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SUMMARY OF RESEARCH
Product properties

FIRE RESISTANCE ACCORDING TO EN 1634-1:2008 OF HOEFNAGELS $EI_{1,2}60$ AND EI_2120 OPENABLE FABRIC FIRE CURTAIN TYPE FIRESCREEN® TEMPERATURE

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By order of the company Hoefnagels Branddeuren BV, located in Tilburg, the Netherlands, the fire resistance is examined for the Hoefnagels fire curtain type 'Firescreen® Temperature' consisting of double fabric, one outer layer and one folded inside, with two intumescent layers in between.

Determination of fire resistance – fire curtain mounted at the exposed side

Two fire tests were carried out according to EN 1634-1:2008 for the case 'fire curtain mounted at the exposed side'. Details and results are noted in:

Efectis NL report 2012-Efectis-R9369a(Rev.2) dated February 2013

Several characteristic data of the examined construction are as follows:
Curtain stainless steel wire glass fabric construction
overall height: 3255 mm - width: 3562 mm; thickness: 10 mm
provided with intumescent graphite in pouches

Criterion	Fire curtain at the exposed side According to EN 1634-1: 2008
Integrity (E)	134 minutes
Thermal insulation (I) – Temperature rise $\mathbf{I_1}$ – Temperature rise $\mathbf{I_2}$	 61 minutes 83 minutes
Radiation (W)	134 minutes

Classification according EN 13501-2:2007 + A1:2009

The classification, Efectis report 2012-Efectis-R9369a(Rev.2) dated February 2013, has been carried out in accordance with EN 13501-2:2007 + A1:2009: **E120**, **$EI_1$60**, **$EI_2$60** and **EW 60.**

Efectis France report 12-G-385 dated 14th June 2012

Several characteristic data of the examined construction are as follows:
Curtain stainless steel wire glass fabric construction
overall height: 4359 mm - width: 5425 mm; thickness: 10 mm
provided with intumescent graphite in pouches

Criterion	According to EN 1634-1: 2008
Integrity (E)	60 minutes
Thermal insulation (I) – Temperature rise $\mathbf{I_1}$ – Temperature rise $\mathbf{I_2}$	 40 minutes 41 minutes

The doorset will be classified as follows: **E60, $EI_1$30 and $EI_2$30**

Assessment report 2013-Efectis-R0103.106 dated February 2013

The fire resistance in the sense of Annex A NEN 6069:2011 of the fire screen construction, type "Hoefnagels openable fabric fire curtain Firescreen® Temperature $EI_{1,2}$ 60", stays the same according to the demonstrated values if

- the depth of the side guides will be reduced to 80 mm, and
- the cross-section of the top covers will be reduced to approx. 300 x 450 mm, in combination with an appliance of the aperture height of maximal 3000 mm.
- The other aspects of the fire screen construction must be executed conform the terms of conditions in test report 2012-Efectis-R9369a [Rev. 2].

Determination of fire resistance – fire curtain mounted at the non-exposed side

The fire test was carried out according to EN 1634-1:2008 on criteria E, I and W for the case 'fire curtain mounted at the non-exposed side'. Details and results are noted in Efectis report 2012-Efectis-R0754(Rev.2) dated November 2012.

Criterion	**Fire curtain at the non-exposed side** According to EN 1634-1: 2008
Integrity (E)	134 minutes
Thermal insulation (I) – Mean temperature rise – Temperature rise $\mathbf{I_2}$ – Temperature rise $\mathbf{I_1}$	 134 minutes 134 minutes 45 minutes
Radiation (W)	134 minutes

Classification according EN 13501-2:2007 + A1:2009

The classification, Efectis report 2012-Efectis-R0754(Rev.2) dated November 2012, has been carried out in accordance with EN 13501-2:2007 + A1:2009: **E120**, **$EI_1$45**, **$EI_2$120** and **EW 60.**

Assessment maximum dimensions according EN 1634-1:2008

Assessment report, 2012-Efectis-R9369b(Rev.2) dated April 2015, has been carried out to state that the openable fabric curtain type "Firescreen Temperature' can be enlarged. The following sizes are allowed:

clearance opening		**$EI_1$30 + $EI_2$30**	**$EI_1$60 + $EI_2$60**
	tested	30 minutes	60 minutes
width (mm)	3200	8750	5200
height (mm)	2920	5500	4000
area (m^2)	9.3	25,5	15,1

The calculated maximum linear dimensions are exclusively valid for the specimen described in test report 2012-Efectis-R0754(Rev.2) and 2012-Efectis-R9369a(Rev.2).

The values given are valid for fire exposure from both sides, i.e. the fire curtain mounted on the directly exposed side, or mounted at the not-directly exposed side of the supporting construction.

Conditions and direct field of application

The test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in EN 1363-1, and when appropriate EN 1363-2.

a. Any significant deviation with respect to size, constructing details, load stresses, edge or end conditions is not covered by this report.
b. The field of direct application of the test results is restricted to door sets. The field of direct application rules for openable fabric curtains and openable windows are currently not available.
c. Increase of the element width and height above the tested values is not allowed further then described in report 2012-Efectis –R09369b(Rev.2).
d. The construction may only be built into an aerated concrete support construction with a thickness of at least 150 mm and a density of 650 kg/m^3.
e. It is allowed to mount the fire curtain to a steel supporting construction under the following conditions:
   - The steel construction in itself has a proven fire resistance of at least the same value as the requirement for the fire curtain (i.e. 30 or 60 minutes).
   - The supporting steel construction is insulated such that the steel temperature during the required fire resistance period stays below 500 ^{o}C in order to carry the mechanical load of the curtain wall system.
   - The fixations of the fire curtain (c.t.c. distance, overlaps, etc.) are the same as the configurations as tested or additionally assessed.

Additonal tests on a Firescreen® Temperature

Determination of the reaction to fire properties of the product, when exposed to the thermal attack by a **Single Burning Item** according to EN 13823:2010, with the objective to obtain the reaction to fire classification according to EN 13501-1:2007+A1:2009. Details and results are noted in Efectis report 2012-Efectis-R0581.

Classification according EN 13501-1:2007 + A1:2009

The classification, Efectis report 2012-Efectis-R0582 dated June 2012, has been carried out in accordance with EN 13501-1:2007 + A1:2009: **B- s1, d0.**