SLOVENSKI STANDARD
SIST EN 15269-2:2013

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Razširjena uporaba rezultatov preskusov požarne odpornosti in/ali dimotesnosti za vrata, zaporne elemente in okna, ki se odpirajo, vključno z njihovim okovjem - 2. del: Jeklena vrata 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 Feuerschutzabschlüssen und Fenstern einschließlich ihrer Baubeschläge - Teil 2: Feuerwiderstandsfähigkeit von Drehflügeltüren aus Stahl

Application étendue des résultats d'essais en matière de résistance au feu et/ou d'étanchéité à la fumée des blocs-portes, blocs-fermetures et fenêtres, y compris leurs éléments de quincaillerie - Partie 2 : Résistance au feu des blocs-portes battants et pivotants en acier

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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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EUROPEAN STANDARD
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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

Application étendue des résultats d'essais en matière de résistance au feu et/ou d'étanchéité à la fumée des blocs-portes, blocs-fermetures et fenêtres, y compris leurs éléments de quincaillerie - Partie 2: Résistance au feu des blocs-portes battants et pivotants en acier

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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Foreword

This document (EN 15269-2:2012) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings”, the secretariat of which is held by BSI.

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 March 2013, and conflicting national standards shall be withdrawn at the latest by March 2013.

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

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

EN 15269, *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,* consists of the following parts:

— *Part 1: General requirements*

— *Part 2: Fire resistance of hinged and pivoted steel doorsets* (the present document)

— *Part 3: Fire resistance of hinged and pivoted timber doorsets and openable timber framed windows*

— *Part 5: Fire resistance of hinged and pivoted, metal framed, glazed doorsets and openable windows*[1)]

— *Part 6: Fire resistance of sliding timber doorsets*[1)]

— *Part 7: Fire resistance of sliding steel doorsets*

— *Part 10: Fire resistance of steel rolling shutter assemblies*

— *Part 11: Fire resistance of operable fabric curtains*[1)]

— *Part 20: Smoke control for hinged and pivoted steel, timber and metal framed glazed doorsets*

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1) In preparation.

Introduction

This document is one of a series of standards intended to be used for the purpose of producing an extended application report based on the evaluation of one or more fire resistance and/or smoke control tests. These European Standards may also be used to identify the best selection of test specimens required to cover a wide range of product variations.

Before there can be any consideration for extended application, the doorset will need to 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.

1 Scope

This European Standard covers single and double leaf, hinged and pivoted, steel based doorsets. 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 (EI_1 or EI_2) classification;

— door leaf;

— ventilation grilles and/or louvres

— wall/ceiling fixed elements (frame/suspension system);

— glazing for door leaf, side, transom and flush over panels;

— items of building hardware;

— decorative finishes;

— intumescent, smoke, draught or acoustic seals;

— alternative supporting construction(s).

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

EN 1634-1, *Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware — Part 1: Fire resistance tests for doors, shutters 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 13501-2, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance tests, excluding ventilation services*

EN 15254-4:2008+A1:2011, *Extended application of results from fire resistance tests — Non-loadbearing walls — Part 4. Glazed constructions*

EN 15269-1:2010, *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 EN1363-1, EN ISO 13943, EN 1634-1, EN 1634-2 and EN 15269-1 and the following apply.

3.1
full scale test
test of a full size 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.

Note 2 to entry: An example is shown in Figure C.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.

4 Determination of the field of extended application

4.1 General

4.1.1 Before there can be any consideration for extended application, a representative doorset shall have been tested and classified in accordance with EN1634-1 and EN 13501-2 respectively in order to establish a classification for the doorset.

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 Review the type of classification to be retained from column (3) and establish from the contents of column (4) whether any extended application is available beyond the direct application rules in EN 1634-1 without the need for further testing.

4.2.4 Where this is deemed possible, it can be recorded in the extended application report together with any appropriate restrictions and the stated rules from column (4) of Annex A.

4.2.5 Where the variations required can only be achieved from additional testing, the additional test can be made on a similar specimen type i.e. a doorset of the same or more onerous configuration where the leaf construction is fundamentally the same as tested. Alternatively, column (5) identifies an option for alternative testing and relevant test parameters.

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, if 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 louvres or ventilation grilles, 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 minimise 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 (4) 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 or if the range is to also include double leaf configurations. Where only single doorsets are to be part of the product range, the outstanding construction parameter variations shall only be incorporated into specimens for the single 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 (5) of the table in Annex A, double leaf doorset configurations.

4.3.9 Select the required outstanding parameter variations from column (1) and column (2) of Annex A and observe from column (5) 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.

