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FIRE RESISTANCE EXPERET JUDGEMENT REPORT WITH CLASSIFICATON
FIRES-JR-217-25-NURE

Fire resistant shutter with retractable steel loft ladder, type LMF 120

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The Experts on Fire Safety

FIRE RESISTANCE EXPERT JUDGEMENT REPORT WITH CLASSIFICATION

FIRES-JR-217-25-NURE

Name of the product: Fire resistant shutter with retractable steel loft ladder, type LMF 120

Sponsor:
FAKRO Sp. z o.o.
Wegierska 144a
33-300 Nowy Sacz
Poland

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1. INTRODUCTION

This expert judgement report with classification defines the resistance to fire classification assigned to element Fire resistant shutter with retractable steel loft ladder, type LMF 120.

This expert judgement report defines the 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-015-21-NURE Edition 2 for the classified product. The Fire resistance expert judgement report with classification was issued on 26. 02. 2023, with validity until 05. 02. 2026.
Following changes have been made compared to the previous document:
- in the cl. 6.3 the classification of a product with an increased size has been corrected (relates EW only);
- in the cl. 6.3 the statement for Fixings has been withdrawn.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Fire resistant shutter with retractable steel loft ladder, type LMF 120, is used as a non-loadbearing horizontally oriented shutter with fire separating function from below. The product is installed in ceilings of family houses, administrative and multifunctional buildings.

2.2 PRODUCT DESCRIPTION

Dimensions

Overall dimensions of the shutter	(897 x 1335) mm (width x length)
Flap dimensions	(825 x 1262) mm (width x length)
Dimensions of opening	(800 x 1240) mm (width x length)

Fixed frame
The frame of shutter is made of profiled steel sheets with thickness of 1,5 mm (bottom part of the frame) and of 2 mm (upper part of the frame) and of a PROMATECT®-H board with thickness of 20 mm (manufacturer: Promat TOP Sp z o.o., PL).

Flap
The flap consists of a core and a facing as follows:

- core - 2 layers of 20 mm thick boards of ROCKWOOL CONLIT 150 P mineral wool with bulk density of 150 kg/m^3 (manufacturer: ROCKWOOL POLSKA Sp z o.o., PL);

  alternatively

  2 layers of 20 mm thick board of mineral wool with bulk density of (150 - 170) kg/m^3 and reaction to fire class A1 (to EN 13501-1);

  - 2 layers of 20 mm thick boards of ROCKWOOL FASROCK mineral wool with bulk density of 135 kg/m^3 (manufacturer: ROCKWOOL POLSKA Sp z o.o., PL);

    alternatively

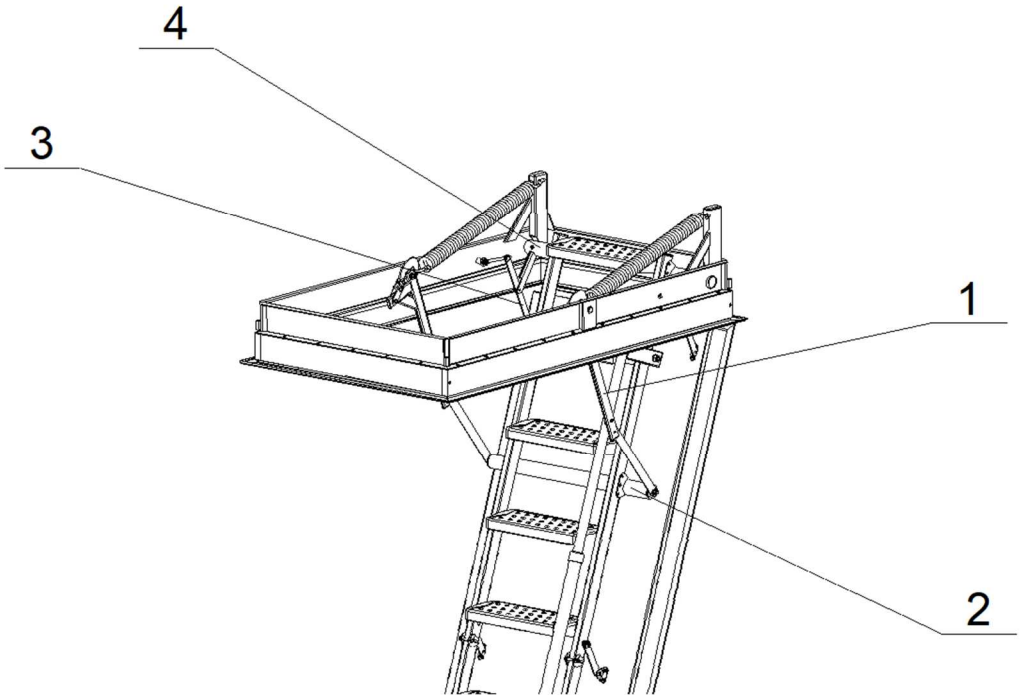
    2 layers of 20 mm thick board of mineral wool with bulk density of (135 - 160) kg/m^3 and reaction to fire class A1 (to EN 13501-1);

