

PYROPLUG® Block foam block
Mounting instructions



PYROPLUG® Block foam block

Mounting instructions

© 2016 OBO Bettermann GmbH & Co. KG

Reprinting, even of extracts, as well as photographic or electronic reproduction are prohibited!

PYROPLUG® Block is a registered brand of OBO Bettermann GmbH & Co. KG

Table of contents

1	About these instructions4
1.1	Target group	4
1.2	Relevance of these instructions.	4
1.3	Types of warning information	4
1.4	Correct use	5
1.5	Applicable documents	5
1.6	Basic standards and regulations	5
2	Basic safety information5
3	Product description, PYROPLUG® Block foam block.6
3.1	Basic principles	6
3.2	System components	7
3.3	Accessories.	8
3.4	Product data	9
3.5	Declarations of performance	9
4	Installation conditions, PYROPLUG® Block foam block9
4.1	Basic preconditions	9
4.2	Support of pipes and cables in ceilings and walls	10
4.3	Approved installation locations	11
4.4	Approved installations	12
4.5	Minimum spacing between installations	16
4.6	Fire resistance classifications	18
5	Creating fire insulation	19
5.1	Creating the minimum insulation thickness.	19
5.2	Installing the PYROPLUG® Block foam block.	21
5.3	Supporting the ceiling insulation	22
5.4	Installing cables and pipes at a later time	23
5.5	Working filler or fire protection foam	24
5.6	Achieving the fire resistance class EI 90 and EI 120	25
6	Tips.	26
7	National requirements	26
8	Maintenance.	27
9	Disposal	28
10	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 Relevance of these instructions

- These instructions are based on the standards valid at the time of compilation (September 2016).
- Keep all the documents supplied with the product 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 the product, we recommend a comprehensive training course.

1.3 Types of warning information



Type of risk!

Shows a possibly risky situation. If the situation is not avoided, then death or serious injury may result.



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

The PYROPLUG® Block foam block is used for fire insulation in building interiors. The PYROPLUG® Block foam block closes openings in fire-resistant walls or ceilings, through which cables, electrical installation pipes or pipes are run. In case of fire, the PYROPLUG® Block foam block prevents the spread of fire and smoke in the area of the penetration.

The PYROPLUG® Block foam block is not designed for any other purpose than the one described here. If the PYROPLUG® Block foam block 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_PYROPLUG-Block_2015
- Declaration of performance
05-100_DOP_05-CPR-001_PYROSIT-NG_2013
- European Technical Approval ETA-15/0803
- European Technical Approval ETA-11/0527
- Safety data sheet, "PYROPLUG® Block"

1.6 Basic standards and regulations

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

2 Basic safety information

Observe the following basic safety information on handling the PYROPLUG® Block foam block:

- The PYROPLUG® Block foam block is not suitable for improving the stability of a wall or ceiling. Ensure that the wall or ceiling is sufficiently stable, despite the opening, without the application of fire insulation.
- The installation of the fire insulation may not compromise the stability of the adjacent elements – even in the event of a fire. Consult the proof of application of the component and do not change the stability.
- Observe and comply with all the appropriate regulations and technical regulations of other units, in particular those for electrical engineering.
- Observe the safety data sheets of the products, which can be obtained online at www.obo-bettermann.com.
- Comply with the approvals regarding all the technical specifications, such as the permitted insulation size, wall/ceiling types, fire resistance classes, installations and their first support, working areas, etc.

3 Product description, PYROPLUG® Block foam block

3.1 Basic principles

Fire insulation maintains the fire sections, thus limiting the spread of fire and smoke, and simplifying rescue and extinguishing work. If there is a fire, then fire insulation in wall and ceiling penetrations through which cables and pipes are run prevents the spread of cold smoke gases into the neighbouring room.

The PYROPLUG® Block foam block is designed for fire insulation in wall and ceiling openings and offers the following characteristics:

- Creation of combination or cable insulation for 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
- Use in rooms with and without moisture at temperatures above 0 °C (use category Z1 according to ETAG 026-2)
- Prevention of the spread of fire and smoke gas over a period up to 120 minutes (fire resistance class EI 120)
- Quick and easy closing of component openings – even in highly filled insulation or openings which are difficult to reach or only occur irregularly



Image 1: PYROPLUG® Block fire protection foam in a solid wall (left) and a light-weight partition (right)

3.2 System components

The PYROPLUG® Block foam block can be installed in a system with other components for fire insulation. The following system components are available:



Image 2: System components

Figure no.	Designation	Article number	Packing unit
①	PYROPLUG® Block foam block, 200 x 144 x 60 mm	7202 50 5	4 units
②	PYROPLUG® Block foam block, vacuum-packed	7202 51 5	1 unit
③	PYROPLUG® Screed filler	7202 32 2	1 unit (310 ml)
④	2-component fire protection foam PYROSIT® NG	7203 80 0	1 unit (380 ml)
⑤	Cable coil FBA-WI	7202 51 0	2 units

Table 1: Designation of system components

3.3 Accessories

The following accessories are available for the processing and installation of the PYROPLUG® Block foam block and the system components:



Image 3: Accessories

Figure no.	Designation	Article number	Packing unit
①	2-K cartridge pistol, motor-operated, FBS-PA	7203 81 2	1 unit
②	2-K cartridge pistol, hand-actuated, FBS-PH	7203 80 6	1 unit
③	Mixer pipe set, FBS-M	7203 80 3	1 unit
④	Adhesive tape, SHT	7202 52 1	5 units
⑤	Winding wire	7202 30 9	1 unit
⑥	Path insulation MIW-MA	7202 30 8	2 units
⑦	Aluminium adhesive tape MIW-AT	7202 30 5	1 unit
⑧	Identification plate for cable insulation, German KS-S DE	7205 42 5	1 unit
⑧	Identification plate for cable insulation, Swedish KS-S SE	7205 42 6	1 unit
⑧	Identification plate for cable insulation, Spanish KS-S ES	7205 42 7	1 unit
⑧	Identification plate for cable insulation, English KS-S EN	7205 42 9	1 unit
⑧	Identification plate for cable insulation, Croatian KS-S HR	7205 43 8	1 unit

