# CPC: Cooperative Patent Classification

**B** PERFORMING OPERATIONS; TRANSPORTING

*(NOTES omitted)*

**TRANSPORTING**

**B60** VEHICLES IN GENERAL

*(NOTE omitted)*

**B60C** VEHICLE TYRES *(manufacture B29); TYRE INFLATION; TYRE CHANGING OR REPAIRING; REPAIRING, OR CONNECTING VALVES TO, INFLATABLE ELASTIC BODIES IN GENERAL; DEVICES OR ARRANGEMENTS RELATED TO TYRES (testing of tyres G01M 17/02)*

**NOTES**

1. In this subclass, the term "tyre" is to be understood as a separate ground-engaging, continuous element outside the periphery of the wheel rim and includes the tyre casing, cover, or jacket and any insert, e.g. inner tube. In the groups relating to repair or connection of valves, the term "tyre" is to be understood to include also inflatable elastic bodies other than tyres or inner tubes.

2. Attention is drawn to the note following the title of class B60.

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - B60C 11/113 covered by B60C 11/031
   - B60C 11/117 covered by B60C 11/032

2. 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.

### Tyres characterised by the chemical composition or the physical arrangement or mixture of the composition

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/00</td>
<td>Tyres characterised by compositions only, i.e. having no significant tyre structure, are classified only with the compositions, e.g. C08K, C08L</td>
</tr>
<tr>
<td>1/0008</td>
<td>(Compositions of the inner liner)</td>
</tr>
<tr>
<td>1/0016</td>
<td>(Compositions of the tread)</td>
</tr>
<tr>
<td>1/0025</td>
<td>(Compositions of the sidewalls)</td>
</tr>
<tr>
<td>2001/0033</td>
<td>(Compositions of the sidewall inserts, e.g. for runflat)</td>
</tr>
<tr>
<td>1/0041</td>
<td>(Compositions of the carcass layers)</td>
</tr>
<tr>
<td>2001/005</td>
<td>(Compositions of the bead portions, e.g. clinch or chafer rubber or cushion rubber)</td>
</tr>
<tr>
<td>2001/0058</td>
<td>(Compositions of the bead apexes)</td>
</tr>
<tr>
<td>2001/0066</td>
<td>(Compositions of the belt layers)</td>
</tr>
<tr>
<td>2001/0075</td>
<td>(Compositions of belt cushioning layers)</td>
</tr>
<tr>
<td>2001/0083</td>
<td>(Compositions of the cap ply layers)</td>
</tr>
<tr>
<td>2001/0091</td>
<td>(Compositions of non-inflatable or solid tyres)</td>
</tr>
</tbody>
</table>

### Tyres characterised by the transverse section (characterised by rail-engaging elements B60B 17/00)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003/005</td>
<td>(Twin tyres)</td>
</tr>
<tr>
<td>3/02</td>
<td>Closed, e.g. toroidal, tyres</td>
</tr>
<tr>
<td>3/04</td>
<td>characterised by the relative dimensions of the section, e.g. low profile <em>(B60C 3/06 takes precedence)</em></td>
</tr>
</tbody>
</table>

