Evidence of Performance

Fire classification of construction products and building elements

Classification Report

No.: 23-002804-PR01

(KB-C04-UZ05-en-01)

Client	ALUMIL Aluminium Industry S.A. Industrial Area of Kilkis 61100 Kilkis (Greece)
Prepared by the notified body	ift Rosenheim GmbH Theodor-Gietl-Straße 7-9 83026 Rosenheim (Germany)
Notified body No.	0757
Product name	"S77 FR Alumil/ M50-S77 FR Alumil" (as specified by client)
Classification	Classification of fire resistance according to EN 13501-2:2007+A1:2009 / EN 13501-2:2016
Issue No.	1

Fire door assembly

Classification
EI_1 30 / EI_2 30 / EW 30 / E 30
Exposed face: opening face

ift Rosenheim
07.07.2023

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Basis

EN 13501-2:2007+A1:2009
EN 13501-2:2016
EN 1363-1:2020
EN 1634-1:2014+A1:2018
EN 16034:2014

Instructions for use

This classification report defines the classification assigned to the building element according to its product name in conformity with the methods set out in EN 13501-2. This classification document does not represent type approval or certification of the product.

Validity

This report does not allow any statement to be made on any further characteristics regarding performance and quality of the product presented.

Notes on publication

The ift Guidance Sheet "Conditions and Guidance for the Use of ift test reports" applies.

Contents

The classification report consists of 12 pages and may only be used or reproduced in its entirety.

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1 Introduction

This classification report defines the resistance to fire classification assigned to element "S77 FR Alumil/ M50-S77 FR Alumil" in accordance with the procedures given in EN 13501-2:2016.

This is the first classification of the element.

2 Details of classified product

2.1 General

The element "S77 FR Alumil/ M50-S77 FR Alumil" is defined as a fire door assembly according to EN 16034.
Its function is to resist fire exposure on one face according to the fire performance parameters set out in the case of fire in Clause 5 of EN 13501-2 on the opening face only.

2.2 Description

The element "S77 FR Alumil/ M50-S77 FR Alumil" is fully described below or is fully described in the test reports in support of classification listed in 3.1.

Locking	The door assembly is designed with a windows locking system.
Profile	frame S77510, sash S77976 Alumnium with therma break, cooling material and intumescent material
Gaskets	EPDM
Glazing	IGU: "Pyrobel 16 EI 30" / cavity / laminated safety glass (2x toughened glass unit with 2x 0,38 mm PVB layer) size up to (WxH) 955 mm x 2028 mm
Size	overall size incl. frame, (WxH) single leaf balcony door up to 1100 mm x 2200 mm double leaf balcony door up to 2200 mm x 2200 mm window up to 1030 mm x 1430 mm sizes with connection profile for curtain wall: + 47 mm in width and height
Supporting constructions	rigid construction with density of ≥650 kg/m^3 and a thickness of ≥200 mm curtain wall "Alumil M50 Energy FP EI30"

3 Test reports/extended application reports and test results in support of the classification

3.1 Test reports/extended application reports

The following test reports, test results and evaluations have been provided to justify this classification.

Name of laboratory/ NB Number	Name of sponsor	Report ref. No	Test standard and date/field of extended application standards and dates
FIRES, s.r.o. / 1396	ALUMIL Aluminium Industry S.A. 61100 Kilkis (Greece)	FIRES-FR-147-22-AUNE	EN 1634-1:2014 +A1:2018
FIRES, s.r.o. / 1396	ALUMIL Aluminium Industry S.A. 61100 Kilkis (Greece)	FIRES-FR-247-22-AUNE	EN 1634-1:2014 +A1:2018

