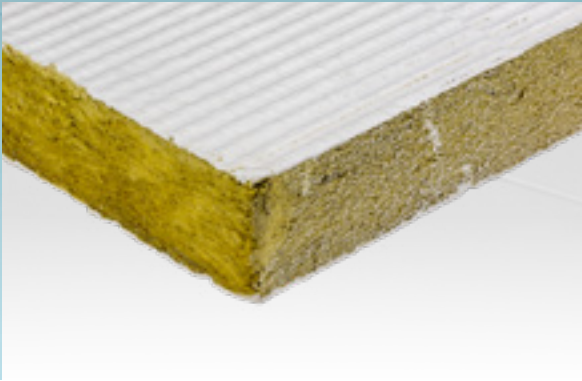


KNAUF FPC PANEL

5



Knauf FPC Panel has been designed to maintain the fire resistance of separating walls and floors where they are breached by single or multiple building services. The panel consists of a stone wool core, sealed with Knauf FPC Coating on 1 or both faces.

Selection of the panel coated on 1 or both faces is determined by installation considerations and fire resistance requirements. When installed on site, Knauf FPC Panel should be used with Knauf FPA Acrylic for sealing around service penetrations and the adjacent separating construction.

Properties:

- > Classified for all types of constructions with or without building service penetrations
- > Simple and very quick to install
- > Permanently flexible - will accommodate movements during fire and smaller movements in the construction it has been fitted within
- > Halogen free with added fungicides
- > Fire resistance up to EI240
- > ETA 21/0047
- > EAD 350141-00-1104

Supporting constructions:

Flexible walls:

The wall must have a minimum thickness of 75 mm and comprise steel studs or timber studs*) lined on both faces with minimum 1 layer of 12.5 mm thick boards.

Rigid walls:

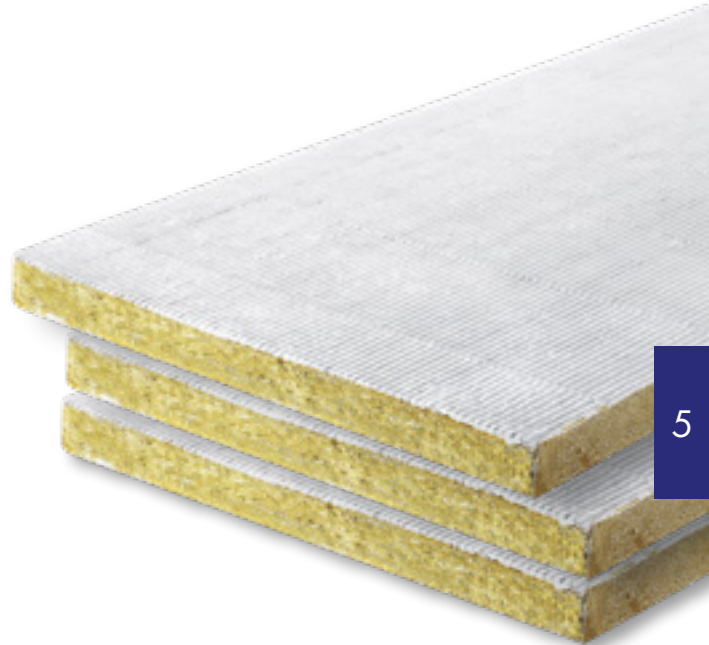
The wall must have a minimum thickness of 75 mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650kg/m³.

Rigid floors:

The floor must have a minimum thickness of 150 mm and comprise aerated concrete or concrete with a minimum density of 650kg/m³.

The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.

*) Timber studs: no part of the penetration seal may be closer than 100 mm to a stud, and minimum 100 mm of insulation of class A1 or A2 according to EN 13501-1 must be provided within the cavity between the penetration seal and the stud.



5

Installation Instructions

1. Before installing Knauf FPC Panel ensure that the surface of all service penetrations and surrounding construction is free from all loose contaminants, dust and grease.
2. Knauf FPC Coating and Knauf FPA Acrylic are water based, so in cases where corrosion protection is a problem, some metals may require a barrier between the seal and the surface prior to this installation.
3. Select the type and number of panels to meet the required fire classification using the drawings on this document.
4. When fitting panels into drywalls the coated side of the panel should be flush with the surface of the wall on both sides. In seals wider than 2400mm, uninterrupted separating studs will be required at 2400mm centers or less.
5. When fitting double layer 60mm thick panels in masonry or concrete constructions, the panels should be flush with the surface of the construction on both sides to maximize the fire resistance. If this is not possible, there should be an air gap of at least 30mm between the panels.
6. When fitting single layer panels in masonry or concrete constructions, the panel can be positioned to either side of the construction or anywhere in between.
7. When installing Knauf FPC Panel in hollow floor slabs or boards, fire seals specified as single layer panels should be installed from the soffit side of the floor assuming there is sufficient thickness of concrete below the void to follow the installation guide. Where this is not the case, tubular voids should be filled with stone wool normally the same thickness as the depth of the floor slab. Alternatively, simply fire seal on both sides.
8. Cut the required panel(s) to suit the aperture dimensions and type and size of service penetration(s). All exposed and cut edges of the panels can be sealed with Knauf FPC Coating or Knauf FPA Acrylic prior to fitting which will act as an adhesive and ensure a smoke tight seal.
9. All joints, gaps or imperfections in the installed seal must be filled with Knauf FPA Acrylic on both sides.
10. Knauf FPC Panel can be over-painted with most emulsion or alkyd (gloss) paints.

PENETRATION SEALS | RIGID WALL CONSTRUCTIONS

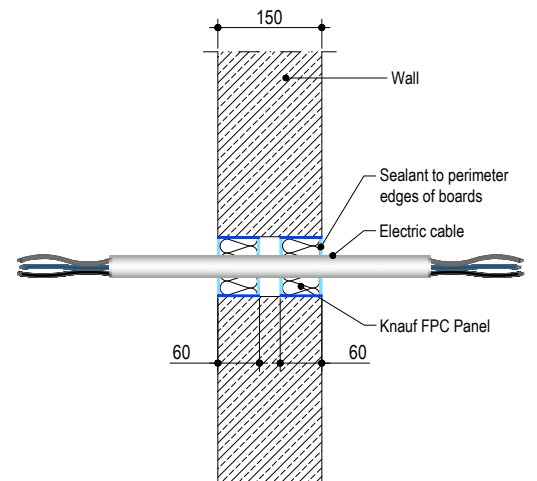
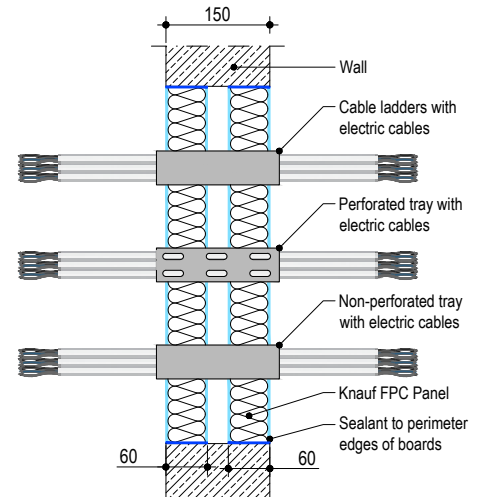
WITH WALL THICKNESS OF MINIMUM 150 MM

> Cable penetration seal with 2x 60 mm thick Knauf FPC panel 2-S

Penetration Seal: Cables fitted at any position within the aperture, with 60 mm Knauf FPC panel 2-S to both sides of the wall.

Services	Classification
None (blank), at max. 1200 x 1200 mm	EI 240
-	E 240, EI 180
Single electrical cables up to 21 mm Ø	E 240, EI 180
Single or bundled electrical cables up to 21 mm Ø, with or without trays	E 240, EI 180
Electrical cables up to 80 mm Ø (single, bundled and on trays)	E 180, EI 60
Cables up to 21mm Ø in tied bundles up to 100mm Ø	E 180, EI 120
Steel cable trays & ladders	E 180, EI 60
Plastic conduits up to 16 mm Ø	EI 180 C/U, EI 180 C/C

Double side penetration seal with cables

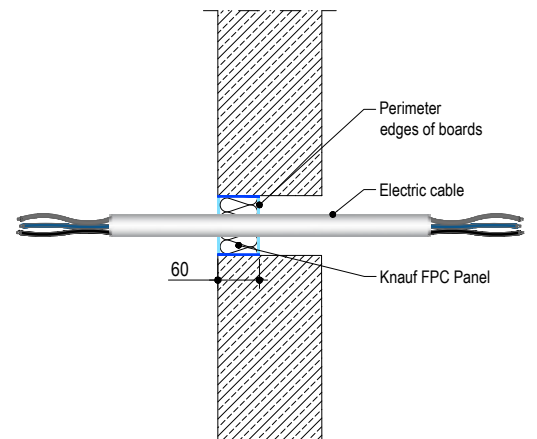


> Cable penetration seal with 1x 60 mm thick Knauf FPC panel 2-S

Penetration Seal: Cables (single) fitted at any position within the aperture, with Knauf FPC panel 2-S positioned to either face of the wall (or anywhere in between).

Services	Maximum aperture	Classification
-	As section 2. 5)	E 240, EI 90
Single electrical cables up to Ø 21 mm	70 x 70 mm	EI 240
Single A1 cable = 5 x 1.5 mm ² core HD603.3 electrical cable with PVC insulation, PVC sheath and Ø 14 mm		
Single A2 cable = 5 x 1.5 mm ² core HD22.4 electrical cable with EPR insulation, PO sheath and Ø 11.2-14.4 mm		
Single A3 cable = 5 x 1.5 mm ² core HD604.5 electrical cable with XLPE insulation, EVA sheath and Ø 13 mm		

Single side penetration seal with cables in minimum 150 mm thick walls



Services	Maximum aperture	Classification
-	As section 2. 5)	E 120, EI 90
Single electrical cables up to Ø 21 mm		

Single side penetration seal with cables in minimum 75 mm thick walls

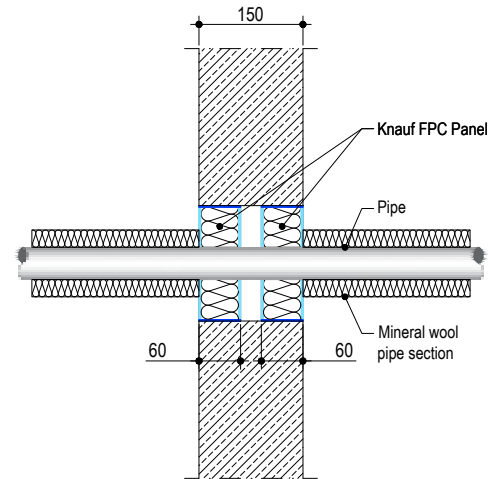
> Pipe penetration seal with 2x 60 mm thick Knauf FPC panel 2-S

Penetration Seal: 1000 mm (min.) LI (Local Interrupted) or CI (Continuous Interrupted) insulated metallic pipes (single) fitted at any position within the aperture, with 60 mm Knauf FPC panel to both sides of the wall.

Services	Maximum aperture	Insulation	Classification
Mild or stainless steel pipe			
Ø 40 mm/1.5-14.2 mm wall	1200 x 1200 mm As section 2. 5)	20 mm Stone wool insulation 80 kg/m ³	EI 240 C/U
Ø 40 mm/1.5-14.2 mm wall			E 240 C/U, EI 180 C/U
Ø 40 mm/1.5-14.2 mm wall		30 mm Stone wool insulation 80 kg/m ³	E 240 C/U, EI 90 C/U
Ø 50 mm/1.7-14.2 mm wall			
Ø 60 mm/1.7-14.2 mm wall			
Ø 75 mm/2.2-14.2 mm wall			
Ø 90 mm/2.5-14.2 mm wall			
Ø 100 mm/2.7-14.2 mm wall			
Ø 115 mm/3.0-14.2 mm wall			
Ø 165 mm/3.9-14.2 mm wall			
Ø 180 mm/4.2-14.2 mm wall			
Ø 200 mm/4.6-14.2 mm wall			
Ø 219 mm/5.0-14.2 mm wall			

Services	Maximum aperture	Insulation	Classification
Alupex composite			
Ø 16 mm/2.25 mm wall	1200 x 1200 mm	20 mm Stone wool insulation 80 kg/m ³	EI 240 C/U
Ø 16 mm/2.25 mm wall	As section 2. 5)		E 240 U/C EI 180 U/C
Copper pipe			
Up to Ø 54 mm Copper or steel pipe 0.9-14.2 mm wall	As section 2. 5)	20 mm Stone wool insulation 80 kg/m ³	E 240 C/U, EI 120 C/U

Double side penetration seal with pipes

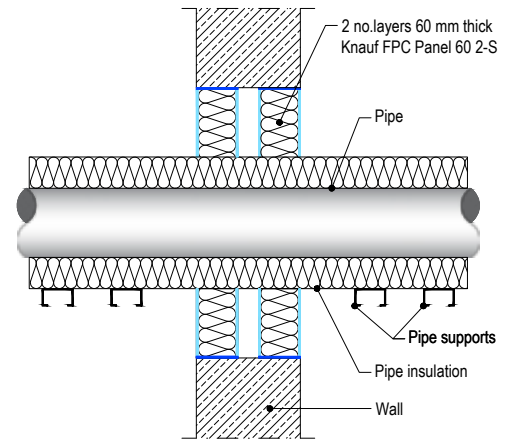


› **Pipe penetration seal with 2x Knauf FPC panel 2-S**

Penetration Seal: CS (Continuous Sustained) insulated metallic pipes fitted at any position within the aperture, with 60 mm Knauf FPC Panel 2-S to both sides of the wall. Minimum separation between penetration seals and seal edges of 30 mm in minimum 150 mm thick walls.