Table 2: Accessory designation

3.4 Product data

Characteristic values	
Fire behaviour according to DIN EN 13501-1	Class E
Transport / storage	Dry, dust-protected, only in original packaging
Air permeation	$Q_{600} = 6.61 \text{ m}^3/(\text{h}\cdot\text{m}^2)$ (at a differential pressure of 600 Pa)
	Testing standard: EN 1026 (sample dimensions 355 x 550 x 200 [mm], tested without installations)
Air noise insulation	$D_{n,e,w} (C;C_{tr}) = 68 (-4; -11) \text{ dB}$
	Testing standard: EN ISO 717-1 (sample dimensions 360 x 360 x 200 [mm], tested without installations)
Thermal conduction	$\lambda = 0.103 \text{ W}/(\text{m}\cdot\text{K})$
	Testing standard: DIN EN 12667
Resistance to static differential pressure:	$P_{\text{max}} = 3,700 \text{ Pa}$ Testing standard: Similar to EN 12211 (sample dimensions 355 x 550 x 200 [mm], tested without installations)
Approved ambient conditions	According to ETAG 026-2 use category Z1: Use in interiors with any moisture and temperatures above 0 °C

Table 3: Product data

3.5 Declarations of performance

System component	DOP number
PYROPLUG® Block foam block	2015/05-CPR/001
PYROPLUG® Screed filler	2013/05-CPR/009
2-component fire protection foam PYROSIT® NG	2013/05-CPR/001
The declarations of performance can be viewed for the appropriate products at www.obo.com .	

Table 4: Declarations of performance of system components

4 Installation conditions, PYROPLUG® Block foam block

To ensure the functionality of the fire insulation, installations and installation locations must fulfil technical and structural requirements.

4.1 Basic preconditions

- 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, such as 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.
- Both cable trays and ladders may be run through the fire insulation.

- The ends of the electrical installation pipes must be closed off with mineral wool, PYROPLUG® Screed filler or PYROSIT® NG fire protection foam, 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%.

4.2 Support of pipes and cables 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 distance 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 distance of 750 mm or 1,200 mm in front of the insulation (maximum spacing in ceilings only required on the upper side).

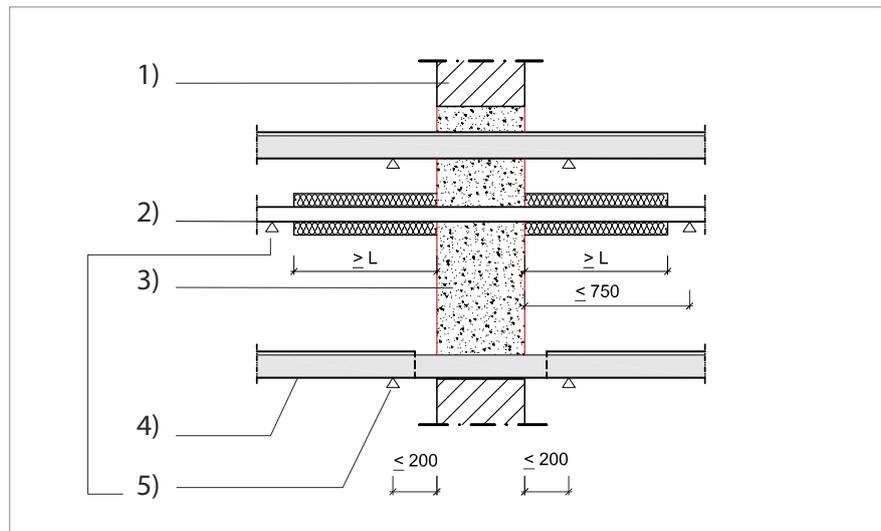


Image 4: Support of pipes and cables/cable support structures in walls

Legend:

- 1) Solid wall
- 2) Pipes
- 3) PYROPLUG® Block foam block fire insulation
- 4) Cables / cable support structures, electrical installation pipes
- 5) First support of the cables / cable support structures, electrical installation pipes, pipes

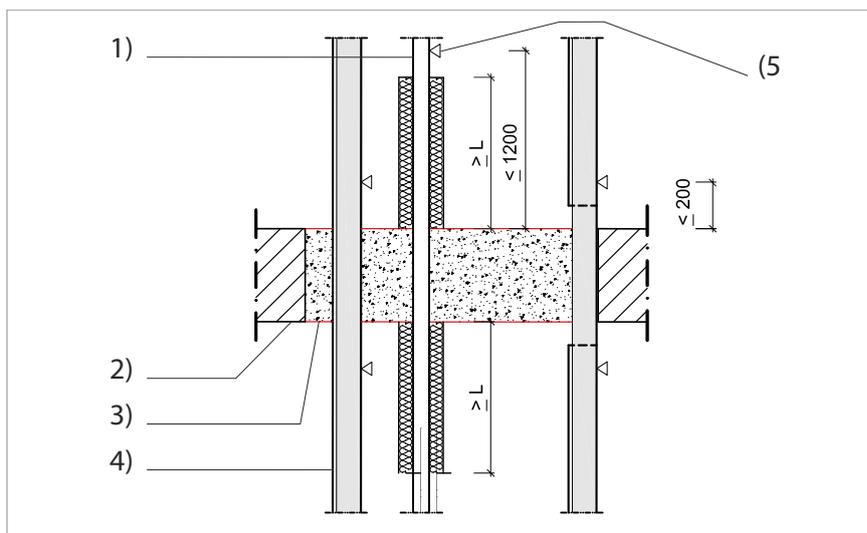


Image 5: Support of pipes and cables / cable support structures in ceilings

Legend:

- 1) Pipes
- 2) Solid ceiling
- 3) PYROPLUG® Block foam block fire insulation
- 4) Cables / cable support structures, electrical installation pipes
- 5) First support of the cables / cable support structures, electrical installation pipes, pipes

4.3 Approved installation locations

Components	Minimum thickness in mm	Classification of the component	Fire resistance*	Minimum insulation thickness* in mm	Maximum insulation dimension in mm
Solid wall: Porous concrete, concrete, reinforced concrete, masonry	100	EN 13501-2	EI 60	144	1,000 x 600
			EI 90 EI 120	200	600 x 1,000
Lightweight partition wall: Wooden or steel stand-off construction with planking on both sides	100	EN 13501-2	EI 60	144	1,000 x 600
			EI 90 EI 120	200	600 x 1,000

* Refer to the table „Fire resistance classifications“ on page 18 for the required insulation thickness according to the fire resistance class and the performed installation.

