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Authorised and notified according
to Article 29 of the Regulation (EU)
No 305/2011 of the European
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MEMBER OF EOTA



European Technical Assessment ETA-22/0051 of 2022/03/27

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:

PYRO-SAFE NOVASIT BM

Product family to which the above construction product belongs:

Fire stopping product – penetration seals.

Manufacturer:

svt Brandschutz Vertriebsgesellschaft mbH
International
Glüsinger Straße 86
D-21217 Seevetal
Tel.: 0049 4105/40 90 0
Internet: www.svt.de

Manufacturing plant:

Plant 10 and 20

This European Technical Assessment contains:

27 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:

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product

The construction product "PYRO-SAFE NOVASIT BM" 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 EAD

The construction product "PYRO-SAFE NOVASIT BM" is intended to be used as a component with a fire protection effect in building elements or parts thereof 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 "PYRO-SAFE NOVASIT BM" 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 "PYRO-SAFE NOVASIT BM".

The construction product may be used for the installation of penetration seals in dry interior areas and temperatures above 0 °C (use category Type Z₁).

The provisions made in this European Technical Assessment are based on an assumed intended working life of the "PYRO-SAFE NOVASIT BM" 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
3.1 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
3.2 Hygiene, health, and the environment (BWR3)	
Content, emission and/or release of dangerous substances	No dangerous substances
Air permeability (material property)	No performance assessed
Water Permeability (material property)	No performance assessed
3.3 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	The product fulfils the provisions related to durability in EAD 350454-00-1104 for use condition Z ₁ .
3.4 Protection against noise (BWR5)	
Airborne sound insulation	No performance assessed
3.5 Energy Economy and heat retention (BWR6)	
Thermal properties	No performance assessed
Water vapour permeability	No performance assessed

3.9 Methods of verification

The characteristic values of the joint sealing system are based on the EAD 350454-00-1104.

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

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.

"PYRO-SAFE NOVASIT BM" 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 (AVCP)

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 foreseen 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 2022-03-27 by



Thomas Bruun
Managing Director, ETA-Danmark

Annex 1**Properties of the construction product "PYRO-SAFE NOVASIT BM" and the performance of penetration seals, comprising "PYRO-SAFE NOVASIT BM"**

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

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			
	Measures	Wall	Floor
		Fire resistance class	Fire resistance class
Cables, cable bundles and cable trays with fire protection wrap „PYRO-SAFE“ DG-CR 1.5“ – Wrap width = 500 mm			
Cables $\varnothing \leq 80$ mm	2 x 2 layers	EI 240	EI 240
Cable bundles $\varnothing \leq 100$ 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			
	Measures	Flexible Plasterboard wall	
		Fire resistance class	
Cables, without protective measures			
Cables $\varnothing \leq 21$ mm	-	EI 90 / E 120	
Cables, cable bundles and cable trays with fire protection wrap „PYRO-SAFE® DG-CR 1.5“			
Cables $\varnothing \leq 50$ mm	2x 2-layer, 125 mm outside seal	EI 90 / E 120	
Cables $\varnothing \leq 80$ mm	2x 2-layer, 125 mm outside seal	EI 90 / E 120	
Cable bundles $\varnothing \leq 150$ mm with cable $\varnothing 21$	2x 1-layer, 125 mm outside seal	EI 120	
Electrical installation conduit with fire protection wrap „PYRO-SAFE® DG-CR 1.5“ – Wrap width 125 mm			
Conduits $\varnothing \leq 32$ mm	2x 2-layer, 50 mm inside seal / 75 mm outside seal	EI 120	
Conduit-bundles $\varnothing \leq 100$ mm (single conduits $\varnothing \leq 32$ mm)			

Distances /wall	Cables	Cable bundles	Cable trays	Electrical installation conduits single or bundled	Seal edge		
					Upper	Under	Side
Cables	≥ 5 (side by side) ≥ 50 (above the other)				≥ 50	≥ 0	≥ 5
Cable bundles							
Cable trays							
Electrical installation conduits single or bundled							

PYRO-SAFE® Novasit BM

Fire resistance classes for wall and floor partition

Fire resistance classes				
	Measures	Wall		Floor
		Fire resistance class		Fire resistance class
Cables, cable bundles and cable trays without protective measures				
Cables $\varnothing \leq 32$ mm	-	EI 120		EI 120
Single-core-non-sheathed cables (Wires, $\varnothing \leq 24$ mm)	-	EI 120		EI 120
Cable bundles $\varnothing \leq 60$ mm	-	EI 120		EI 120
Cable bundles $\varnothing \leq 100$ mm	-	EI 90 / E 120		EI 60 / E 120
Cables, cable bundles and cable trays with 240 mm seal thickness				
Cables $\varnothing \leq 50$ mm	240 mm seal thickness	EI 120		EI 90 / E 120
Cables $\varnothing \leq 50$ mm	240 mm seal thickness	EI 90 / E 120		EI 90 / E 120
Cable bundles $\varnothing \leq 100$ mm	240 mm seal thickness	EI 120		EI 120
Cables, cable bundles and cable trays with fire protection wrap „PYRO-SAFE® DG-CR 1.5“				
Cables $\varnothing \leq 50$ mm	2x 2-layer, 125 mm	EI 120		EI 120
Cables $\varnothing \leq 80$ mm	2x 2-layer, 125 mm	EI 90 / E 120		EI 120
	2x 2-layer, 150 mm	EI 120		EI 120
Cable bundles $\varnothing \leq 100$ mm	2x 1-layer, 125 mm	EI 120		EI 120
Electrical installation conduit with fire protection wrap „PYRO-SAFE® DG-CR 1.5“ – Wrap width 125 mm				
Conduits $\varnothing \leq 32$ mm	2x 1-layer	EI 120 U/U		EI 120 U/U
Conduits $\varnothing \leq 63$ mm	2x 2-layer	EI 120 U/U		EI 120 U/U
Conduits $\varnothing \leq 100$ mm	2x 3-layer + lamella mat ≥ 500 mm x ≥ 30 mm	-		EI 120 U/U
Conduit-bundles $\varnothing \leq 100$ mm (single conduits $\varnothing \leq 32$ mm)	2x 2-layer	EI 120 U/U		EI 120 U/U
Electrical installation conduit with non-combustible insulation made of mineral-fibre „lamella mat“				
Conduits $\varnothing \leq 63$ 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 “PYRO-SAFE® DG-CR 1.5“ – Wrap width 125 mm				
max. 24 pcs.; outside pipe- $\varnothing \leq 7$ mm max. 7 pcs.; outside pipe- $\varnothing \leq 10$ mm max. 5 pcs.; outside pipe- $\varnothing \leq 12$ mm	Wall 2x, 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- $\varnothing \leq 15$ mm	≥ 250 mm x ≥ 20 mm	EI 120 C/U		EI 120 C/U
Outside pipe- $\varnothing \leq 28$ mm	≥ 500 mm x ≥ 20 mm	EI 120 C/U		EI 120 C/U
Outside pipe- $\varnothing \leq 42$ mm	≥ 500 mm x ≥ 30 mm	EI 120 C/U		EI 120 C/U
Outside pipe- $\varnothing \leq 54$ mm	≥ 500 mm x ≥ 40 mm	EI 120 C/U		EI 120 C/U
Outside pipe- $\varnothing \leq 88,9$ mm	≥ 750 mm x ≥ 60 mm	EI 120 C/U		EI 120 C/U

