

UL-EU CERTIFICATE

Certificate No. UL-EU-01053-CPR
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Date of Issue 2017-09-28
Revised 2022-10-31

Certificate Holder Polyseam Ltd
15. St. Andrews Road
Huddersfield, West Yorkshire
HD1 6SB
United Kingdom

Manufacturer Polyseam Ltd
15. St. Andrews Road
Huddersfield, West Yorkshire
HD1 6SB
United Kingdom

Certified Product Type Fire Stop - Putty
Product Trade Name Protecta FR Putty
Trademark N/A
Rating/Classification See Appendix

Harmonised Technical Specifications EAD 350454-00-1104, September 2017 / EN 13501-2
Supporting Documentation ETA 22/0032 and Classification Report No. 4788417408 / 4789231531 / 479092960
Additional information Additional test evidence is held on file
Expiry date 2027-09-27



A blue ink signature of Chris Johnson.

Authorized Certification Decision Maker
Chris Johnson

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shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.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 Putty for fire stopping where insulated or uninsulated metallic pipes, cables and pipes penetrate flexible, masonry or concrete walls and rigid floor constructions, or where cable protrusion of socket boxes penetrate flexible walls. The detailed scope is given in pages 3 to 33 of this Certificate. This shows the thickness and acceptable dimensions, substrates and orientations required to provide fire resistance periods of up to 240 minutes (EI 240).

The product is certificated on the basis of:

- i) ETA 22/0032
- ii) Inspection and surveillance of factory production control by UL
- iii) Fire resistance test data in accordance with 1366-3: 2009
- iv) Classification in accordance with EN 13501-2
- v) Durability and Serviceability as defined in EAD 350454-00-1104, September 2017

The durability class of Protecta FR Putty is Z₂ - Intended for uses in internal conditions with humidity lower than 85 % RH excluding temperatures below 0°C, without exposure to rain or UV.



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Product-type: Intumescent sheet		Intended use: Penetration Seal
Assessment method	Essential characteristic	Product performance
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	No performance determined
EN 13501-2	Resistance to fire	See pages 4 - 33
BWR 3 Hygiene, health and environment		
EN 1026	Air permeability	See page 34
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 Declaration of manufacturer
BWR 4 Safety 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	R _w (C;C _{tr})= 67 (-2;-7) 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

*Applicable only for Protecta FR Putty Pads in socket boxes



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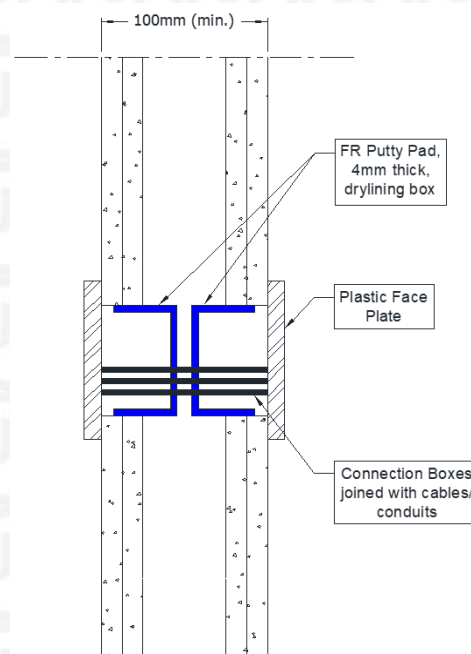
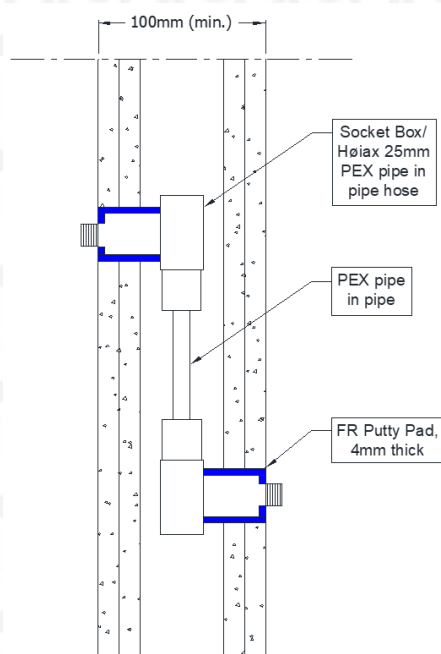
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Flexible wall constructions with wall thickness of minimum 100 mm

Pipe and cable penetration seals with 4 mm thick Protecta FR Putty in plastic socket box

Penetration Seal: Socket boxes placed back-to-back or side-by-side with zero distance, or further apart protected with Protecta FR Putty pads. The socket boxes can be fixed directly to drywall studs, or to timber noggins or steel plates fixed to studs.

Construction details:



Double side penetration seal with pipes or cables in socket boxes

Services	Socket box	Protecta FR Putty - mm	Aperture mm	Fire Resistance (mins.)	
				E	EI
Høiax 25mm PEX pipe in pipe hose	Single or double Høiax Push Wallbox 15mm, fitted side-by-side	174 x 64 x 4 mm pad around pipe / 50 Ø x 25 mm at back of the box	63 Ø	90	90
Cables up to 14 mm diameter	Plastic UK standard double socket box, maximum 130mm wide x 70mm high x 47mm deep, each with up to 22mm hole cut to accept the cables	Interior of box fully lined with pad	Maximum 135 wide x 75 high	60	60



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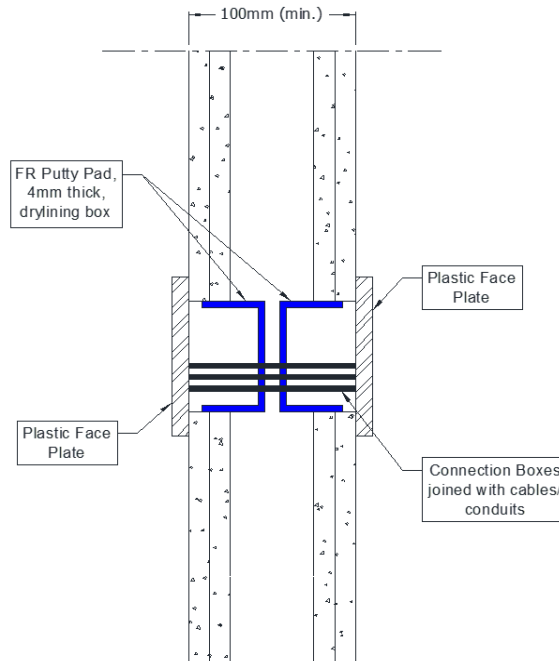
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Cable penetration seals with 4 mm thick Protecta FR Putty in plastic socket box

Penetration Seal: Plastic socket boxes placed side-by-side with zero distance, or further apart protected with Protecta FR Putty pads. The socket boxes can be fixed directly to drywall studs, or to timber noggins or steel plates fixed to studs.

Construction details:



Double sided penetration seal with cables in socket boxes

Services	Socket box	Protecta FR Putty	Aperture mm	Fire Resistance (mins.)	
				E	EI
Cables up to 14 mm diameter	Schneider Electric Ref. IMT 36026 connection box, 72mm wide x 90mm high x 50mm deep	Fitted lining the back of the back box	73 wide x 91 High x 51 deep	60	45
Cables up to 14 mm diameter	Elko 4189 1223720 connection box, 72mm wide x 90mm high x 58mm deep	Interior of box fully lined with pad	92 wide x 112 High	90	90
Cables up to 14 mm diameter	ELKO 5421 123740 connection box, 73mm wide x 73mm high x 55mm deep	Interior of box fully lined with pad	74 wide x 74 High	90	90



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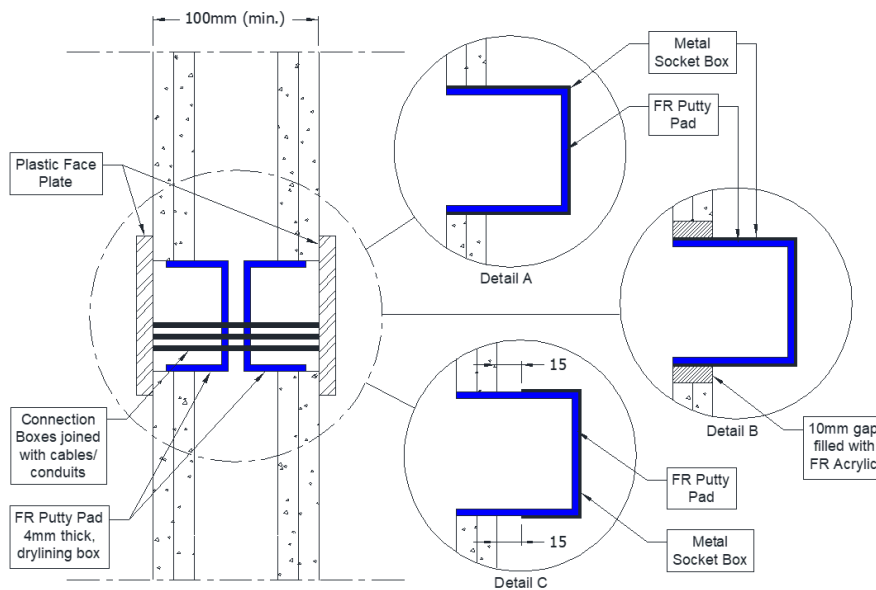
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Cable penetration seals with 4 mm thick Protecta FR Putty in metallic socket box

Penetration Seal: Metallic socket boxes placed back-to-back or side-by-side with zero distance, or further apart protected with Protecta FR Putty pads. The socket boxes can be fixed directly to drywall studs, or to timber noggins or steel plates fixed to studs.

