SLOVENSKI STANDARD
SIST EN 17020-1:2023

01-januar-2023

Razširjena uporaba rezultatov preskusov trajnosti samozapiranja za požarno odporna in/ali dimotesna vrata in okna, ki se odpirajo - 1. del: Trajnost samozapiranja jeklenih vrat z vrtljivim krilom

Extended application of test results on durability of self-closing for fire resistance and/or smoke control doorsets and openable windows - Part 1: Durability of self-closing of hinged and pivoted steel doorsets

Erweiterter Anwendungsbereich von Prüfergebnissen zur Dauerhaftigkeit des Selbstschließens für Feuerschutz- und/oder Rauchschutztüren und zu öffnende Fenster - Teil 1: Dauerhaftigkeit des Selbstschließens von Drehflügeltoren und Drehflügeltüren aus Stahl

Application étendue des résultats d ’essais de durabilité de la fermeture automatique des blocs-portes et fenêtres ouvrantes résistants au feu et/ou étanches à la fumée - Partie 1 : Durabilité de la fermeture automatique des blocs-portes battants et pivotants en acier

Ta slovenski standard je istoveten z: **EN 17020-1:2022**

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

SIST EN 17020-1:2023 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 17020-1

November 2022

ICS 13.220.50; 91.060.50

English Version

Extended application of test results on durability of self-closing for fire resistance and/or smoke control doorsets and openable windows - Part 1: Durability of self-closing of hinged and pivoted steel doorsets

Application étendue des résultats d'essais de durabilité de la fermeture automatique des blocs-portes et fenêtres ouvrantes résistants au feu et/ou étanches à la fumée - Partie 1 : Durabilité de la fermeture automatique des blocs-portes battants et pivotants en acier

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 17020-1:2022) 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of an identical text or by endorsement, at the latest by May 2023, and conflicting national standards shall be withdrawn at the latest by May 2023.

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.

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A list of all parts in the EN 17020 series and the EN 15269 series can be found on the CEN website.

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Introduction

The EN 15269 series of standards covering extended application of test results for fire resistance and/or smoke control for doorsets, openable windows and shutter assemblies, including their items of building hardware, does not yet include the durability of self-closing following an extended application process. This document is one of the EN 17020 series of standards intended to be used for the purpose of producing an extended application report based on the evaluation of one or more durability of self-closing 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.

1 Scope

This document covers single and double leaf, hinged and pivoted, steel based doorsets as covered by EN 15269-2 and/or EN 15269-20.

This document prescribes the methodology for extending the application of test results obtained from durability of self-closing test(s) conducted in accordance with EN 1191 and or EN 12605:2000, as appropriate.

Subject to the completion of the appropriate durability of self-closing test(s), the extended application can cover all or some of the following non-exhaustive list:

— door leaf;

— side, transom and/or overpanels;

— ventilation grilles and/or louvres;

— wall or ceiling fixed parts or items of the doorset, e.g. frame or suspensions systems;

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

— items of building hardware;

— decorative finishes;

— intumescent strips, smoke, draught or acoustic seals;

— alternative supporting construction(s).

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

EN 1155, *Building hardware - Electrically powered hold-open devices for swing doors - Requirements and test methods*

EN 1158, *Building hardware - Door coordinator devices - Requirements and test methods*

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

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

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 1634-3, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 3: Smoke control test for door and shutter assemblies*

EN 1935:2002[1], *Building hardware - Single-axis hinges - Requirements and test methods*

EN 12209, *Building hardware - Mechanically operated locks and locking plates - Requirements and test methods*

EN 12519, *Windows and pedestrian doors - Terminology*

EN 12605:2000, *Industrial, commercial and garage doors and gates - Mechanical aspects - Test Methods*

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

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

EN 14846, *Building hardware - Locks and latches - Electromechanically operated locks and striking plates - Requirements and test methods*

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 15269-2, *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*

EN 15685[2], *Building hardware – Multipoint locks, latches and locking plates - 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 16035, *Hardware performance sheet (HPS) - Identification and summary of test evidence to facilitate the inter-changeability of building hardware for application to fire resisting and/or smoke control doorsets and/or openable windows*

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

[1] As impacted by EN 1935:2002/AC:2003.

