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Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

European Technical Assessment ETA-25/0498 of 2025/05/30

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 66 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:	FireFree 250 Brandmørtel
Product family to which the above construction product belongs:	Fire stopping product – penetration seals.
Manufacturer:	Scandi Supply A/S Energivej 2, DK-5492 Vissenbjerg Internet www.scandisupply.dk
Manufacturing plant:	Plant 10 and Plant 20
This European Technical Assessment contains:	29 pages including 2 annexes which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, based on:	European Assessment Document (EAD) No. 350454-00-1104 Fire Stopping and fire sealing products – Penetration seals
This version replaces:	

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product

The construction product "FireFree 250 Brandmørtel" is a mortar which is intended to be used in penetration seals. It is supplied in powder form in bags, in cement grey colour.

A detailed technical description and the fire-safety-related performance criteria of the construction products are given in Annex 1.

2 Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD)

The construction product "FireFree 250 Brandmørtel" is intended to be used as a component with a fire protection effect in building elements or parts there of or constructions that are subject to fire-protection requirements. Heat transmission and spread of fire are restricted in the event of fire.

The construction product "FireFree 250 Brandmørtel" is intended for use in penetration seals. Construction products for penetration seals are used to seal openings in fire- resistant walls or floors, which are penetrated by services. Penetration seals are used to maintain the fire resistance of the wall or floor in the area of these penetrations.

Within the scope of this ETA, a set of test specimens were subjected to a fire test. A fire resistance of EI 240 was demonstrated for individual designs of cable penetration seals and a fire resistance of EI 120 was demonstrated for individual designs of pipe penetration seals - manufactured using the construction product "FireFree 250 Brandmørtel".

The provisions made in this European Technical Assessment are based on an assumed intended working life of the "FireFree 250 Brandmørtel" of 10 years, provided the manufacturers conditions for the packaging, transport, storage, installation, use, maintenance and repair are met.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

Characteristic	Assessment of characteristic
3.2 Safety in case of fire (BWR2)	
Reaction to fire	Classification in accordance with EN13501-1, and the EC Delegated regulation 2016/364/EU: **See Annex 1**
Resistance to fire	Classification according to EN 13501-2: **See Annex 1**
3.3 Hygiene, health, and the environment (BWR3)	
Content, emission and/or release of dangerous substances*	See table below
Air permeability (material property)	No performance assessed
Water Permeability (material property)	No performance assessed
3.4 Safety and accessibility in use (BWR4)	
Mechanical resistance and stability	No performance assessed
Resistance to impact/movement	No performance assessed
Adhesion	No performance assessed
Durability	Use category: **Type Z_1**
3.5 Protection against noise (BWR5)	
Airborne sound insulation	No performance assessed
3.6 Energy Economy and heat retention (BWR6)	
Thermal properties	No performance assessed
Water vapour permeability	No performance assessed

Release scenario	**IA1: Product with direct contact to indoor air.**	
	3 days [mg/m^3]	28 days [mg/m^3]
SVOC	**< 0,005**	**< 0,005**
VOC	**< 0,005**	**< 0,005**

See additional information in section 3.8 – 3.9.

*) In addition to the specific clauses relating to dangerous substances contained in this European technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g., transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

3.8 Methods of verification

The characteristic values of the joint sealing system are based on the EAD 350454-00-1104 Firestopping and fire sealing products, Penetration Seals, assessed as a mortar, according to table 1.1 of the EAD.

3.9 General aspects related to the fitness for use of the product

The verification of durability is part of testing the essential characteristics. “FireFree 250 Brandmørtel” may be used in end-use applications according to the provisions for use category Z_1 (intended for use at temperatures below 0°C with exposure to UV but no exposure to rain) without expecting significant changes of the characteristics relevant for fire protection. Products that meet the requirements for type Z_1 also meet the requirement for type Z_2.

The European Technical Assessment is issued for the product based on agreed data/information, deposited with ETA-Danmark, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced. ETA-Danmark will decide if such changes affect the ETA and consequently the validity of the CE marking based on the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

"FireFree 250 Brandmørtel" is manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

4 Attestation and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

4.1 AVCP system

According to the decision 1999/454/EC of the European Commission, as amended, the system(s) of assessment and verification of constancy of performance is system 1 (see Annex V to Regulation (EU) No 305/2011).

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2025-05-30 by

Thomas Bruun
Managing Director, ETA-Danmark

Annex 1
Properties of the construction product "FireFree 250 Brandmørtel" and the performance of penetration seals, comprising "FireFree 250 Brandmørtel"

Property	Performance criterion
Fire behavior	Classification of fire behavior according to EN 13501-1: A1
Compressive stregth	M 2,5
Density	$\rho \geq 900 kg/m^3$
initial shear strength	0,15 N/mm² (table value)
Contents of chlorides	≤ 0,10 M.-%
Water vapour permeability μ	5/20 (table value)
Thermal conductivity $\lambda_{10,dry,mat}$	≤ 0,25 W/(m*K) für P = 50% (table value) ≤ 0,27 W/(m*K) für P = 90%

The properties listed can be used both for the identification of the construction product and for the implementation of the factory production control of the manufacturer.

Implementation details for the factory production control are included in the inspection plan.

Performances of penetration seals, comprising the construction product "FireFree 250 Brandmørtel

Structural element	Penetration seal	Maximum dimensions of the opening
Plasterboard wall and rigid walls ≥ 100 mm	≥ 100 mm	550 mm x 600 mm or equivalent area
Rigid walls and floors ≥ 150 mm	≥ 150 mm	1200 mm x 2000 mm or equivalent area
Rigid walls ≥ 240 mm and floors ≥ 200 mm	≥ 240 mm	600 mm x 600 mm or equivalent area

Fire resistance classes			
Service	**Measures**	**Wall**	**Floor**
		Fire resistance class	**Fire resistance class**
Cables, cable bundles and cable trays with fire protection wrap "FireFree 625 Brandbandage" (wrap width 500 mm)			
Cables Ø ≤ 80 mm	2 x 2 layers	EI 240	EI 240
Cable bundles Ø ≤ 100 mm with cables ≤ 21 mm	2 x 2 layers	EI 240	EI 240

Distances wall / floor						
	Cables	**Cable bundles**	**Cable trays**	**Seal edge**		
				Upper	**Under**	**Side**
Cables	≥ 10 (next to each other) ≥ 40 (above each other)			≥ 30	≥ 20	≥ 20
Cable bundles	≥ 10 (next to each other) ≥ 40 (above each other)			≥ 30	≥ 20	≥ 20
Cable trays	≥ 10 (next to each other) ≥ 40 (above each other)			≥ 30	≥ 20	≥ 20

Fire resistance classes		
Service	**Measures**	**Flexible Plasterboard wall**
		Fire resistance class
Cables, cable bundles, conduits and "FireFree 125 Installationsrør" without protective measures		
Cables Ø ≤ 21 mm	-	**EI 90 / E 120**
Cable bundles Ø ≤ 60 mm with cables Ø 21 mm	-	**EI 90**
Plastic conduits Ø ≤ 16 mm	-	**EI 90**
"FireFree 125 Installationsrør" (length ≥ 150 mm)	-	**EI 90**
Cables, cable bundles and cable trays with fire protection wrap "FireFree 625 Brandbandage"		
Cables Ø ≤ 50 mm	2 x 2-layer, 125 mm outside seal	**EI 90 / E 120**
Cables Ø ≤ 80 mm	2 x 2-layer, 125 mm outside seal	**EI 90 / E 120**
Cable bundles Ø ≤ 150 mm with cable Ø 21	2 x 2-layer, 125 mm outside seal	**EI 120**
Electrical installation conduit with fire protection wrap "FireFree 625 Brandbandage" (wrap width 125 mm)		
Conduits Ø ≤ 32 mm	2 x 2-layer, 50 mm inside seal / 75 mm outside seal	**EI 120**
Conduit-bundles Ø ≤ 100 mm (single conduits Ø ≤ 32 mm)		

Distances wall								
	Cables	**Cable bundles**	**Cable trays**	**Electrical installation conduits single or bundled**	**FireFree 125 Installationsrør**	**Seal edge**		
						Upper	**Under**	**Side**
Cables	≥ 5 (side by side) ≥ 50 (above the other)			≥ 5 (side by side) ≥ 50 (above the other)	≥ 50	≥ 50	≥ 0	≥ 5
Cable bundles Ø ≤ 60 mm				≥ 75	≥ 50	≥ 100		
Cable bundles Ø ≤ 150 mm				≥ 5 (side by side) ≥ 50 (above the other)	≥ 50	≥ 50		
Cable trays					≥ 50	≥ 50		
Electrical installation conduits single or bundled					≥ 50	≥ 50		
FireFree 125 Installationsrør	≥ 50	≥ 50	≥ 50	≥ 100	≥ 10	≥ 5	≥ 5	

