Fire protection foam PYROSIT® NG

Mounting instructions

THINK CONNECTED.

03/2016 EN

Fire protection foam PYROSIT® NG

Mounting instructions

Table of contents

1 About these instructions 4

1.1 Target group 4
1.2 Using these instructions 4
1.3 Types of safety information 4
1.4 Correct use 5
1.5 Applicable documents 5
1.6 Basic standards and regulations 5
1.7 General safety information 5

2 Product description, fire protection foam PYROSIT® NG. . . . 6

2.1 Basic principles 6
2.2 System components 6
2.3 Accessories 7
2.4 Product data 7
2.5 Examination of the fire protection properties under environmental influences 8
2.6 Influence of the material temperature on processing 8
2.7 Declaration of performance 8

3 Approved installations and installation locations 9

3.1 General information 9
3.2 Support of pipes and cables for insulation in ceilings and walls 10
3.3 Approved installation locations of the insulation systems 11
3.4 Approved installations 12
3.5 Minimum spacings between installations 15
3.6 Fire resistance classifications, combination insulation 17
3.7 Fire resistance classifications, cable insulation 18

4 Creating insulation 19

4.1 Creating tunings and frames 19
4.2 Creating insulation for solid walls and ceilings 21
4.3 Creating insulation for lightweight walls 22
4.4 Preparing the cartridge for use 24
4.5 Processing the cable coil FBA-WI 25
4.6 Processing the foam block PYROPLUG® Block 25
4.7 Attaching the identification plate 25
4.8 Retroinstallation of cables and pipes 26
4.9 Tips and notes 26
4.10 Other national requirements 26

5 Maintenance 27

6 Disposal 27

7 Appendix – declaration of conformity (sample). 29

1 About these instructions

1.1 Target group

These instructions are aimed at installation engineers trained in fire protection.

1.2 Using these instructions

- These instructions are based on the standards valid at the time of compilation (March 2016).
- Before commencing work, read these instructions through once completely.
- Keep all the documents supplied with the system safe, so that the information is available should you need it.
- We will not accept any warranty claims for damage caused through non-observance of these instructions.
- Any images are intended merely as examples. Mounting results may look different.
- In these instructions, cables and lines are referred to simply as cables.
- To find out more about planning and mounting of the system, we recommend a comprehensive training course.

1.3 Types of safety information

CAUTION	**Type of risk!** Shows a possibly risky situation. If the situation is not avoided, then light or minor injury may result.

Note	*Indicates important information or assistance!*

1.4 Correct use

Fire protection foam PYROSIT® NG is a fire protection insulation system for building interiors, used to close openings in fire-resistant walls or ceilings, through which cables or electrical installation pipes are run. In case of fire, this prevents the spread of fire and smoke in the area of the penetration.

The system is not designed for any other purpose than the one described here. If the system is installed and used for another purpose, any liability, warranty or damage claims shall be rendered null and void.

1.5 Applicable documents

- Declaration of conformity 05-100_EKG_0761-CPD-0211_PYROSIT-NG
- Declaration of performance 05-100_DOP_05-CPR-001_PYROSIT-NG
- European Technical Approval ETA-11/0527
- Safety data sheet "Fire protection foam PYROSIT® NG“

1.6 Basic standards and regulations

- EN 1366 Part 3
- EN 13501 Parts 1 and 2
- EN 1363
- EU BauPVO (CPR)

1.7 General safety information

- Observe the following general safety information on handling the system:
- Fire protection foam PYROSIT® NG is not suitable for improving the stability of a wall or ceiling. Structural measures must be taken to ensure that the wall/ceiling is sufficiently stable, despite the opening, without the application of an insulation system.
- The European Technical Approval ETA-11/0527 of the Austrian Institute of Construction Engineering has priority when creating the fire insulation.
- Refer to the approval for all the technical specifications, such as the permitted insulation size, wall/ceiling types, fire resistance classes, installations and their first support, working areas, etc.
- It must be ensured that the installation of the fire insulation does not compromise the stability of the adjacent element – even in the event of a fire. Consult the proof of application of the component.
- All the appropriate regulations and technical regulations of other units, in particular those for electrical engineering, must be observed and complied with.
- Fire insulation in ceilings must be safeguarded against loads, in particular including being walked on, by means of suitable measures (e.g. through protectors or covering them with grating).
- According to ETAG 026-2, the insulation system is to be assigned to the use category Z1. This means that the approved ambient conditions for the use of the product are interiors with any moisture and temperatures above 0 °C.
- Observe the safety data sheets of the products.
- Always wear suitable protective glasses and protective gloves when handling fire protection foam PYROSIT® NG.

2 Product description, fire protection foam PYROSIT® NG

2.1 Basic principles

Fire protection foam PYROSIT® NG is a fire protection insulation system for lightweight partition walls, solid walls and solid ceilings in interior areas with and without moisture.

Correct mounting ensures that the insulation system prevents the cold smoke gases, created during the initial stages of fire, from spreading into adjacent areas. This prevents the spread of fires through the wall/ceiling opening for a period of up to 120 minutes.

Fire protection foam PYROSIT® NG can be used for quick and easy closing of component openings – even in highly filled insulation or openings which are difficult to reach or only occur irregularly.

Fire protection foam PYROSIT® NG can be used as combination or cable insulation up to EI 120 for the following installations:

– Solid walls, solid ceilings and lightweight partitions
– Fire insulation of electrical cables, telecommunication cables, fibre optic cables, electrical installation pipes and combustible and non-combustible pipes

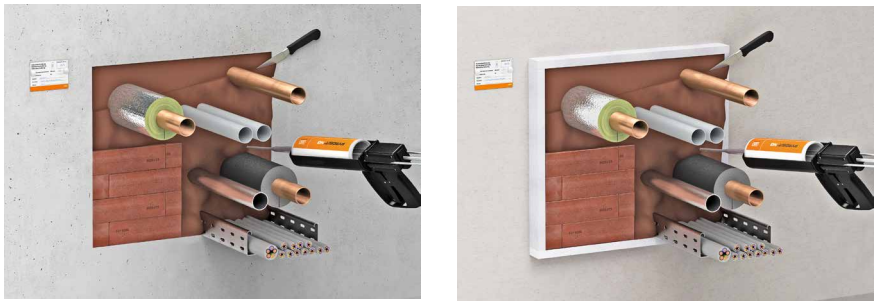


Figure 1: Fire protection foam PYROSIT® NG in a solid wall (left) and a light weight partition (right)

2.2 System components

The system is made up of a 2-component fire protection foam, supplied in a 380 ml cartridge, and which is applied to the insulation with a manual or battery-driven cartridge pistol. The evenly generated pressure from the cartridge pistol presses the two components into the mixer pipe screwed onto the cartridge and mixes them in the correct proportions there. To achieve a fire resistance period of 120 minutes, the insulation must also be secured with the intumescent cable coil.

Figure no.	Designation	Article number	Packing unit
1	2-component fire protection foam PYROSIT® NG in a cartridge, including 2 mixer pipes	7203800	380 ml
2	2-K cartridge pistol, hand-actuated, FBS-PH	7203806	1 unit
3	2-K cartridge pistol, motor-operated, FBS-PA	7203812	1 unit

2.3 Accessories

Figure no.	Designation	Article number	Packing unit
4	SHT adhesive tape, self-adhesive, transparent	7202521	5 units
5	Foam block PYROPLUG®Block, intumescent,	7202505	10 units
6	Cable coil, self-adhesive, intumescent, FBA-WI	7202510	1 unit
7	Mixer pipe set, FBS-M	7203803	10 units
8	Calcium silicate plate (500 x 150 x 20 mm), KSI-P1	7202283	1 unit
9	Calcium silicate plate (500 x 250 x 30 mm), KSI-P2	7202904	1 unit
10	Calcium silicate plate (1,000 x 250 x 30 mm), KSI-P2	7202912	1 unit
11	Identification plate for insulation systems	7205425	1 unit
12	Tempering box for cartridge. FBS-TB	7203818	1 unit
13	Mineral wool, aluminium-clad, MIW-MA	7202308	8,000 x 500 x 30 mm

2.4 Product data

Characteristic values	
Fire behaviour according to DIN EN 13501-1	Class E
Work interruption *:	Approx. 50 seconds
Foam volume *:	Up to 2.1 litres
*Foam volume and max. possible work interruption are dependent on the material and ambient temperatures.	

