BS EN 14351-2:2018

BSI Standards Publication

Windows and doors – Product standard, performance characteristics

Part 2: Internal pedestrian doorsets

bsi.

National foreword

This British Standard is the UK implementation of EN 14351-2:2018.

The UK participation in its preparation was entrusted to Technical Committee B/538/1, Windows and doors.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Fenster und Türen - Produktnorm, Leistungseigenschaften - Teil 2: Innentüren

This European Standard was approved by CEN on 3 April 2018.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 14351-2:2018) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2019, and conflicting national standards shall be withdrawn at the latest by August 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a standardisation request given to CEN by the European Commission and the European Free Trade Association, and supports Basic Work Requirements of EU Regulation and Essential Requirements of EU Directive(s).

For relationship with EU Regulation/Directive(s), see informative Annex ZA, which is an integral part of this document.

This European Standard is one of a series of standards for windows and pedestrian doorsets (see Figure 1).

1) EN 14351-2 alone, applies to all internal pedestrian doorsets.

2) For the internal pedestrian doorsets having fire resisting and/or smoke control characteristics, EN 16034 should apply in conjunction with EN 14351-2.

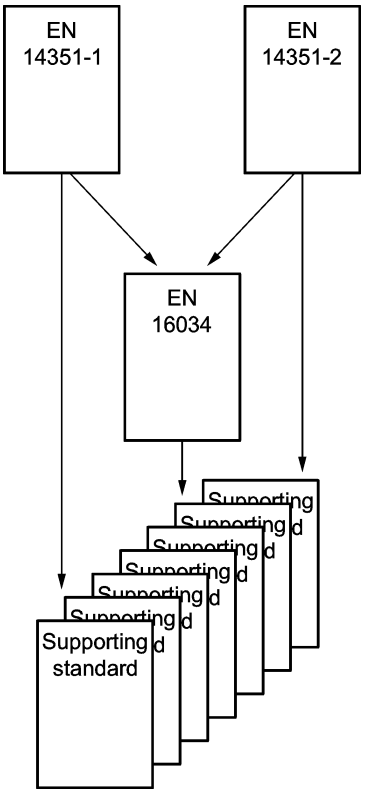


Figure 1 — Relationship between various standards

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard identifies material independent performance characteristics, except resistance to fire and smoke control characteristics, which are applicable to internal pedestrian doorsets.

Fire resisting and/or smoke control characteristics for pedestrian doorsets and openable windows are covered by EN 16034.

This European Standard applies to doorsets intended to be used internally for construction works as:

— intended use a) in escape routes;

— intended use b) for specific uses with specific requirements;

— intended use c) for communication only.

NOTE 1 These above intended uses can be combined, for example escape routes with specific requirements.

For internal pedestrian doorsets with resistance to fire and /or smoke control characteristics, this standard should only apply in conjunction with EN 16034.

Products covered by this European Standard are power operated hinged or manually operated internal pedestrian doorsets and screens with flush or panelled leaves, single or double leaf, which could be completed with:

— related building hardware;

— door closing devices;

— integral fanlights;

— adjacent parts that are contained within a single frame for inclusion in a single aperture.

NOTE 2 Manually operated doors with door closing devices are not considered to be power operated doors.

Products covered by this European Standard are not assessed for structural applications.

This European Standard does not apply to:

— industrial, commercial and garage doors and gates according to EN 13241;

— external pedestrian doorsets according to EN 14351-1;

— door leaves placed on the market as a single unit;

— door frames placed on the market as a single unit;

— power operated pedestrian doorsets, other than swing type, according to EN 16361.

Doorsets can be placed on the market with their component (leaf and frame) separate when each of these components are clearly identified.

This European Standard does not deal with any specific requirements on noise emitted from internal power operated hinged doorsets as their noise emission is not considered to be a relevant hazard.

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.

EN 179, *Building hardware — Emergency exit devices operated by a lever handle or push pad, for use on escape routes — Requirements and test methods*

EN 947, *Hinged or pivoted doors — Determination of the resistance to vertical load*

EN 948, *Hinged or pivoted doors — Determination of the resistance to static torsion*

EN 949, *Windows and curtain walling, doors, blinds and shutters — Determination of the resistance to soft and heavy body impact for doors*

EN 950, *Door leaves — Determination of the resistance to hard body impact*

EN 1026:2016, *Windows and doors — Air permeability — Test method*

EN 1121, *Doors - Behaviour between two different climates — Test method*

EN 1125, *Building hardware — Panic exit devices operated by a horizontal bar, for use on escape routes — Requirements and test methods*

EN 1154, *Building hardware — Controlled door closing devices — Requirements and test methods*

EN 1191, *Windows and doors — Resistance to repeated opening and closing — Test method*

EN 1192, *Doors — Classification of strength requirements*

EN 1522, *Windows, doors, shutters and blinds — Bullet resistance — Requirements and classification*

EN 1523, *Windows, doors, shutters and blinds — Bullet resistance — Test method*

EN 1627, *Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar resistance — Requirements and classification*

EN 1628, *Pedestrian doorsets, windows, curtain walling, grilles and shutters - Burglar resistance - Test method for the determination of resistance under static loading*

EN 1629, *Pedestrian doorsets, windows, curtain walling, grilles and shutters - Burglar resistance - Test method for the determination of resistance under dynamic loading*

EN 1630, *Pedestrian doorsets, windows, curtain walling, grilles and shutters - Burglar resistance - Test method for the determination of resistance to manual burglary attempts*

EN 1935, *Building hardware — Single-axis hinges — Requirements and test methods*

EN 12046-2, *Operating forces — Test method — Part 2: Doors*

EN 12150-2, *Glass in building — Thermally toughened soda lime silicate safety glass — Part 2: Evaluation of conformity/Product standard*

EN 12207, *Windows and doors — Air permeability — Classification*

EN 12217:2015, *Doors — Operating forces — Requirements and classification*

EN 12219, *Doors — Climatic influences — Requirements and classification*

EN 12365-1:2003, *Building hardware — Gasket and weatherstripping for doors, windows, shutters and curtain walling — Part 1: Performance requirements and classification*

EN 12365-2, *Building hardware — Gasket and weatherstripping for doors, windows, shutters and curtain walling — Part 2: Linear compression force test methods*

EN 12365-3, *Building hardware — Gasket and weatherstripping for doors, windows, shutters and curtain walling — Part 3: Deflection recovery test method*

EN 12365-4, *Building hardware — Gasket and weatherstripping for doors, windows, shutters and curtain walling — Part 4: Recovery after accelerated ageing test method*

EN 12400:2002, *Windows and pedestrian doors — Mechanical durability — Requirements and classification*

EN 12519:2018, *Windows and pedestrian doors — Terminology*

EN 12600:2002, *Glass in building — Pendulum test — Impact test method and classification for flat glass*

EN 13049:2003, *Windows — Soft and heavy body impact — Test method, safety requirements and classification*

EN 13123-1, *Windows, doors and shutters — Explosion resistance — Requirements and classification — Part 1: Shock tube*

EN 13124-1, *Windows, doors and shutters — Explosion resistance — Test method — Part 1: Shock tube*

EN 13141-1, *Ventilation for buildings — Performance testing of components/products for residential ventilation — Part 1: Externally and internally mounted air transfer devices*

EN 13141-2, *Ventilation for buildings — Performance testing of components/products for residential ventilation — Part 2: Exhaust and supply air terminal devices*

EN 13238, *Reaction to fire tests for building products — Conditioning procedures and general rules for selection of substrates*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13637:2015, *Building hardware — Electrically controlled exit systems for use on escape routes — Requirements and test methods*

EN 14179-2, *Glass in building — Heat soaked thermally toughened soda lime silicate safety glass — Part 2: Evaluation of conformity/Product standard*

EN 14351-1, *Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets*

EN 14449, *Glass in building — Laminated glass and laminated safety glass — Evaluation of conformity/Product standard*

EN 16005:2012, *Power operated pedestrian doorsets — Safety in use — Requirements and test methods*

EN 16034, *Pedestrian doorsets, industrial, commercial, garage doors and openable windows — Product standard, performance characteristics — Fire resisting and/or smoke control characteristics*

EN ISO 717-1, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation (ISO 717-1)*

EN ISO 10077-1:2006, *Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 1: General (ISO 10077-1:2017)*

EN ISO 10077-2, *Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 2: Numerical method for frames (ISO 10077-2)*

EN ISO 10140-1, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 1: Application rules for specific products (ISO 10140-1)*

EN ISO 10140-2, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 2: Measurement of airborne sound insulation (ISO 10140-2)*

EN ISO 12567-1, *Thermal performance of windows and doors — Determination of thermal transmittance by the hot-box method — Part 1: Complete windows and doors (ISO 12567-1)*

3 Terms, definitions and symbols

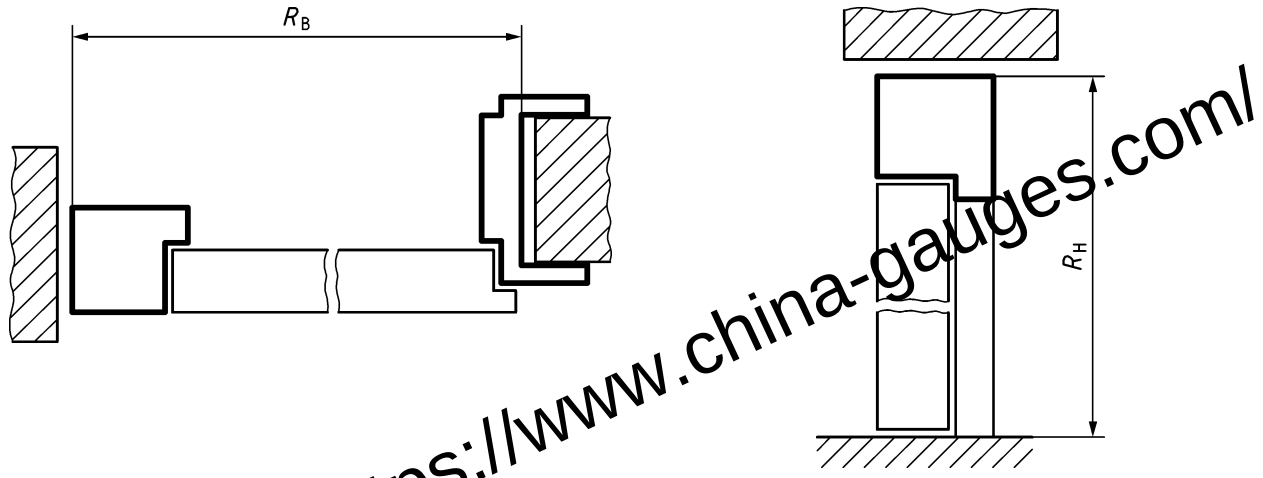
3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14351-1, EN 16005, EN 16034 and EN 12519 and the following apply.

3.1.1
internal pedestrian doorset
construction product which is designed and used to close a permanent opening in internal separating elements and for which the main intended use is the access of pedestrians (e.g. entry doors into flats or into offices and fulfilling the provision above should be considered as an internal pedestrian doorset)

3.1.2
overall area
frame width x frame height

Note 1 to entry See Figure 2.



