

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 7: Fire resistance for steel sliding doorsets

ICS 13.220.50; 91.060.50

National foreword

This British Standard is the UK implementation of EN 15269-7:2009.

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

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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
7: Fire resistance for steel sliding doorsets**

Application élargie des résultats d'essai en matière de
résistance au feu et d'étanchéité à la fumée des blocs-
portes, blocs-fermetures et ouvrants de fenêtres, y compris
les éléments intégrés de quincaillerie de bâtiment - Partie
7: Résistance au feu des blocs-portes coulissants en acier

Erweiterter Anwendungsbereich von Prüfergebnissen zur
Feuerwiderstandsfähigkeit und/oder Rauchdichtigkeit von
Türen, Toren und Fenstern einschließlich ihrer
Baubeschläge - Teil 7: Feuerwiderstandsfähigkeit von
Schiebetoren aus Stahl

This European Standard was approved by CEN on 22 September 2009.

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Foreword

This document (EN 15269-7:2009) 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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

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Introduction

This European Standard is one of a series of standards listed below and 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 standards may also be used to identify the best selection of test specimens required to cover a wide range of product variations.

The EN 15269 series currently consists of:

prEN 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

- *Part 1: General requirements*
- *Part 2: Fire resistance of hinged and pivoted steel doorsets*
- *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*
- *Part 6: Fire resistance of sliding timber doorsets*
- *Part 10: Fire resistance of steel rolling shutters*
- *Part 11: Fire resistance of operable fabric curtains*

as well as

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

- *Part 7: Fire resistance for steel sliding doorsets*
- *Part 20: Smoke control for hinged and pivoted steel, timber and metal framed glazed doorsets*

Before there can be any consideration for extended application the doorset should 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.

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

The effect on the durability of self closing of the doorsets following an extended application process is not addressed in this series of standards.

1 Scope

This European Standard, which should be read in conjunction with prEN 15269-1, covers the following types of steel based doorsets: horizontally sliding doorsets (single and double), telescopic doorsets (single and double) and single vertically sliding doorsets.

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

Subject to the completion of the appropriate test or tests selected from those identified in Clause 4 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;
- door leaf;
- wall/ceiling fixed elements (frame/suspension system);
- glazing for door leaf;
- items of building hardware;
- decorative finishes;
- intumescent, smoke, draught or acoustic seals;
- alternative supporting construction(s).

2 Normative references

The following referenced documents are indispensable for the application 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 1363-1:1999, *Fire resistance tests — Part 1: General requirements*

EN 1634-1:2008, *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 1634-2:2008, *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 13501-2:2007, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance tests, excluding ventilation services*

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

prEN 15269-1:2007, *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*

prEN 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 ISO 13943:2000, *Fire safety — Vocabulary (ISO 13943:2000)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1363-1:1999, EN ISO 13943:2000, EN 1634-1:2008, EN 1634-2:2008 and prEN 15269-1:2007 together with the following apply.

3.1

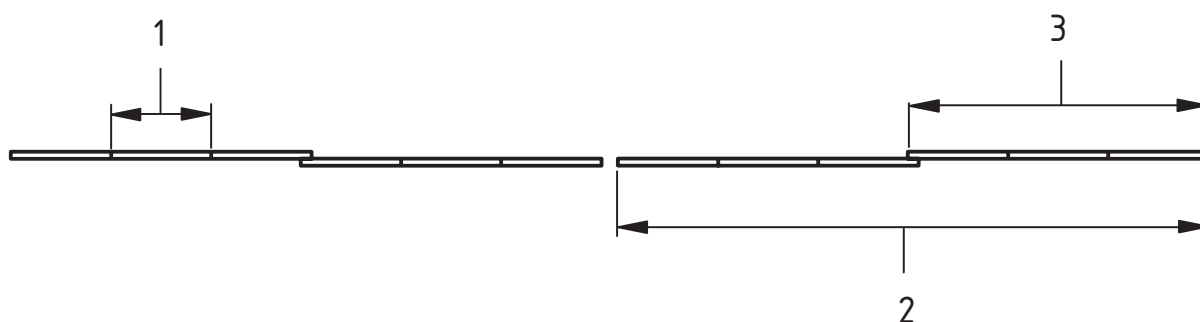
full scale test

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

3.2

leaf/element/panel

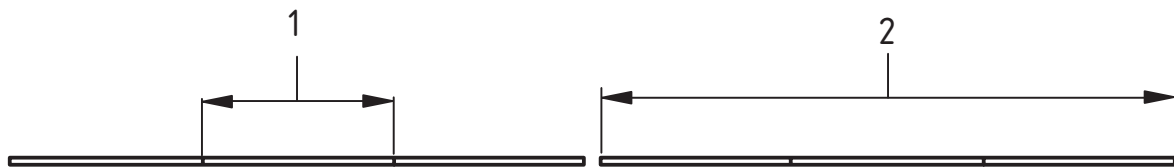
different parts of a doorset as indicated in Figures 1 and 2 below