  The 2 layers of ROCKWOOL FASROCK mineral wool (or its alternative) are positioned in the central part of the core thickness, and on their upper and lower surfaces there is one layer of the ROCKWOOL CONLIT 150 P mineral wool.

- facing - profiled steel sheet with thickness of 1 mm; on the side edges of the flap the steel sheet is perforated.

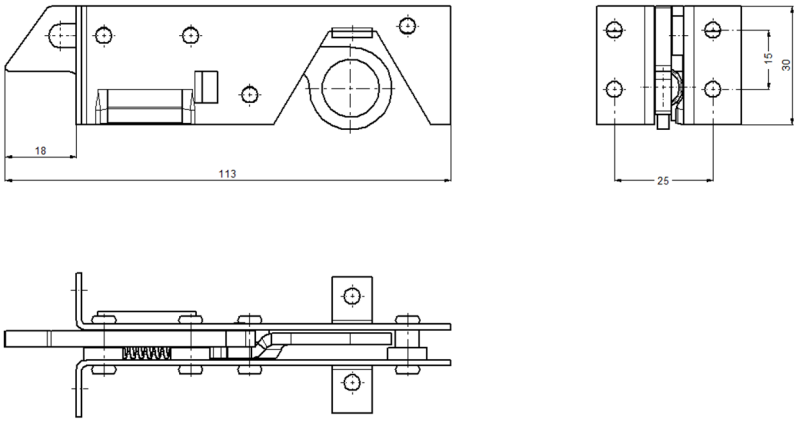
Ladder and hardware

- steel folding sector ladder, index SH601, (manufacturer: Fakro PP sp. z o.o.),
  identical to folding sector ladder, index SH601, (manufacturer: Fakro Orbita Sp. z o.o.);
- two hinges placed 80 mm from the edges of flap;
  The components of hinge mechanism are as follows:
  1- bracket, index SG800, (manufacturer: Fakro PP sp. z o.o.),
  identical to bracket, index SG800, (manufacturer: Fakro Orbita Sp z o.o.);
  2- lower bar, index SH670, (manufacturer: Fakro PP sp. z o.o.),
  identical to lower bar complete, index SH670, (manufacturer: Fakro Orbita Sp z o.o.);
  3- lever, index UD660, (manufacturer: Fakro PP sp. z o.o.),
  identical to lever, index UD660, (manufacturer: Fakro Orbita Sp. z o.o.);
  4- upper bar, index SH660, (manufacturer: Fakro PP sp. z o.o.),
  identical to upper bar, index SH660, (manufacturer: Fakro Orbita Sp. z o.o.).



- two springs, index SH332, max force 1983 N (manufacturer: Mazowianka Sp z o.o.);

- lock SJ400, (manufacturer: Fakro PP), - positioned in the middle of the flap width (on the edge opposite to the hinge edge).



Intumescent tapes
KERAFIX FLEXTREM 100 (produced by GLUSKE GmbH, D) - 1 stripe with dimensions of (2 x 60) mm (thickness x width) or 3 stripes with dimensions of (2 x 20) mm (thickness x width) is/are placed around the perimeter of the flap.

Sealing - system silicone sealing is placed along the inner perimeter of the fixed frame.