### Inflatable pneumatic tyres or inner tubes *(B60C 1/00, B60C 9/00 - B60C 17/00 take precedence)*

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/00</td>
<td>Asymmetric {{asymmetric bead seats B60C 15/0236; asymmetric bead reinforcement B60C 2015/0696)*</td>
</tr>
<tr>
<td>5/001</td>
<td>filled with gas other than air</td>
</tr>
<tr>
<td>5/002</td>
<td>filled at least partially with foam material</td>
</tr>
<tr>
<td>5/004</td>
<td>filled at least partially with liquid <em>(B60C 19/12 takes precedence)</em></td>
</tr>
<tr>
<td>5/005</td>
<td>(Ballast tyres)</td>
</tr>
<tr>
<td>5/007</td>
<td>made from other material than rubber</td>
</tr>
<tr>
<td>5/008</td>
<td>Low pressure tyres, e.g. for all terrain vehicles</td>
</tr>
<tr>
<td>5/01</td>
<td>without substantial cord reinforcement, e.g. cordless tyres, cast tyres</td>
</tr>
<tr>
<td>5/02</td>
<td>having separate inflatable inserts, e.g. with inner tubes; Means for lubricating, venting, preventing relative movement between tyre and inner tube <em>(B60C 5/20 takes precedence)</em></td>
</tr>
<tr>
<td>5/025</td>
<td>separated by a part of the tyre <em>(inflatable inserts with several inflatable chambers B60C 5/20)</em></td>
</tr>
<tr>
<td>5/04</td>
<td>Shape or construction of inflatable inserts <em>(B60C 5/10 takes precedence)</em></td>
</tr>
<tr>
<td>5/08</td>
<td>having reinforcing means</td>
</tr>
<tr>
<td>5/10</td>
<td>formed as a single discontinuous ring with contiguous ends which may be connected together</td>
</tr>
</tbody>
</table>
5/12 . without separate inflatable inserts, e.g. tubeless tyres with transverse section open to the rim (B60C 5/20 takes precedence)  
5/14 . . with impervious liner or coating on the inner wall of the tyre  
5/142 . . . { provided partially, i.e. not covering the whole inner wall}  
2005/145 . . . {made of laminated layers} 
2005/147 . . . {characterised by the joint or splice}  
5/16 . . Sealing means between beads and rims, e.g. bands  
5/18 . . Sectional casings, e.g. comprising replaceable arcuate parts 
5/20 . . having multiple separate inflatable chambers (with additional tubes which become load supporting in emergency B60C 17/02) 
5/22 . . the chambers being annular 
5/24 . . the walls of the chambers extending transversely of the tyre 
7/00 Non-inflatable or solid tyres (B60C 1/00 takes precedence; tyres or rims characterised by rail engaging elements B60B 17/00)  
2007/005 . . { made by casting, e.g. of polyurethane} 
7/02 . made from ropes or bristles 
7/04 . made of wood or leather 
7/06 . made of metal 
7/08 . built-up from a plurality of arcuate parts 
7/10 . characterised by means for increasing resiliency (highly resilient wheels B60B 9/00) 
7/102 . . . {Tyres built-up with separate rubber parts} 
7/105 . . . {using foam material} 
2007/017 . . {comprising lateral openings} 
7/12 . . using enclosed chambers, e.g. gas-filled (inflatable tyres B60C 5/00) 
7/125 . . . {enclosed chambers defined between rim and tread} 
7/14 . . using springs 
7/143 . . . {having a lateral extension disposed in a plane parallel to the wheel axis} 
2007/146 . . . {extending substantially radially, e.g. like spokes} 
7/16 . . . of helical or flat coil form 
7/18 . . . disposed radially relative to wheel axis 
7/20 . . . disposed circumferentially relative to wheel axis 
7/22 . having inlays other than for increasing resiliency, e.g. for armouring 
7/24 . characterised by means for securing tyres on rim or wheel body 
7/26 . using bolts 
7/28 . using straps or the like, e.g. vulcanised into the tyre 

9/00 Reinforcements or ply arrangement of pneumatic tyres (inserts having reinforcing means B60C 5/08; bead structure, e.g. turnup or overlap construction, B60C 15/00; tyre cords per se D02G 3/48; fabrics per se D03D, D04H; metal ropes or cables per se D07B 1/06) {B} 

**NOTE**

When classifying in this group, classification is also made in subclass B32B insofar as any layered product is concerned

9/0007 . . {Reinforcements made of metallic elements, e.g. cords, yarns, filaments or fibres made from metal} 
2009/0014 . . {Surface treatments of steel cords} 
2009/0021 . . {Coating rubbers for steel cords} 
9/0028 . . {Reinforcements comprising mineral fibres, e.g. glass or carbon fibres} 
2009/0035 . . {Reinforcements made of organic materials, e.g. rayon, cotton or silk} 
9/0042 . . {Reinforcements made of synthetic materials} 
9/005 . . {Reinforcements made of different materials, e.g. hybrid or composite cords} 
9/0057 . . {Reinforcements comprising preshaped elements, e.g. undulated or zig-zag filaments} 
9/0064 . . {Reinforcements comprising monofilaments} 
2009/0071 . . {characterised by special physical properties of the reinforcements} 
2009/0078 . . {Modulus} 
2009/0085 . . {Tensile strength} 
2009/0092 . . {Twist structure} 
9/02 . Carcasses 
9/0207 . . {Carcasses comprising an interrupted ply, i.e. where the carcass ply does not continuously extend from bead to bead but is interrupted, e.g. at the belt area, into two or more portions of the same ply} 
2009/0215 . . {Partial carcass reinforcing plies, i.e. the plies neither crossing the equatorial plane nor folded around the bead core} 
2009/0223 . . {comprising a cushion layer between adjacent carcass plies} 
9/023 . . {built up from narrow strips, individual cords or filaments, e.g. using filament winding} 
9/0238 . . {characterised by special physical properties of the carcass ply} 
2009/0246 . . {Modulus of the ply} 
2009/0253 . . . {being different between adjacent plies} 
2009/0261 . . . {being different within the same ply} 
2009/0269 . . . {Physical properties or dimensions of the carcass coating rubber} 
2009/0276 . . . {Modulus; Hardness; Loss modulus or "tangens delta"} 
2009/0284 . . . {Thickness} 
9/0292 . . . {Carcass ply curvature (sidewall curvature B60C 13/003)} 
9/04 . the reinforcing cords of each carcass ply arranged in a substantially parallel relationship 
2009/0408 . . . {Carcass joints or splices} 
2009/0416 . . . {Physical properties or dimensions of the carcass cords} 
2009/0425 . . . {Diameters of the cords; Linear density thereof} 
2009/0433 . . . {Modulus}
9/06... the cords extend diagonally from bead to bead and run in opposite directions in each successive carcass ply, i.e. bias angle ply (B60C 9/07; B60C 9/09 take precedence)

