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GB 12955—2008
To be used in place of GB 12955-1991 and GB 14101-1993

Fire doorsets
防火门

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General Administration of Quality Supervision, Inspection and Quarantine National Standardization Administration Committee of China

Preface

Chapter 7 and Article 7.2 of this Standard are mandatory clauses and the rest are recommendatory clauses

This Standard is used in place of GB 12955-1991 *General technical conditions for steel fire doorset* and GB 14101-1993 *Wood fire doorset —General Technical conditions*.

In comparison with GB 12955-1991 and GB 14101-1993, the changes made in this Standard mainly include the following:

- It has added the contents of classifications for fire doorsets by materials (See 4.1);
- It has modified the classifications for fire performance of fire doorsets, changed from the original Classes A, B and C into classification by “Fully insulated fire doorset (Type A)”, “Partially insulated fire doorset (Type B)” and “No insulated fire doorset (Type C)” in this version (Article 4.3 in GB 12955-1991 and Article 4.1 in GB 14101-1993； Article 4.4 in this version);
- Requirements on the materials of fire doorsets have become more comprehensive and concrete, in which it has added the requirements on fire performance of materials and on the smoke toxicity from burning of materials（Article 5.1 in GB 12955-1991 and GB 14101-1993； Article 5.2 of this version）.
- It has deleted the requirements on the wind pressure resistant deformability, on air leakage resistance and rain penetration resistance of wood fire doorsets used as outer doors of buildings;
- Requirements on the performance of fire rated locks have become more concrete (Article 5.1.3 in GB 12955-1991, Article 5.1.4 in GB 14101-1993; Article 5.3.1 in this version);
- Requirements on the performance of fireproof hinge have become more concrete (Article 5.1.3 GB 12955-1991 and 5.1.4 in GB 14101-1993; Article 5.3.2 in this version);
- Requirements on the performance of door closer-holder have become more concrete (Articles 5.1.3 in GB 12955-1991 and 5.1.4 in GB 14101-1993; Article 5.3.3 in this version);
- Requirements on the performance of fire-proof glass have become more concrete (Articles 5.1.3 in GB 12955-1991 and 5.1.3 in GB 14101-1993; Article 5.3.7 in this version);
- It has added the quality requirements and test methods on fire doorset leaf（See5.5 and 6.6）;
- It has added the requirements and test methods on the width, direction and bending of fire doorset leaf（See 5.7 and 6.8.3）;
- It has added the requirements and test methods on joining clearance between door leaf and door frame（See 5.8.2.6 and 6.9.3）;
- It has added the requirements and test methods on the flexibility of fire doorset（See 5.9 and 6.10）;
- It has added the requirements and test methods on the reliability of fire doorset（See 5.10 and 6.11）;
- There is certain improvement for the test methods on the door leaf skewness of fire doorset（See 6.2 in GB 14101-1993; 6.8.2 in this version）;
- It has added the measuring method for lapping dimensions between door leaf and door

frame (See Article 6.9.1);

- It has added the criteria for determination (See Article 7.2.4)；
- It has added Normative Appendix A (See Appendix A);
- It has added Normative Appendix B (See Appendix B);
- It has added Normative Appendix C (See Appendix C);
- It has added Normative Appendix D (See Appendix D);

The Appendix A, Appendix B, Appendix C and Appendix D of this Standard are normative appendixes.

This Standard is proposed by Ministry of Public Security of the People's Republic of China.

This Standard is governed by Building Element Fire Performance Branch Technical Committee of China National Firefighting Normalization Commission (SAC/TC113/SC8).

Drafting unit of this Standard: Tianjin Fire Research Station under Ministry of Public Security

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The historical versions to be substituted by this one include:

——GB 12955-1991；

——GB 14101-1993.

Please note that, some contents in this Standard can be involved in patents. The issuance organ of this Standard is not obliged to identify such patents.

Contents

Fire doorsets

1. Scope

This Standard has stipulated the types, codes and sign, requirements, test methods, inspection rules, marks, packages, transportation and storage, etc, of fire doorsets.

This Standard is applicable to vertical hinged wood, steel and steel-wood fire doorsets and the fire doorsets of other materials. The fire doorsets of other opening methods can refer to this Standard.

2. Normative documents quoted

The clauses contained in the following documents have become the clauses of this Standard after they are quoted by this Standard. For the dated documents quoted herein, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard, but all parties who have reached agreements based on this Standard are encouraged to study the possibility to implement the latest versions of these documents. For the undated documents quoted herein, all their latest versions are applicable to this Standard.

GB/T 708 Dimensions, shape, weight and tolerances for cold - rolled plates and sheets

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

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 4823-1995 Defects in sawn timber（eqv ISO 1029:1974）

GB/T 5823-1986 Doors and windows for building—Terminology

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

GB/T 5907-1986 Fundamental terminology of fire protection--Part 1

GB/T 6388 Transport package shipping mark

GB/T 7633 Fire resistance test method of door and shutter assemblies

GB 8624-2006 Classification for burning behavior of building materials and products

GB/T 8625-2005 Test method of difficult-flammability for building materials

GB 9969.1 General principles for preparation of instructions for use of industrial products

GB/T 13306 Plates

GB/T 14436 General principles of industrial product guarantee documents

GB 15763.1 Safety glazing materials in building Fire-resistant glass

GB 16807 Fire intumescent seals

GB/T 20285-2006 Toxic classification of fire effluents hazard for materials

GA 93 Fire-proof door closer

JG/T 122-2000 Wood doors and windows in building

QB/T 2474 Pin tumbler mortice door lock

3. Technical terms and definitions

The following technical terms and definitions established by GB/T 5823-1986 and GB/T 5907-1986 are applicable to this Standard.

3.1 Fire resistant side hung doorsets

The fire doorset composed of door frame, door leaf, fireproof lock and other fireproof

hardware fittings, perpendicular to ground with hinge as shaft and such shaft can rotate either clockwise or anticlockwise in a single direction to open or close door leaf.

3.2 Fire resistant timber doorsets

It is the door with certain fire performance composed of door frame, door leaf framework and door leaf faceplate made of fire retardant wood or wood products, plus fireproof hardware fittings, if a filling material is filled in door leaf, it should be fireproof and insulating material innoxious or hurtless to human body.

3.3 Fire resistant steel doorsets

It is the door with certain fire performance composed of door frame, door leaf framework and door leaf faceplate made of steel, plus fireproof hardware fittings, if a filling material is filled in door leaf, it should be fireproof and insulating material innoxious or hurtless to human body.

3.4 Fire resistant timber doorsets with steel structure

It is a fire doorset with certain fire performance composed of door frame, door leaf, door leaf faceplate made of steel and fire retardant wood, plus fireproof lock and other fireproof hardware fittings, if a filling material is filled in door leaf, it should be fireproof and insulating material innoxious or hurtless to human body.

3.5 Other material fire resistant doorsets

It is a fire doorset with certain fire performance composed of door frame, door leaf, door leaf faceplate made of the inorganic noncombustible material other than steel, fire retardant wood or fire retardant wood products, or partially made of steel, fire retardant wood or fire retardant wood products, plus fireproof lock and other fireproof hardware fittings, if a filling material is filled in door leaf, it should be fireproof and insulating material innoxious or hurtless to human body.

3.6 Fully insulated doorsets (Type A)

It is a fire doorset that can meet the requirements on fire integrity and heat insulating performances simultaneously within specified time.

3.7 Partially insulated doorsets (Type B)

It is a fire doorset that can meet the requirements on fire integrity and heat insulating performance within specified time more than or equal to 0.50h and can meet the requirements on fire integrity within specified time after 0.50h.

3.8 No insulated doorsets (Type C)

It is a fire doorset that can meet the requirements on fire integrity within specified time.

4 Classification, code and sign

4.1 Classification and code by material

4.1.1 Fire-proof wood door, code: MFM；

4.1.2 Fire-proof steel door, code: GFM;

4.1.3 Fire-proof wood door with steel structure, code: GMFM；

4.1.4 Fire-proof door of other materials, code: **FM. (** stands for other materials represented by capital Chinese phonetic alphabet)

4.2 Classification and code by number of door leafs

4.2.1 Code for single-leaf fire doorset is 1.

4.2.2 Code for double-leaf fire doorset is 2.

4.2.3 Code for multi-leaf fire doorset (including fire doorset of two or more leafs) shall be the number of leafs in numerical representation.