Key

- 1 panel
- 2 leaf
- 3 element

Figure 1 — Double leaf telescopic door



Key

- 1 panel
- 2 leaf

Figure 2 — Double leaf sliding door

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 and classified in accordance with EN 1634-1 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 All evaluations shall be made on the basis of retaining the classification obtained from testing to EN 1634-1.

4.1.4 If, by following the ensuing procedure, any part of the classification cannot be achieved by extended application rules that part of classification 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.

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 Review the type of classification to be retained from column (3) of Table A.1 and 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) in Table A.1, 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) 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 doors incorporating single doors and also double doors, with or without glazing, with alternative elements of building hardware, etc., it is recommended that careful consideration is 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 Select specimen(s) for the first test(s) in the series to ensure that the most important parameter variations for the manufactured products are covered.

4.3.4 Complete the first test or a series of tests and prepare a field of direct application and possibly a classification report from the results of the test(s).

4.3.5 Establish which of the original desired parameter variations have not been covered by the direct application and classification report.

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

4.3.7 Record this for the extended application report together with any restrictions and rules given in column (5) in Table A.1.

4.3.8 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 4.3.7 above.

4.3.9 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.

4.3.10 If the complete selection of required parameter variations has not been covered by the tests completed in accordance with 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 maximise the field of extended application, it is important that the test reports shall record details of any integrity and/or insulation 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 Clause 6 of prEN 15269-1:2007, 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 Annex A of EN 13501-2:2007.

Annex A (normative)

Construction parameter variations

Table A.1 is designed to provide rules for the creation of extended application reports by experts in the field of fire resistance testing of the following sliding steel doorsets: horizontally sliding doors (single and double), horizontally operating telescopic doors (single and double) and single vertically sliding doors.

Table A.1 shall only be used to evaluate a field of extended application when at least one positive fire resistance test to EN 1634-1 has resulted in a classification according to EN 13501-2.

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

The type of classification achieved from the test can be identified from the 'Performance characteristic' section of Table A.1 column (3) as insulation, radiation control or integrity only.

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 I_1 or I_2) and W for the effects on radiation control for EW doors.

Where symbols are used these relate to the following definitions:

- a) < - forecast is a worse performance;
- b) > - forecast is a better performance;
- c) = - forecast is no significant difference;
- d) ≤ - forecast is a worse or equal performance;
- e) ≥ - forecast is a better or equal performance;
- f) >=< - forecast unknown

These evaluations lead to the judgement of the possibility of the extension of 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 details 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 panel sliding doorsets to telescopic doorsets

The rules given for size increase (width, height, area) of the door leaf are applicable for doors tested in size equal or bigger than the maximum size which can be tested in a standard size furnace (normally 3 m x 3 m). These rules are not applicable to doors tested only with horizontal joints. All size variations based on the results of more than one test with specimens of different sizes can be combined.

Column (5) defines the side of the door leaf which has to be tested. Inwards means a test with the loadbearing components such as the runners/hanging mechanism, etc. on the fire side. Outwards means the opposite side. If a special type (e.g. single, double and telescopic) is not specified, the additional test can be carried out with all types of sliding doors therefore, if more than one additional test is not specified, only one test is required.

If after consideration of a specific variation, additional changes are required to be made to the specimen, these may be made providing the implications on other variations are also taken into account.

