

UL-EU CERTIFICATE

Certificate No.
UL-EU-00910-EN

Issue date
2015-10-09

Issue No.
4

Re-Issue date
2026-04-22

Expiry date
2036-04-21



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 IPT

evaluated and meets the requirements of the standards:

EAD 350454-00-1104, September 2017/ EAD 350141-00-1106/ 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shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.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 IPT sealant for fire stopping where there are joints in or between walls and floors or service penetrations through floors and walls. The detailed scope is given in pages 4 to 28 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)	UKTA-22/0028 & UKTA-22/0029
	ii)	UK – CERTIFICATE OF CONSTANCY OF PERFORMANCE 0843 – CPR – 1224
	iii)	Inspection and surveillance of factory production control by UL
	iv)	Fire resistance test data in accordance with EN 1366-3: 2009 and 1366-4: 2006
	v)	Classification in accordance with EN 13501-2
	vi)	Durability and Serviceability as defined in EAD 350141-00-1106

The movement capability of Protecta FR IPT joint seals is restricted to $\leq 7.5\%$

The durability class of Protecta FR IPT is X - intended for use at conditions exposed to weathering. Includes lower use categories.

Protecta FR IPT is a sealant used to form linear gap seals where gaps are present. The intended use is to reinstate the fire resistance performance of floor to floor/ floor to wall joints and wall gaps. Typical locations of linear joints include floors, the perimeter of floors, walls, ceilings and roofs. The sealant may also be used to form a penetration seal around cables, conduits, metallic pipes and plastic pipes to reinstate the fire resistance performance of wall and floor constructions, where they have been provided with apertures for the penetration of services.

The Protecta FR IPT sealant is supplied in liquid form contained within 200 ml, 300 ml, 380 mm and 600 ml containers. The sealant is gunned into the aperture in the separating element/elements to a specified depth.



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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.

According to EN 13501-2: 2023, Clause 7.5.8.4, the following classification codes are defined in addition E & EI:

Test conditions	Designation
Specimen orientation - Horizontal supporting construction - Vertical supporting construction – vertical joint - Vertical supporting construction – horizontal joint	H V T
Movement capability - No movement - Movement induced lateral (in%) - Movement induced lateral (in%)	X M _{lat} 000 M _{shear} 000
Type of splices - Manufactured - Field - Both manufactured and field	M F B
Joint widths range (in mm)	W w1 to w2
e.g. EI 30 – H – M _{lat} 30 – B – W 30 to W 90	



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A) Linear Gap Seals	
1. Technical Description of the Product	
1)	Protecta FR IPT is a sealant used to form linear gap seals where gaps are present. The intended use is to reinstate the fire resistance performance of floor to floor/ floor to wall joints and wall gaps. Typical locations of linear joints include floors, the perimeter of floors, walls, ceilings and roofs.
2)	The Protecta FR IPT is supplied in liquid form contained within 200 ml, 300 ml, 380 mm and 600 ml containers. The sealant is gunned into the aperture in the separating element/elements and around the service or services, to a specified depth.
3)	Protecta FR IPT contains no carcinogenic substances or mutagenic substances, flame retardants or antimicrobiological agents.
2. Specification of the Intended Uses of the Product	
The intended use of system Protecta FR IPT is to reinstate the fire resistance performance of gaps in and joints in and between flexible wall and rigid wall constructions, gaps in and joints between rigid floor constructions.	
1)	The specific elements of construction that the system Protecta FR IPT may be used to provide a gap or joint seal in, are as follows: a. 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. The wall is permitted with or without insulation. Flexible wall solutions may also be used in rigid walls, with a minimum density of 350 kg/m³. b. Rigid walls: The wall must have a minimum thickness of 75 mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650 kg/m³. c. 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/m³. * 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. Where a backing material is described in pages 8 to 15, this can be replaced with Protecta FR IPT if the total seal depth is the same or greater. The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.
2)	The system Protecta FR IPT may be used to provide a linear joint or gap seal with specific supporting constructions and substrates (for details see pages 8 to 15).
3)	The maximum permitted joint/gap width for system Protecta FR IPT is 30 mm.
4)	The maximum movement capability of system Protecta FR IPT when used as a linear joint or gap seal within the scope of this certificate is ≤ 7.5%
5)	Where single sided top face seals are described in pages 8 to 15, these can also be used in composite floors (e.g., concrete filled, steel trapezoidal decking).



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B. Penetration Seals	
1. Technical Description of the Product	
1)	Protecta FR IPT is a sealant used to form a penetration seal around cables, conduits, metallic pipes and plastic pipes to reinstate the fire resistance performance of wall and floor constructions, where they have been provided with apertures for the penetration of services.
2)	The Protecta FR IPT is supplied in liquid form contained within 200 ml, 300 ml, 380 mm and 600 ml containers. The sealant is gunned into the aperture in the separating element/elements and around the service or services, to a specified depth utilising a backing material.
3)	Protecta FR IPT contains no carcinogenic substances or mutagenic substances, flame retardants or antimicrobiological agents.
2. Specification of the Intended Uses of the Product	
1)	The intended use of system Protecta FR IPT is to reinstate the fire resistance performance of flexible wall constructions, rigid wall constructions and rigid floor constructions where they are penetrated by various service penetrations.
2)	The specific elements of construction that the system Protecta FR IPT may be used to provide a penetration seal in, are as follows: a. Flexible walls: The wall must have a minimum thickness of 100 mm and comprise steel studs or timber studs lined on both faces with minimum 2 layers of 12.5 mm thick boards. Flexible wall solutions may also be used in rigid walls, with a minimum density of 350 kg/m³. b. 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 c. 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/m³. d. 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/m³. Protecta Fire Protection Systems which involve services penetrating both sides of a flexible wall may also be used in the situation where the services penetrates one side of the wall only and the remaining side of the wall is not penetrated at the same point (i.e. the services continues on the inside of the wall). All fire integrity and thermal insulation ratings for such single-sided penetrations remain the same as for the equivalent double-sided penetration. The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.
3)	The system Protecta FR IPT may be used to provide a penetration seal with specific cables, conduits, single uninsulated metal pipes, insulated metal pipes and plastic pipes (for details see pages 16 to 28).



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Specific Supporting Construction Specifications (Continued)

- 4) The annular ring width should be minimum 10 mm and maximum 30 mm. The annular space/gap around the services shall be infilled with Protecta FR IPT. For full details, see pages 16 to 28.
- 5) Where a backing material is described in pages 16 to 28, this can be replaced with Protecta FR IPT if the total seal depth is the same or greater.
- 6) Where single sided top face seals are described in pages 16 to 28, these can also be used in composite floors (e.g., concrete filled, steel trapezoidal decking).
- 7) When installing the system Protecta FR IPT in hollow floor slabs, top sided seals should be completed double sided without reduction of the seal depth on either side. There must be sufficient thickness of concrete below and above the void for the depth of the fire seal. Where this is not the case, tubular voids should be plugged with stone wool backing material before sealing the aperture.
- 8) Services through the system Protecta FR IPT may be used in all angles between 90° and 45° in all directions, subject to metallic pipes only.
- 9) 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, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1. Where steel pipes are mentioned in Annex A, this includes iron pipes.
- 10) Pipes shall be supported at maximum 250 mm away from both faces of the wall constructions and 450 mm from the upper face of floor constructions.
- 11) Solutions given in pages 16 to 25 for Protecta FR IPT within 100 mm thick flexible walls, can be used in panel walls limited to EI 90. All seals must be fitted with minimum 25 mm deep Protecta FR IPT to both sides of the wall, backed with minimum 25 mm deep stone wool or mineral fibre insulation.



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Product-type: Mortar		Intended use: Penetration Seal
Assessment method	Essential characteristic	Product Performance
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	Class B - s1, d0
EN 13501-2	Resistance to fire	See pages 8 to 28
BWR 3 Hygiene, health and the environment		
EN 1026	Air permeability	See page 29#
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	X
BWR 5 Protection against noise		
EN 10140-1,2,4,5/ EN ISO 717-1	Airborne sound insulation	R _w (C;Ctr)= 62 (0;-4) dB*
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
*At minimum 12 mm depth and only applicable to linear joint and gap seals # Applicable to linear joint and gap seals only		



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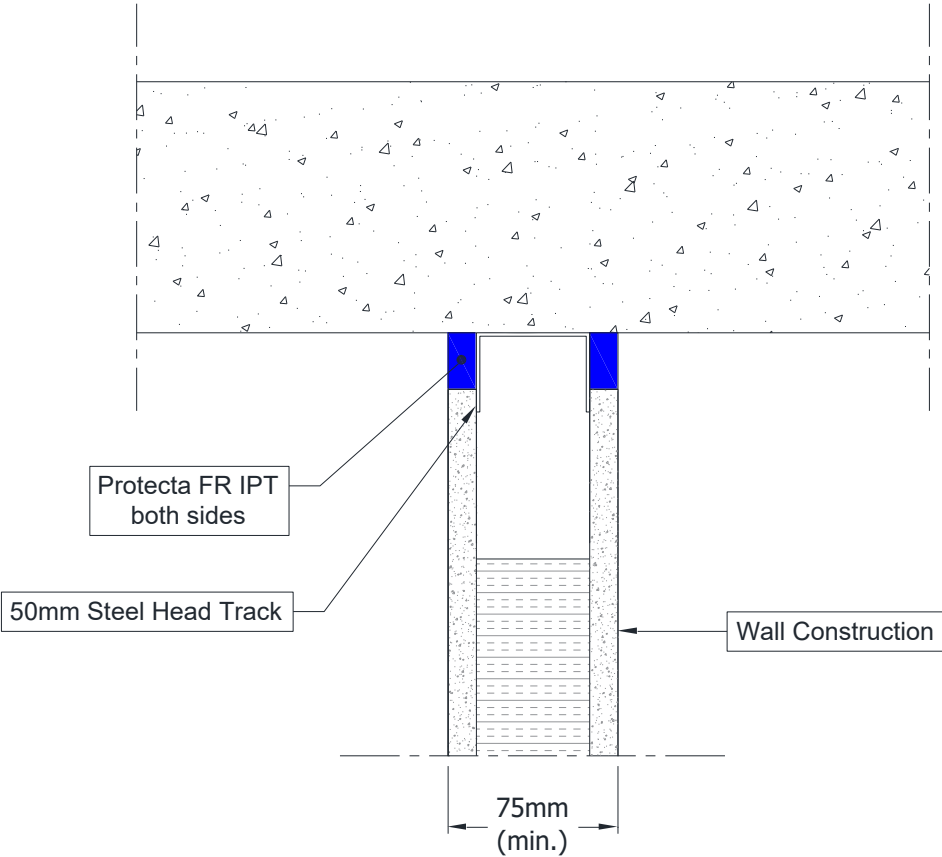
Linear Joint Seals

Flexible and rigid wall constructions according to A.1.2.1 with wall thickness of minimum 75 mm

Linear horizontal wall joints abutting a floor, ceiling or roof

Joint Seal: Protecta FR IPT to both sides of the wall, joint widths up to 25 mm

Construction details:



Protecta FR IPT both sides

50mm Steel Head Track

Wall Construction

75mm (min.)