Characteristic values	
Contents:	380 ml (cartridge)
Cuttability*:	After approx. 90 seconds (at a material and ambient temperature of 22 °C)
Transport/storage:	5 °C–30 °C (dry, in original containers)
Processing temperature:	15 °C–30 °C, recommended: 20 °C–25 °C
Air permeation:	Q600 < 0.08 m³/(h*m2) (at a differential pressure of 600 Pa, no air permeation could be measured at a measurement accuracy of 0.01 m³/h)
	Testing standard: EN 1026 (sample dimensions 350 x 350 x 200 [mm], tested without installations)
Air noise insulation:	Dn,e,w(C;Ctr) = 66 (–1; –6) dB
	Testing standard: EN ISO 717-1 (sample dimensions 360 x 360 x 200 [mm], tested without installations)
Thermal conduction:	λ = 0.088 W/(m*K), R = 0.279 m²*K/W, testing standard: DIN EN 12667
Resistance to static differential pressure:	No visible changes up to maximum testing pressure of the testing equipment (Pmax = 10,000 Pa). Testing standard: Similar to EN 12211 (sample dimensions 350 x 350 x 200 [mm], tested without installations)
*Foam volume and max. possible work interruption are dependent on the material and ambient temperatures.	

2.5 Examination of the fire protection properties under environmental influences

Approved ambient conditions	
Acc. to ETAG 026-2	Use category Z1 Product for use in interiors with any moisture and temperatures above 0 °C.

2.6 Influence of the material temperature on processing

Characteristic values			
Press-out temperature [°C]	15 °C	20 °C	30 °C
Theor. foam volume [l/cartridge]	1.9	2.0	2.5
Start of foaming [s]	approx. 35	approx. 20	approx. 12
Cuttability after [s]	approx. 110	approx. 90	approx. 70
Work interruption [s]	approx. 70	approx. 50	approx. 40

2.7 Declaration of performance

System component	DOP number
Fire protection foam PYROSIT® NG	2013/05-CPR/001
Foam block PYROSIT® Block	2015/05-CPR/001
The declarations of performance can be viewed for the appropriate products at www.obo.de.	

3 Approved installations and installation locations

3.1 General information

– The cables, as well as the control cables and electrical installation pipes, must be fastened on the cable trays and ladders in support structures according to the technical rules.
– The cable support structures (cable trays and ladders) and their supports and fastenings must be made of steel and fastened in such a way on both sides of the fire insulation that, in case of fire, no additional mechanical load can impact on the fire insulation for the length of the required fire resistance class. In this context, the technical regulations and specifications of the manufacturer of the cable support system and the fastening system must be complied with.
– The pipe support structures and their fastenings must be made of steel and fastened in such a way on both sides of the fire insulation that, in case of fire, no additional mechanical load can impact on the fire insulation for the length of the required fire resistance class. In this context, the technical regulations and specifications of the manufacturer of the support and fastening systems must be complied with.
– Cable trays and ladders may be run through the fire insulation.
– The ends of the electrical installation pipes must be closed off with the fire protection foam PYROSIT® NG or mineral wool, so that they are smoke gas-tight.
– The total cross-sectional area of the installations, relative to the insulation area, may not be more than 60%.

3.2 Support of pipes and cables for insulation in ceilings and walls

– With wall and ceiling installation, the first support of the cables, cable trays or ladders and the electrical installation pipes must be mounted at a maximum of 200 mm in front of the insulation (maximum spacing in ceilings only required on the upper side).
– With wall and ceiling installation, the first support of the pipes must be mounted at a maximum of 750 mm or 1,200 mm in front of the insulation (maximum spacing in ceilings only required on the upper side).

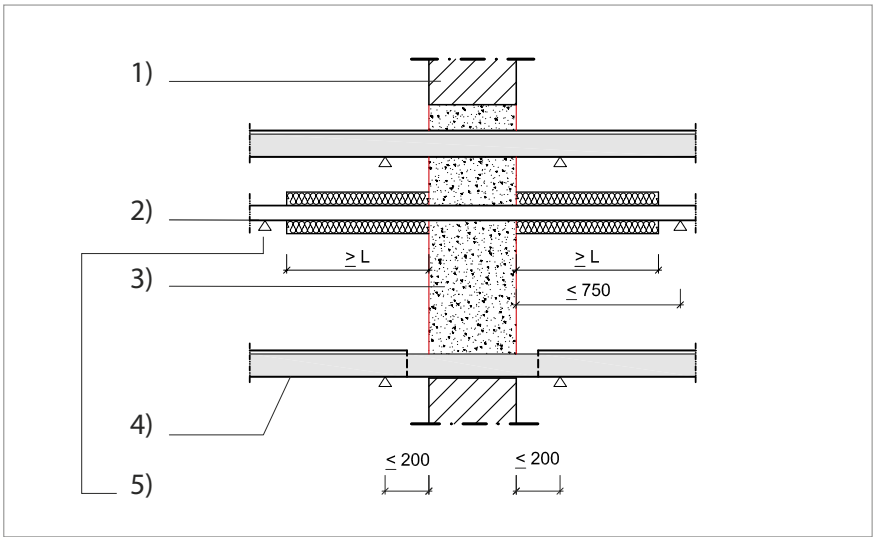


Figure 2: Support of pipes and cables/cable support structures in walls

Legend:

1. Solid wall
2. Pipes
3. Fire protection foam PYROSIT® NG
4. Cables/cable support structures, electrical installation pipes
5. First support of the cables/cable support structures, electrical installation pipes, pipes

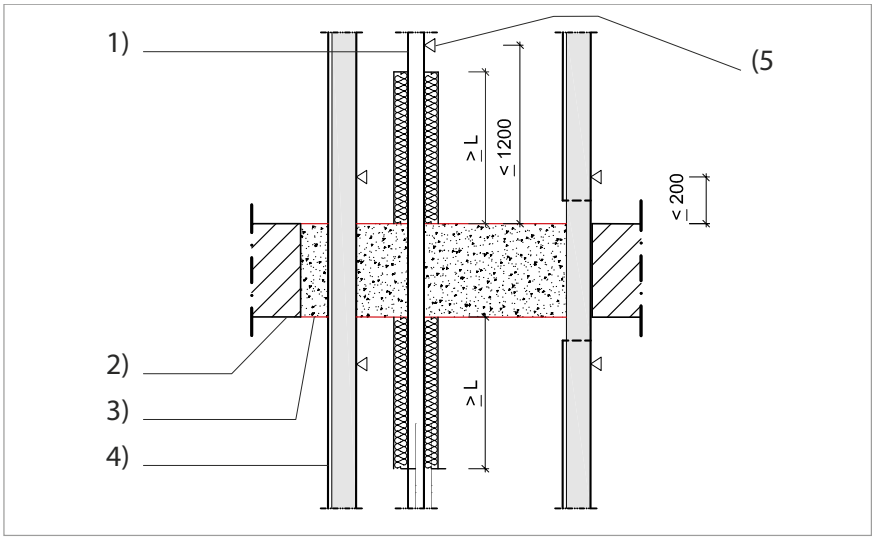


Figure 3: Support of pipes and cables/cable support structures in ceilings

Legend:

1. Pipes
2. Solid ceiling
3. Fire protection foam PYROSIT® NG
4. Cables/cable support structures, electrical installation pipes
5. First support of the cables/cable support structures, electrical installation pipes, pipes

3.3 Approved installation locations of the insulation systems

			Combination insulation (cables and pipes)			Cable insulation		
Components	Minimum thickness	Classification of the component	Fire resistance*	Minimum insulation thickness*	Maximum insulation dimension	Fire resistance*	Minimum insulation thickness*	Maximum insulation dimension
Solid wall: Porous concrete, concrete, reinforced concrete, masonry	100 mm	EN 13501-2	EI 60	144 mm	W x H 450 x 500 mm	EI 60	100 mm/ 144 mm	270 x 270 mm, ø 300 mm
						EI 90	144 mm/ 200 mm	
			EI 90	200 mm		EI 120	200 mm/ 250 mm	
Lightweight partition wall: Wooden or steel stand-off construction with planking on both sides	100 mm	EN 13501-2	EI 60	144 mm	W x H 450 x 500 mm	EI 60	100 mm/144 mm	270 x 270 [mm] ø 300 mm
						EI 90	144 mm/200 mm	
			EI 90	200 mm		EI 120	200 mm/250 mm	

* Refer to the tables of the fire resistance classifications for the required insulation thickness, according to the fire resistance class and the penetrated installation.

