Protect your values.

PYRO-SAFE®
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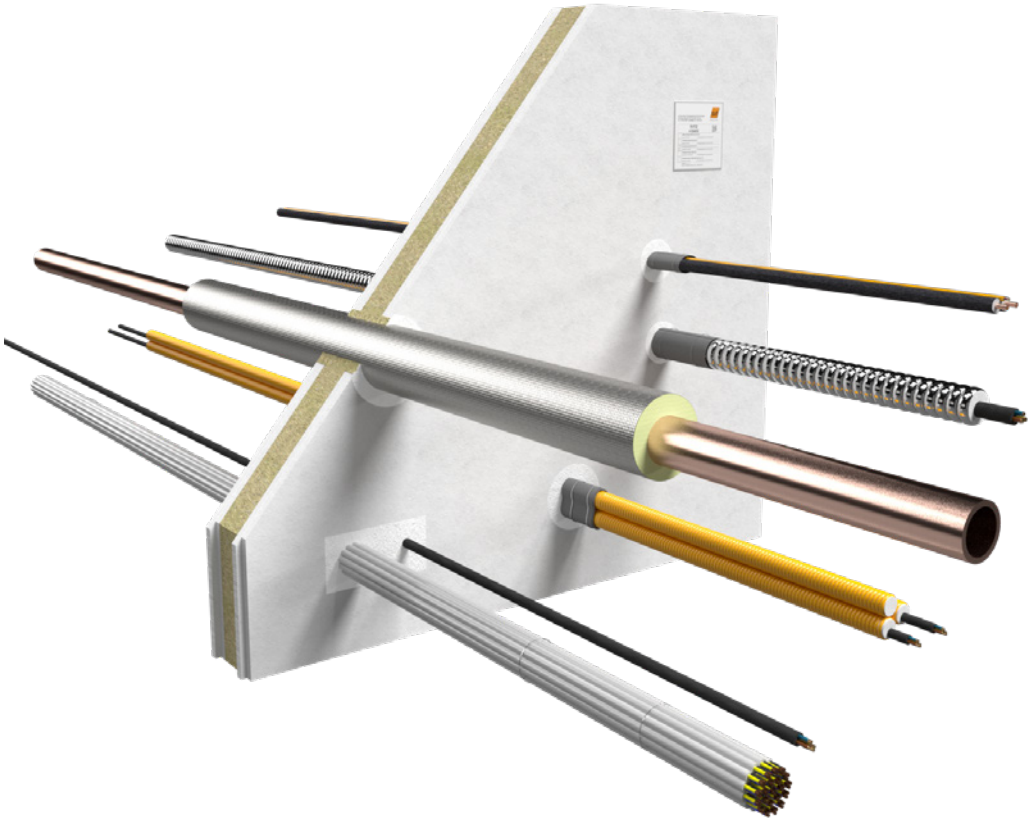
Ablative mineral fibre board seal

Easy-to-build cable penetration seal made of mineral wool and ablative coating for electrical cables and combustible pipes as per ETA-22/0052
Maximum fire resistance class: EI 120 according to EN 13501-2



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1. Preliminary remarks / Overview

1.1 Target group

The installation instructions are intended solely for personnel trained in fire protection.

1.2 Using the instructions

Before starting work, read through these installation instructions completely once. Pay particular attention to the following safety instructions.

The authorisation holder assumes no liability for damage caused by failure to comply with these instructions.

Pictorial representations serve as examples only. Installation results may differ in appearance.

Unless stated otherwise, all lengths are specified in mm.

All information in this document represents the state of the art at the time of writing or the current version of the standard.

Upon request, svt will be pleased to provide the relevant legal and technical framework and manufacturer specifications for each individual case.

1.2.1 Safety instructions

The safety data sheets must be consulted when processing the penetration seal components.

Personal protective equipment:

	Wear protective clothing and non-slip shoes.
	Use safety goggles, safety glasses.
	P2 particle filter in case of short-term or low level exposure. For intensive or prolonged exposure use a breathing apparatus with independent air supply. Use breathing protection in compliance with international/national standards.
	Use chemically resistant gloves. Recommended materials: Butyl rubber, nitrile rubber, fluorinated rubber, PVC.

Safety instructions for the installation of floor penetration seals

	The area below the floor penetration seal must be cordoned off against entry during penetration seal work (barrier tape and warning sign: warning of possible falling objects, do not enter the area, penetration seal work in floor component openings).
	The contractor for the production of floor penetration seals must inform the client in writing (for forwarding to the client or appointed representative) that after the production of the fire penetration seals in floors, these must be secured on site against loads, in particular against being stepped on, by suitable measures (e.g. by fencing or by covering with grating).

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1.3 Field of application

PYRO-SAFE® ES has been assessed in accordance with ETAG 026-2 in terms of the „Reaction to fire“, „Resistance to fire“, „Release of dangerous substances“ and „Durability and serviceability“ product characteristics.

Reaction to fire

The ablative component PYRO-SAFE® FLAMMOTECT-A meets class E for reaction to fire in accordance with EN 13501-1, the intumescent material PYRO-SAFE® DG-CR meets class C-s1, d0 for reaction to fire in accordance with EN 13501-1; the mineral wool meets class A1 and the mineral fibre mats meet class A2-s1,d0 for reaction to fire in accordance with EN 13501-1.

Resistance to fire

PYRO-SAFE® ES meets the maximum requirements of class EI 120 in accordance with EN 13501-2. The fire resistance class EI 120 U/U also covers all other possible configurations (U/C, C/U, C/C). The fire resistance class EI 120-C/U also covers all classes of the same fire resistance duration with the configuration -C/C in accordance with EN 13501-2. The configuration U/C also covers C/U und C/C in accordance with EN 13501-2

When installed in walls or floors with a lower fire resistance duration, the fire resistance duration of the penetration seal is also reduced to that of the fire resistance class of the wall or floor.

Release of dangerous substances

The ablative component PYRO-SAFE® FLAMMOTECT-A component and the intumescent material PYRO-SAFE® DG-CR do not contain any substances identified as dangerous in the list of the European Commission.

The mineral fibre mats and the loose mineral fibre wool do not contain any dangerous substances listed in Directive 67/548/EC or Regulation (EC) No. 1272/2008 or the Indicative List on Dangerous Substances.