Substrate	Depth (mm)	Backing	Classification
Wall/Floor	12.5 min.	Minimum 50 mm steel partition head track/ stud	E 60 – T – X – F – W 25 EI 45 – T – X – F – W 25

Solutions
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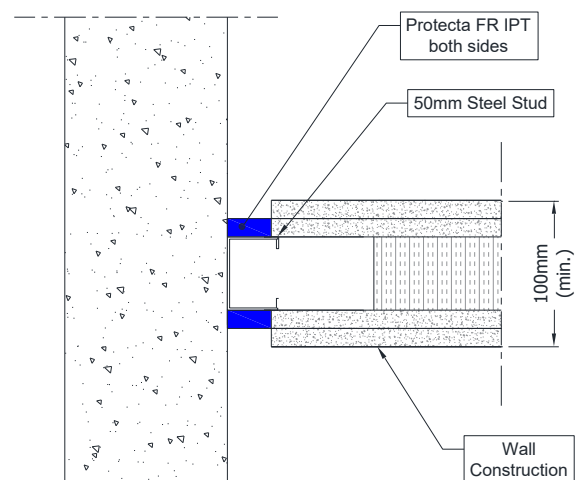
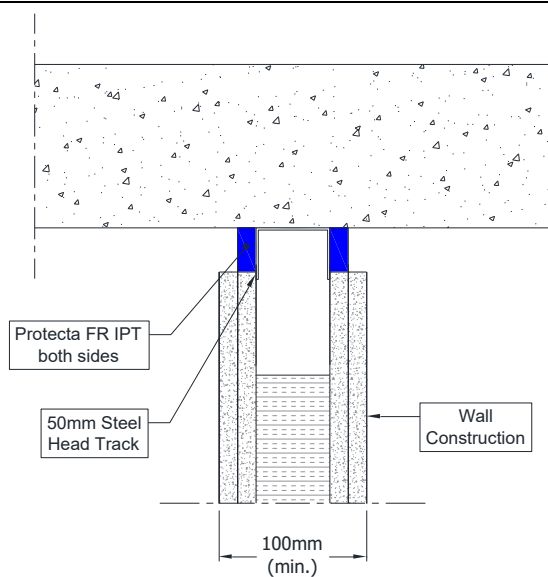
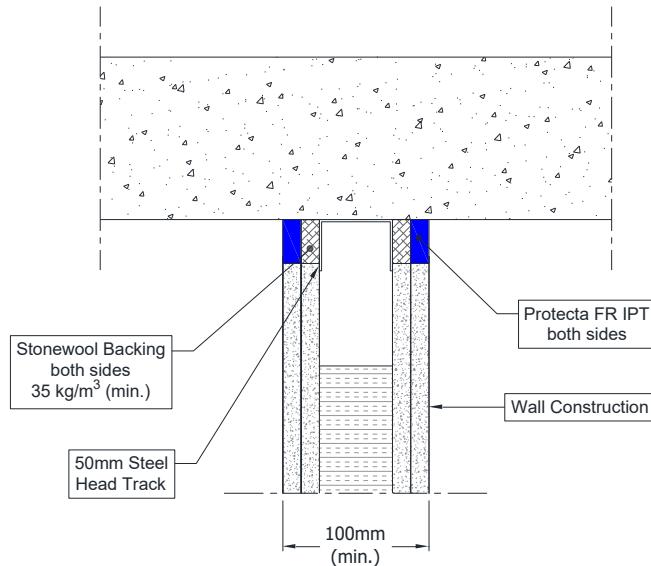
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Flexible and rigid wall constructions according to A.1.2.1 with wall thickness of minimum 100 mm

Linear joints in a vertical construction and horizontal wall joints abutting a floor, ceiling or roof

Joint Seal: Protecta FR IPT to both sides of the wall, joint widths up to 30 mm

Construction details:



Substrate	Depth (mm)	Backing	Classification
Wall/Floor	12.5 min.	12.5 mm stonewool minimum 35 kg/m ³ plus minimum 50 mm steel partition head track	EI 120 – T – X – F – W 30
		Minimum 50 mm steel partition head track /stud	E 90 – T – X – F – W 25
			EI 60 – T – X – F – W 25
			EI 120 – V – X – F – W 15



Solutions

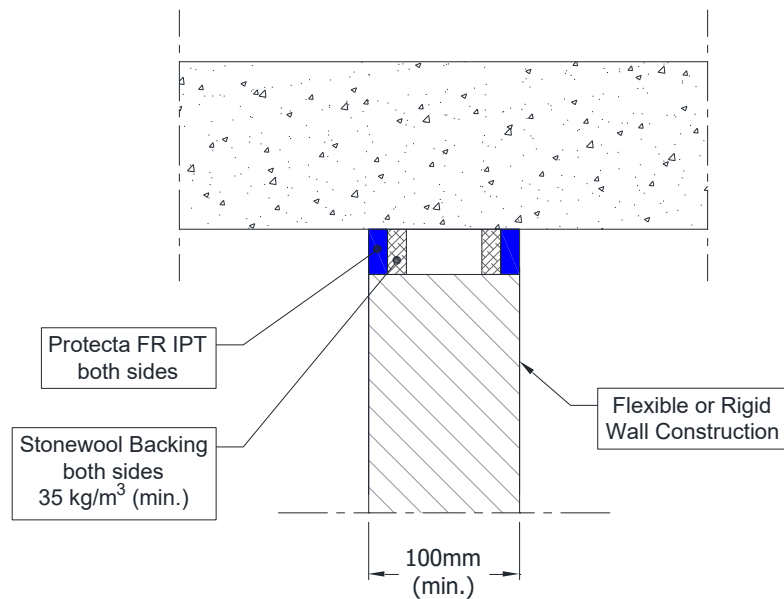
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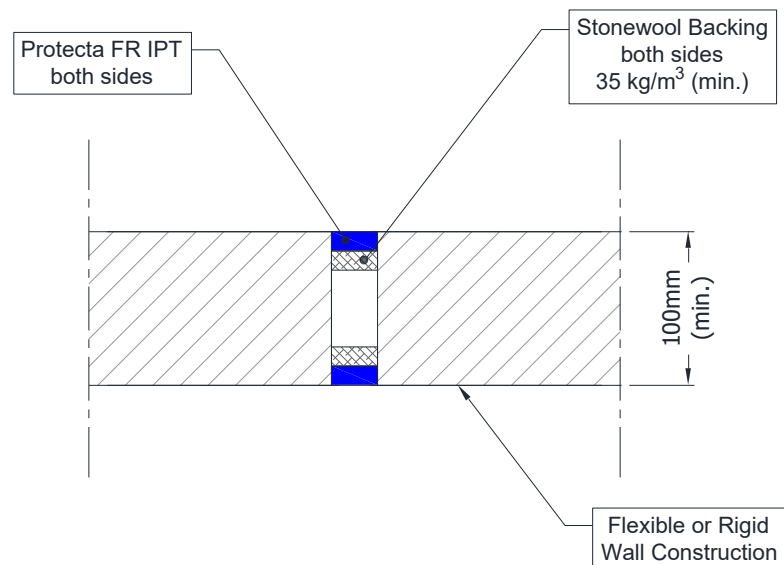
Linear joints in a vertical construction and horizontal wall joints abutting a floor, ceiling or roof

Joint Seal: Protecta FR IPT to both sides of the wall, joint widths up to 30 mm

Construction details:



Construction details:



Substrate	Depth (mm)	Backing	Classification
Wall/Floor	12.5 min.	12.5 mm stonewool minimum 35 kg/m ³	EI 120 – T – X – F – W 30 EI 120 – V – X – F – W 30



Solutions

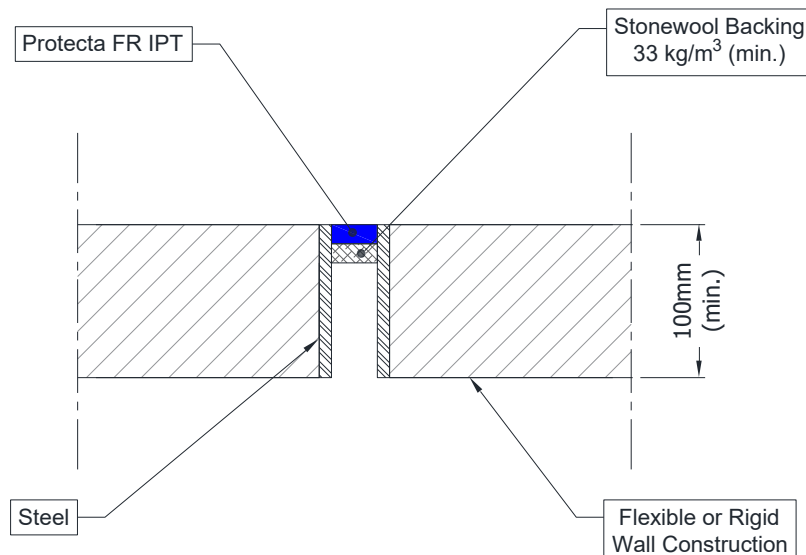
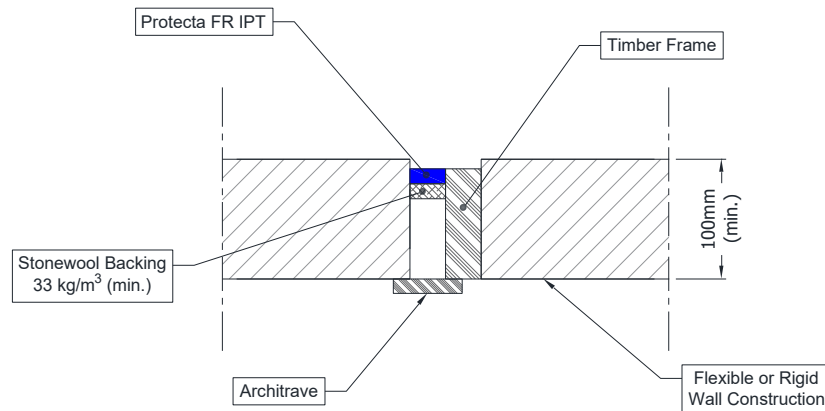
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Linear joint or gap seals, vertically or horizontal orientated with backing materials