9/07... the cords curve from bead to bead in plural planes, e.g. S-shaped cords.

9/08... the cords extend transversely from bead to bead, i.e. radial ply (B60C 9/07 takes precedence).

9/09... combined with other carcass plies having cords extending diagonally from bead to bead, i.e. combined radial ply and bias angle ply.

9/10... the reinforcing cords within each carcass ply arranged in a crossing relationship.

9/11... Woven, braided, or knitted plies.

9/12... built-up with rubberised layers of discrete fibres or filaments.

9/13... with two or more differing cord materials.

9/14... built-up with sheets, webs, or films of homogeneous material, e.g. synthetics, sheet metal, rubber.

9/15... at the inner side of the carcass structure.

9/16... built-up with metallic reinforcing inlays.

9/17... asymmetric to the midcircumferential plane of the tyre.

9/18... Structure or arrangement of belts or breakers, crown-reinforcing or cushioning layers.

9/1807... [comprising fabric reinforcements]

9/1814... [square woven]

9/1821... [comprising discrete fibres or filaments]

9/1828... [characterised by special physical properties of the belt ply]

9/1835... [Rubber strips or cushions at the belt edges (compositions B60C 2001/0075)]

9/1842... [Width or thickness of the strips or cushions]

9/185... [between adjacent or radially below the belt plies]

9/1857... [radially above the belt plies]

9/1864... [wrapped around the edges of the belt]

9/1871... [with flat cushions or shear layers between belt layers]

9/1878... [with flat cushions or shear layers between the carcass and the belt]

9/1885... [with belt ply between adjacent carcass plies]

9/1892... [with belt ply radial inside the carcass structure]

9/20... built-up from rubberised plies each having all cords arranged substantially parallel.

9/2003... [characterised by the materials of the belt cords]

9/2006... [consisting of steel cord plies only]

9/2009... [comprising plies of different materials]

9/2012... [with particular configuration of the belt cords in the respective belt layers]
Tyre tread bands; Tread patterns; Anti-skid inserts

