

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

| | |
|--------------------------------------|--|
| Sponsor | : ÖZBOSAN OTOMATİK KAPI VE KEPENK SİSTEMLERİ SAN. VE TİC. LTD. ŞTİ. Fatih Mah. Çamlık Cad., No: 24 Sarnıç Beldesi, Gaziemir, Zeytinburnu, İZMİR / TURKEY |
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| Product name | : Steel Roller Shutter – Type OZB YK 9875 |
| Classification report No. | : EEA-12-019 |
| Issue number | : 1/2 |
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1. INTRODUCTION

This classification report defines the classification in accordance with the procedures given in TS EN 13501-2:2007+A1, assigned to a "Steel Roller Shutter – Type OZB YK 9875".

2. DETAILS OF CLASSIFIED PRODUCT

2.1. General:

The element, *Steel Roller Shutter – Type OZB YK 9875*, is defined as a type of product.

2.2. Description:

Steel Roller Shutter – Type OZB YK 9875, is fully described below or is fully described in the test reports provided in support of classification listed in 3.1

2.2.1. General

Product identification: Steel Roller Shutter – Type OZB YK 9875

Direction of fire : Barrel and supporting components on the fire side

Manufacturer : ÖZBOSAN OTOMATİK KAPI VE KEPENK SİSTEMLERİ SAN. VE TİC. LTD. ŞTİ.
Fatih Mah. Çamlık Cad., No: 24 Sarnıç Beldesi, Gazimir, İZMİR /TURKEY

Sponsor of test : ÖZBOSAN OTOMATİK KAPI VE KEPENK SİSTEMLERİ SAN. VE TİC. LTD. ŞTİ.
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2.2.2. Construction

Steel Roller Shutter – Type **OZB YK 9875** was mounted in a masonry supporting construction, made of aerated concrete blocks. The overall dimensions of the wall were 3000 x 3000 x 200 (*w x h t*) mm and the opening dimensions of the wall were 2960 x 1950 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 450 kg/m³ and thickness of 200 mm.

The clear opening dimensions of the rolling shutter were 2240 x 1950 mm (*w x h*).

For further information, see figure 1-6.

2.2.3. Components

2.2.3.1. Rails:

The guide rails consisted of box section profiles assembled by welding to each other.

– Type: Steel.

– Overall dimensions: 200 x 120 x 1950 x 2 mm (*w x d x l x t*)

– Fixing:

- Type : Steel bolt/dowel anchor welded to the rails.
- Location : 4 pcs. with the c.t.c distance: 750 mm. 1 pcs at the top of the rail.
- Dimensions : M16 x 24 mm

– Tightness:

The channel inside of the rail was faced by flat steel strips in two different thicknesses.

- Dimensions: 5 x 40 mm, 10 x 40 mm (*t* x *w*).

See Figure 2.

2.2.3.2. Header:

The header consisted of welded two steel box section profile.

- Type : Steel box section profile.
- Location : 1 pcs at the top and between two rails.
- Overall Dimensions : 2240 x 160 x 40 x 2 mm (*l* x *w* x *h* x *t*)
- Fixing : Welded to the side guide rails and welded with a steel bolt to the supporting construction at the centre.

2.2.3.3. Hood:

The support brackets were welded to the side guide rails and fixed to the supporting construction

– Covering plate:

- Material : Steel sheet
- Dimensions : 3030 x 550 x 500 mm (*l* x *h* x *w*)
- Fixing : Welded to the side brackets

– Side brackets:

- Material : Steel
- Dimensions : 550 x 500 x 10 mm (*h* x *w* x *t*)
- Fixing : Welded to the side rails.

– Support of roller drive:

- Material : Steel
- Dimensions : 2 pcs NPI profiles. 80 x 42 x 3,9
- Fixing : Welded to the side brackets.

– Roller drum:

- Material : Steel pipe.
- Dimensions : 2530 x 89 x 5 mm ($l \times \varnothing \times t$)
- Fixing : Placed inside the hole at the side brackets and inside the bearings Type - SN 551

See Figure 2, 3 and 6 for details.

2.2.3.4. Shutter curtain:

The shutter curtain consisted of interlocked laths which were operated inside the rails.