Joint Seal: Protecta FR IPT to one side of the wall, joint widths up to 30 mm

Construction details:



Substrate	Depth (mm)	Facing (minimum)	Backing	Classification
Flexible or rigid wall / Timber	12.5 min.	Single sided linear seals in flexible or rigid walls against wooden frames covered with architraves on the other side fixed with 27 mm steel pins at nominal 280 mm centres	12.5 mm stone-wool min. 33 kg/m ³	EI 30 – T – X – F – W 30
Flexible or rigid wall / Steel	12.5 min.	Single sided linear seals in flexible or rigid walls against steel frames, or in-between two steel surfaces	12.5 mm stone-wool min. 33 kg/m ³	E 120 – T – X – F – W 30 EI 30 – T – X – F – W 30



Solutions

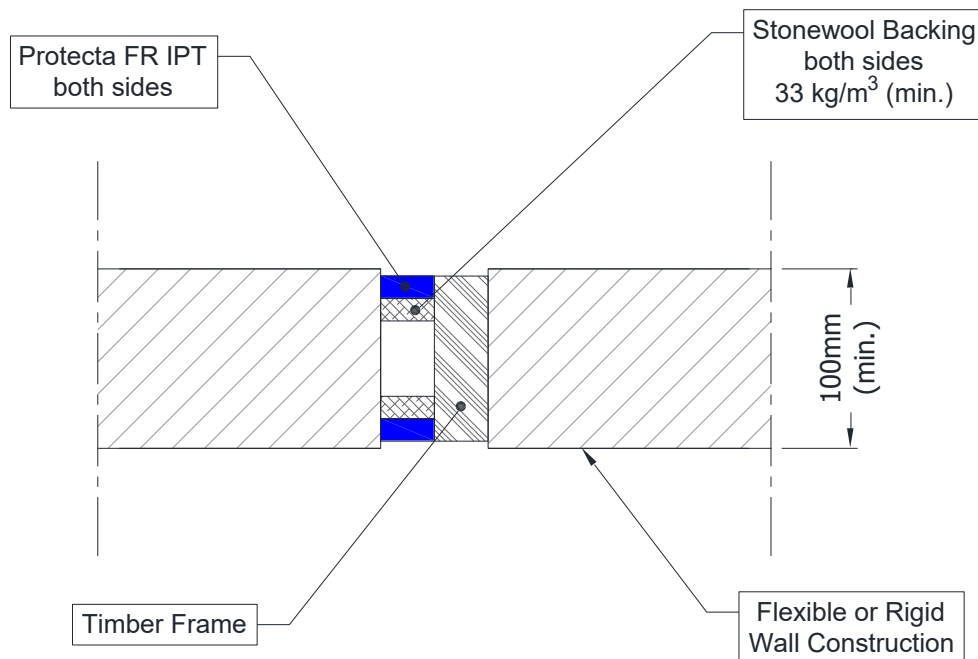
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Linear joint or gap seals, vertically or horizontal orientated with backing materials

Joint Seal: Protecta FR IPT to both sides of the wall, joint widths up to 30 mm

Construction details:



Substrate	Depth (mm)	Facing	Backing	Classification
Flexible or rigid wall / Timber	12.5 min.	Double sided linear seals in flexible or rigid walls against wooden frames	12.5 mm stone-wool min. 33 kg/m ³	EI 60 – V – X – F – W 30
				EI 90 – T – X – F – W 30



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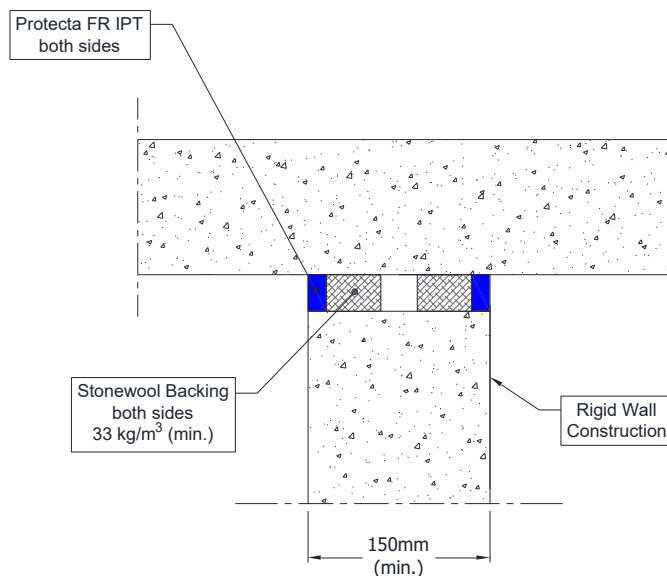
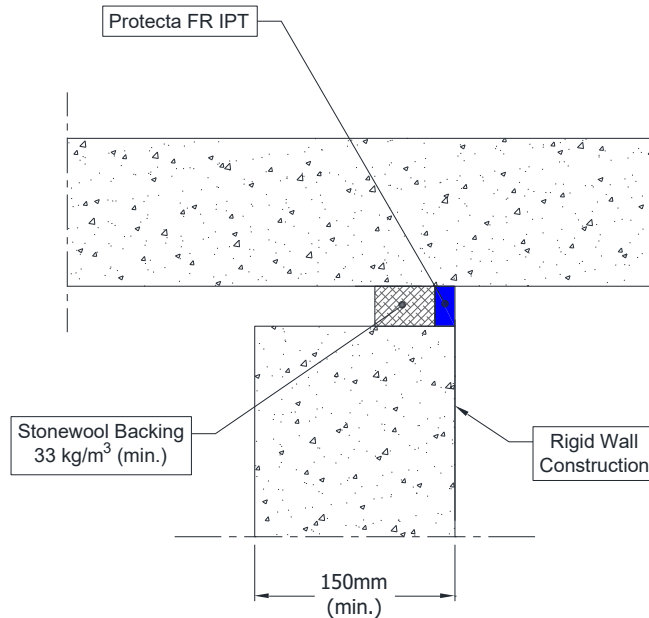
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Rigid wall constructions according to A.1.2.1 with wall thickness of minimum 150 mm

Linear horizontal wall joints abutting a floor, ceiling or roof

Joint Seal: Protecta FR IPT to one or both sides of the wall, joint widths up to 30 mm

Construction details:



Substrate	Depth (mm)	Backing	Classification
Concrete/ masonry	15 min. (one side)	45 mm stone wool minimum 33 kg/m ³	E 240 – T – X – F – W 30 EI 60 – T – X – F – W 30
	15 min. (both side)	45 mm stone wool minimum 33 kg/m ³	EI 240 – T – X – F – W 30



Solutions

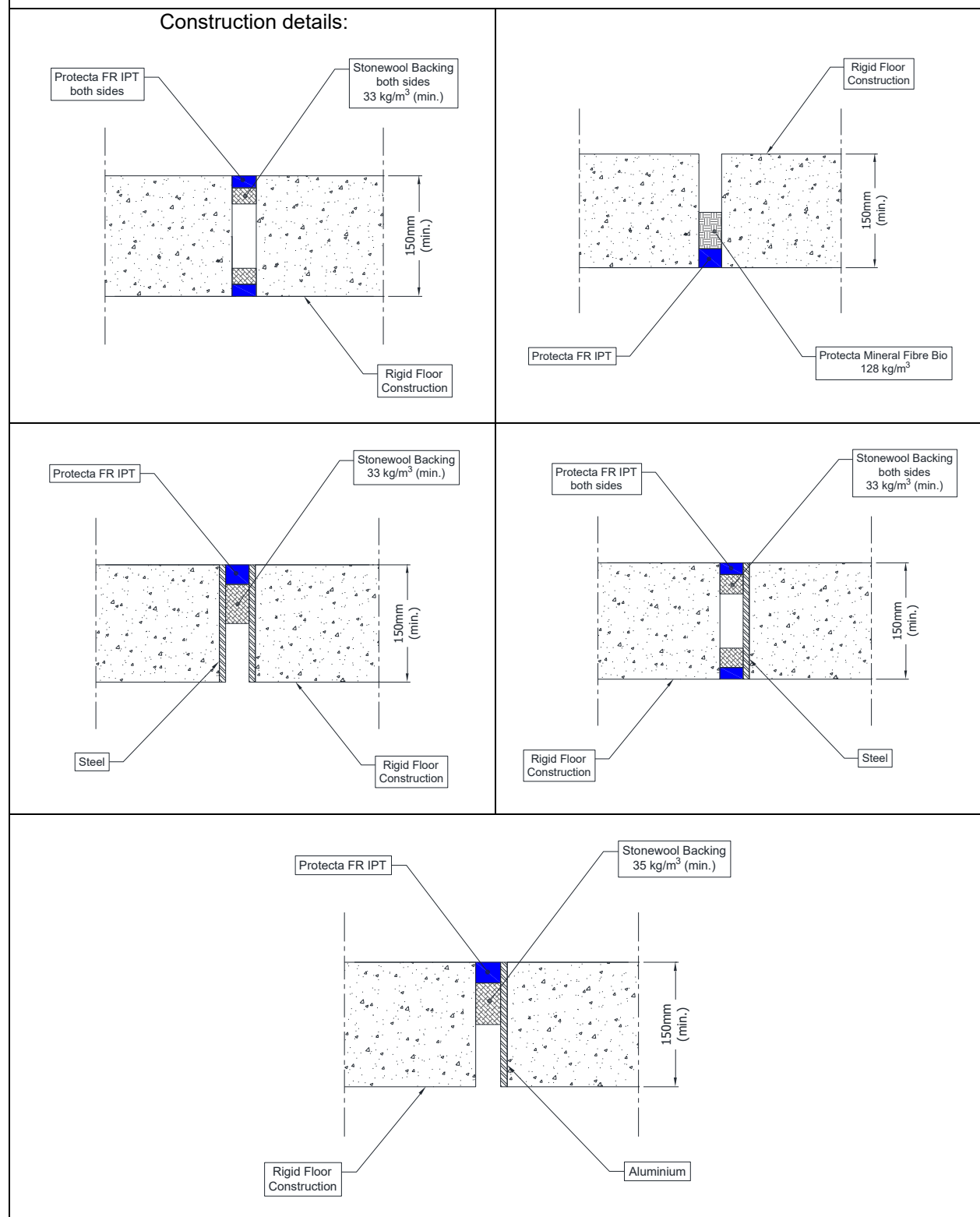
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Rigid floor constructions according to A.1.2.1 with floor thickness of minimum 150 mm

