

CLASSIFICATION IN ACCORDANCE WITH EN 13501-2: 2016 FIRES-CR-249-22-AUPE

Single leaf Balcony Door, type S77 FR Alumil

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**CLASSIFICATION
IN ACCORDANCE WITH
EN 13501-2: 2016
with direct field of application
FIRES-CR-249-22-AUPE**

Name of the product: Single leaf Balcony Door, type S77 FR Alumil

Sponsor: Alumil SA
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Greece

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Task No.: PR-22-0121/01

Date of issue: 16. 11. 2022

Reports: 2
Copy No.: 2

Distribution list:

Copy No. 1 FIRES, s. r. o., Osloboditeľov 282, 059 35 Batizovce, Slovak Republic
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1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to element Single leaf Balcony door, type S77 FR Alumil in accordance with the procedures given in EN 13501-2: 2016.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Single leaf Balcony door, type S77 FR Alumil, is defined as:

Product Technical Specifications: EN 16034: 2014

Product family: pedestrian doorsets and/or openable windows and/or inspection hatches which are hinged or sliding, intended for the installation in areas in the reach of persons, and for which the main intended uses are giving safe access for persons

Mode of operation: normally maintained locked in the closed position / permanently closed

Intended use: fire compartmentation

End-use application: for fire compartmentation uses

2.2 PRODUCT DESCRIPTION



DIMENSIONS

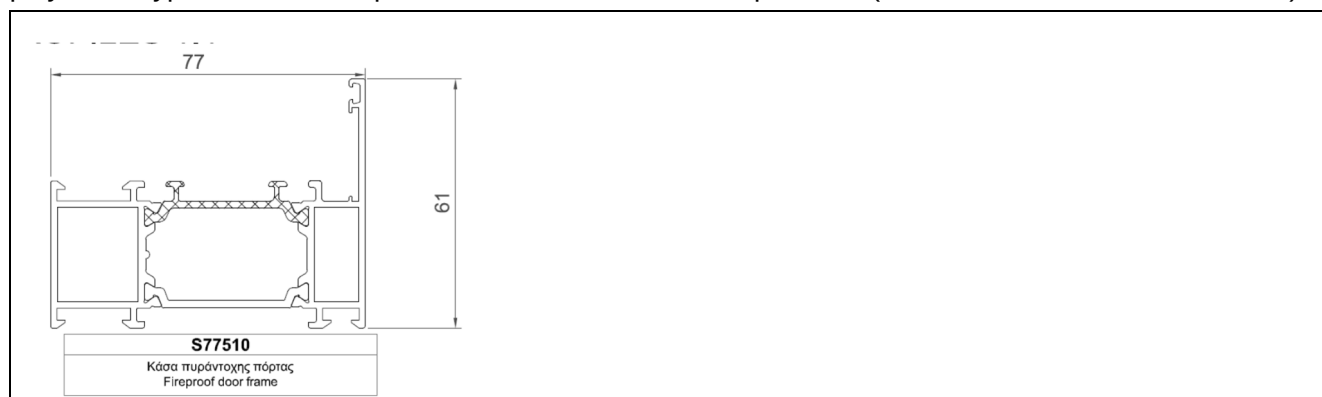
Overall dimensions of the door:	(1 100 x 2 200) mm (width x height)
Overall dimensions of the door leaf:	(1 040 x 2 140) mm (width x height)
Weight of the door leaf:	139,0 kg
Wall opening:	(1 120 x 2 220) mm (width x height)

Art. numbers of components are delivered by the sponsor.



DOOR FRAME

Frame of the specimen (all used frame profiles) is made of 3-chamber system aluminium alloy profiles No. S77510 (77 x 61,8) mm, thickness of the profile wall is 1,6 mm, with interrupted thermal bridge made of polyamide type 40 mm U-shape GF25 and 40 mm U-2T shape GF25 (manufacturer: Alumil SA, Greece).

