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EFECTIS ERA AVRASYA

Fire Test Laboratory

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

Accredited Body
No: AB-0556-T

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 ISTANBUL / TURKEY
Prepared by	: EFECTIS ERA AVRASYA Test ve Belgelendirme A.Ş. TOSB TAYSAD Organize San. Böl. 1. CD. 15. Yol No: 1 Şekerpınar - Çayırova KOCAELİ / TURKEY
Product name	: *Double Leaf Glazed Fire Exit Door "CMDDMR180*210ÇKC"*
Classification report No.	: EEA - 15- 071
Issue number	: 1/2
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1. INTRODUCTION

This classification report defines the classification in accordance with the procedures given in EN 13501-2:2007+A1, assigned to *Double Leaf Glazed Fire Exit Door "CMDDMR180*210ÇKC"*.

2. DETAILS OF CLASSIFIED PRODUCT

2.1. General:

The element, *Double Leaf Glazed Fire Exit Door "CMDDMR180*210ÇKC"* is defined as a type of product.

2.2. Description:

*Double Leaf Glazed Fire Exit Door "CMDDMR180*210ÇKC"* is fully described below.

2.2.1. General

Product identification : *Double Leaf Glazed Fire Exit Door "CMDDMR180*210ÇKC"*

Direction of fire : Hinges away from fire

Manufacturer : CMD METAL ÇELİK KAPI VE YANGIN KAPISI İNŞ. PAZ. SAN. VE DIŞ TİC. LTD. ŞTİ. and DEMİROĞLU METAL İNŞ. PAZ. TİC. VE SAN. LTD. ŞTİ. TİC. A.Ş. 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

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2.2.2. Construction

Single action steel door construction, Double Leaf Glazed Fire Exit Door "CMDDMR180*210ÇKC" was mounted in a masonry supporting construction, made of aerated concrete blocks with the mounting clearances dimensions of 1820 x 2150 mm (*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 650 kg/m^3 and thickness of 200 mm.

2.2.3. Components

2.2.3.1. *Door Frame*

The frame studs and header were welded to each other. Between the supporting construction and the frame concrete was filled. Intumescent seal was used at the contact points of the door frame and the leaf. The frame was fixed to wall by steel bolts.

- *Type : Shaped from DKP steel plate.*
- *Dimensions :*
  - *Frame studs : 55/60 x 220 x 2142 mm (w x d x h)*
  - *Frame header : 55/60 x 220 x 1883 mm (w x d x h)*
  - *Wall thickness of the steel plate : 1,5 mm.*
- *Filler :*
  - *Type : Concrete mortar*
    - *Measured density : 1611 kg/m^3*
    - *Measured humidty: %6,35*
- *Seal :*
  - *Type : Intumescent seal strip – Intuflex ORBIS*
    - *Dimensions : 2 x 20 mm (t x w)*
    - *Locations : Contact points of the leaf and frame.*
  - *Type : Smoke seal – YILMAZ PLASTİK*
    - *Dimensions : 12 x 12 mm (t x w)*
    - *Locations : Rebate edge of the frame*
- *Fixing :*
  - *Type : Steel bolt – Fixing the frame to the wall.*
    - *Dimensions : M12 X 150 (Ø x l)*
    - *Location : 3 pcs at each stud (250 mm, 1070 mm and 1890 mm from the top of the frame. 2 pcs at the header (400 mm from each leaf corner).*
  - *Type : Anchorage plate – Fixing the frame parts to the unexposed side.*
    - *Dimensions : 75 x 150 x 1,5 (w x l x t)*
    - *Locations : 2 pcs at each stud (300 mm from top and bottom of the frame), 1 pc at the header (1070 mm from edge of the frame).*

See figures 1-6 for details.

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2.2.3.2. *Leaves:*

Double leaf glazed construction consisted of one active leaf (Leaf B) and one latched inactive leaf (Leaf A). The glazed leaf was covered by steel plates with insulation inside. Between two layers of gypsum board, stone wool was used. Intumescent seal was used at meeting edge of the leaves. Stone wool was used inside the glass frame.