	Measures	Wall	Floor
		Fire resistance class	Fire resistance class
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	EI 120 C/U	EI 120 C/U
Outside pipe-Ø ≤ 42,0 mm	≥ 500 mm x ≥ 30 mm	EI 120 C/U	EI 120 C/U
Outside pipe-Ø ≤ 114,3 mm	≥ 500 mm x ≥ 40 mm	EI 120 C/U	EI 120 C/U
Outside pipe-Ø ≤ 168,3 mm	≥ 1000 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 ≥ 30 mm	EI 120 C/U	EI 120 C/U

Fire resistance classes				
	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- $\varnothing \leq 12,0$ mm, wall thickness 1,6 mm	Lamella mat ≥ 250 mm x ≥ 20 mm	EI 120 U/C	EI 120 U/C	
Outside pipe- $\varnothing \leq 32,0$ mm, wall thickness 3,0 mm		EI 120 U/C	EI 120 U/C	
Outside pipe- $\varnothing \leq 63,0$ mm, wall thickness 4,5 mm	Lamella mat ≥ 250 mm x ≥ 30 mm	EI 120 U/C	EI 120 U/C	
Multilayer pipes „HENCO pipes“ with PE-foam (PEF) insulation and intumescent wrap „PYRO-SAFE® DG-CR BS“ – Wrap width 100 mm				
Outside pipe- $\varnothing \leq 14,0$ mm, wall thicken. 2,0 mm, PEF 6 mm	2x 1-layer + lamella mat ≥ 250 mm x ≥ 20 mm	EI 120 U/C	EI 120 U/C	
Outside pipe- $\varnothing \leq 26,0$ mm, wall thicken. 3,0 mm, PEF 6 - 13 mm		EI 120 U/C	EI 120 U/C	
Outside pipe- $\varnothing \leq 32,0$ mm, wall thicken. 2,0 mm, PEF 6 - 10 mm		EI 120 U/C	EI 120 U/C	
Combustible pipes with/without 5 mm PE-foam acoustic insulation made of PVC-U, PVC-C , PP-H or PE-100 with intumescent wrap „PYRO-SAFE® DG-CR BS“ – Wrap width 100 mm				
Outside pipe- $\varnothing \leq 50,0$ mm	Wall 2x, Floor 1x 1-layer	EI 120 U/U	EI 120 U/U	
Outside pipe- $\varnothing \leq 80,0$ mm	Wall 2x, Floor 1x 2-layer	EI 120 U/U	EI 120 U/U	
Outside pipe- $\varnothing \leq 110,0$ mm	Wall 2x, Floor 1x 3-layer	EI 120 U/U	EI 120 U/U	
Outside pipe- $\varnothing \leq 135,0$ mm	Wall 2x, Floor 1x 4-layer	EI 120 U/C	EI 120 U/C	
Outside pipe- $\varnothing \leq 160,0$ mm	Wall 2x, Floor 1x 5-layer	EI 120 U/C	EI 120 U/C	
HVAC split line combinations** with fire protection wrap „PYRO-SAFE® DG-CR 1.5“ – Wrap width 125 mm				
Pipe 1/Pipe 2 outside- \varnothing 6 mm - 10 mm/ 10 mm - 18 mm + PE-100 outside- $\varnothing \leq 25$ mm, t 1.9 - 3.5 mm	2x 2-layer	EI 120	EI 120	
Double solar pipes „NanoSUN2“ with fire protection wrap „PYRO-SAFE® DG-CR 1.5“ – Wrap width 125 mm				
DN16 and DN 25	Wall 2x, Floor 1x 1-layer	EI 120 C/U	EI 120 C/U	
Hydraulic hoses „HANSA FLEX“ (also with wire braid reinforcement) with fire protection wrap „PYRO-SAFE® DG-CR 1.5“ – Wrap width 125 mm				
up to $\varnothing 55,9$ mm (Hansa-Flex HD 200 (2SN)) (e.g. hydraulic hoses for elevators) with additional cables	2x 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			
	Measures	wall Fire resistance class	floor fire resistance class
Non-combustible pipes made of copper with non-combustible insulation „Conlit 150U“			
Outside pipe $\varnothing \leq 15$ mm	≥ 250 mm x $\geq 22,5$ mm	EI 120 C/U	EI 120 C/U
Outside pipe $\varnothing \leq 28$ mm	≥ 500 mm x ≥ 26 mm	EI 120 C/U	-
Outside pipe $\varnothing \leq 42$ mm	≥ 500 mm x ≥ 19 mm	-	EI 120 C/U
Outside pipe $\varnothing \leq 54$ mm	≥ 500 mm x ≥ 38 mm	EI 120 C/U	EI 120 C/U
Outside pipe $\varnothing \leq 108$ 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 $\varnothing \leq 15$ mm	≥ 750 mm x ≥ 33 mm	EI 120 C/U	EI 120 C/U
Outside pipe $\varnothing \leq 28$ mm	≥ 500 mm x ≥ 26 mm	EI 120 C/U	EI 120 C/U
Outside pipe $\varnothing \leq 42$ mm	≥ 500 mm x ≥ 19 mm		EI 120 C/U
Outside pipe $\varnothing \leq 54$ mm	≥ 500 mm x ≥ 38 mm	-	EI 120 C/U
Outside pipe $\varnothing \leq 114,3$ mm	≥ 750 mm x ≥ 33 mm	EI 120 C/U	EI 120 C/U
Outside pipe $\varnothing \leq 219,1$ mm	≥ 1000 mm x ≥ 40 mm + lamella mat ≥ 500 mm x ≥ 40 mm	EI 120 C/U	EI 120 C/U
Outside pipe $\varnothing \leq 323,9$ 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- $\varnothing \leq 28,0$ 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- $\varnothing \leq 88,9$ 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 $\varnothing \leq 108$ 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- $\varnothing \leq 28,0$ 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- $\varnothing \leq 88,9$ 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 $\varnothing \leq 170$ 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 insulation „NH/Armaflex“ with fire protection wrap „PYRO-SAFE® DG-CR 1.5“ – Wrap width 125 mm			
Outside pipe- $\varnothing \leq 54,0$ mm / 76,0 mm (floor)	2x 2-layer	EI 120 C/U	EI 120 C/U
Outside pipe- $\varnothing \leq 88,9$ mm	2x 2-layer + lamella mat ≥ 500 mm x ≥ 40 mm	EI 120 C/U	EI 120 C/U
Outside pipe- $\varnothing \leq 108,0$ mm	2x 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 insulation „NH/Armaflex“ with fire protection wrap „PYRO-SAFE® DG-CR 1.5“ – Wrap width 125 mm			
Outside pipe- $\varnothing \leq 168,3$ mm	2x 2-layer + lamella mat ≥ 500 mm x ≥ 40 mm	EI 120 C/U	EI 120 C/U