3.2 Results

Test report number	**Parameter**		
FIRES-FR-147-22-AUNE Date: 04.11.2022 Test specimen 1: double leaf balcony door	**Supporting construction**	Standard supporting construction as a rigid construction with low density of 650 kg/m³ and a thickness of 200 mm	
	Exposed face	Opening face	
	Latch bolt	The door assembly was fitted with a window locking system, with latch engagement sufficient for fire resistance	
	Criteria		**Results**
	E - integrity		44 minutes
	W - radiation max. 15 kW/m²		44 minutes
	I_1 - insulation		41 minutes
	I_2 - insulation		44 minutes

Test report number	Parameter		
FIRES-FR-147-22-AUNE Date: 04.11.2022 Test specimen 2: single leaf balcony door	**Supporting construction**	Standard supporting construction as a rigid construction with low density of 650 kg/m³ and a thickness of 200 mm	
	Exposed face	Opening face	
	Latch bolt	The door assembly was fitted with a window locking system, with latch engagement sufficient for fire resistance	
	Criteria		**Results**
	E - integrity		52 minutes
	W - radiation max. 15 kW/m²		52 minutes
	I_1 - insulation		51 minutes
	I_2 - insulation		43 minutes

Test report number	Parameter		
FIRES-FR-247-22-AUNE Date: 02.12.2022 Test specimen: single leaf window	**Supporting construction**	Associated supporting construction curtain wall "Alumil M50 Energy FP EI30"	
	Exposed face	Opening face	
	Latch bolt	The window was fitted with a window locking system, with latch engagement sufficient for fire resistance	
	Criteria		**Results**
	E - integrity		45 minutes
	W - radiation max. 15 kW/m²		45 minutes
	I_1 - insulation		39 minutes
	I_2 - insulation		39 minutes

3.3 Validation

The tests mentioned in 3.1 were performed according to the currently valid test standards.

4 Classification and field of application

4.1 Reference for classification

This classification has been carried out in accordance with Clause 7 of EN 13501-2:2016.

4.2 Classification

The element "S77 FR Alumil/ M50-S77 FR Alumil" is classified according to the example of the following combinations of performance parameters and classes as appropriate.

R	**E**	**I**	**W**		**t**	**t**	**-**	**M**	**S**	**C**	**IncSlow**	**sn**	**ef**	**r**	**G**	**K**

Fire resistance classification: EI_1 30/EI_2 30/EW 30/E 30

Exposed face: opening face

4.3 Additional performance characteristics according to EN 16034 (informative)

4.3.1 Ability to release according to EN 16034, Clause 5.3

The ability to release test shall be undertaken on one sample which is submitted to fire resistance testing according to EN 1634-1 or smoke control testing according to EN 1634-3. The ability to release shall be verified by simulating a fire signal (e. g. cut off mains power) three consecutive times.

The performance characteristic was not tested.
The ability to release shall be expressed as "npd".

4.3.2 Durability of ability to release according to EN 16034, Clause 5.4.1

The durability of the ability to release is satisfied if the electrically powered hold open device complies with EN 1155 or EN 14637.

The durability of the ability to release shall be expressed as "npd".

4.3.3 Durability of self closing against ageing (corrosion) according to EN 16034, Clause 4.5.2.2

The durability of self-closing is considered to be achieved if the building hardware used in the doorset and/or openable windows and comply with the relevant Clauses of the building hardware product standards as listed in Table 2 (see EN 16034) except in cases where the hardware is classified by these standards as not corrosion resistant. Building hardware not covered by product standards listed in Table 2 (see EN 16034) shall show their compliance to EN 1670.

The durability of self-closing against ageing (corrosion) of the doorset and/or openable window shall be expressed as "achieved" or "npd".

4.4 Field of application

4.4.1 General

This classification is valid for the following end use applications:

EN 16034:2014 Pedestrian doorsets, industrial, commercial, garage doors and openable windows - Product standard, performance characteristics - Fire resistance and/or smoke control characteristics

4.4.2 Field of direct application as per EN 1634-1

Following configurations of the product are in accordance with the direct application of the test results for the classification under 4.2.

