

CLASSIFICATION OF FIRE RESISTANCE

FIRES-CR-271-22-NURE

Single leaf and double leaf door, type M84 FR Alumil

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CLASSIFICATION OF FIRE RESISTANCE **with extended field of application**

FIRES-CR-271-22-NURE

Name of the product: Single leaf and double leaf door, type M84 FR Alumil

Sponsor: Alumil SA
8 I.Gogousi str-Efkarpia
GRB 56429 Thessaloniki
Greece

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Task No.: PR-21-0457/11

Date of issue: 14. 12. 2022

Reports: 2
Copy No.: 2

Distribution list:

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1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to element Single leaf and double leaf door, type M84 FR Alumil in accordance with the classes given in EN 13501-2: 2016.

Extended application of test results has been elaborated in accordance with EN 15269-5+A1: 2016 and is stated in extended application report [1] listed in cl. 3.1 of this document.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Single leaf and double leaf door, type M84 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: normal mode of operation (opening and self closing)

Intended use: fire compartmentation.

End-use application: for fire compartmentation uses.

2.2 PRODUCT DESCRIPTION

Product: Single and double leaf doorset typ M84 FR Alumil

DIMENSIONS OF THE SINGLE LEAF DOOR

Overall dimensions of the door:	(1 300 x 2 400) mm (width x height)
Clear opening of door:	(1 205 x 2 342) mm (width x height)
Overall dimensions of the door leaf:	(1 200 x 2 342) mm (width x height)
Thickness of the door leaf:	84 mm
Weight of the door leaf:	182 kg
Wall opening:	(1 320 x 2 410) mm (width x height)

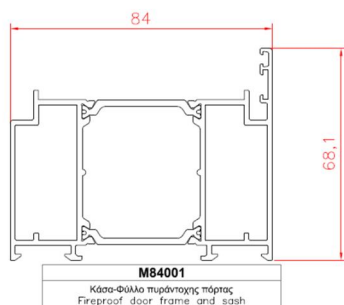
DIMENSIONS OF THE DOUBLE LEAF DOOR

Overall dimensions of the door:	(2 482 x 2 400) mm (width x height)
Clear opening of door:	(2 345 x 2 330) mm (width x height)
Overall dimensions of the door leaf:	(1 200 x 2 342) mm (width x height)
Thickness of the door leaf:	84 mm
Weight of the door leaves:	primary door leaf: 186 kg secondary door leaf: 187 kg
Wall opening:	(2 502 x 2 410) mm (width x height)

Art. numbers of components are delivered by the sponsor.



CONSTRUCTION OF THE DOOR FRAME



Door frame is made of 3-chamber system aluminium alloy profiles No. M84001 (84 x 68,1) 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.

Uprights and transom are connected (in angle 45°) together by means of:

- : inner corner inserts aluminium alloy 6060 T6 connectors art. Nr. 113-43-121-00 with dimensions of (43.4 x 12.1) mm;
- : outer stainless steel stripe connectors-anchoring pieces art. Nr. 680-03-020-00 with dimensions of (16 x 72 x 1,5) mm placed in distance 200 mm from the top edges of frame and next in spacing 400 mm at the vertical edges and in spacing 300 mm at the top member of frame. Outer connectors are fixed to the door frame profile by means of stainless-steel screws (Ø4.2 x 19) mm art.nr. 798-21-242-19 (2pcs per each connector);

****NOTE** The brackets for door frame fixation to the supporting construction are fixed to these outer connectors and their dimensions are (200 x 22 x 2) mm.

- : strips of stainless-steel connectors art. Nr. 680-03-008-00 with dimensions of (65 x 16 x 1,5) mm placed 400 mm from the edges of top frame member and 250 mm from the top edges of uprights and next in spacing 400 mm. These connectors are fixed to the door leaf frame by means of stainless-steel rivets (Ø4 x 10) mm art. Nr. 761-04-010-00 (2pcs per one connector).

The EPDM sealing profile art. Nr. 220-11-002-01, (7 x 7) mm (manufacturer: Alumil, type EPDM shore A70) is placed around the perimeter of door frame.

Additional stainless-steel screws Pan Head (Ø4.2 x 19) mm art. Nr. 798-21-242-19 are 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.

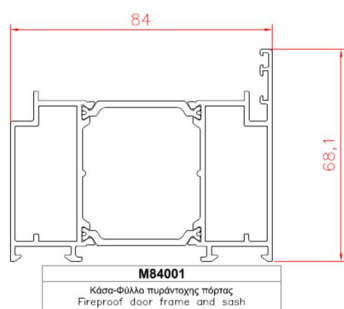
Bottom edges of frame are covered and ensured by mastic type Fire acrylic B1 art. Nr. 770-01-414-00.

