

ECLA EUROPEAN CLASSIFICATION

B60B VEHICLE WHEELS; CASTORS; AXLES; INCREASING WHEEL ADHESION

Note

Attention is drawn to the Explanatory Note following the class title (B60)

Guide heading: Wheels (wheels for roller skates [A63C17/22](#); making wheels or wheel parts [B21D53/26](#); by rolling [B21H1/00](#); by forging, hammering, or pressing [B21K1/28](#))

- B60B1/00 Spoked wheels; Spokes thereof** (non-metallic [B60B5/00](#) [N: ; spoked wheels comprising rail-engaging elements [B60B17/00B2](#); making wheel spokes [B21F39/00](#)])
- B60B1/00B . [N: specially adapted for bicycles ([B60B1/04B](#) takes precedence)] [C1111]
 - B60B1/00C . [N: specially adapted for light-weight wheels, e.g. of strollers or wheel-chairs ([B60B1/00B](#) takes precedence)] [C1111]
 - B60B1/02 . Wheels with wire or other tension spokes
 - B60B1/02B . . [N: characterised by non-standard number of spokes, i.e. less than 12 or more than 32 spokes] [N1202]
 - B60B1/02D . . [N: characterised by specific grouping of spokes] [N1202]
 - B60B1/02D2 . . . [N: the dominant aspect being the spoke arrangement pattern] [N1202]
 - B60B1/02D2A [N: multiple exclusively parallel spokes arranged in a group] [N1202]
 - B60B1/02D4 . . . [N: the dominant aspect being the number of spokes per group] [N1202]
 - B60B1/02F . . [N: characterised by cross-section of the spoke, e.g. polygon or elliptic shape] [N1202]
 - B60B1/02G . . [N: the spoke being hollow] [N1202]
 - B60B1/02H . . [N: characterised by spoke form] [N1202]
 - B60B1/02H2 . . . [N: the spoke being curved or deformed over substantial part of length] [N1202]
 - B60B1/02H4 . . . [N: the spoke being crooked in the middle and having double length] [N1202]
 - B60B1/02H6 . . . [N: the spoke being threaded at both ends] [N1202]
 - B60B1/02H8 . . . [N: the spoke being bent at both ends] [N1202]
 - B60B1/04 . . Attaching spokes to rim or hub
 - B60B1/04B . . . [N: of bicycle wheels (bicycle rims characterised by means for attaching spokes [B60B21/06B](#))] [C1111]
 - B60B1/04H . . . [N: Attaching spokes to hub] [N1202]
 - B60B1/04J . . . [N: Attaching spokes to rim] [N1202]
 - B60B1/04J2 [N: by the use of spoke nipples] [N1202]
 - B60B1/04J2A [N: characterised by their specific shape] [N1202]
 - B60B1/04J2C [N: characterised by adaptations of the nipple for tightening tools] [N1202]
 - B60B1/04J2E [N: the nipple comprising sealing means] [N1202]
 - B60B1/04J4 [N: by the use of screws] [N1202]

- B60B1/06 . Wheels with compression spokes ([wheels of high resiliency B60B9/00](#))
- B60B1/08 . . formed by casting
- B60B1/10 . . fabricated by sheet metal ([B60B1/12](#), [B60B3/08](#) take precedence)
- B60B1/12 . . with tubular spokes ([B60B1/08](#) takes precedence)
- B60B1/14 . . Attaching spokes to rim or hub

- B60B3/00** **Disc wheels, i.e. wheels with load-supporting disc body** (non-metallic [B60B5/00](#); wheel cover discs [B60B7/00](#) [N: ; disc wheels comprising rail-engaging elements [B60B17/00B](#)])

- B60B3/00B . [N: Lightweight wheels, e.g. for strollers or toys] [N1202]
- B60B3/00S . [N: characterised by the shape of the disc] [N1112]
- B60B3/00S2 . . [N: in the hub section] [N1112]
- B60B3/00S4 . . [N: in the section adjacent to rim] [N1112]
- B60B3/00S6 . . [N: in the intermediate section] [N1112]

- B60B3/00T . [N: by the form of wheel bolt mounting section] [N1112]

- B60B3/02 . with a single disc body integral with rim [C1112]

- B60B3/04 . with a single disc body not integral with rim, [N: i.e. disc body and rim being manufactured independently and then permanently attached to each other in a second step, e.g. by welding] [C1112]