4.3 Classification and code by structures

4.3.1 Code for fire doorset with fireproof glass in door leaf is b.

4.3.2 Fire doorset frame: code for door frame with double grooves is s, with single groove is d.

4.3.3 Code for fire doorset with window is 1.

4.3.4 Code for fire doorset with glass window is b1.

4.3.5 Code for fire doorset with glass is omitted.

4.4 Classification and code by fire performance

Classification and code for fire doorset by fire performance refer to Table 1.

4.5 Other codes and signs

4.5.1 Other codes

4.5.1.1 Code for lower frame

Code for fire doorset with lower frame is k.

4.5.1.2 Code for the closing direction of vertical hinged door leaf

Code for closing direction of vertical hinged door leaf refers to Table 2.

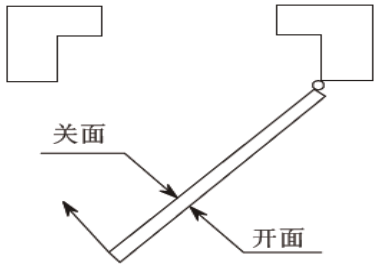
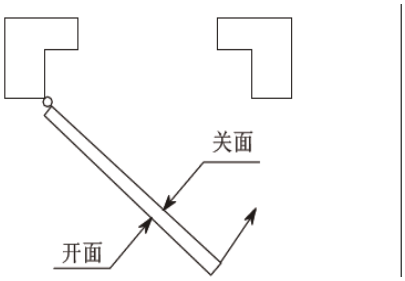
Note: Code for the closing direction of double-leaf fire doorset is represented by the closing direction of the leaf with lock.

Table 1 Classification by fire performance

Descriptions	Fire performance		Code
Fully insulated fire doorset (Type A)	Fire insulation≥ 0.50 h Fire integrity ≥0.50h		A0.50 (Grade C)
	Fire insulation≥ 1.00 h Fire integrity ≥1.00 h		A1.00 (Grade B)
	Fire insulation≥ 1.50 h Fire integrity ≥1.50 h		A1.50 (Grade A)
	Fire insulation≥ 2.00 h Fire integrity ≥2.00 h		A2.00
	Fire insulation≥ 3.00 h Fire integrity ≥3.00 h		A3.00
Partially insulated fire doorset (Type B)	Fire insulation≥ 0.50 h	Fire integrity ≥1.00 h	B1.00
		Fire integrity ≥1.50 h	B1.50
		Fire integrity ≥2.00 h	B2.00
		Fire integrity ≥3.00 h	B3.00
No insulated fire doorset (Type C)	Fire integrity ≥1.00 h		C1.00
	Fire integrity ≥1.50 h		C1.50
	Fire integrity ≥2.00 h		C2.00
	Fire integrity ≥3.00 h		C3.00

Table 2 Code for closing direction of vertical hinged door leaf

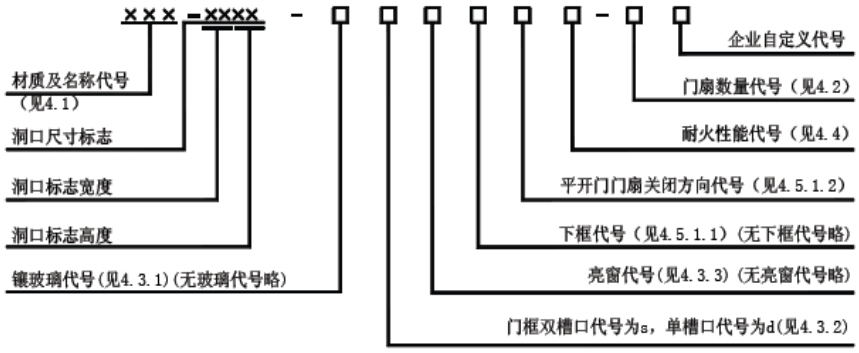
Code	Explanations	Illustrations

5	Door leaf is closed clockwise	
6	Door leaf is closed anticlockwise	

关面—closing side 开面—opening side

4.5.2 Signs

Sign for fire doorset shall be:



(Left)

Sign for material and name (See 4.1)

Sign for opening dimensions

Sign for opening height

Sign for opening width

Sign for embedded glass (See 4.3.1) (omitted if without glass)

（Right）

Enterprise self-defined code

Code for number of door leafs (See 4.2)

Code for fire performance (See 4.4)

Code for closing direction of vertical hinged door leaf（See 4.5.1.2）

Code for lower frame（See 4.5.1.1）(omitted if without lower frame)

Code for leaf window (See 4.3.3）(omitted if without window)

Code for door frame with double grooves is s and with single groove is d (See 4.3.2）

Case 1：GFM-0924-bslk5 A1.50（Grade A）-1. It represents fully insulated (Type A) steel fire doorset, its opening width is 900mm, opening height is 2 400mm, there is glass embedded in door leaf, door frame has double grooves, with leaf window and lower frame, door is closing clockwise, time for fire integrity and insulation is no less than 1.50h, so it is a Grade A single-leaf fire doorset.

Case 2：MFM-1221-d6B1.00-2. It represents partially insulated (Type B) wood fire doorset, its opening width is 1 200mm, opening height is 2 100mm, there is no glass embedded in door leaf, door frame has single groove, without leaf window or lower frame, door is closing anticlockwise, time for fire integrity is no less than 1.00h and time for fire insulation is no less than 10.50h, so it is double-leaf fire doorset.

4.5.3 Specifications

Specifications for fire doorset shall be represented opening dimensions, the opening dimensions should comply with the relevant stipulations set forth in GB/T 5824 and the special opening dimensions shall be determined through agreement reached by manufacturer and user.

5 Requirements

5.1 General requirements

Other than compliance with the requirements of this Standard, fire doorset shall be produced according to the drawings and technical documents approved through specified procedures.

5.2 Materials

5.2.1 Filling material

5.2.1.1 If the fire doorset leaf is filled with filling material, such filling material shall be the fireproof and insulating material innoxious or hurtless to human body.

5.2.1.2 The fireproof and insulating material innoxious to human body to be filled in fire doorset shall meet the requirements on fire performance for Grade A1 as specified in GB 8624-2006 and meet the requirements on toxic classification of fire effluents hazard for Grade ZA2 as specified in GB/T 20285-2006 through inspections by the testing organ approved and authorized by the state.

5.2.2 Wood

5.2.2.1 The wood used in fire doorset shall meet the requirements for the wood quality of Grade II (intermediate) as specified in Article 5.1.1.1 of JG/T 122-2000.

5.2.2.2 The wood used in fire doorset shall be of fire retardant wood or composite material covered by fire plate, which should meet the requirements for difficult-flammability as stipulated in Chapter 7 of GB/T 8625-2005 through inspections by the testing organ approved and authorized by the state.

5.2.2.3 The moisture content of wood used in fire doorset shall be no more than 12% after retardant treatment and dry treatment; the moisture content of wood, after made into fire doorset, shall be no more than the equilibrium moisture content in local place.

5.2.3 Artificial plate

5.2.3.1 Artificial plate used in fire doorset shall meet the requirements for the artificial plate quality of Grade II (intermediate) as specified in Article 5.1.2.2 of JG/T 122-2000.

5.2.3.2 Artificial plate used in fire doorset shall meet the requirements for difficult-flammability as stipulated in Chapter 7 of GB/T 8625-2005 through inspections by the testing organ

approved and authorized by the state.

5.2.3.3 The moisture content of artificial plate used in fire doorset shall be no more than 12% after retardant treatment and dry treatment; the moisture content of artificial plate, after made into fire doorset, shall be no more than the equilibrium moisture content in local place.

5.2.4 Steel

5.2.4.1 Quality

a) Fire doorset frame and fire doorset faceplate shall be made of the steel no thinner than cold-rolled steel sheet and such cold-rolled steel sheet shall comply with the relevant stipulations set forth in GB/T 708.

b) The reinforcement used in fire doorset shall be made of the steel no thinner than hot rolled steel and such hot rolled steel shall comply with the relevant stipulations set forth in GB/T 709.

5.2.4.2 Material thickness

The thickness for all the steels used in fire doorset shall comply with the stipulations set forth in Table 3 here.

Table 3 Thickness for steels

In unit of mm

Component name	Material thickness
Door leaf faceplate	≥0.8
Door frame plate	≥1.2
Hinge plate	≥3.0
Reinforcement without screw holes	≥1.2
Reinforcement with screw holes	≥3.0

5.2.5 Other materials

5.2.5.1 All the other materials used in fire doorset shall be innoxious or hurtless to human body, which should meet the requirements on toxic classification of fire effluents hazard for Grade ZA2 as specified in GB/T 20285-2006 through inspections by the testing organ approved and authorized by the state.