Construction details:



Double sided penetration seal with cables in socket boxes

Services	Steel standard UK double socket box with plastic socket cover	Protecta FR Putty pad	Detail drawing	Aperture mm (max)	Fire Resistance (mins.)	
					E	EI
Cables up to 14 mm diameter	Max. 134 mm wide x 74 mm high x 47 mm deep	Interior of box fully lined	A	134 x 74	90	60
Cables up to 14 mm diameter	Max. 134 mm wide x 74 mm high x 47 mm deep with 25 mm metal extension box, fitted side-by-side	Interior of box fully lined	A	134 x 74	120	60
Cables up to 14 mm diameter	Max. 134 mm wide x 74 mm high x 47 mm deep, fitted side-by-side, with max. 10 mm gap to plaster boards sealed with min. 12.5mm deep Protecta FR Acrylic	Interior of box fully lined	B	154 x 94	120	90
Cables up to 14 mm diameter	Max. 134 mm wide x 74 mm high x 35 mm deep, fitted side-by-side, recessed with a max. 15 mm air gap between back box and plasterboard	Interior of box, air gap and plaster board fully lined	C	134 x 74	90	90

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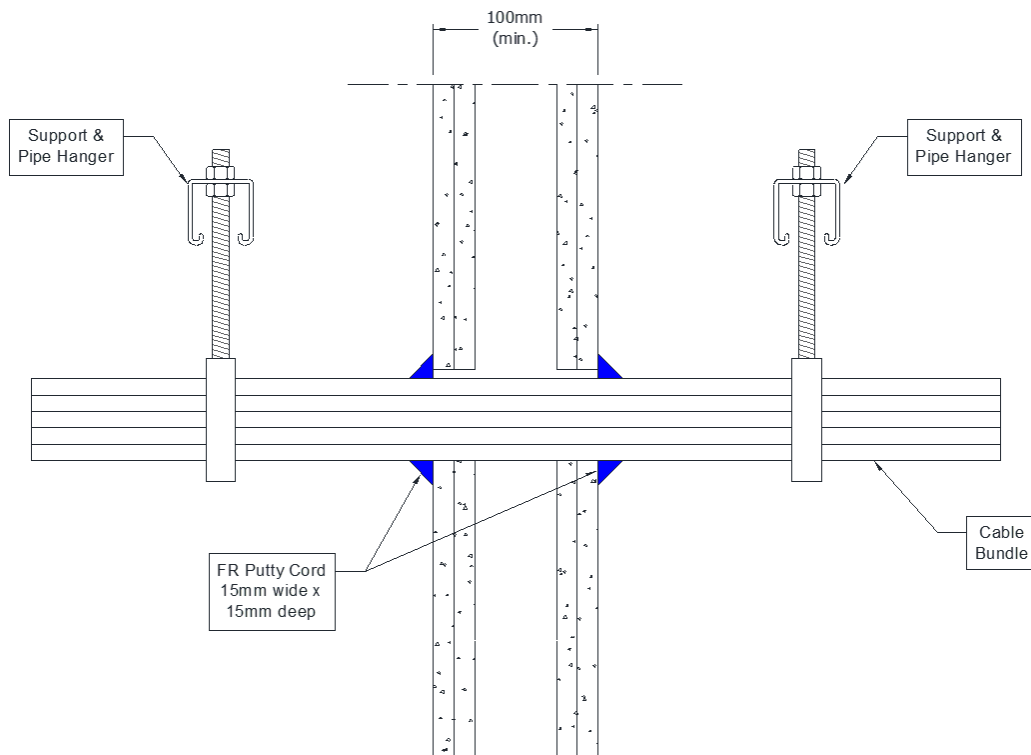
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Double sided penetration seal with cables

Penetration Seal: Cables (single or bundled up to 50 mm Ø) penetrating through a flexible or rigid wall construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the wall. Maximum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

Construction details:



Services	Fire Resistance (mins.)	
	E	EI
Blank seal with a 15 mm deep cord of Protecta FR Putty on both sides of the wall	120	120
Cables up to 21 mm diameter, single or in a bundle up to 50 mm diameter*	120	120
Cables up to 80 mm diameter, single or in a bundle up to 50 mm diameter*	60	60

* Cable specification from EN 1366-3 standard cable configuration



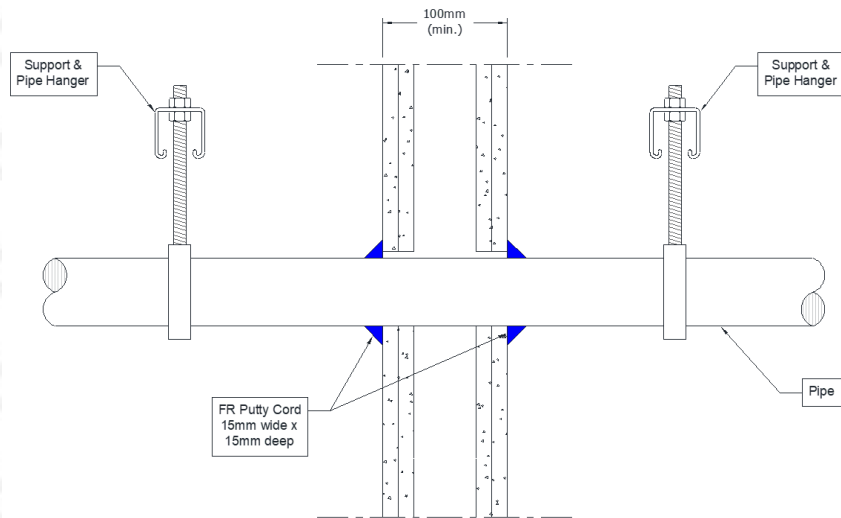
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Double sided penetration seal with pipes

Penetration Seal: Pipes penetrating through a flexible or rigid wall construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the wall. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Mild or stainless steel pipe			
Maximum 22 mm diameter*	None needed	120	120
23-30 mm diameter*	None needed	120	45
ALUPEX pipe			
16 mm diameter*	None needed	120	120
17-20 mm diameter*	None needed	120	90
Copper or steel pipe			
6 mm diameter*	None needed	120	120
7-12 mm diameter*	None needed	120	60
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1			
PVC plastic pipe at maximum 25 mm diameter with 1.5 mm pipe wall thickness	None needed	60	60

*See below graphs for interpolation pipe sizes

All pipe classifications are pipe end configuration C/C (C=Capped, C=Capped) Except Mild or Stainless Steel pipes which are C/U (C=Capped, U=Uncapped) and PVC-U pipes which are U/C (U=Uncapped, C=Capped).

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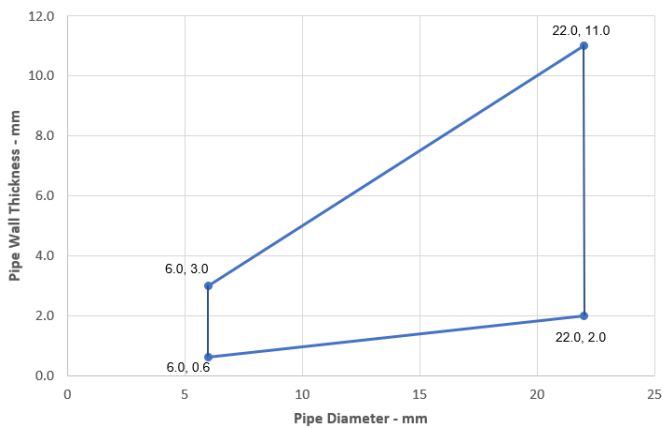
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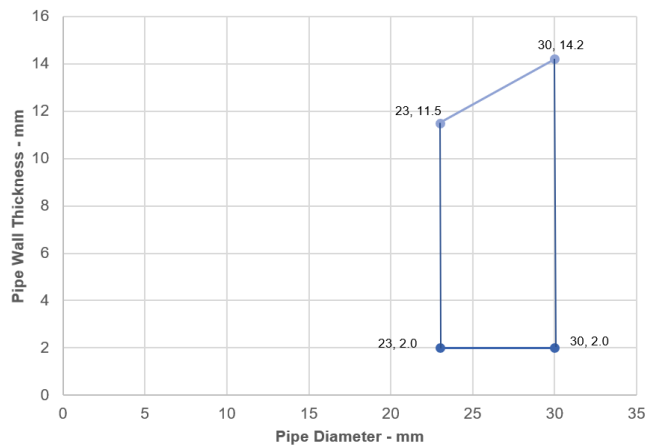
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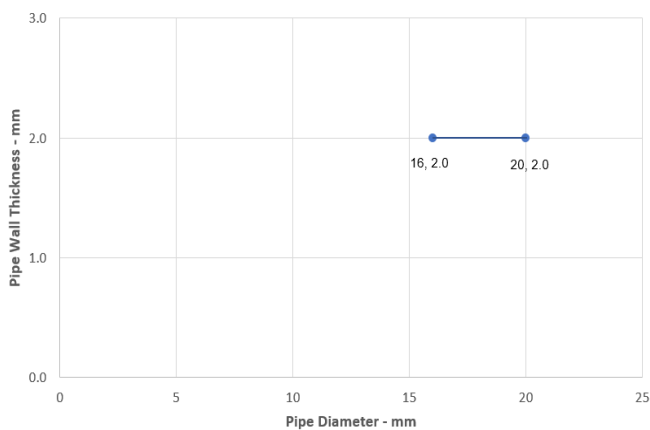
Mild or Stainless Steel Pipes - EI 120 C/C