Fire resistance classes			
Service	**Measures**	**Wall**	**Floor**
		Fire resistance class	**Fire resistance class**
Cables, cable bundles and cable trays without protective measures			
Cables Ø ≤ 32 mm	-	**EI 120**	**EI 120**
Single-core-non-sheathed cables (Wires, Ø ≤ 24 mm)		**EI 120**	**EI 120**
Cable bundles Ø ≤ 60 mm		**EI 120**	**EI 120**
Cable bundles Ø ≤ 100 mm		**EI 90 / E 120**	**EI 60 / E 120**
Cables, cable bundles and cable trays with 240 mm seal thickness			
Cables Ø ≤ 50 mm	240 mm seal thickness	**EI 120**	**EI 90 / E 120**
Cables Ø ≤ 50 mm		**EI 90 / E 120**	**EI 90 / E 120**
Cable bundles Ø ≤ 100 mm		**EI 120**	**EI 120**
Cables, cable bundles and cable trays with fire protection wrap "FireFree 625 Brandbandage "			
Cables Ø ≤ 50 mm	2 x 2-layer, 125 mm	**EI 120**	**EI 120**
Cables Ø ≤ 80 mm	2 x 2-layer, 125 mm	**EI 90 / E 120**	**EI 120**
	2 x 2-layer, 150 mm	**EI 120**	**EI 120**
Cable bundles Ø ≤ 100 mm	2 x 1-layer, 125 mm	**EI 120**	**EI 120**
Electrical installation conduit with fire protection wrap "FireFree 625 Brandbandage" (wrap width 125 mm)			
Conduits Ø ≤ 32 mm	2 x 1-layer	**EI 120 U/U**	**EI 120 U/U**
Conduits Ø ≤ 63 mm	2 x 2-layer	**EI 120 U/U**	**EI 120 U/U**
Conduits Ø ≤ 100 mm	2 x 3-layer + lamella mat ≥ 500 mm x ≥ 30 mm	**-**	**EI 120 U/U**
Conduit-bundles Ø ≤ 100 mm (single conduits Ø ≤ 32 mm)	2 x 2-layer	**EI 120 U/U**	**EI 120 U/U**
Electrical installation conduit with non-combustible insulation made of mineral-fibre „lamella mat"			
Conduits Ø ≤ 63 mm	Lamella mat ≥ 500 mm x ≥ 30 mm	**EI 120 U/U**	**EI 120 U/U**
"speed pipe" single or bundled, with or w/o glass fibre or micro cable; with fire protection wrap "DG-CR 1.5" (wrap width 125 mm)			
max. 24 pcs.; outside pipe-Ø ≤ 7 mm max. 7 pcs.; outside pipe-Ø ≤ 10 mm max. 5 pcs.; outside pipe-Ø ≤ 12 mm	Wall 2 x, Floor 1x 1-layer	**EI 120 U/U**	**EI 120 U/U**
Non-combustible pipes made of copper with non-combustible insulation made of mineral-fibre „lamella mat"			
Outside pipe-Ø ≤ 15 mm	≥ 250 mm x ≥ 20 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe-Ø ≤ 28 mm	≥ 500 mm x ≥ 20 mm		
Outside pipe-Ø ≤ 42 mm	≥ 500 mm x ≥ 30 mm		
Outside pipe-Ø ≤ 54 mm	≥ 500 mm x ≥ 40 mm		
Outside pipe-Ø ≤ 88,9 mm	≥ 750 mm x ≥ 60 mm		
Non-combustible pipes made of steel, stainless steel or cast iron with non-combustible insulation made of mineral-fibre „lamella mat"			
Outside pipe-Ø ≤ 15,0 mm	≥ 250 mm x ≥ 20 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe-Ø ≤ 28,0 mm	≥ 500 mm x ≥ 20 mm		
Outside pipe-Ø ≤ 42,0 mm	≥ 500 mm x ≥ 30 mm		
Outside pipe-Ø ≤ 114,3 mm	≥ 500 mm x ≥ 40 mm		
Outside pipe-Ø ≤ 168,3 mm	≥ 1000 mm x ≥ 40 mm		
Outside pipe-Ø ≤ 323,9 mm	≥ 1000 mm x ≥ 40 mm + lamella mat ≥ 500 mm x ≥ 30 mm		

Fire resistance classes			
Service	**Measures**	**Wall**	**Floor**
		Fire resistance class	**Fire resistance class**
Multilayer pipes „HENCO pipes“ with non-combustible insulation made of mineral-fibre „lamella mat”			
Outside pipe-Ø ≤ 12,0 mm, wall thickness 1,6 mm	Lamella mat ≥ 250 mm x ≥ 20 mm	**EI 120 U/C**	**EI 120 U/C**
Outside pipe-Ø ≤ 32,0 mm, wall thickness 3,0 mm		**EI 120 U/C**	**EI 120 U/C**
Outside pipe-Ø ≤ 63,0 mm, wall thickness 4,5 mm	Lamella mat ≥ 250 mm x ≥ 30 mm	**EI 120 U/C**	**EI 120 U/C**
HVAC split line combinations with fire protection wrap “FireFree 625 Brandbandage “ (wrap width 125 mm)**			
Pipe 1/Pipe 2 outside-Ø 6 mm - 10 mm/ 10 mm - 18 mm + PE-100 outside-Ø ≤ 25 mm, t 1.9 - 3.5 mm	2 x 2-layer	**EI 120**	**EI 120**
Double solar pipes „NanoSUN²“ with fire protection wrap “FireFree 625 Brandbandage “ (wrap width 125 mm)			
DN16 and DN 25	Wall 2 x, Floor 1 x 1-layer	**EI 120 C/U**	**EI 120 C/U**
Hydraulic hoses „HANSA FLEX“ (also with wire braid reinforcement) with fire protection wrap “FireFree 625 Brandbandage “ (wrap width 125 mm)			
Up to Ø 55.9 mm (Hansa-Flex HD 200 (2SN)) (e.g., hydraulic hoses for elevators) with additional cables	2 x 1-layer + lamella mat ≥ 250 mm x ≥ 20 mm	**EI 120**	**EI 120**

**combined lines for split HVAC-units with twin or single copper pipe and pipe insulation 9 mm thick, made from PE foam, in accordance with EN 14313; optionally with additional cable/pipe without spacing.

Fire resistance classes			
Service	**Measures**	**Wall**	**Floor**
		Fire resistance class	**Fire resistance class**
Combustible pipes with/without 5 mm PE-foam acoustic insulation made of PVC-U with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 75,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 120 U/U**
Outside pipe-Ø ≤ 160,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 90 U/U**
Combustible pipes with/without 5 mm PE-foam acoustic insulation made of PE-HD with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 110,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 120 U/U**
Outside pipe-Ø ≤ 125,0 mm	Wall 2 x, Floor 1 x	**EI 90 U/U**	**EI 120 U/U**
Outside pipe-Ø ≤ 160,0 mm	Wall 2 x, Floor 1 x	**EI 90 U/U**	**EI 90 U/U**
Combustible pipes with/without 5 mm PE-foam acoustic insulation made of PP-H with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 110,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 120 U/U**
Outside pipe-Ø ≤ 160,0 mm	Wall 2 x, Floor 1 x	**EI 90 U/U**	**EI 120 U/U**
Combustible pipes with/without 5 mm PE-foam acoustic insulation type POLO-KAL NG with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 110,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 90 U/U**
Outside pipe-Ø ≤ 160,0 mm	Wall 2 x, Floor 1 x	**-**	**EI 90 U/U**
Combustible pipes with/without 5 mm PE-foam acoustic insulation type POLO-KAL XS with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 110,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 120 U/U**
Outside pipe-Ø ≤ 160,0 mm	Wall 2 x, Floor 1 x	**-**	**EI 90 U/U**
Combustible pipes with/without 5 mm PE-foam acoustic insulation type Geberit Silent PP with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 110,0 mm	Wall 2 x, Floor 1 x	**-**	**EI 90 U/U**
Combustible pipes with/without 5 mm PE-foam acoustic insulation type Geberit Silent Pro with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 160,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 120 U/U**
Combustible pipes with/without 5 mm PE-foam acoustic insulation type Geberit Silent dB 20 with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 110,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**-**
Outside pipe-Ø ≤ 160,0 mm	Wall 2 x, Floor 1 x	**EI 90 U/U**	**-**
Combustible pipes with/without 5 mm PE-foam acoustic insulation type GF Silenta Premium with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 160,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 120 U/U**
Combustible pipes with/without 5 mm PE-foam acoustic insulation type Conel Drain, Rehau Raupiano light with pipe collar "AWM II/ VARIANT N IIA"			
Outside pipe-Ø ≤ 110,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 90 U/U**
Combustible pipes with/without 5 mm PE-foam acoustic insulation type Wavin SiTECH+ with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 160,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 90 U/U**
Combustible pipes with/without 5 mm PE-foam acoustic insulation type Valsir TriPlus with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 50,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**EI 90 U/U**
Outside pipe-Ø ≤ 160,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**-**
Combustible pipes with/without 5 mm PE-foam acoustic insulation type Rehau Raupiano Plus, Pipelife Master 3 Plus, KeKelit Phonex AS, Wavin AS with pipe collar "FireFree 320 Brandbøsning"			
Outside pipe-Ø ≤ 50,0 mm	Wall 2 x, Floor 1 x	**EI 120 U/U**	**-**