- *Covering plate* : *DKP steel plate, wall thickness; 1 mm.*
- *Dimensions* : *860/895 x 2100/2113 x 58 mm (w x h x t) – Leaf on the left from unexposed side – Leaf A.*

  855/900 x 2100/2113 x 58 mm (w x h x t) - Leaf on the right from unexposed side – Leaf B.
  See figure 7.
- *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 and 5 x 20 (t x w)*
    - *Locations* : *Meeting edges of the leaves(2 x 20mm) ; between the glass frame and glass (5 x 20 mm).*
- *Glazing* : *Same dimensions and glass type was used for each leaf.*
  - *Type* : *Fireproof glass – ASSA ABLOY*
    - *Dimensions of pane* : *600 x 1400 x 37 mm (w x l x t)*
    - *Dimensions of frame* : *100 x 12,5 x 1550 mm (w x t x l) studs 100 x 12,5 x 835 mm (w x t x l) header*
    - *Insulation* : *Stone wool – WOOLER 40 kg/m³*
    - *Fixing* : *Stainless steel screw M10 X 48 mm. 4 pcs at studs, 2 pcs at the header. See figure 8.*

See figures 1-5 and 7-8 for details.

2.2.3.3. Accessories:

- *Hinges* :

The leaf was hung on three steel hinges.

  - *Type* : *Steel Spring and Pivot Hinge – MCMD 1001-01 – CMD - DEMİROĞLU*
    - *Dimensions* : *27 x 170 mm (Ø x l)*
    - *Locations* : *170 mm from the top of the frame. Ctc distance was 380 and 952 mm respectively. See figure 9.*
- *Lock:*
  - *Type* : *Mortised barrelled lock – KALE 2000*
    - *Location* : *950 mm from the bottom of the door.*
- *Door latch:*
  - *Type* : *15 x 100 mm steel latch – CMD DEMİROĞLU*
    - *Location* : *Top and bottom of the door.*
- *Fire lock: Self-locked when heated.*
  - *Type* : *YKCMD 1001-02 – CMD - DEMİROĞLU*

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- *Location : 4 pcs., Top and bottom of the leaf across the latch and edge of the leaves. See figure 10.*

See figure 1-10 for detailed information.

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.	MESA, KANTUR-AKDAŞ, ARTAŞ, ÖZTAŞ ORTAKLIĞI	RFTR15073	EN 1634-1:2014

3.2. Results

Test method	Parameter	Results
EN 1634-1	Integrity, **(E)** – Cotton pad – Gap gauges Ø 6 mm Ø 25 mm – Flames longer than 10 sec.	 no failure. no failure (not applied). no failure (not applied). 94th minute.
	Insulation:, [I] – average temperature – maximum temperature	 71st minute. 34th minute for I_1, 59th minute for I_2.
Test was terminated at 96th 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 EN 13501-2:2007+A1.

4.2. Classification

*Double Leaf Glazed Fire Exit Door "CMDDMR180*210ÇKC" is* classified according to the following combinations of performance parameters and classes:

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FIRE RESISTANCE CLASSIFICATION	
Direction: Opening away from the fire	
Category A	Category B
E90, $EI_2$45, $EI_1$30	**E60, $EI_2$45, $EI_1$20**
Direction: Opening into the fire	
Category A	Category B
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 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. 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: $EI_1$30, $EI_2$45).

4.3.2.3 Glazed constructions

It is not allowed to change type of the glass and the edge fixing technique, including type and number of fixings per meter of perimeter.

The number of glazed apertures and each of dimensions (width and height) of glass in each pane included within a test specimen are allowed to;

- decreased in proportion with size reductions; or
- decreased a maximum of %25 for integrity only and for insulation specimens where the unexposed surface temperature for both the construction and the glazing have been maintained for the classification period ($EI_1$45, $EI_2$90);
- reduced for doorsets, without restriction, providing that the total area of the test panes is less than %15 of the door leaf.

It is not allowed to increase the number of glazed apertures and each of the dimensions of glass in each pane included within a test specimen.

It is not allowed to reduce the distance between the edge of the glazing and the perimeter of the door leaf or the distance between glazed apertures from incorporated in test specimen.

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.

4.3.2.4 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.

4.3.2.5 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 EN 1634-1:2014.

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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.

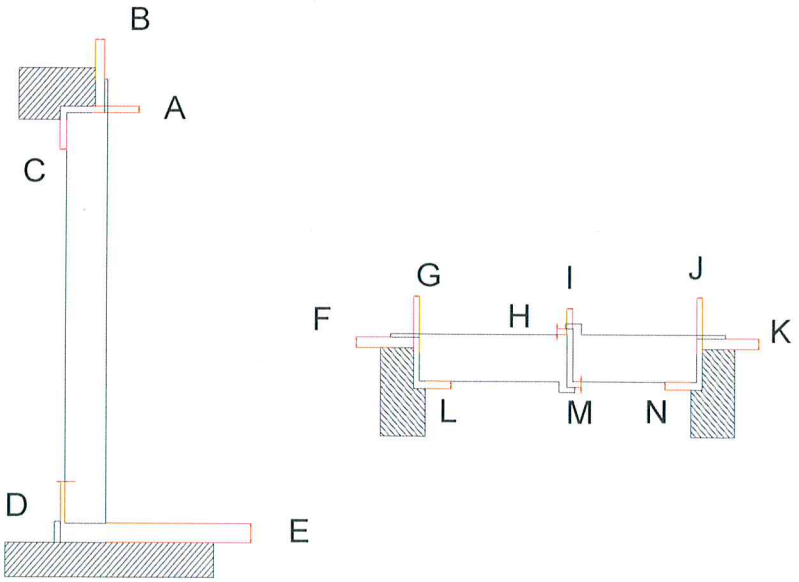
a) Category A classification:

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	430 mm for Leaf A 427,5 mm for Leaf B (% 50)	989 mm for Leaf A 983,25 mm for Leaf B (%15)
Area	-	2,167 m² for Leaf A 2,154 m² for Leaf B (%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	6,3	7,0	8,67
B	3,3	4,0	5,67
C	2,3	3,0	4,67
D	4,0	6,0	7,00
E	5,0	7,0	8,00
F	8,0	9,0	10,50
G	6,0	7,0	8,50
H	9,0	10,0	11,50
I	6,2	6,5	8,33
J	6,3	7,0	8,67
K	8,0	8,0	10,00
L	2,3	3,0	4,67
M	13,0	13,0	15,00
N	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

Rigid block with a density of at least 650 kg/m^3, having a thickness of at least 200 mm.

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5. LIMITATIONS

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

Signed:

.....
Burak ACİCBE
Person in the charge of tests

TEST VE BELGELENDİRME A.Ş.
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Approved:

.....
Onur DAĞ
Operation Manager

Drawings:

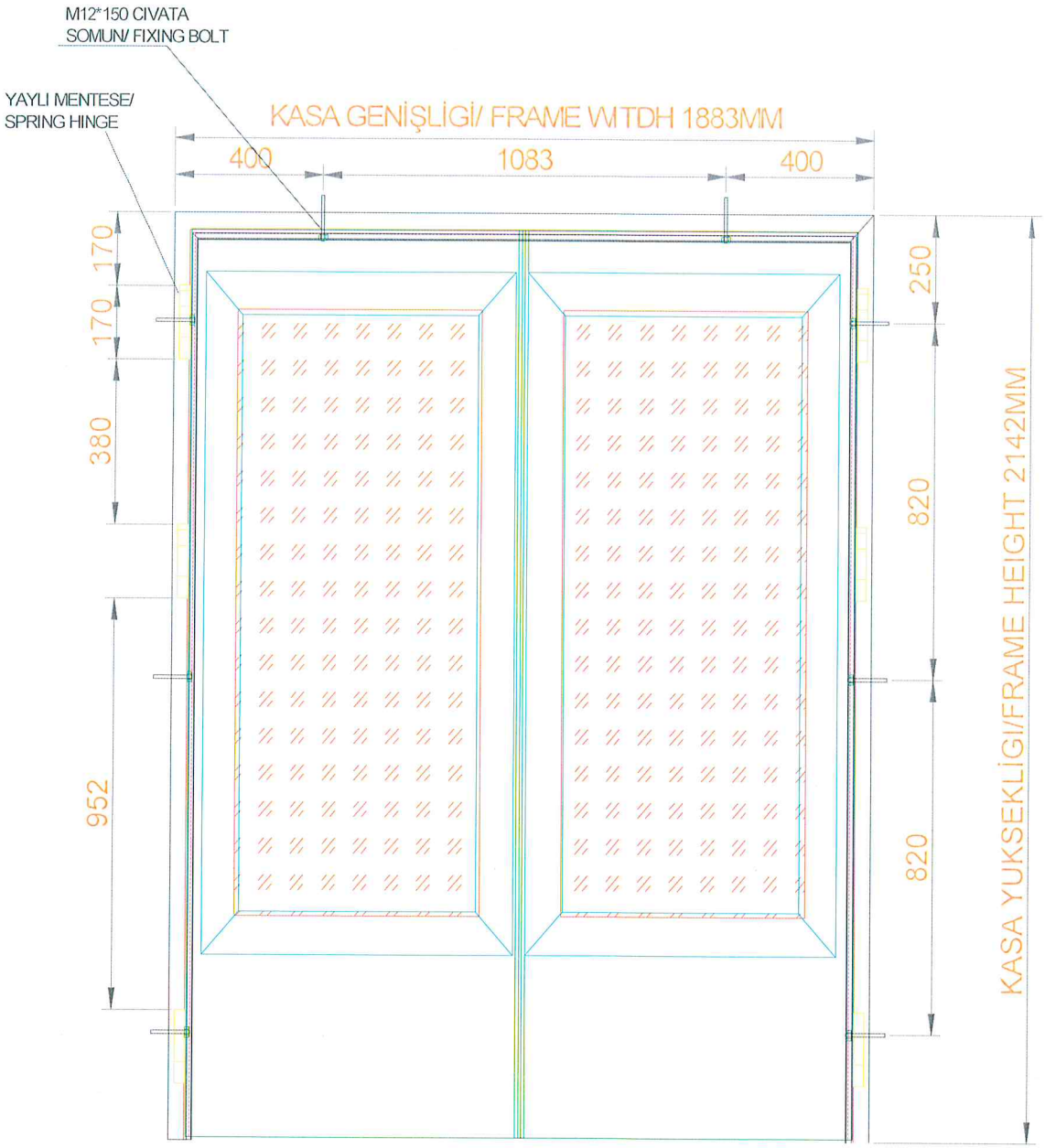

Figure 1: Unexposed side view of the door.

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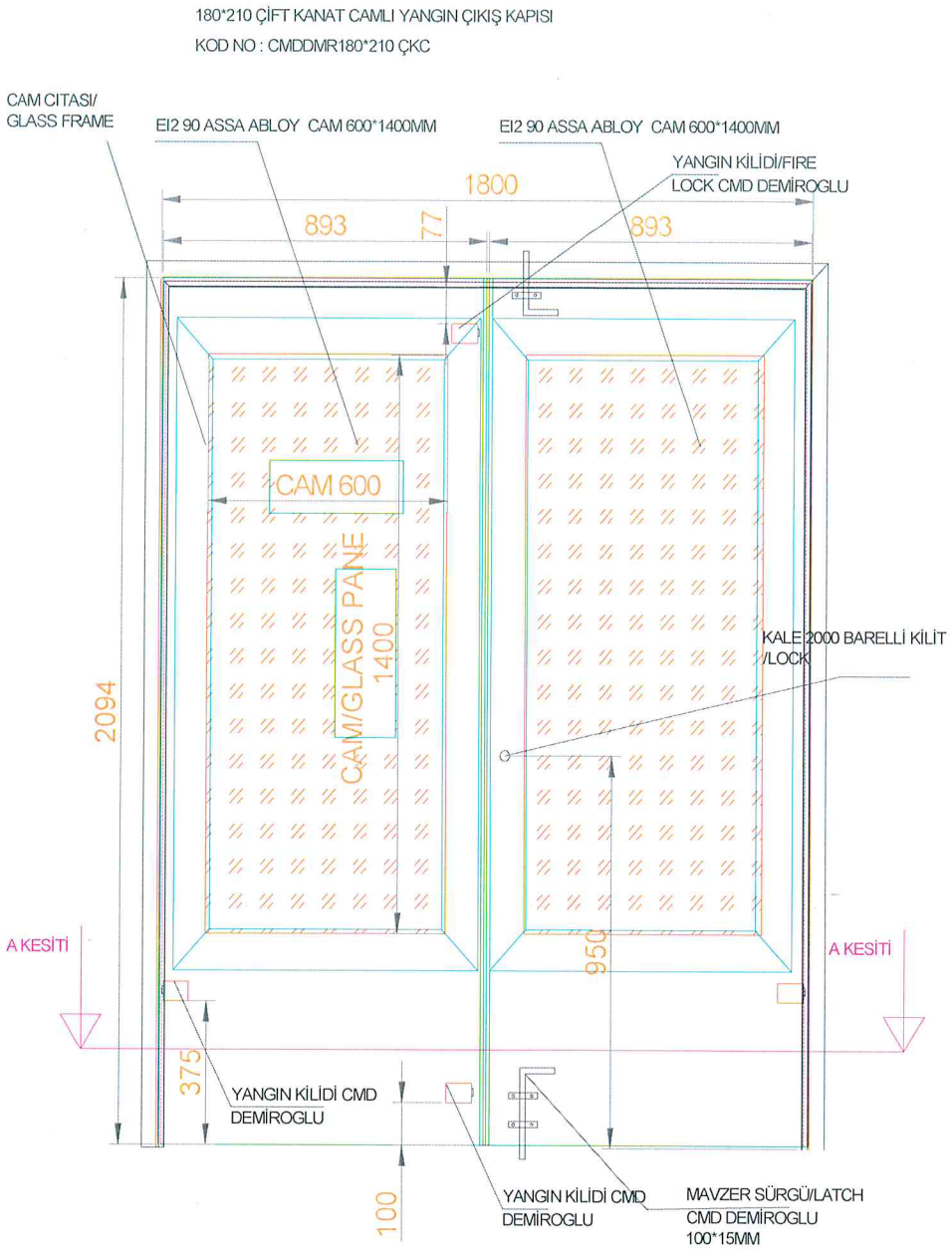

Figure 2: Exposed side view of the door.

