



Zwaluw FireProtect®

Passive Fire Protection Solutions

For (expansion) joints, openings and technical surface penetrations



BETTER RESULTS THROUGH KNOWLEDGE



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Introduction

Zwaluw FireProtect® is a complete, fully certified and approved range of passive fire protection products applied in expansion and connection joints, openings and surface penetrations between fire compartments.

Passive fire protection products are the primary materials included in the construction of a building, which limit the spread of flames, heat and smoke, and significantly increase fire safety. By correctly applying these products, the fundamental and legal requirements of compartmentalisation can be met. Additionally, they contribute to the structural stability of a building and provide time to safely evacuate or clear a building. Passive fire protection limits the spread of flames and smoke, which also limits the transfer and spreading of fire between compartments.

Passive fire protection:

- Saves lives
- Reduces material damage
- Minimises business loss
- Protects the structure of the building, keeping it accessible after the fire
- Complies with the European regulations

Creating fire compartments in a building is an essential part of ensuring its passive fire safety. Our Den Braven FireProtect® products contribute in limiting the spread of smoke and flames between compartments thus delaying the spread of the fire as a result. This provides the opportunity for the building occupants to safely evacuate and fire fighters and other emergency services time to react and extinguish the fire.

To assist with the increasing demands and importance of passive fire safety in new build and renovation projects, Den Braven has focussed on developing and certifying a range of products for this market segment.

Den Braven is known as one of the leading developers and manufacturers of sealants, adhesives and PU expansion foam, and is considered to be an authority in the field of dedicated concepts that provide complete solutions.

With our vast experience regarding solutions for linear joints (EN 1366-4) and for surface penetrations (EN 1366-3), we proudly present our range of passive fire protection products.

Under the brand name Zwaluw FireProtect®, Den Braven has developed a complete range of passive fire-protection solutions. These solutions are based on the principle that they should offer a cost effective solution using the latest technology. All products and applications are fully tested and certified to the latest European standards.

Reaction to fire (EN 13501) and fire resistance (EN 1366)

Reaction to fire (EN 13501) is a completely different matter than fire resistance (EN 1366). Both are strictly regulated in national and international standards.

Reaction to fire (EN 13501) is the extent to which the flammability of a material contributes to the development and spread of a fire. A well-known standard for reaction to fire is the German DIN 4102 part 1, with classifications A1, A2, B1, B2 and B3.

Fire resistance (EN 1366), on the other hand, is the time expressed in minutes during which a compartment on fire can successfully fulfil its role, therefore preventing the fire from spreading. This fire resistance of combined products has been tested and measured for standardised and widely used applications. This brochure contains all the essential information about widely used applications and the solution(s) we can offer to meet the requirements in the field of fire resistance.

An overview for finding the correct product(s) for an application is provided on page 18.



Linear joints (EN 1366-4)

A fire compartment consists of fire retardant walls and floors. A compartment is completed through adequate and fire retardant sealing of all the joints between these walls and floors.

Products and systems tested in accordance with EN 1366-4 are used to fully seal fire compartments in the locations where walls and floors meet. Most of these products and systems are designed to absorb movements of the construction parts but with the additional benefit of fire resistance.

Our solutions for linear joints consist of the following products:

- Zwaluw FireProtect® FP Acrylic Sealant
- Zwaluw FireProtect® FP Silicone Sealant
- Zwaluw FireProtect® FP Hybrid Sealant
- Zwaluw FireProtect® FP PU Foam

The fire resistance of our Zwaluw FireProtect products have been tested by accredited laboratories (notified bodies) in accordance with national and international standards. The results of these tests are summarised in test reports and classification reports. These specially developed Den Braven products can be applied separately, but combinations of products have also been tested. This allows us to offer a solution for any situation.

Classifications explained (EN 1366-4)

Two classifications for linear joints are explained below. This helps to gain a better insight into various classifications and the applicability of the products.

