

K-FLEX K-FIRE FLEXI COAT

DESCRIPTION

K-FLEX K-FIRE FLEXI COAT Sealant is an acrylic based sealant used to form linear gap seals where gaps are present in floor constructions and to create seals where penetrations go through walls. The K-FLEX K-FIRE FLEXI COAT Sealant is supplied in liquid form contained within 5kg, 10kg, 20kg, 25kg pails. The K-FLEX K-FIRE FLEXI COAT Sealant is trowelled or sprayed into the aperture in or between the separating element/elements to a specified depth utilising stone wool backing material.

K-FLEX K-FIRE FLEXI COAT Sealant is applied 1mm DFT / 2.5mm WFT, on to the unexposed surface of 100mm thick, 80kg/m Stone Wool. The Stone Wool is manufactured in accordance with EN 13162: 2001.

INTENDED USE

The intended use of K-FLEX K-FIRE FLEXI COAT Sealant is to reinstate the fire resistance performance of gaps in and joints in rigid floor constructions and service penetrations.

Fire resistance testing to EN 1366-3 EI 120, EN 1366-4 EI 120

The intended use of K-FLEX K-FIRE FLEXI COAT Sealant is to reinstate the fire resistance performance of wall and floor constructions, where they are penetrated by various combustible pipe services.

- Fire Classification to EN 13501-2.
- Reaction to fire EN 13501-1
- Certifire 3rd Party Certification CF 5094.
- Acoustic Isolation to EN 10140 to 52dB.
- Air Permeability testing to EN 1026 to 600Pa.
- Water Permeability testing to EN 1027 to 450Pa.
- VOC Tested ASTM D2369-10, LEED 2009-EQ 041 SCAQMD.
- Tested with Metallic Pipes, Cables, Cable Bunches, Cable Trays and Cable Ladders.

KEY PRODUCT POINTS

Causes no known effects to plastic pipes, plastic cables, sheathing or metallic components..

- Joint movement capability of +/- 50% -10 to +95 °C.
- Dynamic movement testing 500 cycles per 30 minutes.
- Highly flexible and water resistant.
- Halogen free, resists fungi and vermin.
- Can be spray, brush, pour or trowel applied.
- Ideal for slab edge applications and head of wall and movement installations.
- Install on base of 80kg/m³ Stone Wool.

Installation

Ensure that the aperture and services in question are tested with K-FLEX K-FIRE FLEXI COAT Sealant, and the site conditions are within the application specification. An annular space needs to be present around the service to apply sufficient installation depth.

All services and apertures need to be clean and clear of all dust and loose particles. The aperture temperature needs to be at 5°C or above at time of installation.

Upon installation make sure that you install the Stone Wool minimum 80kg/m with a minimum 20% compression fit between the substrate and or around all services effectively, brush or trowel over the board with K-FLEX K-FIRE FLEXI COAT Sealant to a minimum DFT (Dry Film Thickness) of 1mm (2.5mm Wet Film Thickness).

Ensure K-FLEX K-FIRE FLEXI COAT is applied to a **minimum DFT (dry film thickness) of 1mm which will require minimum 2.5mm WFT (wet film thickness)**

Substrates

The walls shall be a minimum of **100mm thick**. Drywalls shall comprise a minimum of 2 layers of 'Type F' Gypsum board on both faces, with minimum 50mm studs. Masonary / Concrete walls shall have a minimum density for concrete or brick of 780kg/m³ and for aerated concrete blocks of 600kg/m³. All walls shall have at least the same fire resistance as that required for the sealing system.

Service support requirements

Services should be rigidly supported via steel angles, hangers or channels, not further than 400mm from the surface of the sealing system on both faces of wall and top face of floor unless specified otherwise in the performance data.

Terminology

Fire performance in accordance with EN1366-3, EN1366-4, Classification 13501-2:2007 + A1:2009, ETAG-026, Air Permeability EN1026, Sound EN10140. Fire resistance classes are: E = Integrity, the product can withstand the fire from the non-fire side, I =Insulation, the product can withstand the temperature travelling down the service, U/U = Uncapped inside and outside the furnace, U/C = Uncapped inside and Capped outside the furnace, C/U = Capped inside and Uncapped outside the furnace.