Durability and serviceability

The ablative component PYRO-SAFE® FLAMMOTECT-A and the intumescent material PYRO-SAFE® DG-CR meet the requirements of type X in accordance with EOTA TR 024

PYRO-SAFE® ES can be subjected to the conditions of interior rooms with and without exposure to moisture or atmospheric conditions, without substantial changes to the fire protection characteristics to be expected.

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1.4 Components

Plasterboard walls

In stud design and double-sided cladding with at least 2 layers of 12.5 mm cement or gypsum-bound building boards with a reaction to fire of class A1 or A2 according to EN 13501-1.

Additionally wood studs may be used instead of steel studs. In this case the distance between the opening and the studs and transoms must be ≥ 100 mm. The insulation between the studs must be of class A1 or A2 according to EN 13501-1.

The walls must be classified for the required fire resistance rating according to EN 13501-2.

Solid walls

Made of masonry, concrete, reinforced concrete or aerated concrete, ceramic bricks, cavity bricks or perforated bricks with a density of ≥ 600 kg/m³.

The walls must be classified for the required fire resistance rating according to EN 13501-2.

Solid floors

Made of concrete or reinforced concrete with a density of ≥ 2200 (± 500) kg/m³.

The floors must be classified for the required fire resistance rating according to EN 13501-2.

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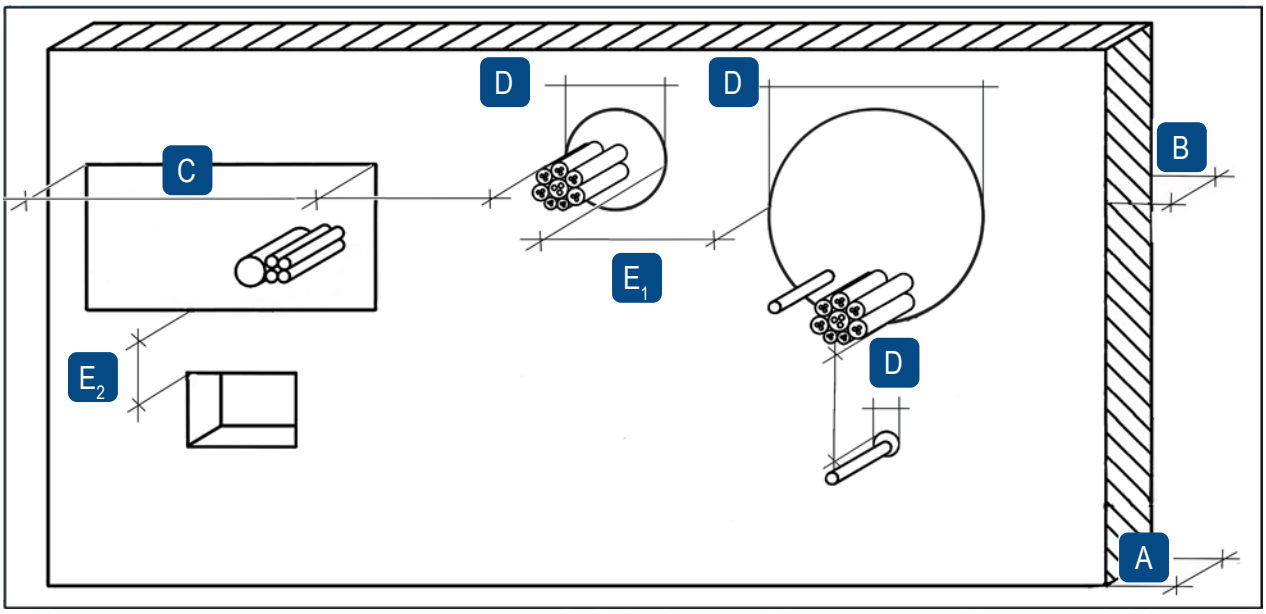
1.5 Thicknesses and spacing

Dimensions			
Item.	**Name**	**Wall [mm]**	**Floor [mm]**
A	Component thickness	≥ 100	≥ 125
B	Penetration seal thickness	≥ 100	≥ 125
C	Maximum dimensions of the component opening (width × height)	≤ 500 × 200	≤ 350 × 150
D	Maximum dimensions of the component opening (circular)	Ø ≤ 350	Ø ≤ 160
E	1. Distance to other PYRO-SAFE® ES sealing systems 2. Distance to other openings or installations	≥ 50 ≥ 200	≥ 100 ≥ 200



The total allowable cross section of the installations (outer dimensions) is ≤ 60% of the construction opening.

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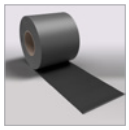
2. Included products

PYRO-SAFE® FLAMMOTECT-A
Filler
12.5 kg pail – Art. no. 01155104
15.0 kg pail – Art. no. 01155109
310 ml cartridge – Art. no. 01155125



PYRO-SAFE® DG-CR 1.5
Fire protection wrap
Roll. 10 m × 125 mm – Art. no. 01261125

Mineral wool

Reaction to fire class in acc. with
EN 13501-1: A1
Melting point ≥ 1000 °C
10 kg bag – Product no. 01183000

Lamella mat Klimarock

in accordance with DIN EN 14303 and
DoP DE0628071802 dated 13.07.2018
Reaction to fire class according to
EN 13501-1: Class A1
Dimensions 610 × 50 cm
Thickness 30 mm
Roll à 3.05 m² – product no. 01187100
It is allowed to apply any lamella mats / mineral fibre mats / mineral fibre pipe shells as long as they match the following require-ments:
EN 14303
Density ≥ 40 kg/m³
Reaction to fire class A1 in acc. with
EN 13501-1
Thickness ≥ 30 mm

Recommended tools

Filler, brush, masking tape,
mineral wool knife and saw,
if required: plastic film, folding ladder,
lock wire pliers, steel wire (galvanised)

2.1 Declarations of Performance

The Declarations of Performance for featured svt products are available for download on our website:
https://svt-global.com/downloads

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3. Fire resistance classes

3.1 Walls

Service	Measure	Fire resistance class	Source*
Cables, cable bundles			
Cables Ø ≤ 21 mm	–	EI 90	1
Cable bundles Ø ≤ 100 mm, with cables Ø ≤ 21 mm	–	EI 60 / E 90	1