Tested material and product: Aerated concrete, wall thickness 100 mm - FP Silicone Sealant on both sides

El 180 – V – X – F – W 5 to 30

- El 180: The joint remains intact for at least 180 minutes and the temperature rises no more than 180°C on the non-fire side
V: Vertical joint
X: No absorption of movement during the test
F: Installed and applied on site, no prefab parts
W 5 to 30: Tested and certified widths

Tested material and product: Aerated concrete, wall thickness 100 mm - FP Hybrid Sealant on both sides

El 240 – T – M25 – F – W 20 to 30

- El 240: The joint remains intact for at least 240 minutes and the temperature rises no more than 180°C on the non-fire side
T: Horizontal application / Wall-floor
M25: Absorbs 25% of movements during test
F: Installed and applied on site, no prefab parts
W 20 to 30: Tested and certified widths v



Zwaluw FireProtect® FP Acrylic Sealant



Product description

FP Acrylic Sealant is a 1 component, fire retardant, acrylic dispersion-based sealant. FP Acrylic Sealant is fire retardant for up to 4 hours in linear joints and absorbs movements up to 7.5%.

Key features

- Fire retardant up to 4 hours
- Can be applied in joints up to 20 mm wide
- Combined with Zwaluw FireProtect® PU Foam up to 30 mm wide
- Reduces undesirable air currents
- Excellent application and easy to finish
- Absorbs movements up to 7.5%
- Paintable with most water- and oil-based paints
- Limited shrinkage
- Low VOC emission

Certifications

- EN 1366-4
- EN 15651-1: F-EXT-INT - Class 7.5P
- DoP number 11001211-1001

Colour

Concrete grey and white

Packaging

Cartridges of 310 ml

Shelf life

12 months

Zwaluw FireProtect® FP Silicone Sealant



Product description

FP Silicone Sealant is a fire retardant, elastomeric, neutral curing silicone sealant. FP Silicone Sealant is fire retardant up to 4 hours in linear (expansion) joints. It absorbs movements up to 25%.

Key features

- Fire retardant up to 4 hours
- Can be applied in joints up to 30 mm wide
- Combined with FP PU Foam up to 40 mm wide
- Excellent application and does not sag
- Absorbs movements up to 25%
- Water, weather and UV resistant
- Resistant to mould and pests
- Air tight seal
- Suitable for both internal and external use

Certifications

- EN 1366-4
- EN 15651-1: F-EXT-INT-CC - Class 25HM
- EN 15651-2: G-CC - Class 25HM
- DoP number 53001236-1001

Colour

Concrete grey, white and black

Packaging

Cartridges of 310ml

Sausages of 600ml

Shelf life

12 months



Zwaluw FireProtect® FP Hybrid Sealant



Product description

FP Hybrid Sealant is a one component, fire retardant, hybrid based sealant. FP Hybrid Sealant is fire retardant up to 4 hours in linear (expansion) joints. It absorbs movements up to 25%. This hybrid sealant can be used in vertical joints, but also in horizontal joints and to provide a fire resistant seal for the connection between a wall and floor or ceiling.

Key features

- Fire retardant up to 4 hours
- Also suitable for wall/ceiling and wall/floor connections
- Suitable for joints up to 30 mm wide
- Prevents air currents
- Excellent application and easy to finish
- Absorbs movements up to 25%
- Paintable with most water and oil based paints
- Limited shrinkage
- Resistant to mould and pests
- Low VOC emissions
- Non bubbling

Certifications

- EN 1366-4
- EN 15651-1: F-EXT-INT-CC - Class 25HM
- EN 15651-2: G-CC - Class 20LM
- DoP number 55001166-2001

Colour

Concrete grey and white

Packaging

Cartridges of 290ml

Shelf life

12 months

Zwaluw FireProtect® FP PU Foam



Product description

FP PU Foam is a modified 1 component, fire retardant polyurethane expansion foam. It can be applied by hand, using the hand held version or with a special gun applicator. FP PU Foam is fire retardant up to 120 minutes. Combined with other FP products this can increase to 4 hours!