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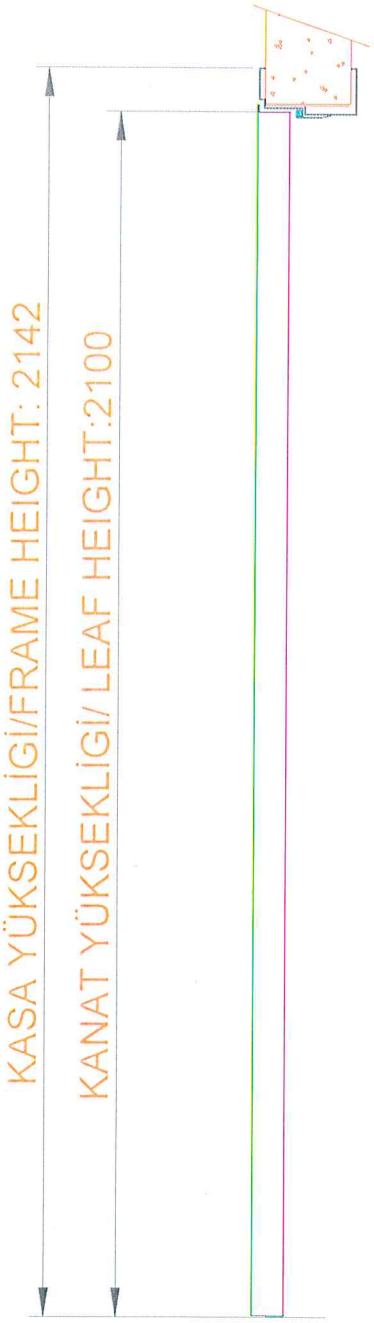

Figure 3: Longitudinal section view of the door.