5.2.5.2 All the other materials used in fire doorset shall meet the requirements for difficult-flammability as stipulated in Chapter 7 of GB/T 8625-2005 as to Grade A1 through inspections by the testing organ approved and authorized by the state.

5.2.6 Agglomerant

5.2.6.1 The agglomerant used in fire doorset shall be of product innoxious or hurtless to human body.

5.2.6.2 The agglomerant used in fire doorset shall meet the requirements on toxic classification of fire effluents hazard for Grade ZA2 as specified in GB/T 20285-2006 through inspections by the testing organ approved and authorized by the state.

5.3 Fittings

5.3.1 Fireproof lock

5.3.1.1 The lock mounted on fire doorset shall be fireproof lock.

5.3.1.2 There shall be a handle or pushing level mechanism mounted on the lock core device of fireproof lock on door leaf, where it is not allowed to mount round or ball knob I place of handle (unless it is a special position like door for conduit shaft, etc).

5.3.1.3 Fireproof lock should be tested by the testing organ approved and authorized by the state to be acceptable and its fire performance shall comply with the stipulations specified in Appendix A hereof.

5.3.2 Fireproof hinge

The thickness of the plate used in fireproof hinge for fire doorset shall be no less than 3mm and its fire performance shall comply with the stipulations specified in Appendix B hereof.

5.3.3 Fireproof door closer-holder

5.3.3.1 Fire doorset shall have fireproof door closer or have a door closing device that always-open fire doorset can automatically close the door leaf in case of fire (excluding the application in special positions like the door for conduit shaft, etc).

5.3.3.2 Fire doorset closer shall be tested by the testing organ approved and authorized by the state to be acceptable and its performance shall comply with the stipulations specified in GA 93.

5.3.3.3 The door closing device for automatic closing of door leaf shall be tested by the testing organ approved and authorized by the state to be acceptable.

5.3.4 Fire protection sequencer

Double-leaf and multi-leaf fire doorset with seam cover plate or butt-joint shall have sequencer (excluding application in special position) and its fire performance shall comply with the stipulations specified in Appendix C hereof.

5.3.5 Fireproof bolt

Fireproof steel bolt shall be mounted on a door leaf at relatively stationary side of double-leaf or multi-leaf fire doorset (if it is so required) and its fire performance shall comply with the stipulations specified in Appendix D hereof.

5.3.6 Seam cover plate

5.3.6.1 The double-leaf fire doorset of flat-joint or butt-joint shall have seam cover plate.

5.3.6.2 The seam cover plate should be securely fastened to door leaf.

5.3.6.3 The seam cover plate should not obstruct the normal open/close of door leafs.

5.3.7 Fire seals

5.3.7.1 The gap between fire proof door frame and door leafs, or between door leafs, shall be filled with fire seals.

5.3.7.2 Fire seals shall be tested by the testing organ approved and authorized by the state to be acceptable and its performance shall comply with the stipulations specified in GB 16807.

5.3.8 Fireproof glass

5.3.8.1 Types of fireproof glass to be mounted in fire doorset

5.3.8.1.1 If fireproof glass is to be mounted in Type A fire doorset, its fire performance shall comply with the conditions for Type A fire doorset.

5.3.8.1.2 If fireproof glass is to be mounted in Type B fire doorset, its fire performance shall comply with the conditions for Type B fire doorset.

5.3.8.1.3 If fireproof glass is to be mounted in Type C fire doorset, its fire performance shall comply with the conditions for Type C fire doorset.

5.3.8.2 Fireproof glass shall be tested by the testing organ approved and authorized by the state to be acceptable and its performance shall comply with the stipulations specified in GB 15763.1.

5.4 Processing technique and appearance quality

5.4.1 Processing quality

The door frame, door leaf framework and door leaf faceplate of fire doorset shall be made of steel or retardant wood or retardant artificial plate or other materials, if a filling material is filled in door leaf, it should be fireproof and insulating material innoxious or hurtless to human body, to assemble into a fire doorset together with fireproof hardware fittings and its processing quality shall meet the requirements specified in Articles 5.5, 5.6 and 5.7 hereof.

5.4.2 Appearance quality

The appearance quality of fire doorset made of different materials shall comply with the following corresponding stipulations respectively:

a) Fireproof wood door: corner cutting and wood joints should be tight and smooth; it is not allowed to be planed deep through the first layer of plywood or have burrs; the surface should be finished or sand ground without plane lines, burrs or hammer marks; coating should be even, level and smooth without embossed lacquer, air bubble, coat missing or paint flowing phenomenon;

b) Fireproof steel door: appearance should be level and clean without obvious dint or mechanical damage; coating and plating coat should be even, level and smooth without embossed lacquer, spot, air bubble, coat missing or paint flowing phenomenon; welding should be secure, welded point should be distributed evenly without false welding, burning through, welding missing, slag inclusion or loosening phenomenon, and the welded surface should be ground smooth;

c) Fireproof wood door with steel structure: appearance quality should meet the relevant requirements as specified in a） and b） above.

d) Fire doorset of other materials: appearance should be level and clean without obvious dint, cracks or other defects, and the portion with wood or steel components should meet the relevant requirements specified in items a） and b） hereof.

5.5 Door leaf quality

The mass of door leaf shall be no less than the design mass of door leaf.

Note: It refers to the weight of door leaf.

5.6 Limit deviation in dimensions

The limit deviation in dimensions for fireproof door leaf and frame shall meet the specifications specified in Table 4 hereof.

Table 4 Limit deviation in dimensions

Descriptions	Items	Limit deviation
Door leaf	Height H	±2
	Width D	±2
	Thickness T	+2 -1
Door frame	Height of inner cutting H’	±3
	Width of inner cutting W’	±2
	Sidewall width T’	±2

5.7 Tolerance of form and position

The tolerance of form and position for door leaf and frame shall comply with the stipulations set forth in Table 5 hereof.

Table 5 Tolerance of form and position

Descriptions	Items	Tolerance
Door leaf	Tolerance for the length of two diagonal lines $\|L_1 - L_2\|$	≤ 3mm
	Skewness D	≤ 5mm
	Camber in width direction B_1	< 2‰
	Camber in height direction B_2	< 2‰
Door frame	Tolerance for the length of two diagonal lines in inner cuttings $\|L_1' - L_2'\|$	≤ 3mm

5.8 Fit tolerance

5.8.1 Lapping length between door leaf and frame (See Figure 14)

Lapping length between door leaf and frame shall be no less than 12mm.

5.8.2 Free gap for the fit of door leaf and frame

5.8.2.1 Free gap for the fit of door leaf and frame on the side with hinge shall be no more than dimensional tolerance specified in design drawings.

5.8.2.2 Free gap for the fit of door leaf and frame on the side with lock shall be no more than dimensional tolerance specified in design drawings.

5.8.2.3 Free gap for the fit of door leaf and upper frame shall be no more than 3mm.

5.8.2.4 Gap between door leafs for double-leaf door and multi-leaf door shall be no more than 3mm.

5.8.2.5 Free gap between door leaf and lower frame or ground shall be no more than 9mm.

5.8.2.6 Gap for abutted surface between door leaf and frame see Figure 14, where the gap for abutted surface between door leaf and frame on the side with hinge, on the side with lock and between door leaf and upper frame shall all be no more than 3mm.

5.8.3 Plane height difference R between door leaf and frame

The plane height difference between door leaf and frame on opening side of fire doorset shall be no more than 1mm.

5.9 Flexibility

5.9.1 Opening and closing flexibility

Fire doorset shall be opening and closing freely without blockage.

5.9.2 Opening force of door leaf

Opening force of fire doorset leaf shall be no more than 80N.

Note: It does not include the fire doorset applied in special cases.

5.10 Reliability

After opening and closing test for 500 times, there shall be no loosening, falling off, severe deformation or opening/closing blockage phenomenon occurred to fire doorset.

5.11 Fire performance

Fire performance of fire doorset shall comply with the stipulations specified in Table 1 hereof.

6 Test method

6.1 Requirements for test piece

The structure of the test piece of fire resistant doorset, the filling materials in the door leaf (fireproof heat-insulating materials which are nontoxic and unharmful to human body, if there are any) and the installation of hardware fittings shall be consistent with the facts.

