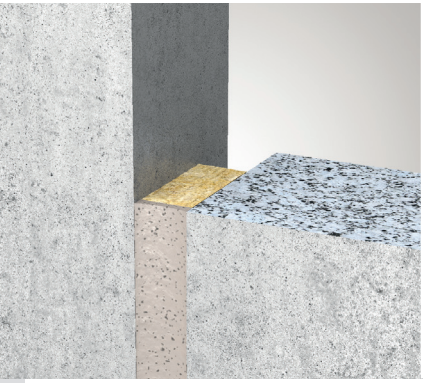





Installation manual

Knauf Fire protection silicone - FPS

for cable penetration seals up to EI 120
for firestop joint seals up to EI 180

System Knauf Fire protection silicone - FPS
ETA 18/0105

Content

System Knauf Fire protection silicone - FPS

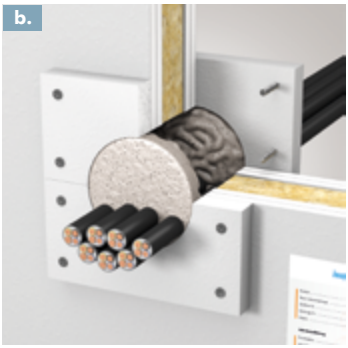
for cable penetration seals up to EI 120

System Knauf Fire protection silicone restores the fire resistance in areas of walls and floors where cables penetrate the component.

System Knauf Fire protection silicone - FPS
ETA 18/0105

Cable penetration seal up to EI 120 for rigid walls, rigid floors and flexible walls. Through penetration firestop system for electrical cables, telecommunication cables, and optical fibre cables.

a. *System Knauf Fire protection silicone - FPS in rigid wall*



b. *System Knauf Fire protection silicone - FPS in flexible wall*

Specially suited for:

1. Through penetration firestop systems in outdoor areas,
2. Fast and easy sealing of component openings,
3. Small through penetration firestop systems,
4. Openings that are difficult to access or that are irregular

Fundamentals

- For execution of the through penetration firestop system the European Technical Approval ETA 18/0105 issued by the Austrian Institute of Construction Engineering (Österreichisches Institut für Bautechnik) is authoritative.
- All technical specifications of the ETA, such as maximum opening size, wall types/floor types, fire resistance classifications, penetrating elements and the first support of the penetrating elements, working clearances, etc. are provided in the approval.
- It must be ensured that the stability of the adjacent component is not impaired through installation of the through penetration firestop system, even in the event of fire. The information specified in the usability certification of the component must be complied with.
- All applicable directives and technical rules of other trades, particularly electrical engineering directives and technical rules, must be complied with.
- Through penetration firestop systems in floors must be safeguarded against loads, in particular also against being walked on, through suitable measures (e.g. through enclosure or through covering with a grate).
- In accordance with ETAG 026-2, the through penetration firestop system can be assigned to use category X. This means that Knauf Fire protection silicone FPS can be used in outdoor areas as well as indoor areas.

System components

1	2
	

Designation	Art. no.	PU
1. Knauf Fire protection silicone - FPS, 310 ml	586148	1
2. Identification plate ETA *Please pay attention to the section, Supplemental national regulations*		1

General instructions

- The cables must be fastened on the cable trays and cable ladders or in support devices in accordance with the technical rules.
- The cable support systems (cable trays and ladders) and the associated supports or fastenings must be made of steel and fastened on both sides of the through penetration firestop systems in such a manner that in the event of fire, additional mechanical stress cannot act on the through penetration firestop system over the period of time specified by the required fire resistance class. In this regard, the technical rules and specifications provided by the manufacturer of the cable support system and of the fastening system must be complied with.
- The total cross section area of the penetrating elements based on the area of the through penetration firestop system must not exceed 60 %.
- The first support of the cables must be mounted maximum 200 mm in front of the through penetration firestop system for wall installation and 250 mm for floor installation (maximum distance in floors only required top-side).

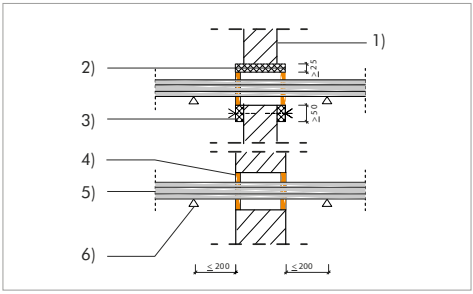


Fig. 1: *Support of cables in walls*

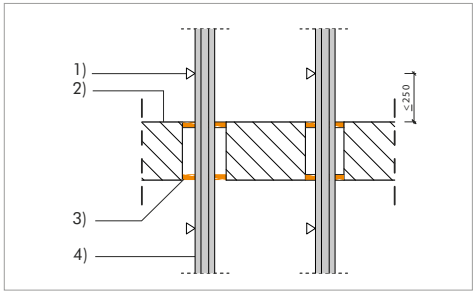


Fig. 2: *Support of cables in floors*

Legend

1. Rigid wall
2. For walls with a thickness ≤ 150 mm: Lining of drywall, silicate or calcium silicate boards
3. For walls with a thickness ≤ 150 mm: Board frame (width ≥ 50 mm) of drywall, silicate or calcium silicate board
4. Knauf Fire protection silicone FPS
5. Cables
6. First support of the cables

Legend

1. First support of pipes
2. Rigid floor
3. Knauf Fire protection silicone - FPS
4. Cables

Permissible install locations of the through penetration firestop system

Components	Minimum thickness	Classification of the component	Fire resistance classification*	Minimum seal thickness*	Minimum fill depth*	Maximum opening size
Rigid wall: Aerated concrete, concrete, reinforced concrete, masonry	100 mm	EN 13501-2	E 120 EI 90	150 mm	2 x 15 mm	100 x 100 [mm] ø 113 mm
Flexible wall: Timber or steel studs lined on both sides	100 mm	EN 13501-2	E 120 EI 90	150 mm	2 x 15 mm	100 x 100 [mm] ø 113 mm
Rigid floor: Aerated concrete, concrete, reinforced concrete	150 mm	EN 13501-2	E 120 EI 120	150 mm	2 x 15 mm	100 x 100 [mm] ø 113 mm

**The required seal thickness depending on the fire resistance classification and the penetrating element that is routed through is specified in the fire resistance classification tables.*

Approved penetrating elements

Cables

- Sheathed electrical cables, telecommunication cables, optical fibre cables up to a maximum outer diameter of 21 mm