Table A.1 — Construction parameter variations

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A Door leaf						
A.1 General						
A.1.1 number of leaves (not applicable for vertically sliding doors)	single leaf from double leaf door test	≥	≥	≥	possible providing the overlap of the single leaf door is similar to the overlap of the double door (meeting edge) and all the constructional details have been tested (in the double door), otherwise not possible without an additional test. Any size variations of door leaf shall be in line with A.2.1 to A.2.4 incl.	additional test single leaf doorset tested with suspension system on the fire side
A.1.2 number of leaves (not applicable for vertically sliding doors)	double leaf from single leaf door test	≤	≤	≤	not possible without an additional test	additional test double leaf doorset or double side telescopic, tested with suspension system on the fire side
A.1.3 number of elements of telescopic doors, single leaf	decrease	≥	≥	≥	possible providing all constructional details have been tested, otherwise not possible without an additional test	additional test with suspension system on the fire side (single or double side telescopic)
A.1.4 number of elements of telescopic doors, single leaf	increase	≤	≤	≤	not possible without an additional test	additional test with suspension system on the fire side (single or double side telescopic)
A.1.5 number of elements of telescopic doors, double leaf - See Figure A.1	decrease	≥	≥	≥	possible providing all constructional details have been tested and the reduction of elements is the same for both leaves, otherwise not possible without an additional test	additional test with suspension system on the fire side (double side telescopic)

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.1.6 number of elements of telescopic doors, double leaf (not applicable for vertically sliding doors)	increase	≤	≤	≤	not possible without an additional test	additional test with suspension system on the fire side (double side telescopic)
A.1.7 number of panels per leaf / element- See Figure A.2	add	=	>/=/ <	>/=/ <	possible by maximum 100 % of the number of panels of the tested specimen and providing the intended jointing technique has been incorporated in the tested door specimen and only with regard to the rules given in section A.2	additional test according to section A.2
A.1.8 number of panels per leaf / element- See Figure A.3	reduce	=	>/=/ <	>/=/ <	possible with regard to the rules given in section A.2	
A.2 Size variations / single or multiple panel construction						
A.2.1 size (area, width, height) of door leaf	decrease	≥	>/=/ <	>	E, EW possible in line with direct application EI possible in line with direct application. For category A doors beyond the field of direct application possible down to size of a smaller test specimen	additional test with suspension system on the fire side
A.2.2 width of door leaf - See Figure A.4 a) and A.4 b)	increase	≤	>/=/ <	<	possible in line with direct application, if tested at least to the maximum possible size in the standard furnace (3 m x 3 m), or if tested in a bigger	additional test(s) with suspension system on the fire side to be performed on a single leaf doorset which includes the required details from column 4

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W	possible up to 100 % for category B doors if for EI doors both sides have been tested and for E doors the suspension system has been tested exposed to fire. For E and EI doors the increase is possible, providing that the following conditions A-E are fulfilled. A) for doors made of modular panels the basic test shall be performed with at least three panels per leaf, with the widest panel in intermediate position when testing with the suspension system not exposed to fire and the widest panel furthest away from the centre when testing with the suspension system exposed to fire. B) the distance between supporting elements (e.g. rollers) and the door leaf edges and the distance between each supporting element shall not increased, and number of panel joints between the supporting elements shall not increased, (i.e. additional supporting element (stiffening finger or roller) is required). C) the distance between fixings of the track and any horizontal interlock profiles to the supporting construction is decreased at least by 25 %. D) the distance between fixings of the supporting elements (e.g. rollers) and	

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W	the fixings of the track to the supporting construction is not increased in a closed position of the door. E) the condition stated in the last sentence of EN 1634-1:2008, 13.3.3 shall be fulfilled and the width of any intumescent seals in the vertical interlock system shall be increased at least in line with any increase of the interlock. Otherwise an additional test is required. Sliding doors with horizontal modular panels and telescopic doors only in line with direct application. Additionally, for EW doors, a radiation calculation within the 15 KW/m² limit shall be performed.	

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.2.3 height of door leaf - See Figure A.5	increase	≤	>= / <	<	possible in line with direct application, if tested at least to the maximum possible size in the standard furnace (3 m x 3 m), or if tested in a bigger size possible up to a maximum increase of 75 % for category B doors, and providing that the following conditions A-B are fulfilled. A) the distance between fixings of the track and any horizontal interlock profiles to the supporting construction is decreased at least by 25 % B) the condition stated in the last sentence of EN 1634-1:2008, 13.3.3.3 shall be fulfilled and the width of any intumescent seals in the horizontal interlock system shall be increased at least in line with any increase of the interlock otherwise not possible without an additional test sliding doors with horizontal panels and telescopic doors only in line with direct application. Additionally, for EW doors, a radiation calculation within the 15 kW/m² limit shall be performed.	additional test with suspension system on the fire side

