

UL-EU CERTIFICATE

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UL-EU-01067-EN

Issue date
2017-12-08

Issue No.
4

Re-Issue date
2026-05-27

Expiry date
2027-12-07



4705

This is to acknowledge that:

Polyseam Ltd

Address:

15 St Andrews Road
Huddersfield, West Yorkshire
HD1 6SB, UK

Has had the product:

Protecta FR Service Transit

evaluated and meets the requirements of the standards:

EAD 350454-00-1104, September 2017 / EN 13501-2

Places of production:

Polyseam Ltd
15 St Andrews Road
Huddersfield, West Yorkshire
HD1 6SB, UK

Authorised Signatory:

A handwritten signature in blue ink, appearing to read 'Chris Johnson'.

Chris Johnson
Issued by UL International (UK) Ltd

This is to certify that representative samples of the Certified Product listed above have been investigated by Underwriters Laboratories to the Standard(s) indicated on this Certificate, in accordance with the UL Global Services Agreement and the UL-EU Mark Service Terms and Conditions ("Agreement"). The Certificate Holder is entitled to use the UL-EU Mark for the Certified Product listed on the certificate and manufactured at the production site(s) listed, in accordance with the terms of the Agreement. Only those products bearing the UL-EU Mark for Europe should be considered as being covered by UL's UL-EU Mark Service. This Certificate shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.



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This certificate relates to the use of Protecta FR Service Transit for fire stopping where there are service penetrations through floors and walls. The detailed scope is given in pages 3 to 29 of this Certificate. This shows the thickness and acceptable dimensions, substrates and orientations required to provide fire resistance periods of up to 240 minutes for differing services and wall/floor constructions.

The product is certificated on the basis of:

- i) 0843-UKTA-22/0030
- ii) UK – CERTIFICATE OF CONSTANCY OF PERFORMANCE 0843 – CPR – 1225
- iii) Inspection and surveillance of factory production control by UL
- iv) Fire resistance test data in accordance with EN 1366-3: 2009
- v) Classification in accordance with EN 13501-2
- vi) Durability and Serviceability as defined in EAD 350454-00-1104

The durability class of Protecta FR Service Transit is Z₂ - intended for use at internal conditions with humidity classes other than Z₁, excluding temperatures below 0°C.

Illustration of separation between penetration seals:

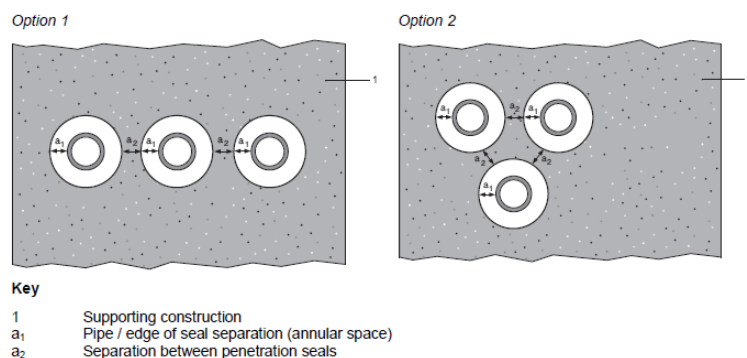


Figure E.2 — Standard configuration for single pipe penetration seals

According to EN 1366-3: 2021+A1: 2024, Clause H.4.1.8.6.2, the following end uses are envisaged* based upon the tested pipe end configuration:

Pipe material	Tested pipe end	Envisaged use scenario
Metal	C/U or C/C	Closed pipe systems (e.g. systems under pressure)
	U/U, U/C or C/U	Ventilated pipe systems (e.g. sewage pipes) and for closed pipe systems
Plastic	U/U or C/U	Ventilated pipe systems and for closed pipe systems
	U/U	Ventilated pipe systems, for rainwater systems and for closed pipe systems

* In the case where a national prescription is in conflict with the content of the table above, the national prescriptions prevail.



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1. Technical Description of the Product			
1)	Protecta FR Service Transit is a cable & pipe box device used to form penetration seals where cables, plastic pipes, steel pipes and conduits penetrate walls and floors.		
2)	The Protecta FR Service Transit is supplied with intumescent liner complete within a single, or two part polypropylene or steel casing, to be closed around the services and inserted into the aperture in the supporting element. Services can be inserted through the product and removed after it has been installed.		
2. Specification of the Intended Uses of the Product			
	The intended use of system Protecta FR Service Transit is to reinstate the fire resistance performance of flexible wall, rigid wall and floor constructions, and timber wall and floor constructions, where they are penetrated by services.		
1)	The specific elements of construction that the system Protecta FR Service Transit may be used to provide a penetration seal in, are as follows:		
	a.	Flexible walls:	The wall must have a minimum thickness of 75 mm and comprise steel or timber studs* lined on both faces with minimum 1 layer of 12.5 mm thick boards. Flexible wall solutions may also be used in rigid walls, with a minimum density of 350 kg/m ³ .
	b.	Rigid walls:	The wall must have a minimum thickness of 100 mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650 kg/m ³ .
	c.	Timber walls:	The wall must have a minimum thickness of 100 mm and comprise solid wood or cross-laminated timber
	d.	Panel walls:	The wall must have a minimum thickness of 100 mm and comprise steel sheets on both sides of a mineral fibre core. Apertures are not required to be lined, unless advised by the manufacturer of the walls. Further details are as follows: • Sandwich panel to have a minimum thickness of 100 mm • Sandwich panels to comprise a stone wool structural core at minimum 115 kg/m³, with 0.5 mm thick steel facings • Abutting panels to be fixed together with minimum 45 mm long by 6 mm diameter stainless steel fasteners and 15 mm washers at nominal 300 mm centres • Sandwich panels in vertical orientation only
	e.	Rigid floors:	The floor must have a minimum thickness of 150 mm and comprise aerated concrete or concrete with a minimum density of 650 kg/m ³ .
	f.	Timber floors:	The floor must have a minimum thickness of 150 mm and comprise solid wood or cross-laminated timber.
	* no part of the penetration seal may be closer than 100 mm to a stud, the cavity must be closed between the penetration seal and the 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.		
	The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.		
2)	The system Protecta FR Service Transit may be used to provide a penetration seal with specific supporting constructions and substrates (for details see pages 6 to 29).		



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Specific Supporting Construction Specifications (Continued)	
3)	Where PVC pipes are mentioned in Annex A, this includes PVC-U, PVC-C and similar if the pipe is according to EN 1329-1, EN 1452-2, EN 1453-1^ and EN 1566-1. Where PP pipes are mentioned in Annex A, this includes PP-MV, PP-H, PP-R and similar if the pipe is according to EN 1451-1 or DIN 8077/8078. Where PE pipes are mentioned, this includes PE-LD, PE-MD, PE-HD, PE-X and similar according to EN 1519-1, EN 12201-2 or EN 12666-1.
4)	Solutions given in pages 8, 9 and 12 for Protecta FR Service Transit within 100 mm thick flexible walls, can be used in panel walls limited to EI 60. All seals must be fitted with minimum 25 mm deep Protecta FR Acrylic to both sides of the wall, backed with minimum 20 mm deep stone wool or mineral fibre insulation. For further details, see pages 8, 9 and 12.



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Product-type: Pipe Service Transit		Intended use: Penetration Seal
Assessment method	Essential characteristic	Product Performance
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	Performance not assessed
EN 13501-2	Resistance to fire	See pages 6 to 29
BWR 3 Hygiene, health and the environment		
EN 1026	Air permeability	See page 30 to 33
EAD 350454-00-1104, Annex C	Water permeability	No performance determined
Declaration of manufacturer & EN 16516	Content, emission and/or release of dangerous substances	Use categories: IA1, S/W2 Declaration of manufacturer
BWR 4 Safety and accessibility in use		
EOTA TR 001:2003	Mechanical resistance and stability	No performance determined
EOTA TR 001:2003	Resistance to impact/movement	No performance determined
EOTA TR 001:2003	Adhesion	No performance determined
EAD 350454-00-1104, Clause 2.2.9	Durability	Z ₂
BWR 5 Protection against noise		
EN 10140-1,2,4,5/ EN ISO 717-1	Airborne sound insulation	No performance determined
BWR 6 Energy economy and heat retention		
EN 12664, EN 12667, EN 12939, EN ISO 8990, EN ISO 6946, EN ISO 14683, EN ISO 10211, EN ISO 10456	Thermal properties	No performance determined
EN ISO 12572, EN 12086, EN ISO 10456	Water vapour permeability	No performance determined



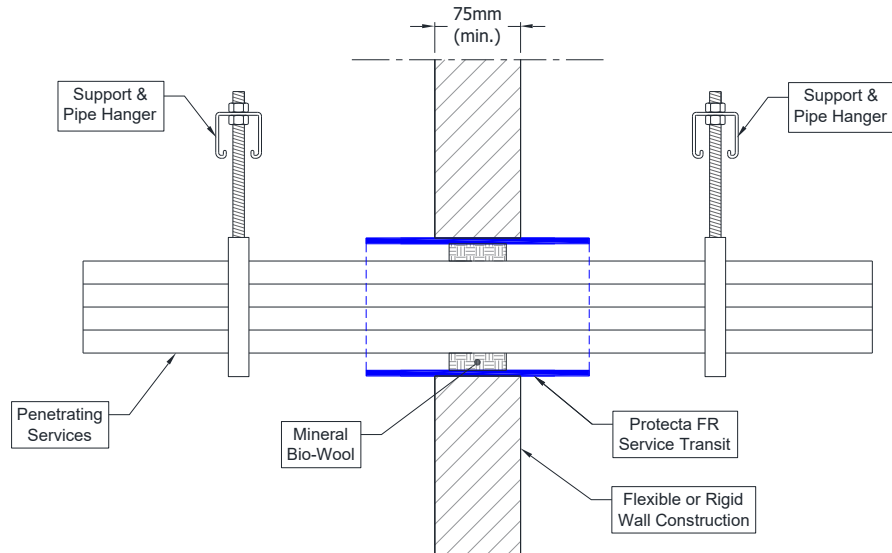
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Flexible or rigid wall constructions with wall thickness of minimum 75 mm

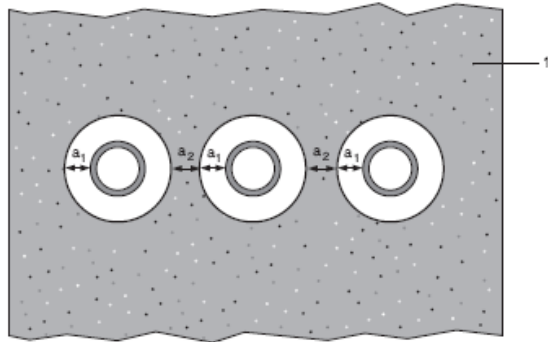
Penetration seals, in drywalls (min. 1 x 12.5 mm board per side) and concrete/masonry walls

Penetration Seal: Cables, pipes and conduits fitted with minimum 150 mm long Protecta FR Service Transit, central within the wall. Spaces around cables, pipes and conduits within the device are sealed with 50 mm deep Mineral Bio Wool installed centrally. Min. Separation between seals (a_2) = 30 mm, min. Separation between transit and supporting construction (a_1) = 0 mm.