External width of frame "R_B" **External height of frame "R_H"**

Figure 2 — External width and height of frame

3.1.3
similar design
internal pedestrian doorset in which the replacement of components (e.g. glazing, building hardware, seals), and/or a change of material specification and/or dimensional change of profile section and/or methods and means of assembly does not change the classification and/or declared value of a performance characteristic

3.1.4
unframed glass doorset
doorset where the leaf (leaves) with/without adjacent part(s) is (are) made of glass (single or insulating glass unit)

3.1.5
adjacent part
additional lateral and/or above mounted elements, glazed or not, as parts of the complete doorset construction

3.1.6
glazed door with injury risk
doors on which the lower 1500mm is more than 30 % glass and of which at least one sheet of glass is greater than 0,2m^2

3.1.7
closing face
face of a door leaf which is the first to move into the closed position

[SOURCE: EN 12519:2018, 3.8]

3.2 Symbols

For the purposes of this document, the following symbol applies.

U_D is the thermal transmittance for (internal pedestrian) doorsets

4 Product characteristics

4.1 General

For each characteristic this standard identifies the means of their determination and the ways to express the results.

NOTE The order in which the product characteristics are identified does not imply an order of priority or a test sequence.

If the performance of the product differs between the exposures of the two faces, either both classifications shall be given separately and identified or at least the face exposed to the test shall be given.

If relevant, for double leaf doorset, the characteristics shall be expressed with 2 values, the first one for the primary leaf and the second one for the secondary leaf.

4.2 Release of dangerous substances (only for emissions into indoor air impact) (for intended use a, b and c)

National regulations on dangerous substances may require verification and declaration on release and sometimes content when construction products covered by this standard are placed on those market. In the absence of European harmonised test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPA accessed through: http://ec.europa.eu/growth/tools-databases/cp-ds_en.

4.3 Impact resistance (where relevant, only for glazed doors with injury risks) (for intended use a, b and c)

4.3.1 Glazed doors

Impact resistance of glazed doors with injury risk is the ability of a doorset to keep in place glazed parts.

Where safety glass is included, the following standards apply according to the type of glass: EN 14449, or EN 12150-2 or EN 14179-2. The safe breaking performance (fracture behaviour) is covered by EN 12600. When tested in accordance to 5.3, the results are expressed according to EN 13049:2003, Clause 8.

4.3.2 Unframed glass doorsets

Glass used for unframed glass internal pedestrian doorsets shall either not break or break as defined in EN 12600:2002, Clause 4.

4.4 Height (for intended use a, b and c)

The height is the clear opening height of internal pedestrian doorsets. When measured according to 5.4, it shall be expressed in mm including the tolerance.

Where the threshold and the head/transom are not parallel, the maximum and minimum height shall be stated.

4.5 Reaction to fire

4.5.1 Reaction to fire of components (for intended use a, b and c)

Reaction to fire is the response of components of doorset in contributing by their own decomposition to a fire to which they are exposed, under specified conditions.

The reaction to fire of components shall be tested according to 5.5 and classified in accordance with EN 13501-1. Only test methods relevant for the class the manufacturer wants to prove for his product are relevant. Components made of Iron, steel, stainless steel, aluminium and aluminium alloys not in finely divided form and not containing more than 1,0 % by weight or volume of homogeneously distributed organic material, are considered as belonging to class A1 without the need of being tested.

The relevant components that can be subject for test are:

— profile (frame, stiles and rails);

— infill (e.g. glazing, panels) or door leaf-board ;

— sealant and gasket between infill and profile;

— organic coating/top layers (if relevant and not part of the profile or infill).

NOTE Hardware components and gasket between frame and door leaf are not a relevant component due to negligible influence for reaction to fire performance (compression of the seal and overlapping of the rebate).

Individual components covered by their own product standard (e.g. glass or wood) do not need to be re-tested. The classification derived for the individual components can be used as the classification for that product.

4.5.2 Reaction to fire of the doorset

The reaction to fire of a doorset shall be tested according to 5.5 and classified in accordance with EN 13501-1. Only test methods applicable for the class the manufacturer wants to prove for his product are relevant.

For the classification:

a) for class E of doorsets the relevant components (as specified in 4.5.1) shall be tested. The overall result for the product resulting from the single flame source test is determined by the component with the least favourable performance.

b) for classes D to A2 of doorsets the relevant components (as specified in 4.5.1) shall be tested. Therafter two alternative routes are possible:

   1) Either the classification shall be based on the testing of the whole product including single flame source test of the individual components as specified in 4.5.1; or

   2) The classification shall be based on the test results of the individual components. In this case the classification report for any range of doorsets based on this approach shall be written by a notified test laboratory. The worst classification of the profile, or coating on the relevant substrate or infill/door leaf will determine the classification of the whole product.

4.6 Direct airborne sound insulation index (only for uses where acoustic performance is required) (for intended use b)

Direct airborne sound insulation for internal pedestrian doorsets is the ability of internal pedestrian doorsets to insulate against direct airborne noise. The acoustic performance of the doorset, shall be determined according to either the provisions in 5.6.1 (reference method) or, as an alternative determine the sound insulation of operable internal pedestrian doorsets according to 5.6.2.

4.7 Operating forces (only for automatic devices and only for internal landing communication doors and doors for special uses and specific requirements) (for intended use b)

These operating forces are forces exerted by the door leaf of power operated doorsets and only relevant for doorsets with automatic devices such as internal landing communication doorsets and/or doorsets for special uses.

The safeguarding of power operated doorsets shall be assessed by one or more of the methods given in 5.7, depending on the technology or technologies the manufacturer has chosen.

It shall be expressed by “Safeguarded by forces limitations” or “Safeguarded by Protective devices” or “Safeguarded by low energy movement”, depending on the criteria(s) fulfilled.

4.8 Thermal transmittance (only for uses where thermal insulation performance is required) (for intended use b)

Thermal transmittance values are used to evaluate heat flow due to temperature changes between adjacent areas. The thermal transmittance shall be determined in accordance with either the provisions in 5.8.1 (reference method) or, as an alternative according to 5.8.2 or 5.8.3.

4.9 Air permeability (only for uses where air permeability performance is required for specific use with specific requirements) (for intended use b)

Air permeability is defined as the amount of air that may pass a closed doorset. The air permeability shall be determined in accordance with 5.9.

4.10 Ability to release (to open) (only for locked doors in escape routes) (for intended use a)

Ability to release (to open) is the capability of internal pedestrian doorsets to open in case of emergency.

The ability to release (to open) shall be ensured by using building hardware complying with EN 179, EN 1125, EN 1935, EN 1154 or EN 13637:2015. The (positive) result obtained by the method given in 5.10 is expressed as "opens".

If hinges are not covered by these standards, the doorset shall be tested according to EN 1191 and the result shall be given as in EN 12400:2002, Table 1, indicating the number of cycles, in addition of the “opens” expressed above..

4.11 Durability

NOTE An internal pedestrian doorsets durability of characteristics depends on the long-term performance of the materials and components, as well as the assembly of the product, its installation and maintenance.

4.11.1 Durability of air permeability against ageing/degradation for specific use with specific requirements (for intended use b):

The durability of this characteristic depends on the gaskets.

When assessed in accordance to 5.11.1, results shall comply with EN 12365-1:2003, 4.4, 4.6 and 4.7, and expressed as classes according to EN 12365-1:2003, 4.1.

4.11.2 Durability of operating forces (safety in use) against ageing/degradation (only for automatic devices and only for internal landing communication doors and doors for special uses with specific requirements) (for intended use b)

Only when power operated doorsets are safeguarded by limitation of forces against impact hazards the durability of operating forces against ageing and degradation shall be tested according to 5.11.2.

For power operated doorsets safeguarded by protective devices, the durability is assessed according to EN 16005:2012, 4.4.1.

4.12 Width

The width is the clear opening width of internal pedestrian doorsets (see Annex D – Dimension A).

When measured according to 5.12, it shall be expressed in mm and the tolerance shall be given.

For double leaf doorsets, the width of the clear opening shall be expressed with two values using the width of the clear opening of the primary leaf width and the total width of the clear opening.

NOTE The effective opening/passage width is different from the width of the clear opening within the frame and take into account any projecting building hardware and angle of opening (see examples in Annex D).

4.13 Manual operating forces

Determination of manual operating forces is the determination of the opening or closing forces needed to start the motion of the door leaf.

The manual operating forces shall be tested according to 5.13 and the result is expressed as given in EN 12217:2015, Table 1.

4.14 Mechanical strength

Internal pedestrian doorsets shall mechanically withstand wear and tear in the intended use for the designed working life.

The mechanical strength has to be tested according to 5.14 and the results shall be expressed in accordance with EN 1192.

4.15 Bullet resistance

The bullet resistance of an internal pedestrian doorset has to be tested according to 5.15 and it shall be classified in accordance with EN 1522.

NOTE Not all types of ammunition given in this standard can be used in all countries.

4.16 Explosion resistance

The explosion resistance of an internal pedestrian doorset shall be tested according to 5.16 and classified in accordance with EN 13123-1 for shock tube.

4.17 Resistance to repeated opening and closing

Internal pedestrian doorsets shall withstand opening and closing for their designed working life.

The resistance of an internal pedestrian doorset to repeated opening and closing shall be tested in accordance with 5.17 and shall be expressed in accordance with EN 12400.

4.18 Behaviour between two different climates

Internal pedestrian doorsets installed between two different climates shall remain stable for their designed working life to avoid operational problems due to possible deformations.

The behaviour of the doorset between two different climates shall be tested according to 5.18 and the result expressed in accordance with EN 12219. Depending on the orientation of the specimen during the test the result may differ. The manufacturer shall mention either both results or the orientation used.

4.19 Burglar resistance

The burglar resistance of an internal pedestrian doorset is the ability to resist intrusion.

The resistance of an internal pedestrian doorset against intrusion or burglary shall be classified according to EN 1627.

The test shall be carried out in accordance with 5.19.

4.20 Safety requirements for power operated pedestrian hinged doorsets

The safety requirements for power operated pedestrian hinged doorsets are given in EN 16005:2012, 4.6.1, 4.6.3, and 4.6.4.

The test shall be carried out in accordance with 5.20.

4.21 Ventilation

Ventilation is the ability of the internal pedestrian doorsets to ensure ventilation between two adjacent rooms.

The performance of ventilation of an internal pedestrian doorset shall be stated according to EN 13141-1. The test shall be carried out in accordance with the test method given in 5.21.

5 Testing, assessment and sampling methods

5.1 General

Internal pedestrian doorsets characteristics included in Clause 4 can be verified by the following methods.

5.2 Release of dangerous substances (only for emissions into indoor air impact) (for intended use a, b and c)

See 4.2.

5.3 Impact resistance (where relevant, only for glazed doors with injury risks) (for intended use a, b and c)

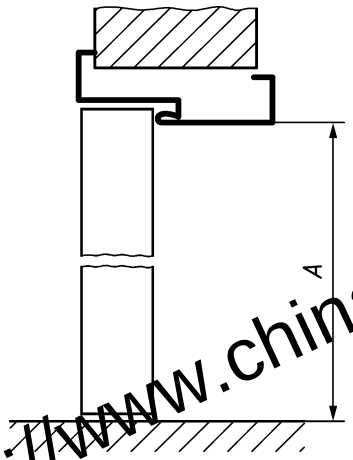
The test is carried out according to EN 13049 and expressed in accordance with the same standard.

