantially fixed to the floor}
B29D 2030/204	. . . .	{the fixtures supporting the cylindrical drums, e.g. turrets, being displaceable, e.g. movable along a path, rail or the like}
B29D 2030/205	. . . .	{A single building drum being mounted on a fixture or supporting device, e.g. turret or turntable}
B29D 2030/206	. . . .	{A plurality of building drums being mounted on a fixture or supporting device, e.g. turret or turntable}
B29D 2030/207	. . . .	{the drum supporting device being rotatable around a horizontal axis}
B29D 2030/208	. . . .	{the drum supporting device being rotatable around a vertical axis}
B29D 2030/209	. . . .	{the drum supporting device being rotatable around an inclined axis}
B29D 30/22	. . . .	Breaker plies being applied in the unexpanded state
B29D 30/24	. . . .	Drums
B29D 2030/241	. . . . .	{Auxiliary drums used for temporary storage of the layers before application to the building drums}
B29D 30/242	. . . . .	{for manufacturing substantially cylindrical tyre components without cores or beads, e.g. treads or belts}
B29D 30/243	. . . . .	{and with mechanisms for folding layers}
B29D 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)}
B29D 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)}
B29D 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)}
B29D 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)}
B29D 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}
B29D 30/26	. . . . .	Accessories or details, e.g. membranes, transfer rings
B29D 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}
B29D 2030/2614	. . . . .	{Bladders associated with the building drum, e.g. bladders used for the toroidal expansion, bladders for turning-up the plies}
B29D 2030/2621	. . . . .	{Means for clamping bladders on the drum shoulders}
B29D 2030/2628	. . . . .	{Bladders for shaping the inner parts of the tyre beads or sidewalls}
B29D 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}

B29D 2030/2642	. . . . .	{Adjusting the diameter of the drum, to match its circumference with the length of ply}
B29D 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}
B29D 2030/2657	. . . . .	{Radially expandable and contractable drum comprising a set of circumferentially arranged rigid elements, e.g. fingers or arms}
B29D 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}
B29D 2030/2671	. . . . .	{Holding the layers, e.g. the webs or the plies, in position onto the drum}
B29D 2030/2678	. . . . .	{by using magnets}
B29D 2030/2685	. . . . .	{by using mechanical means, e.g. jaws, grippers, pressing bars}
B29D 2030/2692	. . . . .	{by using suction means, e.g. vacuum producing devices}
B29D 30/28	. . . . .	Rolling-down or pressing-down the layers in the building process
B29D 30/30	. . . . .	Applying the layers; Guiding or stretching the layers during application {(applying tread bands to carcasses B29D 30/58 ; retreading B29D 30/54)}
B29D 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)}
B29D 30/3014	. . . . .	{by sliding a preformed tubular layer over the drum}
B29D 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)}
B29D 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)}
B29D 30/3035	. . . . .	{by feeding a continuous band and moving it back and forth (zig-zag) to form an annular element}
B29D 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}
B29D 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}
B29D 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}
B29D 2030/3064	. . . . .	{Details, accessories and auxiliary operations not otherwise provided for}

B29D 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}
B29D 2030/3078	. . . . .	{the layers being applied being substantially continuous, i. e. not being cut before the application step}
B29D 2030/3085	. . . . .	{the layers being applied being already cut to the appropriate length, before the application step}
B29D 2030/3092	. . . . .	{Changing the orientation of the layers, e.g. plies, to be applied}
B29D 30/32	. . . .	Fitting the bead-rings or bead-cores; Folding the textile layers around the rings or cores
B29D 2030/3207	. . . . .	{Positioning the beads}
B29D 2030/3214	. . . . .	{Locking the beads on the drum; details of the drum in the bead locking areas, e.g. drum shoulders}
B29D 2030/3221	. . . . .	{Folding over means, e.g. bladders or rigid arms}
B29D 2030/3228	. . . . .	{using one bladder acting on each side of the drum}
B29D 2030/3235	. . . . .	{using two or more bladders acting on each side of the drum}
B29D 2030/3242	. . . . .	{and with means for pressing the bladder against the ply material, e.g. bladder guide shoes, cages, arms}
B29D 2030/325	. . . . .	{the means being radially expandable and contractible}
B29D 2030/3257	. . . . .	{using pressing rollers}
B29D 2030/3264	. . . . .	{using radially expandable, contractible mechanical means, e.g. circumferentially spaced arms, spring rollers, cages}
B29D 2030/3271	. . . . .	{using air blasts}
B29D 2030/3278	. . . . .	{Folding down the ends of the tubular tyre component, e.g. the carcass, over the drum shoulders}
B29D 2030/3285	. . . . .	{Placing a cushioning element, e.g. a ring, aside or around the beads}
B29D 2030/3292	. . . . .	{Interposing trap strips between beads and plies}
B29D 30/34	. . .	by jointly covering two bead-rings, located parallel to each other at a distance apart, with fabric or cord layers
B29D 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 tyre built by the flat-tyre method or by jointly covering two bead-rings
B29D 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)
B29D 2030/381	. . .	{the inserts incorporating reinforcing parallel cords; manufacture thereof}
B29D 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)}
B29D 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}