– Laths:

- Material: Galvanized steel
- Dimensions: 2440 x 1,5 mm ($l \times t$)
- Fixing: Fixed to the roller drum with self-taping steel screws. Welded at the top corners of the rails.
 - Dimensions: 50 x 3,5 mm ($l \times \varnothing$)
 - Location: C.t.c. distance with 550 mm.

See Figure 5 and 6.

2.2.3.5. Motor:

An electric motor was located at the top of the hood in a steel plate covering box.

- Type: MFZ OVITOR – FT 3500 NM
- Covering box:
 - Dimensions: 810 x 500 x 500 x 2 mm ($l \times w \times h \times t$)
 - Fixing: Welded at the edges to the hood.
 - Insulation of motor:
 - Type: Ceramic wool blanket – TEK-FIBER (Teknotherm)
 - Thickness: 25 mm.
 - Density: 128 kg/m³

See Figure 4 and 6.

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. | ÖZBOSAN OTOMATİK KAPI VE KEPENK SİSTEMLERİ San. ve Tic. Ltd. Şti. | RFTR12023 | TS EN 1634-1 |

3.2. Results

| Test method | Parameter | Results |
|--------------|--|--|
| TS EN 1634-1 | Integrity, (E) – Cotton pad – Gap gauges \varnothing 6 mm \varnothing 25 mm – Flames longer than 10 sec. | no failure (not applied) no failure (not applied) no failure (not applied) 71 minutes |
| | Radiation, (W) | 30 minutes |

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

Steel Roller Shutter – Type OZB YK 9875 is classified according to the following combinations of performance parameters and classes

| FIRE RESISTANCE CLASSIFICATION | |
|--------------------------------|------------|
| Category A | Category B |
| E60, EW30 | 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 not allowed to change the type of metal from that tested.

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 they shall not be reduced

4.3.2.2 Decorative coatings

4.3.2.2.1 Paint

Any painting is not allowed.

4.3.2.2.2 Decorative laminate

Decorative laminates and timber veneers implementations on the surfaces of door leaves are not allowed.

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 shall not be reduced, and it is allowed to reduce the distance between the fasteners but it shall not 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 shall not 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 (Category A) | All performance criteria fulfilled for at least (Category B) |
|---|---|
| 60 minutes | 68 minutes |

Category B classification is only valid for the Integrity **(E)** performance excluding the Radiation **(W)** performance as indicated in the classification report of this element.

Consequently, increase of the dimension is only valid in case of Category B class.

a) Category A

Due to the Category A classification of door set, no size increase is allowed. Unlimited reductions from the tested specimen are permitted.

It is allowed to increase the metal thickness of side guides and barrel carrying end plates up to 50 % but it is not allowed to reduce beyond metal industry tolerances.

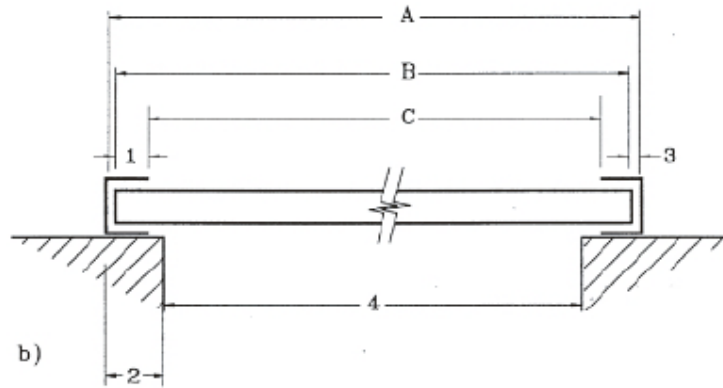
It is not allowed to reduce the tightness (overlap) between the shutter curtain and the vertical guides for size decreases.

b) Category B

| Nominal dimension of shutter curtain | Min. | Max. |
|--------------------------------------|-------------|---------------|
| Height | Unlimited | 2535 mm (%30) |
| Width | Unlimited | 2464 mm (%10) |

It is allowed to increase the steel thickness up to 50 % of side guides and barrel carrying end plates but it is not allowed to reduce beyond metal industry tolerances.

