CLASSIFICATION OF FIRE RESISTANCE
FIRES-CR-179-17-AUPE

A single leaf aluminium framed doorset, type ALIPLAST FR90 EI60

Reg. No. 041/S-159

The Experts on Fire Safety

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

with direct field of application

FIRES-CR-179-17-AUPE

Name of the product: A single leaf aluminium framed doorset, type ALIPLAST FR90 EI60

Sponsor:
ALIPLAST Sp. z o.o.
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Task No.: PR-17-0323
Date of issue: 17. 08. 2017

Reports: 3
Copy No.: 2

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1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to element: single leaf aluminium framed doorset, type ALIPLAST FR90 EI60 in accordance with the procedures given in EN 13501-2: 2016.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, single leaf aluminium framed doorset, type ALIPLAST FR90 EI60, is defined as a fire resistant doorset according to EN 16034: 2014.

2.2 PRODUCT DESCRIPTION

Dimensions

Overall dimensions of product:	(1450 x 2500) mm (width x height)
Clear opening of the door frame:	(1301 x 2426) mm (width x height)
Overall dimensions of door leaf:	(1340 x 2440 x 90) mm (width x height x thickness)
Dimensions of glass panes:	(1187 x 2287) mm (width x height)

Door frame

Aluminium metal frame, with thickness of aluminium 2 mm is made of system aluminium insulated three-chamber profiles FR90, cat. No. FR101 (manufacturer: Aliplast Sp. z o.o.) which consists of two profiled framing parts with rebate or with seal (described below) and are connected to each other by mean of polyamide thermal breaks, cat. No. P4752 (manufacturer: Ensigner GmbH) with dimensions (30 x 4 x 2) mm (height x width x metal thickness) and with polyamide thermal breaks, cat. No. P4730 (manufacturer: Aliplast Sp. z o.o.) with dimensions (30 x 4 x 2) mm (height x width x metal thickness).

Central chamber of ALU profile FR90 is filled by mean of gypsum boards, GKF Nida Ogien, type F, cat. No. ACFR 154 (manufacturer: Siniat Sp. z o.o. ., PL) produced in 1100 mm of length. Dimensions of first layer are (42 x 12,5) mm and dimensions of second layer are (42 x 15) mm.

Side chambers of ALU profile FR90 are filled by mean of gypsum boards, GKF Nida Ogien, type F, cat. No. ACFR 150 and ACFR 151 (manufacturer: Siniat Sp. z o.o. ., PL) produced in 1100 mm of length. Dimensions of ACFR 150 are (46 x 12,5) mm and dimensions of ACFR 151 are (40 x 12,5) mm.

The protective gypsum boards are sealed to inner edges of the frame by mean of sealant, type Cosmofen duo ACMX097 64X (manufacturer: WEISS). Gypsum boards in aperture between frame parts are interrupted at the corner connection of the frame.

The corners of the frame are sawn under angle 45° and are reinforced by corner aluminium profiles 17 mm thick, cat**.** No. ACFR401 with dimensions (116 x 116) mm, placed at the corner connections. Reinforcement is covered on one by calcium silicate boards 8 mm thick, type Promatect-H, cat. No. ACFR136 (manufacturer: Promat). Dimensions of boards (115,2 x 115,2) mm (connection of vertical sealed mullion to horizontal sealed transom) and (107,5 x 107,5) mm (connection of vertical rebated mullion to horizontal rebated transom).

Door frame profiles are on angled parts glued together by mean of mastic, cat. No. ACSIL04T (manufacturer: Wurth).

EPDM seal, cat. No. ACGT062 (manufacturer: SECIL KAUCUK, Turkey) with outer dimensions (8 x 5,8) mm is placed over the entire circumference of frame.

Door frame is fixed to supporting construction by mean of the positioning plates (cat. No. ACFR199) and by mean of frame screws type FFS ∅ 7,5 mm x 152 mm (manufacturer: Fischer).

Intumescent tapes

Self-adhesive intumescent strip, type Pyroplex (cat. No. ACFR140), 2 mm thick, total section dimension 77 mm (20 mm + 57 mm) is placed over the entire circumference of the frame edge.

Strike plates (counterparts for security pen plates cat. No. ACFR205)

Stainless steel strike plates (77 x 32 x 1) mm (height x width x metal thickness) are placed on door leaf side of door frame mullions. Strike plate has in the middle groove R4,5 mm x 14 mm for stainless steel pen.