B29D 2030/386	. . . .	{the tubular article being cut to obtain a flat, single-layer insert}
B29D 2030/388	. . . .	{the tubular article being flattened to obtain a two-layer insert}
B29D 30/40	. . .	Chemical pretreatment of textile inserts before building the tyre
B29D 30/42	. . .	Endless textile bands without bead-rings
B29D 2030/421	. . . .	{General aspects of the joining methods and devices for creating the bands (joining of preformed parts in general B29C 65/00)}
B29D 2030/422	. . . . .	{Butt joining (single butt to butt joints in general B29C 66/1142)}
B29D 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)}
B29D 2030/424	. . . . .	{the joining devices being angularly adjustable (joining devices characterized by the movement of the joining tools B29C 66/83)}
B29D 2030/425	. . . . .	{the joining devices being laterally adjustable (joining devices characterized by the movement of the joining tools B29C 66/83)}
B29D 2030/426	. . . . .	{the joining devices being longitudinally adjustable (joining devices characterized by the movement of the joining tools B29C 66/83)}
B29D 2030/427	. . . . .	{Positioning the bands at the joining areas (positioning the parts to be joined in general B29C 65/7802)}
B29D 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)}
B29D 30/44	. . .	Stretching or treating the layers before application on the drum (during application B29D 30/30)
B29D 2030/4406	. . . .	{Adjusting the positions of the layers}
B29D 2030/4412	. . . . .	{angularly}
B29D 2030/4418	. . . . .	{laterally, e.g. sideways}
B29D 2030/4425	. . . . .	{longitudinally}
B29D 2030/4431	. . . . .	{by using gas flows, e.g. air jets blowing onto or underneath or sideways the layers}
B29D 2030/4437	. . . .	{Adjusting the dimensions of the layers}
B29D 2030/4443	. . . . .	{Increasing the length of the layers, e.g. by stretching}
B29D 2030/445	. . . . .	{Shortening the layers, e.g. by acting on the lateral edges or on the thickness or by cutting}
B29D 2030/4456	. . . . .	{by using speed differences, e.g. between conveyors or between conveyor and drum}
B29D 2030/4462	. . . . .	{by using grasping means}
B29D 2030/4468	. . . .	{Holding the layers}
B29D 2030/4475	. . . . .	{by electrostatically charging the layers}
B29D 2030/4481	. . . . .	{by using magnetic forces, e.g. magnets}
B29D 2030/4487	. . . . .	{by using mechanical means, e.g. grippers or pressing bars}
B29D 2030/4493	. . . . .	{by using suction means, e.g. vacuum}
B29D 30/46	. . .	Cutting textile inserts to required shape
B29D 2030/463	. . . .	{Holding the textile inserts during cutting; means therefor}
B29D 2030/466	. . . .	{Cutting the textile inserts between cords}

