

CLASSIFICATION OF FIRE RESISTANCE

FIRES-JR-010-22-NURE

Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/18 mm

Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/32 mm

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FIRE RESISTANCE EXPERT JUDGEMENT REPORT WITH CLASSIFICATION

FIRES-JR-010-22-NURE

Name of the product: Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/18 mm
Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/32 mm

Sponsor: OMAN Sp. z o.o.
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Poland

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1. INTRODUCTION

This expert judgement report with classification defines the resistance to fire classification assigned to elements Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/18 mm and Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/32 mm.

This expert judgement report defines field of application which is outside the field of direct application according test standard or outside the field of extended application according to relevant extended application standard. This expert judgement expresses the opinion of the FIRES and is based on the experience or internal rules of FIRES.

The testing laboratory FIRES, s.r.o. issued Fire resistance expert judgement report with classification No. FIRES-JR-027-17-NURE Edition 2 for the classified product. The Fire resistance expert judgement report with classification was issued on 19. 12. 2017 and its validity ended on 14. 03. 2022.

Standard EN 1634-1: 2014 + A1: 2018 specifies a method for determining the fire resistance of door and shutter assemblies and openable windows designed for installation within openings incorporated in vertical separating elements. This standard does not comment the possibility of using this test method to determine the fire resistance of non-loadbearing horizontally oriented doors/shutters by analogy. As there is no test method to determine the fire resistance of such products, FIRES, s.r.o. chose EN 1634-1: 2014 during fire test [1] and also used paragraph 13 (of the standard) to define the field of application of test results.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The products, Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/18 mm and Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/32 mm, are defined as a shutters with fire separating function with fixing into the ceiling.

2.2 PRODUCT DESCRIPTION

The product description below describes Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/18 mm as variant 1 and Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/32 mm as variant 2.

Dimensions – variant 1

Overall dimensions of shutter	(1250 x 700) mm (height x width)
Dimensions of shutter leaf	(678 x 1228 x 66) mm (width x height x thickness)
Dimensions of shutter opening	(1214 x 664) mm (height x width)
Weight of shutter	17,3 kg (measured in testing laboratory)

Dimensions – variant 2

Overall dimensions of shutter	(1240 x 1040) mm (height x width)
Dimensions of shutter leaf	(990 x 1190 x 66) mm (width x height x thickness)
Dimensions of shutter opening	(1176 x 976) mm (height x width)
Weight of shutter	23,7 kg (measured in testing laboratory)

Shutter frame

Frame of product is made of timber slabs with bulk density 520 kg/m³ (manufacturer: OMAN Sp. z o. o., Poland), with dimensions (170 x 18) mm (width x thickness) for variant 1 and (180 x 32) mm (width x thickness) for variant 2.

Dimensions of rebate are (10 x 23) mm for variant 1 and (10 x 35) mm for variant 2, with milled groove (3,2 x 7) mm for sealing gasket, type S7442 (manufacturer: Inter-Deventer Sp. z o.o., Poland), around perimeter of the shutter frame.



Construction of shutter leaf

Frame of shutter leaf

Frame of shutter leaf is made of timber slabs, with dimensions (50 x 60) mm (width x thickness) with bulk density 520 kg/m³ (manufacturer: OMAN Sp. z o. o., Poland). Dimensions of rebate are (10 x 48) mm for variant 1 and (12 x 36) mm for variant 2.

Variant 1 has around perimeter of shutter leaf frame two milled grooves. One groove for intumescent tape with dimensions (20 x 2) mm and one groove for sealing gasket with dimensions (3 x 8) mm, type S6782 (manufacturer: Inter-Deventer Sp. z o.o., Poland).

Variant 2 has around perimeter of the shutter leaf frame two milled grooves with dimensions (20 x 2) mm, both grooves are for intumescent tapes.

Core of shutter leaf

For both variants is core made of mineral wool board, type Rocklit 150, 60 mm thick, with bulk density >150 kg/m³ (manufacturer: Rockwool Polska Sp. z o.o., Poland).

Casing of shutter leaf

Both variants have construction of the shutter leaf, including the core, covered from both faces by layer of HDF board, type LHDF 3, 3 mm thick, with bulk density 800 kg/m³ (manufacturer: Kronospan Szczecinek Sp. z o.o., Poland).

Intumescent tape

Intumescent tape (20 x 2) mm (width x thickness), type Promaseal LFC SK (manufacturer: Promat GmbH) is placed around whole perimeter of shutter leaf frame in one milled groove for variant 1 and in both milled grooves for variant 2.