Key features

- Can be applied in joints up to 30 mm
- Combined with FP Silicone Sealant up to 40 mm
- Fire retardant up to 2 hours, increasing to 4 hours in combination with other FP products
- B1 formulation – excellent fire retardancy
- Easy to apply with nozzle adapter or applicator
- Safe, Easy and fast application
- Tack free after 8 to 12 minutes
- Excellent expansion and cavity filling

Certifications

- EN 1366-4
- DIN4102 - Part 2 Class B1

Colour

Pink

Packaging

Canisters of 750 ml, adapter and gun foam

Shelf life

12 months



Products for surface penetrations (EN 1366-3)

A fire compartment consists of fire retardant walls and floors. These walls and floors have openings through which pipes and wiring are passed. A fire compartment is not complete until these surface penetrations are safely sealed using the correct materials. Products and systems tested in accordance with 1366-3 are used to seal surface penetrations, ensuring that the compartments are sufficiently fire retardant despite electrical and mechanical systems being passed through.

Below are the products we offer for sealing surface penetrations

- Zwaluw FireProtect® FP Sealing System
 - Zwaluw FireProtect® FP Intumescent Coating
 - Zwaluw FireProtect® FP Intumescent Acrylic
 - Zwaluw FireProtect® FP Fire Board
- Zwaluw FireProtect® FP Pipe Wrap
- Zwaluw FireProtect® FP Pipe Collar
- Zwaluw FireProtect® FP Pipe Collar Brackets
- Zwaluw FireProtect® FP Wall Outlet
- Zwaluw FireProtect® FP Sealing Sticker

The fire retardant properties of our systems and products have been tested according to national and international standards by accredited organisations. The results of these tests are summarised in test and classification reports which can be found on our website.

Zwaluw FireProtect® FP Sealing System

The FP Sealing System consists of specially developed FP Intumescent Acrylic and FP Intumescent Coating with the addition of FP Fire Board. Treated surface penetrations are both fire retardant and smoke proof. The system is suitable for internal applications. The products are used in accordance with the required fire resistance in minutes for the surface penetration in question. The system provides seals with a fire resistance up to 120 minutes.

Products of FP Sealing System:

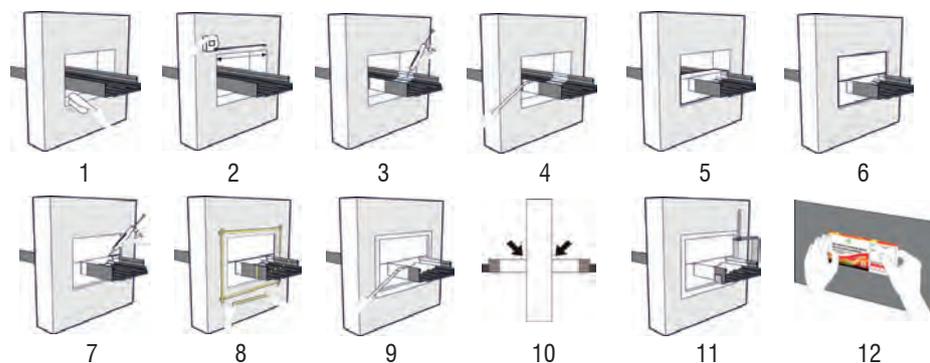
- FP Intumescent Coating (foaming)
- FP Intumescent Acrylic (foaming)
- FP Fire Board

The principle behind the foaming effect of the FP Intumescent Coating and the FP Intumescent Acrylic is based on a tried and tested combination of chemical components. In case of fire, the material starts to foam, expanding from a thin layer into a volume 40 times its original size. This foaming layer seals and insulates, preventing the spread of the fire to the next compartment for a certain period of time.



