



CLASSIFICATION REPORT

№ CR-417-01/09.04.2024

In accordance with BDS EN 13501-2:2023

Sponsor: **CHOSTELIDI BROS OE,
EVOSMOS-THESSALONIKI,
GREECE**

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Notified body NB 2548

Product name: **Single-leaf** metal door named **MS14F**

Contents of the test report: 9 pages

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1. Introduction

This classification report defines a classification for a single-leaf metal door set named MS14F in accordance with the procedures described in BDS EN 13501-2:2023.

2. Details of the classified product

2.1. General

The single-leaf metal door set named MS14F is defined in a fire resistance class.

2.2. Description

The single-leaf metal door set named MS14F, is fully described below in support of the classification in item 4.2.

The tested door has dimensions (WxHxL) 980 mm x 2100 mm x 60 mm and a leaf thickness 60 mm. It consists of a metal frame without a threshold and a metal leaf.

The door leaf is rebated and has overall dimensions (WxHxD) are 870 mm x 2050 mm x 60 mm. It is made by punching, pressing and welding. The leaf is made of galvanized sheet metal with a thickness of 0.8 mm and consists of a base and a lid. The base and lid are held together by a perimeter weld. The leaf is reinforced in the area of the hinges with metal $\sqcap$ - shaped profiles with a length of 245 mm and dimensions (24x31x70) mm. The profiles are made of galvanized sheet metal with a thickness of 1.25 mm and are installed at distances: the lower profile at 322 mm from the lower edge of the frame, and the upper one at 1829 mm from the lower, measured from the underside of the reinforcing profiles. The mounting of the reinforcing profiles is carried out by welding.

The inside of the leaf is filled with one layer of Fireproof type fire-resistant plasterboard with a thickness of 12 mm and stone wool. Plasterboards are 12 mm thick and have dimensions (WxH) 870 x 1980 mm. They are laid into the leaf, by pressing between the base of the leaf, the wadding and the leaf lid. Plasterboards are manufactured by FIBRAN.GR. The stone wool has a thickness of 35 mm and a density 100 kg/m³, produced by the company FIBRAN.GR. The stone wool measures (WxH) 870 mm x 1980 mm. The wool is free-standing.

On both sides, on the outer sides of the leaf, decorative MDF boards with a thickness of 6 mm are installed. MDF boards are manufactured by GPT YATA PROFILES AND DOORS. Their assembly is carried out with metal moldings surrounding the periphery of the leaf. The MDF boards are varnished with polyurethane varnish. The varnish is produced by the company GPT YATA PROFILES AND DOORS.

Metal moldings are 0.8 mm thick and 60 mm wide. They are powder-coated with NEOKEM brand paint, Industrial Polyester type, manufactured by NEOKEM. The moldings are mounted to the leaf with self-tapping screws $\varnothing$ 4.2x16 mm.

The various metal parts (base, lid, hinge base, hinges and closing mechanism) of the leaf and door are firmly connected by welding.

On the three fronts of the door leaf are installed, 2 strips (next to each other) of intumescent gaskets of the Fireproof type, with cross-sectional dimensions of 2 mm x 22 mm, manufactured by the company Sanok Rubber Company SA.

The door frame is metal without a threshold. It is made of SIDMA.GR galvanized sheet metal with a thickness of 1.25 mm, and the size of the clear opening (WxH) is 950 mm x 2100 mm. The frame is installed in a construction opening (WxH) 990 mm x 2200 mm.

The frame consists of two vertical and one upper beam. The vertical beams measure (HxW) 2120 mm x 30 mm, and the horizontal beams measure (LxW) 980 mm x 30 mm. The beams of the frame are connected to each other by welding at an angle of 45°.

Along the perimeter of the frame, in the places of contact with the leaf, are installed rubber seal type 5F, with cross-sectional dimensions 18 mm x 10 mm, production of Sanok Rubber Company SA.

The frame has punched holes for the tongues of the locks, with hole sizes (30 x 30) mm for the locking points and (24 x 28) mm for the passive spikes.

The frame is powder coated, with a layer thickness of 0.4 mm. The paint is brand NEOKEM type Industrial Polyester, produced by the company NEOKEM.

The weight of the door (frame + leaf) is 110 kg.

The door is additionally equipped with:

Lock

A lock was used, model STL, manufactured by the company Metal System. It has case dimensions (140 x 200 x 30) mm. It is mounted using screws measuring (4 x 30) mm. The lock has one latch and four locking points. The locking points are spaced: the latch at 850 mm and the top locking point at 934 mm, from the lower edge of the leaf. The lock is protected on one side by plasterboard with a thickness of 12 mm, Fireproof type, manufactured by FIBRAN.GR.