Fire resistance classes			
Service	**Measures**	**Wall**	**Floor**
		Fire resistance class	**Fire resistance class**
Non-combustible pipes made of copper with non-combustible insulation „Conlit 150U“			
Outside pipe Ø ≤ 15 mm	≥ 250 mm x ≥ 22,5 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe Ø ≤ 28 mm	≥ 500 mm x ≥ 26 mm	**EI 120 C/U**	**-**
Outside pipe Ø ≤ 42 mm	≥ 500 mm x ≥ 19 mm	**-**	**EI 120 C/U**
Outside pipe Ø ≤ 54 mm	≥ 500 mm x ≥ 38 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe Ø ≤ 108 mm	≥ 1000 mm x ≥ 36 mm	**EI 120 C/U**	**EI 120 C/U**
Non-combustible pipes made of steel, stainless steel or cast iron with non-combustible insulation „Conlit 150U“			
Outside pipe Ø ≤ 15 mm	≥ 750 mm x ≥ 33 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe Ø ≤ 28 mm	≥ 500 mm x ≥ 26 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe Ø ≤ 42 mm	≥ 500 mm x ≥ 19 mm	**-**	**EI 120 C/U**
Outside pipe Ø ≤ 54 mm	≥ 500 mm x ≥ 38 mm	**-**	**EI 120 C/U**
Outside pipe Ø ≤ 114,3 mm	≥ 750 mm x ≥ 33 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe Ø ≤ 219,1 mm	≥ 1000 mm x ≥ 40 mm + lamella mat ≥ 500 mm x ≥ 40 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe Ø ≤ 323,9 mm	≥ 1000 mm x ≥ 40 mm + lamella mat ≥ 500 mm x ≥ 40 mm	**EI 120 C/U**	**EI 120 C/U**
Non-combustible pipes made of copper with combustible insulation „Armaflex Protect“			
Outside pipe-Ø ≤ 28,0 mm	≥ 250 mm x ≥ 25 mm	**EI 120 C/U**	**EI 120 C/U**
	≥ 500 mm x ≥ 26 mm - 51 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe-Ø ≤ 88,9 mm	≥ 500 mm x ≥ 25 mm	**EI 120 C/U**	**EI 120 C/U**
	≥ 1000 mm x ≥ 26 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe Ø ≤ 108 mm	≥ 1000 mm x ≥ 26 mm - 52 mm + lamella mat ≥ 500 mm x ≥ 40 mm	**EI 120 C/U**	**EI 120 C/U**
Non-combustible pipes made of steel, stainless steel or cast iron with combustible insulation „Armaflex Protect“			
Outside pipe-Ø ≤ 28,0 mm	≥ 250 mm x ≥ 25 mm	**EI 120 C/U**	**EI 120 C/U**
	≥ 500 mm x ≥ 26 mm - 51 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe-Ø ≤ 88,9 mm	≥ 500 mm x ≥ 25 mm	**EI 120 C/U**	**EI 120 C/U**
	≥ 1000 mm x ≥ 26 mm -51 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe Ø ≤ 170 mm	≥ 1000 mm x 52 mm	**EI 120 C/U**	**-**
	≥ 1000 mm x 26 mm - 52 mm + lamella mat ≥ 500 mm x ≥ 40 mm	**EI 120 C/U**	**EI 120 C/U**
Non-combustible pipes made of copper with combustible FEF insulation acc. to EN 14304, e.g. „NH/Armaflex“ with fire protection wrap “FireFree 625 Brandbandage “ (wrap width 125 mm)			
Outside pipe-Ø ≤ 54,0 mm / 76,0 mm (floor)	2 x 2-layer	**EI 120 C/U**	**EI 120 C/U**
Outside pipe-Ø ≤ 88,9 mm	2 x 2-layer + lamella mat ≥ 500 mm x ≥ 40 mm	**EI 120 C/U**	**EI 120 C/U**
Outside pipe-Ø ≤ 108,0 mm	2 x 2-layer + lamella mat ≥ 750 mm x ≥ 40 mm	**EI 120 C/U**	**EI 120 C/U**
Non-combustible pipes made of steel, stainless steel or cast iron with combustible FEF insulation acc. to EN 14304, e.g. „NH/Armaflex“ with fire protection wrap “FireFree 625 Brandbandage “ (wrap width 125 mm)			
Outside pipe-Ø ≤ 168,3 mm	2 x 2-layer + lamella mat ≥ 500 mm x ≥ 40 mm	**EI 120 C/U**	**EI 120 C/U**

Fire resistance classes				
Service	**Measures**		**Fire resistance class**	
"FireFree 125 Installationsrør" – Installation length 200 mm				
Cables, cable bundles	**Wall**	**Floor**	**Wall**	**Floor**
Cable Ø ≤ 21 mm	-	-	**EI 120**	**EI 120**
Cable Ø ≤ 50 mm		only 100% configuration	-	**EI 90 / EI 120**
Cable bundle Ø ≤ 100 %, with cable Ø ≤ 14 mm		-		**EI 120**
Cable bundle Ø ≤ 100 %, with cable Ø ≤ 21 mm				**EI 60 / E 90**
Cable bundle Ø ≤ 100 %, with cable Ø ≤ 21 mm		Intumescent wrap 1 x 1-layer, 50 mm overlap, above or below	**EI 120**	**EI 120**
Electrical installation conduits (EIC)				
Conduits Ø ≤ 32 mm, with/without cable Ø ≤ 14 mm	-	max. 3 pcs.	-	**EI 90 U/U**
Conduits single Ø ≤ 40 mm, with/without cable Ø ≤ 21 mm		-	**EI 120 U/U**	-
Conduit bundle, with or without configuration, Ø ≤ 90 mm with conduit Ø ≤ 40 mm, with/without cable Ø ≤ 21 mm			**EI 120 U/U**	
Conduit bundle Ø ≤ 100 % with conduit Ø ≤ 32 mm, with/without cable Ø ≤ 21 mm			**EI 120 U/U**	
HVAC split line combinations				
Pipe 1/pipe 2 outer-Ø 6-10 mm/10-18 mm + pipe insulation 9 mm thick made of PE foam + PE-100 outer-Ø ≤ 25 mm, depth 1.5 mm (U/U) + max 3 cables Ø ≤ 14 mm	-	-	**EI 90 U/U**	**EI 90 U/U**
Pipe 1/pipe 2 outer-Ø 6-22 mm/ 6-22 mm + pipe insulation 9 mm thick made of PE foam + PE-100 outer-Ø ≤ 25 mm, depth 1.5 mm (U/U) + max 3 cables Ø ≤ 14 mm		Lamella mat ≥ 250 mm x ≥ 30 mm above	-	**EI 120 U/U**
Speed pipes, bundled or individually, with/without glass fibre cables				
7 mm ≤ Ø ≤ 14 mm bundle ≤ 100 %	-	-	**EI 120 U/U**	-
max. 24 pcs. pipe outer-Ø ≤ 7			-	**EI 120 U/U**
max. 7 pcs. pipe outer-Ø ≤ 10 max. 5 pcs. pipe outer-Ø ≤ 12				**EI 120 U/U**

