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EFECTIS ERA AVRASYA

Fire Test Laboratory

Accredited Body
No: AB-0556-T

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0556-T

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

Sponsor	: EMEK METAL DEMİR DOĞ. ÇELİK KAPI LTD. ŞTİ. Karpuzsekisi Mah. 43. Cad. No :15 Hacılar, Kayseri / TURKEY
Prepared by	: EFECTIS ERA AVRASYA Test ve Belgelendirme A.Ş. Dilovası OSB 5. Kısım Fırat Cad. No : 18 41455 Dilovası, Kocaeli / TURKEY
Product name	: *Single Leaf Steel Fire Door "**Y-001**"*
Classification report No.	: EEA -19 - 007-REV2
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Date of issue *	: 07.10.2021

This classification report supersedes the report "EEA-19-007-REV". This report consists of 14 pages and may only be used or reproduced in its entirety.

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1. INTRODUCTION

This classification report defines the classification in accordance with the procedures given in EN 13501-2:2016, assigned to Single Leaf Steel Fire Door **"Y-001"**

2. DETAILS OF CLASSIFIED PRODUCT

2.1. General:

The elements, *Single Leaf Steel Fire Door "**Y-001**"*

2.2. Description:

*Single Leaf Steel Fire Door "**Y-001**"* is fully described below.

2.2.1. General

Product identification : *Single Leaf Steel Fire Door "**Y-001**"*

Direction of fire : Hinges away from fire

Manufacturer : EMEK METAL DEMİR DOĞ. ÇELİK KAPI LTD. ŞTİ.
Organize Sanayi Bölgesi 43.Cad No:15 Melikgazi, Kayseri / TURKEY

Sponsor of test : EMEK METAL DEMİR DOĞ. ÇELİK KAPI LTD. ŞTİ.
Organize Sanayi Bölgesi 43.Cad No:15 Melikgazi, Kayseri / TURKEY

2.2.2. Construction

Single Leaf Steel Fire Door **"Y-001"** was mounted in a masonry supporting construction, made of aerated concrete blocks with the mounting clearances dimensions of 950 X 2030 mm (w x h) for the door.
The supporting construction was supplied by the test laboratory (Efectis Era Avrasya) and consisted of aerated concrete blocks which have a density of 650 kg/m3 and thickness of 240 mm.

2.2.3. Components

- ***Door Frame***

The frame consisted from DKP steel plate and coating with the fire resistant paint. Inner and outer frame parts fixed to each other with steel screws. Polyurethane foam was used between the frame and supporting construction. Sealant was used joint points of leaf and the frame. Intumescent seal was used at contact points of leaf and the frame.

Type : Shaped from DKP steel plate.

- *Dimensions :*
  - *Frame studs : 90/100 x 240 x 2070/2090 mm (w x d x h)*
  - *Frame header : 90/100 x 240 x 1050/1085 mm (w x d x l)*
  - *Frame sill : 90/100 x 240 x 1050/1085 mm (w x d x l)*
  - *Wall thickness of the steel plate : 1,5 mm.*
- *Filler :*
  - *Type : Polyurethane based fire resistant foam – TYTAN B1 - SELENA*
    - *Location : Between the frame and supporting construction.*

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- *Sealant :*
  - *Type : Heat resistant sealant – Calofer - SOUDAL*
    - *Location : Joint points of supporting construction and the frame.*
- *Coating :*
  - *Type : Fire resistant paint - JOTUN*
    - *Thickness : 90-100 µm*
    - *Location : On the both side of leaf and frame.*
- *Seal :*
  - *Type : Intumescent seal – KHUN KREFIX*
    - *Dimensions : 18,5 x 17,5 (w x t)*
    - *Location : Contact points of leaf and the frame. 2 layer*
- *Fixing :*
  - *Type : Steel Screw - STD*
    - *Dimensions : 3,9 X 19 mm (Ø x l)*
    - *Locations : 6 pcs. were used at each stud. Respectively 40, 260, 642, 1055, 1450 and 1845 mm. 3 pcs. were used at header at the hinge from edge to the center. Respectively 70, 410 and 780 mm.*

- **Leaf:**

The leaf consisted from DKP steel plate and coating with the fire resistant paint. Stone wool, ceramic wool and gypsum board were used as insulation inside the leaf. Aluminium foil was used on both sides of gypsum board. Intumescent seal was used on the edges of the leaf.

