GB

NATIONAL STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

ICS 43.020

T 04

GB 1589-2016

Replacing GB/T 1589-2004

Limits of dimensions, axle load and masses for motor vehicles, trailers and combination vehicles

汽车、挂车及汽车列车外廓尺寸、轴荷及质量限值

Issued on: July 26, 2016 **Implemented on: July 26, 2016**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine;

Standardization Administration of PRC.

Table of contents

Foreword

All the technical contents of this standard are mandatory.

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB 1589-2004 “Limits of dimensions, axle load and masses for road vehicles”. As compared with GB 1589-2004, except for editorial changes, the main technical changes are as follows:

- CHANGE the standard name into “Limits of dimensions, axle load and masses for motor vehicles, trailers and combination vehicles”;

- MODIFY the scope of Chapter 1;

- ADD the reference to GB/T 17350 in Chapter 2;

- In Chapter 3, ADD the definitions of vehicle length, vehicle width, vehicle height, tri-wheel vehicle, low-speed goods vehicle, fence goods vehicle/trailer, drop slide vehicle/trailer, platform goods vehicle/trailer, dump goods vehicle/trailer, low deck semi-trailer, long nose towing vehicle, long nose articulated vehicle, center axle trailer, center axle trailer of car carrier, center axle trailer train of car carrier, passenger/car trailer combination, goods road train, special motor vehicle, oilfield special vehicle, semi-trailer wheelbase, front fitting radius of semi-trailer, air suspension;

- MODIFY the limits of vehicle dimensions (4.1.1), which is divided into two limits: the maximum limit of the dimensions of a fence type, drop slide type, platform type, dump goods vehicle/trailer (Table 1), AND the maximum limit of the dimensions of other motor vehicles, trailer and vehicle combination (Table 2);

- MODIFY the requirements for unilateral extension of the indirect field of view (SEE 4.1.2.1);

- MODIFY the distance between the rear axle of the vehicle and the front axle of the towing trailer, which shall be not less than 3000mm (SEE 4.1.2.3);

- ADD the requirements for semitrailer towing vehicle and semi-trailers (SEE 4.1.3);

- CHANGE the assembled axle (SEE 4.2.2) into the axle group (SEE Table 3);

- MODIFY the measurement method of the round and outward swaying value of the vehicle channel (SEE Appendix B).

This standard was jointly proposed by the Ministry of Industry and Information Technology, the Ministry of Transport, AND the Ministry of Public Security of the People's Republic of China.

This standard shall be under the jurisdiction of the National Automotive Standardization Technical Committee (SAC/TC 114).

The responsible drafting organizations of this standard: China Automotive Technology Research Center, Ministry of Transport Highway Science Research Institute, Ministry of Public Security Traffic Management Science Research Institute.

The participating drafting organizations of this standard: China First Automobile Group Corporation, Dongfeng Motor Corporation, Shanghai Automotive Group Co., Ltd., China Heavy Vehicle Group Co., Ltd., Beiqi Foton Motor Co., Ltd., Anhui Jianghuai Automobile Co., Ltd., Zhengzhou Yutong Bus Co., Ltd., CIMC Vehicle (Group) Co., Ltd., AND Tianjin Raul Industry Co., Ltd.

This Standard replaces the standard previously issued as follows:

- GB 1589-1979、GB 1589-1989、GB 1589-2004

Limits of dimensions, axle load and masses for motor vehicles, trailers and combination vehicles

1 Scope

This standard specifies the limits of dimensions, axle load and masses for motor vehicles, trailers and combination vehicles.

This standard applies to the motor vehicles, trailers and combination vehicles used on roads.

This standard does not apply to the following vehicles:

- Special vehicles equipped for military, armed police and public security;

- Double articulated passenger cars operating on limited roads.

2 Normative references

The following documents are essential to the application of 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) are applicable to this Standard.

GB/T 3730.1 Motor vehicles and trailers – Types – Terms and definitions

GB/T 3730.2 Road vehicles – Masses – Vocabulary and codes

GB/T 3730.3 Motor vehicles and towed vehicles – Dimensions of vehicles – Terms and definitions

GB/T 17350 Terms marks and designation for special purpose vehicles and special trailers

3 Terms and definitions

The terms and definitions as defined in GB/T 3730.1, GB/T 3730.2, GB/T 3730.3, GB/T 17350 and the following apply to this document.

3.1

It refers to the goods vehicle/trailer the cargo loading structure of which is drop slide, including the drop slide vehicle/trailer equipped with vehicle mounted lifting gear, BUT excluding the goods vehicle/trailer equipped with automatic dumping devices.

3.8

Platform goods vehicle/trailer

It refers to the goods vehicle/trailer the cargo loading floor of which is flat panel structure without drop slide.

3.9

Dump goods vehicle/trailer

It refers to the goods vehicle/trailer the cargo loading structure of which is drop slide with automatic dumping device.

