

CLASSIFICATION OF FIRE RESISTANCE ACCORDING TO EN 13501-2: 2016 OF A METACON-NEXT OHD-C EI 120 COMPOSITE SECTIONAL DOOR SET MOUNTED AT THE EXPOSED SIDE AND NON-EXPOSED SIDE

Classification no.	2022-Efectis-R000824
Sponsor	Metacon-Next B.V. Zuidbaan 450 2841 MD MOORDRECHT THE NETHERLANDS
Product name	Metacon-Next OHD-C EI 120
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1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to Metacon-Next OHD-C EI 120 in accordance with the procedures given in EN 13501-2:2016.

1.1 NORMATIVE REFERENCES

Table 1.1: Normative references

European standard	Part
EN 1363-1:2020	Fire resistance tests – Part 1: General requirements
EN 1363-2:1999 + C1:2001	Fire resistance tests – Part 2: Alternative and additional procedures
EN 1634-1:2014 + A1:2018	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 16034:2014	Pedestrian doorsets, industrial, commercial, garage doors and openable windows – Product standard, performance characteristics – Fire resisting and/or smoke control characteristics
EN 13501-2:2016	Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services

1.2 REVISION INFORMATION

This is the first issue of the classification report.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Metacon-Next OHD-C EI 120 is defined as a door (doorset).

For the dimensions and specifications of the materials and components of the examined construction, also see the figures in chapter 6. Details of the assembly of the construction are given in the paragraphs below.

2.2 DESCRIPTION

The element, Metacon-Next OHD-C EI 120 is fully described below in support of classification listed in 3.1.

2.2.1 Test specimen

The test specimen was a composite sectional door set of type OHD-C EI 120 consisting of three (3) layers of Batiboard finished with a layer of fibre glass sheet reinforced polyester manufactured by Metacon-Next. The side guides with wheel brackets were put at the fire side and non fire side. The doorset was built into a rigid standard low-density supporting construction.

3. TEST REPORTS AND TEST RESULTS IN SUPPORT OF THE CLASSIFICATION

3.1 TEST REPORTS

Table 3.1: Details test reports

Name of laboratory	Name of sponsor	Report ref. no	Test standard and Date
<i>Efectis Nederland BV</i>	<i>Metacon-Next B.V.</i>	<i>2022-Efectis-R000185</i>	<i>EN 1634-1:2014 + A1:2018</i>
<i>Efectis Nederland BV</i>	<i>Metacon-Next B.V.</i>	<i>2022-Efectis-R000327</i>	<i>EN 1634 1:2014 + A1:2018</i>

3.2 RESULTS

Table 3.2: Summary of test results at the exposed side

Performances		Criteria	Time (completed minute)	Failure? (time min and sec or No)
Integrity		<i>Ignition of a cotton pad</i>	<i>138</i>	<i>No</i>
		<i>Sustained flaming</i>	<i>138</i>	<i>No</i>
		<i>Cracks or openings in excess of given dimensions</i>	<i>138</i>	<i>No</i>
Insulation	Normal Procedure	<i>Average temperature, increase of $\Delta 140^{\circ}\text{C}$</i>	<i>138</i>	<i>No</i>
		<i>Maximum temperature on leaf, Increase of $\Delta 180^{\circ}\text{C}$</i>	<i>137</i>	<i>137:16</i>
	Supplementary procedure	<i>Average temperature, increase of $\Delta 140^{\circ}\text{C}$</i>	<i>138</i>	<i>No</i>
		<i>Maximum temperature on leaf, increase of $\Delta 180^{\circ}\text{C}$</i>	<i>137</i>	<i>137:16</i>
Radiation		<i>Maximum radiation value > 15 kW/m²</i>	<i>138</i>	<i>No</i>
Termination of the test at 138 minutes for the following reason: <i>Request of sponsor</i>				

