

**CLASSIFICATION OF FIRE RESISTANCE PERFORMANCE
IN ACCORDANCE WITH EN 13501-2:2007+A1:2009**

Sponsor	: MESA, KANTUR-AKDAŞ, ARTAŞ, ÖZTAŞ ORTAKLIĞI 842 Ada 58 Parsel Atakent- Halkalı, Küçükçekmece İSTANBUL / TURKEY
Prepared by	: EFFECTIS ERA AVRASYA Test ve Belgelendirme A.Ş. TOSB TAYSAD Organize San. Böl. 1. CD. 15. Yol No: 1 Şekerpınar - Çayırova KOCAELİ / TURKEY
Product name	: <i>Single Leaf Fire Exit Door with Corner Frame - 90 x 210 cm</i>
Classification report No.	: EEA - 14- 021
Issue number	: 1/2
Date of issue	: 03.09.2014

This classification report consists of 16 pages and may only be used or reproduced in its entirety.

1. INTRODUCTION

This classification report defines the classification in accordance with the procedures given in TS EN 13501-2:2007+A1, assigned to *Single Leaf Fire Exit Door with Corner Frame - 90 x 210 cm*.

2. DETAILS OF CLASSIFIED PRODUCT

2.1. General:

The elements, *Single Leaf Fire Exit Door with Corner Frame - 90 x 210 cm*, is defined as a type of product.

2.2. Description:

Single Leaf Fire Exit Door with Corner Frame - 90 x 210 cm is fully described below.

2.2.1. General

Product identification : *Single Leaf Fire Exit Door with Corner Frame - 90 x 210 cm*

Direction of fire : Hinges away from fire

Manufacturer : CMD METAL ÇELİK KAPI VE YANGIN KAPISI İNŞ. PAZ. SAN. VE DİŞ TİC. LTD. ŞTİ.
İOSB Atatürk San. Sit. 2. Sokak No:27/28 Başakşehir-İSTANBUL/TURKEY

Sponsor of test : MESA, KANTUR-AKDAŞ, ARTAŞ, ÖZTAŞ ORTAKLIĞI
842 Ada 58 Parsel Atakent- Halkalı, Küçükçekmece – ISTANBUL / TURKEY



2.2.2. Construction

A side opening steel door construction, *Single Leaf Fire Exit Door with Corner Frame - 90 x 210 cm* was mounted in a masonry supporting construction, made of aerated concrete blocks with the mounting clearance dimensions of 990 x 2100 (w x h).

The supporting construction was supplied by the test laboratory (Efectis Era Avrasya) and consisted of aerated concrete blocks which have a density of 450 kg/m³ and thickness of 200 mm. The sponsor of the test was applied wall plaster (GESEREPAIR 730) to the un exposed surface of the supporting construction.

2.2.3. Components

2.2.3.1. Door Frame:

The frame studs and header were welded to each other. Wall plaster was filled between the supporting construction and the frame. Intumescent seal was used at the contact points of the door frame and the leaf. The frame was supported by anchorage plates and fixed to supporting construction by steel bolts.

- **Type** : Shaped from DKP steel plate.
- **Dimensions** :
 - Frame studs : 16/35 x 76 x 2100/2142 mm (w x d x h)
 - Frame header : 16/35 x 76 x 910/1083 mm (w x d x h)
 - Wall thickness of the steel plate : 1,5 mm.
- **Seal** :
 - Type : Intumescent seal strip – Intuflex ORBIS
 - Dimensions : 2 x 20 mm (t x w)
 - Locations : Contact points of the leaf and frame.
- **Filler** :
 - Type : Wall plaster – GESEREPAIR 730
 - Measured density : 1900 kg/m³
 - Nominal thickness : 3 ± 1 mm
- **Fixing** :
 - Type : Steel bolt
 - Dimensions : M8 X 160 (Ø x l)
 - Location : 3 pcs at each stud (250 and 1075 mm from top of the leaf and 250 mm from bottom of the leaf) , 2 pcs at the header (250 mm from each leaf corner).
- **Reinforcement:**
 - Type : Anchorage plate
 - Dimensions : 50 x 150 x 3 (d x w x t)
 - Locations : 2 pcs at each stud.