			Combination insulation (cables and pipes)			Cable insulation		
Components	Minimum thickness	Classification of the component	Fire resistance*	Minimum insulation thickness*	Maximum insulation dimension	Fire resistance*	Minimum insulation thickness*	Maximum insulation dimension
Solid ceiling: Porous concrete, concrete, reinforced concrete	150 mm	EN 13501-2	EI 60	144 mm	W x H 450 x 450 mm	EI 60	100 mm/144 mm	270 x 270 [mm] ø 300 mm
						EI 90	144 mm/200 mm	
			EI 90	200 mm		EI 120	200 mm/250 mm	

* Refer to the tables of the fire resistance classifications for the required insulation thickness, according to the fire resistance class and the penetrated installation.

3.4 Approved installations

3.4.1 Cables

- Jacketed cables, telecommunication cables, fibre optic cables up to a maximum outer diameter of 80 mm
- Firmly tied cable bundles up to a total diameter of 100 mm, consisting of jacketed cables, telecommunication cables, fibre optic cables up to a maximum outer diameter of 21 mm (internal closure of the cable spangle is not required)
- Cables up to a maximum outer diameter of 24 mm

3.4.2 Control cables/electrical installation pipes

- Electrical installation pipes/steel pipes up to a maximum outer diameter of 16 mm with or without cable assignment
- Electrical installation pipes/plastic pipes up to a maximum outer diameter of 40 mm with or without cable assignment
- Bundle of a maximum of three plastic electrical installation pipes with a maximum outer diameter of 80 mm (max. outer diameter of an individual electrical installation pipe: 40 mm)

3.4.3 Cable support structures

- Steel cable trays (perforated or unperforated), coated as required
- Steel cable ladders, coated as required
- Classification according to EN 13501-1 at least A2-s1,d0

3.4.4 Non-combustible pipes with mineral wool insulation

- Pipes made of copper, steel, stainless steel and cast iron up to an outer diameter of 54 mm are approved and the nominal pipe wall thicknesses Abb. 4 must be complied with.
- Local insulation (insulation only in the insulation area), interrupted in the main insulation (LI) or run through the main insulation (LS), must be made of mineral wool with a minimum thickness of 90 kg/m³. The insulation thickness must be 30 mm.
- Section insulation (insulation over the entire length of the pipeline), interrupted in the main insulation (CI) or run through the main insulation (CS), must be made of mineral wool with a minimum thickness of 90 kg/m³. The insulation thickness must be at least 30 mm.
- No insulation is required on pipes with an outer diameter of up to 28 mm. However, mineral wool insulation can be used according to the conditions stated above.

– Secure the mineral wool insulation with steel wire (diameter approx. 0.8 mm, 6 coils per running metre).
– If required, the mineral wool insulation may be given a sheet steel or plastic foil jacket.

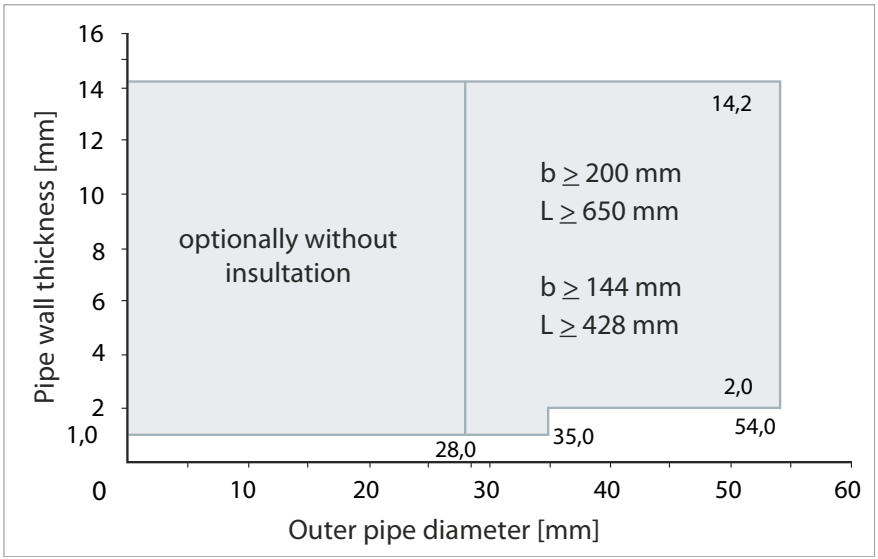


Figure 4: Lengths of insulation for non-combustible pipes

Approved insulation strengths		
Case	Density of the mineral wool	Insulation thickness of the mineral wool
LI = local insulation, interrupted in the main insulation	≥ 90 kg / m³	30 mm
LS = local insulation, run through the main insulation		30 mm
CI = section insulation, interrupted in the main insulation		≥ 30 mm
CS = section insulation, run through the main insulation		≥ 30 mm
Non-combustible pipes made of copper, steel, stainless steel, cast steel, insulated with mineral wool, insulation optionally passed through (LS, CS) or interrupted (LI, CI), optionally jacketed with sheet steel or plastic		

3.4.5 Non-combustible pipes with AF/Armaflex insulation

– Pipes made of copper, steel, stainless steel and cast iron up to an outer diameter of 88.9 mm are approved and the nominal pipe wall thicknesses Abb. 5 must be complied with.
– Local insulation (insulation only in the area of the main insulation) or section insulation (insulation over the entire length of the pipeline) must be made of AF&Armaflex (Armacell GmbH, Münster) and run through the main insulation (LS or CS). The minimum length must be 500 mm on either side of the main insulation.

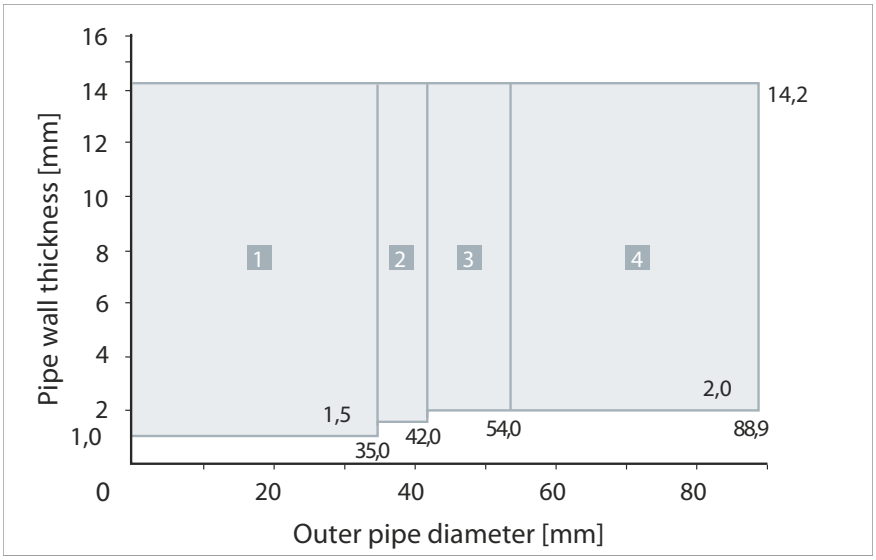


Figure 5: Lengths of AF/Armaflex insulation for non-combustible pipes

Approved insulation strengths	
Case	Insulation thickness
1	9–35.0 mm
2	9–36.5 mm
3	9–38.0 mm
4	41.5 mm

–

3.4.6 Combustible pipes

– Pipes with softener-free polyvinylchloride (PVC-U) according to EN 1329-1, EN 1453-1, EN 1452-1 and DIN 8061/8062 and pipes of chlorinated polyvinylchloride (PVC-C) according to EN 1566-1 are approved up to an outer diameter of 50 mm. Comply with the approved nominal pipe wall thicknesses according to Abb. 6.

