

Classification of the fire resistance according to  
EN 13501-2:2007+A1:2009 of a METACON RGS E60 steel single  
skin vertical roller shutter

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## 1. SUBJECT

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This report defines the resistance to fire classification in accordance with the procedures given in EN 13501-2:2007+A1:2009 of a steel single skin vertical roller shutter door set type METACON RGS E60, mounted in a standard low rigid supporting construction, see §3.3.

## 2. INVESTIGATION

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Determination of fire resistance according to EN 1634-1: 2008; Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 1: Fire resistance test for door and shutter assemblies and openable windows.

The steel rolling shutter assembly was mounted at the direct-heated side of the test frame.

## 3. DETAILS OF CLASSIFIED PRODUCT

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### 3.1 GENERAL

For the dimensions and specifications of the materials and components of the examined construction also see the figures in the Appendix. Significant details of the construction are given in the paragraphs below.

### 3.2 TEST FRAME

The test frame was constructed of steel beams with a fire resistant concrete lining with internal dimensions of 4m x 3.5m (w x h). The width of the test frame was 250mm. The floor underneath the door set consisted of a sheet of calcium silicate board, thickness 20mm.

### 3.3 SUPPORTING CONSTRUCTION

The test specimen was built in a standard low density rigid supporting construction according to EN 1363-1:2012 being an aerated concrete wall with a thickness 150mm and a density of 650kg ± 200kg/m<sup>3</sup>. The dimensions of the wall aperture: 3400mm x 4450mm (w x h).

#### 3.3.1 SHUTTER

The shutter was built of steel single skin laths hooking at the top and bottom part of each plate. At the top a labyrinth was mounted on the shutter and on the door.

Dimensions of the door	
Width	3415mm
Height	3300mm
Thickness	1mm
Dimensions of top labyrinth	
Width of the labyrinth part on the door	3415mm
Height	80mm
Thickness	2mm

Width of the labyrinth part on the shutter	3415mm
Height	27mm
Thickness	2mm

### 3.4 SIDE GUIDES

The side guides were made of steel laths and a steel tube.

Dimensions	
Width plate guide	50mm
Tube	50mm x 50mm
Thickness	2mm
Overall width	100mm

### 3.5 FIXINGS

The side guides were fixed with M6 bolts at 500 mm c.t.c. distance through the wall.

### 3.6 METHOD OF ASSEMBLY

The shutter was built in the following order:

- Assembly of the aerated concrete wall
- Mounting of the side guides
- Mounting of the sections
- Connecting the sections.

## 4. MANUFACTURING OF THE CONSTRUCTION

Efectis Nederland BV Centre for Fire Safety	Test frame Support construction
Metacon BV	Producing door set Assembly of construction

## 5. TEST REPORT & TEST RESULTS IN SUPPORT OF CLASSIFICATION

### 5.1 TEST REPORT

Name of laboratory	Name of sponsor	Test report no.	Test method
Efectis Nederland BV, Centre for Fire Safety	Metacon BV	2013-Efectis-R0421a	EN 1634-1:2008

## 5.2 TEST RESULTS

Criterion	Time (min.)	Result
<b>Integrity, (E)</b> <ul style="list-style-type: none"> <li>▪ Cotton pad <ul style="list-style-type: none"> <li>- Gap Gauge Ø 6 mm</li> <li>- Gap Gauge Ø 25 mm</li> </ul> </li> <li>▪ Flames present longer than 10 sec.:</li> </ul>		Not determined Not determined Not determined No Failure
<b>Heat radiation (W)</b>	21	Failure, max. 31 kW/m <sup>2</sup> at 68 min.
* The heating was terminated after 68 minutes in concurrence with the client.		

## 6. CLASSIFICATION AND DIRECT FIELD OF APPLICATION

### 6.1 REFERENCE OF CLASSIFICATION

The door sets have been classified in accordance with clause 7 of EN 13501-2:2007+A1:2009.

### 6.2 CLASSIFICATION

The door set will be classified as follows:

**E60  
EW20**

### 6.3 FIELD OF APPLICATION

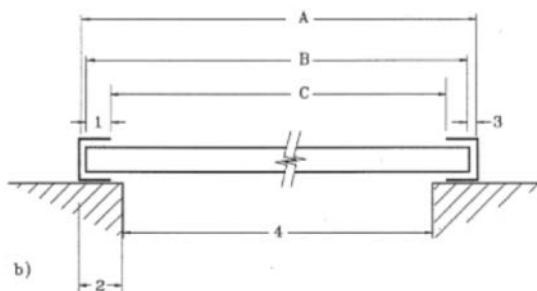
This report details the method of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in EN 1634-1:2008. Any significant deviation with respect to size, constructional details, load stresses, 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.

The conclusions in this chapter apply exclusively to all door set types mounted on an aerated concrete wall which are equivalent in detail, including fittings/furniture and materials used, to the structure described in this report and that also comply with the following conditions:

### 6.4 SPECIFIC RESTRICTIONS ON MATERIALS AND CONSTRUCTIONS

- The type of metal shall not be changed from that tested.
- The material thickness may be increased up to 50% but it shall not be reduced beyond acceptable metal industry tolerances
- The material thickness of side guides and barrel carrying end plates may be increased up to 50% but it shall not be reduced beyond acceptable metal industry tolerances
- The tightness between the shutter curtain and the vertical guides shall not be reduced for

size decrease. See figure below.



**Key**

- a) sliding doorset
- b) rolling shutter doorset
  
- A clearance distance between inside of guides
- B width of leaf
- C distance between vertical guides
  
- D tightness
- E overlap
- F clearance gap
- G clear opening

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

## 6.5 FIXINGS

The number of fixings to attach the frame to the support structure may be increased but not decreased. The centre to centre distance between the fastenings may be reduced but not increased.

## 6.6 PERMISSIBLE SIZE VARIATIONS

- Unlimited size decrease is permitted
- Size increase is not permitted, because there is no category B overrun in time for the E criterion.

## 6.7 SUPPORTING CONSTRUCTION

The door set built on to a standard rigid support construction as specified in EN 1363-1 can be applied to a door set mounted in the same manner in a wall provided it has a density of at least  $650 \pm 200 \text{ kg/m}^3$  and a minimum wall thickness of 150 mm, with the same or a higher fire resistance.

## 7. LIMITATIONS

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



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