Project Reference: 4791111748
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Issue Date: 31 May 2024

UL Technical Assessment Report of the Fire Performance of Protecta FR Putty, if Subjected to a Fire Resistance Test in Accordance with AS 1540.4 & AS 4072.1—2005, Based on Fire Test Evidence and ETA 22/0032

Report Prepared for:

Polyseam Ltd
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GB

This report has been prepared by Andrew Buck, Engineer, in full accordance with the PFPF standard procedures guidance, (as outlined in the 2021 edition of 'Guide to undertaking technical assessments of fire performance of construction products based on test evidence') and in line with the principles of EN 15725: 2010.

Contents

Client Name: Polyseam Ltd
Date of Report: 31 May 2024

Introduction

This report relates to a request from Polyseam Ltd to undertake an assessment of the likely fire test performance of Protecta FR Putty as detailed in Certificate UL-EU-01053-CPR and ETA 22/0032, to be used as a flexible pad and cord to reinstate the fire resistance performance of wall/floor constructions containing insulated or uninsulated metallic pipes, cables and pipes or cables into socket boxes based on supporting test evidence.

The request to assess was for the following reason:

- To provide Protecta FR Putty with up to 240 minutes integrity and insulation performance (depending upon specification), if subjected to a test in accordance with AS1530.4: 2014 and AS 4072.1: 2005.

For plastic pipes, AS1530.4: 2014 requires the external projection away from the furnace to be increased to a minimum of 2000mm. Since all the supporting test data used in support of ETA 22/0032 was conducted upon specimens comprising services lengths of 500mm long on each side of the supporting construction, this assessment does not allow for the use of plastic pipe services.

Installation into supporting construction typical to the Australasian market is also considered since the associated European Technical Assessment are based upon installation into equivalent constructions.

The data which forms the basis of this assessment was obtained in accordance with EN 1366-3: 2009.

The penetration seals discussed provide a variety of integrity and insulation performances depending on size and configuration, with respect to AS 4072.1: 2005 & AS 1530.4 2005/14.

Definition

In accordance with the PFPF guide – **Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence** the definition used for the scope of this report is as follows.

'A technical evaluation of the likely performance of a component or element of structure (as defined in Approved Document B for England and Wales or their equivalent in Scotland and Northern Ireland) if it were subject to a standard fire test.

An assessment may consider design changes to a tested element of construction for a specific project or it could form a wider scope of approval with a defined period of validity.

Assessments are based on sufficient relevant test evidence and provide a defined scope of approval for a particular design or range of designs and is an opinion of the likely performance of a component or element if it were subject to a standard fire test'.

For the purpose of this assessment the level of complexity is defined as – **Intermediate Assessment**

The assessment of intermediate complexity and significant changes to a tested product or system. Such changes may be critical to the fire performance of the product or construction being assessed.

Client Declaration

During the application process the client, Polyseam Ltd, has confirmed in writing the following:

All information and evidence provided is accurate and reflects exactly the product or system which is subject to assessment. All information relevant to the assessment; references, drawings technical specifications, photographs and test/certification reports have been made available to the UL assessor; including any test failures and any information/evidence which they are aware of which may be unfavourable to the assessment outcome.

The client has also confirmed that they have not been refused an assessment by any other competent organisation and that to their knowledge the product or system has not been tested in the configuration (or similar) they are seeking an assessment on.

The original application declaration is kept on file for reference.

UL Declaration

UL have agreed to undertake this assessment based on the client's supplied information and their declaration confirming full disclosure of information. UL have reviewed the application and have completed an impartiality assessment. This report therefore represents an independent expert opinion, which has not been influenced by any commercial, financial, or other pressures, that could compromise impartiality.

Assumptions

It is assumed that the walls and floors into which the penetration seals are installed have been proven via test to provide at least the same performance as that of the required seal.

It is assumed that the proposed penetration seals will be installed by competent installers and will be of the configurations described in Annex B.

Assessment – Performance to AS 4072.1:2005 & AS 1530.4 2005/14

The proposed Protecta FR Putty is certificated by UL and is authorised to bear the UL-EU Mark. The basic requirements for this certification are as follows:

- Verification of the manufacture of test samples
- Testing in accordance with EN 1366-3
- Evaluation against EAD 350454-00-1104 September 2017
- Continuous factory surveillance and verification
- Eligibility to bear the ULEU voluntary third party certification mark

The requirements for UL-EU Certifications therefore go far beyond those of simple type testing, however since the products have been tested in accordance with EN 1366-3: 2009, it is necessary to consider any significant differences between this standard and the required AS 4072.1: 2005 & 1530.4 2005/14.

It is noted that the requirements of the 2005 and 2014 versions of AS 1530.4 standard are the same for the proposed applications and therefore this report is considered applicable to both versions.