See figures 1-5 for details.

2.2.3.1.1. Leaf:

The leaf was covered by steel plates with insulation inside. Between two layers of gypsum board, stone wool was used. Intumescent seal was used at contact points of the leaf and the frame. The leaf supported by Ω steel profiles.

- **Covering plate** : DKP steel plate, wall thickness; 0,8 mm.



- Dimensions : 900/935 x 2100/2113 x 58 mm (w x h x t).
- Insulation:
 - Type : Gypsum board – ATIŞKAN
 - Nominal thickness : 12 + 12 mm (2 layers.)
 - Mass per unit area : Less than 10 kg/m²
 - Fire classification according to EN 13501-1: A2-s1,d0
 - Mass per unit area of paper facing: Less than 200 gr/m²
 - Type : Stone wool – WOOLER
 - Nominal density : 40 kg/m³
 - Nominal thickness : 32 mm
- Seal:
 - Type : Intumescent seal strip – Intuflex ORBIS
 - Dimensions : 2 x 20 mm (t x w)
 - Locations : Contact points of the leaf and frame.
- Reinforcement:
 - Type : Ω shaped steel profile
 - Dimensions : 32 x 120 x 1 mm (w x l x t)
 - Locations : 2 pcs inside the leaf. See figure 6.

See figures 2-4 for details.

2.2.3.1.2. Accessories:

- Hinges:

The leaf was hung on two steel hinges.

- Type : Steel Spring Hinge – MCMD 1001-01 – CMD - DEMİROĞLU
 - Dimensions : 27 x 170 mm (Ø x l)
 - Locations : 170 and 1842 from top of the frame.
 See figure 7.
- Panic bar:
 - Type : PBDMR 1001-3 – CMD - DEMİROĞLU
 - Location : 1000 mm from the bottom of the door sill.
 See figure 2.
- Door handle:
 - Type : Anti-panic handle – MUL-T-LOCK
 - Location : 936,3 mm from the bottom of the door sill.
- Lock:
 - Type : Mortised lock – NEMEF - 1739
 - Location : 886 mm from the bottom of the door sill.
- Fire lock: Provides fixing between the leaf and the frame by self-closing when heated.
 - Type : YKCMD 1001-02 – CMD - DEMİROĞLU
 - Location : 2 pcs., on the leaf at top and bottom of the lock side.
 See figure 8.

See figure 1-8 for details.



3. REPORTS AND RESULTS IN SUPPORT OF CLASSIFICATION

3.1. Reports

Name of laboratory	Name of sponsor	Test report ref. no.	Test method
EFFECTIS ERA AVRASYA Test ve Belgelendirme A.Ş.	MESA, KANTUR-AKDAŞ, ARTAŞ, ÖZTAŞ ORTAKLIĞI	RFTR14030	TS EN 1634-1

3.2. Results

Test method	Parameter	Results
TS EN 1634-1	Integrity, (E) – Cotton pad – Gap gauges Ø 6 mm Ø 25 mm – Flames longer than 10 sec.	93 rd minute. no failure (not applied) no failure (not applied) not observed.
	Insulation:, [I] – average temperature – maximum temperature	93 rd minute (due to the failure of integrity) 51 st minute by TC 35 for I ₁ , 93 rd minute (due to the failure of integrity) for I ₂ .
Test was terminated at 94 th minute after consulted with 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 TS EN 13501-2:2007+A1.