*Classification report no..:
1 → 00541/18/Z00NZP

Service		Cable Ø [mm]	Measure	Fire resistance class	Source*
Electrical installation conduits (EIC)					
EIC made of plastic (flexible, single or bundled, bundle Ø ≤ 100)	Ø ≤ 32	with/without ≤ 21	PYRO-SAFE® DG-CR 1.5	EI 120 U/U	1
EIC made of plastic (rigid, single or bundled, bundle Ø ≤ 70)	Ø 16 – ≤ 50	with/without ≤ 21			

*Classification report no..:
1 → 00541/18/Z00NZP

Service		Cable Ø [mm]	Measure	Fire resistance class	Source*
Electrical installation conduits (EIC)					
EIC made of metal	Ø ≤ 16	with/without ≤ 14	–	EI 120 C/U	1
	Ø > 16 – ≤ 32	with/without ≤ 14		EI 30 / E 120 C/U	
	Ø > 32 – ≤ 50	with/without ≤ 21			
	Ø ≤ 16	with/without ≤ 14	PYRO-SAFE® DG-CR 1.5	EI 120 C/U	
	Ø > 16 – ≤ 32	with/without ≤ 14			
	Ø > 32 – ≤ 50	with/without ≤ 21			
	Ø ≤ 32	with/without ≤ 14	Lamella mat Klimarock		
	Ø > 32 – ≤ 50	with/without ≤ 21			

*Classification report no..:
1 → 00541/18/Z00NZP

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Service	Measure	Fire resistance class	Source*
HVAC split line combinations			
Double pipe (6–10/10–18 mm) or single copper pipe (6–18 mm) + PVC-U pipe ≤ Ø 25 mm + 2 accompanying cables ≤ 21 mm	PYRO-SAFE® DG-CR 1.5	EI 90 U/U	1

*Classification report no..:
1 → 00541/18/Z00NZP

Service	Measure	Fire resistance class	Source*
Non-combustible pipes made of copper, steel, stainless steel or cast iron with non-combustible insulation made of mineral fibre lamella mat			
Pipe outer Ø ≤ 15,0 mm, wall thickness ≥ 0,8	≥ 250 mm × ≥ 20 mm	EI 60 / E 90 C/U	3
Pipe outer Ø ≤ 22,0 mm, wall thickness ≥ 1,0	≥ 250 mm × ≥ 60 mm	EI 60 / E 90 C/U	3
Pipe outer Ø ≤ 22,0 mm, wall thickness ≥ 1,0	≥ 500 mm × ≥ 20 mm	EI 60 / E 90 C/U	3
Pipe outer Ø ≤ 54,0 mm, wall thickness ≥ 1,5	≥ 500 mm × ≥ 30 mm	EI 60 / E 90 C/U	3
Pipe outer Ø ≤ 88,9 mm, wall thickness ≥ 2,0	≥ 800 mm × ≥ 40 mm	EI 60 / E 90 C/U	3
Non-combustible pipes made of steel, stainless steel or cast iron with non-combustible insulation made of mineral fibre lamella mat			
Pipe outer Ø ≤ 88,9 mm, wall thickness ≥ 2,0	≥ 800 mm × ≥ 40 mm	EI 90 C/U	3
Pipe outer Ø ≤ 114,3 mm, wall thickness ≥ 3,6	≥ 500 mm × ≥ 40 mm	EI 60 / E 90 C/U	3
Pipe outer Ø ≤ 170,0 mm, wall thickness ≥ 3,0	≥ 800 mm × ≥ 60 mm + ≥ 500 mm × ≥ 30 mm	EI 60 C/U	3
Pipe outer Ø ≤ 219,1 mm, wall thickness ≥ 5,0	≥ 800 mm × ≥ 60 mm + ≥ 500 mm × ≥ 30 mm	EI 60 / E 90 C/U	3

*Classification report no..:
3 → 1913.2/13/Z00NP

3.1.1 Circular Ø 30 mm without mineral wool

Service	Measure	Fire resistance class	Source*
Cables, cable bundles			
Cables Ø ≤ 21 mm	PYRO-SAFE® FLAMMOTECT-A, thickness ≥ 25 mm	EI 90	2

*Classification report no..:
2 → 1913.3/13/Z00NP

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3.2 Floors

Service		Measure	Fire resistance class	Source*
Cables, cable bundles				
Cables Ø ≤ 21 mm		–	EI 90	2
Cable bundles Ø ≤ 100 mm		–	EI 90	2
Electrical installation conduits (EIC)				
EIC made of plastic, flexible (single or bundled single Ø ≤ 32 mm, bundle Ø ≤ 100 mm)		PYRO-SAFE® DG-CR 1.5	EI 90 U/U	2
HVAC split line combinations				
Double (6/10 mm) or single copper pipe (6–10 mm), pipe wall thickness 1.0 mm + pipe insulation of 9 mm thickness made of PEF		–	EI 90 U/U	2
Double (10/18 mm) or single copper pipe (10–18 mm), pipe wall thickness 1.0 mm + pipe insulation of 9 mm thickness made of PEF		–	EI 30 / E 90 U/U	2
Solar pipes				
Nanosun² – double solar pipes	DN 16	PYRO-SAFE® DG-CR 1.5	EI 90 U/U	2
	DN 40		EI 30 / E 90 U/U	2
Combustible pipes				
PVC-U, Pipe outer Ø ≤ 32,0 mm		PYRO-SAFE® DG-CR 1.5	EI 90 U/U	2
Non-combustible pipes made of copper, steel, stainless steel or cast iron with non-combustible insulation made of mineral fibre lamella mat				
Pipe outer Ø ≤ 15,0 mm, wall thickness ≥ 0,8		≥ 250 mm × ≥ 20 mm	EI 60 C/U	3
Pipe outer Ø ≤ 22,0 mm, wall thickness ≥ 1,0		≥ 250 mm × ≥ 60 mm	EI 60 C/U	3
Pipe outer Ø ≤ 22,0 mm, wall thickness ≥ 1,0		≥ 500 mm × ≥ 20 mm	EI 60 C/U	3
Pipe outer Ø ≤ 54,0 mm, wall thickness ≥ 1,5		≥ 500 mm × ≥ 30 mm	EI 60 C/U	3
Pipe outer Ø ≤ 88,9 mm, wall thickness ≥ 2,0		≥ 800 mm × ≥ 40 mm	EI 60 C/U	3
Non-combustible pipes made of steel, stainless steel or cast iron with non-combustible insulation made of mineral fibre lamella mat				
Pipe outer Ø ≤ 88,9 mm, wall thickness ≥ 2,0		≥ 800 mm × ≥ 40 mm	EI 60 C/U	3
Pipe outer Ø ≤ 114,3 mm, wall thickness ≥ 3,6		≥ 500 mm × ≥ 40 mm	EI 60 C/U	3
Pipe outer Ø ≤ 170,0 mm, wall thickness ≥ 3,0		≥ 800 mm × ≥ 60 mm + ≥ 500 mm × ≥ 30 mm	EI 60 C/U	3
Pipe outer Ø ≤ 219,1 mm, wall thickness ≥ 5,0		≥ 800 mm × ≥ 60 mm + ≥ 500 mm × ≥ 30 mm	EI 60 C/U	3