Table 3.3: Summary of test results at the non exposed side

Performances		Criteria	Time (completed minute)	Failure? (time min and sec or No)
Integrity		<i>Ignition of a cotton pad</i>	200	No
		<i>Sustained flaming</i>	200	No
		<i>Cracks or openings in excess of given dimensions</i>	200	No
Insulation	Normal Procedure	<i>Average temperature, increase of $\Delta 140^{\circ}\text{C}$</i>	200	No
		<i>Maximum temperature on leaf, Increase of $\Delta 180^{\circ}\text{C}$</i>	200	No
		<i>Maximum temperature on the frame adjacent to leaf, increase of $\Delta 360^{\circ}\text{C}$</i>	200	No
		<i>Maximum temperature on frame(s) not adjacent to leaf, increase of $\Delta 180^{\circ}\text{C}$</i>	200	No
	Supplementary procedure	<i>Average temperature, increase of $\Delta 140^{\circ}\text{C}$</i>	200	No
		<i>Maximum temperature on leaf, increase of $\Delta 180^{\circ}\text{C}$</i>	200	No
		<i>Maximum temperature on frame(s), increase of $\Delta 180^{\circ}\text{C}$</i>	200	No
Radiation		<i>Maximum radiation value > 15 kW/m²</i>	200	No
Termination of the test at 200 minutes for the following reason: <i>Request of sponsor</i>				

4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 REFERENCE OF CLASSIFICATION

This classification has been carried out in accordance with Clause 7 of EN 13501-2:2016.

4.2 CLASSIFICATION

The element, Metacon-Next OHD-C EI 120 is classified according to combinations of performance parameters and classes as described in Clause 6.7 of EN 13501-2:2016.

E 120 EI₁ 120 EI₂ 120 EW 120

4.3 FIELD OF APPLICATION

4.3.1 General

The field of direct application defines the allowable changes to the test specimen following a successful fire resistance test. These variations can be applied automatically without the need for the sponsor to seek additional evaluation, calculation or approval.

NOTE When extended product size requirements are envisaged, the dimensions of certain components within the test specimen can be less than those intended to be used at full size in order to maximize the extrapolation of the test results by modelling the interaction between components at the same scale.

Where referred to annex B or annex C in this paragraph, the annexes in EN 1634-1 are meant.

4.3.2 Materials and construction

4.3.3 General

Unless otherwise stated in the following text, the materials and construction of the doorset or openable window shall be the same as that tested. The number of leaves and the mode of operation (e.g. sliding, single action or double action) shall not be changed.

4.3.4 Specific restrictions on materials and construction

4.3.4.1 Metal construction

The type of metal shall not be changed from that tested.

4.3.5 Decorative finishes

4.3.5.1 Paint

Where the paint finish is not expected to contribute to the fire resistance of the door, alternative paints are acceptable and may be added to door leaves or frames for which unfinished test specimens were tested. Where the paint finish contributes to the fire resistance of the door (e.g. intumescent paints) then no change shall be permitted.

4.3.5.2 Decorative laminates

Decorative laminates and timber veneers up to 1.5 mm thickness may be added to the faces (but not the edges) of doors that satisfy the insulation criteria (normal or supplementary procedure).

4.3.6 Fixings

The number of fixings per unit length used to attach doorsets to supporting constructions may be increased, but shall not be decreased and the distance between fixings may be reduced but shall not be increased.

4.3.7 Building hardware

The number of hinges and dog bolts may be increased but shall not be decreased.

NOTE 1 The number of movement restrictors such as locks and latches is not covered by direct application.

NOTE 2 Interchange of building hardware is not covered by the field of direct application.

4.3.8 Permissible size variations

4.3.9 General

Doorsets of sizes different from those of tested specimens are permitted within certain limitations, but the variations are dependent on product type and the length of time that the performance criteria are fulfilled.

The increase and decrease of dimensions permitted by the field of direct application are applicable to the overall size and to each door leaf, each side panel and each over panel independently.

4.3.10 Test periods

The amount of variation of size permitted is dependent on whether the classification time was just reached (Category 'A') or whether an extended time (Category 'B') in accordance with the values shown in Table 1 were fulfilled before the test was concluded.

For category 'B':

Table 4.1: Category B overrun requirements

Classification time (min)	All performance criteria fulfilled for at least minutes
15	18
20	24
30	36
45	52
60	68
90	100
120	132

4.3.11 Size variation related to product type

4.3.11.1 General

The rules to cover increase or decrease of size without additional considerations are applicable only to:

- a) horizontally sliding and vertically sliding doorsets including sectional doorsets;

Doors that satisfy both the radiation control levels and insulation criteria may have their sizes increased as outlined in Annex B of EN 1634-1. This is accepted because the increase in radiation

resulting from a size increase allowed under this section, for an insulated door, will be such that it will still satisfy the required radiation control levels. Size decreases are permitted for both doors which satisfy radiation control levels and those which satisfy insulation criteria and radiation control levels.