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.2.4 area of door leaf	increase	≤	>/=/ <	<	additionally to the rules given for increasing width and height, which can be combined, the maximum area is limited to 50 m ² . sliding doors with horizontal panels and telescopic doors only in line with direct application. additionally, for EW doors, a thermal radiation calculation within the 15 KW/m ² limit shall be performed.	additional test according to A.2.2 and A.2.3
A.2.5 width of vertical door leaf panel for a sliding door with more than one panel	decrease	≥	>/=/ <	>/=/ <	possible providing the width of the panel is between the tested minimum and maximum width of the panels, otherwise not possible without an additional test	additional test with suspension system on the fire side
A.2.6 height of vertical door leaf panel	increase	≤	>/=/ <	≤	possible in line with rules for the increasing of height of door leaves	
A.2.7 height of vertical door leaf panel	decrease	≤	>/=/ <	≤	possible in line with rules for the decreasing of height of door leaves	
A.2.8 width of vertical door leaf panel	increase	≤	>/=/ <	≤	possible up to the widest tested panel in accordance to its position (intermediate or at the edges), otherwise not possible without an additional test	additional test with suspension system on the fire side
A.2.9 area of vertical door leaf panel	increase	≤	>/=/ <	≤	possible in line with rules for increase of the width and height of door panels which may be combined	

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.2.10 number of horizontal joints between panels	increase	≤	≤	≤	not possible without an additional test	additional test with suspension system on the fire side
A.2.11 number of horizontal joints between panels	decrease	≥	≥	≥	possible to remove only one horizontal joint, otherwise not possible without an additional test	additional test with suspension system on the fire side
A.2.12 thickness of the door leaf	increase	>/= / <	≥	≥	not possible without an additional test	additional test with suspension system on the fire side
A.2.13 thickness of the door leaf	decrease	>/= / <	≤	≤	not possible without an additional test	additional test with suspension system on the fire side
A.3 Materials and constructions						
A.3.1 density of core material	increase	>/= / <	>/= / <	>/= / <	possible by a maximum of 15 % (nominal value) of each core material of the door leaf above 15 %	additional test with suspension system on the fire side
A.3.2 density of core material	decrease	≥	≤	≤	not possible without an additional test possible for E doors with core material of Euroclass A1, otherwise not possible without an additional test	additional test with suspension system on the fire side

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.3.3 thickness of core material	increase	$>/=<$	$\geq$	$\geq$	not possible without an additional test	additional test with suspension system on the fire side
A.3.4 thickness of core material	decrease	$>/=<$	$\leq$	$\leq$	not possible without new tests according to EN 1634-1	
A.3.5 pattern of core material - See Figure A.6	increase number of pieces	=	$>/=<$	=	E doors, possible. EI and EW doors, possible up to 100 % for sizes up to the tested sizes and then proportional to any size increase, providing the original test specimen includes horizontal and/or vertical joint(s) between the core material pieces, as appropriate. The joints (can be horizontal or vertical) have to be tested in the upper 1/3 of a panel, otherwise not possible without an additional test	additional test with suspension system on the fire side
A.3.6 pattern of core material - See Figure A.7	decrease number of pieces	$\geq$	$\geq$	$\geq$	possible	

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.3.7 number of layers of identical core material - See Figure A.8	increase	>/=/ <	>/=/ <	>/=/ <	not possible without an additional test	additional test with suspension system on the fire side
A.3.8 number of layers of identical core material - See Figure A.9	decrease	>/=/ <	>/=/ <	>/=/ <	not possible without an additional test	additional test with suspension system on the fire side
A.3.9 number of layers of different materials - See Figure A.10	increase	>/=/ <	>/=/ <	>/=/ <	not possible without an additional test	additional test with suspension system on the fire side
A.3.10 number of layers of different materials - See Figure A.11	decrease	>/=/ <	>/=/ <	>/=/ <	not possible without an additional test	additional test with suspension system on the fire side
A.3.11 core material (single thickness or in combination of different layers)	change of supplier / manufacturer of identical material with identical composition and properties	=	=	=	possible	
A.3.12 type of core material (single thickness or in combination of different layers)	alternative composition	>/=/ <	>/=/ <	>/=/ <	not possible without new basic tests according to EN 1634-1	
A.3.13 amount of adhesives / m ² - Products < Euroclass A1	increase	≤	≤	≤	not possible without an additional test	additional test with suspension system on the fire side