Reference to standard EN 1634-1	Permitted changes to the tested specimen
13.1	**General** The field of direct application defines the allowable changes to the test specimen following a successful fire resistance test. These variations can be applied automatically without the need for the sponsor to seek additional evaluation, calculation or approval. NOTE When extended product size requirements are envisaged, the dimensions of certain components within the test specimen can be less than those intended to be used at full size in order to maximize the extrapolation of the test results by modelling the interaction between components at the same scale.
13.2	**Materials and construction**
13.2.1	**General** Unless otherwise stated in the following text, the materials and construction of

Reference to standard EN 1634-1	Permitted changes to the tested specimen
	the doorset or openable window shall be the same as that tested. The number of leaves and the mode of operation (e.g. sliding, single action or double action) shall not be changed.
13.2.2.	**Specific restrictions on materials and construction**
13.2.2.2	**Metal construction** The dimensions of metal wrap around frames may be increased to accommodate increased supporting construction thickness. The thickness of the metal may also be increased by up to 25 %. The type of metal shall not be changed from that tested. The number of stiffening elements for uninsulated doors and the number and type of fixings of such members within the panel fabrication may be increased proportionally with the increase in size but shall not be reduced.
13.2.2.3	**Glazed constructions** The type of glass and the edge fixing technique, including type and number of fixings per metre of perimeter, shall not be changed from those tested. The number of glazed apertures and each of the dimensions (width and height) of glass in each pane included within a test specimen may be: - decreased in proportion with size reductions; or - decreased by a maximum of 25 % for integrity only and/or radiation control constructions and for insulation specimens where the unexposed surface temperature for both the construction and the glazing have been maintained for the classification period; or - reduced for doorsets, without restriction, providing that the total area of the tested pane(s) is less than 15 % of the door leaf or side/over panel area. The number of glazed apertures and each of the dimensions of glass in each pane included within a test specimen shall not be increased. The distance between the edge of glazing and the perimeter of the door leaf, or the distance between glazed apertures shall not be reduced from those incorporated in test specimens. 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.
13.2.3	**Decorative finishes**
13.2.3.1	**Paint** Where the paint finish is not expected to contribute to the fire resistance of the door, alternative paints are acceptable and may be added to door leaves or frames for which unfinished test specimens were tested. Where the paint finish contributes to the fire resistance of the door (e.g. intumescent paints) then no change shall be permitted.
13.2.3.2	**Decorative laminates** Decorative laminates and timber veneers up to 1.5 mm thickness may be added to the faces (but not the edges) of doors that satisfy the insulation criteria (normal or supplementary procedure). Decorative laminates and timber veneers applied to door leaves that do not sat-

<table>
<tr><th>Reference to standard EN 1634-1</th><th>Permitted changes to the tested specimen</th></tr>
<tr><td></td><td>isfy the insulation criteria (normal or supplementary procedure) and/or those in excess of 1.5 mm thickness shall be tested as part of the test specimen. For all doorsets tested with decorative laminate faces, the only variations possible shall be within similar types and thicknesses of material (e.g. for colour, pattern, supplier).</td></tr>
<tr><td>13.2.4</td><td>Fixings
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>13.2.5</td><td>Building hardware
The number of hinges and dog bolts may be increased but shall not be decreased.
NOTE 1 The number of movement restrictors such as locks and latches is not covered by direct application.
Where a doorset has been tested with a door closing device fitted, but with the retention force released in accordance with 10.1.4, the doorset may be provided either with or without that closing device, i.e. where self closing characteristics are not required.
NOTE 2 Interchange of building hardware is not covered by the field of direct application.</td></tr>
<tr><td>13.3</td><td>Permissible size variations</td></tr>
<tr><td>13.3.1</td><td>General
Doorsets of sizes different from those of tested specimens are permitted within certain limitations, but the variations are dependent on product type and the length of time that the performance criteria are fulfilled.
The increase and decrease of dimensions permitted by the field of direct application are applicable to the overall size and to each door leaf, each side panel and each over panel independently.
In accordance with 13.2.2.3, the dimensions (width and height) of any glass pane cannot be increased.</td></tr>
<tr><td>13.3.2</td><td>Test periods
The amount of variation of size permitted is dependent on whether the classification time was just reached (Category 'A') or whether an extended time (Category 'B') in accordance with the values shown in Table 1 were fulfilled before the test was concluded.
For category 'B':