*Classification report no.: 2 → 1913.3/13/Z00NP 3 → 1913.2/13/Z00NP

3.2.1 Circular Ø 30 mm without mineral wool

Service	Measure	Fire resistance class	Source*
Cables, cable bundles			
Cables Ø ≤ 21 mm	–	EI 90	2

*Classification report no..: 2 → 1913.3/13/Z00NP

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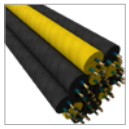
4. Allowed services

4.1 Cables / cable bundles / electrical installation conduits

Electrical cables and lines of all types
(including fibre optic cables)

Maximum outer diameter of the individual cables ≤ 21 mm.



Cable bundles

Ø ≤ 100 mm with single cable Ø ≤ 21 mm.

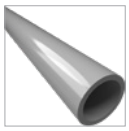
Electrical installation conduits (EIC)
made of plastic in acc. with EN 61386-22:2004+A 11:2010

With or without cables
flexible, made of PE, single outer Ø 16 – ≤ 32 mm or bundled outer Ø ≤ 100 mm, cable Ø ≤ 21 mm
rigid made of PVC-U, single outer Ø 16 – ≤ 50 mm or bundled outer Ø ≤ 70 mm, cable Ø ≤ 21 mm

Electrical installation conduits (EIC)
made of metal in acc. with EN 61386-21

With or without cables
single outer Ø 16 – ≤ 50 mm
cable Ø ≤ 21 mm

4.2 Combustible pipes



PVC-U pipes in accordance with EN ISO 15493:2003, EN ISO 1452-1:2009, DIN 8061:2009 and DIN 8062:2009

Pipe material	Pipe outer Ø [mm]	Pipe wall thickness [mm]
PVC	≤ 20	1.5
	≤ 32	2.4

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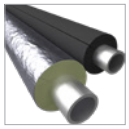
4.4 Non-combustible pipes

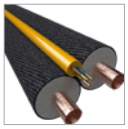


Pipes made of copper, steel, stainless steel or cast iron

Pipe material / insulation	Pipe outer Ø [mm]
Copper with non-combustible pipe insulation made of mineral fibre e. g. lamella mat	≤ 88.9
Steel, stainless steel or cast iron with non-combustible pipe insulation made of mineral fibre e. g. lamella mat	≤ 219.1

Pipe material	Pipe outer Ø [mm]	Pipe wall thickness [mm]
Copper, steel, stainless steel, cast iron	≤ 15.0	≥ 0.8
	≤ 22.0	≥ 1.0
	≤ 42.0	≥ 1.2
	≤ 54.0	≥ 1.5
	≤ 88.9	≥ 2.0
Steel, stainless steel, cast iron	≤ 114.3	≥ 3.6
	≤ 170.0	≥ 2.9
	≤ 219.1	≥ 5.0

4.3 Further allowed services



HVAC split line combinations

Double copper pipe (pipe 1/pipe 2 outer Ø 6–10 mm/10–18 mm; pipe wall thickness 1.0 mm) and pipe insulation of 9 mm thickness made of PE foam
or single copper pipe (outer Ø 6–18 mm; pipe wall thickness 1.0 mm) and pipe insulation of 9 mm thickness made of PE foam,
PVC-U pipe (outer Ø 25 mm; pipe wall thickness 1,5 mm) in accordance with EN 1452-1 :2009
and DIN 8061:2009/8062:2009,
accompanying lines: A1 (NYY-J 5x1,5 RE), A2 (H 07 RN-F 5G1,5) and A3 (N2XH-J 5x1,5 RE)

Nanosun² – Double solar pipes

Pipes for solar thermal applications made of corrugated stainless steel with insulation, an accompanying line integrated in the insulation and a PVC sheath made by Aktarus Group Srl, DN 16 to 40.

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5. Spacing distances for services

Spacing distances in walls

		 Cables	 Cable bundles	 Electrical installation conduits, made of plastic, single or bundled	 Electrical installation conduits, made of metal	 Non-combustible pipes; insulation made of lamella mat	 HVAC split line combinations	Seal edge		
								Upper	Under	Side
	Cables	≥ 0		≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
	Cable bundles	≥ 0		≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
	Electrical installation conduits, made of plastic, single or bundled	≥ 100		≥ 0	≥ 100	≥ 100	≥ 100	≥ 0		
	Electrical installation conduits, made of metal	≥ 100		≥ 100	≥ 0	≥ 100	≥ 100	≥ 0		
	Non-combustible pipes; insulation made of lamella mat	≥ 100		≥ 100	≥ 100	≥ 0	≥ 100	≥ 0		
	HVAC split line combinations	≥ 100		≥ 100	≥ 100	≥ 100	≥ 0	≥ 0		

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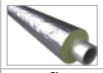
Spacing distances in floors

		 Cables	 Cable bundles	 Electrical installation conduits, made of plastic, single or bundled	 Electrical installation conduits, made of metal	 Combustible pipes	 Non-combustible pipes; insulation made of lamella mat	 HVAC split line combinations	 NanoSUN² double solar pipes	Seal edge		
										Upper	Under	Side
	Cables	≥ 0		≥ 100	≥ 100	≥ 0	≥ 100	≥ 100	≥ 100	≥ 0		
	Cable bundles	≥ 0		≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
	Electrical installation conduits, made of plastic, single or bundled	≥ 100		≥ 0	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
	Electrical installation conduits, made of metal	≥ 100		≥ 0	≥ 0	≥ 100	≥ 100	≥ 100	≥ 100	≥ 0		
	Combustible pipes	≥ 0		≥ 100	≥ 100	≥ 0	≥ 100	≥ 100	≥ 100	≥ 0		
	Non-combustible pipes; insulation made of lamella mat	≥ 100		≥ 100	≥ 100	≥ 100	≥ 0	≥ 100	≥ 100	≥ 0		
	HVAC split line combinations	≥ 100		≥ 100	≥ 100	≥ 100	≥ 100	≥ 0	≥ 100	≥ 0		
	Nanosun² double solar pipes	≥ 100		≥ 100	≥ 100	≥ 100	≥ 100	≥ 25	≥ 30	≥ 0		