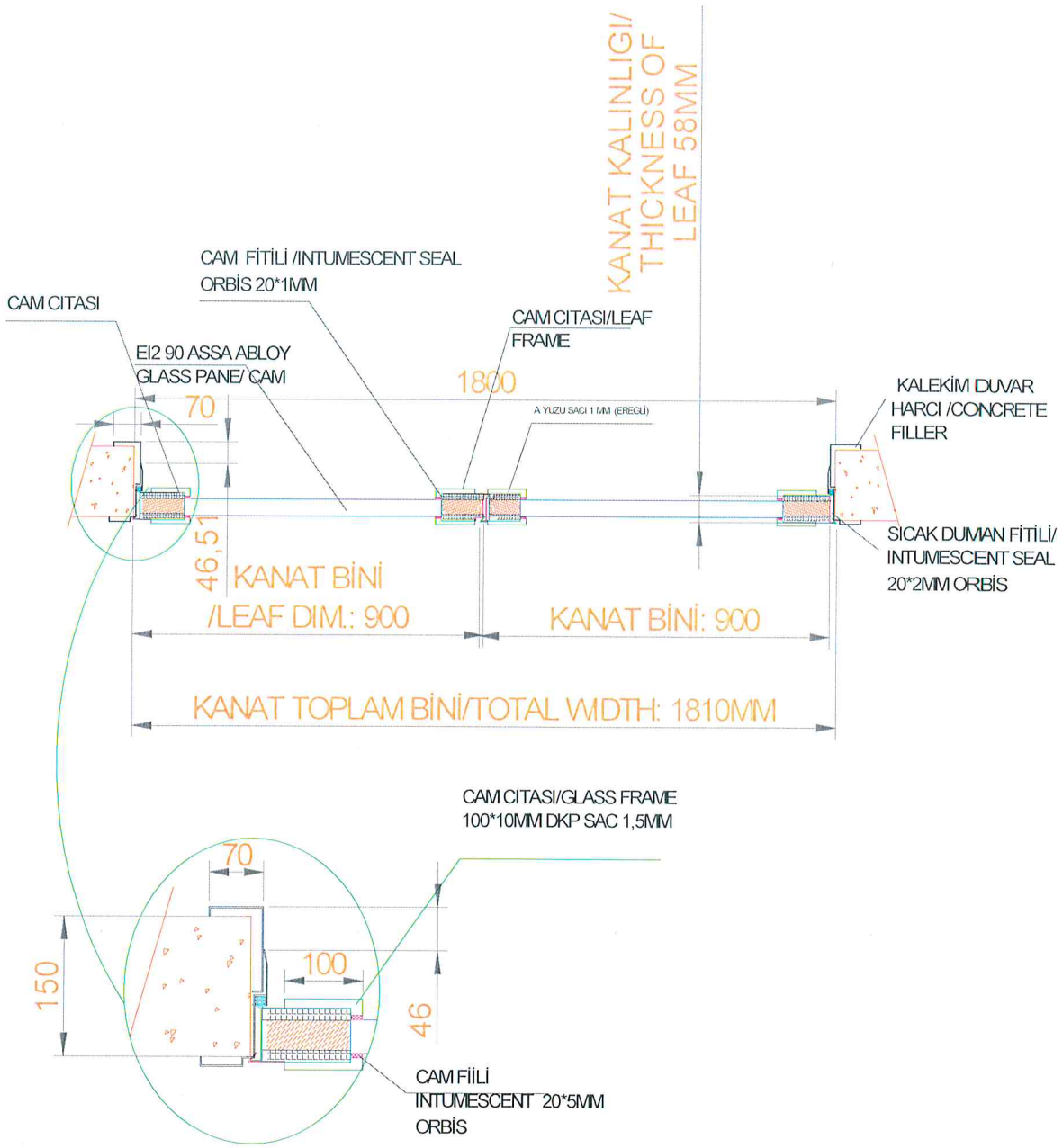

Figure 4: Cross section detailed view of the door.

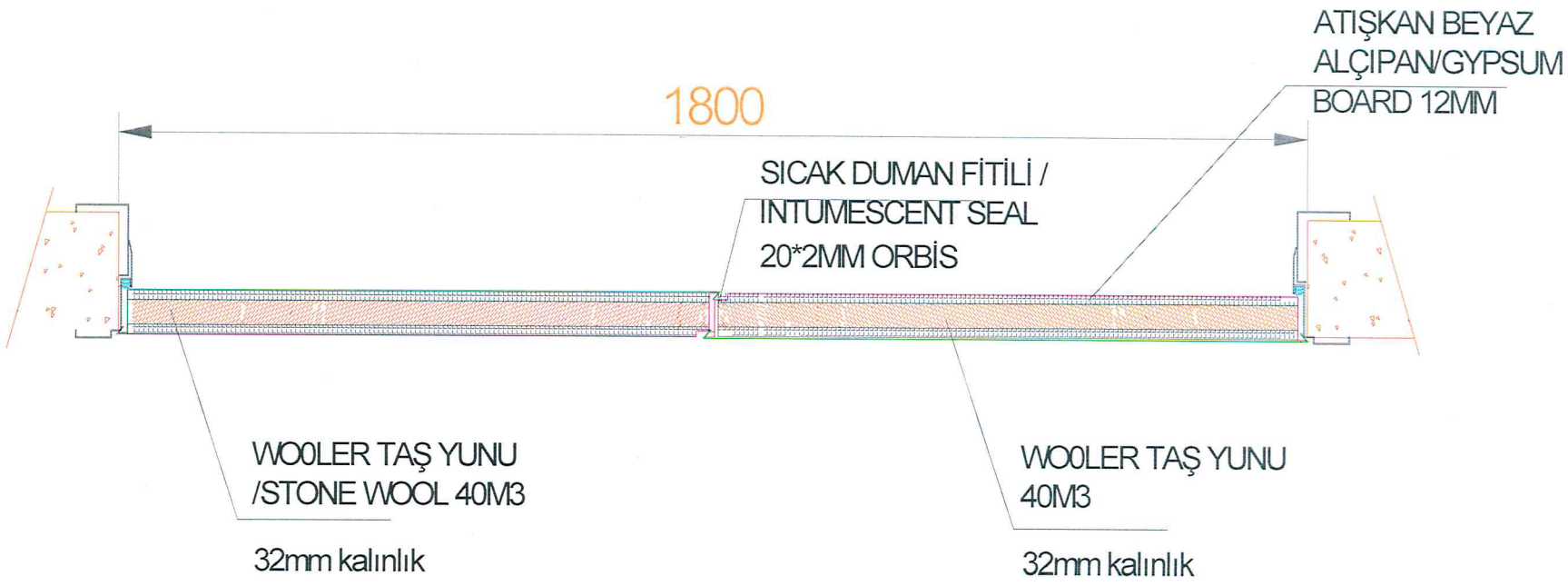

Figure 5: Cross section detailed view of the door.