Positions of center of bottom strike plate from bottom side of door frame is 105 mm. Position of center of middle strike plate from bottom side of door frame is 1325 mm. Position of center of top strike plate from bottom side of door frame is 2147 mm.

Door leaf frame

Aluminium metal frame, with thickness of aluminium 2 mm is made of system aluminium insulated three-chamber profiles FR90, cat. No. FR101 (manufacturer: Aliplast Sp. z o.o.) which consists of two profiled framing parts with rebate or with seal (described below) and are connected to each other by mean of polyamide thermal breaks, cat. No. P4752 (manufacturer: Ensigner GmbH) with dimensions (30 x 4 x 2) mm (height x width x metal thickness) and with polyamide thermal breaks, cat. No. P4730 (manufacturer: Aliplast Sp. z o.o.) with dimensions (30 x 4 x 2) mm (height x width x metal thickness).

Central chamber of ALU profile FR90 is filled by mean of gypsum boards, GKF Nida Ogien, type F, cat. No. ACFR 154 (manufacturer: Siniat Sp. z o.o. ., PL) produced in 1100 mm of length. Dimensions of first layer are (42 x 12,5) mm and dimensions of second layer are (42 x 15) mm.

Side chambers of ALU profile FR90 are filled by mean of gypsum boards, GKF Nida Ogien, type F, cat. No. ACFR 150 and ACFR 151 (manufacturer: Siniat Sp. z o.o. ., PL) produced in 1100 mm of length. Dimensions of ACFR 150 are (46 x 12,5) mm and dimensions of ACFR 151 are (40 x 12,5) mm.

The protective gypsum boards are sealed to inner edges of the frame by mean of sealant, type Cosmofen duo ACMX097 64X (manufacturer: WEISS).

The corners of the frame are sawn under angle 45° and are reinforced by corner aluminium profiles 17 mm thick, cat**.** No. ACFR401 with dimensions (116 x 116) mm, placed at the corner connections. Reinforcement is covered on one by calcium silicate boards 8 mm thick, type Promatect-H, cat. No. ACFR136 (manufacturer: Promat). Dimensions of boards (115,2 x 115,2) mm (connection of vertical sealed mullion to horizontal sealed transom) and (107,5 x 107,5) mm (connection of vertical rebated mullion to horizontal rebated transom).

Door leaf profiles are on angled parts glued together by mean of mastic, reference number ACSIL04T (manufacturer: Wurth).

EPDM seal, cat. No. ACGT062 (manufacturer: SECIL KAUCUK, Turkey) with outer dimensions (8 x 5,8) mm is placed over the entire circumference of frame.

Intumescent tapes

Self-adhesive intumescent strip, type Pyroplex (cat. No. ACFR140), 2 mm thick, total section dimension 77 mm (20 mm + 57 mm) is placed over the entire circumference of the leaf edge.

Security pen plates (cat. No. ACFR204)

Stainless steel security pen plate (77 x 32 x 1) mm (height x width x metal thickness) are placed on door leaf in line with strike plates positions. Security pen plate is equipped by stainless steel pen ∅ 7 mm x 22 mm.

Door brush

Bottom edge of the door leaf (sealed part of door leaf frame) is equipped by aluminium door brush profile (23,1 x 6,9) mm, (cat. No. ACVS04) fixed by mean of self-tapping screws M4 x 25 mm, type FDS (manufacturer: EJOT) in spacing 250 mm.

In profile is placed door brush, cat. No. SLB01 with outer dimensions (19 x 4) mm.

Door stop

Two polyamide door stops, cat. No. ACFR214 (manufacturer: ALIPLAST Belgium) are placed on the top and on the bottom of the door leaf against vertical mullion with rebate. Fixation is by glue.

Door leaf bead

Bottom edge of the door leaf (rebated part of door leaf frame) is equipped by aluminium door leaf bead (cat. No. GT492), with dimensions of (24,8 x 17,5 x 1,6) mm (height x width x metal thickness). Door leaf bead is fixed by means of self-tapping screws M4 x 25 mm, type FDS (manufacturer: EJOT) in spacing 250 mm.

Glazing

Door leaf is glazed by glass POLFLAM®, type EI 60 (manufacturer: POLFLAM Sp. Z o.o., PL) 25 mm thick. Glass pane is fixed by means of stainless steel folded fixing plate (cat. No. ACFR102), (51 x 59 x 0,8) mm (height x width x metal thickness). Five pieces of folded fixing plates are placed on each mullion and three pieces are placed on each transom of the door leaf. Folded height is 18 mm. Fixing of plates is by mean of self-tapping screws M4 x 25 mm, type FDS (manufacturer: EJOT), 4 screws on each plate.