System Knauf Fire protection silicone - FPS
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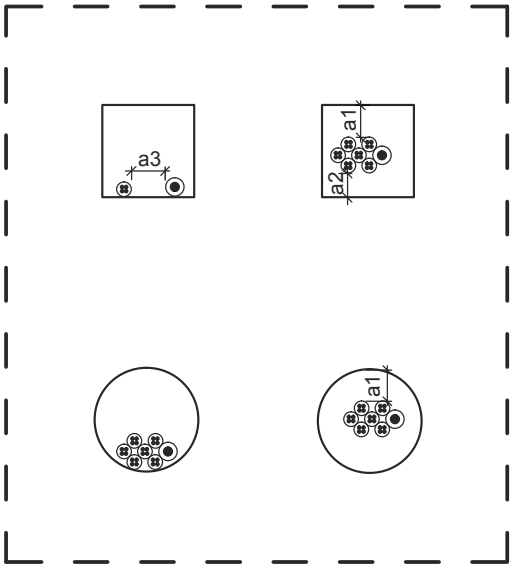
Minimum working clearances



Legend

a1: Penetrating element – top edge of aperture
a2: Penetrating element – lower or lateral edge of aperture
a3: Penetrating element – penetrating element

Minimum working clearances

Penetrating elements	a1	a2	a3
Sheathed electrical cables, telecommunication cables, optical fibre cables up to a maximum outer diameter of 21 mm	0 mm	0 mm	0 mm
Between two through penetration firestop systems of this approval			50 mm

Fire resistance classifications – mixed penetration seal

Installation in flexible walls or rigid walls with a thickness ≥ 100 mm or in rigid floors with a thickness ≥ 150 mm.

Penetrating elements		Walls (minimum thickness 100 mm) Minimum seal thickness 150 mm Minimum fill depth 2 x 15 mm	Floors (minimum thickness 150 mm) Minimum seal thickness 150 mm Minimum fill depth 2 x 15 mm
Cables	Sheathed electrical cables, telecommunication cables, optical fibre cables up to a maximum outer diameter of 21 mm	E 120/EI 90	E 120/EI 120

Particularities for installation in rigid walls with a thickness of less than 150 mm

- If the thickness of the rigid wall in the area of the through penetration firestop system is less than the required minimum seal thickness, then all around the opening, either an enclosing lining (see Fig . 2) or a board frame (see Fig. 1) of non-flammable drywall or silicate or calcium silicate boards (class A2-s1, d0 or A1 in accordance with EN 13501-1) must be provided.
- The individual lining parts (at least 2 x 12.5 mm or at least 25 mm thick and in accordance with the minimum seal thickness 150 mm deep) are jammed together in the opening. The joint between rigid wall and lining must be sealed, for example, with plaster filler. Fastening with screws can be dispensed with.
- Board frames must be at least 50 mm wide. The thickness must be selected in such a manner that the minimum seal thickness of 150 mm can be produced. For fastening, screws and metal anchors or screw anchors that are sufficiently large/long and suitable for the substrate must be used. In aerated concrete dry-wall screws or chipboard screws without dowels must be used. At least two screws per board must be used, the distance between screws must be a maximum of 150 mm.

Particularities for installation in rigid floors

- Through penetration firestop systems in floors must be safeguarded against loads, particularly they must be safeguarded against being walked on, through a grate covering or enclosure.

System Knauf Fire protection silicone - FPS
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Particularities for installation in flexible walls

- If a lining is not used (installation, see below), the cavity between the boards of the flexible wall must be plugged tightly with mineral wool (melting point ≥ 1000 °C, minimum density 40 kg/m³) at least 10 cm around the perimeter.
- For timber stud walls, at least a distance of 100 mm between the through penetration firestop system and timber studs must be present, and the cavity between must be plugged with mineral wool (classification A2-s1, d0 or A1 in accordance with EN 13501-1). The timber stud cross section should be at least 50 mm x 75 mm (width x depth).

Particularities for installation in flexible walls with a thickness of less than 150 mm

- If the thickness of the flexible wall in the area of the through penetration firestop system is less than the required minimum seal thickness, then all around the opening, either an enclosing lining (see Fig. 2) or a board frame (see Fig. 1) of non-flammable drywall or silicate or calcium silicate boards (class A2-s1, d0 or A1 in accordance with EN 13501-1) must be provided.
- The individual lining parts (at least 2 x 12.5 mm or at least 25 mm thick and in accordance with the minimum seal thickness 150 mm deep) are jammed together in the opening. The joint between flexible wall and lining must be sealed, for example, with plaster filler. Fastening with screws can be dispensed with.
- Board frames must be at least 50 mm wide. The thickness must be selected in such a manner that the minimum seal thickness of 150 mm can be produced. For fastening, dry-wall screws or chipboard screws that are sufficiently large/long must be used. At least two screws per board must be used, the distance between screws must be a maximum of 150 mm.

Board frame and lining (only required in walls with thickness of less than 150 mm)

Fig. 1

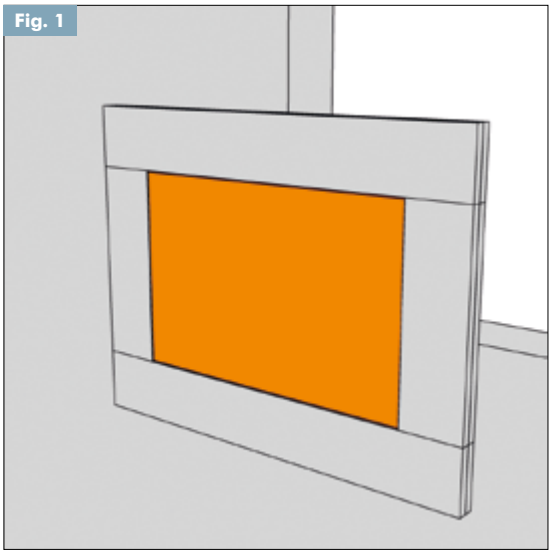

Fig. 1:

Board frame for rigid wall and flexible wall (arranged either on one side or both sides)

Fig. 2

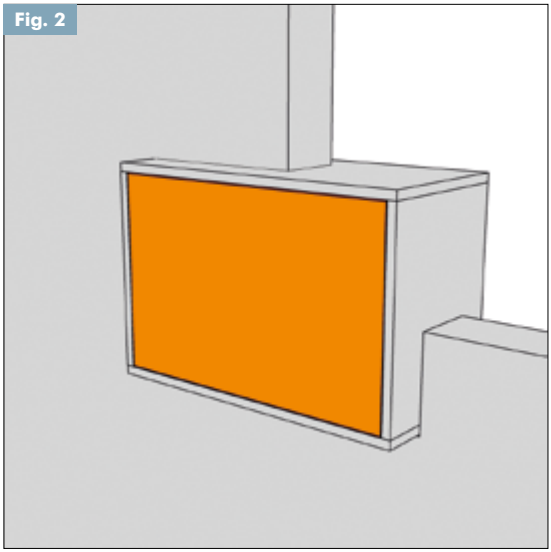

Fig. 2:

Lining for flexible wall and rigid wall (either flush on one side or centered)

System Knauf Fire protection silicone - FPS
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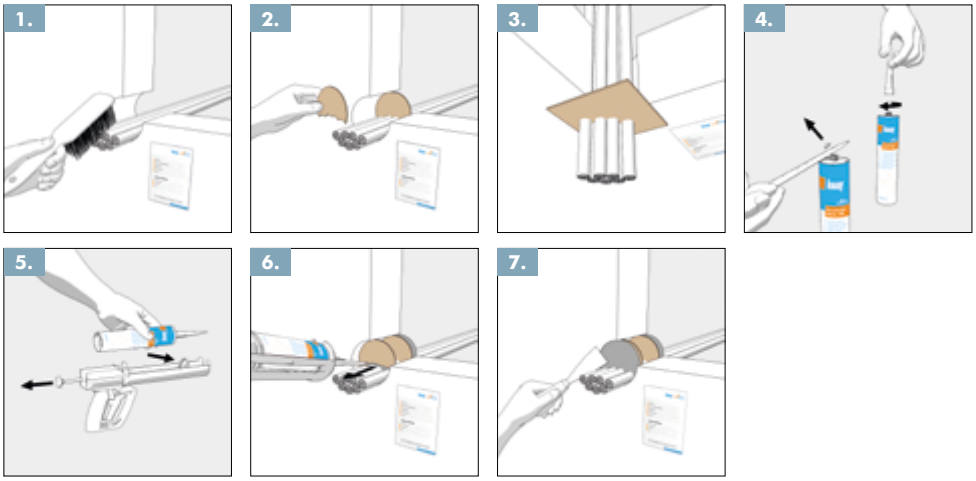


Installation steps

The approval, ETA 18/0105, and the respective national regulations are authoritative for execution of the through penetration firestop system.

1. Clean before installing the component aperture. Surfaces on which the Knauf Fire protection silicone FPS is applied should be free of dirt, oil, wax and grease.
2. Backfill material, consisting of mineral wool, cardboard or polyethylene (e.g. PE round cords) can be used. It must be ensured that the minimum fill depth of the Knauf Fire protection silicone - FPS can be complied with.
3. For larger openings in floors the use of a formwork on the underside of the floor (e.g. cardboard) is recommended. This can remain on the through penetration firestop system.
4. Hold the cartridge vertically, cut off the tip with a sharp knife, and screw on the nozzle. The nozzle can be shortened as needed.
5. Insert the cartridge into the intended dispensing gun.
6. Knauf Fire protection silicone - FPS must be filled in uniformly into the opening from back to front.
7. A good contact with the component aperture must be established through pressing on and smoothing, e.g. with a smoothing trowel. Smoothing of the surface must occur within the skin-forming time. A smoothing agent that is compatible with silicone sealant may be used.

   Good aeration is recommended during the processing and hardening phase.

Retroactive-installation of cables

- New penetrating elements are routed through the existing cable penetration seal. Use a suitable cutting / drilling tool to make sufficiently large openings in the penetration seal. (In compliance with the necessary protective measures and safety regulations)
- Cavities or gaps around the newly added penetrating elements or due to removed cables must be refilled with Knauf Fire protection silicone FPS.
- The newly added penetrating elements must satisfy all ETA requirements. (e.g. first support).

Supplemental national requirements

Germany

- The through penetration firestop system must be permanently marked with an identification plate.
- After the tasks have been concluded a written confirmation of conformance must be given to the client.

System Knauf Fire protection silicone - FPS
ETA 18/0105

Product data – Knauf Fire protection silicone - FPS

Description:	Elastic RTV-1 silicone (room-temperature cross-linkage, 1-component, oxime system) with halogen-free fire protection additives
Reaction to fire in accordance with DIN EN 13501-1:	Class E
Reaction to fire in accordance with DIN 4102:	DIN 4102-B1 in accordance with AbP P-BWU03-I-16.5.352 (in combination with solid mineral substrates in joints with a width of ≤ 40 mm and a joint depth ≤ 15 mm)
Implementation areas:	Knauf Fire protection silicone - FPS can be used as ■ Cable penetration seal up to a fire resistance class EI 120 and as ■ Firestop joint seal up to a fire resistance class EI 180 (see ETA 17/0778)
Approvals/certificates:	■ European Technical Approval ETA 18/0105, OIB ■ EC Certificate of Conformity 0761-CPD-0302, MPA Braunschweig ■ Emissions-assessed construction product in accordance with DIBt principles in accordance with Approval Z-200.2-48, DIBt ■ European Technical Approval ETA 17/0778, OIB (firestop joint seal) ■ EC Certificate of Conformity 0761-CPD-0265, MPA Braunschweig ■ Emissions-assessed construction product in accordance with DIBt principles in accordance with Approval Z-200.3-27, DIBt ■ Satisfies the requirements specified in DIN EN ISO 11600 Type F Class 20 LM
Colour:	Cement grey
Content:	310 ml (cartridge)
Transport/storage:	5 °C to 30 °C (dry, in original containers)
Application temperature:	5 °C to 30 °C
Skin-forming time:	Approx. 10 minutes (at 23 °C and 50 % rel. humidity)
Vulcanisation/hardening:	Approx. 2 mm in 24 hours (at 23 °C/50 % rel. humidity)
Viscosity:	Pasty, non-sag
Bulk density:	1000 kg/m³ to 1300 kg/m³
Safety notices:	Contains a mixture of butanone oxime silanes and butanone oxime. Can cause allergic reactions. Safety data sheet available on request.

Testing the fire safety properties under environmental influences

Permissible ambient conditions:

In accordance with ETAG 026-2 or ETAG 026-3:	Use category X Products for use in outdoor areas, as well as indoor areas.


KNAUF
FIREWINI
Fire protection silicone - FPS
310 ml

System Knauf Fire protection silicone - FPS

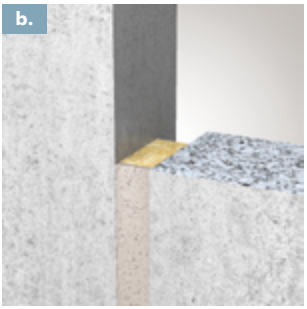
for firestop joint seals up to EI 180

System Knauf Fire protection silicone - FPS restores the fire resistance classification in areas of joints in walls and floors.