The clearance between the end of the shutter laths and the inside faces of the guides must be increased in proportion to the increase in width of the laths (See Figure below). The tightness (overlap) between the shutter curtain and the vertical guides must not be reduced for size decreases, but must be increased proportionally for the increase in width.



- A clearance distance between inside of guides
- B width of leaf
- C distance between vertical guides
- 1 tightness
- 2 overlap
- 3 clearance gap
- 4 clear opening

tightness of the interlock: $\frac{B - C}{2}$

| | Max. declared | Min. declared | Average measured | Calculated maximum value | Practical maximum allowed |
|----------|---------------|---------------|------------------|--------------------------|---------------------------|
| A | 2,0 | 0,0 | 0,7 | 1,3 | 1,3 |
| B | 25,0 | 20,0 | 24,7 | 27,4 | 25,0 |
| C | 2,0 | 0,0 | 1,2 | 2,3 | 2,0 |
| D | 2,0 | 0,0 | 1,7 | 3,3 | 2,0 |
| E | 25,0 | 20,0 | 24,3 | 27,0 | 25,0 |
| F | 2,0 | 0,0 | 0,7 | 1,3 | 1,3 |
| G | 2,0 | 0,0 | 0,3 | 0,7 | 0,7 |

The practical maximum allowed gap distances are described in the table above. See Figure 7 and Figure 8 for the locations of the gaps.

4.3.4 Direction of Fire

The fire resistance behaviour specified in section 3.2 of this test report shall be valid for only the following direction of fire:

- Integrity : Both sides

4.3.5 Supporting Construction

Rigid block with a density of at least 450 kg/m³, having a thickness of at least 200 mm.

5. LIMITATIONS

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

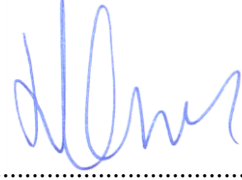
Signed:



Ali BAYRAKTAR
Person in the charge of tests



Approved:



Onur DAĞ
Operation Manager

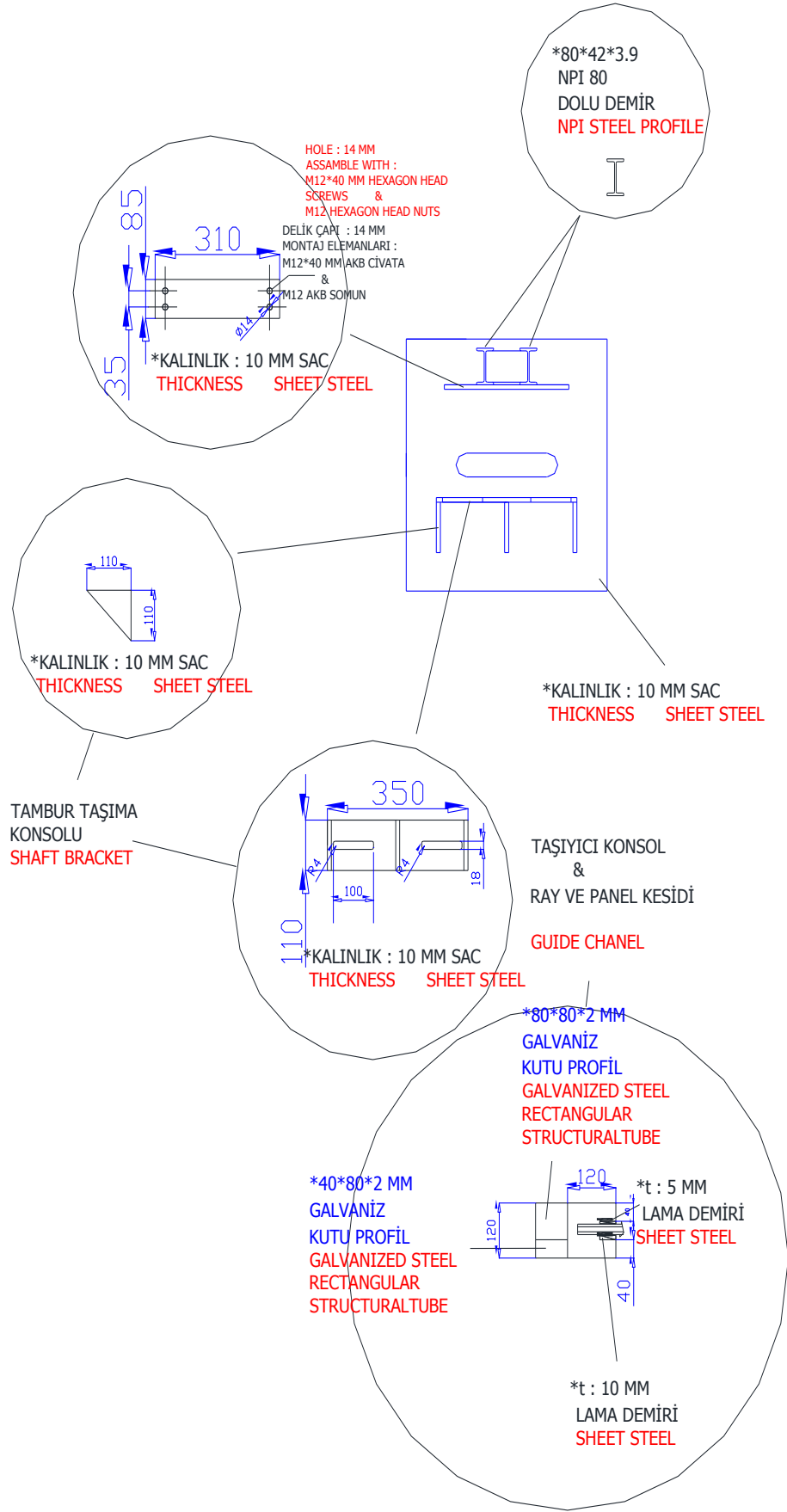


Figure 2: Details of the side brackets

