

CLASSIFICATION REPORT No. CR-316-01/07.04.2022

In accordance with BDS EN 13501-2:2016

Sponsor: **KETE SA,**
Polykastro, Kilkis, 61200,
Greece

Prepared by: F plus Ltd.,
16 Konstantin Kostenechki str.,
2042 Kostenets, Bulgaria

Notified body: NB 2548

Product name: Fire resistant **single-leaf metal door** named **SFD**
ESTIA EI₂45 - EI₂60

Contents of the test report: 8 pages

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1. Introduction

This classification report defines classification for single-leaf metal fire-resistant door named SFD ESTIA EI₂₄₅-EI₂₆₀, in accordance with the procedures given in BDS EN 13501-2:2016.

2. Details of the classified product

2.1. General

The single-leaf metal door, named SFD ESTIA EI₂₄₅-EI₂₆₀, is defined in a fire resistance class.

2.2. Description

The of fire-resistant single-leaf metal door set, named SFD ESTIA EI₂₄₅-EI₂₆₀ is fully described below in support of the classification in item 4.2.

The door has overall dimensions (WxHxL) 1097 mm x 2249 mm x 91.3 mm and a leaf thickness 78.5 mm It consists of a metal frame without a threshold and a metal leaf, covered with wooden panels inside and outside.

The door leaf has overall dimensions (WxH) of 1008.8 mm x 2197.3 mm and a thickness of 78.5 mm. The leaf is made of 0.8 mm galvanized metal sheet for the exterior and 0.6mm galvanized metal sheet for the interior side. The sash leaf filled with insulation materials- mineral wool and plasterboard.

The base of the wing has dimensions (WxH) of 971.8 mm x 2178.8 mm and a thickness of 78.5 mm. Inside on the base free-standing are placed vertically 3 pcs. pieces of mineral wool, 50 mm thick and bulk density of 100 kg/m³. The mineral wool is Rockwool brand, manufactured by FIBRAN SA. The stone wool is cut in the area of the hinges and the lock. 0.6 mm thick sheet metal is placed on the stone wool. The cover is profiled with a complex shape, forming three cavities with a width: on the sides of the hinges 255 mm; average 313 mm and side of the lock 255 mm, and cavity spacing 87 mm. The sheet metal profiled cover covers the free-standing cotton wool. The cover is welded, vertically and horizontally along the perimeter, to the base of the wing.

On the closing side, the door leaf is covered with plasterboard GKF and boards MDF. GKF gypsum plasterboard is manufactured by KNAUFF. Plasteboard has dimensions (HxW) 1200 mm X 2500 mm, thickness 12.5 mm and bulk density 100 kg/m². MDF boards are 7 mm thick and 780 kg/m³ density, is manufactured by KETE SA They have dimensions (1008 x 2197) mm on the closing side and (965 x 2175) mm on the opening side. The gypsum plasterboard and MDF panels of the doors are attached, along the perimeter of the leaf by metal profiles of galvanized sheet with dimensions 29.8 mm x 80.3 mm and metal thickness 0.8 mm, by means of self-drilling screws Ø4.8x19 mm The screws are 43.9 mm, 435.9 mm, 708.8 mm, 1065.9 mm, 1711.4 mm and 2083.8 mm from the lower edge of the wing.

The leaf is edged on all sides with a profile of galvanized sheet metal with a thickness of 0.8 mm. It attaches the panels to the leaf frame with 28 pcs. screw with size Ø4.8x19 mm. They are located on the perimeter of the leaf at a distance of 215 mm from each other.

The door frame is metal without a threshold. It has overall dimensions (WxH) 1097 mm x 2249 mm and dimensions of light opening ((WxH) 950 mm x 2176 mm. It is made of cold rolled metal 1.5 mm thick. The profile of the door frame has dimensions (50.3 x 60.2) mm. It consists of two vertical profiles with a height of 2247.9 mm and and one upper horizontal with length 986 mm. The profiles are angled.

Along the perimeter of the frame is placed a rubber seal (13x10) mm. The seal is brand F1515 a production of BMP HELLAS S.A. An intumescent seal is additionally mounted along the perimeter of the frame- type Technoflame, brand Marvon SRL. It has dimensions (25x2.0) mm.

Holes have been made in the frame for the door hardware.

