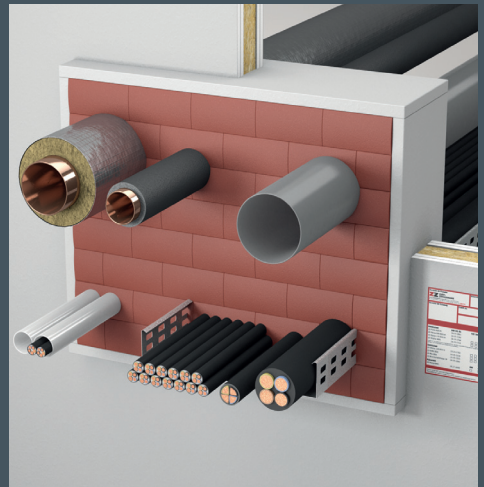
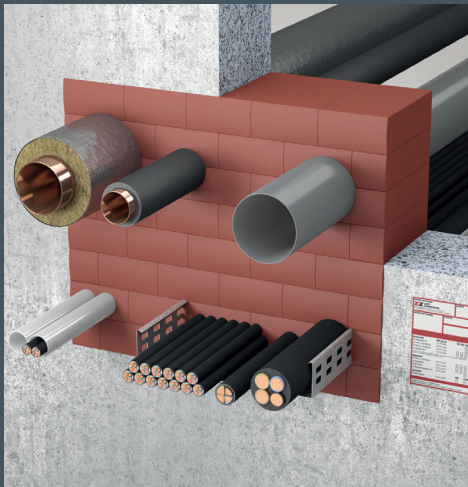


System ZZ-Fire protection block 200 NE ETA-10/0431

INSTALLATION MANUAL



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System ZZ-Fire protection block 200 NE

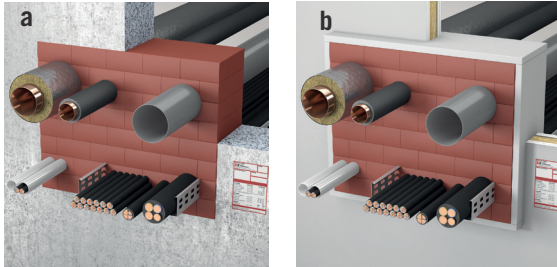
for mixed penetration seals up to EI 120

The System ZZ-Fire protection block 200 NE restores the fire resistance in areas of walls and floors where cables and pipes penetrate the component.

System ZZ-Fire protection block 200 NE ETA-10/0431

Mixed penetration seal up to EI 120 for rigid walls, rigid floors and flexible walls.

Through penetration firestop system for electrical, telecommunication and optical fibre cables, conduits, as well as flammable and non-flammable pipes.



a. System ZZ-Fire protection block 200 NE in rigid wall

b. System ZZ-Fire protection block 200 NE in flexible wall

Specially suited for: **1.** Medium-sized and large penetration seals with a medium to high level of pass-through installations, **2.** Penetration seals with frequently changing pass-through installations

Fundamentals

- / For execution of the through penetration firestop system the European Technical Approval ETA-10/0431 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 those that relate to electrical engineering, 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 Z_1 . This means that the permissible ambient conditions for use of the product are indoor areas with humidity and temperatures above 0°C .
- / Comply with the instructions on the safety data sheets for the products.

System components



Designation	Art. no.	PU
1. ZZ-Foam block 200 NE (144 x 60 x 200 [mm])	B01N00-0040	18
2. ZZ-Foam block 200 NE vacuum-packed (144 x 60 x 200 [mm])	B01N02-0012	10
3. ZZ-Mastic NE 310 ml	B15N00-0013	12
4. ZZ-Fire protection foam 2K NE 380 ml, 6 pc. set <i>incl. 12 mixing nozzles, 6 pairs of gloves, 1 duct tape</i>	B15N01-0106	1
5. ZZ-Wrap NE (5000 x 150 x 3 [mm]) <i>incl. 40 steel clips</i>	B04N00-0004	1
6. Identification plate ETA <i>Please pay attention to the section, Supplemental national regulations</i>	B16H00-0051	1

Accessories



Designation	Art. no.	PU
7. Knife with serrated blade, narrow & magnetic blade protection	B16H00-0042	1
8. Knife with serrated blade, wide & magnetic blade protection	B16H00-0043	1
9. Professional dispensing gun 310 ml	B16H00-0024	1
10. EconoMax dispensing gun (310 ml cartridge & 580 ml tubular bag)	B16H00-0052	1
11. PowerMax dispensing gun (310 ml cartridge & 580 ml tubular bag)	B16H00-0053	1
12. Duct tape	B99H00-0111	1
13. Dispensing gun HandyMax 380 ml (5:1)	B16H00-0044	1
14. Dispensing gun DynamicMax 380 ml (5:1)	B16H00-0045	1
15. Mixing nozzle 380 ml, 12 pc. set	B99H00-0112	1
16. Extension for mixing nozzle, 12 pc. set	B99H00-0172	1