Services	Insulation	Classification
Mild or stainless steel pipe		
Ø 40 mm/1.0-14.2 mm wall	20 mm thick stone, mineral wool 80 kg/m ³ 30-80 mm thick stone, mineral wool min. 80 kg/m ³	E 240 C/U, EI 180 C/U
Ø 40 mm/1.0-14.2 mm wall		
Ø 50 mm/1.2-14.2 mm wall		
Ø 60 mm/1.4-14.2 mm wall		
Ø 75 mm/1.6-14.2 mm wall		
Ø 90 mm/1.9-14.2 mm wall		
Ø 100 mm/2.1-14.2 mm wall		
Ø 115 mm/2.4-14.2 mm wall		
Ø 140 mm/2.9-14.2 mm wall		
Ø 165 mm/3.4-14.2 mm wall		
Ø 180 mm/3.6-14.2 mm wall		
Ø 200 mm/4.0-14.2 mm wall		
Ø 219 mm/4.3-14.2 mm wall		
Ø 250 mm/5.0-14.2 mm wall		
Ø 300 mm/5.9-14.2 mm wall		
Ø 324 mm/6.35-14.2 mm wall		

Double side penetration seal with pipes



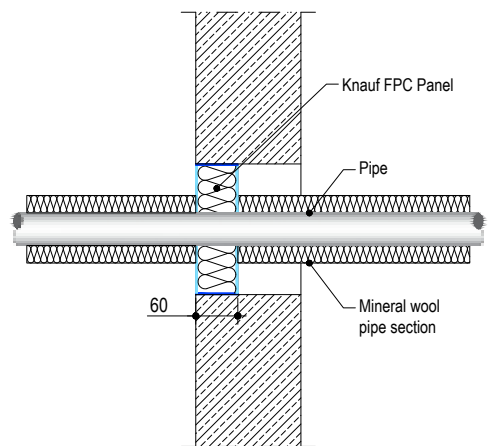
› **Pipe penetration seal with 1x 60 mm thick Knauf FPC panel 2-S**

Penetration Seal: 1000 mm (min.)* LI (Local Interrupted), CI (Continuous Interrupted) or CS (continuous sustained) insulated metallic and composite pipes (single) fitted at any position within the aperture, with 60 mm Knauf FPC panel to one side of the wall.

*600 mm long insulation required for Alupex pipes

Services	Maximum aperture	Insulation	Classification
Up to Ø 12 mm Copper pipe 0.9-14.2 mm wall	70 x 70 mm	20 mm Stone wool insulation 80 kg/m ³	EI 240 C/U
Up to Ø 54 mm Copper pipe 0.9-14.2 mm wall	115 x 115 mm		E 240 C/U, EI 120 C/U
Ø 75 mm Alupex composite pipe Ø 7.5 mm	200 x 200 mm	30 mm Stone wool insulation 80 kg/m ³	EI 120 C/C
Up to Ø 54 mm Copper pipe 0.9-14.2 mm wall	As section 2.5)	20 mm Stone wool insulation 80 kg/m ³	E 240 C/U, EI 90 C/U
Up to Ø 75 mm Alupex composite pipe Ø 7.5 mm			E 120 C/C, EI 90 C/C
Ø 325 mm Steel pipe 6.35-14.2 mm wall			E 120 C/U, EI 90 C/U

Single side penetration seal with cables in minimum 150 mm thick walls



Services	Maximum aperture	Insulation	Classification
Mild or stainless steel pipe			
Ø 40 mm/1.5-14.2 mm wall Ø 40 mm/1.5-14.2 mm wall Ø 50 mm/1.7-14.2 mm wall Ø 60 mm/1.9-14.2 mm wall Ø 75 mm/2.2-14.2 mm wall Ø 90 mm/2.5-14.2 mm wall Ø 100 mm/2.7-14.2 mm wall Ø 115 mm/3.0-14.2 mm wall Ø 140 mm/3.5-14.2 mm wall Ø 165 mm/3.9-14.2 mm wall Ø 180 mm/4.2-14.2 mm wall Ø 200 mm/4.6-14.2 mm wall Ø 219 mm/5.0-14.2 mm wall	280 x 280 mm	20 mm Stone wool insulation 80 kg/m ³ 30 mm Stone wool insulation 80 kg/m ³	EI 240 C/U
Ø 40 mm/1.5-14.2 mm wall Ø 50 mm/1.7-14.2 mm wall Ø 60 mm/1.9-14.2 mm wall Ø 75 mm/2.2-14.2 mm wall Ø 90 mm/2.5-14.2 mm wall Ø 100 mm/2.7-14.2 mm wall Ø 115 mm/3.0-14.2 mm wall Ø 140 mm/3.5-14.2 mm wall Ø 165 mm/3.9-14.2 mm wall Ø 180 mm/4.2-14.2 mm wall Ø 200 mm/4.6-14.2 mm wall Ø 219 mm/5.0-14.2 mm wall	As section 2. 5)	20 mm Stone wool insulation 80 kg/m ³ 30 mm Stone wool insulation 80 kg/m ³	E 240 C/U, EI 90 C/U

Single side penetration seal with cables in minimum 150 mm thick walls

Services	Maximum aperture	Insulation	Classification
Up to Ø 54 mm Copper or steel pipe 0.9-14.2 mm wall	As section 2. 5)	20 mm Stone wool insulation 80 kg/m ³	E 120 C/U, EI 90 C/U
Up to Ø 75 mm Alupex composite pipe 7.5 mm wall		30 mm Stone wool insulation 80 kg/m ³	E 120 C/C, EI 90 C/C
Ø 325 mm Steel pipe			E 120 C/U, EI 90 C/U

Single side penetration seal with pipes in minimum 75 mm thick walls

Services	Maximum aperture	Insulation	Classification
Mild or stainless steel pipe			
Ø 40 mm/1.5-14.2 mm wall Ø 50 mm/1.7-14.2 mm wall Ø 60 mm/1.9-14.2 mm wall Ø 75 mm/2.2-14.2 mm wall Ø 90 mm/2.5-14.2 mm wall Ø 100 mm/2.7-14.2 mm wall Ø 115 mm/3.0-14.2 mm wall Ø 140 mm/3.5-14.2 mm wall Ø 165 mm/3.9-14.2 mm wall Ø 180 mm/4.2-14.2 mm wall Ø 200 mm/4.6-14.2 mm wall Ø 219 mm/5.0-14.2 mm wall	As section 2. 5)	20 mm Stone wool insulation 80 kg/m ³ 30 mm Stone wool insulation 80 kg/m ³	E 120 C/U, EI 90 C/U

› **Pipe penetration seal with 1x Knauf FPC panel 2-S**

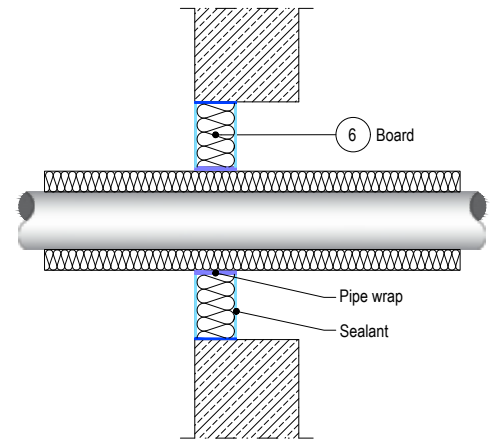
Penetration Seal: CS (Continuous Sustained) insulated metallic pipes fitted at any position within the aperture, with 60 mm Knauf FPC panel 2-S to either side of the wall (or anywhere in between). Knauf Firewraps are required to be fitted around combustible pipe insulation.

Services	Wrap	Insulation	Classification
Mild or stainless steel pipe			
Ø 165 mm/ 4.5-14.2 mm wall	50 x 1.8 mm Knauf Firewrap fitted centrally	9-25 mm elastomeric insulation min. class B-s3, d0	E 120 U/C, E 120 C/U, E 120 C/C, EI 45 U/C, EI 45 C/U, EI 45 C/C
Ø 40-219 mm	Not required	30 mm stone wool 80 kg/m ³	E 240 U/C, E 240 C/U, E 240 C/C, EI 60 U/C, EI 60 C/U, EI 60 C/C
Ø 40-219 mm		30-50 mm stone wool min. 80 kg/m ³	E 180 U/C, E 180 C/U, E 180 C/C, EI 60 U/C, EI 60 C/U, EI 60 C/C
Ø 40-325 mm		50 mm stone wool min. 80 kg/m ³	E 180 U/C, E 180 C/U, E 180 C/C, EI 60 U/C, EI 60 C/U, EI 60 C/C

Single side penetration seal with pipes in minimum 150 mm thick walls

Services	Wrap	Insulation	Classification
Mild or stainless steel pipe			
Ø 165 mm/ 4.5-14.2 mm wall	50 x 1.8 mm Knauf Firewrap fitted centrally	9-25 mm elastomeric insulation min. class B-s3, d0	E 120 U/C, E 120 C/U, E 120 C/C, EI 45 U/C, EI 45 C/U, EI 45 C/C
Ø 40-219 mm	Not required	30-50 mm stone wool min. 80 kg/m ³	E 120 U/C, E 120 C/U, E 120 C/C, EI 60 U/C, EI 60 C/U, EI 60 C/C
Ø 40-325 mm		50 mm stone wool min. 80 kg/m ³	E 120 U/C, E 120 C/U, E 120 C/C, EI 60 U/C, EI 60 C/U, EI 60 C/C

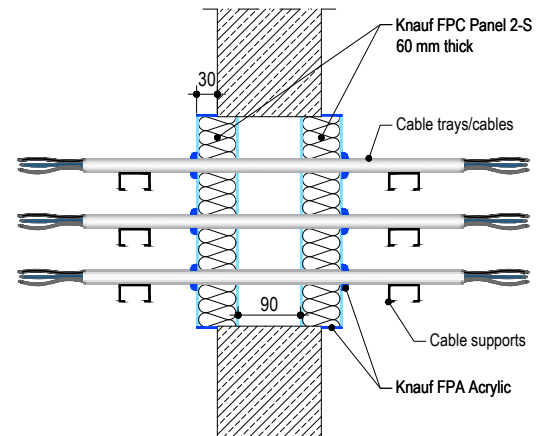
Single side penetration seal with pipes in minimum 75 mm thick walls



› **Knauf FPC panel 60 mm 2-S penetration seal (protruding) blank and with cables, in rigid wall min. 150 mm thick**

Penetration Seal: Cables fitted at any position within the aperture, with 60 mm Knauf FPC panel 2-S to both sides of the wall. Boards to be separated by minimum 90 mm.

Services	Maximum aperture	Classification
-	600 mm wide x 600 mm high	E 240, EI 180
Single or bundled electrical cables up to Ø 21 mm, with or without trays		E 240, EI 120
Electrical cables up to Ø 80 mm (single, bundled and on trays)		E 240, EI 60
Cables up to Ø 21 mm in tied bundles up to Ø 100mm		EI 240
Steel cable trays & ladders		E 240, EI 180
Non-Sheathed wires up to Ø 17 mm		E 240, EI 180
Non-Sheathed wires up to Ø 24 mm		E 240, EI 90



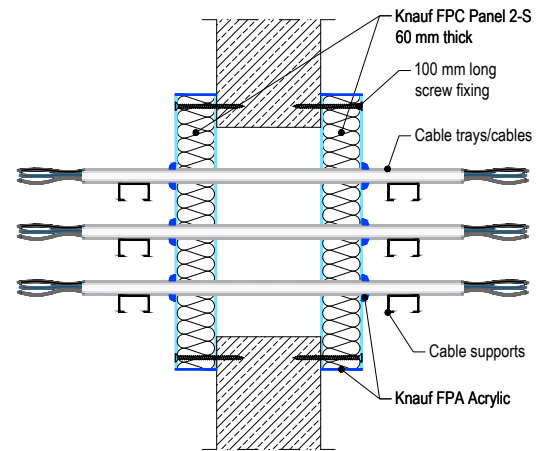
Two side penetration seal with cables

› Knauf FPC panel 60 mm 2-S penetration seal (pattress) blank and with cables, in rigid wall min. 150 mm thick

Penetration Seal: Cables fitted at any position within the aperture, with 60 mm Knauf FPC panel 2-S to both sides of the wall. Boards to be pattress fixed with 100 mm steel screws and penny washers at 350 mm centres and with a minimum 50 mm overlap around the opening.

Services	Maximum aperture	Classification
-	600 mm wide x 600 mm high	E 240, EI 180
Single or bundled electrical cables up to Ø 50 mm, with or without trays		E 240, EI 90
Single or bundled electrical cables up to Ø 80 mm (single, bundled and on trays)		E 240, EI 60
Cables up to Ø 21 mm in tied bundles up to Ø 100mm		EI 240
Steel cable trays & ladders		E 240, EI 180
Non-Sheathed wires up to Ø 24 mm		E 240, EI 120

Two side penetration seal with cables



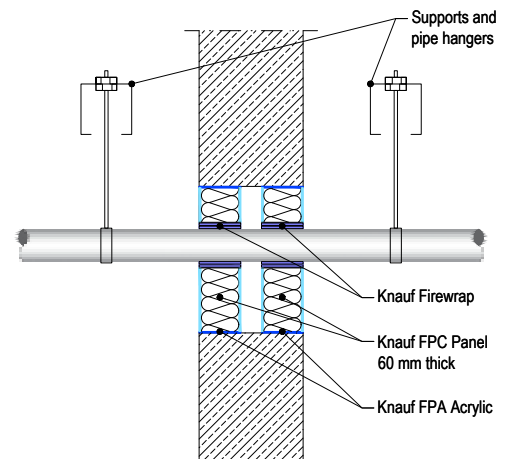
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› Penetration seal with 2x Knauf FPC panel 2-S

Penetration Seal: Plastic pipes fitted at any position within the aperture, with 60 mm Knauf FPC Panel 2-S to both sides of the wall. Knauf Firewraps are required to be fitted around pipes. Min. 30 mm separation between pipes in minimum 150 mm thick walls.