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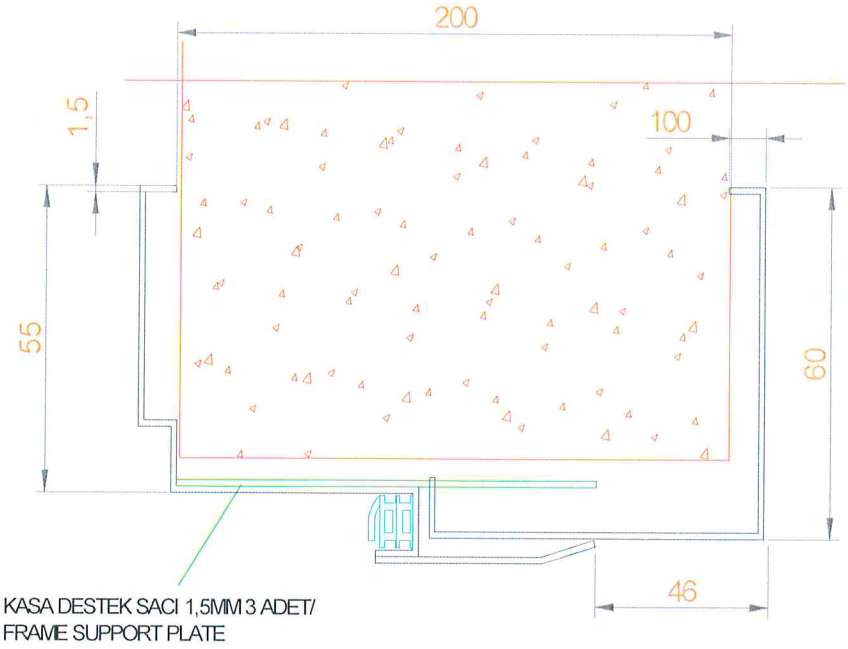

Figure 6: Details of the frame.

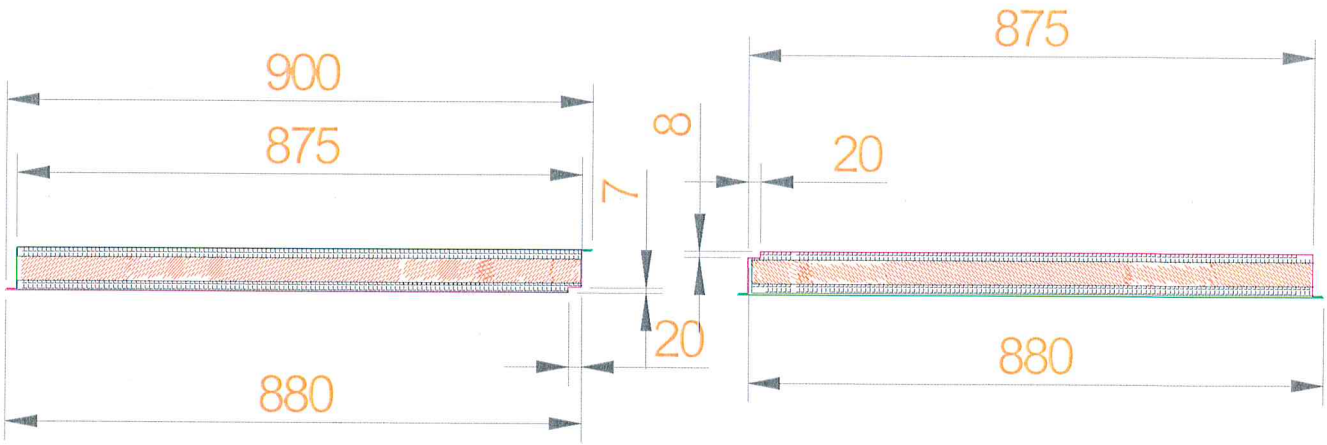

Figure 7: Details of the leaf.