FireProtect®

Instructions FP Sealing System



1. To ensure a good bond of the masking tape and the FP Intumescent Coating, clean the surfaces to be treated and remove any dust.
2. Carefully measure the surface penetration with a tape measure, folding ruler or possibly callipers and copy the dimensions to the FP Fire Board.
3. In the location where the FP Fire Board is to be fitted, apply FP Intumescent Acrylic between the cables over a width of at least 60 mm. Use the FP Intumescent Acrylic to seal any spaces or joints between:
 - individual cables
 - cables and fitting pieces
 - cables and cable duct
 - fitting pieces and cable duct
 - fitting pieces and opening
 - in the profile of the cable duct itself
4. In the location where the FP Fire Board is to be fitted, paint the opening, the cable duct and the cables over a width of about 60 mm on all sides using FP Intumescent Coating.
5. Cut the fitting pieces to size from the FP Fire Board in such a way that they can be clamped into the opening. Paint the sides of the opening and the fitting pieces using FP Intumescent Coating, to ensure that the fitting pieces are properly “bonded” with the opening and the cable duct. Position the relief of the FP Fire Board in one direction.
6. Make the fitting pieces as large as possible, to limit the number of joints. Make enough fitting pieces to cover the entire opening.
7. Now use the FP Intumescent Acrylic again to seal any spaces or joints between:
 - cables and fitting pieces
 - fitting pieces and cable duct
 - fitting pieces and opening
 - in the profile of the cable duct itself
8. Apply masking tape to the cable duct and cables, about 200 mm from the FP Fire Board, and on the wall, about 30 mm from the FP Fire Board.
9. Use FP Intumescent Coating to paint the entire seal. Paint the cable duct and cables up to 200 mm from the seal.
10. Perform steps 7 through 9 on both sides of the wall.
11. Check if the cable duct has suitable steel brackets on both sides of the wall inside 25 cm.
12. Enter the company details on the FP Sealing Sticker and attach it in a clearly visible location.



Zwaluw FireProtect® FP Intumescent Coating

Product description

FP Intumescent Coating is part of the Zwaluw FireProtect® FP Sealing System. This system is ideal for creating fire resistant seals in surface penetrations. This system can also be used, for example, in combination with fire collars. FP Intumescent Coating is used to cover the crosscut edges of FP Fire Board that has been cut to size. The systems being led through, such as pipes and cable ducts, are also covered in it. Finally, the seal and the transition to the surrounding structure are covered in it, creating a perfectly fire retardant solution.



Key features

- Fire retardant up to 2 hours
- Offers a wide range of solutions for all surface penetrations used with the other products from the FP Sealing System
- Foaming and cooling coating that expands to 40 times its original volume in case of fire
- Thoroughly tested system by the leading European testing institutions
- Seals surface penetrations from fire and smoke

Certification

- EN 1366-3

Colour

White

Packaging

Buckets of 5 kg

Shelf life

12 months

Zwaluw FireProtect® FP Intumescent Acrylic

Product description

FP Intumescent Acrylic is part of the Zwaluw FireProtect® FP Sealing System. This system is ideal for creating fire resistant seals in surface penetrations. This system can also be used, for example, in combination with fire collars. FP Intumescent Acrylic is used to seal all openings up to 5 mm; larger openings require FP Fire Board. The openings filled with FP Intumescent Acrylic are located between the surface penetration and the surrounding structure, but also between separate cables and possibly the cable duct itself.