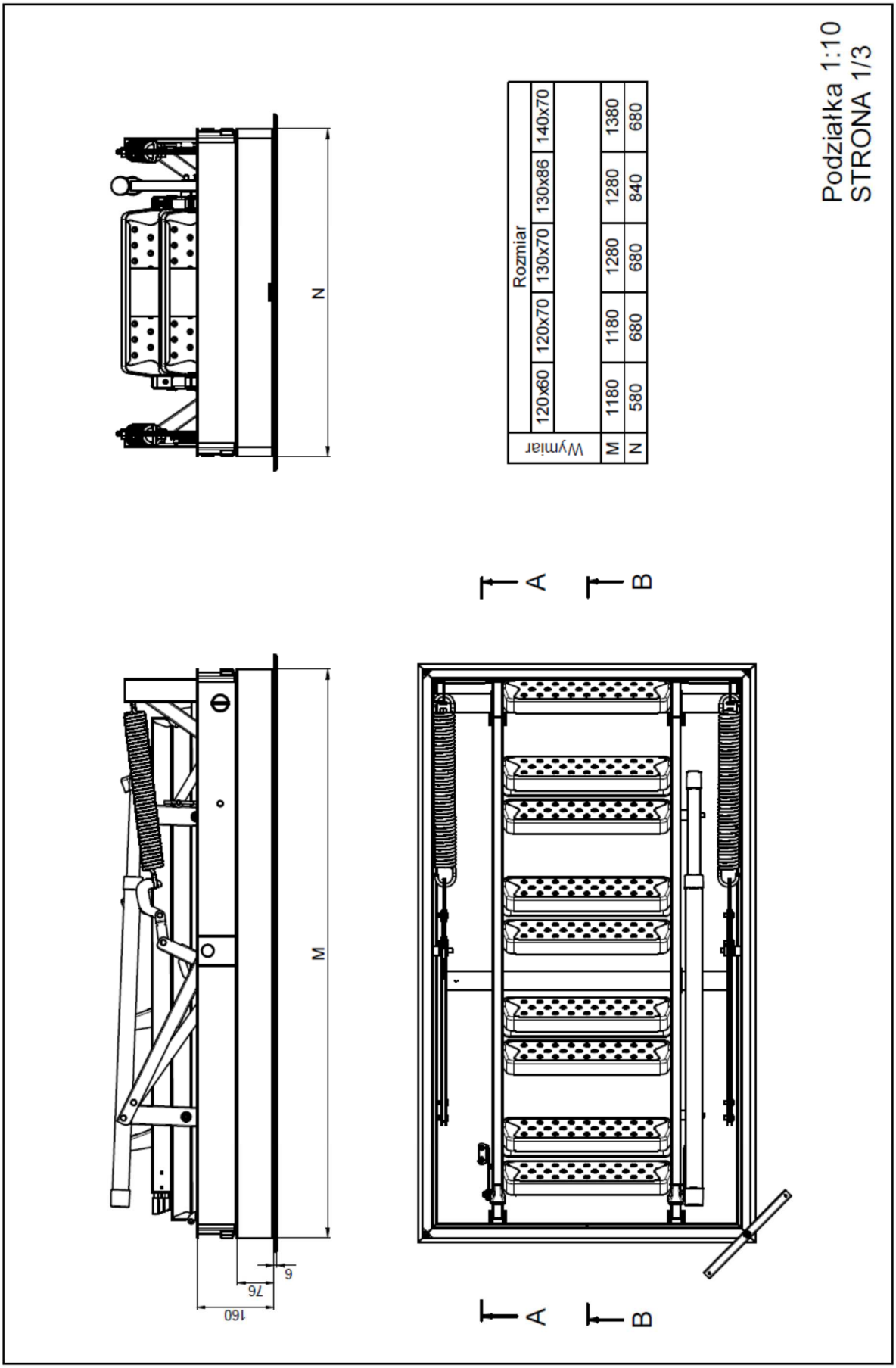
View on fixed frame of the shutter

Sealing

Upper seal - index Fakro MD125, D profile (12 x 10) mm, material EPDM (manufacturer: Stomil Sanok; index Stomil Sanok SD-54C/4).

