
Razširjena uporaba rezultatov preskusov požarne odpornosti in/ali dimotesnosti za vrata, zaporne elemente in okna, ki se odpirajo, vključno z njihovim okovjem - 2. del: Požarna odpornost jeklenih vrat z vrtljivim krilom

Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware - Part 2: Fire resistance of hinged and pivoted steel doorsets

Erweiterter Anwendungsbereich von Prüfergebnissen zur Feuerwiderstandsfähigkeit und/oder Rauchdichtigkeit von Türen, Toren und Fenstern einschließlich ihrer Baubeschläge - Teil 2: Feuerwiderstandsfähigkeit von Drehflügeltüren aus Stahl

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Ta slovenski standard je istoveten z: prEN 15269-2

ICS:

13.220.50	Požarna odpornost gradbenih materialov in elementov	Fire-resistance of building materials and elements
91.060.50	Vrata in okna	Doors and windows

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ICS

English Version

**Extended application of test results for fire resistance
and/or smoke control for door, shutter and openable
window assemblies, including their elements of building
hardware - Part 2: Fire resistance of hinged and pivoted
steel doorsets**

Erweiterter Anwendungsbereich von Prüfergebnissen
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einschließlich ihrer Baubeschläge - Teil 2:
Feuerwiderstandsfähigkeit von Drehflügeltüren aus
Stahl

iTeh STANDARD PREVIEW

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 127.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 15269-2:2022) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15269-2:2012.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

A list of all parts in the EN 15269 series can be found on the CEN website.

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1 Scope

This document covers single and double leaf, hinged and pivoted, steel based doorsets. Throughout this document the term “doorset” will be used to cover both doorsets and door assemblies. It prescribes the methodology for extending the application of test results obtained from fire resistance test(s) conducted in accordance with EN 1634-1.

Subject to the completion of the appropriate test or tests, the extended application may cover all or some of the following examples:

- integrity (E), integrity/radiation (EW) or integrity/insulation (EI₁ or EI₂) classification;
- door leaf
- side, transom and/or overpanels;
- louvres (ventilation / air transfer grilles);
- wall/ceiling fixed elements (frame/suspension system);
- glazing for door leaf, side, transom and flush over panels;
- items of building hardware;
- decorative and protective finishes;
- intumescent seals and non-intumescent (smoke, draught or acoustic) seals;
- alternative supporting construction(s).

This document does not cover horizontal doorsets.

The effect on the Classification ‘C’ for the doorsets following an extended application process is not addressed in this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

EN 1363-1, *Fire resistance tests - Part 1: General requirements*

EN 1363-2, *Fire resistance tests - Part 2: Alternative and additional procedures*

EN 1634-1, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 1: Fire resistance test for door and shutter assemblies and openable windows*

EN 1634-2, *Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware — Part 2: Fire resistance characterisation test for elements of building hardware*

EN 12519, *Windows and pedestrian doors - Terminology*

EN 13501-2:2016, *Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services*

EN 15254-4, *Extended application of results from fire resistance tests — Non-loadbearing walls — Part 4. Glazed constructions*

EN 15269-1, *Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware - Part 1: General requirements*

EN ISO 13943, *Fire safety - Vocabulary (ISO 13943)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1363-1, EN 1363-2, EN 1634-1, EN 1634-2, EN 12519, EN 15269-1 and EN ISO 13943 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

full scale test test of a doorset in accordance with EN 1634-1.

3.2

small scale test

test on elements of building hardware in accordance with EN 1634-2 and where the decision process, given in EN 1634-2, permits its use

3.3

effective rebate depth

dimension of the door leaf thickness of overlapping adjacent edges of door leaf relative to the door frame, transom or side panel or other door leaf flush overpanel

Note 1 to entry: At the meeting edges and for rebated leaves this dimension will be the rebate where the intumescent seal is fitted or, if no seal is fitted, the depth of the largest rebate (see Figure 1).

3.4

panel

component of a door leaf separated from other elements by joints which break through the total door thickness

Note 1 to entry: A door leaf can consist of one or more panels.

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3.5 decorative and/or protective finishes
outer layer of material on the leaf or panel only used for decorative and/or protective, not for structural purposes

3.6 representative / similar / fundamentally the same
A door leaf design can be considered as representative by having 'fundamentally the same' or 'similar' construction as another door leaf design for the purpose of evaluating parameter variations providing the relevant aspects of tested performance are considered

Note 1 to entry: see EN 15269-1 for further guidance on evaluation of similar/fundamentally the same.