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

Fire resistance classes				
Service	Measure		Fire resistance class	
PYRO-SAFE® CT Cable Tube – Installation length 300 mm	wall	floor	wall	floor
Cables, cable bundles				
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, with conduit Ø ≤ 40 mm, Ø ≤ 90 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 ≤ 107 mm with conduit Ø ≤ 32 mm, with/without cable Ø ≤ 21 mm	-	Floor ≥ 200 mm	-	EI 120 U/U

Fire resistance classes				
Service	Measure		Fire resistance class	
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
Speedpipes, 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 „NanoSUN“	PE lines „speed pipes“	Hydraulic hoses „HANSA FLEX“	PYRO-SAFE- CT Cable Tube	Seal edge		
	≥ 50 one ≥ 10 above the other)	≥ 100													upper	under	side
Cables	(≥ 50 one ≥ 10 above the other)	≥ 100	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 50	≥ 100	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 35	≥ 35	≥ 40	≥ 100	≥ 25	≥ 45	≥ 65	≥ 30	≥ 0	≥ 0	
Cable bundles	(≥ 50 one ≥ 10 above the other)	≥ 100	≥ 100	≥ 50	≥ 100	≥ 35	≥ 35	≥ 40	≥ 100	≥ 25	≥ 45	≥ 65	≥ 30	≥ 0	≥ 0		
Cable trays	(≥ 50 one ≥ 10 above the other)	≥ 100	≥ 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	≥ 100	≥ 80	≥ 80	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Combustible pipes	≥ 50	≥ 100	≥ 100	≥ 0	≥ 100	≥ 0	≥ 0	≥ 50	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Multilayer pipes	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 100	≥ 100	≥ 100	≥ 0	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Non-combustible pipes; Insulation made of mineral-fibre mats	≥ 50	≥ 100	≥ 80	≥ 0	≥ 100	≥ 0	≥ 0	≥ 50	≥ 100	≥ 20	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Non-combustible pipes; Insulation made of FEF	≥ 50	≥ 100	≥ 80	≥ 0	≥ 100	≥ 0	≥ 0	≥ 50	≥ 100	≥ 20	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
HVAC split line combinations	≥ 40	≥ 100	≥ 100	≥ 50	≥ 100	≥ 50	≥ 50	≥ 25	≥ 85	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Double solar pipes „NanoSUN“	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 85	≥ 100	≥ 100	≥ 85	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
PE lines „speed pipes“	≥ 25	≥ 100	≥ 100	≥ 100	≥ 20	≥ 20	≥ 100	≥ 100	≥ 25	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Hydraulic hoses „HANSA FLEX“	≥ 45	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 85	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 80		
PYRO-SAFE® CT Cable Tube	≥ 65	≥ 100	≥ 100	≥ 100	≥ 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 „NanoSUN“	PE lines „speed pipes“	Hydraulic hoses „HANSA FLEX“	PYRO-SAFE- CT Cable Tube	Seal edge		
	Seal thickness ≥ 130: ≥ 10, (≥ 50 one above the other) Seal thickness ≥ 240: ≥ 0, (≥ 45 one above the other)	Seal thickness ≥ 100													Front	back	side
Cables	Seal thickness ≥ 130: ≥ 10, (≥ 50 one above the other) Seal thickness ≥ 240: ≥ 0, (≥ 45 one above the other)	≥ 100	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	≥ 100	≥ 50	≥ 100	≥ 25	≥ 25	≥ 100	≥ 100	≥ 40	≥ 85	≥ 65	≥ 30	≥ 0	Seal thickness ≥ 150: ≥ 10 Seal thickness ≥ 240: ≥ 25		
Cable trays	Seal thickness ≥ 130: ≥ 10, (≥ 50 one above the other) Seal thickness ≥ 240: ≥ 0, (≥ 45 one above the other)	≥ 100	≥ 100	≥ 50	≥ 100	≥ 25	≥ 25	≥ 100	≥ 100	≥ 40	≥ 85	≥ 65	≥ 30	≥ 0	Seal thickness ≥ 150: ≥ 10 Seal thickness ≥ 240: ≥ 25		
Electrical installation conduits single or bundled	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 100	≥ 0	≥ 100	≥ 100	≥ 60	≥ 60	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Combustible pipes	≥ 50	≥ 100	≥ 100	≥ 25	≥ 100	≥ 0	≥ 0	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Multilayer pipes	Cable ≤ 21: ≥ 0 Cable > 21: ≥ 100	≥ 100	≥ 100	≥ 100	≥ 0	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Non-combustible pipes; Insulation made of mineral-fibre mats	≥ 25	≥ 100	≥ 100	≥ 0	≥ 100	≥ 0	≥ 0	≥ 60	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
Non-combustible pipes; Insulation made of FEF	≥ 25	≥ 100	≥ 100	≥ 0	≥ 100	≥ 0	≥ 0	≥ 60	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
HVAC split line combinations	≥ 100	≥ 100	≥ 100	≥ 100	≥ 60	≥ 60	≥ 50	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100		
Double solar pipes „NanoSUN“	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 80	≥ 100	≥ 100	≥ 100	≥ 100	≥ 30		
PE lines „speed pipes“	≥ 40	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 25	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 30		
Hydraulic hoses „HANSA FLEX“	≥ 85	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 80	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 35		
PYRO-SAFE® CT Cable Tube	≥ 65	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 10	≥ 15		

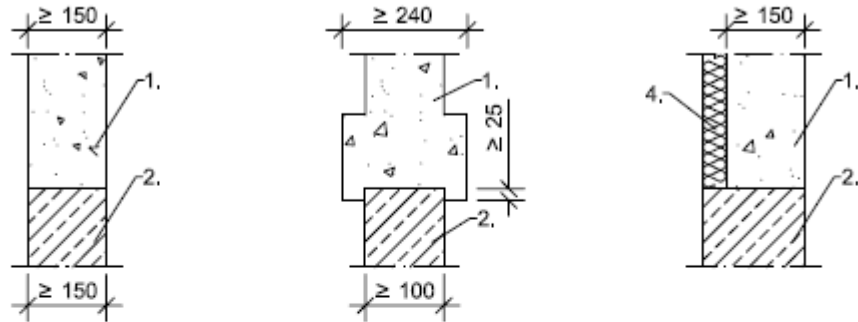
The use of the construction product "PYRO-SAFE NOVASIT BM" shall be in accordance with national requirements for planning, design and execution and in accordance with the installation instruction of the manufacturer.