4.4 Analysis of test results

4.4.1 In order to maximise 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 distortion to evaluate low, medium and high distortion (see Annex A).

4.4.2 Where a series of tests have been conducted, 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).

5 Extended application report

Prepare an extended application report in accordance with the requirements of EN 15269-1:2010, Clause 6 based on the results of evaluations in accordance with the above.

6 Classification report

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

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 and 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.

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

The influence of variation on performance characteristic is identified from column (3) as integrity, insulation or radiation (E, I or W respectively). 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;

— medium ≥ 40 % and ≤ 85 % of effective rebate depth;

— high >85 % of effective rebate depth.

The effect of the change in each parameter is evaluated for each characteristic in column (3) under E for effects on integrity, I for effects on insulation (whether an I1 or I2) and W for the effects on radiation.

These evaluations lead to the judgement of the possibility of extending the field of application, the results of which are given in column (4). In certain cases in column (4), 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 (5). 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.

Where an additional test is required in column (5), the test is a full scale test with the specimen opening outwards (away from the furnace) unless otherwise specified.

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 is dependant upon the classification required and the preferred direction of testing as indicated in column (5).

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

Table A.1 — Construction parameter variations

Key to symbols in column (3) (which is informative only)

> - higher performance anticipated
< - lower performance anticipated
= - no significant change in performance anticipated
≥ - equal or higher performance anticipated
≤ - equal or lower performance anticipated
>=< - the influence on performance could be worse, equal or better hence variations not possible unless specific, limited conditions are identified

Construction Parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
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						
A.1.1 Number of leaves **- See Figure A.1** only applicable to doorsets tested without transom and/or flush over panels. See Annex B	Single leaf from double leaf test	≤	≥	≥	Not possible without an additional test	Additional test single leaf doorset
A.1.2 Number of leaves only applicable to doorsets tested without transom and/or flush over panels. See Annex B	Double leaf from single leaf test	<	≤	≤	Not possible without additional test (s)	Additional test (s) double leaf doorset (open outwards and inwards for EI doors, open outwards for E or W doors)

Construction Parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
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
A.1.7 Intumescent seals between meeting edges of the door leaves	Location	>=<	>=<	>=<	Not possible without additional test (s)	Additional test (s) double leaf doorset (open outwards and inwards for EI doors, open outwards for E or W 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 if the seal is positioned between the meeting edges of the door leaves the additional test shall be a 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

Construction Parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.1.10 Non-intumescent seals between door leaves and/or frames (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 door leaves and/or frames (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
A.1.12 Non-intumescent seals between door leaves and/or frames (draught/smoke/acoustic etc.) - Euroclass A1, e.g. ceramic products (fitted in leaf or frame) **- See Figure A.8**	Remove	≤	≤	≤	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
A.1.13 Non-intumescent seals between door leaves and/or frames (draught/smoke/acoustic etc.) – < Euroclass A1 (fitted in leaf or frame) **- See Figure A.9**	Add	≤	≤	≤	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

Construction Parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.1.14 Non-intumescent seals between door leaves and/or frames (draught/smoke/acoustic etc. – < Euroclass A1 (fitted in leaf or frame) **- See Figure A.10**	Remove	>/=/<	>/=/<	=	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
A.1.15 Ventilation grilles (louvres) in door leaf tested without ventilation grille **- See Figure A.11 a)**	Add	≤	≤	≤	Not possible without an additional test	Additional test single or double leaf doorset
A.1.16 Ventilation grilles (louvres) in door leaf **- See Figure A.11 b)**	Remove	>/=/<	≥	≥	Possible providing the cut out is less than 25 % of the door leaf area otherwise not possible without an additional test	Additional test single or double leaf doorset
A.1.17 Ventilation grilles (louvres) in door leaf tested with ventilation grille	Location in vertical direction	≤	≤	≤	Possible for lower location than tested otherwise not possible without an additional test	Additional test single or double leaf doorset
A.1.18 Ventilation grilles (louvres) in door leaf tested with ventilation grille **- See Figure A.12**	Location in horizontal direction	=	=	=	Possible providing the distance between the edge of the louvre and the perimeter of the door leaf is not decreased and providing any internal stiffening elements are not affected otherwise not possible without an additional test	Additional test single or double leaf doorset
A.1.19 Ventilation grilles (louvres) in door leaf tested with ventilation grille**- See Figure A.13 a)**	Smaller size	≥	≥	≥	Possible for one or more louvres smaller than that tested specimen providing the location is inside the perimeter of the tested louvre and minimum spacing between cut outs is not less than 100 mm otherwise not possible without an additional test	Additional test single or double leaf doorset