System Knauf Fire protection silicone - FPS
ETA 17/0778

Knauf Fire protection silicone - FPS is used to seal construction joints in rigid walls and rigid floors to satisfy the requirements in accordance with ISO 11600 and the requirements for the fire resistance class up to EI 180 in accordance with ETA 17/0778.

a. *System Knauf Fire protection silicone - FPS on two sides with PE round cord as backfill*



b. *System Knauf Fire protection silicone - FPS on one side with mineral wool as backfill*

Specially suited for:

Expansion and movement joints, construction joints in accordance with ISO 11600 and firestop joints up to EI 180 (up to 25% lateral expansion and 25% shear)

Fundamentals

- For execution of the firestop joint seal, System Knauf Fire protection silicone - FPS, the European technical approval ETA 17/0778 issued by the Austrian Institute for Building Technology (Österreichisches Institut für Bautechnik) is authoritative.
- All technical specifications, such as permissible joint widths, wall types/floor types, fire resistance classes, etc. are provided in the approval.
- It must be ensured that the stability of the adjacent component is not impaired through installation of the firestop joint seal even in the event of fire. The information specified in the usability certification of the component must be complied with.
- All applicable directives and technical rules of other trades must be complied with.
- In accordance with ETAG 026-3, the firestop joint seal can be assigned to use category X. This means that Kauf Fire protection silicone - FPS can be used in outdoor areas as well as indoor areas.

Permissible install locations of the firestop joint seal

Components	Construction type	Classification of the component	Minimum component density
Rigid wall	Aerated concrete, concrete, reinforced concrete, masonry	The component must be classified for the required fire resistance class in accordance with EN 13501-2	450 kg/m³
Rigid floor	Aerated concrete, concrete, reinforced concrete		450 kg/m³

System components

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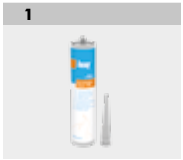


Designation	Art. no.	PU
1. Knauf Fire protection silicone - FPS, 310 ml	586148	20

System Knauf Fire protection silicone - FPS
ETA 17/0778

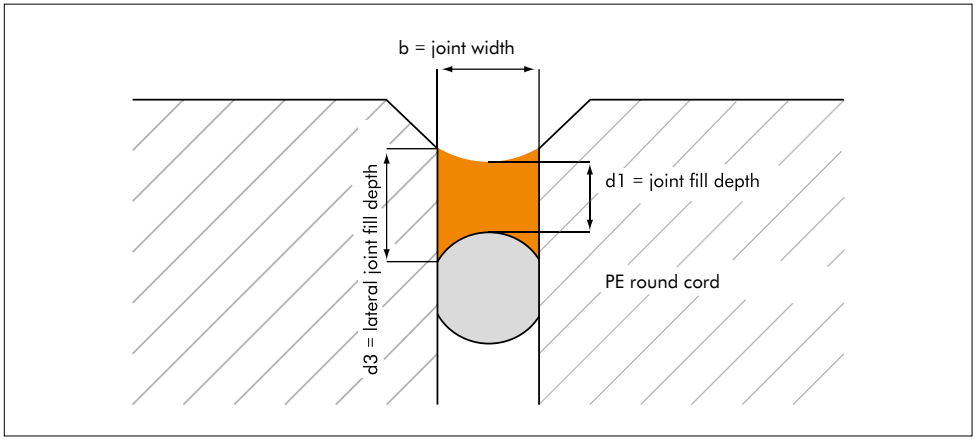
General instructions

Knauf Fire protection silicone - FPS is a joint sealant that is suitable for sealing construction joints, and simultaneously is approved as a product for firestop joints through a European Technical Approval. Knauf Fire protection silicone - FPS is not suitable for sealing joints that get high mechanical vertical pressure stress, e.g. through in situ water or high traffic loads.

The following verifications and classifications are available for Knauf Fire protection silicone - FPS:

- DIN EN ISO 11600-F-20LM und DIN EN ISO 11600-F-12,5E (Building construction – Jointing products)
- Approved construction product in accordance with European Technical Approval ETA 17/0778 for production of fire-resistant linear joint seals, classification of firestop joints up to a fire resistance class of EI 180 in accordance with DIN EN 13501-2
- Emissions-assessed construction product in accordance with General Technical Approval Z-200.3-27
- Reaction to fire in accordance with DIN 4102-B1
- Reaction to fire in accordance with DIN EN 13501-1, Class E
- Use category X (outdoor use) in accordance with ETAG 026-3

Correctly dimensioning and producing joints



Collectively the following rules should be complied with as a rule of thumb for proper dimensioning of the joint:

Joint fill depth d1 = 0.5 * joint width b
Minimum fill depth d1 ≥ 6 mm
Maximum joint fill depth d1 ≤ 15 mm

If the selected fill depth of the sealant is insufficient, its mechanical stability is reduced. If possible, expansion joints should not be narrower than 10 mm. The thickness of the joint sealant should be greater on the joint flank than it is in the middle of the joint. Thus the forces that occur in the event of expansion, can be introduced into the joint flank over a larger contact surface. Therefore adhesion cracks on the joint flank are prevented.

Lateral joint fill depth d3 = 2/3 * joint width b

(Source: German Sealant Manufacturers Association)
(Industrieverband Dichtstoffe e.V.)

It must be ensured that the substrate on which the silicone should adhere, has sufficient load-bearing capacity and can absorb the forces that can occur with expansion movements and shear movements. The surface of the joint flanks must be free of dust, sand, grease, oil, (e.g. formwork oil), cement laitance and paint residues.

To improve the adhesion of Knauf Fire protection silicone - FPS on mineral materials, (e.g. concrete, aerated concrete) and on absorbent materials (e.g. gypsum, fibre cement), the joint flanks must be pre-treated with a primer (e.g. Otto Primer 1105). Thorough preparation of the joint flanks is important particularly in the case of high mechanical stress of the joint seal in the form of lateral movements and shear movements.

