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Extended application of test results for fire resistance for doorsets and shutter assemblies - Part 3: Timber hinged and pivoted doorsets

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Extended application of test results for fire resistance for doorsets and shutter assemblies - Part 3: Timber hinged and pivoted doorsets

Application élargie des résultats d'essais de résistance au feu des blocs-portes et blocs-fermetures - Pour portes et fermetures - Partie 3 : Blocs-portes et blocs-fermetures en bois, pivotants ou battants

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

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (prEN 15269-3:2005) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document is one of a series of Standards intended to be used by experts or competent bodies for the purpose of producing an extended application report (EXAP). It is not intended to be used for the interpretation of test results by non-fire experts.

NOTE Clarification is needed to establish if such experts are Bodies Notified for either testing and/or Certification

prEN 15269 ‘Extended application of test results for fire resistance for doorsets and shutter assemblies – For doors and shutters’ consists of the following:

Part 1 General requirements

2 Steel hinged and pivoted doorsets

3 Timber hinged and pivoted doorsets

4 Glass hinged and pivoted doorsets

5 Aluminium hinged and pivoted doorsets

6 Timber sliding doorsets

7 Steel sliding doorsets

8 Timber horizontally folding doorsets

9 Steel horizontally folding doorsets

1 Scope

This document covers hinged or pivoted, doorsets with timber based leaves. It 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 5 the extended application may cover all or some of the following:

— uninsulated (E), radiation (EW) or insulated (EI_1 or EI_2) classifications;

— glazed elements, louvres and/or vents;

— side, transom or overpanels;

— items of building 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, *Fire resistance tests — Part 1: General requirements*

EN 1634-1, *Fire resistance tests for door and shutter assemblies — Part 1: Fire doors and shutters*

prEN 1634-2, *Fire resistance tests for door and shutter assemblies — Part 2: Fire door hardware*

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

EN ISO 13943, *Fire safety — Vocabulary*

prEN EXAP 15269, *Extended application of test results for fire resisting and smoke control doorsets and shutter assemblies, Part 1 — General requirements for fire resistance*

3 Definitions

For the purposes of this part, the definitions given in EN1363-1, ISO 13943, EN 1634-1, prEN 1634-2 and EXAP prEN 15269-1 together with the following apply:

3.1
coniferous
wood or tree of the order of coniferales, typically bearing cones and needle-like leaves

3.2
core
material fitted centrally within the thickness of a door leaf. It 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
deciduous
tree shedding its leaves annually

3.4
effective rebate depth
the dimension of the door leaf thickness of overlapping adjacent edges of door leaf relative to the door frame, transom or side panel or flush overpanel. At the meeting edges and for rebated leaves the dimension shall be the depth of the largest rebate or the rebate where the intumescent seal is fitted

3.5
leaf symmetry
the construction of a door leaf, without consideration of any leaf edge rebates, viewed either side of an imaginary line drawn centrally in the thickness of the leaf. A symmetrical doorleaf will be identical either side of this imaginary line, whilst an asymmetrical door leaf will differ

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 must 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 Evaluation to a higher classification is not possible.

4.1.3 All evaluations shall be made on the basis of retaining the classification obtained from testing to EN1634-1.

4.1.4 If, by following the ensuing procedure, any part of the classification cannot be achieved by extended application theory, that element 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 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 to be possible this can be recorded in the extended application report together with any appropriate restrictions and the stated rules from column (4).

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 (e.g. single-leaf doorset) to the original test against which the extended application is sought. Alternatively, column (5) identifies an option for alternative testing and relevant test parameters.

4.2.6 It is a requirement of this document that all items of building hardware are in accordance with the relevant product standard and that the door assembly onto which the building hardware will be fitted is appropriate to that class of use. When considering a change in a parameter of building hardware, the effect on the durability of self-closing must be considered.

