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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 31879-2026

Replacing GB/T 31879-2015

Road vehicles - Fifth wheel

道路车辆 牵引座

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1 Scope

GB/T 31879-2026 is the Chinese national standard covering the fifth wheel coupling - the plate and jaw on a tractor unit that takes the whole weight and traction of a semi-trailer, with its dimensions, its strength and fatigue requirements, and the locking that must not release under load. It replaces GB/T 31879-2015. It was issued on 28 January 2026 and has been in force since 1 August 2026, replacing GB/T 31879-2015. The document is under the responsibility of the Ministry of Industry and Information Technology. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This Document specifies the classification and models, technical requirements, test methods, inspection rules, marking, accompanying documentation, transportation, and storage of the fifth wheel. This Document applies to the design, production, and inspection of No. 50 and No. 90 fifth wheels that connect to the traction pins specified in GB/T 4606 and GB/T 4607, respectively.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this Document.

GB/T 9969 General principles for preparation of instructions for use of industrial products
GB/T 13306 Plates

GB/T 13880-2024 Road vehicles - Fifth wheels - Interchangeability

GB/T 20069 Road vehicles - Fifth wheel couplings strength tests

JB/T 5943 Engineering machinery - General technical specifications for weldments

QC/T 484-1999 Automobile - Paint Coating

3 Terms and Definitions

For the purposes of this Document, the following terms and definitions apply.

3.1 Fifth wheel This device features a locking mechanism for engaging and locking with the traction pin; and is capable of transferring horizontal and vertical loads between two vehicle units. NOTE 1.A vehicle unit refers to a single, complete vehicle capable of fulfilling its design functions, including tractor units, trailers, and semi-trailer towing platforms.

4 Classification and Models

4.1 According to the number of swing axial lines, the fifth wheel is divided into two types. single axial line fifth wheel and double axial line fifth wheel; according to the matching traction pin specifications, it is divided into two types. No. 50 fifth wheel and No. 90 fifth wheel; according to the installation and usage method, it is divided into three types. standard fifth wheel (see Figure 2), direct-mount fifth wheel (see Figure 3), and sliding fifth wheel (see Figure 4).

4.2 The model designation method of the fifth wheel is shown in Figure 5. EXAMPLE

1.Enterprise A (enterprise name code AA) produces a single axial line standard fifth wheel with a matching traction pin model of No. 50; the height of fifth wheel is 185mm; the rated load capacity of 20t; and the enterprise's self-defined product series of 01; and its model of AA-FW50S-185-20-01. EXAMPLE

2.Enterprise B (enterprise name code BB) produces a single axial line direct-mount fifth wheel with a matching traction pin model of No. 50; the height of fifth wheel of 160mm; a rated load capacity of 23t; enterprise's self-defined product series of 1A; and its model of BB-DFW50S-160-23- 1A. EXAMPLE

3.Enterprise C (enterprise name code CC) produces a single axial line sliding fifth wheel with a matching traction pin model of No. 90; the height of fifth wheel of 150mm; the rated load capacity of 30t; the enterprise's self-defined product series of 01; and its model of CC-SFW90S-150-30-01.

5.1 Basic requirements

5.1.1 The fifth wheel shall be manufactured according to the drawings and technical documents approved through the prescribed procedures. separation mechanism, the lever handle shall be located on the right side in the direction of vehicle travel.

5.1.8 The engagement of the rack and fork of the sliding fifth wheel shall be reliable and self- locking. The separation between the rack and fork shall be convenient; and measures shall be in place to prevent mis-operation of the separation mechanism.

5.1.9 The sliding distance l of the sliding fifth wheel (see Figure 4) should be less than or equal to 800 mm.

5.2 Component requirements

5.2.1 The fifth wheel spring shall conform to the provisions of GB/T 4357. After assembly, the tensile force shall be no less than 90% of the original tensile force after 15,000 tensile and rebound cycles.

5.2.2 The rubber material used for the fifth wheel should conform to the provisions of Class AA in HG/T 2196-2004.

5.2.3 The welding quality of the fifth wheel components shall conform to the relevant provisions of JB/T 5943.

5.2.4 Cast components of the fifth wheel shall be free from defects that affect the performance of the casting, such as cracks, cold shuts, incomplete fusion, porosity, sand inclusions, and slag inclusions, etc. Cast panels shall not be repaired by welding. The casting material should use QT450-10 ductile iron.

5.2.5 The mating surfaces of the fifth wheel plates shall comply with the following provisions.

- When using grease as a friction-reducing material, oil reservoirs shall be provided;
- When using a wear-resistant layer that does not require grease, ensure easy replacement when the wear-resistant layer reaches its limit;
- The flatness of the mating surfaces shown in Figure 3 of GB/T 13880-2024 shall be less than or equal to

5.2.6 The hardness of the mating surface between the locking hook of fifth wheel and the traction pin shall be 25 HRC~32 HRC; and shall be lower than the hardness of the mating surface of the traction pin.

5.2.7 Exposed surfaces of the fifth wheel shall be treated with rust prevention.

5.2.8 The paint coating of the fifth wheel shall comply with the provisions of TQ4 in QC/T

484-1999; and new technologies and processes with corresponding corrosion resistance capabilities may be adopted.

5.2.9 Stamped fifth wheel plates should be made of Q355 steel.

5.2.10 The hardness and strength of the fork material of the sliding fifth wheel shall be greater than that of the rack; and high-quality carbon structural steel or alloy structural steel should be used.

5.3 Performance requirements

5.3.1 The longitudinal swing angle α (see Figures 2, 3, and 4) of the fifth wheel not installed on the vehicle (but considering the bolts or nuts on the mounting plate) shall comply with the following provisions.

--- For fifth wheel of height type 0, no less than 8° ;

--- For fifth wheel of height categories 1 to 6, no less than 12° .

5.3.2 The lateral swing angle of the single axial line fifth wheel against the horizontal plane shall not exceed 3° ; and a vibration damping sleeve shall be installed at the pivot point. The lateral swing angle of the double axial line fifth wheel plate against the horizontal plane shall be no less than 3° and no more than 7° ; and buffer devices shall be added on both sides. The lateral swing angle of the rubber bearing fifth wheel against the horizontal plane shall not exceed 5° .

5.3.3 When the engagement and disengagement of the locking hook of the fifth wheel and traction pin are performed manually, the pulling force of the lever handle shall be 400N~500N.

5.3.4 The rated load capacity of a No. 50 fifth wheel shall be no less than 20t; the rated load capacity of a No. 90 fifth wheel shall be no less than 30t.

5.3.5 After the fifth wheel and traction pin undergo separation and engagement tests according to 6.1, they shall comply with the provisions of 5.1.4~5.1.6, 5.2.1, and 5.3.3.

5.3.6 After the sliding and locking tests of the sliding fifth wheel according to 6.2, when the rack and fork are engaged and locked, the fifth wheel shall not experience significant loosening; and the wear of the fifth wheel's slide rail and its contact parts shall not exceed 1mm.

5.3.7 The strength requirements of the fifth wheel shall comply with the provisions of GB/T 20069.

6.1 Test method for separation and engagement of fifth wheel and traction pin

6.1.1 The test shall be conducted on a dedicated test bench.