Covering plate :

- *DKP steel plate was used at unexposed side. Wall thickness: 1,2 mm*
- *DKP steel plate was used at exposed side. Wall thickness: 1 mm*

- *Dimensions : 865/912 x 1975/1995 x 65 mm (w x h x t)*
- *Leaf weight : 100 kg*
- *Coating :*
  - *Type : Fire resistant paint - JOTUN*
    - *Thickness : 90-100 µm*
    - *Location : On the both side of leaf and frame*
- *Insulation :*
  - *Type : Stone wool – TERRAWOOL*
    - *Nominal thickness : 25 mm*
    - *Nominal density : 150 kg/m³*
    - *Location : Inside of the leaf at unexposed side.*
  - *Type : Ceramic wool – RAVABER*
    - *Nominal thickness : 13 mm*
    - *Nominal density : 125 kg/m³*
    - *Location : Inside of the leaf at exposed side.2 layer.*
  - *Type : Gypsum board – KNAUF*
    - *Nominal thickness : 12 mm*
    - *Nominal density : 530 kg/m³*
    - *Location : Between stone wool and ceramic wool.*
  - *Type : Aluminium foil – NICE PLAST*
    - *Nominal thickness : 12 µm*
    - *Location : Used on both sides of gypsum board.*

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- *Seal :*
  - *Type : Intumescent seal – KHUN KREFIX*
    - *Dimensions : 25 x 2 mm (w x t)*
    - *Location : The edges of the leaf.*

- **Accessories:**

- *Hinges :*

The leaf was hung on three steel hinges.

- *Type : Spring steel hinge– DEMKA – D07.9B*
  - *Dimensions : 26 x 180 mm (Ø x l)*
  - *Locations : 2pcs used. 180 mm distance from top of the frame, c.t.c distance was 500 mm.*

- *Type : Steel hinge– DEMKA – D07.9B*
  - *Dimensions : 26 x 110 mm (Ø x l)*
  - *Locations : 170 mm distance from bottom of the frame.*

- *Panic bar with lock:*
  - *Type : Panic bar with single point lock system- DEMKA – D15*
    - *Location : 920 mm from the door sill*

For detailed information see figures 1-9.

3. REPORTS AND RESULTS IN SUPPORT OF CLASSIFICATION

3.1. Reports

Name of laboratory	Name of sponsor	Test report ref. no.	Test method
EFECTIS ERA AVRASYA Test ve Belgelendirme A.Ş.	EMEK METAL DEMİR DOĞ. ÇELİK KAPI LTD. ŞTİ.	RFTR19015	EN 1634-1:2014+A1:2018

3.2. Results

	Results
Integrity, (E) – Cotton pad – Gap gauges Ø 6 mm Ø 25 mm – Flames longer than 10 sec.	 68th minute . no failure (not applied). no failure (not applied). no failure.
Insulation:, [I] – average temperature – maximum temperature	 no failure 33rd minute for I_1
The heating was terminated at 69th minute after consulted with the sponsor.	

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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

Single Leaf Steel Fire Door ***"Y-001"*** is classified according to the following combinations of performance parameters and classes:

FIRE RESISTANCE CLASSIFICATION	
Direction of fire: Opening away from the fire	
Category A	Category B
Y-001: ***E 60, EI$_2$60, EI$_1$30***	***Y-001:*** ***E 60, EI$_2$60, EI$_1$20***

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 EN 1363-1:2012, and when appropriate EN 1363-2:1999. 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. It is not allowed to modify the number of door leaves and the operating mode (e.g. swing door or pivoted door, single or double acting door).