11/00

11/0008 . . . . [characterised by the tread rubber]
11/0009 . . . . [Physical properties or dimensions]
11/0016 . . . . [Modulus or tan delta]
11/0025 . . . . [Thickness of the tread]
11/0033 . . . . [comprising different tread rubber layers]
11/0041 . . . . [with cap and base layers]
11/0045 . . . . [with different cap rubber layers in the axial direction]
11/0058 . . . . [with different base rubber layers in the axial direction]
11/0066 . . . . [having an asymmetric arrangement]
11/0075 . . . . [characterised by the curvature of the tyre tread]
11/0083 . . . . [built-up by narrow strip winding]
11/01 . . . . [Shape of the shoulders between tread and sidewall, e.g. rounded, stepped, cantilevered (arrangements of grooves or ribs on the sidewalls B60C 13/02)]
11/013 . . . . [provided with a recessed portion]
11/016 . . . . [different rubber for tread wings]
11/02 . . . . [Replaceable treads]
11/03 . . . . [Tread patterns]
11/0302 . . . . [directional pattern, i.e. with main rolling direction]
11/0304 . . . . [Asymmetric patterns]
11/0306 . . . . [Patterns comprising block rows or discontinuous ribs]
11/0309 . . . . [further characterised by the groove cross-section]
11/0311 . . . . [Patterns comprising tread lugs arranged parallel or oblique to the axis of rotation]
11/0313 . . . . [directional type]
11/0316 . . . . [further characterised by the groove cross-section]
11/0318 . . . . [irregular patterns with particular pitch sequence]
11/032 . . . . [Patterns comprising isolated recesses]
11/0323 . . . . [tread comprising channels under the tread surface, e.g. for draining water]
11/0327 . . . . [characterised by special properties of the tread pattern]
11/033 . . . . [by the void or net-to-gross ratios of the patterns]
11/0332 . . . . [by the footprint-ground contacting area of the tyre tread]
11/0334 . . . . [Stiffness]
11/0337 . . . . [characterised by particular design features of the pattern]
11/0339 . . . . [Grooves]
11/0341 . . . . [Circumferential grooves]
11/0344 . . . . [provided at the equatorial plane]
11/0346 . . . . [with zigzag shape]
11/0348 . . . . [Narrow grooves, i.e. having a width of less than 4 mm]
11/0351 . . . . [Shallow grooves, i.e. having a depth of less than 50% of other grooves]
11/0353 . . . . [characterised by width]
11/0355 . . . . [characterised by depth]
11/0358 . . . . [Lateral grooves, i.e. having an angle of 45 to 90 degrees to the equatorial plane]
11/036 . . . . [Narrow grooves, i.e. having a width of less than 3 mm]
11/0362 . . . . [Shallow grooves, i.e. having a depth of less than 50% of other grooves]
11/0365 . . . . [characterised by width]
11/0367 . . . . [characterised by depth]
11/0369 . . . . [with varying depth of the groove]
11/0372 . . . . [with particular inclination angles]
11/0374 . . . . [Slant grooves, i.e. having an angle of about 5 to 35 degrees to the equatorial plane]
11/0376 . . . . [characterised by width]
11/0377 . . . . [characterised by depth]
11/0379 . . . . [Blind or isolated grooves]
11/0381 . . . . [at the centre of the tread]
11/0382 . . . . [Continuous ribs]
11/0383 . . . . [provided at the equatorial plane]
11/0386 . . . . [provided at the shoulder portion]
11/0388 . . . . [Narrow ribs, i.e. having a rib width of less than 8 mm]
11/039 . . . . [for linking shoulder blocks]
11/0395 . . . . [Sacrificial ribs, i.e. ribs recessed from outer tread contour]
11/0397 . . . . [in which the raised area of the pattern consists only of continuous circumferential ribs, e.g. zigzag (B60C 11/12 B60C 11/13 take precedence)]
11/04 . . . . [further characterised by the groove cross-section]
11/042 . . . . [the groove walls having a three-dimensional shape]
11/045 . . . . [the groove bottom comprising stone trapping protection elements, e.g. ribs]
11/047 . . . . [in which the raised area of the pattern consists only of isolated elements, e.g. blocks (B60C 11/12 B60C 11/13 take precedence)]
11/11 . . . . [characterised by the use of narrow slits or incisions, e.g. sipes]
11/12 . . . . [straight at the tread surface]
11/1204 . . . . [with special shape of the sipe]
Tyre sidewalls: Protecting, decorating, marking, or the like, thereof (B60C 17/08 takes precedence; tyre shoulders B60C 11/01; removable tyre sidewall trim rings B60B 7/01)

13/00

13/001 [Decorating, marking or the like]
13/002 [Protection against exterior elements]
13/003 [characterised by sidewall curvature (carcass ply curvature B60C 9/02921)]
13/004 [of the internal side of the tyre]
13/005 [Physical properties of the sidewall rubber]
13/006 [Modulus; Hardness; Loss modulus or “tangens delta”]
13/007 [Thickness]
13/008 [built-up by narrow strip winding]
13/009 [comprising additional bead cores in the sidewall]
13/02 [Arrangement of grooves or ribs]
13/023 [preventing watersplash]
13/026 [provided at the interior side only]
13/04 [having annular inlays or covers, e.g. white sidewalls]
13/045 [comprising different sidewall rubber layers]

15/00

15/001 [features of the carcass terminal portion]
15/0018 [not folded around the bead core, e.g. floating or down ply]
15/0027 [with low ply turn-up, i.e. folded around the bead core and terminating at the bead core]
15/0036 [with high ply turn-up, i.e. folded around the bead core and terminating radially above the point of maximum section width]
15/0045 [with ply turn-up up to the belt edges, i.e. folded around the bead core and extending to the belt edges]
15/0054 [with ply turn-up portion parallel and adjacent to carcass main portion]
15/0063 [with ply turn-up portion diverging from carcass main portion]
15/0072 [with ply reverse folding, i.e. carcass layer folded around the bead core from the outside to the inside]
15/0081 [the carcass plies folded around or between more than one bead core]
17/00 Tyres characterised by means enabling restricted operation in damaged or deflated condition; Accessories therefor (having multiple separate inflatable chambers B60C 5/20 ; additional shear belt layers B60C 9/18)

17/0009 . . [comprising sidewall rubber inserts, e.g. crescent shaped inserts]

17/0018 . . [two or more inserts in each sidewall portion]

17/0027 . . [comprising portions of different rubbers in a single insert]