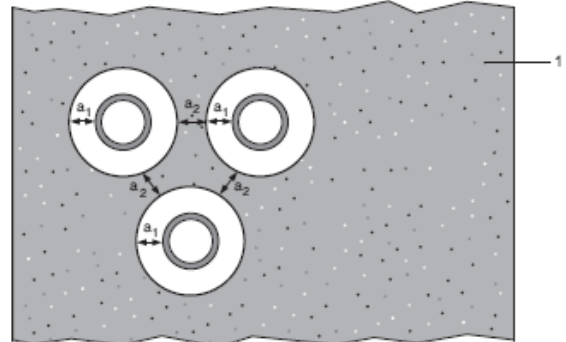
Construction details:



Configuration 1:



Configuration 2:



Key

1 Supporting construction

a_1 Pipe / edge of seal separation (annular space)

a_2 Separation between penetration seals

Figure E.2 – Standard configuration for single pipe penetration seals



Solutions

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Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 150 mm long	40 mm Ø x 150 mm long	EI 60
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 150 mm long	63 mm Ø x 150 mm long	
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 150 mm long	90 mm Ø x 150 mm long	
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 150 mm long	110 mm Ø x 150 mm long	
Up to 100 mm diameter bundle of cables up to 80 mm diameter	All inlay sizes specified above	All transit sizes specified above	E 60, EI 45
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool			E 60, EI 30
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 14 mm diameter			EI 60 U/C



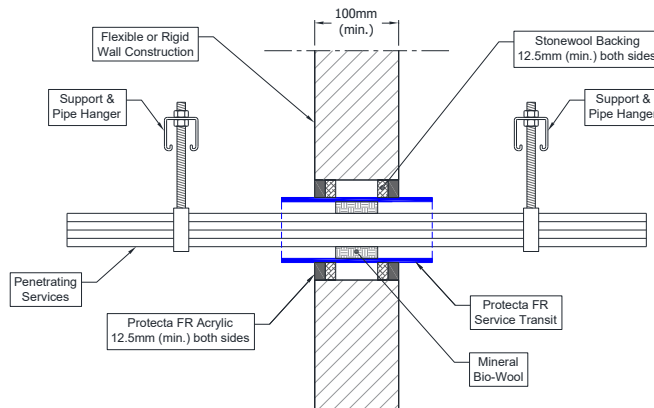
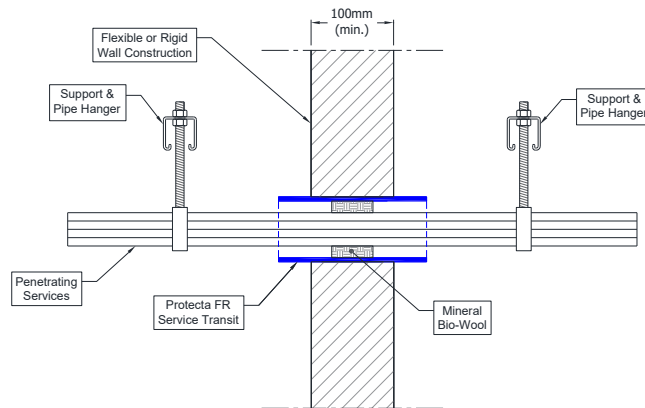
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Flexible or rigid wall constructions with wall thickness of minimum 100 mm, and panel walls*

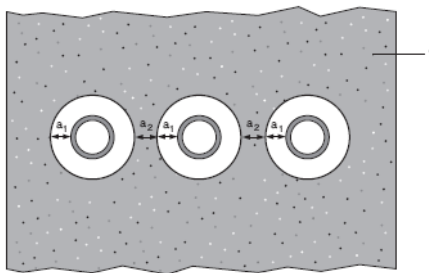
Penetration seals, in drywalls (min. 2 x 12.5 mm board per side) and concrete/masonry walls

Penetration Seal: Cables, pipes and conduits fitted with minimum 250 mm long Protecta FR Service Transit, central within the wall. Spaces around cables, pipes and conduits within the device are sealed with 50 mm deep Mineral Bio Wool installed centrally. Min. Separation between seals (a_2) = 30 mm, min. Separation between transit and supporting construction (a_1) = 0 mm A.2.1.1 and minimum 10 mm with maximum aperture 300 x 300mm A.2.1.2.

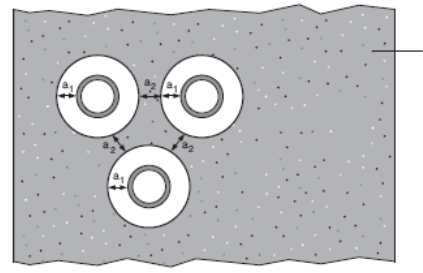
Construction details:



Configuration 1:



Configuration 2:



Key

1 Supporting construction

a_1 Pipe / edge of seal separation (annular space)

a_2 Separation between penetration seals

Figure E.2 – Standard configuration for single pipe penetration seals

*When incorporated into panel walls, the transit shall have a minimum depth of 100 mm, include a 6.0 mm thick graphite layer, and sealed centrally with a 50 mm BIO plug.



Solutions

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FR Service transit friction fitted into wall

Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 90
Up to 35 mm diameter bundle of cables up to 35 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 90, EI 60
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	EI 90
Up to 50 mm diameter bundle of cables up to 50 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 90, EI 60
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	EI 90
Up to 80 mm diameter bundle of cables up to 80 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 90, EI 60
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 90
Up to 100 mm diameter bundle of cables up to 80 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 90, EI 60
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool	All inlay sizes specified above	All transit sizes specified above	E 90, EI 60
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter			EI 90 U/C

FR Service Transit in minimum 20 mm oversize aperture fitted with Protecta FR Acrylic.

Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 90
Up to 35 mm diameter bundle of cables up to 35 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 90, EI 60
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	EI 90
Up to 50 mm diameter bundle of cables up to 50 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 90, EI 60
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	EI 90
Up to 80 mm diameter bundle of cables up to 80 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 90, EI 60
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 90
Up to 100 mm diameter bundle of cables up to 80 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 90, EI 60
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool	All inlay sizes specified above	All transit sizes specified above	EI 90
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter			EI 90 U/C

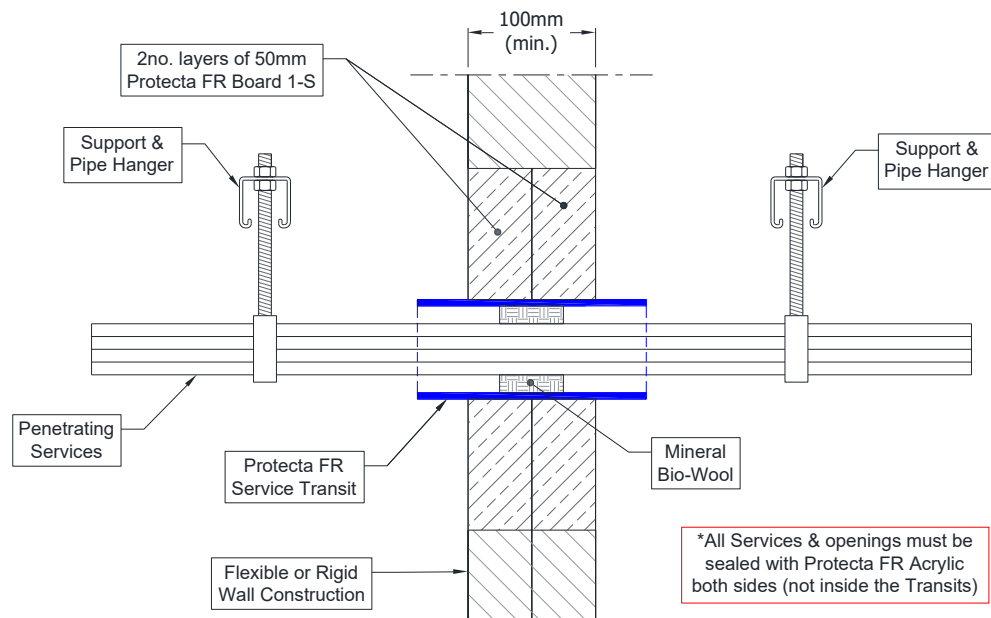


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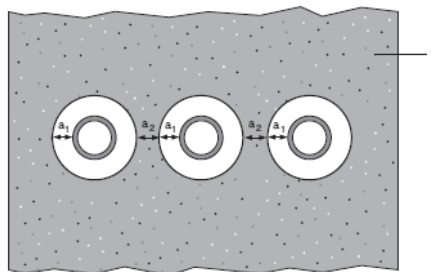
Penetration seals, in 100 mm thick Protecta FR Board 1-S seals in drywalls (min. 2 x 12.5 mm board per side) and concrete/masonry walls

Penetration Seal: Cables, pipes and conduits fitted with minimum 250 mm long Protecta FR Service Transit, central within the seal. Spaces around cables, pipes and conduits within the device are sealed with 50 mm deep Mineral Bio Wool installed centrally. Min. Separation between transits and between transits and the edges of the board seal (a_1 , a_2 , a_3) = 30 mm, min.