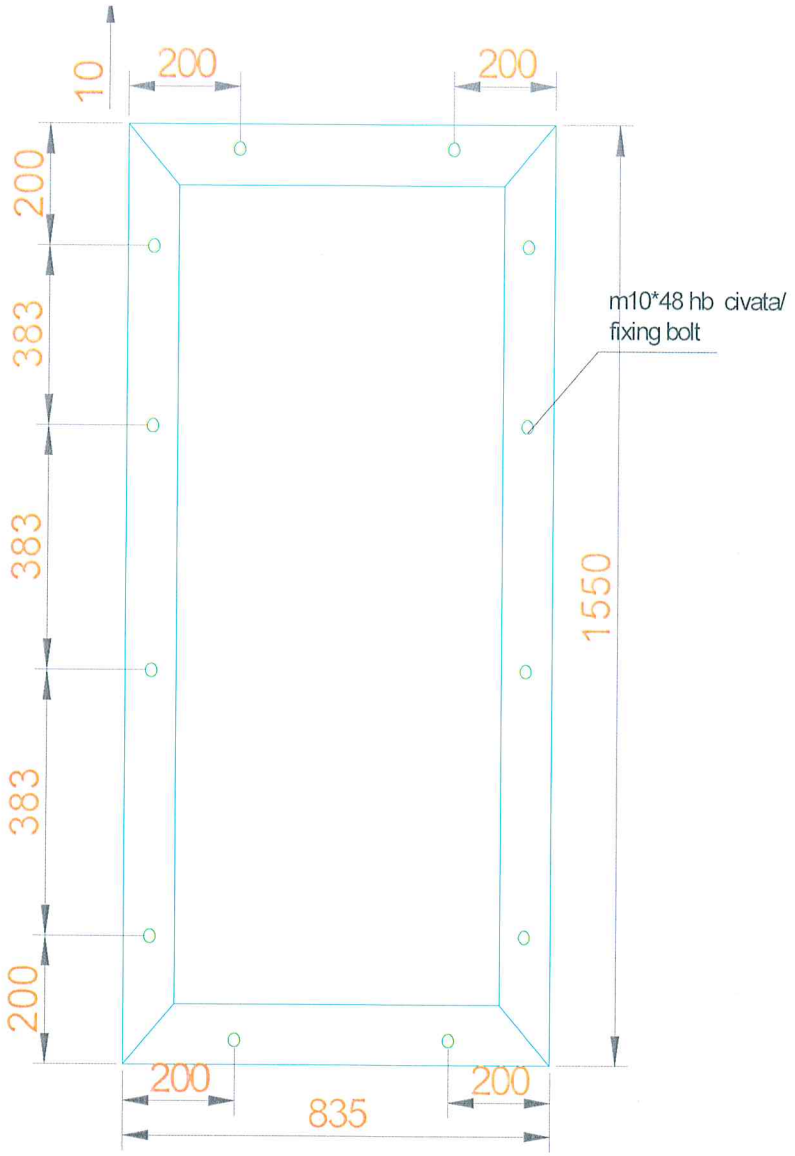

Figure 8: Fixing locations of the glass frame.

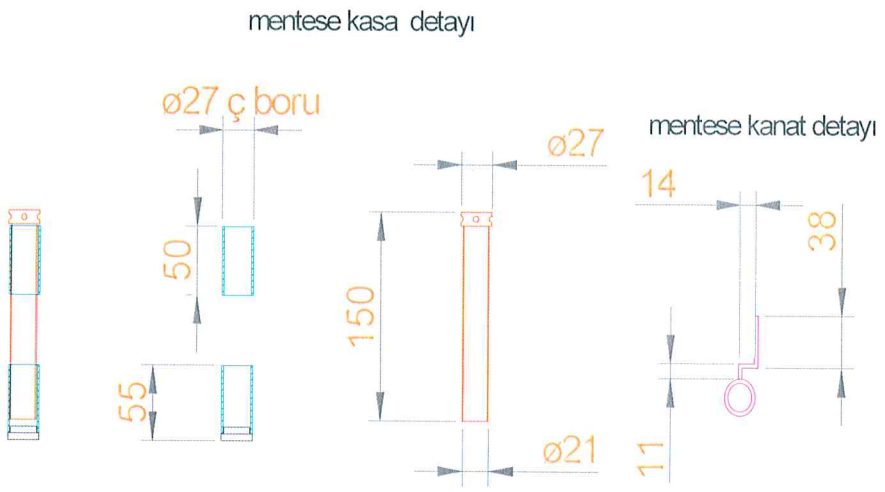

Figure 9: Details of the hinge.

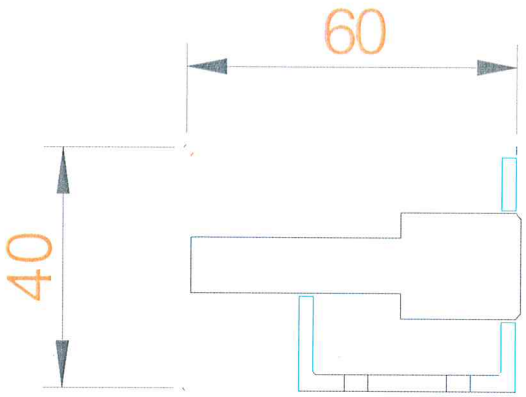

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Figure 10: Details of the fire lock.

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