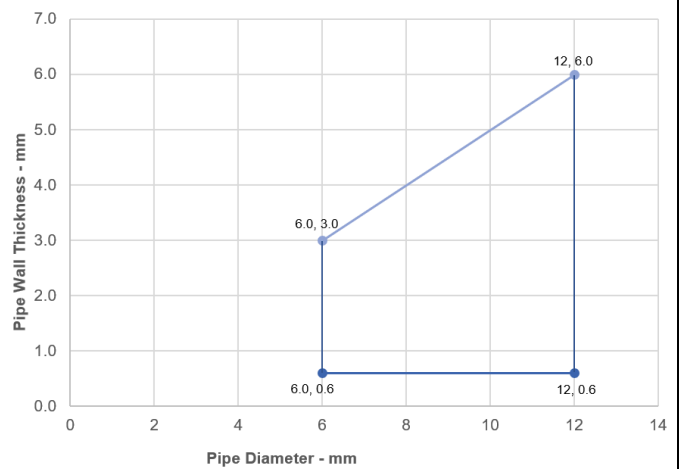
Steel Pipes - E 120, EI 45 C/U



ALUPEX Pipes - E 120, EI 90 C/C



Copper Pipes- E120, EI 60 C/C



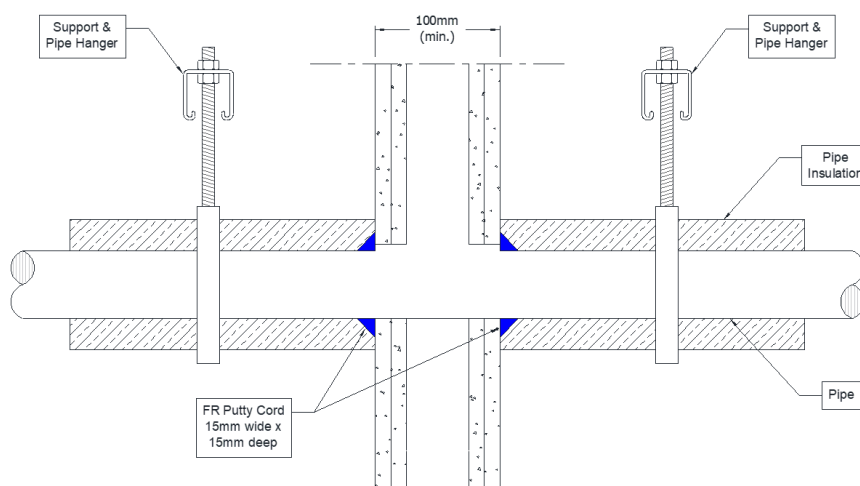
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Double sided penetration seal with insulated metallic pipes, Local Interrupted (LI)

Penetration Seal: Metallic pipes insulated with minimum 80 kg/m³ density mineral wool insulation, Local Interrupted (LI), penetrating through a flexible or rigid wall construction, fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the wall. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Mild or stainless steel pipe, with minimum 80 kg/m ³ density mineral wool insulation			
Maximum 40 mm diameter*	Minimum 20 mm thick insulation, 500 mm long butted up to the wall on both faces	120	120
40-324 mm diameter*	Minimum 30 mm thick insulation, 500 mm long butted up to the wall on both faces	120	120
Copper or steel pipe with minimum 80 kg/m ³ density mineral wool insulation			
Maximum 54 mm diameter/1.2-14.2 mm wall	Minimum 20 mm thick insulation, 500 mm long butted up to the wall on both faces	E 90	60
ALUPEX pipe with minimum 80 kg/m ³ density mineral wool insulation			
Maximum 16 mm diameter*	Minimum 20 mm thick insulation, 500 mm long butted up to the wall on both faces	90	90
Maximum 75 mm diameter*	Minimum 30 mm thick insulation, 500 mm long butted up to the wall on both faces	90	90

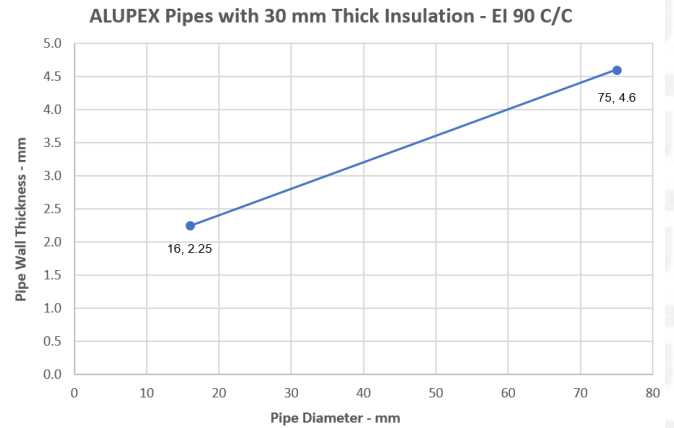
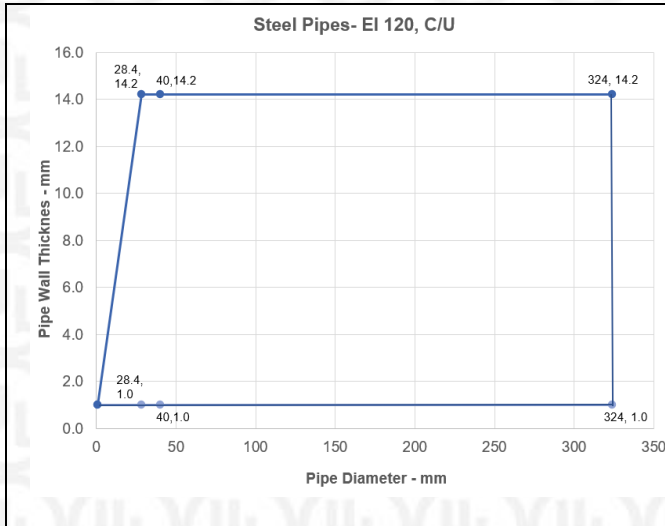
*See below graphs for interpolation pipe sizes

All pipe classifications are pipe end configuration C/U (C=Capped, U=Uncapped) Except Copper or ALUPEX pipes which are C/C (C=Capped, C=Capped).



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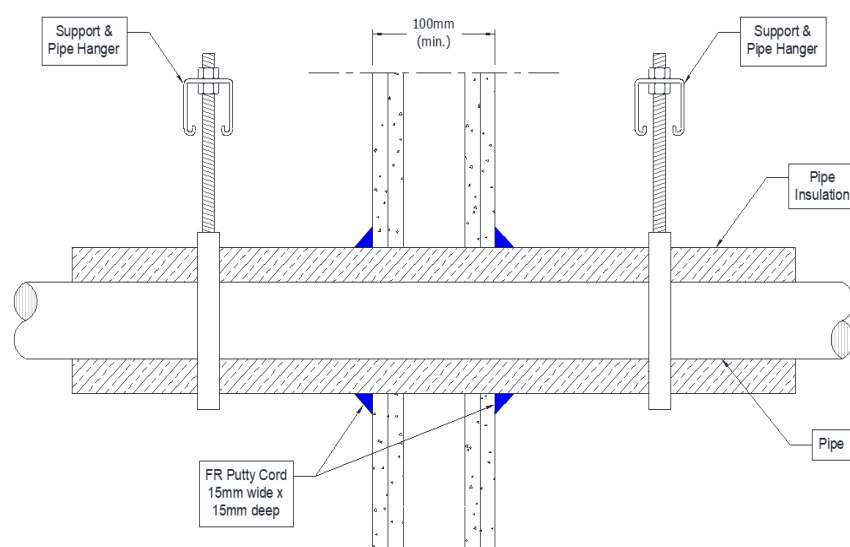
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Double sided penetration seal with insulated metallic pipes, Continuous Sustained (CS)

Penetration Seal: Metallic pipes insulated with minimum 80 kg/m³ density mineral wool insulation, Continuous Sustained (CS), penetrating through a flexible or rigid wall construction, fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the wall. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Mild or stainless steel pipe, with minimum 80 kg/m³ density mineral wool insulation			
Maximum 40 mm diameter*	20 mm thick	120	120
40-324 mm diameter*	30-80 mm thick	90	60
Copper or steel pipe with minimum 80 kg/m³ density mineral wool insulation			
Maximum 12 mm diameter/0.7-6.0 mm wall*	20 mm thick	90	60
Maximum 54 mm diameter/1.2-14.2 mm wall,	30-80 mm thick	90	60
ALUPEX pipe with minimum 80 kg/m³ density mineral wool insulation			
Maximum 16 mm diameter*	20 mm thick	90	90
Maximum 75 mm diameter*	30-80 mm thick	90	90

*See below graphs for interpolation pipe sizes

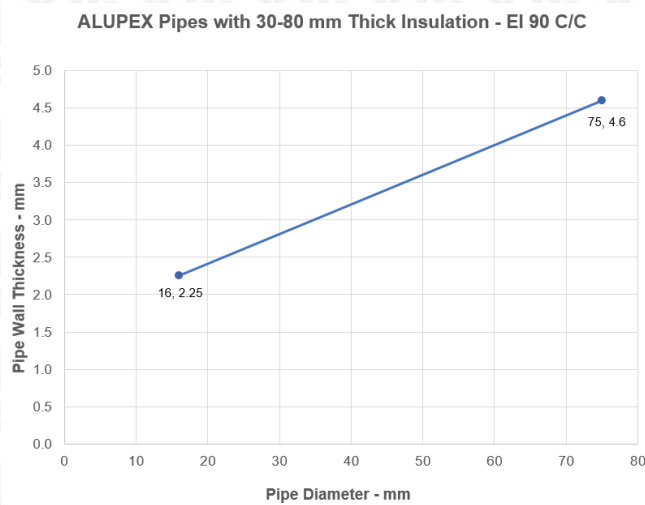
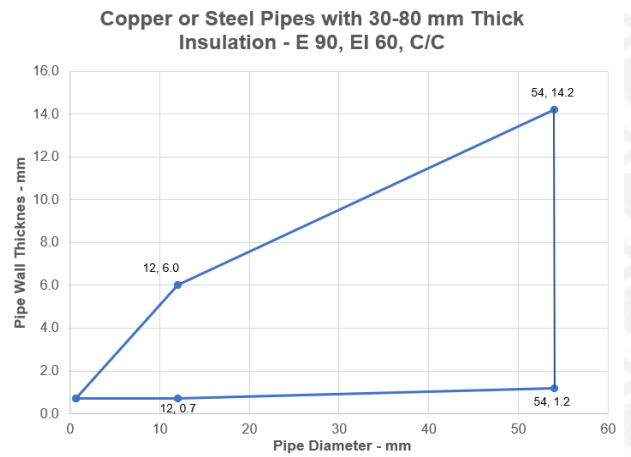
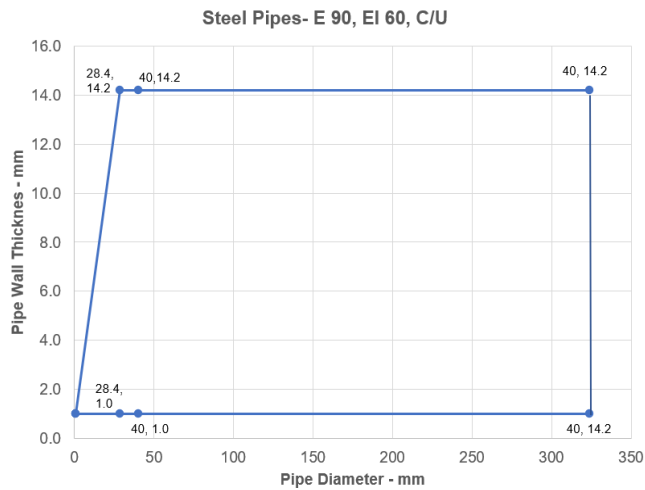
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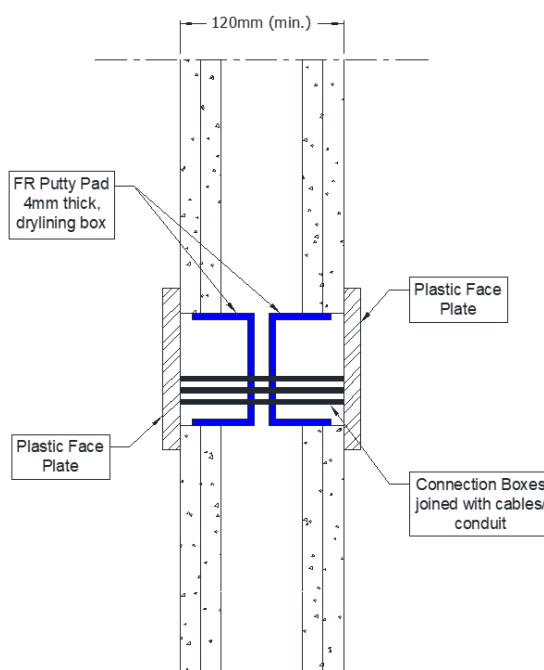
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Flexible wall constructions with wall thickness of minimum 120 mm