Intumescent tape

Self-adhesive intumescent tape, type Tecnoflame (64 x 2) mm (manufacturer: Marvon Srl) art. Nr. 680-01-010-00 is placed around the perimeter of door frame.



CONSTRUCTION OF THE DOOR LEAF



The frame of door leaves is made of 3-chamber system aluminium alloy profiles M84001 (84 x 68,1) 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. Nr. 680-01-001-00.

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

: inner corner inserts aluminium alloy 6060 T6 connectors art.113-43-121-00 with dimensions of (43,4 x 12,1) 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.

: strips of stainless-steel connectors catalogue No. 680-03-008-00 with dimensions of (65 x 16 x 1,5) mm placed 150 mm – 200 mm from the edges of door leaf frame members and next in spacing 750 mm (and at the top and bottom of lock fixation). These connectors are fixed to the door leaf by means of stainless-steel rivets (Ø4 x 10) mm art. Nr. 761-04-010-00 (2pcs per one connector).

The EPDM sealing profile art. Nr. 220-11-002-01, (7 x 7) mm (manufacturer: Alumil, type EPDM shore A70) is placed around the perimeter of door frame.

Weathering aluminium additional profile Nr. M84004, with side plastic end-caps art. Nr. 310-11-170-00, is fixed at the bottom of door leaf frame edge by means of screws PH (Ø4.2 x 32) mm art. Nr. 798-21-242-32.

Two EPDM sealing gaskets art. Nr. 250-11170-01 (manufacturer: ALUMIL, type EPDM Shore A70) are also included.

Plastic end-caps have brushes to seal the gap between door frame and frame of the door leaf when door is closed.

Modification 1: horizontal rails in door leaf

The horizontal rail profile type 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 of horizontal rail is filled by Palstop® P Ax, with bulk density of 1700 kg/m³ (manufacturer: Branddex Sp. Z o.o.) art. Nr. 680-01-001-00.

Horizontal rail is positioned at the centre of the door height. Moving upwards or downwards is possible.

Intumescent tape

Self-adhesive Intumescent tape, type Tecnoflame (64 x 2) mm (width x thickness) (manufacturer: Marvon Srl) art. No. 680-01-010-00 is placed around the perimeter of door leaf frame except of the bottom edge, where tape type Tecnoflame (27 x 2) mm is used.



GLAZING OF DOOR LEAVES – symmetrical positioned glass in door leaf construction

Door leaves are glazed by means of glass PYROBEL 25 EI 60, thickness of 26,6 mm (AGC, Greece).

Clips-on aluminium glazing beads art. No. S60486 with dimensions of (24,5 x 26,6) mm, are installed at the end of glass fixation from both glass pane faces.

Modification 5: type of the glass and used glazing beads

Door leaves may be glazed by multi-laminated glass Pyroguard INT, 23 mm thick (manufacturer: Pyroguard).

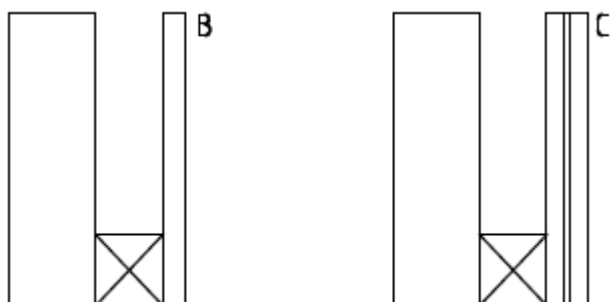
Adequate clips-on aluminium glazing beads art. No. art. No. M11453 with dimensions of (26,5 x 26,6) mm are used.

Maximal dimensions of one glass pane:

(1056 x 2198) mm (width x height)

Modification 12: using of insulating glass unit

Insulating glass consist of fire resistance glass type PYROBEL 25 EI 60 or Pyroguard INT 23 and monolithic counter pane (picture B) or laminated counter pane (picture C) with or without additional coatings may be used under condition that added glass does not increase weight of the door leaf more than 25 % (maximal allowed weight of one door leaf is 227 kg).



Counter pane may be added into the exterior face of the door only.

Adequate clips-on non-insulating aluminium glazing beads are used.

Glass pane is fixed in mid-width of the profile. Symmetrical glazing.