Services	Wrap	Classification
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1		
Up to Ø 32 mm/1.0-2.4 mm wall	-	EI 240 U/C
Up to Ø 40 mm/1.9-3.0 mm wall	50 x 1.8 mm	
Up to Ø 110 mm/2.7-6.6 mm wall	50 x 3.6 mm	
Up to Ø 125 mm/4.7-7.4 mm wall	50 x 7.2 mm	
Up to Ø 160 mm/4.0-9.5 mm wall	50 x 10.8 mm	
Up to Ø 200 mm/4.9-11.9 mm wall	75 x 10.8 mm	EI 180 C/C
Up to Ø 315 mm/7.7-12.1 mm wall	75 x 18 mm	EI 120 C/C
Up to Ø 400 mm/9.8-15.3 mm wall	75 x 28.8 mm	EI 120 C/C
Up to Ø 32 mm, wall thickness 1.0-2.4 mm in pipe bundles up to Ø 107 mm ¹⁾	50 x 3.6 mm	EI 240 U/C
PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1		
Up to Ø 40 mm/2.4-4.6 mm wall	50 x 1.8 mm	EI 240 U/C
Up to Ø 110 mm/3.4-10.0 mm wall	50 x 3.6 mm	
Up to Ø 125 mm/3.9-7.4 mm wall	50 x 7.2 mm	
Up to Ø 160 mm/4.9-9.5 mm wall	50 x 10.8 mm	
Up to Ø 200 mm/4.9-18.2 mm wall	75 x 10.8 mm	
Up to Ø 315 mm/28.6 mm wall	75 x 18 mm	E 180 C/C, EI 120 C/C
Up to Ø 400 mm/36.3 mm wall	75 x 28.8 mm	EI 120 C/C
Up to Ø 32 mm, wall thickness 2.0-4.4 mm in pipe bundles up to Ø 107 mm ¹⁾	50 x 3.6 mm	EI 240 C/U

Double side penetration seal with pipes



Services	Wrap	Classification
PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1		
Up to Ø 40 mm/1.8-5.5 mm wall	50 x 1.8 mm	EI 240 U/C
Up to Ø 110 mm/2.7-10.0 mm wall	50 x 3.6 mm	EI 240 C/C
Up to Ø 125 mm/3.1-11.4 mm wall	50 x 7.2 mm	
Up to Ø 160 mm/4.9-14.6 mm wall	50 x 10.8 mm	EI 180 C/C
Up to Ø 200 mm/4.9-18.2 mm wall	75 x 10.8 mm	
Up to Ø 32 mm, wall thickness 1.8-4.4 mm in pipe bundles up to Ø 107 mm ¹⁾	50 x 3.6 mm	EI 240 C/U

Double side penetration seal with pipes

¹⁾ PVC, PE and PP pipes can be mixed in the same bundle.

PENETRATION SEALS | RIGID FLOOR CONSTRUCTIONS

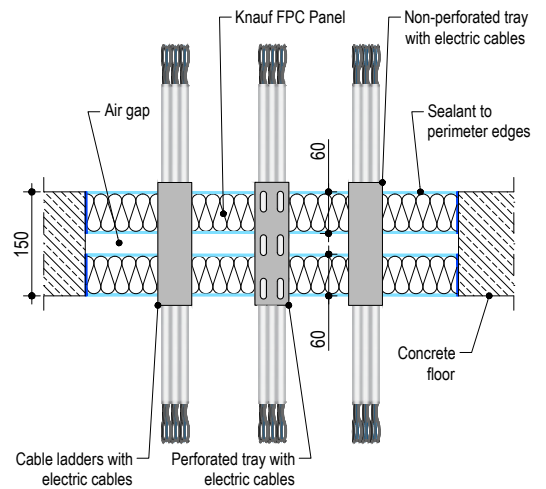
WITH FLOOR THICKNESS OF MINIMUM 150 MM

> Cable penetration seal with 2x Knauf FPC panel 2-S

Penetration Seal: Cables fitted at any position within the aperture, with 60 mm Knauf FPC panel 2-S to both sides of the floor.

Services	Maximum aperture	Classification
-	1200 x 600 mm	EI 180
-	2400 mm x 1200 mm	E 180, EI 120
Electrical cables up to Ø 21 mm (single, bundled and on trays)		EI 120
Electrical cables up to Ø 80 mm (single, bundled and on trays)		E 120, EI 60
Cables up to Ø 21 mm in tied bundles up to Ø 100mm		EI 120
Steel cable trays & ladders		E 120, EI 60
Non-sheathed wires up to Ø 24 mm		E 180, EI 45
Plastic conduits up to Ø 16 mm		E 120 C/U, E 120 C/C, EI 90 C/U, EI 90 C/C

Double side penetration seal with pipes

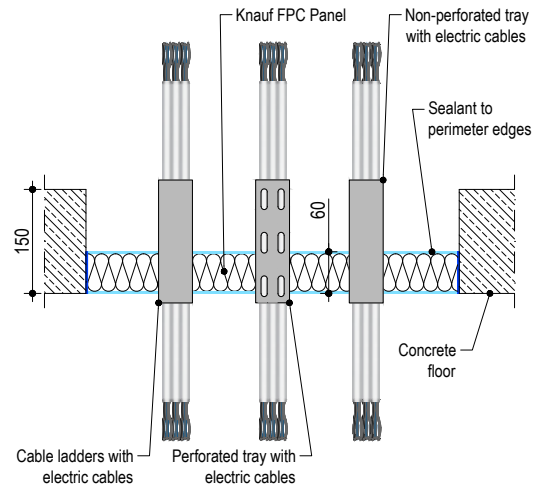


> Cable penetration seal with 1x Knauf FPC panel 2-S

Penetration Seal: Cables fitted at any position within the aperture, with Knauf FPC panel 2-S positioned to either face of the floor (or anywhere in between).

Services	Maximum aperture	Classification
-	1200 x 600 mm	E 240, EI 120
-	2400 x 1200 mm	E 120, EI 90
Single electrical cables up to 21 mm Ø		E 120, EI 30
Single electrical cables up to 21 mm Ø	600 x 1200 mm	E 240, EI 30
Electrical cables up to Ø 21 mm (single, bundled and on trays)	2400 x 1200 mm	E 90, EI 45
Electrical cables up to Ø 80 mm (single, bundled and on trays)		E 90, EI 30
Cables up to Ø 21 mm in tied bundles up to Ø 100mm		EI 45
Steel cable trays & ladders		EI 45
Non-sheathed wires up to Ø 17 mm		E 45, EI 30
Non-sheathed wires up to Ø 24 mm		E 45, EI 20
Plastic conduits up to Ø 16 mm		EI 45 C/U, EI 45 C/C
Steel or copper conduit up to Ø 16 mm		E 45 C/U, EI 15 C/U

Single side penetration seal with cables



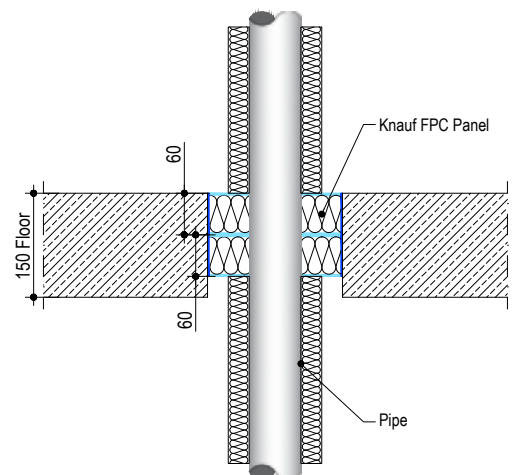
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> Pipe penetration seal with 2x Knauf FPC panel 2-S

Penetration Seal: 1000 mm (min.) LI (Local Interrupted) or CI (Continuous Interrupted) insulated metallic pipes (single) fitted at any position within the aperture, with 2 layers of 60 mm Knauf FPC panel 2-S together within the floor.

Services	Maximum aperture	Insulation	Classification
Mild or stainless steel pipe			
Ø 40 mm/1.5-14.2 mm wall	1200 x 600 mm	20 mm Stone wool insulation 80 kg/m ³	EI 180 C/U
Ø 40 mm/1.5-14.2 mm wall	280 x 280 mm		EI 240 C/U
Ø 40 mm/1.5-14.2 mm wall	2400 x 1200 mm	30 mm Stone wool insulation 80 kg/m ³	E 180 C/U, EI 120 C/U
Ø 40 mm/1.5-14.2 mm wall			E 180 C/U, EI 60 C/U
Ø 50 mm/1.7-14.2 mm wall			
Ø 60 mm/1.8-14.2 mm wall			
Ø 75 mm/2.1-14.2 mm wall			
Ø 90 mm/2.3-14.2 mm wall			
Ø 100 mm/2.5-14.2 mm wall			
Ø 115 mm/2.8-14.2 mm wall			
Ø 140 mm/3.2-14.2 mm wall			
Ø 165 mm/3.6-14.2 mm wall			
Ø 180 mm/3.9-14.2 mm wall			
Ø 200 mm/4.2-14.2 mm wall			
Ø 219 mm/4.5-14.2 mm wall			

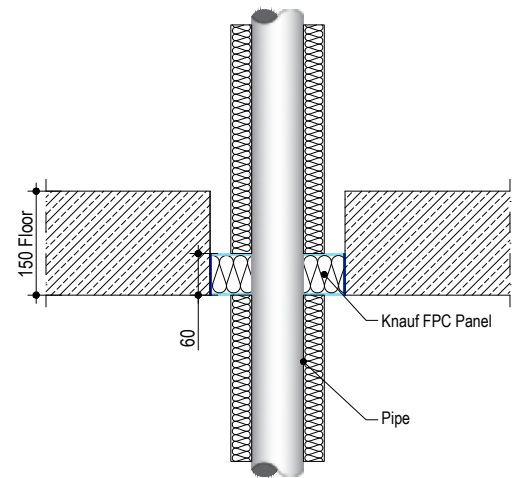
Two layer penetration seal with pipes



› **Pipe penetration seal with 1x Knauf FPC panel 2-S**

Penetration Seal: 1000 mm (min.) LI (Local Interrupted) or CI (Continuous Interrupted) insulated metallic pipes (single) fitted at any position within the aperture, with 60 mm Knauf FPC panel 2-S to either side of the floor (or anywhere in between).

Services	Maximum aperture	Insulation	Classification
Up to Ø 12 mm Copper pipe 0.9-14.2 mm wall	1200 x 600 mm	20 mm Stone wool insulation 80 kg/m ³	E 240 C/U, EI 45 C/U
Up to Ø 54 mm Copper pipe 0.9-14.2 mm wall	1200 x 600 mm		E 240 C/U
	2400 x 1200 mm		E 120 C/U
Ø 114 mm mild or stainless steel pipe 11-14.2 mm wall	600 x 1200 mm		E 240 C/C, EI 20 C/C
	2400 x 1200 mm		E 120 C/C, EI 20 C/C



Services	Maximum aperture	Insulation	Classification
Mild or stainless steel pipe			
Ø 40 mm/1.5-14.2 mm wall	600 x 1200 mm	20 mm Stone wool insulation 80 kg/m ³	E 240 C/U, EI 60 C/U
Ø 40 mm/1.5-14.2 mm wall		30 mm Stone wool insulation 80 kg/m ³	E 240 C/U, EI 90 C/U
Ø 50 mm/1.7-14.2 mm wall			
Ø 60 mm/1.8-14.2 mm wall			
Ø 75 mm/2.1-14.2 mm wall			
Ø 90 mm/2.3-14.2 mm wall			
Ø 100 mm/2.5-14.2 mm wall			
Ø 115 mm/2.8-14.2 mm wall			
Ø 140 mm/3.2-14.2 mm wall			
Ø 165 mm/3.6-14.2 mm wall			
Ø 180 mm/3.9-14.2 mm wall			
Ø 200 mm/4.2-14.2 mm wall			
Ø 219 mm/4.5-14.2 mm wall			
Ø 40 mm/1.5-14.2 mm wall	2400 mm wide by 1200 mm high	20 mm Stone wool insulation 80 kg/m ³	E 120 C/U, EI 60 C/U
Ø 40 mm/1.5-14.2 mm wall		30 mm Stone wool insulation 80 kg/m ³	E 120 C/U, EI 90 C/U
Ø 50 mm/1.7-14.2 mm wall			
Ø 60 mm/1.8-14.2 mm wall			
Ø 75 mm/2.1-14.2 mm wall			
Ø 90 mm/2.3-14.2 mm wall			
Ø 100 mm/2.5-14.2 mm wall			
Ø 115 mm/2.8-14.2 mm wall			
Ø 140 mm/3.2-14.2 mm wall			
Ø 165 mm/3.6-14.2 mm wall			
Ø 180 mm/3.9-14.2 mm wall			
Ø 200 mm/4.2-14.2 mm wall			
Ø 219 mm/4.5-14.2 mm wall			