Permissible variations for each product group are detailed in Annex B of EN 1634-1 which also contains some examples relating to hinged/pivoted doorsets.

For Category 'B' tests (with specified overrun of classification period) all smaller sizes are permitted and increases in height and width are permitted as stated below:

For test specimen with door leaves manufactured to the maximum size allowable in a standard 3,0 m by 3.0 m furnace, the height and/or the width can be increased provided that the area is not increased by more than 50%. Additionally, test specimens comprising joined panels shall incorporate at least one full size panel with at least one example of each jointing technique for height and width as applicable.

Both of the above extensions to width and height are only permissible if the overlaps at the rear and head of the door are adjusted to increase the tightness of the interlock (shown in Figure 33 in EN 1634-1+A1) by 10 mm per metre of increase in size.

The maximum gap at the bottom of the door may be decreased from the maximum tested but shall not be increased above the maximum tested.

Table 4.2: Permitted size variations with overrun time 'B'

Size increase and reduction for category 'B' tests is permitted for:					
Tested dimensions		Permitted size increase		Permitted size reduction	
Width (mm)	3784	Width 50% (mm)	5676	Width	Unlimited
Height (mm)	4820	Height 50% (mm)	7230	Height	Unlimited
Total surface (m ²)	18.24	Surface 50% (m ²)	27.36		

4.3.12 Asymmetrical assemblies

4.3.13 General

EN 1363-1 states that for separating elements required to be fire resisting from both sides, two test specimens shall be tested (one from each direction) unless the element is fully symmetrical, i.e. the construction of the doorset is identical on both sides of the centre line when viewed in plan (from above). However, in some cases it is possible to develop rules whereby the fire resistance of an asymmetrical door assembly tested in one direction can apply when the fire exposure is from the other direction. The possibility to develop such rules increases if the consideration is limited to certain types of door assembly and on the criteria being applicable (e.g. integrity only doors). The following rules represent the minimum level of common agreement which shall be followed. The rationale behind the rules is given in Annex C of EN 1634-1.

4.3.14 Specific rules

The rules governing the applicability of tests carried out in one direction to other directions are given in Table 4.3 and are based on the following premises:

- that each of the door leaves are themselves of symmetrical construction with the exception of the edges (e.g. lock/leading edge and hinge edge or double rebated doors);
- that any restraining/supporting elements of building hardware has been included in a test to EN 1634-1 when exposed in both directions so that they will retain their function when exposed to the heat of the test;

- that there is no change in the number of leaves or the mode of operation (e.g. sliding, swinging, single action or double action);
- that side, over and transom panels are excluded from Table 2 unless they are fully symmetrical.

Table 4.3 lists the type of door assembly for which rules can be generated and gives the direction in which it should be tested to cover the opposite direction. The separate columns for the integrity and insulation criteria reflect the different ability to make rules for integrity only doors as opposed to those which satisfy both criteria. A 'Yes' means that it is possible to identify the direction of test which covers the opposite direction. A 'No' indicates that it is not possible to identify the direction which will cover the opposite direction.

Table 4.3: Type of doorset and direction to be tested to cover the opposite direction

Type of doorset	Direction to be tested to cover opposite direction	Integrity	Insulation	Radiation
Sliding/folding	Sliding/folding supporting components fixed on the face of the supporting wall on the fire side	Yes	No	No

4.3.15 Supporting constructions

4.3.16 General

The fire resistance of a door assembly tested in one form of standard supporting construction may or may not apply when it is mounted in other types of construction. Generally, the rigid and flexible types are not interchangeable and rules governing the direct application within each group are given in 4.3.17.

However, in some cases it is possible for the result of a test on a particular type of door assembly tested in one form of standard supporting construction to be applicable to that door assembly when mounted in a different type of standard supporting construction.

4.3.17 Rigid standard supporting constructions (high or low density)

The fire resistance of a doorset tested in a high- or low-density rigid standard supporting construction as specified in EN 1634-1 can be applied to a doorset mounted in the same manner in a wall provided the density and the thickness of the wall are equal to or greater than that in which the doorset was tested.