3.10

Low deck semi-trailer

It refers to the semi-trailer which is used to transport the large object which cannot be disassembled. It mainly has the following structural and technical characteristics:

- The nominal cross-section width of the tire shall not exceed 8.25 inches OR not exceed 245 mm;

- The connection with the towing vehicle is in gooseneck type;

- Use low-cargo platform (the height of the cargo platform bearing surface above the ground is not more than 1150 mm).

3.11

Long nose towing vehicle

It refers to the semi-trailer towing vehicle meeting the following conditions simultaneously:

- More than half of the engine body is located in front of the forefront point of the front windshield;

- The center of the steering wheel is located behind of the quarter of the total length of the vehicle's cab (entire vehicle head);

3.18

Special motor vehicle

It refers to the vehicles which are equipped with special equipment or apparatus AND used to special operations in design and manufacture, excluding those mainly used for the purposes of carrying persons or goods.

3.19

Oilfield special vehicle

It refers to the special motor vehicles used for oil and gas field exploration, development and other engineering operations, AND the total mass of which is below 1.2 times of the unladen mass. The oilfield special vehicle in this standard is the dedicated workover rig, drilling rig, fracturing truck, continuous tube operation vehicle, continuous oil pumping rod operation vehicles, cementing vehicles, sand trucks, fracturing pipe vehicles, logging vehicles, and liquid nitrogen pump vehicles, etc.

3.20

Semi-trailer wheelbase

It refers to the horizontal distance between the drawbar pin center axis of the semi-trailer and the horizontal geometric centerline of the non-steering axle group.

3.21

Front fitting radius of semi-trailer

It refers to the distance from the drawbar pin axis of the semi-trailer to the front end of the semi-trailer and farthest point of the drawbar pin axis in the horizontal plane.

3.22

Air suspension

It refers to the suspension system for which the damping effect from the air spring accounts for 75% or above of the overall damping effect.

4 Requirements

4.1 Dimension requirements

[f] The carriage length limit is 8000 mm (except for the center axle trailer train of car carrier).
[g] The length limit of the long nose articulated vehicle is 18100 mm.
[h] The maximum length limit of center axle trailer train of car carrier is 22000 mm.

4.1.2 Other requirements for dimensions

4.1.2.1 The unilateral extension of the vehicle's view field device shall not exceed the vehicle width of 250 mm.

4.1.2.2 The top window and ventilator, etc. of the vehicle shall, when opened, not exceed the vehicle height by 300 mm.

4.1.2.3 The distance between the rear axle of the vehicle and the front axle of the drawbar trailer shall not be less than 3000 mm.

4.1.3 Requirements for semi-trailer towing vehicles and semi-trailers

4.1.3.1 The front fitting radius of semi-trailer shall not be more than 2040 mm.

4.1.3.2 The horizontal distance from the central axis of the semi-trailer drawbar pin to the rear end of the semi-trailer length shall not exceed 12000 mm (except for the semi-trailers carrying 45 ft containers).

4.1.3.3 The height of the saddle of the semi-trailer towing vehicle carrying the standard container (the height of the center position of the main drawbar pin) shall comply with the following requirements:

- As for the semi-trailer towing vehicle transporting the standard container of height 2591 mm: not more than 1320 mm;

- As for the semi-trailer towing vehicle transporting the standard container of height 2896 mm: not more than 1110 mm;

4.1.4 Dimension measurement

As for the dimension requirements, SEE Appendix A.

4.2 Maximum allowable axle load limit

4.2.1 The maximum allowable axle loads for single-axle, bi-axle and tri-axle groups of motor vehicles and trailers shall not exceed the sum of the tire loads of the axle or axle group, AND shall not exceed the limits as specified in Table 3.

Table 3 The maximum allowable axle load limits for single-axle, bi-axle and tri-axle groups of motor vehicles and trailers in kg

Type	Maximum allowable axle load limit

Where:

W – Width of semi-trailer, in millimeters (mm).

4.5 Rear suspension requirements

As for the passenger vehicle, the carriage (tank) enclosed vehicle, and the trailer, the rear suspension shall be less than or equal to 65% of the wheelbase. As for the special motor vehicles, under the conditions of ensuring safety, its rear suspension can be checked in accordance with the passenger vehicle rear suspension requirements, AND the rear suspension of other vehicles shall be less than or equal to 55% of the wheelbase. As for the articulated passenger vehicle the length of which is less than 16000 mm with rear positioned engine, under the conditions of ensuring safety, the rear suspension shall not exceed 70% of the wheelbase. The rear suspension of the motor vehicle and trailer shall be less than or equal to 3500 mm (except for the center axle trailer of car carrier).

Note: The wheelbase of a multi-axle vehicle is calculated based on the distance from the first axis to the last axle (as for the articulated passenger vehicle, it is calculated based on the distance from the first axle to the second axle), AND the rear suspension is calculated from the centerline of the last axle rearwards. The devices as listed in A.3.3 which are not covered in the vehicle length measurement range will not be included during rear suspension calculation.

4.6 Other requirements

4.6.1 The axle load of the drive axle of motor vehicle or combination vehicle shall be not less than 25% of the maximum total mass of the motor vehicle or combination vehicle.