Key features

- Fire retardant up to 2 hours
- Compresses PE / PP / PVC piping up to Ø40 mm in case of fire, making a fire collar superfluous
- Offers a wide range of solutions for all surface penetrations used with the other products from the FP Sealing System
- Foaming and cooling sealant that expands to 40 times its original volume in case of fire
- Thoroughly tested system by the leading European testing institutions
- Seals surface penetrations from fire and smoke
- Low VOC and environmentally friendly

Certification

- EN 1366-3

Colour

White

Packaging

Buckets of 5kg

Cartridges of 310ml

Shelf life

12 months





Zwaluw FireProtect® FP Fire Board

Product description

FP Fire Board is part of the Zwaluw FireProtect® FP Sealing System. This system is ideal for creating fire resistant seals in surface penetrations. This system can also be used, for example, in combination with fire collars. FP Fire Board is used to seal all openings larger than 5 mm and can be used both in solid stony walls and in composite (incl. metal-stud) walls.



Key features

- Fire retardant up to 2 hours
- Shape of FP Fire Board can be easily modified to fit the surface penetration to be sealed
- Offers a wide range of solutions for all surface penetrations used with the other products from the FP Sealing System
- Comes with a foaming and cooling coating on both sides
- Thoroughly tested system by the leading European testing institutions
- Seals surface penetrations from fire and smoke

Certification

- EN 1366-3

Colour

Coated white

Packaging

Box with 1 sheet 50 x 60 cm

Film with 2 sheets 100 x 60 cm

Thickness

60 mm



Zwaluw FireProtect® FP Pipe Wrap

Product description

The FP Pipe Wrap is a wrap that greatly expands in case of fire. The FP Pipe Wrap is applied around plastic pipes (PVC, PP, PE) that have been installed through (segmented) walls or floors. The wrap is placed around the pipe and fastened with the adhesive strip. The pipe with the wrap is then inserted into the structure. The foaming effect of the FP Pipe Wrap prevents heat, smoke and fire from spreading to the next compartment. If the space between the FP Pipe Wrap and the surrounding structure is less than 5 mm, it can be sealed with FP Intumescent Acrylic. Above 5 mm, the FP Sealing System or a specifically approved mortar should be used. The FP Pipe Wrap is fitted in an opening in the wall, with the space between the FP Pipe Wrap and the wall being less than 10 mm.



Key features

- Fire retardant up to 2 hours
- Ideal for use in composite walls
- Only 1 wrap required for wall sealing
- Is fitted in the compartment wall/ceiling/floor
- Available in the most widely used sizes, 50 to 160 mm
- Thoroughly tested system by the leading European testing institutions
- Seals surface penetrations from fire and smoke

Certification

- EN 1366-3

Colour

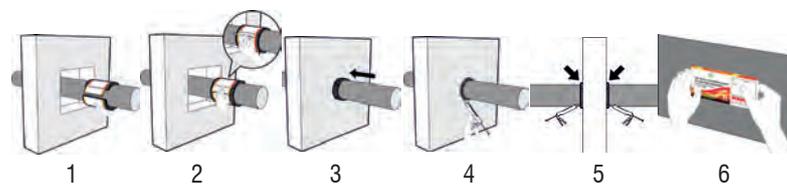
Black

Packaging

Individual

Height

120 mm



1. Choose the correct FP Pipe Wrap, in accordance with the diameter of the pipe, and position it around the pipe. FP Pipe Wrap must not be cut off.
2. Remove the film from the back of the mounting sticker and attach the mounting sticker to the FP Pipe Wrap, ensuring that the FP Pipe Wrap is fully and tightly wrapped around the pipe.
3. Slide the FP Pipe Wrap around the pipe, ensuring that the centre of the FP Pipe Wrap is positioned at the centre of the fire retardant structure.
4. Seal any spaces or joints between the pipe and the FP Pipe Wrap and between the FP Pipe Wrap and the wall using FP Intumescent Acrylic.
5. Perform step 4 on both sides of the wall.
6. Enter the company details on the FP Sealing Sticker and attach it in a clearly visible location.