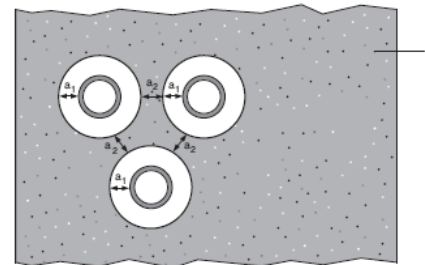
Construction details:



Configuration 1:



Configuration 2:



Key

- 1 Supporting construction
- a_1 Pipe / top edge of seal separation
- a_2 Pipe / side edge of seal separation
- a_3 Pipe / pipe separation

Figure E.1 – Standard configuration for multiple pipe penetration seals



Solutions

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Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 90
Up to 35 mm diameter bundle of cables up to 35 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 90, EI 60
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	EI 90
Up to 50 mm diameter bundle of cables up to 50 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 90, EI 60
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	EI 90
Up to 80 mm diameter bundle of cables up to 80 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 90, EI 60
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 90
Up to 100 mm diameter bundle of cables up to 80 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 90, EI 60
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool	All inlay sizes specified above	All transit sizes specified above	E 90, EI 60
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter			EI 90 U/C

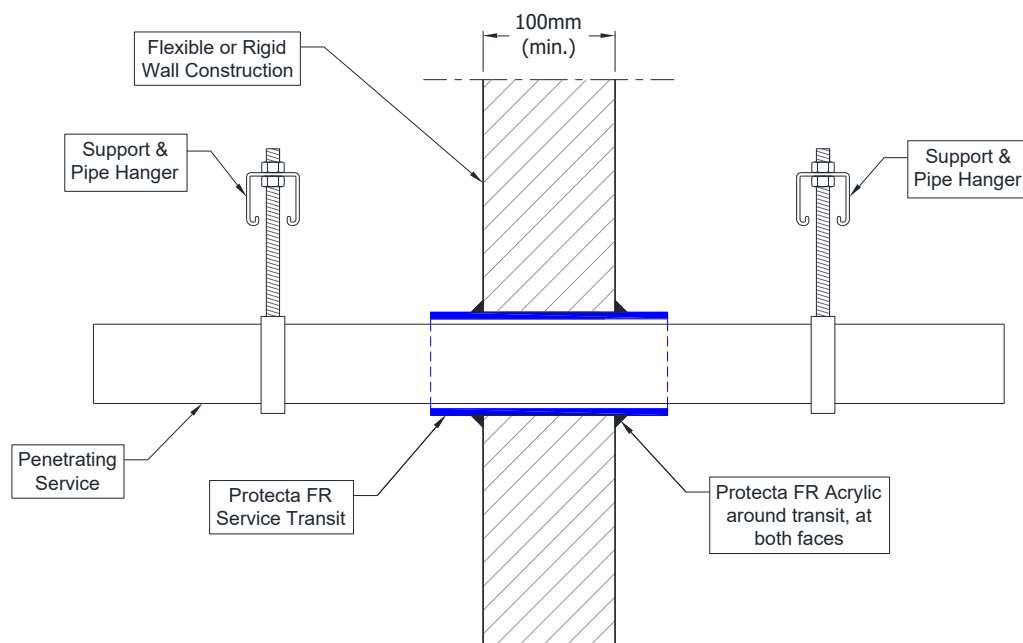


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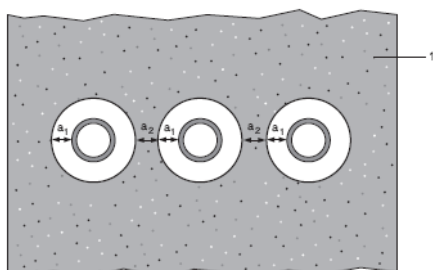
Penetration seals, in drywalls (min. 2 x 12.5 mm board per side) and concrete/masonry walls, and panel walls*

Penetration Seal: Plastic rectangular services fitted with minimum 250 mm long Protecta FR Service Transit, central within the wall. Min. separation between seals (a_2) = 30 mm, separation between transit and supporting construction (a_1) = 0 mm. Transit fitted in walls with beads of Protecta FR Acrylic between the transit and the supporting construction.

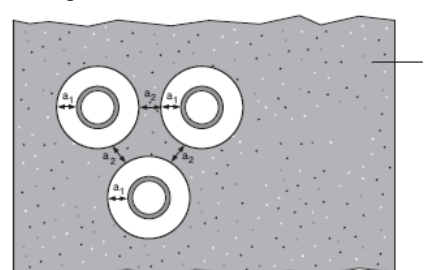
Construction details:



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

Figure E.1 – Standard configuration for multiple pipe penetration seals

*When incorporated into panel walls, the transit shall have a minimum depth of 100 mm, include a 6.0 mm thick graphite layer, and sealed centrally with a 50 mm BIO plug.

Services	Inlay size	Casing	Transit size	Classification
110 x 54 x 2mm PVC	4.0 mm thick by 250 mm long	100 mm long steel at each end of the transit	126 x 68 x 250 mm long	EI 120 U/U
220 x 90 x 2mm PVC	6.0 mm thick by 250 mm long		240 x 108 x 250 mm long	



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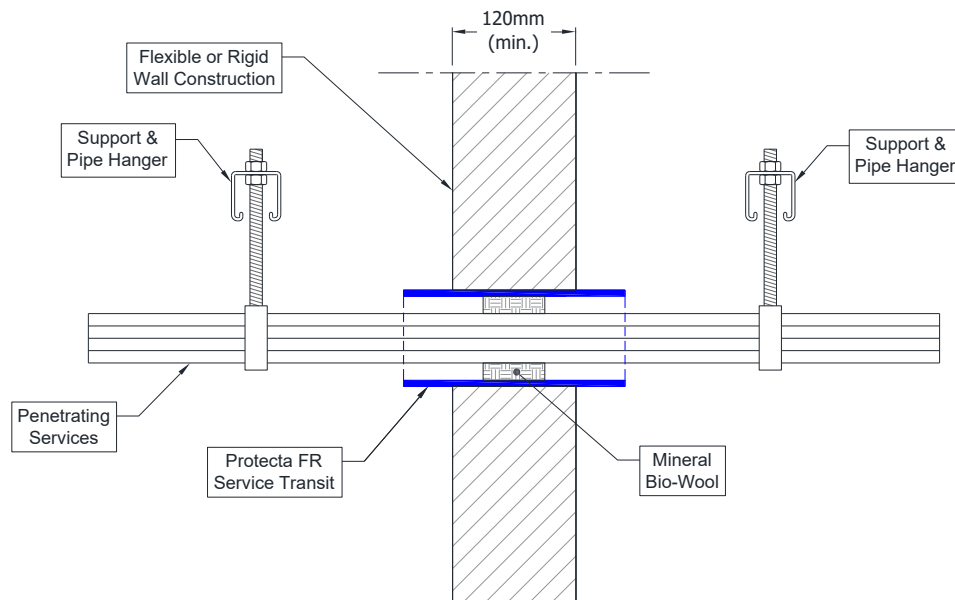
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Flexible or rigid wall constructions with wall thickness of minimum 120 mm

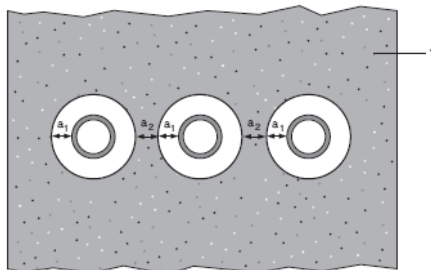
Penetration seals, in drywalls (min. 2 x 15 mm board per side) and concrete/masonry walls

Penetration Seal: Cables fitted with minimum 250 mm long Protecta FR Service Transit, central within the wall. Spaces around cables within the device are sealed with 50 mm deep Mineral Bio Wool installed centrally. Min. Separation between seals (a_2) = 30 mm, min. Separation between transit and supporting construction (a_1) = 0 mm.

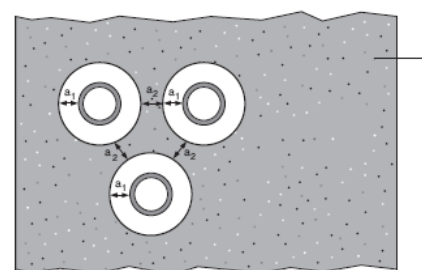
Construction details:



Configuration 1:



Configuration 2:



Key

1 Supporting construction

a1 Pipe / edge of seal separation (annular space)

a2 Separation between penetration seals

Figure E.2 – Standard configuration for single pipe penetration seals

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FR Service transit friction fitted into wall

Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 120
Up to 35 mm diameter bundle of cables up to 35 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 120, EI 90
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	EI 120
Up to 50 mm diameter bundle of cables up to 50 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 120, EI 90
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	EI 120
Up to 80 mm diameter bundle of cables up to 50 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 120, EI 90
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 120
Up to 100 mm diameter bundle of cables up to 50 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 120, EI 90
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool	All inlay sizes specified above	All transit sizes specified above	E 120, EI 90



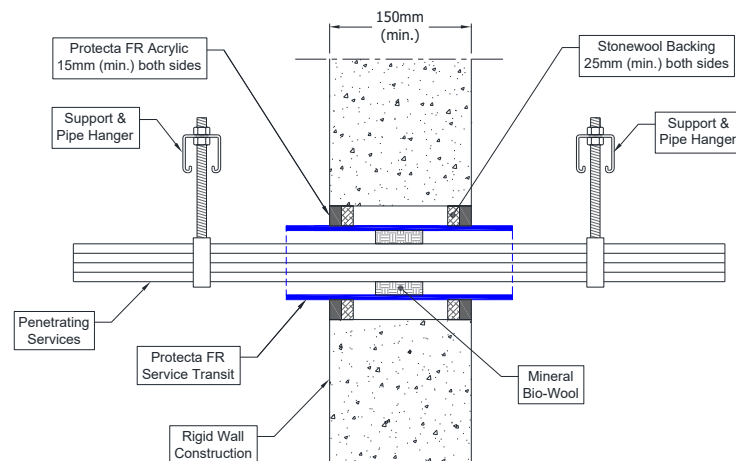
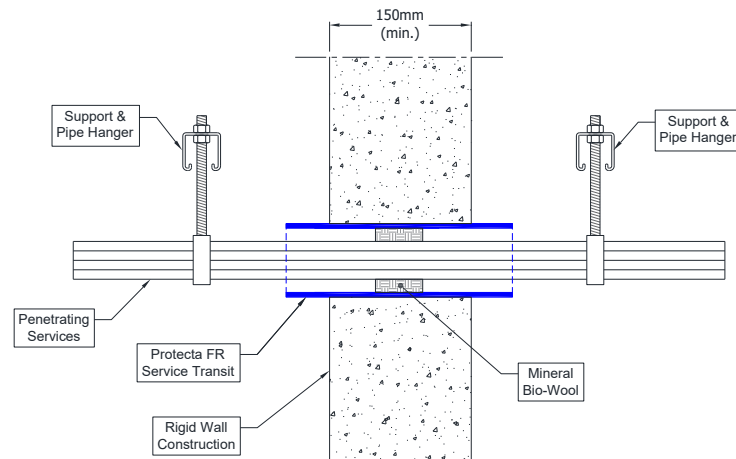
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Rigid walls constructions with wall thickness of minimum 150 mm

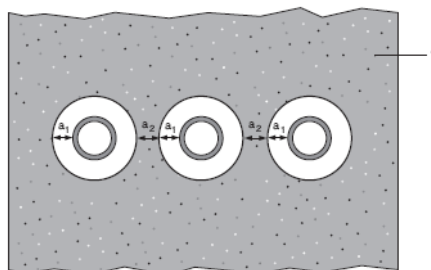
Penetration seals in concrete/masonry walls

Penetration Seal: Cables, pipes and conduits fitted with minimum 250 mm long Protecta FR Service Transit, central within the wall. Spaces around cables, pipes and conduits within the device are sealed with 50 mm deep Mineral Bio Wool installed centrally. Min. Separation between seals (a_2) = 30 mm, min. Separation between transit and supporting construction (a_1) = 0 mm A.4.1.1 and minimum 10 mm with maximum aperture 300 x 300mm A.4.1.2.