Linear joints in a horizontal construction, horizontal linear joints in a vertical construction and horizontal floor joints abutting a wall

Joint Seal: Protecta FR IPT to one or both sides of the floor, joint widths up to 30 mm



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Substrate	Depth (min)	Backing	Position	Classification
Concrete	15 mm	20 mm stonewool minimum 33 kg/m ³	Both	EI 240 – H – X – F – W 30
	25 mm	48 mm Protecta Mineral Fibre BIO 128 kg/m ³	Any	E 240 – H – X – F – W 30 EI 180 – H – X – F – W 30
Steel/steel or steel/ concrete	25 mm	50 mm stonewool minimum 33 kg/m ³	Top	E 240 – H – X – F – W 30 EI 20 – H – X – F – W 30 ¹
	15 mm	25 mm stonewool minimum 33 kg/m ³	Both	E 180 – H – X – F – W 30 EI 45 – H – X – F – W 30 ²
Aluminium / concrete	25 mm	50 mm stonewool minimum 35 kg/m ³	Top	E 240 – H – X – F – W 30 EI 15 – H – X – F – W 30 ³

*Additional and for information only.

The classifications provided in Table A.3.1.1 consider the insulation performance of all components within the firestopping system as per the requirements of EN 1366-4. This includes temperature evaluation of the steel substrate.

In relation to each of the above classifications, temperatures recorded on the seal (exclusive of the supporting construction) exceeded the maximum allowable after the following times (rounded down):

¹ 60, ² 120, ³ 90



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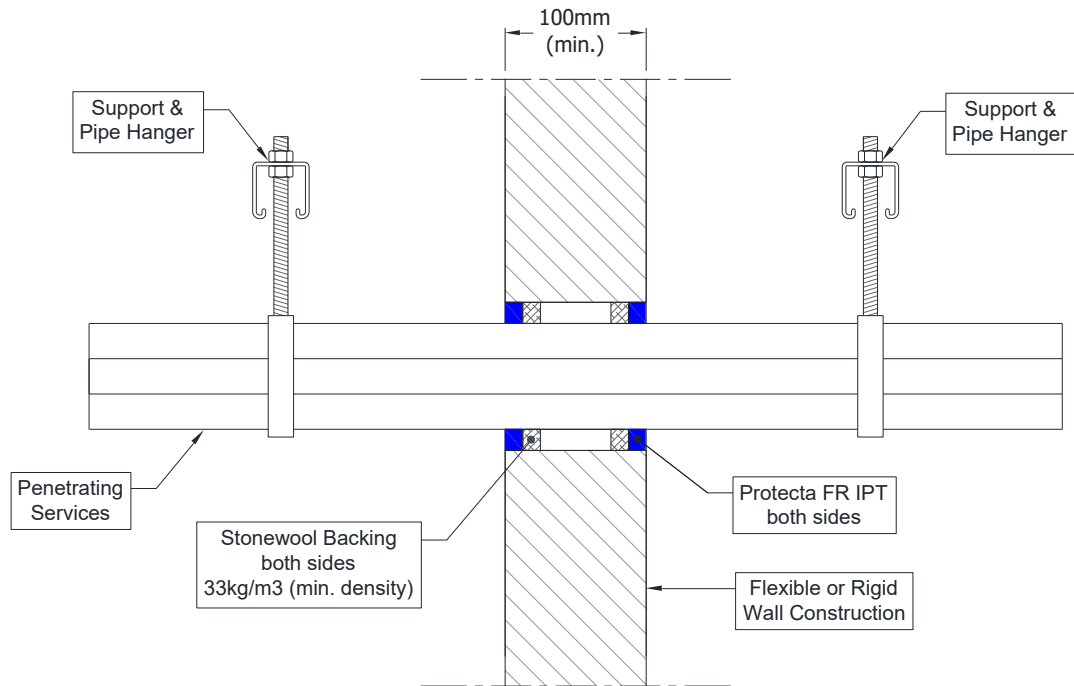
Penetration Seals

Flexible and rigid wall constructions according to B.1.2.1 with wall thickness of minimum 100 mm

Double side penetration seal with cables and conduits

Penetration Seal: Cables (single or bundles up to 100 mm Ø) and conduits fitted at any position within the aperture, with Protecta FR IPT sealant to both sides of the wall, backed with stone wool insulation. Minimum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Double sided penetration seal with cables

Services	Sealant depth (min.)	Backing (min.)	Aperture Ø	Classification
Cables up to 21 mm Ø	12.5 mm	Stone wool 12.5 mm deep 33 kg/m ³	Maximum annular ring width 30 mm	E 90, EI 60
Cables up to 21 mm Ø, in bundles up to 50 mm Ø				EI 60
Cables up to 21 mm Ø, in bundles up to 100 mm Ø				E 60, EI 45



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Double sided penetration seal with conduits

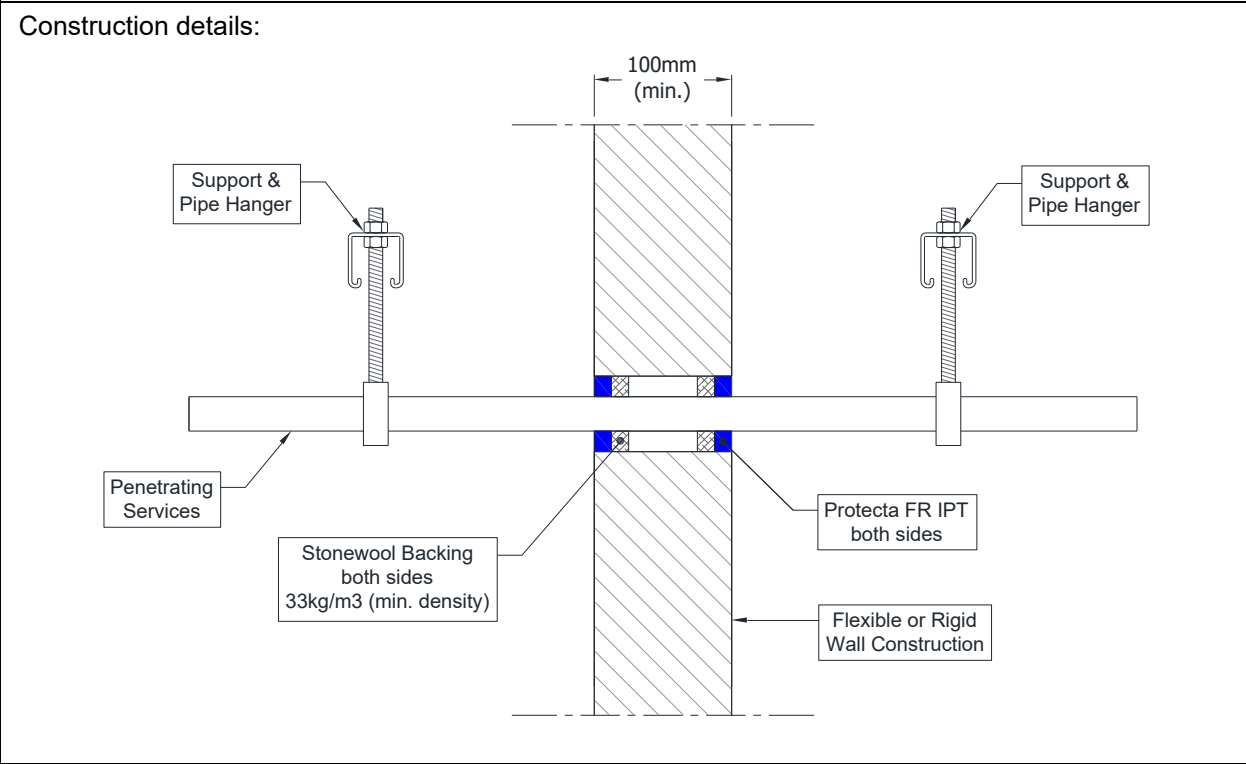
Services	Sealant depth (min.)	Backing (min.)	Maximum Annular space	Classification
PVC pipe				
Diameter 32 mm, wall thickness 1.6 mm for PVC pipes, fully or partially filled conduits with cables up to 21 mm diameter	12.5 mm	Stone wool 12.5 mm deep 33 kg/m ³	30 mm	E 90, EI 60 C/C
Maximum diameter 32 mm, wall thickness 1.0-2.4 mm for PVC pipes, fully or partially filled conduits with cables up to 21 mm diameter	25 mm	None	30 mm	E 90, EI 60 C/C
PP pipe				
Diameter 32 mm, wall thickness 4.4 mm for PP pipes, fully or partially filled conduits with cables up to 21 mm diameter	12.5 mm	Stone wool 12.5 mm deep 33 kg/m ³	30 mm	E 90, EI 60 C/C
Maximum diameter 32 mm, wall thickness 1.8-4.4 mm for PP pipes, fully or partially filled conduits with cables up to 21 mm diameter	25 mm	None	30 mm	E 90, EI 60 C/C



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Double side penetration seal with metallic (and composite) pipes

Penetration Seal: Pipe (single) fitted at any position within the aperture, with 12.5 mm deep Protecta FR IPT Sealant to both sides of the wall, backed with 12.5 mm deep stone wool insulation minimum 33kg/m³. Minimum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).