Hinges

Lever mechanism with spring, type 66mm/16mm for variant 1 and type 66mm/32mm for variant 2 (manufacturer: OMAN Sp. z o. o., Poland).

Ladder

The product variant 1 has shutter ladder, type 11 (manufacturer: OMAN Sp. z o. o., Poland) placed on shutter leaf surface from top side, in maximal weight of 13,6kg.

The product variant 2 can have ladder with maximal weight of 12kg (see clause 4 and 5).

Products fixation

Products should be fixed to horizontal supporting construction in horizontal position; in ceiling construction made of aerated concrete, at minimal 150 mm of thickness and with minimal bulk density 613 kg/m³.

Fixation into supporting construction is by means of steel screws (Ø6 x 80) mm in maximal distance of 400 mm.

Gap between shutter frame and supporting construction is filled by mineral wool with bulk density 60 kg/m³ and sealed from exposed side by PROMASEAL®-A (manufacturer: Promat GmbH).

More detailed information about construction of products is shown in the drawings which form an integral part of test report [1].



3. TEST REPORTS AND EXTENDED APPLICATION REPORTS IN SUPPORT OF CLASSIFICATION

3.1 TEST REPORTS AND EXTENDED APPLICATION REPORTS

No.	Name of laboratory	Name of sponsor	Test report No.	Date of the test	Test method
[1]	FIRES, s.r.o., Batizovce, SR	OMAN Sp. z o.o. Racibórz, PL	FIRES-FR-031-17-AUNS	02.02.2017	EN 1634-1: 2014

[1] Test specimens were conditioned according to EN 1363-1 before the fire resistance test

3.2 TEST RESULTS

No./ Test method	Parameter	Results
[1] EN 1634-1: 2014	supporting construction	horizontal rigid supporting construction made by aerated concrete blocks of thickness 150 mm and with bulk density of 613 kg/m ³
	temperature curve	standard temperature time curve
	integrity	cotton pad
		gap gauges
		sustained flaming
	thermal insulation	I ₁
		I ₂
	radiation*	-
[1] EN 1634-1: 2014	operability	25 cycles
	specimen orientation	opening of shutter towards test furnace (<i>fire from bottom side</i>), <i>ladder on unexposed side</i>
	supporting construction	horizontal rigid supporting construction made by aerated concrete blocks of thickness 150 mm and with bulk density of 613 kg/m ³
	temperature curve	standard temperature time curve
	integrity	cotton pad
		gap gauges
		sustained flaming
	thermal insulation	I ₁
		I ₂
	radiation*	-
	operability	25 cycles
	Specimen orientation	opening of shutter towards test furnace (<i>fire from bottom side</i>), <i>ladder side on unexposed side</i>

[1] The fire test was terminated in the 72nd minute. The test continued after the specimen No. 2 integrity failure in the 62nd minute at the request of test sponsor and was terminated after the specimen No. 1 integrity failure.

* Regarding to low temperatures on unexposed specimens' surface below 300 °C the performance criteria of radiation is to be complied as satisfied.

Note

At the sponsor's request the 12 kg weight were placed on unexposed face of the product variants 2 instead of ladder.



4. CHANGES OF THE PRODUCT OR END USE CONDITIONS OUTSIDE OF THE FIELD OF DIRECT OR EXTENDED APPLICATION

Following changes of the product or end use conditions were permitted:

1. EN 1634-1: 2014 used as a test method during test [1]. Field of application of test results determined acc. to EN 1634-1: 2014 + A1: 2018, paragraph 13.
2. Using similar types of ladders as has been used in test [1].

5. ARGUMENTS IN FAVOR OF THE EXTENSION

1. As there is no test method to determine the fire resistance of non-loadbearing horizontally oriented shutters, FIRES, s.r.o. chose EN 1634-1: 2014, a standard which deals with fire resistance of door and shutter assemblies and openable windows designed for installation within openings incorporated in vertical separating elements. Also, field of application of test results defined in this fire resistance expert judgement report is elaborated in compliance with EN 1634-1: 2014 + A1: 2018, paragraph 13. On the base of long-term experience, FIRES, s.r.o. does not suppose that product changes (described in paragraph 6.2 of the document) allowed by EN 1634-1: 2014 + A1: 2018, paragraph 13 could lead to the decrease in fire resistance of product.