NOTE For some condition of use, it is relevant to carry out the test from both sides.

5.4 Height (for intended use a, b and c)

The height of the clear opening within the frame of the doorset (A) shall be measured using a calibrated apparatus

The effective opening/passage height should take into account any projecting building hardware (see dimension (B) in Figure D.2).



Key

A clear opening height of internal pedestrian doorsets

Figure 3 — Height

5.5 Reaction to fire

The reaction to fire test shall be carried out in accordance with the test method depending on the class claimed by the manufacturer (see Annex F).

5.6 Direct airborne sound insulation index (only for uses where acoustic performance is required) (for intended use b)

5.6.1 Reference method

The acoustic performance of the doorset, the weighted sound reduction index and the spectrum adaptation terms R_w (C; C_{tr}) of operable internal pedestrian doorsets shall be determined by test according to EN ISO 10140-1 and EN ISO 10140-2 (reference method) and declared in accordance with EN ISO 717-1.

5.6.2 Alternative method

As an alternative, for doorsets with the constructive details described in Annex B, Table B.1 and Table B.2, the sound insulation of operable internal pedestrian doorsets can be evaluated from the component data that are determined according to Annex B, Table B.1 and Table B.2.

5.7 Operating forces (only for automatic devices and only for internal landing communication doors and doors for special uses) (for intended use b)

Operating forces are tested according to EN 16005:2012, 4.6.7.

Power operated doorsets are assessed according EN 16005:2012, 4.6.3 and 4.6.7. In addition protective devices are assessed following EN 16005:2012, Annex C (Figure C.4 and Figure C.5).

5.8 Thermal transmittance (only for uses where thermal insulation performance is required) (for intended use b)

5.8.1 Reference method

This performance shall be determined by using the hot box method (EN ISO 12567-1) or one of the following methods:

5.8.2 Tabulation

Tabulated indicative values as given in Table B.3; or

5.8.3 Calculation

Calculation using:

— EN ISO 10077-1 or;

— EN ISO 10077-1 and EN ISO 10077-2.

The symbol for thermal transmittance is U_D for (internal pedestrian) doorsets; the symbol U_{st} used in EN ISO 12567-1 shall be equivalent to U_D.

5.9 Air permeability (only for uses where air permeability performance is required for specific use with specific requirements) (for intended use b)

This performance shall be either measured in accordance with EN 1026:2016 (reference method) or for door types defined hereafter it can be evaluated as Class A according to EN 12207.

➢ Internal pedestrian doorset with a gasket on four sides on the same plane under appropriate compression

When using the reference method, two air permeability tests shall be carried out in accordance with EN 1026:2016, 7.3.3, one with positive test pressures and one with negative test pressures.

The test result, defined as the numerical average of the two air permeability values (m^3/h) at each pressure step shall be expressed in accordance with EN 12207.

For air permeability of screens the test shall be carried out on the screen or on its individual parts including joints between the individual parts. In the latter case the total air flow going through the screen shall be calculated as the sum of the different air flows going through the individual parts with the joints.

5.10 Ability to release (to open) (only for locked doors in escape routes) (for intended use a)

The ability of the internal pedestrian doorset to open shall be assessed based on technical drawings and based on the correspondence of each hardware component to their relevant standard. If necessary, it shall be checked on the complete doorset.

5.11 Durability

5.11.1 Durability of air permeability against ageing/degradation (for intended use b)

Characteristics giving the durability of the gasket shall be measured as follows:

— linear compression force according to EN 12365-2;

— deflection recovery according to EN 12365-3;

— recovery after accelerated ageing according to EN 12365-4.

5.11.2 Durability of operating forces (only for automatic devices, and only for internal landing communication doors and doors for special uses with specific requirements) (for intended use b)

The durability of operating forces is tested according to EN 16005:2012, 5.8.

These forces are tested after the durability test in accordance with 5.7.

5.12 Width

The width of the clear opening within the frame of the doorset (Dimension A as in Figure D.1) shall be measured using a class II accuracy calibrated apparatus (2004/ 22/EC).

5.13 Manual operating forces

Manually operated internal pedestrian doorsets are tested in accordance with EN 12046-2.

Internal pedestrian doorsets fitted with door closing devices shall be tested with the closing devices engaged and set up to the manufacturer's instruction.

NOTE EN 1154 and prEN 15887:2008 provide information on how to set the relevant closing device for the different final uses.

5.14 Mechanical strength

To express the mechanical strength, the internal pedestrian doorset shall be tested in accordance with the relevant following methods:

— EN 947 for the vertical load;

— EN 948 for the static torsion;

— EN 949 for the soft and heavy body impact;

— EN 950 for the hard body impact.

5.15 Bullet resistance

The internal pedestrian doorset shall be tested in accordance with EN 1523.

5.16 Explosion resistance

The internal pedestrian doorset shall be tested for shock tube in accordance with EN 13124-1.

5.17 Resistance to repeated opening and closing

The internal pedestrian doorset shall be tested in accordance with EN 1191.

5.18 Behaviour between two different climates

A climate test on internal pedestrian doorset shall be carried out in accordance with EN 1121.

The test specimen should be conditioned before and between each test according to EN 1121 and EN 1294 in a standard climate (temperature and humidity). Duration and climate of conditioning should be recorded in the test report.

5.19 Burglar resistance

The internal pedestrian doorset shall be tested in accordance with EN 1628, EN 1629 and EN 1630.

5.20 Safety requirements for power operated pedestrian hinged doorsets

The safety requirements for power operated pedestrian hinged doorsets shall be tested following EN 16005:2012, Clause 5.

5.21 Ventilation

Test for determining the performance of ventilation of an internal pedestrian doorset shall be carried out according to EN 13141-2. Joints and openings not subject to testing shall be taped over.

6 Assessment and verification of constancy of performance – AVCP

6.1 General

The compliance of internal pedestrian doorsets with the requirements of this standard and with the performances declared by the manufacturer in the Declaration of Performance (DoP) shall be demonstrated by:

— determination of the product type;

— factory production control by the manufacturer, including product assessment.

The manufacturer shall always retain the overall control and shall have the necessary means to take responsibility for the conformity of the product with its declared performance(s).

6.2 Type testing

6.2.1 General

All performances related to characteristics included in this standard shall be determined when the manufacturer intends to declare the respective performances unless the standard gives provisions for declaring them without performing tests (e.g. use of previously existing data, Classification Without Further Testing (CWFT) and conventionally accepted performance).

Assessment previously performed in accordance with the provisions of this standard, may be taken into account provided that they were made to the same or a more rigorous test method, under the same AVCP system on the same product or products of similar design, construction and functionality, such that the results are applicable to the product in question.

NOTE 1 Same AVCP system means testing by an independent third party (only for internal pedestrian doorsets covered by system 1 and 3), under the responsibility of a notified product certification body (only for internal pedestrian doorsets covered by system 1).

For the purposes of assessment, the manufacturer's products may be grouped into families, where it is considered that the results for one or more characteristics from any one product within the family are representative for that same characteristics for all products within that same family.

NOTE 2 Products may be grouped in different families for different characteristics.

NOTE 3 It is advised to make reference to the assessment method standards to allow the selection of a suitable representative sample.

In addition, the determination of the product type shall be performed for all characteristics included in the standard for which the manufacturer declares the performance:

— at the beginning of the production of new or modified internal pedestrian doorsets (unless a member of the same product range); or

— at the beginning of a new or modified method of production (where this may affect the stated properties); or

they shall be repeated for the appropriate characteristic(s), whenever a change occurs in the internal pedestrian doorsets design, in the raw material or in the supplier of the components, or in the method of

production (subject to the definition of a family), which would affect significantly one or more of the characteristics (see guidance in Annex A).

If interchangeability of components by another one is decided between the manufacturer and the supplier, the use of this new component should not change significantly one or more characteristic.

Where components are used whose characteristics have already been determined by the component manufacturer, on the basis of assessment methods of other product standards, these characteristics need not be re-assessed. The specifications of these components shall be documented as shall be included in the inspection scheme for ensuring their compliance.

Products bearing regulatory marking in accordance with appropriate harmonized European specifications may be presumed to have the performances declared in the DoP, although this does not replace the responsibility on the internal pedestrian doorsets manufacturer to ensure that the internal pedestrian doorsets as a whole is correctly manufactured and its component products have the declared performance values.

NOTE 4 Some products are components of the internal pedestrian doorset.

6.2.2 Test samples, testing and compliance criteria

The samples selected for testing shall be representative of the product family, taking into account 6.2.1 and Annex B as well as the product descriptions. For the purpose of sampling and testing the manufacturer shall have the option of declaring one product from the product family as representative for the whole family or part of it provided that this product has the more unfavourable combination of performance characteristics (see Annex A and Annex B).

Where a range of tests is to be carried out a sufficient number of samples shall be selected to take account of the destructive nature of the tests (see Annex B). Annex B specifies the number of test specimens (samples) required for each test and any change in size that is allowed for similar designs. Products shall only be excluded from selection of samples where they have been clearly marked as defective and have been isolated.

All samples to be used for testing purposes shall be suitably marked to identify which characteristics are to be determined and to ensure traceability.

Sample-marking on the product shall at least include production time, place and date and time of sampling.

The number of samples of internal pedestrian doorsets to be tested/assessed shall be in accordance with Table B.1.

6.2.3 Test reports

The results of the determination of the product type shall be documented in test reports. All test reports shall be retained by the manufacturer for at least 10 years after the last date of production of the internal pedestrian doorsets to which they relate.

6.2.4 Shared other party results

A manufacturer may use the results of the product type determination obtained by someone else (e.g. by another manufacturer, as a common service to manufacturers, or by a product developer), to justify his own declaration of performance regarding a product that is manufactured according to the same design (e.g. dimensions) and with raw materials, constituents and manufacturing methods of the same kind, provided that:

— the results are known to be valid for products with the same essential characteristics relevant for the product performance;

— in addition to any information essential for confirming that the product has such same performances related to specific essential characteristics, the other party who has carried out the determination of the product type concerned or has had it carried out, has expressly accepted[1)] to transmit to the manufacturer the results and the test report to be used for the latter's product type determination, as well as information regarding production facilities and the production control process that can be taken into account for FPC;

— the manufacturer using other party results accepts to remain responsible for the product having the declared performances and he also:

1) ensures that the product has the same characteristics relevant for performance as the one that has been subjected to the determination of the product type, and that there are no significant differences with regard to production facilities and the production control process compared to that used for the product that was subjected to the determination of the product type; and

2) keeps available a copy of the determination of the product type report that also contains the information needed for verifying that the product is manufactured according to the same design and with raw materials, constituents and manufacturing methods of the same kind.

6.2.5 Cascading determination of the product type results

For some construction products, there are companies (often called "system houses") which supply or ensure the supply of, on the basis of an agreement[2)], some or all of the components (e.g. in case of internal pedestrian doorsets: building hardware, profiles, gaskets)[3)] to an assembler (manufacturer) who then manufactures the finished internal pedestrian doorsets (referred to below as the assembler) in his factory.

The system house may take the responsibility for the determination of the product type regarding one or several essential characteristics of an end product which is subsequently manufactured and/or assembled by other firms in their own factory.