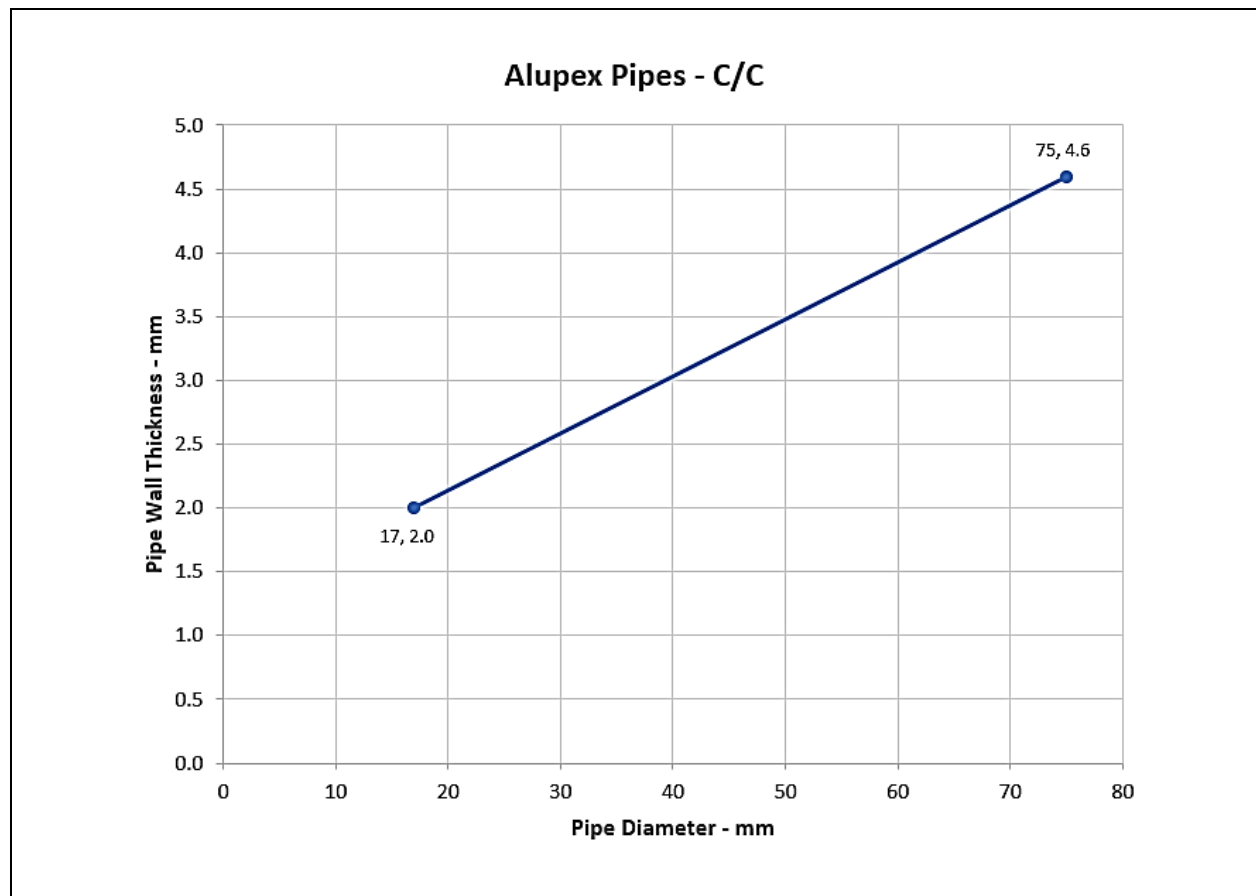
Configuration 1:	Configuration 2:
Option 1	Option 2
Key 1 Supporting construction a1 Pipe / top edge of seal separation a2 Pipe / side edge of seal separation a3 Pipe / pipe separation	



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Services	Sealant depth (min.)	Backing (min.)	Aperture Ø	Classification
Alupex composite pipe 16-20 mm diameter/2.0 mm wall	12.5 mm	Stone wool 12.5 mm deep 33 kg/m ³	Maximum annular ring width 30 mm	EI 120 C/C
Alupex composite pipe 17-75 mm diameter/ *				E 90, EI 15 C/C
Steel pipe 4-22 mm diameter/1.0-11.0 mm wall				EI 120 C/U
Copper or steel pipe 6-12 mm diameter/0.8-6.0 mm wall				E 120, EI 60 C/C
Copper or steel pipe 13-54 mm diameter/0.8-14.2 mm wall				E 90 C/C

* See below graphs for interpolated pipe sizes

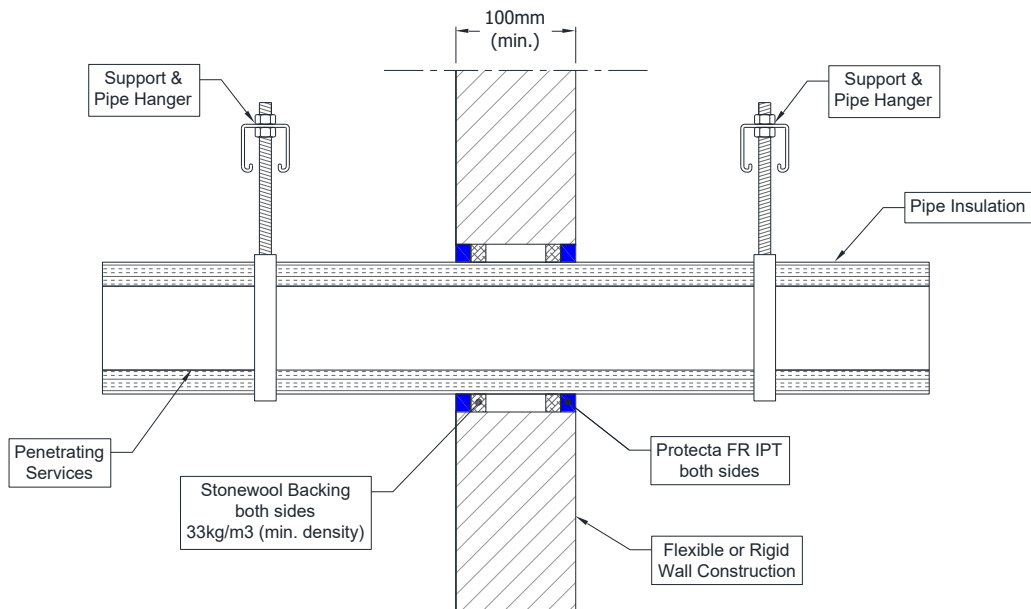


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Double side penetration seal with metallic pipes

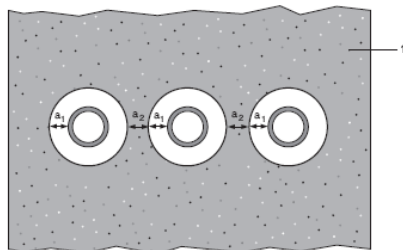
Penetration Seal: CS (Continuous Sustained) insulated metallic pipes (single) fitted at any position within the aperture, with minimum 12.5 mm Protecta FR IPT to both sides of the wall, backed with minimum 12.5 mm deep stone wool insulation minimum 33 kg/m³. Minimum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2). Maximum annular ring width 30 mm.

Construction details:



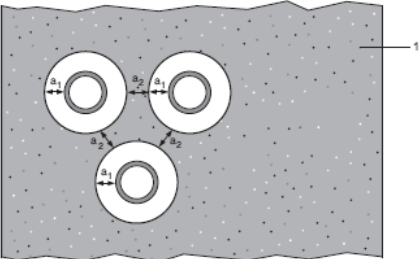
Configuration 1:

Option 1



Configuration 2:

Option 2



Key

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



Solutions

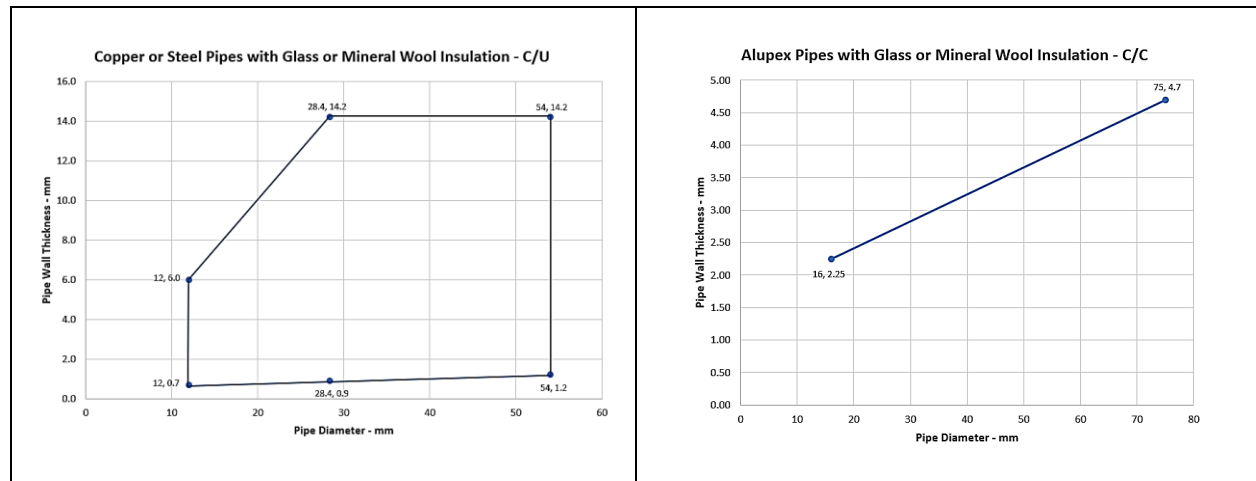
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Double sided penetration seal with pipes