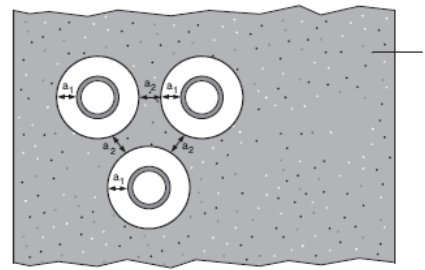
Construction details:



Configuration 1:



Configuration 2:



Key

1 Supporting construction

a1 Pipe / edge of seal separation (annular space)

a2 Separation between penetration seals

Figure E.2 – Standard configuration for single pipe penetration seals



Solutions

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FR Service Transit friction fitted into wall

Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 240
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 240, EI 180
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool	All inlay sizes specified above	All transit sizes specified above	E 240, EI 180
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter			EI 240 U/C

FR Service Transit in minimum 20 mm oversize aperture fitted with Protecta FR Acrylic.

Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 240
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 240, EI 180
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool	All inlay sizes specified above	All transit sizes specified above	EI 240
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter			EI 240 U/C

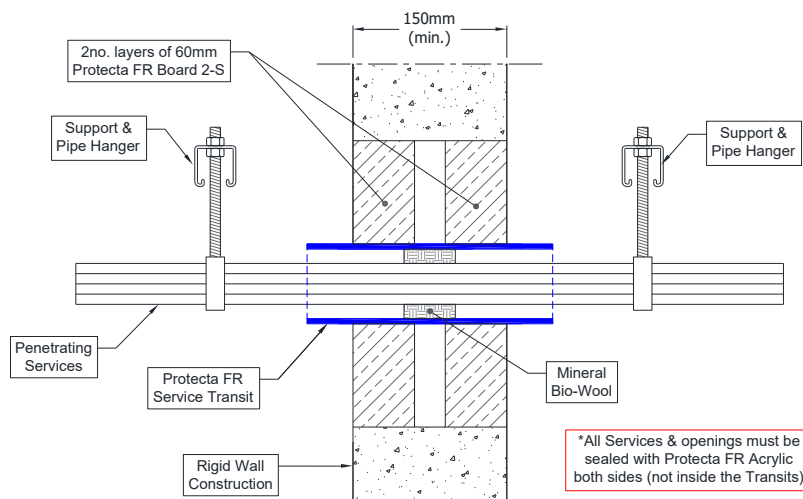


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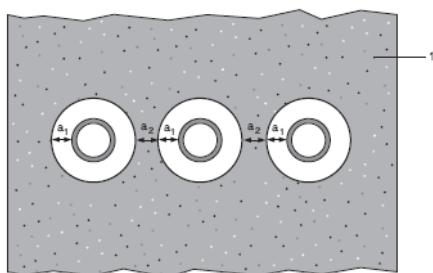
Penetration seals, in 150 mm thick Protecta FR Board 2-S seals (including 30 mm air gap) in concrete/masonry walls

Penetration Seal: Cables, pipes and conduits fitted with minimum 250 mm long Protecta FR Service Transit, central within the seal. Spaces around cables, pipes and conduits within the device are sealed with 50 mm deep Mineral Bio Wool installed centrally. Min. Separation between transits and between transits and the edges of the board seal (a_1 , a_2 , a_3) = 30 mm, min.

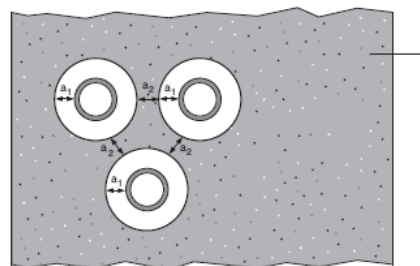
Construction details:



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

Figure E.1 – Standard configuration for multiple pipe penetration seals

Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 240, EI 180
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 180, EI 120
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 240, EI 120
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool	All inlay sizes specified above	All transit sizes specified above	E 240, EI 180
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter			EI 90 U/C



Solutions

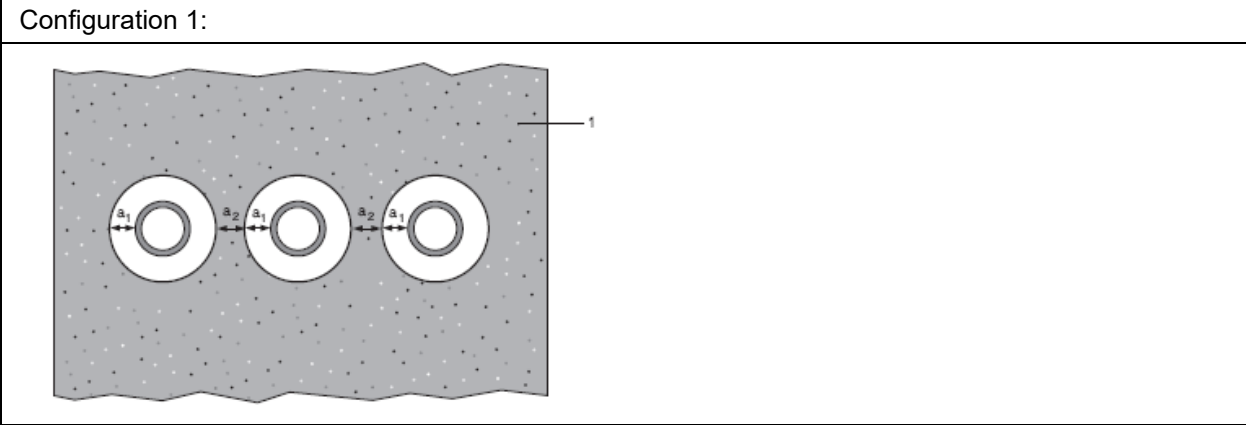
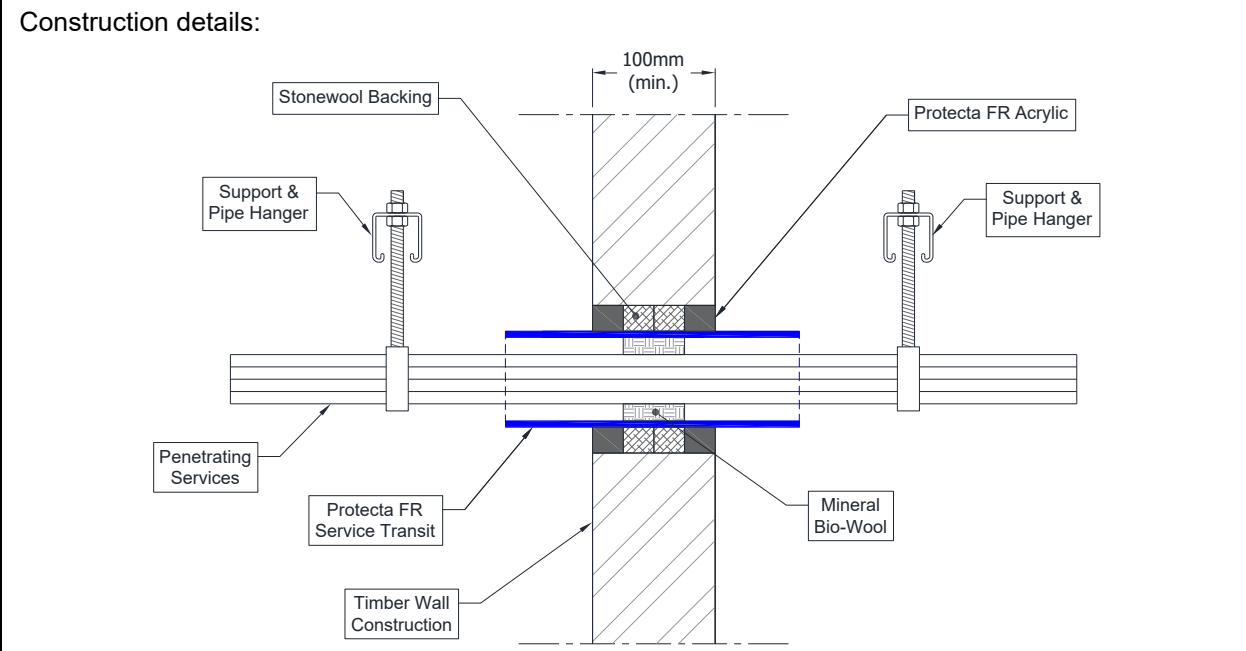
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Timber wall constructions with wall thickness of minimum 100 mm

Penetration seals in timber walls

Penetration Seal: Cables, pipes and conduits fitted with minimum 250 mm long Protecta FR Service Transit central within the wall. The annular space around the Service Transit is sealed with Protecta FR Acrylic, minimum 25 mm deep to both sides of the wall backed with Stonewool (minimum 33kg/m3 density), minimum 25 mm deep. Spaces around services within the device are sealed with 50 mm deep Mineral Bio Wool installed centrally. Min. Separation between seals (a2) = 30 mm, min. Minimum separation between transit and supporting construction (a1) = 10 mm. Maximum aperture size is Ø 180mm.



Key

1 Supporting construction
a1 Pipe / edge of seal separation (annular space)
a2 Separation between penetration seals



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Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 90
Up to 35 mm diameter bundle of cables up to 35 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 90, EI 60
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	EI 90
Up to 50 mm diameter bundle of cables up to 50 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 90, EI 60
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	EI 90
Up to 80 mm diameter bundle of cables up to 80 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 90, EI 60
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 90
Up to 100 mm diameter bundle of cables up to 80 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 90, EI 60
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool	All inlay sizes specified above	All transit sizes specified above	EI 90
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter			EI 90 U/C