When doing so, the system house shall submit an "assembled product" using components manufactured by it or by others, to the determination of the product type and then make the determination of the product type report available to the assemblers, i.e. the actual manufacturer of the product placed on the market.

To take into account such a situation, the concept of cascading determination of the product type might be taken into consideration in the technical specification, provided that this concerns characteristics for which either a notified product certification body or a notified test laboratory intervene, as presented below.

The determination of the product type report that the system house has obtained with regard to tests carried out by a notified body, and which is supplied to the assemblers, may be used for the regulatory marking purposes without the assembler having to involve again a notified body to undertake the

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[1)] The formulation of such an agreement can be done by licence, contract, or any other type of written consent.

[2)] This can be, for instance, a contract, license or whatever kind of written agreement, which should also contain clear provisions with regard to responsibility and liability of the component producer (system house, on the one hand, and the assembler of the finished product, on the other hand). If this agreement allows different hardware components with the same characteristics, it may also foresee that the assembling instructions to be used are those provided by the relevant component producer. Changing the hardware originally included in the doorset tested may affect some of the performances in the cascaded test reports, therefore implying the repletion of the relevant tests (see Annex A).

[3)] These companies may produce components but they are not required to do so.

determination of the product type of the essential characteristic(s) that were already tested, provided that:

— the assembler assembles a product which uses the same combination of components (components with the same characteristics), and in the same way, as that for which the system house has obtained the determination of the product type report. If this report is based on a combination of components not representing the final product as to be placed on the market, and/or is not assembled in accordance with the system house's instruction for assembling the components, the assembler needs to submit his finished product to the determination of the product type;

Note Interchangeability conditions for components (e.g. case of significant changes, assembling instruction to be used) are subject to the agreement between the assembler (manufacturer) and the system house supplying the product type reports.

— the system house has notified to the manufacturer the instructions for manufacturing/assembling the product and installation guidance;

— the assembler (manufacturer) assumes the responsibility for the correct assembly of the product in accordance with the instructions for manufacturing/assembling the product and installation guidance notified to him by the system house;

— the instructions for manufacturing the product and installation guidance notified to the assembler (manufacturer) by the system house are an integral part of the assembler's Factory Production Control system and are referred to in the determination of the product type report;

— the assembler is able to provide documented evidence that the combination of components he is using, and his way of manufacturing, correspond to the one for which the system house has obtained the determination of the product type report (he needs to keep a copy of the system house's determination of the product type report);

— regardless the possibility of referring, on the basis of the agreement signed with the system house, to the latter's responsibility and liability under private law, the assembler remains responsible for the product being in compliance with the declared performances, including both the design and the manufacture of the product, which is given when he affixes the regulatory marking on his product.

6.3 Factory production control (FPC)

6.3.1 General

The manufacturer shall establish, document and maintain an FPC system to ensure that the products placed on the market comply with the declared performance of the essential characteristics.

The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.

All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures.

This factory production control system documentation shall ensure a common understanding of the evaluation of the constancy of performance and enable the achievement of the required product performances and the effective operation of the production control system to be checked. Factory production control therefore brings together operational techniques and all measures allowing maintenance and control of the compliance of the product with the declared performances of the essential characteristics.

In case the manufacturer has used shared or cascading product type results, the FPC shall also include the appropriate documentation as foreseen in 6.2.4 and 6.2.5.

6.3.2 Requirements

6.3.2.1 General

The manufacturer is responsible for organizing the effective implementation of the FPC system in line with the content of this product standard. Tasks and responsibilities in the production control organization shall be documented and this documentation shall be kept up-to-date.

The responsibility, authority and the relationship between personnel that manages, performs or verifies work affecting product constancy, shall be defined. This applies in particular to personnel that need to initiate actions preventing product non-constancies from occurring, actions in case of non-constancies and to identify and register product constancy problems.

Personnel performing work affecting the constancy of performance of the product shall be competent on the basis of appropriate education, training, skills and experience for which records shall be maintained.

In each factory the manufacturer may delegate the action to a person having the necessary authority to:

— identify procedures to demonstrate constancy of performance of the product at appropriate stages;

— identify and record any instance of non-constancy;

— identify procedures to correct instances of non-constancy.

The manufacturer shall draw up and keep up-to-date documents defining the factory production control. The manufacturer's documentation and procedures should be appropriate to the product and manufacturing process. The FPC system should achieve an appropriate level of confidence in the constancy of performance of the product. This involves:

a) the preparation of documented procedures and instructions relating to factory production control operations, in accordance with the requirements of the technical specification to which reference is made;

b) the effective implementation of these procedures and instructions;

c) the recording of these operations and their results;

d) the use of these results to correct any deviations, repair the effects of such deviations, treat any resulting instances of non-conformity and, if necessary, revise the FPC to rectify the cause of non-constancy of performance.

Where subcontracting takes place, the manufacturer shall retain the overall control of the product and ensure that he receives all the information that is necessary to fulfil his responsibilities according to this European Standard.

If the manufacturer has part of the product designed, manufactured, assembled, packed, processed and/or labelled by subcontracting, the FPC of the subcontractor may be taken into account, where appropriate for the product in question.

The manufacturer who subcontracts all of his activities may in no circumstances pass the above responsibilities on to a subcontractor.

NOTE Manufacturers having an FPC system, which complies with EN ISO 9001 and which addresses the provisions of the present European Standard are considered as satisfying the FPC requirements of the Regulation (EU) No 305/2011.

6.3.2.2 Equipment

6.3.2.2.1 Testing

All weighing, measuring and testing equipment shall be calibrated and regularly inspected according to documented procedures, frequencies and criteria.

6.3.2.2.2 Manufacturing

All equipment used in the manufacturing process shall be regularly inspected and maintained to ensure use, wear or failure does not cause inconsistency in the manufacturing process. Inspections and maintenance shall be carried out and recorded in accordance with the manufacturer's written procedures and the records retained for the period defined in the manufacturer's FPC procedures.

6.3.2.3 Raw materials and components

The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their compliance. In case supplied kit components are used, the constancy of performance system of the component shall be that given in the appropriate harmonized technical specification for that component.

6.3.2.4 Traceability and marking

Individual internal pedestrian doorsets shall be identifiable and traceable with regard to their production origin. The manufacturer shall have written procedures ensuring that processes related to affixing traceability codes and/or markings are inspected regularly.

6.3.2.5 Controls during manufacturing process

The manufacturer shall plan and carry out production under controlled conditions.

6.3.2.6 Product testing and evaluation

The manufacturer shall establish procedures to ensure that the stated values of the characteristics he declares are maintained.

6.3.2.7 Non-complying products

The manufacturer shall have written procedures which specify how non-complying products shall be dealt with. Any such events shall be recorded as they occur and these records shall be kept for the period defined in the manufacturer's written procedures.

Where the product fails to satisfy the acceptance criteria, the provisions for non-complying products shall apply, the necessary corrective action(s) shall immediately be taken and the products or batches not complying shall be isolated and properly identified.

Once the fault has been corrected, the test or verification in question shall be repeated.

The results of controls and tests shall be properly recorded. The product description, date of manufacture, test method adopted, test results and acceptance criteria shall be entered in the records under the signature of the person responsible for the control/test.

With regard to any control result not meeting the requirements of this European Standard, the corrective measures taken to rectify the situation (e.g. a further test carried out, modification of manufacturing process, and throwing away or putting right of product) shall be indicated in the records.

6.3.2.8 Corrective action

The manufacturer shall have documented procedures that instigate action to eliminate the cause of non-conformities in order to prevent recurrence.

6.3.2.9 Handling, storage and packaging

The manufacturer shall have procedures providing methods of product handling and shall provide suitable storage areas preventing damage or deterioration.

6.3.3 Product specific requirements

The FPC system shall address this European Standard and ensure that the products placed on the market comply with the declaration of performance.

The FPC system shall include a product specific FPC, which identifies procedures to demonstrate compliance of the product at appropriate stages, i.e:

a) the controls and tests to be carried out prior to and/or during manufacture according to a frequency laid down in the FPC test plan,

and/or

b) the verifications and tests to be carried out on finished products according to a frequency laid down in the FPC test plan

If the manufacturer uses only finished products, the operations under b) shall lead to an equivalent level of compliance of the product as if FPC had been carried out during the production.

If the manufacturer carries out parts of the production himself, the operations under b) may be reduced and partly replaced by operations under a). Generally, the more parts of the production that are carried out by the manufacturer, the more operations under b) may be replaced by operations under a).

In any case the operation shall lead to an equivalent level of compliance of the product as if FPC had been carried out during the production.

NOTE Depending on the specific case, it can be necessary to carry out the operations referred to under a) and b), only the operations under a) or only those under b).

The operations under a) refer to the intermediate states of the product as on manufacturing machines and their adjustment, and measuring equipment etc. These controls and tests and their frequency shall be chosen based on product type and composition, the manufacturing process and its complexity, the sensitivity of product features to variations in manufacturing parameters etc.

The manufacturer shall establish and maintain records that provide evidence that the production has been sampled and tested. These records shall show clearly whether the production has satisfied the defined acceptance criteria and shall be available for at least three years.

6.3.4 Initial inspection of factory and of FPC

Initial inspection of factory and of FPC (only for products covered by AVCP 1) shall be carried out when the production process has been finalized and in operation. The factory and FPC documentation shall be assessed to verify that the requirements of 6.3.2 and 6.3.3 are fulfilled.

During the inspection it shall be verified:

a) that all resources necessary for the achievement of the product characteristics included in this European Standard are in place and correctly implemented,

and

b) that the FPC-procedures in accordance with the FPC documentation are followed in practice,

and

c) that the product complies with the product type samples, for which compliance of the product performance to the DoP has been verified.

All locations where final assembly or at least final testing of the relevant product is performed shall be assessed to verify that the above conditions a) to c) are in place and implemented. If the FPC system covers more than one product, production line or production process, and it is verified that the general requirements are fulfilled when assessing one product, production line or production process, then the assessment of the general requirements does not need to be repeated when assessing the FPC for another product, production line or production process.

All assessments and their results shall be documented in the initial inspection report.

6.3.5 Continuous surveillance of FPC (only for products covered by AVCP system 1)

Surveillance of the FPC shall be undertaken at least once per year. The surveillance of the FPC shall include a review of the FPC test plan(s) and production processes(s) for each product to determine if any changes have been made since the last assessment or surveillance. The significance of any changes shall be assessed.

Checks shall be made to ensure that the test plans are still correctly implemented and that the production equipment is still correctly maintained and calibrated at appropriate time intervals.

The records of tests and measurement made during the production process and to finished products shall be reviewed to ensure that the values obtained still correspond with those values for the samples submitted to the determination of the product type and that the correct actions have been taken for non-compliant products.

6.3.6 Procedure for modifications

If modifications are made to the product, production process or FPC system that could affect any of the product characteristics declared according to this standard, then all the characteristics for which the manufacturer declares performance, which may be affected by the modification, shall be subject to the determination of the product type, as described in 6.2.1.

Where relevant, a re-assessment of the factory and of the FPC system shall be performed for those aspects, which may be affected by the modification.

All assessments and their results shall be documented in a report.

Guidelines for modifications of components with or without retesting are given in Annex A.