Cable penetration seals with 4 mm thick Protecta FR Putty in plastic socket box

Penetration Seal: Socket boxes placed back-to-back or side-by-side with zero distance, or further apart protected with Protecta FR Putty pads. The socket boxes can be fixed directly to drywall studs, or to timber noggins or steel plates fixed to studs.

Construction details:



Double side penetration seal with cables in plastic socket boxes

Services	Socket box	Protecta FR Putty	Aperture mm	Fire Resistance (mins.)	
				E	EI
Cables up to 14 mm diameter	UK standard double socket box, maximum 130mm wide x 70mm high x 48mm deep, each with a 25mm wide x 14mm high knock out section to accept the cables	Interior of box fully lined with pad	Maximum 135 wide x 72 High	120	120
2.5 mm twin and earth cables					



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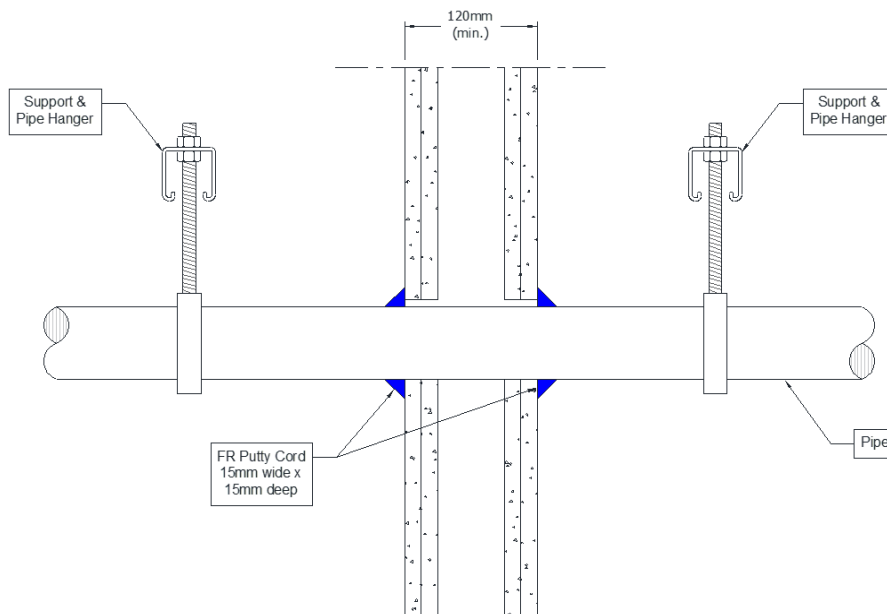
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Double sided penetration seal with metallic pipes

Penetration Seal: Metallic pipes penetrating through a flexible or rigid wall construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the wall. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Mild or stainless steel pipe			
Maximum 324 mm diameter/6.35-14.2 mm wall	None needed	90	20
ALUPEX pipe			
Maximum 75 mm diameter/4.6-14.2 mm wall	None needed	90	90
Copper or steel pipe			
Maximum 54 mm diameter/1.2-14.2 mm wall	None needed	90	15

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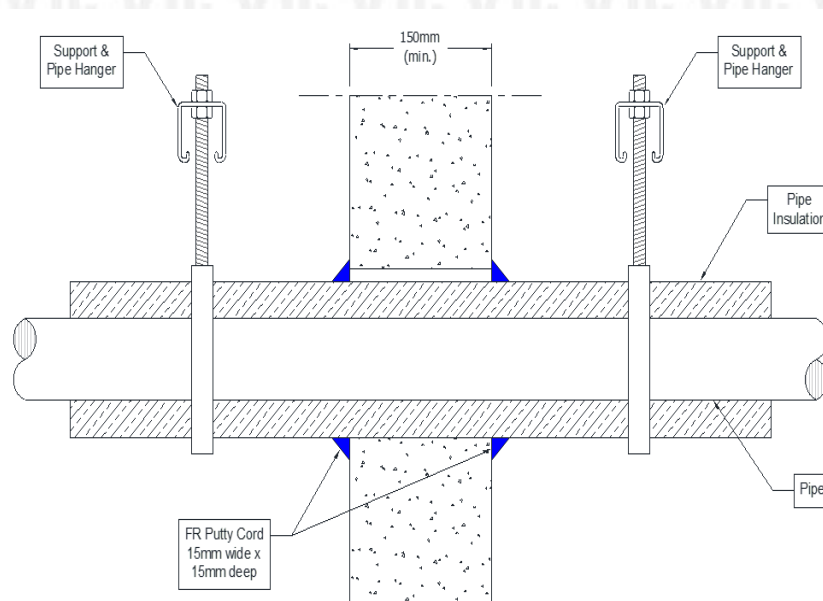
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Rigid wall constructions with wall thickness of minimum 150 mm

Double sided penetration seal with insulated metallic pipes, Continuous Sustained (CS)

Penetration Seal: Metallic pipes insulated with minimum 80 kg/m³ density mineral wool insulation, Continuous Sustained (CS), penetrating through a rigid wall construction, fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the wall. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Mild or stainless steel pipe, with minimum 80 kg/m ³ density mineral wool insulation			
Maximum 40 mm diameter*	20 mm thick	120	120
Maximum 324 mm diameter*	30-80 mm thick	240	180
Copper or steel pipe with minimum 80 kg/m ³ density mineral wool insulation			
Maximum 54 mm diameter/1.2-14.2 mm wall	20 mm thick	240	120
ALUPEX pipe with minimum 80 kg/m ³ density mineral wool insulation			
Maximum 16 mm diameter*	20 mm thick	240	240
Maximum 75 mm diameter*	30 mm thick	240	240

*See below graphs for interpolation pipe sizes

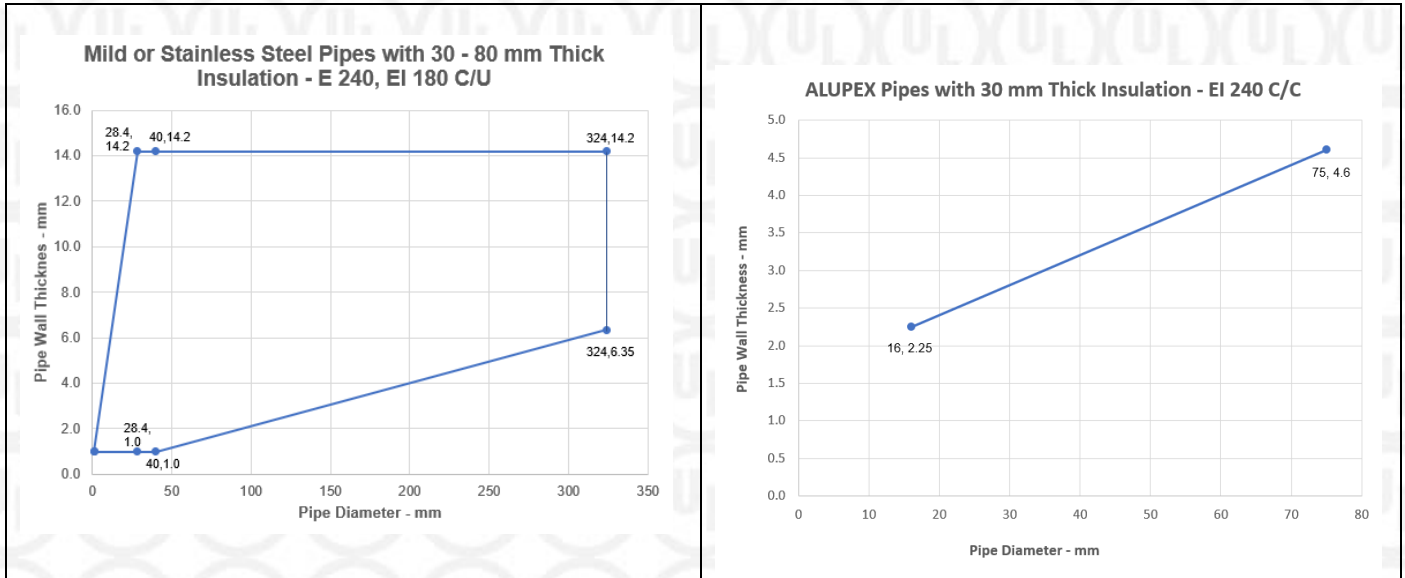
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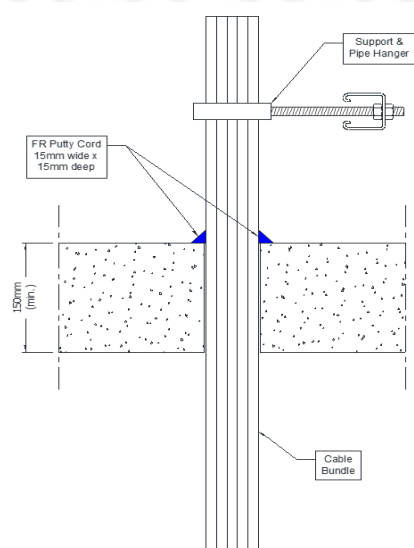
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Rigid floor constructions with floor thickness of minimum 150 mm

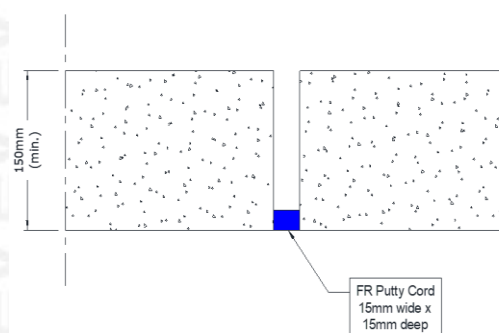
Single sided penetration seal with cables

Penetration Seal: Cables (single or bundled up to 50 mm Ø) penetrating through a rigid floor construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on the top face of the floor. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2). When incorporating blank penetration seals, the aperture is sealed with 15mm wide by 15mm thick cord of Protecta FR Putty, applied flush with the bottom face of the floor.