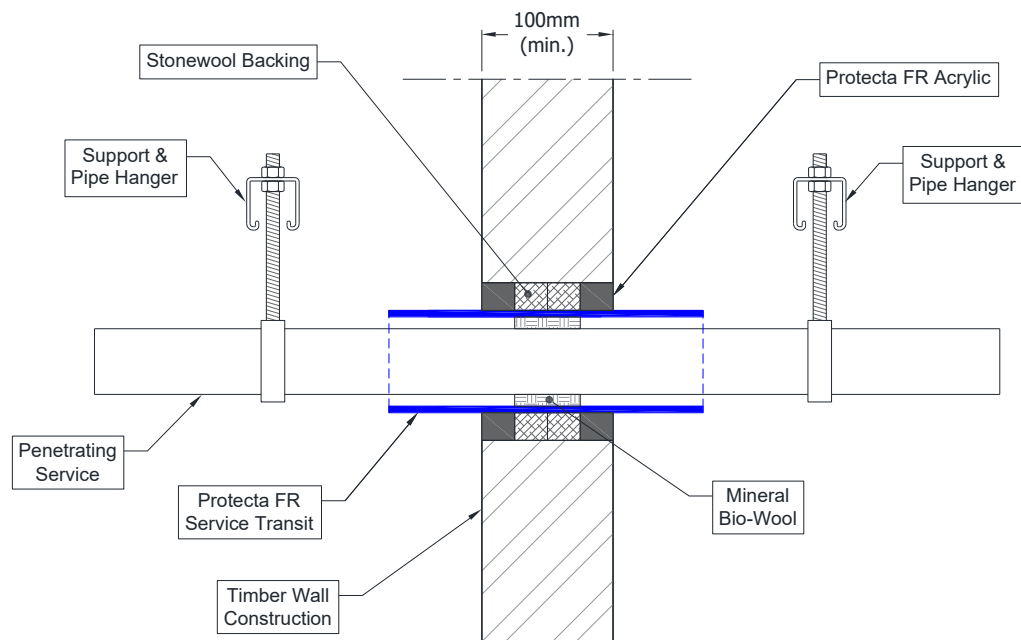


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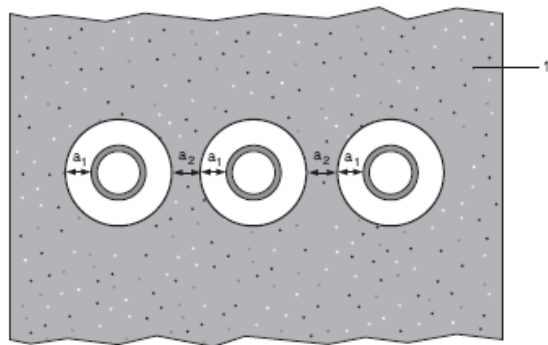
Penetration seals in timber walls

Penetration Seal: Plastic rectangular services with minimum 250 mm long Protecta FR Service Transit central within the wall. The annular space around the Service Transit is sealed with Protecta FR Acrylic, minimum 25 mm deep to both sides of the wall backed with stonewool (minimum 33kg/m³ density), minimum 25 mm deep. Min. Separation between seals (a₂) = 30 mm, min. Minimum separation between transit and supporting construction (a₁) = 10 mm. Maximum aperture size is Ø 180mm.

Construction details:



Configuration 1:



Key

- 1 Supporting construction
- a1 Pipe / edge of seal separation (annular space)
- a2 Separation between penetration seals

Services	Inlay size	Casing	Transit size	Classification
110 x 54 x 2mm PVC	4.0 mm thick by 250 mm long	100 mm long steel at each end of the transit	126 x 68 x 250 mm long	EI 90 U/U
220 x 90 x 2mm PVC	6.0 mm thick by 250 mm long		240 x 108 x 250 mm long	



Solutions

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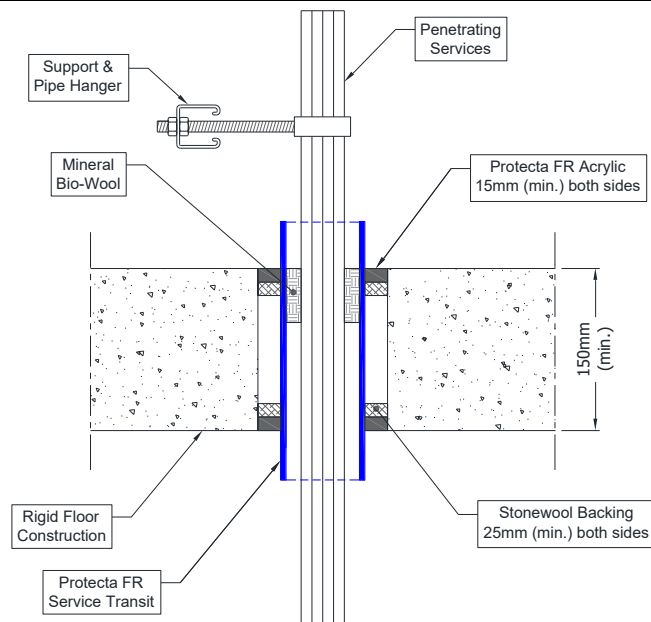
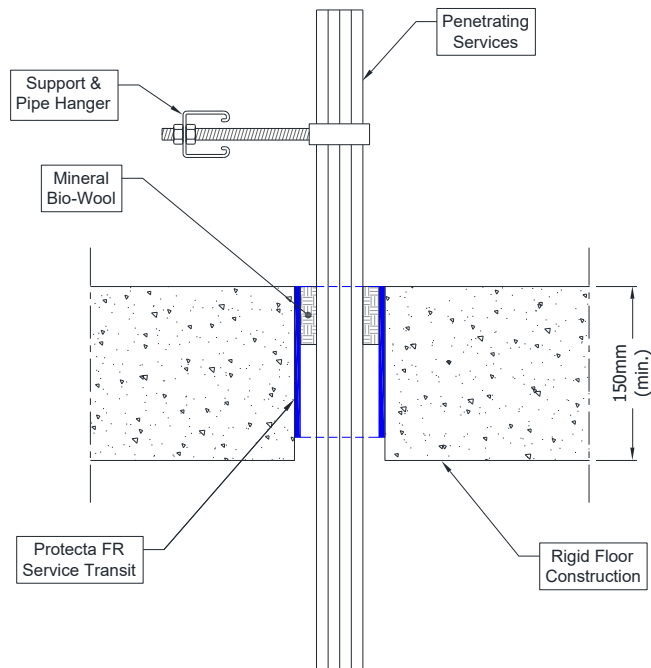
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Rigid floor constructions with thickness of minimum 150 mm

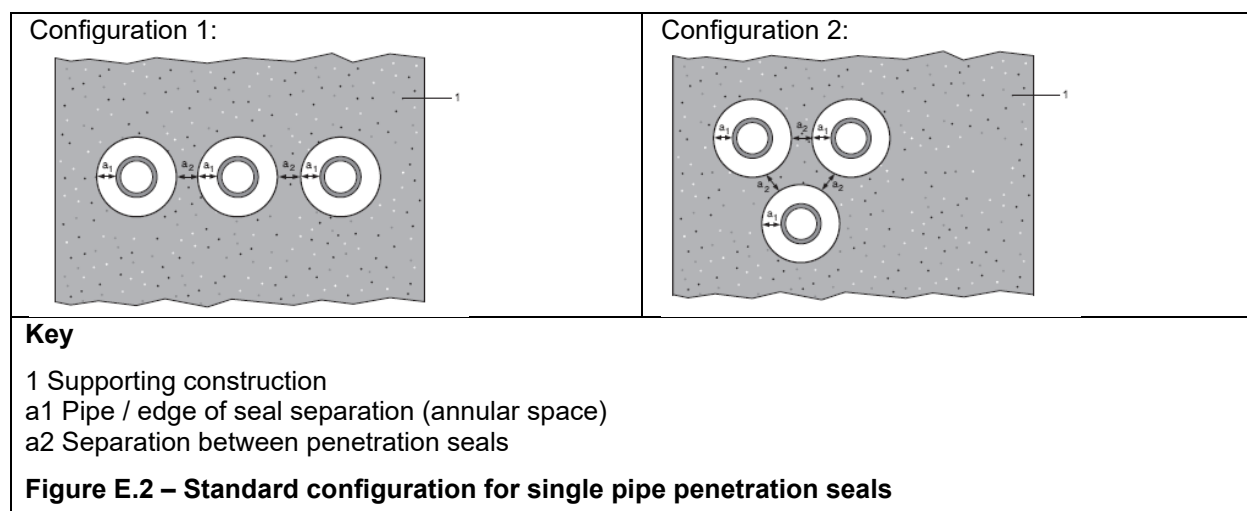
Penetration seals in concrete/masonry floors

Penetration Seal: Cables, pipes and conduits fitted with minimum 250 mm long Protecta FR Service Transit, central within the floor, or 130 - 150 mm long, top side within the floor. Spaces around cables, pipes and conduits within the device are sealed with 50 mm deep Mineral Bio Wool installed top side. Min. Separation between seals (a2) = 30 mm, min. Separation between transit and supporting construction (a1) = 0 mm A.5.1.1 and minimum 10 mm with maximum aperture 300 x 300mm A.5.1.2.

Construction details:



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FR Service transit friction fitted into floor

Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 180
Up to 35 mm diameter bundle of cables up to 35 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 180, EI 60
Up to 28 mm diameter steel pipe with minimum 1.0 mm wall thickness	1.5 mm thick by 130 mm long	40 mm Ø x 130 mm long	EI 240 C/U
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	EI 180
Up to 50 mm diameter bundle of cables up to 50 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 180, EI 60
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	EI 180
Up to 80 mm diameter bundle of cables up to 50 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 180, EI 60
Up to 80 mm diameter bundle of cables up to 80 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 90, EI 60
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 180
Up to 100 mm diameter bundle of cables up to 50 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 180, EI 60
Up to 100 mm diameter bundle of cables up to 80 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 90, EI 60
Up to 100 mm diameter bundle of cables up to 21 mm diameter	6.0 mm thick by 130 mm long	110 mm Ø x 130 mm long	EI 180
Up to 90 mm diameter PVC pipe with wall thickness 2.8 – 6.7 mm *	6.0 mm thick by 130 mm long	110 mm Ø x 150 mm long	EI 240 U/C
Up to 90 mm diameter PE pipe with wall thickness 2.8 – 8.2 mm *	6.0 mm thick by 130 mm long	110 mm Ø x 150 mm long	EI 180 U/C
Up to 90 mm diameter PP pipe with wall thickness 5.1 – 8.2 mm *	6.0 mm thick by 130 mm long	110 mm Ø x 150 mm long	EI 180 U/C
Empty filled at top-side with 50 mm deep plug of Mineral Bio Wool	6.0 mm thick by 130 mm long	110 mm Ø x 130 mm long	EI 240
	All inlay sizes specified above	All transit sizes specified above	E 240, EI 180
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter	6.0 mm thick by 130 mm long	110 mm Ø x 130 mm long	E 120 C/U, EI 60 C/U
	6.0 mm thick by 130 mm long	110 mm Ø x 130 mm long	EI 240 U/C