6.3.7 One-off products, pre-production products (e.g. prototypes) and products produced in very low quantity

The internal pedestrian doorsets produced as a one-off, prototypes assessed before full production is established, and products produced in very low quantities (less than 2 % of the total quantity or less than 5 units per year) shall be assessed as follows.

For type assessment, the provisions of 6.2.1, 3rd paragraph apply, together with the following additional provisions:

— in case of prototypes, the test samples shall be representative of the intended future production and shall be selected by the manufacturer;

— on request of the manufacturer, the results of the assessment of prototype samples may be included in a certificate or in test reports issued by the involved third party.

The FPC system of one-off products and products produced in very low quantities shall ensure that raw materials and/or components are sufficient for production of the product. The provisions on raw

materials and/or components shall apply only where appropriate. The manufacturer shall maintain records allowing traceability of the product.

For prototypes, where the intention is to move to series production, the initial inspection of the factory and FPC shall be carried out before the production is already running and/or before the FPC is already in practice. The following shall be assessed:

— the FPC-documentation; and

— the factory.

In the initial assessment of the factory and FPC it shall be verified:

a) that all resources necessary for the achievement of the product characteristics included in this European Standard will be available, and

b) that the FPC-procedures in accordance with the FPC-documentation will be implemented and followed in practice, and

c) that procedures are in place to demonstrate that the factory production processes can produce a product complying with the requirements of this European Standard and that the product will be the same as the samples used for the determination of the product type, for which compliance with this European Standard has been verified.

Once series production is fully established, the provisions of 6.3 shall apply.

7 Marking, Labelling and packaging

The manufacturer shall provide information to ensure the link between the product, the manufacturer and the production. This information shall either be contained on a product label or detailed in accompanying documents or in the manufacturer's published technical specification(s). Information about characteristics, intended use, handling, installation, maintenance and care (see Annexe E) shall either be contained on a product label or detailed in accompanying documents or in the manufacturer's published technical specification(s).

Where regulatory marking provisions require information on some or all items listed in this clause, the provisions of this clause concerning those common items are deemed to be met. The manufacturer shall provide information about maintenance and the replaceable parts (e.g. gaskets).

For power operated doors additional information as described in EN 16005:2012, 4.2 shall be provided. Power operated doors shall be marked visibly, legibly and indelibly with the following minimum particulars:

— business name and full address of the manufacturer and, where applicable, his authorized representative;

— mandatory marking;

— the year of construction, that is the year in which the manufacturing process is completed;

— designation of the product;

— designation of series or type, if any;

— serial or identification number, if any;

— rating information (mandatory for electrical products: voltage, frequency, power, etc.).

When regulatory marking covers the same information listed above, the provisions of this clause are met.

The instructions for use give the A-weighted emission sound pressure level in the vicinity of these products when it is more than 70 dB or, which will generally be the case, indicate that this level is less than or equal to 70 dB.

Annex A
(informative)

Product characteristics possibly affected by change of components

A.1 General

Table A.1 suggests some interdependencies between the products characteristics and components used in the product, i.e. which characteristic might change if a certain component is modified. Further guidance might be derived from relevant test and classification standards.

Table A.1 provides guidance for the manufacturer to determine whether or not retesting is necessary.

Table A.1 — Product characteristics possibly affected by change of components

Product Characteristics	Components				
	Building hardware [a]	seals [b]	Frame and leaf		Glazing and/or infill [e]
			Material [c]	Profile [d]	
Release of dangerous substances (only for emission into indoor air)	(Y)	(Y)	(Y)	(Y)	(Y)
Impact resistance for glazed doors with injury risk	(Y)	N	(Y)	(Y)	Y
Impact resistance for unframed glazed doorsets	(Y)	N	(Y)	-	Y
Height	(Y)	N	(Y)	(Y)	N
Reaction to fire of components of the product	(Y)	(Y)	Y	Y	N
Direct airborne sound insulation index (only for uses where acoustic performance is required)[f]	N	(Y)	(Y)	Y	Y
Operating forces (only for automatic devices)	Y	Y	(Y)	(Y)	(Y)
Thermal transmittance (only for uses where thermal insulation performance is required)	N	(Y)	(Y)	Y	Y
Air permeability (only for uses where thermal insulation performance is required)	(Y)	Y	(Y)	Y	N
Ability to release (to open) (only for locked doors in escape routes)	Y	Y	N	(Y)	(Y)

Product Characteristics	Components				
	Building hardware [a]	seals [b]	Frame and leaf		Glazing and/or infill [e]
			Material [c]	Profile [d]	
Durability of air permeability and of operating forces	Y	Y	Y	(Y)	Y
Width	(Y)	N	(Y)	(Y)	N
Manual operating forces	Y	(Y)	N	N	(Y)
Mechanical strength	Y	N	(Y)	Y	(Y)
Reaction to fire of the doorsets	(Y)	(Y)	Y	Y	Y
Bullet resistance	N	N	Y	Y	Y
Explosion resistance	Y	N	Y	Y	Y
Resistance to repeated opening and closing	Y	(Y)	(Y)	(Y)	(Y)
Behaviour between two different climates	N	(Y)	Y	Y	N
Burglar resistance	Y	N	Y	Y	Y
Safety requirements for power operated pedestrian hinged doorsets	(Y)	(Y)	(Y)	(Y)	N

Key

Y Modification of the component will probably change the characteristic in question

(Y) Modification of the component will possibly change the characteristic in question

N Modification of the component will probably not change the characteristic in question

[a] Number, location, fixing :in case of building hardware exchange: if there exists documented evidence on the basis of the relevant building hardware standards that the building hardware performances are equivalent to those offered by the building hardware (used on TT) replaced, then no re-testing is necessary.

[b] Number, material.

[c] Young's Modulus, thermal conductivity, density.

[d] Area and shape of cross sections, assembly, ventilation devices.

[e] Type, mass, coating, cavity, gas, installation, sealing.

[f] See Annex B.

Annex B
(normative)

Tabulated values and extension of test results following size and design variations

B.1 Characteristics of internal pedestrian doorsets

Extension of test results for characteristics for internal pedestrian doorsets shall be carried out in accordance with Table B.1.

Table B.1 — Separate determination of characteristics for internal pedestrian doorsets

Characteristics	**Clause**	**Size of specimen**	**Number of specimen** [a]	**Range of validity (providing similar design)**
Impact resistance for glazed doors with injury risk	4.3.1	Not specified	1 or 2	> overall area of test specimen (infill)
Impact resistance for unframed glass doorsets	4.3.2	Not specified	1	- 100 % of specimen size
Height	4.4.	Declared values		
Reaction to fire	4.5	EN 13501-1	See EN 13501-1	All sizes
Direct airborne sound insulation index	4.6	Minimum approximately 0,9 m x 2,0 m	1	See note [b]
Operating forces	4.7	Not specified	1	- 100 % of specimen size
Thermal transmittance	4.8	1,23 (± 25 %) m x 2,18 m or	calculation	Overall area ≤ 3,6 m^2
		2,00 (± 25 %) m x 2,18 m	calculation	Overall area > 3,6 m^2
		1,23 (± 25 %) m x 2,18 (± 25 %) m or	1	Overall area ≤ 3,6 m^2
		2,00 (±25 %) m x 2,18 (± 25 %) m	1	Overall area > 3,6 m^2
Air permeability	4.9	Not specified	1	See note [b]

Characteristics	**Clause**	**Size of specimen**	**Number of specimen** [a]	**Range of validity (providing similar design)**
Ability to release (to open)	4.10	Not specified	0 (1)	Complying with - EN 179, EN 1125, or EN 13637 - EN 1935, EN 1154
Durability of air permeability against ageing/degradation	4.11.1	EN 12365-2, 3 and 4	See EN 12365-2,3 and 4	All sizes
Durability of operating forces	4.11.2	Not specified	1	-100 % of test specimen overall area
Width	4.12	Not specified	1	-
Manually operating forces	4.13	Not specified	1	-100 % of test specimen overall area
Mechanical strength	4.14	Not specified	1	-100 % of test specimen overall area
Bullet resistance	4.15	Not specified	1	See note [c]
Explosion resistance	4.16	Not specified	1	See note [c]
Resistance to repeated opening and closing	4.17	Not specified	1	See EN 1191 for direct range of validity
Behaviour between different climates	4.18	Not specified	1	-100 %
Burglar resistance	4.19	Not specified	See EN 1627	See EN 1627

[a] Non-destructive test: Specimen may be used for another test.
Destructive test: Specimen may be used for another test only if agreed between the laboratory and the manufacturer.

[b] Seals and/or gasket on four sides: - 100 % to + 50 % of test specimen overall area,

Seals and/or gasket on three sides: - 100 % of test specimen overall area.

No seals and/or gasket: Only tested specimen.

[c] Until relevant standards or guidelines are in place, undetermined conditions shall be agreed on by manufacturer and the testing laboratory.

B.2 Sound insulation index of internal pedestrian doorsets

Table B.2 — Determination of sound insulation index for internal pedestrian doorsets Rw (C;Ctr) in accordance to design and constructive details

Sound insulation of the doorset (characteristic data) $R_W\ (C;C_{tr})$ dB	**Door leaf**[a] $R_W\ (C;C_{tr})$ dB	**Rebate seal**[b] $R_{S,W}\ (C;C_{tr})$ dB	**Floor seal**[b] $R_{S,W}\ (C;C_{tr})$ dB
10 (0; 0)	No specific performance necessary	No rebate seal necessary	No seal necessary
15 (0; 0)	22 (0; 0)	One rebate seal necessary	No seal necessary maximum gap at bottom 10 mm
20 (0; 0)	25 (0; 0)	One rebate seal necessary	One seal necessary
25 (-1;-2)	29 (-1;-2)	One rebate seal required with a minimum of 35 (0; 0)dB,	35 dB (-1;-2), one seal necessary
30 (-1;-2)	33 (-1;-2)	40 (0; 0)dB, one rebate seal necessary	40 dB (-1;-2), one seal necessary
33 (-1;-2)	36 (-1;-2)	45 (0; 0)dB, one rebate seal necessary	45 dB (-1;-2), one seal necessary
35 (-1;-3)	38 (-1;-2)	45 (0; 0)dB, one rebate seal necessary	45 dB (-1;-2), one seal necessary
> 35 dB	No tabulated values		

a Double acting swing doorsets are not considered in this table.

b See EN ISO 10140-1.

Example of use by means of anticipated component data which have to be determined for each individual case: Sound insulation of door leaf, determined by sound insulation test according to EN ISO 10140-1 and EN ISO 10140-2: $R_W\ (C;C_{tr})$ = 34 (-1;-3) dB. Sound reduction of joints of the floor seal, determined by sound insulation test, based on the procedure described in EN 12354-3:2017, Annex B.3: $R_{S,W}\ (C;C_{tr})$ = 43 (-2;-3) dB. Sound reduction of joints of the rebate seal, determined by sound insulation test, based on the procedure described in EN ISO 10140-1: $R_{S,W}\ (C;C_{tr})$ = 41 (0;-1) dB.

Result in accordance with Table B.2, 5th line: $R_W\ (C;C_{tr})$ = 30 (-1;-2) dB for rebated doors (see definition of rebated door in EN 12519:2018, 3.50 or B.2.2).