General instructions

- / The cables, control lines, or conduits 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 systems 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 pipe support systems and their 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 systems over the period of time specified in the required fire resistance class. In this regard, the technical

- rules and specifications provided by the manufacturer of the support system or of the fastening system must be complied with.
- / Cable trays and ladders may optionally be routed through the through penetration firestop system.
- / Conduits must be plugged with mineral wool on the ends so that it is smoke gas tight or it must be sealed with ZZ-Fire protection foam 2K NE or ZZ-Mastic NE.
- / 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, cable trays or ladders or conduits must be mounted maximum 200 mm in front of the through penetration firestop system for wall and floor installation (maximum distance in floors only required top-side).
- / The first support of the pipes must be mounted maximum 750 mm in front of the through penetration firestop system for wall installation and 1200 mm for floor installation (maximum distance in floors only required top-side).

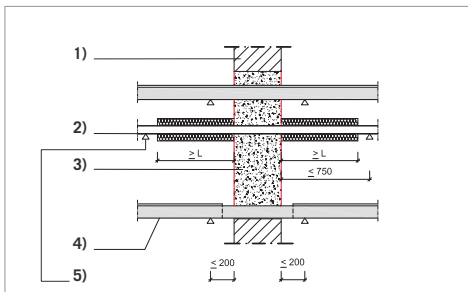


Fig. 1:
Support of pipes and cables/cable support systems in walls

Legend

- 1) Rigid wall
- 2) Pipes
- 3) First support of pipes
- 4) ZZ-Foam block 200 NE
- 5) Cables/cable support systems, conduits
- 6) First support of the cables/ cable support systems, conduits

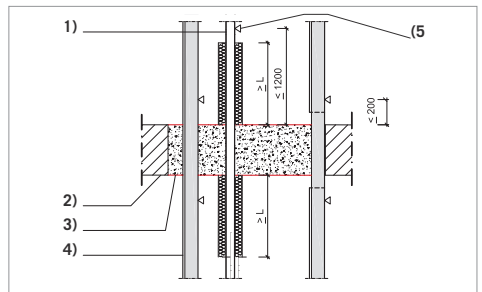


Fig. 2:
Support of pipes and cables/cable support systems in floors

Legend

- 1) Pipes
- 2) First support of pipes
- 3) Rigid floor
- 4) ZZ-Foam block 200 NE
- 5) Cables/cable support systems, conduits
- 6) First support of the cables/ cable support systems, conduits

Permissible install locations of the through penetration firestop system

Components	Minimum thickness	Classification of the component	Fire resistance classification *	Minimum seal thickness *	Maximum opening size	
Rigid wall: Aerated concrete, concrete, reinforced concrete, masonry	100 mm	EN 13501-2	EI 60	144 mm	1000 x 600 [mm]	
			EI 90 EI 120	200 mm	or 600 x 1000 [mm]	
Flexible wall: Timber or steel studs lined on both sides	100 mm	EN 13501-2	EI 60	144 mm	1000 x 600 [mm]	
			EI 90 EI 120	200 mm	or 600 x 1000 [mm]	
Rigid floor: Aerated concrete, concrete, reinforced concrete	150 mm	EN 13501-2	EI 60	144 mm	Length/width L [mm] **	Height H [mm] **
					unlimited	≤ 375
			EI 90 EI 120	200 mm	6000	400
					2250	450
unlimited	Height H [mm] **	1000	600			
		unlimited	≤ 412			
4800	450					
1300	600					
1000	700					

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

** The maximum length / width L depends on the height H of the penetration seal.
See Annex M of the ETA for other combinations.

Approved penetrating elements

Cables

- / **Sheathed electrical cables, telecommunication cables, optical fibre cables** up to a maximum outer diameter of 80 mm
- / **Tied cable bundles** up to a total diameter of 100 mm consisting of sheathed electrical cables, telecommunication cables, optical fibre cables with a maximum outer diameter of 21 mm (sealing of the interstices in the interior is not necessary)
- / **Non-sheathed electrical cables** up to a maximum outer diameter of 24 mm

Control lines/conduits

- / **Conduits/pipes of steel** up to a maximum outer diameter of 16 mm with or without cables in the conduits/pipes

- / **Conduits/pipes of plastic** up to a maximum outer diameter of 40 mm with or without cables in the conduits/pipes
- / Bundles of plastic conduits with a maximum outer diameter of 80 mm (max. outer diameter of an individual conduit 40 mm)

Cable support systems

- / Cable trays (perforated or non-perforated) of steel, optionally coated
- / Cable ladders of steel, optionally coated
- / Classification in accordance with EN 13501-1, at least A2-s1,d0

Approved penetrating elements**Non-flammable pipes with mineral wool insulation**

- / Pipes of copper, steel, stainless steel, and cast-iron are permitted up to an outer diameter of 88.9 mm, the nominal pipe wall thickness as specified in *Diagram 1* must be complied with.
- / Local insulation (insulation only in the area of the through penetration firestop system) that is interrupted inside the penetration seal (LI) or that is routed through the penetration seal (LS) must consist of mineral wool with a minimum density of 90 kg/m³. The insulation thickness must be 30 mm.
- / Insulation over the entire length of the pipeline that is interrupted inside the penetration seal (CI) or that is routed through the penetration seal (CS) must consist of mineral wool with a minimum density of 90 kg/m³. The insulation thickness must be at least 30 mm.
- / For pipes up to an outer diameter of 18 mm no insulation is required. Optionally, however, mineral wool insulation can be used under the conditions cited above.
- / The mineral wool insulation must be secured with steel wire (diameter approx. 0.8 mm, 6 winds per running m).
- / Optionally the mineral wool insulation may be provided with a jacket of sheet steel (thickness 0.4 mm to 1 mm) or plastic foil (thickness 0.35 mm to 1 mm).

Non-flammable pipes with AF/Armaflex insulation

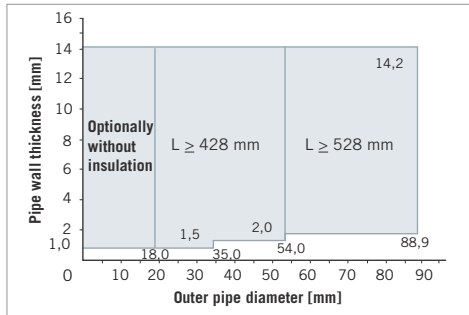
- / Pipes of copper, steel, stainless steel, and cast-iron are permitted up to an outer diameter of 88.9 mm, the nominal pipe wall thickness as specified in *Diagram 2* must be complied with.
- / Local insulation (insulation only in the area of the through penetration firestop system) or insulation over the entire length of the pipeline must be made of AF/Armaflex (Armocell GmbH, Münster) and it must be routed through the penetration seal (LS or CS). The minimum length is 500 mm on both sides of the penetration seal, in either case.

Flammable pipes

- / Polyvinyl chloride pipes that are free of softeners (PVC-U) in accordance with EN 1452-1 and in accordance with DIN 8061/8062 up to an outer diameter of 50 mm are permissible. The permissible nominal pipe wall thicknesses as specified in *Diagram 3* must be complied with.
- / Pipes of polyethylene (PE) in accordance with EN 1519-1, as well as DIN 8074/8075, pipes up to an outer diameter of 50 mm are permissible. The permissible nominal pipe wall thicknesses as specified in *Diagram 4* must be complied with.

Diagram 1

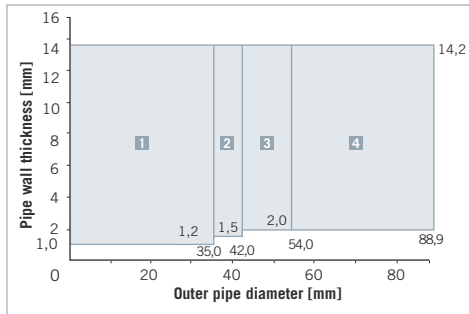
Non-flammable pipes of copper, steel, stainless steel, cast steel insulated with mineral wool, insulation routed through (LS, CS), or interrupted (LI, CI), optionally clad with sheet steel or plastic



Case	Density of the mineral wool	Insulation thickness of the mineral wool
LI	≥ 90 kg/ m ³	30 mm
LS		30 mm
CI		≥ 30 mm
CS		≥ 30 mm

Diagram 2

Non-flammable pipes of copper, steel, stainless steel, cast steel insulated with AF/Armaflex, insulation routed through (LS, CS), minimum length 500 mm on both sides of the through penetration firestop seal



Legend

Permissible insulation thicknesses

- 1) Insulation thickness: 9–35,0 mm
- 2) Insulation thickness: 9–36,5 mm
- 3) Insulation thickness: 9–38,0 mm
- 4) Insulation thickness: 41.5 mm

Diagram 3

Flammable pipes of PVC-U

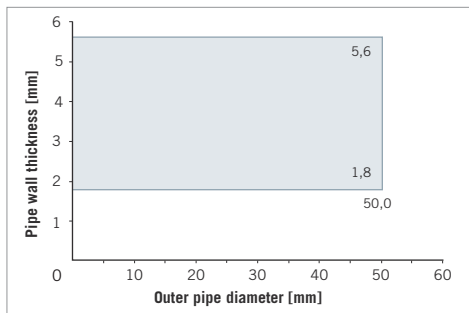
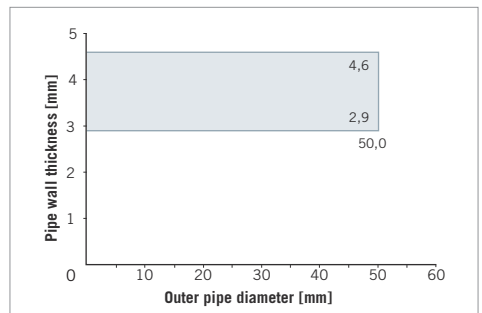


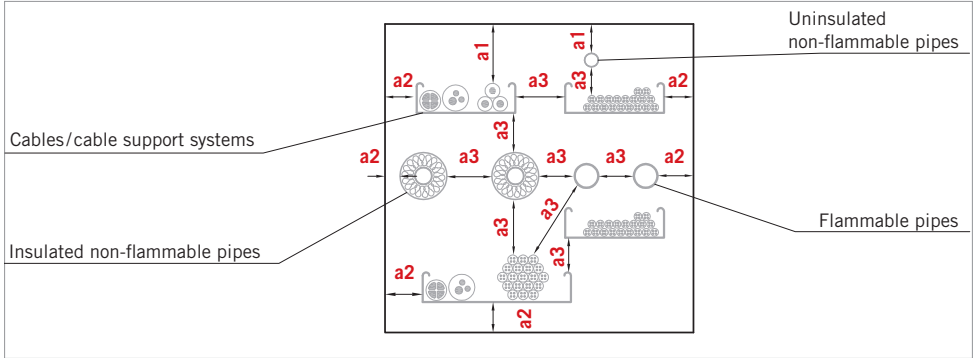
Diagram 4

Flammable pipes of PE-HD



System ZZ-Fire protection block 200 NE ETA-10/0431

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	
Cables, cable support systems and conduits	50 mm	0 mm	Cables/cable support systems and conduits, horizontal Cables/cable support systems and conduits, vertical Uninsulated non-flammable pipes Other penetrating elements	0 mm 50 mm 60 mm 50 mm
Mit Mineralwolle isolierte nbr. Rohre	0 mm	0 mm	Non-flammable pipes insulated with mineral wool Uninsulated non-flammable pipes Other penetrating elements	0 mm 60 mm 50 mm
Mit AF/Armaflex isolierte nbr. Rohre	35 mm	35 mm	Non-flammable pipes, insulated with AF/Armaflex (thickness > 9 mm) Non-flammable pipes, insulated with AF/Armaflex (thickness 9 mm) Uninsulated non-flammable pipes Other penetrating elements	35 mm 50 mm 60 mm 50 mm
Unisolierte nbr. Rohre	35 mm	35 mm	Uninsulated non-flammable pipes Other penetrating elements	60 mm 60 mm
Brennbare Rohre	50 mm	50 mm	Flammable pipes Uninsulated non-flammable pipes Other penetrating elements	50 mm 60 mm 50 mm

Between two through penetration firestop systems of this approval

100 mm

Fire resistance classifications

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

		PENETRATING ELEMENTS		MINIMUM SEAL THICKNESS	
				144 mm	200 mm
Cables/ Cable trays and ladders	Sheathed electrical cables, telecommunication cables, optical fibre cables up to a maximum outer diameter of $0 \text{ mm} < \varnothing \leq 21 \text{ mm}$	E 60 EI 60	E 120 EI 90 / EI 120 ²⁾		
	Sheathed electrical cables, telecommunication cables, optical fibre cables up to a maximum outer diameter of $21 \text{ mm} < \varnothing \leq 50 \text{ mm}$	E 60 EI 60	E 120 Walls: EI 90/EI 120 ²⁾ Floors: EI 90 ¹⁾ or 2)/EI 120 ²⁾		
	Sheathed electrical cables, telecommunication cables, optical fibre cables up to a maximum outer diameter of $50 \text{ mm} < \varnothing \leq 80 \text{ mm}$	E 60 EI 60	E 120 EI 90 ¹⁾ oder 2) / EI 120 ²⁾		
	Tied cable bundles up to a max. outer diameter of 100 mm consisting of sheathed electrical cables, telecommunication cables, optical fibre cables with a maximum outer diameter of 21 mm	E 60 EI 60	E 120 EI 90 / EI 120 ²⁾		
	Non-sheathed electrical cables up to a maximum outer diameter of 24 mm	E 60 Walls: EI 45 Floors: EI 60	E 120 EI 60		
Conduits *	Conduits/pipes of steel up to a maximum outer diameter of 16 mm with or without cables	E 60-U/C EI 60-U/C	E 120-U/C EI 120-U/C		
	Conduits/pipes of plastic up to a maximum outer diameter of 40 mm or bundles of plastic conduits with a maximum outer diameter of 80 mm (max. outer diameter of an individual conduit 40 mm), in each case with or without cables	E 60-U/C EI 60-U/C	E 120-U/C EI 120-U/C		
Pipes **	Uninsulated non-flammable pipes up to a maximum outer diameter of 18 mm	E 60-C/U EI 60-C/U	E 120-C/U EI 60-C/U		
	Non-flammable pipes insulated with mineral wool up to a maximum outer diameter of 88.9 mm	E 60-C/U EI 60-C/U	E 120-C/U Walls: EI 90-C/U Floors: EI 120-C/U		
	Non-flammable pipes insulated with AF/Armaflex (insulation thickness ≥ 9 mm) up to a maximum outer diameter of 88.9 mm	E 60-C/U EI 60-C/U	E 120-C/U EI 90-C/U		
	Flammable pipes up to a maximum outer diameter of 50 mm	E 60-U/C EI 60-U/C	E 120-U/C EI 120-U/C		

1) A minimum 5 mm thick bead of ZZ-Mastic NE over a length of at least 30 mm on both sides must be provided around the penetrating elements and the cable support systems that are routed through.

2) The cables, cable bundles and cable support systems must be wrapped on both sides of the penetration seal with ZZ-Wrap NE.

* Beginning and end must be sealed smoke gas tight with ZZ-Mastic NE, ZZ-Fire protection foam 2K NE or mineral wool.

** See the pipe diagrams for the permissible insulation thicknesses.

Note:

For through penetration firestop systems for flammable pipes, in Germany Class EI... (U/U) or EI... (U/C) (for drinking water lines, heating and cooling lines $\varnothing \leq 110$ mm) is required. For through penetration firestop systems for non-flammable pipes (melting point ≥ 1000 °C), in Germany Class EI... (C/U) is required. (See Bauregelliste A, Part 1, Table 2). Fire resistance class EI... (U/U) covers fire resistance class EI... (U/C).

Particularities for installation in rigid walls and rigid floors

- / If the thickness of the rigid wall or rigid floor 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. 3) or a board frame (see Fig. 1 & 2) 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, so that the ZZ-Foam blocks 200 NE rest on the lining or the board frame and the wall/floor over the entire thickness of the through penetration firestop system.
- / For the fastening of the lining (at least 2 x 12.5 mm or 25 mm thick) or the board frame (at least 50 mm wide) 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 250 mm.
- / Lining parts in walls that are installed in openings smaller than 320 mm x 320 mm, must only be jammed together centered in the opening. Fastening with screws can be dispensed with.
- / The joint between rigid wall/rigid floor and lining must be sealed for example with plaster filler.
- / Areas of the through penetration firestop system in floors without penetrating elements with a length greater than 180 mm/250 mm (seal thickness 144 mm) or 250 mm/500 mm (seal thickness 200 mm) must be supported with steel components underneath the cable penetration seal (minimum dimensions 40 mm x 2 mm) every 180 mm (seal thickness 144 mm) 250 mm or 500 mm (seal thickness 200 mm), see Fig. 4 and 5. For penetration seals with a seal thickness of 144 mm instead of a steel component a glass fabric can be inserted in the horizontal joints (see Fig. 4)
- / In areas with penetrating elements no additional support is necessary.
- / For the fastening of the steel components screws and metal anchors or screw anchors that are sufficiently large/long and suitable for the substrate must be used. In aerated concrete floors one threaded rod (at least M6) and washers and nuts on both sides of the floor must be used per fastening point.
- / Through penetration firestop systems in floors must be safeguarded against loads, particularly against being walked on, through a grate covering or enclosure.

Particularities for installation in flexible walls

- / 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. 3) or a board frame (see Fig. 1 & 2) 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, so that the ZZ-Foam blocks 200 NE rest on the lining or the board frame and the wall over the entire thickness of the through penetration firestop system
- / Openings that are larger than 320 mm x 320 mm must be lined with steel profiles. The wall planking must be fastened with steel profiles as prescribed.
- / For the fastening of the lining (at least 2 x 12.5 mm or 25 mm thick) or the board frame (at least 50 mm wide), dry-wall screws or chip-board screws that are sufficiently large/long must be bolted into the steel profiles. At least two screws per board must be used, the distance between screws must be a maximum of 250 mm.
- / Lining parts that are installed in openings smaller than 320 mm x 320 mm, must only be jammed together centered in the opening. Fastening with screws can be dispensed with.
- / The joint between flexible wall and lining must be sealed for example with plaster filler.
- / 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).

Board frame and lining

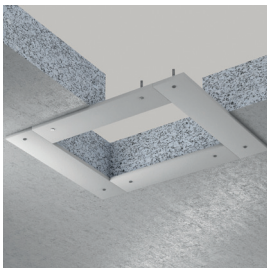


Fig. 1:
Board frame for rigid floor
(arranged either on one side or both sides)



Fig. 2:
Board frame for rigid floor and flexible wall
(arranged either on one side or both sides)



Fig. 3:
Lining for flexible wall and rigid wall
(centered arrangement in each case)
and the same for rigid floor (either flush on one side or centered)

Support of the through penetration firestop system in floors

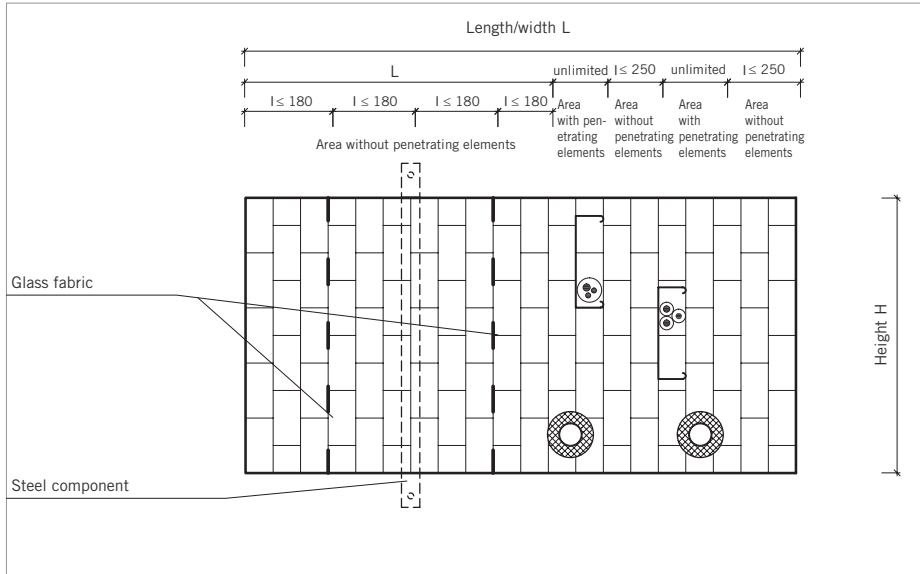


Fig. 4: (Seal thickness 144 mm)

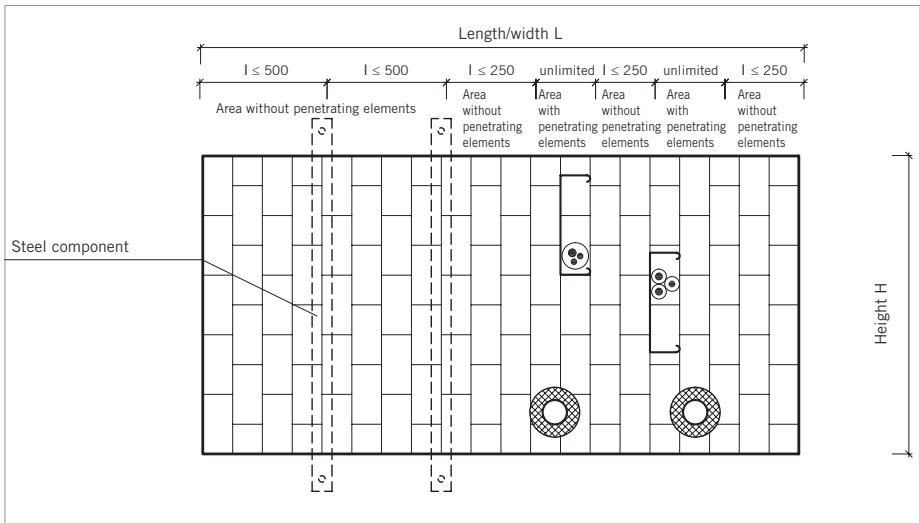
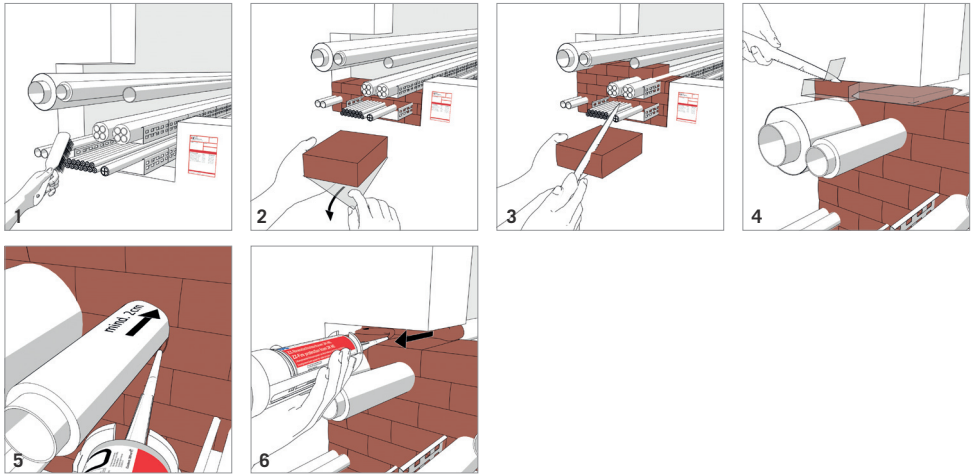


Fig. 5: (Seal thickness 200 mm)



Installation steps

The approval, ETA-10/0431, and the respective national regulations are authoritative for execution of the through penetration firestop system. Wear suitable protective gloves, safety glasses and protective clothing for the work.