Fire resistance classes				
Service	**Measures**		**Fire resistance class**	
"FireFree 125 Installationsrør" – Installation length 300 mm				
Cables, cable bundles	**Wall**	**Floor**	**Wall**	**Floor**
Cable Ø ≤ 21 mm	-	-	**EI 120**	**EI 120**
Cable Ø ≤ 50 mm			**EI 90 / E 120**	**EI 60 / E 120**
Cable Ø ≤ 50 mm		100% configuration	-	**EI 90 / E 90**
Cable Ø ≤ 50 mm		Lamella mat ≥ 100 mm x ≥ 30 mm + intumescent wrap x 1-layer, above		**EI 120**
Cable Ø ≤ 80 mm	solid wall	-	**EI 90 / E 120**	**EI 60 / E 120**
Cable bundle Ø ≤ 100 %, with cable Ø ≤ 21 mm	-		**EI 120**	**EI 120**
Wave guides				
CommScope HELIAX LDF (low density foam), Ø ≤ 16,002 mm	-	-	**EI 120 U/C**	-
CommScope 50Ω braided CNT, Ø ≤ 15,0 mm			**EI 120 U/C**	
CommScope HELIAX AVA, Ø ≤ 28 mm			**E 120 U/C / EI 90 U/C**	
CommScope HELIAX FSJ (super flexible), Ø ≤ 13,5 mm			**E 120 U/C / EI 90 U/C**	
RFS RADIAFLEX RLK, Ø ≤ 28,5 mm			**EI 120 U/C**	
RFS CELLFLEX LCF, Ø ≤ 27,8 mm			**EI 120 U/C**	
Electrical installation conduits (EIC)				
Conduits single Ø ≤ 40 mm, with/without cable Ø ≤ 21 mm	-	-	**EI 120 U/U**	-
Conduits single Ø ≤ 63 mm, with/without cable Ø ≤ 21 mm			-	**EI 120 U/U**
Conduit bundle, with or without configuration, Ø ≤ 90 mm with conduit Ø ≤ 40 mm, with/without cable Ø ≤ 21 mm			**EI 120 U/U**	-
Conduit bundle Ø ≤ 100 % with conduit Ø ≤ 32 mm, with/without cable Ø ≤ 21 mm			**EI 120 U/U**	
Conduit bundle Ø ≤ 100 % mm with conduit Ø ≤ 32 mm, with/without cable Ø ≤ 21 mm		Floor ≥ 200 mm	-	**EI 120 U/U**
HVAC split line combinations				
Pipe 1/pipe 2 outer-Ø 6-10 mm/ 10-18 mm + pipe insulation 9 mm thick made of PE foam + PE-100 outer-Ø ≤ 25 mm, depth 1.5 mm (U/U) + max 3 cables Ø ≤ 14 mm	-	-	**EI 90 U/U**	**EI 90 U/U**
Pipe 1/pipe 2 outer-Ø 6-22 mm/ 6-22 mm + pipe insulation 9 mm thick made of PE foam + PE-100 outer-Ø ≤ 25 mm, depth 1.5 mm (U/U) + max 3 cables Ø ≤ 14 mm		Lamella mat ≥ 250 mm x ≥ 30 mm above	-	**EI 120 U/U**
Speed pipes, bundled or individually, with/without glass fibre cables				
7 mm ≤ Ø ≤ 14 mm bundle ≤ 100 %	-	-	**EI 120 U/U**	-
max. 24 pcs. pipe outer-Ø ≤ 7			-	**EI 120 U/U**
max. 7 pcs. pipe outer-Ø ≤ 10 max. 5 pcs. pipe outer-Ø ≤ 12				**EI 120 U/U**
Combustible pipes made of PVC-U				
Pipe outer Ø 20 mm x s 1.5 mm up to pipe outer Ø 32 mm x s 2.4 mm	-	-	**EI 120 U/U**	-

Distances wall

	Cables	Cable bundles	Cable trays	Electrical installation conduits single or bundled	Combustible pipes	Multilayer pipes	Non-combustible pipes: insulation made of mineral-fibre mats	Non-combustible pipes: insulation made of FEF	HVAC split line combinations	Double solar pipes „NanoSUN²"	PE lines „speed pipes"	Hydraulic hoses „HANSA FLEX"	" FireFree 125 Installationsrør"	Seal edge		
														Upper	Under	Side
Cables	≥ 10 (≥ 50 one above the other)			Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 50	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 35	≥ 35	≥ 40	≥ 100	≥ 25	≥ 45	≥ 65	≥ 30	≥ 0	≥ 0
Cable bundles	≥ 10 (≥ 50 one above the other)			≥ 100	≥ 50	≥ 100	≥ 35	≥ 35	≥ 40	≥ 100	≥ 25	≥ 45	≥ 65	≥ 30	≥ 0	≥ 0
Cable trays	≥ 10 (≥ 50 one above the other)			≥ 100	≥ 50	≥ 100	≥ 35	≥ 35	≥ 40	≥ 100	≥ 25	≥ 45	≥ 65	≥ 30	≥ 0	≥ 0
Electrical installation conduits single or bundled	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 100		≥ 0	≥ 100		≥ 80	≥ 80	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Combustible pipes	≥ 50			≥ 100	≥ 0	≥ 100	≥ 0	≥ 0	≥ 50	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Multilayer pipes	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 100		≥ 100	≥ 100	≥ 0	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Non-combustible pipes: insulation made of mineral-fibre mats	≥ 50			≥ 80	≥ 0	≥ 100	≥ 0	≥ 0	≥ 50	≥ 100	≥ 20	≥ 100	≥ 100	≥ 0		
Non-combustible pipes: insulation made of FEF	≥ 50			≥ 80	≥ 0	≥ 100	≥ 0	≥ 0	≥ 50	≥ 100	≥ 20	≥ 100	≥ 100	≥ 0		
HVAC split line combinations	≥ 40			≥ 100	≥ 50	≥ 100	≥ 50	≥ 50	≥ 25	≥ 85	≥ 100	≥ 100	≥ 100	≥ 0		
Double solar pipes „NanoSUN²"	≥ 100			≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 85	≥ 100	≥ 100	≥ 85	≥ 100	≥ 0		
PE lines „speed pipes"	≥ 25			≥ 100	≥ 100	≥ 100	≥ 20	≥ 20	≥ 100	≥ 100	≥ 25	≥ 100	≥ 100	≥ 0		
Hydraulic hoses „HANSA FLEX"	≥ 45			≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 85	≥ 100	≥ 100	≥ 100	≥ 80		
"FireFree 125 Installationsrør"	≥ 65			≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 3	≥ 15		

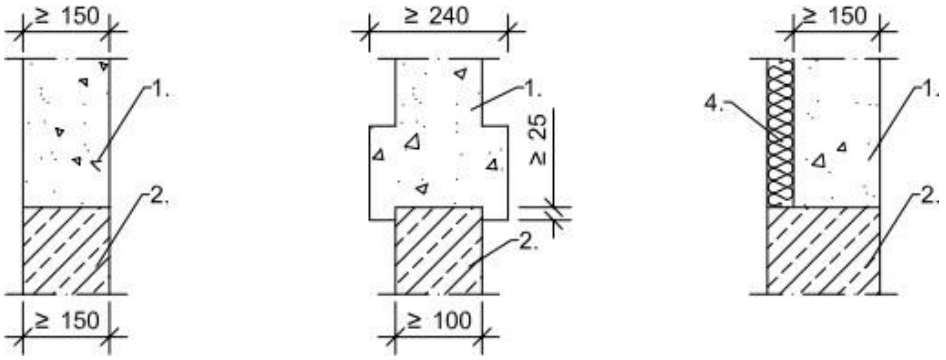
Distances floor															
	Cables	Cable bundles	Cable trays	Electrical installation conduits single or bundled	Combustible pipes	Multilayer pipes	Non-combustible pipes: insulation made of mineral-fibre mats	Non-combustible pipes: insulation made of FEF	HVAC split line combinations	Double solar pipes „NanoSUN²	PE lines „speed pipes	Hydraulic hoses „HANSA FLEX	FireFree 125 Installationsrør"	Seal edge		
														Upper	Under	Side
Cables	Seal thickness ≥ 150: ≥ 10, (≥ 50 one above the other) Seal thickness ≥ 240: ≥ 0, (≥ 45 one above the other)			Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 50	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 25	≥ 25	≥ 100	≥ 100	≥ 40	≥ 85	≥ 65	≥ 30	≥ 0	Seal thickness ≥ 150: ≥ 10 Seal thickness ≥ 240: ≥ 25
Cable bundles	Seal thickness ≥ 150: ≥ 10, (≥ 50 one above the other) Seal thickness ≥ 240: ≥ 0, (≥ 45 one above the other)			≥ 100	≥ 50	≥ 100	≥ 25	≥ 25	≥ 100	≥ 100	≥ 40	≥ 85	≥ 65	≥ 30	≥ 0	≥
Cable trays	Seal thickness ≥ 150: ≥ 10, (≥ 50 one above the other) Seal thickness ≥ 240: ≥ 0, (≥ 45 one above the other)			≥ 100	≥ 50	≥ 100	≥ 25	≥ 25	≥ 100	≥ 100	≥ 40	≥ 85	≥ 65	≥ 30	≥ 0	≥
Electrical installation conduits single or bundled	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥		≥ 0	≥ 100	≥ 100	≥ 60	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Combustible pipes	≥ 50			≥ 100	≥ 25	≥ 100	≥ 0	≥ 0	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100		
Multilayer pipes	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 100		≥	≥ 100	≥ 0	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Non-combustible pipes: insulation made of mineral-fibre mats	≥ 25			≥ 100	≥ 0	≥ 100	≥ 0	≥ 0	≥ 60	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100		
Non-combustible pipes: insulation made of FEF	≥ 25			≥ 100	≥ 0	≥ 100	≥ 0	≥ 0	≥ 60	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100		
HVAC split line combinations	≥ 100			≥ 100	≥ 100	≥ 100	≥ 60	≥ 60	≥ 50	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100		
Double solar pipes „NanoSUN²“	≥ 100			≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 8	≥ 100	≥ 30		
PE lines „speed pipes“	≥ 40			≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 25	≥ 100	≥ 100	≥ 30		
Hydraulic hoses „HANSA FLEX“	≥ 85			≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 80	≥ 100	≥ 100	≥ 100	≥ 35		
“FireFree 125 Installationsrør”	≥ 65			≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0	≥ 15		

The use of the construction product "FireFree 250 Brandmørtel" shall be in accordance with national requirements for planning, design and execution and in accordance with the installation instruction of the manufacturer.

