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Safety technical requirements for automotive door handle 汽车车门把手安全技术要求

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Foreword

This document has been drafted in accordance with the rules given in GB/T 1.1—2020 *Directives for standardization — Part 1: Rules for the structure and drafting of standardizing documents*.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing body of this document shall not be held responsible for identifying patents.

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Safety technical requirements for automotive door handle

1 Scope

This document specifies the technical requirements, test methods and determination of the same type for automotive door handles.

This document applies to the door handles of category M₁ and category N₁ vehicles and of multi-purpose goods vehicles. Door handles of other vehicles may be dealt with by reference to this document.

2 Normative references

The contents of the following documents constitute indispensable provisions of this document through normative reference in the text. For dated references, only the edition corresponding to that date applies. For undated references, the latest edition (including all amendments) applies.

GB 11551 — The protection of the occupants in the event of a frontal collision for motor vehicle

GB 15086 — Performance requirements and test methods of door locks and door retention components for motor vehicles

GB 38031 — Safety requirements for power battery of electric vehicles

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB 11551, GB 15086 and GB 38031, together with the following, apply.

3.1

doors

Doors located on the side or the rear of the vehicle which can be opened and closed to allow occupants to enter and leave, including rotating (hinged) opening doors and translational (sliding) opening doors, etc.

Note: Folding doors, roll-up doors and simple doors that are easy to install and remove are not included.

[SOURCE: GB 15086—2013, 2.1, modified]

3.2

door handle

Operating mechanism used to open and close a door.

Note: Only outer door handles and inner door handles are included.

3.3

unlatch

Disengagement of the door lock from the fully latched position or from the secondary latched position, achieving separation of the latch body from the striker (or block).

Note 1: The latched condition of the door lock is the condition in which the lock restrains the door and the door can be opened by operating the door handle.

Note 2: Unlatching is divided into electrical release and mechanical release. Electrical release means that the door lock is disengaged by an electrically driven mechanical mechanism; mechanical release means that the door lock is disengaged solely by a mechanical mechanism.

3.4

outer door handle

Operating mechanism having the form of a handle, located on the door or near the door frame, used to release the door lock device from outside the vehicle.

Note: According to the form of connection between the outer door handle and the door lock, outer door handles are divided into electrically released outer door handles and mechanically released outer door handles.

3.5

inner door handle

Operating mechanism located on the door or near the door frame, used to release the door lock device from inside the vehicle.

Note: According to the form of connection between the inner door handle and the door lock, inner door handles are divided into electrically released inner door handles (including the electronic push-button type) and mechanically released inner door handles.

4 Technical requirements

4.1 General requirements

4.1.1 Outer door handle

4.1.1.1 Every door (excluding the back door) shall be equipped with a mechanically released outer door handle. The safety design of the vehicle shall be such that, after an event such as the deployment of an irreversible restraint device or thermal propagation of the traction battery, the door can be opened by means of the mechanically released outer door handle without the use of tools. For vehicles equipped with an electronically controlled door locking device or an automatically activated door locking device, when the locking device is in the locked state and an event such as the deployment of an irreversible restraint device or thermal propagation of the traction battery occurs, it shall be possible to open the door by means of the mechanically released outer door handle without the use of tools.

4.1.1.2 The outer door handle shall be located within the shaded area specified in Annex A, or in the area of the door or near the door frame adjacent to that shaded area. The shaded area for translational (sliding) opening doors is shown in Figure A.1; the shaded area for upward-rotating opening doors is shown in Figure A.2; the shaded area for all other types of door is shown in Figure A.3.

4.1.1.3 In any state of the outer door handle, a hand operating space allowing the mechanical release function to be operated shall be available relative to the vehicle body surface. This operating space shall be able to accommodate the module shown in Figure 1.

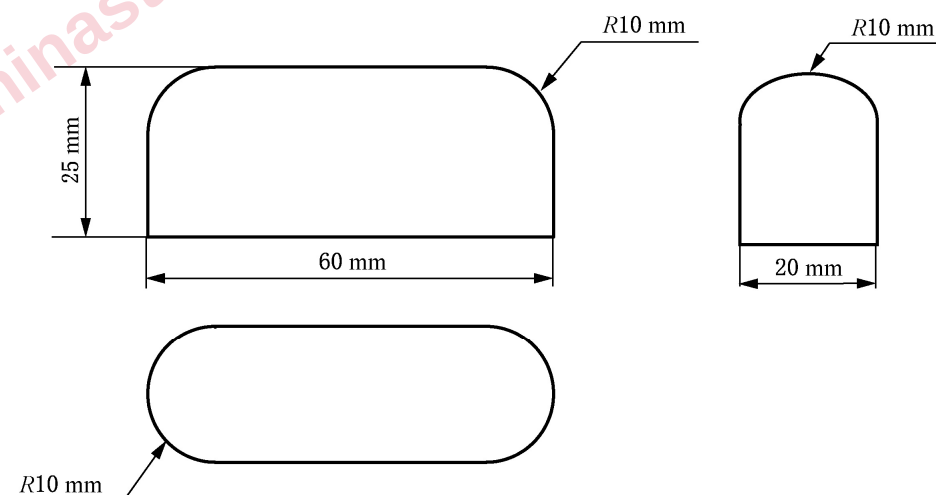


Figure 1 — Schematic diagram of the hand operating space module

4.1.2 Inner door handle

4.1.2.1 Every door (excluding the back door) shall be equipped with at least one mechanically released inner door handle. Where a single door is equipped with more than one mechanically released inner door handle, independent operation of any one of them shall be capable of opening the door.

4.1.2.2 On each door (excluding the back door), at least one mechanically released inner door handle shall be easy for occupants inside the vehicle to identify, and its mounting position shall meet the following requirements:

- it shall be in a position not obscured by interior components of the vehicle, and directly visible from the corresponding occupant position;
- it shall be located on the door, or at a distance of not more than 300 mm from the door edge (the edge of the visible area with the door in the closed condition);
- where the latch body is on the door, the longitudinal centre position of the mechanically released inner door handle shall be forward of the R point of the seat in the same row adjacent to that door, and its vertical centre position shall lie within the region from 0 mm to 680 mm above the R point, as shown in Figure A.4.

4.1.2.3 Inner door handles (other than straight-lever type, ring type and vertical-lever type inner door handles which