- B29D 30/48 . . . Bead-rings or bead-cores ([from wire B21F 37/00](#)); Treatment thereof prior to building the tyre
- B29D 2030/481 . . . {Fillers or apexes}
- B29D 2030/482 . . . {Applying fillers or apexes to bead cores}
- B29D 2030/483 . . . {Treating the bead cores to increase rubber adhesion}
- B29D 2030/485 . . . {the bead cores being made using a band containing a plurality of wires embedded in rubber}
- B29D 2030/486 . . . {Additional components for the tyre bead areas, e.g. cushioning elements, chafers, flippers}
- B29D 2030/487 . . . {Forming devices for manufacturing the beads}
- B29D 2030/488 . . . {Clamping the wires on the forming devices}
- B29D 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](#))
- B29D 30/52 . . . Unvulcanised treads, e.g. on used tyres; Retreading ([apparatus for forming {treads by extrusion B29C 47/00; apparatus for} vulcanising treads B29C 35/02; apparatus characterised by the means for holding wheels or parts thereof B60B 30/00](#))
- B29D 2030/523 . . . {Ring-shaped treads}
- B29D 2030/526 . . . {the tread comprising means for discharging the electrostatic charge, e.g. conductive elements or portions having conductivity higher than the tread rubber}
- B29D 30/54 . . . Retreading
- B29D 2030/541 {Abrading the tyre, e.g. buffing, to remove tread and/or sidewalls rubber, to prepare it for retreading}
- B29D 30/542 {using envelopes or membranes provided with sealings for curing}
- B29D 2030/543 {Spreading the envelopes or membranes for inserting the tyre therein}
- B29D 2030/544 {Applying an intermediate adhesive layer, e.g. cement or cushioning element between carcass and tread}
- B29D 2030/545 {Using chambers to apply heat and pressure, e.g. autoclaves for curing the retreaded tyres}
- B29D 2030/546 {Measuring, detecting, monitoring, inspecting, controlling}
- B29D 2030/547 {Retreading solid tyres}
- B29D 2030/548 {Removing the worn out tread from the carcass, e.g. by pulling a continuous wire embedded between tread and carcass}
- B29D 2030/549 {Means for holding the tyre on a support}
- B29D 30/56 Retreading with prevulcanised tread ([{B29D 30/542 takes precedence}](#))
- B29D 30/58 Applying bands of rubber treads, i.e. applying camel backs
- B29D 2030/582 {Venting air inclusions, e.g. air trapped between tread and carcass}
- B29D 2030/585 {Radially expanding annular treads to fit it over carcasses}
- B29D 2030/587 {Using isostatic pressure, e.g. bags or bladders, to press tread and carcass against each other}

B29D 30/60	. . . . by winding narrow strips
B29D 30/62	. . . . by extrusion or injection of the tread on carcass
B29D 30/64	. . . Tyre spreaders
B29D 30/66	. . . Moulding treads on to tyre casings, e.g. non-skid treads with spikes
B29D 2030/662	. . . . {Treads with antiskid properties, i.e. with spikes}
B29D 2030/665	. . . . {Treads containing inserts other than spikes, e.g. fibers or hard granules, providing antiskid properties}
B29D 2030/667	. . . . {Treads with antiskid properties, e.g. having special patterns or special rubber compositions}
B29D 30/68	. . . Cutting profiles into the treads of tyres
B29D 2030/685	. . . . {before tread vulcanization}
B29D 30/70	. . Annular breakers
B29D 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}
B29D 30/72	. . Side-walls
B29D 2030/722	. . . {Reinforcing the sidewalls, e.g. by using filaments, fibers or additional reinforcing layers}
B29D 2030/724	. . . {Stiffening the sidewalls, e.g. by using additional inserts, e.g. made of rubber, plastics or other materials}
B29D 2030/726	. . . {Decorating or marking the sidewalls before tyre vulcanization (protecting, decorating , marking tyre sidewalls B60C 13/00)}
B29D 2030/728	. . . {Decorating or marking the sidewalls after tyre vulcanization (protecting, decorating , marking tyre sidewalls B60C 13/00)}

B29D 33/00 Producing bushes for bearings

B29D 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](#)

B29D 35/0009	. {by injection moulding; Apparatus therefor}
B29D 35/0018	. . {Moulds}
B29D 35/0027	. . . {Last constructions; Mountings therefor}
B29D 35/0036	. . . {with displaceable sole plates}
B29D 35/0045	. . . {Sealing means for the mould cavity}
B29D 35/0054	. {by compression moulding, vulcanising or the like; Apparatus therefor}
B29D 35/0063	. . {Moulds}
B29D 35/0072	. . . {Last constructions; Mountings therefor}
B29D 35/0081	. . . {with displaceable sole plates}
B29D 35/009	. . . {Sealing means for the mould cavity}