** The maximum length/width L is dependent on the height H of the insulation. For other combinations, see Appendix M of the ETA.

Components	Minimum thickness in mm	Classification of the component	Fire resistance*	Minimum insulation thickness* in mm	Maximum insulation dimension in mm	
Solid ceiling: Porous concrete, concrete, reinforced concrete	150	EN 13501-2	EI 60	144	Length/width L** unlimited 6,000 2,250 1,000	Height H** < = 375 400 450 700
			EI 90 EI 120	200	Length/width L** unlimited 4,800 1,300 1,000	Height H** < = 412 450 600 700

* Refer to the table „Fire resistance classifications“ on page 18 for the required insulation thickness according to the fire resistance class and the performed installation.
 ** The maximum length/width L is dependent on the height H of the insulation. For other combinations, see Appendix M of the ETA.

Table 5: Overview of approved installation locations

4.4 Approved installations

In fire insulation with the PYROPLUG® Block foam block, only the installations listed below are approved.

4.4.1 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 spangle is not required)
- Cables up to a maximum outer diameter of 24 mm

4.4.2 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)

4.4.3 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

4.4.4 Non-combustible pipes with mineral wool insulation

- Pipes made of copper, steel, stainless steel and cast iron up to an outer diameter of 88.9 mm are approved and the nominal pipe wall thicknesses Image 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 18 mm. However, mineral wool insulation can be used according to the conditions stated above.
- Secure the mineral wool insulation with a coiled wire MIW-TD (6 coils per running metre).
- If required, the mineral wool insulation may be given a sheet steel or plastic foil jacket.

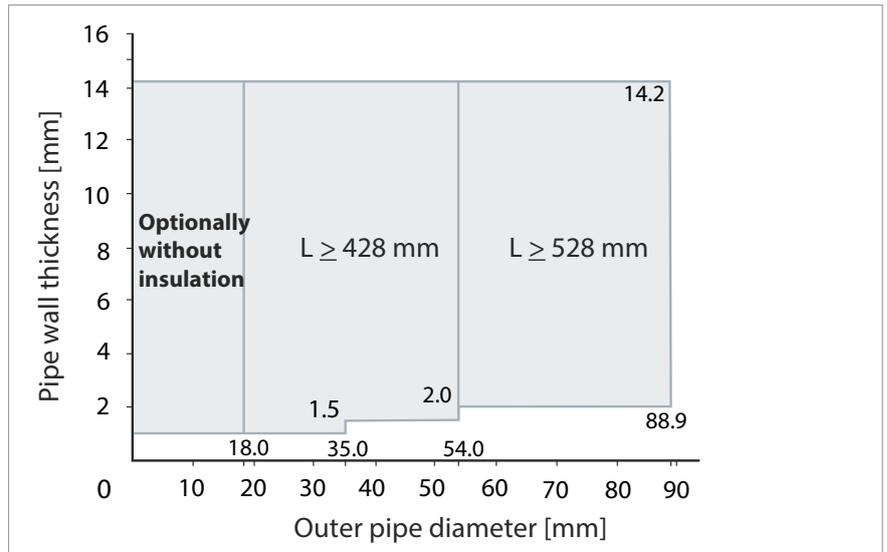


Image 6: Insulation lengths for non-combustible pipes

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 / m ³	30 mm
LS = local insulation, run through the main insulation		
CI = section insulation, interrupted in the main insulation		≥ 30 mm
CS = section insulation, run through the main insulation		
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		

Table 6: Approved insulation strengths

4.4.5 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 Image 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.

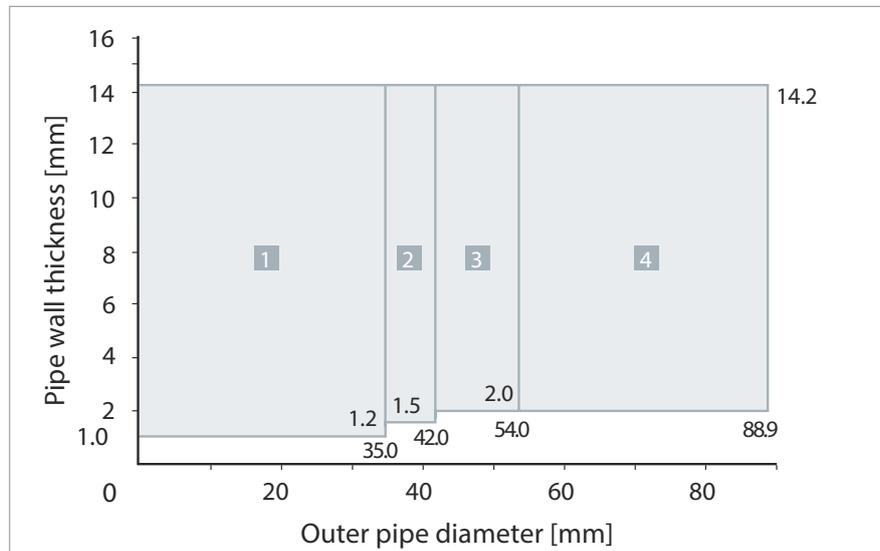


Image 7: AF/Armaflex insulation lengths for non-combustible pipes

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

Table 7: Approved insulation strengths

4.4.6 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 Image 6.

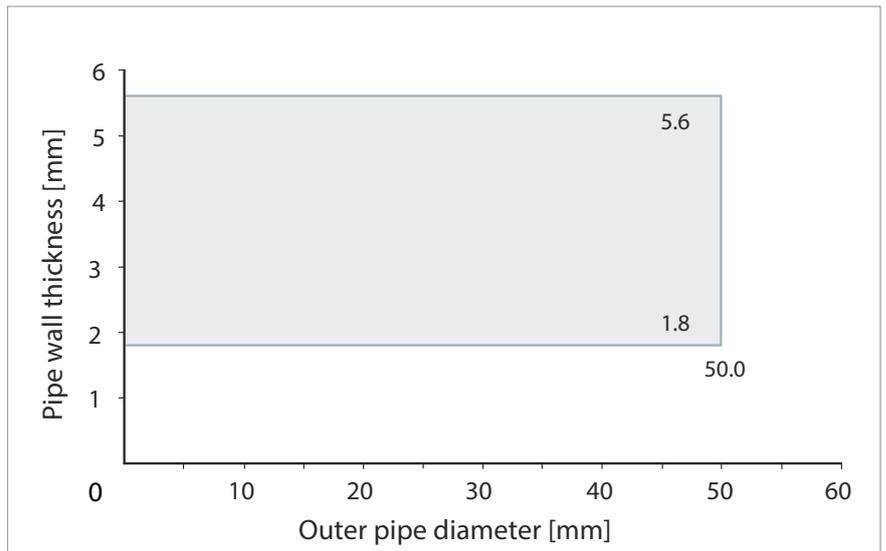


Image 8: Pipe dimensions of combustible pipes made of PVC-U and PVC-C

- Pipes with polyethylene (PE) according to EN 1519-1, EN 12666-1, EN 12201-2 and DIN 8074/8075, pipes made of acrylnitrile 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 Image 7.