Unless otherwise specifically specified, the test piece of fire resistant doorset shall be inspected item by item in the order stated in Chapter 5 of this standard.

6.2 Accuracy of instruments and equipments

Name of instrument or equipment	Accuracy
Micrometer:	±0.001 mm
Vernier caliper (with depth gauge):	±0.02 mm
Steel tape:	±1 mm
Platform:	Class III
Center:	±1 mm
Height gauge:	±0.02 mm
Steel ruler:	±1 mm
Clearance gauge:	±0.1 mm
Platform scale:	±1 kg
Moisture meter:	1%
Ergometer:	2 N
Stop watch:	1 s
Counter:	1 time

6.3 Materials

6.3.1 Filling materials

Fireproof heat-insulating materials which are nontoxic and unharmful to human body shall be filled in the door leaf of fire resistant doorset. The combustion performance is to be tested in accordance with the provisions of GB 8624-2006 and the classification of risk of smoke toxicity is to be tested in accordance with the provisions of GB/T 20285-2006. The results shall meet the requirements of 5.2.1.2 of this standard. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

6.3.2 Timber

The quality of the timber used for the parts and components of the door frame and door leaf of the fire resistant doorset is to be tested in accordance with the provisions of GB/T 4823-1995. The results shall meet the requirement of 5.2.2.1 of this standard.

The difficult-flammability of the timber used for the fire resistant doorset is to be tested in accordance with the provisions of GB/T 8625-2005. The result shall meet the requirements of 5.2.2.2 of this standard. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

For the moisture content of difficult-flammable timber, any three points on the same component of the fire resistant doorset are to be measured using a moisture meter and the mean value is to be calculated. The result shall meet the requirement of 5.2.2.3 of this standard.

6.3.3 Wood-based panels

For wood-based panels used for fire resistant doorsets, the difficult-flammability of the wood-based panel is to be tested in accordance with the provisions of GB/T 8625-2005. The result shall meet the requirement of 5.2.3.2 of this standard. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

For the moisture content of difficult-flammable wood-based panel, any three points on the same component of the fire resistant doorset are to be measured using a moisture meter and the mean value is to be calculated. The result shall meet the requirement of 5.2.3.3 of this standard.

6.3.4 Steel

6.3.4.1 Qualified material test reports provided by the manufacturer shall be presented as an evidence for the performance of the steel materials used for the door frame, door leaf and reinforcing pieces.

6.3.4.2 The thickness of steel material is to be measured by means of micrometer. Any three points on the same component of the fire resistant doorset are to be measured and the mean value is to be calculated. The result shall meet the requirement of Table 3 of this standard.

6.3.5 Other materials

For the other materials used for the fire resistant doorset, the classification of risk of smoke toxicity is to be tested in accordance with the provisions of GB/T 20285-2006 and the difficult-flammability is to be tested in accordance with the provisions of GB/T 8625-2005 or the combustion performance is to be tested in accordance with the provisions of GB 8624-2006. The results shall meet the corresponding requirements of 5.2.5 of this standard. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

6.3.6 Bonding agent

For the bonding agent used for the fire resistant doorset, the classification of risk of smoke toxicity is to be tested in accordance with the provisions of GB/T 20285-2006. The result shall meet the requirement of 5.2.6.2 of this standard. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

6.4 Fittings

6.4.1 Fire resistant lock

The fire resistant lock is to be tested in accordance with the provisions of Annex A. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

6.4.2 Fire resistant hinge

The sheet thickness of fire resistant hinge is to be measured by means of vernier caliper. Any three points are to be measured and the mean value is to be calculated.

The fire performance of the fire resistant hinge shall be tested in accordance with the provisions of Annex B. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

6.4.3 Fire resistant door closing device

The door closer used for the fire resistant doorset shall be tested in accordance with the provisions of GA 93. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

The automatic door closing device used for the fire resistant doorset shall be able to close the door leaf automatically upon receipt of the fire alarm signal. Other performances shall be tested in accordance with relevant standards. Alternatively, relevant effective test report issued by an

authorized national testing organization shall be provided.

6.4.4 Fire resistant sequencer

The fire resistant sequencer is to be mounted on the fire resistant doorset in the actual service state. The door leaves are to be pushed open simultaneously and then released simultaneously. Whether the fire resistant sequencer can close the door leaves of the fire resistant doorset in the required sequence is then to be observed visually. The fire performance of the fire resistant sequencer shall be tested in accordance with the provisions of Annex C. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

6.4.5 Fire resistant latch

The installation of fire resistant latch on the fire resistant doorset is to be examined by means of the combination of visual inspection and hand feeling. The fire performance of the fire resistant latch shall be tested in accordance with the provisions of Annex D. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

6.4.6 Joint plate

The installation of the joint plate of the fire resistant doorset is to be examined by means of the combination of visual inspection and hand feeling.

6.4.7 Fire resistant seal

Whether fire resistant seal is provided in the gaps between door frame and door leaf and between door leaves is to be observed visually. Its performance shall be tested in accordance with the provisions of GB 16807. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

6.4.8 Fire resistant glass

The fire resistant glass shall be tested in accordance with the provisions of GB 15763.1. Alternatively, relevant effective test report issued by an authorized national testing organization shall be provided.

6.5 Processing technology and appearance quality

The fire resistant door shall be composed of preformed door leaf or door leaf filled with fireproof heat-insulating materials which are nontoxic and unharmful to human body, door frame and fire resistant hardware fittings. Its appearance is to be examined by visual inspection. Its processing quality is to be tested in accordance with the provisions of 6.7, 6.8 and 6.9.

6.6 Quality of door leaf

Each door leaf is to be weighed using a platform scale. The mass (weight) of any door leaf shall meet the requirements of 5.5 of this standard.

6.7 Dimension tolerance

6.7.1 Height of door leaf, H

The height of door leaf is to be measured with a steel tape in positions 50 mm away from the two vertical sides of the door leaf respectively, shown as positions A-A and A'-A' in Figure 1. The extreme value of the difference between the measured value and the height of door leaf indicated in the product design drawing is to be taken as the result.

Door leaf

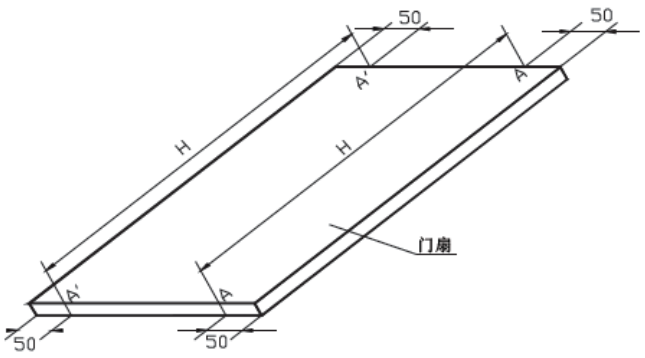


Figure 1 Schematic diagram for the measuring positions for the height of door leaf

6.7.2 Width of door leaf, W

The width of door leaf is to be measured with a steel tape in positions 50 mm away from the two horizontal sides of the door leaf respectively, shown as positions B-B and B'-B' in Figure 2. The extreme value of the difference between the measured value and the width of door leaf indicated in the product design drawing is to be taken as the result.

Door leaf

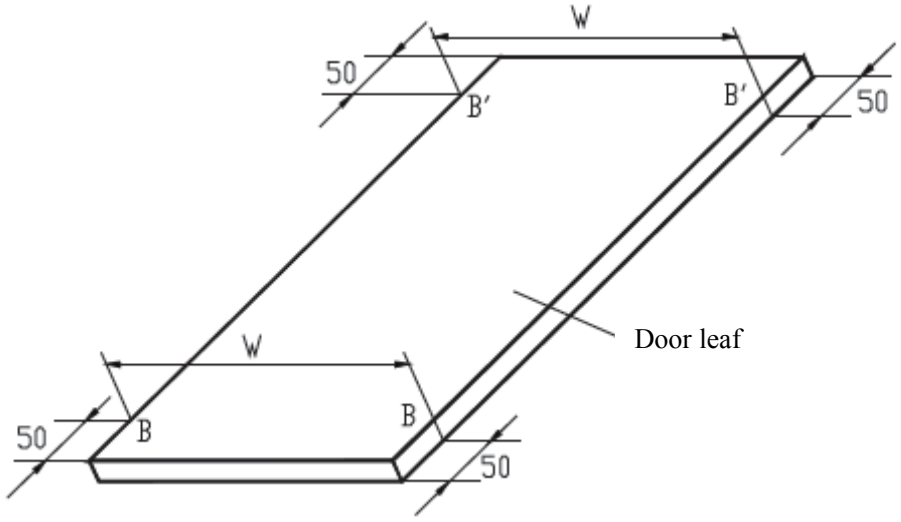


Figure 2 Schematic diagram for the measuring positions for the width of door leaf

6.7.3 Thickness of door leaf, T

The thickness of door leaf is to be measured with a vernier caliper in the positions marked with T_1, T_2, T_3……T_8 as shown in Figure 3 (note: in case of existence of locks or hinges, the thickness shall be measured in another place 50 mm away from the marked position). The extreme value of the difference between the measured value and the thickness of door leaf indicated in the product design drawing is to be taken as the result.