Glass pane is fixed to the door leaf frame by means of L- shaped fixing brackets art Nr. 680-03-001-00 with dimensions of (30 x 72 x 1,5) mm and 680-03-004-00 size (22 x 16.5 x 1.5 x 30) mm. These brackets are fixed to the door leaf frame by means of steel screws PH (Ø4,2 x 19) mm art. Nr. 798-21-242-19 (2 pcs per one bracket). Position of brackets acc. to drawings.

The glazing setting blocks made of strips 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 door frame leaf.

The 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 in edge joint of L-holders and glass pane.

The adhesive mastic Fire Acrylic sealant (manufacturer: Elastotet) is used to hold the glass setting blocks in place.

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 pane, from both glass faces.

**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 perimeter of door leaf profile around the perimeter of glass pane.

DOOR LEAF HARDWARE**Hinges**

Minimal 4 pcs of steel 3-wings hinges type Tuerband 4 (manufacturer: Dr Hahn, Germany), fixed to door leaf and door frame by means of special steel screws included (Ø13 x 60) mm.

Position of hinges (centre of hinge):

- 160 mm from the bottom edge;
- 1050 mm from the bottom edge;
- 200 mm from the top edge;
- 500 mm from the top edge.

Safety bolts

Minimal 4 pcs of stainless safety bolts Ø 10 mm (catalogue No. 680-03-010-00) are positioned at the hinged door edge, at position of each hinge. These bolts are fixed to the frame of the door leaf by means of stainless-steel rivets art Nr. 761-04-010-00.

Lock / dog bolts

Lock (locking system for single leaf door resp. primary door leaf of the double leaf door)

Door leaf (in case of double leaf door – primary door leaf) is equipped with single mortise standard door lock type **BKS B-1126** (manufacturer: GU BKS) (Art. Nr.490-26-002-16).

Position of central latch is 1090 mm from the bottom edge of door leaf (centre of the latch).

The lock is fixed to the door leaf frame by means of stainless-steel threaded stripes art Nr. 680-03-012-00 with (M5 x 25) mm screws art Nr. 798-82-205-25. Stainless steel stripes are fixed with stainless steel rivets art nr. 761-04-010-00.

Nickel security cylinder 55/55 type ISEO art.Nr. 460-55-555-00 (manufacturer: Iseo Serrature s.p.a.).

Strike plate for latch type stainless-steel lock striker art. Nr. 680-03-015-00 (manufacturer: Alumil) is fixed with stainless steel rivets art Nr. 761-04-010-00.

Modification 2: locking system for single leaf door resp. primary door leaf of the double leaf door

- door leaf (primary door leaf of double leaf door) may be equipped with 3-point self-locking door lock with panic function, type BKS **SECURY 1919** (manufacturer: GU BKS) (the supplier has changed the code at 6-B1917-07-L-8).

Latches of the lock are positioned as follows:

Bottom latch – 285 mm from the bottom of door leaf;
Central latch – 1 090 mm from the bottom of the leaf;
Top latch – 540 mm from the top of the leaf.

Strike plate - Two additional stainless steel locking strike plates (manufacturer Alumil) art Nr. 680-03-016-00 are fixed with stainless steel rivets art Nr. 761-04-010-00 (for top and bottom latch).



- door leaf (primary door leaf of double leaf door) is equipped with single mortise door lock type **B-1820 B** with panic function (manufacturer: GU BKS) (art. Nr.490-82-021-16).

The lock is fixed to the door leaf frame by means of stainless-steel threaded stripes art Nr. 680-03-012-00 with (M5 x 25) mm screws art Nr. 798-82-205-25. Stainless steel stripes are fixed with stainless steel rivets art nr. 761-04-010-00.

Strike plate for central latch type stainless-steel lock striker art. Nr. 680-03-015-00 (manufacturer: Alumil) is fixed to the door leaf by means of stainless-steel rivets art Nr. 761-04-010-00.

- door leaf (primary door leaf of double leaf door) is equipped with **single mortise locks / panic locks series B-18xx or multiple mortise lock (3-point lock) series B-19xx** (manufacturer: GU BKS) with steel latch / latches with dimensions minimal (12 x 32) mm (depth x height).

Maximal overall dimensions of lock body are (202 x 55 x 15,5) mm.

Position of latches for single point locks resp. multiple point locks as stated above.

Locks are fixed to the door leaves by means of steel screws (fixation material for locks is included lock components).

Strike plates as stated above.