B.3 Thermal transmittance for Internal pedestrian doorsets U_D in accordance to constructive details

Table B.3 — Determination of U_D Doorsets made of wood, metal and wooden component in accordance to design and constructive details

Construction details	Rebate seals	U_D in W/(m²K) for a doorset used between two different internal climates (see EN ISO 6946) with $R_{si} = R_{se} = 0,13$
Frame and door leaf made with wood: minimum 34 mm thickness	necessary	2,7
Frame made of metal (wrap around door frame) and door leaf made with wood (minimum 34 mm thickness)	necessary	3,1
Frame made of metal (bracket-frame) and door leaf made with wood (minimum 34 mm thickness)	necessary	2,9
Frame made with wood (minimum 34 mm thickness) and single panel glass	necessary	3,5
Frame made of metal (wrap around door frame) and single panel glass	necessary	4,3
Frame made of metal (bracket-frame) and single panel glass	necessary	3,8

Table B.4 — Internal pedestrian doorsets with metal and metal panels

Construction details	Rebate seals	U_D in W/(m²K) With $R_{si} = R_{se} = 0,13$
Internal pedestrian doorsets made with metal and metal panels with insulating core	necessary	3,2

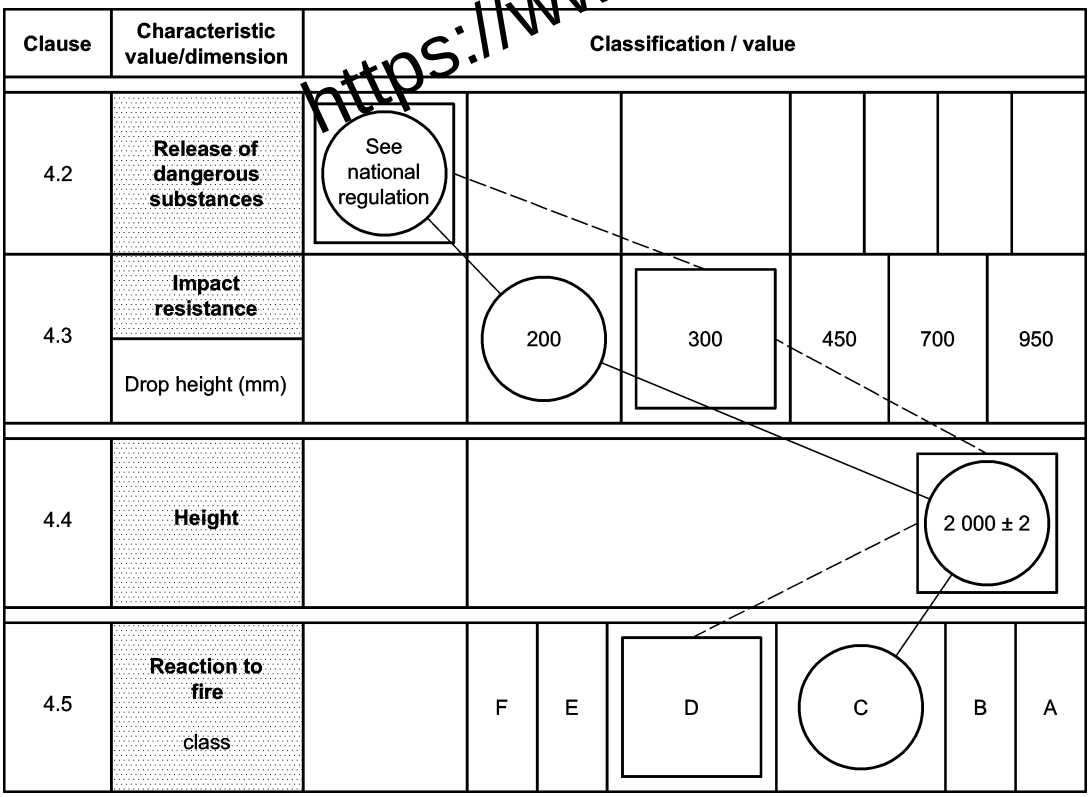
Table B.5 — Internal pedestrian doorsets made with metal without thermal break

Construction details	Rebate seals	U_D in W/(m²K) With $R_{si} = R_{se} = 0,13$
Internal pedestrian doorsets made with metal (frame without thermal break/door leaf made of single metal panel) [a]	necessary	4,4
[a] For thermal break, see EN ISO 10077-1:2006, Annex D.		

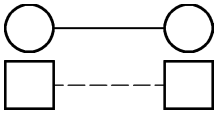
Annex C
(informative)

Example of performance and requirement profile of an Internal pedestrian doorsets

Figure C.1 demonstrates, that the doorset in question would not provide the performance of the characteristic "impact resistance".



Key



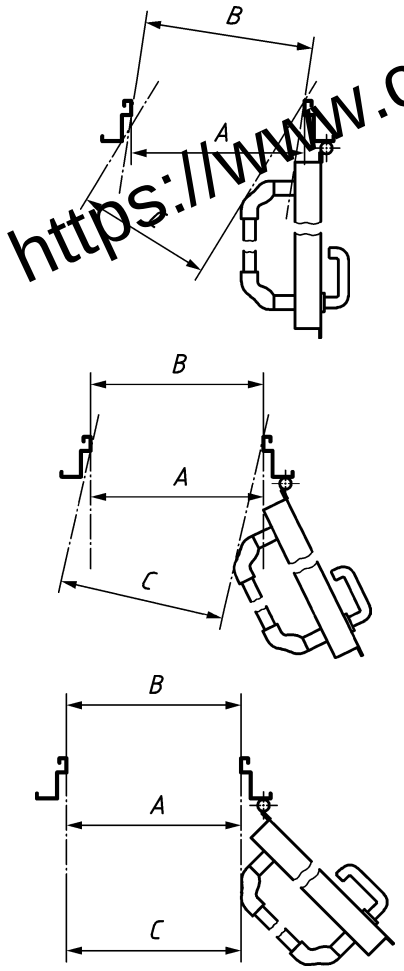
Performance profile of the doorset in question

Requirement profile for one specified end use

Figure C.1 — Example for performance and requirement profile of an internal pedestrian doorset

Annex D
(informative)

Examples for opening dimensions of internal pedestrian doorsets



Relations:
A > B > C

A = B > C

A = B = C

Key

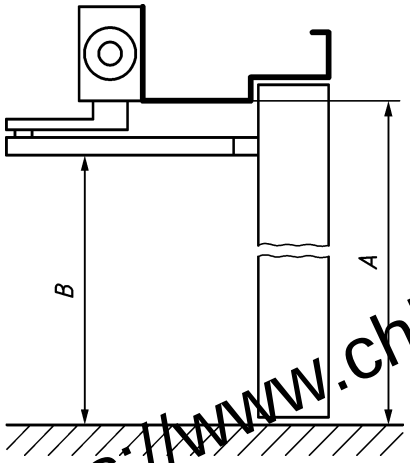
Dimension A: Clear opening width of the frame. This dimension does not depend on the opening angle and is equal to the maximum passage width of the doorset.

Dimension B: Clear opening width of the doorset. This dimension depends on the opening angle but not any building hardware elements.

Dimension C: Effective passage width. This dimension depends on the opening angles and the installed building hardware elements.

These examples demonstrate that the effective passage width ("C") may be reduced if the opening in the wall is close to a corner or the full opening angle is obstructed. When the manufacturer wants to state the clear opening width of the frame it shall be given as defined in Dimension A.

Figure D.1 — Pedestrian doorsets at different opening angles



Key

A clear opening height of internal pedestrian doorsets

B effective passage height

Figure D.2 — Height of internal pedestrian doorsets

Annex E
(informative)

Handling, installation, maintenance and care

The manufacturer should provide information on the following:

— storage and handling if the manufacturer is not responsible for the installation of the product;

— installation provisions and techniques (onsite), if the manufacturer is not responsible for installation of the product;

— maintenance and cleaning and replaceable parts (e.g. gasket);

— end use instructions including instructions on component replacement;

— safety in use instructions for power operated doors (see 4.7, 4.11.2, and 4.20).

Annex F
(normative)

Selection, preparation, mounting and fixing of test sample(s) for reaction to fire tests and field of direct application

F.1General

The rules outlined in this annex can be applied for achieving a classification according EN 13501-1. The test report shall reflect the nature of the testing and the achieved classification.

A test specimen, containing openable elements and ventilation devices, shall be tested in closed position.

Parts of these rules can be applied for substituting materials in doorset configurations.

F.2EN ISO 11925-2 (Single flame test)

F.2.1 Profile

The test specimen shall be

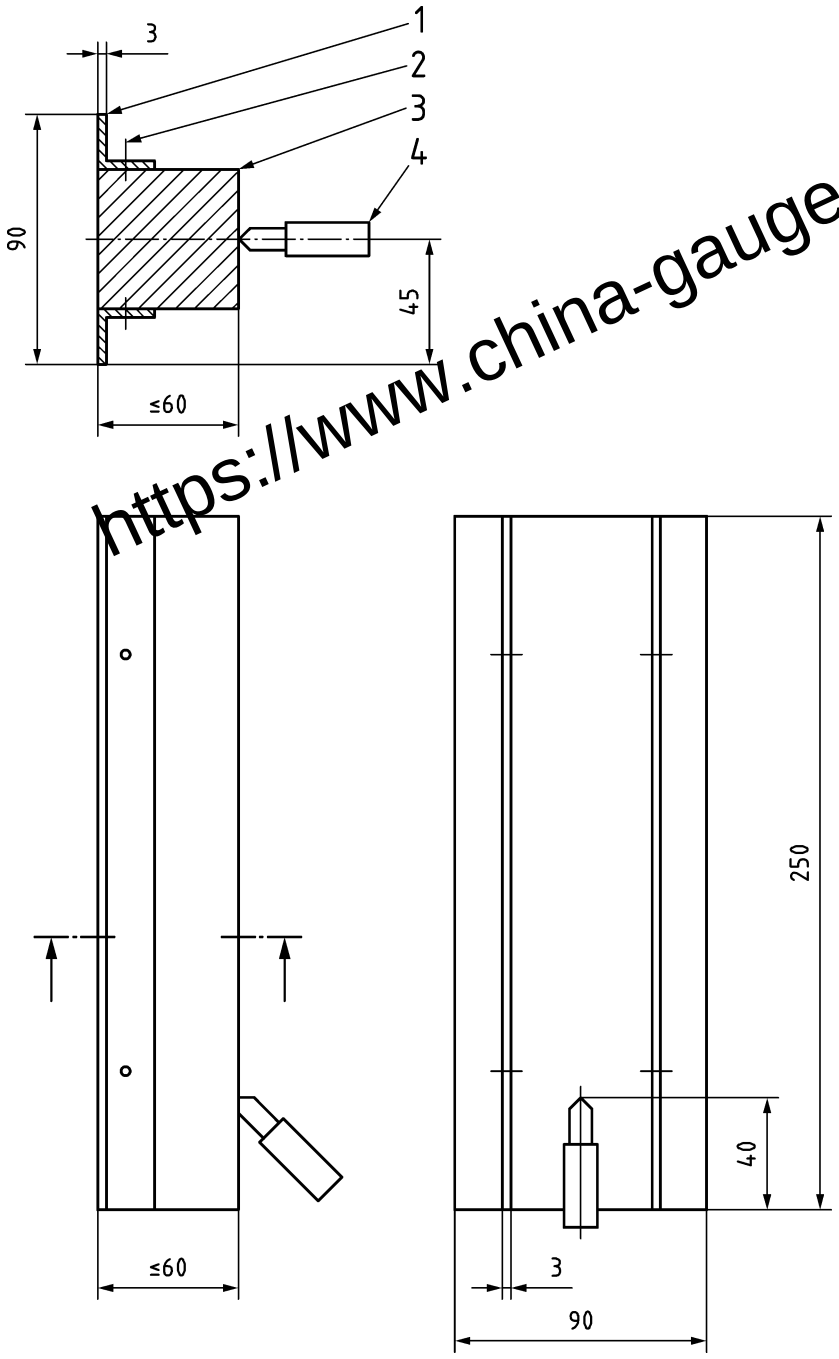
— a representative section of a profile (minimum wall thickness of the sight surface, material) of a length of 250 mm. It may be closed at the top and the bottom

or

— made of material used for the profiles (sheet: 250mm x 90mm x minimum wall thickness of the sight surface).