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

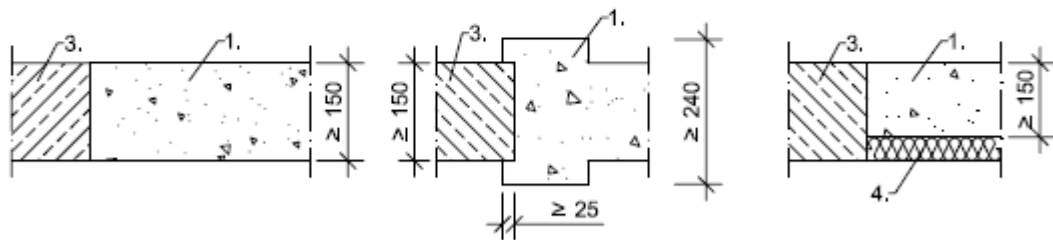
Annex 2 Examples of classifications

Mixed penetration sealing system made of mortar

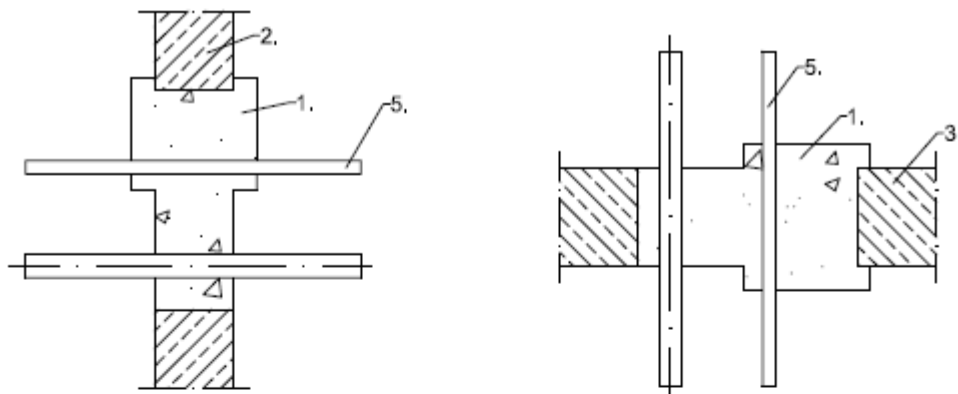
Varlants in solid walls



Varlants in floors



Cables, cable bundles with cables and cable trays



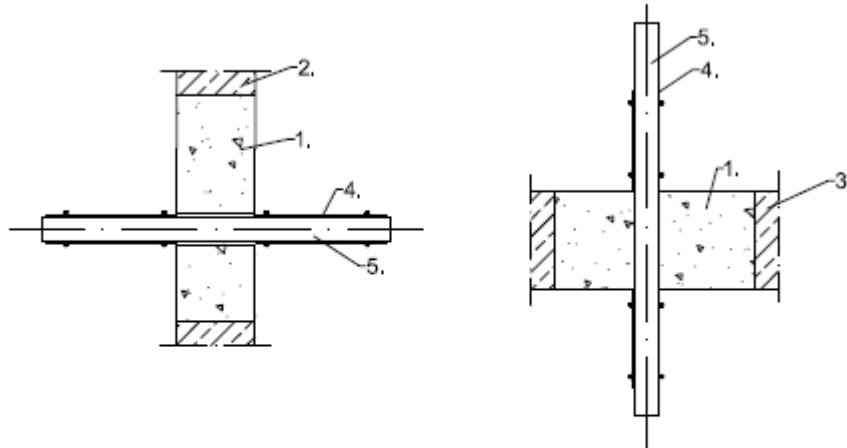
	Dimensions [mm]	Seal thickness [mm]	Fire resistance class	
			Wall	Floor
Cables	$\varnothing \leq 32$	150	EI 120	EI 120
	$\varnothing \leq 50$	240	EI 120	EI 90 / E 120
	$\varnothing \leq 80$		EI 90 / E 120	EI 90
Single-core-non-sheathed cables	$\varnothing \text{ wires} \leq 24$	150	EI 120	EI 120
Cable bundles	$\varnothing \leq 60$		EI 120	EI 120
	$\varnothing \leq 100$		EI 90 / E 120	EI 60 / E 120
	$\varnothing \leq 100$	240	EI 120	EI 120

dimensions in mm

1. PYRO-SAFE® Novasit BM ≥ 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 $> 1000^\circ\text{C}$)
5. cables / cable bundles / cable trays

Cables $\varnothing \leq 80$ mm, cable bundles $\varnothing \leq 100$ mm with cables and cable trays

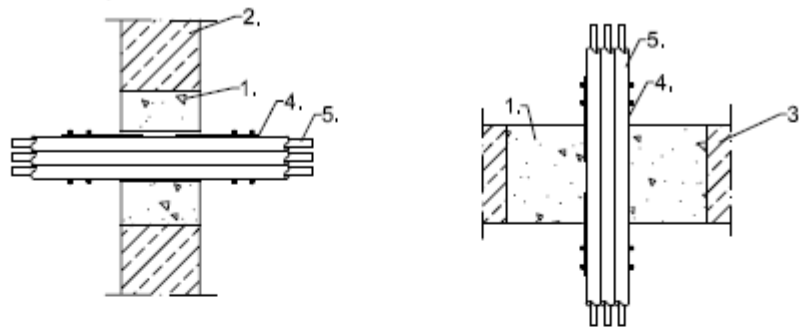
- with Intumescent wrap



	Intumescent wrap						Fire resistance class		
	Dimensions [mm]	Wrap width L [mm]	Qty. Wraps [n]	Qty. Layers [n]	Overlapping [mm]	Inside seal [mm]	[Outside seal [mm]	Wall	Floor
Cables	$\varnothing \leq 32$	-	-	-	-	-	-	EI 120	EI 120
	$\varnothing \leq 50$	125	2	2	45-60	0	125	EI 120	EI 120
	$\varnothing \leq 80$	190					190	EI 90 / E 120	EI 120
Cable bundles	$\varnothing \leq 100$	125	-	1	-	-	125	EI 120	EI 120

