
**Fire resistance according to EN 1634-1:2008 of a Sectional door set,
type Metacon OHD EI(1)-60**

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Commissioned by Metacon BV located in Gouda the Netherlands, Efectis Nederland has examined the fire resistance of a Metacon Sectional door set type OHD EI(1)-60 in two tests. The investigations have been carried according to the European Standard EN1634-1:2008, so for application of the door set in two directions the door set examined in the first test was mounted on the indirect heated side of the test frame and in the second test the door set was mounted on the direct heated side of the test frame.

SPECIFICATIONS OF THE SECTIONAL DOOR SET

For details of the constructions and the results of the examination on fire resistance see test reports 2013-Efectis-R0245a and 2013-Efectis-R0347a. In the following table some significant details are given.

The door set comprised metal covered plasterboard tubular frame door sections. The metal sheet covers were glued to the plasterboard. On the top and bottom edge of each section a fire resistant MDF plate was applied. Each shutter section was attached to another section with four steel hinges. In the second test instead of the gypsum board side covers magnesium oxide board covers were applied. Also the guiding system was insulated with gypsum board strips on the inside of the steel profile.

Specifications of the door set	
<i>Overall dimensions</i>	
Width	3640mm
Height	4747mm
Thickness	81.6mm
<i>Door sections</i>	
Steel frame	Welded, tubular rectangle
On top and bottom of panel	Fire resistant MDF strips
Plasterboard cover test I and II	Gypsum board, 15mm x 1
Side covers test II	Magnesium oxide board, 15mm
<i>Side guides</i>	
Side guide mounting brackets	2mm thickness

CLASSIFICATION

The door sets have been classified as follows:

Test I, at the fire side

E90, EI₁45, EI₂60, EW60

Test II, at the non-fire side

E90, EI₁60, EI₂60, EW60

Test III, at the fire side

E60, EI₁60, EI₂60, EW60

EW60 is the highest possible classification for doorsets according to EN 13501-2:2007, but based on the criteria for E and W the door set examined in test I failed at 106 minutes and the door set examined in test II at 118 minutes. So for application at both sides the door set satisfies integrity (E) with radiation control levels (W) up to 106 minutes.

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.

SPECIFIC RESTRICTIONS ON MATERIALS AND CONSTRUCTIONS

The dimensions of metal wrap around frames may be increased to accommodate increased supporting construction thickness. The thickness of the metal may also be increased by up to 25%.

The type of metal shall not be changed from that tested.

DECORATIVE FINISHES

If a paint finishing layer does not contribute to the fire behaviour, applying a paint coating to the door surface is allowed. Decorative laminates and wood veneers with a maximum thickness of 1.5mm may be added to the surfaces, but not the edges.

FIXINGS

The number of fixings to attach the frame to the supporting construction may be increased but not decreased. The centre to centre distance between the fixings may be reduced but not increased.

ADDITIONAL SVO APPLICATION

Permissible size variations

In the tables below, the allowable dimensions are specified in terms of the aperture sizes. The actual values are based on an average of the outcome of the DIAP, EXAP and the

assessment based on Efectis NL experience. Related to these aperture dimensions are outside sectional door set dimensions which are to be determined on minimum required overlap dimensions which have been specified as well. In the fire tests, the aperture sizes were: 3400mm x 4450mm. The overlap was 120mm in width direction, and 297mm at the top of the test specimen.

30 MINUTES FIRE RESISTANCE (BASED ON E, EI1, EI2 AND EW CRITERIA)

Maximum dimensions of aperture		Minimum required overlap
Increase width by 75%	5950mm	150mm
Increase height by 75%	7787mm	340mm
Increase area by 75%	26.5m ²	-

60 MINUTES FIRE RESISTANCE (BASED ON E, EI1, EI2 AND EW CRITERIA)

Maximum dimensions of aperture		Minimum required overlap
Increase width by 60%	5440mm	140mm
Increase height by 60%	7120mm	330mm
Increase area by 60%	24.2m ²	-

90 MINUTES FIRE RESISTANCE (BASED ON E AND EW CRITERIA)

Maximum dimensions of aperture		Minimum required overlap
Increase width by 60%	5440mm	140mm
Increase height by 60%	7120mm	330mm
Increase area by 60%	24.2m ²	-

DIFFERENT SUPPORTING CONSTRUCTIONS

Rules regarding the supporting constructions are specified in the Direct Field of Application in the test standard EN 1634-1:2008. These rules followed in the specification which are given in both test reports in paragraph 7.5. This means that application is allowed in rigid supporting constructions with a density of at least 650 kg/m³ and a thickness of at least 150mm.

For assessment in the sense of NEN 6069:2011, Annex A, based on the currently available knowledge and experience in Efectis Nederland BV, application in a steel construction is also allowed. In this case, it is necessary that the fire resistance of the steel construction is at least the same as the fire resistance of the sectional door construction. In this case, the insulation on the steel construction shall be designed with a critical steel temperature of 500 degrees Centigrade. Reference: report 2013-Efectis-R0103.192/BGG/TNL.

In general, application in other supporting constructions is allowed when it is proven that the support construction has at least the same fire resistance as which is required for the sectional door and is capable to carry the mechanical load of the door construction during fire conditions.

In all case, the sectional door construction shall be mounted such that the minimum required overlaps as specified in the tables in ad b) are respected.

INSTALLATION OF GLASS PANES

Test evidence of the installation of a glass pane is successfully tested in a similar construction, ref. Efectis summary report 2011-Efectis-R0052, for EI1, EI2 and EW 60 performance. The glazing was of type Promaglas 60, 25 mm thick, with a clear opening of 500 x 300 mm (width x height). This type of glazing was installed in a METACON SGS / METACON GGS steel sliding door which was fabricated of similar sections as the present Metacon OHD sectional door.

The installation of an identical glazing in Metacon OHD section doors is therefore also allowed for 60 minutes fire resistance (based on the EI1, EI2 and EW 60 criteria).