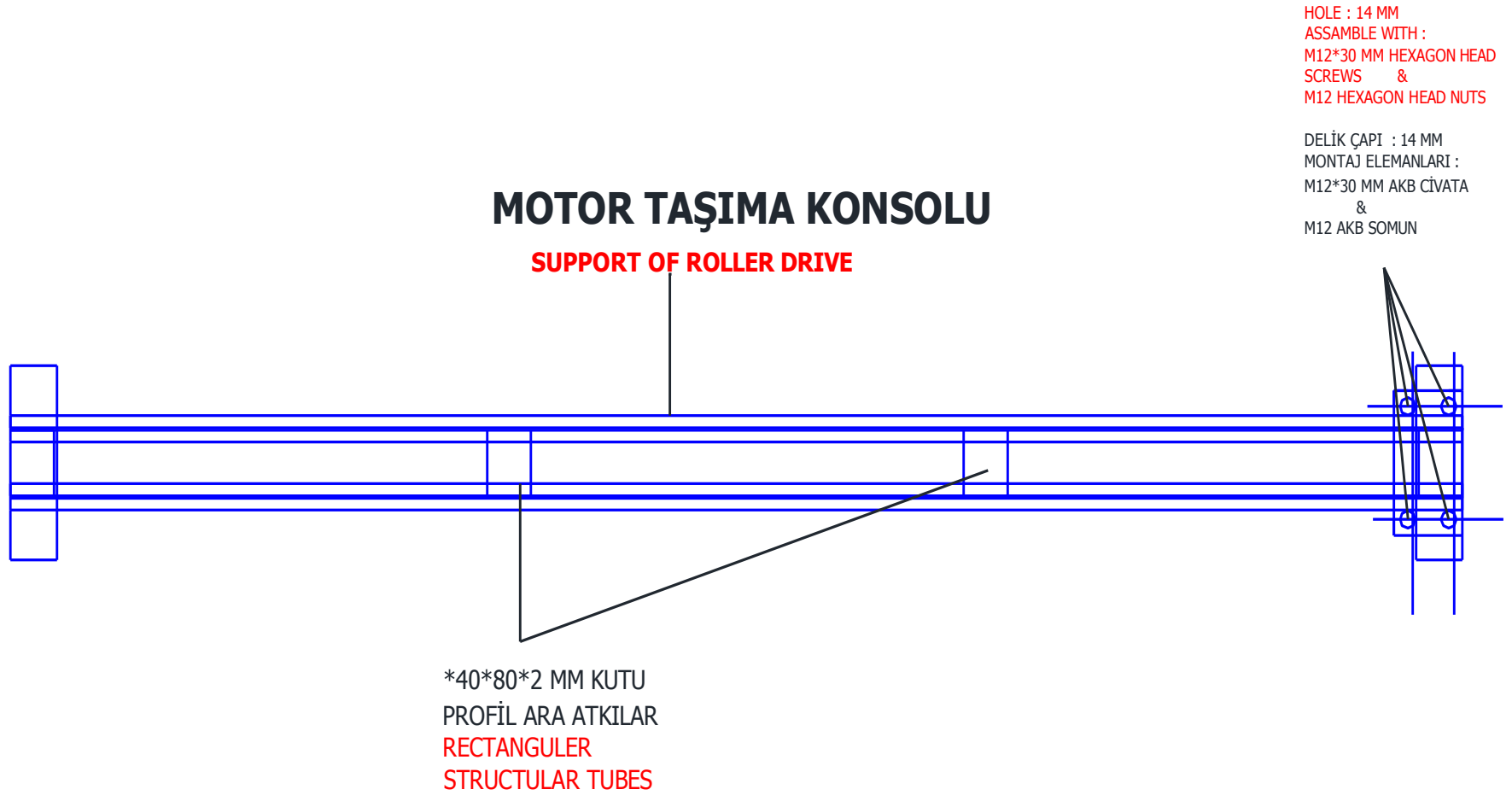


Figure 3: Roller drive support

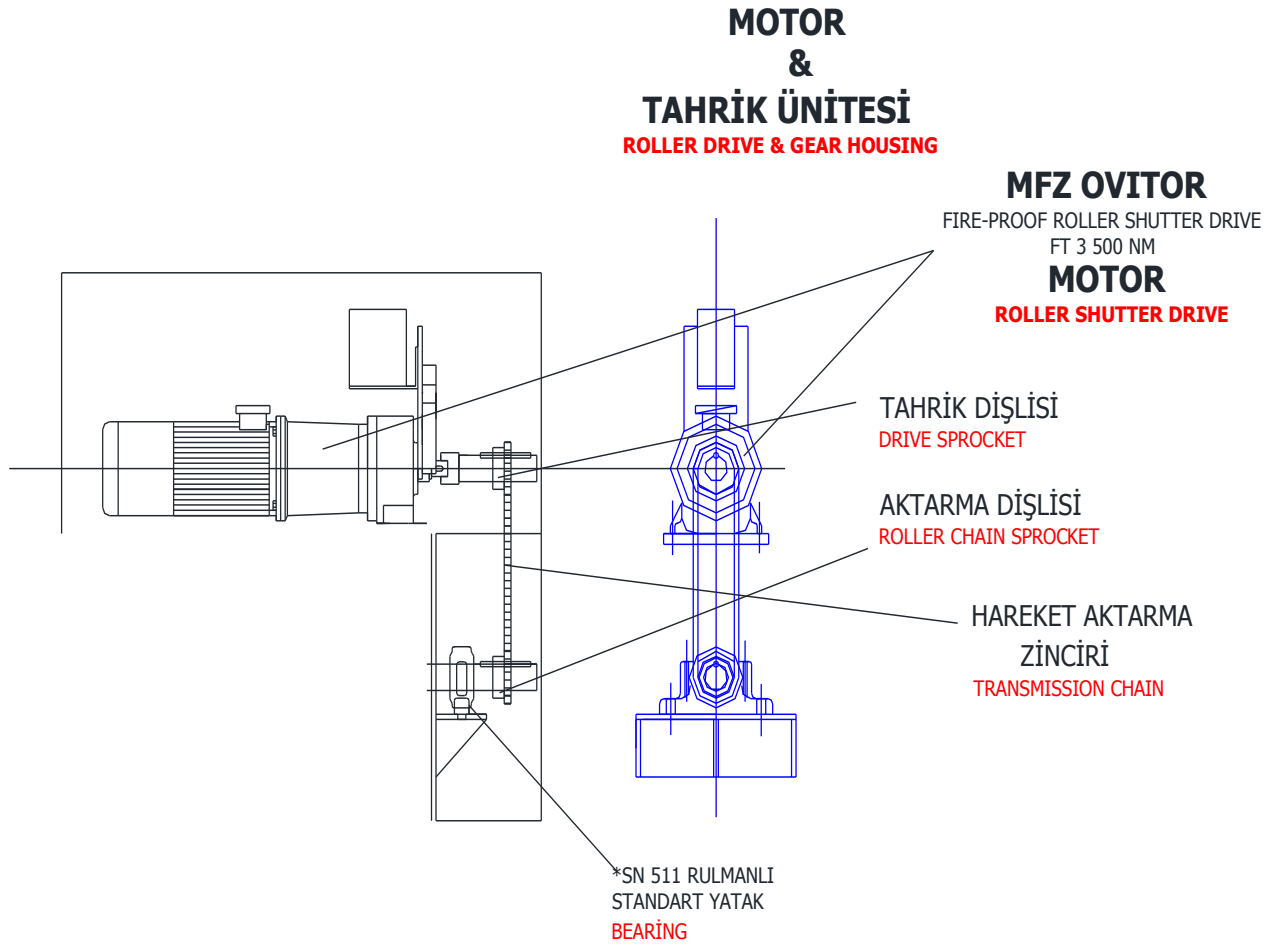


Figure 4: Roller drive and gear housing

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CURTAINS (GALVANIZED STEEL)