Electrical Installation conduit $\varnothing \leq 100$ mm single or bundled

- with Intumescent wrap



	Intumescent wrap						Fire resistance class		
	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- $\varnothing \leq 32$ cable- $\varnothing \leq 21$	-	-	1	-	-	-	EI 120 U/U	EI 120 U/U
	EIC- $\varnothing \leq 63$ cable- $\varnothing \leq 21$	-	-	2	-	-	-	EI 120 U/U	
EIC made of plastic, single*	EIC- $\varnothing \leq 100$ cable- $\varnothing \leq 50$	125	2	3	0	50	75	-	
EIC made of plastic, bundled	bundle- $\varnothing \leq 100$ EIC- $\varnothing \leq 32$ cable- $\varnothing \leq 21$	-	-	2	-	-	-	EI 120 U/U	

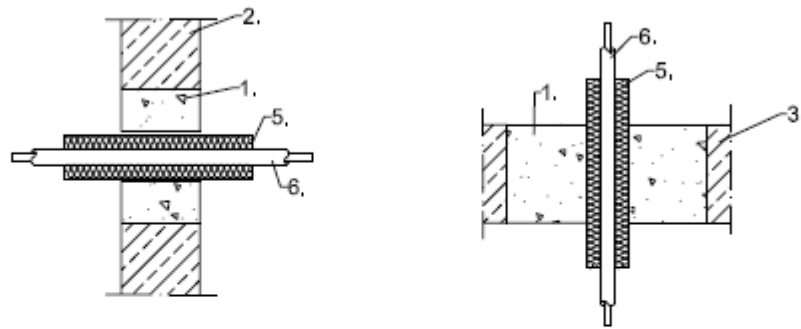
*With additional protective insulation made of mineral-fibre mats (L1 \geq 500 mm x D1 \geq 30 mm)

dimensions in mm

1. PYRO-SAFE® Novast BM ≥ 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 $\varnothing \leq 63$ mm (single)

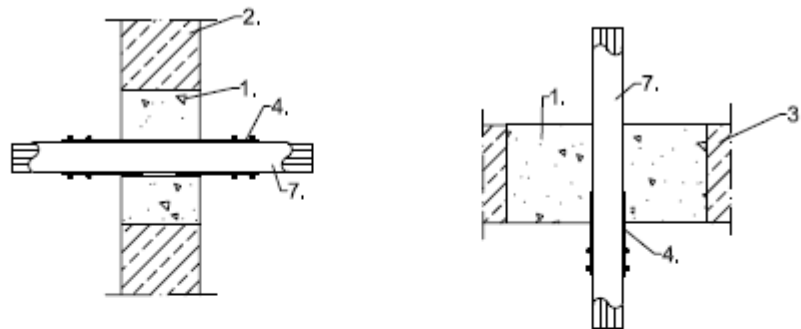
- with non-combustible insulation made of mineral fibre "lamella mat"



EIC-material	EIC outside- \varnothing [mm]	Section insulation		Fire resistance class	
		Thickness [mm]	Length L 1/2 [mm]	Wall	Floor
PE-HD	≤ 63	≥ 30	≥ 500	EI 120 U/C	EI 120 U/C

PE lines "speed pipes"

- with Intumescent wrap



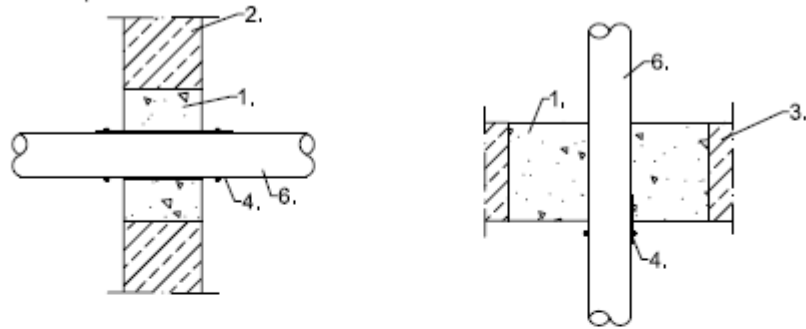
Set-up Speed pipes	Wall thickness [mm]	Intumescent wrap					Fire resistance class		
		Wrap width [mm]	Qty. Wraps [n]	Qty. Layers [n]	Overlapping [mm]	Inside seal [mm]	[Outside seal [mm]	Wall	Floor
$\varnothing 7,0$ mm x 24 Pcs	$\geq 1,5$	125	2	1	0	50	75	EI 120 U/U	-
$\varnothing 10,0$ mm x 7 Pcs	$\geq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

dimensions in mm

1. PYRO-SAFE® Novasit BM ≥ 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 $\varnothing \leq 160$ mm with/ without 5 mm PE-foam acoustic insulation

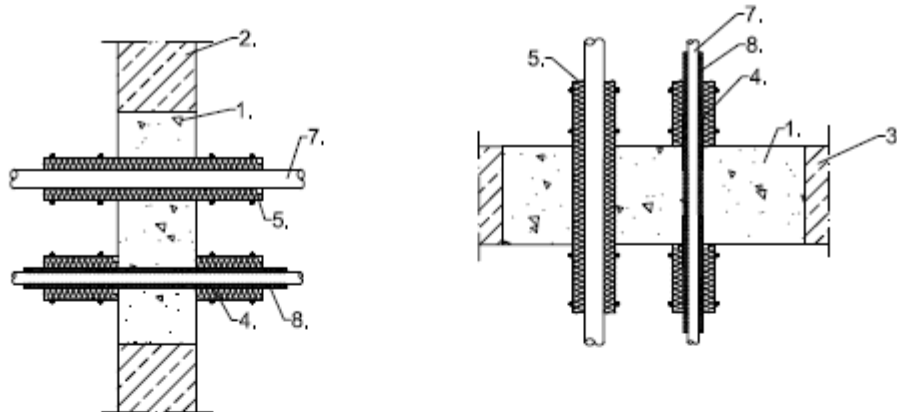
- with Intumescent wrap



Dimensions [mm]	Wrap width [mm]	Qty. Wraps [n]	Intumescent wrap			Fire resistance class		
			Qty. Layers [n]	Overlapping [mm]	Inside seal [mm]	Outside seal [mm]	Wall	Floor
$\leq \varnothing 50$	100	2	1	0	70	30	EI 120 U/U	-
$> \varnothing 50 - 80$			2					
$> \varnothing 80 - 110$			3					
$> \varnothing 110 - 135$			4					
$> \varnothing 135 - 160$			5					
$\leq \varnothing 50$	100	1	1	0	70	30	-	EI 120 U/U
$> \varnothing 50 - 80$			2					
$> \varnothing 80 - 110$			3					
$> \varnothing 110 - 135$			4					
$> \varnothing 135 - 160$			5					

Multilayer pipes "HENCO pipes" $\varnothing \leq 32$ mm with non-combustible insulation