Construction details:



Construction details:



Services	Fire Resistance (mins.)	
	E	EI
None (blank)	120	30
Cables up to 21 mm diameter in tied bundles up to 50 mm diameter*	120	60
Cables up to 21 mm diameter*	120	120
Cables 22-50 mm diameter*	120	90
Cables 51-80 mm diameter*	120	60
Single 'A1' type cable*	240	240
Single 'C3' type cable*	240	240
Single 'E' type cable*	120	120
Single 'D1' type cable*	120	120
Single 'D2' type cable*	120	120
Single 'D3' type cable*	240	60

* Cable specification from EN 1366-3 standard cable configuration



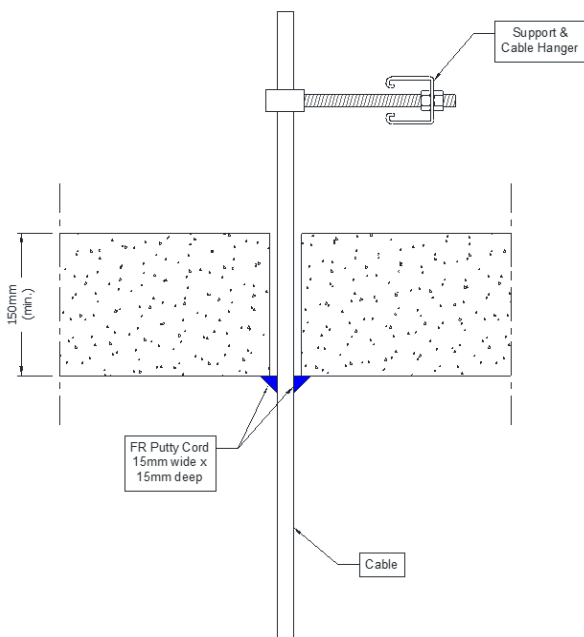
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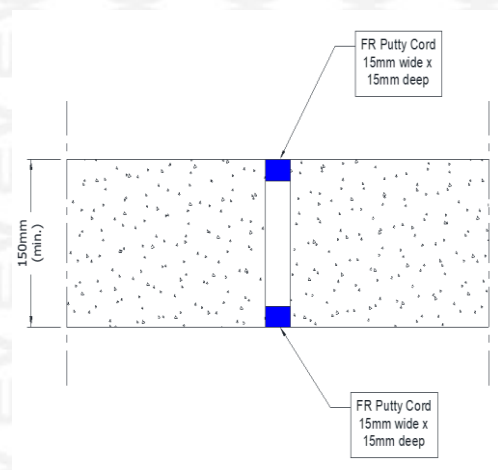
Single sided penetration seal with cables

Penetration Seal: Cables (single or bundled up to 75 mm Ø) penetrating through a rigid floor construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on the bottom face of the floor. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2). When incorporating blank penetration seals, the aperture is sealed with 15mm wide by 15mm thick cord of Protecta FR Putty, applied flush with both faces of the floor.

Construction details:



Construction details:



Services	Seal size	Fire Resistance (mins.)	
		E	EI
None (blank)	15mm deep	120	120
Cables up to 21 mm diameter in tied bundles up to 75mm diameter*	15 mm diameter cord	60	45
Cables up to 21 mm diameter*		120	60
Cables 22-80 mm diameter*		90	45

* Cable specification from EN 1366-3 standard cable configuration



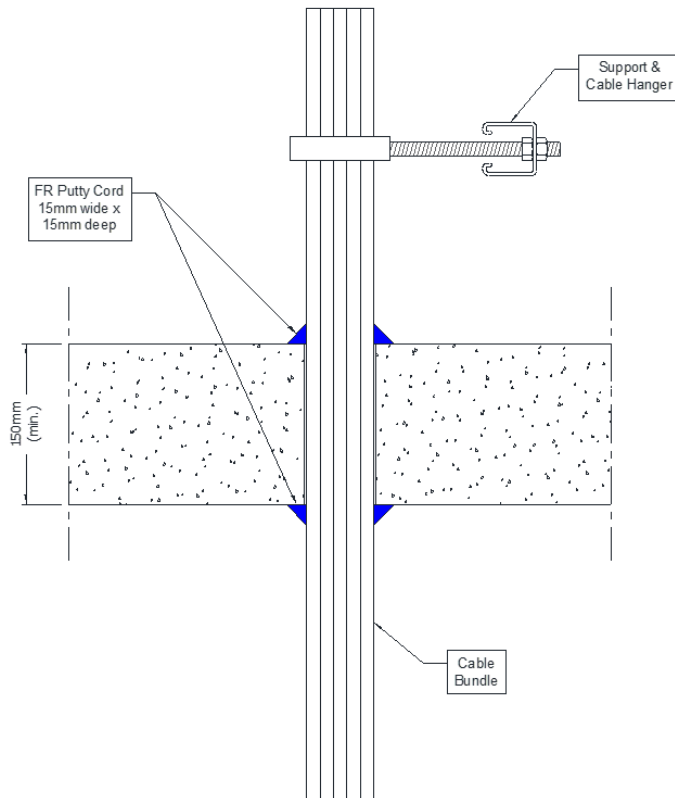
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Double sided penetration seal with cables

Penetration Seal: Cables (single or bundled up to 50 mm Ø) penetrating through a rigid floor construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the floor. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Seal size	Fire Resistance (mins.)	
		E	EI
Cables up to 21 mm diameter in tied bundles up to 50 mm diameter*	15 mm diameter cord	240	240

* Cable specification from EN 1366-3 standard cable configuration



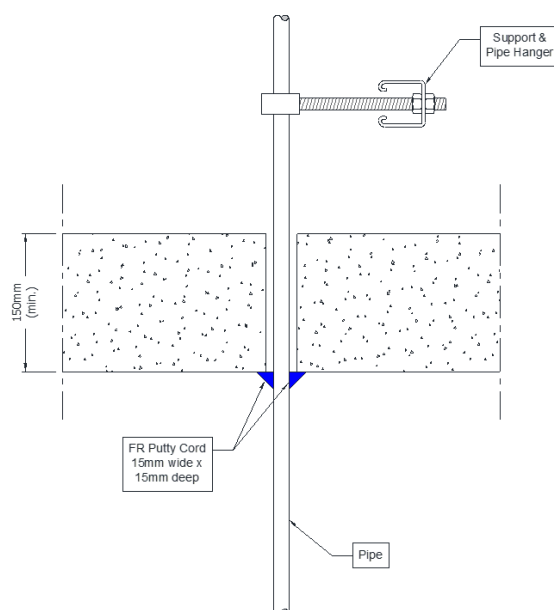
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Single sided penetration seal with metallic pipes

Penetration Seal: Metallic pipes penetrating through a rigid floor construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on the bottom face of the floor. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Mild or stainless steel pipe			
4 mm diameter*	None needed	120	120
5-30 mm diameter*	None needed	120	45
Copper or steel pipe			
6 mm diameter*	None needed	120	90
7-12 mm diameter*	None needed	120	30

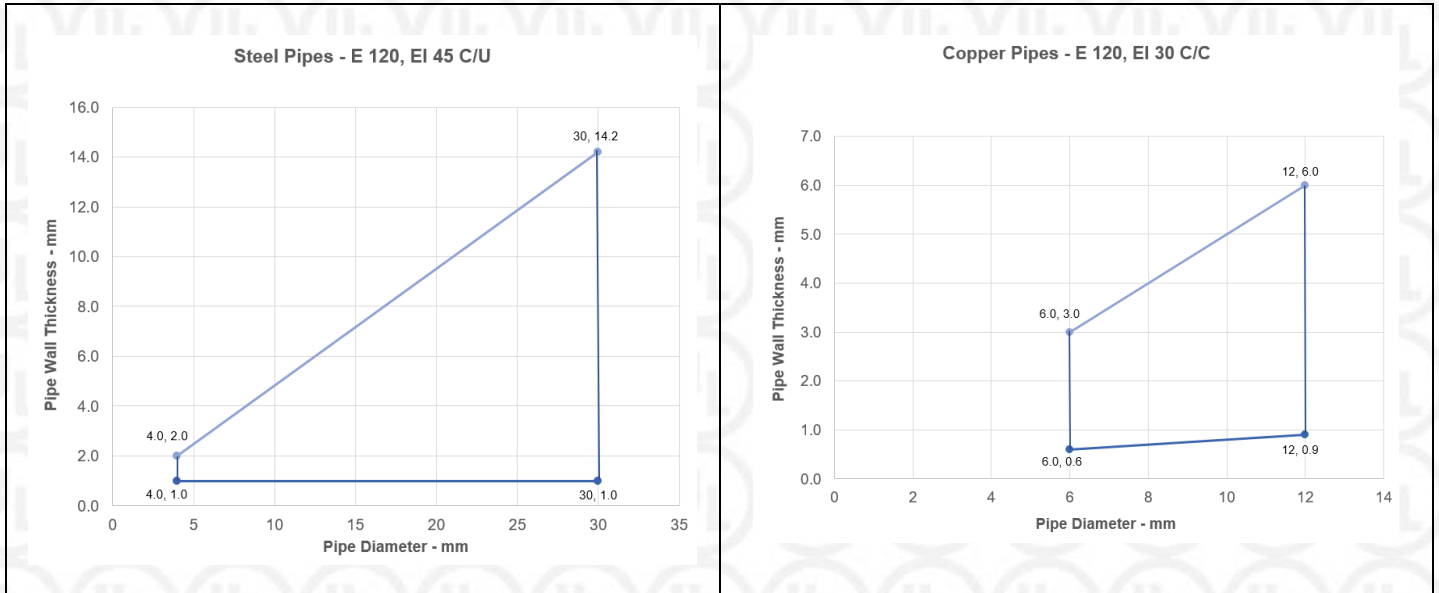
*See below graphs for interpolation pipe sizes

All pipe classifications are pipe end configuration C/C (C=Capped, C=Capped) Except Mild or Stainless Steel pipes which are C/U (C=Capped, U=Uncapped).