Door leaf

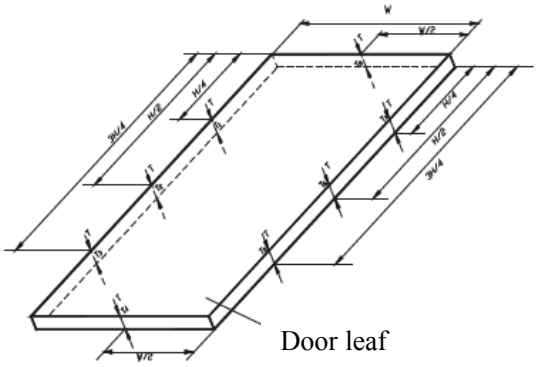


Figure 3 Schematic diagram for the measuring positions for the thickness of door leaf

6.7.4 Height of inner rabbet of door frame, H'

The height of inner rabbet of door frame is to be measured with a vernier caliper respectively on the left and right vertical sides of the inner rabbet of the door frame, shown as positions C-C and C'-C' in Figure 4. The extreme value of the difference between the measured value and the height of inner rabbet of door frame indicated in the product design drawing is to be taken as the result.

Door frame

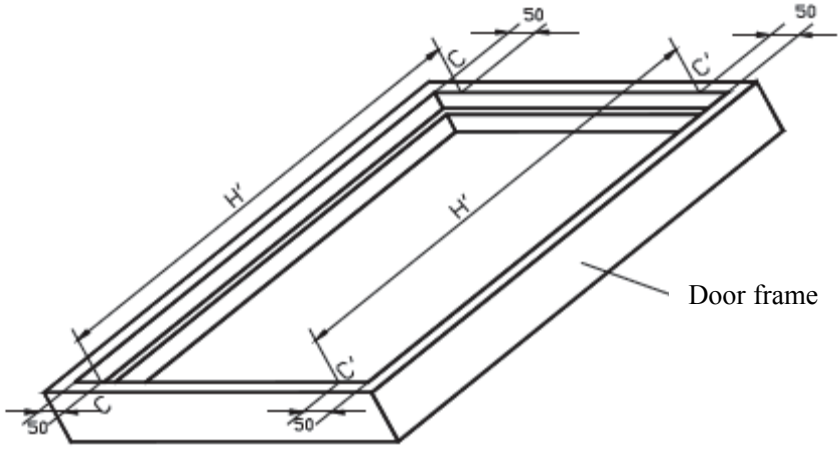


Figure 4 Schematic diagram for the measuring positions
for the height of inner rabbet of door frame

6.7.5 Width of inner rabbet of door frame, W'

The width of inner rabbet of door frame is to be measured with a steel tape in positions D-D, D'-D' and D''-D'' shown in Figure 5. The extreme value of the difference between the measured value and the width of inner rabbet of door frame indicated in the product design drawing is to be taken as the result.

Door frame

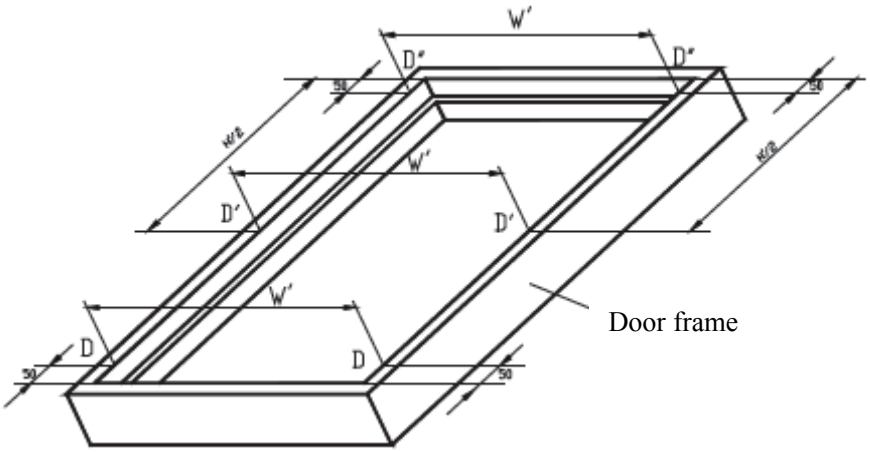


Figure 5 Schematic diagram for the measuring positions for the width of inner rabbet of door frame

6.7.6 Width of sidewall of door frame, T'

The width of sidewall of door frame is to be measured with a vernier caliper in positions T_1', T_2', T_3'……T_6' shown in Figure 6. The extreme value of the difference between the measured value and the width of sidewall of door frame indicated in the product design drawing is to be taken as the result.

Door frame

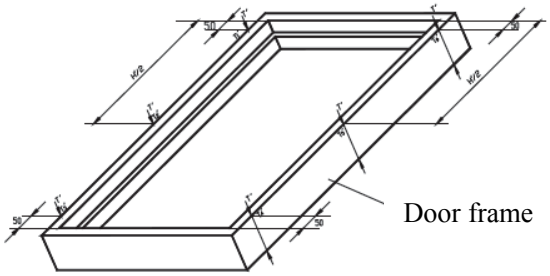


Figure 6 Schematic diagram for the measuring positions for the width of sidewall of door frame

6.8 Geometrical tolerance

6.8.1 Length difference between two diagonals of door leaf, $|L_1-L_2|$ (see Figure 7)

The length difference between two diagonals of door leaf is to be measured with a steel tape.

Door leaf

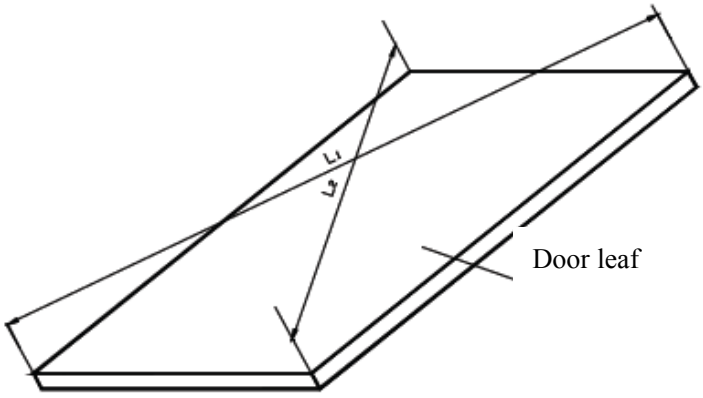


Figure 7 Schematic diagram for the measuring positions
for the diagonal length of door leaf

6.8.2 Skewness of door leaf, D

6.8.2.1 Test equipments

Platform, three centers and height gauge. The size of the platform shall not be less than 1 m×2 m.

6.8.2.2 Test procedure

6.8.2.2.1 Four measuring points are to be marked out on the four corners of each side of the door leaf, measuring points P_1, P_2, P_3 and P_4 on one side and the corresponding P_1', P_2', P_3' and P_4' on the opposite side, with a 20 mm distance from each point to the horizontal and vertical sides of the door leaf. The three centers are respectively placed on any three measuring points (P_1, P_2 and P_3) to jack up the door leaf, as shown in Figure 8. The distance from the fourth measuring point P_4 to the platform, h_1, is then to be measured with a height gauge.

6.8.2.2.2 The door leaf is to be reversed by 180° and the distance from the platform to P_4', h_2, is then to be measured using the positions and method stated in 6.7.2.2.1.

6.8.2.2.3 The formula for calculating the skewness of door leaf, D, is as follows:

$$D = |h_2 - h_1| / 2 \quad \ldots\ldots (1)$$

Where:

D - skewness of door leaf, in millimeters (mm);

h_1 - distance from platform to measuring point P_4, in millimeters (mm);

h_2 - distance from platform to measuring point P_4', in millimeters (mm).