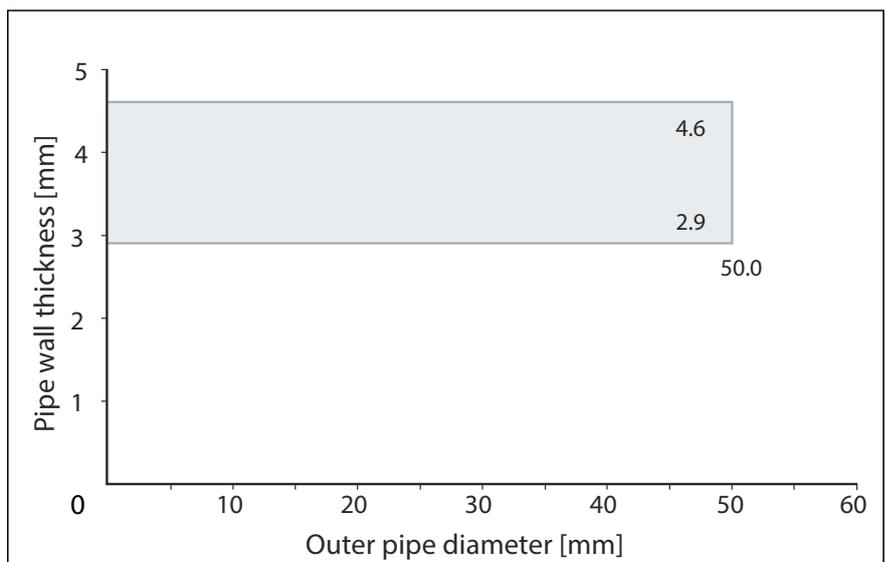


Image 9: Pipe dimensions of combustible pipes made of PE, ABS, SAN+PVC

4.5 Minimum spacing between installations

When mounting different installations through fire insulation, the minimum spacings between the installations must be maintained to guarantee the functionality of the fire insulation. The following minimum spacings must be observed.

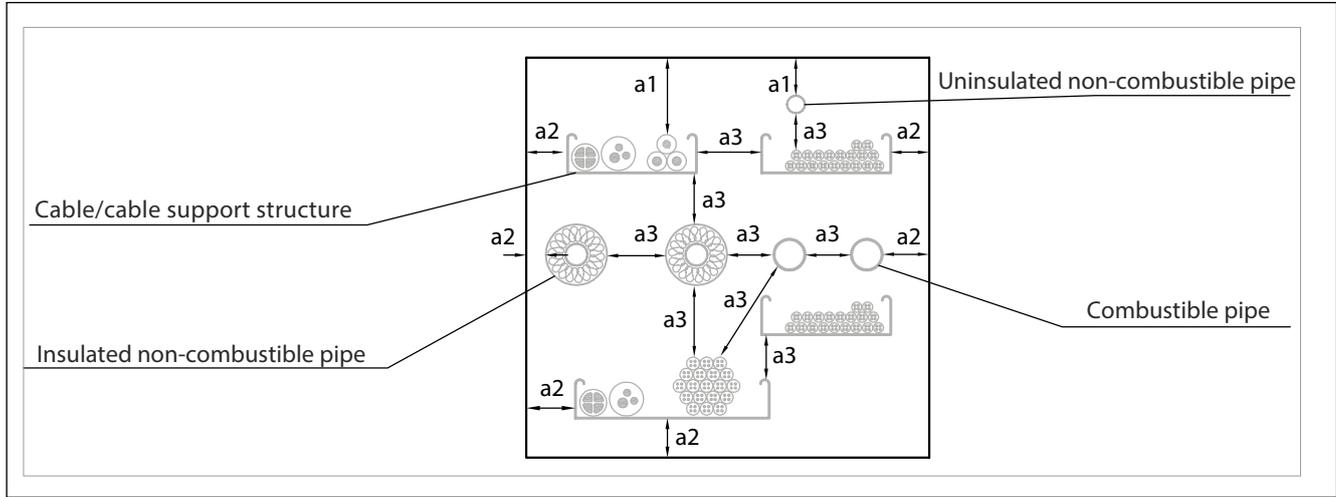


Image 10: Minimum spacing between installations

Legend:

a1: Spacing between installation and upper component soffit of the fire insulation

a2: Spacing between installation and lower or side component soffit of the fire insulation

a3: Spacing between installation and installation

Installations	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
Non-combustible pipes with mineral wool insulation	0 mm	0 mm	Non-combustible pipes with mineral wool insulation	0 mm
			Uninsulated, non-combustible pipes	60 mm
			Other passed-through elements	50 mm
With AF/Armaflex Non-combustible insulated 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

Installations	a1	a2	a3	
Uninsulated, non-combustible 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

Table 8: Minimum spacings between installations

4.6 Fire resistance classifications

Various fire resistance classes for fire insulation can be achieved with the installation of the PYROPLUG® Block foam block. The fire resistance classes are aligned to the type of installation and the minimum insulation thickness of 144 or 200 mm (dimensions of the foam block). Installation may only be performed in lightweight partitions or solid walls of a thickness ≥ 100 mm or solid walls with a thickness ≥ 150 mm.