Services	Maximum aperture	Insulation (minimum)	Classification			
Geberit Mepla MLC (PE-Xb/Aluminium/PE-HD pipe)						
Ø 16 mm/2.25 mm wall	75 x 75 mm	500 mm long, 20 mm Stone wool insulation 80 kg/m ³	E 240 C/C, EI 180 C/C			
Ø 16 mm/2.25 mm wall						
Ø 20 mm/2.5 mm wall						
Ø 26 mm/3.0 mm wall						
Ø 32 mm/3.0 mm wall						
Ø 40 mm/3.5 mm wall						
Ø 50 mm/4.0 mm wall						
Ø 63 mm/4.5 mm wall						
Ø 75 mm/4.7 mm wall						
Ø 16 mm/2.25 mm wall				600 x 1200 mm	500 mm long, 20 mm Stone wool insulation 80 kg/m ³	E 240 C/C, EI 90 C/C
Ø 20 mm/2.5 mm wall						
Ø 26 mm/3.0 mm wall						
Ø 32 mm/3.0 mm wall						
Ø 40 mm/3.5 mm wall						
Ø 50 mm/4.0 mm wall						
Ø 63 mm/4.5 mm wall						
Ø 75 mm/4.7 mm wall						
Ø 16 mm/2.25 mm wall	2400 x 1200 mm	500 mm long, 20 mm Stone wool insulation 80 kg/m ³	E 120 C/C, EI 90 C/C			
Ø 20 mm/2.5 mm wall						
Ø 26 mm/3.0 mm wall						
Ø 32 mm/3.0 mm wall						
Ø 40 mm/3.5 mm wall						
Ø 50 mm/4.0 mm wall						
Ø 63 mm/4.5 mm wall						
Ø 75 mm/4.7 mm wall						

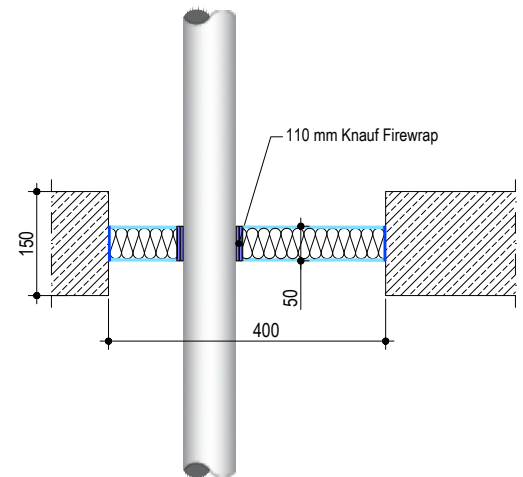
Single side penetration seal with pipes

› Pipe penetration seal with 1x Knauf FPC panel 2-S

Penetration Seal: Combustible pipes fitted at any position within the aperture, with 50 mm Knauf FPC panel 2-S at mid-depth of the floor. Knauf Firewraps are required to be fitted around combustible pipe insulation. Maximum aperture size 2400 mm x 1200 mm.

Services	Wrap	Classification
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1		
Ø 110 mm/ 3.4mm wall	50 x 3.6 mm Knauf Firewrap	EI 90 U/C, EI 90 C/C

Central penetration seal with pipes

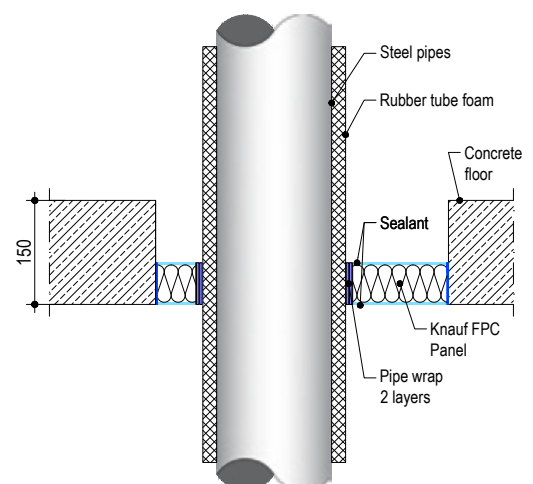


› Pipe penetration seal with 1x Knauf FPC panel 2-S

Penetration Seal: CS (Continuous Sustained) insulated metallic pipes fitted at any position within the aperture, with 60 mm Knauf FPC panel 2-S to either side of the floor (or anywhere in between). Knauf Firewraps are required to be fitted around combustible pipe insulation. Maximum aperture size 2400 mm x 1200 mm.

Services	Wrap	Insulation	Classification
Mild or stainless steel pipe			
Ø 165 mm/ 4.5-14.2 mm wall	50 x 3.6 mm Knauf Firewrap fitted at bottom of seal	13 mm elastomeric insulation min. class B-s3, d0	E 90 C/U, EI 45 C/U
		19 mm elastomeric insulation min. class B-s3, d0	EI 90 C/U
	Not required	25-40 mm stone wool 80 kg/m ³	E 90 C/U, EI 60 C/U

Single side penetration seal with pipes

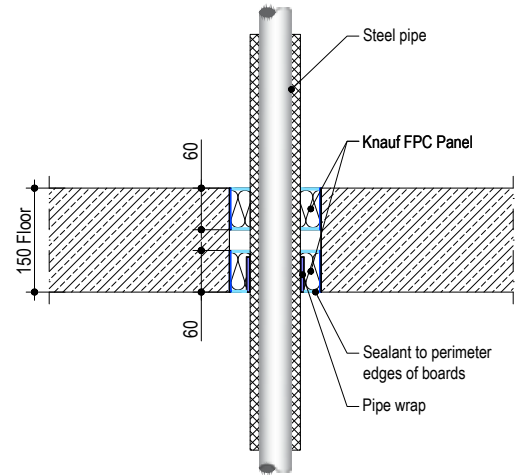


> **Pipe penetration seal with 2x Knauf FPC panel 2-S**

Penetration Seal: CS (Continuous Sustained) insulated metallic pipes fitted at any position within the aperture, with 60 mm Knauf FPC panel 2-S to both sides of the floor. Knauf Firewraps are required to be fitted around combustible pipe insulation at the soffit. Maximum aperture size 2400 mm x 1200 mm.

Services	Wrap	Insulation	Classification
Mild or stainless steel pipe			
Ø 40 mm/ 1-14.2 mm wall	50 x 1.8 mm Knauf Firewrap	13 mm elastomeric insulation min. class B-s3, d0	180 C/U, EI 120 C/U

Double side penetration seal with pipes

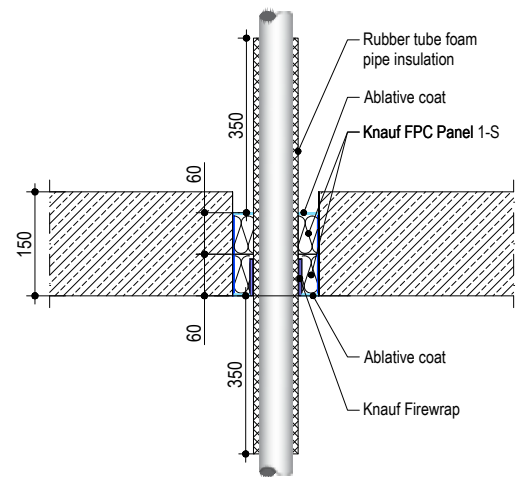


> **Pipe penetration seal with 2x Knauf FPC panel 2-S (back to back)**

Penetration Seal: CS (Continuous Sustained) insulated metallic and composite pipes fitted at any position within the aperture, with two layers of 60 mm Knauf FPC panel 1-S installed together to either side of the floor (or anywhere in between). Knauf Firewraps are required to be fitted around combustible pipe insulation at the bottom of the seal. Maximum aperture size 2400 mm x 1200 mm.

Services	Wrap	Insulation	Classification			
Copper pipe						
Ø 12-54 mm/1.0-1.2 mm wall	50 x 3.6 mm Knauf Firewrap fitted to both sides of the seal	9-13 mm elastomeric insulation min. class B-s3, d0	E240 C/C, EI 60 C/C			
Ø 12-54 mm/1.0-1.2 mm wall		13-25 mm elastomeric insulation min. class B-s3, d0	E 180 C/C, EI 45 C/C			
Geberit Mepla MLC (PE-Xb/Aluminium/PE-HD pipe)						
Ø 16 mm/2.25 mm wall	50 x 3.6 mm Knauf Firewrap fitted to both sides of the seal	9 mm elastomeric insulation min. class B-s3, d0	EI 120 C/C			
Ø 20 mm/2.5 mm wall						
Ø 26 mm/3.0 mm wall						
Ø 32 mm/3.0 mm wall						
Ø 40 mm/3.5 mm wall						
Ø 50 mm/4.0 mm wall						
Ø 63 mm/4.5 mm wall						
Ø 75 mm/4.7 mm wall						
Ø 16 mm/2.25 mm wall				50 x 3.6 mm Knauf Firewrap fitted to both sides of the seal	13-25 mm elastomeric insulation min. class B-s3, d0	E 60 C/C, EI 45 C/C
Ø 20 mm/2.5 mm wall						
Ø 26 mm/3.0 mm wall						
Ø 32 mm/3.0 mm wall						
Ø 40 mm/3.5 mm wall						
Ø 50 mm/4.0 mm wall						
Ø 63 mm/4.5 mm wall						
Ø 75 mm/4.7 mm wall						

Back to back penetration seal with pipes



PENETRATION SEALS | TIMBER FLOOR CONSTRUCTIONS

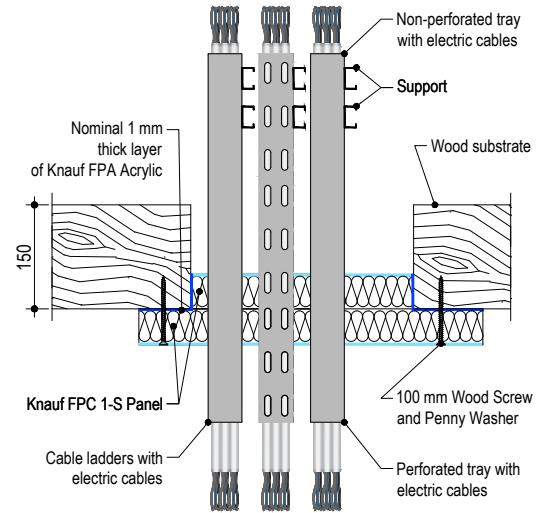
WITH FLOOR THICKNESS OF MINIMUM 150 MM

> Cable penetration seal with 2x Knauf FPC Panel 1-S

Penetration Seal: Cables fitted at any position within the aperture, with 2 layers of 50 mm Knauf FPC Panel 1-S within the floor with the coated sides downwards. The external board layer has a minimum 100 mm overlap all around the aperture.

Services	Maximum aperture	Classification
Electrical cables up to Ø 21 mm (single, bundled and on trays)	1200 mm wide x 600 mm high	E 90, EI 45
Electrical cables up to Ø 50 mm (single, bundled and on trays)		E 90, EI 60
Electrical cables up to Ø 80 mm (single, bundled and on trays)		
Cables up to Ø 21 mm in tied bundles up to Ø 100mm		E 90, EI 30
Steel cable trays & ladders		
Non-sheathed wires up to Ø 24 mm		
PE-X pipe-in-pipe up to Ø 25 mm / 1.0 mm wall	EI 90 C/C	

Back to back penetration seal with cables



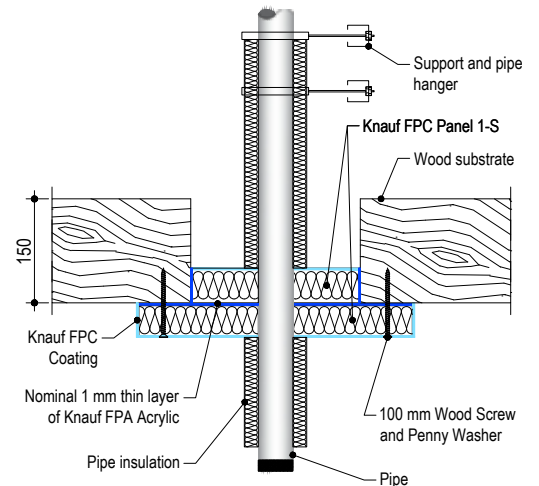
5

> Pipe penetration seal with 2x Knauf FPC Panel 1-S

Penetration Seal: 500 mm (min.)* LI (Local Interrupted) or CI (Continuous Interrupted) insulated metallic pipes fitted at any position within the aperture, with 2 layers of 50 mm Knauf FPC Panel 1-S within the floor with the coated sides downwards. The external board layer has a minimum 100 mm overlap all around the aperture.

Services	Maximum aperture	Insulation, minimum thickness and density	Classification
Mild or stainless steel pipe			
Ø 60 mm	1200 mm x 600 mm	20 mm glass or stone wool insulation 75 kg/m ³	E 90 C/U, EI 60 C/U
Ø 273 mm		25 mm glass or stone wool insulation 75 kg/m ³	E 90 C/U, EI 60 C/U
Copper or steel pipes			
Ø 15 mm	1200 mm x 600 mm	20 mm glass or stone wool insulation 75 kg/m ³	EI 90 C/C
Ø 54 mm			
Alupex pipes			
Ø 16 mm	1200 mm x 600 mm	20 mm glass or stone wool insulation 75 kg/m ³	E 90 C/C, EI 60 C/C
Ø 75 mm		25 mm glass or stone wool insulation 75 kg/m ³	

Back to back penetration seal with pipes



PENETRATION SEALS | FLEXIBLE OR RIGID WALL CONSTRUCTIONS

WALL CONSTRUCTIONS

WITH WALL THICKNESS OF MINIMUM 75 MM

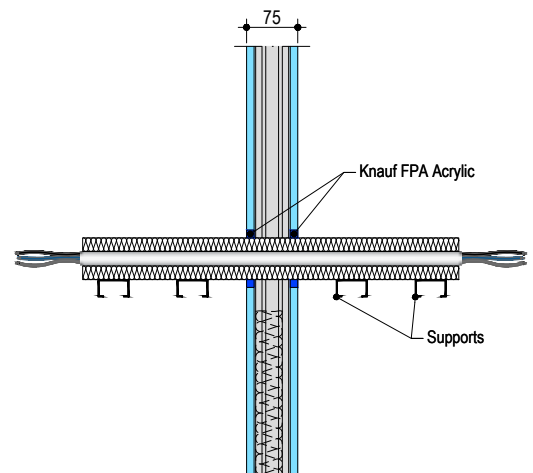
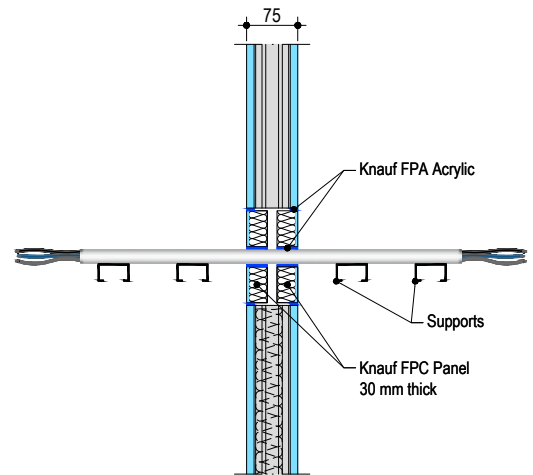
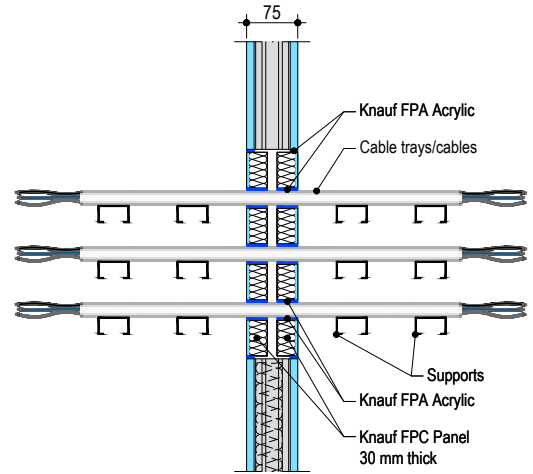
> Cable penetration seal with 2x Knauf FPC panel 30 1-S

Penetration Seal: Cables fitted at any position within the aperture, with 30 mm Knauf FPC panel 1-S to both sides of the wall. Minimum 30 mm separation between pipes.