The door is additionally equipped with:

Hinges

The leaf is fixed to the frame with the help of 2 pcs. hinges, made to order by KeteSa, manufactured by Pettiti Spa. The hinges are cylindrical, with dimensions $\varnothing 13.9/14.2/$ mm. The hinges are mounted by welding, both on the frame and on the leaf. They are located at a distance of 1532 mm from each other, measured from the center of the lower part of the hinge.

The hinges are located at a distance of 319 mm from the upper end and 399 mm from the lower end of the frame measured to the middle of the hinges.

Lock

The leaf is equipped with a lock named B-6515, manufactured by CISA. It has dimensions (136x206) mm and is made of galvanized steel. The lock is equipped with a high resistance reversible latch $\varnothing 19$, 4 bolts $\varnothing 18$. The door is without a cartridge. In the lock there is a cylinder covered with a protector. The lock is mounted in the leaf by means of 4 screws with dimensions M6x40 mm. It is located 1169 mm from the lower edge of the sash, measured from the center of the location of the intended handle in the lock.

Cylinder

In the lock is placed a cylinder model K22 with dimensions of 90 mm. The cylinder is protected with carbonized steel and galvanized with zinc, type "blind protector" production of SECUREMME. The protection has dimensions $\varnothing 46 \times 25$ mm.

Falling threshold

A falling aluminum threshold, with graduated scissor action, brand ASAL, manufactured by CCE is mounted in the lower part of the leaf. It has a maximum drop of 14 mm. Screws for metal self-drilling with dimensions $\varnothing 4.2 \times 16$ mm were used for its installation.

Passive spikes

The leaf is equipped with 7 pcs. passive spikes providing additional protection. They have dimensions $\varnothing 15.01$ mm and length 25 mm. They are attached by screwing to the leaf and are located at a distance 277 mm, 516 mm, 789 mm, 1146 mm, 1473 mm, 1791.5 mm and 2061.5 mm from the lower edge of the frame, on the hinge side.

Mounting the door frame to the supporting structure

The door frame is mounted to a standard low density supporting structure 200 mm thick, made of autoclaved aerated concrete blocks, with a bulk density of 440 kg/m^3 . The installation was carried out by means of 8 pcs. screws for direct mounting on each vertical side and 2 pcs. for the upper part of the frame. The screws have dimensions $\varnothing 7.5 \times 160$ mm. The gripping on both vertical sides of the frame is at distances 284.8 mm, 523.9 mm, 1153.9 mm, 1799.4 mm, 2070.1 mm from the bottom edge of the frame, hinge side. The grip in the lock side of the frame is at distances 269.4 mm, 1036.4 mm, 1092.4 mm, 1148.4 mm and 1918.60 mm, from the bottom edge of the frame. The distance between the wall and the frame is 18 mm from the lock side and 22 mm from the hinge side. It is filled and

plastered with cement mortar. Additionally, on the opposite side of the hinges, the case is protected with aerated concrete blocks with a thickness of 50 mm.

The leaves of the tested specimens weigh 65 kg each.

The manufacturer of the door is KETE SA, Polykastro, Kilkis, 61200, Greece.

3. Test reports and test results in support of classification

3.1. Test reports

Includes test details to determine door parameters.

Name of the laboratory	Name of sponsor	Report ref. no.	Test method and date
Testing and research laboratory F PLUS, Bulgaria	KETE SA , Polykastro, Kilkis, 61200, Greece	Test report No. TR-316- 01/25.03.2022	BDS EN 1634-1: 2014+A1:2018

3.2. Results

Test method	Parameter	Results
Test method according to the requirements of BDS EN 1634-1:2014+A1:2018 Test report No TR-316-01/25.03.2022 (fire impact - on the hinge side)	Supporting construction	Standard flexible construction
	Integrity E	
	Cotton pad Gap gauge Sustained flaming	62 min 62 min 62 min
	Thermal Insulation	
	I I ₁ I ₂	- - 62 min
	Radiation W	-
(fire impact - on the opposite side of the hinges)	Integrity E	
	Cotton pad Gap gauge Sustained flaming	47 min 47 min 47 min
	Thermal Insulation	
	I I ₁ I ₂	- - 47 min
	Radiation W	-

4. Classification and field of application

4.1. Reference of classification

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

4.2. Classification

The single-leaf metal fire resistant door named SFD ESTIA EI₂₄₅-EI₂₆₀, is classified in accordance with the following combination of performance parameters and classes by fire impact applied on both sided.

