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

JT/T 1178.2-2019

**Safety specification for commercial vehicle for cargos
transportation - Part 2: Towing vehicle and trailer
(English Translation)**

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1 Scope

This Part of JT/T 1178 specifies the safety technical requirements and test methods, for the complete vehicle, braking system, safety protection, mechanical connection, pneumatic and electrical connection, load layout identification and securing points, alarms and reminders, of towing vehicles and trailers.

This Part is applicable to category N2 and category N3 towing vehicles, category O3 and category O4 trailers, as well as their combinations.

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) is applicable to this standard.

GB 1589 Limits of dimensions, axle load and masses for motor vehicles, trailers and combination vehicles

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

GB/T 3730.2 Road vehicle - Masses - Vocabulary and codes

GB 4094 Motor vehicles - Symbols for controls, indicators and tell-tales

GB/T 4606 Road vehicles - 50 semi-trailer fifth wheel coupling pin - Basic and mounting/interchangeability dimensions

GB/T 4781 Commercial road vehicles - 50 mm draw bar eye -

Interchangeability

GB 4785 Prescription for installation of the external lighting and light- signaling devices for motor vehicles and their trailers

GB/T 5053.1-2006 Road vehicles - Connectors for the electrical connection of towing and towed vehicles - 7-pole connector type 24 N (normal) for vehicles with 24 V nominal supply voltage test method, which is specified in GB/T 14172. The rollover stability angle shall meet the following requirements:

- a) Under no-load and static conditions, the rollover stability angles, which are inclined to the left and right, shall be greater than or equal to 35°;
- b) Under full load and static conditions, the rollover stability angles, which are inclined to the left and right, shall be greater than or equal to 23°.

Simulation calculations can also be carried out, with reference to Chapter

6 of GB 28373-2012, under the loading conditions specified by the enterprise.

4.3 When the towing vehicle is in the vehicle combination state (meeting the enterprise's product design AND not exceeding the maximum outline size specified in GB 1589, except for tank vehicles), it shall be subject to the steady- state rotation test, under full load, in accordance with the provisions of Chapter

10 of GB/T 6323-2014. The understeer of the towing vehicle shall be greater than $0^\circ / (m/s^2)$ AND less than or equal to $1^\circ / (m/s^2)$.

4.4 Towing trucks and vehicle combinations (meeting the enterprise's product

design AND not exceeding the maximum external dimensions specified in GB

1589, except for tank vehicles), shall be subject to the snaking test, under full load, in accordance with the provisions of Chapter 5 of GB/T 6323-2014. For the peak average yaw velocity of towing trucks (single-vehicle status) and towing vehicles (vehicle combination state), it shall be less than the lower limit of QC/T 480's corresponding stake spacing and reference vehicle speed.

4.5 Towing trucks and vehicle combinations (meeting the enterprise's product

design AND not exceeding the maximum external dimensions specified in GB

1589, except for tank vehicles) shall be subjected to the rollover stability test, under full load, in accordance with the test method specified in JT/T 884. When the centripetal

acceleration, at the center of mass of the towing truck (single vehicle state) and the towing vehicle (vehicle combination state) reaches 0.4 g, neither the towing vehicle nor the trailer will rollover or slip.

4.6 When towing vehicles and trailers travel 500 m, in a straight line at a speed of 30 km/h, on a flat and dry pavement, under no-load conditions (meeting the enterprise's product design AND not exceeding the maximum outline size specified in GB 1589), in the vehicle combination state, THEN, for the maximum swing amplitude of the center of the rear axle of the trailer, as relative to the center of the front axle of the towing vehicle, it shall be less than or equal to 100 mm for the articulated vehicle and center-axle trailer combination, OR less than or equal to 150 mm for the draw bar trailer combination.

4.7 For the towing vehicles and trailers (meeting the design of the enterprise's
product AND not exceeding the maximum external dimensions specified in GB

5 Braking system

5.1

The pneumatic braking system of the towing vehicle and the trailer shall be equipped with a device, which has the function of keeping the compressed air dry AND separating oil and water.

5.2

All service brakes of the towing vehicle and the trailer shall have the function of automatically adjusting the brake gap.

5.3

The air cylinders and brake air chambers of the brake system, in the towing vehicles and trailers, shall be equipped with pressure test connectors for air brake devices. The performance of the pressure test connector shall meet the requirements of GB/T 5922.

5.4

The towing vehicle shall be equipped with a category-1 anti-lock braking system, that complies with the provisions of GB/T 13594. The trailer shall be equipped with a category-A anti-lock brake system, that complies with the provisions of GB/T 13594. The towing vehicle shall be equipped with a signal device, which alarms when the anti-lock brake system fails (including the failure of the trailer's anti-lock brake system). The electromagnetic compatibility of the anti-lock brake devices, in towing vehicles and trailers, shall comply with the level 3 requirements in GB/T 18655 as well as the requirements in GB/T 17619.

5.5

Towing vehicles and trailers, which have a maximum speed greater than or equal to 90

km/h, shall be equipped with electronic braking systems (EBS). The performance of EBS shall meet the requirements of GB 12676 and GB/T 13594.

5.6

Towing vehicles, which have a maximum speed greater than or equal to 90 km/h, shall be equipped with an automatic emergency braking system (AEBS).

The performance of AEBS shall meet the requirements of JT/T 1242-2019.

5.7 When the towing vehicle adopts pneumatic braking, the rated working air

pressure of the air cylinder of the braking system shall be greater than or equal to 1000 kPa. The air cylinders of the towing vehicle and the trailer shall meet the requirements of QC/T 200. The rated working air pressure value of the air cylinder of the brake system shall be clearly marked on the product label (or other permanently maintained marks set on the easily visible part of the vehicle).

5.8 When the towing vehicle, which adopts pneumatic braking, is tested in accordance with the method specified in GB 12676, THEN, the response time (A), from stepping on the brake pedal to the most unfavorable brake chamber, shall be less than or equal to 0.6 s. Meanwhile, the response time (B), from stepping on the brake pedal of the towing vehicle, to the end of the hose extension of the air pressure control pipeline joint, between the towing vehicle and the trailer, shall be less than or equal to 0.4 s. For the trailer, which adopts

6 Safety protection

6.1

Towing trucks and trailers shall be equipped with side guards and rear lower guards. The performance of the guards shall meet the requirements of GB 11567.

6.2

The front lower guards shall be installed on the towing vehicle. The performance of the guard shall meet the requirements of GB 26511.

6.3

The lifting tailgate shall be equipped with a mechanical locking device, which prevents the tailgate bearing platform from falling or opening automatically.

6.4

The cab of the towing vehicle shall have the function of occupant protection.

The performance requirements of the cab shall meet the requirements of 6.4 of