



Fire protection block bulkhead

Firestop blocks CFS-BL and fire dampers FKRS-EU

according to Declaration of Performance
as of DoP / FKRS-EU / EN / 003



TROX[®] TECHNIK
The art of handling air

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Additional provision for use in Germany

1 General information

Information on the installation manual

This installation manual enables the correct installation as well as the safe and efficient use of the products described below.

This manual is intended for use by fitting and installation companies, in-house technicians, technical staff, instructed persons, and qualified electricians or air conditioning technicians.

It complements the installation and operating manual of the fire dampers FKRS-EU by installation of Hilti fire protection block bulkheads CFS-BL in solid walls, light-weight partition wall with metal support and sandwich panel walls, as well as mixed bushing with cable, cable bundles, cable trays, and empty conduits.

1.1 Provision for use in Europe

- For use in Europe (except Germany), the Declaration of Performance for the FKRS-EU fire dampers applies, which includes use in the Hilti fire protection block bulkhead.
The permissible materials and building products mentioned in the installation manual are included. They do not require any supplementary verifications.
- The national specifications for the marking, fixing and use of Hilti fire protection block bulkheads must be observed in addition.

1.2 Additional provision for use in Germany

- In accordance with the national regulations in Germany, a project-related type approval (vBG) is required for the installation described in the installation manual. Application for this approval has to be submitted to the building supervisory authority of the federal state in which the construction project is to be implemented.
- Flame-resistant, non dripping building materials (elastomer foams) must at least comply with fire rating class C - s2, d0 according to the German MVV TB (2019/1) guideline. The applicable local building regulations have to be observed.

2 Technical data

2.1 General data

Permissible fire dampers	FKRS-EU
Permissible fire protection block bulkhead	Hilti firestop blocks CFS-BL, see table 6
Dimensions B1 × H1	max. 1000 × 1000 mm
Fire resistance duration of overall construction	EI 90 / EI 90 S (fire damper)
Permissible bushings	See table 17
Temperature range ^{1, 2, 3}	-20 (-15) °C to +50 (60) °C
EC conformity	<ul style="list-style-type: none"> ■ EU Construction Products Regulation no. 305/2011 ■ EN 15650 – Ventilation for buildings - Fire dampers ■ EN 13501-1 – Classification using data from fire resistance tests on products and elements used in building service installations: Fire resisting ducts and fire dampers ■ EN 13501-2 – Classification using data from fire resistance tests, with the exception of ventilation systems ■ EN 13501-3 – Classification: Fire resistant ducts and fire dampers ■ EN 1366-2 – Fire resistance tests for installations: Fire dampers ■ EN 1366-3 – Fire resistance tests for installations: Partitioning panels ■ EN 1751 – Ventilation for buildings – Air terminal devices
Declaration of Performance	from DoP / FKRS-EU / EN / 003

¹⁾ Temperatures may differ for units with attachments. Details for other applications are available on request.

²⁾ Fire dampers -20 °C - 50 °C, Hilti firestop blocks CFS-BL -15 °C to 60 °C (without exposure to rain or UV radiation).

³⁾ Non-condensing operation or without moisture entry via the fresh air intake.

3 Parts and function

Hilti firestop blocks in combination with fire dampers as a single bushing and also with cables, cable bundles, cable trays and empty conduits in a common component opening (mixed bushing) are referred to as a fire protection block bulkhead. The building products permitted for this installation are listed in this manual.

For the fire damper, the Declaration of Performance and the installation and operating manual of the FKRS-EU must also be observed. For the firestop blocks and cable bushings, the company Hilti provides further information.

3.1 Components block bulkhead

Products (Hilti)	Part no.
Firestop block CFS-BL, 200 × 130 × 50 mm	2062863
Firestop filler mastic CFS-FIL, Cartridge 310 ml	2052899

4 Installation

4.1 General installation information

- The installation is carried out in solid walls, lightweight partition walls with metal support and sandwich panel walls. Details on wall construction according to the installation and operating instructions of the fire damper FKRS-EU.
- The fire protection block bulkhead always consists of Hilti firestop blocks CFS-BL.
- The maximum block bulkhead size $B1 \times H1$ is 1000×1000 mm.
- Installation of each FKRS-EU in separate installation opening.
- For a mixed bushing, the minimum distance between the housing of the fire damper and other bushings (cable / cable bundle / cable tray / empty conduit) is ≥ 200 mm. The first bushing (not a combustible line) must be installed at a distance 200 - 250 mm from the fire damper.
- The minimum distance between fire damper and bulkhead edge ($s1$) is ≥ 50 mm.
- Fire damper as well as cables, cable bundles, cable routes and empty conduits may be arranged at any position in the fire protection block bulkhead, provided that the specified minimum distances are observed.
- The position of the fire damper in the fire protection block bulkhead is arbitrary, provided that the specified distances are observed.
- All continuous supply lines (cables, cable bundles, cable routes and empty conduits) can be laid together with the fire damper individually, several times or mixed (combined penetration seal).
- If there are no other bushings, the distance between the fire damper and the edge of the bulkhead is a maximum of 250 mm.
- Fill gaps between cables, cable bundles, cable trays, empty conduits, fire damper and firestop blocks with Hilti firestop filler mastic CFS-FIL up to a depth of 20 mm.
- Spaces between cable support systems and CFS-BL firestop blocks must be filled with Hilti firestop filler mastic CFS-FIL over the entire installation depth.
- The installations must be fixed to the wall (not to the fire protection block bulkhead) in accordance with the relevant regulations so that no additional mechanical load is transferred to the fire protection block bulkhead.

