GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 13.220.50

CCS C 82

GB 12955-2024

Replacing GB 12955-2008

Fire-resistant doorsets

防火门

Issued on: October 28, 2024 **Implemented on: May 01, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the People's Republic of China.

Table of Contents

Fire-resistant doorsets

1 Scope

This document specifies the classification, code, specifications, models, general requirements, technical requirements, test methods, inspection rules, marking, packaging, transportation and storage of fire-resistant doorsets.

This document applies to the design, manufacture and quality inspection of side hung and side hung folding fire-resistant doorsets used in industrial and civil buildings.

2 Normative references

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

GB/T 191, Packaging - Pictorial marking for handling of goods

GB/T 708, Dimension, shape, weight and tolerance for cold-rolled steel plates and sheets

GB/T 709, Dimension shape weight and tolerances for hot-rolled steel plates and sheets

GB/T 5486, Test methods for inorganic rigid thermal insulation

GB/T 5823, Terminology for building windows and doors

GB/T 5824, Size system of opening for windows and doors in building

GB/T 5907.1, Fire protection vocabulary - Part 1: General terms

GB/T 5907.5, Fire protection vocabulary - Part 5: Fire products

GB/T 6388, Transport package shipping mark

GB/T 7633, Fire resistance tests - Door and shutter assemblies

GB 8624-2012, Classification for burning behavior of building materials and products

GB/T 9969, General principles for preparation of instructions for use of industrial products

GB/T 9978.1, Fire-resistance tests - Elements of building construction - Part 1: General requirements

GB/T 13306, Plate

GB/T 14155, Doorsets - Soft heavy body impact test

GB 15763.1, Safety glazing materials in building - Part 1: Fire-resistant glass

GB 16807, Fire intumescent seals

GB/T 20285, Toxic classification of fire effluents hazard for materials

GB/T 25970, Non-combustible inorganic compound board

GB/T 26784, Fire resistance test for elements of building construction - Alternative and additional procedures

GB/T 29049, Doorsets - Vertical load test

GB/T 29530, Hinged or pivoted doors - Determination of the resistance to static torsion

GB/T 29739, Test method of resistance to repeat opening and closing for windows and doors

GB 30051, General technical requirements for push-bar emergency exit locks

GB/T 37639, Determination of polybrominated biphenyls and polybrominated diphenyl ethers in plastic products - Gas chromatography and mass spectrometry

GB/T 41077, Thermal insulating products for building applications - Limit value of hexabromocyclododecanes

GB/T 41480, Smoke leakage tests for door and shutter assemblies

GBZ 1, Hygienic standards for the design of industrial enterprises

GBZ/T 198, Guideline for protection of occupational hazards in the use of synthetic vitreous fibre insulation wools

XF 93, Fire-proof door closer

3 Terms and definitions

For the purpose of this document, terms and definitions given in GB/T 5823, GB/T 5907.1 and GB/T 5907.5, as well as the following apply.

3.1

fire-resistant doorsets

Door assemblies consisting of door frame, door leaf and hardware accessories, and with certain fire resistance.

Note: Door assemblies may also include auxiliary materials such as bright windows on the door frame, viewing windows in the door leaf, and various fire-resistant seals.

[Source: GB/T 5907.5-2015, 2.14.1.1, modified]

3.2

side hung fire-resistant doorsets

Fire-resistant doorsets (3.1) with a pivot located on the side of the door and the door leaf pivoting outwards from the door frame to open.

[Source: GB/T 5907.5-2015, 2.14.1.2, modified]

3.3

side hung folding fire-resistant doorsets

Fire-resistant doorsets (3.1) with multiple door leaves connected by hinges, which is opened by folding and rotating outwards from the plane of the door frame.

3.4

surface panel of door leaf

The panels covering the outermost front and back sides of the door leaf, which serve as protection and shaping.

3.5

filling material for door leaf

The formed or shaped material filling the surface panel of door leaf (3.4) in the structure of fire-resistant doorsets.