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.3.14 amount of adhesives / m ² – Products < Euroclass A1	decrease	>/=/ <	>/=/ <	>/=/ <	not possible without an additional test	additional test with suspension system on the fire side
A.3.15 amount of adhesives / m ² – Products of Euroclass A1	increase	=	=	=	possible	
A.3.16 amount of adhesives / m ² – Products of Euroclass A1	decrease	>/=/ <	>/=/ <	>/=/ <	not possible without an additional test	additional test with suspension system on the fire side
A.3.17 type of adhesives	change of supplier / manufacturer of identical material with identical composition and properties	=	=	=	possible	
A.3.18 type of adhesives	alternative composition	>/=/ <	>/=/ <	>/=/ <	not possible without an additional test	additional test with suspension system on the fire side
A.3.19 metal armour sheet (internally or externally mounted) - See Figure A.12 a)	add	>/=/ <	>/=/ <	>/=/ <	Possible for one piece per panel face up to 800 mm from the base of the leaf providing no thicker than 1,5 mm or limited to maximum two pieces per panel face at 250 mm in width or height (in all cases the elements shall be Euroclass A1). For acceptable fixing methods see A.4.16. Otherwise not possible without an additional test	additional test with suspension system on the fire side

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.3.20 metal armour sheet (internally or externally mounted) - See Figure A.12 b)	remove	>/=/ E	>/=/ I	>/=/ W	not possible without an additional test	additional test with suspension system on the fire side
A.3.21 thickness of steel sheet, (if not part of the interlock system)	increase	≤	≤	≤	possible in line with direct application, otherwise not possible without an additional test	additional test with suspension system on the fire side with a door including the biggest number of leaves where the modification is applied for
A.3.22 thickness of steel sheet, (if not part of the interlock system)	decrease	≥	≥	≥	possible by a maximum of 25 %, more than 25 % needs an additional test	additional test with suspension system on the fire side
A.3.23 type of steel sheet	mild to stainless	=	=	=	possible providing that the material thickness is not increased but may be decreased by a maximum of 20 % and providing the door has an interlock system at least at the top edge and the two vertical edges of the door leaf, otherwise not possible without an additional test	additional test with suspension system on the fire side
A.3.24 type of steel sheet	stainless to mild	=	=	=	possible providing that the material thickness is not decreased but may be increased by a maximum of 25 %	

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.3.25 type of steel for stiffeners and profiles	mild to stainless	=	=	=	possible providing the door has an interlock system at least at the top edge and the two vertical edges of the door leaf, otherwise not possible without an additional test	additional test with suspension system on the fire side
A.3.26 type of steel for stiffeners and profiles	stainless to mild	=	=	=	possible	
A.3.27 cross-section dimension of stiffening elements	increase	>/=/ <	>/=/ <	>/=/ <	for E doors, possible up to a maximum increase of 50 %. For EI, EW doors, not possible without an additional test	additional test with suspension system on the fire side
A.3.28 cross-section dimension of stiffening elements	decrease	>/=/ <	>/=/ <	>/=/ <	not possible without an additional test	additional test with suspension system on the fire side with a door including the biggest number of leaves where the modification is applied for
A.3.29 number of intermediate stiffening elements per panel	increase	=	=	=	possible proportional to the increase of height or width, of the panel, as appropriate, rounded to the nearest whole number of stiffeners	
A.3.30 number of intermediate stiffening elements per panel	decrease	=	=	=	possible proportional to the decrease of height or width of the panel, as appropriate, rounded to the nearest whole number of stiffeners	

Construction Parameter	Variation	Influence of variation on characteristic performance			Possibility of extension	Additional Evidence Required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.3.31 spacing of intermediate stiffening elements per panel	increase	=	=	=	possible proportional to the increase of height or width of the panel, as appropriate	
A.3.32 spacing of intermediate stiffening elements per panel	decrease	=	=	=	possible proportional to the decrease of height or width of the panel, as appropriate	
A.3.33 distance between stiffening element fixing points - See Figure A.13a	increase	≤	=	=	not possible without an additional test	additional test with suspension system on the fire side or the opposite side
A.3.34 distance between stiffening element fixing points - See Figure A.13b	decrease	≥	=	=	possible	
A.3.35 jointing technique (leaf edges, stiffening elements, etc.)	alternative (welding / riveting / screwing)	>/=/<	>/=/<	>/=/<	possible to interchange only between riveting and screwing, providing that the centre distances are not increases, fixings are made from the same materials and cross section dimension of the alternative (rivets / screws) is not smaller. Possible to change from welding to screws or steel rivets. Change to screws are allowed only for steel sheet where the sheet nearest to the screw head is at least 1 mm thick otherwise not possible without an additional test	additional test with suspension system on the fire side with a door including the lowest number of leaves where the modification is applied for