4.2. Classification

Single Leaf Fire Exit Door with Corner Frame - 90 x 210 cm is classified according to the following combinations of performance parameters and classes:



FIRE RESISTANCE CLASSIFICATION	
Direction: Opening away from the fire	
<u>Category A</u>	<u>Category B</u>
E90, EI₂90, EI₁45	E60, EI₂60, EI₁45
Direction: Opening into the fire	
<u>Category A</u>	<u>Category B</u>
E90	E60

4.3. Field of application

4.3.1 General

This report details the method of construction, the test conditions and the results obtained when the specific elements of construction described herein was tested following the procedure outlined in TS EN 1363-1, and when appropriate TS EN 1363-2. Any significant deviation with respect to size, constructional details, load stresses, edge or end conditions other than those allowed under the field of direct application in the relevant test method is not covered by this report

Except if otherwise specified hereafter, the design of the door-unit shall be identical to that of the test specimen. The number of door leaves and the operating mode (e.g. swing door or pivoted door, single or double acting door) shall not be modified.

4.3.2 Specific Restrictions Concerning Materials And Structures

4.3.2.1 Metal structures

It is allowed to increase the steel envelope around the fixed frames in order to allow for thicker supporting structures. It is allowed to increase the steel thickness by 25 % maximum.

It is not allowed to change type of the metal.

The number of stiffening elements for doors without thermal insulation and the number and the type of their attachments in the panel manufacture may be increased in proportion to the increase of the dimensions, but it is not allowed to be reduced.



4.3.2.2 Decorative coatings

4.3.2.2.1 Paint

Electrostatic powder painting is allowed for the surfaces of the door frames. Any painting is not allowed on the hardware components and on the surfaces of door leaves.

4.3.2.2.2 Decorative laminate

Decorative laminates and timber veneers up to 1,5 mm thickness are allowed to be added to the faces (but not the edges) of leaves and frames in doorsets which satisfy the insulation criteria (Allowed for only: EI₁₄₅, EI₂₉₀).

4.3.2.3 Fixings

It is permitted to increase the number of fasteners used to attach the fire resistant doors onto the supporting structures but it is not allowed to be reduced, and it is allowed to reduce the distance between the fasteners but it is not allowed to be increased.

4.3.2.4 Hardware

It is allowed to increase the number of movement-limiting devices such as locks, bolts and hinges but it is not allowed to be reduced.

4.3.3 Permissible Size Variations

4.3.3.1 General

Doors with dimensions which are different from those of the test specimens shall be permitted within some extent, but variations depend on the type of product and on the time during which the fire resistance criteria are met.

The increase and decrease of dimensions permitted by the field of direct application are applicable to the overall size of each leaf, each side panel, each transom panel and each over panel independently and including ant rebates which may be present on the leaf or panel.

The limits of permitted size variation are given in Annex B of the standard TS EN 1634-1.

4.3.3.2 Dimension variations according to the type of product

4.3.3.2.1 Permissible dimension variations of the leaf

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' overrun) in accordance with the following values was fulfilled before the test was concluded.

Classification time	All performance criteria fulfilled for at least
15 minutes	18 minutes
20 minutes	24 minutes
30 minutes	36 minutes
45 minutes	52 minutes
60 minutes	68 minutes
90 minutes	100 minutes

Consequently, increase of the dimension is only valid in case of related performance about "Category B overrun" is achieved in Clause 8, Table 2.