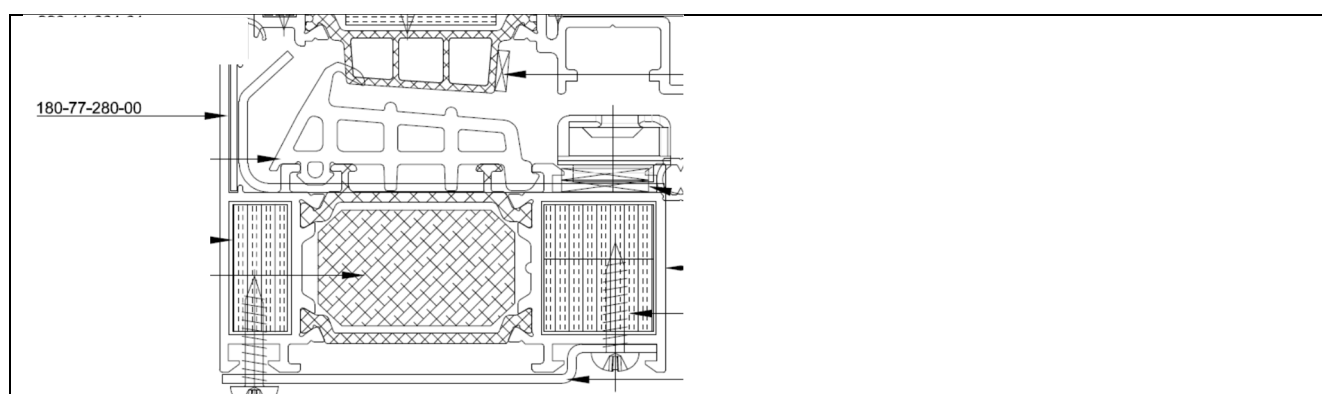


Central chamber of the profile is filled by insulation board from the fenolitic foam type KOOLTHERM K3 (manufacturer: Kingspan), with dimensions of (34 x 20) mm and bulk density of 35 kg/m³ art. Nr. 313-25-021-00.

Two (outer) chambers are filled by plaster boards type B Knauf GKB (manufacturer: Knauf) with dimensions of (22 x 19) mm art. Nr. 680-77-512-00 and (9,5 x 22) mm art. Nr. 680-77-511-00 and bulk density of 700 kg/m³.

Individual profiles are connected together by means of double corner inserts aluminium alloy 6060 connectors art. No. 113-23-102-00 and art. No. 113-23-196-00. Connectors are put into the outer chambers of profiles and are insulated by mastic type Fire acrylic B1 art. Nr. 770-01-414-00.

Profiles are reinforced by means of aluminium alignment corners pieces art. No. 180-77-280-00 with dimensions of (22,2 x 1,5) mm at the frame corners of frame.



The EPDM Foam rubber profile art. Nr. 210-77-924-00 with dimensions of (46 x 21) mm (manufacturer: Semperit) is fixed around the inner perimeter of frame width.

The vulcanized corner art. No. 255-77-924-00 is placed at each inner corner of the frame.

The EPDM rubber profile art. No. 220-11-001-01 (manufacturer: BMP) is fixed around the inner perimeter of frame as a sealing door-stop profile.