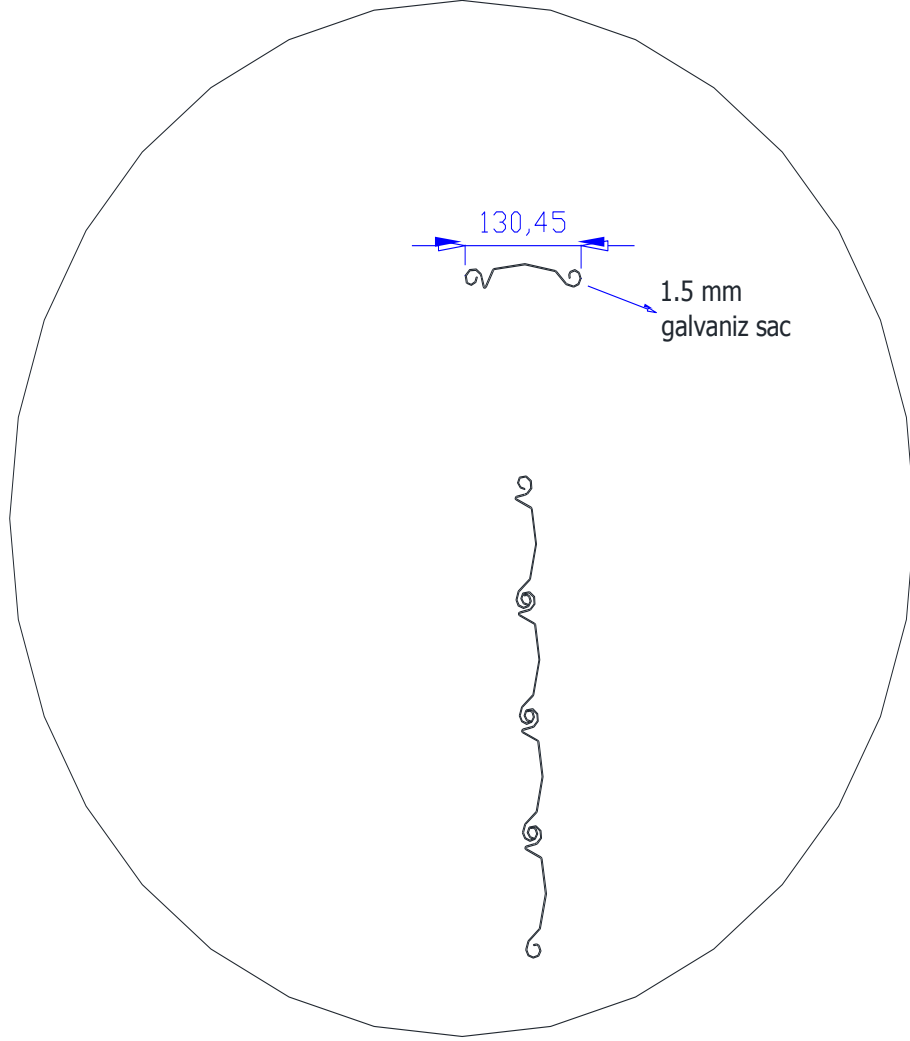


Figure 5: Roller drive and gear housing

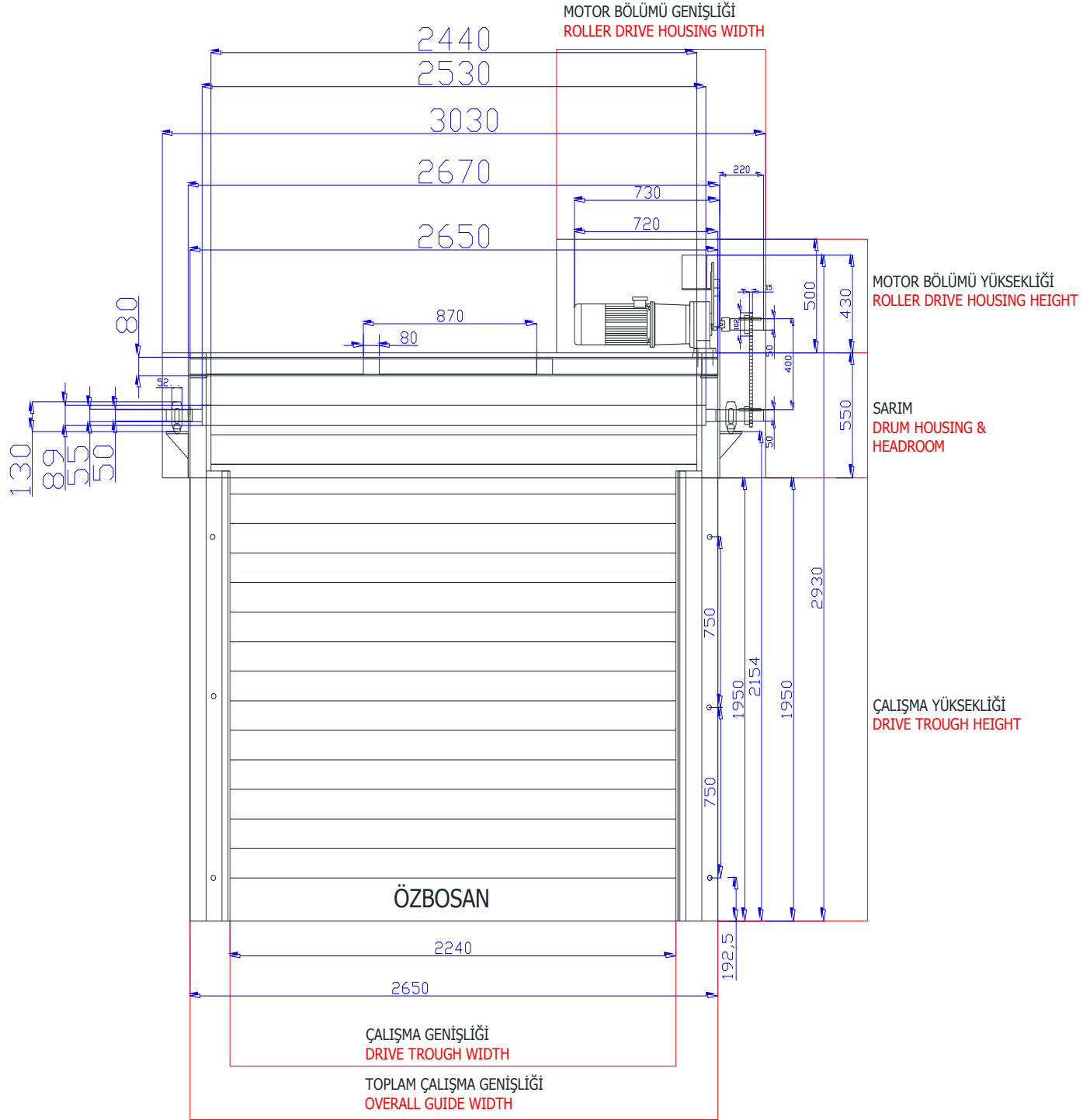


Figure 6: Dimensions of the test specimen