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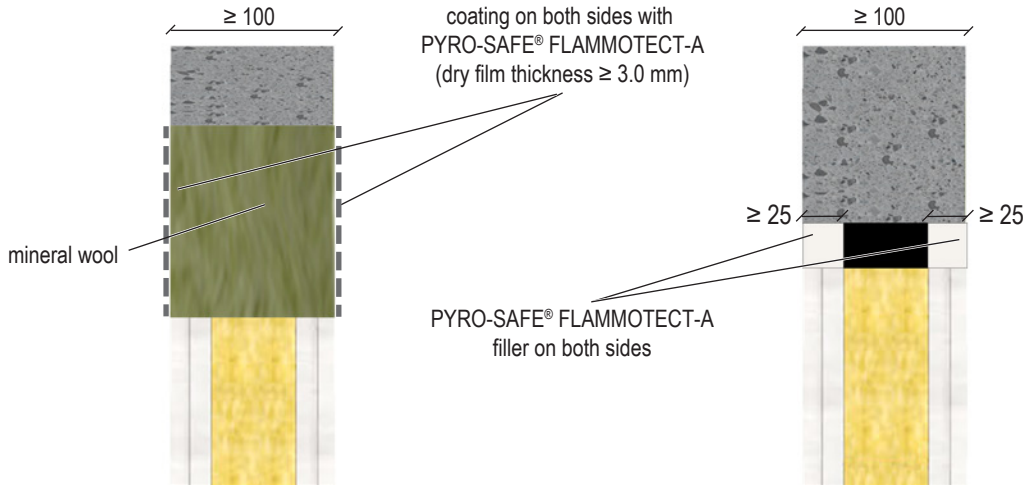
6. Regulations and variants

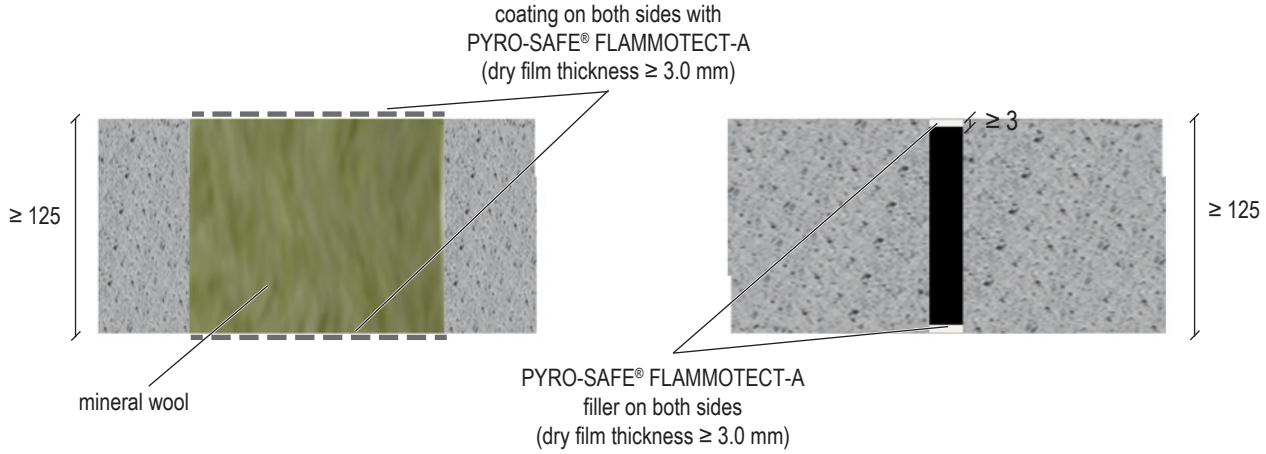
- The sealing system may be used to seal openings without installations (reserve penetration for subsequent configurations).
- There must be suitable measures in the buildings to secure sealing systems in floors from being stepped on or subjected to loads.
- The surface of the sealing system must be provided with a coating of PYRO-SAFE® FLAMMOTECT-A (dry film thickness ≥ 3.0 mm).
- The fire protection measures described on the following pages also apply to retrofitting.

Design variants in walls



Dimensions in mm

Design variants in floors



Dimensions in mm

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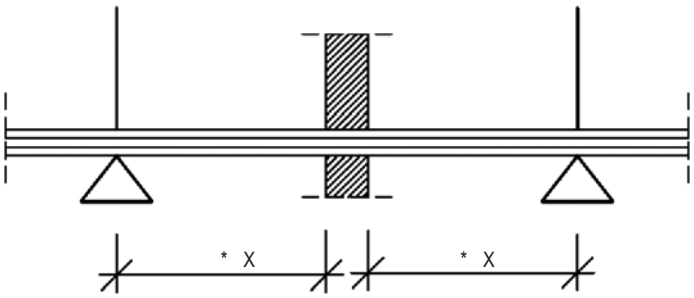
6.1 Initial brackets (supports)

The brackets/supports of the installations in front of the wall seal must be largely non-combustible and installed at a distance on both sides according to the overview.



Initial brackets (supports) of the installations in front of the wall penetration sealing system must be made of steel or equivalent material.