Between door leaf frame and folded fixing plate is placed glazing strip (25 x 2) mm, type KERAFIX FXL 200, cat. No. ACFR143 (supplier: Rolf Khun GmbH).

Timber setting block (80 x 14 x 3) mm are placed on the bottom and the vertical edge of the glass pane (on hinged side of door leaf) and on the top and vertical side of the glass pane (closing edge of the door leaf). Fixing is by mean of silicone, type PROMASEAL Mastic (manufacturer. Promat).

Aluminium glazing beads (cat. No. FR298), (28 x 31,4 x 1,7) mm (height x width x metal thickness) are clipped-on to door leaf frame from both sides of glass pane.

EPDM glazing seal, cat. No. ACVG34N (manufacturer: SECIL KAUCUK, Turkey) is placed all around the circumference of the glass panes between glazing beads and glass panes.

Hinges

Four hinges per door leaf, type FAPIM Loira Plus 7010 (manufacturer: Fapim S.p.A., Italy) are placed:

- top side of first (top) hinge from top edge of the door leaf is 166 mm;
- top side of second hinge from top edge of the door leaf 566 mm;
- top side of third hinge from top edge of the door leaf is 1386 mm;
- top side of fourth (bottom) hinge from top edge of the door leaf is 2206 mm.

Lock

One point lock with pen on active door leaf, type MC 35 Z22/3, cat. No. CMC20 (manufacturer: Metalplast) is placed in lock cassette (183 x 48 x 16) mm. Lock is fixed on stainless steel sheet 2 mm thick with outer dimensions (77 x 24) mm placed on the top and bottom height of the lock. In the middle of sheet is placed rivet nut M5.

Lock cylinder is LOB 55/55 (manufacturer: LOB S.A.)

The ceramic insulation case, cat. No. ACFR135 (manufacturer: Alfix) 2 mm thick is placed around lock.

Door leaf is operated by handle / handle, type Pure 8100 (manufacturer: Dorma), placed 1030 mm from bottom edge of the door leaf.

Acessories

Door closer

Surface mounted door closer, type TS 4000 (manufacturer: GEZE) is placed on the top side of door leaf at hinges side.

Product fixation

Product is fixed in flexible supporting construction made of gypsum board, type F (manufacturer: Knauf) which are fixed to steel profles type C75 and U75. Supporting construction is filled with mineral wool, type ROCKWOOL PROROX SL 970. Thickness of supporting construction is 125 mm.

More detailed information about product construction is shown in drawings which form an integral part of test report [1] listed in clause 3.1 of this document.

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	ALIPLAST Sp. z o.o. Lublin, PL	2016-EFECTIS-R001760	11.11.2016	EN 1634-1 2014

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

3.2 TEST RESULTS

No./ Test method	Parameter		Results
[1] EN 1634-1 Specimen 1	applied load		-
	supporting construction		flexible supporting construction with thickness of 125 mm
	temperature curve		standard temperature time curve
	loadbearing capacity		-
	integrity	cotton pad	65 minutes
		gap gauges	65 minutes
		sustained flaming	65 minutes
	thermal insulation	I_1	58
		I_2	58
	radiation		68
	mechanical action		-
	self-closing		passed (1 cycle)
	other parameters		opening towards test furnace (hinges on exposed side); released closing device
[1] EN 1634-1 Specimen 2	applied load		-
	supporting construction		flexible supporting construction with thickness of 125 mm
	temperature curve		standard temperature time curve
	loadbearing capacity		-
	integrity	cotton pad	68 minutes
		gap gauges	68 minutes
		sustained flaming	68 minutes
	thermal insulation	I_1	65
		I_2	68
	radiation		68
	mechanical action		-
	self-closing		passed (1 cycle)

No./ Test method	Parameter	Results
	other parameters	opening out of test furnace (hinges on unexposed side); released closing device

[1] The test was discontinued in 68th minute at the request of test sponsor

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, A single leaf aluminium framed doorset, type ALIPLAST FR90 EI60, is classified according to the following combinations of performance parameters and classes as appropriate.

Fire resistance classification:
E 60-C0 / EI_1 45-C0 / EI_2 45-C0 / EW 60-C0

Note:
Classification is valid for both sides of doorset or for doorset with hinges on exposed side.

