

ECLA EUROPEAN CLASSIFICATION

- B61F** **RAIL VEHICLE SUSPENSIONS, e.g. UNDERFRAMES, BOGIES, ARRANGEMENTS OF WHEEL AXLES; RAIL VEHICLES FOR USE ON TRACKS OF DIFFERENT WIDTH; PREVENTING DERAILING; WHEEL GUARDS; OBSTRUCTION REMOVERS, OR THE LIKE (for vehicles in general B60; axles, wheels B60B; tyres B60C)**
- B61F1/00** **Underframes** ([making railway vehicle underframes by forging or pressing B21K7/12](#))
- B61F1/02 . with a single central sill
- B61F1/04 . of triangulated type
- B61F1/06 . specially adapted for locomotives or motor-driven railcars
- B61F1/08 . Details
- B61F1/10 . . End constructions
- B61F1/12 . . Cross bearers
- B61F1/14 . . Attaching or supporting vehicle body-structure
- B61F3/00** **Types of bogies** ([B61F5/00 takes precedence](#))
- B61F3/02 . with more than one axle
- B61F3/04 . . with driven axles or wheels
- B61F3/06 . . . with three or more axles
- B61F3/08 . . without driven axles or wheels
- B61F3/10 . . . with three or more axles
- B61F3/12 . specially modified for carrying adjacent vehicle bodies of articulated trains
- B61F3/12B . . [N: with more than one axle or wheel set]
- B61F3/14 . specially modified for reducing air resistance
- B61F3/16 . with a separate axle for each wheel
- B61F5/00** **Constructional details of bogies; Connections between bogies and vehicle underframes; Arrangements or devices for adjusting or allowing self-adjustment of wheel axles or bogies when rounding curves**
- B61F5/02 . Arrangements permitting limited transverse relative movements between vehicle underframe or bolster and bogie; Connections between underframes and bogies
- B61F5/04 . . Bolster supports or mountings ([side bearings B61F5/14](#))
- B61F5/06 . . . incorporating metal springs
- B61F5/08 . . . incorporating rubber springs

- B61F5/10 . . . incorporating fluid springs
- B61F5/12 . . . incorporating dampers
- B61F5/12B [N: with friction surfaces]
- B61F5/12C [N: with rubber elements ([B61F5/08](#) takes precedence)]
- B61F5/12D [N: with fluid as a damping medium]
- B61F5/14 . . Side bearings
- B61F5/14B . . . [N: made of rubber elements, graphite or the like]
- B61F5/14C . . . [N: comprising fluid damping devices ([B61F5/14D](#) takes precedence)]
- B61F5/14D . . . [N: of the oil bath type; Lubrication devices for side bearings]
- B61F5/14F . . . [N: between bolsterless bogies and underframes ([B61F5/14B](#) - [B61F5/14D](#) take precedence)]
- B61F5/16 . . Centre bearings or other swivel connections between underframes and bolsters or bogies
- B61F5/18 . . . King-bolts
- B61F5/20 . . . with springs allowing transverse movements
- B61F5/22 . . Guiding of the vehicle underframes with respect to the bogies
- B61F5/24 . . . Means for damping or minimising the canting, skewing, pitching, or plunging movements of the underframes
- B61F5/24B [N: by active damping, i.e. with means to vary the damping characteristics in accordance with track or vehicle induced reactions, especially in high speed mode]

- B61F5/26 . Mounting or securing axle-boxes in vehicle or bogie underframes
- B61F5/28 . . Axle-boxes integral with, or directly secured to, vehicle or bogie underframes
- B61F5/30 . . Axle-boxes mounted for movement under spring control in vehicle or bogie underframes ([N: [B61F5/36](#) takes precedence over [B61F5/30B](#) - [B61F5/34](#)])
- B61F5/30A . . . [N: incorporating metal springs]
- B61F5/30A2 [N: Leaf springs]
- B61F5/30A3 [N: Torsion-bar springs]
- B61F5/30B . . . [N: incorporating rubber springs]
- B61F5/30C . . . [N: incorporating fluid springs]
- B61F5/30D . . . [N: incorporating damping devices]
- B61F5/32 . . . Guides, e.g. plates, for axle-boxes
- B61F5/32B [N: The guiding device including swinging arms or the like to ensure the parallelism of the axles]
- B61F5/34 Wedge mechanisms for adjusting clearance between underframes and axles
- B61F5/36 . . . Arrangements for equalising or adjusting the load on wheels or springs, e.g. yokes