	INSTALLATIONS	MINIMUM INSULATION THICKNESS	
		144 mm	200 mm
Cables, cable trays, cable ladders	Jacketed cables, telecommunication cables and fibre optic cables up to an outer diameter of 21 mm	E 60 EI 60	E 120 EI 90 / EI 120 ²⁾
	Jacketed cables, telecommunication cables and fibre optic cables up to an outer diameter of 21 mm ≤ 50 mm		E 120 Walls: EI 90 / EI 120 ²⁾ Ceilings: EI 90 ^{1) or 2)} / EI 120 ²⁾
	Jacketed cables, telecommunication cables and fibre optic cables up to an outer diameter of 50 mm ≤ 80 mm		E 120 EI 90 ^{1) or 2)} / 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 90 / EI 120 ²⁾
	Cables up to a max. outer diameter of 24 mm		E 60 Walls: EI 45 Ceilings: EI 60
Electrical installation pipes*	Electrical installation pipes/steel pipes up to a max. outer diameter of 16 mm with/without cables	E 60-U/C EI 60-U/C	E 120-U/C EI 120-U/C
	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		
Pipes**	Uninsulated, non-combustible pipes up to a max. outer diameter of 18 mm	E 60-C/U EI 60-C/U	E 120-C/U EI 60-C/U
	Non-combustible pipes, insulated with mineral wool up to a max. outer diameter of 54 mm		E 120-C/U Walls: EI 90-C/U Ceilings: EI 120-C/U
	Non-combustible pipes insulated with AF/Armaflex (insulation thickness > 9 mm) up to a max. outer diameter of 88.9 mm		E 120-C/U EI 90-C/U
	Combustible pipes up to a max. outer diameter of 50 mm	E 60-U/C EI 60-U/C	E 120-U/C EI 120-U/U

Table 9: Fire resistance classifications

1) A bulge of at least 5 mm thickness of PYROPLUG® Screed filler must be applied on the passed-through elements over a length of at least 30 mm on both sides of the insulation.

2) The cables, cable bundles and cable support structures must be surrounded on both sides of the insulation using the FBA-WI PYROPLUG® cable coil.

* The beginning and end must be closed off with the PYROPLUG® Screed filler, PYROSIT® NG fire protection foam or mineral wool, so that they are smoke gas-tight.

** Refer to chapter „Approved Installations“ from page 12 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 $\varnothing \leq 110$ mm).
- In Germany, the insulation of non-combustible pipes (melting point $\geq 1,000$ °C) requires class EI... (C/U).

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

5 Creating fire insulation



Risk of falling!

Fire insulation in ceilings can give way if subjected to loads or walked upon. Breakage and/or falls can lead to serious or even fatal injuries. Cover the insulation with a grid or apply reinforcements.

When creating the fire insulation, the approval ETA-15/0803 of the Austrian Institute for Construction Engineering 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 Chapter 5.6 „Achieving the fire resistance class EI 90 and EI 120.“

5.1 Creating the minimum insulation thickness

To achieve the required fire resistance class, an appropriate insulation thickness of at least 144 or 200 mm is required. The transverse and straight dimensions of the PYROPLUG® Block foam block are accordingly 144 x 200 mm. If the thickness of the wall, lightweight wall or ceiling is insufficient to achieve the necessary minimum insulation thickness, then you must also mount tuning on, or if necessary, a frame in, the ceiling/wall opening.

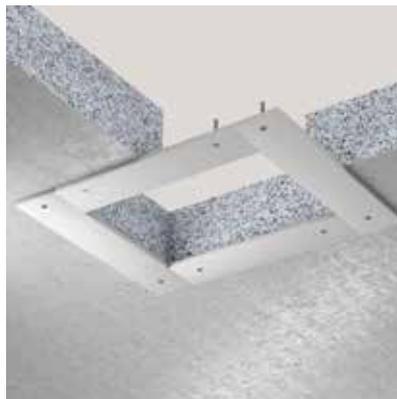


Image 11: Tuning for solid wall / lightweight partition (left), tuning for solid ceiling (centre), frame for lightweight partition / solid wall (right)

5.1.1 Creating the minimum insulation thickness for a solid wall

- For tuning or frames, use non-combustible construction plates such as GKF, silicate or calcium silicate plates of class A2-sI, d0 or A1 according to EN 13501-1.
- Ensure a minimum tuning or frame width of 50 mm and a thickness of 2 x 12.5 mm or 1 x 25 mm.

Note

Tuning on solid walls can be mounted on one or both sides. Frames must be mounted centrally.

- Cut the parts for the tuning or frame according to the width and height of the opening.
- To mount tuning or a frame, use the screws, metal anchors or bolt ties suitable for the wall material.
- In porous concrete components, use rapid installation or chipboard screws without anchors.

- Screw on a panel section with at least two screws. The maximum distance between the screws is 250 mm.
- Note* *Frame sections for wall openings smaller than 320 x 320 mm can be clamped together and inserted centrally in the wall without the need for screwing.*

- Close off the gap between the solid wall/solid ceiling and frame with standard gypsum filler.

5.1.2 Creating the minimum insulation thickness for lightweight partition

- With components larger than 320 x 320 mm, you must mount steel profiles to stabilise the partition construction.
- In the case of walls with wooden stand-off structures, ensure a minimum spacing of 100 mm between the fire insulation and wooden stands.
- Fill the space between the fire insulation and wooden stand-off structure with mineral wool (classification A2-s1, d0 or A1 according to EN 13501-1).
- Ensure that the cross-section of the wooden stand is at least 50 x 75 mm.
- For tuning or frames, use non-combustible construction plates such as GKF, silicate or calcium silicate plates of class A2-sl, d0 or A1 according to EN 13501-1.
- Ensure a minimum tuning or frame width of 50 mm and a thickness of 2 x 12.5 mm or 1 x 25 mm.
- Cut the parts for the tuning or frame according to the width and height of the opening.

Note *Tuning on lightweight partitions can be mounted on one or both sides. Frames must be mounted centrally.*

- Use suitable screws, metal anchors or bolt ties to connect tuning or frames with the steel profiles or panels.
- Screw on a panel section with at least two screws. The maximum distance between the screws is 250 mm.

Note *Frame sections for wall openings smaller than 320 x 320 mm can be clamped together and inserted centrally in the wall without the need for screwing.*

- Close off the gap between the lightweight partition and frame with standard gypsum filler.