Deviators

Two deviators model Security for Multipoint Lock produced by the company Metal System are installed in the leaf. They are installed by welding. They are located at a distance of 288 mm from the lower edge of the leaf and 1413 mm in height from it. They are connected to the main lock by 2 rails and move with every half turn of a special cylinder mounted on the lock.

Cartridge

The door is tested with cartridge brand STL, height 80 mm, manufactured by the company Metal System.

Handle

The lock is equipped on the opening side with a handle type metal handle and on the closing side with a ball type metal handle, Best sd9 stainless steel armored door handle set. The handles are manufactured by SECUREMME. The handles are mounted 1044 mm from the lower edge of the leaf.

Hinges

The door leaf is mounted to the frame using 2 pcs. hinge model Heavy metal for armored doors, production of Metal System company. They have dimensions of Ø22x70 mm and are mounted using M8x30 mm screws. The lower hinge is located at a distance of 243 mm and the upper hinge at a distance of 1750 mm from the lower edge of the door leaf, measured from the lower edge of the hinges.

Passive spikes

The door is equipped with 7 pcs. passive spikes on the side of the hinges, „Fixed security bolts“ model, manufactured by the Metal System company. They are 17 mm x 20 mm in size and are mounted using M8x10 mm screws. They are located at distances from bottom to top as follows: first- at 105 mm from the lower edge of the frame, second- at 299 mm from the first, third- at 299 mm from the second, fourth- at 349 mm from the third, fifth- at 349 mm from the fourth, sixth- 299 mm from the fifth and seventh- 299 mm from the sixth, measured from the center of the spikes.

Self-closing device

The door is equipped with a self-closing device type Fireproof, brand YALE4000, manufactured by the company YALE. The installation was carried out according to the manufacturer's installation manual. It is mounted on the opening side, at a distance of 1100 mm from the edge of the leaf. During the test, the apparatus has its holding force released.

Automatic Threshold

In the lower horizontal part of the door leaf, a Windbreaker threshold, produced by the Metal System company, is used. It is mounted using 4 pcs. screws with dimensions M 3,5 x16 mm.

The door frame is mounted to a wall of aerated concrete blocks with a thickness of 150 mm and a volumetric mass of 440 kg/m³. Assembly is carried out using 10 pcs. metal anchor bolts. They are located along the vertical elements of the frame and serve to mount the door to the partition wall. Anchor bolts are sized (WxH) 17 mm x 45 mm and are made of galvanized steel Ø17 mm, company production Metal System. They are mounted to the frame by means of a pressing device, being located at a distance of 450 mm from each other, and the lowest one at 50 mm from the bottom edge of the frame. The anchor elements of the horizontal beam are located at a distance of 160 mm from both ends of the frame.

The space between the frame and the wall is 5 mm and is filled with cement mortar.

The manufacturer door named MS14F is the company METAL SYSTEM SECURITY DOORS, CHOSTELIDI BROS OE, Terma Papagou Street, GREECE-THESSALONIKI-EVOSMOS.

3. Test reports and test results in support of classification

3.1. Test reports

They include details of a test to determine the parameters of the doors.

Name of the laboratory	Name of sponsor	Report ref. no.	Test method and date
Testing and research laboratory F PLUS, Bulgaria	CHOSTELIDI BROS OE, Greece	Test report №387-01/12.06.2023	BDS EN 1634-1: 2014+A1:2018
		Test report №417-01/08.04.2024	BDS EN 1634-3: 2005+AC:2006

3.2. Results

Test method	Parameter	Results
Test method according to the requirements of BDS EN 1634-1:2014+A1:2018 Test report №387-01/12.06.2023	Supporting construction	Standard solid low-density supporting construction
	Integrity E	
	Cotton pad	51 min
	Gap gauge	51 min
	Sustained flaming	51 min
	Thermal Insulation	
	I	-
	I ₁	18 min
	I ₂	34 min
	Radiation	
	W	-

Test method according to the requirements of BDS EN 1634-3:2005+AC:2006 Test report №417-01/08.04.2024	Smoke Leakage S	
	S_a	
	$Q_{spec}^{(20)}$	19,58 m ³ /h
	$Q_I^{(20)}$	1,46 m ³ /(h/m)
	S₂₀₀	
	$Q_{spec}^{(200)}$	19,87 m ³ /h

4. Classification and field of application

4.1. Reference of classification

This classification has been carried out in accordance with BDS EN 13501-2:2023.