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

Where the paint finish is not expected to contribute to the fire resistance of the door, alternative paints are acceptable and can 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 is allowed.

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4.3.2.2.2 Decorative laminates

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 doorset which satisfy the insulation criteria (Allowed for only: $EI_1$30,$EI_2$60).

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.

Where self-closing characteristics are not required, it is allowed to remove closing device.

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 EN 1634-1:2014+A1:2018.

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

Consequently, increase of the dimension is only valid in case of related performance about "Category B overrun" is achieved in Clause 3.2, Table 2.

a) Category A classification:

Unlimited size reduction is permitted for all types of hinged and pivoted doorset except insulated metal doors where a reduction to 50 % width and 75 %height is the limit of variation and both insulated and non-insulated doorset with asymmetrical sized door leaves where reduction to 50 % width and height is the limit of variation.

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b) Category B classification:

Overall dimension of the leaf	Min.	Max.
Height	1481,25 mm (% 75)	2271,25 mm (%15)
Width	432,5 mm (% 50)	994,75 mm (%15)
Area	-	2,05 m^2 (%20)

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

	Average measured	Maximum measured	Practical maximum allowed
A	1.7	2.0	3.83
B	2.0	2.0	4.00
C	2.7	3.0	4.83
D	n/a	n/a	n/a
E	n/a	n/a	n/a
F	3.0	3.0	5.00
G	2.0	2.0	4.00
H	n/a	n/a	n/a
I	2.0	2.0	4.00
J	2.0	2.0	4.00
K	2.3	3.0	4.67
L	2.0	2.0	4.00

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.

4.3.4 Supporting Construction

It shall consist of rigid blocks with a density of at least 650 kg/m^3 and having a thickness of at least 240 mm.

Effective

5. LIMITATIONS

This classification report does not represent any type approval or certification of the product. This report is initially valid until **07th October 2022** providing that no significant modifications are made in technical specification of the specimen and related test and classification standards.

Signed:

İrem ATMACA
Person in the charge of tests

Approved:

Efectis

Ali BAYRAKTAR
Laboratory Manager

6. Drawings:

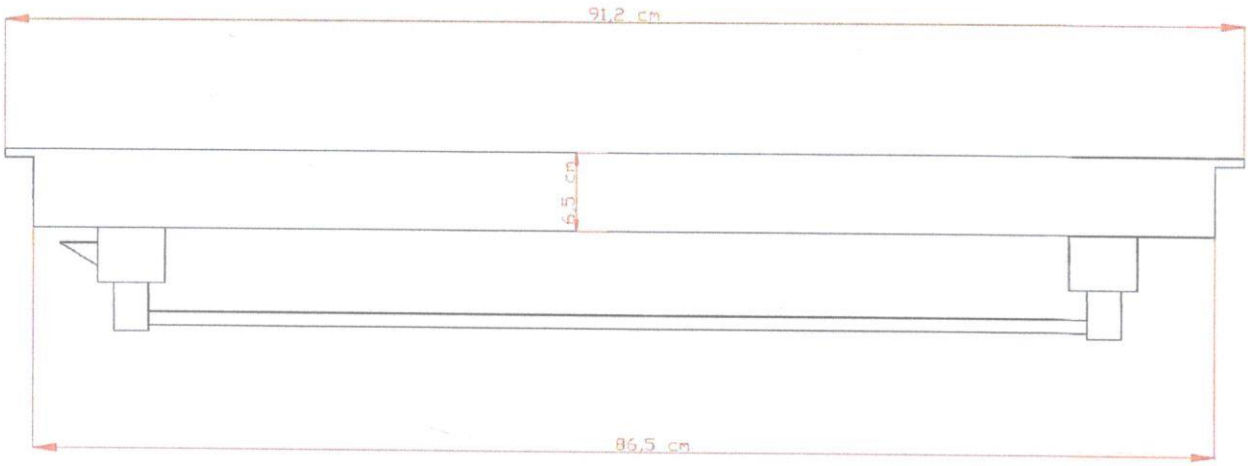


Figure 1: Leaf dimensions of the door.