Creating the minimum insulation thickness for solid ceilings

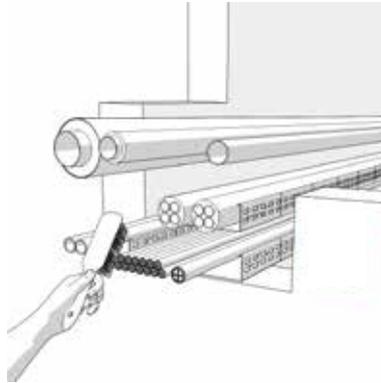
Note *Tuning on ceilings can be mounted on one or both sides, as required. Frames can either be inserted flush on one side or in the middle.*

- Use non-combustible construction plates such as GKF, silicate or calcium silicate plates of class A2-sl, d0 or A1 according to EN 13501-1.
- Ensure a minimum tuning or frame width of 50 mm and a minimum height of 2 x 12.5 mm or 1 x 25 mm.
- Cut the parts for the tuning or frame according to the width and height of the opening.
- Use the screws, metal anchors or bolt ties suitable for the ceiling material.
- In porous concrete components, use rapid installation or chipboard screws without anchors.
- Screw on a panel section with at least two screws. The maximum distance between the screws is 250 mm.

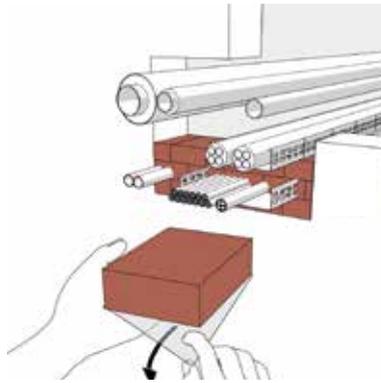
- Close off the gap between the solid ceiling and frame with gypsum filler.

5.2 Installing the PYROPLUG® Block foam block

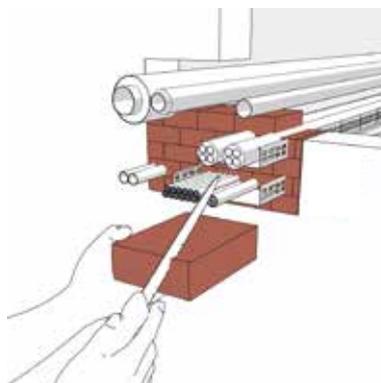
- Clean the component layer.



- Remove the protective film from the PYROPLUG® Block foam block.



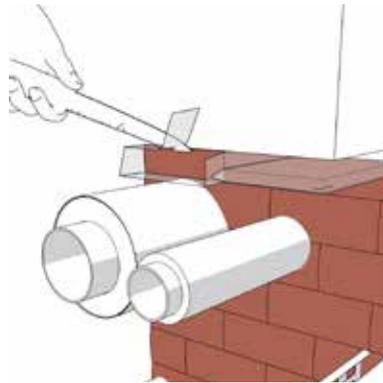
- Insert the cut PYROPLUG® Block foam blocks into the component opening so that they fit tightly. Ensure an offset in the vertical block joints.
- Cut the PYROPLUG® Block foam blocks according to the requirements in the area of the installations and insert them.



Note

For optimum cutting of the OBO fire protection products, we recommend using a knife with a serrated blade.

- Close off residual openings with the vacuum-packed PYROPLUG® Block foam block by placing it unopened in the component opening and then cutting the film.



- Cut the film on both sides flush to the insulation surface, after the vacuum-packed PYROPLUG® Block foam block has expanded to its standard size.
- If the fire resistance class requires it (see Chapter 4.6 „Fire resistance classifications“ on page 18), apply a bulge of PYROPLUG® Screed filler on the installation or wind FBA-WI cable coils around them (see Chapter 5.6 „Achieving the fire resistance class EI 90 and EI 120“ on page 25).
- Fill gaps between cables, FDA-WI spandrels and open joints on both sides with PYROPLUG® Screed filler to a depth of at least 20 mm.

Note

Alternatively, you can fill the cavities and residual openings with PYROSIT® NG fire protection foam. The SHT adhesive tape can be attached to the wall layer to avoid excess expansion of the fire protection foam. The maximum area which can be filled with the PYROSIT® NG fire protection foam is 450 x 500 mm. The filling depth must correspond to the minimum insulation depth. For this, refer to the processing instructions of the PYROSIT® NG fire protection foam in Chapter 5.5 „Working filler or fire protection foam“ auf Seite 24“.

- Remove the excess residues with a knife.
- Fill out the identification plate for fire insulation clearly with a permanent marker and mount it on one side next to the fire insulation.



Image 12: Identification plate for fire insulation

5.3 Supporting the ceiling insulation

Above certain dimensions, insulation areas with and without installations in ceilings must be supported with steel components below the ceiling insulation.

- Insulation thickness 144 mm: Support from a length > 180 mm (without installations) or 250 mm (with installations)

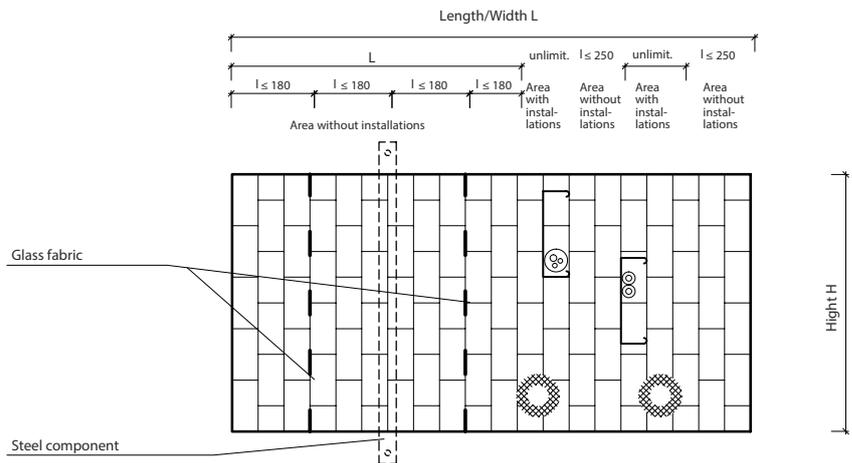


Image 13: Support 144 mm thick insulation areas in ceilings

- Insulation thickness 200 mm: Support from a length > 250 mm (without installations) or 500 mm (with installations)
- Minimum dimension of the steel components: 40 x 2 mm