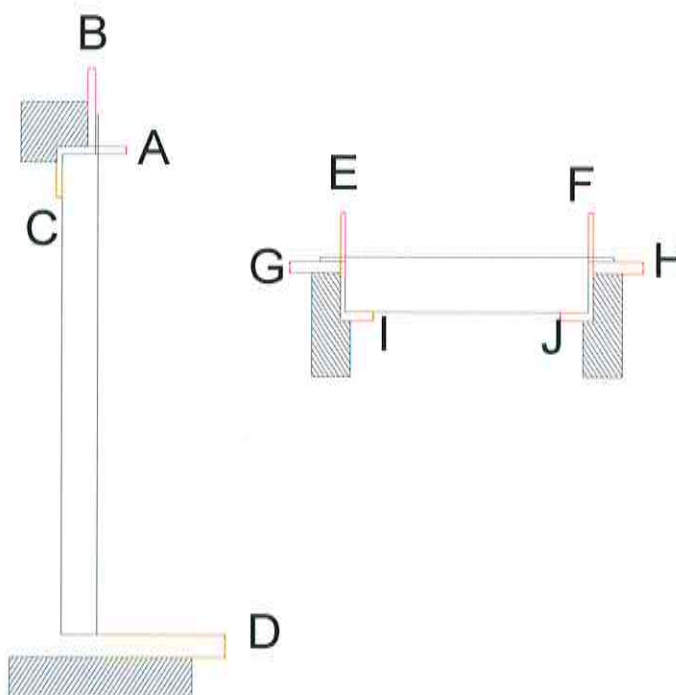
a) Category A classification:

Due to the Category A classification of Door, no size increase is allowed. The reduction of the metal doorset is limited at %75 in height and % 50 in width.

b) Category B classification:

Overall dimension of the leaf	Min.	Max.
Height	525 mm (% 75)	2415 mm (%15)
Width	450 mm (% 50)	1035 mm (%15)
Area	-	2,268 m ² (%20)

Size increases are only allowed for the doorsets provided that used with the gaps indicated in the table below:



	Average measured	Maximum measured	Practical maximum allowed
A	7,7	9,0	10,35
B	7,0	8,0	9,5
C	4,7	6,0	7,35
D	4,3	6,0	7,15
E	5,3	6,0	7,65
F	5,7	6,0	7,85
G	7,0	8,0	9,5
H	5,0	6,0	7,5
I	3,5	5,0	6,25
J	3,0	4,0	5,5



4.3.3.2.2 *Other changes*

For doors with smaller dimensions, the relative position of the movement-limiting devices (e.g. hinges, bolts, etc.) shall remain identical to that of the test specimen, or any modification in the distance between them shall be limited to the same reduction percentage as the dimension reduction of the test specimen.

It is not allowed to change the relative position of the movement-limiting devices (Hinges, bolts, etc.). It is permitted to modify the distance with the same percentage for the reduction of the test specimen.

For larger doorset sizes the following also must be applied (Category B):

- 1) The height of the latch above floor level must be equal to or greater than the tested height, and the maximum of any change in height must be proportional to the increase in doorset height;
- 2) The distance of the top hinge from the top of door leaf must be equal to or less than that tested;
- 3) The distance of the bottom hinge from bottom of door leaf must be equal to or less than that tested.
- 4) For three hinges or distortion preventers are used, the distance between bottom of the door leaf and centre restraint must be equal to or greater than tested.

4.3.4 **Supporting Construction**

Rigid block with a density of at least 450 kg/m³, having a thickness of at least 200 mm. It is not allowed to change surface coating that used at unexposed side of supporting construction.



5. LIMITATIONS

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

Signed:

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Burak ACİCBE
Person in the charge of tests



Approved:

.....
Onur DAĞ
Operation Manager

Drawings:

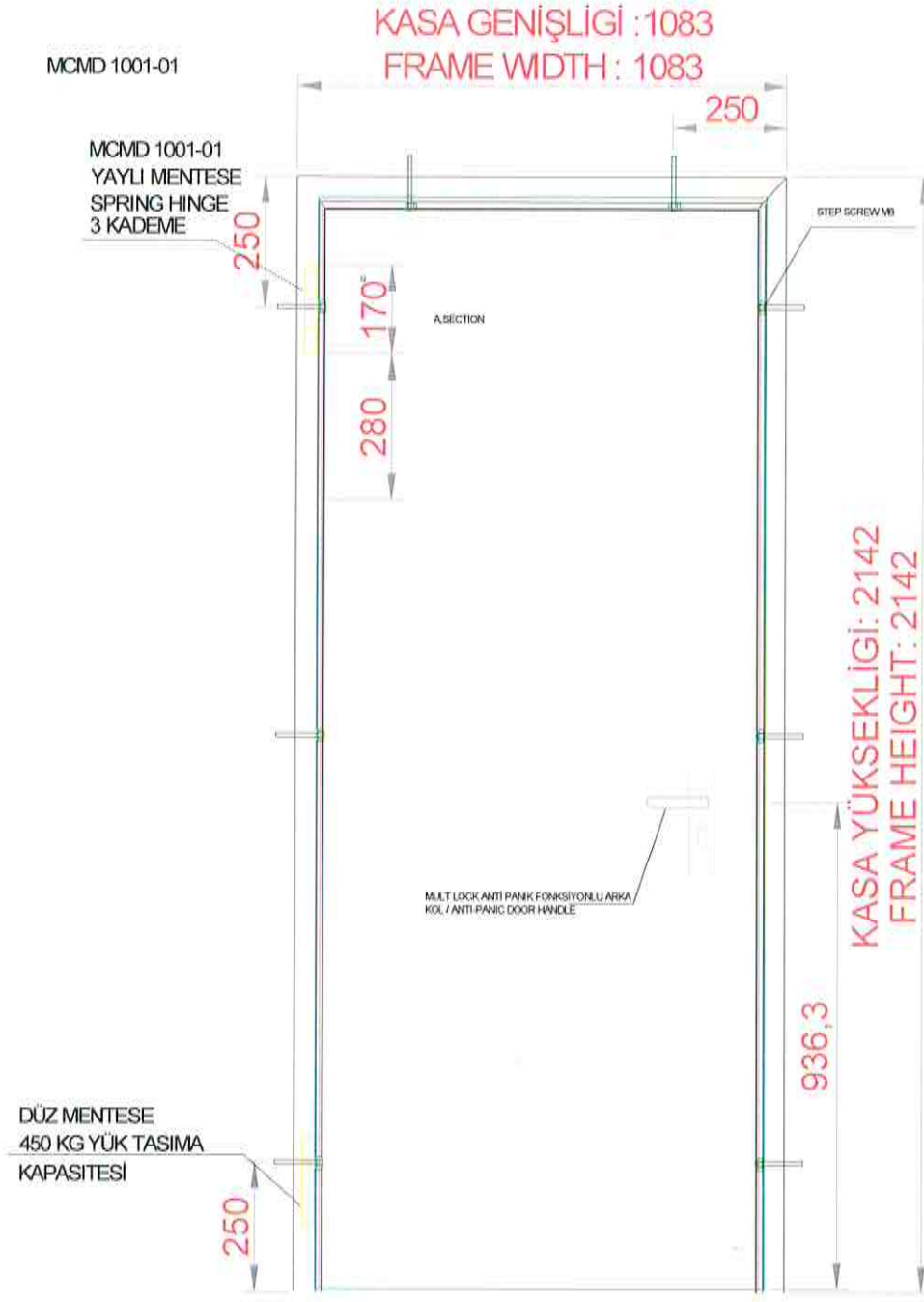


Figure 1: Unexposed side view of the Door.