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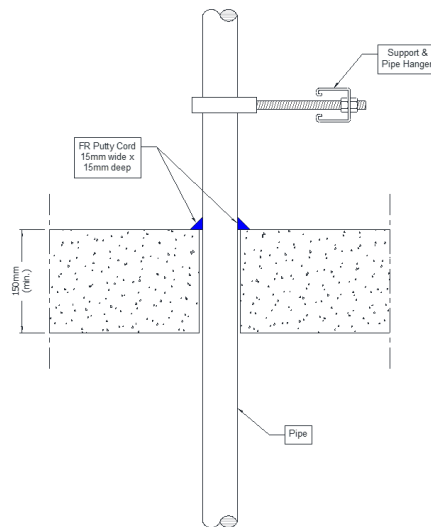
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Single sided penetration seal with metallic pipes

Penetration Seal: Metallic pipes penetrating through a rigid floor construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on the top face of the floor. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Mild or stainless steel pipe			
Maximum 22 mm diameter/1.2-11.0 mm wall*	None needed	120	120
Maximum 324 mm diameter/6.35-14.2 mm wall*	None needed	240	15
Copper or steel pipe			
6 mm diameter*	None needed	120	120
7-10 mm diameter*	None needed	120	90
Maximum 54 mm diameter/1.2-14.2 mm wall	None needed	120	120
ALUPEX pipe			
16-20 mm diameter*	None needed	240	240
Maximum 75 mm diameter/4.6-14.2 mm wall	None needed	45	30

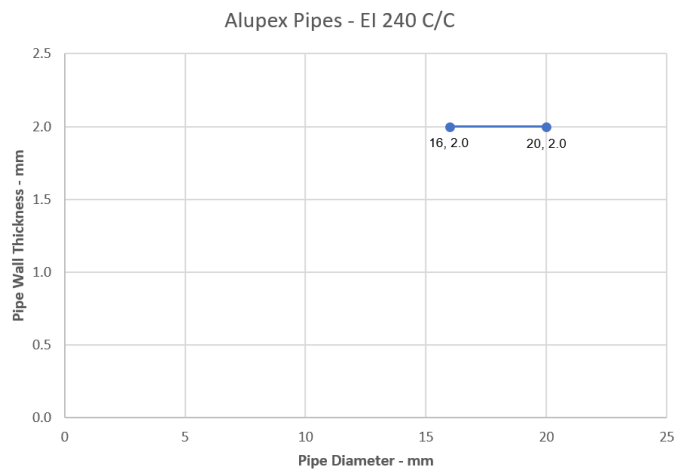
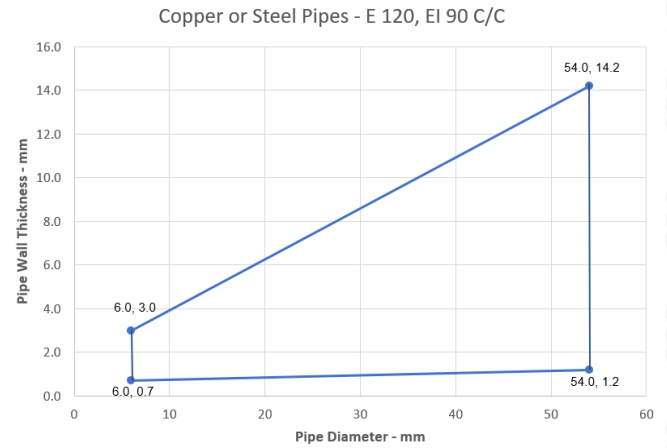
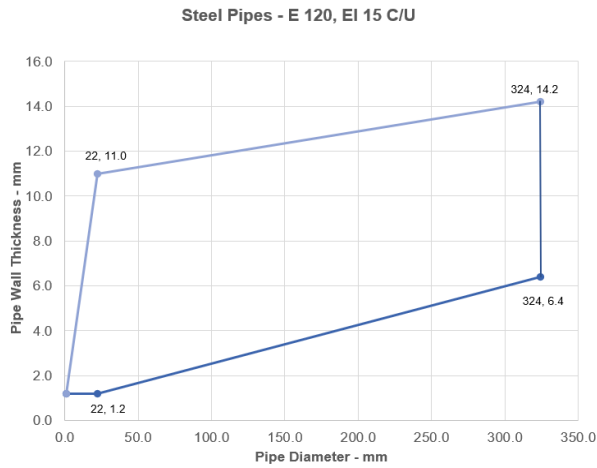
*See below graphs for interpolation pipe sizes

All pipe classifications are pipe end configuration C/C (C=Capped, C=Capped) Except Mild or Stainless Steel pipes which are C/U (C=Capped, U=Uncapped).



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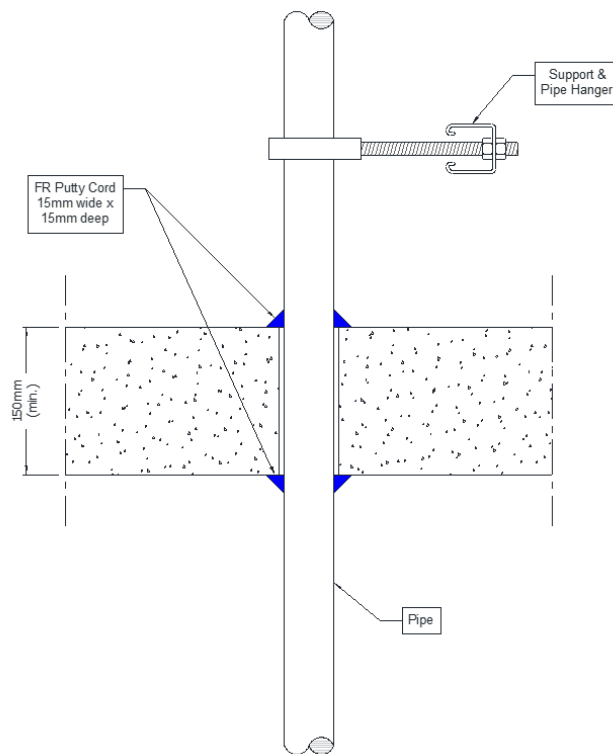
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Double sided penetration seal with metallic pipes

Penetration Seal: Metallic pipes penetrating through a rigid floor construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the floor. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Copper or steel pipe			
Maximum 10 mm diameter/0.7-14.2 mm wall	None needed	240	180

All pipe classifications are pipe end configuration C/C (C=Capped, C=Capped).



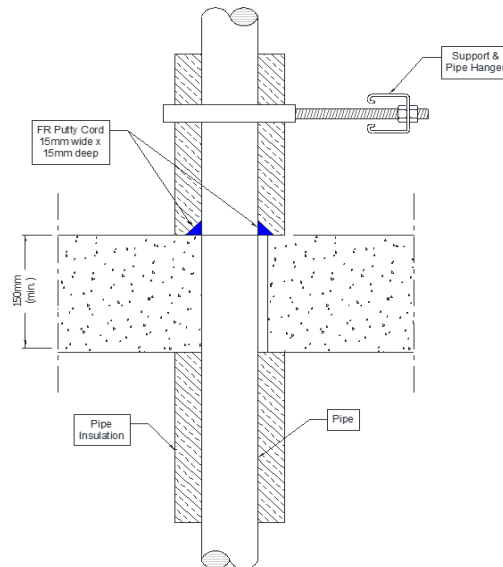
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Single sided penetration seal with insulated metallic pipes, Local Interrupted (LI)

Penetration Seal: Metallic pipes insulated with minimum 80 kg/m³ density mineral wool insulation, Local Interrupted (LI), penetrating through a rigid floor construction, fitted at any position within the aperture, sealed with a 15 mm diameter cord of Protecta FR Putty on the top face of the floor. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Single sided penetration seal with partially insulated metallic pipes

Services	Insulation	Fire Resistance (mins.)	
		E	EI
Mild or stainless steel pipe, with minimum 80 kg/m³ density mineral wool insulation			
Maximum 40 mm diameter*	Minimum 20 mm thick insulation, 500 mm long butted up to each face of the floor	240	240
41-324 mm diameter*	Minimum 30 mm thick insulation, 500 mm long butted up to each face of the floor	240	60
ALUPEX pipe with minimum 80 kg/m³ density mineral wool insulation			
Maximum 16 mm diameter/2.25-8.0 mm wall*	Minimum 20 mm thick insulation, 500 mm long butted up to each face of the floor	240	240
Maximum 75 mm diameter/4.6-14.2 mm wall*	Minimum 30 mm thick insulation, 500 mm long butted up to each face of the floor	240	240