Initial brackets	
Wall	≤ 300 mm
Floor	≤ 400 mm

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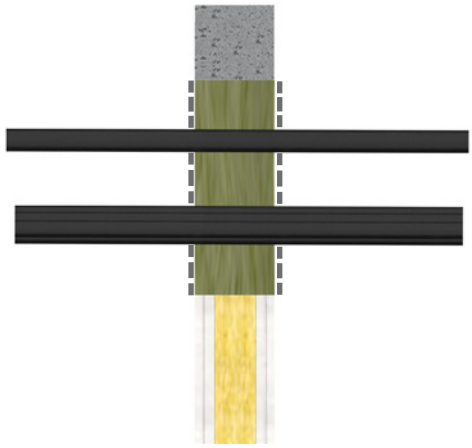
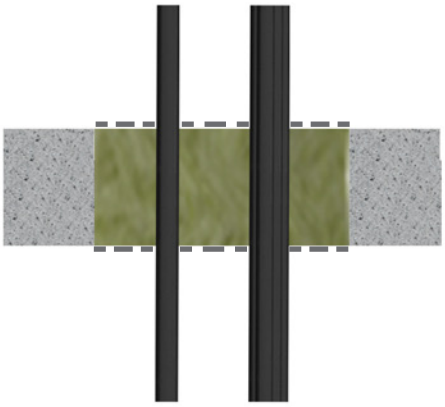
7. Fire protection measures
7.1 Cables / cable bundles

Design for walls and floors





For component and seal thickness and design variants, see page 15.

Dimensions in mm

Wall/floor	
Service	**Measure**
Cables Ø ≤ 21 mm	–
Cable bundles Ø ≤ 100 mm, with cables Ø ≤ 21 mm	

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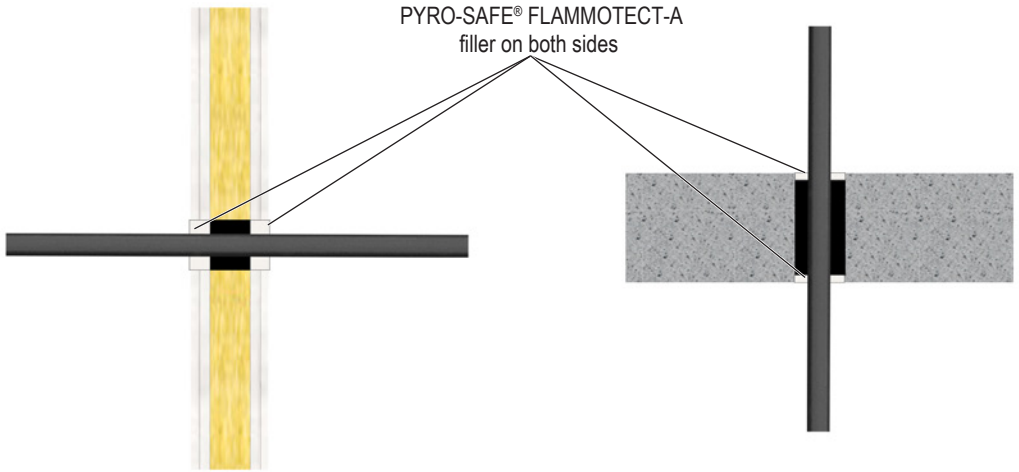
Design for walls and floors (in circular seals with Ø ≤ 30 mm)



For component and seal thickness and design variants, see page 15.

Dimensions in mm

Wall/floor	
Service	**Measure**
Cables Ø ≤ 21 mm	PYRO-SAFE® FLAMMOTECT-A filler on both sides (thickness: ≥ 25.0 mm in wall, ≥ 3.0 mm in floor)

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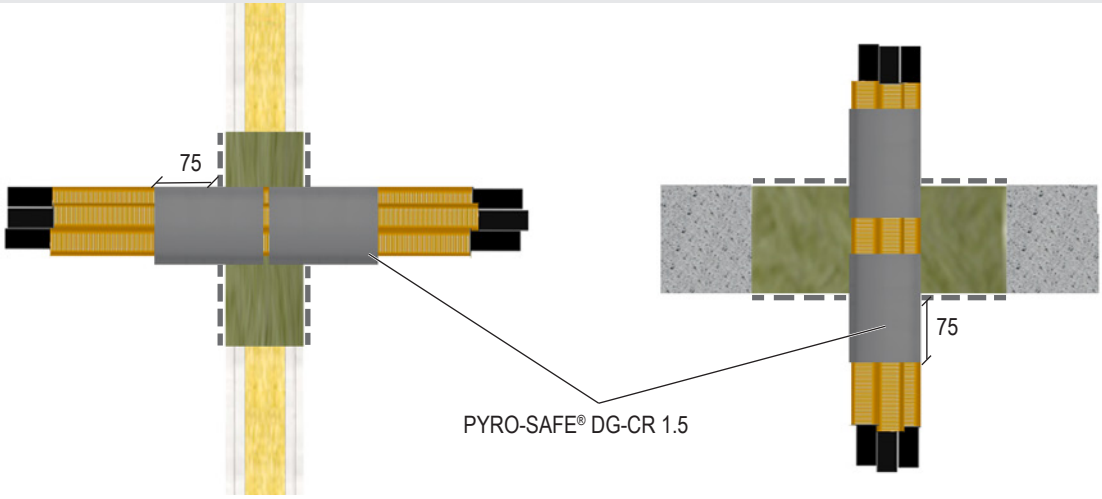
7.2 Electrical installation conduits (EIC)

7.2.1 EIC made of plastic

Design for walls and floors



For component and seal thickness and design variants, see page 15.

Dimensions in mm

Wall

Service	Measure					
	PYRO-SAFE® DG-CR 1.5					
	Wrap width [mm]	Number of wraps [n]	Inside seal [mm]	Outside seal [mm]	Number of layers [n]	Overlap [mm]
EIC made of plastic, flexible, single or bundled bundle Ø ≤ 100, EIC Ø ≤ 32, Cable Ø ≤ 21	125	2	50	75	2	0
EIR made of plastic, rigid, EIC Ø ≤ 16 – ≤ 50, Cable Ø ≤ 14 – ≤ 21	125	2	50	75	1	0
EIC made of plastic, rigid, bundles, Bundle Ø ≤ 70 EIC Ø ≤ 16 – ≤ 50, Cable Ø ≤ 14 – ≤ 21					2	

Floor

Service	Measure					
	PYRO-SAFE® DG-CR 1.5					
	Wrap width [mm]	Number of wraps [n]	Inside seal [mm]	Outside seal [mm]	Number of layers [n]	Overlap [mm]
EIC made of plastic, flexible, single or bundled bundle Ø ≤ 100, EIC Ø ≤ 32, Cable Ø ≤ 21	125	2	50	75	3	0