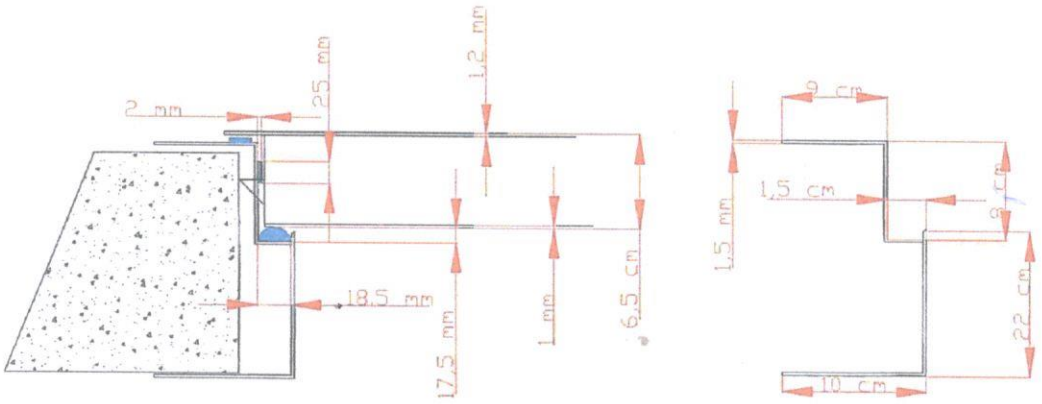


Figure 2: Frame details of the door.

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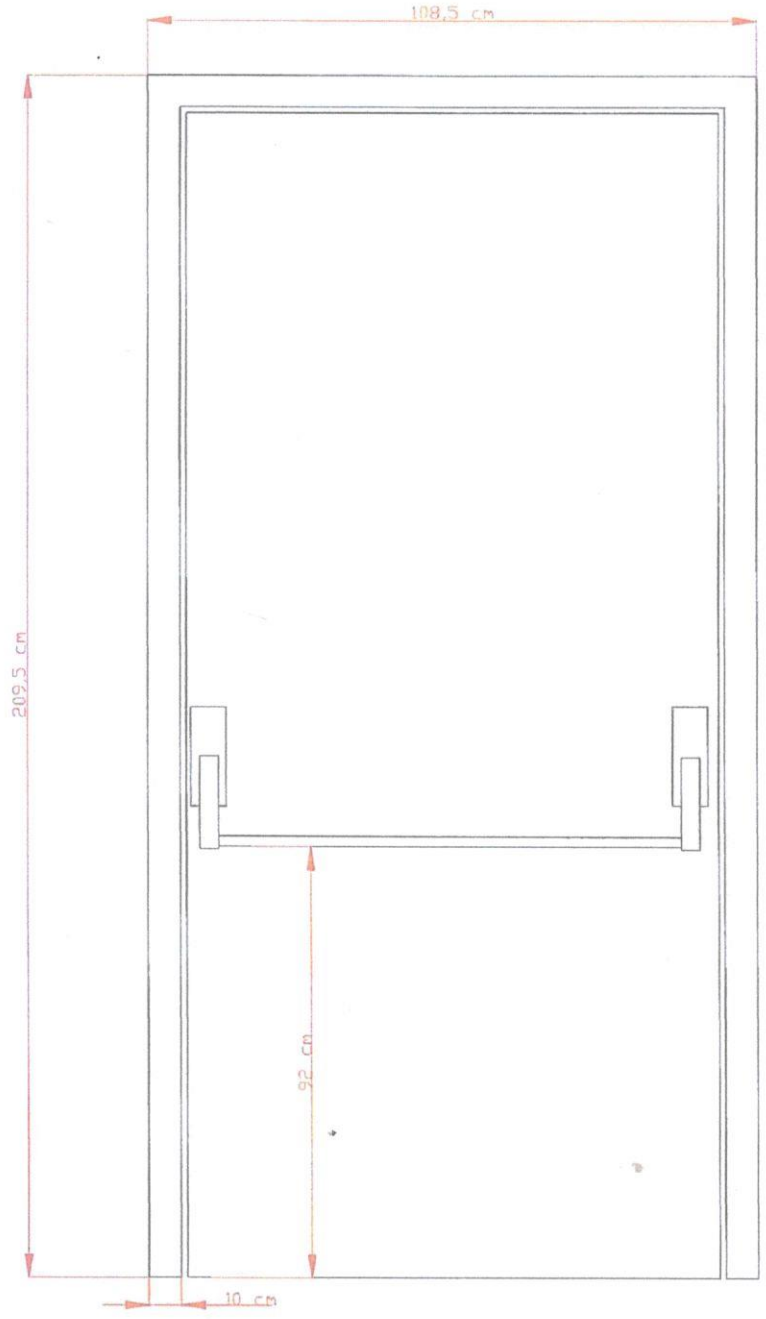