Zwaluw FireProtect® FP Pipe Collar



Product description

The FP Pipe Collar is a fire collar that greatly expands in case of fire. The FP Pipe Collar is used around plastic pipes (PVC, PP, PE) that have been installed through walls, floors and segmented walls. The collar is placed around the pipe and secured. For a ceiling or floor penetration, use of one collar at the bottom is sufficient. For wall penetrations, collars are required on both sides. The FP Pipe Collar prevents heat, smoke and fire from spreading to the next compartment. For larger openings between the pipe and the surrounding structure, the opening should first be sealed using the FP Sealing System. In addition, special brackets – FP Pipe Collar Brackets – are available for attaching around the collar. If this is not possible use the existing holes in the collar.

Key features

- Fire retardant up to 2 hours
- Only 34 mm high
- No space required between pipe and structure
- Is fitted on the compartment wall/ceiling/floor
- Available in the most widely used sizes, 40 to 250 mm
- Thoroughly tested system by the leading European testing institutions
- Seals surface penetrations from fire and smoke

Certification

- EN 1366-3

Colour

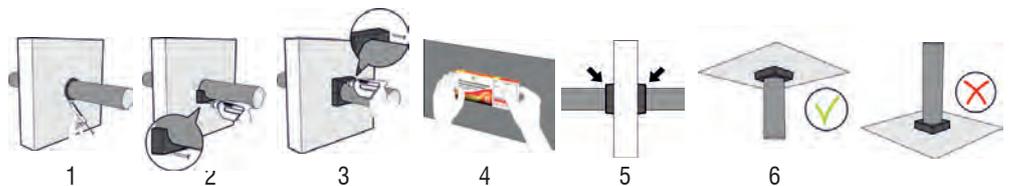
Black

Packaging

Individual in film

Height

34 mm



1. Seal any spaces or joints between the pipe and the structure using FP Intumescent Acrylic.
2. Hold the first part of the FP Pipe Collar firmly against the pipe. Mark and then drill the holes in the wall through the fastening holes of the FP Pipe Collar and attach the first two anchors.
3. Hold the second part of the FP Pipe Collar firmly against the pipe, joined up with the first part. Mark and then drill the holes in the wall through the fastening holes of the FP Pipe Collar and attach the last two anchors.
4. Enter the company details on the FP Sealing Sticker and attach it in a clearly visible location.
5. For a pipe penetration through a wall: attach an FP Pipe Collar on both sides of the wall.
6. For a pipe penetration through a floor: only attach an FP Pipe Collar on the underside of the floor.

Zwaluw FireProtect® FP Pipe Collar Brackets



Product description

The FP Pipe Collar Brackets are used to attach the FP Pipe Collar if the opening around the pipe is too large to use the existing holes in the collar itself. This set of 4 brackets increases the application options of the collar.

If a fastening point of the FP Pipe Collar is located too close to the edge of an opening an FP Pipe Collar Bracket should be used for fitting.

Certification

- EN 1366-3

Colour

Black

Packaging

Pack of 4 in film



1

1. An FP Pipe Collar must always be attached in four locations. When using brackets, two sides of the FP Pipe Collar must be fitted with at least two brackets. Screw the fastening brackets onto the FP Pipe Collar (fire collar) using self-tapping screws.



Zwaluw FireProtect® FP Wall Outlet



Product description

The FP Wall Outlet has been developed for the fire-resistant sealing of wall outlets in (segmented) walls, by simply fitting them in the socket.

In case of fire, the switchgear on the wall socket will melt, followed by the socket itself. This gives the fire the opportunity to spread into the wall or to the next compartment. If the wall socket is fitted with an FP Wall Outlet, it will expand in case of fire, sealing the opening from smoke and fire, and retaining the fire retardant properties of the wall. The FP Wall Outlet is very easy to install in old and new wall sockets.