- B60B3/04B . . [N: characterised by the attachment of rim to wheel disc] [N1202]
- B60B3/04B1 . . . [N: characterised by circumferential position of attachment means] [N1202]
- B60B3/04B3 . . . [N: characterised by cross-sectional details of the attachment, e.g. the profile] [N1202]
- B60B3/04B5 . . . characterised by the attachment portions [N1202]
- B60B3/04B5A comprising specific torque transmitting means [N1202]
- B60B3/04D . . the rim being rotatably mounted to the wheel disc [N1202]

- B60B3/06 . formed by casting

- B60B3/08 . with disc body formed by two or more axially spaced discs [N: (comprising rail-engaging elements formed by two or more axially spaced discs [B60B17/00B3](#))]
- B60B3/08B . . [N: especially for light-weight wheels]
- B60B3/08D . . [N: Discs having no mutual contact] [N1112]
- B60B3/08F . . [N: Discs having several mutual contact regions] [N1112]

- B60B3/10 . apertured to simulate spoked wheels

- B60B3/12 . Means of reinforcing disc bodies

- B60B3/14 . Attaching disc body to hub (resiliently [B60B9/00](#); attaching rim to wheel body [B60B23/00](#))[N: Wheel adapters]
- B60B3/14B . . [N: by central locking nut] [N1112]

- B60B3/14S . . [N: using washers or distance bushes] [N1112]
- B60B3/14W . . [N: using wheel adapters] [N1112]
- B60B3/16 . . by bolts or the like
- B60B3/16B . . . [N: with locking devices for the fixing means, e.g. screw or nut covers] [N1112]
- B60B3/18 . . by circlips or the like

- B60B5/00** **Wheels, spokes, disc bodies, rims, hubs, wholly or predominantly made of non-metallic material** (wheel cover discs [B60B7/00](#); wheels of high resiliency [B60B9/00](#) [N: ;wheel bodies comprising rail-engaging elements characterised by use of non-metallic material [B60B17/00A](#)])

- B60B5/02 . made of synthetic material
- B60B5/04 . made of wood

- B60B7/00** **Wheel cover discs, rings, or the like, for ornamenting, protecting, [N: venting,] or obscuring, wholly or in part, the wheel body, rim, hub, or tyre sidewall** [N: e.g. wheel cover discs, wheel cover discs with cooling fins (wheels with cooling fins not provided on the wheel cover disc [B60B19/10](#); apparatus or tools for removing or attaching cover discs hub caps or the like [B60B31/06](#))]

- B60B7/00B . [N: for cycle wheels or similar]
- B60B7/00H . [N: Hub caps] [N1202]
- B60B7/00H1 . . [N: being of the ventilated type] [N1202]
- B60B7/00S . [N: characterised by the surface] [N1202]
- B60B7/00S1 . . [N: the dominant aspect being the surface appearance] [N1202]
- B60B7/00S1A . . . [N: the surface being painted] [N1202]
- B60B7/00S1B . . . [N: the surface being plated or coated] [N1202]
- B60B7/00S1C . . . [N: the surface being decorated] [N1202]
- B60B7/00S1D . . . [N: the surface being reflective or including lighting] [N1202]
- B60B7/00S3 . . [N: the dominant aspect being the surface structure] [N1202]
- B60B7/00S3A . . . [N: being completely closed, i.e. having no cooling openings for the brakes] [N1202]
- B60B7/00S3B . . . [N: having decorative holes or openings, i.e. openings going beyond mere cooling openings] [N1202]
- B60B7/00S3C . . . [N: having cooling fins] [N1202]
- B60B7/00T . [N: being reinforced against thermal deformation] [N1202]
- B60B7/01 . Rings specially adapted for covering only the wheel rim or the tyre sidewall, e.g. removable tyre sidewall trim rings
- B60B7/02 . made essentially in one part ([N: [B60B7/00B](#),] [B60B7/01](#) take precedence)
- B60B7/04 . built-up of several main parts ([B60B7/01](#), [B60B7/20](#) take precedence)
- B60B7/06 . Fastening arrangements therefor ([B60B7/01](#), [B60B7/20](#) take precedence)