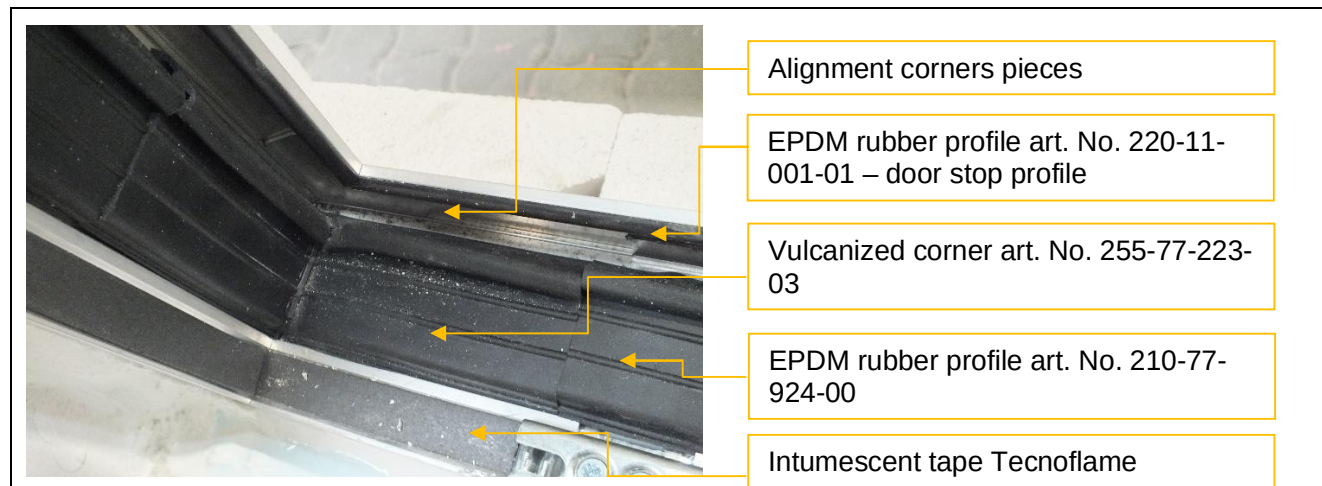
Connectors-anchoring pieces are fixed to the frame of door as follows:

- outer stainless stripe connectors-anchoring pieces art. No. 680-77-510-00 with dimensions of (16 x 75) mm (position acc. to drawings);



- inner stainless stripe connectors-anchoring pieces art. No. 680-77-005-00 with dimensions of (25 x 73 x 24) mm (position acc. to the drawings). These pieces are placed under the EPDM rubber profile art. No. 210-77-924-00

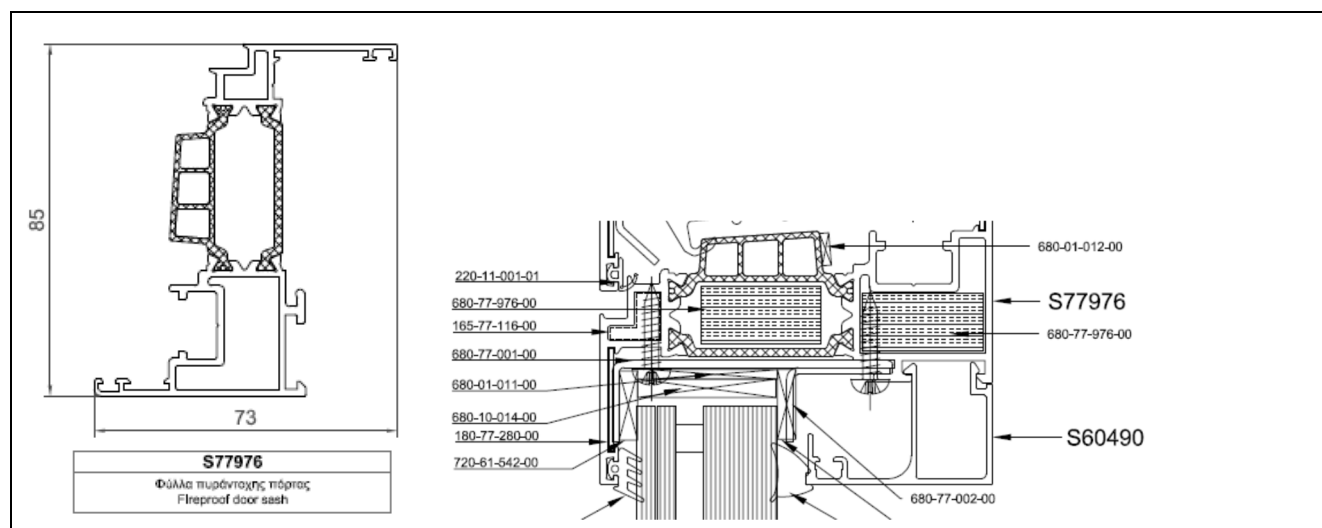
Intumescent tape art. No. 720-61-521-00 with dimensions of (15 x 2) mm type Tecnoflame (manufacturer: Marvon Srl) is placed around the inner perimeter of the frame outside of EPDM sealings.