3.6

normally open fire-resistant doorsets

Fire-resistant doorsets (3.1) that are normally kept open and can be closed automatically in case of fire.

4 Classification and code, specifications, and model

4.1 Classification and code

4.1.1 Classification and code by application sites are shown in Table 1.

4.1.2 Classification and code by the number of door leaves are shown in Table 2.

4.1.3 Classification and codes by fire resistance are shown in Table 3.

4.2 Specifications

The specifications of fire-resistant doorsets are expressed in the thousands and hundreds digits (the tens digit is rounded off) of the opening size mark width and mark height (in millimeters), arranged in sequence as four digits. If the size is less than 1 000 mm, add 0 in front. The basic specifications of the opening size shall comply with the relevant provisions of GB/T 5824.

The relationship between the width and height dimensions of the opening marked on the specifications of fire-resistant doorsets and the width and height dimensions of the fire-resistant doorsets' exterior structure shall be as per the relevant provisions of GB/T 5824.

Example 1: The marking width of the fire-resistant doorsets' opening is 900 mm and the marking height is 2 100 mm, and its specification is expressed as 0921.

Example 2: The marking width of the fire-resistant doorsets' opening is 2 110 mm and the marking height is 2 370 mm, and its specification is expressed as 2124.

4.3 Model

The method for compiling fire-resistant doorsets' models is shown in Figure 1.

5 General requirements

5.1 The materials and manufacturing processes used in fire-resistant doorsets shall not cause harm to humans, the environment, animals or plants. Fire-resistant doorset products shall comply with the relevant requirements of GBZ 1 and GBZ/T 198 during the manufacturing process.

5.2 In addition to the technical requirements specified in this document, other relevant performance requirements for fire-resistant doorsets and their materials, accessories, etc., as well as regular inspection, maintenance and replacement, shall be implemented in accordance with national standards and industry standards if there are any. If there are no national standards and industry standards, the manufacturer shall formulate enterprise standards for regulation, or determine them through consultation between the supply and demand parties.

6 Technical requirements

6.1 Appearance

6.1.1 The surface of fire-resistant doorsets and their accessories shall be smooth and flat, without cracks, gouging marks, burrs or welding slag; the decorative surfaces of fire-resistant doorsets such as paint (spraying), film, and veneer shall be firm and without obvious bubbling, cracks or wrinkles.

6.1.2 Fire-resistant doorsets shall have a permanent product marking plate fixed in a prominent position on the door frame or door leaf, which shall not be pasted. Normally closed fire-resistant doorsets in evacuation passages and small door leaves installed on the door leaf of fire-resistant doorsets for temporary passage of personnel shall have a permanent warning sign with the words "Keep the fire-resistant doorset closed" fixed in a prominent position in the middle of the door leave surface. Product marking plates and warning signs shall comply with the requirements of 9.1.

6.2 Dimensional deviation

6.2.1 Material thickness dimensional deviation

6.2.1.1 The deviation between the actual thickness of the steel plates used for fire-resistant doorsets' door panels and door frames and the nominal thickness indicated in the technical documents shall comply with the requirements of GB/T 708 and GB/T 709.

6.2.1.2 The deviation between the actual thickness of the glass used in fire-resistant doorsets and the nominal thickness indicated in the technical documents shall comply with the provisions of GB 15763.1.

6.2.1.3 The deviation between the actual thickness of the non-combustible inorganic compound board used in fire-resistant doorsets and the nominal thickness indicated in the technical documents shall comply with the provisions of GB/T 25970.

6.2.2 Dimensional deviation

The deviation between the actual dimensions of the fire-resistant doorset and the dimensions indicated in the technical documents shall comply with the provisions of Table 5.

6.3 Key material properties

6.3.1 Main materials of door frame

The combustion performance of the wood material or the material formed by combining wood material and non-combustible inorganic compound board as the main body of the fire-resistant doorsets' frame shall not be lower than Class B specified in Table 2 of GB 8624-2012.

6.3.2 Filling material for door leaf

The performance of the filling material for door leaf shall comply with the provisions of Appendix A.