Figure 3: Unexposed side frame dimensions of the door .

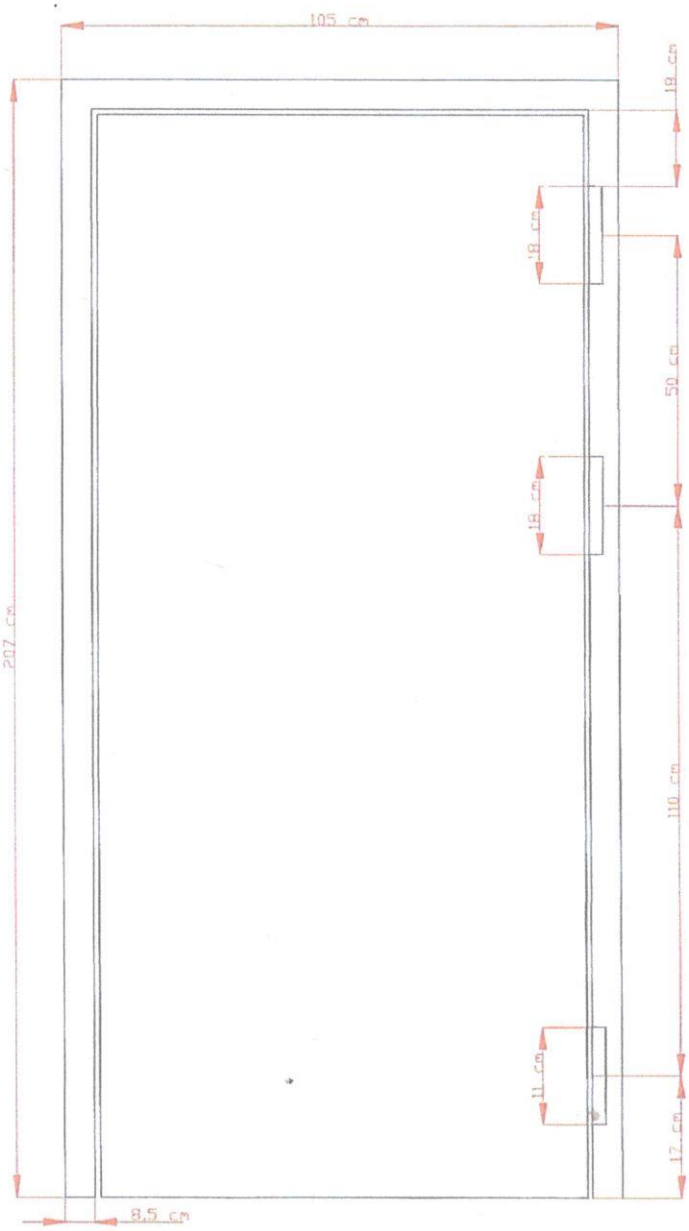
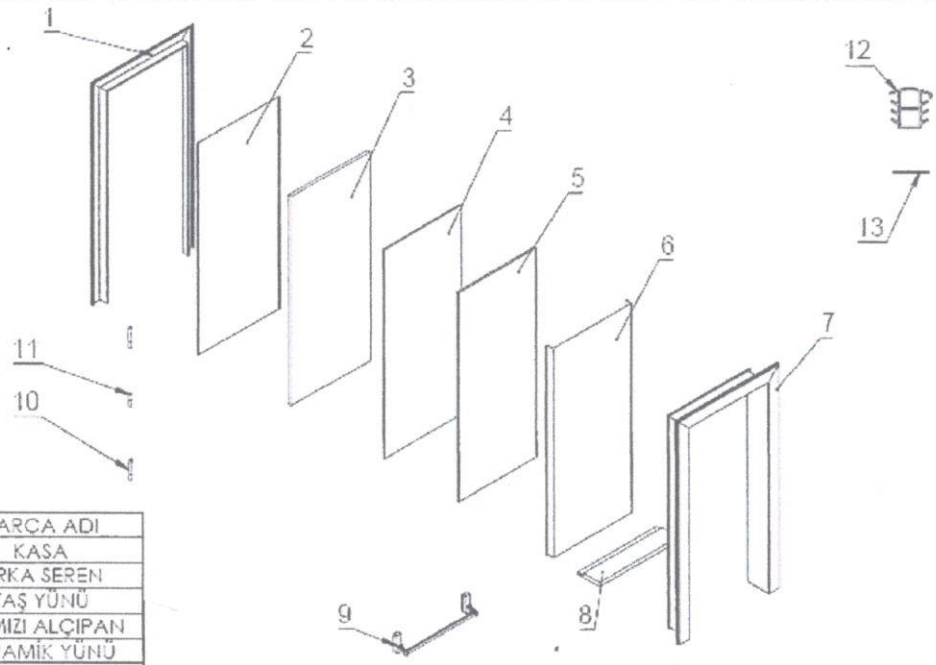


Figure 4: Unexposed side frame and hinge dimensions of the door.



NUMARA	PARÇA ADI
1	KASA
2	ARKA SEREN
3	TAŞ YÜNÜ
4	KIRMIZI ALÇIPAN
5	SERAMİK YÜNÜ
6	ÖN CEREN
7	KASA
8	ALT SEHPA