Services	Maximum aperture	Classification
Electrical cables up to Ø 21 mm (single, bundled and on trays)	1200 mm wide x 600 mm high	EI 45
Electrical cables up to Ø 80 mm (single, bundled and on trays)		E 45, EI 30
Cables including telecoms up to Ø 21 mm in tied bundles up to Ø 100mm		
Steel cable trays & ladders		
Unsheathed wires up to Ø 24 mm		E 45, EI 20
Plastic conduits maximum Ø 32 mm	EI 45	

Services	Maximum aperture	Insulation	Classification
Mild or stainless steel pipe			
Ø 4 mm/0.7-14.2 mm wall	1200 mm wide x 600 mm high	-	EI 45 C/U
Ø 22 mm/2.0-14.2 mm wall			E 45 C/U, EI 30 C/U
Ø 40 mm/1.0-14.2 mm wall		20 mm Stone wool insulation 80 kg/m ³	EI 45 C/U
Ø 40 mm/1.0-14.2 mm wall		30 mm Stone wool insulation 80 kg/m ³	EI 45 C/U
Ø 50 mm/1.7-14.2 mm wall			
Ø 60 mm/1.8-14.2 mm wall			
Ø 75 mm/2.1-14.2 mm wall			
Ø 90 mm/2.3-14.2 mm wall			
Ø 100 mm/2.5-14.2 mm wall			
Ø 115 mm/2.8-14.2 mm wall			
Ø 140 mm/3.2-14.2 mm wall			
Ø 165 mm/3.6-14.2 mm wall			
Ø 180 mm/3.9-14.2 mm wall			
Ø 200 mm/4.2-14.2 mm wall			
Ø 219 mm/4.5-14.2 mm wall			
Ø 250 mm/5.0-14.2 mm wall			
Ø 300 mm/5.9-14.2 mm wall			
Ø 324 mm/6.35-14.2 mm wall			

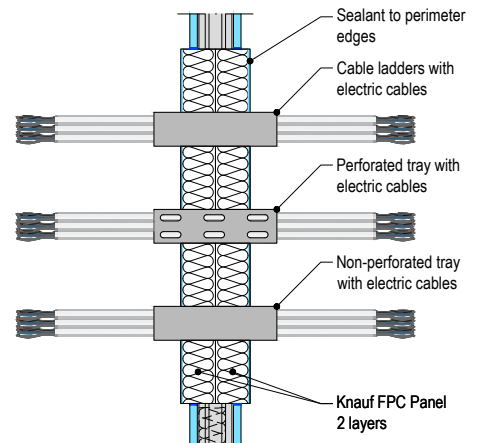
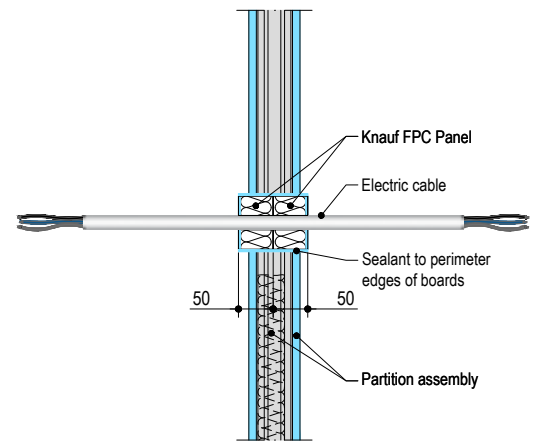
Double side penetration seal with cables



> **Cable penetration seal with 2x Knauf FPC Panel 1-S**

Penetration Seal: Cables fitted at any position within the aperture, with 50 mm Knauf FPC Panel 1-S to both sides of the wall.

Services	Maximum aperture	Classification
-	As section 2. 5)	EI 60
Single electrical cables up to Ø 21 mm		E 60, EI 45
Electrical cables up to Ø 80 mm (single, bundled and on trays)		EI 60
Cables up to Ø 21 mm in tied bundles up to Ø 100mm		EI 60 C/U
Steel cable trays & ladders		E 60 C/U, EI 45 C/U
Steel conduit up to Ø 16 mm		E 60, EI 30
Copper conduit up to Ø 16 mm		EI 60 C/U, EI 60 C/C
Unsheathed wires up to Ø 24 mm		
Plastic conduits up to Ø 16 mm		



PENETRATION SEALS | FLEXIBLE OR RIGID WALL CONSTRUCTIONS

WITH WALL THICKNESS OF MINIMUM 100 MM

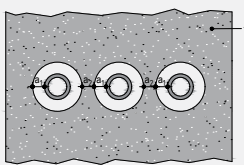
> Cable penetration seal with 2x Knauf FPC panel 1-S

Penetration Seal: Cables fitted at any position within the aperture, with 50 mm Knauf FPC panel 1-S to both sides of the wall.

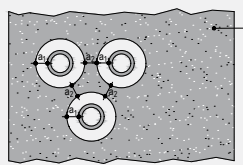
Note: Insulated metal pipes may also be included within the same seal as cables subject to minimum 100 mm separation. See separate classification for pipes.

Services	Maximum aperture	Classification
-	As section 2. 5)	EI 120
Single electrical cables up to Ø 21 mm		E 120, EI 60
Electrical cables up to Ø 80 mm (single, bundled and on trays)		EI 60
Cables up to Ø 21 mm in tied bundles up to Ø 100mm		
Steel cable trays & ladders		EI 60 C/U
Steel conduit up to Ø 16 mm		
Copper conduit up to Ø 16 mm		E 60 C/U, EI 45 C/U
Unsheathed wires up to Ø 24 mm		E 60, EI 30
Plastic conduits up to Ø 16 mm		EI 60 C/U, EI 60 C/C

Configuration 1

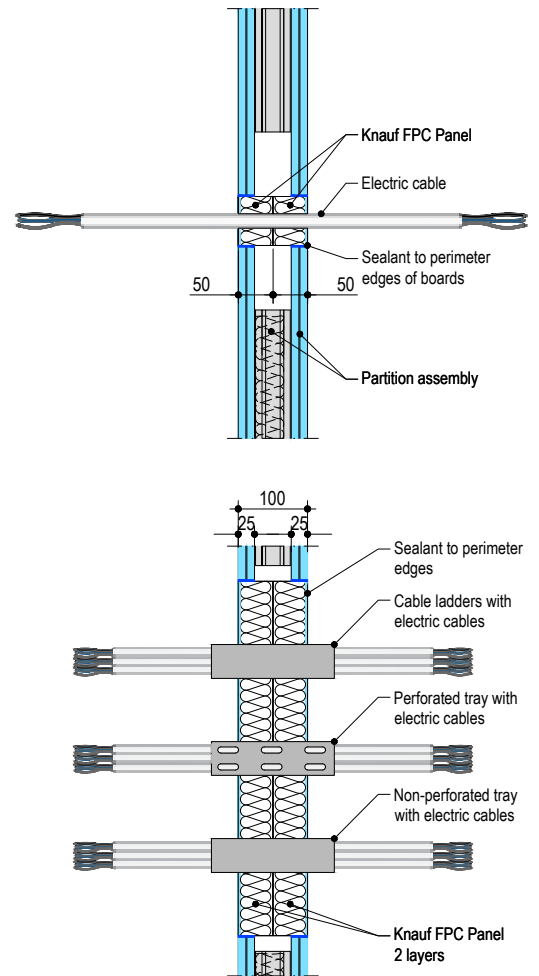


Configuration 2



Key

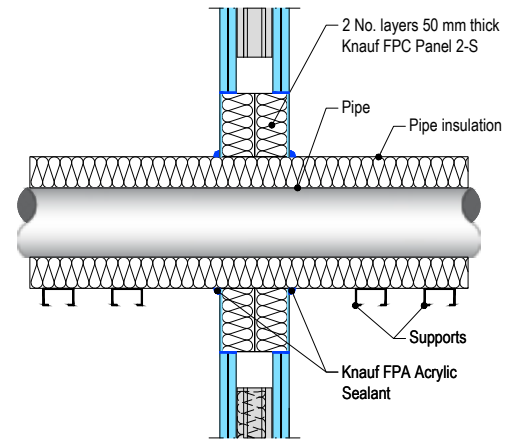
- 1 Supporting construction
- a1 Pipe / top edge of seal separation
- a2 Pipe / side edge of seal separation
- a3 Pipe / pipe separation



› Pipe penetration seal with 2x Knauf FPC panel 1-S

Penetration Seal: CS insulated metallic pipes fitted at any position within the aperture, with 50 mm Knauf FPC panel 1-S to both sides of the wall. Minimum separation between penetration seals and seal edges of 30 mm.

Services	Insulation	Classification
Mild or stainless steel pipe		
Ø 40 mm/1.0-14.2 mm wall	20 mm thick stone, mineral wool 80 kg/m ³	EI 120 C/U
Ø 40 mm/1.0-14.2 mm wall		
Ø 50 mm/1.2-14.2 mm wall		
Ø 60 mm/1.4-14.2 mm wall		
Ø 75 mm/1.6-14.2 mm wall		
Ø 90 mm/1.9-14.2 mm wall		
Ø 100 mm/2.1-14.2 mm wall		
Ø 115 mm/2.4-14.2 mm wall		
Ø 140 mm/2.9-14.2 mm wall		
Ø 165 mm/3.4-14.2 mm wall		
Ø 180 mm/3.6-14.2 mm wall		
Ø 200 mm/4.0-14.2 mm wall		
Ø 219 mm/4.3-14.2 mm wall		
Ø 250 mm/5.0-14.2 mm wall		
Ø 300 mm/5.9-14.2 mm wall		
Ø 324 mm/6.35-14.2 mm wall		
30-80 mm thick stone, mineral wool min. 80 kg/m ³		
PEX pipe in pipe system		
Ø 15 mm x 2.5 mm wall inner / Ø 25mm outer	-	EI 90 C/C
Mild or stainless steel pipe		
Ø 4 mm	-	EI 120 C/U
Ø 5-22 mm	-	E 120 C/U, EI 60 C/U
Copper, mild or stainless steel pipe		
Up to Ø 6 mm/0.7-14.2 mm wall	-	E 120 C/C, EI 60 C/C
Up to Ø 15 mm/0.7-7.5 mm wall	20 mm thick glass or stone wool min. 75 kg/m ³	EI 60 C/C
Ø 16-54 mm/0.7-14.2 mm wall		E 60 C/C, EI 45 C/C
Up to Ø 54 mm/0.7-14.2 mm wall	40 mm thick glass or stone wool min. 75 kg/m ³	EI 60 C/C
Alupex pipe		
Ø 16-20 mm/2.0 mm wall	-	EI 120 C/C
Ø 16 mm/2.0-2.25 mm wall	20 mm thick glass or stone wool min. 75 kg/m ³	E 120 C/C, EI 90 C/C
Ø 16-75 mm	25-60 mm thick glass or stone wool min. 75 kg/m ³	E 120 C/C, EI 90 C/C
PVC-U ¹⁾ pipe		
Ø 6 mm	-	EI 120 U/C
Ø 7-32 mm		EI 60 U/C
Ø 32 mm		EI 90 U/C
PE ²⁾ pipe		
Ø 20 mm/2.0 mm wall	-	E 120 U/C, EI 90 U/C
Ø 21-32 mm/2.0-3.0 mm wall		EI 60 U/C
Ø 32 mm/3.0 mm wall		EI 90 U/C
PP pipe		
Ø 20 mm/2.2 mm wall	-	E 120 U/C, EI 60 U/C
Up to Ø 32 mm/1.8 mm wall		



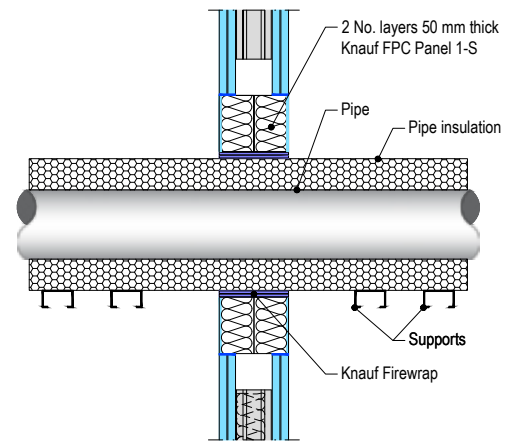
¹⁾ PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1
²⁾ PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1

› Pipe penetration seal with 2x Knauf FPC panel 1-S

Penetration Seal: CS insulated metallic pipes fitted at any position within the aperture, with 50 mm Knauf FPC panel 1-S to both sides of the wall. Minimum separation between penetration seals and seal edges of 30 mm. Knauf Firewraps are required to be fitted around the pipe insulation.

