

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

QC/T 1200-2023

**Cable assembly for conducting charging of electric vehicles
with a charger**
(English Translation)

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1 Scope

This Document specifies the special technical requirements and test methods for heavy commercial vehicles and vehicle-trailers equipped with lift axles.

This Document applies to N3-category vehicles, O4-category semi-trailers, and their combined vehicle-trailers equipped with lift axles.

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

GB/T 3730.1 Terms and definitions of motor vehicles, trailers and combination vehicle - Part 1.Types

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

GB 7258-2017 Technical specifications for safety of power-driven vehicles operating on roads

GB/T 12540 Minimum turning circle diameter, turning clearance circle and swing-out value test method for motor vehicles and combination of vehicles

GB 12676 Technical requirements and testing methods for commercial vehicle and trailer braking systems

GB/T 13594 Performance requirements and test methods of anti-lock braking system for commercial vehicle and trailer

GB/T 14172 Bench test methods of static roll stability for motor vehicles, trailers and combination vehicles

GB 28373 Tank vehicles of categories N and O with regard to rollover stability

GB 34659 Requirements and test methods relating to the spray-suppression systems of motor vehicles and their trailers

ISO 2575 Road Vehicles - Symbols for Controls, indicators and tell-tales

3 Terms and Definitions

For the purposes of this Document, the terms and definitions given in GB/T 3730.1 and GB/T

3730.2, and the following apply.

3.1 Lift axle

Axle that is equipped on vehicles with three or more axles that can be lifted and lowered and has load-bearing function.

3.2 Traction help

To improve the driving force of a vehicle on wet or uneven roads, the axle load is temporarily increased by transferring the axle load to improve tire adhesion, thereby enhancing the vehicle's driving performance.

3.3 Axle load threshold of automatic landing

When a vehicle is stationary and the lift axle is in a raised state while cargo is loaded, the axle load of the axle or axle group closest to the lift axle is triggered when the automatic lowering function of the lift axle is activated.

4.1 Lift axle equipment and layout requirements

4.1.1

For N3-category vehicles, the lift axle shall be located after the midpoint of the line connecting the first and last axles of the vehicle, and the number of lift axles shall be one.

4.1.2

For O4-category semi-trailers, the number of lift axles shall be one.

4.1.3

Lift axles with drive function shall be able to achieve power interruption, with no power output after lifting. Power interruption should preferably be automatic.

4.2 Axle load limit requirements

4.2.1

Under full load, the maximum axle load of each axle of a vehicle equipped with a lift axle shall meet the requirements of GB 1589.

4.2.2

The lift axle shall have corresponding load-bearing capacity, and the axle load distributed by the lift axle under full load shall meet the design requirements of the manufacturer.

4.2.3

Under both lifting and grounding conditions of the lift axle, the axle load of the steering axle shall be no less than 20% of the total mass of the vehicle at that time.

4.3 Control and prompting requirements

4.3.1

A lift axle status signal device shall be installed in a location easily visible to the driver.

The markings on the signal device should use the symbols shown in Figure 1 or similar symbols.

When using other similar symbols, the line thickness, line spacing, character and arrow shapes, etc., shall meet the requirements of ISO 2575.

Figure 1 -- Lift axle status symbol

4.3.2

Vehicles shall be equipped with a lift axle control device to control the lifting and lowering of the lift axle. The markings on the control device should use the symbols shown in Figure 1 or similar symbols. When using other similar symbols, line thickness, line spacing, character and arrow shapes, etc., shall meet the requirements of ISO 2575.

4.3.3

The lift axle shall have a static automatic lowering function, and the automatic lowering axle load threshold shall not exceed the maximum permissible axle load of that axle or axle group. When the vehicle is stationary and the axle load of the axle or axle group closest to the lift axle reaches the automatic lowering axle load threshold, the lift axle shall automatically lower to the ground position.

4.3.4

If the vehicle lift axle is in the grounding position after triggering the conditions specified in 4.3.3, and the vehicle's loading status has not changed, actuating the lift axle control device shall prevent the lift axle from lifting.

4.3.5

In the event of a lift axle control system failure, an easily identifiable alarm signal should be sent to the driver in the form of a visual or audible signal.

4.3.6

When the vehicle speed exceeds 15 km/h, the lift axle shall not be able to lift or lower.

4.4.1 Roll Stability

4.4.1.1

When the vehicle is unloaded and the lift axle is raised, the vehicle's roll stability angle shall meet the requirements of GB 7258-2017.

4.4.1.2

When the vehicle is unloaded and the lift axle is landed, the vehicle's roll stability angle shall meet the requirements of GB 7258-2017.

4.4.1.3

When the lift axle is raised and the total vehicle mass reaches the sum of the maximum permissible axle loads of all bearing axles, the vehicle's roll stability angle shall meet the requirements of 4.6.2 in GB 7258-2017.

4.4.1.4

When the vehicle is fully loaded, the vehicle's roll stability angle shall meet the requirements of 4.6.2 in GB 7258-2017.

4.4.2 Braking performance

4.4.2.1

When the vehicle is unloaded and the lift axle is raised, its braking performance shall meet the requirements of GB 12676.

4.4.2.2

When the vehicle is unloaded and the lift axle is landed, its braking performance shall meet the requirements of GB 12676.

4.4.2.3

When the lift axle is raised and the total vehicle mass reaches the sum of the maximum