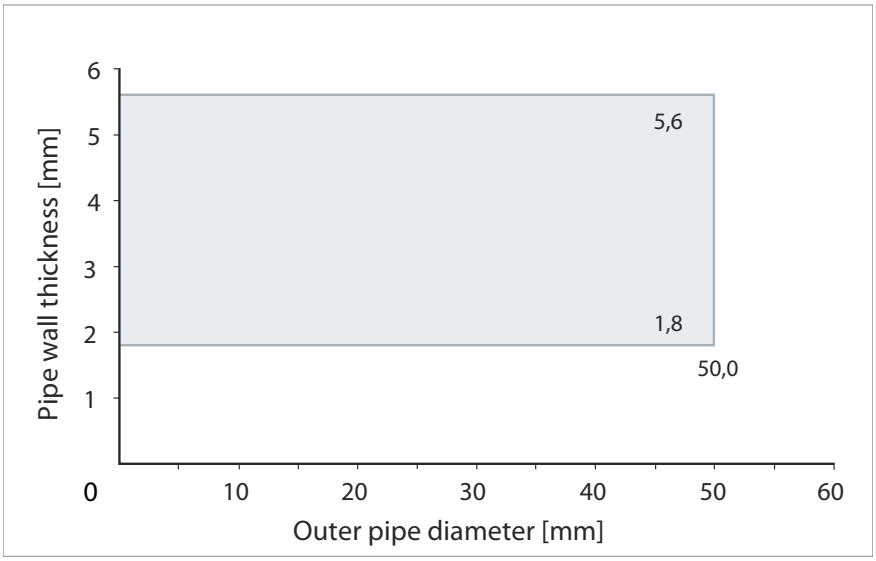


Figure 6: Pipe dimensions for combustible pipes made of PVC-U and PVC-C

– Pipes with polyethylene (PE) according to EN 1519-1, EN 12666-1, EN 12201-2 and DIN 8074/8075, pipes made of acryl nitrile butadiene styrene (ABS) according to EN 1455-1 and pipes made of styrene copolymer blends (SAN+PVC) according to EN 1565-1 are approved up to an outer diameter of 50 mm. Comply with the approved nominal pipe wall thicknesses according to Abb. 7.

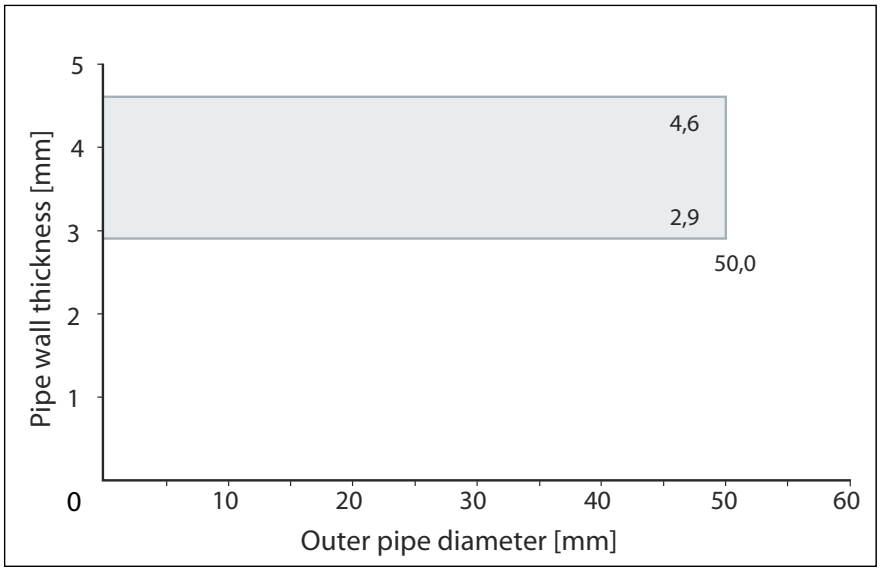


Figure 7: Pipe dimensions for combustible pipes made of PE, ABS, SAN+PVC

3.5 Minimum spacings between installations

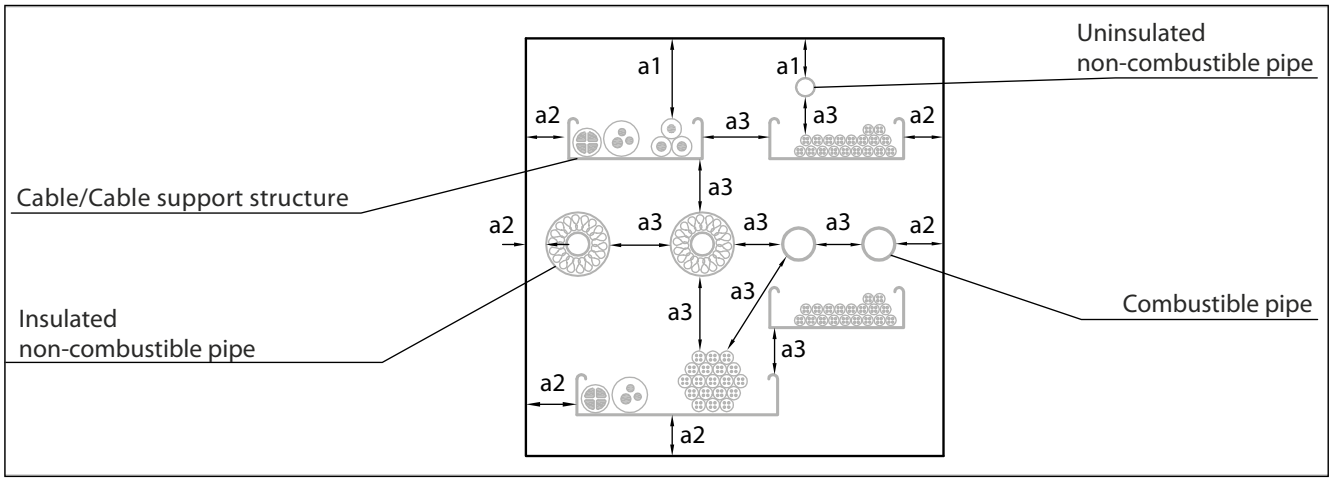


Figure 8: Minimum spacings between installations

Legend	
a1	Passed-through element – upper component soffit of the insulation
a2	Passed-through element – lower or side component soffit of the insulation
a3	Passed-through element – passed-through element

3.5.1 Minimum spacings, combination insulation

Passed-through elements	a1	a2	a3	
Cables/cable support structures and electrical installation pipes	50 mm	0 mm	Cables/cable support structures and electrical installation pipes, horizontal	0 mm
			Cables/cable support structures and electrical installation pipes, vertical	50 mm
			Uninsulated, non-combustible pipes	60 mm
			Other passed-through elements	50 mm
Insulated with mineral wool, non-comb. pipes	0 mm	0 mm	Insulated with mineral wool, non-comb. pipes	0 mm
			Uninsulated, non-combustible pipes	60 mm
			Other passed-through elements	50 mm
With AF/Armaflex insulated, non-comb. pipes	35 mm	35 mm	Non-combustible pipes insulated with AF/Armaflex (insulation thickness > 9 mm)	35 mm
			Non-combustible pipes insulated with AF/Armaflex (insulation thickness 9 mm)	50 mm
			Uninsulated, non-combustible pipes	60 mm
			Other passed-through elements	50 mm
Uninsulated, non-comb. pipes	35 mm	35 mm	Uninsulated, non-combustible pipes	60 mm
			Other passed-through elements	60 mm
Combustible pipes	50 mm	50 mm	Combustible pipes	50 mm
			Uninsulated, non-combustible pipes	60 mm
			Other passed-through elements	50 mm
Between two fire insulations of this approval				100 mm

Tabel 1: Minimum spacings, combination insulation

3.5.2 Minimum spacings, cable insulation

Passed-through elements	a1	a2	a3	
Cables/cable support structures and electrical installation pipes	0 mm	0 mm	Cables/cable support structures and electrical installation pipes	0 mm
Between two fire insulations of this approval				100 mm

Tabel 2: Minimum spacings, cable insulation

3.6 Fire resistance classifications, combination insulation

Max. dimension (W x H) 450 x 500 [mm] in lightweight partitions or solid walls of a thickness ≥ 100 mm. Max. dimension (W x H) 450 x 450 [mm] in solid ceilings of a thickness ≥ 150 mm.

