

FIRE RESISTANCE EXPERT JUDGEMENT REPORT WITH CLASSIFICATION

FIRES- JR-102-22-NURE

Partition, type M84 FR Alumil glazed by PYROBEL 25

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FIRE RESISTANCE EXPERT JUDGEMENT REPORT WITH CLASSIFICATION

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Name of the product: Partition, type M84 FR Alumil glazed by PYROBEL 25

Sponsor: Alumil SA
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1. INTRODUCTION

This expert judgement report with classification defines the resistance to fire classification assigned to element Partition, type M84 FR Alumil glazed by PYROBEL 25.

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.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Partition, type M84 FR Alumil glazed by PYROBEL 25, is defined as a is defined as a as a non-loadbearing partition with fire resistance separation function.

2.2 PRODUCT DESCRIPTION



DIMENSIONS

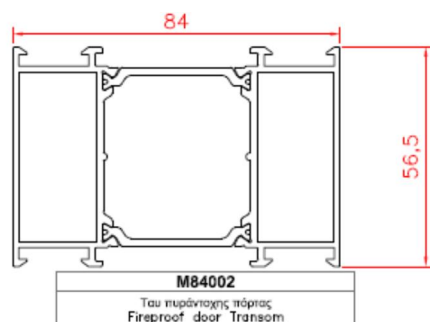
Overall dimensions of the wall (dimensions of the tested specimen):	(3 950 x 3 400) mm (width x height)
Thickness of the frame:	84 mm
Dimensions of glass panes:	(1500 x 2500) mm (width x height) (2265 x 1500) mm (width x height) (1500 x 715) mm (width x height) (900 x 715) mm (width x height) (900 x 936) mm (width x height)
Non-glass panel:	(1300 x 1715) mm (width x height)

Art. numbers of components are delivered by the sponsor.



CONSTRUCTION OF THE WALL FRAME

Framing system is made of 3-chamber system aluminium alloy profiles No. M84002 (84 x 56,5) mm, thickness of the profile wall is 1,8 mm, with interrupted thermal bridge made of polyamide type 38 mm U-shape GF25 (manufacturer: Alumil SA, Greece).



Central chamber of the profile is filled by Palstop® P Ax (manufacturer: Branddex Sp. Z o.o.) art. No. 680-01-001-00.

Individual profiles of the frame are connected together by means of:

- : insulated inner corner inserts aluminium alloy 6060 T6 connectors art. No. 113-43-194-00 with dimensions of (43,4 x 19,2) mm – these corner connectors are used for joining of the perimeter frame;
- : insulated inner aluminium alloy 6060 T6 - T-connectors art. No. 160-77-432-00 with dimensions of (19,6 x 23) mm are used for connection of the mullions and transoms with perimeter frame;

All connectors are used as a double for each joint of profiles (connectors are put into the outer chambers of profiles). Connectors are insulated by mastic type Fire acrylic B1 art. Nr. 770-01-414-00.

- : outer stainless steel stripe connectors-anchoring pieces art. Nr. 680-03-020-00 with dimensions of (16 x 72 x 1,5) mm are placed around the perimeter of the partition frame, in distance 200 mm from the top edges of frame and next in spacing 375 mm at the vertical edges and in spacing 394 mm at the horizontal edges of the frame. Outer connectors are fixed to the door frame profile by means of stainless-steel screws (Ø 4,2 x 19) mm art.nr. 798-21-242-19 (2 pcs per each connector);

There are used also additional stainless-steel screws Pan Head (Ø 4,2 x 19) mm art. Nr. 798-21-242-19 placed 300 mm from the edges of frame. These screws are used for holding the cooling material bars in place when filling the hollow chamber and crimping the corners.

TYPE OF FRAME CONNECTION

Construction of the partition includes “T” joints and “+” joints.





INTUMESCENT TAPE

Self-adhesive Intumescent tape, type Tecnoflame (27 x 2) mm art. Nr. 680-01-011-00 (manufacturer: Marvon Srl) is placed around the inner perimeter of profiles (around glass panes and non-glass panel).

GLAZING

Partition is glazed by laminated glass PYROBEL 25 with thickness of 26,6 mm thick (manufacturer: AGC group) and one non-glazed panel 27,5 mm thick.