9	PANİK BAR
10	YAYLI MENTEŞE
11	NORMAL MENTEŞE
12	FİTİL (KASA)
13	FİTİL (KANAT)

ÇİZEN	Volkan DEMİRBAŞ	MALZEME	
TARİH	10.01.2019	emek kapı sistemleri	
PARÇA ADI	YANGIN KAPISI 90-200-24		

Figure 5: Frame, leaf and accessory details of the door.

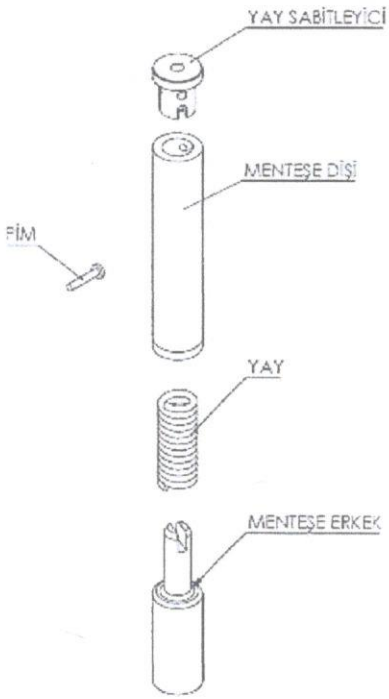


Figure 6: Spring hinge details details.