Services	Insulation	Knauf Firewrap	Classification
Mild or stainless steel pipe			
Ø 40 mm/1.0-14.2 mm wall	32-50 mm thick Elastomeric insulation minimum class B-s3, d0 or PE Foam insulation	3 layers 50 x 1.8 mm	EI 90 C/U
Ø 50 mm/1.2-14.2 mm wall			
Ø 60 mm/1.4-14.2 mm wall			
Ø 75 mm/1.6-14.2 mm wall			
Ø 90 mm/1.9-14.2 mm wall			
Ø 100 mm/2.1-14.2 mm wall			
Ø 115 mm/2.4-14.2 mm wall			
Ø 140 mm/2.9-14.2 mm wall			
Ø 165 mm/3.4-14.2 mm wall			
Ø 180 mm/3.6-14.2 mm wall			
Ø 200 mm/4.0-14.2 mm wall			
Ø 219 mm/4.3-14.2 mm wall			
Ø 250 mm/5.0-14.2 mm wall			
Ø 300 mm/5.9-14.2 mm wall			
Ø 324 mm/6.35-14.2 mm wall			

Double side penetration seal with cables

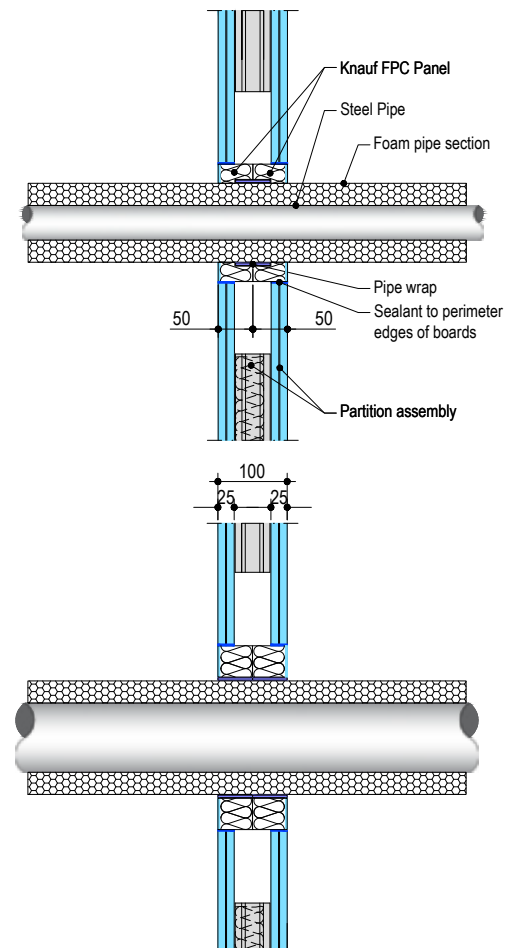


› Pipe penetration seal with 2x Knauf FPC panel 1-S

Penetration Seal: CS insulated metallic pipes fitted at any position within the aperture, with 50 mm Knauf FPC panel 1-S to both sides of the wall. Knauf Firewraps are required to be fitted around the pipe insulation.

Services	Wrap	Insulation	Classification
Mild or stainless steel pipe			
Up to Ø 40 mm/1.0-14.2 mm wall	50 x 1.8 mm Knauf Firewrap fitted centrally	13 mm elastomeric insulation minimum class B-s3, d0 or PE Foam insulation	EI 120 U/C, EI 120 U/U, EI 120 C/U, EI 120 C/C
Up to Ø 40 mm/1.0-14.2 mm wall	2 off 50 x 3.6 mm Knauf Firewrap, one fitted flush to each face of seal	13 – 32 mm elastomeric insulation minimum class B-s3, d0 or PE Foam insulation	E 120 U/C, E 120 U/U, E 120 C/U, E 120 C/C, EI 60 U/C, EI 60 U/U, EI 60 C/U, EI 60 C/C
Ø 50 mm/1.3-14.2 mm wall			
Ø 60 mm/1.6-14.2 mm wall			
Ø 75 mm/2.0-14.2 mm wall			
Ø 90 mm/2.4-14.2 mm wall			
Ø 100 mm/2.7-14.2 mm wall			
Ø 115 mm/3.1-14.2 mm wall			
Ø 140 mm/3.8-14.2 mm wall			
Ø 165 mm/4.5-14.2 mm wall			

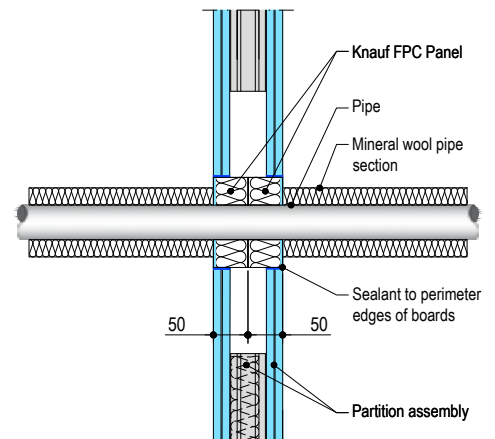
Two layer penetration seal with pipes



> Pipe penetration seal with 2x Knauf FPC panel 1-S

Penetration Seal: 500 mm (min.)* LI (Local Interrupted) or CI (Continuous Interrupted) insulated or uninsulated metallic and composite pipes (single) fitted at any position within the aperture, with 50 mm Knauf FPC panel 1-S to both sides of the wall.

Services	Insulation (minimum thickness and density)	Classification
Copper pipe up to Ø 54 mm/1-14.2 mm wall	20 mm stone wool 80 kg/m ³	EI 120 C/C
Mild or stainless steel pipe Ø 114 mm/ 11 mm wall	-	E 90 C/U, EI 20 C/U
Mild or stainless steel pipe		
Ø 40 mm/1.0-14.2 mm wall	20 mm stone wool 80 kg/m ³	EI 120 C/U
Ø 40 mm/1.0-14.2 mm wall	30 mm stone wool 80 kg/m ³	E 120 C/U, EI 90 C/U
Ø 50 mm/1.2-14.2 mm wall		
Ø 60 mm/1.4-14.2 mm wall		
Ø 75 mm/1.7-14.2 mm wall		
Ø 90 mm/2.0-14.2 mm wall		
Ø 100 mm/2.2-14.2 mm wall		
Ø 115 mm/2.5-14.2 mm wall		
Ø 140 mm/3.0-14.2 mm wall		
Ø 165 mm/3.5-14.2 mm wall		
Ø 180 mm/3.8-14.2 mm wall		
Ø 200 mm/4.2-14.2 mm wall		
Ø 219 mm/4.5-14.2 mm wall		
Alupex pipe		
Ø 16 mm/2.25 mm wall	20 mm stone wool 80 kg/m ³	EI 120 C/C
Ø 20 mm/2.5 mm wall		EI 60 C/C
Ø 26 mm/3.0 mm wall		
Ø 32 mm/3.0 mm wall		
Ø 40 mm/3.5 mm wall		
Ø 50 mm/4.0 mm wall		
Ø 63 mm/4.5 mm wall		
Ø 75 mm/4.7 mm wall		

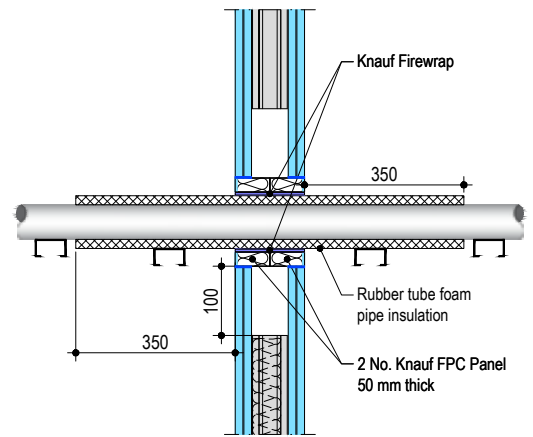


› **Pipe penetration seal with 2x Knauf FPC Panel 1-S**

Penetration Seal: LS (Local Sustained) or CS (Continuous Sustained) insulated metallic and composite pipes fitted at any position within the aperture, with 50 mm Knauf FPC Panel 1-S to both sides of the wall. Knauf Firewraps are required to be fitted around the pipe to both sides of the seal.

Services	Wrap	Insulation	Classification
Mild or stainless steel pipe			
Ø 16 mm/1.0 mm wall	50 x 1.8 mm Knauf Firewrap fitted to both sides of the seal	15 mm phenolic foam insulation (CS)	EI 90 C/U
Ø 16-273 mm/1.0-14.2 mm wall		25-100 mm phenolic foam insulation (CS)	
Copper pipe			
Ø 12 mm/1 mm wall	50 x 3.6 mm Knauf Firewrap fitted to both sides of the seal	9 mm elastomeric insulation minimum class B-s3, d0 or PE Foam insulation (LS and CS)	EI 120 C/C
Ø 12-54 mm/1-1.2 mm wall		9-13 mm elastomeric insulation minimum class B-s3, d0 or PE Foam insulation (LS and CS)	E 120 C/C, EI 90 C/C
Ø 12-54 mm/1-1.2 mm wall		13-25 mm elastomeric insulation minimum class B-s3, d0 or PE Foam insulation (LS and CS)	E 120 C/C, EI 60 C/C
Alupex pipe			
Ø 16 mm/2.25 mm wall	50 x 3.6 mm Knauf Firewrap fitted to both sides of the seal	9-25 mm elastomeric insulation minimum class B-s3, d0 or PE Foam insulation	EI 120 C/C
Ø 20 mm/2.5 mm wall			
Ø 26 mm/3 mm wall			
Ø 32 mm/3 mm wall			
Ø 40 mm/3.5 mm wall			
Ø 50 mm/4 mm wall			
Ø 63 mm/4.5 mm wall			
Ø 75 mm/4.7 mm wall			
Ø 25 mm/2.5 mm wall	13 mm polyethylene foam with plastic sheaving	E 90 C/C, EI 60 C/C	

Two layer penetration seal with pipes



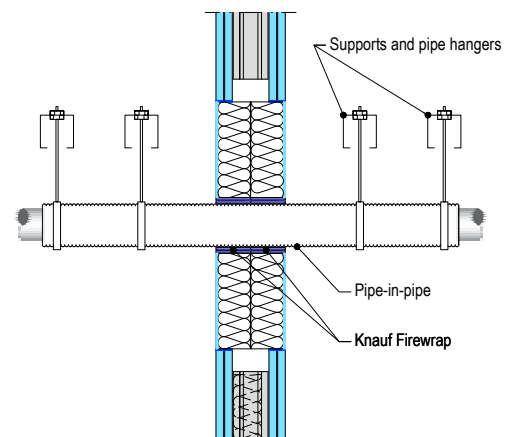
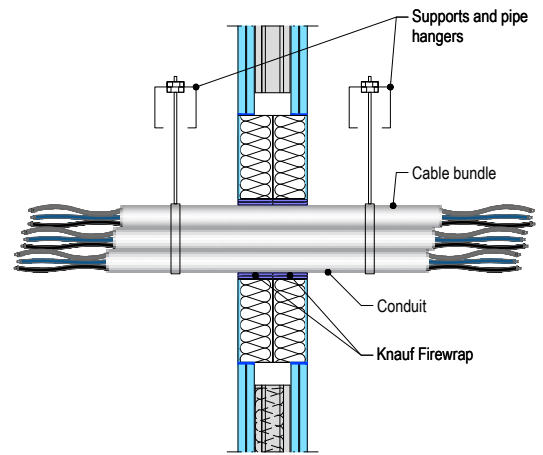
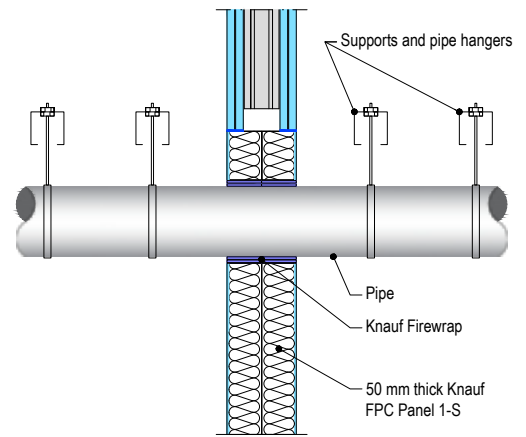
Services	Outer diameter including insulation	Pipe wrap	Pipe insulation	Classification
PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1				
Maximum Ø 160 mm pipe	Maximum Ø 68 mm	50 x 3.6 mm Knauf Firewrap fitted to both sides of the seal	9-50 mm Elastomeric insulation minimum class B-s3, d0 or PE Foam insulation	EI 60 C/C
	Maximum Ø 178 mm	50 x 10.8 mm Knauf Firewrap fitted to both sides of the seal		
	Maximum Ø 260 mm	50 x 18.0 mm Knauf Firewrap fitted to both sides of the seal		
PP pipe according to EN 1852-1: 2009				
Maximum Ø 160 mm pipe	Maximum Ø 68 mm	50 x 3.6 mm Knauf Firewrap fitted to both sides of the seal	9-50 mm Elastomeric insulation minimum class B-s3, d0 or PE Foam insulation	EI 60 C/C
	Maximum Ø 178 mm	50 x 10.8 mm Knauf Firewrap fitted to both sides of the seal		
	Maximum Ø 260 mm	50 x 18.0 mm Knauf Firewrap fitted to both sides of the seal		

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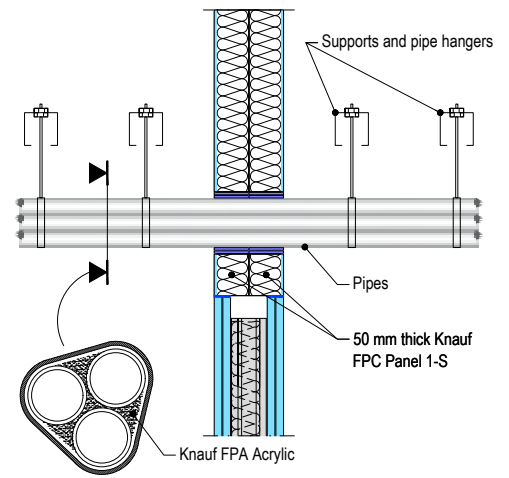
› Knauf Firewrap penetration seal for plastic pipes, in 2x Knauf FPC Panel 1-S, in flexible or rigid walls

Penetration Seal: Combustible pipes sealed with Knauf Firewrap, to both sides of the wall. Minimum separation between penetration seals and seal edges of 30 mm. (Configuration 1 & 2).