- B61F5/38 . Arrangements or devices for adjusting or allowing self- adjustment of wheel axles or bogies when rounding curves, e.g. sliding axles, swinging axles
- B61F5/38B . . [N: Adjustment controlled by non-mechanical devices, e.g. scanning trackside elements]
- B61F5/38C . . [N: fluid actuated]
- B61F5/40 . . Bogies with side frames mounted for longitudinal relative movements
- B61F5/42 . . Adjustment controlled by buffer or coupling gear

- B61F5/44 . . Adjustment controlled by movements of vehicle body
- B61F5/46 . . Adjustment controlled by a sliding axle under the same vehicle underframe
- B61F5/48 . . Trailing or leading bogies for locomotives or motor- driven railcars ([B61F5/40](#) takes precedence)

- B61F5/50 . Other details
- B61F5/52 . . Bogie frames
- B61F5/52B . . . [N: comprising parts made from fibre-reinforced matrix material]
- B61F5/52C . . . [N: comprising noise reducing devices]

- B61F7/00** **Rail vehicles equipped for use on tracks of different width**

- B61F9/00** **Rail vehicles characterised by means for preventing derailing, e.g. by use of guide wheels**

- B61F9/00B . [N: by use of non-mechanical means, e.g. acoustic or electromagnetic devices]

- B61F11/00** **Rail vehicles characterised by rail-engaging elements other than wheels, e.g. balls**

- B61F13/00** **Rail vehicles characterised by wheel arrangements, not otherwise provided for**

- B61F15/00** **Axle-boxes** (mounting or securing axle-boxes [B61F5/26](#); lubrication [B61F17/00](#); bearings in general [F16C](#))

- B61F15/02 . with journal bearings
- B61F15/04 . . for locomotives
- B61F15/06 . . for cars
- B61F15/08 . . the axle being slidable or tiltable in the bearings
- B61F15/10 . . . and having springs opposing such movements

- B61F15/12 . with roller, needle, or ball bearings
- B61F15/14 . . constructed for taking-up axial pressure
- B61F15/16 . . the axle being slidable or tiltable in the bearings
- B61F15/18 . . . and having springs opposing such movements

- B61F15/20 . Details
- B61F15/22 . . Sealing means preventing entrance of dust or leakage of oil
- B61F15/24 . . . preventing oil leakage when vehicle is tilted or inverted
- B61F15/26 . . Covers; Sealing thereof
- B61F15/28 . . Axle-boxes modified to ensure electrical conductivity

- B61F17/00** **Lubrication specially adapted for axle-boxes of rail vehicles** (lubrication in general [F16N](#))

- B61F17/02 . with oil

- B61F17/04 . . Lubrication by stationary devices
- B61F17/06 . . . by means of a wick or the like
- B61F17/08 Devices for pressing the wick or the like against the rotating axle
- B61F17/10 . . . by means of an oil bath
- B61F17/12 . . . by gravity
- B61F17/14 . . Rotating lubricating devices
- B61F17/16 . . . with rings
- B61F17/18 . . . with chains
- B61F17/20 . . . with scoops or the like attached to, or coupled with, the axle
- B61F17/22 . . . with discs, rollers, or belts engaging the axle
- B61F17/24 . . by built-in lubricating pumps
- B61F17/26 . . by external feeding means, e.g. pneumatic devices
- B61F17/28 . . Applications of oil cleaners not otherwise provided for

- B61F17/30 . with grease
- B61F17/32 . . by manually-operated lubricators, e.g. screw cups
- B61F17/34 . . by automatic means, e.g. with spring action

- B61F17/36 . with other, e.g. mixed, lubricating agents

- B61F19/00** **Wheel guards; Bumpers; Obstruction removers or the like** (for vehicles in general [B60R19/00](#))

- B61F19/02 . Wheel guards
- B61F19/04 . Bumpers or like collision guards
- B61F19/06 . Nets, catchers, or the like for catching obstacles or removing them from the track ([mailbag catchers B61K1/02](#))
- B61F19/08 . . of the drop-down type
- B61F19/10 . . . automatically operated by engagement with obstacle

- B61F99/00** **Subject matter not provided for in other groups of this subclass** [\[N0704\]](#)