Secondary door leaf is ensured by automatic dog bolt, centrally operated, **type B-1899** (manufacturer: BKS) Art. Nr. 440-99-204-00 consist of components as follows:

- type B1895 (manufacturer G-U) Art. Nr 490-95-003-50 at the top with strike plate Type B9000 0490 (manufacturer G-U) Art Nr 416-90-004-00.
- type B9019 (manufacturer G-U) bottom guide plate Art. Nr. 490-19-001-50 with floor striker Type B-00280-20-0-8 (manufacturer G-U) Art. Nr. 490-00-280-10.
- the rods Type B9006 (manufacturer G-U) Art. Nr. 490-90-061-50 & 416-90-065-00.

Strike plate for bolts type stainless-steel lock striker art. Nr. 416-90-004-00 for top bolt and art. No. 490-00-280-10 for bottom bolt (manufacturer: Alumil) are fixed with stainless steel rivets art Nr. 761-04-010-00.

Modification 3: dog bolt - alternative

Secondary door leaf is equipped with dog bolts, type **BKS B-1990** (manufacturer: BKS) art. Nr. (490-90-002-16) with spring-loaded vertical rods art Nr (490-90-061-50 & 416-90-065-00) which are triggered automatically by control lock.

Stainless rosette hardware (handle / handle), type Narrow stile lever set with rosettes (manufacturer: GU). Art Nr. 490-03-001-16 and GU 7840 (145 x 9) mm spindle Art. Nr. 490-40-015-16.

Modification 4: face mounted operating device

Panic hardware (push bar / knob):

- Push bar type B-7192-5100-0500 art Nr (490-71-920-03) for primary door leaf with cross bar art. Nr. (490-71-004-33) (G-U);
- Push bat type B-7100-5100-0500 art Nr (490-71-005-03) for secondary door leaf with cross bar (490-71-004-33) (G-U);
- Narrow stile half-set with rosette and knob type B-72630-01-0-8 (G-U) art. Nr. (490-72-630-16);

Rosette hardware (handle / handle):

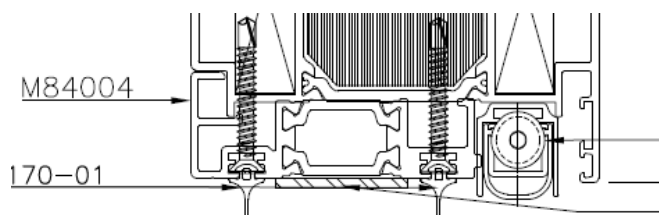
- type BKS B-72030-01-0-8 with 9 mm spindle (manufacturer: BKS) (art. Nr.490-03-001-16) with 9 mm split spindle type BKS B-78430 art. Nr. 490-43-099-11.

Other types of face mounted operating devices made of metal components may be used.



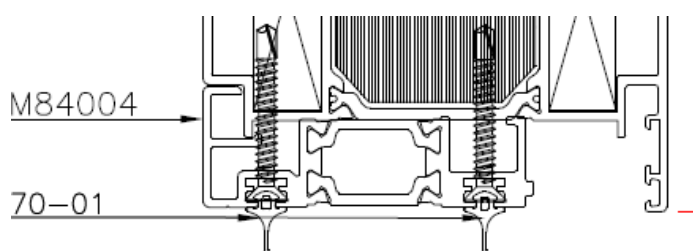
Automatic drop-down seal

Automatic drop-down seal type ALU PLUS ASPAL (manufacturer: CCE srl) Art. Nr. 471-61-230-00 installed at the bottom of door leaf by means of steel screws.



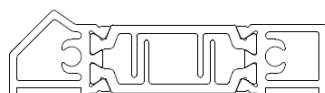
Modification 6: remove of automatic drop-down seal or adding of threshold

- Door may be installed without automatic drop-down profile:



Threshold

Fixed threshold profile may be installed at the bottom of the door frame and it is made of system aluminium alloy profiles No. M11684 (84 x 68,1) mm with intumescent tape Tecnoflame (27 x 2) mm art. No. 680-01-011-00 (manufacturer: Marvon Srl).



M11684

Κατωκάσι πυράντοχης πόρτας
Fireproof threshold profile

Automatic closing device and door coordinator (used for double leaf door)

Surface mounted automatic closing device type G-U OTS 430 (manufacturer: G-U), installed at each door leaf.

Surface mounted mechanical coordinator type G-U B 8641 0000 (manufacturer GU) art.Nr. 490-86-410-00 is installed at the top of door frame and arm of coordinator is installed at the top of the secondary door leaf.

Modification 9: alternative face mounted door closer

Surface mounted automatic closing device type TS5000 (manufacturer: GEZE) art. Nr. 472-50-100-11 with sliding arm installed with surface mounted coordinator of self-closing type GEZE guide rail 115600 or 116295.



Hold-open device

The electro-magnetic hold open device (manufacturer: GEZE) type: Door Magnet Surface Mounted 155569. Floor bracket for door 155574 and Counter plate 115954 are installed at the bottom edge of door leaf.

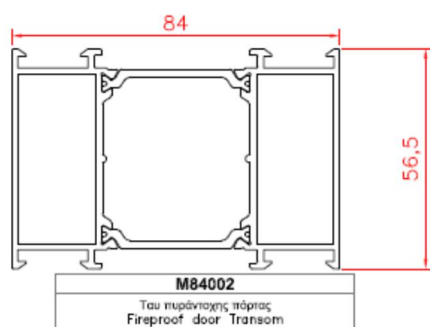
Modification 7 – **SIDE / TRANSOM PANELS**

Arrangement of side / transom panels acc. to EN 15269-5+A1: 2016 Annex B (side panels may be situated at one or both vertical edges of the door).

Dimensions

Overall dimensions of the transom panel:	(855 x 2 800) mm (height x width)
Overall dimensions of the side panel:	(1 499 x 2 545) mm (width x height)
Max. dimensions of glass pane for the side panel:	(1 406 x 2 452) mm (width x height)
Glass pane for the transom panel:	(2 679 x 762) mm (width x height)

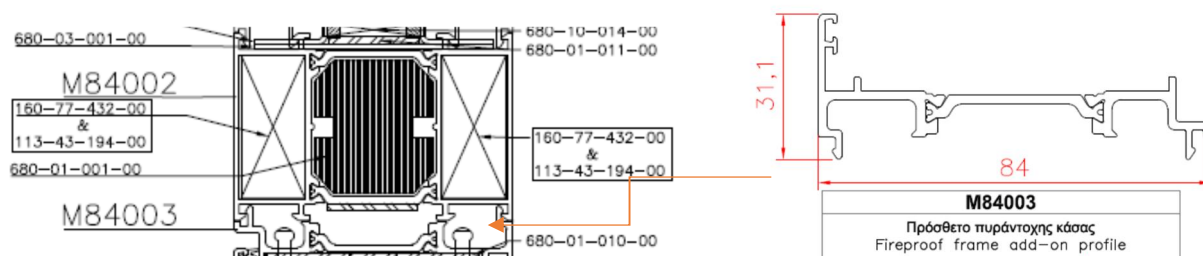
Framing of the side and transom panels is made of is made of 3-chamber system aluminium alloy profiles No. M84002 (84 x 56,5) mm, thickness of the profile wall is 1,8 mm, with interrupted thermal bridge made of polyamide type 38 mm U-shape GF25 (manufacturer: Alumil SA, Greece).



“T” and “X” connections of profiles.

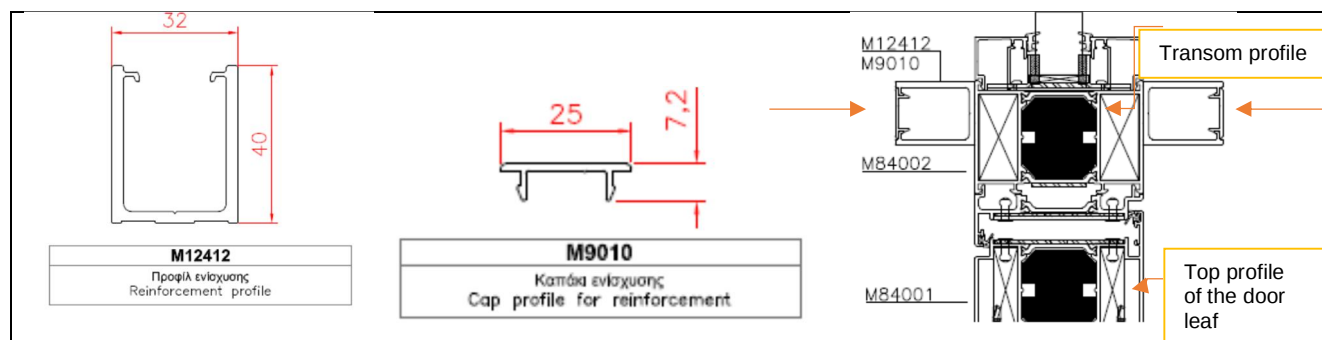
Central chamber of the profile is filled by Palstop® P Ax (manufacturer: Branddex Sp. Z o.o.) art. No. 680-01-001-00.

The fire proof frame add-on profile No. M84003 is placed around the frame which creates door frame for the door leaf.



Transom profile (above the door leaf) / vertical framing profile in connection of door leaves are reinforced by additionally installed aluminium profiles art. No. M12412 (40 x 32) mm with cap art. No. M9010 (7,2 x 25) mm, thickness of the profile wall is 1,8 mm.

These profiles are un-insulated and they are fixed at the both faces of the frame by means of galvanized screws PH (Ø 4,8 x 19) mm art. Nr. 798-41-248-19 placed in spacing 400 mm.



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

- : insulated inner corner inserts aluminum 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 transom profile above the door leaf with vertical frame profiles and the vertical mullion with transom;

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.

- : inner strips of stainless-steel connectors art. Nr. 680-03-008-00 with dimensions of (65 x 16 x 1,5) mm are placed 400 mm from the edges of horizontal frame members and 250 mm from the vertical frame members and next in spacing 450 mm (only around the door leaf). These connectors are fixed to the frame members by means of stainless-steel rivets ($\varnothing$ 4 x 10) mm art. Nr. 761-04-010-00 (2 pcs per one connector). These connectors keep also intumescent tape at its place.
- : 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 in distance 200 mm from the top edges of frame and next in spacing 375 mm at the vertical edges and in spacing 396 mm at the top member of frame. Outer connectors are fixed to the door frame profile by means of stainless-steel screws ($\varnothing$ 4,2 x 19) mm art.nr. 798-21-242-19 (2 pcs per each connector);

The brackets for door frame fixation to the supporting construction are fixed to these outer connectors and their dimensions are (200 x 22 x 2) mm.

The EPDM sealing profile art. Nr. 220-11-002-01, (7 x 7) mm (manufacturer: Alumil, type EPDM shore A70) is placed around the perimeter of door frame.

There are used also additional stainless-steel screws Pan Head ($\varnothing$ 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.

Glazing of side / transom panel

Side / transom panels are glazed by laminated glass:

PYROGUARD EI 60, 23 mm thick (manufacturer: VASGLASS Greece licensed by Pyroguard Technical Fire Safety Group);

or

PYROBEL 25 with thickness of 26,6 mm thick (manufacturer: AGC group).

Glass panes are fixed in mid-width of the profiles. Symmetrical glazing.

Individual glass panes are fixed to the frames by means of L- shaped fixing brackets art Nr. 680-03-001-00 with dimensions of (30 x 72 x 1,5) mm and 680-03-004-00 size (22 x 16,5 x 1,5 x 30) mm. These

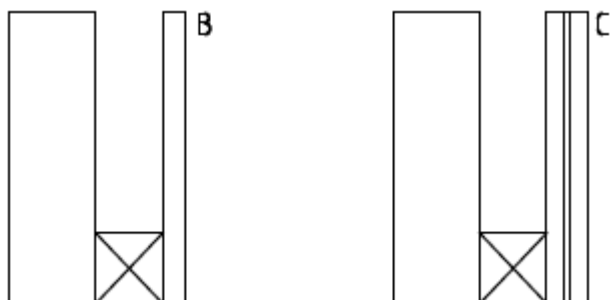


brackets are fixed to the profiles by means of steel screws PH ($\varnothing 4,2 \times 19$) mm art. Nr. 798-21-242-19 (2 pcs per one bracket). Position of brackets acc. to drawings.

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 L-shaped holders and at the corners of glazing;

or by insulating glass unit

Insulating glass consist of fire resistance glass type PYROBEL 25 EI 60 or Pyroguard INT 23 and monolithic counter pane (picture B) or laminated counter pane (picture C) with or without additional coatings may be used under condition that added glass does not increase weight of the door leaf more than 25 % (maximal allowed weight of one door leaf is 227 kg).



Counter pane may be added into the exterior face of the door only.
Adequate clips-on non-insulating aluminium glazing beads are used.

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 pane in contact with glazing beads.

Clips-on aluminium glazing beads art. No. M11453 with dimensions of (26,5 x 26,6) mm, are installed at the end of glass fixation from both glass pane faces resp. No. S60486 with dimensions of (24,5 x 26,6) mm when glass PYROBEL 25 is used.

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 pane, from both glass panes faces.

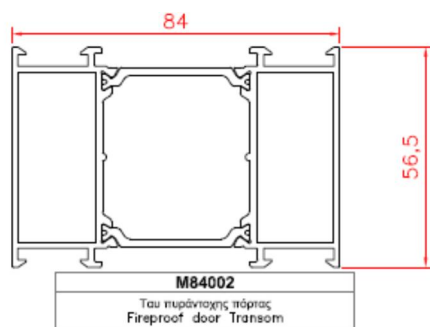
Intumescent tape

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 door leaf frame (around glass pane) (see photo above).

Maximal 3 horizontal mullions in side panel may be installed provided minimal height of glass unit is 280 mm.

Horizontal mullions in side panel is made of 3-chamber system aluminium alloy profile 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).

Maximal length of horizontal mullion is 1 386 mm.



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

Glazing system same as described hereinbefore.

2.3 INSTALLATION OF THE PRODUCT

Product is installed 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.

Product (door / door with side / transom panels) is installed in mid-thickness of the supporting construction by means of stainless-steel stripe connectors-anchoring pieces art. Nr 680-03-020-00 with dimensions of (16 x 72 x 1,5) mm placed in distance 200 mm from the top edges of frame and next in spacing 400 mm at the vertical edges and in spacing 300 mm at the top member of frame. Outer connectors are fixed to the door frame profile by means of stainless-steel screws (Ø4.2 x 19) mm art.nr. 798-21-242-19 (2pcs per each connector).

****NOTE** The brackets for door frame fixation to the supporting construction are fixed to these outer connectors and their dimensions are (200 x 22 x 2) mm.

The anchors are fixed to the supporting construction by means of steel screws (7,5 x 150) mm at both wall faces, that each second bracket is fixed at the opposite face of the wall as previous one.

The gap, 10 mm wide, between the door frame and supporting construction is filled by on component polyurethane foam, type Soudafoam GUN FR or one component polyurethane foam, type MARVON TECNOFOAM, covered by adhesive mastic Fire Acrylic sealant B1 art.nr 770-01-414-00 (manufacturer: Elastotet). Using of alternative polyurethane foams acc. to clause 5.2.

Modification 10 – flexible supporting construction

Product may be installed in to the flexible supporting construction 125 mm thick according to EN 1363-1:2020, Group B for the intended fire resistance 60 minutes.

Construction consists of:

- steel profiles CW 75 (75 / 50 / 0,6) mm UW 75 (75 / 50 / 0,6) mm),
- steel profiles 75 mm wide, placed around the opening for the door from steel 1,5 mm thick.

Construction is covered with two layers of gypsum boards type F, type Knauf RED Piano, each 12,5 mm thick with bulk density of ≥ 840 kg.m-3 fixed on both wall faces (manufacturer: Knauf). Plasterboards are fixed to the construction of the wall by means of self-tapping screws Ø 3,5 mm (length of the screws



appropriate to necessary thickness of plasterboards). Joints of the plasterboards are sealed by gypsum mastic type Knauf Uniflott (manufacturer: Knauf).

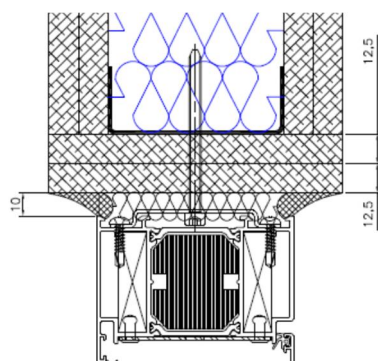
Inner edges of the profiles, in the opening for door, are also covered by two layers of plaster boards.

Cavity of the wall is filled with mineral wool type Rockmin Plus, 50 mm thick with bulk density 50 kg.m^{-3} (manufacturer: Rockwool).

Product is installed in mid-thickness of the supporting construction by means of steel anchor screws ($\varnothing 6,0 \times 80$) mm which are drilled through the profile and frame connector art. No. 680-03-006-00. These frame connectors are fixed to the door frame profile by means of steel screws ($\varnothing 4,2 \times 19$) mm.

Anchoring screws are positioned 200 mm and 694 mm from the edges of transom (4 pcs per transom), and 350 mm from the top edges of vertical door frame profiles and next in spacing 300 mm (7 pcs per stile).

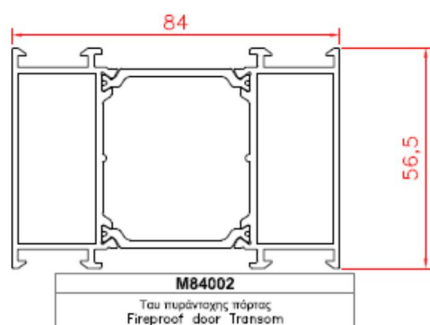
The gap, 10 mm wide, between the door frame and supporting construction is filled by one component polyurethane foam, type MARVON TECNOFOAM, covered by adhesive mastic Fire Acrylic sealant B1 art. nr 770-01-414-00 (manufacturer: Elastotet). Using of alternative polyurethane foams acc. to clause 5.2.



Modification 11 – associated supporting construction

Door leaves are installed in to the associated supporting construction – glazed partition type M84 FR Alumil.

Glazed partition 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.



Frame of the partition creates a door frame for a door.

Associated supporting construction 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: $650 \text{ kg/m}^3 \pm 200 \text{ kg/m}^3$



(the manufacturer's stated value in the dried steady-state is 450 kg/m³). The concrete lintel is at the top of the supporting construction opening.

Individual blocks are joined by thin layer of gypsum plaster for aerated concrete blocks.

Associated supporting construction is installed in mid-thickness of the rigid supporting construction.

Top and bottom edge of the associated supporting construction is fixed to the rigid 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 edges of frame and next in spacing 422 mm.

Connectors-anchoring pieces are fixed to the top and bottom 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 frame of associated supporting construction and rigid 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). Using of alternative polyurethane foams acc. to clause 5.2.

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

3.1 EXTENDED APPLICATION REPORTS

No.	Name of laboratory	Name of sponsor	Report No.	Date of issue
[1]	FIRES, s.r.o., Batizovce, SR	Alumil SA, Thessaloniki, Greece	FIRES-ER- 048-22-NURE	14. 12. 2022

4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 REFERENCE OF CLASSIFICATION

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

4.2 CLASSIFICATION

The element, **Single leaf and double leaf door, type M84 FR Alumil**, is classified according to the following combinations of performance parameters and classes as appropriate.

Fire resistance classification:
E 60-C0; EI₁ 60-C0; EI₂ 60-C0; EW 60-C0

Note: ¹⁾ classification of the door installed in associated supporting construction (glazed partition type M84 FR Alumil, is **E 60-C0; EI₁ 45-C0; EI₂ 60-C0; EW 60-C0;**

²⁾ classification of the door with using of insulating double glass is valid from side of fire resistance glass at the exposed side of the door



4.3 FIELD OF APPLICATION

This classification is valid for the following end use applications:

Materials and construction	- the materials and construction of the doorset shall be the same described in cl. 2.2 of this document; - 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;
Decorative finishes	- alternative paints may be added to door leaf; - 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 safety bolts may be increased but shall not be decreased (minimal 4 pcs of hinges and safety bolts – amount of hinges shall be increased depending increased weight of the door leaf glazed by insulation double glass acc. to clause 2.2); - doorset may be supplied both with and without door closing device without arresting elements; - doorset without door closing device does not fulfil the self-closing criterion and self-closing classification (classification C) does not apply to it; - doorset may be hold on in open position by electromagnetic hold-open device (acc. to clause 2.2); - it has to be ensured, that doors are in fully closed position in case of a fire (door shall be closed automatically by means of releasing of the electric signal; hold-open device shall create a part of the fire alarm system);
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, safety bolts and latches) 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: single leaf door: - top edge max. 9,0 mm; - lock edge max. 7,0 mm; - hinged edge max. 6,0 mm; - bottom gap is closed by automatic drop down seal resp. max gap when door without automatic drop down seal is 9,0 mm; double leaf door - hinged edge of door leaves: 6,0 mm; - top edge of door leaves: 6,0 mm; - joint of door leaves: 8,0 mm - bottom gap is closed by automatic drop down seal resp. max gap when door without automatic drop down seal is 9,0 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 and low bulk density. Thickness of the supporting construction and bulk density of supporting construction may be increased;



	- product may be installed into the flexible supporting construction which is of the board covered type with studs made from metal or timber with minimal thickness of 125 mm with fire resistance equal or greater than 60 minutes; - product may be installed into the associated construction – glazed partition type M84 FR Alumil. Glazed partition shall has own fire resistance classification. Way of the installation to individual supporting constructions acc. to clause 2.3 of this document. It is possible using of the alternative one-component polyurethane foam suitable for a using in condition of fire, with reaction to fire minimal B-s1, d0; 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 (increase to cl. 2.3 of this document);
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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, standards and regulations are not changed.

Approved by:

Ing. Štefan Rástocký
Chief Operating Officer

Prepared by:

Michaela Gorlická
Technician of the Testing Laboratory