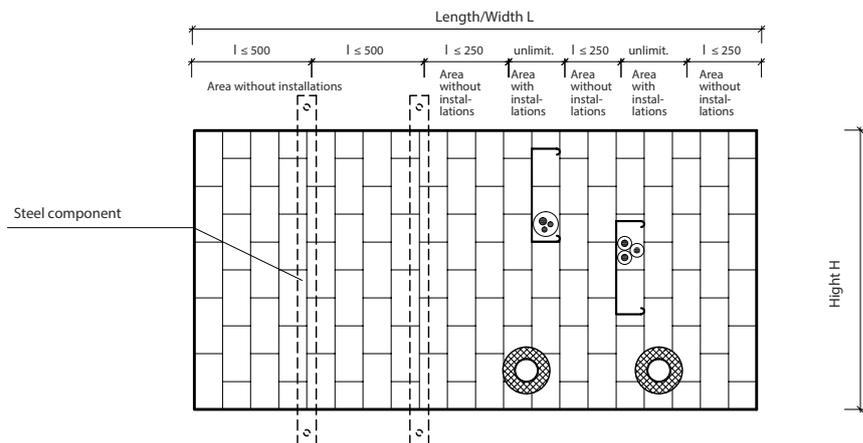


Image 14: Support 200 mm thick insulation areas in ceilings

- To mount steel components, use the screws, metal anchors or bolt ties suitable for the wall material.
- In porous concrete components, use threaded rods with a minimum thread size of M6. Push the threaded rod through the steel component and the porous concrete ceiling and secure it with washers and nuts.
- To secure the insulation against loads, particularly from footfall, cover the insulation with a grid or apply reinforcements.

5.4 Installing cables and pipes at a later time

Later installations can be run through the existing fire insulation.

- Pass single cables through the joints between the PYROPLUG® Block foam blocks.
- For larger retroinstallations, take the required number of PYROPLUG® Block foam blocks out of the fire insulation, in order to create space for the new elements to be passed through.
- Install the necessary elements.

- Cut the PYROPLUG® Block foam blocks according to the requirements.
 - Insert the cut PYROPLUG® Block foam blocks so that they fit tightly.
- Note* *A suitable cutting/drilling tool can be used to create sufficiently large openings in the fire insulation. Take the necessary protective measures and safety regulations into account.*

- Fill gaps between cables, FDA-WI spandrels and open joints on both sides with PYROPLUG® Screed filler to a depth of at least 20 mm.
- Note* *Alternatively, you can fill the cavities and residual openings with PYROSIT® NG fire protection foam.*

- With the retroinstallations, ensure that all the requirements of the ETA, such as first support, installation of the bulge or the coil, are complied with.

5.5 Working filler or fire protection foam



Caution: Irritation of the skin and respiratory passages!

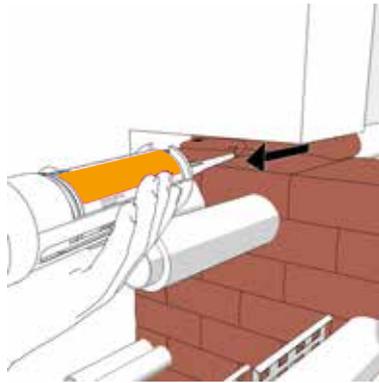
Touching the filler and the fire protection foam and inhalation of the emissions can trigger irritation of the skin, eyes and the respiratory passages. During processing, wear protective gloves, protective glasses and breathing protection.

Process the PYROPLUG® Screed filler with a standard acrylic cartridge pistol and the PYROSIT® NG fire protection foam with the 2-K cartridge pistol. The processing steps of the two materials are basically the same. Below, any processing differences of the materials are given in brackets:

- Hold the cartridge upright when opening it (fire protection foam).
- Unscrew the lock.
- Screw on the mixer tube (fire protection foam) or the centring tip (filler).
- Remove the lower protective cap (fire protection foam).
- Unlock the retaining lock of the cartridge pistol and pull the pressing piston back completely.
- Insert the cartridge in the cartridge pistol.
- 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 (fire protection foam).

Special feature of PYROSIT® NG fire protection foam:

- Fill 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 fire protection foam hardens in the mixer tube, which must then be replaced. Release the cartridge pistol before you replace the mixer tube.

- After approx. 2 minutes, remove any excess residual foam with a knife.

5.6 Achieving the fire resistance class EI 90 and EI 120

The measures described below are required for the creation of cable insulation for a fire resistance class EI 90 or EI 120 (see Chapter 4.6 „Fire resistance classifications “ auf Seite 18):

Measures for fire resistance class EI 90:

- Option 1: Apply a thick bulge of at least 5 mm of the PYROPLUG® Screed filler on both sides of the points where the cables come out of the wall. The bulge must be at least 30 mm wide (see Image 15).
- Option 2: Wind the cable coil FBA-WI around the cables at the points where they exit the wall (see Image 15). The procedure is explained under "Measures for fire resistance class EI 120".

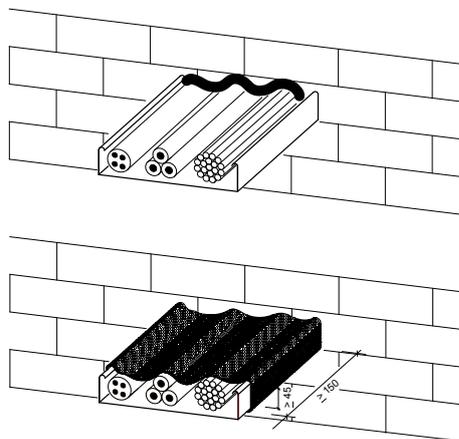


Image 15: Bulge of PYROPLUG® Screed filler or cable coil FBA-WI.

Measures for fire resistance class EI 120:

- Cut off a sufficiently long piece of FBA-WI cable coil and remove the white protective film.
- Play a layer of cable coil FBA-WI (100 mm wide) around the installations on both sides of the wall.

- 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.
- Let the start and the end of the FBA-WI cable coil overlap by approx. 45 mm and connect the overlaps with at least two steel clamps or steel wire (Ø 1 mm).

Multiple strips, one behind the other, can also be arranged with an overlap length of min. 45 mm. The overlaps should also be connected with steel clamps or steel wire.