Movement capacity of the sealant

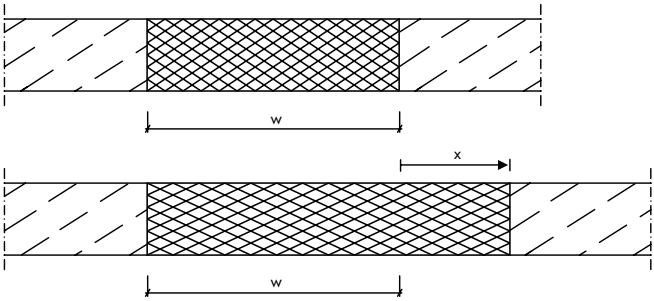
The movement capacity of the sealant is limited to specific values in accordance with DIN EN ISO 11600 and ETA 17/0778. The movement capacity is defined as an absolute amount, starting from the tension free zero position.

Example:
A movement capacity of 20% permits movements of the joint of +/– 10% or – 5% (compression) and + 15% (expansion).

Calculation of the permissible lateral displacement of two joint flanks

Formula:

$$x = \frac{mc + 100}{100} * w - w$$



Example: Joint width 40 mm, movement capacity System Knauf Fire protection silicone - FPS mc = 25%

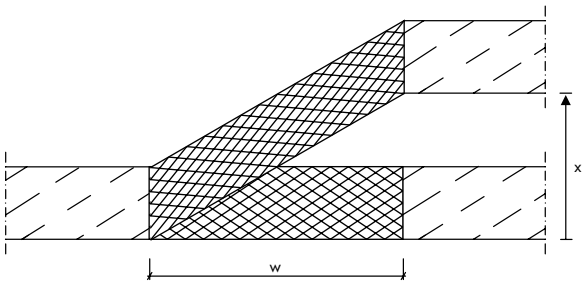
$$x = \frac{25 + 100}{100} * 40 - 40 = 10 \text{ mm}$$

x = Permissible lateral displacement (expansion / compression) of two joint flanks [mm]
w = Nominal joint width [mm]
mc = Movement capacity (lateral expansion) of the joint seal [%]

Calculation of the permissible vertical displacement of two joint flanks

Formula:

$$x = w\sqrt{\frac{mc}{100} * \left(2 + \frac{mc}{100}\right)}$$



Example: Joint width 40 mm, movement capacity System Knauf Fire protection silicone - FPS mc = 25%

$$x = 40 * \sqrt{\frac{25}{100} * \left(2 + \frac{25}{100}\right)} = 30 \text{ mm}$$

x = Permissible vertical displacement (shear) of two joint flanks [mm]
w = Nominal joint width [mm]
mc = Movement capacity (shear) of the joint seal [%]

Application classes

System Knauf Fire protection silicone - FPS can be used in rigid walls and floors.
It offers a variety of application possibilities for safe sealing of component joints. The various application classes are described below. An overview is provided in the table on page 29.

Application class 1: Fulfillment of the requirements in accordance with DIN EN ISO 11600-F-20LM

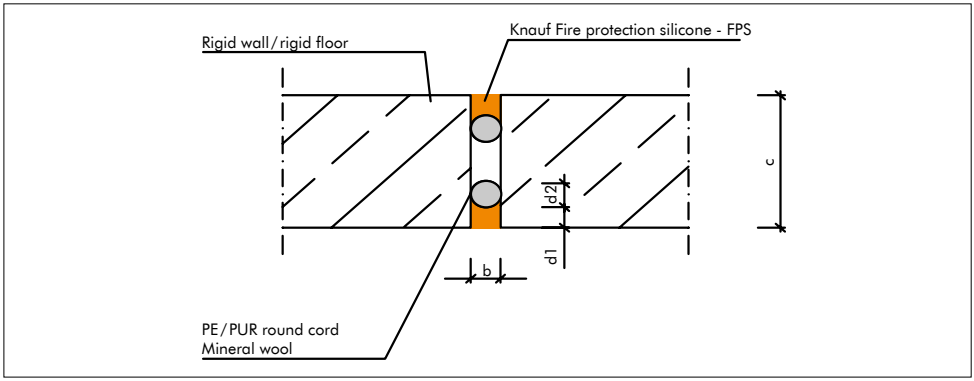
- Backfill with a PE/PUR round cord
- Movement capacity 20%
- Type of movement: Lateral expansion or shear
- Fill depth as specified in “Correctly dimensioning and producing joints” (see above)

System Knauf Fire protection silicone - FPS
ETA 17/0778

Application class 2:

Fulfillment of the requirements in accordance with DIN EN ISO 11600 with verified fire resistance classification in accordance with ETA 17/0778

Application class 2A: Fulfillment of the requirements in accordance with DIN EN ISO 11600-F-12,5E and fire resistance classification up to EI 120 in accordance with ETA 17/0778

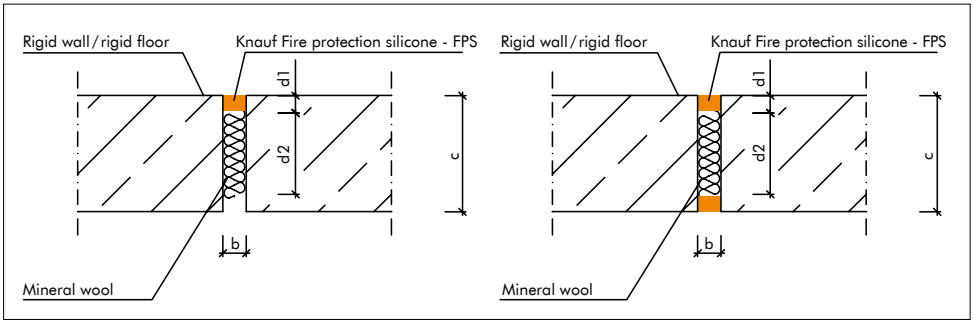


- Backfill with a PE / PUR round cord
- Movement capacity 12.5%, maximum values around tension-free zero position +7.5% and –7.5%
- Type of movement: Lateral expansion or shear
- Joint widths up to 40 mm
- Fill depth as specified in "Correctly dimensioning and producing joints" (see above)
- Component thickness from 150 mm
- Joint seal on both sides

Joint width b [mm]	Component thickness c [mm]	Joint depth d1 [mm]	Minimum thickness backfill d2 [mm]	Fire resistance classification
5 to 40	150	d1 = 0.5 * b and 6 ≤ d1 ≤ 15	≥ b	up to EI 90-V-X-F-W 5 to 40 up to EI 90-H-X-F-W 5 to 40

EI 90	Compliance with the criterion for integrity and temperature insulation over a period of at least 90 minutes
V/H	Vertical or horizontal (adjacent to floors) joint in walls or horizontal joint in floors
X	Movement capacity, maximum values around tension-free zero position +7.5% or –7.5%
F	Produced on site
W 5 to 40	Range of the joint widths in mm

Application class 2B: Fulfillment of the requirements in accordance with DIN EN ISO 11600-F-20LM and fire resistance classification up to EI 120 in accordance with ETA 17/0778



- Backfill with mineral wool (density ≥ 40 kg/m³, thickness ≥ 100 mm, melting point > 1000 °C)
- Movement capacity 20 %
- Type of movement: Lateral expansion or shear
- Joint widths up to 40 mm
- Fill depth as specified in "Correctly dimensioning and producing joints"
- Component thickness from 150 mm
- Joint seal on both sides or one side

Notes:

- The mineral wool that has to be pushed into the joint must consist of a strip that has been cut to size with overdimensions appropriate for the expansion.
- To improve durability, a plastic foil can be inserted between Knauf Fire protection silicone - FPS and the mineral wool.
- If movement regularly occurs, execution on both sides is recommended, or in floors execution as joint seal on the underside of the floor is recommended.