Maximum depth of test specimen is 60 mm. Gaskets shall not be included.

The test arrangement is shown in Figure F.1. The test has to be performed with surface flame attack only (surface flame exposure). Profile with different top layer materials are to be tested on the two visible faces when the door is closed.



Key

1 steel profile
2 fixing screw
3 profile
4 burner

Figure F.1 Test installation for profiles and infill or door leaf

F.2.2 Infill or door leaf

In case of combustible infill or door leaf, the test specimen shall be a sample of the infill/door leaf 250mm x 90 mm.

Maximum depth of test specimen is 60 mm.

The test arrangement is shown in Figure F.1. The test has to be performed with surface flame attack only (surface flame exposure). Components with different top layer materials are to be tested with flame exposure on interior and exterior surface.

F.2.3 Sealant between infill and profile

The test specimen shall be

— seal of length 250 mm installed in a standard sample holder

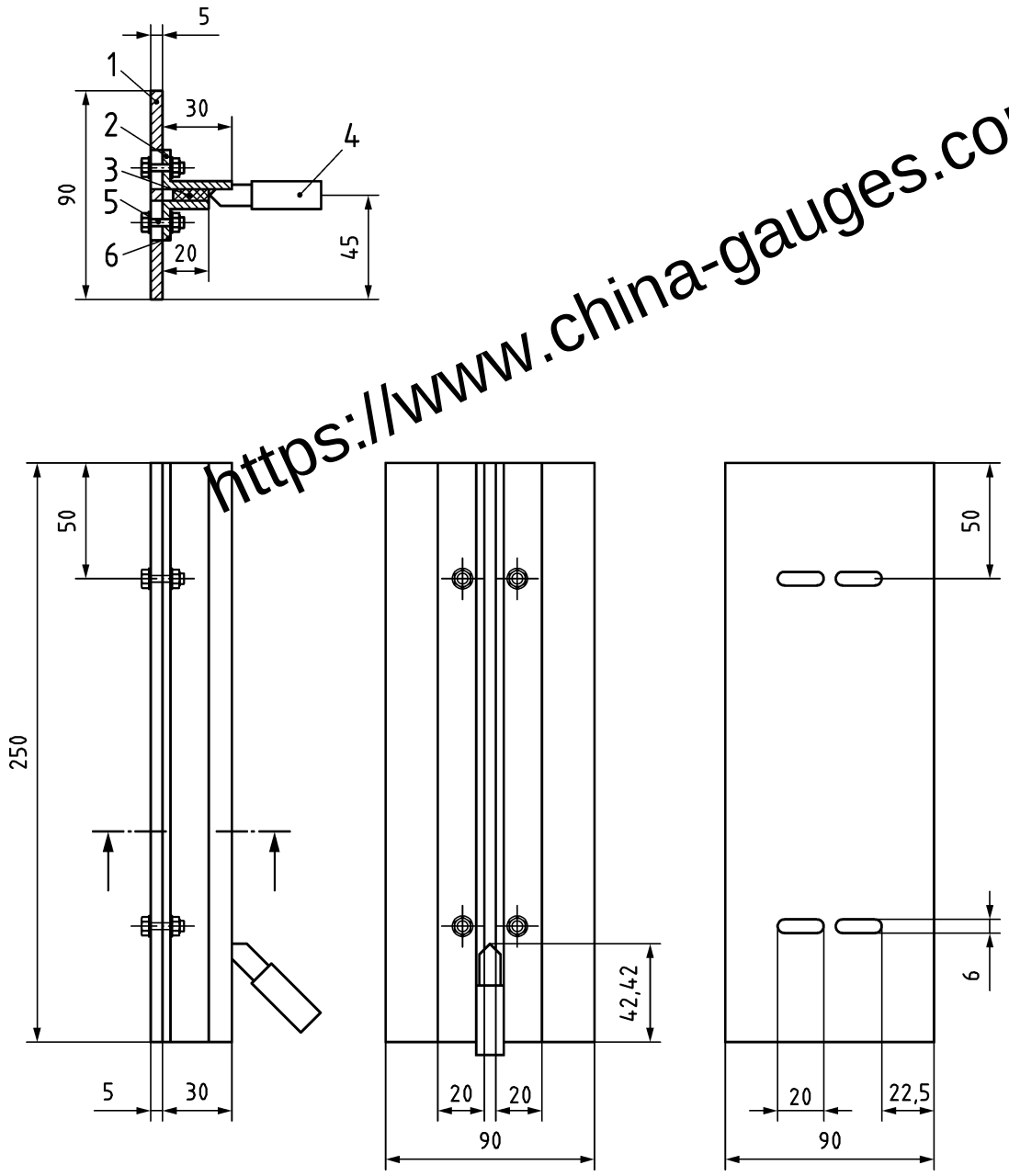
or

— material of the seal in representative dimension

or

— in end use configuration

The test arrangement is shown in Figure F.2 or with end use configuration in EN ISO 11925-2 test equipment. The sealant is mounted –if relevant- in a compressed situation as in practice. The test has to be performed with surface flame attack only (surface flame exposure).



Key

1 steel plate (90/250/5)
2 steel angle profile (20/30/3)
3 seal
4 burner
5 fixing screw
6 steel angle profile (20/20/3)

Figure F.2 — Example of the test of a seal in the standards sample holder

F.2.4 Organic coating/top layers

The test specimen shall be

— for metal or wood profiles a representative coating on a plate according to EN 13238.

or

— for all other profiles a representative coating on a plate of the same material as the profile (minimum wall thickness of the sight surface, material) of a length of 250 mm.

Maximum depth of test specimen is 60 mm.

The test has to be performed with surface flame attack only (surface flame exposure).

F.3Mounting and fixing for EN 13823 (SBI-test)

F.3.1 Testing of the individual components

The test specimen for the components shall be selected as follows:

— Profile

The test specimen of the profile has to be on a single plane. It can be represented by the same composition of material layers of the profile.

— Infill or door leaf

The test specimen of the infill or door leaf has to be on a single plane. It can be represented by the same composition of material layers of the infill or door leaf.

Maximum depth of test specimen is 200 mm.

— Organic coating/top layers

The test specimen shall be

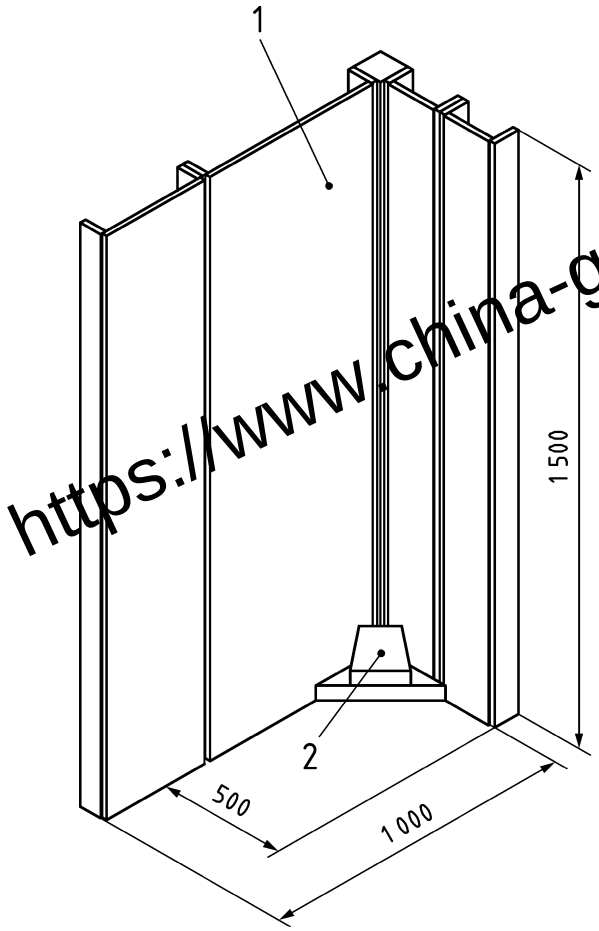
— for metal or wood profiles a representative coating on a plate according to EN 13238.

or

— for all other profiles a representative coating on a plate of the same material as the profile (minimum wall thickness of the sight surface, material) of a length and width of the SBI format.

NOTE The test specimens are placed on both wings.

Example of a test arrangement for frame profiles (see Figure F.3).



Key

1 profile

2 burner

Figure F.3 — Examples for SBI-installation of frame profiles

Supporting constructions for the test specimen may be used to prevent collapse.

F.3.2 Testing of the doorset

The test specimen consists of one finished door set with the overall dimensions 1,0 m (+ 0,0 m/ - 0,2 m) x 1,5 m (+ 0,0 m /- 0,1 m).

NOTE Depending from the construction and production line it may not be possible to manufacture door sets with 1,5 m height. Therefore testing of the individual components (see F.3.1) is recommended as first choice.

The test specimen shall be mounted vertically into the long wing and the short wing shall consist of a non-combustible CaSi-board, see Figure F.4.

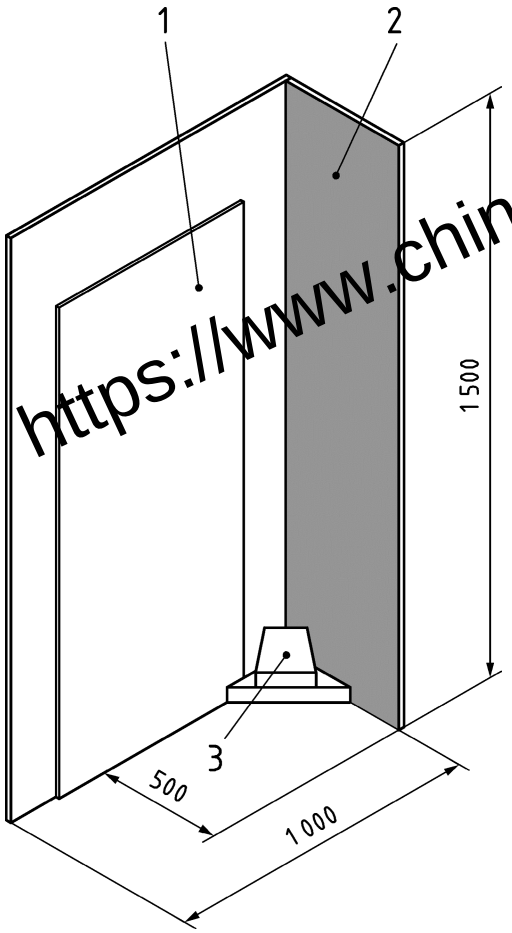
The two wings shall be joined in a way which does not influence the test result.