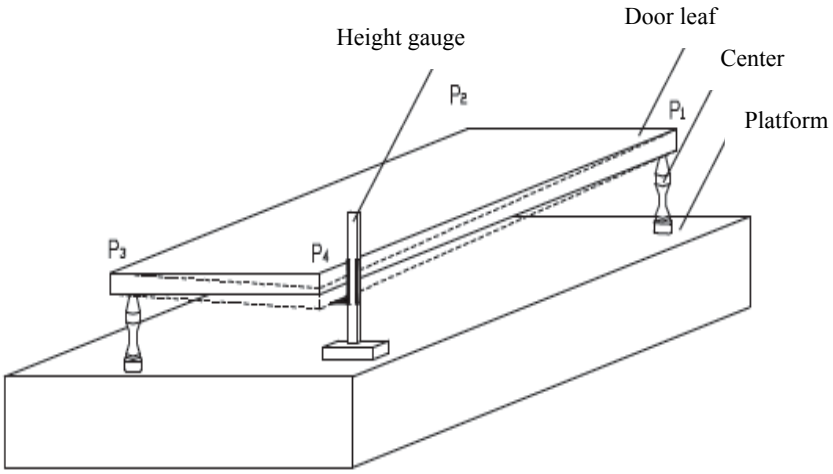


Figure 8 Schematic diagram for the measurement of the skewness of door leaf

6.8.3 Degree of bending of door leaf in width (height) direction, B_1 (B_2)

6.8.3.1 Test equipments

Platform, four centers, vernier caliper, nylon thread and wire suspension cone. The size of the platform shall not be less than 1 m×2 m.

6.8.3.2 Test procedure

6.8.3.2.1 The door leaf is to be placed flat on the four centers of the platform, with a distance of 20 mm from each center to the horizontal and vertical sides of the door leaf. The nylon thread with wire suspension cones on both ends is to be put across the width (height) of the door leaf, as shown in Figure 9. The height measured with the depth gauge of the vernier caliper in a specified measuring position is the bending of the specified measuring point. The measuring positions are

the mid points of E-E (F-F), E'-E' (F'-F') and E''-E'' (F''-F'') as shown in Figure 10.

6.8.3.2.2 The door leaf is then to be reversed by 180° and the bending of the other side is to be determined. The measuring positions and method are the same as that stated in 6.7.3.2.1.

6.8.3.2.3 The extreme value of the measuring result, h_3 (h_4), is to be taken as the bending of door leaf in width (height) direction.

6.8.3.2.4 The formula for calculating the degree of bending of door leaf in width (height) direction is as follows:

$$B_1(B_2) = h_3(h_4) \ / \ W\ (H) \times 1000 \qquad (2)$$

Where:

B1 - degree of bending of door leaf in width direction, in thousandths (‰);

B2 - degree of bending of door leaf in height direction, in thousandths (‰);

h3 - bending of door leaf in width direction, in millimeters (mm);

h4 - bending of door leaf in height direction, in millimeters (mm);

W - width of door leaf, in millimeters (mm);

H - height of door leaf, in millimeters (mm).

Note: The letters in parentheses are used for calculating the degree of bending of door leaf in height direction.

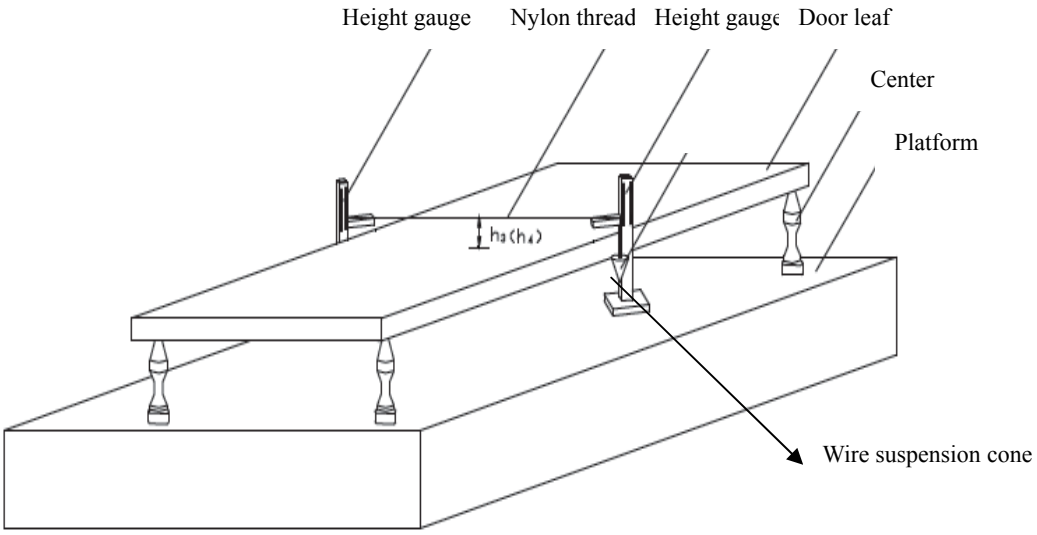


Figure 9 Schematic diagram for the measurement of the degree of bending of door leaf

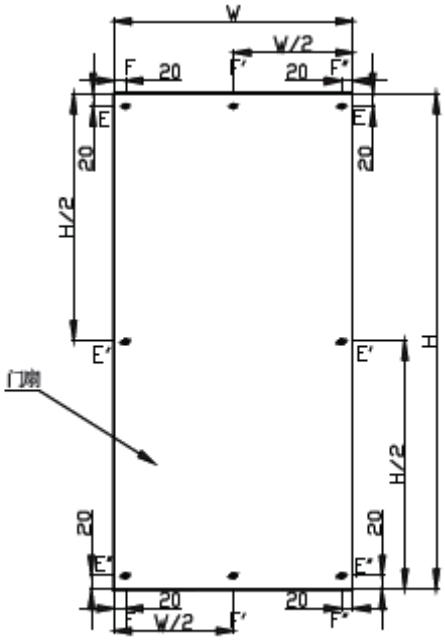


Figure 10 Schematic diagram for the measuring positions for the degree of bending of door leaf in height (width) direction

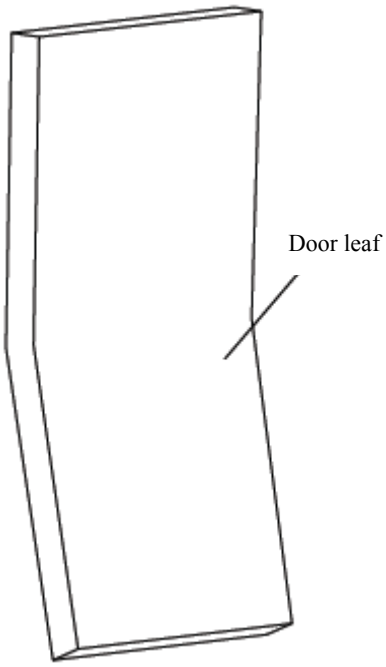


Figure 11 Schematic diagram for the degree of bending of door leaf in height direction

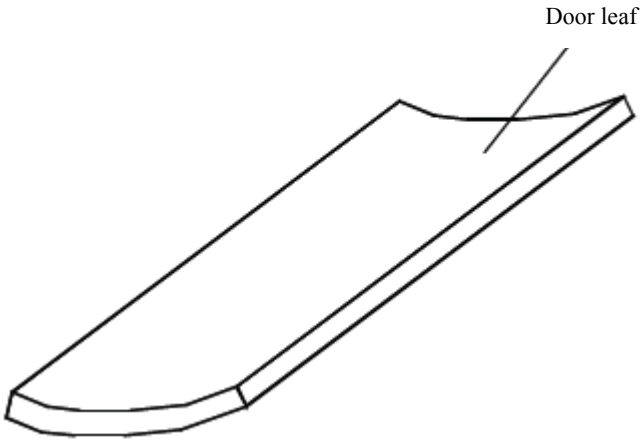


Figure 12 Schematic diagram for the degree of bending of door leaf in width direction

6.8.4 Length difference between two diagonals of inner rabbet of door frame $|L_1' - L_2'|$ (see Figure 13)

The length difference between two diagonals of inner rabbet of door frame is to be measured with a steel tape.