Services	Wraps (both sides)	Permitted configuration for seal separation	Classification
PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1 and PVC-C according to EN 1566-1			
Diameter up to 40 mm, wall thickness 1.9 – 3.0 mm	50 x 1.8 mm (1 layer)	1 & 2	EI 120 U/U, EI 120 C/U, EI 120 U/C, EI 120 C/C
Diameter up to 110 mm, wall thickness 2.7 - 6.6 mm	50 x 3.6 mm (2 x 1.8 layer)		E 120 U/C, E 120 C/C, EI 90 U/C, EI 90 C/C
Diameter up to 125 mm, wall thickness 3.7 – 7.4 mm	50 x 5.4 mm (3 x 1.8 layer)		E 90 U/C, E 90 C/C, EI 60 U/C, EI 60 C/C
Diameter up to 160 mm, wall thickness 9.5 mm	50 x 7.2 mm (4 x 1.8 layer)		EI 90 C/C
Diameter up to 160 mm, wall thickness 4.0-9.5 mm	50 x 10.8 mm (6 x 1.8 layer)		E 120 U/C, EI 90 U/C
Diameter up to 200 mm, wall thickness 4.9-11.9 mm	50 x 10.8 mm (6 x 1.8 layer)		EI 90 U/C
Diameter up to 315 mm, wall thickness 7.7-12.1 mm	50 x 18 mm (10 x 1.8 layers)		
Diameter up to 400 mm, wall thickness 9.8-15.3 mm	50 x 28.8 mm (16 x 1.8 layers)		
Diameter up to 110 mm, wall thickness 2.7–6.6 mm, fully or partially filled conduits with cables up to 14 mm diameter	50 x 3.6 mm (2 x 1.8 layers)		
Diameter up to 32 mm Ø, wall thickness 1.5-2.4 mm with or without cables up to 14 mm Ø, in pipe bundles up to 110 mm Ø ¹⁾	50 x 3.6 mm (2 x 1.8 layers)		
PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1			
Diameter up to 40 mm, wall thickness 2.4 – 3.7 mm	50 x 1.8 mm (1 layer)	1 & 2	EI 120 U/U, EI 120 C/U, EI 120 U/C, EI 120 C/C
Diameter up to 110 mm, wall thickness 4.2 - 10 mm	50 x 3.6 mm (2 x 1.8 layer)		E 120 U/C, E 120 C/C, EI 90 U/C, EI 90 C/C
Diameter up to 125 mm, wall thickness 4.8 – 12 mm	50 x 5.4 mm (3 x 1.8 layer)		E 90 U/C, E 90 C/C, EI 60 U/C, EI 60 C/C
Diameter up to 160 mm, wall thickness 14.6 mm	50 x 7.2 mm (4 x 1.8 layer)		EI 90 C/C
Diameter up to 160 mm, wall thickness 4.9-14.6 mm	50 x 10.8 mm (6 x 1.8 layer)		E 120 U/C, EI 90 U/C
Diameter up to 200 mm, wall thickness 6.2-18.2 mm	50 x 10.8 mm (6 x 1.8 layer)		EI 60 C/C
Diameter up to 315 mm, wall thickness 18.7 mm	50 x 18 mm (10 x 1.8 layers)		
Diameter up to 400 mm, wall thickness 23.7 mm	50 x 28.8 mm (16 x 1.8 layers)		
Diameter up to 110 mm, wall thickness 4.2–10 mm, fully or partially filled conduits with cables up to 14 mm diameter	50 x 3.6 mm (2 x 1.8 layers)		
Diameter up to 40 mm Ø, wall thickness 2.0-3.7 mm with or without cables up to 14 mm Ø, in pipe bundles up to 110 mm Ø ¹⁾	50 x 3.6 mm (2 x 1.8 layers)		



Services	Wraps (both sides)	Permitted configuration for seal separation	Classification
PP pipe according to EN 1852-1: 2009			
Diameter up to 40 mm, wall thickness 1.8 – 5.5 mm	50 x 1.8 mm (1 layer)	1 & 2	EI 120 U/U, EI 120 C/U, EI 120 U/C, EI 120 C/C
Diameter up to 110 mm, wall thickness 2.7 - 15.1 mm	50 x 3.6 mm (2 x 1.8 layer)		EI 90 U/U, EI 90 C/U, EI 90 U/C, EI 90 C/C
Diameter up to 125 mm, wall thickness 3.1 – 17.1 mm	50 x 5.4 mm (3 x 1.8 layer)		E 120 U/C, E 120 C/C EI 90 U/C, EI 90 C/C
Diameter up to 160 mm, wall thickness 21.9 mm	50 x 7.2 mm (4 x 1.8 layer)		EI 60 U/C, EI 60 C/C
Diameter up to 160 mm, wall thickness 4.9-21.9 mm	50 x 10.8 mm (6 x 1.8 layer)		EI 90 C/C
Diameter up to 200 mm, wall thickness 4.9-18.2 mm	50 x 10.8 mm (6 x 1.8 layer)		EI 60 C/C
Diameter up to 315 mm, wall thickness 28.6 mm	50 x 18 mm (10 x 1.8 layers)		E 120 U/C, EI 90 U/C
Diameter up to 110 mm, wall thickness 2.7–15.1 mm, fully or partially filled conduits with cables up to 14 mm diameter	50 x 3.6 mm (2 x 1.8 layers)		EI 90 U/C
Diameter up to 40 mm Ø, wall thickness 1.8-2.0 mm with or without cables up to 14 mm Ø, in pipe bundles up to 110 mm Ø ¹⁾	50 x 3.6 mm (2 x 1.8 layers)		
Uponor Wirsbo PEX double pipe in pipe system according to ISO 15875			
Diameter up to 54 mm/4.0 mm wall thickness (outer pipe), 28 mm diameter/0.4 mm wall thickness (inner pipe)	50 x 3.6 mm (2 x 1.8 layers)	1 & 2	EI 120 C/C
Diameter up to 25 mm pipes, wall thickness 0.6 mm, in bundles up to 50 mm	50 x 3.6 mm (2 x 1.8 layers)		EI 90 C/C
Uponor Decibel pipe according to EN 1451-1			
50 mm diameter/2.0 mm wall thickness	50 x 3.6 mm (2 x 1.8 layers)	1 & 2	EI 90 U/U
75-110 mm diameter/2.6-3.8 mm wall thickness			EI 90 U/C
BluePower Multilayer pipe according to EN 1451-1			
32-50 mm diameter/1.8 mm wall thickness	50 x 3.6 mm (2 x 1.8 layers)	1 & 2	EI 90 U/U
75-110 mm diameter/3.4 mm wall thickness			EI 90 C/U
125-160 mm diameter/3.9-4.9 mm wall thickness			EI 90 U/C
Rehau Raupiano Plus PP-DD according to DIN 4102			
40-50 mm diameter/1.8-2.7 mm wall thickness	50 x 3.6 mm (2 x 1.8 layers)	1 & 2	EI 120 U/U
75-110 mm diameter/2.7 mm wall thickness			EI 120 U/C
125 mm diameter/3.9 mm wall thickness			
160 mm diameter/3.9 mm wall thickness			



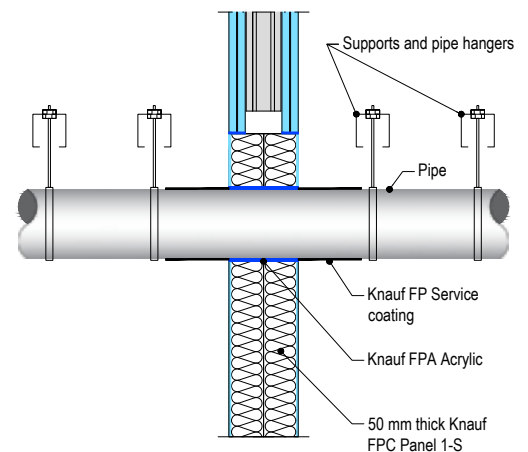
Services	Wraps (both sides)	Permitted configuration for seal separation	Classification
Polo-Kal NG Poloplast PP-MV according to DIN 4102			
32-50 mm diameter/2.0-3.4 mm wall thickness	50 x 3.6 mm (2 x 1.8 layer)	1 & 2	EI 120 U/U
75-110 mm diameter/3.4 mm wall thickness			
125 mm diameter/3.9 mm wall thickness	50 x 7.2 mm (4 x 1.8 layers)		EI 120 U/C
160 mm diameter/4.9 mm wall thickness	50 x 10.8 mm (6 x 1.8 layers)		
Aquatherm Green SDR9 MF PP-RP according to ISO 21003			
32 mm diameter/3.0 mm wall thickness	50 x 1.8 mm (1 x 1.8 layer)	1 & 2	E 120 C/C, EI 90 C/C
40-50 mm diameter/5.6-12.3 mm wall thickness	50 x 3.6 mm (2 x 1.8 layers)		
63-110 mm diameter/12.3 mm wall thickness			
Wavin SiTech + PP-M B according to EN 13501-1			
32-50 mm diameter/1.8-3.4 mm wall thickness	50 x 3.6 mm (2 x 1.8 layers)	1 & 2	E 120 U/U, EI 90 U/U
75-110 mm diameter/3.4 mm wall thickness			E 120 U/C, EI 60 U/C
Gilbert Silent PP according to DIN 4102			
32-50 mm diameter/1.8-3.4 mm wall thickness	50 x 3.6 mm (2 x 1.8 layers)	1 & 2	EI 120 U/U
75-110 mm diameter/3.4 mm wall thickness			EI 120 U/C

¹⁾ PVC, PE and PP pipes can be mixed in the same bundle.

› Knauf FP Service coating penetration seal for steel pipes, in 2x Knauf FPC Panel 1-S, in flexible or rigid walls

Penetration Seal: Metallic pipes with Knauf FP Service coating fitted at any position within the aperture, with 50 mm Knauf FPC Panel 1-S to both sides of the wall. Minimum separation between penetration seals and seal edges of 30 mm. (Configuration 1 & 2).

Services	Insulation, minimum	Classification
Mild or stainless steel pipe		
Maximum Ø 63 mm	Knauf FP Service coating, 750-micron DFT extending 200 mm from both faces of the Knauf FPC Panel fire seal	EI 120 C/C
	Knauf FP Service coating, 1500-micron DFT extending 200 mm from both faces of the Knauf FPC Panel fire seal	E 90 C/U, EI 60 C/U
Maximum Ø 114 mm	Knauf FP Service coating, 1000-micron DFT extending 200 mm from both faces of the Knauf FPC Panel fire seal	E 120 C/U, EI 45 C/U



› Cable penetration seal with 1x Knauf FPC panel 50 2-S in framed aperture

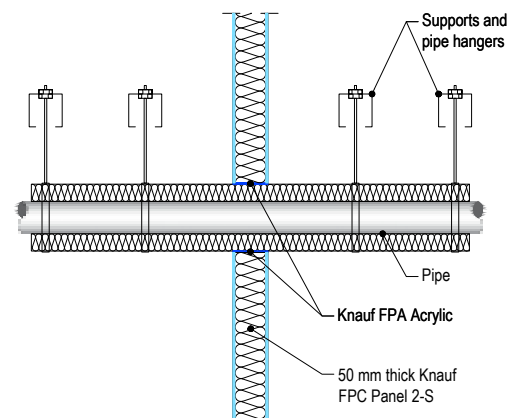
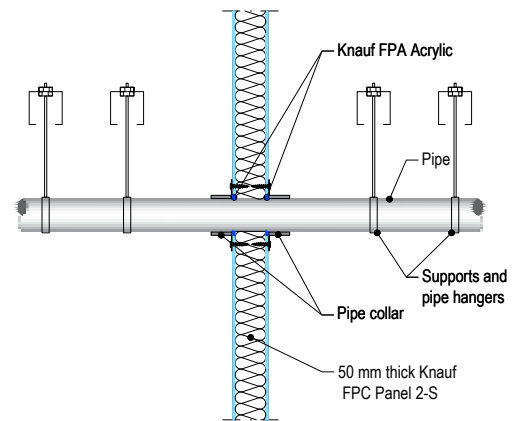
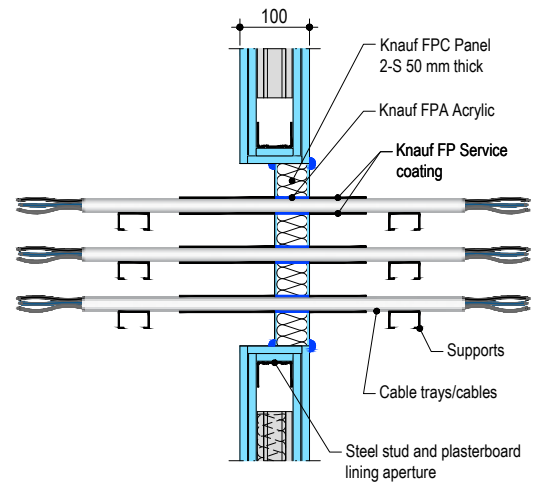
Penetration Seal: Services fitted at any position within the aperture, with 50 mm Knauf FPC Panel 2-S positioned to either face of the wall (or anywhere in between). Minimum 30 mm separation between pipes. Knauf Firecollars fixed with 50mm pigtail screws. Cables and cable trays coated 150mm each side of FR Board with nominally 300-m WFT Knauf FP Service coating. In rigid wall constructions the wall thickness can be minimum 75 mm.