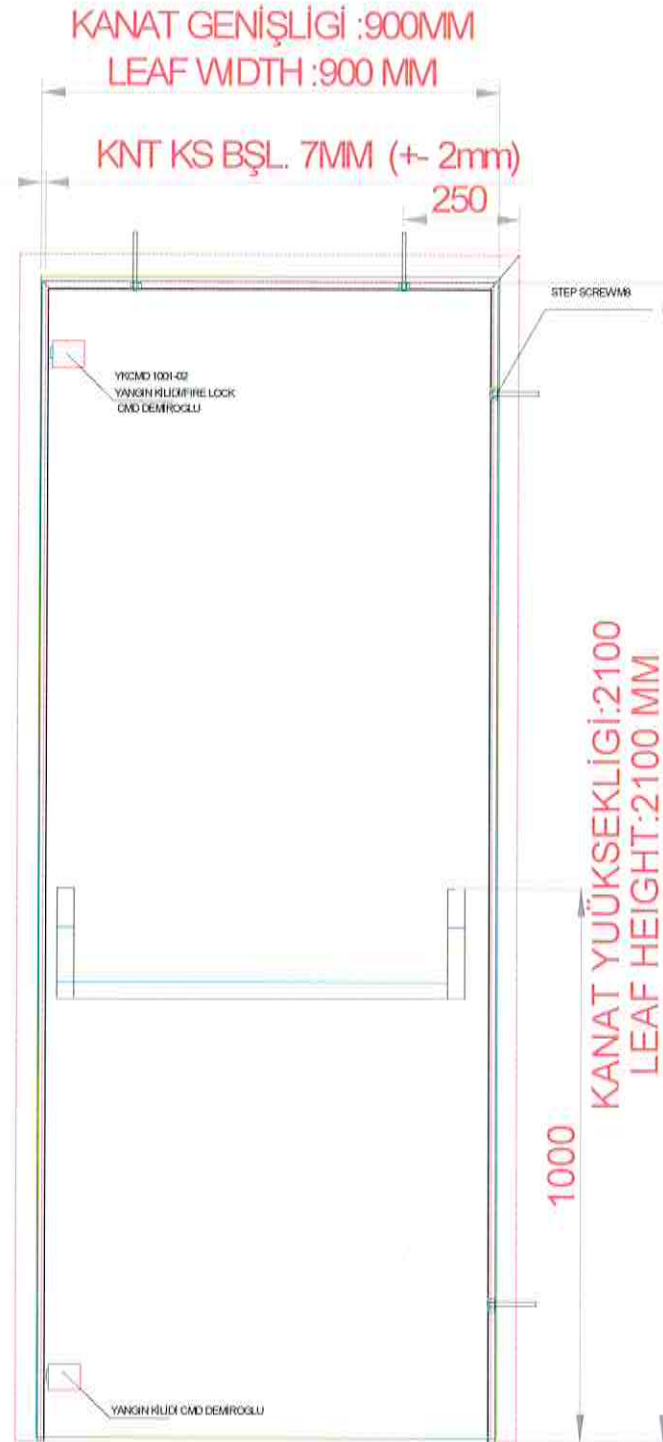


Figure 2: Exposed side view of the Door.