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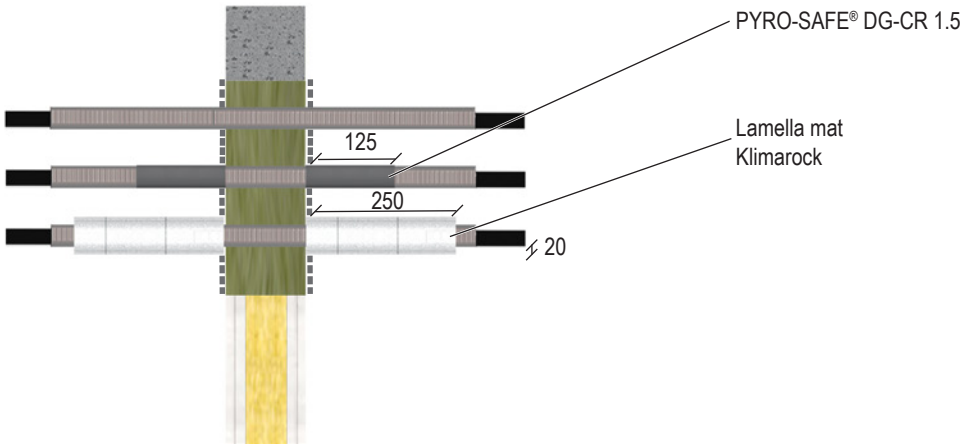
7.2.2 EIC made of metal

Design for walls



For component and seal thickness and design variants, see page 15.

Dimensions in mm

Wall

Service	Measure						Fire resistance class
EIC made of metal, Ø ≤ 16, cable Ø ≤ 14	none						EI 120 C/U
EIC made of metal Ø ≤ 32 cable Ø ≤ 14 / Ø ≤ 50 cable Ø ≤ 21	none						EI 30 / E 120 C/U
	PYRO-SAFE® DG-CR 1.5						
	Wrap width [mm]	**Number of wraps [n]**	**Inside seal [mm]**	**Outside seal [mm]**	**Number of layers [n]**	**Overlap [mm]**	
	125	2	0	125	2	10	EI 120 C/U
	Lamella mat Klimarock						
	Insulation length [mm]			**Insulation thickness [mm]**			
	≥ 250			≥ 20			EI 120 C/U

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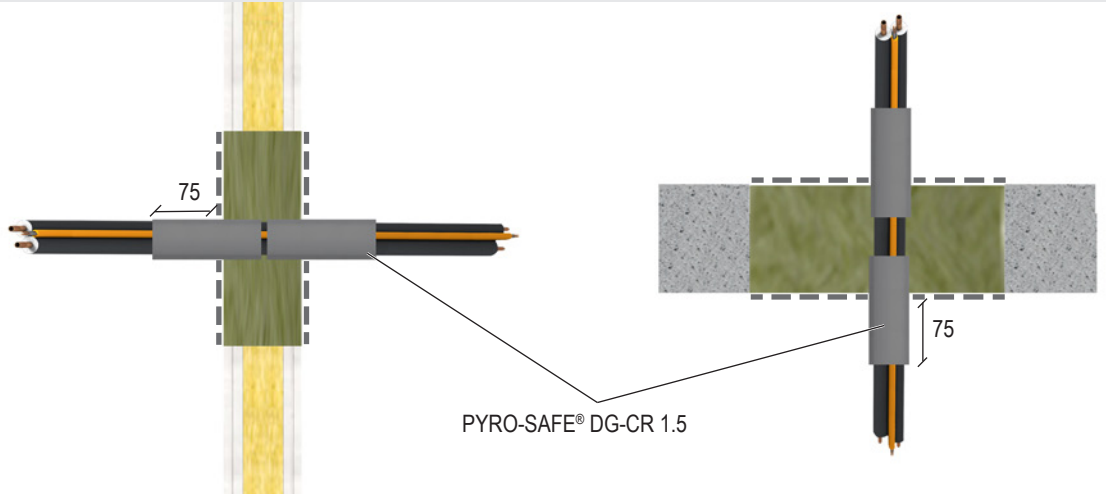
7.3 HVAC split line combinations

Design for walls and floors



For component and seal thickness and design variants, see page 15.

Dimensions in mm

Wall/floor						
Service	Measure					
	PYRO-SAFE® DG-CR 1.5					
	Wrap width [mm]	Number of wraps [n]	Inside seal [mm]	Outside seal [mm]	Number of layers [n]	Overlap [mm]
Double (6–10/10–18 mm) or single copper pipe (6–18 mm) +PVC-U pipe ≤ Ø 25 mm + 2 accompanying lines ≤ 21 mm	125	2	50	75	1 (wall) 2 (floor)	0

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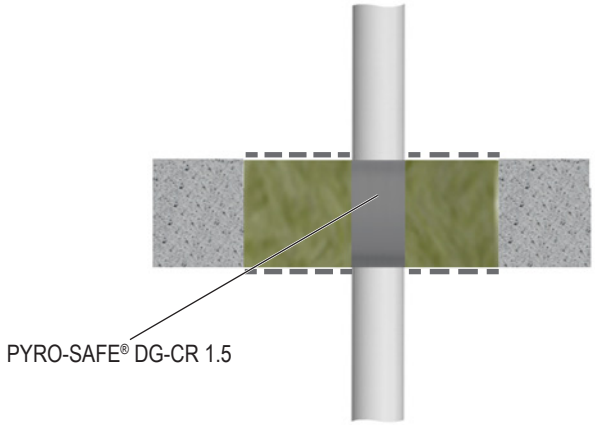
7.4 Combustible pipes

Design for floors



For component and seal thickness and design variants, see page 15.

