SLOVENSKI STANDARD
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Razširjena uporaba rezultatov preskusov trajnosti samozapiranja za požarno odporna in/ali dimotesna vrata in okna, ki se odpirajo - 2. del: Trajnost samozapiranja jeklenih valjanih zapiral

Extended application of test results on durability of self-closing for fire resistance and/or smoke control doorsets and openable windows - Part 2: Durability of self-closing of steel rolling shutters

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 2 : Durabilité de la fermeture automatique des rideaux à enroulement en acier

Ta slovenski standard je istoveten z: **prEN 17020-2**

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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Extended application of test results on durability of self-closing for fire resistance and/or smoke control doorsets and openable windows - Part 2: Durability of self-closing of steel rolling shutters

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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 17020-2:2016) 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 document is currently submitted to the CEN Enquiry.

Introduction

The EN 15269 series of standards covering 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, does not include the durability of self-closing of the doorsets following an extended application process. 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 durability 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.

Before there can be any consideration for extended application, the doorset will need to have been tested in accordance with EN 1634-1 resp. EN 1634-3 and EN 12605 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 steel rolling shutters as covered by EN 15269-10.

This document prescribes the methodology for extending the application of test results obtained from durability self-closing test(s) conducted in accordance with EN 1634-1.

Subject to the completion of the appropriate self-closing test or tests, the extended application may cover all or some of the following non-exhaustive list:

— Integrity only (E), radiation (EW) or insulated (EI1 or EI2) classifications;

— shutter curtain;

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

— 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 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 12433-1, *Industrial, commercial and garage doors and gates - Terminology - Part 1: Types of doors*

EN 12433-2, *Industrial, commercial and garage doors and gates - Terminology - Part 2: Parts of doors*

EN 12605, *Industrial, commercial and garage doors and gates - Mechanical aspects - Test methods*

EN 13501-2:2007+A1:2009, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance tests, excluding ventilation services*

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 15269-1, EN 12433-1, EN 12433-2 and EN ISO 13943 and the following apply.

3.1
full scale test
test of a full size doorset or rolling shutter in accordance with EN 12605

4 Determination of the field of extended application

4.1 General

4.1.1 Before there can be any consideration for extended application the steel rolling shutter assemblies shall have been tested and classified in accordance with EN 12605 and EN 13501-2 respectively in order to establish a classification for the doorset.

4.1.2 A review of the 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 12605, including those with a lower number of opening and closing cycles. 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 All evaluations shall be made on the basis of retaining the classification obtained from testing to EN 1634-1 or EN 1634-3 and EN 12605.

4.1.4 If, by following the extended application procedure, any part of the classified product cannot be achieved by 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(es) not prevent the shutter 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 (4) of Table A.1 whether any extended application is available 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 (4) in Table A.1.

4.2.5 Where the variations required can only be achieved from additional testing according to column (5), the additional test can be made on a similar specimen type to the original test against which the extended application is sought. 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 a limited field of extended application from the results of a single test. However, where a manufacturer intends to produce a range of steel rolling shutters assemblies

incorporating manual and power drives, insulated and uninsulated version, with alternative elements of construction etc. it is recommended that careful consideration is given to the complete range of 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 test or a series of tests and then establish which of the original desired parameter variations have not been covered by this test(s).

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 (4) 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 Select the required outstanding parameter variations from column (1) and column (2) of Table A.1 and observe from column (5) of Table A.1 which are the most appropriate weakest specimen options for further testing.

4.3.9 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 Interpretation of test results

4.4.1 In order to maximize the field of extended application, it is important that the test reports shall record details of any failures 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 variation.

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, 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 13501-2:2007+A1:2009, Annex A.

Annex A
(normative)

Construction parameter variations

Table A.1 below is designed to be used by experts competent in the field of fire resistance and self-closing durability testing of steel rolling shutter assemblies.

The table shall only be used to assess a field of extended application when at least one positive self-closing durability test to EN 12605 has generated a classification according to EN 13501-2.

The first two columns identify possible variations to the construction details of the specimen tested. It is presupposed that the variation does not restrain the door closing.

Column (4) 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 (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.

Where an additional test is required in column (5), 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. The recommended tests for each parameter is depending 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 parameters

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
A General (See Figure C.1 for an example of a General Arrangement of rolling shutter construction)						
A.1 Size variations / construction						
A.1.1 Width between vertical guides (See Figure C.2)	Decrease		≥		Possible providing tightness and clearances are not changed	
A.1.2 Distance between vertical guides (See Figure C.2)	Increase		=		Possible providing the static requirements to fixings, barrel and load-bearing constructions are fulfilled and the requirements of Annex B are satisfied (at room temperature)	
A.1.3 Height from floor level to centre line of barrel (See Figure C.3)	Decrease		≥		Possible	
A.1.4 Height from floor level to centre line of barrel (See Figure C.3)	Increase		=		Possible providing the static requirements to fixings, barrel and load-bearing constructions are fulfilled and the requirements of Annex B are satisfied (at room temperature)	
A.1.5 Expansion allowances between the end of the lath and guide	Decease		> = <		Possible providing a minimum gap of 10 mm will remain during opening/closing Otherwise not possible without an additional test	
A.1.6 Expansion allowances between the end of the lath and guide	Increase		=		Possible	
A.1.7 Mounting	Face fixed on furnace side to within opening		=		Possible	
A.1.8 Mounting	Within opening to face fixed on furnace side		=		Possible	