FLEXIBLE OR RIGID WALL

Flexible and rigid wall constructions with minimum thickness of 100mm.	
Service(s)	Classification
Electrical cable up to 21mm dia.	EI60
Electrical cables 22mm - 80mm dia.	E60 EI45
Cable trays and ladders.	E60 EI30
100mm diameter bundle telecommunication cable type 'F'.	EI60
Unsheathed electrical cables up to 24mm dia.	E60 EI45
Steel and Copper Conduits up to 16mm.	E60 EI30

Flexible and rigid wall constructions with minimum thickness of 100mm.		
Service(s)	Additional Sealing	Classification
Single copper or mild steel pipe 42mm-159mm diameter and 2mm – 14.2 mm wall.	N/A	E60 U/C
Single copper or mild steel pipe 42-159mm diameter and 2mm – 14.2 mm wall with sustained/continuous 20mm thick Armaflex AF.	15mm deep x 10mm wide annulus Pyropro HPE Sealant to both faces of the pipe.	E60 EI30 U/C
Single UPVC pipe 40mm diameter and 1.9mm mm wall.	25mm deep x 20mm wide annulus Pyropro HPE Sealant to both faces of the pipe.	EI60 U/C
Single UPVC pipe 200mm diameter and 8mm mm wall.		EI60 U/C

Flexible or Rigid wall constructions with minimum thickness of 100mm.		
	Service(s)	Classification
50mm dia.	Electrical cables up to 21mm –	EI90
dia.	Electrical cables 51mm - 80 mm	E90 EI60
	Cable trays and ladders.	EI90
	100 mm diameter bundle telecommunication cable type "F".	EI120
	Unsheathed electrical cables up to 24mm dia.	E90 EI60
	Steel or Copper Conduits up to 16mm.	EI90

PERFORMANCE DATA - WALLS

FLEXIBLE OR RIGID WALL

Rigid wall constructions with minimum thickness of 150mm.		
	Service(s)	Classification
	Electrical cables up to 21mm dia.	EI120
	Electrical cables 22mm - 50 mm dia.	E90 EI60
	Electrical cables 51mm - 80 mm dia.	EI60
	Cable trays and ladders.	EI60
	100 mm diameter bundle telecommunication cable type "F".	EI120
	Unsheathed electrical cables up to 24mm dia.	EI120
	Steel or Copper Conduits up to 16mm.	EI120
	200mm Steel Pipe, 5mm -14.2mm wall thickness.	E90 EI30 U/C
	40mm Copper/Steel Pipe, 1.5mm - 14.2mm wall thickness.	E120 EI60 U/C
	159mm Copper/Steel Pipe, 2mm - 14.2mm wall thickness.	E120 EI20 U/C

Flexible Wall with a minimum thickness of 100mm.				
Aperture size	Seal Composition	Services	Capping	Classification
1200mm x 1200mm	The aperture was sealed with two layers of 50mm thick and a nominal density of 140kg/m ³ Stopseal Batt, coated on the outer faces only, forming a 200mm wide 'frame' within the aperture. The Batts were coated on both faces with the spray coating referenced Stopseal Ablative Coating. The Batts were friction fitted into the aperture and were sealed around their perimeter edges and along the butt joints with Pyrocoustic Sealant. The 800mm x800mm aperture within the Stopseal Batt was sealed with nominal density 60kg/m ³ stone wool to a depth of 100mm. This was then coated on each outer face with Flexi-Coat sealant, brush applied to the face of the Batts. The Flexi-Coat sealant is applied to a nominal dry film thickness of 0.7mm.	Electrical cables up to 21mm dia.	N/A	EI 60
		Electrical cables 33mm to 80mm dia.		
		Cable Trays and Ladders.		
		100mm diameter bundle telecommunication cable type "F".		
		Unsheathed electrical cables up to 17mm dia.		
		Unsheathed electrical cables 18mm-24mm dia		
		Steel or Copper Conduits up to 16mm		E 60 , EI 15
Plastic conduits up to 16mm	EI 60			

RIGID WALL

Vertical

Rigid wall constructions with minimum wall thickness of 150mm.				
Depth Sealant	Backing	Substrates	Seal Orientation	Classification
1 mm DFT	Stone Wool (Flexi Batt P100) 100mm thick (80kg/m ³) Compressed 20%.	AAC-AAC	Unexposed face.	E 240 EI 180- V – M25 – F – W 00-150

PERFORMANCE DATA - FLOOR

Substrates

The floors shall be a minimum of **150mm thick**. Masonry / Concrete floors shall have a minimum density for concrete or brick of 780kg/m³ and for aerated concrete blocks of 600kg/m³. All floors shall have at least the same fire rating as that required for the sealing system.

Service support requirements

Services should be rigidly supported via steel angles, hangers or channels, not further than 400mm from the surface of the sealing system on top face unless specified otherwise in the performance data.