- B60B7/06W . . [N: characterised by the part of the wheels to which the discs, rings or the like are mounted] [N1202]
- B60B7/06W1 . . . [N: to the rim] [N1202]
- B60B7/06W3 . . . [N: to the disc] [N1202]
- B60B7/06W5 . . . [N: to the hub] [N1202]
- B60B7/06W7 . . . [N: to the wheel bolts or wheel nuts] [N1202]
- B60B7/08 . . having gripping elements consisting of formations integral with the cover
- B60B7/10 . . comprising a plurality of spaced spring clips individually mounted on the cover, e.g. riveted, welded or readily releasable
- B60B7/10B . . . [N: the spring clip mounted on the rim]
- B60B7/12 . . comprising an annular spring or gripping element mounted on the cover ([B60B7/08](#) takes precedence)
- B60B7/14 . . comprising screw-threaded means
- B60B7/16 . Anti-theft devices
- B60B7/18 . simulating spoked or wire wheel
- B60B7/20 . having an element mounted for rotation independently of wheel rotation
- B60B9/00** **Wheels of high resiliency** [N: , e.g. with conical interacting pressure-surfaces (resilient wheels comprising rail-engaging elements [B60B17/00C](#))]
- B60B9/00B . [N: Comprising a resilient hub (hubs per se [B60B27/00](#))]
- B60B9/02 . using springs [N: resiliently mounted bicycle rims] (wheels comprising resilient spokes [B60B9/26](#))
- B60B9/04 . . in leaf form
- B60B9/06 . . in helical form
- B60B9/08 . . in flat coiled form
- B60B9/10 . . of rubber or the like
- B60B9/12 . . . in the form of sleeves or rings concentric with the wheel axis
- B60B9/14 . . . with means limiting relative lateral movements between hub and remainder of wheel
- B60B9/16 . . . modified to ensure electric conductivity
- B60B9/18 . using fluid (within spokes [B60B9/26](#))
- B60B9/20 . . in rings concentric with wheel axis
- B60B9/22 . . . inflatable
- B60B9/24 . . with pistons and cylinders
- B60B9/26 . comprising resilient spokes
- B60B9/28 . with telescopic action
- B60B11/00** **Units comprising multiple wheels arranged side by side; Wheels having more than one rim or capable of carrying more than one tyre**

- B60B11/02 . Units of separate wheels mounted for independent or coupled rotation
- B60B11/04 . Wheels with a rim capable of carrying more than one tyre
- B60B11/06 . Wheels with more than one rim mounted on a single wheel body
- B60B11/08 . Arrangements of balancing mechanisms enabling a uniform distribution of load to tyres
- B60B11/10 . Emergency wheels ([collapsible tyres B60C3/08](#); [tyres characterised by means enabling restricted operation in damaged or deflated condition B60C17/00](#))

- B60B15/00** **Wheels or wheel attachments designed for increasing traction (vehicle tires B60C; non-skid devices temporarily attachable to resilient tires or resiliently-tired wheels B60C) [M1202]**

- B60B15/02 . Wheels with spade lugs
- B60B15/02B . . [\[N: made of resilient material\]](#)
- B60B15/02E . . [\[N: being of the broad form type\] \[N1202\]](#)
- B60B15/02E1 . . . [\[N: with non-cylindrical shape\] \[N1202\]](#)
- B60B15/02M . . [\[N: characterised by mud deposit prevention\] \[N1202\]](#)
- B60B15/02R . . [\[N: characterised by active rotation of the lugs\] \[N1202\]](#)
- B60B15/04 . . with resiliently-mounted spade lugs
- B60B15/06 . . with pivotally-mounted spade lugs
- B60B15/08 . . with spade lugs axially displaced relatively to the tread surface of the tire [M1202]
- B60B15/10 . . with radially-adjustable spade lugs; Control mechanisms therefor
- B60B15/12 . . . involving cams or eccentric hoops
- B60B15/14 . . . involving an axially-displaceable cone
- B60B15/16 . . . involving gearing, e.g. gear pinions acting upon threaded shafts on the spade lugs

- B60B15/18 . Wheels with ground-engaging plate-like shoes
- B60B15/20 . . with resiliently-mounted shoes, e.g. on a spider
- B60B15/22 . . connected by links to the hub

- B60B15/24 . Tread bands or rings for fairing lugs when travelling on the road

- B60B15/26 . Auxiliary wheels or rings with traction-increasing surface attachable to the main wheel body
- B60B15/26A . . [\[N: Traction increasing surface being located axially beside tire\] \[N1202\]](#)
- B60B15/26C . . [\[N: Traction increasing surface being located radially outside tire circumferential surface\] \[N1202\]](#)