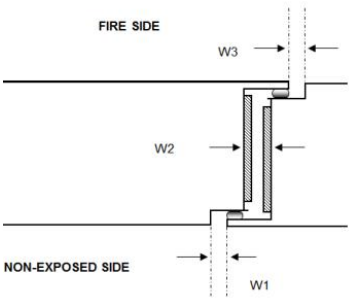
Fire resistance classification:
E 60-C0 / EI_1 60-C0 / EI_2 60-C0 / EW 60-C0

Note:
Classification is valid for doorset with hinges on unexposed side.

4.3 FIELD OF APPLICATION

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

Materials and construction	- Unless otherwise stated in the following text, the materials and construction of the doorset shall be the same as that tested. - The number of leaves and the mode of operation shall not be changed. - The type of the metal shall not be changed from that tested.
Glazing	- The type of glass and the edge fixing technique, including type and number of fixings per meter of perimeter, shall not be changed from those tested. - The dimensions (width and height) of glass pane may be decreased: o in proportion with size reductions, o by a maximum of 25%. - Each of the dimensions of glass pane shall not be increased. - Number of glazed apertures within door leaf shall not be increased. - The distance between the edge of glazing and the perimeter of the door leaf shall not be reduced from that tested. Other positioning within the door can only be modified if this does not involve the removal or re-positioning of structural members relative to the glazing.
Decorative finishes	- Alternative paints are acceptable and may be added to door leaves or frames. - Decorative laminates and timber veneers up to 1,5 mm thickness may be added to the faces (but not the edges) of doors.

<table>
<tr><td>Fixing</td><td>- 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 but shall not be increased.</td></tr>
<tr><td>Building hardware</td><td>- The number of hinges may be increased but shall not be decreased.
- The doorset can be provided with face-mounted closing device or without it (in this case doorset is without C classification).</td></tr>
<tr><td>Permissible size variations</td><td>- For classifications E 60-C0 / EI_1 45-C0 / EI_2 45-C0 / EW 60-C0 (both sided classification or hinges on exposed side) and E 60-C0 / EI_1 60-C0 / EI_2 60-C0 / EW 60-C0 (hinges on unexposed side):
o size increasing is not permitted,
o size reduction is permitted to 50% of width and to 75% of height.
- For reduced classification E 45-C0 / EI_1 45-C0 / EI_2 45-C0 / EW 30-C0(*see note below table) (both sided classification or hinges on exposed side) and E 60-C0 / EI_1 45-C0 / EI_2 60-C0 / EW 60-C0 (hinges on unexposed side):
o size increasing is permitted up to 15% of height, up to 15% of width and up to 20% of area,
o size reduction is permitted to 50% of width and to 75% of height.
- For smaller doorset sizes the relative positioning of movement restrictors (e.g. hinges 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.
- For larger doorset sizes the following shall apply:
o the height of the latch above floor level shall be equal to or greater than the tested height, and such increase in height shall be at least proportional to the increase in door height,
o the distance of the top hinge from the top of door leaf shall be equal to or less than that tested,
o the distance of the bottom hinge from the bottom of door leaf shall be equal to or less than that tested,
o the distance between the bottom of the door leaf and centre restraint shall be equal to or greater than tested.</td></tr>
<tr><td>Gaps</td><td>- The maximum size of the primary gaps is restricted to the following sizes:
<table>
<tr><th>Place of measurement</th><th>Gap “W1” [mm]</th><th>Gap “W3” [mm]</th></tr>
<tr><td>Lock edge</td><td>5,03</td><td>5,09</td></tr>
<tr><td>Top edge</td><td>6,42</td><td>6,25</td></tr>
<tr><td>Hinged edge</td><td>5,45</td><td>5,45</td></tr>
<tr><td>Bottom edge</td><td>8,22</td><td>6,78</td></tr>
</table>
- The minimum size of the primary gaps may be reduced.
 
</td></tr>
<tr><td>Supporting construction</td><td>- The product is possible to fix into flexible constructions with minimal thickness 125mm and mounting has to be in the same manner as tested.</td></tr>
</table>

Note:

Standard EN 13501-2: 2016, clause 7.5.5.4 does not define class EW 45; anyway product fulfills criteria of integrity as well as radiation during 45 minutes of fire.

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:

Ing. Štefan Rástocký
leader of the testing laboratory

Signed:

Ing. Martin Huf
technician of the testing laboratory