17/0036 . . [comprising additional reinforcements]

17/0045 . . [comprising grooves or ribs, e.g. at the inner side of the insert]
23/00 Devices for measuring, signalling, controlling, or distributing tyre pressure or temperature, specially adapted for mounting on vehicles (measuring in general G01, e.g. G01L 17/00; remote signalling in general G08): Arrangement of tyre inflating devices on vehicles, e.g. of pumps, of tanks (air pumps per se F04; tanks per se F17C); Tyre cooling arrangements

23/001 . . . [Devices for manually or automatically controlling or distributing tyre pressure whilst the vehicle is moving]

23/002 . . . [by monitoring conditions other than tyre pressure or deformation]

23/003 . . . [comprising rotational joints between vehicle-mounted pressure sources and the tyres]

**WARNING**

Group B60C 23/003 is impacted by reclassification into groups B60C 23/00305 - B60C 23/0039.

All groups listed in this Warning should be considered in order to perform a complete search.

23/00305 . . . [Wheel circumventing supply lines, e.g. not through or about the axles]

**WARNING**

Group B60C 23/00305 is incomplete pending reclassification of documents from group B60C 23/003.

Groups B60C 23/003 and B60C 23/00305 should be considered in order to perform a complete search.

23/00309 . . . [characterised by the location of the components, e.g. valves, sealings, conduits or sensors]

**WARNING**

Groups B60C 23/00309 – B60C 23/00336 are incomplete pending reclassification of documents from group B60C 23/003.

Groups B60C 23/00309 – B60C 23/00336 should be considered in order to perform a complete search.

23/00318 . . . . . . [on the wheels or the hubs]

23/00327 . . . . . . [integrale with the hub caps]

23/00336 . . . . . . [on the axles]

23/00345 . . . . . . [Details of the rotational joints]

**WARNING**

Groups B60C 23/00345 and B60C 23/00347 are incomplete pending reclassification of documents from group B60C 23/003.

Groups B60C 23/00345, B60C 23/00347 and B60C 23/003 should be considered in order to perform a complete search.

23/00347 . . . . . . [comprising two or more feedthrough]
23/0034 ... [Details of valves]

**WARNING**

Group B60C 23/0034 is incomplete pending reclassification of documents from group B60C 23/003.
Groups B60C 23/0034 and B60C 23/003 should be considered in order to perform a complete search.

23/00363 ... [Details of sealings]

**WARNING**

Group B60C 23/00363 is incomplete pending reclassification of documents from group B60C 23/003.
Groups B60C 23/00363 and B60C 23/003 should be considered in order to perform a complete search.

23/00372 ... [characterised by fluid diagrams]

**WARNING**

Group B60C 23/00372 is incomplete pending reclassification of documents from group B60C 23/003.
Groups B60C 23/00372 and B60C 23/003 should be considered in order to perform a complete search.

23/00381 ... [specially adapted for steerable wheels]

**WARNING**

Group B60C 23/00381 is incomplete pending reclassification of documents from group B60C 23/003.
Groups B60C 23/00381 and B60C 23/003 should be considered in order to perform a complete search.

23/0039 ... [specially adapted for driven wheels]

**NOTE**

B60C 23/001, B60C 23/02, B60C 23/04, B60C 23/06 or B60C 23/08

23/004 ... [the control being done on the wheel, e.g. using a wheel-mounted reservoir]

23/005 ... [Devices specially adapted for special wheel arrangements]

23/006 ... [having two wheels only]

23/007 ... [having multiple wheels arranged side by side]

23/008 ... [having wheels on more than two axles]

23/009 ... [having wheels on a trailer]

23/02 ... Signalling devices actuated by tyre pressure ((hand-held tyre pressure gauges (G01L 17/00))

23/04 ... mounted on the wheel or tyre

23/0401 ... [characterised by the type of alarm]

23/0403 ... [Mechanically generated audible signals, e.g. by buzzer or whistle signals]

23/0405 ... [Mechanically generated visible signals, e.g. by using a gauge needle]

23/0406 ... [Alarms noticeable from outside the vehicle, e.g. indication in side mirror, front light or audible alarms (B60C 23/0403, B60C 23/0405 take precedence)]

23/0408 ... [transmitting the signals by non-mechanical means from the wheel or tyre to a vehicle body mounted receiver]

23/041 ... [Means for supplying power to the signal-transmitting means on the wheel]

23/0411 ... [Piezo-electric generators]

23/0413 ... [Wireless charging of active radio frequency circuits]

23/0415 ... [Automatically identifying wheel mounted units, e.g. after replacement or exchange of wheels]

23/0416 ... [allocating a corresponding wheel position on vehicle, e.g. front/left or rear/right]