Table 1 - Category B overrun requirements
<table>
<tr><th>Classification time (min)</th><th>All performance criteria fulfilled for at least minutes</th></tr>
<tr><td>15</td><td>18</td></tr>
<tr><td>20</td><td>24</td></tr>
<tr><td>30</td><td>36</td></tr>
</table></td></tr>
</table>

Reference to standard EN 1634-1	Permitted changes to the tested specimen
	Category B was achieved.
13.3.3	**Size variation related to product type**
13.3.3.1	**General** The rules to cover increase or decrease of size without additional considerations are applicable only to six main product groups: a) hinged and pivoted doorsets and openable windows; b) horizontally sliding and vertically sliding doorsets including sectional doorsets; c) steel single skin folding shutters doorsets (uninsulated); d) other sliding and folding doorsets (insulated); e) rolling shutter doorsets; f) openable fabric curtains. No increases in size are permitted for doorsets which are required to satisfy radiation control levels unless the insulation criteria are also satisfied. This is because any increase in size will increase the radiation received at a fixed distance away from the door. There are calculation methods which can be used to determine acceptable size increases for such doors; however, these are beyond the scope of direct application. Doors that satisfy both the radiation control levels and insulation criteria may have their sizes increased as outlined in Annex B. This is accepted because the increase in radiation resulting from a size increase allowed under this section, for an insulated door, will be such that it will still satisfy the required radiation control levels. Size decreases are permitted for both doors which satisfy radiation control levels and those which satisfy insulation criteria and radiation control levels. Permissible variations for each product group are detailed in Annex B which also contains some examples relating to hinged/pivoted doorsets. Size increases for doorsets which do not fall into one of the six groups given above are the subject of extended application.
13.3.3.2	**Hinged and pivoted doorsets and openable windows**
13.3.3.2.1	**For size variations (see Annex B)** For Category 'A' tests with no overrun of classification period, no increase is allowed. Unlimited reductions from the tested specimen are permitted with the exception of insulated metal doors where the size reduction is limited. For Category 'B' tests (with specified overrun of classification period) all smaller sizes are permitted and increases in height and width are permitted as stated in Annex B.
13.3.3.2.2	**Other changes** 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 dis-

Reference to standard EN 1634-1	Permitted changes to the tested specimen
	tances between them will be limited to the same percentage reduction as the decrease of test specimen size. For larger doorset sizes the following shall also apply: a) 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; b) the distance of the top hinge from the top of door leaf shall be equal to or less than that tested; c) the distance of the bottom hinge from bottom of door leaf shall be equal to or less than that tested; d) where three hinges or distortion preventers are used, the distance between the bottom of the door leaf and centre restraint shall be equal to or greater than that tested.
13.3.3.2.5	**Gaps** The maximum size of the primary gaps identified in 7.3 is restricted to the following sizes in practice: $x = (a + b)/2 + 2\ mm$ where x is the maximum permitted gap size; a is the maximum measured gap size; b is the mean measured gap size. The minimum size of the primary gaps may be reduced. The permitted gap size may be different for different parts of the door or window. Hinge side ≤ 7,1 mm Top side ≤ 8,1 mm Lock side ≤ 6,6 mm (for single leaf doors and windows) Bottom side ≤ 8,0 mm Meeting edge ≤ 4,8 mm (for double leaf doors and windows)
13.3.3.5 Annex B	**Sliding and folding doorsets (insulated)** For size variations, see Annex B. For Category 'A' tests without overrun, no size increases are permitted. Smaller sizes than the test specimen are permitted subject to the size limitations in Annex B. For Category 'B' tests with the specified overrun of classification period, smaller sizes are permitted. Increases in height and width are permitted as detailed in Annex B.
13.4	**Asymmetrical assemblies**
13.4.1	**General** EN 1363-1 states that for separating elements required to be fire resisting from both sides, two test specimens shall be tested (one from each direction) unless the element is fully symmetrical, i.e. the construction of the doorset is identical