E	I ₁	I ₂	W		t	t	M	S	C	IncSlow	sn	ef	r
X	-	-	-		4	7	-	-	-	-	-	-	-
X	-	X	-		4	7	-	-	-	-	-	-	-
X	-	-	X		4	7	-	-	-	-	-	-	-

Fire resistance classification E 45, EI₂ 45, EW 45

The classification for this type of products also meets the requirements of BDS EN 1634: 2014. and BDS EN 1634:2014+A1:2018 and allows the results to be confirmed.

The single-leaf metal door named SFD ESTIA EI₂₄₅-EI₂₆₀, is classified in accordance with the following combination of performance parameters and classes by fire impact on the hinges side:

E	I ₁	I ₂	W		t	t	M	S	C	IncSlow	sn	ef	r
X	-	-	-		6	2	-	-	-	-	-	-	-
X	-	X	-		6	2	-	-	-	-	-	-	-
X	-	-	X		6	2	-	-	-	-	-	-	-

Fire resistance classification E 60, EI₂ 60, EW 60

The classification for this type of products also meets the requirements of BDS EN 1634: 2014. and BDS EN 1634:2014+A1:2018.

4.3. Field of direct application

The field of direct application defines the permissible changes to the test specimen, followed by the 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.

Unless otherwise stated in the following text, the materials and construction of the door set must be the same as those tested. The number of leaves and the mode of action (one leaf door, rotating on hinged) should be no different.

- Wooden construction

The thickness of the door leaf should not be reduced, but may be increased.

The thickness of the door leaf and / or the density may be increased, provided that the total weight gain does not exceed 25%.

For flat wood-based products (for example, particle board, board of wood blocks, etc.) the composition (e.g. type of resin) must not be different from tested. The density should not be less, but can be greater.

- Decorative finishes:

= 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;

= Decorative laminates and timber veneers up to 1.5 mm thick can be added to the front side (but not to the edges) of doors which satisfy the insulating criteria (by normal or additional procedure).

- Fasteners

The number of fasteners per unit length used to attach door sets to supporting constructions may be increased, but should not be reduced and the distance between the fasteners may be less, but should not be greater.

- Building hardware

The number of hinges and hinge bolts can be increased, but should not be reduced.

- Permissible size variations

Based on the test duration achieved, the door falls into category "A" for classification E45 (EI₂₄₅) and category "B" for classifications less than E45 (EI₂₄₅), in accordance with Table 1 of BDS EN 1634-1. In accordance with Table B.1. for category "A" doors, a reduction of up to 50% in width and up to 75% in height of the test specimen is permissible. For category "B" doors, a reduction of up to 50% in width and up to 75% in the height of the test specimen and an increase of up to 15% in height and width and up to 20% in the area of the test specimen shall be permitted.

- For doors sets with **smaller dimensions** the relative position of the movement restraints (e.g. locks, hinges etc.) 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.

- The following must also apply to larger doorsets:

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 upper end of door leaf shall be equal to or less than that tested;

c) the distance of the lowest hinge from the lower end of the door leaf shall be equal to or less than that tested;

d) when three hinges or deflection restraint are used, the distance between the lower end of the door leaf and the center of the restraint shall be equal to or greater than the tested one.

The maximum size of the main **clearances (p)** with mounted seal is as follows: threshold- 4.5 mm; upper side- 4.0 mm; on the hinge side- 3.8 mm and on the lock side- 4.0 mm.

- Standard solid low-density supporting construction

The fire resistance of a door set tested in a solid standard supporting construction with high or low density, as defined in EN 1363-1, may be applied to a door set mounted in the same way in a wall, provided that the density and thickness of the wall are equal to or greater than those in which the door set has been tested.

The fire resistance of the door is only applicable to a door installed in a partition with a fire resistance equal to or greater than that of the partition in which it is tested. The fire resistance of the partition must be determined separately in a preliminary test.

5. Limitations

This classification document does not substitute either type approval or the product certificate.

Classification undertaken by:

A blue ink signature in cursive script, appearing to read "Elisaveta Hlebarova-Zarkova".

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/dipl.-eng. Elisaveta Hlebarova-Zarkova /

Director of BTR:

A blue ink signature in cursive script, appearing to read "Dr. Detelin Spassov".

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/Dr. dipl.-eng. Detelin Spassov /

This this report was issued in Bulgarian and English languages.
By established distinction between both reports the Bulgarian one is valid.