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
A.2 Materials and constructions						
A.2.1 Insulation material whether intumescent or not	Change		> = <		Possible providing no abrasion will occur (in general this is given if no moving part touches the insulation material during opening/closing) Otherwise Not possible without an additional test	
A.2.2 Density of insulation material	Increase		> = <		Possible providing no moving part touches the insulation material during opening/closing) Otherwise not possible without an additional test	
A.2.3 Density of insulation material	Decrease		> = <		Possible providing no moving part touches the insulation material during opening/closing) Otherwise not possible without an additional test	
A.2.4 Intumescent material	Change of supplier and/or manufacturer		> = <		Possible but only for an identical composition or if no moving part touches the insulation material during opening/closing) Otherwise not possible without an additional test	
A.2.5 Intumescent material	Alternative material		> = <		Possible providing no moving part touches the insulation material during opening/closing) Otherwise not possible without an additional test	
A.2.6 Thickness of insulation material other than curtains	Increase		> = <		Possible providing no moving part touches the insulation material during opening/closing) Otherwise not possible without an additional test	
A.2.7 Thickness of insulation material other than curtains	Decrease		=		Possible	
B Curtain						
B.1 Laths						

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
B.1.1 Size (height of lath) (See Figure C.4)	Decrease		> = <		Possible providing interlock remains the same and the interaction with parts touching the curtain (e.g. press rollers) remains the same Or a test has been passed (with a similar type of rolling shutter assembly) with this type of laths Otherwise not possible without an additional test	
B.1.2 Size (height of lath) (See Figure C.5)	Increase		≥		Possible providing a test has been passed (with a similar type of rolling shutter assembly) with this type of laths with the same or lower barrel diameter Otherwise not possible without an additional test	
B.1.3 Thickness of steel	Decrease		> = <		Possible providing a test has been passed (with another type of rolling shutter assembly) with this type of laths with the same or lower barrel diameter Otherwise not possible without an additional test	
B.1.4 Thickness of steel	Increase		> = <		Possible providing a test has been passed (with another type of rolling shutter assembly) with this type of laths with the same or smaller barrel diameter Otherwise not possible without an additional test	
B.1.5 Thickness of insulation material (See Figure C.6)	Decrease		> = <		Possible providing a test has been passed (with another type of rolling shutter assembly) with this type of laths with the same or smaller barrel diameter Otherwise not possible without an additional test	

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
B.1.6 Thickness of insulation material (See Figure C.7)	Increase		> = <		Possible providing a test has been passed (with another type of rolling shutter assembly) with this type of laths with the same or smaller barrel diameter and assuming that the gap between the skins is full of insulating material and that the thickness of lath creates a corresponding increase in the width of the guides Otherwise not possible without an additional test	
B.1.7 Density of insulation material	Increase		> = <		Possible providing the material is not loaded mechanically (e.g. fulled or bended) or a test has been passed (with another type of rolling shutter assembly) with this type of insulation material with the same or smaller barrel diameter and the requirements of Annex B are satisfied (at room temperature) otherwise not possible without an additional test	
B.1.8 Density of insulation material	Decrease		> = <		Possible providing the material is not loaded mechanically (e.g. fulled or bended) or a test has been passed (with another type of rolling shutter assembly) with this type of insulation material with the same or smaller barrel diameter Otherwise not possible without an additional test	
B.1.9 Material	Mild steel to stainless steel		=		Possible	
B.1.10 Material	Stainless steel to mild steel		=		Possible	

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
B.1.11 Number of laths on barrel when door is in closed position	Decrease		> = <		Possible providing half the circumference of the barrel is covered or a test has been passed (with another type of rolling shutter assembly) with this type of insulation material with the same or smaller barrel diameter Otherwise not possible without an additional test	
B.1.12 Number of laths on barrel when door is in closed position	Increase		=		Possible	
B.1.13 Shape (single skin) (See Figure C.8)	Change		> = <		Possible providing interlock remains the same and the interaction with parts touching the curtain (e.g. press rollers) remains the same Or a test has been passed (with a similar type of rolling shutter assembly) with this type of laths Otherwise not possible without an additional test	
B.1.14 Single skin to double skin or double skin to single skin (See Figure C.9)	Change		> = <		Possible providing a test has been passed (with a similar type of rolling shutter assembly) with this type of insulation material with the same or smaller barrel diameter and the requirements of Annex B are satisfied (at room temperature) Otherwise not possible without an additional test	
B.2 Endlocks (see Figure C.10 for example of endlock)						
B.2.1 Size and shape	Decrease		> = <		Possible providing the endlocks do not touch the ground of the side guides during opening/closing Otherwise not possible without an additional test	
B.2.2 Size and shape	Increase		> = <		Possible providing requirements in respect of clearances and interlock remain unchanged Otherwise not possible without an additional test	