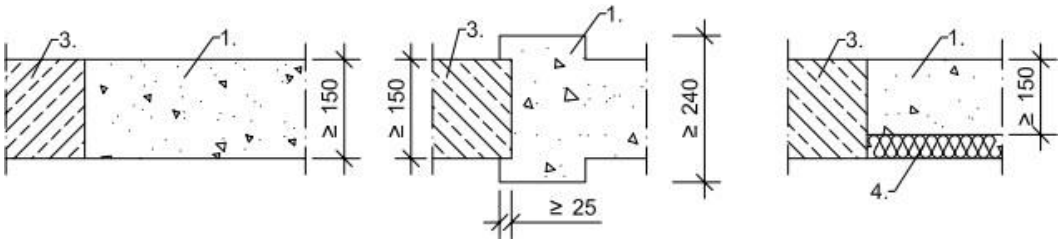
The tested/ illustrated seals are only examples for the use.

Mixed penetration sealing system made of mortar

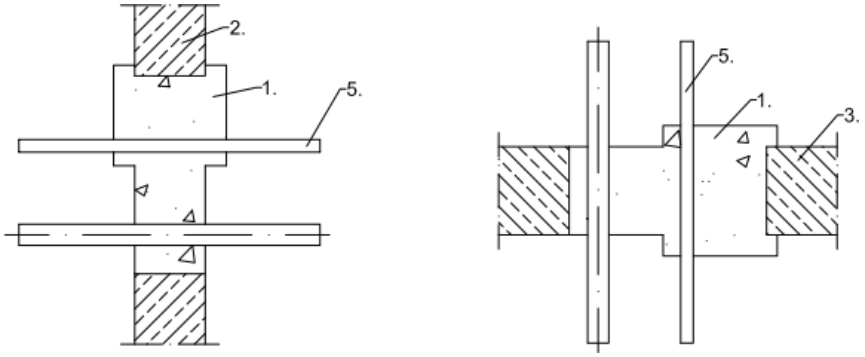
Variants in solid walls



Variants in floors



Cables, cable bundles with cables and cables trays

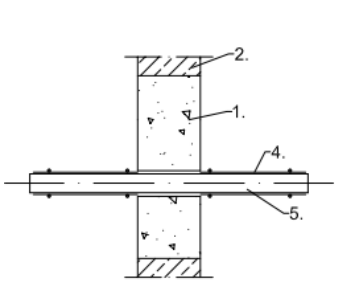


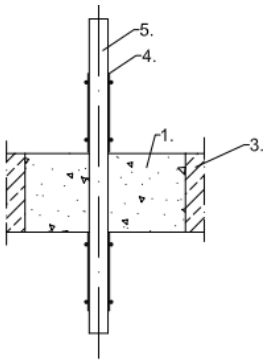
Service	Dimensions [mm]	Seal thickness [mm]	Fire resistance class	
			Wall	Floor
Cables	Ø ≤ 32	150	EI 120	EI 120
	Ø ≤ 50	240	EI 120	EI 90 / E 120
	Ø ≤ 80		EI 90 / E 120	EI 90
Single-core-non-sheathed cables	Ø wires ≤ 24	150	EI 120	EI 120
Cable bundles	Ø ≤ 60		EI 120	EI 120
	Ø ≤ 100		EI 90 / E 120	EI 60 / E 120
	Ø ≤ 100	240	EI 120	EI 120

Dimensions in mm

1. Mortar ≥ 150 mm thickness
2. Rigid wall ≥ 150 mm thickness
3. Rigid floor ≥ 150 mm thickness
4. Lost formwork e. g. made of mineral fibre mat (non-flammable, melting point > 1000 °C)
5. Cables / cable bundles / cables trays

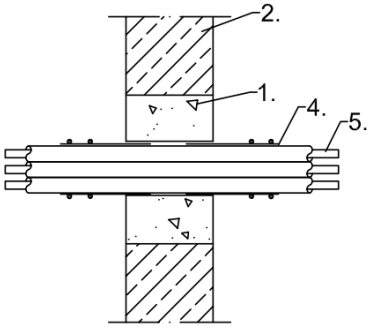
Cables Ø ≤ 80 mm, cable bundles Ø ≤ 100 mm with cables and cables trays with intumescent wrap

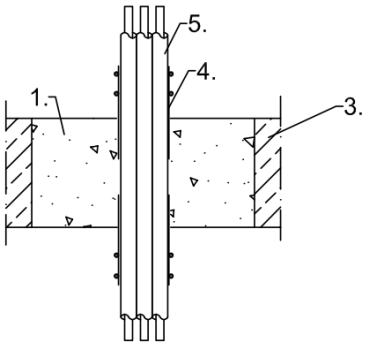




	Intumescent wrap							Fire resistance class	
Service	**Dimensions [mm]**	**Wrap width L [mm]**	**Qty. wraps [n]**	**Qty. layers [n]**	**Overlapping [mm]**	**Inside seal [mm]**	**Outside seal [mm]**	**Wall**	**Floor**
Cables	Ø ≤ 32	-	-	-	-	-	-	EI 120	EI 120
	Ø ≤ 50	125	2	2	45 - 60	0	125	EI 120	EI 120
	Ø ≤ 80							EI 90 / E 120	EI 120
		150					150	EI 120	EI 120
Cable bundles	Ø ≤ 100	125		1			125	EI 120	EI 120

Electrical installation conduit Ø ≤ 100 mm single or bundled with intumescent wrap





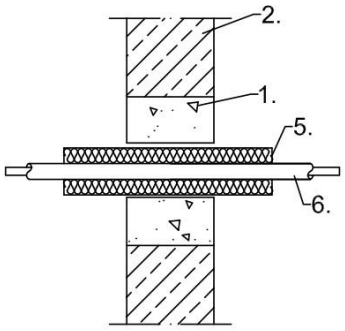
	Intumescent wrap							Fire resistance class	
Service	**Dimensions [mm]**	**Wrap width L [mm]**	**Qty. wraps [n]**	**Qty. layers [n]**	**Overlapping [mm]**	**Inside seal [mm]**	**Outside seal [mm]**	**Wall**	**Floor**
EIC made of plastic, single	EIC Ø ≤ 32 cable Ø ≤ 21	125	2	1	0	50	75	EI 120 U/U	EI 120 U/U
	EIC Ø ≤ 63 cable Ø ≤ 21			2				EI 120 U/U	
EIC made of plastic, single*	EIC Ø ≤ 100 cable Ø ≤ 50			3				-	
EIC made of plastic, bundled	Bundle Ø ≤ 100 EIC Ø ≤ 32 cable Ø ≤ 21			2				EI 120 U/U	

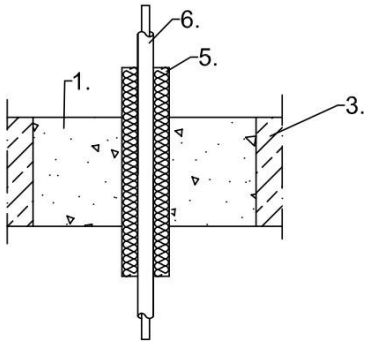
* With additional protective insulation made of mineral-fibre mats (L1 ≥ 500 mm x D1 ≥ 30 mm)

Dimensions in mm

1. Mortar ≥ 150 mm thickness
2. Rigid wall ≥ 150 mm thickness
3. Rigid floor ≥ 150 mm thickness
4. Intumescent wrap
5. Electrical installation conduits (EIC) made of plastic, single or bundled