Door frame

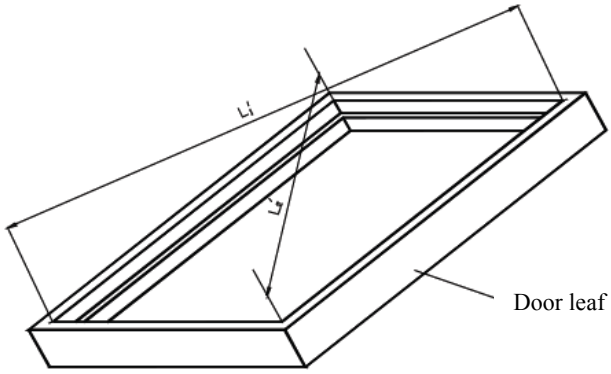


Figure 13 Schematic diagram for the measuring positions
for the diagonal length of inner rabbet of door frame

6.9 Fit tolerance

6.9.1 Lap dimension between door leaf and door frame (see Figure 14)

6.9.1.1 The test piece is to be mounted on the test frame in the service state with the door leaf closed. The lap width is then to be measured with a steel ruler after the middle parts of the left, right and top intersection lines between the door leaf and the door frame have been marked with a scribe knife.

6.9.1.2 The minimum of the measured values is then taken as the lap width between door leaf and door frame.

6.9.2 Fit clearance between door leaf and door frame

The test piece is to be mounted on the test frame in the service state with the door leaf closed. The maximum insert thickness of the clearance gauge is to be taken as the measured value of the clearance between the door leaf and the hinge or lock side of the door frame, or between the door leaf and the upper or lower frame or between the door leaves of double-leaf or multiple-leaf door.

6.9.3 Joint surface clearance between door leaf and door frame (see Figure 14)

The test piece is to be mounted on the test frame in the service state with the door leaf closed. The maximum insert thickness of the clearance gauge is to be taken as the measured value of the joint surface clearance between door leaf and door frame.

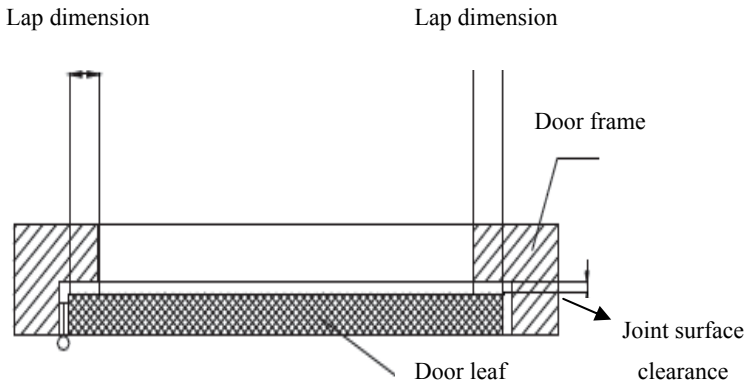


Figure 14 Schematic diagram for the lap dimension and joint surface clearance between door leaf and door frame

6.9.4 Planar height difference between door frame and door leaf on open side of door, R

6.9.4.1 The planar height difference between door frame and door leaf is to be measured with a vernier caliper in the positions marked with R_1, R_2, R_3……R_6 as shown in Figure 15 when the door leaf is closed.

6.9.4.2 The extreme value of the measuring result is to be taken as the planar height difference between door frame and door leaf, R.

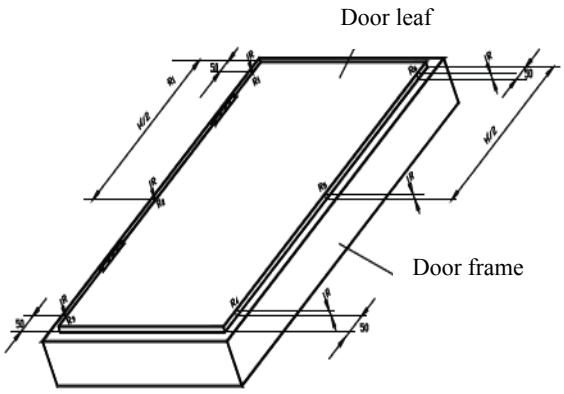


Figure 15 Schematic diagram for the measuring positions for the planar height difference between door frame and door leaf

6.10 Flexibility

6.10.1 Opening and closing flexibility

The test piece is to be mounted on the test frame with the fire resistant doorset in the service state. The opening and closing flexibility is then to be examined by hand feeling and visual inspection.

6.10.2 Opening force of door leaf, F

The test piece is to be mounted on the test frame in the service state with the door leaf closed. The

ergometer is to be applied on the lever handle in the direction perpendicular to the door leaf to pull it open. The opening force of door leaf, F, is then to be measured and recorded.

6.11 Reliability

6.11.1 Test frame

The test frame is adjustable, so that fire resistant doorsets with different sizes can be installed. The frame shall be rigid enough, in order not to produce deformations that influence the test result in the test process.

6.11.2 Test piece

Fire resistant doorset, consisting of door frame, door leaf and fire resistant hardware fittings which are required in the actual service, such as fire resistant lock, door closer and sequencer

6.11.3 Test procedure

6.11.3.1 The test piece is to be fixed on the test frame.

6.11.3.2 Opening and closing the door leaf for one time is regarded as one operation. The operation cycle is 8 s - 14 s and the opening angle of the door leaf is 70° . The number of operation times is to be recorded. Any loosening, falling, serious deformation and impeded opening and closing of the fittings of the fire resistant doorset shall be recorded in the test process.

6.12 Fire performance

6.12.1 Test procedure

The test piece is to be mounted on the test frame in the service state and examined before the fire exposure test to see if the door leaf can be opened freely. The door leaf is then to be closed using a door closing device such as door closer to engage the latch bolt. It is not allowed to lock the door leaf with a key. For special purpose doors, for example, conduit shaft door, the door leaf can be locked with a key. However, the key shall not be left in the lockhole.

Fire exposure test is to be carried out in accordance with the provisions of GB/T 7633.

Note: The test piece shall be subject to the fit tolerance, flexibility and fire performance tests on the same frame and in the same state.

6.12.2 Decision conditions for fire performance

6.12.2.1 Fire integrity

The fire integrity shall be decided in accordance with the provisions of GB/T 7633.

6.12.2.2 Fire insulation

The fire insulation shall be decided in accordance with the provisions of GB/T 7633.

7 Inspection rules

7.1 Delivery inspection

7.1.1 Conventional predelivery inspection items, including 5.1, 5.2.2.3, 5.2.3.3, 5.2.4.2, 5.4.2, 5.5, 5.6 and 5.7, shall be tested separately for the door frame and door leaf of each fire resistant doorset. The routine inspection items at the time of installation and delivery of the fire resistant doorset, including 5.8, 5.9 and the installation of fittings stated in 5.3, shall be tested for each fire resistant doorset. Item 5.10 is a sampling inspection item. The product sampling method shall be specified by the manufacturer by formulating corresponding documentation according to the batch size of production and the relevant requirements of GB/T 2828.1.

7.1.2 The fire resistant doorset product must pass all the predelivery inspections carried out by the quality inspection department of the manufacturer before a certificate of conformity can be issued

and the product can leave the factory and must be installed and pass the acceptance before being delivered.

7.2 Type test

7.2.1 The inspection items listed in Table 6 are to be tested one by one in the sequence specified in the standard.

7.2.2 The minimum inspection batch size of fire resistant doorsets is 9. The test pieces are to be taken from the finished products warehouse of the manufacturer.

7.2.3 Type test shall be conducted in one of the following cases:

a) The trial-manufacture design appraisement of new products or of old products which are transferred to another factory;

b) The performance is influenced by the structure, material, manufacturing technique, key working procedure or processing method;

c) Normal production, not less than one time every three years;

d) The production is resumed after being stopped for more than one year;

e) There is a major difference between the predelivery inspection result and the last type test;

f) Major quality accident;

g) It is required by the quality supervision organization.

7.2.4 Decision rules

The product is judged to be qualified if, in the results of the inspection items listed in Table 6, there are no Class A nonconformities, the total number of Class B and Class C nonconformities is not greater than four, and the number of Class B nonconformities is not greater than one. Otherwise, the product is judged to be unqualified.

Table 6 Inspection items

No.	Inspection item	Clause of requirement	Clause of test method	Classification of nonconformity
1	Filling material	5.2.1	6.3.1	A
2	Timber	5.2.2	6.3.2	A
3	Wood-based panel	5.2.3	6.3.3	A
4	Steel	5.2.4	6.3.4	A
5	Other materials	5.2.5	6.3.5	A
6	Bonding agent	5.2.6	6.3.6	A
7	Fire resistant lock	5.3.1	6.4.1	B
8	Fire resistant hinge	5.3.2	6.4.2	B
9	Fire resistant door locking device	5.3.3	6.4.3	B
10	Fire resistant sequencer	5.3.4	6.4.4	B
11	Fire resistant latch	5.3.5	6.4.5	C
12	Joint plate	5.3.6	6.4.6	B
13	Fire resistant seal	5.3.7	6.4.7	A
14	Fire resistant glass	5.3.8	6.4.8	A
15	Processing technology and appearance quality	5.4	6.5	C
16	Quality of door leaf	5.5	6.6	A
17	Deviation of height of door leaf	5.6	6.7.1	C
18	Deviation of width of door leaf	5.6	6.7.2	C

19	Deviation of thickness of door leaf	5.6	6.7.3	B
20	Deviation of height of inner rabbet of door frame	5.6	6.7.4	C
21	Deviation of width of inner rabbet of door frame	5.6	6.7.5	C
22	Deviation of width of sidewall of door frame	5.6	6.7.6	C
23	Length difference between two diagonals of door leaf	5.7	6.8.1	C
24	Skewness of door leaf	5.7	6.8.2	B
25	Degree of bending of door leaf in width direction	5.7	6.8.3	B
26	Degree of bending of door leaf in height direction	5.7	6.8.3	B
27	Length difference between two diagonals of inner rabbet of door frame	5.7	6.8.4	C
28	Lap dimension between door leaf and door frame	5.8.1	6.9.1	B
29	Fit clearance between door leaf and hinge side of door frame	5.8.2.1	6.9.2	C
30	Fit clearance between door leaf and lock side of door frame	5.8.2.2	6.9.2	C
31	Fit clearance between door leaf and upper frame	5.8.2.3	6.9.2	C
32	Middle gap of double-leaf door	5.8.2.4	6.9.2	C
33	Clearance between door frame and lower frame or ground	5.8.2.5	6.9.2	C
34	Joint surface clearance between door leaf and door frame	5.8.2.6	6.9.3	C
35	Planar height difference between door frame and door leaf	5.8.3	6.9.4	C
36	Opening and closing flexibility	5.9.1	6.10.1	A
37	Opening force	5.9.2	6.10.2	B
38	Reliability	5.10	6.11	A
39	Fire performance	5.11	6.12	A

8 Marking, packing, transportation and storage

8.1 Marking

8.1.1 Each fire resistant doorset shall have a permanent label plate attached to an obvious position, indicating the following contents:

a) Name, type, specification and trade mark (if any) of product;

b) Name or symbol and address of manufacturer;

c) Date of production and batch number of product;

d) Executed standard;

8.1.2 The fabrication of the label plate of the product shall comply with the provisions of GB/T 13306.

8.2 Packing, transportation and operation instruction

The packing of the product and of its hardware fittings shall be safe and reliable and convenient for handling, transportation and storage. The packing and transportation shall comply with the provisions of GB/T 6388.

The following literal materials shall be supplied with the product:

a) certificate of conformity of the product, which is formulated in compliance with the provisions of GB/T 14436;

b) product description, which is formulated in compliance with the provisions of GB 9968.1;

c) packing list;

d) product installation drawing;

e) List of fire resistant hardware fittings and accessories.

These materials shall be packed in waterproof bags.

In the transportation process of the product, the packing shall be prevented from being damaged due to collision and the product shall be handled with care. Such actions as knocking, throwing and prizing are strictly prohibited in order to prevent mechanical deformation from damaging the product and influencing the installation and usage.

8.3 Storage

The products shall be stored in a dry and well-ventilated place. Any contact with corrosive materials and gases shall be avoided. In addition, measures shall be taken to protect the products from moisture, rain, sunlight and corrosion. In case the products are placed horizontally, the bottom shall be leveled up, the stacking height of the door frames shall not exceed 1.5 m and the stacking height of the door leaves shall not exceed 1.2 m. In case the products are placed vertically, the angle of inclination shall not be greater than 20°.

Annex A

(Normative)

Requirements and test method for fire resistant locks

A.1 Requirements

A.1.1 The fastness, flexibility and appearance quality of the fire resistant lock shall comply with the provisions of QB/T 2474.

A.1.2 Fire performance of fire resistant lock.

A.1.2.1 The fire resistance period of the fire resistant lock shall not be shorter than that of the fire resistant doorset on which it is installed.

A.1.2.2 In the process of fire exposure test, the fire resistant lock shall not have any obvious deformation and fusion.

A.1.2.3 In the process of fire exposure test, no flaming over shall occur at the fire resistant lock.

A.1.2.4 In the process of fire exposure test, the fire resistant lock shall ensure that the door leaf of the fire resistant doorset is kept closed.

A.2 Test method

A.2.1 The fastness, flexibility and appearance quality of the fire resistant lock shall be tested in accordance with the provisions of QB/T 2474.

A.2.2 Fire performance test of fire resistant lock

A.2.2.1 The fire resistant lock is to be installed on the fire resistant doorset in the actual service state.

A.2.2.2 The fire exposure test is to be conducted under the heating up and furnace pressure conditions specified in GB/T 7633.

A.2.2.3 The phenomena are to be observed and recorded according to the requirements of A.1.2 in the process of fire exposure test.

Annex B

(Normative)

Requirements and test method for the fire performance of fire resistant hinge

B.1 Requirements

B.1.1 Fire performance of fire resistant hinge.

B.1.1.1 The fire resistance period of the fire resistant hinge shall not be shorter than that of the fire resistant doorset on which it is installed.

B.1.1.2 In the process of fire exposure test, the fire resistant hinge shall not have any obvious deformation.

B.1.1.3 In the process of fire exposure test, no flaming over shall occur at the fire resistant hinge.

B.1.1.4 In the process of fire exposure test, the fire resistant hinge shall ensure that the door leaf of the fire resistant doorset is kept closed and does not have any displacement in the position where the hinge is installed.

B.2 Test method

B.2.1 Fire performance test of fire resistant hinge

B.2.1.1 The fire resistant hinge is to be installed on the fire resistant doorset in the actual service state.

B.2.1.2 The fire exposure test is to be conducted under the heating up and furnace pressure conditions specified in GB/T 7633.

B.2.1.3 The phenomena are to be observed and recorded according to the requirements of B.1.1 in the process of fire exposure test.

Annex C

(Normative)

Requirements and test method for the fire performance of fire resistant sequencer

C.1 Requirements

C.1.1 Fire performance of fire resistant sequencer.

C.1.1.1 The fire resistance period of the fire resistant sequencer shall not be shorter than that of the fire resistant doorset on which it is installed.

C.1.1.2 In the process of fire exposure test, the fire resistant sequencer shall not have any obvious deformation and fusion.

C.2 Test method

C.2.1 Fire performance test of fire resistant sequencer

C.2.1.1 The fire resistant sequencer is to be installed on the fire resistant doorset in the actual service state.

C.2.1.2 The fire exposure test is to be conducted under the heating up and furnace pressure conditions specified in GB/T 7633.

C.2.1.3 The phenomena are to be observed and recorded according to the requirements of C.1.1 in the process of fire exposure test.

Annex D

(Normative)

Requirements and test method for the fire performance of fire resistant latch

D.1 Requirements

D.1.1 Fire performance of fire resistant latch.

D.1.1.1 The fire resistance period of the fire resistant latch shall not be shorter than that of the fire resistant doorset on which it is installed.

D.1.1.2 In the process of fire exposure test, the fire resistant latch shall not have any obvious deformation and fusion.

D.1.1.3 In the process of fire exposure test, no flaming over shall occur at the fire resistant latch.

D.1.1.4 In the process of fire exposure test, the fire resistant latch shall ensure that the door leaf of the fire resistant doorset is kept closed and does not have any displacement in the position where the latch is installed.

D.2 Test method

D.2.1 Fire performance test of fire resistant latch

D.2.1.1 The fire resistant latch is to be installed on the fire resistant doorset in the actual service state.

D.2.1.2 The fire exposure test is to be conducted under the heating up and furnace pressure conditions specified in GB/T 7633.

D.2.1.3 The phenomena are to be observed and recorded according to the requirements of D.1.1 in the process of fire exposure test.