Non-glazed panel consists of two layers of fire resistance plaster boards, type F (manufacturer: KNAUF), each of 12,5 mm thick, with bulk density of 820 kg/m³, covered by DKP steel sheet 1,25 mm thick. Individual layers of non-glazed panel are glued together with Natural Silicone art. No. 770-02-001-05 applied on the full board surface. Perimeter edge of panel is covered by the aluminium tape.

Glazing system

Glass panes and also non-glass panel are fixed in mid-width of the profile. Symmetrical glazing.

Individual glass panes and non-glass panel are fixed to the frames by means of mounting plate brackets art. Nr. 680-03-001-00 with dimensions of (30 x 72 x 1,5) mm and fixing brackets 680-03-004-00 size (22 x 16,5 x 1,5 x 30) mm. These brackets are fixed to the profiles by means of steel screws PH (Ø 4,2 x 19) mm art. Nr. 798-21-242-19 (2 pcs per one bracket). Position of brackets acc. to drawings. The glazing setting blocks with dimensions of (70 x 30) mm with thickness of 4 mm art. Nr. 680-10-014-00 are placed at position of glazing fixing brackets.

Strips of ceramic fireproof tape, type KERAFIX® 2000 Classic (mix of calcium magnesium silicate) (manufacturer: RolfKuhn GmbH) (15 x 4) mm art. Nr. 720-61-542-00 are placed on L-holders in contact with glass panes.

The adhesive mastic Fire Acrylic sealant (manufacturer: Elastotet) art. Nr. 770-01-414-00 is used to hold the glass setting blocks at place and around the perimeter of glass panes and non-glass panel in contact with glazing beads.

Clips-on aluminium glazing beads art. No. S60486 with dimensions of (24,5 x 26,6) mm, are installed at the end of glass pane and non-glass pane fixation, from both panels faces. (Glazing beads are butt-jointed together in the corners of glazing).

Glazing EPDM sealing profiles catalogue No. 200-08-004-01 (9,7 x 7,7) mm, 4 mm in compressed state, are placed around the perimeter of glass panes and non-glass panel, from both faces.

2.3 DESCRIPTION OF THE WALL FIXATION

Wall is fixed to the standard rigid supporting construction made by aerated concrete blocks 200 mm thick with bulk density in according to EN 1363-1: 650 kg/m³ ±200 kg/m³ (the manufacturer's stated value in the dried steady-state is 450 kg/m³). Individual blocks are joined by thin layer of gypsum plaster for aerated concrete blocks.

Wall is installed in mid-thickness of the supporting construction by means of stainless-steel frame connectors-anchoring pieces art. Nr. 680-03-020-00 with dimensions of (16 x 72 x 1,5) mm, incl. brackets for fixation (200 x 22 x 2) mm. Brackets are placed in distance 200 mm from the top edges of frame and next in spacing 375 mm at the vertical edges and in spacing 394 mm at the horizontal edges of the frame.

Connectors-anchoring pieces are fixed to the perimeter frame profile by means of stainless-steel screws (Ø 4,2 x 19) mm art.nr. 798-21-242-19 (2 pcs per each connector).

The brackets for fixation are fixed to the supporting construction by means of steel screws (7,5 x 150) mm at both wall faces – staggered fixation.



The gap, 10 mm wide, between the door frame and supporting construction is filled by one component polyurethane foam, type MARVON TECNOFOAM, covered by adhesive mastic Fire Acrylic sealant B1 art. nr 770-01-414-00 (manufacturer: Elastotet).

One vertical edge of the partition was not fixed – free edge (free edge at the side of the largest portrait-oriented glass pane). Gap between the test specimen and supporting construction was filled by mineral wool boards (reaction to fire class A1), 50 mm thick with bulk density of 100 kg/m³.