[2] Under preparation. Stage at the time of publication: prEN 15685:2022.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1191, EN 1363-1, EN 1363-2, EN 1634-1, EN 1634-3, EN 12519, EN 15269-1, EN 15269-2 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 full size doorset in accordance with EN 1191

3.2
core
material fitted centrally within the thickness of a door leaf which may consist of a single sheet of material or a combination either of sheets of the same material or layers of different materials

3.3
panel
component of a door leaf separated from other elements by joints which break through the total door leaf thickness

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

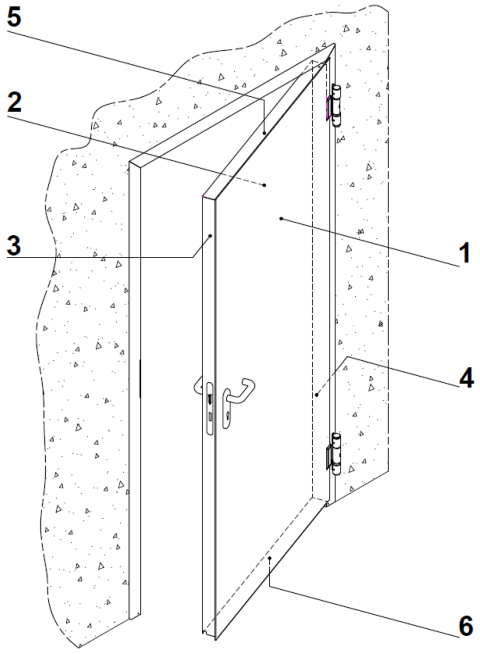
3.4
add
to put an additional component to the doorset which has not been tested as a part of the original doorset

3.5
remove
to take a component away which has been tested as a part of the original doorset

3.6
alternative
variation intended by the application of EXAP rules where the original construction parameter tested shall be substituted by another one either by change, interchange or exchange

Note to entry: Finally, the alternatives are those variations that are permitted by the EXAP report.

3.7
faces and sides of a door leaf
faces and sides of a door leaf are shown in Figure 1



Key

1 opening face
2 closing face
3 lock side
4 hinge side
5 top side
6 bottom side

Figure 1 — Faces and sides of a door leaf

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 shall have been tested in accordance with EN 1191 and/or EN 12605:2000 to achieve a test result, which could generate a classification for the durability of self-closing in accordance with EN 13501-2 and/or correspond to a use category according to EN 16034.

4.1.2 A review of the doorset construction parameters can indicate that one or more characteristics can be improved by a particular parameter variation. All evaluations shall be made on the basis of retaining the classifications for the durability of self-closing obtainable from testing to EN 1191 and/or EN 12605, including those with a lower number of opening and closing cycles. However, this shall never lead to an increased classification for the durability of self-closing 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 Procedure for evaluation

4.2.1 Identify the variations from the original test specimen(s) which are required to be covered by an extended application report. Ensure that the variation(s) do/does not prevent the doorset from self-closing.

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

4.2.3 Establish from the contents of column (3) of Table A.1 whether any extended application is available beyond the direct application rules in EN 1191 and/or EN 12605:2000 without the need for further testing.

4.2.4 Where this is deemed to be possible this can be recorded in the extended application report together with any appropriate restrictions and the stated rules from column (3) in Table A.1.

4.2.5 Where the variations required can only be achieved from additional testing according to column (4), the additional test can be made on a test specimen similar to the original test specimen against which the extended application is sought. Alternatively, column (4) in Table A.1 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 a limited field of extended application from the results of a single test. However, where a manufacturer intends to produce a range of doorsets incorporating single leaf doorsets and also double leaf doorsets with or without glazing, with alternative items of building hardware, etc., it is recommended that careful consideration is 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 durability of self-closing test or a series of tests and then establish which of the original desired parameter variations have not been covered by this test(s), including direct application possibilities.