- B60B15/28 . Wheel-ballasting weights; Their attachment

- B60B17/00** **Wheels characterised by rail-engaging elements ([\[N: wheel-axle combinations B60B37/00;](#)] of model railways [A63H19/22](#))**

- B60B17/00A . [N: Wheel bodies characterised by use of non-metallic material ([B60B17/00C2B](#) takes precedence)]
- B60B17/00B . [N: Construction of wheel bodies, e.g. disc wheels ([B60B17/00A](#) takes precedence)]
- B60B17/00B2 . . [N: Spoked wheels; Spokes thereof]
- B60B17/00B3 . . [N: formed by two or more axially spaced discs]
- B60B17/00B3B . . . [N: with insonorisation means]
- B60B17/00B4 . . [N: with counter-balance]
- B60B17/00B6 . . [N: with noise reducing means ([B60B17/00B3B](#) takes precedence)] [N1112]
- B60B17/00C . [N: Resilient wheels, e.g. resilient hubs ([B60B17/02](#) takes precedence)]
- B60B17/00C2 . . [N: using springs]
- B60B17/00C2B . . . [N: of rubber or other non-metallic material]
- B60B17/00C2B2 [N: of circular or elliptical cross section] [N1112]
- B60B17/00C2B4 [N: of substantially rectangular cross section] [N1112]
- B60B17/00C2B6 [N: single element arranged in V-form] [N1112]
- B60B17/00C2B8 [N: pair of elements arranged in V-form] [N1112]
- B60B17/00C4 . . [N: using fluid]
- B60B17/00D . [N: with non-elastic tyres (e.g. of particular profile or composition)]
- B60B17/00D2 . . [N: characterised by their fixing to wheel bodies]
- B60B17/00D4 . . [N: having teeth or protrusions on the circumference of the wheel] [N1112]
- B60B17/00F . [N: Flange details] [N1112]
- B60B17/00F2 . . [N: the flange being provided on a single side] [N1112]
- B60B17/00F4 . . [N: the flange being provided on both sides] [N1112]
- B60B17/00F6 . . [N: the flange being movable, for adaptation to variable rail or track widths] [N1112]
- B60B17/00G . [N: the flange having a guide wheel] [N1112]
- B60B17/00R . [N: Wheels designed to interact with a particular rail profile] [N1112]
- B60B17/00R2 . . [N: H-type rail profiles, i.e. the wheels are arranged between upper and lower rail extensions] [N1112]
- B60B17/00R4 . . [N: Circular rail profiles] [N1112]
- B60B17/00R6 . . [N: Rectangular rail profiles] [N1112]
- B60B17/00R8 . . [N: Triangular rail profiles] [N1112]
- B60B17/02 . with elastic tyres
- B60B19/00** **Wheels not otherwise provided for or having characteristics specified in one of the sub-groups of this group**
- B60B19/00A . [N: Multidirectional wheels] [N1111]
- B60B19/00B . [N: Magnetic wheels] [N1111]
- B60B19/02 . convertible, e.g. from road wheel to rail wheel; Wheels specially designed for

- alternative use on road and rail
- B60B19/04 . expansible
- B60B19/06 . with compartments for fluid, packing or loading material; Buoyant wheels
- B60B19/08 . with lubricating passages, channels, or reservoirs
- B60B19/10 . with cooling fins
- B60B19/12 . Roller-type wheels ([B60B19/06](#) takes precedence)
- B60B19/12A . . [N: with helical projections on radial outer surface translating rotation of wheel into movement along the direction of the wheel axle] [N1111]
- B60B19/14 . Ball-type wheels ([B60B19/06](#) takes precedence)

Guide heading: **Rims; Hubs**

B60B21/00 **Rims** (non-metallic [B60B5/00](#); of high resiliency [B60B9/00](#); capable of carrying more than one tyre [B60B11/04](#); multiple rims on a single wheel body [B60B11/06](#); of multi-part type [B60B25/00](#); metal tyres [B60C](#))

- B60B21/02 . characterised by transverse section
- B60B21/02B . . [N: with inwardly directed flanges, i.e. the tyre-seat being reversed]
- B60B21/02D . . [N: the transverse section being non-symmetrical] [N1202]
- B60B21/02F . . [N: the transverse section being hollow] [N1202]
- B60B21/02G . . [N: the shape of rim well] [N1202]
- B60B21/02H . . [N: the shape of hump] [N1202]
- B60B21/04 . . with substantially radial flanges (with rail-engaging flanges [B60B17/00](#)) [N: ([B60B21/02B](#) takes precedence)]
- B60B21/06 . characterised by means for attaching spokes [N: , i.e. spoke seats] [M1202]
- B60B21/06B . . [N: for bicycles]
- B60B21/06D . . [N: characterised by shape of spoke mounting holes, e.g. elliptical or triangular] [N1202]
- B60B21/06F . . [N: the spoke mounting means being located on a flange oriented radially and formed on the radially inner side of the rim well] [N1202]
- B60B21/06H . . [N: the spoke seat comprising sealing means, e.g. for tubeless racing bike tyres] [N1202]
- B60B21/08 . characterised by having braking surfaces
- B60B21/10 . characterised by the form of tyre-seat or flange, e.g. corrugated ([B60B21/02](#) takes precedence)
- B60B21/10B . . [N: the shape of bead seats] [N1202]
- B60B21/10D . . [N: the shape of flanges] [N1202]
- B60B21/10D1 . . . [N: the shape of flange end-sections] [N1202]

- B60B21/10F . . [N: the surface of bead seats] [N1202]
- B60B21/12 . Appurtenances, e.g. lining bands
- B60B21/12B . . Bead clamping elements [N1202]

- B60B23/00** **Attaching rim to wheel body** (attaching spokes to rim [B60B1/04](#), [B60B1/14](#); attaching rims resiliently to wheel body [B60B9/00](#); [N: devices for fastening or securing constructional elements or machine parts together F16B])

- Note**
Group [B60B23/12](#) takes precedence over groups [B60B23/02](#) to [B60B23/10](#)

- B60B23/02 . by split or other expansible ring devices
- B60B23/04 . by bayonet joint, screw-thread, or like attachments
- B60B23/06 . by screws, bolts, pins, or clips
- B60B23/08 . . arranged radially
- B60B23/10 . . arranged axially
- B60B23/12 . by devices arranged to permit variation of axial position of rim relative to wheel body for track width adjustment

- B60B25/00** **Rims built up of several main parts** [N: Locking means for the rim parts] (tools for assembling divided rims [B60B31/04](#))

- B60B25/00B . [N: Rims split in circumferential direction] [N1202]
- B60B25/00B1 . . [N: one rim part comprising the wheel disc] [N1202]
- B60B25/00B3 . . [N: Rims split symmetrically] [N1202]
- B60B25/00B5 . . [N: comprising spacer means] [N1202]

- B60B25/02 . Segmented rims, e.g. with segments arranged in sections; Connecting equipment, e.g. hinges; Insertable flange rings therefor

- B60B25/04 . Rims with dismountable flange rings, seat rings, or lock rings
- B60B25/04D . . on both sides [N1202]
- B60B25/06 . . Split flange rings, e.g. transversely split; Connecting equipment for overlapping the slot [M1202]
- B60B25/08 . . Continuous flange rings; Arrangement of recesses enabling the flange rings to be slipped over the rim body
- B60B25/10 . . Seat rings for the tyre bead part, e.g. split
- B60B25/12 . . . with integral flange part
- B60B25/14 . . Locking means for flange rings or seat rings
- B60B25/16 . . . Arrangement of bayonet catches
- B60B25/18 . . . Arrangement of split rings
- B60B25/20 . . . Arrangement of screws, bolts, or shouldered pins

- B60B25/22 . Other appurtenances, e.g. for sealing the component parts enabling the use of tubeless tyres

- B60B27/00** **Hubs** (non-metallic [B60B5/00](#); of high resiliency [B60B9/00](#))
- B60B27/00B . [N: with ball bearings]
- B60B27/00C . [N: with roller-bearings]
- B60B27/00D . [N: for driven wheels] [N1202]
- B60B27/00D2 . . [N: characterised by torque transmission means from drive axle] [N1202]
- B60B27/00D2A . . . [N: of the radial type, e.g. splined key] [N1202]
- B60B27/00D2B . . . [N: of the axial type, e.g. front teeth] [N1202]
- B60B27/00D4 . . [N: comprising homokinetic joints] [N1202]
- B60B27/00D4A . . . [N: characterised by the fixation of the homokinetic joint to the hub] [N1202]
- B60B27/00F . [N: characterised by functional integration of other elements] [N1202]
- B60B27/00F2 . . [N: the element being a brake disc] [N1202]
- B60B27/00F4 . . [N: the element being a brake drum] [N1202]
- B60B27/00F6 . . [N: the element being a brake caliper mount] [N1202]
- B60B27/00F8 . . [N: the element being a sensor] [N1202]
- B60B27/00G . [N: characterised by sealing means] [N1202]
- B60B27/00H . [N: characterised by the fixation of bearings] [N1202]
- B60B27/00H2 . . [N: caulking to fix inner race] [N1202]
- B60B27/00H4 . . [N: caulking to fix outer race] [N1202]
- B60B27/00K . [N: one or more of the bearing races are formed by the hub] [N1202]
- B60B27/02 . adapted to be rotatably arranged on axle
- B60B27/02B . . [N: specially adapted for bicycles] [M1202]
- B60B27/02B2 . . . [N: comprising quick release devices] [N1202]
- B60B27/04 . . housing driving means, e.g. sprockets
- B60B27/04B . . . [N: comprising a rotational dampers] [N1202]
- B60B27/04C . . . [N: comprising a spoke protectors] [N1202]
- B60B27/04D . . . [N: comprising a freewheel mechanisms] [N1202]
- B60B27/06 . adapted to be fixed on axle
- B60B27/06B . . [N: characterised by the fixation of the hub to the axle] [N1202]
- Guide heading:** **Apparatus or tools for mounting wheels or parts thereof** (hand tools in general B25;
tools for mounting tyres B60C25/00)
- B60B29/00** **Apparatus or tools for mounting or dismounting wheels** [N: (mounting of wheels at
assembly lines [B62D65/12](#))]
- B60B29/00A . [N: comprising lifting or aligning means ([B60B29/00B](#) takes precedence)]

- B60B29/00B . [N: provided with a dolly]
- B60B29/00C . [N: Wrenches, e.g. of the ratchet type ([B60B29/00A](#) takes precedence; wrenches per se [B25B13/00](#))]
- B60B29/00C2 . . [N: for dual wheels]
- B60B29/00C4 . . [N: hand-driven operating with multiplied forces ([B60B29/00C2](#) takes precedence; hand-driven gear-operated wrenches per se [B25B17/00](#), with torque amplification [B25B17/02](#))]
- B60B29/00C6 . . [N: with electric or pneumatic drive (power-driven nut setting or loosening tool per se [B25B21/00](#))]
- B60B29/00C8 . . [N: Supports for wrenches ([B60B29/00C4](#), [B60B29/00C6](#) take precedence)]
- B60B29/00F . [N: Wheel pullers; tools for axial movement of wheels (adjustable axle units for varying track [B60B35/10](#))]

B60B30/00 **Means for holding wheels or parts thereof** (spare wheel stowing, holding or mounting arrangements on vehicles [B62D43/00](#)) [N9503][M1111]

- B60B30/02 . engaging the tyre, e.g. the tyre being mounted on the wheel rim [N1110]
- B60B30/04 . . the tyre not being mounted on a rim, i.e. holders or supports for tyres alone [N1110]
- B60B30/06 . engaging the wheel body, e.g. the rim [N1110]
- B60B30/08 . . the central part of the wheel body [N1110]
- B60B30/10 . characterised by being provided on a dolly [N1110]

B60B31/00 **Apparatus or tools for assembling or disassembling wheels**

- B60B31/00B . [N: especially for spoked wheels]
- B60B31/02 . for tightening or straightening wire spokes in situ; for extracting spokes from wheels
- B60B31/04 . for assembling divided rims
- B60B31/06 . for removing or attaching cover discs, hub caps, or the like

B60B33/00 **Castors in general; [N: Anti-clogging castors]** (castors for large containers [B65D90/18](#)) [C9503]

- B60B33/00B . [N: assembling to the object, e.g. furniture]
- B60B33/00B2 . . [N: characterised by mounting method] [N1202]
- B60B33/00B2A . . . [N: by screwing] [N1202]
- B60B33/00B2B . . . [N: by snapping, clicking or latching in] [N1202]
- B60B33/00B2C . . . [N: by straps, bands or similar] [N1202]
- B60B33/00B4 . . [N: characterised by adaptations made to castor] [N1202]
- B60B33/00B4A . . . [N: in the form of a flat mounting plate] [N1202]

