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Tri-wheel vehicles - General specifications

三轮汽车 通用技术条件

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1 Scope

This document specifies the requirements for code rule, technical requirements, test methods, inspection rules, delivery, transport and storage of tri-wheel vehicles.

This document is applicable to tri-wheel vehicles.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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/T 2828.1 Sampling procedures for inspection by attributes - Part 1: Sampling schemes

indexed by acceptance quality limit (AQL) for lot-by-lot inspection · GB/T 18386 Electric vehicles - Energy consumption and range - Test procedures · GB/T 19119 Tri-wheel vehicles and low-speed goods vehicles - Prescription for installation of lighting and light signalling devices · GB/T 19123 Tri-wheel vehicles and low-speed goods vehicles - Photometric characteristics of turn signal lamps · GB/T 19124 Tri-wheel vehicles and low-speed goods vehicles - Head lamps · GB/T 19125 Tri-wheel vehicles and low-speed goods vehicles - Photometric characteristics of front and rear position lamps, stop lamps · GB/T 19129 Tri-wheel vehicles and low-speed goods vehicles - Electric horn - Performance requirement and methods · GB/T 19134 Tri-wheel vehicles and low-speed goods vehicles - Rear view mirrors - Requirements of performance and installation · GB/T 19135 Tri-wheel vehicles and low-speed goods vehicles - Photometric characteristics of reversing lamps · GB/T 20234.1 Connection set for conductive charging of electric vehicles - Part 1: General requirements · GB/T 20234.2 Connection set for conductive charging of electric vehicles - Part 2: AC charging coupler · GB/T 21422 Tri-wheel vehicles - Operating position dimensions of driver · GB/T 23918 Tri-wheel vehicles - Location, maximum actuating forces and operating method of controls · GB/T 23922 Low-speed vehicles - Manufacturer's plate · GB/T 23923 Tri-wheel vehicles and low-speed goods vehicles - Generator · GB/T 23930 Tri-wheel vehicles - Steering gear · GB/T 23931 Tri-wheel vehicles - Test method · GB/T 24157 Test methods of range and indication for the state of charge for electric motorcycles and electric mopeds · GB/T 24939 Tri-wheel vehicle self-unloading system - Safety requirements · GB/T 31486 Electrical performance requirements and test methods for traction battery of electric vehicle · JB/T 9832.2 Tractors and machinery for agriculture and forestry - Paints adherence performance - Cross-cut test · JB/T 10197 Tri-wheel vehicles - Code rule · JB/T 11223 Tri-wheel vehicles and low-speed goods vehicles - Facade quality requirements · JB/T 11224 Tri-wheel vehicles - Examining and assessing methods of reliability · JB/T 11475 Agricultural sprinkling irrigation vehicle - General specifications · JB/T 13160 Low-speed vehicles - Garbage collection vehicle · QC/T 792 Motors and controllers for electric motorcycles and electric mopeds · QC/T 895 On-board conductive charger for electric vehicles

3 Terms and definitions

No terms and definitions are listed in this document.

4 Code rule

The code composition and rule of tri-wheel vehicles shall meet the provisions of JB/T 10197.

5.1 General requirements

Tri-wheel vehicles shall be manufactured in accordance with product drawings and

technical documents approved through the approved procedure, and their parts and accessories shall be inspected and qualified before assembly.

Parts and components connected by fasteners shall be reliably connected in accordance with the requirements and with no looseness; the tightening torque of fasteners in important positions shall comply with the product drawings or the operation manual.

The appearance shall be clean and reasonably arranged, with no missing or damaged parts. The vehicle body shall be straight, and the height difference between symmetric positions on the left and right sides of the exterior shall not exceed 40 mm.

The appearance quality of painted surfaces, castings and forgings, welded parts and metal coatings shall comply with JB/T 11223.

The minimum clearance from ground shall be not less than 160 mm.

There shall be no leakage of oil, water or air, and no muddy water shall seep into the body; fully enclosed cabs shall not leak water.

The sound level of electric horns shall comply with GB 18320 and their performance with GB/T 19129; the installation and performance of rearview mirrors shall comply with GB/T 19134.

The external dimensions, axle load and mass shall comply with GB 1589. On electric tri-wheel vehicles the mass distribution shall be balanced, and the ratio of the total mass of the power battery, including the battery box and its accessories, to the curb mass of the vehicle shall not be more than 30 %.

5.2 Safety requirements and measures

The safety requirements and measures for tri-wheel vehicles shall comply with GB 18320, and those for the dump system with GB/T 24939.

Reflective markings: the vehicle shall carry body reflective markings on the rear and the sides. The rear markings shall reflect the height and the width of the rear of the vehicle; the side markings shall be not less than 1.2 m long, or equal to the length of the cargo box where that box is shorter than 1.2 m.

Electric tri-wheel vehicles: the motor shall withstand a short-term overload of 2.5 times the rated current for 1 min at rated voltage and full operation, and shall run normally after restarting. Protection of persons against electric shock shall comply with GB 18384.

Under normal installation conditions the surface of the power battery shall show no electrolyte leakage or spillage; ventilation shall be provided around it to prevent explosion, fire or toxic substances, and in an accident or other failure the release of harmful substances to persons shall be minimised. An overcurrent cutting-off device shall cut the circuit connected to the battery pack terminals under overcurrent conditions.

Where the driver leaves the vehicle while the drive system is still in the drivable state, a distinct audible or visible signal device shall alert the driver; where the vehicle is stationary and the motor still rotating, the vehicle shall not be able to move once the power is cut off.

A main switch shall cut at least one electrode of the on-board power source, controlled on and off by a manual device within the driver's reach; after each cut-off the drive system supply shall be restored only by the normal power-on procedure.

While connected to a charging source the vehicle shall not be moved by its own drive system; the charging connection components shall be able to interrupt the current without damage, and live components of the charging connection system shall be protected against direct contact under all operating conditions.

A failure protection device shall prevent unintended acceleration, deceleration and reversing caused by drive system failures; unintended disconnection of electrical connectors shall not create a hazard; overvoltage in auxiliary circuits electrically connected to the power system shall be prevented; and on overcurrent, circuit protectors, cutting-off devices or fuses shall cut at least one electrode of the on-board power source.

Heat generated by electrical and electronic components shall not cause combustion, material degradation or scalding; the power battery box shall have uniform heat dissipation and ventilation, and an overheat protection device shall be fitted in the circuit.

5.3 Usage information

The usage information for tri-wheel vehicles is specified in GB 18320. On electric tri-wheel vehicles the chemical type, the nominal voltage and the rated capacity of the battery shall be clearly marked in a visible position.

Product nameplates shall comply with GB/T 23922.

Safety signs are specified in GB 18320. On electric tri-wheel vehicles whose maximum working voltage exceeds 25 V AC or 60 V DC, the battery pack shall carry a clearly visible high-voltage warning or electric shock hazard mark.

5.4 Main performance requirements

The rated power of the engine shall be the one-hour power; after the specified running-in it shall comply with the operation manual within a tolerance of plus or minus 5 %.

The minimum stable speed in the highest gear shall not exceed 40 % of the maximum design speed.

Gradeability shall be not less than 20 % for diesel-engined vehicles and not less than 18 % for electric ones.

At full load the acceleration distance from 15 km/h to 30 km/h shall not exceed 120 m for