Laboratory for Fire Safety

Summary of fire resistance tests:

FP PU Foam connecting stone to stone and stone to wood

On behalf of Den Braven, two tests were performed in the Peutz Laboratory for Fire Safety for determination of the fire resistance of several linear joint seals with FP PU Foam in walls of aerated concrete. The tests were performed in accordance with the European test standard EN 1366-4:2006+A1:2010 using the standard heating curve.

The PU foam is available in a canister (FP PU Foam Hand Held) and as a canister for a PU gun (FP PU Foam Gun Grade). The composition of the FP PU Foam HAND Held and the FP PU Foam GUN Grade is identical and further defined as FP PU Foam.

This summary provides an outline of the product performance and the conclusions of the tests. For a complete description of the examined linear joint seals, please refer to the reports mentioned in the footnote.

Based on the tests performed in accordance with EN 1366-4:2006+A1:2010 and the extended applications in accordance with EN 15882-4:2012, the system was classified in accordance with EN 13501-2:2007+A1:2009. Taking into account the possible classification times mentioned in the standard, a linear joint seal made out of FP PU Foam, is classified according to the following combinations of performance parameters and classes.

Classification of the fire resistance *FP PU Foam connecting stone to stone*

Fire resistance classification (vertical linear joint seal)	
Vertically orientated connecting stone to stone	**Vertically orientated connecting stone to stone**
Wall thickness ≥ 100 mm	**Wall thickness ≥ 115 mm**
EI 30 – V – X – F – W 20 to 30	EI 45 – V – X – F – W 20 to 30
EI 45 – V – X – F – W 8 to 20	EI 60 – V – X – F – W 8 to 20
EI 90 – V – X – F – W 8	EI 120 – V – X – F – W 8

E = Criterion integrity, I = Criterion insulation, V = Vertical application in a vertical wall, X = No movement applied, F = Splice applied in the field, W = Permitted width range in millimetres

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This summary of tests into fire resistance consists of 3 pages. The reports that form the basis for this summary are available for inspection at the client and are registered as test reports Y 1567-1E-RA-002 May 4, 2015 and Y 1692-1E-RA-002 September 16, 2016, extended application reports YC 1567-2E-RA May 4, 2015 and YA 1692-1E-RA-002 September 16, 2016 and classification reports YB 1567-1E-RA-002 June 24, 2015 and YB 1692-1E-RA-002 September 16, 2016.	JM/HL//YC 1692-3E-RA-002 19 September 2016	1/3	

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The following conditions apply:

- the classifications are valid for linear joint seals in a wall with a orientation as mentioned (vertical);
- the linear joint seals may connect to any type of wall of aerated concrete (class G4/600 or heavier), concrete, block work, limestone or masonry with a minimal thickness as mentioned in the classifications (100 or 115 mm);
- the surfaces of the material on which the FP PU Foam is applied are thoroughly cleaned and moistened with water when needed;
- the allowed movement capability in practice is maximized to 7,5 %;
- the linear joint seal must be fully filled with FP PU Foam.

Classification of the fire resistance *FP PU Foam in combination with other FP Sealants*

Fire resistance classification (FP Hybrid Sealant in combination with FP PU Foam)	
FP Hybrid applied at the unexposed face, FP PU Foam applied at the exposed face	
Vertically orientated connecting stone to stone	
Wall thickness ≥ 115 mm EI 180 – V – X – F – W 8 to 25 EI 240 – V – X – F – W 8 E 240 – V – X – F – W 8 to 25	
Vertically orientated connecting stone to wood	**Horizontally orientated connecting stone to wood**
Wall thickness ≥ 100 mm EI 120 – V – X – F – W 8 to 20	**Wall thickness ≥ 100 mm** EI 120 – T – X – F – W 8 to 20

Fire resistance classification (FP Acrylic Sealant in combination with FP PU Foam)
FP Acrylic sealant applied at the unexposed face, FP PU Foam applied at the exposed face
Vertically orientated connecting stone to stone
Wall thickness ≥ 115 mm EI 180 – V – X – F – W 8 to 30 EI 240 – V – X – F – W 8 E 240 – V – X – F – W 8 to 30