	PASSED-THROUGH ELEMENTS	MINIMUM INSULATION THICKNESS OF THE COMBINATION INSULATION	
		144 mm	200 mm
Cables, cable trays, cable ladders	**Jacketed cables, telecommunication cables** and fibre optic cables up to an outer diameter of 80 mm	Wall: E 120 / EI 60 Ceiling: E 60 / EI 60	Wall/ceiling: E 120 / EI 90
	Firmly tied cable bundles up to a maximum outer diameter of 100 mm, consisting of jacketed cables, telecommunication cables or fibre optic cables up to a maximum outer diameter of 21 mm		
	Cables up to a max. outer diameter of 24 mm	Wall: E 120 / EI 45 Ceiling: E 60 / EI 30	Wall and ceiling: E 120 / EI 60
Electrical installation pipes*	**Electrical installation pipes/steel pipes** up to a max. outer diameter of 16 mm with/without cables	Wall: E 120-U/C / EI 60-U/C Ceiling: E 60-U/C / EI 60-U/C	Wall and ceiling: E 120-U/U EI 90-U/U
	Electrical installation pipes/plastic pipes up to a max. outer diameter of 40 mm Bundle of plastic electrical installation pipes with a maximum outer diameter of 80 mm (max. outer diameter of an individual electrical installation pipe: 40 mm) with/without cables	Wall: E 120-U/C / EI 90-U/C Ceiling: E 60-U/C / EI 60-U/C	Wall and ceiling: E 120-U/U EI 120-U/U
Pipes	**Non-combustible pipes, insulated with mineral wool** up to a max. outer diameter of 54 mm	Wall: E 120-C/U / EI 90-C/U Ceiling: E 60-C/U / EI 60-C/U	Wall and ceiling: E 120-C/U EI 90-C/U
	Uninsulated, non-combustible pipes up to a max. outer diameter of 28 mm	Wall: E 120-C/U / EI 60-C/U Ceiling: E 60-C/U / EI 60-C/U	Wall and ceiling: E 120-C/U EI 90-C/U
	Non-combustible pipes insulated with AF/Armaflex (insulation thickness > 9 mm) up to a max. outer diameter of 88.9 mm	Wall: E 120-C/U / EI 90-C/U Ceiling: E 60-C/U / EI 60-C/U	Wall and ceiling: E 120-C/U EI 120-C/U
	Non-combustible pipes insulated with AF/Armaflex (insulation thickness 9 mm) up to a max. outer diameter of 54 mm	Wall: E 120-C/U / EI 90-C/U Ceiling: E 60-C/U / EI 60-C/U	Wall and ceiling: E 120-C/U EI 90-C/U
	Combustible pipes up to a max. outer diameter of 50 mm	Wall: E 120-U/C / EI 120-U/C Ceiling: E 60-U/C / EI 60-U/C	Wall and ceiling: E 120-U/U EI 120-U/U

* The beginning and end are closed off with the fire protection foam PYROSIT® NG or mineral wool, so that they are smoke gas-tight.
** Refer to the pipe diagrams for the approved insulation thicknesses.

The following still has to be observed according to construction rule list A, part 1, table 2:
- In Germany, the insulation of combustible pipes requires class EI... (U/U) or EI... (U/C) (for drinking water, heating and cooling lines ø ≤ 110 mm).
- In Germany, the insulation of non-combustible pipes (melting point ≥ 1,000 °C) requires class EI... (C/U).

The fire resistant class EI... (U/U) covers the fire resistance class EI... (U/C).

3.7 Fire resistance classifications, cable insulation

Max. dimension (W x H) 270 x 270 [mm] or ≤ ø 300 mm in lightweight partitions or solid walls of a thickness ≥ 100 mm or in massive ceilings with a thickness ≥ 150 mm.

PASSED-THROUGH ELEMENTS	MINIMUM INSULATION THICKNESS OF THE CABLE INSULATION			
	100 mm	144 mm	200 mm	250 mm
Jacketed cables, telecommunication cables and fibre optic cables up to an outer diameter of 21 mm	E 120 EI 60	E 120 EI 90	E 120 Wall: EI 90 / EI 120 [2)] Ceiling: EI 120	E 120 EI 120
Jacketed cables, telecommunication cables and fibre optic cables up to an outer diameter of 21 mm < Ø ≤ 50 mm	Wall: E 120 / EI 45 EI 60 [1)]	E 120 EI 60	E 120 EI 90 / EI 120 [2)]	E 120 EI 120
Jacketed cables, telecommunication cables and fibre optic cables up to an outer diameter of 50 mm < Ø ≤ 80 mm	--	E 120 EI 60	E 120 EI 90 / EI 120 [2)]	E 120 EI 90 / EI 120 [2)]
Firmly tied cable bundles up to a maximum outer diameter of 100 mm, consisting of jacketed cables, telecommunication cables or fibre optic cables up to a maximum outer diameter of 21 mm	--	E 120 EI 60	E 120 Wall: EI 90 Ceiling: EI 90 / EI 120 [2)]	E 120 Wall: EI 90 Ceiling: EI 120
Cables up to a max. outer diameter of 24 mm	--	E 120 Wall: EI 45 Ceiling: EI 30	E 120 Wall: EI 90 Ceiling: EI 60	E 120 Wall: EI 90 Ceiling: EI 60
Electrical installation pipes/steel pipes up to a max. outer diameter of 16 mm with/ without cables	--	E 120-U/C EI 60-U/C	E 120-U/U Wall: EI 120-U/U Ceiling: EI 90-U/U	E 120-U/U EI 120-U/U
Electrical installation pipes/plastic pipes up to a max. outer diameter of 40 mm or bundle of plastic electrical installation pipes with a max. outer diameter of 80 mm (max. outer diameter of an individual electrical installation pipe: 40 mm), either with or without cable	--	E 120-U/C EI 120-U/C	E 120-U/U EI 120-U/U	E 120-U/U EI 120-U/U

* The beginning and end must be closed off with the fire protection foam PYROSIT® NG or mineral wool, so that they are smoke gas-tight.
1) A bulge, with a thickness of at least 20 mm, of fire protection foam PYROSIT® NG should be applied on both sides of the insulation at a length of min. 30 mm around the passed-through elements and cable support structures.
2) The cables, cable bundles and cable support structures must be surrounded on both sides of the insulation using the FBA-WI cable coil.

4 Creating insulation

When creating the fire insulation, the approval ETA-11/0527 and the appropriate national regulations are of primary importance.

Note *Depending on the fire resistance class of the insulation to be created, it may be necessary to insert the cable coil FBA-WI, see 4.5 „Processing the cable coil FBA-WI“ auf Seite 25.*

Note *If the mixer is blocked, never press out the cartridge with force. Destruction of the cartridge or the pressing device may result.*

Note *Wear suitable protective clothing, goggles and gloves.*

4.1 Creating tunings and frames

If the thickness of the ceiling, wall or lightweight wall is insufficient to achieve the required component thickness, then tuning or, if necessary, a frame must be created.