- with Intumescent wrap



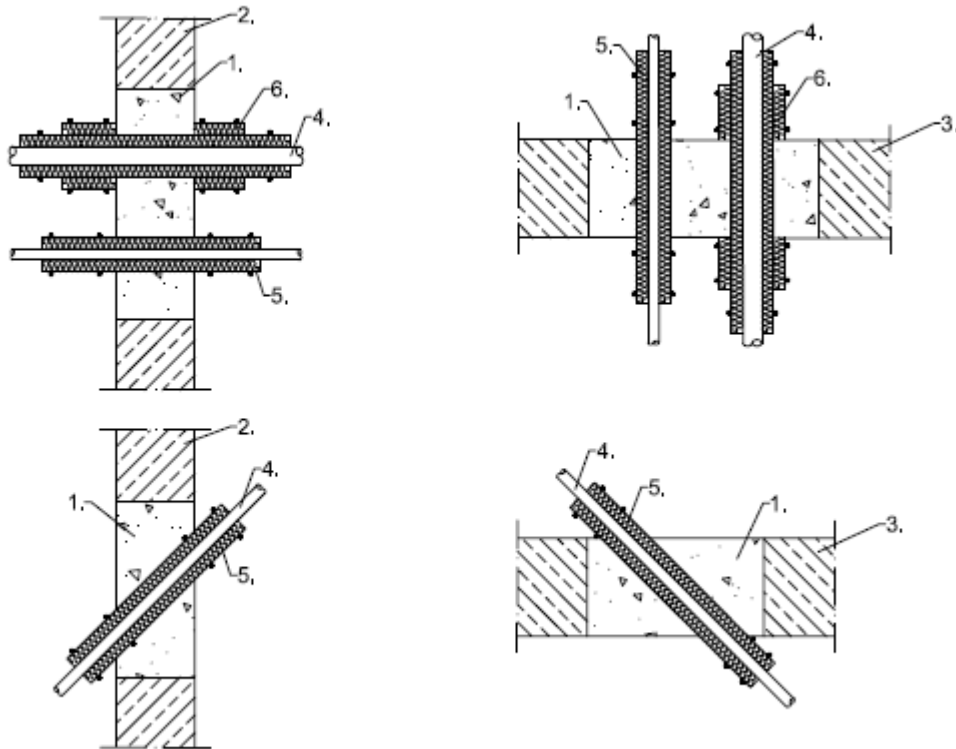
Outside- \varnothing [mm]	Thickness PEF-insulation [mm]	Wall thickness [mm]	Intumescent wrap		Protective insulation "Lamella mat"		Fire resistance class	
			Width [mm]	Qty. Layers [n]	Length L [mm]	Thickn. D [mm]	Wall	Floor
Multilayer pipes "HENCO STANDARD"			-		"Lamella mat"		EI 120 U/C	EI 120 U/C
≤ 12	-	1,6			≥ 250	≥ 20		
≤ 32	-	3,0			≥ 250	≥ 30		
Multilayer pipes "HENCO STANDARD" with PE-foam insulation			Intumescent wrap		"Lamella mat"		EI 120 U/C	EI 120 U/C
≤ 14	6	2,0	100 (50 inside seal / 50 outside seal)	1 (25 mm overlapping)	≥ 250	≥ 20		
≤ 26	6 - 13	3,0						
≤ 32	6 - 10	2,0						

1. PYRO-SAFE® Novasit BM ≥ 150 mm thickness
2. rigid wall ≥ 150 mm thickness
3. rigid floor ≥ 150 mm thickness
4. Intumescent wrap
5. protective insulation made of lamella mat
6. combustible pipes
7. Multilayer pipes "HENCO pipes"
8. PE-foam insulation

dimensions in mm

Non-combustible pipes with non-combustible insulation

- Installed in an angle of 45° - 90°



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		≥ 60		
	> 88,9 - ≤ 108,0*		≥ 30		
Steel, stainless steel, cast iron	≤ 15,0	≥ 250	≥ 20	EI 120 C/U	EI 120 C/U
	> 15,0 - ≤ 28,0	≥ 500	≥ 30		
	> 28,0 - ≤ 42,0		≥ 30		
	> 42,0 - ≤ 114,3		≥ 40		
	> 114,3 - ≤ 168,3		≥ 40		
	> 168,3 - ≤ 323,9*		≥ 40		

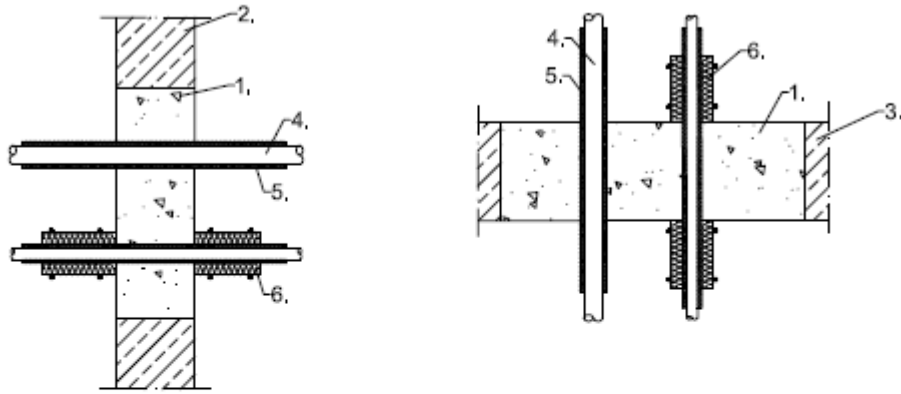
*Additional protective insulation made of mineral fibre mat (L1 ≥ 500 mm x D1 ≥ 30 mm)

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		
	> 28,0 - ≤ 54,0		≥ 38		
	> 54,0 - ≤ 108,0		≥ 38		
Steel, stainless steel, cast iron	≤ 15,0	≥ 250	≥ 22,5	EI 120 C/U	EI 120 C/U
	> 15,0 - ≤ 28,0	≥ 500	≥ 26		
	> 15,0 - ≤ 42,0		≥ 19		
	> 28,0 - ≤ 54,0		≥ 38		
	> 54,0 - ≤ 114,3		≥ 33		
	> 114,3 - ≤ 168,3		≥ 40		
> 168,3 - ≤ 323,9*	≥ 40				