Fire resistance classification (FP Silicone Sealant in combination with FP PU Foam)
FP Silicone sealant applied at the unexposed face, FP PU Foam applied at the exposed face
Vertically orientated connecting stone to stone
Wall thickness ≥ 115 mm EI 180 – V – X – F – W 8 to 40 EI 240 – V – X – F – W 8 E 240 – V – X – F – W 8 to 40

E = Criterion integrity, I = Criterion insulation, V = Vertical application in a vertical wall, T =Horizontal application in a vertical wall
X = No movement applied, F = Splice applied in the field, W = Permitted width range in millimetres

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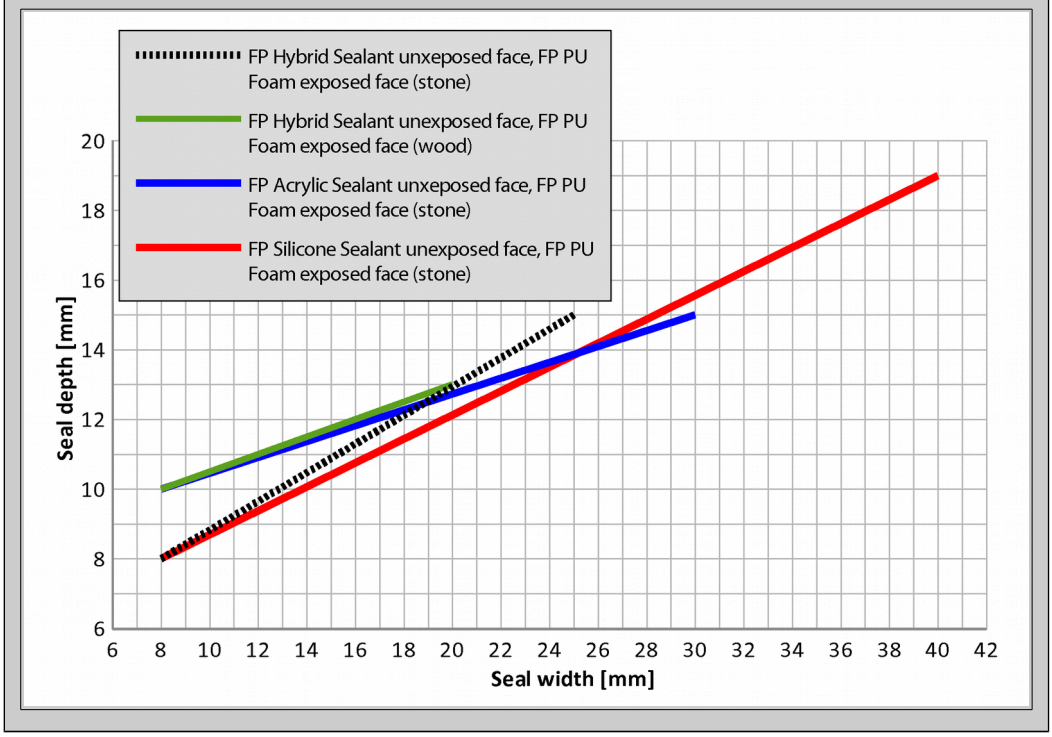
The following conditions apply:

- the classifications are valid for linear joint seals in a wall with a orientation as mentioned (horizontal or vertical);
- the linear joint seals may connect to any type of wall of aerated concrete (class G4/600 or heavier), concrete, block work, limestone or masonry with a minimal thickness as mentioned in the classifications (100 or 115 mm);
- in combination with FP Hybrid Sealant, the linear joint seals may connect to any type of wooden construction with a density of 500±50 kg/m^3 or more where the wooden construction is placed over the full thickness of the wall or at least 100 mm;
- the surfaces of the material on which the FP Sealant and PF PU Foam is applied are thoroughly cleaned and treated with primer and moistened with water when needed;
- the required depth of the FP Sealant depends on the width of the linear joint seal. The minimum depth of the FP Sealant in relation to the width of the linear joint seal is shown in Graph 1 below. The required depth of the sealant may also be increased with respect to the Graph (the lines are the minimum and recommended seal depth). The rest of the slot is fully filled with FP PU Foam;
- the allowed movement capability in practice is maximized to 7.5 %;
- the classifications are valid for the FP Sealant applied at the unexposed face.

Graph 1: Minimum seal depth in relation to the seal width



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