4 Determination of the field of extended application**4.1 General**

4.1.1 Before there can be any consideration for extended application the doorset / door assembly shall have been tested in accordance with EN 1634-1 to achieve a test result which could generate a classification in accordance with EN 13501-2 at least equal to the classification subsequently required from extended application considerations. These tests are referred to in this standard as basic tests.

Note 1 to entry: If a doorset is classified from one side only (e.g. just opening face), the extended application rules cannot lead to a classification of the opposite side or of both sides.

4.1.2 A review of the doorset construction parameters can indicate that one or more characteristics may be improved by a particular parameter variation. All evaluations shall be made on the basis of retaining the classifications obtainable from testing to EN 1634-1, including those lower than the test duration. However, this shall never lead to an increased classification for any specific parameter beyond that achieved during any one test unless specifically identified in the relevant Construction Parameter Variation tables.

4.1.3 If, when following the extended application procedure, any part of the classified product cannot be covered by the extended application rules, that part shall be omitted from the subsequent extended application report and classification report.

4.2 How to use extended application rules in Annex A

4.2.1 Identify the variations from the original test specimen(s) which are required to be covered by an extended application report.

4.2.2 Locate the variations in the appropriate parameter variation by reference to columns (1) and (2) of Annex A..

4.2.3 Establish from the contents of column (3) of Annex A whether any extended application is available beyond the direct application rules (DIAP) in EN 1634-1 without the need for further testing.

4.2.4 Where this is deemed to be possible, it can be recorded in the extended application report together with any appropriate restrictions and the stated rules from column (3) of Annex A.

4.2.5 Where the variations required can only be achieved from additional testing, the additional test should be made on a representative specimen type i.e. a doorset of the same or more onerous configuration. Alternatively, column (4) of Annex A identifies an option for alternative testing and relevant test parameters.

Most onerous configuration must be the one with the lowest relevant performance in terms of mode of failure and/or highest distortion but must also be evaluated taking the intended construction parameter variation(s) into account. For example, if the construction parameter variation involves a change to glazing or side panel and over panel configurations then the previous result where these have been tested would need to be used to make the evaluation of most onerous. The result for a single unglazed doorset would not be suitable and can therefore be discounted when making the evaluation

4.3 Procedure for maximum field of extended application

4.3.1 It is possible to provide an extended field of application from a single test. However, where a manufacturer intends to produce a range of doors incorporating single doors and also double doors, with or without side, transom or flush over panels, with or without glazing, with or without air transfer grilles (ventilation grilles / louvres), with alternative elements of building hardware, etc., it is recommended that careful consideration be given to the complete range of doorset designs and options in order to minimize the testing required before testing commences.

4.3.2 Establish all the parameter variations which are required to be part of the product range.

4.3.3 Determine which are the most important specification requirements and incorporate as many as possible into the specimen(s) for the first tests in the series.

4.3.4 Conduct the first fire resistance test or a series of tests and then establish which of the original desired parameter variations have not been covered by the fire resistance tests, including direct application possibilities.

4.3.5 Identify these parameter variations in Annex A and establish if any extended application is possible without further testing.

4.3.6 Record this for the extended application report together with any restrictions and rules given in column (3) in Annex A.

4.3.7 Evaluate which, if any, of the desired parameter variations have not been covered by the field of direct application or the initial field of extended application derived from 4.3.5.

4.3.8 Determine if the product range is to include only single leaf doorsets, only double leaf doorsets or both. Where only single leaf doorsets are to be part of the product range, the outstanding construction parameter variations shall only be incorporated into specimens for single leaf doorsets. Where only double leaf doorsets are to be part of the product range, the outstanding construction parameter variations shall only be incorporated into specimens for double leaf doorsets. Where single leaf and double leaf doorsets are to be included in the product range, the outstanding construction parameter variations for the extended application of single leaf doorsets may be incorporated into either repeated single leaf doorset tests or, in the weakest option, as defined in column (4) of the table in Annex A, double leaf doorset configurations. See also Annex B.

4.3.9 Select the required outstanding parameter variations from column (1) and column (2) of Annex A and observe from column (4) in Annex A which are the most appropriate, weakest specimen options for further testing.

4.3.10 If the complete selection of required parameter variations has not been covered by the tests completed in accordance with 4.3.8 and 4.3.9 above, then an appropriate test or tests may be repeated with the additional product variations incorporated.

prEN 15269-2:2022 (E)**4.4 Analysis of test results**

4.4.1 In order to maximize the extended field of application, it is important that the test reports shall record details of any premature integrity and/or insulation failure, also record details of any significant distortion to evaluate low, medium and high distortion (see Annex A).