1. PYRO-SAFE® Novasit BM ≥ 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

dimensions in mm

Non-combustible pipes with combustible insulation

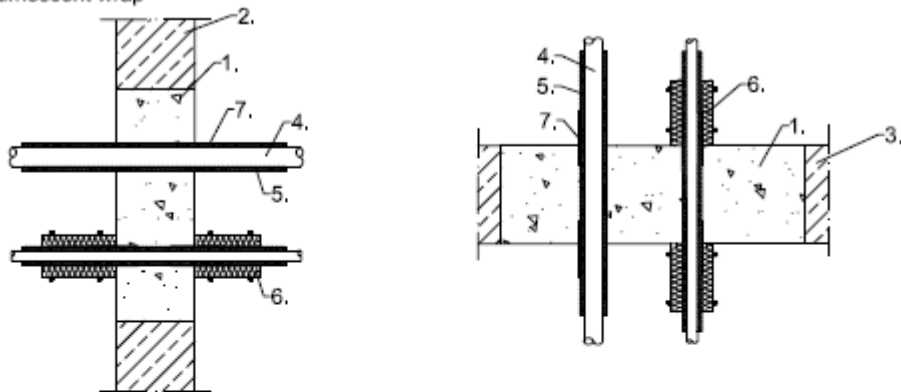


Pipe material	Outside pipe-ø [mm]	Length L [mm]	Thickness D [mm]	Fire resistance class	
				Wall	Floor
Copper	≤ 28,0	≥ 250	25	EI 120 C/U	EI 120 C/U
	≤ 28,0	≥ 500	26 - 51		
	> 28,0 - ≤ 88,9		25		
	> 28,0 - ≤ 88,9		26 - 51		
	> 88,9 - ≤ 108,0*		26 - 52		
Steel, stainless steel, cast iron	≤ 28,0	≥ 250	25		
	≤ 28,0	≥ 500	26 - 51		
	> 28,0 - ≤ 88,9		25		
	> 28,0 - ≤ 88,9		26 - 51		
	> 88,9 - ≤ 170,0		52		
	> 88,9 - ≤ 170,0*	≥ 1000	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 D [mm]	Intumescent wrap						Fire resistance class	
			Wrap width [mm]	Qty. Wraps [n]	Qty. Layers [n]	Overlapping g [mm]	Inside seal [mm]	Outside seal [mm]	Wall	Floor
Copper	≤ 28,0	9 - 25	120	2	2	0	50	75	EI 120 CIU	EI 120 CIU
	≤ 42,0	10 - 44							-	EI 90 CIU
	≤ 54,0	13 - 58							-	EI 90 CIU
	≤ 76,0	13							-	EI 90 CIU
	≤ 76,0	14 - 50							-	EI 90 CIU
	≤ 88,9*	19 - 50							-	EI 90 CIU
Steel, stainless steel, cast iron	≤ 88,9**	19 - 50							EI 120 CIU	EI 120 CIU
	≤ 108,0**	25 - 50							EI 120 CIU	EI 120 CIU
	≤ 160,0**	19 - 50							EI 120 CIU	EI 120 CIU

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

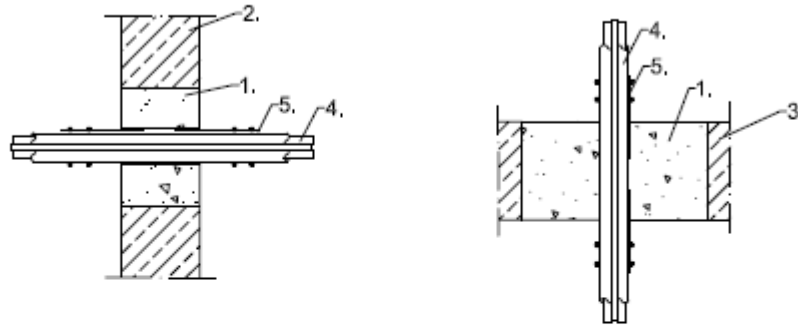
** Additional protective insulation made of mineral fibre mat (L1 ≥ 750 mm x D1 ≥ 40 mm)

dimensions in mm

1. PYRO-SAFE® Novasit BM ≥ 150 mm thickness
2. rigid wall ≥ 150 mm thickness
3. rigid floor ≥ 150 mm thickness
4. non-combustible pipes
5. FEF-Insulation
6. protection insulation made of mineral fibre mats / -shells
7. Intumescent wrap

HVAC split line combinations "TubolIt Duo Split"

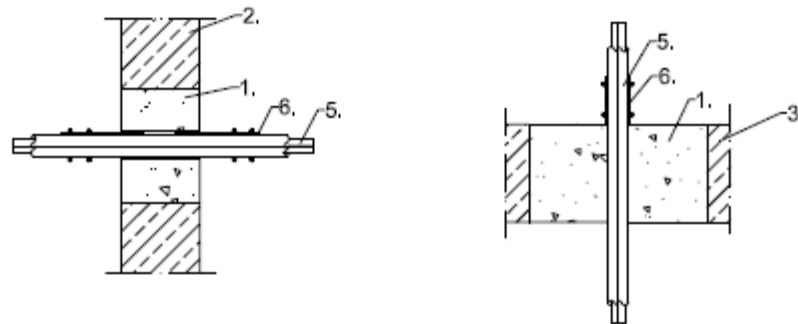
- with Intumescent wrap



Pipe-material	Pipe-outside-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)	Overlappin g (mm)	Inside seal (mm)	Outside seal (mm)	Wall	Floor
Copper	2 x 510/18	2	PEF 5 60	≤ 25	125	2	2	0	50	75	EI 120	EI 120

Double solar pipes "NanoSUN²"

- with Intumescent wrap

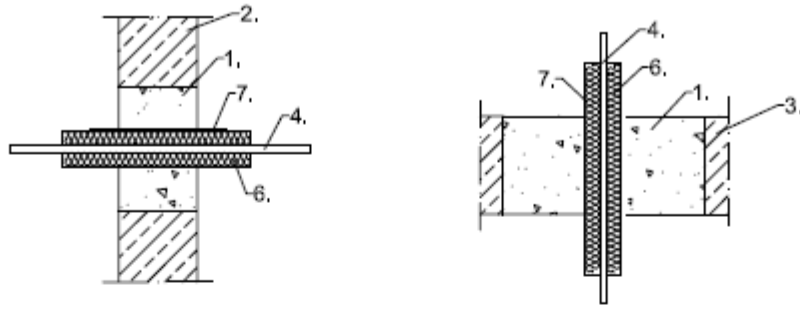


Pipe-material	Intumescent wrap						Fire resistance class	
	Wrap width (mm)	Qty. wraps (n)	Qty. layers (n)	Overlappin g (mm)	Inside seal (mm)	Outside seal (mm)	Wall	Floor
DIN 16 - DN 25	125	2	1	≥ 40	0	125	EI 120 C/U	EI 120 C/U
		1 (above)					EI 120 C/U	EI 120 C/U