Services	Insulation	Classification
Copper or steel pipe maximum 54 mm diameter/0.7-14.2 mm wall *	20 mm thick glass or stone, mineral wool min. 75 kg/m ³	EI 90 C/U
Copper or steel pipe maximum 54 mm diameter/0.7-14.2 mm wall *	20-40 mm thick glass or stone, mineral wool min. 75 kg/m ³	E 90, EI 60 C/U
Alupex composite pipe 75 mm diameter/ 4.7 mm wall	60 mm thick glass or stone, mineral wool min. 75 kg/m ³	EI 120 C/C
Alupex composite pipe maximum 75 mm diameter/ *	20-60 mm thick glass or stone, mineral wool min. 75 kg/m ³	EI 90 C/C

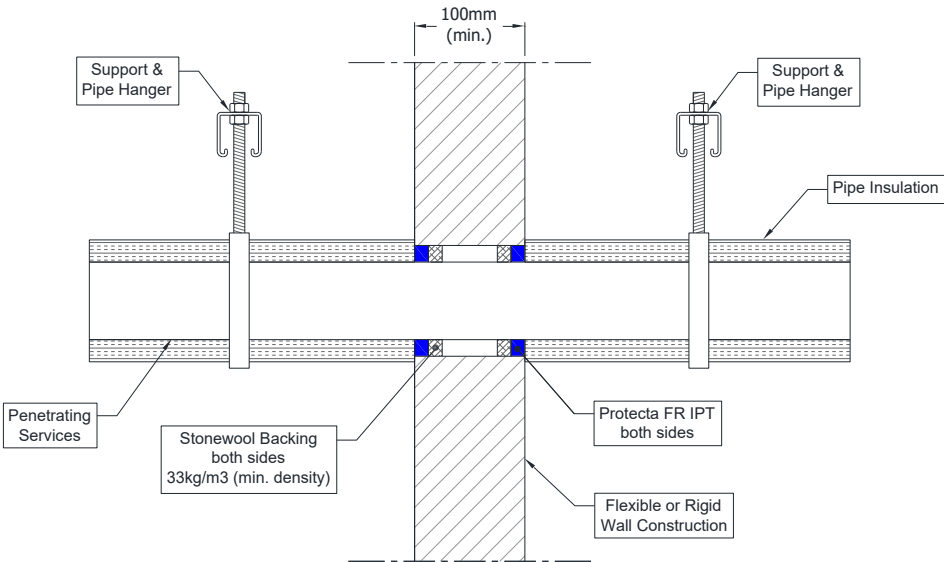
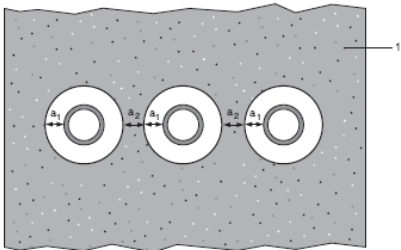
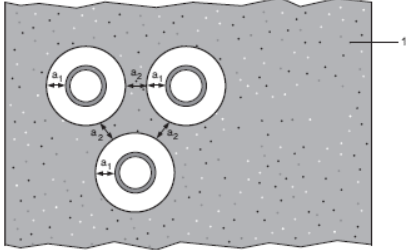
* See below graphs for interpolated pipe sizes



Solutions

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Double side penetration seal with metallic (and composite) pipes

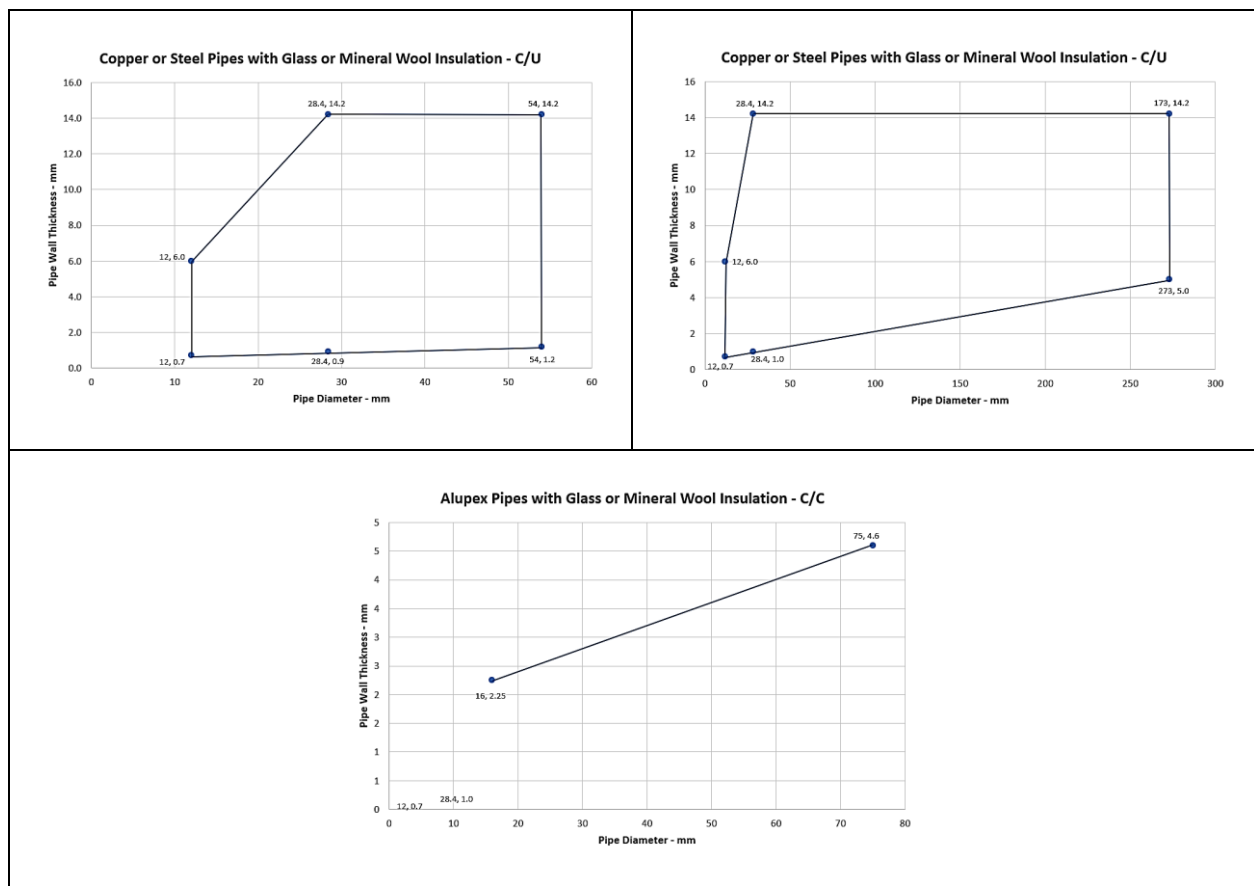
Penetration Seal: LI (Local Interrupted) of minimum length stated below or CI (Continuous Interrupted) insulated metallic pipes and composite (single) fitted at any position within the aperture, with minimum 12.5 mm Protecta FR IPT to both sides of the wall, backed with minimum 12.5 mm deep stone wool insulation minimum 33 kg/m³. Minimum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2). Maximum annular ring width 30 mm.	
Construction details: 	
Configuration 1: Option 1 	Configuration 2: Option 2 
Key 1 Supporting construction a1 Pipe / top edge of seal separation a2 Pipe / side edge of seal separation a3 Pipe / pipe separation	

Appendix UL-EU CERTIFICATE UL-EU-00910-EN

Double sided penetration seal with pipes

Services	Insulation (minimum)	Classification
Copper or steel pipe maximum 54 mm diameter/0.7-14.2 mm wall *	500 mm length of 20 mm thick glass or stone, mineral wool 75 kg/m ³	E 90, EI 60 C/U
Steel pipe maximum 273 mm diameter/0.7-14.2 mm wall *	500 mm length of 30 mm thick glass or stone, mineral wool 75 kg/m ³	E 90, EI 60 C/U
Alupex composite pipe 16 mm diameter/ 2.25 mm wall	500 mm length of 20 mm thick glass or stone, mineral wool 75 kg/m ³	EI 120 C/C
Alupex composite pipe maximum 75 mm diameter/ *	500 mm length of 25 mm thick glass or stone, mineral wool 75 kg/m ³	E 120, EI 90 C/C