4.4.2 Where a series of tests forms the basis for the extended application, the field of extended application shall be based on the lowest performance achieved from the complete series of tests unless premature failure has been attributed to one or more specific construction parameter variations.

4.4.3 Where it has been possible to identify specific parameter failures, the extended application for all other construction parameter variations can be based on the performance achieved after isolating the premature failure(s), provided the requirements of Clause 4.1.1 are met. Where the specific Construction Parameter variation requires Category B performance and where failures can be identified as having no relevance to this aspect of the construction, they can be disregarded and the failure time and associated Category revised accordingly.

5 Extended application report

Prepare an extended application report in accordance with the requirements of Clause 6 of EN 15269-1:2019, based on the results of evaluations in accordance with the above.

When additional test data based on similar designs are used to extend the field of application, the rationale for using the test data should be mentioned in the EXAP report.

6 Classification report

The classification report shall be determined from the results of the extended application report and shall be presented in accordance with EN 13501-2:2016, Annex A.

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Dimensions in millimetres

Key

- x1 Example of effective rebate depth in doorset to be tested – 50mm
- x2 Example of resulting effective rebate depth during testing after movement of 20mm – 30mm
- y1 Example of over rebate to frame face clearance in doorset to be tested – 5mm
- y2 Example of over rebate to frame face clearance in doorset after movement of 20mm – 25mm

Calculation - $20/50 \times 100 = 40\%$ (60 % of the initial value is left)

Level of distortion according to Annex A - medium

Figure 1 — Effective rebate depth

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Annex A (normative)

Construction parameter variations

The table below is designed to be used by experts competent in the field of fire resistance testing of hinged or pivoted steel doorsets.

The table shall only be used to assess a field of extended application when at least one positive fire resistance test to EN 1634-1 has generated a classification according to EN 13501-2. Only results from tests in accordance with European standards can be used as basis for extended application.

For EI doors with an intended classification from both sides (opening into the furnace, opening away from the furnace) the following rules shall only be considered if the basic tests were performed in both directions.

The first two columns identify possible variations to the construction details of the specimen tested.

For some parameters, it is necessary to evaluate whether the specimen displayed a high, medium or low level of distortion during the test. Where this is the case, the following levels shall be used to establish high, medium and low distortion doorsets as measured using the maximum relative movement at any position between the edge of the door leaf and door frame or between the meeting edges of door leaves or the relative movement of the framing members for panelled systems. The measurements shall be taken from the start of the test at any time during the complete required classification period. The deflections shall be measured at the positions given in EN 1634-1:

- low <40 % of effective rebate depth; [oSIST prEN 15269-2:2023](https://standards.iteh.ai/catalog/standards/sist/2e0e1f70-9696-4d43-a226-en-15269-2-2023)
- medium ≥ 40 % and ≤ 85 % of effective rebate depth; [en-15269-2-2023](https://standards.iteh.ai/catalog/standards/sist/2e0e1f70-9696-4d43-a226-en-15269-2-2023)
- high >85 % of effective rebate depth.

Evaluations of the influence of a parameter variation on performance characteristics (E/EW/EI) lead to the judgement of the possibility of extending the field of application, the results of which are given in column (3). In certain cases in column (3), it is a requirement to achieve Category B, the requirements for which are given in EN 1634-1

Where additional tests are deemed to be necessary, the type of specimen approved for incorporation of the changed parameter is defined in column (4). Where it is possible to use information from tests performed on one configuration for evidence on a different configuration, this allowance has been made in order to reduce the overall number of tests required for extended application evaluation e.g. single action doorsets to double action doorsets.

Guideline for the evaluation of the required orientation of the test specimens:

Where an additional test is required in column (4) the orientation of the test specimens shall be as follows unless otherwise specified in column (4):

- A. If all basic tests achieved category B, both test directions are considered as equal, so the additional test can be opening into the furnace or opening away from the furnace.
- B. If the result of the basic tests achieved category A only, the evaluation of the test direction for the additional test has to follow the procedure below:

1. The test direction for the additional test should be derived from the result of the basic test(s). The orientation of the specimen on which the first integrity failure occurred during the basic test determines the test direction for the additional test. If no integrity failure occurred during the basic test period, follow items 2. or 3.
2. For changes which are critical related to deflection (e.g. size, reduction of reinforcements) the following applies: the critical side is the direction with the higher deflection during the basic test(s) period. If both directions (opening into the furnace or opening away from the furnace) behave nearly similar related to deflection, follow items 3. or 4.
3. For changes which are critical related to temperature/radiation (e.g. changes in core material density): the critical side is the direction with the higher temperature/radiation during the basic test(s) period dependent on the intended variation (if the intended variation is related to the door leaf, the temperature on the frame is not relevant). In case both directions (opening into the furnace or opening away from the furnace) are nearly similar in temperature/radiation, follow items 2. or 4..
4. If the temperature/radiation and the deflection are nearly similar for both specimens during the basic test(s) period, both test directions are considered as equal, so the orientation of the specimen for the additional test can be opening into the furnace or opening away from the furnace.