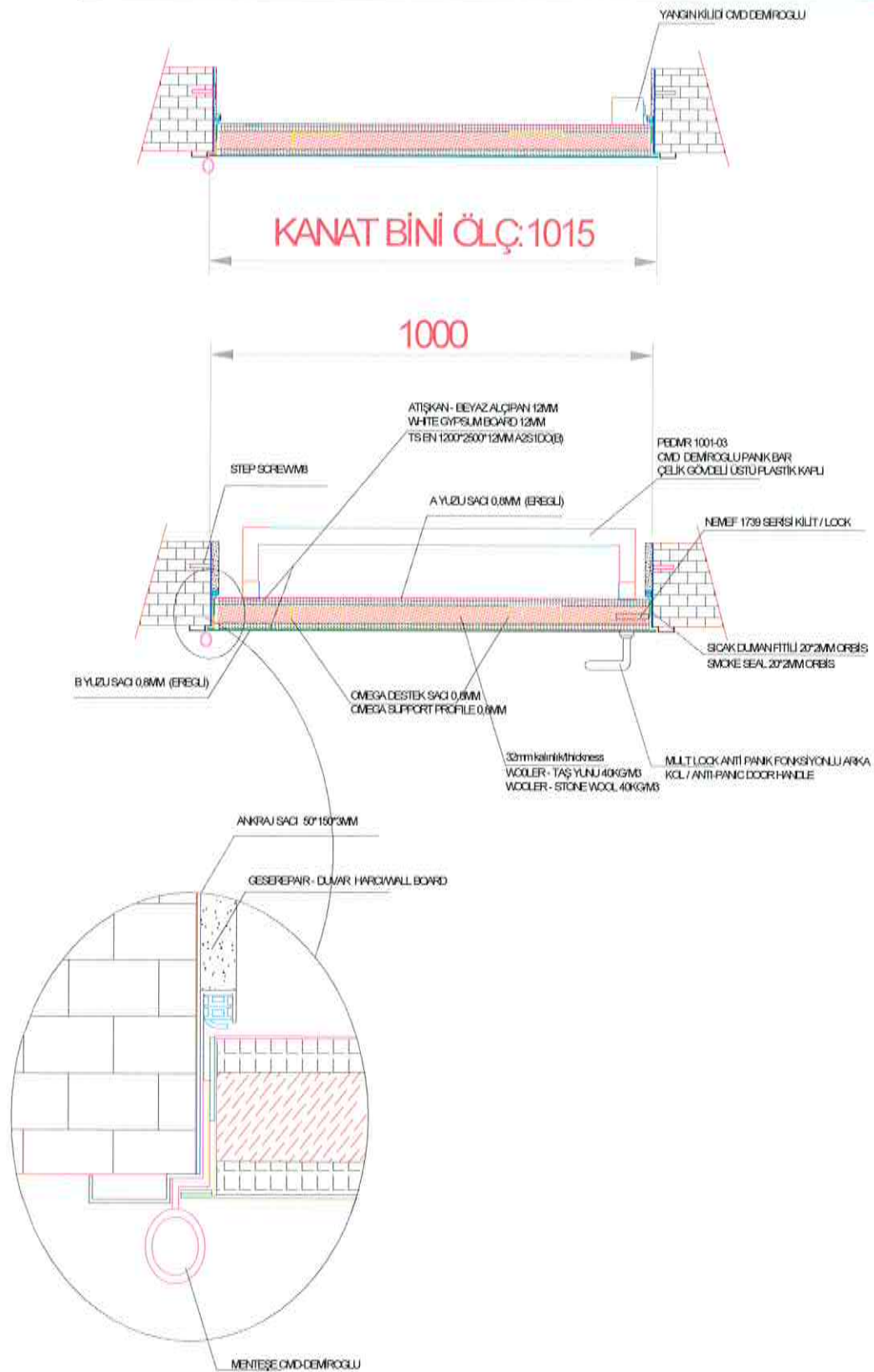


Figure 3: Detailed cross section of the Door.



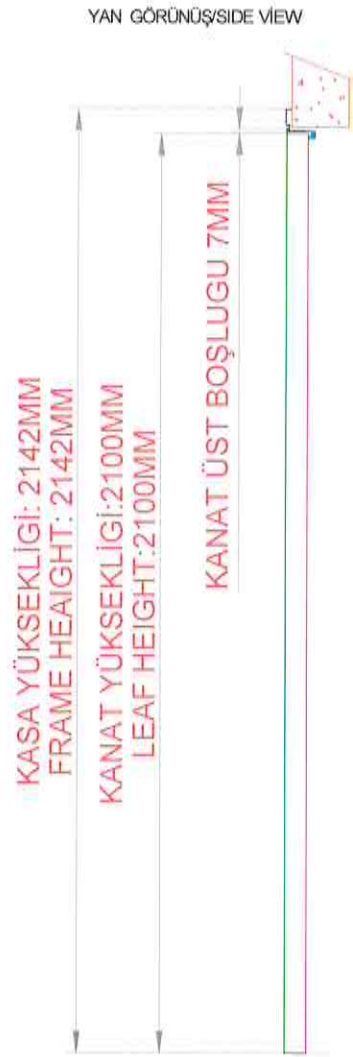


Figure 4: Side view of the Door.