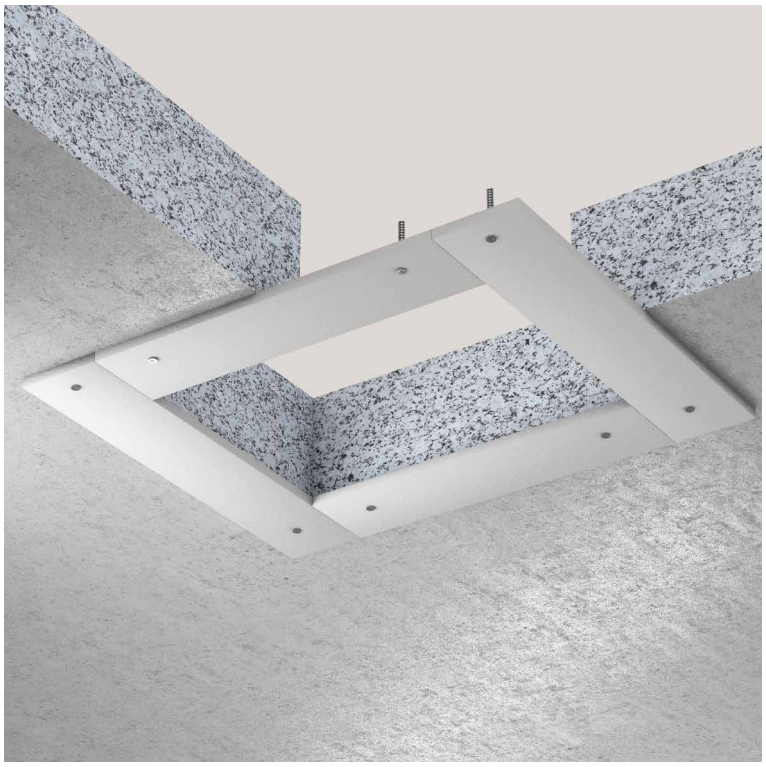


Figure 9: Tuning for ceiling

Tuning on ceilings can be arranged on one or both sides, as required.

Figure 10: Tuning for solid wall or lightweight partition wall

Tuning on solid walls and lightweight partition walls can be arranged on one or both sides, as required. The tuning can be a maximum of 50 mm thick on each side.

Figure 11: Frame for lightweight partition wall or solid wall

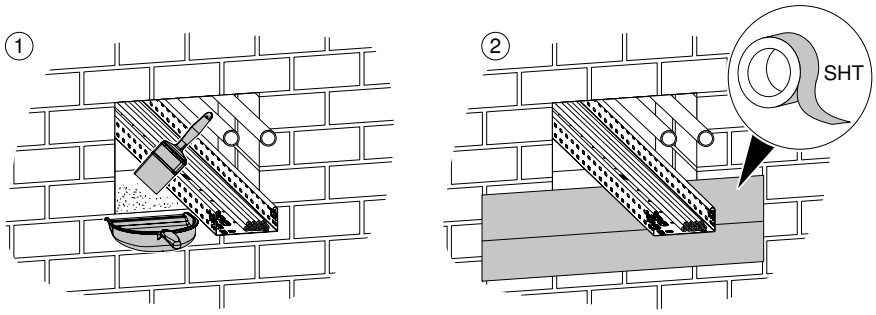
The frame must be inserted in the middle in lightweight partition walls and solid walls. In solid walls, the frame can either be inserted flush on one side or in the middle.

4.2 Creating insulation for solid walls and ceilings

4.2.1 Special features of installation in solid walls and solid ceilings

– If the solid wall or ceiling in the area of the fire insulation does not correspond to the required minimum insulation thickness, then use a frame (see Figure 11) or tuning (see Figure 9+10) made of non-combustible plates (plasterboard, silicate or calcium silicate plates of class A2-s1, d0 or A1 according to EN 13501-1) around the insulation opening, so that the PYROSIT® NG fire protection foam is in contact with the frame, tuning or wall over the entire length of the insulation.
– The individual frame sections (min. 2 x 12.5 mm or at least 25 mm thick) are clamped together in the middle of the opening. The gap between the solid wall/solid ceiling and frame must be closed off, for example with gypsum filler. In walls, there is no need for fastening with screws.
– To fasten the tuning (at least 50 mm wide and max. 50 mm thick) or the frame in the ceiling, sufficiently large/long screws and metal anchors or bolt ties, suitable for the substrate, must be used. In porous concrete components, use rapid installation or chipboard screws without anchors. At least two screws must be used for each plate and the maximum distance between the screws may be 250 mm.
– Insulation in ceilings must be safeguarded against loads, in particular including being walked on, by means of a cover in the form of grating or reinforcement.

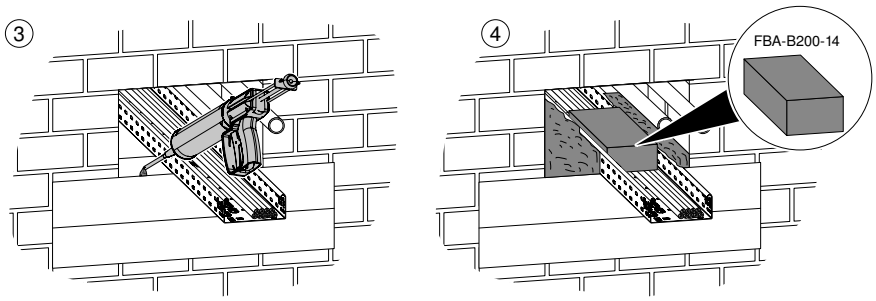
4.2.2 Mounting steps



(1) Clean the component soffit with a brush or hand cleaner.
(2) If necessary, apply a lining on both sides, e.g. with card, plastic film or SHT adhesive tape, in order to prevent the fire protection foam from slipping through.

Note

Preparing fire protection foam PYROSIT® NG (see 4.4 “Preparing the cartridge for use“ on page 24).



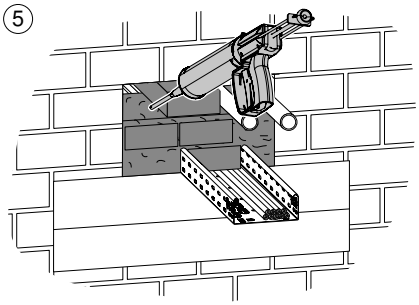
(3) Apply the fire protection foam from the back to the front and from the bottom to the top. In so doing, always run the mixer tube tip above the foam, in order to prevent clogging of the tip.

Note

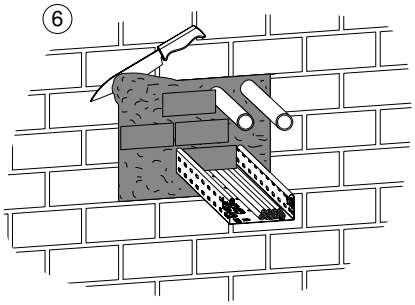
After work interruptions of longer than approx. 50 seconds, the foam hardens in the mixer, which must then be replaced. Before exchanging mixers, remove any load from the pressing device and carefully exchange the mixer.

④ If necessary, for larger openings, insert foam block PYROPLUG®-Block (FBA-B200-14) and surround them with fire protection foam.

⑤



⑥



⑤ Completely fill the insulation opening with fire protection foam *PYROSIT® NG* and leave it for a few minutes to harden.

⑥ If necessary, remove any excess with a knife.

⑦ Apply an identification plate to the insulation (see 4.7 “Attaching the identification plate“ on page 25).

Note

Any cable or pipes to be installed at a later date can be run through the existing foam. Refill any gaps created by removed cables or pipes with fire protection foam PYROSIT® NG.

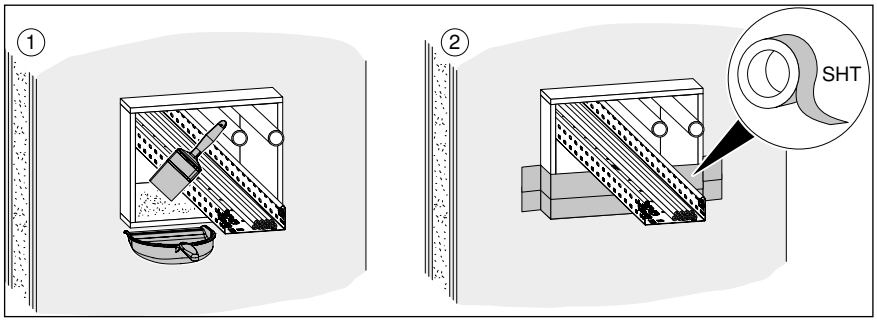
4.3 Creating insulation for lightweight walls

4.3.1 Special features of installation in lightweight partitions

– If the lightweight partition in the area of the fire insulation does not correspond to the required minimum insulation thickness, then use a frame (see Figure 11) or tuning (see Figure 10) made of non-combustible plates (plasterboard, silicate or calcium silicate plates of class A2-s1, d0 or A1 according to EN 13501-1) around the insulation opening, so that the fire protection foam PYROSIT® NG is in contact with the frame, tuning or wall over the entire length of the insulation.
– For openings up to 320 x 320 mm, it is not necessary to reinforce the soffit with steel profiles/change parts. With larger openings, it is sufficient to push to horizontal steel profiles (C profiles) into the wall above and below the opening and to fasten them correctly with the wall planking. A force-fit connection to the vertical wall stand-off profiles is not required.
– The individual frame sections (min. 2 x 12.5 mm or at least 25 mm-thick) are clamped together in the middle of the opening. The gap between the lightweight partition wall and frame must be closed off, for example with gypsum filler. There is no need for fastening with screws.
– To fasten the tuning (at least 50 mm wide and max. 50 mm thick), sufficiently large/long rapid installation or chipboard screws must be used. At least two screws must be used for each plate and the maximum distance between the screws may be 250 mm.
– If no frame is used, the cavity between the planking of the lightweight partition must be tightly plugged for at least 10 cm all around with mineral wool (melting point > 1,000 °C, minimum density 40 kg/m³).