DOOR LEAF

Frame of the door leaf is made of system aluminium alloy profiles S77976 (85 x 73) mm, thickness of the profile wall is 1,6 mm, with interrupted thermal bridge made of polyamide type 40 mm U-shape GF25 (manufacturer: Alumil SA, Greece).

Two (inner) chambers are filled by plaster boards type F Knauf GKB (manufacturer: Knauf) with dimensions of (12,5 x 26) mm art. Nr. 680-77-976 and bulk density of 700 kg/m³.

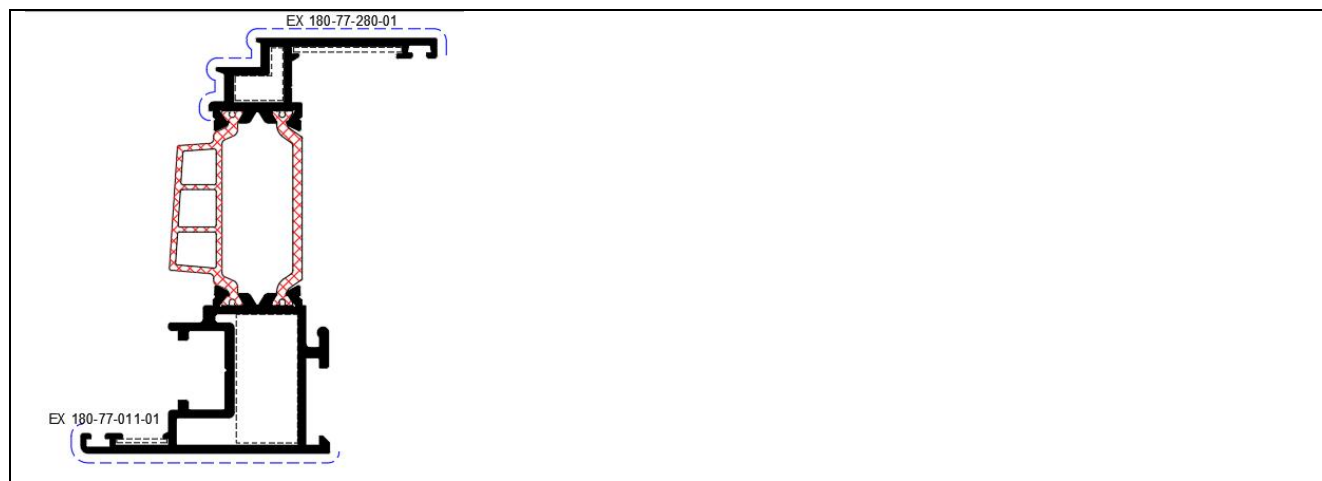


Individual profiles are miter-cut and connected (in angle 45°) together by means of:

: insulated inner corner inserts aluminium alloy 6060 T6 connectors art.113-13-274-00 with dimensions of (12,6 x 26,4) mm;

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.