- B60B33/00B4B . . . [N: in the form of a mounting pin] [N1202]
- B60B33/00B4C . . . [N: in the form of specific adaptations to the form of the object] [N1202]
- B60B33/00B6 . . [N: characterised by adaptations made to the object] [N1202]

- B60B33/00C . [N: Construction of wheels; methods of assembling on axle]

- B60B33/00E . [N: characterised by type of wheels] [N1202]
- B60B33/00E2 . . [N: Single wheels] [N1202]
- B60B33/00E4 . . [N: Double or twin wheels] [N1202]
- B60B33/00E6 . . [N: Roller type wheels, i.e. extra wide wheels] [N1202]

- B60B33/00F . [N: characterised by details of the rolling axle] [N1202]
- B60B33/00F2 . . [N: the rolling axle being horizontal] [N1202]
- B60B33/00F4 . . [N: the rolling axle being inclined] [N1202]
- B60B33/00F6 . . [N: the rolling axle intersects swivel axis] [N1202]
- B60B33/00F8 . . [N: the rolling axle being offset from swivel axis] [N1202]

- B60B33/00G . [N: characterised by details of the swivel mechanism] [N1202]
- B60B33/00G2 . . [N: no swivelling action, i.e. no real caster] [N1202]
- B60B33/00G4 . . [N: characterised by details of the swivel axis] [N1202]
- B60B33/00G4A . . . [N: the swivel axis being vertical] [N1202]
- B60B33/00G4B . . . [N: the swivel axis being inclined] [N1202]
- B60B33/00G4C . . . [N: the swivel axis being symmetrical to wheel or wheels] [N1202]
- B60B33/00G4D . . . [N: the swivel axis being offset laterally from wheel center plane] [N1202]

- B60B33/00H . [N: characterised by details of the wheel braking mechanism] [N1202]
- B60B33/00H2 . . [N: acting on tire tread] [N1202]
- B60B33/00H4 . . [N: acting on axle end] [N1202]
- B60B33/00H6 . . [N: acting on rim or side portion of tyre] [N1202]
- B60B33/00H8 . . [N: acting on the floor] [N1202]
- B60B33/00H10 . . [N: actuated remotely, e.g. by cable or electrically] [N1202]
- B60B33/00H12 . . [N: actuated automatically] [N1202]
- B60B33/00H14 . . [N: acting permanently, e.g. for increased security on low friction surfaces] [N1202]

- B60B33/02 . with disengageable swivel action, [N: i.e. comprising a swivel locking mechanism] [C1202]
- B60B33/02B . . [N: combined with braking of castor wheel]
- B60B33/02D . . [N: by using friction] [N1202]
- B60B33/02E . . [N: by using form-fit, e.g. front teeth] [N1202]
- B60B33/02F . . [N: being actuated remotely, e.g. by cable or electrically] [N1202]
- B60B33/02G . . [N: being actuated automatically] [N1202]

- B60B33/04 . adjustable [N: , e.g. in height; linearly shifting castors]
- B60B33/04B . . [N: mounted resiliently, by means of dampers]
- B60B33/06 . . mounted retractably