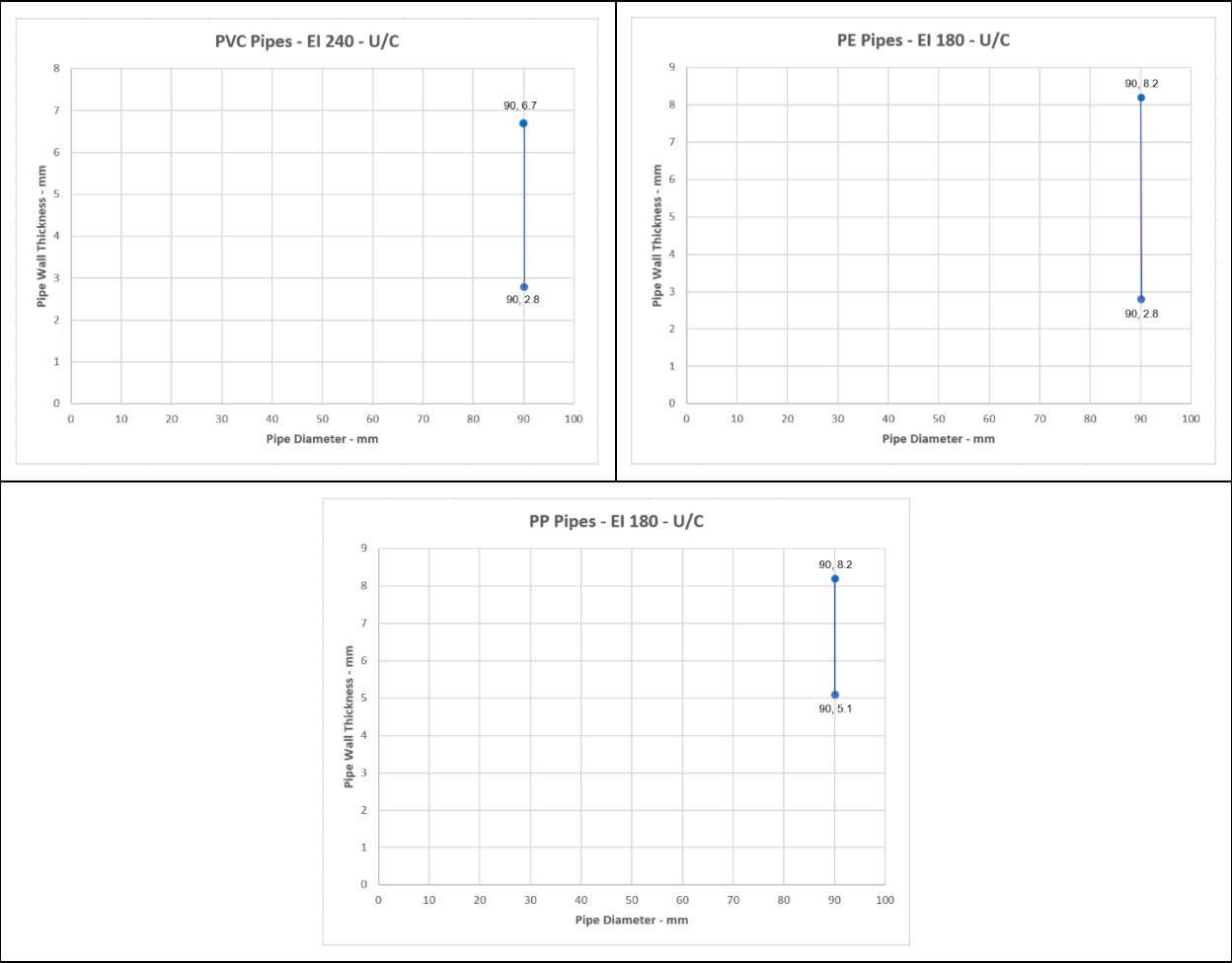
*See below graph for allowable pipe sizes



Solutions

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FR Service Transit in minimum 20 mm oversize aperture fitted with Protecta FR Acrylic.

Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 14 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 240
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 240, EI 180
Up to 35 mm diameter bundle of cables up to 35 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 240, EI 60
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 240, EI 180
Up to 50 mm diameter bundle of cables up to 50 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 240, EI 60
Up to 80 mm diameter bundle of cables up to 14 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	EI 240
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 240, EI 180
Up to 80 mm diameter bundle of cables up to 50 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 240, EI 60
Up to 80 mm diameter bundle of cables up to 80 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 90, EI 60
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 180
Up to 100 mm diameter bundle of cables up to 50 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 180, EI 60
Up to 100 mm diameter bundle of cables up to 80 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 90, EI 60
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool	All inlay sizes specified above	All transit sizes specified above	E 240, EI 180
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter			E 120 C/U, EI 60 C/U
	6.0 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 180 C/U

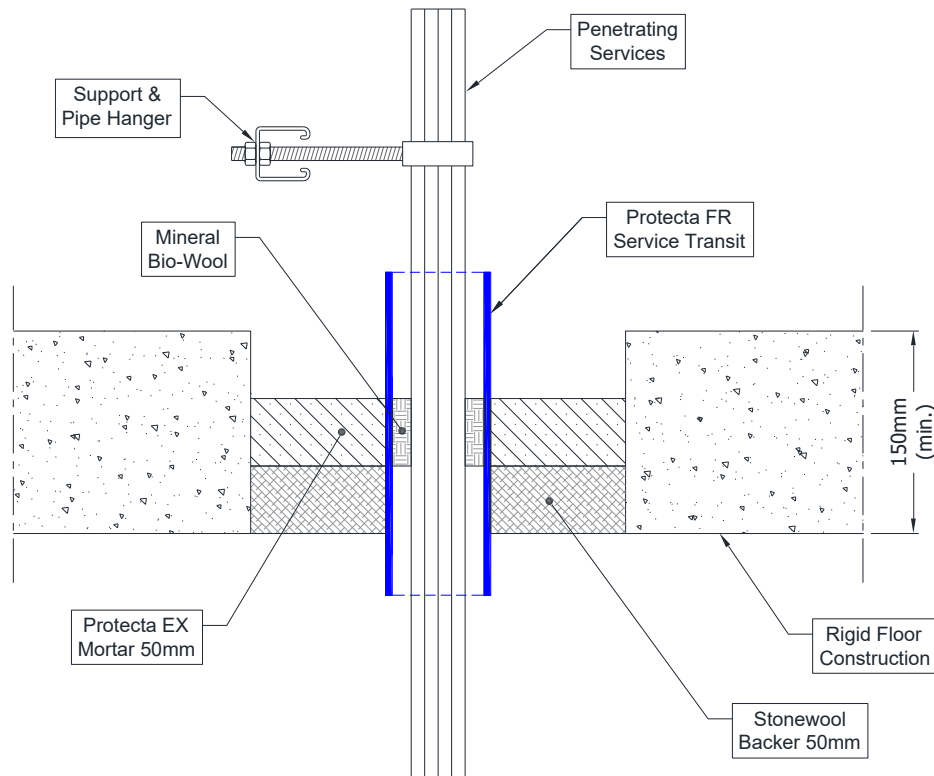


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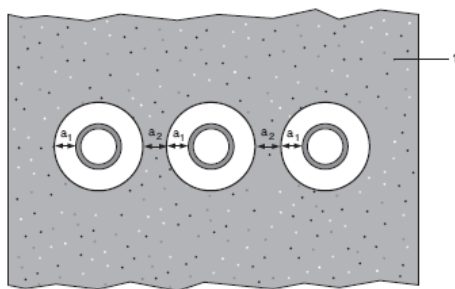
Penetration seals, in 50 mm thick Protecta EX Mortar seals (with 50 mm stone wool backer) in concrete/masonry floors

Penetration Seal: Cables, pipes and conduits fitted with 250 mm long Protecta FR Service Transit, central within the seal. Spaces around cables, pipes and conduits within the device are sealed with 50 mm deep Mineral Bio Wool installed centrally. Min. Separation between transits and between transits and the edges of the board seal (a_1 , a_2 , a_3) = 30 mm, min.

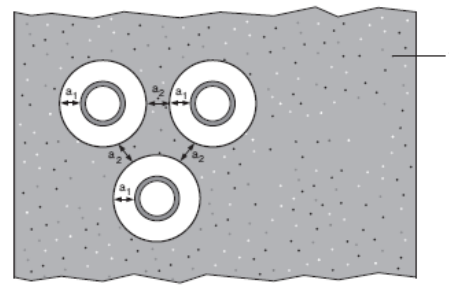
Construction details:



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

Figure E.1 – Standard configuration for multiple pipe penetration seals



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Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 14 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 240
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 240, EI 180
Up to 35 mm diameter bundle of cables up to 35 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 240, EI 60
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	EI 180
Up to 50 mm diameter bundle of cables up to 50 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 180, EI 60
Up to 50 mm diameter bundle of cables up to 80 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 90, EI 60
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 240, EI 120
Up to 80 mm diameter bundle of cables up to 50 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 240, EI 60
Up to 80 mm diameter bundle of cables up to 80 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 90, EI 60
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 120
Up to 100 mm diameter bundle of cables up to 50 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 120, EI 60
Up to 100 mm diameter bundle of cables up to 80 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 90, EI 60
Empty filled at mid-depth with 50 mm deep plug of Mineral Bio Wool	All inlay sizes specified above	All transit sizes specified above	E 240, EI 180
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter			E 120 C/U, EI 60 C/U
	6.0 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 120 C/U



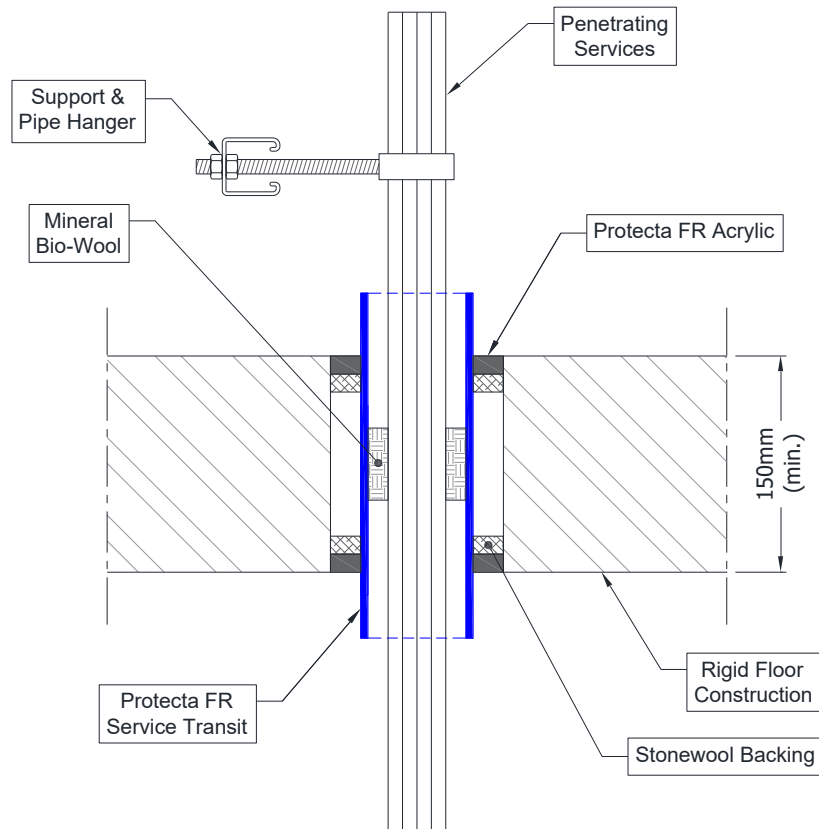
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Timber floor constructions with floor thickness of minimum 150 mm

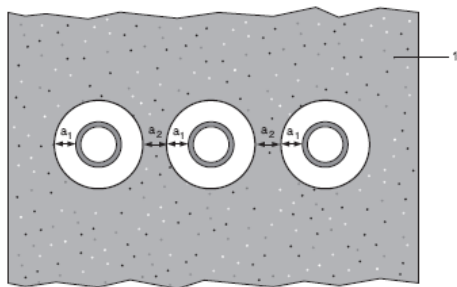
Penetration seals in timber floors

Penetration Seal: Cables, pipes and conduits fitted with minimum 250 mm long Protecta FR Service Transit central within the floor, or 150 mm long, top side within the floor. The annular space around the Service Transit is sealed with Protecta FR Acrylic, minimum 25 mm deep to both sides of the floor backed with Stonewool (minimum 33kg/m³ density), minimum 25 mm deep. Spaces around services within the device are sealed with 50 mm deep Mineral Bio Wool installed centrally. Min. Separation between seals (a2) = 30 mm, min. Minimum separation between transit and supporting construction (a1) = 10 mm. Maximum aperture size is Ø 220mm.