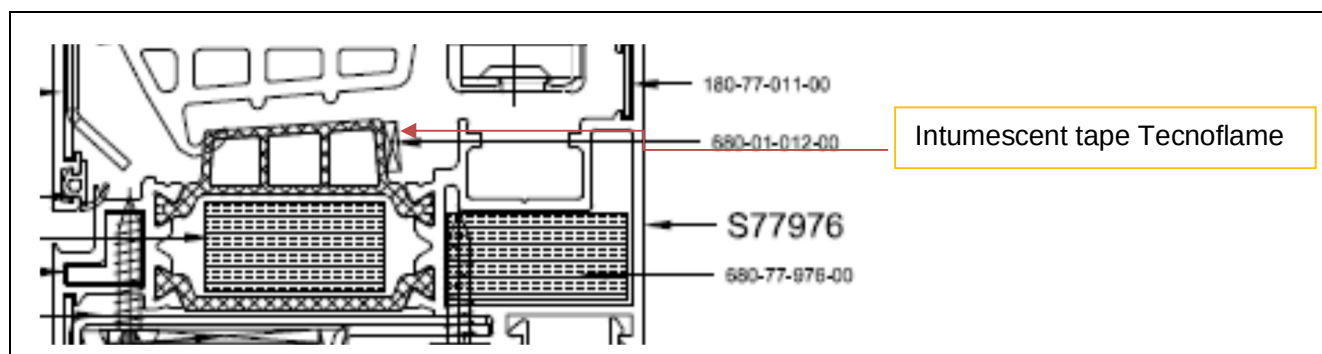
The aluminium alignment corners reinforcement components art. No. 180-77-011-01 with dimensions of (16 x 1,25 mm) and component art. No. 180-77-280-00 with dimensions of (22,2 x 1,5) mm are put into the profiles of door leaf at each their corner.



The EPDM rubber sealing profile art. Nr. 220-60-002-01, (7,2 x 7,7) mm (manufacturer: Alumil) is placed around the perimeter of the door leaf frame.

Intumescent tape

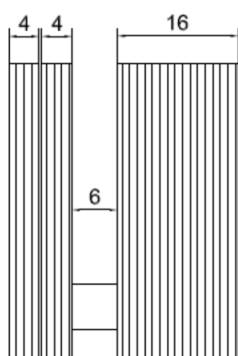
Intumescent tape art. No. 680-01-012-00 with dimensions of (9 x 2) mm type Tecnoflame (manufacturer: Marvon Srl) is placed around the perimeter of door leaf.



Glazing of the door leaf

Door leaf is glazed by insulation double glass consist of PYROBEL EI 30, 16 mm thick (manufacturer: AGC) + 6,0 mm air cavity + 4+4 Ultra 60 hardened glass with 2 x 0,38 mm PVB foil (manufacturer of double insulating glass: Patsis Glass, GR).

Dimensions of glass pane: (928 x 2 028) mm (width x height), 30,76 mm thick.





Glass pane is fixed to the door leaf by means of means of L- shaped fixing brackets art Nr. 680-77-001-00 with dimensions of (30 x 60 x 17,5) mm – at exterior door side and L-shaped fixing brackets art. No. 680-77-002-00 with dimensions of (30 x 22,5 x 16) mm – at interior door side.

These brackets are fixed to the profiles by means of steel screws (4,2 x 13) mm art. Nr. 798-41-242-13 (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 L-shaped holders and at the corners of glazing.

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 at both glass panes faces.

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 pane in contact with glazing beads.

Clips-on aluminium glazing beads art. No. S60490 with dimensions of (26,6 x 40,5) mm, are installed at the end of glass fixation at the interior door face.

Glazing EPDM sealing profiles catalogue No. 200-06-860-01 9,0 mm thick (4 mm in compressed state), are placed around the perimeter of glass pane, at exterior door side.

Glazing EPDM sealing profiles catalogue No. 200-09-006-01 9,0 mm thick (6 mm in compressed state), are placed around the perimeter of glass pane, at interior door side.