* See below graphs for interpolated pipe sizes

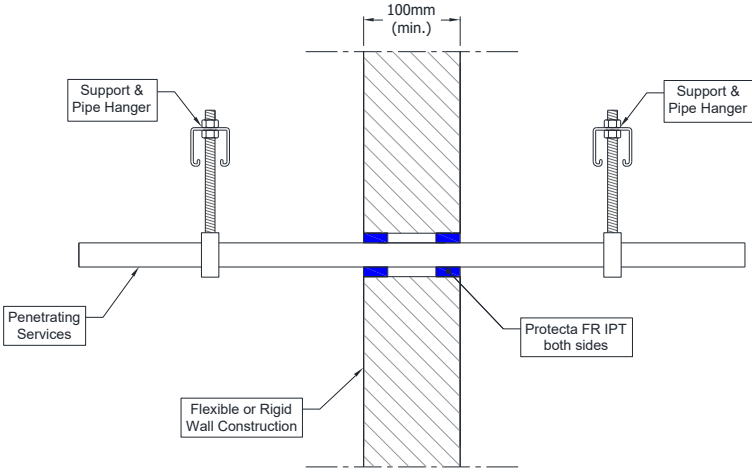
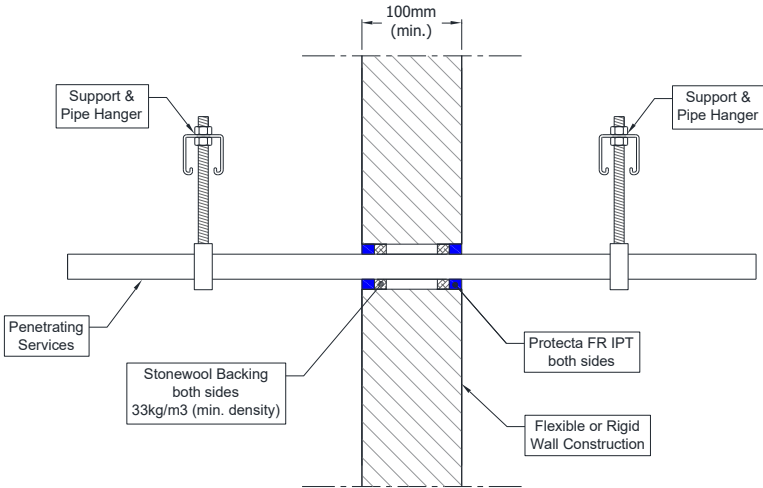
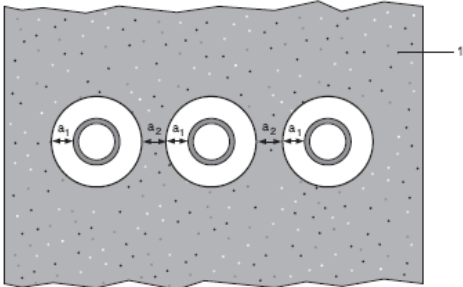
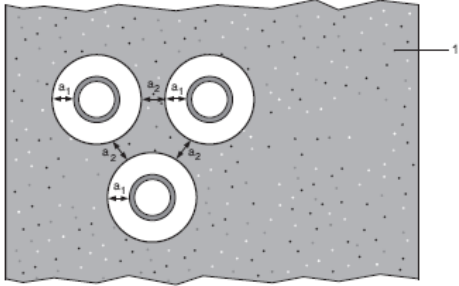


Solutions

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Double side penetration seal with plastic pipes

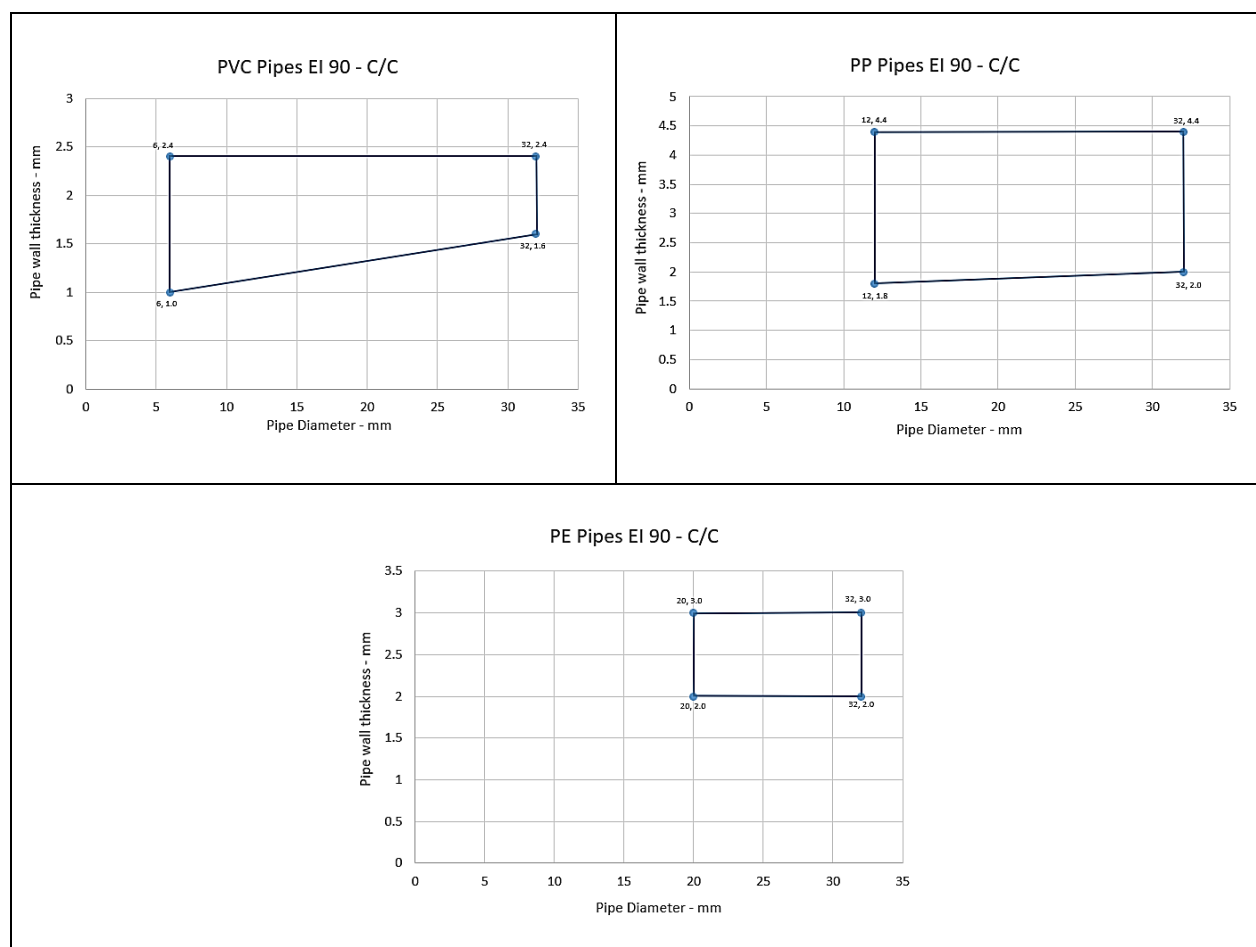
Penetration Seal: Plastic pipes (single) fitted at any position within the aperture, with 25 mm Protecta FR IPT to both sides of the wall. Minimum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).	
Construction details: 	
	
Configuration 1:	Configuration 2:
<i>Option 1</i> 	<i>Option 2</i> 
Key 1 Supporting construction a1 Pipe / top edge of seal separation a2 Pipe / side edge of seal separation a3 Pipe / pipe separation	



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Services	Sealant depth (minimum)	Backing (minimum)	Classification
PVC pipe			
32 mm Ø/1.6 mm wall	12.5 mm	Stone wool 12.5 mm deep 33 kg/m ³	E 90, EI 60 C/C
6-32 mm Ø/1.0-2.4 mm wall*	25 mm	None	EI 90 C/C
PP pipe			
32 mm Ø/4.4 mm wall	12.5 mm	Stone wool 12.5 mm deep 33 kg/m ³	E 90, EI 60 C/C
12-32 mm Ø/1.8-4.4 mm wall*	25 mm	None	EI 90 C/C
PE pipe			
20-32 mm Ø/2.0-3.0 mm wall*	25 mm	None	EI 90 C/C

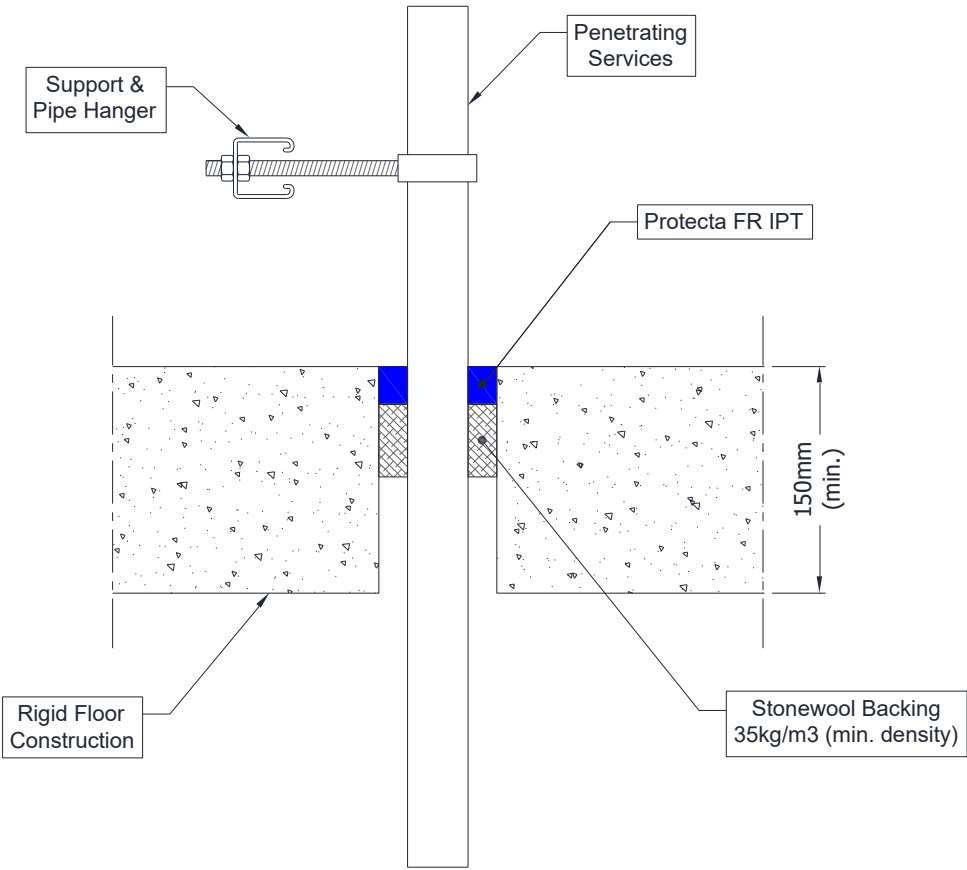
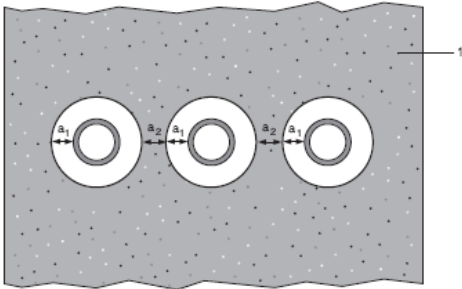
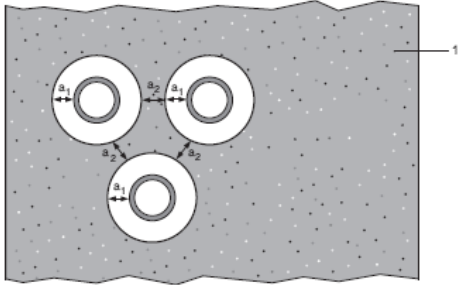
*See below graphs for interpolated pipe sizes and permitted pipe wall thicknesses