– For walls with a wooden stand-off subconstruction, there must be a spacing of at least 100 mm between the insulation and wooden stands, which is plugged with mineral wool (classification A2-s1, d0 or A1 according to EN 13501-1). The cross-section of the wooden stand must be at least 50 x 75 mm (width x depth).

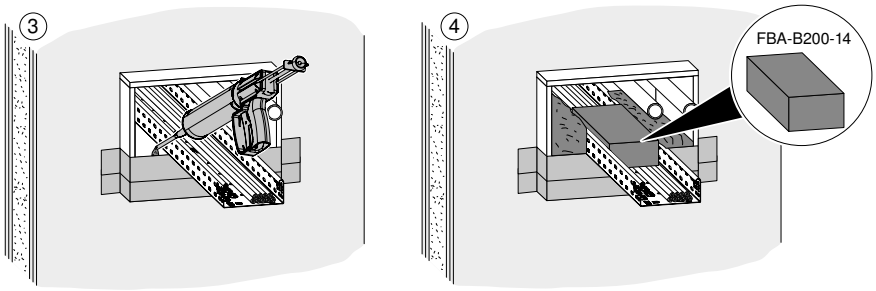
4.3.2 Mounting steps



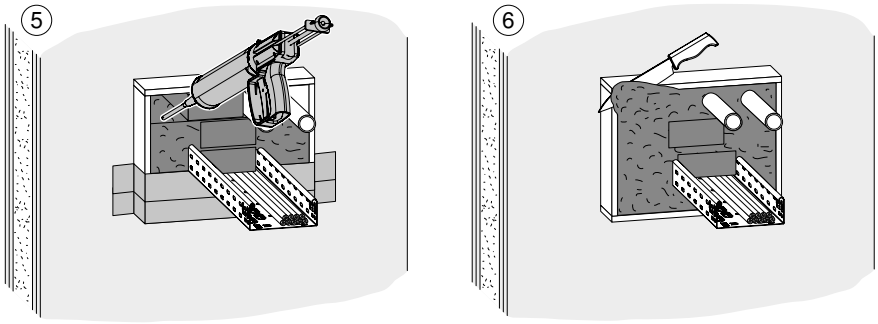
1. Clean the insulation opening with a brush or hand cleaner.
2. If necessary, apply a lining on both sides, e.g. with SHT adhesive tape, in order to prevent the fire protection foam from slipping through.

Note

Preparing fire protection foam PYROSIT® NG (see „4.4 “Preparing the cartridge for use“ on page 24).



3. Apply the fire protection foam from the back to the front and from the bottom to the top. In so doing, always run the mixer tube tip above the foam, in order to prevent clogging of the tip.
4. If necessary, for larger openings, insert foam blocks PYROPLUG®-Block (FBA-B200-14) and surround them with fire protection foam.



⑤ Completely fill the insulation opening with fire protection foam and leave it for a few minutes to harden.

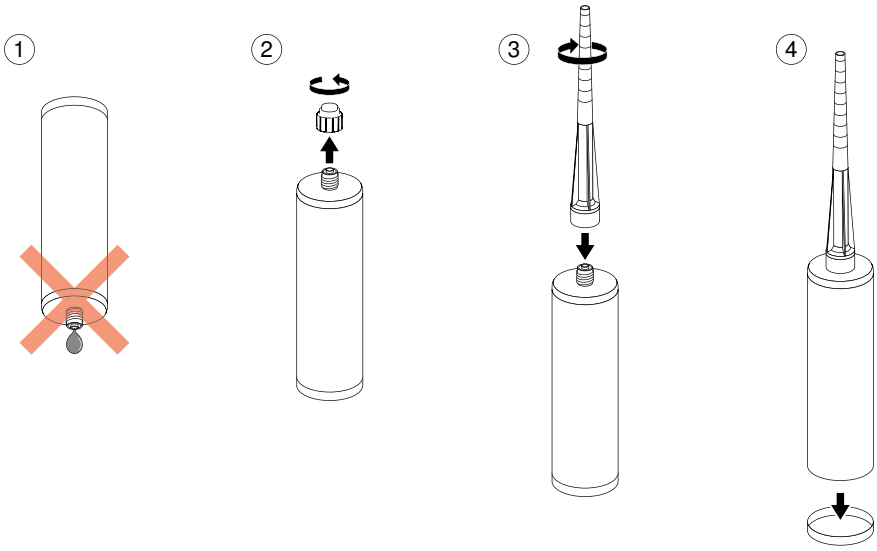
⑥ If necessary, remove any excess with a knife.

⑦ Apply an identification plate to the insulation (see 4.7 “Attaching the identification plate“ on page 25).

Note

Any cable or pipes to be installed at a later date can be run through the existing foam. Refill any gaps created by removed cables or pipes with fire protection foam PYROSIT® NG.

4.4 Preparing the cartridge for use

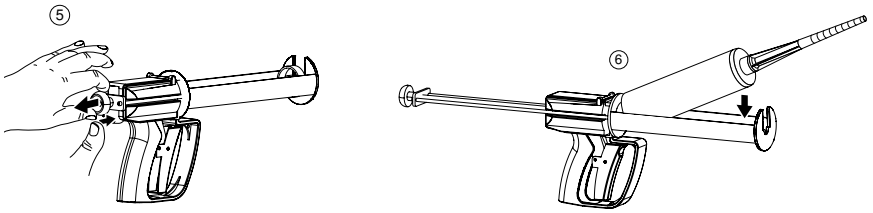


① When opening the cartridge, do not hold it downwards but upright.

② Unscrew the closure cap.

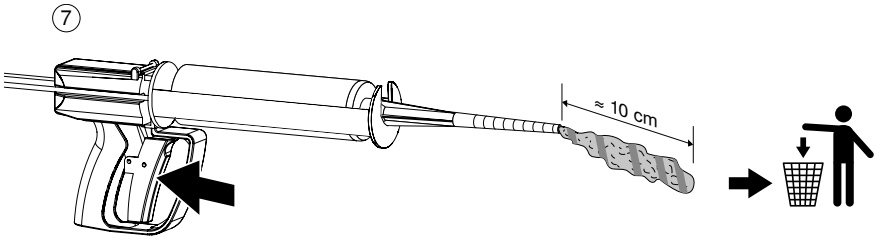
③ Screw on the mixer pipe.

④ Remove the lower protective cap.



⑤ Unlock the retaining lock of the cartridge pistol and pull the pressing piston back completely.

⑥ Insert the cartridge in the cartridge pistol as shown.



⑦ Press out fire protection compound until a homogenous mass exits the mixing pipe. Do not use the first approx. 10 cm of the mass, but dispose of it.