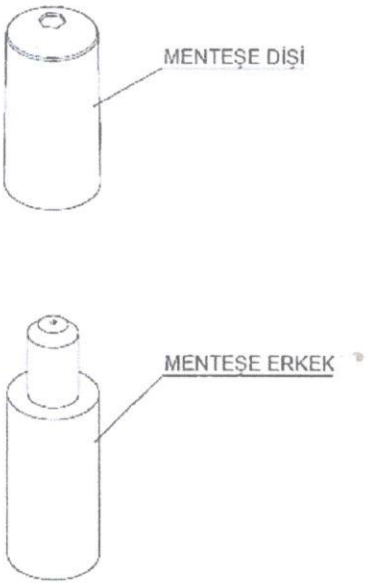


Figure 7: Steel hinge details details

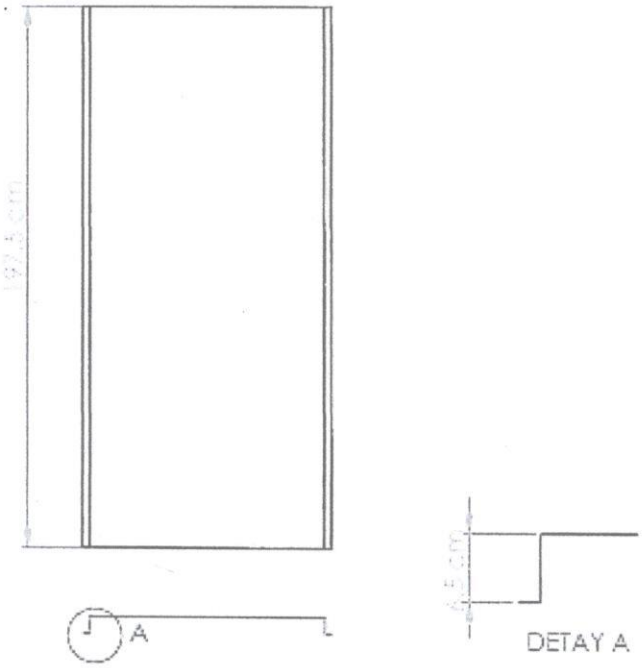


Figure 8: Exposed side details of the door.

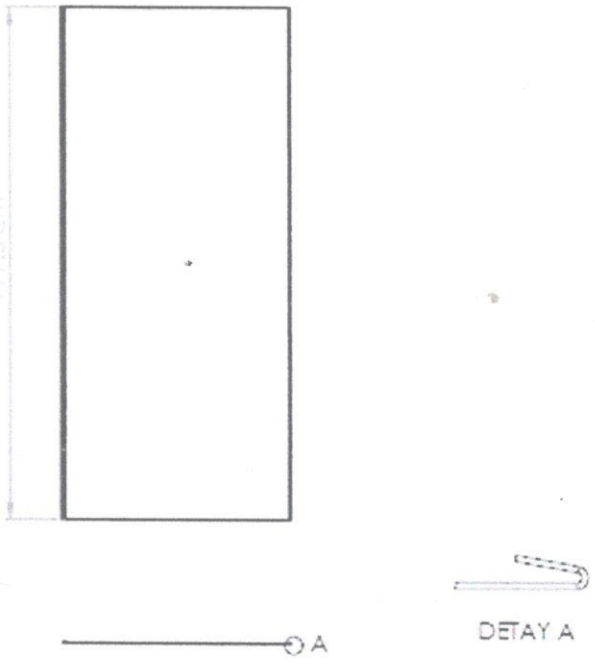


Figure 9: Unexposed side details of the door