4.3 Procedure for maximum field of extended application

4.3.1 It is possible to provide an entended field of application from a single test. However, where a manufacturer envisages to manufacture a range of doors incorporating single doors and also double doors with or without side, transom or over panels, with or without glazing, louvres or ventilation grilles, with alternative element of builders 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, and in particular for single leaf hinged or pivoted timber based doorsets into rebated frames.

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 Complete the first test or a series of tests and prepare a field of direct application and 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 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).

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 4.3.6. above.

4.3.9 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 then the outstanding construction parameter variations shall only be incorporated into specimens for the single leaf doorset. 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 double leaf doorset configurations.

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

If the complete selection of required parameter variations have not been covered by the tests completed in accordance with 4.3.9 and 4.3.10 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 premature integrity and/or insulation failure.

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

5.1 Prepare an extended application report in accordance with the requirements of Clause 5 of EXAP prEN 15269-1, based on the results of evaluations in accordance with the above.

6 Classification report

6.1 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

This table is designed to be used by competent experts in the field of fire resistance testing of hinged or pivoted doorsets with timber based leaves.

The table 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 as the 'Type' section of column 3 as insulated, radiation control or integrity only. 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 should be used to provide 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 from the start of the test at any time during the complete required classification period (suggested measuring positions are 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 I_1 or I_2 class) and W for the effects on radiation control for EW doors.

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 acheive Category B, the requirements for this are given in EN1634-1.

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

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

In all cases following the evaluation, the relationship between the leaf and the frame (e.g. gaps) must remain the same as must the relationship between intumescent material and the faces and/or edges of the leaf i.e. the distance between the edges of the intumescent material and the leaf face must not change, nor must the distance between the intumescent material and the leaf edge.

Group Nr.	Type of timber	medium density [kg/m^3]
1	Coniferous and Beech	< 450 (regardless of density for Beech)
2	Deciduous excluding Beech	< 450
3	Coniferous	≥ 450
4	Deciduous excluding Beech	≥ 450

Solid timber can be replaced by other solid timber of the same group of equal or higher density or solid timber of a higher group. Glued timber with solid pieces of min. 10 mm thickness may be used as solid timber. Composite wood products (mdf etc.) may not be replaced with other materials or composites.

Each construction parameter variation may only be applied in isolation from other variations. 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. (see Clause 4.4 above)

Construction Parameter	Variation	Influence of variation on performance characteristics			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 and overpanels or the door frame; where this is the case it is clearly indicated in column (1).* For double leaf doorsets, both leaves shall be of the same basic construction.						
A.1 General						
A.1.1 number of leaves	Single leaf from double door test	=	=	=	Possible for doorsets with exposed intumescent seals only and when the distortion of the leaf is low. In doorsets where there is an inactive and an active leaf, only the construction and parameters of the active leaf may be used for the single leaf doorset otherwise not possible without additional test.	
A.1.2 number of leaves	Double leaf from single leaf door test	<	=	=	Not possible (see Section A2 for suggested test configuration)	Additional test…
A.1.3 intumescent seals (fitted at leaf to frame interface) **– See Figure 1**	Location towards the frame rebate	<	=	=	not possible without additional test	Additional test to include seal fitted in the required position. Test can be single or double leaf
A.1.4 intumescent seals (fitted at leaf to frame interface) **– See Figure 2**	location away from the frame rebate	<	=	=	not possible without additional test	Additional test to include seal fitted in the required position. Test can be single or double leaf