Dimensions in mm

Floor

Service	Measure					
	PYRO-SAFE® DG-CR 1.5					
	Wrap width [mm]	Number of wraps [n]	Inside seal [mm]	Outside seal [mm]	Number of layers [n]	Overlap [mm]
PVC-U pipe, outer Ø ≤ 32 mm	125	1	125	0	1	25

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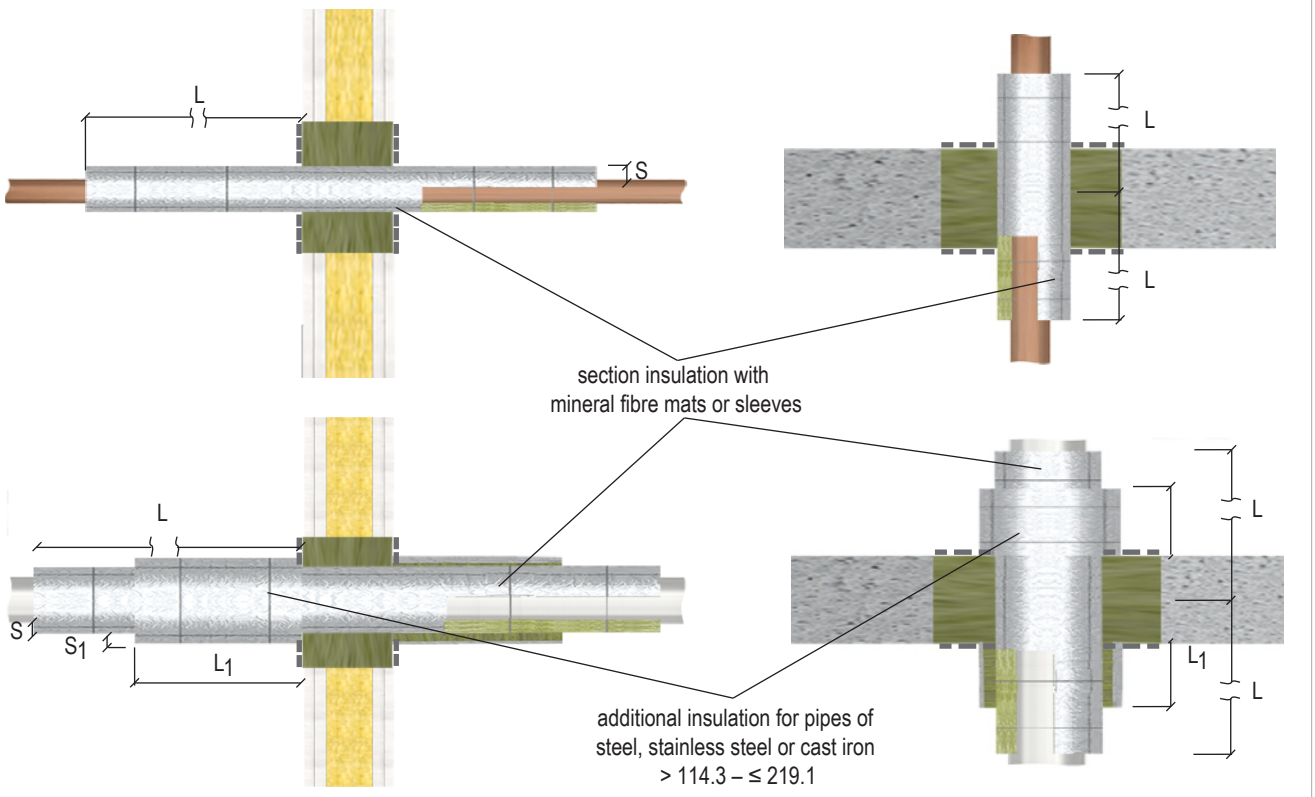
7.5 Non-combustible pipes

7.5.1 Section insulation with mineral fibre mats or sleeves

- Non-combustible pipes require section insulation, for example with mineral fibre mats. Depending on pipe wall thickness and outer diameter, an additional protective insulation with mineral fibre mats may be necessary.
- The insulation must be fastened to the pipe with tensioning straps or wire.
- In floor installations appropriate measures must be taken to prevent the insulation from slipping.

Design for walls and floors



For component and seal thickness and design variants, see page 15.

Dimensions in mm

Pipe material	Pipe outer Ø [mm]	Pipe wall thickness [mm]	Insulation length L [mm]	Insulation thickness S [mm]	Fire resistance class	
					Wall	Floor
Copper, steel, stainless steel, cast iron	Ø ≤ 15.0	≥ 0.8	≥ 250	≥ 20	EI 60 / E 90 C/U	EI 90 C/U
	Ø ≤ 22.0	≥ 1.0	≥ 250	≥ 60		
			≥ 500	≥ 20		
	Ø ≤ 54.0	≥ 1.5	≥ 500	≥ 30		
	Ø ≤ 88.9	≥ 2.0	≥ 800	≥ 40		
Steel, stainless steel, cast iron	Ø ≤ 88.9	≥ 2.0	≥ 800	≥ 40	EI 90 C/U	
	Ø ≤ 114.3	≥ 3.6	≥ 500	≥ 40	EI 60 / E 90 C/U	
	Ø ≤ 170.0	≥ 3.0	≥ 800*	≥ 60	EI 60 C/U	
	Ø ≤ 219.1	≥ 5.0	≥ 800*	≥ 60	EI 60 / E 90 C/U	

* additional protective insulation with mineral fibre mat (L1 ≥ 500 mm × T1 ≥ 30 mm)

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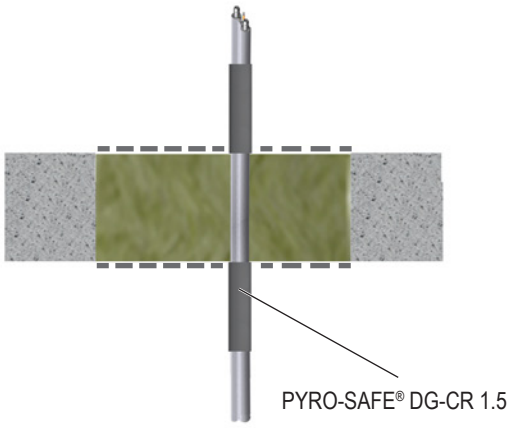
7.6 Double solar pipes Nanosun²

Design for floors



For component and seal thickness and design variants, see page 15.

Dimensions in mm

Floor

Service	Measure					
	PYRO-SAFE® DG-CR 1.5					
	Wrap width [mm]	Number of wraps [n]	Inside seal [mm]	Outside seal [mm]	Number of layers [n]	Overlap [mm]
Nanosun² – Double solar pipe DN = 16 – ≤ 40	125	2	0	125	1	0

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8. Installation steps

1. Clean the reveal and the installations.
   If necessary, wrap the services with PYRO-SAFE® DG-CR 1.5 and fasten the wraps.

2. Fill the openings tightly with mineral wool. Seal the openings with PYRO-SAFE® FLAMMOTECT-A.

3. Label the penetration seal. Fill out the label neatly and attach it firmly next to/above (not on!) the penetration seal.