6.4 Accessory performance

6.4.1 Seals

6.4.1.1 The seals shall be embedded in the groove smoothly and continuously or pasted in the designated position according to the design requirements. The embedding or pasting shall be tight and firm, without loose protrusions, and there shall be no shrinkage gaps at the joints.

6.4.1.2 The performance of fire intumescent seals shall comply with the requirements of GB 16807.

6.4.2 Glass

6.4.2.1 Glass shall be fire-resistant glass, and its performance shall comply with the requirements of GB 15763.1.

6.4.2.2 The fire resistance performance of the insulated fire-resistant glass used in the installation of insulated fire-resistant doorsets, partially insulated fire-resistant doorsets and non-insulated fire-resistant doorsets shall not be lower than that of the corresponding fire-resistant doorsets.

6.4.2.3 The fire resistance integrity of non-insulated fire-resistant glass used in the installation of insulated fire-resistant doorsets and partially insulated fire-resistant doorsets shall not be lower than that of the fire-resistant doorsets, and the total light transmission area shall not be greater than 0.1 m^2.

6.4.2.4 The fire resistance of non-insulated fire-resistant glass used in the installation of non-insulated fire-resistant doorsets shall not be lower than that of fire-resistant doorsets.

6.4.3 Locks

6.4.3.1 Locks shall have a handle or a push-bar. Round or spherical knob shall not be used to replace the handle (except for fire-resistant doorsets for pipe shaft inspection).

6.4.3.2 The fire resistance performance of locks shall not be lower than the fire resistance integrity requirements of fire-resistant doorsets; the performance of push-bar emergency exit locks installed on fire-resistant doorsets shall comply with the provisions of GB 30051, and the fire resistance performance of other locks shall comply with the provisions of Appendix B.

6.4.4 Hinges

The quantity, specifications, strength, etc. of hinges shall be compatible with the model specifications and door leaf quality of the relevant fire-resistant doorset, and the resistance to repeat opening and closing shall not be lower than that specified in 6.5.1; the fire resistance performance shall comply with the requirements of Appendix B and shall not be lower than the fire resistance integrity requirements for fire-resistant doorsets.

6.4.5 Door closing device

6.4.5.1 Where the door closing device is a fire-resistant doorset closer, it shall comply with the provisions of XF 93. Where the door closing device is of other types, its quantity, specifications and strength shall be compatible with the model specifications and door leaf quality of the relevant fire-resistant doorset, and its resistance to repeat opening and closing shall not be lower than that specified in 6.5.1.

6.4.5.2 The performance of the door closing device installed on the normally open fire-resistant doorsets for evacuation passage shall also meet the following requirements:

a) The fire-resistant doorset can be stopped at the specified position or area;

b) After the door leaf is opened 90° ± 5° and maintained for 2 400 hours, it can be released from the stopped state and completely closed within (3~20) seconds.

6.4.6 Sequencer

The material of the sequencer shall be steel (except for the part in direct contact with the door leaf). Its specifications and strength shall be compatible with the model specifications and door leaf quality of the relevant fire-resistant doorset. The resistance to repeat opening and closing shall not be lower than the requirements of 6.5.1.

6.4.7 Latch

6.4.7.1 The main load-bearing parts of the latch shall be made of steel.

6.4.7.2 The latch installed on the fire-resistant doorsets for evacuation passage shall be able to open automatically when the door leaf is opened.

6.5 Mechanical properties

6.5.1 Resistance to repeat opening and closing

When testing the resistance to repeat opening and closing as specified in Table 6, the fire-resistant glass and other components shall not fall off, the connection between the fire-resistant door frame and the door leaf shall be normal, and the door leaf shall be able to open and close normally.

The small door leaf provided on the fire-resistant doorset's door leaf for temporary passage of personnel shall be subjected to the test of resistance to repeat opening and closing according to the number of times specified in Table 6 for the normally closed fire-resistant doorsets for evacuation passage (Tb).

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------