Construction details:



Configuration 1:



Key

- 1 Supporting construction
- a1 Pipe / edge of seal separation (annular space)
- a2 Separation between penetration seals



Solutions

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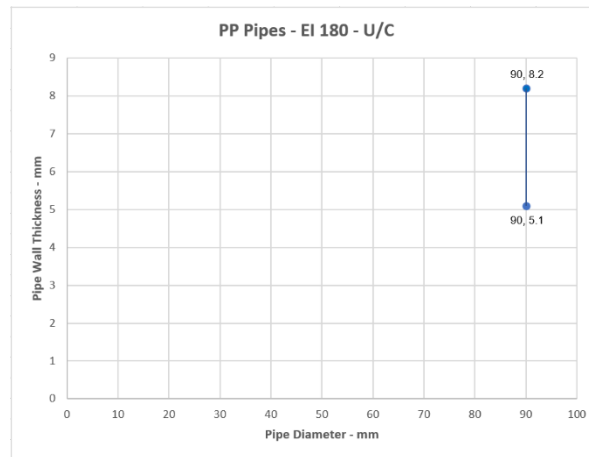
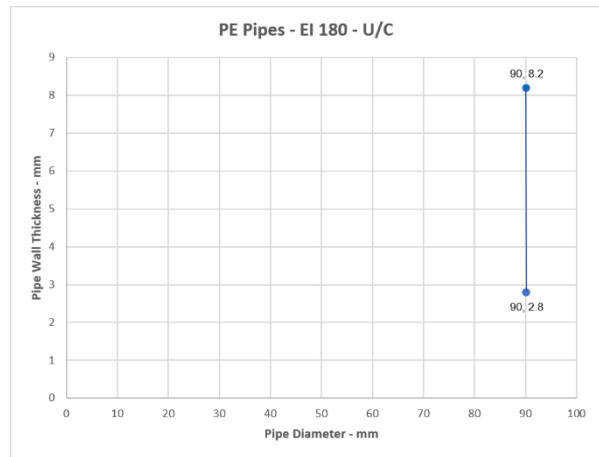
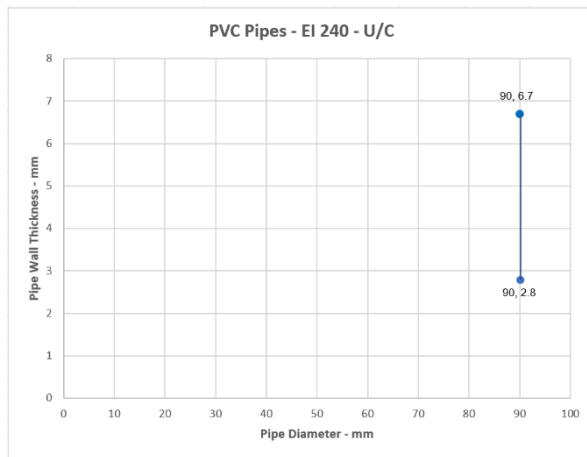
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Services	Inlay size	Transit size	Classification
Up to 35 mm diameter bundle of cables up to 21 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	EI 120
Up to 35 mm diameter bundle of cables up to 35 mm diameter	1.5 mm thick by 210 mm long	40 mm Ø x 250 mm long	E 120, EI 60
Up to 28 mm diameter steel pipe with minimum 1.0 mm wall thickness	1.5 mm thick by 130 mm long	40 mm Ø x 150 mm long	EI 120 C/U
Up to 50 mm diameter bundle of cables up to 21 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	EI 120
Up to 50 mm diameter bundle of cables up to 50 mm diameter	2.0 mm thick by 210 mm long	63 mm Ø x 250 mm long	E 120, EI 60
Up to 80 mm diameter bundle of cables up to 21 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	EI 120
Up to 80 mm diameter bundle of cables up to 50 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 120, EI 60
Up to 80 mm diameter bundle of cables up to 80 mm diameter	4.0 mm thick by 210 mm long	90 mm Ø x 250 mm long	E 90, EI 60
Up to 100 mm diameter bundle of cables up to 21 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	EI 120
Up to 100 mm diameter bundle of cables up to 50 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 120, EI 60
Up to 100 mm diameter bundle of cables up to 80 mm diameter	4.5 mm thick by 210 mm long	110 mm Ø x 250 mm long	E 90, EI 60
Up to 100 mm diameter bundle of cables up to 21 mm diameter	6.0 mm thick by 130 mm long	110 mm Ø x 150 mm long	EI 120
Up to 90 mm diameter PVC pipe with wall thickness 2.8 – 6.7 mm *	6.0 mm thick by 130 mm long	110 mm Ø x 150 mm long	EI 120 U/C
Up to 90 mm diameter PE pipe with wall thickness 2.8 – 8.2 mm *	6.0 mm thick by 130 mm long	110 mm Ø x 150 mm long	EI 120 U/C
Up to 90 mm diameter PP pipe with wall thickness 5.1 – 8.2 mm *	6.0 mm thick by 130 mm long	110 mm Ø x 150 mm long	EI 120 U/C
Empty filled at top-side with 50 mm deep plug of Mineral Bio Wool	6.0 mm thick by 130 mm long	110 mm Ø x 150 mm long	EI 120
Up to 32mm diameter plastic pipes in bundle, empty or with penetrating bundle of cables up to 21 mm diameter	All inlay sizes specified above	All transit sizes specified above	E 120, EI 120
	6.0 mm thick by 130 mm long	110 mm Ø x 150 mm long	E 120 C/U, EI 60 C/U
			EI 120 U/C

*See below graphs for interpolation pipe sizes



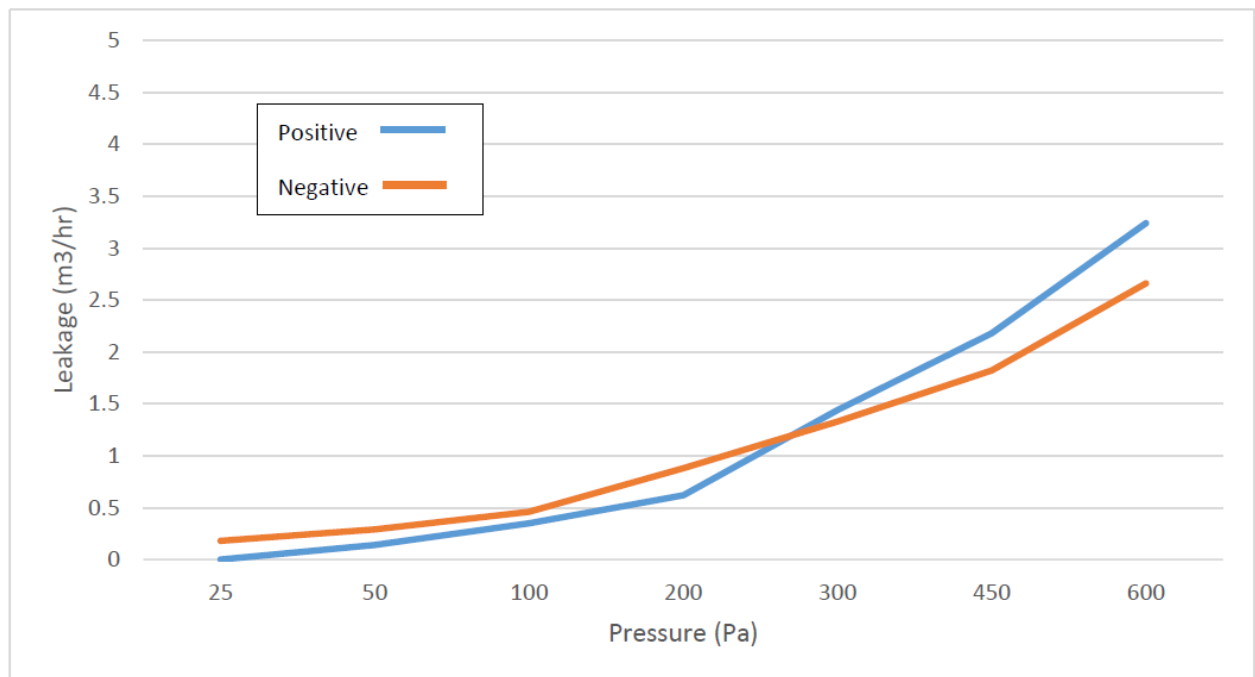
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ANNEX B – Air Permeability – Protecta FR Service Transit

Product tested	110mm Protecta FR Service Transit with Bio wool seal no services		
Summary of testing procedure			Result
	Pressure (Pa)	Leakage (m ³ /h)	Leakage (m ³ /m ² /h)
Results under negative chamber pressure	25	0.18	N/A
	50	0.29	N/A
	100	0.46	N/A
	200	0.88	N/A
	300	1.33	N/A
	450	1.82	N/A
	600	2.66	N/A
Results under positive chamber pressure	25	0.08	N/A
	50	0.14	N/A
	100	0.35	N/A
	200	0.62	N/A
	300	1.44	N/A
	450	2.18	N/A
	600	3.24	N/A