Lower seal - index Fakro MD124, P profile (9 x 5,5) mm, material EPDM, (manufacturer: Stomil Sanok; index Stomil Sanok SD-39X/4)

Intumescent tapes KERAFIX FLEXTREM 100 (produced by GLUSKE GmbH, D):
1 stripe (2 x 60) mm (thickness x width) or 3 stripes (2 x 20) mm (thickness x width).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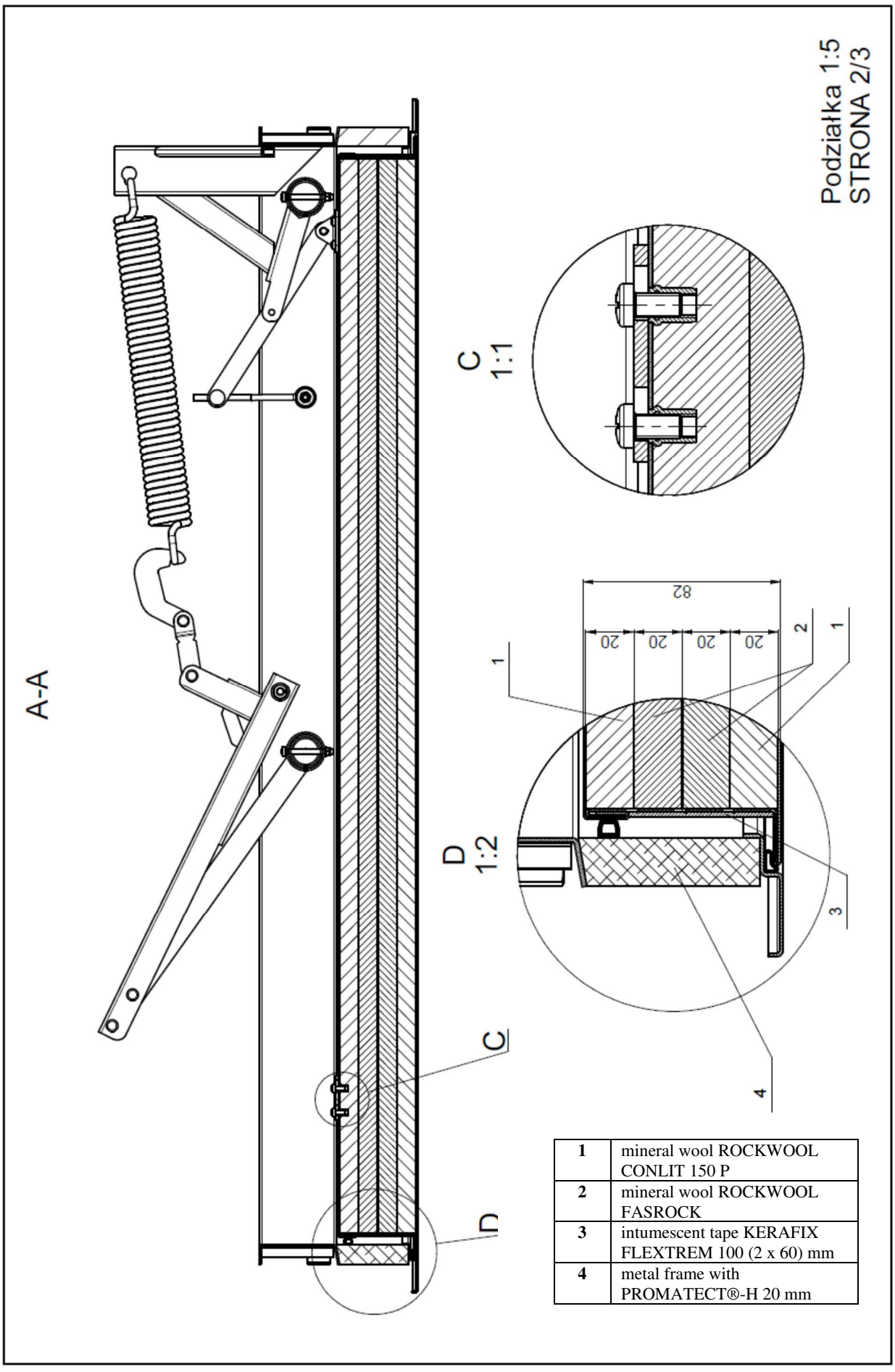
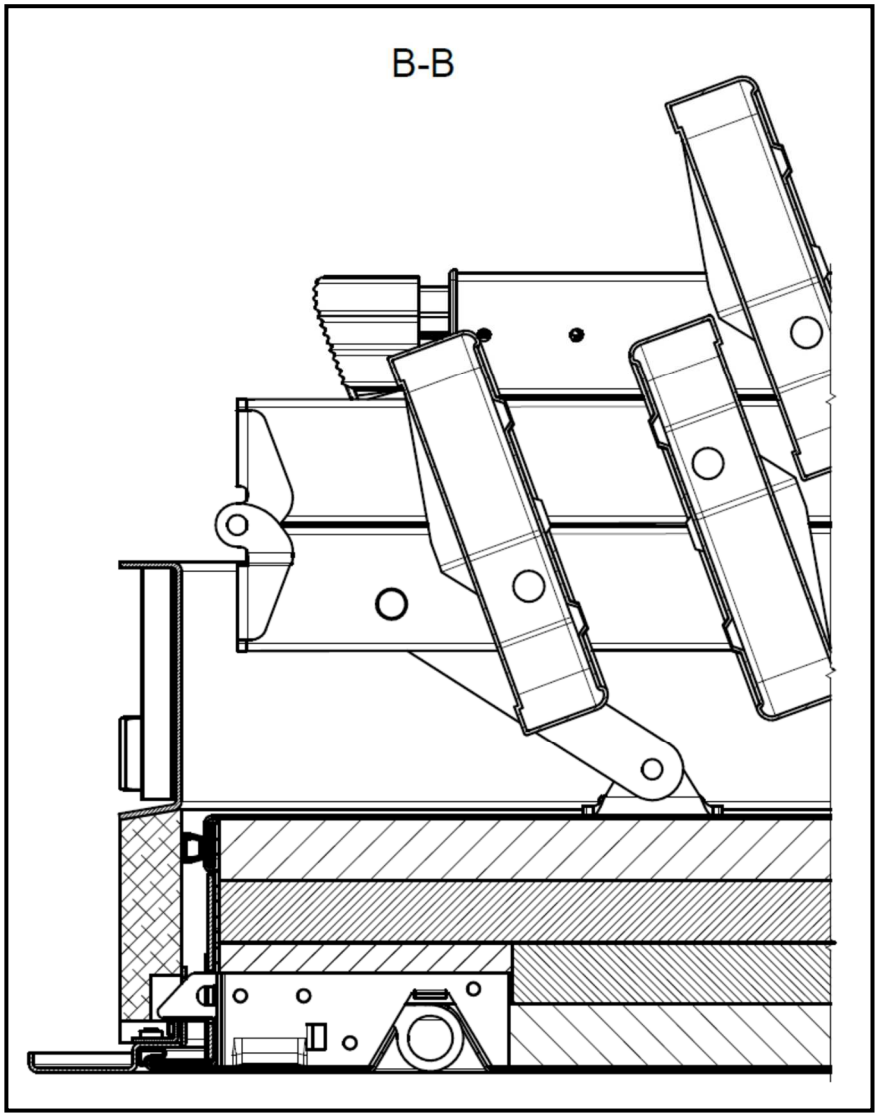