In order to maximise the possible field of application from a minimum number of tests, the parameter changes have been spread over a series of test specimens. The recommended tests for each parameter are dependent on the classification required and the preferred options.

Where more than a single parameter variation is required, the influence on other variations shall also be taken into account.

Where an additional test is required in column 4 the test has to be a full scale test according to EN 1634-1 at least with the size of the initial test described in 4.1.1. or the details changed are limited to the tested size unless it is otherwise specified. Where column 4 specifies the additional evidence required is “not size-dependent”, the specimen can be tested any size as long as the test is in accordance with EN 1634-1.

If the specimen shall be tested without a specific hardware, the hardware can be installed in the specimen but set disengaged.

The rules for increase of the maximum size of Annex B are to be considered to all variations of Table A.1., if they shall be applied to a larger size.

Interpolations between minimum and maximum size tested of any measure is possible if not otherwise specified in Table A.1.

In the Table A.1 below, clause numbers in brackets represent the number of rule in the previous version of EN 15269-2. These are added for information only.

Table A.1 — Construction parameter variations

Construction Parameter	Variation	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)
A Door leaf In certain cases, the rules given in Section A are also appropriate to side, transom and flush over panels or the door frame. Where this is the case, it is clearly indicated at the beginning of the relevant section. For double leaf doorsets, both leaves shall be of the same basic construction			
A.1 General The term “intumescent seal” includes both: intumescent strips and seals with intumescent characteristics.			
A.1.1 Number of leaves — See Figure A.1	Single leaf from double leaf test	Not possible, basic test acc. to 4.1.1 required	–
A.1.2 Number of leaves — See Figure A.1.	Double leaf from single leaf test	Not possible, basic test acc. to 4.1.1 required	–
A.1.3 Number of panels per leaf (primary or secondary)	Add (one panel per leaf — on any leaf)	Possible if tested at least one leaf (single, primary or secondary) with the minimum of two panels, panel size not increased and the intended jointing technique centrally located in the door leaf otherwise not possible without an additional test	Additional test single leaf or double leaf doorset
A.1.4 Number of panels per leaf (primary or secondary) — See Figure A.2	Reduce (one panel per leaf)	Possible providing the tested width of the panel is not increased otherwise not possible without an additional test	Additional test single leaf or double leaf doorset
A.1.5 Intumescent seals between frame and door leaf/leaves — See Figure A.3.	Location towards the frame rebate	Not possible without an additional test	Additional test single leaf or double leaf doorset
A.1.6 Intumescent seals between frame and door leaf/leaves — See Figure A.4.	Location away from the frame rebate	Not possible without an additional test	Additional test single leaf or double leaf doorset

Construction Parameter	Variation	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)
A.1.7 Intumescent seals between meeting edges of the door leaves	Location	Not possible without an additional test(s)	Additional test (s) double leaf doorset (open outwards and inwards for EI doors, open outwards for E or EW doors)
A.1.8 Non intumescent seals between frame and door leaf/leaves (draught/smoke/acoustic etc.) — Euroclass A1, e.g. ceramic products (fitted in leaf or frame) — See Figure A.5	Location	Any movement possible providing no modifications of the construction are required otherwise not possible without an additional test	Additional test single or double leaf doorset
A.1.9 Non intumescent seals between meeting edges of the door leaves (draught/smoke/acoustic etc.) — Euroclass A1, e.g. ceramic products	Location	No movement possible without an additional test	Additional test double leaf doorset
A.1.10 Non-intumescent seals between frame and door leaf/leaves (draught/smoke/acoustic etc.) — < Euroclass A1 (fitted in leaf or frame) — See Figure A.6	Location	No movement possible without an additional test	Additional test single or double leaf doorset, if the seal is positioned between the meeting edges of the door leaves the additional test shall be a double leaf doorset
A.1.11 Non-intumescent seals between frame and door leaf/leaves (draught/smoke/acoustic etc.) - Euroclass A1, e.g. ceramic products (fitted in leaf or frame). — See Figure A.7	Add	Possible for doors without intumescent seals and providing the gap between door leaf and door frame is not increased otherwise not possible without an additional test	Additional test single or double leaf doorset, if the seal is positioned between the meeting edges of the door leaves the additional test shall be a double leaf doorset