Handles and/or cylinders can be removed from the test specimen, the hole(s) shall be filled or covered by means of non-combustible material covering a minimum area of the test specimen.

The test specimen and ventilation devices, if any, shall be tested in closed position.

Remaining openings, gaps, if any, shall be filled out with non-combustible calcium silicate (CaSi)-board, see EN 13238.

The principle is that surfaces which are invisible in the end use installation are covered with CaSi-board or other non-combustible materials.



Key

1 test specimen

2 calcium silicate board

3 burner

Figure F.4 — Test specimen and SBI test rig

F.4 EN ISO 1182 (Non-combustibility test)

Only materials which are a substantial part of the product are to be tested. Testing according to this standard is performed on individual component materials.

The test specimen for the material shall be selected as follows:

— cylinder (diameter 45 mm and height 50 mm)

F.5 EN ISO 1716 (Determination of the heat of combustion)

The test specimen for the material shall be selected according EN ISO 1716.

For solid components a minimum sample of 50g is required and for liquid products a minimum sample of 10g of dried material shall be provided

F.6 Field of direct application

The test results are applicable to doorsets with:

a) Infill of any type of glass (except laminated glass);

b) Infill or door leaf of the same or lower amount of the same combustible materials or of the same or better reaction to fire classification according to EN 13501-1.

c) Sealant and gasket between infill and profile of the same material or material reaching the same or better reaction to fire classification. Replacement test can be carried out according to F.2.3;

d) Concerning the application rules for the profiles, the following shall be applied:

   — wood: test result from the lowest density of wood with highest exposed surface area is valid for all higher densities and lower exposed areas,

   — plastic: the test result is valid for profiles of the same material and/or material combinations and with the same or lower unit mass per length,

   — composite: The test result is valid for profiles of the same material and/or material combinations and with the same unit mass per length,

   — all metal profiles containing parts made of organic material (eg thermally broken profiles), use a test specimen made out of a frame with the highest amount of organic components. The test result is valid also for all other frames of the same material with lower amount of organic material(s)made out of the same organic material,

   — organic coating/top layers; test result of the layer with the highest amount of organic components represent products with lower amount of organic components made out of the same organic mater,

   — materials classified as A1 according to EN 13501-1 need not to be tested.

e) The influence of gaskets is negligible and therefore not considered relevant.

f) For organic finishes apply the rule that all finishes of the same generic organic material family with lower mass per unit area and a lower Calorific Value (PCS) are covered by the test result.

NOTE 1 PCS could be influenced by the colour of the organic material

NOTE 2 “same generic organic material family” means for instance type and nature of the paint e.g. wet paint or powder coating, polyester or polyurethane or acrylic etc.

Annex ZA
(informative)

Relationship of this European Standard with Regulation (EU) N°.305/2011

(When applying this standard as a harmonized standard under Regulation (EU) No. 305/2011, manufacturers and Member States are obliged by this regulation to use this Annex)

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under standardization request M 101 External and internal doors, windows, roof openings and roof lights (including fire doors and shutters) as amended given to CEN and CENELEC by the European Commission (EC) and the European Free Trade Association (EFTA).

When this European Standard is cited in the Official Journal of the European Union (OJEU), under Regulation (EU) No 305/2011, it shall be possible to use it as a basis for the establishment of the Declaration of Performance (DoP) and the CE marking, from the date of the beginning of the co-existence period as specified in the OJEU.

Regulation (EU) No 305/2011, as amended, contains provisions for the DoP and the CE marking.

Table ZA.1.1 — Relevant clauses for internal pedestrian doorsets, intended to be used internally for construction works for communication only (intended use c)

Product: Internal pedestrian doorsets **Intended use c:** for communication only			
Essential Characteristics	**Clauses of this European Standard related to essential characteristics**	**Classes and/or threshold levels**	**Notes**
Release of dangerous substances (only for emissions into indoor air impact)	4.2		
Impact resistance (where relevant, only for glazed doors with injury risks)(for intended use a, b and c)	4.3.1	class	
Height (for intended use a, b and c)	4.4		Value in mm
Reaction to fire of components (for intended use a, b and c)	4.5.1	class	

Table ZA.1.2 — Relevant clauses for internal pedestrian doorsets, intended to be used internally for construction works for specific uses with specific requirements (intended use b)

Product: Internal pedestrian doorsets **Intended use b:** for specific uses with specific requirements			
Essential Characteristics	**Clauses of this European Standard related to essential characteristics**	**Classes and/or threshold levels**	**Notes**
Release of dangerous substances (only for emissions into indoor air impact)	4.2		
Impact resistance (only for glazed doors with injury risks) (for intended use a, b and c)	4.3.1	class	
Height (for intended use a, b and c)	4.4		Value in mm including tolerance
Reaction to fire of components (for intended use a, b and c)	4.5.1	class	
Direct airborne sound insulation index (only for uses where acoustic performance is required) (for intended use b)	4.6		Value in dB
Operating forces (only for automatic devices and only for internal landing communication doors and doors for special uses)(for intended use b)	4.7	threshold Level	
Thermal transmittance (only for uses where thermal insulation performance is required)(for intended use b)	4.8		value
Air permeability (only for uses where air permeability performance is required for specific use with specific requirements)(for intended use b)	4.9	class	
Durability of air permeability against ageing/degradation for specific use with specific requirements(for intended use b)	4.11.1	class	
Durability of operating forces(safety in use) against ageing/degradation (only for automatic devices and only for internal landing communication doors and doors for special uses with specific requirements)(for intended use b)	4.11.2	threshold	value in N

Table ZA.1.3 — Relevant clauses for internal pedestrian doorsets, intended to be used internally for construction works in escape routes

Product: Internal pedestrian doorsets **Intended use:** internally for construction works in escape routes			
Essential Characteristics	**Clauses of this European Standard related to essential characteristics**	**Classes and/or threshold levels**	**Notes**
Release of dangerous substances (only for emissions into indoor air impact)	4.2		
Impact resistance (where relevant only for glazed doors with injury risks)(for intended use a, b and c)	4.3.1	class	
Height (for intended use a, b and c)	4.4		Value in mm including tolerance
Reaction to fire of components(for intended use a, b and c)	4.5.1	class	
Ability to release (to open) (only for locked doors in escape routes) (for intended use a)	4.10		description +number of cycles If hinges are not covered by EN 1935 or EN 1154 or EN 179 or EN 1125 or EN 13637: 2015

ZA.2 System of assessment and Verification of Constancy of Performance (AVCP)

The AVCP system(s) of internal pedestrian doorsets indicated in Tables ZA.1.1 to ZA.1.3, can be found in the EC legal acts adopted by EC: Decision 1999/93/EC (OJEU L29 of 3.2.1999) as amended by EC Decision 2011/246/EU (OJEU L103 of 19.4.2011).

Micro-enterprises are allowed to treat products under AVCP system 3 covered by this standard in accordance with AVCP system 4, applying this simplified procedure with its conditions, as foreseen in Article 37 of Regulation (EU) No.305/2011.

ZA.3 Assignment of AVCP tasks

The AVCP system(s) of internal pedestrian doorsets as provided in Table(s) ZA.1.1 to ZA.1.3 is defined in Table(s) ZA.3.1 to ZA.3.3 resulting from application of the clauses of this or other European Standards indicated therein. The content of the tasks assigned to the notified body shall be limited to those essential

characteristics, if any, as provided for in Annex III of the relevant standardization request and to those that the manufacturer intends to declare.

Taking into account the AVCP systems defined for the products and the intended uses the following tasks are to be undertaken by the manufacturer and the notified body respectively for the assessment and verification of the constancy of performance of the product.

Table ZA.3.1 — Assignment of AVCP tasks for internal pedestrian doorsets under system 1

Tasks		Content of the task	AVCP clauses to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters of Table ZA.1.3 relevant for the intended uses which are declared	6.3
	Further testing of samples taken at the manufacturing plant by the manufacturer in accordance with the prescribed test plan.	Parameters of Table ZA.1.3 relevant for the intended uses which are declared	6.3.2.6
Tasks for the notified product certification body	An assessment of the performance of the construction product carried out on the basis of testing (including sampling), calculation, tabulated values or descriptive documentation of the product	Parameters of Table ZA.1.3, relevant for the intended uses which are declared.	6.2
	Initial inspection of manufacturing plant and of FPC	Parameters of Table ZA.1.3 relevant for the intended uses which are declared. Documentation of the FPC.	6.3.4
	Continuous surveillance, assessment and evaluation of FPC	Parameters of Table ZA.1.3 relevant for the intended uses which are declared. Documentation of the FPC.	6.3.5

Table ZA.3.2 — Assignment of AVCP tasks for internal pedestrian doorsets under system 3

Tasks		Content of the task	AVCP clauses to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters of Table ZA.1.2 relevant for the intended uses which are declared	6.3
Tasks for a notified laboratory	The notified laboratory shall assess the performance on the basis of testing (based on sampling carried out by the manufacturer), calculation, tabulated values or descriptive documentation of the construction product	Essential characteristics of Table ZA.1.2 relevant for the intended uses subject to other specific requirements,	6.2

Table ZA.3.3 — Assignment of AVCP tasks for internal pedestrian doorsets under system 4

Tasks		Content of the task	AVCP clauses to apply
Tasks for the manufacturer	An assessment of the performance of the construction product on the basis of testing, calculation, tabulated values or descriptive documentation of that product	Essential characteristics of Table ZA.1.1 to ZA.1.3 relevant for the intended uses which are declared	6.2
	Factory production control (FPC)	Parameters related to essential characteristics of Tables ZA.1.1 to ZA.1.3 and relevant for the intended uses	6.3

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[1] EN 1294, *Door leaves — Determination of the behaviour under humidity variations in successive uniform climates*

[2] EN ISO 12354-3:2017, *Building acoustics — Estimation of acoustic performance of buildings from the performance of elements — Part 3: Airborne sound insulation against outdoor sound (ISO 12354-3:2017)*

[3] EN 13124-2, *Windows, doors and shutters — Explosion resistance — Test method — Part 2: Range test*

[4] EN 13241, *Industrial, commercial and garage doors and gates — Product standard, performance characteristics*

[5] EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

[6] EN 16361, *Power operated pedestrian doors — Product standard, performance characteristics — Pedestrian doorsets, other than swing type, initially designed for installation with power operation*

[7] prEN 15887:2008, *Building hardware — Uncontrolled Door Closing Devices for single action doors — Requirements and test methods*

[8] EN ISO 1182, *Reaction to fire tests for products — Non-combustibility test (ISO 1182)*

[9] EN ISO 1716, *Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value) (ISO 1716)*

[10] EN ISO 6946, *Building components and building elements — Thermal resistance and thermal transmittance — Calculation methods (ISO 6946)*

[11] EN ISO 11925-2, *Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2)*

[12] International journal of occupational safety and ergonomics (JOSE) 2003

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