Services	Maximum aperture	Classification
Electrical cables up to Ø 80 mm (single, bundled and on trays)	1200 mm wide x 600 mm high	Ei 60
Cables up to Ø 21 mm in tied bundles up to Ø 100mm		
Perforated Steel cable trays & ladders		E 60, Ei 45
Unperforated steel cable trays		
Unsheathed wires up to Ø 24 mm		

Services	Maximum aperture	Insulation CS	Classification
Mild or stainless steel pipe			
Ø 40 mm/1.0-14.2 mm wall	1200 mm wide x 600 mm high	30 mm Stone wool insulation 80 kg/m ³	E 90 C/U, Ei 60 C/U
Ø 40 mm/1.0-14.2 mm wall			
Ø 50 mm/1.7-14.2 mm wall			
Ø 60 mm/1.8-14.2 mm wall			
Ø 75 mm/2.1-14.2 mm wall			
Ø 90 mm/2.3-14.2 mm wall			
Ø 100 mm/2.5-14.2 mm wall			
Ø 115 mm/2.8-14.2 mm wall			
Ø 140 mm/3.2-14.2 mm wall			
Ø 165 mm/3.6-14.2 mm wall			
Ø 180 mm/3.9-14.2 mm wall			
Ø 200 mm/4.2-14.2 mm wall			
Ø 219 mm/4.5-14.2 mm wall			
Ø 250 mm/5.0-14.2 mm wall			
Ø 300 mm/5.9-14.2 mm wall			
Ø 324 mm/6.35-14.2 mm wall			

Services	Maximum aperture	Insulation CS	Classification
Copper pipe maximum Ø 54 mm	1200 mm wide x 600 mm high	20-40 mm glass or stone wool insulation min. 75 kg/m ³	E 60 C/C, Ei 30 C/C
Alupex pipe maximum Ø 16 mm/2.25 mm wall		20 mm glass or stone wool insulation min. 75 kg/m ³	E60 C/C, Ei 45 C/C
Alupex pipe maximum Ø 75 mm/4.6 mm wall		25 mm glass or stone wool insulation min. 75 kg/m ³	Ei 60 C/C

Services	Maximum aperture	Insulation LI or CI	Classification
Copper pipe maximum Ø 54 mm	1200 mm wide x 600 mm high	Min. 500 mm length, min. 20 mm thick glass or stone wool insulation 75 kg/m ³	E 60 C/C, Ei 45 C/C



Services	Maximum aperture	Insulation CS	Classification
Copper pipe			
Maximum 54 mm diameter	Maximum Ø 110 mm/ 50 mm high	9-25 mm elastomeric insulation min. class B-s3, d0 or PE Foam insulation	E 60 C/C, EI 30 C/C
Alupex pipe			
Maximum 16 mm diameter, wall thickness 2.25 mm	Maximum Ø 40 mm/ 50 mm high	9 mm elastomeric insulation min. class B-s3, d0 or PE Foam insulation	EI 60 C/C
Maximum 75 mm diameter, wall thickness 2.25-4.6 mm	Maximum Ø 110 mm/ 50 mm high		E 60 C/C, EI 45 C/C
Maximum 75 mm diameter, wall thickness 2.25-4.6 mm	Ø 125 mm/ 60mm high	25 mm elastomeric insulation min. class B-s3, d0 or PE Foam insulation	EI 60 C/C

Services	Collar Inlay	Classification
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1		
Ø 32 mm, wall thickness 1.9 mm	30 x 3.0 mm	E 90 U/C, EI 45 U/C
Ø 40 mm, wall thickness 1.9 mm		
Ø 50 mm, wall thickness 3.7-6.6 mm		
Ø 55 mm, wall thickness 3.7-6.6 mm	30 x 3.2 mm	E 90 U/C, EI 30 U/C
Ø 63 mm, wall thickness 3.7-6.6 mm	30 x 3.6 mm	
Ø 75 mm, wall thickness 3.7-6.6 mm	30 x 4.2 mm	
Ø 82 mm, wall thickness 3.7-6.6 mm	30 x 4.6 mm	
Ø 90 mm, wall thickness 3.7-6.6 mm	30 x 5.0 mm	
Ø 110 mm, wall thickness 2.7-6.6 mm	30 x 6.0 mm	
Ø 32 mm	50 x 3.0 mm	E 120 U/C, EI 60 U/C
Ø 40 mm		
Ø 50 mm		
Ø 55 mm	50 x 3.2 mm	E 90 U/C, EI 60 U/C
Ø 63 mm	50 x 3.6 mm	
Ø 75 mm	50 x 4.2 mm	
Ø 82 mm	50 x 4.6 mm	
Ø 90 mm	50 x 5.0 mm	
Ø 110 mm	50 x 6.0 mm	
Ø 125 mm	60 x 9.0 mm	EI 60 C/C
Ø 140 mm	60 x 11.5 mm	
Ø 160 mm	60 x 15.0 mm	

Services	Collar Inlay	Classification
PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1		
Ø 32 mm, wall thickness 3.4-10.0 mm	30 x 3.0 mm	E 60 U/C, EI 45 U/C
Ø 40 mm, wall thickness 3.4-10.0 mm		
Ø 50 mm, wall thickness 3.4-10.0 mm		
Ø 55 mm, wall thickness 3.4-10.0 mm		
Ø 63 mm, wall thickness 3.4-10.0 mm		
Ø 75 mm, wall thickness 3.4-10.0 mm		
Ø 82 mm, wall thickness 3.4-10.0 mm		
Ø 90 mm, wall thickness 3.4-10.0 mm		
Ø 110 mm, wall thickness 3.4-10.0 mm		
Ø 32 mm	50 x 3.0 mm	E 120 U/C, 60 U/C
Ø 40 mm		
Ø 50 mm		
Ø 55 mm	50 x 3.2 mm	E 90 C/C, EI 60 C/C
Ø 63 mm		
Ø 75 mm		
Ø 82 mm		
Ø 90 mm		
Ø 110 mm		
Ø 125 mm	60 x 9.0 mm	EI 60 C/C
Ø 140 mm	60 x 11.5 mm	
Ø 160 mm	60 x 15.0 mm	

Services	Collar Inlay	Classification
PP pipe according to EN 1852-1: 2009		
Ø 32 mm	50 x 3.0 mm	EI 60 C/C
Ø 40 mm		
Ø 50 mm		
Ø 55 mm		
Ø 63 mm		
Ø 75 mm		
Ø 82 mm		
Ø 90 mm		
Ø 110 mm		
Ø 125 mm		
Ø 140 mm		
Ø 160 mm		

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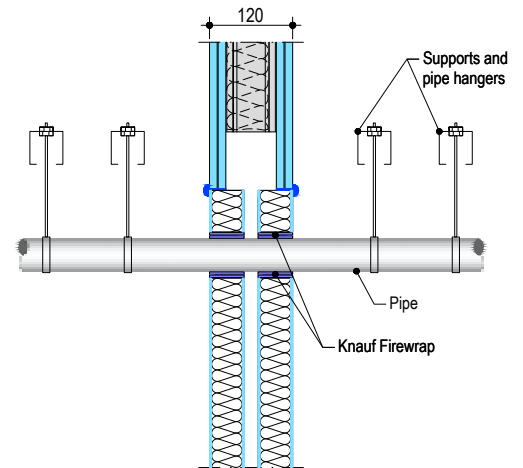
PENETRATION SEALS | FLEXIBLE OR RIGID WALL CONSTRUCTIONS

WITH WALL THICKNESS OF MINIMUM 120 MM

> Plastic pipe penetration seal with 2x Knauf FPC Panel 2-S

Penetration Seal: Pipes fitted at any position within the aperture, with 60 mm Knauf FPC Panel 2-S to both sides of the wall. Minimum 30 mm separation between pipes.

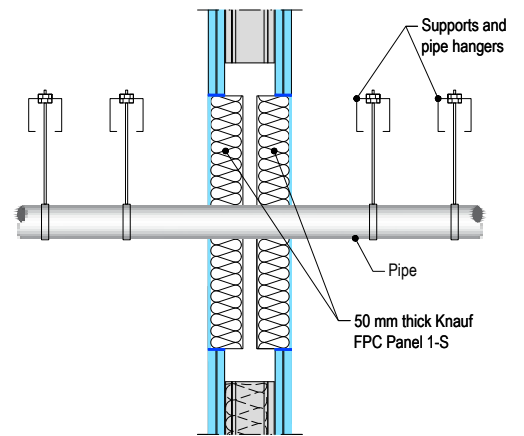
Services	Wraps (both sides)	Permitted configuration for seal separation	Classification
PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1 and PVC-C according to EN 1566-1			
Up to Ø 40 mm, wall thickness 1.9-3.0 mm	50 x 3.6 mm (2 x 1.8 layer)	1 & 2	EI 120 C/C
Up to Ø 110 mm, wall thickness 2.7-6.6 mm			
Up to Ø 160 mm, wall thickness 4.0-9.5 mm			
PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1			
Diameter up to 40 mm, wall thickness 2.4-4.6 mm	50 x 1.8 mm (1 x 1.8 layer)	1 & 2	EI 120 C/C
Diameter up to 110 mm, wall thickness 3.4-10.0 mm	50 x 3.6 mm (2 x 1.8 layer)		
Diameter up to 160 mm, wall thickness 4.9-14.6 mm	50 x 10.8 mm (6 x 1.8 layer)		
PP pipe according to EN 1852-1: 2009			
Diameter up to 40 mm, wall thickness 1.8-5.5 mm	50 x 1.8 mm (1 x 1.8 layer)	1 & 2	EI 120 C/C
Diameter up to 110 mm, wall thickness 2.7-10.0 mm	50 x 3.6 mm (2 x 1.8 layer)		
Diameter up to 160 mm, wall thickness 4.9-14.6 mm	50 x 10.8 mm (6 x 1.8 layer)		



> **Metallic pipe penetration seal with 2x Knauf FPC Panel 1-S**

Penetration Seal: Metallic pipes fitted at any position within the aperture, with 50 mm Knauf FPC Panel 1-S to both sides of the wall. Minimum separation between penetration seals and seal edges of 30 mm. (Configuration 1 & 2).

Services	Insulation	Permitted configuration for seal separation	Classification
Mild or stainless steel pipe			
Maximum 63 mm diameter	None	1 & 2	E 120 C/U, EI 30 C/U
63-324 mm diameter			E 120 C/U, EI 20 C/U
Copper, mild or stainless steel pipe			
12 mm diameter /0.7-6.0 mm wall thickness	None	1 & 2	E 120 C/C, EI 30 C/C
12-54 mm diameter			E 120 C/C, EI 15 C/C
Alupex pipe			
Maximum 75 mm diameter	None	1 & 2	E 120 C/C, EI 20 C/C



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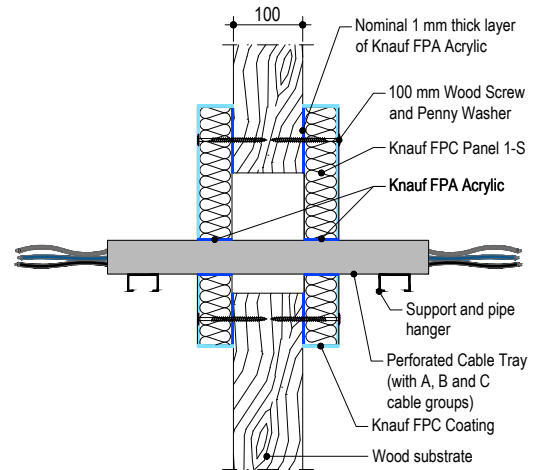
PENETRATION SEALS | TIMBER WALL CONSTRUCTIONS

WITH WALL THICKNESS OF MINIMUM 100 MM

> Knauf FPC Panel 50 mm 1-S penetration seal (pattress) with cables

Penetration Seal: Cables fitted at any position within the aperture, with 50 mm Knauf FPC Panel 1-S to both sides of the wall. Boards to be pattress fixed with 100 mm wood screws and penny washers at 300 mm centres and with a minimum 100 mm overlap around the opening.

Services	Maximum aperture	Classification
Electrical cables up to 21 mm Ø (single, bundled and on trays)	1200 mm x 600 mm	E 120, EI 90
Electrical cables up to 50 mm Ø (single, bundled and on trays)		



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Product tested	1200mm high x 600mm wide Knauf FPC Panel 50mm 2-S		
Summary of testing procedure			Result
	Pressure (Pa)	Leakage (m ³ /h)	Leakage (m ³ /m ² /h)
Results under negative chamber pressure	25	0.00	0.00
	50	0.01	0.01
	100	0.02	0.03
	200	0.04	0.06
	300	0.11	0.15
	450	0.49	0.68
	600	0.95	1.32
Results under positive chamber pressure	25	0.00	0.00
	50	0.01	0.01
	100	0.03	0.04
	200	0.08	0.11
	300	0.20	0.28
	450	0.63	0.88
	600	1.01	1.40