<table>
<tr><th>Reference to standard EN 1634-1</th><th>Permitted changes to the tested specimen</th></tr>
<tr><td></td><td>on both sides of the centre line when viewed in plan (from above). However, in some cases it is possible to develop rules whereby the fire resistance of an asymmetrical door assembly tested in one direction can apply when the fire exposure is from the other direction. The possibility to develop such rules increases if the consideration is limited to certain types of door assembly and on the criteria being applicable (e.g. integrity only doors). The following rules represent the minimum level of common agreement which shall be followed. The rationale behind the rules is given in Annex C.</td></tr>
<tr><td>13.4.2</td><td>Specific rules
The rules governing the applicability of tests carried out in one direction to other directions are given in Table 2 and are based on the following premises:
- that each of the door leaves are themselves of symmetrical construction with the exception of the edges (e.g. lock/leading edge and hinge edge or double rebated doors);
- that any restraining/supporting elements of building hardware has been included in a test to EN 1634-1 when exposed in both directions so that they will retain their function when exposed to the heat of the test;
- that there is no change in the number of leaves or the mode of operation (e.g. sliding, swinging, single action or double action);
- that side, over and transom panels are excluded from Table 2 unless they are fully symmetrical.
Table 2 lists the type of door assembly for which rules can be generated and gives the direction in which it should be tested to cover the opposite direction. The separate columns for the integrity and insulation criteria reflect the different ability to make rules for integrity only doors as opposed to those which satisfy both criteria. A ‘Yes’ means that it is possible to identify the direction of test which covers the opposite direction. A ‘No’ indicates that it is not possible to identify the direction which will cover the opposite direction.

Table 2 - Type of doorset and direction to be tested to cover the opposite direction
<table>
<tr><th>Type of doorset</th><th>Direction to be tested to cover opposite direction</th><th>Integrity</th><th>Insulation</th><th>Radiation</th></tr>
<tr><td>Hinged, metal leaf, metal frame (not pivoted)</td><td>Opening away from furnace</td><td>yes[a]</td><td>no</td><td>yes</td></tr>
<tr><td colspan="5">[a] This only applies to doors without insulation in the core and with a movement restrictor at approximately mid-height on the hinge side.</td></tr>
</table></td></tr>
<tr><td>13.5</td><td>Supporting constructions</td></tr>
<tr><td>13.5.1</td><td>General
The fire resistance of a door assembly tested in one form of standard supporting construction may or may not apply when it is mounted in other types of construction. Generally, the rigid and flexible types are not interchangeable and rules</td></tr>
</table>

Reference to standard EN 1634-1	Permitted changes to the tested specimen
	governing the direct application within each group are given in 13.5.2 to 13.5.4. However, in some cases it is possible for the result of a test on a particular type of door assembly tested in one form of standard supporting construction to be applicable to that door assembly when mounted in a different type of standard supporting construction. Specific rules governing the situation for hinged and pivoted door assemblies are given in 13.5.4. The rationale behind the rules is given in Annex C.
13.5.2	**Rigid standard supporting constructions (high or low density)** The fire resistance of a doorset tested in a high or low density rigid standard supporting construction as specified in EN 1363-1 can be applied to a doorset mounted in the same manner in a wall provided the density and the thickness of the wall are equal to or greater than that in which the doorset was tested.
13.6	**Associated supporting constructions** The fire resistance of a door tested in an associated supporting construction has no field of direct application. The applicability of the result to other supporting constructions shall be the subject of extended application.

5 Limitations

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

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