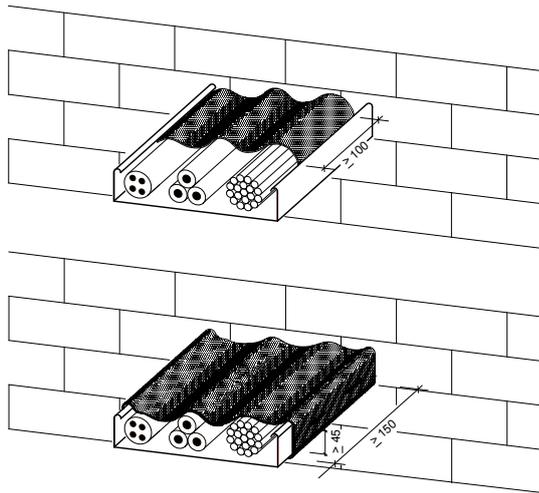


Image 16: Cable coil FBA-WI around installations

6 Tips

- After filling the gaps between cables, spandrels and open gaps with the PYROPLUG® Screed filler, they can be smoothed over with water.
- The PYROPLUG® Block foam block, PYROPLUG® Screed filler and PYROSIT® NG fire protection foam can be brushed over with standard emulsion paint. Overfilling with mineral substances is not permitted.
- Single-person mounting is also possible for the ceiling insulation.

7 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.
- The technically correct creation of combination insulation must be learned in a training course. 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 (see Chapter 10 „Appendix – Declaration of conformity (sample)“ on page 29).

8 Maintenance

The PYROPLUG® Block foam block does not require maintenance. Nonetheless, we recommend carrying out a visual inspection of the fire insulation at regular intervals, as part of the inspection of the electrical systems.

- Check that all the component parts of the fire insulation are tightly sealed.
- Seal off any gaps with the PYROSIT® NG fire protection foam or PYROPLUG® Screed filler.

9 Disposal

National laws and regulations must be observed for disposal.

Disposal during mounting

- Residual material and packaging of the PYROPLUG® Block foam blocks can be disposed of as domestic waste.

Disposal during building demolition

- Installed PYROPLUG® Block foam blocks must be disposed of as a mixed construction waste.

Disposal after a fire



Caution: Irritant effect!

If there is a fire, burning cable insulation can create corrosive gases, which have an irritant and corrosive effect. When disposing of duct sections which have been subjected to a fire, wear breathing protection and protective clothing.

If the PYROPLUG® Block foam blocks or other parts of the fire insulation have been 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.

10 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 cable/combination insulation "PYROPLUG® Block foam block", fire resistance classes to EI 120 according to EN 1366-3, European Approval Number of the OIB: ETA-15/0803 for installation in walls and ceilings up to a fire resistance class of 120 minutes 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.

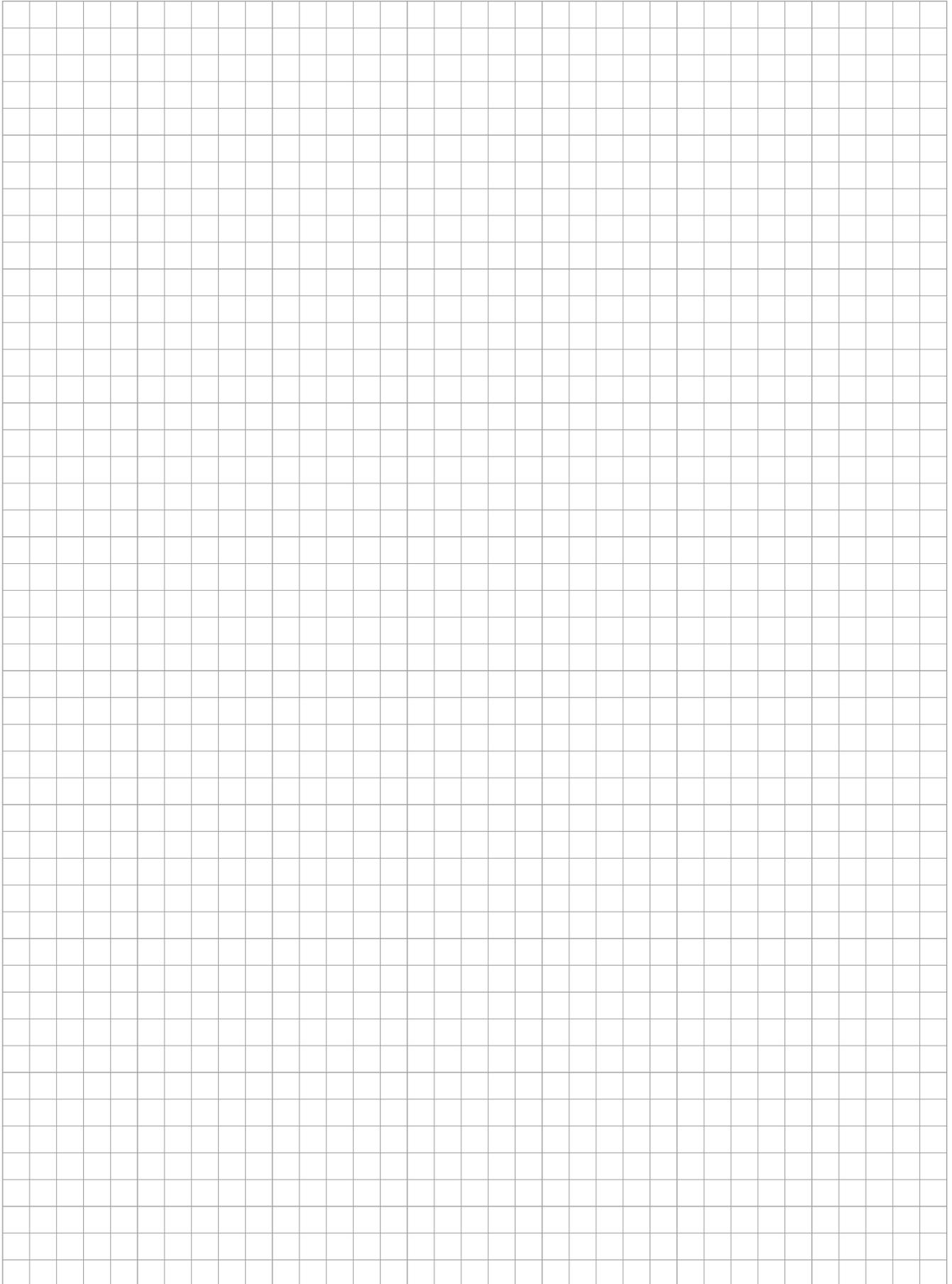
Place, date

Stamp and signature

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



Own notes



OBO Bettermann GmbH & Co. KG

PO 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

THINK CONNECTED.