1. Clean the component opening.
2. Remove the protective foil of the ZZ-Foam blocks 200 NE and install them in layers (like in a brick bond, i.e. layer-by-layer offset of the vertical butt joints) so that they fit tightly in the component opening.
3. In the area of penetrating elements, cut the ZZ-Foam blocks 200 NE to the required size.
4. Narrow residual openings can be sealed with ZZ-Foam block 200 NE vacuum packed. To do this, place the ZZ-Foam blocks 200 NE vacuum packed unopened in the opening. After cutting open the foil the ZZ-Foam block 200 NE expands to the standard size. The foil can remain inside the penetration seal, however it must be removed on both sides so that it is flush with the surface of the penetration seal.
5. Interstices between cables and open joints must be filled with ZZ-Mastic NE at least 20 mm deep on both sides. Butt joints and horizontal joints between ZZ-Foam blocks 200 NE as well as the joint between the edge of the aperture and ZZ-Foam block 200 NE do not need to be filled.
6. Areas with penetrating elements or narrow openings between ZZ-Foam blocks 200 NE and the the edge of the aperture may alternatively be filled with ZZ-Fire protection foam 2K NE. The fill depth must equal the minimum seal thickness. The maximum area that may be filled with ZZ-Fire protection foam 2K NE is 450 mm x 500 mm (Width x Height). (See processing of the ZZ-Fire protection foam 2K NE).

Processing of a bead of ZZ-Mastic NE or installation of ZZ-Wrap NE

Fire resistance class EI 90

For fire resistance class EI 90 in some cases additional measures are required (see table Fire resistance classifications). Two variants are available in this regard.

/ Variant 1: Apply a bead of ZZ-Mastic NE on both sides on the cables that is at least 5 mm thick with a length of at least 30 mm (see Fig. 5).

/ Variant 2: Alternatively the cables and cable support systems can be wrapped with ZZ-Wrap NE (see Fig. 6).

For installation see Fire resistance class EI 120, without work step 1.

Fire resistance class EI 120

For fire resistance class EI 120 the cables, cable bundles, and cable support systems must in some cases be wrapped with ZZ-Wrap NE. Cut off a sufficient length of "ZZ-Wrap NE" and remove the white protective foil.

/ Step 1: In the first work step place a layer of ZZ-Wrap NE that is at least 100 mm wide on the penetrating elements on both sides (see Fig. 7).

/ Step 2: Then a strip of ZZ-Wrap NE that is at least 150 mm wide must be wrapped around the penetrating elements on both sides. The adhesive side must rest on the cables or the cable support systems. The glass fabric that serves as protection is on the outside (see Fig. 8).

/ The beginning and end of ZZ-Wrap NE must be connected with at least two steel clips or steel wire (\varnothing 1 mm). The length of overlap must be at least 45 mm.

/ Multiple strips can also be arranged one after the other with an overlap of at least 45 mm. The butt joints must also be connected with steel clips or steel wire.

For fire resistance class EI 90

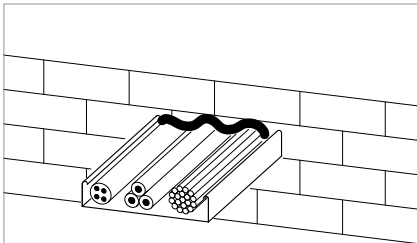


Fig. 5, Variant 1: Bead on the penetrating elements

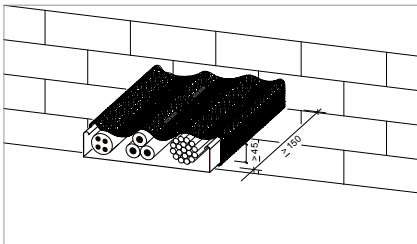


Fig. 6, Variant 2: ZZ-Wrap NE around the penetrating elements

For fire resistance class EI 120

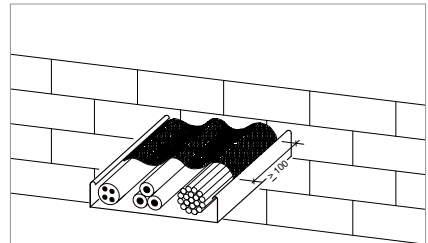


Fig. 7, Step 1: ZZ-Wrap NE on the penetrating elements

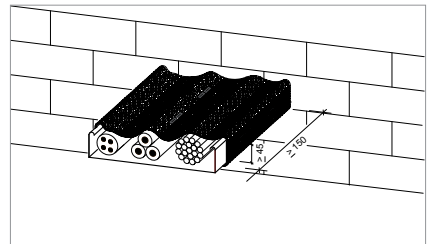
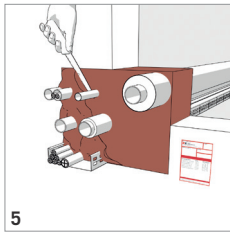
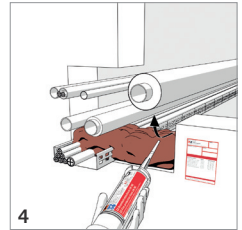
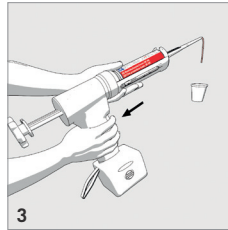
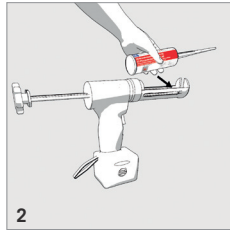
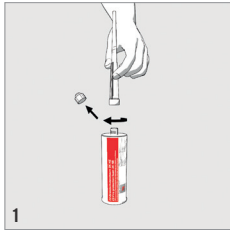


Fig. 8, Step 2: ZZ-Wrap NE around the penetrating elements

Processing of the ZZ-Fire protection foam 2K NE



If the mixing nozzle is clogged, never use force to press out the material: force can destroy the cartridge or the dispensing gun! Wear suitable protective gloves and protective clothing for the work.