Joint width b [mm]	Component thickness c [mm]	Joint depth d1 [mm]	Minimum thickness backfill d2 [mm]	Fire resistance classification
5 to 40	150	d1 = 0.5 * b and 6 ≤ d1 ≤ 15	≥ 100	up to EI 120-V-M020-F-W 5 to 40 up to EI 120-H-M020-F-W 5 to 40

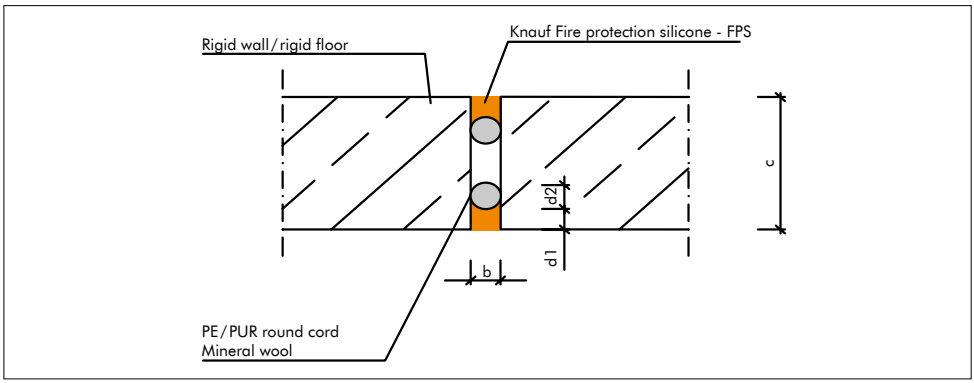
EI 120	Compliance with the criterion for integrity and temperature insulation over a period of at least 120 minutes
V/H	Vertical or horizontal (adjacent to floors) joint in walls or horizontal joint in floors
M020	Movement capacity 20 %
F	Produced on site
W 5 to 40	Range of the joint widths in mm

System Knauf Fire protection silicone - FPS
ETA 17/0778

Application class 3:

Firestop joints in accordance with ETA 17/0778 with minimal movement capacity

Application class 3A: Fire resistance classification up to EI 90 in accordance with ETA 17/0778



- Backfill with a PE/PUR round cord
- Movement capacity 15%, maximum values around tension-free zero position + 7.5% and –7.5%
- Type of movement: Lateral expansion or shear
- Joint widths up to 40 mm
- Minimum fill depth 5 mm
- Component thickness from 150 mm
- Joint seal on both sides

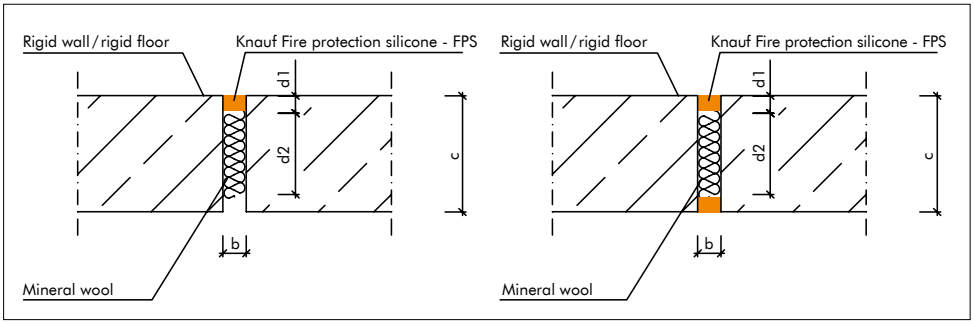
Notes:

- If movement regularly occurs, we recommend selecting the fill depth as specified in the section, "Correctly dimensioning and producting joints" (see above).

Joint width b [mm]	Component thickness c [mm]	Joint depth d1 [mm]	Minimum thickness backfill d2 [mm]	Fire resistance classification
5 to 40	150	d1 ≥ 15	≥ b	up to EI 90-V-X-F-W 5 to 40 up to EI 90-H-X-F-W 5 to 40

EI 90	Compliance with the criterion for integrity and temperature insulation over a period of at least 90 minutes
V/H	Vertical or horizontal (adjacent to floors) joint in walls or horizontal joint in floors
X	Movement capacity, maximum values around tension-free zero position + 7.5% or –7.5%
F	Produced on site
W 5 to 40	Range of the joint widths in mm

Application class 3B: Fire resistance classification up to EI 180 in accordance with ETA 17/0778



- Backfill with mineral wool (density ≥ 40 kg/m³, thickness ≥ 90 mm, melting point > 1000 °C)
- Movement capacity 15 %, maximum values around tension-free zero position + 7.5 % and – 7.5 %
- Type of movement: Lateral expansion or shear
- Joint widths up to 40 mm
- Minimum fill depth 5 mm
- Component thickness from 100 mm (rigid walls) or 150 mm (rigid floors)
- Joint seal on both sides or one side

Notes:

- The mineral wool that has to be pushed into the joint must consist of a strip that has been cut to size with overdimensions appropriate for the expansion.
- To improve durability, a plastic foil can be inserted between Knauf Fire protection silicone - FPS and the mineral wool.
- If movement regularly occurs, we recommend selecting the fill depth as specified in the section, "Correctly dimensioning and producting joints" (see above). In addition, execution on both sides is recommended, or in floors execution as joint seal on the underside of the floor is recommended.