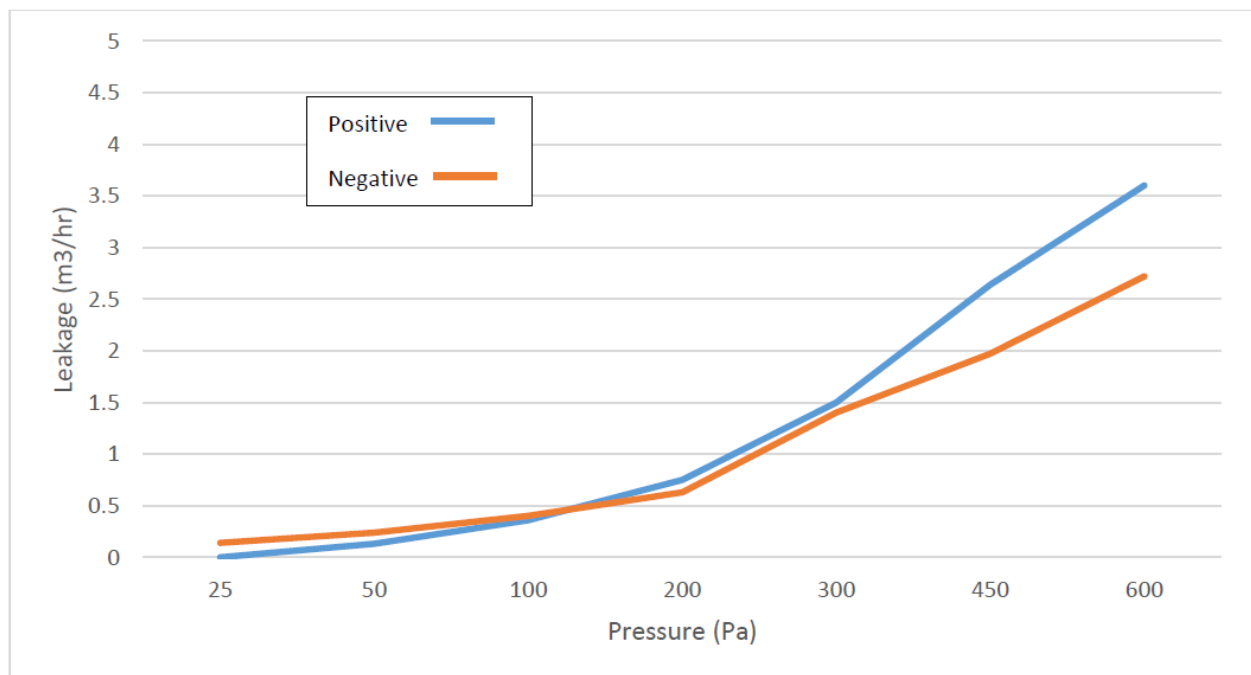


Solutions

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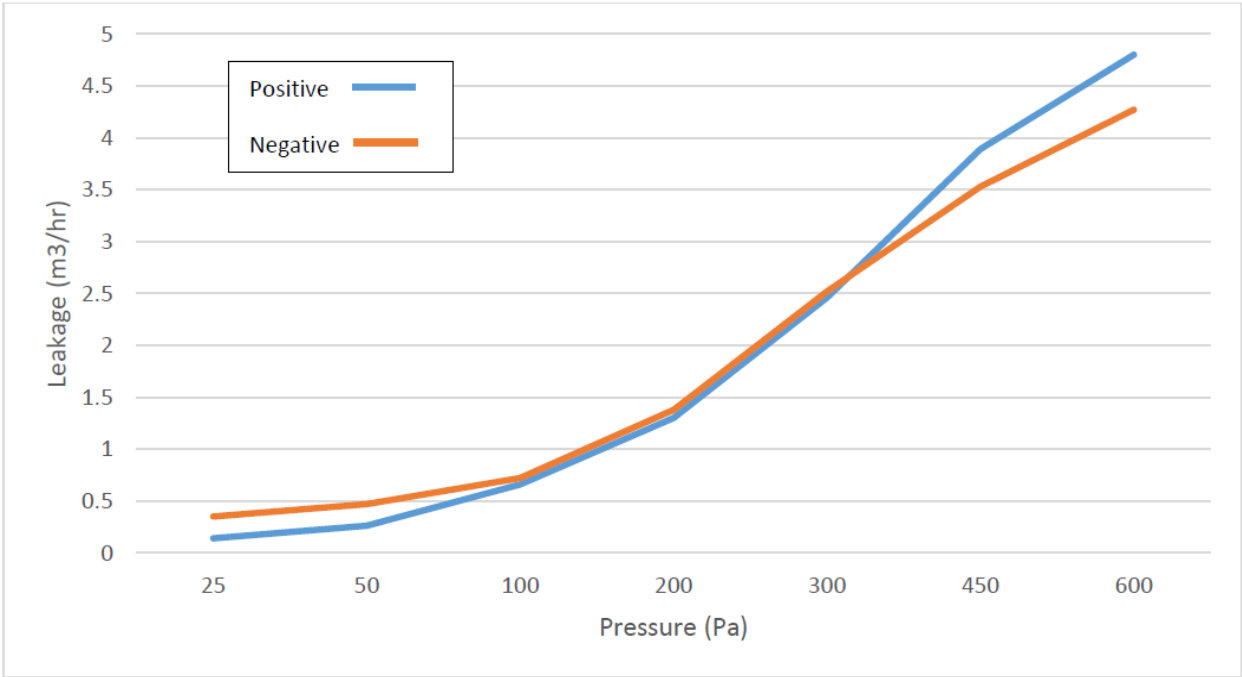
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Product tested	110mm Protecta FR Service Transit with single 12mm cable through Bio wool seal		
Summary of testing procedure			Result
	Pressure (Pa)	Leakage (m ³ /h)	Leakage (m ³ /m ² /h)
Results under negative chamber pressure	25	0.14	N/A
	50	0.24	N/A
	100	0.4	N/A
	200	0.63	N/A
	300	1.4	N/A
	450	1.97	N/A
	600	2.72	N/A
Results under positive chamber pressure	25	0.05	N/A
	50	0.13	N/A
	100	0.36	N/A
	200	0.75	N/A
	300	1.5	N/A
	450	2.64	N/A
	600	3.6	N/A



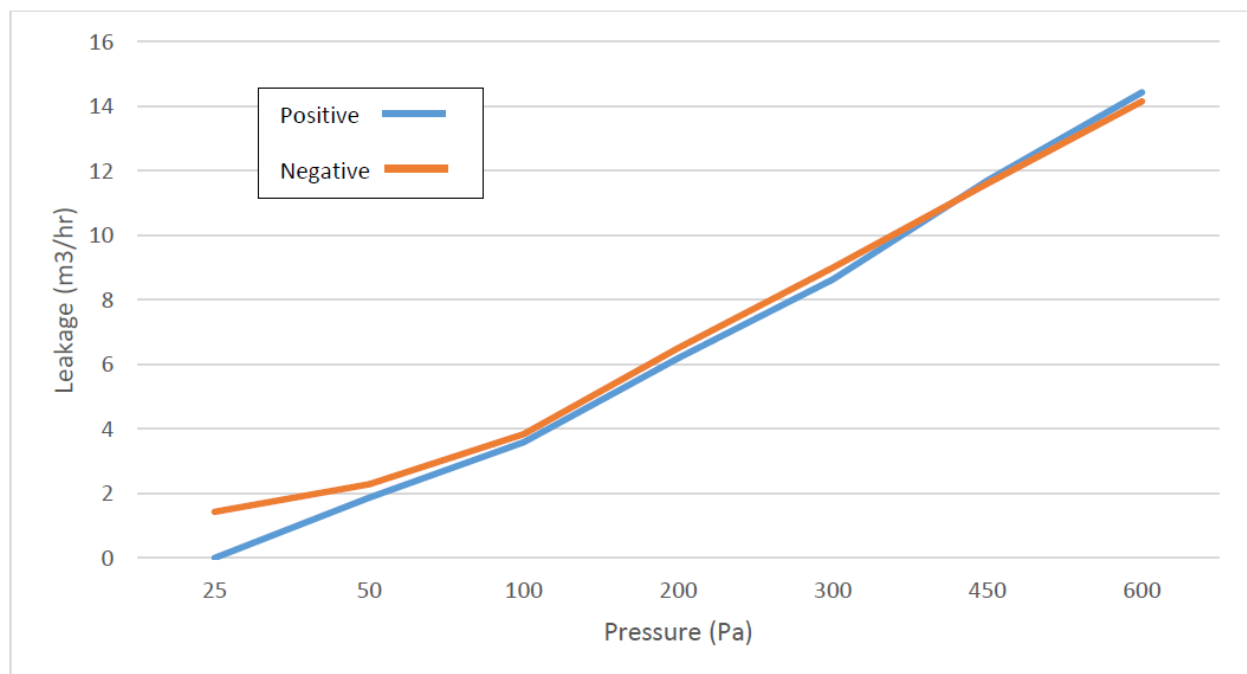
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Product tested	110mm Protecta FR Service transit with 50mm bundle 12mm cables through Bio wool seal		
Summary of testing procedure			Result
	Pressure (Pa)	Leakage (m³/h)	Leakage (m³/m²/h)
Results under negative chamber pressure	25	0.35	N/A
	50	0.47	N/A
	100	0.72	N/A
	200	1.38	N/A
	300	2.52	N/A
	450	3.53	N/A
	600	4.27	N/A
Results under positive chamber pressure	25	0.14	N/A
	50	0.26	N/A
	100	0.66	N/A
	200	1.3	N/A
	300	2.46	N/A
	450	3.89	N/A
	600	4.8	N/A



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Product tested	110mm Protecta FR Service transit with 80mm bundle 12mm cables through Bio wool seal		
Summary of testing procedure			Result
	Pressure (Pa)	Leakage (m ³ /h)	Leakage (m ³ /m ² /h)
Results under negative chamber pressure	25	1.43	N/A
	50	2.29	N/A
	100	3.84	N/A
	200	6.51	N/A
	300	9	N/A
	450	11.6	N/A
	600	14.15	N/A
Results under positive chamber pressure	25	1.43	N/A
	50	1.87	N/A
	100	3.59	N/A
	200	6.19	N/A
	300	8.63	N/A
	450	11.7	N/A
	600	14.43	N/A



Solutions

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The UL-EU Marks, displayed below represent the enhanced and alternate version of the product marking. Either Mark can be used. These Marks shall appear on certified products only. Minimum size is not specified, as long as the Mark is legible. The following is suggested.



*Note: E12345 is an example of the UL file number.

The minimum height of the registered trademark symbol ® shall be 1 mm. When the overall diameter of the UL-EU Mark is less than 9.5 mm, the trademark symbol may be omitted if it is not legible to the naked eye.

The UL-EU Mark may appear on a label, nameplate, or may be cast, stamped or molded into the product. When appearing on a label or nameplate, the Manufacturer's name or trademark along with a model number and UL File number are also required on that same label or nameplate. If cast, stamped or molded, the Manufacturer's name or trademark and model number shall also appear elsewhere on the product.

All content shall be in accordance with the details provided on this UL-EU Certificate.

PROCUREMENT

The Production site may reproduce the Mark or obtain it from a UL authorized supplier. The list of UL authorized suppliers can be found on UL's online directory at www.ul.com.



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