DOOR LEAF HARDWARE

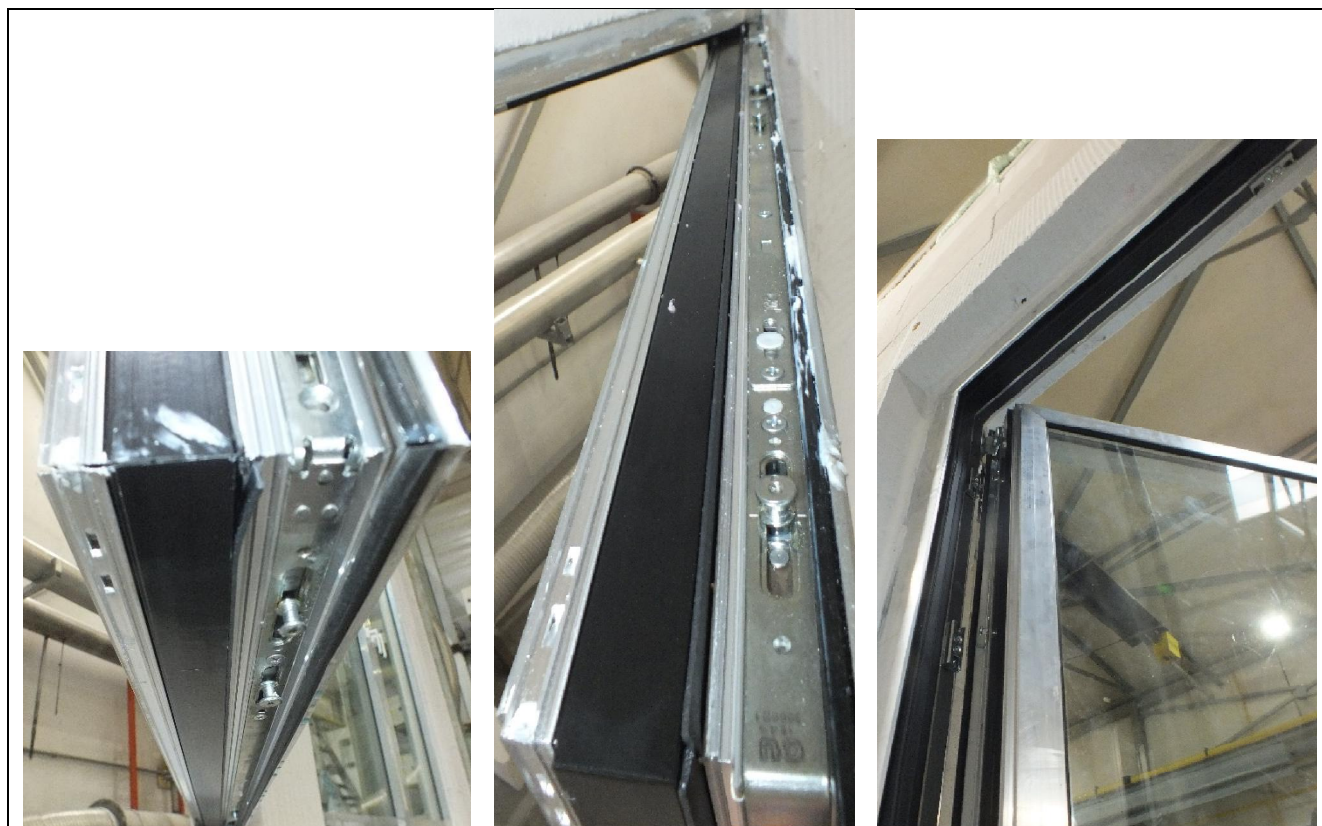
Hinges

Door leaf is equipped with two opening-tilting window hinges type Unijet mechanism (manufacturer: G-U).



**Lock**

Door leaf is ensured with window locking system type Unijet RC2 (manufacturer: G-U) with 12 locking points.



Door leaf is equipped with aluminium handle art. No. 380-90-725-02 (manufacturer: Hoppe Spa).