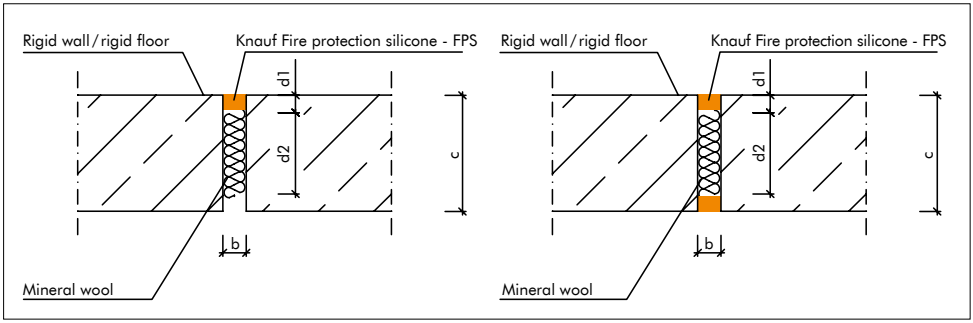
Joint width b [mm]	Component thickness c [mm]	Joint depth d1 [mm]	Minimum thickness backfill d2 [mm]	Fire resistance classification
Wall: 5 to 40	100	≥ 5	≥ 90	up to EI 180-V-X-F-W 5 to 40 up to EI 180-H-X-F-W 5 to 40
Floor: 5 to 40	150	≥ 5	≥ 90	up to EI 120-H-X-F-W 5 to 40

EI 120/ EI 180	Compliance with the criterion for integrity and temperature insulation over a period of at least 120 / 180 minutes
V/H	Vertical or horizontal (adjacent to floors) joint in walls or horizontal joint in floors
X	Movement capacity, maximum values around tension-free zero position + 7.5 % or – 7.5 %
F	Produced on site
W 5 to 40	Range of the joint widths in mm

System Knauf Fire protection silicone - FPS
ETA 17/0778

Application class 4:

Firestop joints in accordance with ETA 17/0778 with high movement capacity



- Backfill with mineral wool (density ≥ 40 kg/m³, thickness ≥ 100 mm, melting point > 1000 °C)
- Movement capacity 25 %
- Type of movement: Lateral expansion or shear
- Joint widths up to 40 mm
- Minimum fill depth 5 mm
- Component thickness from 150 mm
- Joint seal on both sides or one side

Notes:

- The mineral wool that has to be pushed into the joint must consist of a strip that has been cut to size with overdimensions appropriate for the expansion.
- To improve durability, a plastic foil can be inserted between Knauf Fire protection silicone - FPS and the mineral wool.
- If movement regularly occurs, we recommend selecting the fill depth as specified in the section, "Correctly dimensioning and producing joints" (see above). In addition, execution on both sides is recommended, or in floors execution as joint seal on the underside of the floor is recommended.

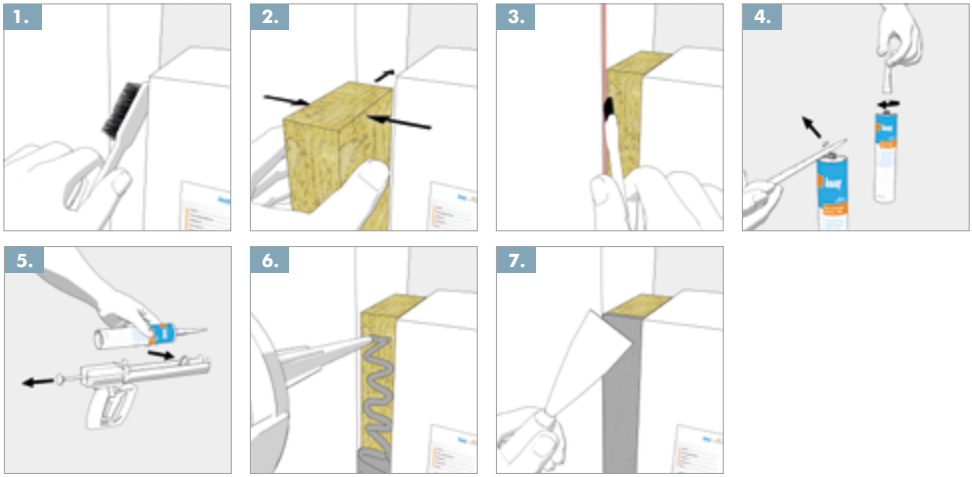
Joint width b [mm]	Component thickness c [mm]	Joint depth d1 [mm]	Minimum thickness backfill d2 [mm]	Fire resistance classification
5 to 40	150	≥ 5	≥ 100	up to EI 120-V-M025-F-W 5 to 40 up to EI 120-H-M025-F-W 5 to 40

EI 120	Compliance with the criterion for integrity and temperature insulation over a period of at least 120 minutes
V/H	Vertical or horizontal (adjacent to floors) joint in walls or horizontal joint in floors
M025	Movement capacity 25 %
F	Produced on site
W 5 to 40	Range of the joint widths in mm

Overview of application classes

Construction joint	Firestop joints		
Application class 1 **Construction joint in accordance with DIN EN ISO 11600** **Movement capacity 20%**	**Application class 2** **DIN EN ISO 11600 + ETA 17/0778** **Movement capacity up to 20%**	**Application class 3** **ETA 17/0778** **Movement capacity 15%**	**Application class 4** **ETA 17/0778** **Movement capacity 25%**
1: DIN EN ISO 11600-F-20L ■ Backfill with PE round cord ■ Movement capacity 20% ■ Type of movement: Lateral expansion or shear ■ Fill depth as specified in "Correctly dimensioning and producing joints"	**2A: DIN EN ISO 11600-F12, 5E + EI 120** ■ Backfill with PE round cord ■ Movement capacity 12.5%, maximum values around tension-free zero position +7.5% and –7.5% ■ Type of movement: Lateral expansion or shear ■ Joint widths up to 40 mm ■ Fill depth as specified in "Correctly dimensioning and producing joints" (see above) ■ Component thickness from 150 mm ■ Joint seal on both sides	**3A: EI 90** ■ Backfill with PE round cord ■ Movement capacity 15%, maximum values around tension-free zero position +7.5% and –7.5% ■ Type of movement: Lateral expansion or shear ■ Joint width up to 40 mm ■ Minimum fill depth 5 mm ■ Component thickness from 150 mm ■ Joint seal on both sides	**4: EI 120** ■ Backfill with mineral wool (density ≥ 40 kg/m³, thickness ≥ 100 mm) ■ Movement capacity 25% ■ Type of movement: Lateral expansion or shear ■ Joint widths up to 40 mm ■ Minimum fill depth 5 mm ■ Component thickness from 150 mm ■ Joint seal on both sides or one side
	2B: DIN EN ISO 11600-F-20LM + EI 120 ■ Backfill with mineral wool (density ≥ 40 kg/m³, thickness ≥ 100 mm) ■ Movement capacity 20% ■ Type of movement: Lateral expansion or shear ■ Joint widths up to 40 mm ■ Fill depth as specified in "Correctly dimensioning and producing joints" ■ Component thickness from 150 mm ■ Joint seal on both sides or one side	**3B: EI 180 (walls) / EI 120 (floors)** ■ Backfill with mineral wool (density ≥ 40 kg/m³, thickness ≥ 90 mm) ■ Movement capacity 15%, maximum values around tension-free zero position +7.5% and –7.5% ■ Type of movement: Lateral expansion or shear ■ Joint widths up to 40 mm ■ Minimum fill depth 5 mm ■ Component thickness from 100 mm (rigid walls) or 150 mm (rigid floors) ■ Joint seal on both sides or one side	