Certification

- EN 1366-3

Colour

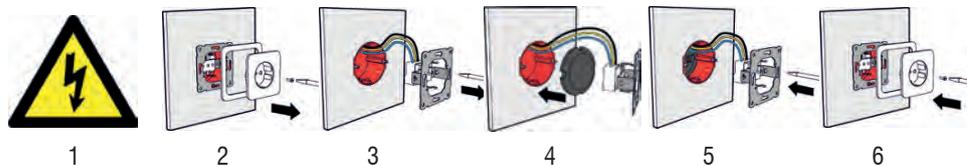
Black

Packaging

Box of 10

Dimensions

Ø62 x 10 mm



1. Check if the wall socket is correctly fitted and mounted in a fire retardant structure. Check if the wires are not live.
2. Remove the cover of the wall socket or the switchgear.
3. Remove any parts on the inside of the wall socket. Remove any wiring and connecting materials, such as wire nuts.
4. Position the FP Wall Outlet against the rear of the wall socket.
5. Attach the wiring.
6. Return the cover of the wall socket.



Zwaluw FireProtect® FP Sealing Sticker

Product description

The FP Sealing Sticker is used to identify the seal of a surface penetration. Among other things, the sticker states the opening number, the installer, the application date and the fire resistance in minutes. Pictures are often taken of sealed surface penetrations with the sticker to record them in the building's log.



Dimensions

140 x 60 mm

Packaging

Pack of 10 in film

Selection tables for linear (building-) joints (EN 1366-4)

Vertical joint in vertical solid wall (aerated concrete, concrete, Gibo, masonry, limestone density $>650 \text{ kg/m}^3$), wall thickness $\geq 100 \text{ mm}$, $< 115 \text{ mm}$

		 Joint width					
		5 mm	8 mm	20 mm	25 mm	30 mm	40 mm
Minutes fire resistance	240	-	-	-	-	-	-
	180	D	D	D	D	D	-
	120	B D	B D	B D	D	D	-
	90	B D	B D A	B D	D	D	-
	60	B D	B D A	B D	D	D	-
	45	B D	B D A	B D A	D	D	-
	30	B D	B D A	B D A	D A	D A	-

Vertical joint in vertical solid wall (aerated concrete, concrete, Gibo, masonry, limestone density $>650 \text{ kg/m}^3$), wall thickness $\geq 115 \text{ mm}$

		 Joint width					
		5 mm	8 mm	20 mm	25 mm	30 mm	40 mm
Minutes fire resistance	240	C E F	F H I J	F	F	F	-
	180	C D E F G	D F H I J	D F H I J	D F H I J	D F H I	I
	120	B C D E F G	A B D F H I J	B D F H I J	D F H I J	D F H I	I
	90	B C D E F G	A B D F H I J	B D F H I J	D F H I J	D F H I	I
	60	B C D E F G	A B D E F G H I J	A B D E F G H I J	D E F H I J	D F H I	I
	45	B C D E F G	A B C D E F G H I J	A B C D E F G H I J	A D E F H I J	A D F H I	I
	30	B C D E F G	A B C D E F G H I J	A B C D E F G H I J	A D E F H I J	A D F H I	I

Horizontal joint in solid wall (aerated concrete, concrete, Gibo, masonry, limestone density $>650 \text{ kg/m}^3$), connection floor-wall / ceiling wall, wall thickness $> 100 \text{ mm}$

		 Joint width		
		10 mm	20 mm	30 mm
Minutes fire resistance	240	-	F	F
	180	F	F	F
	120	F	F	F
	90	F	F	F
	60	F	F	F
	45	F	F	F
	30	F	F	F

A. Full joint with FP PU Foam																	
B. Double sided with FP Acrylic Sealant																	
C. Single sided with FP Acrylic Sealant																	
D. Double sided with FP Silicone Sealant																	
E. Single sided with FP Silicone Sealant																	
F. Double sided with FP Hybrid Sealant																	
G. Single sided with FP Hybrid Sealant																	
H. Joint with FP PU Foam, finished on one side with FP Acrylic Sealant																	
I. Joint with FP PU Foam, finished on one side with FP Silicone Sealant																	
J. Joint with FP PU Foam, finished on one side with FP Hybrid Sealant																	

FIRE SIDE







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