1. Hold the cartridge vertically with the tip pointing upward, unscrew the cap and firmly screw on the provided mixing nozzle.
2. Insert the cartridge into the intended dispensing gun.
3. Start pressing out and discard non-uniform initial material.
4. Fill the opening from back to front. In this process build up the foam from bottom to top, always guide the tip of the mixing nozzle above the foam so that the material does not stick or clog. After a work interruption longer than approximately 50 seconds the foam hardens in the mixing nozzle, which then must be replaced. Prior to changing the mixing nozzle, offload the dispensing gun, and carefully replace the mixing nozzle.
5. After approx. 2 minutes projecting foam residues can be cut off with a suitable knife in compliance with the necessary protective measures and safety regulations.

System ZZ-Fire protection block 200 NE ETA-10/0431

Retroactive-installation of cables and pipes

- / The required number of ZZ-Foam blocks 200 NE must be removed from the penetration seal, to provide space for the new penetrating elements that will be routed through.
- / After routing through the penetrating elements the removed ZZ-Foam blocks 200 NE must be cut to the appropriate size so that they can be reinserted in the opening with a tight fit. Interstices between cables and open joints must be filled with ZZ-Mastic NE at least 20 mm deep on both sides.
- / Alternatively 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).
- / Individual cables can be forced through the joints between the ZZ-Foam blocks 200 NE.
- / Interstices between cables and open joints must be filled with ZZ-Mastic NE at least 20 mm deep on both sides.
- / Alternatively ZZ-Fire protection foam 2K NE can be used for sealing.
- / The newly added penetrating elements must satisfy all ETA requirements (e.g., first support, if necessary installation of ZZ-Mastic NE bead or of ZZ-Wrap NE).

Tips

- / We recommend the knife with the wide or narrow serrated blade for optimal cutting of the ZZ-Fire protection products (see accessories).
- / After filling the interstices between the cables and open joints with ZZ-Mastic NE, these fillings can be smoothed with a brush moistened with water.
- / One-man installation is also possible for penetration seals in floors.
- / Seal narrow residual openings with the ZZ-Foam block 200 NE vacuum packed (see system components). After opening the foil the ZZ-Foam block 200 NE expands to standard size.
- / The through penetration firestop system can be painted over with off-the-shelf dispersion paint.

Supplemental national requirements

Germany

- / The through penetration firestop system must be permanently marked with an identification plate.
- / Mixed penetration seals require training; verification of training can be issued after successful participation at ZAPP-ZIMMERMANN.
- / After the tasks have been concluded a written confirmation of conformance must be given to the client.

Product data ZZ-Foam block 200 NE

Reaction to fire in accordance with DIN EN 13501-1:	Class E
Transport/storage:	Dry, protected against dust and only in the original packaging
Air permeability:	$Q_{600} = 6.61 \text{ m}^3/(\text{h}\cdot\text{m}^2)$ (at 600 Pa differential pressure) <u>Test standard:</u> EN 1026 (test specimen dimensions 355 x 550 x 200 [mm], tested without penetrating elements)
Airborne sound insulation:	$D_{n,e,w}(C;C_{tr}) = 68 (-4; -11) \text{ dB}$ <u>Test standard:</u> EN ISO 717-1 (test specimen dimensions 360 x 360 x 200 [mm], tested without penetrating elements)
Thermal conductivity:	$\lambda = 0.103 \text{ W}/(\text{m}\cdot\text{K})$, <u>Test standard:</u> DIN EN 12667
Resistance to static differential pressure:	$P_{\text{max}} = 3700 \text{ Pa}$ <u>Test standard:</u> In accordance with EN 12211 (test specimen dimensions 355 x 550 x 200 [mm], tested without penetrating elements)

Testing the fire safety properties under environmental influences

Permissible ambient conditions:

In accordance with ETAG 026-2

Use category Z_1
Products for use in indoor areas with humidity and temperatures above 0 °C

Declaration of performance

Links to the declaration of performance

System component	Link
ZZ-Foam block 200 NE	www.z-z.eu/dop-11-03
ZZ-Mastic NE	www.z-z.eu/dop-11-05
ZZ-Fire protection foam 2K NE	www.z-z.eu/dop-11-01
ZZ-Wrap NE	www.z-z.eu/dop-11-02

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