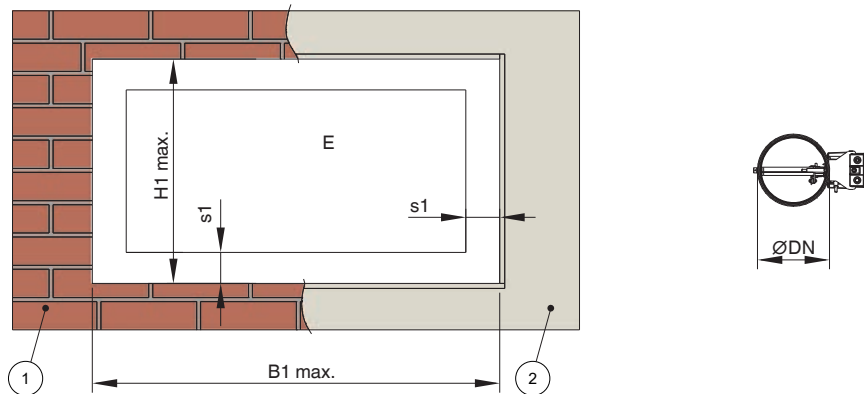


Fig. 1: General dimensions

- 1 Solid wall
- 2 Lightweight partition wall
- E Installation area

- $B1 \times H1$ max. block bulkhead size 1000×1000 mm
- $\varnothing DN$ FKRS-EU Nominal sizes 100 – 315 mm

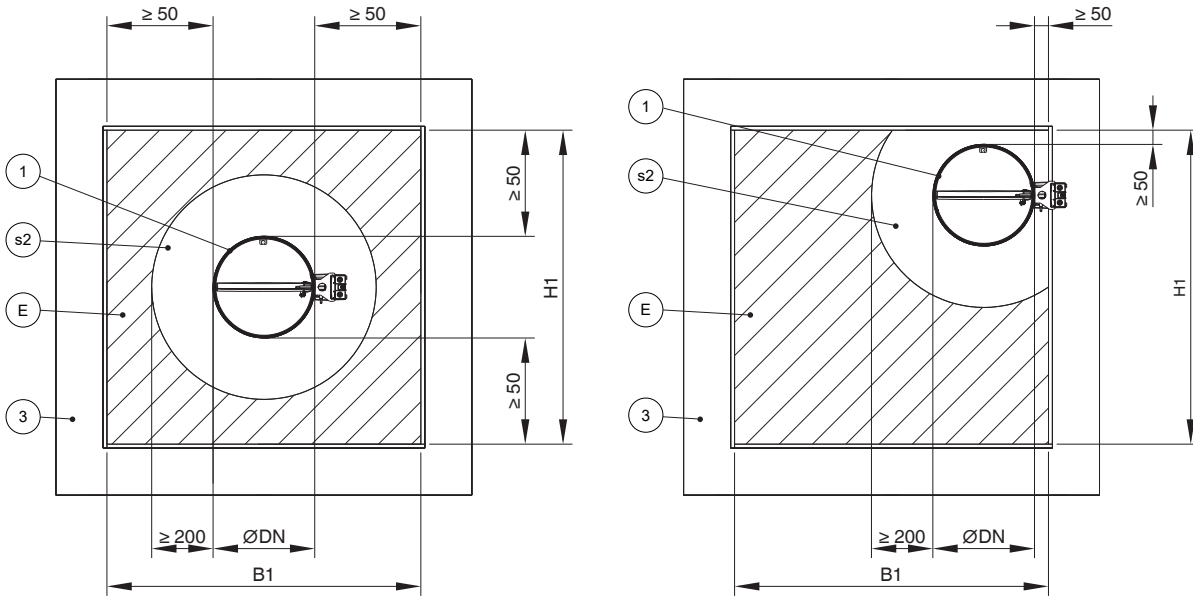


Fig. 2: Arrangement in block bulkhead FKRS-EU

1 FKRS-EU

s2 Minimum distance to the bushings

E Arrangement of the fire damper and the bushings in any position, provided that the minimum distances and the distances according to Fig. 3 are observed

3 Solid wall, lightweight partition wall with metal support and sandwich panel wall

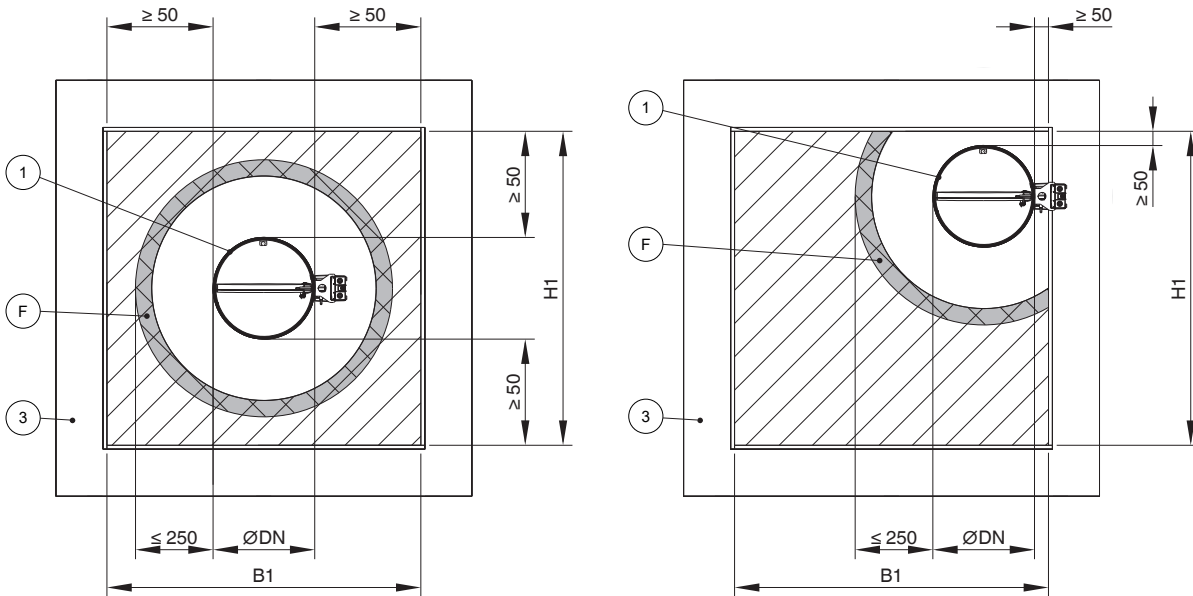


Fig. 3: Arrangement in block bulkhead FKRS-EU - distances to the first bushing

1 FKRS-EU

3 Solid wall, lightweight partition wall with metal support and sandwich panel wall

F Distance to first bushing (no flammable cables) 200 - 250 mm

4.2 Distances

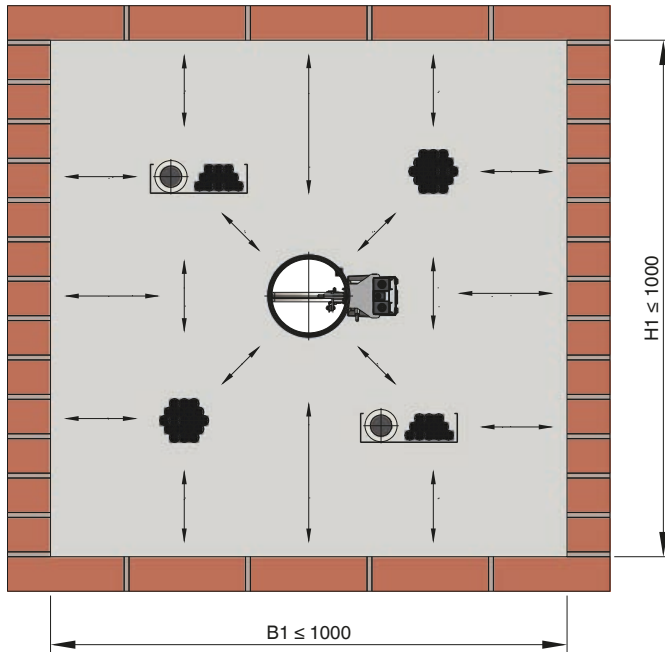


Fig. 4: Distances block bulkhead (drawn in solid wall)

Minimum distance from - to [mm]	Fire damper	Cables/cable bundles/cable trays	Conduits up to Ø16 mm	Penetration seal edge
Fire damper	–	200	200	50
Cables/cable bundles/cable trays	200	0	0	0
Conduits up to Ø16 mm	200	0	0	0

4.3 Installation information firestop blocks

- The installation opening must be cleaned.
- The firestop blocks must be cut to fit exactly and fitted into the installation opening.
- Fill gaps between cables, cable bundles, cable trays, empty pipes, fire dampers and firestop blocks with Hilti firestop filler mastic CFS-FIL up to a gap width of 20 mm.
- Spaces between cable support systems and firestop blocks CFS-BL must be filled with Hilti firestop filler mastic CFS-FIL over the entire installation depth.

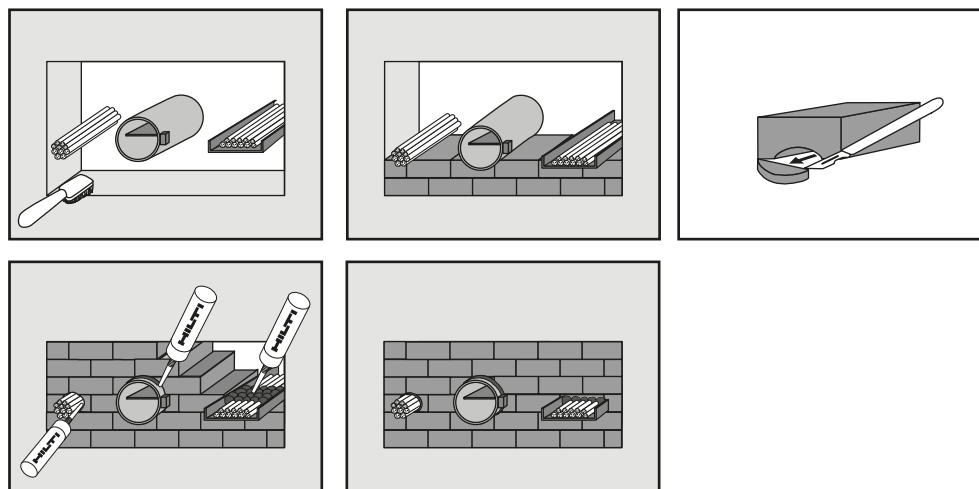


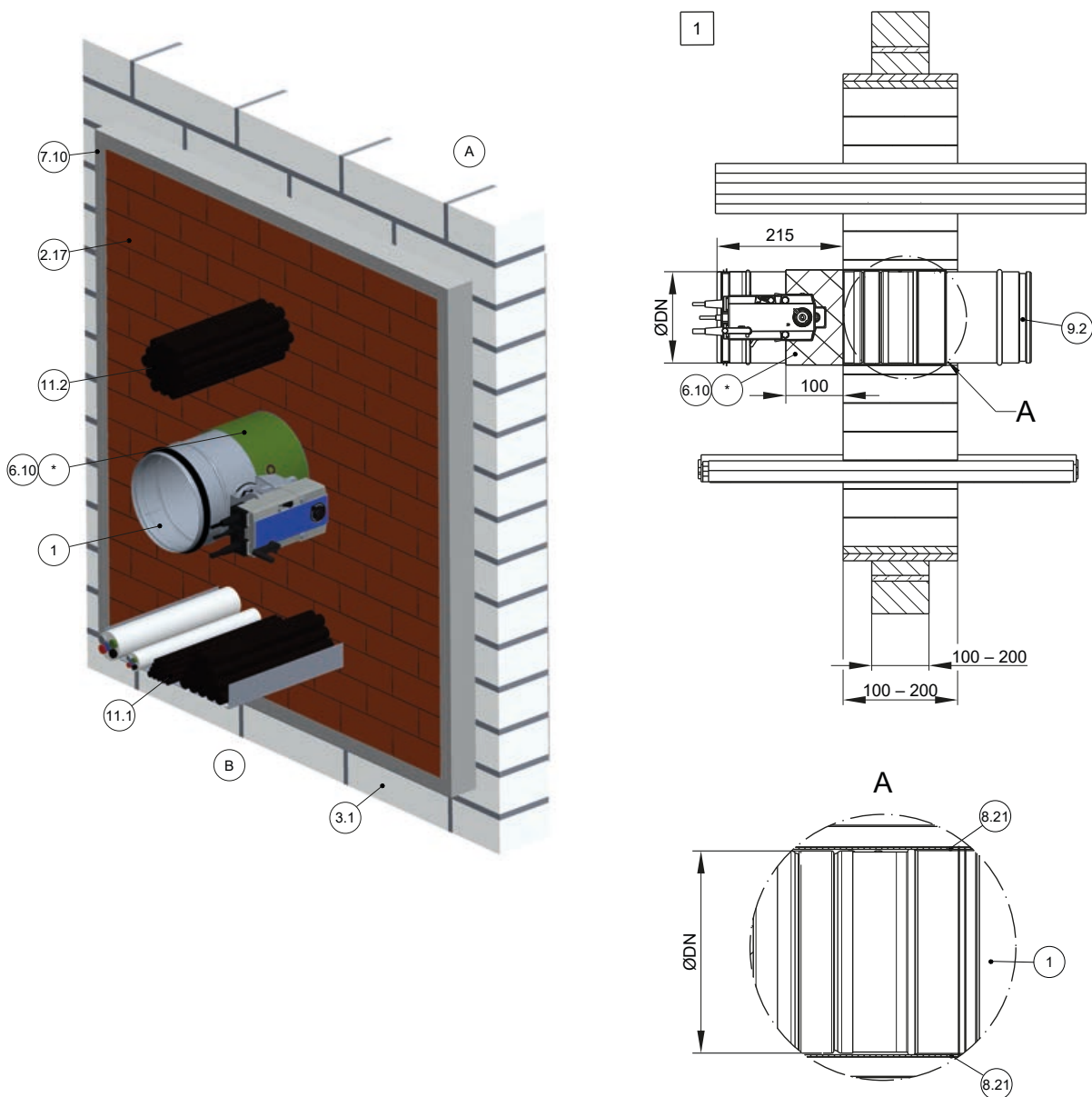
Fig. 5: Installation fire protection block bulkhead

4.4 Installation information for ducts

- The cable and cable supports must be dry, in good condition and free of dust and grease.
- Fill gaps and cable gussets with firestop filler mastic CFS-FIL.
- Operating fluid lines must be fixed to the supporting structures (not to the bulkhead) in accordance to the relevant regulations so that no additional mechanical load is transferred to the block bulkhead.
- Further information on the installation of the cable bushing, cable bundles, cable routes and empty conduits according to HILTI specifications.

4.5 Installation information for fire dampers

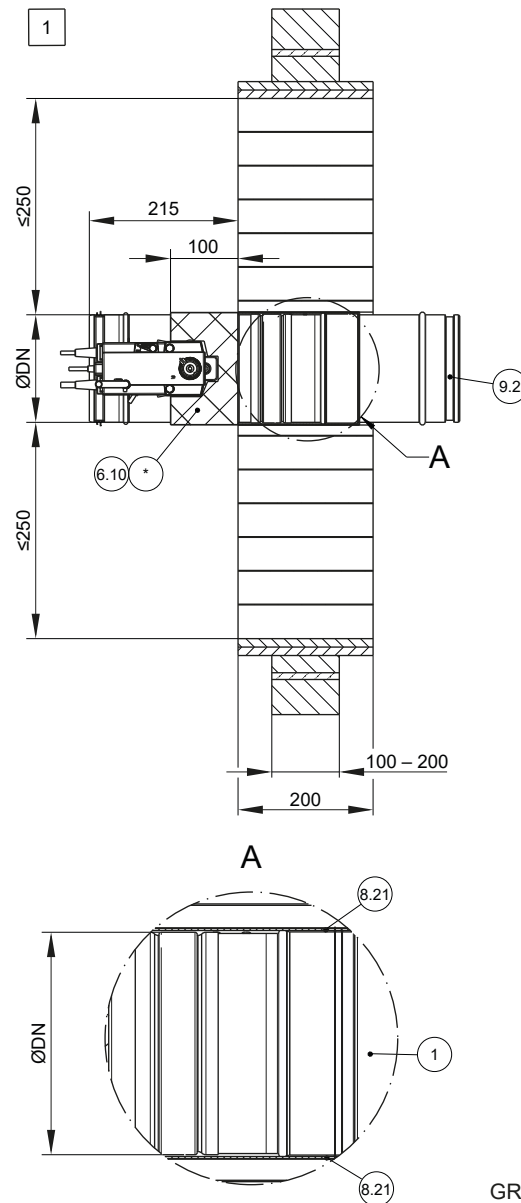
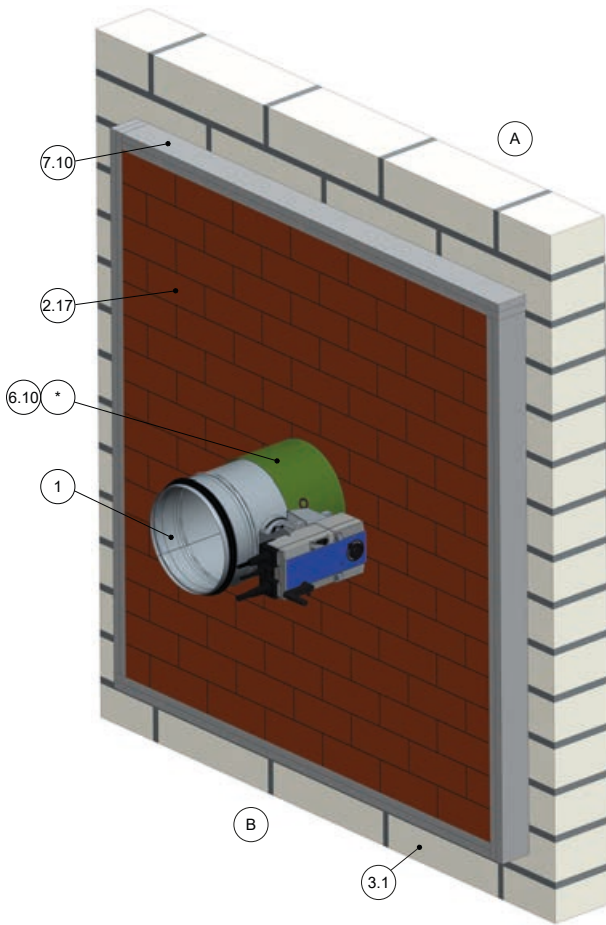
- When installing the FKRS-EU, the distance dimension from the spigot of the operating side to the bulkhead surface is 215 mm.
- Fire dampers must be fixed on both sides of the wall, see installation and operating instructions for the fire damper FKRS-EU "Fixing in conjunction with coated board system / fire protection block bulkhead".



GR3795005, A

Fig. 6: Dry mortarless installation with firestop blocks in solid walls

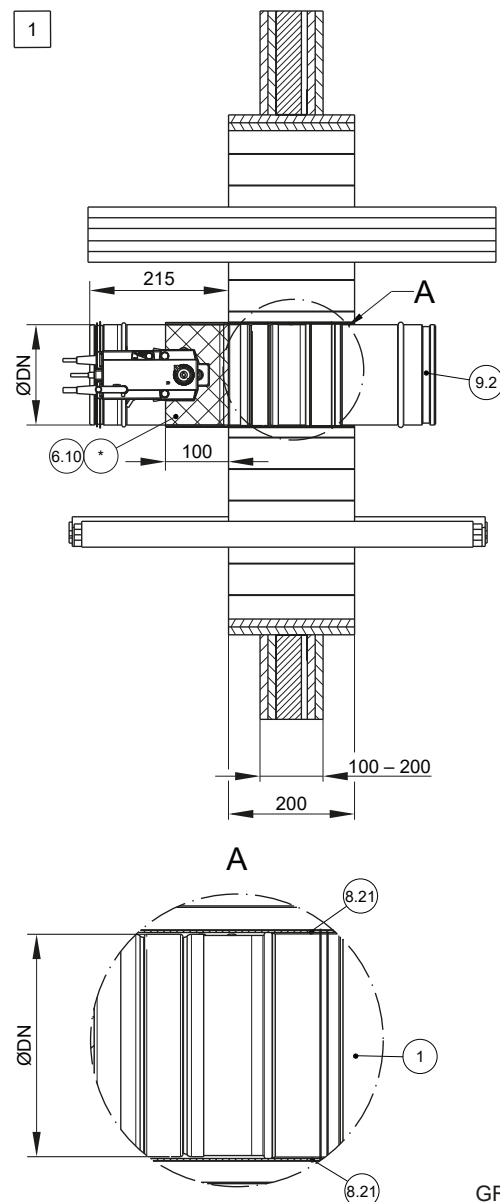
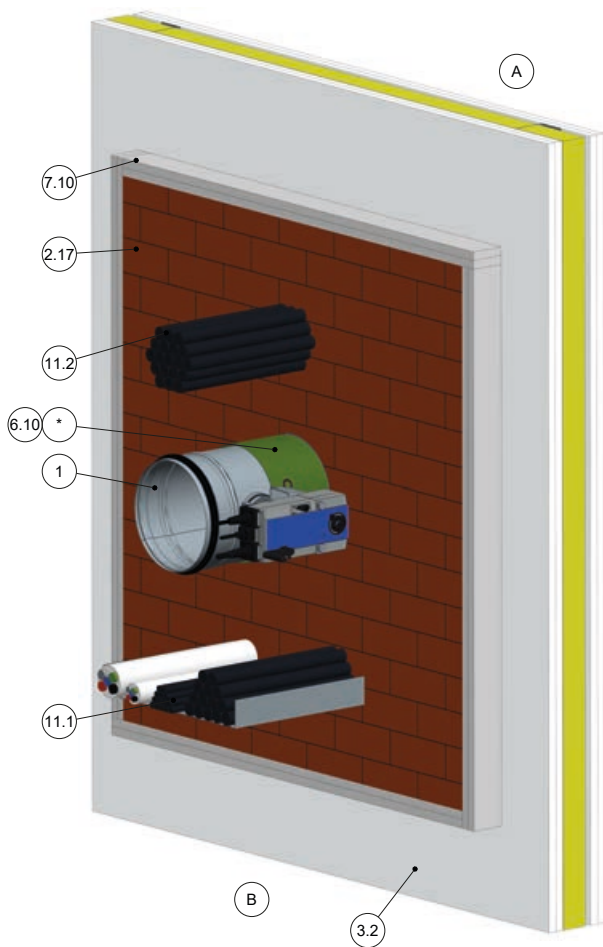
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|------|--|------|--|
| 1 | FKRS-EU | 8.21 | Hilti firestop filler mastic CFS-FIL, acrylic sealant CFS-S ACR CW or equivalent |
| 2.17 | Firestop blocks Hilti CFS-BL | 9.2 | Air duct / extension piece |
| 3.1 | Solid wall | 11.1 | Cable tray |
| 6.10 | Firestop coating (HILTI CFS-CT or CP 673), d = min. 2.5 mm, all-round | 11.2 | Cable bundle |
| 6.19 | Mineral wool, $\geq 1000\text{ }^{\circ}\text{C}$, $\geq 80\text{ kg/m}^3$, all-round. Leave out actuator and release device. Inspection or revision openings must remain accessible | 1 | up to EI 90 S |
| 6.20 | Pipe collar (to be ordered separately) | A | Installation side |
| 6.24 | Board insulation material $\geq 6\text{ mm}$, Armaflex AF / Armaflex Ultima, alternatively board insulation material made of elastomeric foam (synthetic rubber) | B | Operating side |
| 7.10 | Reveal, double-layered, fire-resistant, required for wall thicknesses $< 200\text{ mm}$ | * | 6.19, 6.20 or 6.24 as an alternative |



GR3795222, A

Fig. 7: Dry mortarless installation with firestop blocks in solid walls

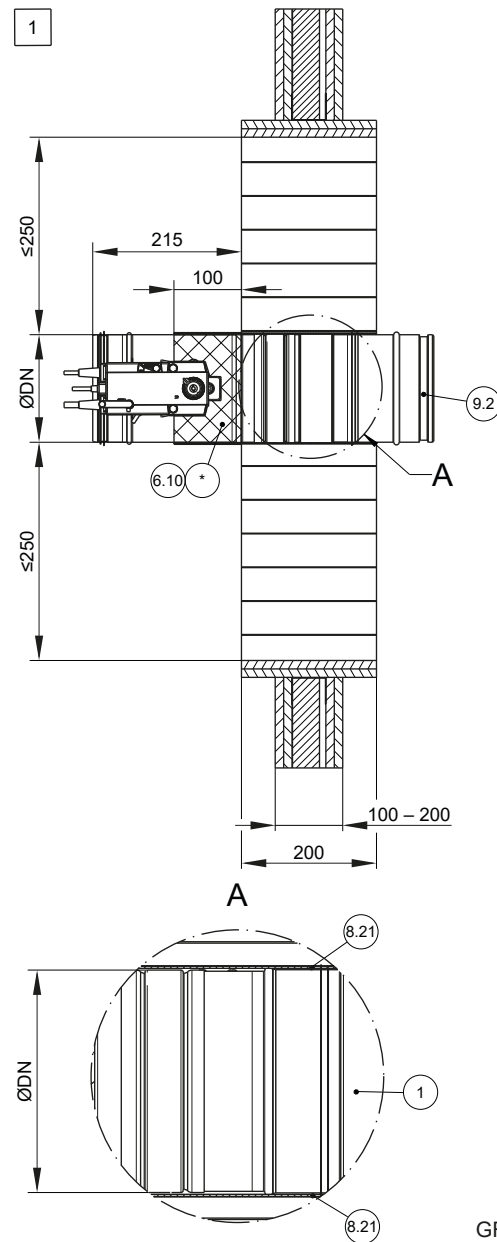
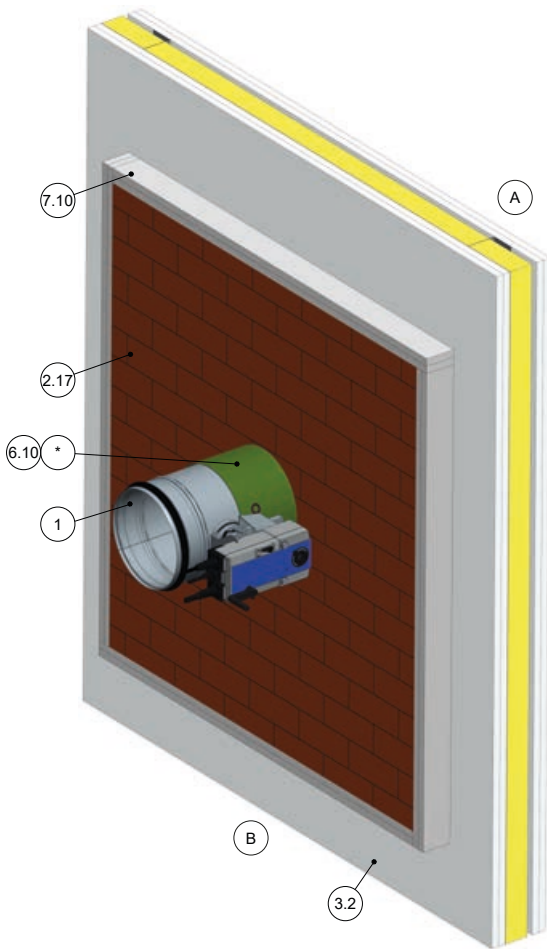
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|------|--|------|--|
| 1 | FKRS-EU | 7.10 | Reveal, double-layered, fire-resistant, required for wall thicknesses < 200 mm |
| 2.17 | Firestop blocks Hilti CFS-BL | 8.21 | Hilti firestop filler mastic CFS-FIL, acrylic sealant CFS-S ACR CW or equivalent |
| 3.1 | Solid wall | 9.2 | Air duct / extension piece up to EI 90 S |
| 6.10 | Firestop coating (HILTI CFS-CT or CP 673), d = min. 2.5 mm, all-round | 1 | Installation side |
| 6.19 | Mineral wool, $\geq 1000\text{ }^{\circ}\text{C}$, $\geq 80\text{ kg/m}^3$, all-round. Leave out actuator and release device. Inspection or revision openings must remain accessible | A | Operating side |
| 6.20 | Pipe collar (to be ordered separately) | * | 6.19, 6.20 or 6.24 as an alternative |
| 6.24 | Board insulation material $\geq 6\text{ mm}$, Armaflex AF / Armaflex Ultima, alternatively board insulation material made of elastomeric foam (synthetic rubber) | | |
- The following applies to Germany: Information on the use of elastomeric foams "Additional provision for use in Germany" ↗ 4 .



GR3817968, A

Fig. 8: Dry installation with firestop blocks in lightweight partition walls

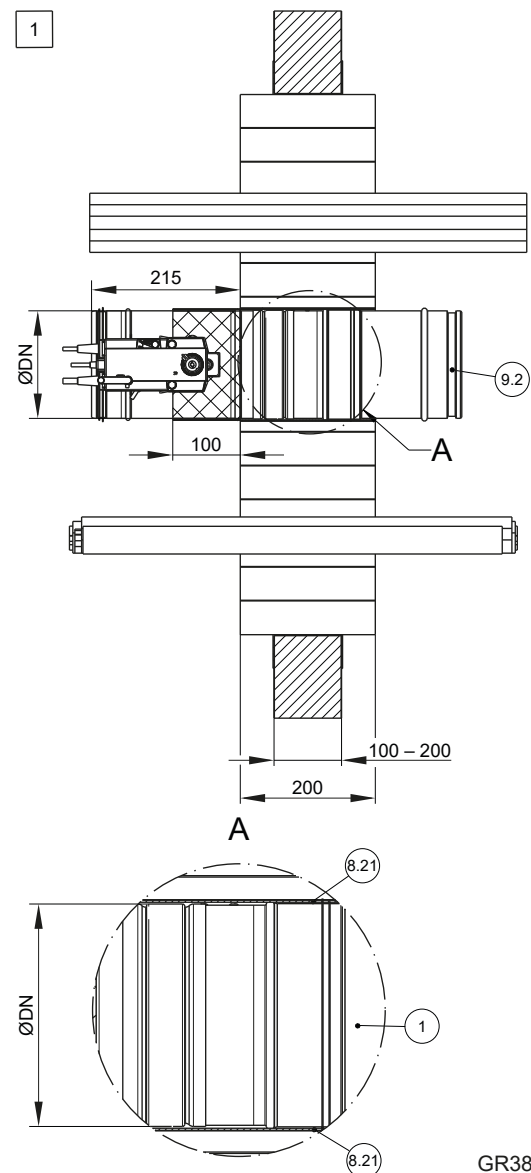
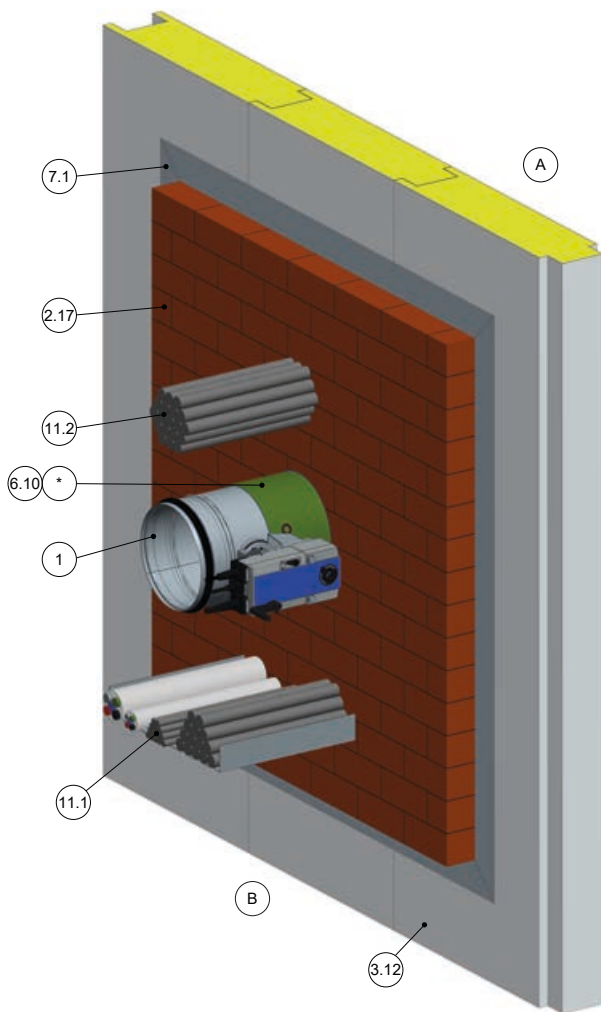
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|------|--|------|---|
| 1 | FKRS-EU | 8.21 | Hilti firestop filler mastic CFS-FIL, acrylic sealant |
| 2.17 | Firestop blocks Hilti CFS-BL | | CFS-S ACR CW or equivalent |
| 3.2 | Lightweight partition wall with metal support structure, cladding on both sides | 9.2 | Air duct / extension piece |
| 6.10 | Firestop coating (HILTI CFS-CT or CP 673), d = min. 2.5 mm, all-round | 11.1 | Cable tray |
| 6.19 | Mineral wool, ≥ 1000 °C, ≥ 80 kg/m ³ , all-round. Leave out actuator and release device. Inspection or revision openings must remain accessible | 11.2 | Cable bundle |
| 6.20 | Pipe collar (to be ordered separately) | 1 | up to EI 90 S |
| 6.24 | Board insulation material ≥ 6 mm, Armaflex AF / Armaflex Ultima, alternatively board insulation material made of elastomeric foam (synthetic rubber) | A | Installation side |
| | The following applies to Germany: Information on the use of elastomeric foams "Additional provision for use in Germany" ↗ 4 . | B | Operating side |
| 7.10 | Reveal, double-layered, fire-resistant, required for wall thicknesses < 200 mm | * | 6.19, 6.20 or 6.24 as an alternative |



GR3818173, A

Fig. 9: Dry installation with firestop blocks in lightweight partition walls

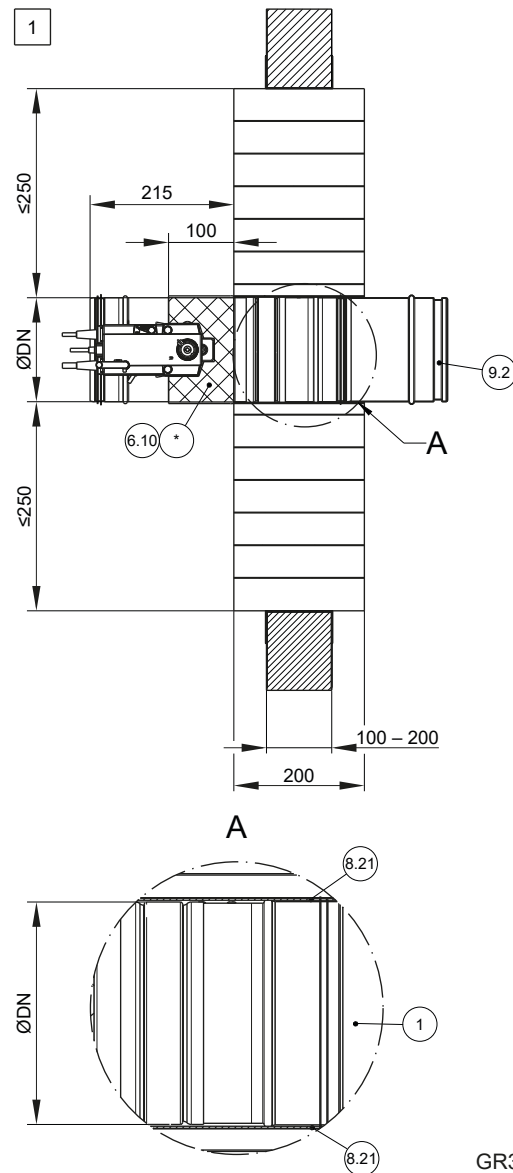
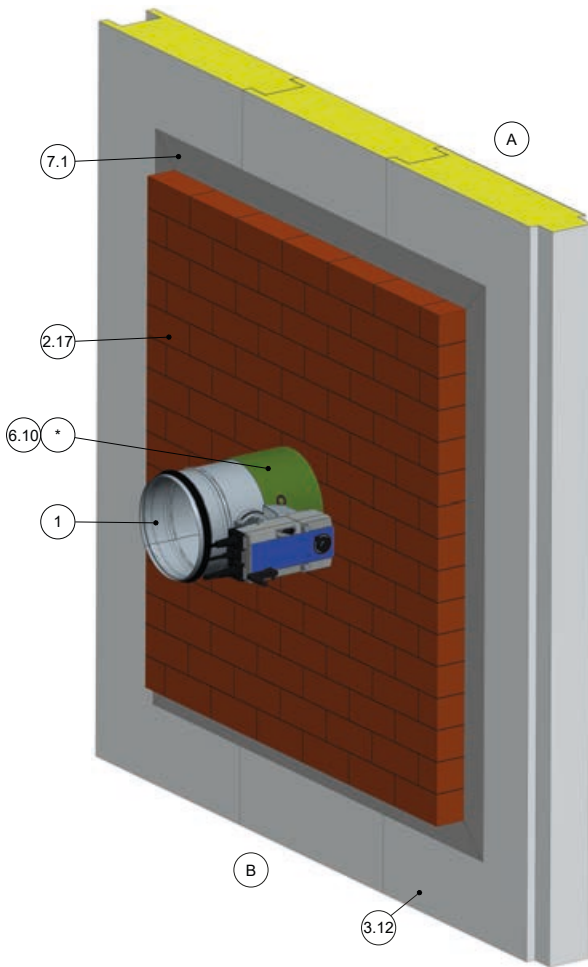
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|------|--|------|--|
| 1 | FKRS-EU | 7.10 | Reveal, double layer, fire-resistant |
| 2.17 | Firestop blocks Hilti CFS-BL | 8.21 | Hilti firestop filler mastic CFS-FIL, acrylic sealant CFS-S ACR CW or equivalent |
| 3.2 | Lightweight partition wall with metal support structure, cladding on both sides | 9.2 | Air duct / extension piece up to EI 90 S |
| 6.10 | Firestop coating (HILTI CFS-CT or CP 673), d = min. 2.5 mm, all-round | 1 | Installation side |
| 6.19 | Mineral wool, ≥ 1000 °C, ≥ 80 kg/m ³ , all-round. Leave out actuator and release device. Inspection or revision openings must remain accessible | A | Operating side |
| 6.20 | Pipe collar (to be ordered separately) | * | 6.19, 6.20 or 6.24 as an alternative |
| 6.24 | Board insulation material ≥ 6 mm, Armaflex AF / Armaflex Ultima, alternatively board insulation material made of elastomeric foam (synthetic rubber) | | |
- The following applies to Germany: Information on the use of elastomeric foams "Additional provision for use in Germany" ↗ 4 .



GR3822389, B

Fig. 10: Dry installation with firestop blocks in sandwich panel walls

- | | | | |
|------|--|----------------------------|---|
| 1 | FKRS-EU | 8.21 | Hilti firestop filler mastic CFS-FIL, acrylic sealant |
| 2.17 | Firestop blocks Hilti CFS-BL | CFS-S ACR CW or equivalent | |
| 3.12 | Sandwich panel wall, 100 - 200 mm with mineral wool filling, $\geq 1000\text{ }^{\circ}\text{C}$, $\geq 115\text{ kg/m}^3$, sheet metal thickness $\geq 0.5\text{ mm}$ both sides | 9.2 | Air duct / extension piece |
| 6.10 | Firestop coating (HILTI CFS-CT or CP 673), d = min. 2.5 mm, all-round | 11.1 | Cable tray |
| 6.19 | Mineral wool, $\geq 1000\text{ }^{\circ}\text{C}$, $\geq 80\text{ kg/m}^3$, all-round. Leave out actuator and release device. Inspection or revision openings must remain accessible | 11.2 | Cable bundle |
| 6.20 | Pipe collar (to be ordered separately) | 1 | up to EI 90 S |
| 6.24 | Board insulation material $\geq 6\text{ mm}$, Armaflex AF / Armaflex Ultima, alternatively board insulation material made of elastomeric foam (synthetic rubber) | A | Installation side |
| 7.1 | Reveal 100 - 200 mm, galvanised steel angle, alternatively UW section | B | Operating side |
| | | * | 6.19, 6.20 or 6.24 as an alternative |



GR3823013, B

Fig. 11: Dry installation with firestop blocks in sandwich panel walls

- | | | | |
|------|--|------|--|
| 1 | FKRS-EU | 7.1 | Reveal 100 - 200 mm, galvanised steel angle, alternatively UW section |
| 2.17 | Firestop blocks Hilti CFS-BL | 8.21 | Hilti firestop filler mastic CFS-FIL, acrylic sealant CFS-S ACR CW or equivalent |
| 3.12 | Sandwich panel wall, 100 - 200 mm with mineral wool filling, $\geq 1000\text{ }^{\circ}\text{C}$, $\geq 115\text{ kg/m}^3$, sheet metal thickness $\geq 0.5\text{ mm}$ both sides | 9.2 | Air duct / extension piece up to EI 90 S |
| 6.10 | Firestop coating (HILTI CFS-CT or CP 673), $d = \text{min. } 2.5\text{ mm}$, all-round | 1 | Installation side |
| 6.19 | Mineral wool, $\geq 1000\text{ }^{\circ}\text{C}$, $\geq 80\text{ kg/m}^3$, all-round. Leave out actuator and release device. Inspection or revision openings must remain accessible | B | Operating side |
| 6.20 | Pipe collar (to be ordered separately) | * | 6.19, 6.20 or 6.24 as an alternative |
| 6.24 | Board insulation material $\geq 6\text{ mm}$, Armaflex AF / Armaflex Ultima, alternatively board insulation material made of elastomeric foam (synthetic rubber) | | |
- The following applies to Germany: Information on the use of elastomeric foams "Additional provision for use in Germany" 4.

5 Suitable building products

5.1 Cables, cable bundles, cable trays, conduits in walls

Applications with EI 90

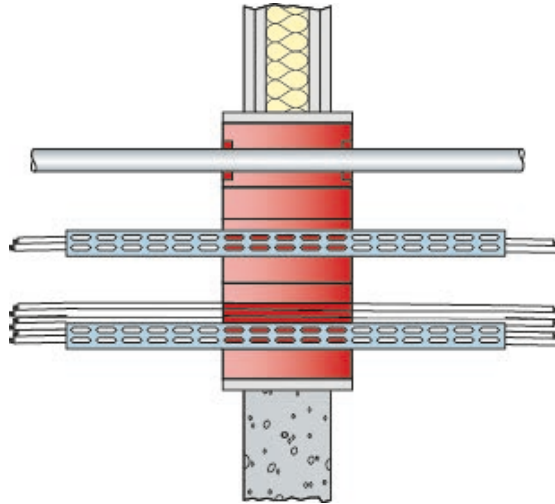


Fig. 12: Classification with or without cable support systems

Cable	Classification E = fire integrity I = thermal insulation
All sheathed cables ≤ 80 mm	EI 90
All unsheathed cables ≤ 24 mm	
Cable bundles up to a diameter of 100 mm, max. individual diameter of cable: 21 mm	
Plastic conduits ≤ 16 mm, with and without cables	
Steel conduits ≤ 16 mm, with and without cables	

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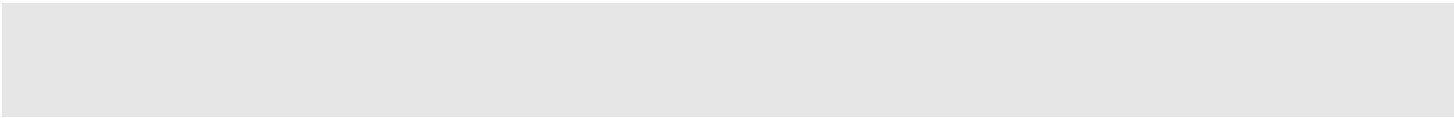
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