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Rigid floor constructions according to B.1.2.1 with floor thickness of minimum 150 mm

Single side penetration seal with pipes

Penetration Seal: Pipes fitted at any position within the aperture, with Protecta FR IPT to the top face of the floor, backed with 48 mm stone wool minimum 35kg/m³. Minimum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).	
Construction details: 	
Configuration 1: <i>Option 1</i> 	Configuration 2: <i>Option 2</i> 
Key 1 Supporting construction a1 Pipe / top edge of seal separation a2 Pipe / side edge of seal separation a3 Pipe / pipe separation	



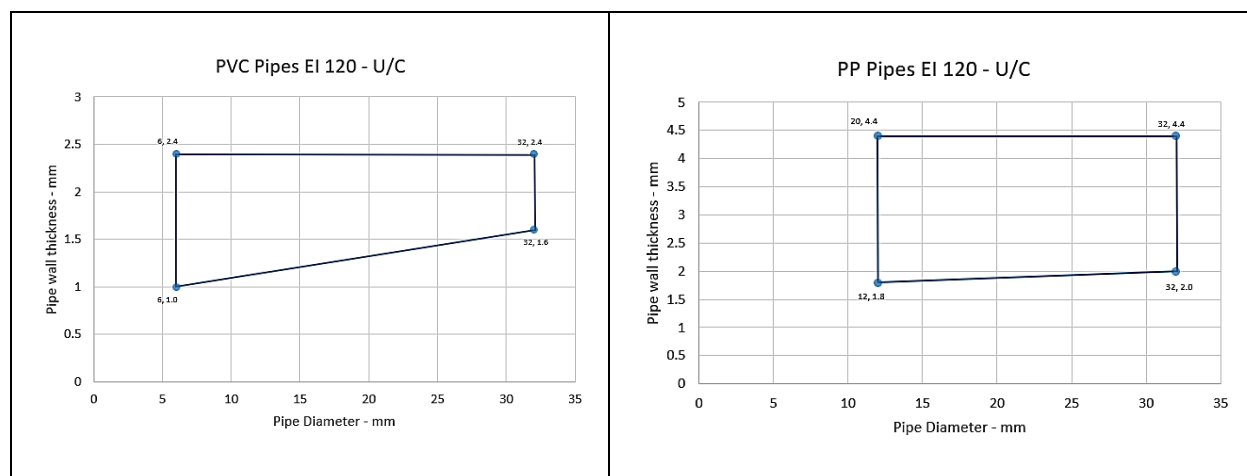
Appendix UL-EU CERTIFICATE UL-EU-00910-EN

Services	Sealant depth (min.)	Backing (min.)	Aperture (max.)	Classification
Mild or stainless steel pipe				
4-16 mm diameter/ 1.0-8.0 mm wall*	25 mm	48 mm stone wool	Annular ring width 30 mm	EI 120 C/U
Copper or steel pipe				
Up to 10 mm diameter/ 0.7-5.0 mm wall*	25 mm	48 mm stone wool	Annular ring width 30 mm	EI 120 C/C
11-15 mm diameter/0.7 -7.5 mm wall	25 mm	48 mm stone wool	Annular ring width 30 mm	E 120, EI 45 C/C
Alupex MCL pipe				
16-20 mm diameter/ 2.0 mm wall	25 mm	48 mm stone wool	Annular ring width 30 mm	EI 120 C/C

*See below graphs for interpolated pipe sizes and permitted pipe wall thicknesses

Services	Sealant depth (minimum)	Backing (minimum)	Classification
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1, PVC-C according to EN 1566-1			
6-32 mm diameter/1.0-2.4 mm wall*	25 mm	48 mm stone wool	EI 120 U/C
PP pipe according to EN 1451-1			
12-32 mm diameter/1.8-4.4 mm wall*	25 mm	48 mm stone wool	EI 120 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			
20-32 mm diameter/2.0-3.0 mm wall*	25 mm	48 mm stone wool	EI 120 U/C

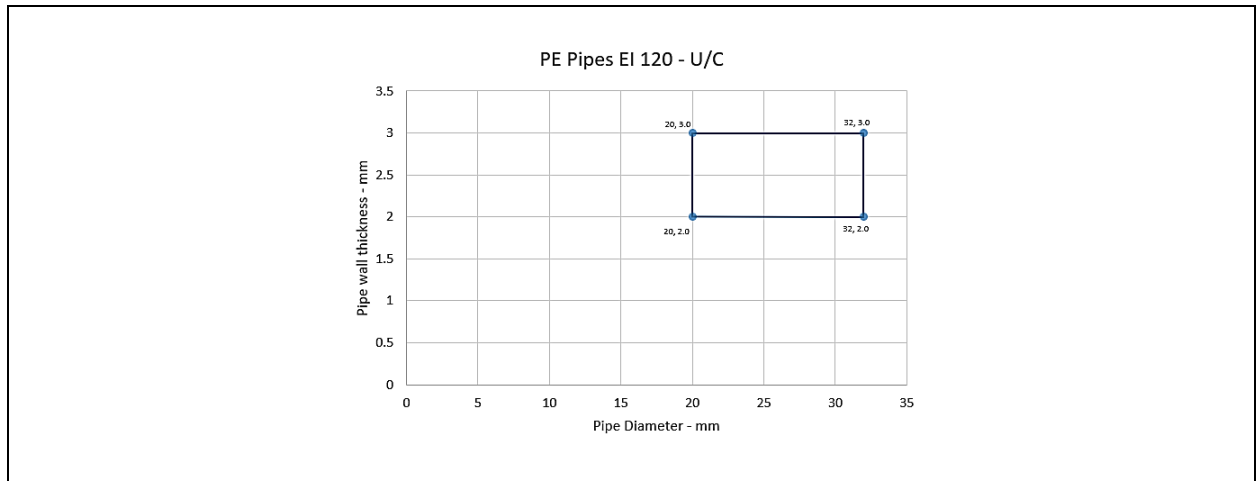
*See below graphs for interpolated pipe sizes and permitted pipe wall thicknesses



Solutions

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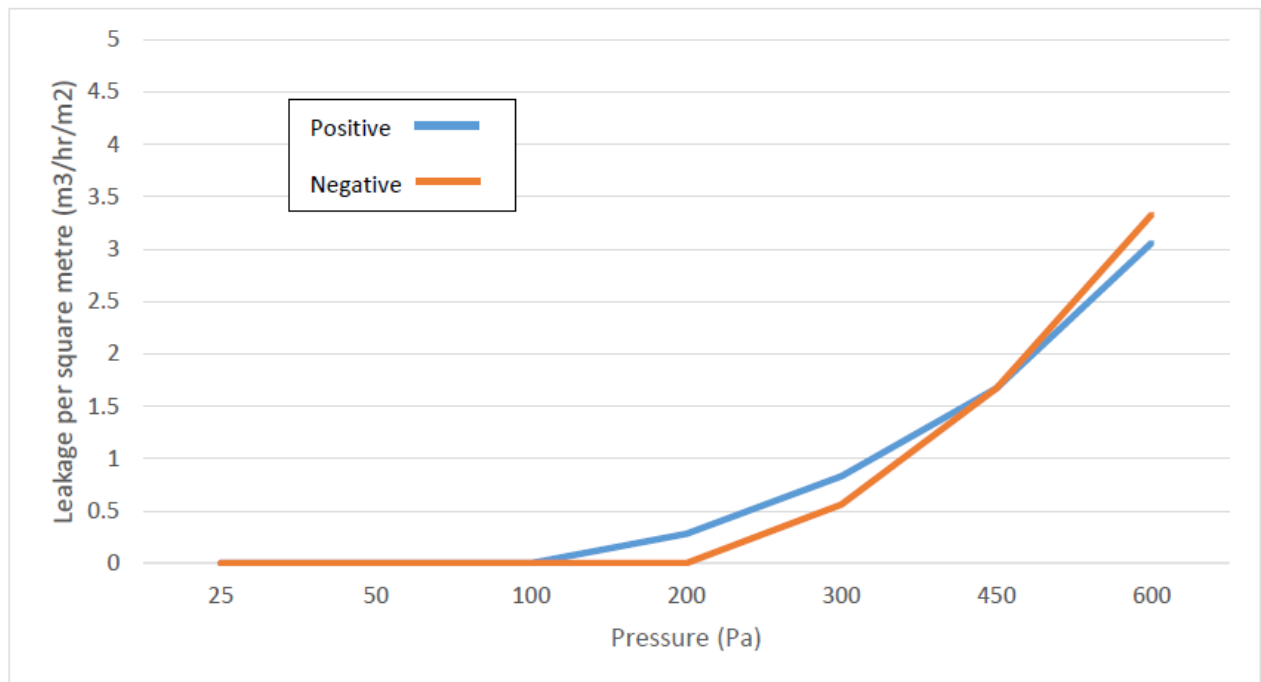
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ANNEX B – Air Permeability – Protecta FR IPT (Applicable to linear joint and gap seals only)

Product tested	10mm deep x 30mm wide Protecta FR IPT		
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	0.00	0.00
	100	0.00	0.00
	200	0.00	0.00
	300	0.02	0.56
	450	0.03	0.83
	600	0.1	2.78
Results under positive chamber pressure	25	0.00	0.00
	50	0.00	0.00
	100	0.00	0.00
	200	0.01	0.28
	300	0.03	0.83
	450	0.06	1.67
	600	0.11	3.06



Appendix UL-EU CERTIFICATE UL-EU-00910-EN

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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