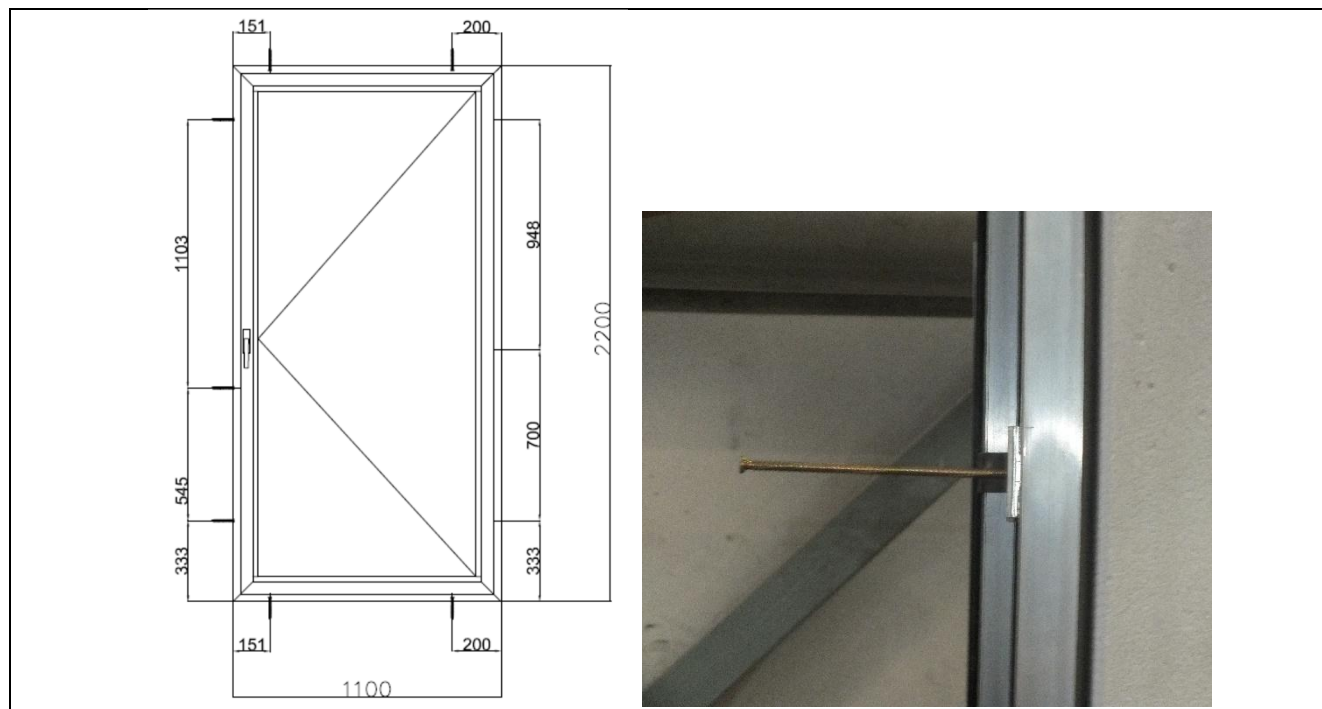
More detailed information about product construction is shown in drawings [1].



2.3 INSTALLATION OF THE PRODUCT

Product is installed into the rigid supporting construction made by aerated concrete blocks, 200 mm thick, with bulk density in according to EN 1363-1: $650 \text{ kg/m}^3 \pm 200 \text{ kg/m}^3$.

Frame of the balcony door is installed in mid-thickness of the supporting construction by means of steel screws (7,5 x 150) mm around the perimeter of door frames. Position of screws as follows:



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

3. TEST REPORTS IN SUPPORT OF CLASSIFICATION

3.1 TEST REPORTS

No.	Name of laboratory	Name of sponsor	Test report No.	Date of the test	Test method	Type of the test
[1]	FIRES, s.r.o., Batizovce, SR	Alumil SA, Thessaloniki, Greece	FIRES-FR-147-22-AUNE	03. 06. 2022	EN 1634-1:2014+A1:2018	A

Type of the test: A – accredited, N – non-accredited

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



3.2 TEST SPECIMENS

Test report No.	Sampling procedure	Conditioning	Pre-fire tests
[1]	FIRES, s.r.o., Certification Body for Products carried out sampling by supervision of production. Sampling data are specified in Sampling report No. FIRES-SR-032-22	The specimen was stored in the hall of testing laboratory and conditioned according to EN 1363-1.	Operability test: EN 16034: 2014 A.2.2: 25 cycles Self-closing test: EN 16034: 2014 A.4: - Ability to release test: EN 16034: 2014 cl. 5.3: - Final settings: EN 1634-1:2014+A1:2018: 1 cycle