4.2. Classification

The single-leaf metal door named MS14F, with a metal frame without a threshold and a metal leaf, is classified under double-sided fire impact in accordance with the following combination of presented parameters and defined classes:

R	E	I ₁	I ₂	W	t	t	M	S	C	IncSlow	sn	ef	r
-	X	-	-	-	5	1	-	S _a /S ₂₀₀	0	-	-	-	-
-	X	X	-	-	1	8	-	S _a /S ₂₀₀	0	-	-	-	-
-	X	-	X	-	3	4	-	S _a /S ₂₀₀	0	-	-	-	-
-	X	-	-	X	3	4	-	S _a /S ₂₀₀	0	-	-	-	-

Fire resistance classification
E45/ EI₁15/ EI₂30/ EW 30-S200-C0
E45/ EI₁15/ EI₂30/ EW 30-Sa4-C0

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.

- Metal constructions:

The dimensions of the metal cladding around the frames can be increased to accommodate the increased thickness of the supporting structure. The thickness of the metal can also be increased up to 25%.

The type of metal must not be different from the one tested.

- 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);

= Decorative laminates and wood veneers exceeding a thickness of up to 6.0 mm shall be tested as part of the test specimen. For the tested doorset tested with decorative laminated sides, the only possible differences should be within the same material types and thicknesses (eg for color, pattern, manufacturer).

- Fasteners

The number of fasteners per unit length used to attach doorsets 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.

NOTE: The number of the movement restraints, such as locks and latches, is not covered by the direct application.

Where a doorset has been tested with a door closing device fitted, but with the retention force released, the doorset may be provided either with or without that closing device, i.e. where self closing characteristics are not required.

- Permissible dimensional changes

Based on the results obtained, the following changes in dimensions are permissible:

- for classification EI₂₃₀ (EI₁₁₅) in case of two-sided fire impact of the structure, is defined in category "A". On this basis, a reduction of up to 50% of the width and 75% of the height of the tested sample is allowed;

- for classifications EI₂₂₀ and smaller classifications in double-sided fire impact, the structure is defined in category "B". On this basis, it is allowed:

= reduction to 50% of the width and 75% of the height of the test specimen;

= increase up to 15% in height, 15% in width and 20% in area.

- for doorsets 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.

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

- Standard solid low-density supporting construction

The fire resistance of a doorset tested in a solid standard supporting construction with a low density, as defined in EN 1363-1, may be applied to a doorset 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 doorset has been tested.

The fire resistance of a 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 established separately in a preliminary test.

4.3.2. For Smoke Leakage

The test results are directly applicable to product models different from the tested construction under the following conditions:

- the door set has a similar generic construction, for example a leaf made of monolithic wood in a wooden frame or a leaf made of bent sheet metal in a steel frame;
- the mode of action is identical, for example a single flying door, a double flying door, a roller closing device or a folding leaf;
- in the case of sets where it is required to limit the leakage in only one direction, then the direction is not changed by the tested;
- the type of supporting structure and the type of fastening and sealing between the door frame and the supporting structure must not be smaller than those of the tested structure.

Doors tested in flexible construction can be installed in rigid constructions, but not vice versa.

- Construction of the door set

- = Decorative coatings such as paints can be changed;
- = The clearances between the elements may vary, but must not be greater than those of the tested specimens, and when their sizes are smaller, they must not impair the ability of the leaf to close;
- = Threshold clearances protected by active lowering seals may vary within the range of movement specified by the seal manufacturer.

- Metal leaves

- = The door leaf must be made identically and from identical material, for example frame and panel.

The joining method should be identical and the gain not reduced. For ambient temperature tests only, the gain may be increased.

- = The door leaf may contain additional insulating materials if the doorset is to withstand the spread of smoke at normal temperature, but additional insulating materials shall not be incorporated in door leaves designed to resist the spread of smoke at medium temperature.

- Size and geometric ratio

- = Leaf dimensions should not be increased, but may be reduced, provided the number of movement restraints such as latches, locks and hinges is not reduced (but may be increased);
- = The leaf geometry can be changed but within the above limitations for metal leaves and in case the length of the penetration joint is not increased.

- Door hardware and accessories

Accessories and hardware and/or their mounting technique may only be changed after an assessment of the extended scope application.

The location of accessories or door hardware may be changed on class Sa doors, but not permitted on class S200 doors.

- Seals

Since the sealing system is a critical part of the test, no changes are permitted to it compared to the system under test.

The maximum dimensions of the **clearances**, without gaskets, are as follows: Top side - 11.0 mm; on the side of the hinges - 10.0 mm; on the side of the lock - 5.0 mm and on the lower side (threshold) - 8.5 mm.

5. Limitations

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

Classification undertaken by:



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