This classification is valid for the following end use applications:

- Direct field of application: this classification is valid for the direct field of application as described in the test report with reference 2022-Efectis-R000185;

5. LIMITATIONS

This classification document does not represent type approval or certification of the product.

SIGNED



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APPROVED



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6. DRAWINGS

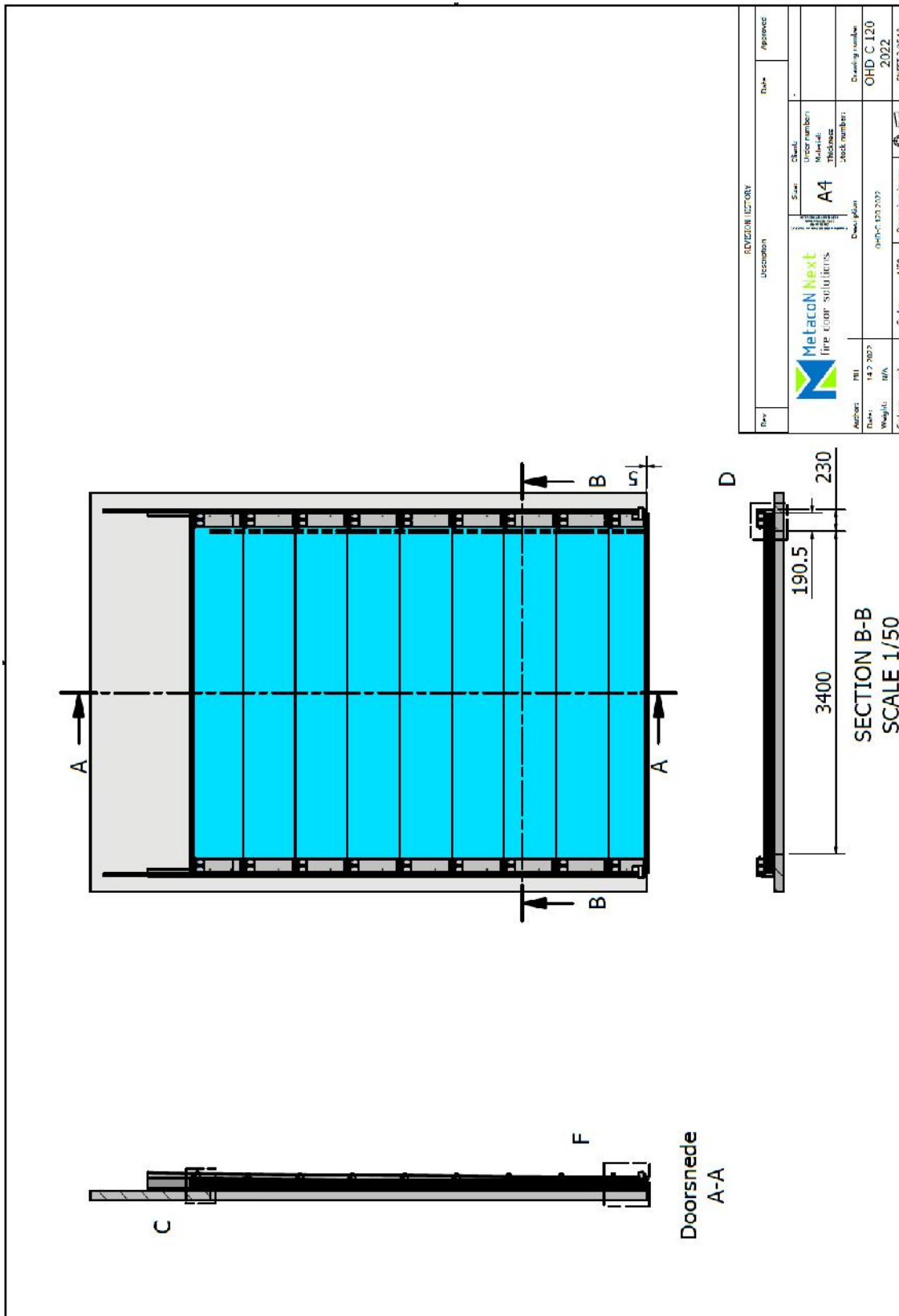


Figure 1: OHD-C 120 overview and sections