*See below graphs for interpolation pipe sizes

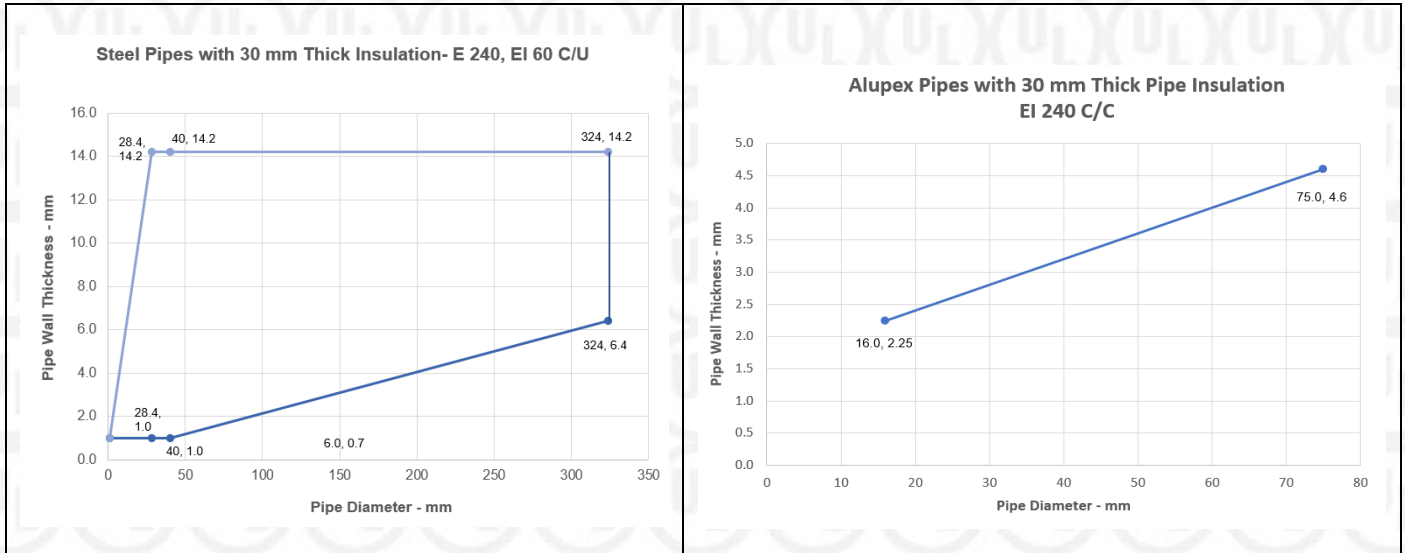
All pipe classifications are pipe end configuration C/U (C=Capped, U=Uncapped) Except for ALUPEX pipes which are C/C (C=Capped, C=Capped).

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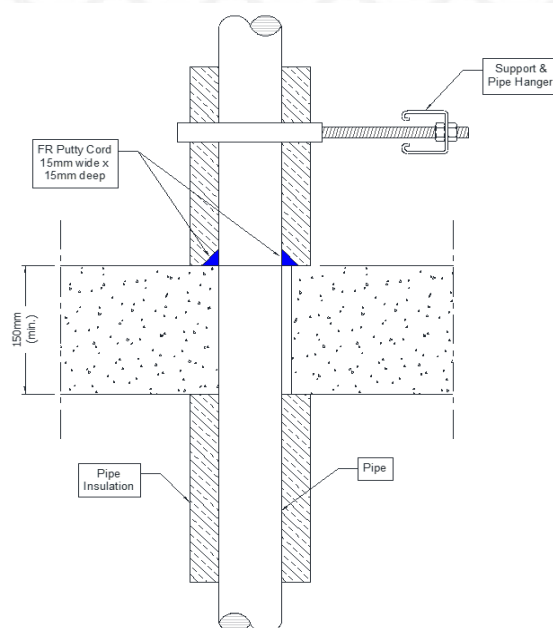
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Single sided penetration seal with insulated metallic pipes, Local Interrupted (LI)

Penetration Seal: Metallic pipes insulated with minimum 75 kg/m³ density glass or mineral wool insulation, Local Interrupted (LI), penetrating through a rigid floor construction, fitted at any position within the aperture, sealed with a 15 mm diameter cord of Protecta FR Putty on the top face of the floor. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Steel pipe with minimum 75 kg/m ³ density glass or mineral wool insulation			
Maximum 40 mm diameter/1.0-14.2 mm wall	Minimum 20 mm thick insulation, 500 mm long butted up to each face of the floor	180	180
Copper or steel pipe with minimum 75 kg/m ³ density glass or mineral wool insulation			
Maximum 12 mm diameter/0.7-14.2 mm wall*	Minimum 20 mm thick insulation, 500 mm long butted up to each face of the floor	240	240
Maximum 54 mm diameter/1.2-14.2 mm wall*		180	120

*See below graphs for interpolation pipe sizes

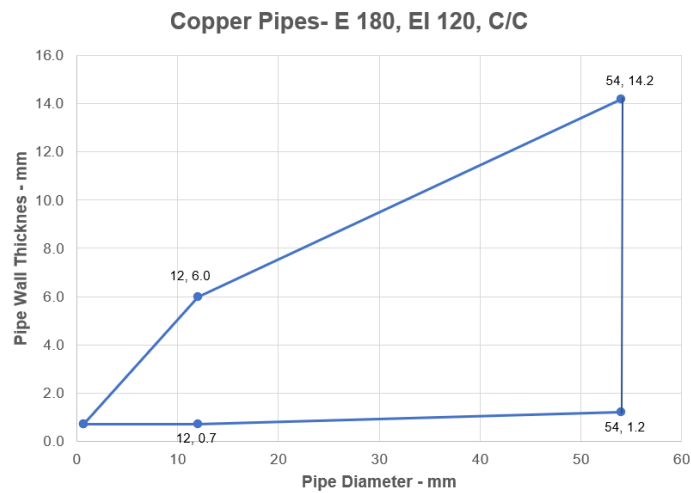
All pipe classifications are pipe end configuration C/U (C=Capped, U=Uncapped) Except Copper or Steel pipes which are C/C (C=Capped, C=Capped).

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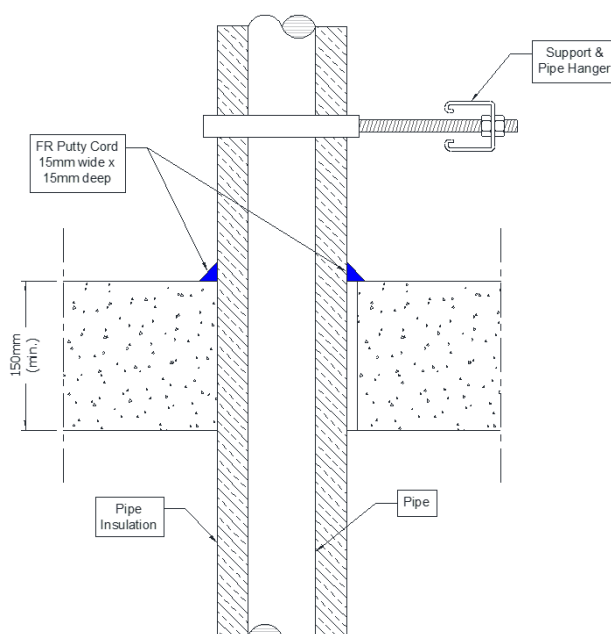
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Single sided penetration seal with insulated metallic pipes, Continuous Sustained (CS)

Penetration Seal: Metallic pipes insulated with minimum 80 kg/m³ density mineral wool insulation, Continuous Sustained (CS), penetrating through a rigid floor construction, fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on the top face of the floor. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Mild or stainless steel pipe, with minimum 80 kg/m ³ density mineral wool insulation			
Maximum 40 mm diameter/1.0-14.2 mm wall	20 mm thick	240	240
Maximum 324 mm diameter*	30-80mm thick	240	240
Copper or steel pipe with minimum 80 kg/m ³ density mineral wool insulation			
Maximum 12 mm diameter/0.7-6.0 mm wall*	20 mm thick	240	240
Maximum 54 mm diameter/1.2-14.2 mm wall*	30-80mm thick	240	240
ALUPEX pipe with minimum 80 kg/m ³ density mineral wool insulation			
Maximum 16 mm diameter/2.25-8.0 mm wall*	20 mm thick	240	240
Maximum 75 mm diameter/4.6-14.2 mm wall*	30-80mm thick	240	240

*See below graphs for interpolation pipe sizes

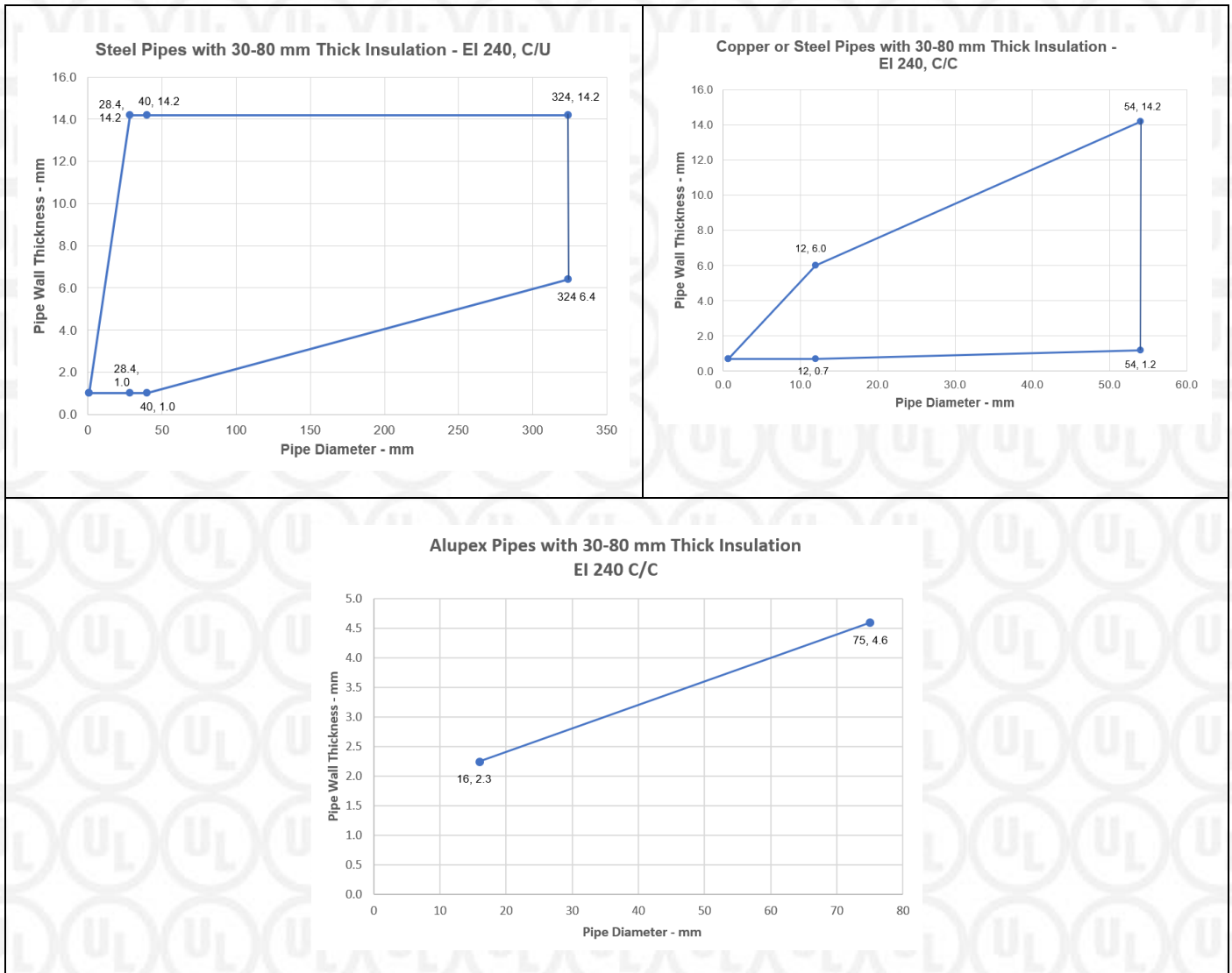
All pipe classifications are pipe end configuration C/U (C=Capped, U=Uncapped) Except Copper or Steel and ALUPEX pipes which are C/C (C=Capped, C=Capped).