23/0418 ... [Sharing hardware components like housing, antenna, receiver or signal transmission line with other vehicle systems like keyless entry or brake control units]

23/042 ... [cooperating with wheel hub mounted speed sensors]

23/0422 ... [characterised by the type of signal transmission means]

23/0423 ... [Photo-electric, infra-red or visible light means]

23/0425 ... [Means comprising permanent magnets, e.g. Hall-effect or Reed-switches]

23/0427 ... [Near field transmission with inductive or capacitive coupling means]

23/0428 ... [using passive wheel mounted resonance circuits]

23/043 ... [using transformer type signal transducers, e.g. rotary transformers]

23/0432 ... [using vehicle structural parts as signal path, e.g. chassis, axle or fender]

23/0433 ... [Radio signals]

23/0435 ... [Vehicle body mounted circuits, e.g. transceiver or antenna fixed to central console, door, roof, mirror or fender]

23/0437 ... [Means for detecting electromagnetic field changes not being part of the signal transmission per se, e.g. strength, direction, propagation or masking]

23/0438 ... [comprising signal transmission means, e.g. for a bidirectional communication with a corresponding wheel mounted receiver]

23/044 ... [Near field triggers, e.g. magnets or triggers with 125 KHz]

23/0442 ... [the transmitted signal comprises further information, e.g. instruction codes, sensor characteristics or identification data]

23/0444 ... [Antenna structures, control or arrangements thereof, e.g. for directional antennas, diversity antenna, antenna multiplexing or antennas integrated in fenders]
23/0445 . . . . . . [Means for changing operating mode, e.g. sleep mode, factory mode or energy saving mode]

23/0447 . . . . . . [Wheel or tyre mounted circuits]

23/0449 . . . . . . [Passive transducers, e.g. using 

surface acoustic waves, backscatter technology or pressure sensitive resonators (near field passive transducers B60C 23/0428)]

23/045 . . . . . . [Means for detecting electromagnetic field changes being not part of the signal transmission per se, e.g. strength, direction, propagation or masking]

23/0452 . . . . . . [Antenna structure, control or arrangement (vehicle tyre mounted antennas B60C 1/2241)]

23/0454 . . . . . . [Means for changing operating mode, e.g. sleep mode, factory mode or energy save mode]

23/0455 . . . . . . [Transmission control of wireless signals]

23/0457 . . . . . . [self triggered by timer]

23/0459 . . . . . . [self triggered by motion sensor]

23/0461 . . . . . . [externally triggered, e.g. by 

wireless request signal, magnet or manual switch]

23/0462 . . . . . . [Structure of transmission protocol]

23/0464 . . . . . . [to avoid signal interference]

23/0466 . . . . . . [with signals sent by transmitters mounted on adjacent vehicles]

23/0467 . . . . . . [Electric contact means, e.g. slip-rings, rollers, brushes]

23/0469 . . . . . . [Transmission by sound, e.g. ultra-sound]

23/0471 . . . . . . [System initialisation, e.g. upload or 

calibration of operating parameters]

23/0472 . . . . . . [to manually allocate ID codes or 

mounting positions, e.g. by service technicians]

23/0474 . . . . . . [Measurement control, e.g. setting 

measurement rate or calibrating of sensors; 

Further processing of measured values, e.g. 

filtering, compensating or slope monitoring]

23/0476 . . . . . . [Temperature compensation of measured 

pressure values]

23/0477 . . . . . . [Evaluating waveform of pressure 

readings]

23/0479 . . . . . . [Communicating with external units 

being not part of the vehicle, e.g. tools for 

diagnostic, mobile phones, electronic keys or 

service stations]

23/0481 . . . . . . [System diagnostic, e.g. monitoring battery 

voltage, detecting hardware detachments or 

identifying wireless transmission failures]

23/0483 . . . . . . [Wireless routers between wheel mounted 

transmitters and chassis mounted receivers]

23/0484 . . . . . . [Detecting an ongoing tyre inflation]

23/0486 . . . . . . [comprising additional sensors in the 

wheel or tyre mounted monitoring device, e.g. 

movement sensors, microphones or earth 

magnetic field sensors]

23/0488 . . . . . . [Movement sensor, e.g. for sensing angular 

speed, acceleration or centripetal force]

23/0489 . . . . . . [for detecting the actual angular position 

of the monitoring device while the wheel is 

turning]

23/0491 . . . . . . [Constructional details of means for attaching 

the control device]

23/0493 . . . . . . [for attachment on the tyre]

23/0494 . . . . . . [Valve stem attachments positioned inside 

the tyre chamber]

23/0496 . . . . . . [Valve stem attachments positioned outside 

of the tyre chamber]

23/0498 . . . . . . [for rim attachments (B60C 23/0494, 

B60C 23/0496 take precedence)]

WARNING

Group B60C 23/0498 is impacted by 
reclassification into group 
B60C 23/04985.