Construction Parameter	Variation	Influence of variation on performance characteristics			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.1.5 intumescent seals (fitted in meeting edges)	Location change	<	=	=	Possible to change the tested seal arrangement from the leaf in which it was tested to the opposite leaf providing the leaves were low distortion and the seal arrangement is replicated and the minimum tested length of intumescent seal is retained (including at building hardware positions) otherwise not possible without additional test.	
A.1.6 non intumescent seals (draught / smoke / acoustic etc.) – Euroclass A1, e.g. ceramic products (fitted in leaf or frame)	Location change	<	=	=	Possible to change from leaf to frame and vice versa and from one leaf to the opposing leaf at the meeting edges providing the seal arrangement is replicated, otherwise not possible without additional test.	Additional test to include seal fitted in the required position. Test can be single or double leaf
A.1.7 non intumescent seals (draught /smoke / acoustic etc.) – , < Euroclass A1 (fitted in leaf or frame)	Location change	<	=	=	Possible to change from leaf to frame and vice versa and from one leaf to the opposing leaf at the meeting edges providing the seal arrangement is replicated, otherwise not possible without additional test.	Additional test to include seal fitted in the required position. Test can be single or double leaf
A.1.8 non intumescent seals (draught / smoke / acoustic etc.) - Euroclass A1, e.g. ceramic products (fitted in leaf or frame)	Add	>=<	=	=	Possible providing the gap is not increased and the reaction of the intumescent seal is not affected otherwise not possible without additional test.	Additional test to include seal fitted in the required position. Test can be single or double leaf
A.1.9 non intumescent seals (draught / smoke / acoustic etc.) - Euroclass A1, e.g. ceramic products (fitted in leaf or frame)	Remove	<	=	=	not possible without additional test	|Further test to prove the leaf to frame detail with no seal fitted. Test can be single or double leaf

Construction Parameter	Variation	Influence of variation on performance			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.1.10 non intumescent seals (draught / smoke / acoustic etc.) – < Euroclass A1 (fitted in leaf or frame)	Add	<	=	=	not possible without additional test	Additional test to include seal fitted in the required position. Test can be single or double leaf
A.1.11 non intumescent seals (draught / smoke / acoustic etc. – < Euroclass A1 (fitted in leaf or frame)	Remove	<	=	=	not possible without additional test	Additional test to include seal fitted in the required position. Test can be single or double leaf
A.1.12 Louvres in door leaf or panel	Add	<	=	=	not possible without additional test	Additional test to include louvre fitted in the required position. Test can be single or double leaf
A.1.13 Louvres in door leaf or panel	Remove	=>	=	=	Possible providing tested louvre size is 25 % or less of the tested leaf area (per leaf), or for up to 30% of leaf area for low distortion doors, otherwise not possible without additional test	Test can be single or double leaf
A.1.4 Louvres in door leaf or panel tested with louvre	Fitting higher or lower in the leaf	<	=	=	Tested positions will define the maximum and minimum fitting positions, subject to the rules given in A1.17 and A1.18, otherwise not possible without additional test	Additional test to include louvre fitted in the required position. Test can be single or double leaf
A.1.15 Louvres in door leaf or panel tested with louvre	Fitting to the side of the tested position	=>	=	=	Possible providing the minimum distance between the edge of the leaf and the aperture is not reduced, otherwise not possible without additional test	Test can be single or double leaf

Construction Parameter	Variation	Influence of variation on performance characteristics			Possibility of extension	Additional Evidence Required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.1.16 Louvres in door leaf or panel tested with louvre **– See Figure 3**	smaller size or remove	=>	=	=	Possible to reduce the size of the louvre by 50 % and possible to remove the louvre if the size is 25 % or less than the leaf area and minimum distance between the edge of the leaf and the aperture is not reduced, otherwise a separate test is required and then sizes between the 2 tested louvre sizes are acceptable	Test to include louvre at 25% of leaf area. Test can be single or double leaf
A.1.17 Louvres in door leaf or panel tested with louvre	larger size (for area or dimensions)	<	=	=	Possible up to a maximum 15 % increase in height and/or width or 20 % in area for louvre tested in a door which achieved category B overrun time and providing the distance between the edge of louvre and the perimeter of the door leaf / panel is not decreased otherwise not possible without an additional test.	Further test required with maximum louvre required. Test can be single or double leaf
A.1.18 Louvre tested in double leaf doorset	Change louvre from one leaf to the opposite leaf	>=<	=	=	Possible to change tested louvre from the active leaf to the inactive leaf but not vice versa and providing louvre is not greater than 25% of the leaf area, otherwise not possible without additional test	To enable complete interchangability it is suggested that both door leaves are active or the louvres are tested in active leaves only.