- B29D 35/02
 - made in one piece using a moulding technique, e.g. by injection moulding or casting
- B29D 35/04
 - • having multilayered parts
- B29D 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
- B29D 35/061
 - • {by injection moulding}
- B29D 35/062
 - • • {using means to bond the moulding material to the preformed uppers}
- B29D 35/064
 - • • {using particular materials for the preformed uppers}
- B29D 35/065
 - • {by compression moulding, vulcanising or the like}
- B29D 35/067
 - • • {using means to bond the moulding material to the preformed uppers}
- B29D 35/068
 - • • {using particular materials for the preformed uppers}
- B29D 35/08
 - • having multilayered parts
- B29D 35/081
 - • • {by injection moulding}
- B29D 35/082
 - • • • {injecting first the outer sole part}
- B29D 35/084
 - • • • {using exchangeable mould elements}
- B29D 35/085
 - • • {by compression moulding, vulcanising or the like}
- B29D 35/087
 - • • • {forming first the outer sole part}
- B29D 35/088
 - • • • {using exchangeable mould elements}
- B29D 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
- B29D 35/12
 - Producing parts thereof, e.g. soles, heels, uppers, by a moulding technique
- B29D 35/122
 - • {Soles}
- B29D 35/124
 - • {Heels}
- B29D 35/126
 - • {Uppers}
- B29D 35/128
 - • {Moulds or apparatus therefor}
- B29D 35/14
 - • Multilayered parts
- B29D 35/142
 - • • {Soles}
- B29D 35/144
 - • • {Heels}
- B29D 35/146
 - • • {Uppers}
- B29D 35/148
 - • • {Moulds or apparatus therefor}
- B29D 99/00**

Subject matter not provided for in other groups of this subclass {{not used, see subgroups}}
- B29D 99/0003
 - {Producing profiled members, e.g. beams}
- B29D 99/0007
 - • {having a variable cross-section}
- B29D 99/001
 - {Producing wall or panel-like structures, e.g. for hulls, fuselages, or buildings (articles with hollow walls [B29D 24/00](#))}
- B29D 99/0014
 - • {provided with ridges or ribs, e.g. joined ribs}
- B29D 99/0017
 - • • {with filled hollow ridges}
- B29D 99/0021
 - • {provided with plain or filled structures, e.g. cores, placed between two or more plates or sheets, e.g. in a matrix}

- B29D 99/0025 . {Producing blades or the like, e.g. blades for turbines, propellers, or wings}
- B29D 99/0028 . . {hollow blades}
- B29D 99/0032 . {Producing rolling bodies, e.g. rollers, wheels, pulleys or pinions (bushes for bearings [B29D 33/00](#); gear wheels [B29D 15/00](#))}
- B29D 99/0035 . . {rollers or cylinders having an axial length of several times the diameter, e.g. for embossing, pressing, or printing}
- B29D 99/0039 . {Producing countertops}
- B29D 99/0042 . {Producing plain balls (hollow balls [B29D 22/04](#))}
- B29D 99/0046 . {Producing rods (connecting-rods formed from fiber-reinforced resins [F16C 7/026](#))}
- B29D 99/005 . {Producing membranes}
- B29D 99/0053 . {Producing sealings ([B29D 99/0085](#) takes precedence)}
- B29D 99/0057 . {Producing floor coverings}
- B29D 99/006 . {Producing casings, e.g. accumulator cases}
- B29D 99/0064 . {Producing wearing apparel}
- B29D 99/0067 . . {Gloves}
- B29D 99/0071 . . {Masks, e.g. gas masks}
- B29D 99/0075 . . {Bathing caps}
- B29D 99/0078 . {Producing filamentary materials}
- B29D 99/0082 . {Producing articles in the form of closed loops, e.g. rings ([B29D 29/00](#) takes precedence)}
- B29D 99/0085 . . {for sealing purposes}
- B29D 99/0089 . {Producing honeycomb structures (consisting of porous ceramic ware [C04B 38/0006](#))}
- B29D 99/0092 . {Producing upholstery articles, e.g. cushions, seats ([B29C 63/025](#) takes precedence)}
- B29D 99/0096 . {Producing closure members for containers, e.g. closure caps or stoppers}