More detailed information about product construction is shown in drawings which create part of 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	Alumil SA, Thessaloniki, Greece	FIRES-FR- 006-09-AUNS	19. 01. 2022	EN 1364-1: 2015

[1] Test specimen was conditioned according to EN 1363-1 before the fire resistance test

3.2 TEST RESULTS

No./ Test method	Parameter		Results
[1]	supporting construction		standard rigid supporting construction made by aerated concrete blocks 200 mm thick with bulk density in according to EN 1363-1: 650 kg/m ³ ±200 kg/m ³
	temperature curve		standard temperature time curve
	loadbearing capacity		-
	integrity	cotton pad	74 minutes
		gap gauges	74 minutes no failure
		sustained flaming	74 minutes
	thermal insulation	average temperature (140 K)	74 minutes
		maximal temperature (180 K)	Non glazed panel: 56 minute 54 minutes*
	radiation		74 minutes no failure
	mechanical action		-
	orientation of the specimen		symmetric construction of the partition
	other parameters		deflection of the specimen 100 mm reached in 7 th minute of the test

Note: * failure of the insulation – maximal temperature failure is caused by failure criteria of the maximal temperature measured on the non-glazed panel. Maximal temperature measured on the wall frame and glass panes were not failed during 74 minutes of test.

[1] The test was discontinued in 76th minute of the test duration because of the specimen integrity failure.



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. Replace of the non-glass panel by glass specified in clause 2.2.

5. ARGUMENTS IN FAVOR OF THE EXTENSION

1. It is allowed replace of non-glass panel by glass panel specified in clause 2.2 based on non-glass panel and glass panes dimensions. Tested dimensions of glass panes and non-glass panels were as follows:
 - dimensions of the largest glass pane was (2265 x 1500) mm (width x height) and (1500 x 2500) mm (width x height);
 - dimensions of tested non-glass pane was (1300 x 1715) mm (width x height).
 This change is allowed based on tested glass panes dimensions. Replace of the non-glass panel by glass panel does not mean increase of the dimensions. Criteria for insulation and integrity of glass panes were not failed during 74 minutes of test. It is possible to assume, that complete glazed wall will meet criteria for integrity, insulation and radiation during minimal 60 minutes.

6. CLASSIFICATION AND FIELD OF APPLICATION

6.1 CLASSIFICATION

The element, Partition, type M84 FR Alumil glazed by PYROBEL 25, is classified according to the following combinations of performance parameters and classes as appropriate.

**Fire resistance classification:
E 60; EI 60; EW 60**

Fire resistance classification of the product incorporates non-glass panel specified in clause 2.2 is **E 60; EI 45; EW 60**.

6.2 FIELD OF APPLICATION

This classification is valid for the following end use applications:

Installation angle	Change of slope of installation angle $\pm 10^\circ$ from the vertical plane is allowed under condition that height of the partition is not larger than tested (max. height of the wall 3 400 mm).
Height of the glazed element	Height of the partition shall not be increased as tested (maximal allowed height of partition is 3400 mm). Decrease of the height is allowed.
Width of the glazed element	Width of the partition may be increased by replication of the tested glazed element or parts thereof. Decrease of the width is allowed.
Linear dimensions and area of individual rectangular glass pane	Linear dimensions of the rectangular glazed panes may be decreased. Height of the landscape pane may be increased and/or the width of the portrait pane may be increased under condition, that area of the pane after increasing the linear dimensions shall not exceed 3,545 m ² . Calculation acc. to: $A \leq \frac{1}{2} * (A_{\text{portrait, max}} + A_{\text{landscape, max}})$: A = area of assessed glass pane $A_{\text{portrait, max}}$ = maximum area of tested portrait-oriented glass pane $A_{\text{landscape, max}}$ = maximum area of tested landscape-oriented glass pane



	Hereabove allowed increasing is allowed under conditions, that maximal width / height of glass panes (landscape orientation / portrait orientation) is not increased as tested: : maximal width 2265 mm; : maximal height 2500 mm. Glazing system is not changed.
Non-glass panel	Construction of the non-glass panel shall not be changed as tested. Dimensions of the non-glass panel may be decreased. Increasing of the non-glass panel dimensions is not allowed.
Glazing beads	Clip-on beads may be replaced by screwed glazing beads.
Framing system	The distance between mullions and / or transoms may be decreased (depending on the glass panes dimensions – see above). Distance between fixing centres may be decreased from tested.
Supporting construction	Wall may be installed into the standard rigid supporting construction with minimal thickness is 200 mm and minimal bulk density of 650 kg/m³.

7. LIMITATIONS

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

The classification is valid until 13. 12. 2027 provided that the product, field of application and standards and regulations are not changed.

Approved by:

Ing. Štefan Rástocký
Chief Operating Officer

Prepared by:

Michaela Gorlická
Technician of the Testing Laboratory