4.6.2 The value of the maximum allowable total mass (unit: t) of a four-axle vehicle (except for dump truck) shall not exceed 5 times the value (in m) of the distance from its forefront axle to the last axle.

4.6.3 The height of the cargo drop slide (including covers) of trailers and bi-axle goods vehicle shall not exceed 600 mm; the height of the cargo drop slide (including covers) of two-axle dump trucks, tri-axles and tri-axle above goods vehicles shall not exceed 800 mm; AND the height of the cargo drop slide (including covers) of tri-axle and above dump trucks shall not exceed 1500 mm.

4.7 Low deck semi-trailer, fire trucks, wrecker, concrete pump truck, truck crane, oilfield special vehicle requirements

4.7.1 Requirements for low deck semi-trailer

Appendix A

(Normative)

Rules on dimension measurement

A.1 Measurement conditions

A.1.1 The measurement site shall be a support surface with a horizontal hard coating.

A.1.2 Vehicle steering wheels shall be placed on the measurement site in a straight forward driving status.

A.1.3 The vehicle is in the unladen load conditions.

A.1.4 The vehicle tire pressure shall comply with the vehicle manufacturer's technical requirements.

A.1.5 The airbag status of the vehicles with air suspension shall comply with the vehicle manufacturer's technical requirements.

A.1.6 The active antenna of the vehicle shall be folded or retracted, AND the detachable antenna shall be removed.

A.1.7 The current collector of the electric vehicle is in a non-operating state.

A.1.8 It excludes the motor vehicle and trailer’s license plate, BUT includes the motor vehicle and trailer’s license plate holder.

A.2 General provisions

A.2.1 Vehicle support plane (abbreviated as X plane)

It refers to, when measuring the vehicle dimensional parameters, the flat and solid level used to support the wheels.

A.2.2 Wheel center plane

As for single wheel, the wheel center plane is a plane that is equidistant from both sides of the inner edge of the wheel rim.

As for double wheel, the wheel center plane is a plane that is equidistant from the inner edge of the outer wheel rim and the outer edge of the inner wheel rim.

- Wipers and scrubbers;

- External identification, including the registered trademark, manufacturer name, origin, model name and model, engine displacement, transmission type, drive type and other identifications reflecting vehicle characteristics;

- Lighting and light signal devices;

- Anti-collision rubber blocks and similar devices;

- External shading device;

- Customs sealing device and its protective devices;

- Apparatus for securing a rainproof cloth and its protective device;

- Locking device, hinge, handle, controller, switch;

- Inlet and outlet step (or ladder), the steps and handles at the upper end of bumper for the purposes of windshield wiping;

- Rear logo plate including LOGO;

- Removable vehicle articulated or towing devices;

- Exhaust tail pipe.

A.3.3.2 The following devices which do not have the loading function are beyond the vehicle length measurement range:

- Air intake pipe;

- Refrigerated semi-trailer cooler within the semi-trailer front turning radius, AND the tool box frame, ladder, front pneumatic/electrical connector and protective cover of semi-trailer;

- Indirect view field devices;

- Current collector (including fixation devices) of electric vehicles;

- The vehicle rear diverting device with the length at extended status not more than 2000 mm, not more than 200 mm at stowed status, detachable or foldable;

- The tail board, up and down ramps, and similar devices of the horizontal length at stowed status not exceeding 300 mm;

- Rear ladder.

APPENDIX B

(Normative)

Measurement method of vehicle channel circle and outward swaying value

B.1 Vehicle channel circle

B.1.1 MAKE the motor vehicle or combination vehicle at unloaded state at the flat ground.

B.1.2 START the motor vehicle or combination vehicle; LET it drive into a horizontal concentric circle with the outer circle diameter D_1 of 25000 mm AND inner circle diameter D_2 of 10600 mm; MAKE it travel within the circle for at least 1 circle (360°).

B.1.3 Passing the outer circle curve of the horizontal concentric circle, MAKE a cylindrical space perpendicular to the ground AND extended infinitely upwards, which is the outer circle vertical space of the vehicle channel circle.

B.1.4 Passing the inner circle curve of the horizontal concentric circle, MAKE a cylindrical space perpendicular to the ground AND extended infinitely upwards, which is the inner circle vertical space of the vehicle channel circle.

B.1.5 REPEAT the aforementioned procedures clockwise and counterclockwise respectively.

B.2 Vehicle outward swaying value

B.2.1 MAKE the motor vehicle or combination vehicle park on the flat ground at unloaded state and straight line driving state.

B.2.2 Along the outmost part of vehicle, MAKE projection to the ground; and MAKE the projection line parallel with the longitudinal centerline of the vehicle.

B.2.3 START the motor vehicle or combination vehicle, MAKE it transit from straight line travel to the circular motion as mentioned in B.1.2; at least LET the vehicle tail enter into the 25000 mm circle (SEE Figure B.1 and Figure B.2).

B.2.4 In the aforementioned process, the projection of any outer parts of the vehicle onto the ground forms the outward swaying track, AND the maximum

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------