Groups B60C 23/0498 and 
B60C 23/04985 should be 
considered in order to perform 
a complete search.

23/04985 . . . . . . [using straps surrounding the rims]

WARNING

Group B60C 23/04985 is incomplete 
pending reclassification of documents 
from group B60C 23/0498.

Groups B60C 23/04985 and 
B60C 23/0498 should be 
considered in order to perform 
a complete search.

23/06 . . . . . Signalling devices 
actuated by deformation of the 

tyre, e.g. tyre mounted deformation sensors or 
indirect determination of tyre deformation based 
on wheel speed, wheel-centre to ground distance or 
inclination of wheel axle]

23/061 . . . . . [by monitoring wheel speed (measuring 
distance traversed on the ground by vehicles 
G01C 22/00)]

23/062 . . . . . [Frequency spectrum analysis of wheel speed 
signals, e.g. using Fourier transformation]

23/063 . . . . . [Generating directly an audible signal by 
deforation of the tyre (by touching the ground 
B60C 23/085)]

23/064 . . . . . [comprising tyre mounted deformation sensors, 
e.g. to determine road contact area]

23/065 . . . . . [by monitoring vibrations in tyres or suspensions 
(B60C 23/062 takes precedence)]

23/066 . . . . . [by monitoring wheel-centre to ground distance]

23/067 . . . . . [by monitoring chassis to ground distance]

23/068 . . . . . [by monitoring chassis to tyre distance]

23/08 . . . . . by touching the ground

23/085 . . . . . [putting directly into action an audible signal]

23/10 . . . . . Arrangements of tyre-inflating pumps mounted on 

vehicles

23/105 . . . . . [the pump being mounted in the saddle-piller of a 

bicycle]
Group B60C 23/12 is impacted by reclassification into groups B60C 23/121 - B60C 23/137. All groups listed in this Warning should be considered in order to perform a complete search.

Groups B60C 23/121 – B60C 23/124 are incomplete pending reclassification of documents from group B60C 23/12. Groups B60C 23/121 – B60C 23/124 and B60C 23/12 should be considered in order to perform a complete search.

Groups B60C 23/126 and B60C 23/12 should be considered in order to perform a complete search.

Groups B60C 23/127 and B60C 23/12 should be considered in order to perform a complete search.

Groups B60C 23/129 and B60C 23/12 and B60C 23/12 should be considered in order to perform a complete search.

Groups B60C 23/131 and B60C 23/12 should be considered in order to perform a complete search.

WARNING

Group B60C 23/133 is incomplete pending reclassification of documents from group B60C 23/12. Groups B60C 23/133 and B60C 23/12 should be considered in order to perform a complete search.

Groups B60C 23/135 is incomplete pending reclassification of documents from group B60C 23/12. Groups B60C 23/135 and B60C 23/12 should be considered in order to perform a complete search.

WARNING

Group B60C 23/137 is incomplete pending reclassification of documents from group B60C 23/12. Groups B60C 23/137 and B60C 23/12 should be considered in order to perform a complete search.

Apparatus or tools adapted for mounting, removing, repairing or inspecting tyres (apparatus or tools characterised by the means for holding wheels or parts thereof B60B 30/00)

套餐 002

[Inspecting tyres]

NOTE

When classifying in this group, classification is also made in the appropriate subgroups of B60C 25/0548

[inside surface]

[outside surface (measuring profile depth G01B 11/22)]

for manually removing tyres from or mounting tyres on wheels

for only breaking the beads

Tyre levers or the like, i.e. hand-held (machine operated B60C 25/05)

[with a jack]

pivotal about the wheel axis, or movable along the rim edge, e.g. rollable

Machines, i.e. motorized devices, e.g. for mounting, demounting (matching of tyres with rims, i.e. conjoint balancing G01M 1/30)}

[for mounting only]

