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QC

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

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Dump truck
(English Translation)

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1 Scope

This document specifies the technical requirements, test methods, inspection rules, markings, and accompanying documents for dump trucks.

This document applies to dump trucks modified from Class II standard vehicle chassis.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

GB/T 3639, Seamless cold-drawn or cold-rolled steel tubes for precision applications

GB/T 3766, Hydraulic fluid power -- General rules and safety requirements for systems and their components

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

GB/T 12534, Motor vehicles. General rules of road test method

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

GB/T 18411, Power-driven vehicles manufacturer plate

GB/T 25610, Earth-moving machinery -- Dumper body support and operator tilt support devices

GB/T 38900, Items and Methods for Safety Technology Inspection of Motor Vehicles

GB/T 40494, Instructions for the use of power-driven vehicles

BB/T 0037-2012, Flame-resistant and water-proof fabrics and tarpaulins coated with polyvinyl chloride on both sides

JB/T 5943, Engineering machinery, general technical conditions for heat treatment parts

JB/T 7039, Hydraulic vane pumps

JB/T 7041 (all parts), Hydraulic Pumps -- Part 1.Vane Pumps

JB/T 8727, Hydraulic hose assemblies

JB/T 8729, Hydraulic fluid power -- Multiple directional valve

QC/T 319, Power-take-off for special purpose vehicles

QC/T 460, Technical specification of hydraulic cylinder for dump truck

QC/T 484, Automobile -- Paint Coating

QC/T 625, Metallic coatings and conversion coatings for automobile

QC/T 644, Specifications for automobile metal fuel tank

QC/T 29104, Limiting value of contamination level of solid particles of special purpose vehicle hydraulic system

3 Terms and definitions

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

3.1

dump truck

A vehicle equipped with lifting and/or horizontal unloading devices (conveyor belt, movable floor, push plate, etc.) that enables automatic unloading of goods from the carriage.

3.1.1

tipper

A dump truck that uses a lifting device to tilt the carriage at a certain angle, thereby unloading the materials inside the carriage. See Figure 1 for a schematic diagram.

NOTE: This typically includes rear-tilt dump trucks and side-tilt dump trucks.

3.9

width inside the carriage

The horizontal distance between the vertical planes with the largest inner areas of the left

and right boards. It is represented by the letter W, see Figure 7.

4.1.1 General requirements

4.1.1.1

The external dimensions, axle load and mass limits shall comply with the provisions of GB 1589.

4.1.1.2

Operational safety shall comply with the provisions of GB 7258.

4.1.1.3

The power take-off unit shall comply with the provisions of QC/T 319.

4.1.2 Assembly requirements

4.1.2.1

All moving parts shall operate smoothly. There shall be no interference, lateral movement, collision, or jamming.

4.1.2.2

All pipes and wiring harnesses shall be arranged neatly and securely fixed. They shall not rub against or interfere with moving parts.

4.1.2.3

All operating handles and valves shall be installed for easy operation. Operating instructions shall be placed in easily visible locations. The safety protection devices shall be provided.

4.1.3 Process requirements

4.1.3.1

The welding quality of welded parts shall conform to the requirements of JB/T

5943. The weld seam shall be smooth and uniform, free from defects such as burn-through, incomplete welding, cracks, porosity, and slag inclusions. Weld slag shall be thoroughly cleaned.

4.1.3.2

All fasteners shall be treated with rust prevention. Exposed ferrous metal parts shall be treated with corrosion prevention.

4.1.3.3

The quality of paint coatings shall comply with the requirements of QC/T 484.

Coatings and chemical treatment layers shall comply with the requirements of QC/T

625.

4.1.4 Safety requirements

4.1.4.1

Dump trucks shall be equipped with acoustic and optical alarm devices. When the carriage of a lift-type dump truck is not in contact with the frame (subframe) or when the unloading device is in operation, the alarm device shall be able to issue an alarm to the driver and operators.

4.1.4.2

Dump trucks shall be equipped with dump covers to prevent material spillage.

Leakage and spillage shall not occur during transportation.

4.1.4.3

Dump trucks shall be designed and manufactured with safety measures in place to prevent unintended unloading.

4.1.4.4

Effective measures shall be taken to ensure that the vehicle speed does not exceed 10 km/h when the carriage has not been returned to its initial state.

4.1.4.5

Dump trucks shall have safety warning signs prominently displayed around the operating devices. The signs shall ideally be no smaller than 150 mm x 100 mm. The background color shall be yellow. The text color shall be prominent, preferably black or red. Illustrations may be included. The font height shall be no less than 3.5 mm.

4.1.4.6

Tippers shall be equipped with lifting limit devices. These devices ensure vehicle lifting safety in the event of hydraulic system limit device failure, preventing cylinder dislodgement or rollover.

4.1.4.7

Tippers shall be equipped with support devices for adjustment and maintenance operations. The support devices shall comply with the relevant provisions of GB/T

25610.

4.1.4.8

For tilt-over tippers, under rated load (without unloading), the test shall be conducted according to 5.6. The vehicle shall not overturn when tilted 4°. After the carriage is returned to its original position, the vehicle body structure and components shall be free from