1. PYRO-SAFE® NovasIt BM ≥ 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

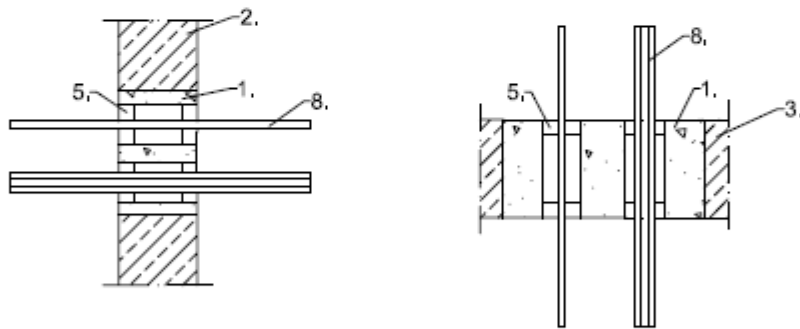
dimensions in mm

"HANSA FLEX" hydraulic hoses with lamella mat
- with Intumescent wrap



Outside pipe-ø [mm]	Intumescent wrap		Protectiv insulation made of lamella mat "Kölnarock"		Intumescent wrap						Fire resistance class	
	Wrap width [mm]	Length L 1/2 [mm]	Thickness D [mm]	Wrap width [mm]	Qty. wraps [ø]	Qty. layers [ø]	Overlappin g [mm]	Inside seal [mm]	Outside seal [mm]	Wall	Floor	
≤ 55,9	≥ 250	≥ 20	≥ 20	125	2	1	0	50	75	EI 120	EI 120	

Cable Tube with cables or cable bundles

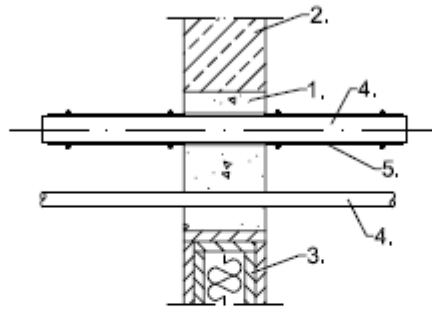


1. PYRO-SAFE® Novasit BM ≥ 150 mm thickness
2. rigid wall ≥ 150 mm thickness
3. rigid floor ≥ 150 mm thickness
4. "HANSA FLEX" hydraulic hoses with wire mesh insert
5. Cable Tube
6. lamella mat
7. Intumescent wrap
8. cables

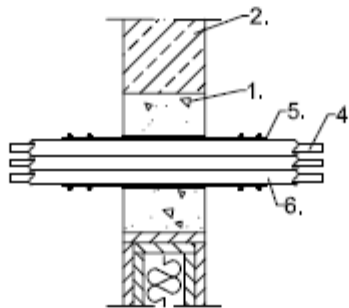
dimensions in mm

Mixed penetration sealing system made of mortar

- Cables $\varnothing \leq 80$ mm, cable bundles $\varnothing \leq 150$ mm with cables $\varnothing \leq 21$ mm and cable trays
- with Intumescent wrap (wrap width = 125 mm)



- Electrical Installation conduit $\varnothing \leq 32$ mm, Conduit-bundles $\varnothing \leq 100$ mm
- with Intumescent wrap (wrap width = 125 mm)

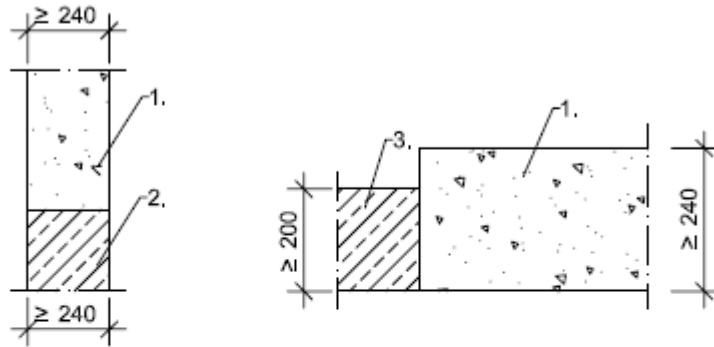


	Dimensions [mm]	Measures	Fire resistance class
			Wall
Cables	$\varnothing \leq 21$	-	EI 90 / E 120
	$\varnothing \leq 50$		
	$\varnothing \leq 80$		
Cable bundles	$\varnothing \leq 150$		EI 120
EIC made of plastic, single	EIC- $\varnothing \leq 32$ Cable- $\varnothing \leq 21$	intumescent wrap	EI 120 U/U
EIC made of plastic, bundled	Bundle- $\varnothing \leq 100$ EIC- $\varnothing \leq 32$ Cable- $\varnothing \leq 21$		

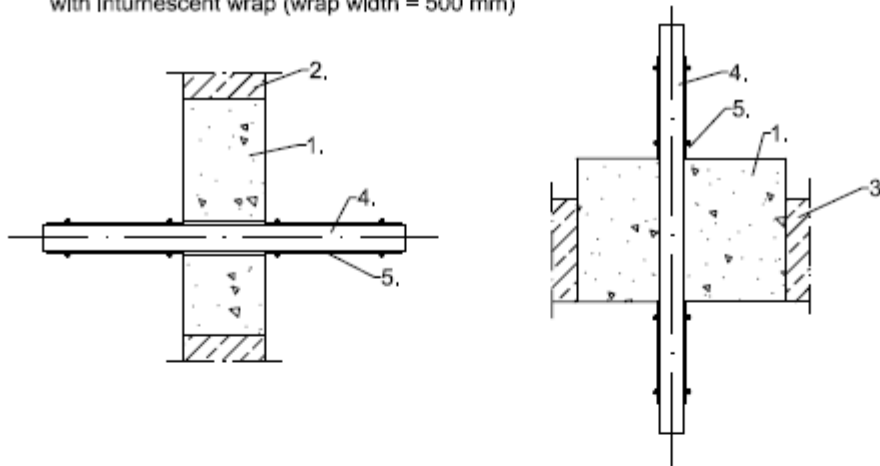
dimensions in mm

1. PYRO-SAFE® Novasit BM ≥ 240 mm thickness
2. rigid walls ≥ 100 mm thickness
3. plasterboard walls ≥ 100 mm thickness
4. cable
5. Intumescent wrap
6. Electric Installation pipes (conduits), made of plastic

Mixed penetration sealing system made of mortar



Cables $\varnothing \leq 80$ mm, cable bundles $\varnothing \leq 100$ mm with cables $\varnothing \leq 21$ mm and cable trays
 - with Intumescent wrap (wrap width = 500 mm)



	Measures	Fire resistance class	
		Wall	Floor
Cables $\varnothing \leq 80$	intumescent wrap	EI240	EI240
Cable bundles $\varnothing \leq 100$ mm with cables $\varnothing \leq 21$ mm	intumescent wrap	EI240	EI240

dimensions in mm

1. PYRO-SAFE® Novasit BM 240 ≥ 240 mm thickness
2. rigid wall ≥ 240 mm thickness
3. rigid floor ≥ 240 mm thickness
4. cable, cable bundle, cable trays
5. Intumescent wrap