[for demounting only]
the sealing surfaces of the rims B60C 25/145
provisionally the beads of tubeless tyres against
breaking the beads B60C 25/125
for removing and mounting tyres (for only
{ ; for locating for only breaking the beads
for only seating the beads
relation to the tyre during operation }
{ Tools interacting with the tyre and moved in
positioning, measuring or controlling }
{ equipped with sensing means, e.g. for
positioning, measuring or controlling }
{ provided with fastening means }
{ through apertures in the rim, e.g. fastening
from one lateral side to the other lateral side
of the rim; extending axially through the
rim }
{ acting on the tread portion, e.g. special fixing
agents, fastened in the groove of the tyre }
{ acting on the side of the tyre }
the ground-engaging part being rigid
{ involving retractable devices (fixing of spade
lugs B60B 15/00) }
{ extended over the complete circumference of the
tread, e.g. made of chains { or cables } B60C 27/20
takes precedence }
{ provided with fastening means }
{ acting on the wheel, e.g. on the rim or wheel
bolts }
{ acting on the tread portion, e.g. special fixing
agents, fastened in the groove of the tyre }
{ provided with radial arms for supporting the
ground engaging parts on the wheel }
{ provided with tensioning means }
{ Resilient pretension }
{ Centrifugal forces for tensioning while
driving }
{ provided with fastening means }
{ acting on the wheel, e.g. on the rim or wheel
bolts }
{ through apertures in the rim, e.g. fastening
from one lateral side to the other lateral side
of the rim; extending axially through the
rim }
{ acting on the tread portion, e.g. special fixing
agents, fastened in the groove of the tyre }
{ provided with fastening means }
{ acting on the wheel, e.g. on the rim or wheel
bolts }
{ (through apertures in the rim, e.g. fastening
from one lateral side to the other lateral side
of the rim; extending axially through the
rim )
{ Resilient pretension }
{ Centrifugal forces for tensioning while
driving }
{ provided with fastening means }
{ acting on the wheel, e.g. on the rim or wheel
bolts }
{ through apertures in the rim, e.g. fastening
from one lateral side to the other lateral side
of the rim; extending axially through the
rim }
{ acting on the tread portion, e.g. special fixing
agents, fastened in the groove of the tyre }
{ acting on the side of the tyre }
the ground-engaging part being rigid
{ involving retractable devices (fixing of spade
lugs B60B 15/00) }
{ extended over the complete circumference of the
tread, e.g. made of chains { or cables } B60C 27/20
takes precedence }
{ provided with fastening means }
{ acting on the wheel, e.g. on the rim or wheel
bolts }
27/067 . . . [Special chain layout, i.e. distribution of chain portions over the tread, e.g. arranged in polygon pattern]
27/068 . . . [the ground-engaging part being rigid]
27/08 . . . involving lugs or rings taking up wear, e.g. chain links, chain connectors
27/083 . . . [Profiled links, i.e. cross-section other than round, e.g. hexagonal]
27/086 . . . [Studded links, i.e. traction enhancing parts located on the link or inserted into the link]
27/10 . . . having tensioning means
27/12 . . . resilient [pretension]
27/125 . . . [Centrifugal forces for tensioning while driving]
27/14 . . . automatically attachable
27/145 . . . [the anti-skid device being wound around the wheel by its rotation from a point connected to the body frame of the vehicle]
27/16 . . . formed of close material, e.g. leather [or synthetic mats]
27/18 . . . the material being fabric, e.g. woven wire [or textile]
27/20 . . . comprising ground-engaging plate-like elements
27/22 . . . for tandem tyres (endless-track features [B62D 55/24])
29/00 Arrangements of tyre-inflating valves to tyres or rims; Accessories for tyre-inflating valves, not otherwise provided for (tools for mounting or demounting valves B60C 25/18; valves per se, valve dust caps F16K)
29/002 . . . [characterised by particular features of the valve core]
29/005 . . . [characterised by particular features of the valve stem]
29/007 . . . [for tyres with segmental sections or for multi-chamber tyres]
29/02 . . . Connection to rims
29/04 . . . Connection to tyres [or inner tubes]
29/06 . . . Accessories for tyre-inflating valves, e.g. housings, guards, covers for valve caps, locks, not otherwise provided for ([B60C 23/0496 takes precedence; tools for screwing and unscrewing valve caps B25B 27/0057; pump connectors F04B 33/005])
29/062 . . . [for filling a tyre with particular materials, e.g. liquids (B60C 5/004, B60C 5/005 take precedence)]
29/064 . . . [Hose connections for pneumatic tyres, e.g. to spare wheels]
29/066 . . . [Valve caps]
29/068 . . . [Pressure relief devices, i.e. safety devices for overpressure]
99/00 Subject matter not provided for in other groups of this subclass
99/003 . . . [Tyre heating arrangements]
99/006 . . . [Computer aided tyre design or simulation]
2200/00 Tyres specially adapted for particular applications
2200/02 . . . for aircrafts
2200/04 . . . for road vehicles, e.g. passenger cars
2200/06 . . . for heavy duty vehicles
2200/065 . . . for construction vehicles
2200/08 . . . for agricultural vehicles
2200/10 . . . for motorcycles, scooters or the like