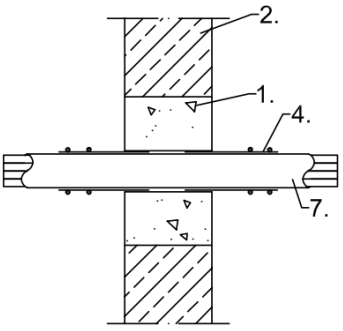
Electrical installation conduit Ø ≤ 63 mm (single) with non-combustible insulation made of mineral-fibre “lamella mat”

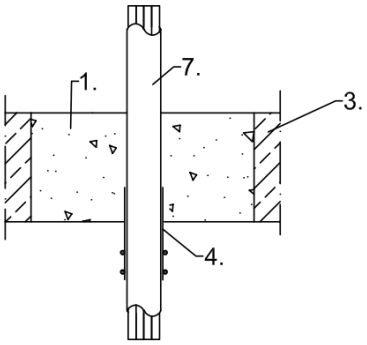




EIC-material	EIC outside Ø [mm]	Section insulation		Fire resistance class	
		Thickness [mm]	Length L ½ [mm]	Wall	Floor
PE-HD	≤ 63	≥ 30	≥ 500	EI 120 U/C	EI 120 U/C

PE lines “speed pipes” with intumescent wrap



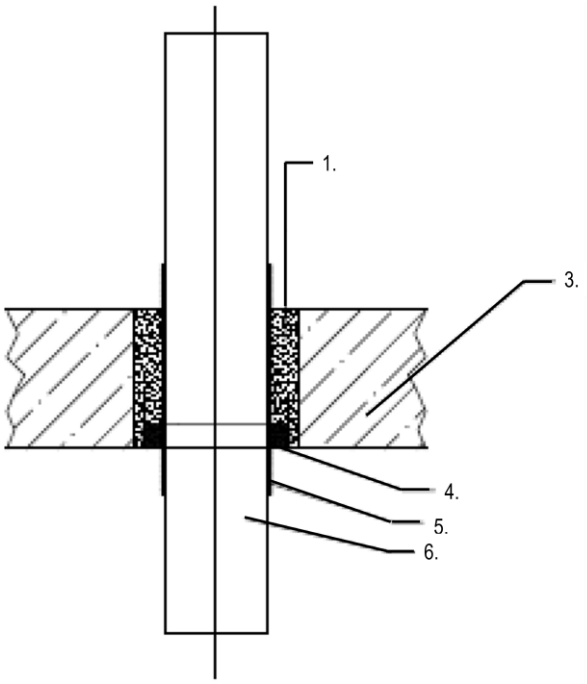


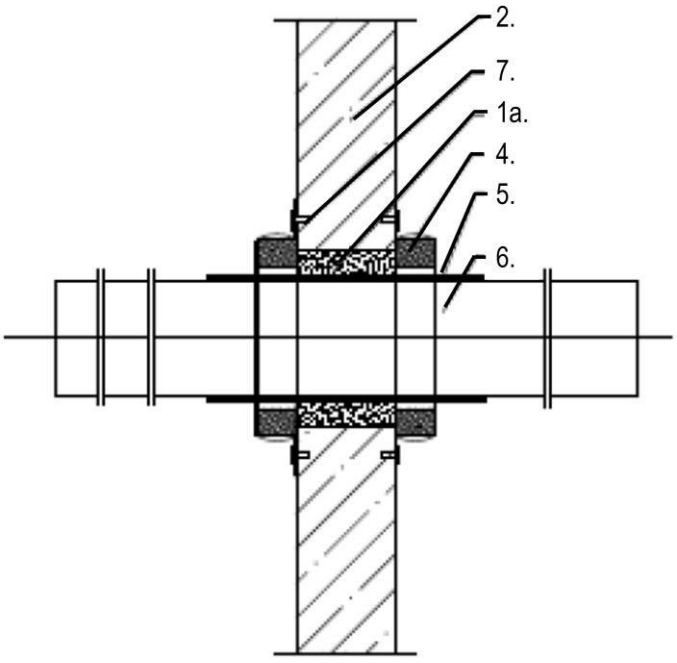
Set-up Speed pipes	Wall thickness [mm]	Intumescent wrap						Fire resistance class	
		Wrap width [mm]	Qty. wraps [n]	Qty. layers [n]	Overlapping [mm]	Inside seal [mm]	Outside seal [mm]	Wall	Floor
Ø 7,0 mm x 24 Pcs	≥ 1,5	125	2	1	0	50	75	EI 120 U/U	-
Ø 10,0 mm x 7 Pcs	≥ 2,0								
Ø 12,0 mm x 5 Pcs	≥ 2,0								
Ø 7,0 mm x 24 Pcs	≥ 1,5		1	2				-	EI 120 U/U
Ø 10,0 mm x 7 Pcs	≥ 2,0								
Ø 12,0 mm x 5 Pcs	≥ 2,0								

Dimensions in mm

1. Mortar ≥ 150 mm thickness
2. Rigid wall ≥ 150 mm thickness
3. Rigid floor ≥ 150 mm thickness
4. Intumescent wrap
5. Mineral fibre mats or -shells
6. Single electrical installation conduits (EIC), PE-HD
7. PE lines “speed pipes” (for glass fibre cables and micro cables)

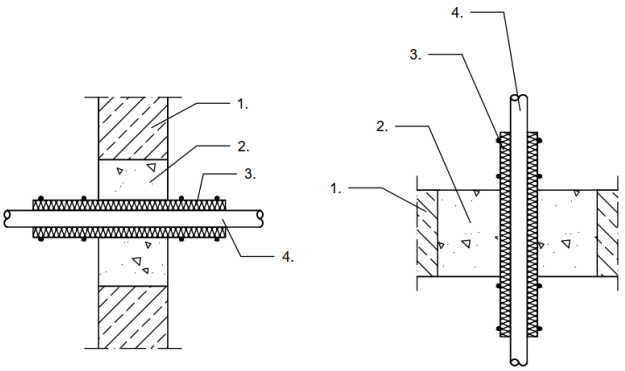
Combustible pipes Ø ≤ 160 mm with / without 5 mm PE-foam acoustic insulation with pipe collar





1. Mortar ≥ 150 mm thickness
1a. Mortar ≥ 100 mm thickness
2. Rigid wall / flexible wall ≥ 100 mm thickness
3. Rigid floor ≥ 150 mm thickness
4. Pipe collar
5. Noise insulation made of PE
6. Combustible pipes
7. Fastening

Multilayer pipes “Henco Standard” Ø ≤ 63 mm with non-combustible insulation

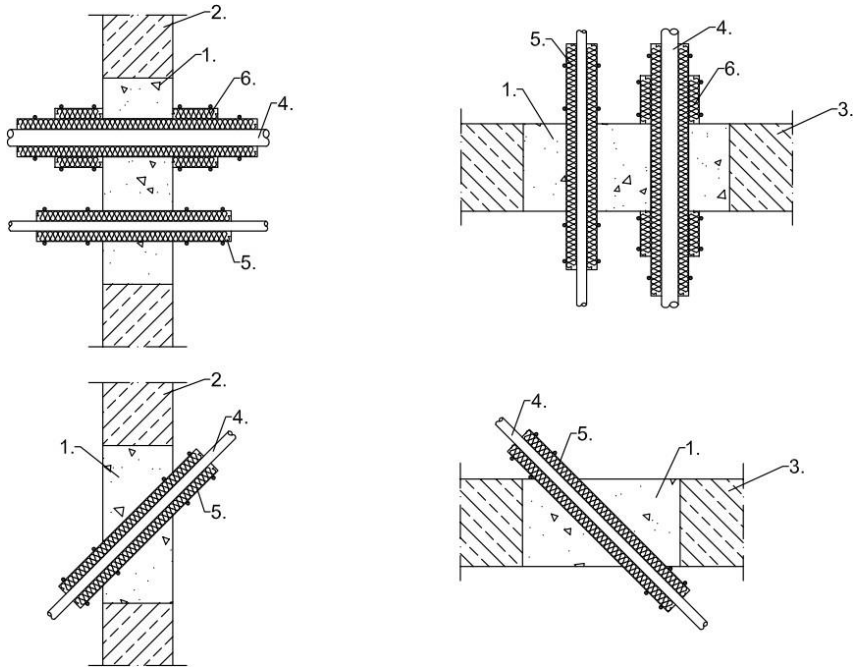


Outside Ø [mm]	Wall thickness [mm]	Protective insulation “Lamella mat”		Fire resistance class	
		Length L [mm]	Thick. D [mm]	Wall	Floor
Multilayer pipes “HENCO STANDARD”					
≤ 12	1,6	≥ 250	≥ 20	EI 120 U/C	EI 120 U/C
≤ 32	3,0				
≤ 63	4,5		≥ 30		

Dimensions in mm

1. Rigid wall / Rigid floor ≥ 150 mm thickness
2. Mortar ≥ 150 mm thickness
3. Protective insulation made of lamella mat
4. Multilayer pipes “HENCO STANDARD”

Non-combustible pipes with non-combustible insulation installed in an angle of 45° - 90°



Penetrations seals with lamella mat “Klimarock”

Pipe material	Outside pipe Ø [mm]	Length L [mm]	Thickness D [mm]	Fire resistance class	
				Wall	Floor
Copper	≤ 15,0	≥ 250	≥ 20	EI 120 C/U	EI 120 C/U
	> 15,0 - ≤ 28,0	≥ 500	≥ 20		
	> 28,0 - ≤ 42,0		≥ 30		
	> 42,0 - ≤ 54,0		≥ 40		
	> 54,0 - ≤ 88,9	≥ 750	≥ 60		
	> 88,9 - ≤ 108,0*	≥ 1000	≥ 30		
Steel, stainless steel, cast iron	≤ 15,0	≥ 250	≥ 20		
	> 15,0 - ≤ 28,0	≥ 500			
	> 28,0 - ≤ 42,0		≥ 30		
	> 42,0 - ≤ 114,3		≥ 40		
	> 114,3 - ≤ 168,3	≥ 1000			
	> 168,3 - ≤ 323,9*				

*Additional protective insulation made of mineral fibre mat (L1 ≥ 500 mm x D1 ≥ 30 mm)

Penetrations seals with mineral fibre shells “Conlit 150U”

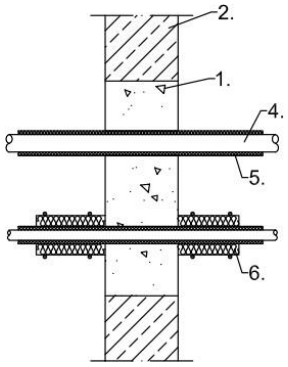
Pipe material	Outside pipe Ø [mm]	Length L [mm]	Thickness D [mm]	Fire resistance class	
				Wall	Floor
Copper	≤ 15,0	≥ 250	≥ 22,5	EI 120 C/U	EI 120 C/U
	> 15,0 - ≤ 28,0	≥ 500	≥ 26		-
	> 15,0 - ≤ 42,0		≥ 19	-	EI 120 C/U
	> 28,0 - ≤ 54,0		≥ 38	EI 120 C/U	
	> 54,0 - ≤ 108,0	≥ 1000	≥ 38		
Steel, stainless steel, cast iron	≤ 15,0	≥ 250	≥ 22,5		
	> 15,0 - ≤ 28,0	≥ 500	≥ 26		
	> 15,0 - ≤ 42,0		≥ 19	-	
	> 28,0 - ≤ 54,0		≥ 38	EI 120 C/U	
	> 54,0 - ≤ 114,3	≥ 750	≥ 33		
	> 114,3 - ≤ 168,3	≥ 1000	≥ 40		
	> 168,3 - ≤ 323,9*				EI 90 / E 120 C/U

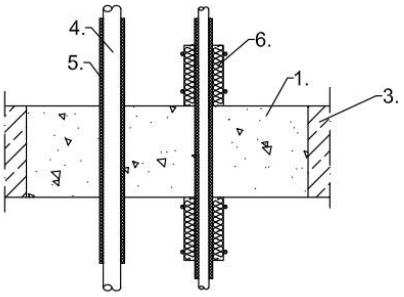
*Additional protective insulation made of mineral fibre mat (L1 ≥ 500 mm x D1 ≥ 40 mm)

Dimensions in mm

1. Mortar ≥ 150 mm thickness
2. Rigid wall ≥ 150 mm thickness
3. Rigid floor ≥ 150 mm thickness
4. Non-combustible pipes
5. Insulation made of mineral fibre mats / shells
6. Protective insulation made of mineral fibre mats

Non-combustible pipes with combustible insulation

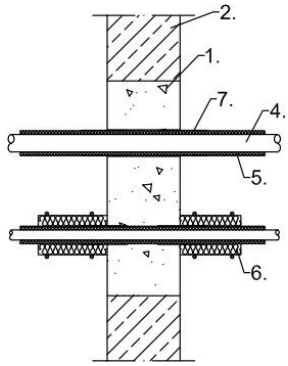


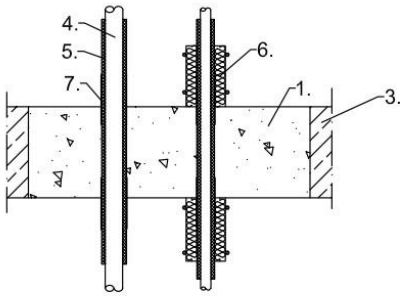


Pipe material	Outside pipe Ø [mm]	Length L [mm]	Thickness D [mm]	Fire resistance class	
				Wall	Floor
Copper	≤ 28,0	≥ 250	25	EI 120 C/U	EI 120 C/U
	≤ 28,0	≥ 500	26 – 51		
	> 28,0 - ≤ 88,9		25		
	> 28,0 - ≤ 88,9	≥ 1000	26 - 51		
	> 88,9 - ≤ 108,0*		26 - 52		
Steel, stainless steel, cast iron	≤ 28,0	≥ 250	25		
	≤ 28,0	≥ 500	26 – 51		
	> 28,0 - ≤ 88,9		25		
	> 28,0 - ≤ 88,9	≥ 1000	26 – 51		
	> 88,9 - ≤ 170,0*		52		-
	> 88,9 - ≤ 170,0		26 - 52		EI 120 C/U

*Additional protective insulation made of mineral fibre mat (L1 ≥ 500 mm x D1 ≥ 40 mm)

Non-combustible pipes with combustible insulation with intumescent wrap





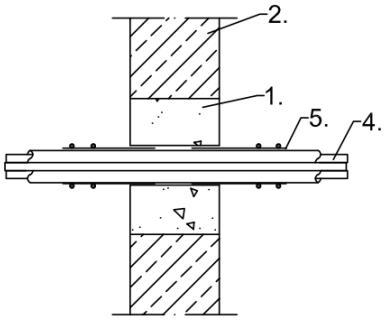
Pipe material	Outside pipe Ø [mm]	Insulation thickness [mm]	Intumescent wrap						Fire resistance class	
			Wrap width [mm]	Qty. wraps [n]	Qty. layers [n]	Overlapping [mm]	Inside seal [mm]	Outside seal [mm]	Wall	Floor
Copper	≤ 28,0	9 - 25	125	2	2	0	50	75	EI 120 C/U	
	≤ 42,0	10 – 44								
	≤ 54,0	13 – 50								
	≤ 76,0	13							-	
		14 – 50								EI 90 C/U
	≤ 88,9*	19 – 50							EI 120 C/U	EI 120 C/U
	≤ 108,0**	25 – 50								
Steel, stainless steel, cast iron	≤ 168,3*	19 - 50								

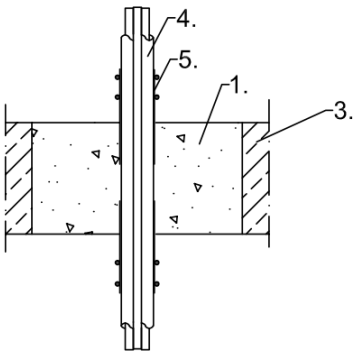
*Additional protective insulation made of mineral fibre mat (L1 ≥ 500 mm x D1 ≥ 40 mm)
**Additional protective insulation made of mineral fibre mat (L1 ≥ 750 mm x D1 ≥ 40 mm)

Dimensions in mm

1. Mortar ≥ 150 mm thickness
2. Rigid wall ≥ 150 mm thickness
3. Rigid floor ≥ 150 mm thickness
4. Non-combustible pipes
5. FEF-insulation
6. Protective insulation made of mineral fibre mats / -shells
7. Intumescent wrap

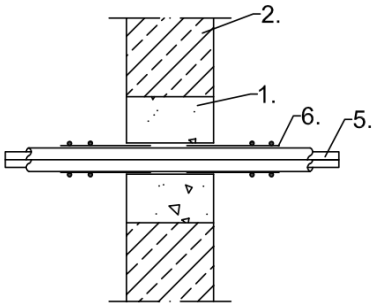
HVAC split line combinations “Tubolit Duo Split” with intumescent wrap

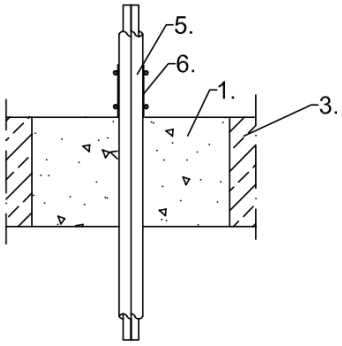




Pipe material	Outside pipe Ø [mm]	Qty. Add. Cables Ø ≤ 14 [mm]; [n]	Pipe insulation [type]; [mm]	PE pipe Ø [mm]	Intumescent wrap						Fire resistance class	
					Wrap width [mm]	Qty. wraps [n]	Qty. layers [n]	Overlapping [mm]	Inside seal [mm]	Outside seal [mm]	Wall	Floor
Copper	2 x ≤ 10/18	2	PEF ≤ 9,0	≤ 25	125	2	2	0	50	75	EI 120	EI 120

Double solar pipes “NanoSUN²” with intumescent wrap



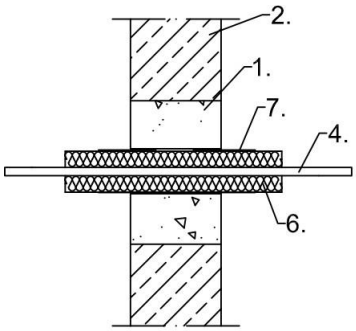


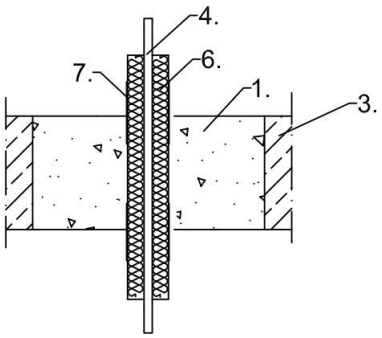
Pipe material	Intumescent wrap						Fire resistance class	
	Wrap width [mm]	Qty. wraps [n]	Qty. layers [n]	Overlapping [mm]	Inside seal [mm]	Outside seal [mm]	Wall	Floor
DIN 16 – DN 25	125	2 1 (above)	1	≥ 40	0	125	EI 120 C/U	EI 120 C/U

Dimensions in mm

1. Mortar ≥ 150 mm thickness
2. Rigid wall ≥ 150 mm thickness
3. Rigid floor ≥ 150 mm thickness
4. HVAC split line combinations
5. Double solar pipes “NanoSUN²”
6. Intumescent wrap

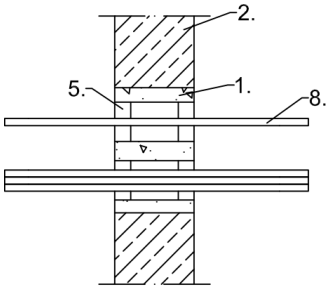
"HANSA FLEX" hydraulic hoses with lamella mat with intumescent wrap

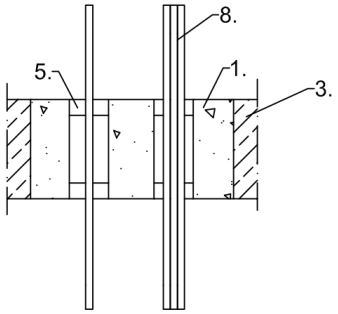




Outside pipe Ø [mm]	Protective insulation made of lamella mat		Intumescent wrap						Fire resistance class	
	Length L ½ [mm]	Thickness D [mm]	Wrap width [mm]	Qty, wraps [n]	Qty. layers [n]	Overlapping [mm]	Inside seal [mm]	Outside seal [mm]	Wall	Floor
≤ 55,9	≥ 250	≥ 20	125	2	1	0	50	75	EI 120	EI 120

Cable Tube with cables or cable bundles



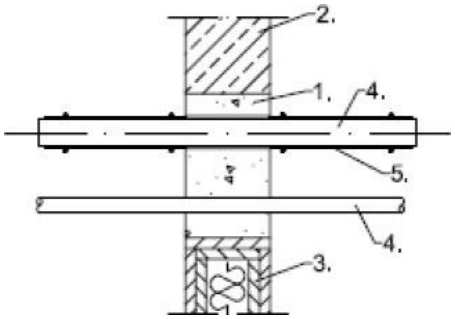


Dimensions in mm

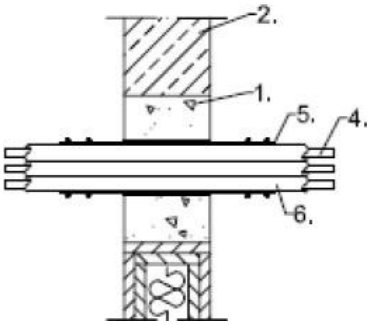
1. Mortar ≥ 150 mm thickness
2. Rigid wall ≥ 150 mm thickness
3. Rigid floor ≥ 150 mm thickness
4. "HANSA FLEX hydraulic hoses with wire mesh insert
5. Cable Tube
6. Lamella mat
7. Intumescent wrap
8. Cables

Mixed penetration sealing system made of mortar

Cables Ø ≤ 80 mm, cables bundles Ø ≤ 150 mm with cables Ø ≤ 21 mm and cable trays with intumescent wrap (wrap width = 125 mm)



Electrical installation conduit Ø ≤ 32 mm, with conduit-bundles Ø ≤ 100 mm with intumescent wrap (wrap width = 125 mm)

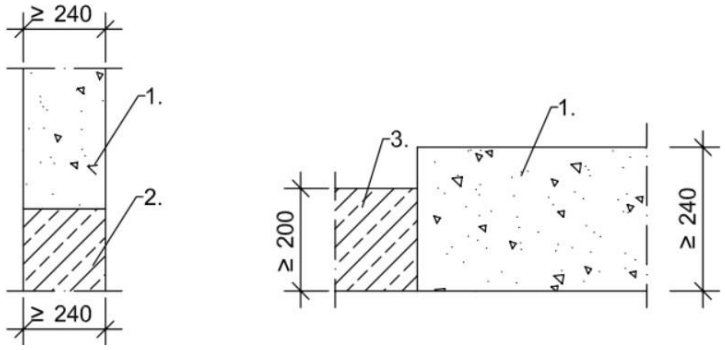


	Dimensions [mm]	Measures	Fire resistance class
			Wall
Cables	Ø ≤ 21	-	EI 90
Cable bundles	Ø ≤ 60 Cable Ø ≤ 21		
Plastic conduits	Ø ≤ 16		
Cable Tubes	Length ≥ 150		
Cables	Ø ≤ 50	Intumescent wrap	EI 90 / E 120
	Ø ≤ 80		
Cable bundles	Ø ≤ 150 Cable Ø ≤ 21		EI 120
EIC made of plastic, single	EIC Ø ≤ 32 Cable Ø ≤ 21		EI 120 U/U
EIC made of plastic, bundled	Bundle Ø ≤ 100 EIC Ø ≤ 32 Cable Ø ≤ 21		

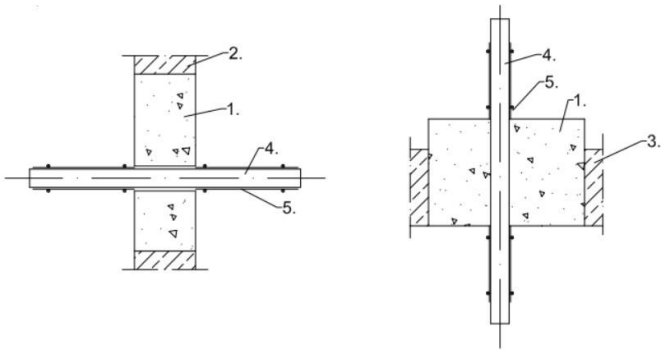
Dimensions in mm

1. Mortar ≥ 100 mm thickness
2. Rigid wall ≥ 100 mm thickness
3. Plasterboard walls ≥ 100 mm thickness
4. Cable
5. Intumescent wrap
6. Electrical installation pipes (conduits), made of plastic

Mixed penetration sealing system made of mortar



Cables Ø ≤ 80 mm, cables bundles Ø ≤ 100 mm with cables Ø ≤ 21 mm and cable trays with intumescent wrap (wrap width = 500 mm)



	Measures	Fire resistance class	
		Wall	Floor
Cables Ø ≤ 80 mm	Intumescent wrap	EI 240	EI 240
Cable bundles Ø ≤ 100 mm With cables Ø ≤ 21 mm		EI 240	EI 240

Dimensions in mm

1. Mortar ≥ 240 mm thickness
2. Rigid wall ≥ 240 mm thickness
3. Rigid floor ≥ 200 mm thickness
4. Cable, cable bundle, cable trays
5. Intumescent wrap