3.3 TEST RESULTS

No./ Test method	Parameter		Results
[1] EN 1634- 1:2014+A1:2018	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
	integrity	cotton pad	52 minutes no failure
		gap gauges	52 minutes no failure
		sustained flaming	52 minutes no failure
	thermal insulation	I ₁	43 minutes
		I ₂	51 minutes
	radiation 15 kW.m ⁻²		52 minutes no failure
	mechanical action		-
	operability		passed (25 cycles)
	self closing		- door closed manually
	other parameters		installation by means of screws (7,5 x 150) mm, gap between the frame and supporting construction filled with polyurethane foam, type SOUDAFOAM C&F FR, covered by adhesive mastic Fire Acrylic sealant B1 art. nr 770-01-414-00
	orientation of specimen during test		interior side of the door exposed to fire (fire resistance glass at the exposed door side, opening toward test furnace)

[1] The fire test was terminated in the 53rd minute of the test.



4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 REFERENCE OF CLASSIFICATION

This classification has been carried out in accordance with clause 7.5.5 of EN 13501-2: 2016.

4.2 CLASSIFICATION

The element, Single leaf Balcony door, type S77 FR Alumil, is classified according to the following combinations of performance parameters and classes as appropriate.

**Fire resistance classification:
E 45; EI₁ 30; EI₂ 45; EW 30¹⁾**

classification is valid only from the interior side of the balcony door
(opening of the door toward heating, fire resistance glass and glazing
beads at interior face of door)

Note 1): standard EN 13501-2 does not specify class EW 45, but product meets condition of integrity and radiation during 45 minutes.

Note 2): product does not meet condition for self-closing classification C – product installed without self-closing mechanism

4.3 FIELD OF APPLICATION

This classification is valid according to EN 1634-1:2014+A1:2018 for the following end use applications:

Materials and construction	- the materials and construction of the door shall be the same as that tested; in addition to the changes stated in following text those described in cl. 2.2 of this document are permitted; - the number of leaves and the mode of operation shall not be changed;
Glazing	- the type of glass and the edge technique, incl. type and number of fixing per meter of perimeter, shall not be changed; - the number of glazed apertures within a door leaf shall not be increased; - the distance between the edge of glazing and the perimeter of the door leaf shall not be changed;
Decorative finishes	- alternative paints may be added to the frames; - decorative laminates and timber veneers up to 1,5 mm thickness may be added to the faces of door but not to the edges;
Building hardware	- the number of hinges and bolts of locking mechanism may be increased but shall not be decreased (minimal 2 pcs of hinges);
Dimensions	- reduction of door dimensions is allowed to 50% width and 75% height of dimensions stated in clause 2.2; - reduction of glass pane dimensions only proportionally with reduction of the door is allowed; - for smaller doorset sizes the relative positioning of movement restrictors (e.g. hinges, bolts of locking system) shall remain the same as tested or any change to the distances between them will be limited to the same percentage reduction as the decrease of test specimen size; - increase of the doorset sizes is not allowed;
Gaps	- the maximum size of the primary gaps is restricted to the following sizes in practice: top edge of door leaf max. 8,0 mm; vertical edges of door leaf max. 6,9 mm;



	bottom edge of door leaf max. 5,5 mm; - the size of the primary gaps may be reduced;
Product fixation and supporting construction	- the product is fixed to a rigid supporting construction with minimal thickness of 200 mm; - bulk density of supporting construction may be increased as described in clause 2.3; - position of door – bottom edge of the door at the floor level;
Fixings	- the way of fixing and 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;

5. LIMITATIONS

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

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

Approved by:

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Chief Operating Officer

Ing. Marek Gorlický
Head of the Testing Laboratory

Prepared by:

Michaela Gorlická
Technician of the Testing Laboratory