4.3.5 Identify these parameter variations in Table A.1 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 Table A.1.

4.3.7 Evaluate which, if any, of the desired parameter variations have not been covered by the initial field of extended application derived from 4.3.6 above.

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 leaf 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 (4) of the table in Table A.1, double leaf doorset configurations.

4.3.9 Select the required outstanding parameter variations from column (1) and column (2) of Table A.1 and observe from column (4) in Table A.1 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 carried out with the additional product variations incorporated.

4.4 Interpretation 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 failures occurred throughout the test duration.

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). This means that he failed parameters have to be excluded from the classification / EXAP report.

5 Extended application report

Prepare an extended application report in accordance with the requirements of EN 15269-1, 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 shall be presented in accordance with EN 13501-2.

Annex A
(normative)

Construction parameter variations

Table A.1 below is designed to be used by experts competent in the field of fire resistance, smoke control and durability of self-closing 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 durability of self-closing test to EN 1191 and/or EN 12605:2000, as appropriate has generated a classification according to EN 13501-2 and/or correspond to a use category according to EN 16034.

The first two columns identify possible variations to the construction details of the specimen tested. It is presupposed that the variations do not restrain the doorset from closing.

Column (3) leads to the judgement of the possibility of extending the field of application.

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.

Where an additional test is required in column (4), the test is a full scale test unless otherwise specified.

In order to maximize the possible field of application from a minimum number of tests, the parameter changes have been spread over a series of test specimens. 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

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 door leaves shall be of the same construction.				
A.1	**General**			
A.1.1	Number of door leaves — See Figure A.1 only applicable to doorsets tested without transom and/or flush over panels.	Single leaf doorset from double leaf doorset test	Possible	–
A.1.2	Number of door leaves — See Figure A.1 only applicable to doorsets tested without transom and/or flush over panels.	Double leaf doorset from single leaf doorset test	Not possible without additional test	Additional test double leaf doorset
A.1.3	Number of panels per door leaf (primary or secondary door leaf)	Add one panel per door leaf — on any door leaf	Possible if tested at least one door leaf (single, primary or secondary door leaf) 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 double for single and double leaf doorsets or single for single leaf doorsets
A.1.4	Number of panels per door leaf (primary or secondary door leaf) — See Figure A.2	Reduce one panel per door leaf	Possible providing the tested width of the panel is not increased otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets doorset

Construction Parameter		Variation	Possibility of extension	Additional Evidence Required
(1)		(2)	(3)	(4)
A.1.5	Intumescent strips between door frame and door leaf/leaves — See Figure A.3.	Move towards the door frame rebate	Possible	–
A.1.6	Intumescent strips between door frame and door leaf/leaves — See Figure A.4.	Move away from the door frame rebate	Possible	–
A.1.7	Location of intumescent strips between meeting edges of the door leaves	Alternative	Possible	–
A.1.8	Location of non-intumescent seals between door frame and door leaf/leaves (draught/smoke/acoustic etc.) — Euroclass A1 (reaction to fire class A1 acc. to EN 13501-1), e.g. ceramic products (fitted in door leaf or door frame) — See Figure A.5	Alternative	Possible	–
A.1.9	Location of non-intumescent seals between meeting edges of the door leaves (draught/smoke/acoustic etc.) — Euroclass A1 (reaction to fire class A1 acc. to EN 13501-1), e.g. ceramic products	Alternative	Possible	–
A.1.10	Location of non-intumescent seals/combination of non-intumescent and intumescent seals between door leaves and/or door frames (draught /smoke/acoustic etc.) — Euroclass A1 (reaction to fire class A1 acc. to EN 13501-1) (fitted in door leaf or door frame). — See Figure A.6	Alternative	Possible providing the deformation of the seal will not increase during movement of the door leaf/leaves otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets