CLASSIFICATION OF FIRE RESISTANCE
FIRES-CR-195-21-AUPE

Double leaf door, type M84 FR Alumil, glazed by PYROBEL 25

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SNAS
Reg. No. 041/S-159

CLASSIFICATION OF FIRE RESISTANCE IN ACCORDANCE WITH EN 13501-2: 2016

with direct field of application

FIRES-CR-195-21-AUPE

Name of the product: Double leaf door, type M84 FR Alumil, glazed by PYROBEL 25

Sponsor:
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1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to element **Double leaf door, type M84 FR Alumil, glazed by PYROBEL 25** in accordance with the procedures given in EN 13501-2: 2016.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, **Double leaf door, type M84 FR Alumil, glazed by PYROBEL 25**, is defined as:

Product Technical Specifications: EN 16034: 2014 and EN 14351-2: 2018

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 – manual- or self-closing after each open
Intended use:	fire compartmentation
End-use application:	for fire compartmentation uses

2.2 PRODUCT DESCRIPTION

The element, **Double leaf door, type M84 FR Alumil, glazed by PYROBEL 25** is fully described below:

DIMENSIONS

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 leaves:	(1 200 x 2 342) mm (width x height)
Thickness of the door leaf:	84 mm
Overall dimensions of the glass panes:	(1056 x 2198 x 26,6) mm (width x height x thickness)
Weight of the door leaf:	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 x12.1) mm;

: outer stainless steel stripe connectors-anchoring pieces art. Nr. 680-03-020-00 with dimensions of (16 x 72 x1,5) 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 (∅4.2 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. These connectors are fixed to the door leaf frame by means of stainless-steel rivets (∅4 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.

There are used also additional stainless-steel screws Pan Head (∅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.

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 mitter-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;

: strips of stainless-steel connectors catalogue No. 680-03-008-00 with dimensions of (65 x 16 x 1,5) mm placed 150 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 (∅4 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 (∅4.2 x 32) mm art. Nr. 798-21-242-32.

Two EPDM sealing gaskets art. Nr. 250-11-170-01 (manufacturer: ALUMIL, type EPDM Shore A70) are also included.

The automatic drop-down sill is attached to the bottom door leaf profile by means of screws. Plastic End-caps have brushes to seal the gap between door frame and frame of the door leaf when door is closed *(photo of the bottom door edge in section: Automatic drop-down sill profile).*

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 LEAF

Door leaf is glazed by means of glass PYROBEL 25, thickness of 26,6 mm (AGC, Greece), with dimensions of (1056 x 2198) mm (width x height).

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 (∅ 4,2 x 19) mm art. Nr. 798-21-242-19 (2pcs 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: Elastoted) is used to hold the glass setting blocks in place.

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.

Glazing EPDM sealing profiles catalogue No. 200-08-004-01 (9,7 x 7,7) mm, 4mm 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 is placed in between the L shape glass brackets and over the st.steel stripes.

DOOR LEAF HARDWARE

Hinges

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 (∅13 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

4 pcs of stainless safety bolts ∅ 10 mm (catalogue No. 680-03-010-00-3D) 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 and dog bolts

Door leaf is equipped with single mortise door lock type BKS B-1126 E (manufacturer: BKS) (Art. Nr.490-26-002-16).

Opposite strike plate for central latch type stainless-steel lock striker art. Nr. 680-03-015-00 (manufacturer: Alumil).

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.

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

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

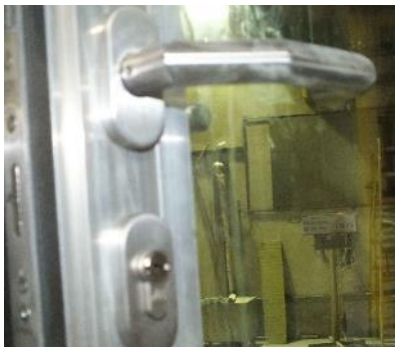
The lock is fixed to the door leaf frame by means of stainless-steel threaded stripes art Nr. 680-03-012-00 with (M5 x 25) mm screws art Nr. 798-82-205-25. Stainless steel stripes are fixed with stainless steel rivets art nr. 761-04-010-00.

Stainless steel locking strike plate (manufacturer Alumil) art Nr. 680-03-015-00 is fixed with stainless steel rivets art Nr. 761-04-010-00.

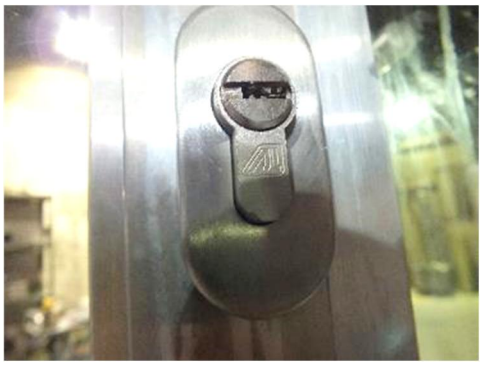
Lock BKS B-1126 E

Strike plate

Rosette door hardware (handle / handle)

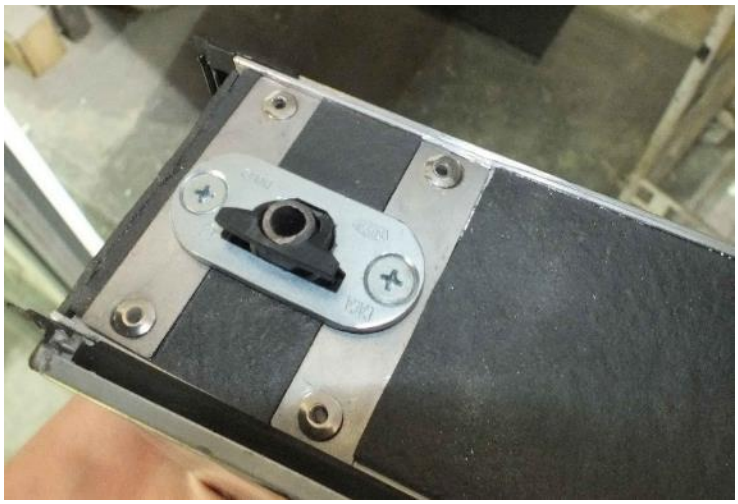


Safety cylinder



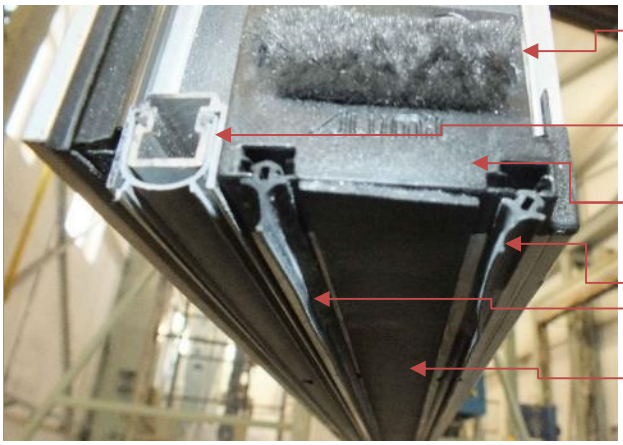
Secondary door leaf is ensured by automatic dog – bolts, centrally operated, type B-1899 (manufacturer: BKS) Art. Nr. 440-99-204-00.

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 (photo??) 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.



Automatic drop-down profile

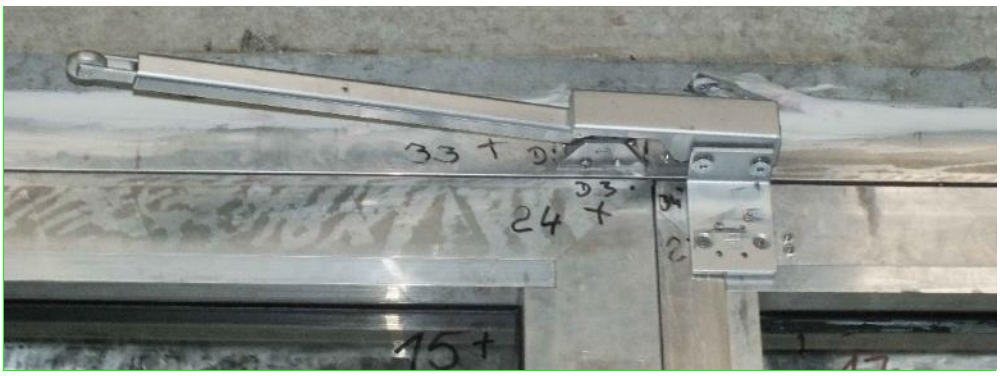
Automatic drop-down profile type ALU PLUS ASPAL (manufacturer: CCE srl) Art. Nr. 471-61-230-00 installed at the bottom of door leaf.



Automatic closing device

Surface mounted automatic closing device type G-U OTS 430 (manufacturer: G-U), installed as follows:

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



Hold-open device

The electro-magnetic hold open device (manufacturer: GEZE) type: Door Magnet Surface Mounted 155569 art Nr 472-15-556-00 is installed at the bottom edge of door leaf.

2.3 PRODUCT INSTALLATION

Door 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/m^3 ±200 kg/m^3 (the manufacturer's stated value in the dried steady-state is 450 kg/m^3). Individual blocks are joined by thin layer of gypsum plaster for aerated concrete blocks.

Door frame 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 edges of frame (vertical stiles and transom profile) and next in spacing 400 mm at the vertical edges and in spacing 400 mm at the top member of frame. Outer connectors are fixed to the door frame profile by means of stainless-steel screws (∅4.2 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 each 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 fire-resistance foam, type Soudafoam GUN FR art nr.770-05-013-00, covered by adhesive mastic Fire Acrylic sealant B1 art.nr 770-01-414-00 (manufacturer: Elastotet).

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

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
[1]	FIRES, s.r.o., Batizovce, SR	Alumil SA, Thessaloniki, Greece	FIRES-FR-066-21-AUNE	29.03.2021 30.03.2021	EN 1634-1:2014+A1:2018

[1] Test specimens were 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-013-21	The specimen was stored in the hall of testing laboratory and conditioned according to EN 1363-1.	Operability test: EN 16034 A.2.2: 25 cycles Self-closing test: EN 16034 A.4: 1 cycle Durability of self-closing test according EN 1191: 1 cycle Ability to release test: EN 16034 cl. 5.3: 3 cycles Final settings: EN 1634-1: 1 cycle

3.3 TEST RESULTS

No./ Test method	Parameter		Results
[1] Specimen No. 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
	integrity	cotton pad	69 minutes
		gap gauges	69 minutes no failure
		sustained flaming	69 minutes
	thermal insulation	I_1	63 minutes
		I_2	63 minutes
	radiation		69 minutes no failure
	operability		passed (25 cycles)
	self closing		passed (1 cycle)
	durability of self-closing		passed (1 cycle)
	specimens´ orientation		hinges of the door are on the un-exposed face of door
[1] Specimen No. 2	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	72 minutes
		gap gauges	72 minutes no failure

No./ Test method	Parameter		Results
		sustained flaming	72 minutes
	thermal insulation	I_1	61 minutes
		I_2	72 minutes
	radiation		72 minutes no failure
	operability		passed (25 cycles)
	self closing		passed (1 cycle)
	durability of self-closing		passed (1 cycle)
	specimens´ orientation		hinges of the door are on the exposed face of door

[1] Specimen No. 1: The fire test was terminated after period of 71 minutes of test because specimens´ integrity failure.
Specimen No. 2: The fire test was terminated after period of 73 minutes of test because specimens´ integrity failure.

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, **Double leaf door, type M84 FR Alumil, glazed by PYROBEL 25**, is classified according to the following combinations of performance parameters and classes as appropriate.

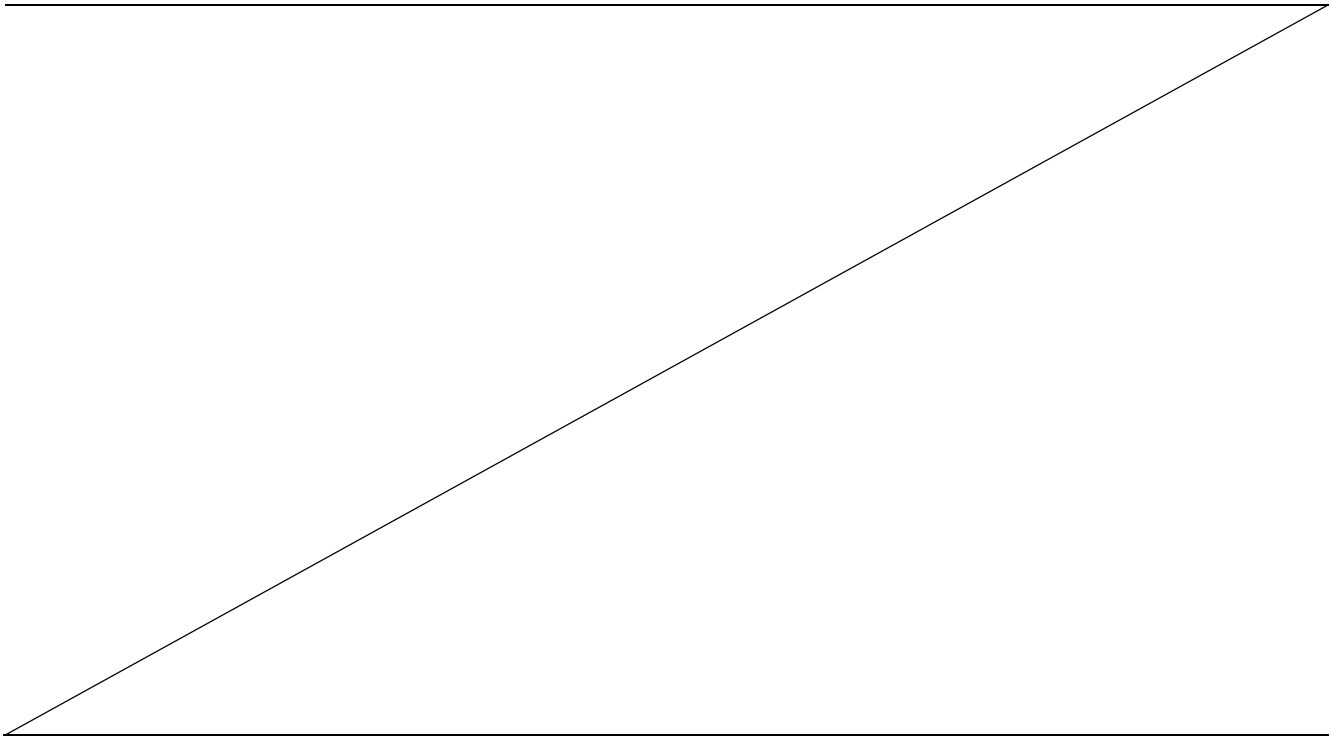
Fire resistance classification:
E 60-C0; EI_1 60-C0; EI_2 60-C0; EW 60-C0

4.3 FIELD OF APPLICATION

This classification is valid according to clause No. 13 of EN 1634-1:2014+A1:2018 for the following end use applications:

Materials and construction	- the materials and construction of the doorset 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 mete 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 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); - 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 and right 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 latche) 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: hinged edge of door leaves: 5,7 mm; top edge of door leaves: 6,0 mm; joint of door leaves: 7,9 mm the bottom gap is closed by automatic drop down seal; - 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;
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 (increase to cl. 2.3 of this document);



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:

Ing. Štefan Rástocký
Head of the testing laboratory

Prepared by:

Michaela Gorlická
Technician of the testing laboratory

Digitally signed by
FIRES, s.r.o.