1	mineral wool ROCKWOOL CONLIT 150 P
2	mineral wool ROCKWOOL FASROCK
3	intumescent tape KERAFIX FLEXTREM 100 (2 x 60) mm
4	metal frame with PROMATECT®-H 20 mm



2.3 PRODUCT FIXATION

The product is fixed in a rigid supporting construction with minimum thickness of 250 mm and minimum bulk density of 613 kg/m^3 by means of M8 threaded bars and washers with nuts placed in product corners. The gap between the frame and the supporting construction, approximately 20 mm wide, is filled with mineral wool. The fixed frame is also sealed in contact with the supporting construction using INTUMEX fire-resistant putty on both sides of the shutter.

More detailed information about the product is shown in the 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, Slovakia	FAKRO Sp z o.o. Nowy Sącz, Poland	FIRES-FR-216-10-AUNS	07.12.2010	EN 1634-1: 2008

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

Note: The EN 1634-1 has been updated in 2014 and 2018, however, for the purpose of this document it has been accepted; see item 3 of the cl. 5 of this document.

3.2 TEST RESULTS

No./ Test method	Parameter		Results
[1] EN 1634-1	applied load		-
	supporting construction		ceiling made of aerated concrete blocks, thickness 250 mm, bulk density 613 kg/m^3
	temperature curve		standard temperature time curve
	loadbearing capacity		-
	integrity	cotton pad	121 minutes no failure
		gap gauges	121 minutes no failure
		sustained flaming	121 minutes no failure
	thermal insulation	I_1	88 minutes
		I_2	121 minutes no failure
	radiation		121 minutes no failure
	mechanical action		-
	operability		passed (25 cycles)
	self-closing		-
	other parameters		Specimen 2: Opening of the shutter towards the heat exposure, ladder on the unexposed face