KASA DETAYI/DETAILS OF THE FRAME

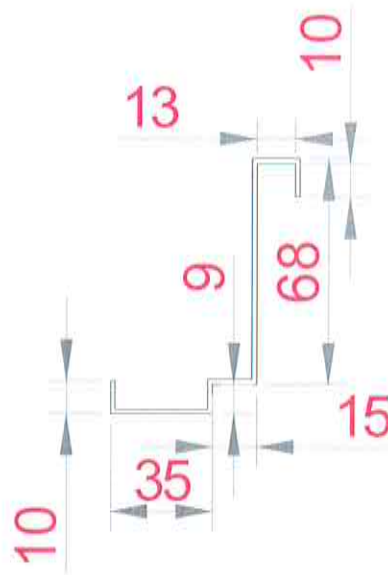


Figure 5: Details of the frame.

OMEGA DESTEK SACI OMEGA SUPPORTING PLATE

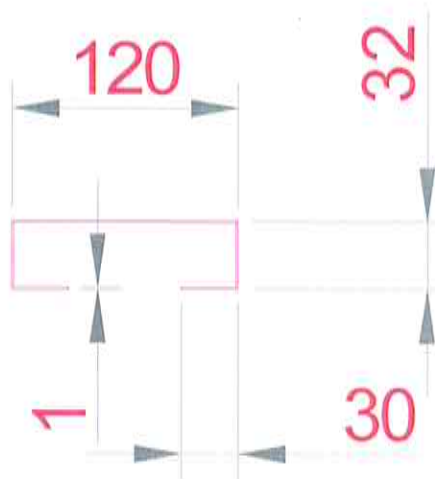


Figure 6: Details of the omega supporting profile

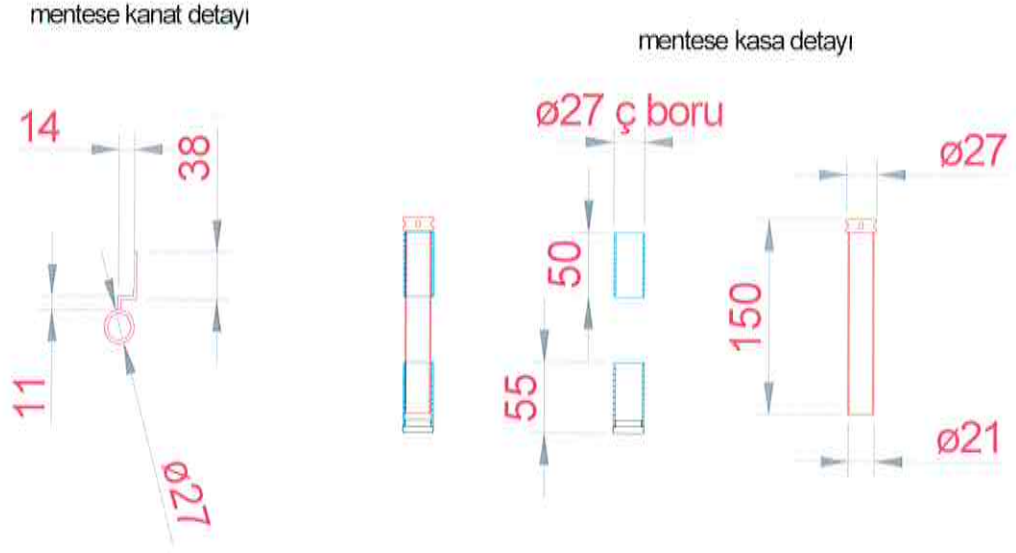
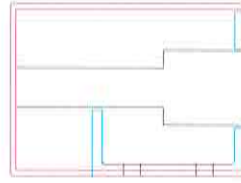


Figure 7: Details of the hinge



yangın kılıdı/fire lock
YKCMD 1001-02

ısı ulaştığında
kendiliğinden kapanan
kilit/ self-closing lock by
heat

Figure 8: Details of the fire lock