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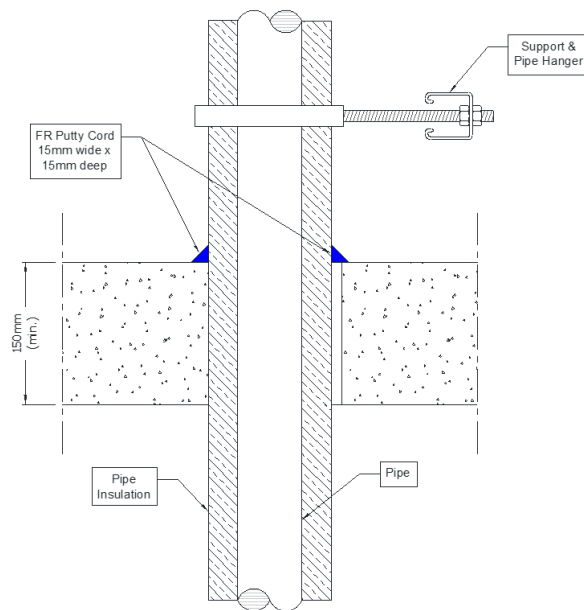
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Single sided penetration seal with insulated metallic pipes, Continuous Sustained (CS)

Penetration Seal: Metallic pipes insulated with minimum 75 kg/m³ density glass wool insulation, Continuous Sustained (CS), penetrating through a rigid floor construction, fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on the top face of the floor. Maximum annular space 10 mm (a1) and minimum separation between penetration seals 30 mm (a2).

Construction details:



Services	Insulation	Fire Resistance (mins.)	
		E	EI
Steel pipe with minimum 75 kg/m3 density glass wool insulation			
Maximum 40 mm diameter/1.0-14.2 mm wall	20 mm thick	180	120
Copper or steel pipe with minimum 75 kg/m³ density glass wool insulation			
Maximum 12 mm diameter/0.7-6.0 mm wall*	20 mm thick	240	90
Maximum 54 mm diameter/1.2-14.2 mm wall*	20-40mm thick	90	90
ALUPEX pipe with minimum 75 kg/m³ density glass wool insulation			
Maximum 16 mm diameter/2.25-8.0 mm wall*	20 mm thick	120	120
Maximum 75 mm diameter/4.6-14.2 mm wall*	20-50mm thick	120	120

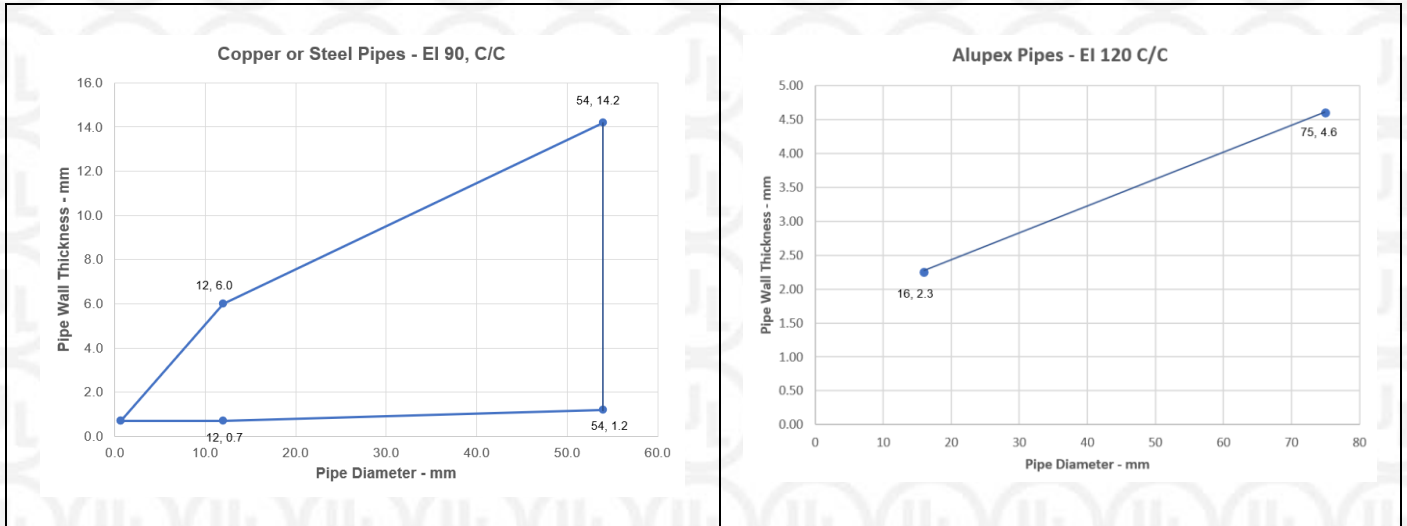
*See below graphs for interpolation pipe sizes

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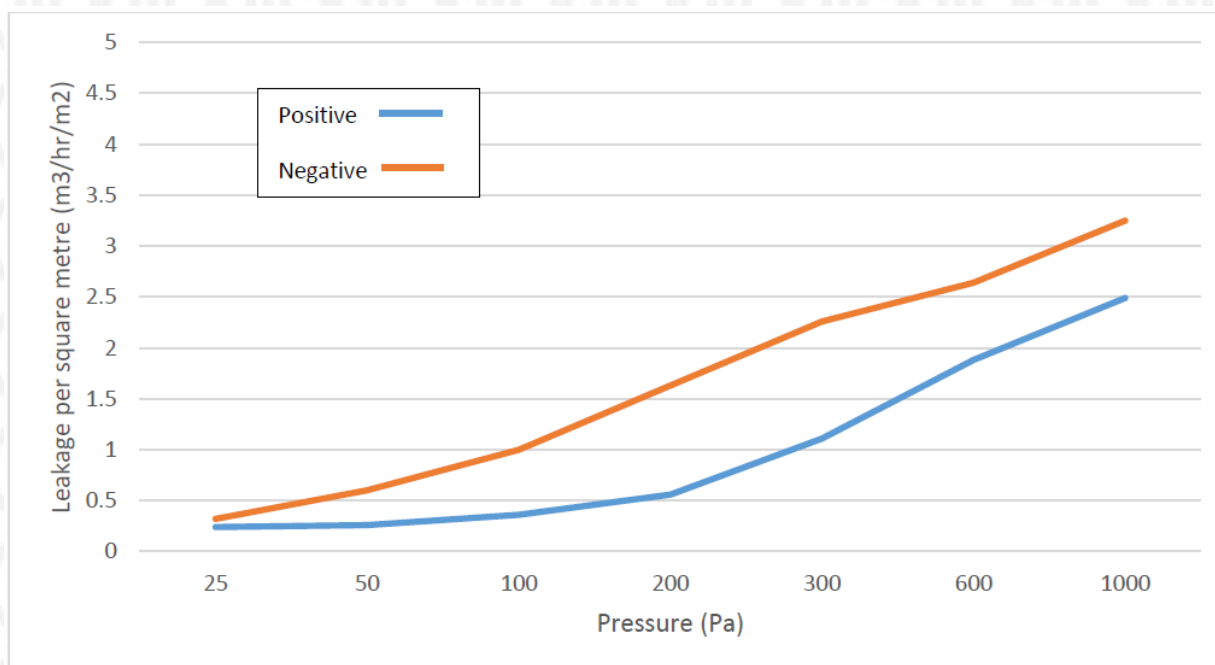


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Protecta FR Putty Cord: Air permeability performance according to BS EN 1026: 2016

Product tested	Protecta FR Putty Cord around 48mm electrical cable in 58mm hole		
	Summary of testing procedure		Result
	Pressure (Pa)	Leakage (m ³ /h)	Leakage (m ³ /m ² /h)
Results under negative chamber pressure	25	0.32	N/A
	50	0.60	N/A
	100	1.00	N/A
	200	1.63	N/A
	300	2.26	N/A
	600	2.64	N/A
	1000	3.25	N/A
Results under positive chamber pressure	25	0.24	N/A
	50	0.26	N/A
	100	0.36	N/A
	200	0.56	N/A
	300	1.11	N/A
	600	1.88	N/A
	1000	2.49	N/A



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Appendix UL-EU Certificate

Certification Mark	UL-EU mark
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The UL-EU Mark, as displayed below, shall appear on certified products only. Minimum size is not specified, as long as the Mark is legible. The following is suggested.



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 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.

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