[1] The test was discontinued in 122nd minute at the request of test sponsor

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. Replacement of the ROCKWOOL CONLIT 150 P mineral wool (produced by ROCKWOOL POLSKA Sp. z o.o., PL) with another type of mineral wool (e.g. PAROCK FPS 17 produced by PAROC POLSKA Sp. z o.o., PL, etc.).
2. Replacement of the ROCKWOOL FASROCK mineral wool (produced by ROCKWOOL POLSKA Sp. z o.o., PL) with another type of mineral wool (e.g. PAROCK FAB 3 produced by PAROC POLSKA Sp. z o.o., PL, etc.).
3. The field of application of test results [1] based on EN 1634-1:2014+A1:2018, paragraph 13.

5. ARGUMENTS IN FAVOR OF THE EXTENSION

1. The ROCKWOOL CONLIT 150 P mineral wool (produced by ROCKWOOL POLSKA Sp z o.o., PL) is allowed to be replaced with another type of mineral wool provided that:
   - the number of layers and the thickness of individual layers is maintained and
   - the bulk density of the alternative mineral wool is within (150 -170) kg/m^3 and
   - reaction to fire class of the alternative mineral wool is A1 (in accordance with EN 13501-1).
2. The ROCKWOOL FASROCK mineral wool (produced by ROCKWOOL POLSKA Sp z o.o., PL) is allowed to be replaced with another type of mineral wool provided that:
   - the number of layers and the thickness of individual layers is maintained and
   - the bulk density of the alternative mineral wool is within (135 - 160) kg/m^3 and
   - reaction to fire class of the alternative mineral wool is A1 (in accordance with EN 13501-1).
3. In comparison with EN 1634-1: 2008, actual version EN 1634-1:2014+A1:2018 does not cover the possibility of using this test method to determine the fire resistance of non-loadbearing horizontally oriented doors/shutters. As there is no test method to determine the fire resistance of such products, FIRES, s.r.o. used the EN 1634-1:2014+A1:2018, paragraph 13, to define the field of application of test results stated in test report [1]. FIRES, s.r.o. does not suppose that product changes (described in clause 6.2) based on field of application in EN 1634-1:2014+A1:2018 could lead to a reduction in the fire resistance of the product.

6. CLASSIFICATION AND FIELD OF APPLICATION

6.1 CLASSIFICATION

The element, Fire resistant shutter with retractable steel loft ladder, type LMF 120, is classified according to the following combinations of performance parameters and classes as appropriate.

Orientation	Fire resistance classification
Fire from below (ladder on unexposed side)	**E 120; EI_1 60; EI_2 120; EW 120**

6.2 FIELD OF APPLICATION

This classification is valid for the following end use applications:

Product dimensions	- increase in the product dimensions: 15 % length, 15 % width, but max of 20 % product area on conditions: • the fire resistance classification is changed in the following way: E 90; EI_1 45; EI_2 90; EW 90 • tension in the fixing (threaded bars) shall not be higher than that during the test [1] Note: the cross section of the threaded bars for fixing the shutter can be increased appropriately. • the lock is always positioned in the middle of the flap width; • the distance between the hinges and flap edge shall be maximum of 80 mm; - decrease in the product dimensions to 50 % of product width and to 75 % of product length; - for smaller sizes, the relative positioning of movement restrictors (e.g. hinges, latches, etc.) shall remain the same as during test [1] or any change to the distances between them will be limited to the same percentage reduction as the decrease of product size;
Material and construction	- the thickness of the metal wrap around frame may be increased by up to 25%; - the type of metal shall not be changed from that tested; - it is allowed to use alternative mineral wool in the core of the flap on conditions defined in cl. 5 of the document;
Decorative finishes	- where the paint finish is not expected to contribute to the fire resistance of the product, alternative paints are acceptable and may be added to flap or frame; - decorative laminates and timber veneers up to 1,5 mm thickness may be added to the faces (but not edges) of flap and frame;
Supporting construction	- the product is fixed to a rigid supporting construction with minimum thickness of 250 mm and minimum bulk density of 613 kg/m^3.

7. LIMITATIONS

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

The classification is valid until 05. 02. 2031 provided that the product, field of application and standards and regulations are not changed.

Approved by:

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Head of the Testing Laboratory

Prepared by:

Ing. Anna Rástocká
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