Terminology

Fire performance in accordance with EN1366-3, EN1366-4, Classification 13501-2:2007 + A1:2009, ETAG-026, Air Permeability EN1026, Sound EN10140. Fire resistance classes are: E = Integrity, the product can withstand the fire from the non-fire side, I =Insulation, the product can withstand the temperature travelling down the service, U/U = Uncapped inside and outside the furnace, U/C = Uncapped inside and Capped outside the furnace, C/U = Capped inside and Uncapped outside the furnace

RIGID FLOOR

Horizontal

Rigid floor constructions with minimum floor thickness of 150mm.				
Depth Sealant	Backing	Substrates	Seal Orientation	Classification
1 mm DFT	Stone Wool (Flexi Batt P100) 100mm thick (80kg/m ³) Compressed 20%.	AAC-AAC	Unexposed face.	E 240 EI 180- H – M25 – F – W 00-200

EXTENDED SCOPE OF WORKS

Direct field of application – DiAP and Extended Field of Application- EXAP

DiAP and EXAP rules are an output from European harmonization of fire testing methods, classifications and product standards where applicable. At a national level, experienced persons or fire test organisations have previously provided assessments of expected performance based on expert judgement and opinion, however these rules allow interpretation through the specific EN 1366 test standard.

DiAP and EXAP rules are provided in the EN 1366 and EN 15882 test standards series. They are derived from information obtained from tests carried out in accordance with relevant EN 1366 tests at recognised laboratories in Europe. The test results achieved by a particular design may be directly applied to a limited number of variations without recourse to expert advice, providing the design remains substantially as tested. EXAPs shall be based on primary test evidence to a specific part of the EN 1366 series and may be supplemented by appropriate test evidence generated from other sources, or other relevant historical data. The EXAP rules consider changes in the tested design beyond the scope of direct application and may also consider variations to the tested design.

Direct field of application - DiAP

Fire Stopping systems of this type are often complicated by extensive changes in modern buildings and their influence on the fire hazard should be considered carefully. The fire hazard can be reduced by providing penetration seals at the points where the services pass through fire separating elements (walls/floors).

The impact of fire on a construction or service system can vary considerably. A strict scientific approach to the problem of adequate testing of a sealing system would, therefore, be to design a series of tests each of which corresponds to a specified fire situation and arrangement. However,

such an approach would probably fail due to its economic consequences, as tests of this type are very timeconsuming and costly. The method of test described in the EN 1366 series has therefore been designed with the intention of covering a wide range of fire situations in a minimum of tests. To allow a wider field of application, standard configurations are defined on the basis of general experience and historic data wherever possible. As frequently a number of influencing parameters was considered when defining the standard configurations, not all of which may be addressed explicitly in the field of direct application rules (e.g. metalscreen of cables). To allow nevertheless flexibility a modular approach was taken as far as possible so that various combinations of standard configuration elements can be used to fit the needs of the user.

Where a nonstandard configuration was used, the field of application is restricted to what was tested, however the field of direct application rules given in the various parts of the EN 1366 series may be applied, subject to deviating rules given in the annexes of each part. Rules cover supporting construction, orientation, penetrating services, service supports, penetration seal size, distances and overall configurations of penetration seal materials and services to be included.

Extended Field of Application- EXAP

The purpose EXAP document is to provide the principles and guidance for the preparation of extended application documents for penetration sealing systems tested in accordance with the EN 1366 and EN 15882 series. The field of the extended application document is additional to the direct field of application given within the relevant part of EN 1366 and may be applied to or based on a single test, or a number of tests, which provide the relevant information for the formulation of an extended application.

There are a number of practical limitations on the size and design of elements that can be tested by the standard methods of fire resistance test. When these elements are required to be larger, or are of a modified design, there is a necessity to be able to confirm their performance, without the ability of being able to test them. To achieve this, extended application documents for the various elements are used.

Due to the diverse nature of materials and constructions used to seal openings in fire resistant separating elements it has been necessary to separate the extended application principles into generic seal types within the specific EXAP EN 15882 series. Often more than one variation is to be incorporated, should this be the case the overall effect shall be considered. Principles common to all generic seal types are given in the EXAP and rules for each specific generic seal type are given. The Annex provide rules for the application of test results and provides information relating to the extended application of those test results on for service penetrations.

Variables for each seal type, which require consideration included are as follows:

- 1) Separating element;
- 2) Type of service;
- 3) Size of service;
- 4) Seal size and configuration
- 5) Material changes (components or formulation) – comparison test approach, reduced test program
- 6) Orientation
- 7) Penetration seals at the head of walls (like a linear joint) – consider the issue of movement
- 8) Penetration seals at slab edges (like a linear joint) – consider the issue of movement
- 9) Distances of penetration seals to other openings in the separating element e.g.doors.