System Knauf Fire protection silicone - FPS
ETA 17/0778



Installation steps

The approval, ETA 17/0778 and the respective national regulations are authoritative for execution of the firestop joint seal. It has to be taken into account that depending on the application class (see above) it can be necessary to seal the joint on both sides of the component.

1. Before use, ensure that the materials in the contact area are compatible with the sealant. Before installation clean the joint flanks. Surfaces on which Knauf Fire protection silicone - FPS is applied should be free of dust, sand, grease, oil, (e.g. formwork oil), cement laitance and paint residues. In addition it must be ensured that the substrate has sufficient load-bearing capacity. Material that is located in the joint can remain, with the prerequisite that the minimal thickness of Knauf - Fire protection silicone - FPS, as well as the required backfill material can be inserted.
2. The suitable backfill material must be selected and used. A sufficient fill depth must be kept free for Knauf Fire protection silicone - FPS. If using mineral wool as backfill, the mineral wool that has to be pushed into the joint must consist of a strip that has been cut to size with overdimensions appropriate for the expansion.

3. On mineral and absorbent substrates, and in the case of high mechanical stress of the joint, bonding is improved with aid of a primer (Otto Primer 1105). The primer must be uniformly applied to the joint flanks with a brush. The flash-off time specified by the manufacturer must be complied with.
4. Hold the cartridge vertically, cut off the tip with a sharp knife, and screw on the nozzle. The nozzle can be shortened as needed.
5. Insert the cartridge into the intended dispensing gun.
6. Knauf Fire protection silicone - FPS must be filled in uniformly into the joint, starting from the backfill. For wide joints, the sealant should first be filled in on the joint flanks, then the joint can be filled upwards.
7. A good contact with the joint flanks must be established through pressing on and smoothing, e.g. with a smoothing trowel. The joint must be smoothed within the skin-forming time of the sealant. A smoothing agent that is compatible with the joint seal may be used.

   Good aeration is recommended during the processing and hardening phase.

Calculation scheme: Running meter per cartridge, each 310 ml (one side)

Joint depth [mm]	Joint width [mm]											
	5	6	7	8	10	12	15	20	25	30	35	40
5	12.4	10.3	8.8	7.7	6.2	5.1	4.1	3.1	2.4	2.0	1.7	1.5
6	10.3	8.6	17.3	6.4	5.1	4.3	3.4	2.5	2.0	1.7	1.4	1.2
7	8.8	7.3	6.3	5.5	4.4	3.6	2.9	2.2	1.7	1.4	1.2	1.1
8	7.7	6.4	5.5	4.6	3.8	3.2	2.5	1.9	1.5	1.2	1.1	0.9
10	6.2	5.1	4.4	3.8	3.1	2.5	2.0	1.5	1.2	1.0	0.8	0.7
12	5.1	4.3	3.6	3.2	2.5	2.1	1.7	1.2	1.0	0.8	0.7	0.6
15	4.1	3.4	2.9	2.5	2.0	1.7	1.3	1.0	0.8	0.6	0.5	0.5

This calculation scheme does not take any fluctuations of the joint geometry into account or any material loss that occurs when smoothing the joint. Consequently, we always recommend that you plan with material requirements that are higher than shown in the calculation.

System Knauf Fire protection silicone - FPS
ETA 17/0778

Product data – Knauf Fire protection silicone - FPS

Description:	Elastic RTV-1 silicone (room-temperature cross-linkage, 1-component, oxime system) with halogen-free fire protection additives
Reaction to fire in accordance with DIN EN 13501-1:	Class E
Reaction to fire in accordance with DIN 4102:	DIN 4102-B1 in accordance with AbP P-BWU03-I-16.5.352 (In combination with solid mineral substrates in joints with a width of ≤ 40 mm and a joint depth ≤ 15 mm)
Implementation areas:	Knauf Fire protection silicone - FPS can be used as ▪ Firestop joint seal up to a fire resistance class EI 180, and as ▪ Cable penetration seal up to a fire resistance class EI 120 (see ETA 18/0105)
Approvals / certificates:	▪ European Technical Approval ETA 17/0778, OIB ▪ EC Certificate of Conformity 0761-CPD-0265, MPA Braunschweig ▪ Emissions-assessed construction product in accordance with DIBt principles in accordance with Approval Z-200.3-27, DIBt ▪ Satisfies the requirements specified in DIN EN ISO 11600 Type F Class 20 LM ▪ European Technical Approval ETA 18/0105, OIB (cable penetration seal) ▪ EC Certificate of Conformity 0761-CPD-0302, MPA Braunschweig ▪ Emissions-assessed construction product in accordance with DIBt principles in accordance with Approval Z-200.2-48, DIBt
Colour:	Cement grey
Content:	310 ml (cartridge)
Transport / storage:	5 °C to 30 °C (dry, in original containers)
Application temperature:	5 °C to 30 °C
Skin-forming time:	Approx. 10 minutes (at 23 °C and 50% rel. humidity)
Vulcanisation / hardening:	Approx. 2 mm in 24 hours (at 23 °C / 50% rel. humidity)
Viscosity:	Pasty, non-sag
Bulk density:	1000 kg/m³ to 1300 kg/m³
Safety notices:	Contains a mixture of butanone oxime silanes and butanone oxime. Can cause allergic reactions. Safety data sheet available on request.

Supplemental national requirements

Germany

- After the tasks have been concluded a written confirmation of conformance must be given to the client.

Testing the fire safety properties under environmental influences

Permissible ambient conditions:

In accordance with ETAG 026-2 or ETAG 026-3:

Use category X
Products for use in outdoor areas, as well as indoor areas.

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