The standard EN 1634-1: 2014 was superseded by EN 1364-1:2014 + A1: 2018 which has no affect to used test method and the tests are deemed to fulfil requirements of EN 1634-1: 2014 + A1: 2018.

2. During the test [1] of the product variants 2 was ladder replaced by 12 kg weights. Installation of ladder on unexposed side of loft shutter has no influence on fire resistance classification of product. Manufacturer is responsible that maximum weight of ladder is not greater than 12kg as it was during test [1].

6. CLASSIFICATION AND FIELD OF APPLICATION

6.1 CLASSIFICATION

The products, Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/18 mm and Horizontal fire-resistant shutter with loft ladder, type EI60 – 66/32 mm, are classified according to the following combinations of performance parameters and classes as appropriate.

**Fire resistance classification:
E 60; EI₁ 60; EI₂ 60; EW 60**

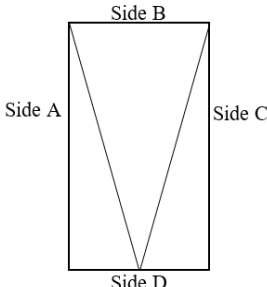
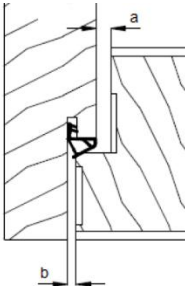
Note:

Classification is valid for both types of products, where a retractable ladder is on unexposed side.



6.2 FIELD OF APPLICATION

This classification is valid for the following end use applications:

Materials and construction	- Thickness and/or density of shutter leaf shall not be reduced but should be increased provided the total increase in weight is not greater than 25%. - Stronger springs (of the same type as tested ones) are fitted to the product in order to ensure that force applied by springs responsible for closing the product (and also responsible for its remaining in closing position) is equal or higher than the force during the test [1]. - For timber-based board products (e.g. particle board, blockboard etc.), the composition (e.g. type of resin) shall not change from that tested; the density shall not be reduced but may be increased. - The cross-sectional dimensions and/or the density of the timber frames (including rebates) shall not be reduced but may be increased. - The number, size, location and orientation of any joints in the timber framing shall not be changed.															
Decorative finishes	- It is acceptable to apply paint finish. - Decorative laminates or timber veneers up to 1,5 mm of thickness are acceptable on faces but not the edges.															
Fixings	- The number of fixings used to attach the product to supporting constructions may be increased but shall not be decreased and the distance between fixings may be reduced but shall not be increased. - Fixation into supporting construction is by means of steel screws (Ø6 x 80) mm in maximal distance of 400 mm.															
Permissible size variations	- Product version 1 It is permitted to increase product dimension to maximally up to 15% length, 15% width and 20% area. - Product Version 2 No increases are allowed. - Unlimited reductions from the tested specimen are permitted.															
Supporting construction	- Shutters are fixed to horizontal rigid supporting construction in horizontal position at minimal 150 mm of thickness and with minimal bulk density 613 kg/m³. - Gap between shutter frame and supporting construction is filled by mineral wool with bulk density 60 kg/m³ and sealed from exposed side by PROMASEAL®-A															
Gaps	- The maximum size of primary gap “a” for products is restricted to the following sizes: <table><tr><th></th><th>Product variant 1 [mm]</th><th>Product variant 2 [mm]</th></tr><tr><td>Gap on side A</td><td>7,3</td><td>6,3</td></tr><tr><td>Gap on side B</td><td>7,9</td><td>6,6</td></tr><tr><td>Gap on side C</td><td>7,1</td><td>7,7</td></tr><tr><td>Gap on side D</td><td>6,3</td><td>6,5</td></tr></table> 		Product variant 1 [mm]	Product variant 2 [mm]	Gap on side A	7,3	6,3	Gap on side B	7,9	6,6	Gap on side C	7,1	7,7	Gap on side D	6,3	6,5
	Product variant 1 [mm]	Product variant 2 [mm]														
Gap on side A	7,3	6,3														
Gap on side B	7,9	6,6														
Gap on side C	7,1	7,7														
Gap on side D	6,3	6,5														



7. LIMITATIONS

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

The classification is valid until 23. 02 2027 provided that the product, field of application and standards and regulations are not changed.

Approved by:

Ing. Štefan Rástocký
Head of the testing laboratory

Prepared by:

Ing. Martin Huf
Technician of the testing laboratory