4.5 Processing the cable coil FBA-WI

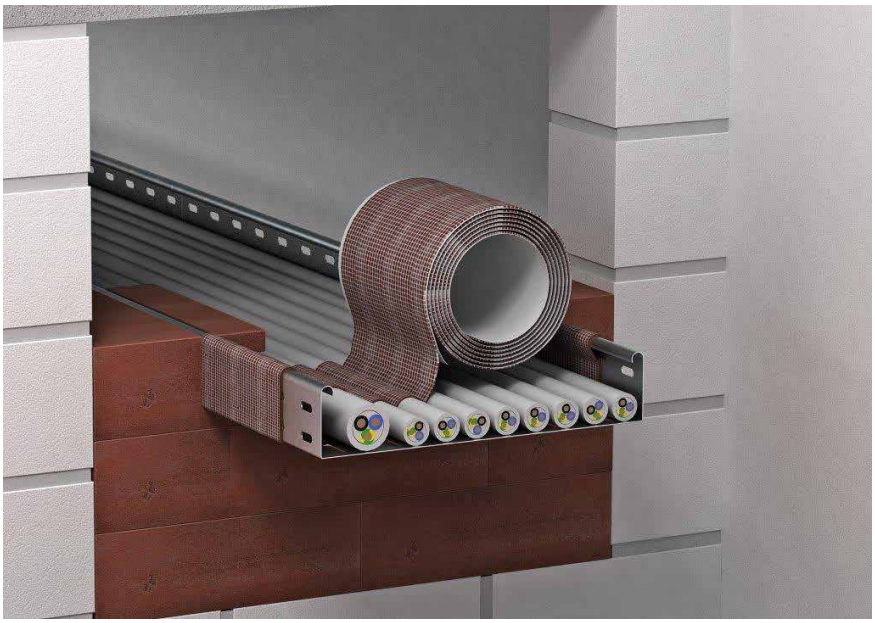


Figure 12: Insertion of the cable coil FBA-WI

To create cable insulation offering a fire resistance class EI 120, the cable coil FBA-WI may need to be mounted around the cables or cable support structures (see table on page 18):

– Cut off a sufficiently long piece of FBA-WI cable coil and remove the white protective film. Wind a layer of cable coil FBA-WI (150 mm wide) around the installations on both sides. The adhesive side must touch the cables or the cable support structures. The glass mesh serving as protection must point outwards.
– Connect the start and the end of the FBA-WI cable coil with at least two steel clamps or steel wire (Ø 1 mm). The overlapping length must be approx. 45 mm.
– Multiple strips, one behind the other, can be also be arranged with an overlap length of min. 45 mm. The joints should also be connected with steel clamps or steel wire.

4.6 Processing the foam block PYROPLUG® Block

– Areas of the insulation not penetrated by installations can be closed off with foam block PYROPLUG®Block.
– The foam block PYROPLUG®Block must be installed in such a way that the minimum insulation thickness is maintained.
– Install foam blocks PYROPLUG®Block in tightly packed layers in the bandage (i.e. layered offset of the vertical joints).

4.7 Attaching the identification plate

– Fill out the identification plate clearly with a permanent marker and attach it permanently on one side next to the insulation.

4.8 Retroinstallation of cables and pipes

– New installations can be run through the existing fire insulation. For this, a suitable cutting/drilling tool can be used to create sufficiently large openings in the insulation. (The necessary protective measures and safety regulations must be taken into account.)
– Cavities or gaps around the newly made installations or due to removed cables or pipes must be refilled with fire protection foam PYROSIT® NG or foam block PYROPLUG®Block.
– The newly added installations must fulfil all the requirements of the ETA. (For example, first support, if necessary installation of the FBA-WI cable coil).

4.9 Tips and notes

– For optimum cutting of the OBO fire protection products, we recommend using a knife with a serrated blade.
– Single-person mounting is also possible for the ceiling insulation.
– The insulation system can be painted over with standard emulsion paint.

4.10 Other national requirements

Note

When mounting the system outside Germany or Austria, please note that other country-specific requirements may exist, in addition to the national construction law.

Germany/Austria

– The insulation system must be permanently labelled with a sign next to the insulation.
– Combination insulation requires training. Proof of training can be obtained through successfully participating in a training course at OBO Bettermann.
– After work has been completed, the client must be presented with a written declaration of conformity.

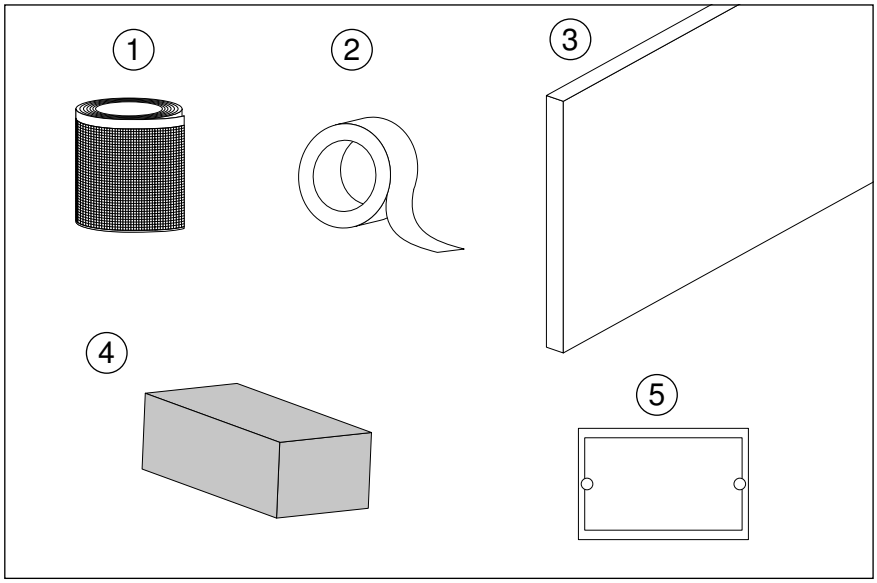


Figure 13: Accessories

Legend:

1 Self-adhesive, intumescent cable coil FBA-WI
2 SHT adhesive tape for linings

③ Calcium silicate plate KSI as a support plate or for the construction of frames
④ Foam block PYROPLUG®Block
⑤ Identification plate

5 Maintenance

Fire proteciton foam PYROSIT® NG requires no maintenance. Nonetheless, we recommend carrying out a visual inspection of the insulation at regular intervals, as part of the inspection of the electrical systems:

- Check that all the component parts of the insulation are tightly sealed with fire proteciton foam PYROSIT® NG.
- Reseal any gaps with fire proteciton foam PYROSIT® NG.

6 Disposal

Disposal during mounting

– Residual material of the pipe sleeve (also with coating): As household waste
– Packaging: As household waste

Disposal during building demolition

As rubble.

Disposal after a fire

If the fire proteciton foam PYROSIT® NG system was subjected to fire damage, then the complete insulation must be removed and disposed of. We recommend obtaining the advice of the local fire damage restorer during disposal.

CAUTION

Danger from corrosive effect!
If there is a fire in the interior of the pipe sleeve, the burned cable insulation will create corrosive gases, which can have an irritant and corrosive effect. Before opening and disposing of system components, which have been subjected to a fire, wear breathing protection and protective clothing.

7 Appendix – declaration of conformity (sample)

Insulation system according to DIN EN 1366 Part 3

Name and address of the company, which erected the cable insulation

Building site or building with address

Required fire resistance class

Date of erection

This is confirmation that

– The cables / combination insulation „Fire protection foam PYROSIT® NG“, fire resistance classes to EI 120 according to EN 1366-3, European Approval Number of OIB: ETA-11/0527, for installation in walls and ceilings with fire resistance classes to EI 120, was correctly created and installed as well as labelled according to all the individual requirements and in compliance with all the requirements of the named proof of usability and

– The building products used to produce the object of the approval (e.g. insulation compounds, mineral fibre plates, frames, etc.) were labelled according to the requirements of the proof of usability.

Place, date stamp and signature

This confirmation must be given to the builder for forwarding, if necessary, to the responsible construction supervisory board.

Own notes

Own notes

OBO BETTERMANN GmbH & Co. KG
P.O. Box 1120
58694 Menden
Germany

Customer Service Germany
Tel.: +49 (0)2373 89-1500
Fax: +49 (0)2373 89-7777
E-mail: info@obo.de

www.obo-bettermann.com

OPTO 140085 Date 03/2016 EN

THINK CONNECTED.