- B60B33/06B . . . [N: by linear movement parallel to swivel axis] [N1202]
- B60B33/06C . . . [N: by use of a hinge and lever mechanism to swing wheel upwards relative to wheel mount] [N1202]
- B60B33/08 . Ball castors [N: ([B60B33/00C](#) takes precedence)]
- B60B35/00** **Axle units; Parts thereof (steerable vehicle stub axles B62D)** [N: Arrangements for lubrication of axles]
- B60B35/00A . [N: Axles of the portal type, i.e. axles designed for higher ground clearance] [N1112]
- B60B35/00B . [N: Axles of the low floor type, e.g. for low-floor city busses] [N1112]
- B60B35/00C . [N: Steerable axles] [N1112]
- B60B35/00E . [N: Mounting arrangements for axles] [N1112]
- B60B35/00E2 . . [N: with adaptations at chassis structure] [N1112]
- B60B35/00E4 . . [N: with mounting plates or consoles fitted to axles] [N1112]
- B60B35/00E4A . . . [N: for mounting suspension elements to axles] [N1112]
- B60B35/00E4B . . . [N: for mounting air suspension elements to axles] [N1112]
- B60B35/00F . [N: adapted for tiltable wheels] [N1112]
- B60B35/02 . Dead axles, i.e. not transmitting torque
- B60B35/02A . . [N: the wheels being removable] [N1112]
- B60B35/04 . . straight
- B60B35/06 . . cranked
- B60B35/08 . . of closed hollow section
- B60B35/10 . . adjustable for varying track [N: (tools for axial movement of wheels on axles [B60B29/00F](#))]
- B60B35/10A . . . [N: operated manually] [N1112]
- B60B35/10A2 [N: comprising a locking pin] [N1112]
- B60B35/10A4 [N: comprising a clamping mechanism] [N1112]
- B60B35/10B . . . [N: operated with power assistance] [N1112]
- B60B35/10B2 [N: electrically] [N1112]
- B60B35/10B4 [N: hydraulically] [N1112]
- B60B35/10B6 [N: automatically dependent on operational state of the vehicle] [N1112]
- B60B35/10C . . . [N: by transversally movable elements] [N1112]
- B60B35/10C2 [N: the element is a wheel] [N1112]
- B60B35/10C4 [N: the element is an axle part] [N1112]
- B60B35/12 . Torque-transmitting axles ([independent suspension aspects B60G](#))
- B60B35/12A . . [N: Power-transmission from drive shaft to hub] [N1112]
- B60B35/12A2 . . . [N: using gearings][N1112]
- B60B35/12A2A [N: of the helical or worm type] [N1112]
- B60B35/12A2B [N: of the planetary type] [N1112]

- B60B35/12A4 . . . [N: using universal joints] [N1112]
- B60B35/12A4A [N: of the homokinetic or constant velocity type] [N1112]
- B60B35/14 . . Composite or split, e.g. half- axles; Couplings between axle parts or sections
- B60B35/16 . . Axle housings
- B60B35/16A . . . [N: characterised by specific shape of the housing, e.g. adaptations to give space for other vehicle elements like chassis or exhaust system] [N1112]
- B60B35/16B . . . [N: characterised by reinforcements, e.g. reinforcement ribs] [N1112]
- B60B35/18 . . Arrangement of bearings

- B60B37/00** **Wheel-axle combinations, e.g. wheel sets** (units comprising multiple wheels arranged side-by-side [B60B11/00](#); rail vehicle axle-boxes [B61F](#))

- B60B37/02 . the wheels being integral with solid axles
- B60B37/04 . the wheels being rigidly attached to solid axles
- B60B37/06 . the wheels being integral with, or rigidly attached to, hollow axles
- B60B37/08 . . the hollow axles being rotatable around fixed axles
- B60B37/10 . the wheels being individually rotatable around the axles
- B60B37/12 . Axles with a fixed ground wheel and a loose wheel

- B60B39/00** **Increasing wheel adhesion** (wheels, wheel attachments or tyre attachments, designed for increasing traction [B60B15/00](#), [B60C](#); tyre constructions [B60C](#); road surface conditioning to prevent slipperiness [E01C](#))

- B60B39/00C . [N: Vehicle mounted non-skid chains actuated by centrifugal force (non-skid devices temporarily attachable to resilient tyres [B60C27/00](#))]
- B60B39/00C2 . . [N: characterised by a control system for the actuation of the rotating chain wheel] [N1112]

- B60B39/02 . Vehicle fittings for scattering or dispensing material in front of its wheels
- B60B39/02D . . [N: Details of the dispensing device] [N1112]
- B60B39/02D2 . . . [N: related to reservoirs] [N1112]
- B60B39/02D4 . . . [N: related to metering valves] [N1112]
- B60B39/02D6 . . . [N: related to preconditioning of the dispensing materials] [N1112]
- B60B39/02D8 . . . [N: related to the control system] [N1112]
- B60B39/02M . . [N: the material being in gas form] [N1112]
- B60B39/02M2 . . . [N: the gas being heated on purpose] [N1112]
- B60B39/02M4 . . . [N: the gas being exhaust gas] [N1112]
- B60B39/04 . . the material being granular, e.g. sand (combined control of sanding apparatus and brakes of rail vehicles [B61H](#))
- B60B39/06 . . . the dispensing being effected by mechanical means
- B60B39/08 . . . the dispensing being effected by fluid means
- B60B39/08A [N: dispensing being effected by liquid] [N1112]

- B60B39/08B [N: dispensing being effected by gas] [N1112]
- B60B39/10 . . . the dispensing being controlled electrically or electro-magnetically
- B60B39/12 . . the material being sheet-like or web-like