The following aspects of the test are considered relevant to the performance seals:

- Mounting and installation – Both AS1530.4: 2014 and EN 1366-3: 2009 require that service penetrations are installed and tested in a manner representative of the intended application.
- Heating conditions – Both standards use the same specified heating conditions ($T = 345 \log_{10} (8t + 1) + 20$) and instrumentation (Plate Thermometer required by EN 1366-3: 2009 is an option in AS1530.4: 2014)
- Dimensions – Both AS1530.4: 2014 and EN 1366-3 requires a minimum service length of 500mm on each side of the supporting construction, of which at least 200mm shall extend beyond the extremities of the penetration sealing system however, for the plastic pipes, AS1530.4: 2014 requires the external projection away from the furnace to be increased to a minimum of 2000mm. Since all of the supporting test data used in support of Certificate UL-EU-01053-CPR and ETA 22/0032 was conducted upon specimens comprising services lengths of 500mm long on each side of the supporting construction, this assessment does not allow for the use of plastic pipe services.
- Pressure conditions – AS1530.4: 2014 and EN 1366-3: 2009 require that the test specimens be subjected to identical pressure conditions.
- Instrumentation of specimens – The instrumentation of the specimens is of the same type and is applied at similar positions however, AS 1530.4: 2014 requires instrumentation to be applied in at least two positions 25mm from the interface of the separating element and the main penetration seal. Since EN 1366:3: 2009 specifies instrumentation to be applied to the top edge of the penetration seal and the penetration service, it would be reasonable to consider that the instrumentation is applied to a worst case position and as such, is expected to result in the same performance.
- Failure criteria – The failure criteria of both tests for Integrity and Insulation are identical, with the exception of the omission of gap gauges from the AS 1530.4 standard. Although integrity performance for gap gauges is used for penetrations seals under the EN 1366-3: 2009 standard, the formation of gaps was not observed in any of the supporting tests, for the performance periods given.

The parameters discussed above indicate that the EN 1366-3: 2009 test is equivalent to, and of equal severity to AS1530.4: 2014 test, and therefore based upon the above, it is considered that Protecta FR Putty, as detailed in Annex B, would provide up to 240 minutes (depending upon specification) integrity and insulation performance, if subjected to a test with AS1530.4: 2014 and AS 4072.1: 2005.

It is also noted that wall and floor constructions in the proposed market are of slightly different specifications to those currently certified and tested in Europe, due to local requirements. The aspects that are considered critical to the performance of the seal are as follows:

The size of the cross-sectional area of the putty seal remains the same.

Limits of Applicability

The conclusion of this report only applies to Protecta FR Putty as described in Annex B of this report.

Conclusions

It can be concluded that Protecta FR Putty, installed as penetration seals, as described in Annex B of this report, would provide the performances given in Annex B of this report, if subjected to a test in accordance with AS 4072.1: 2005 & AS 1530.4 2005/14.

However, for plastic pipes, AS1530.4: 2014 requires the external projection away from the furnace to be increased to a minimum of 2m. Since all of the supporting test data used in support of Certificate UL-EU-

01053-CPR and ETA 22/0032 was conducted upon specimens comprising services lengths of 500 mm long on each side of the supporting construction, this assessment does not allow for the use for plastic pipe services.

UL Confirmation of Validity

This assessment is issued on the basis of the test data and information to hand at the time of issue. If contradictory evidence becomes available to the assessing authority the assessment will be unconditionally withdrawn and the applicant will be notified in writing. Similarly, the assessment should be re-evaluated, if the assessed construction is subsequently tested, since actual test data is deemed to take precedence.

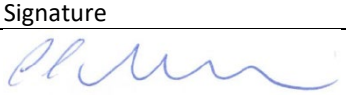
This assessment is valid for an initial period of five years (if the clause above is not enacted) after which time it is recommended that it be submitted to the assessing authority for re-evaluation.

This report may only be used in its entirety and should be supplied to interested parties or AHJ's as such.

NB This assessment report is not valid unless it incorporates all pages and the declaration duly signed by the applicant's representative.

Signatories

Engineer Completing the Assessment on behalf of UL.

Name of Engineer	Signature	Date
Andrew Buck		31/05/2024
Name of Reviewer	Signature	Date
Chris Johnson		31/05/2024

Date of Issue	**31/05/2024**
Date end of validity (five years from issue)	**01/06/2029**

Annex A – Supporting Evidence

BMT/FEP/F15268

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 100 mm thick flexible wall supporting construction.

The test demonstrated the ability of the specimens to provide up to 90 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date: 23.05.2016

WF380112

A fire resistance test in accordance with BS EN 1366-3: 2009, on a penetration seal installed in a 100 mm thick flexible wall (90 minutes) supporting construction.

The test demonstrated the ability of the specimens to provide up to 60 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date: 21.04.2017

WF No. 390101

A test in accordance with BS EN 1366-3: 2009, on specimens of penetration seal, mounted within a 100 mm thick (60 minute) flexible wall supporting construction.

The test demonstrated the ability of the specimens to provide up to 102 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:26.02.2018

WF No. 389526
A fire resistance test in accordance with BS EN 1366-3: 2009 and BS EN 1363-1: 2012 including two fire seals with pipe penetrations, 15 pipe penetration sealing systems and 12 electrical penetration sealing systems within a 100 mm thick flexible wall supporting construction.

The test demonstrated the ability of the specimens to provide up to 121 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:28.02.2018

WF No. 384982
A fire resistance test in accordance with BS EN 1366-3: 2009 and BS EN 1363-1: 2012 including three fire seals with pipe penetrations, 25 pipe penetration sealing systems and 8 electrical penetration sealing systems within a 100 mm thick flexible wall supporting construction.

The test demonstrated the ability of the specimens to provide up to 126 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:10.11.17

WF No. 383813
A fire resistance test in accordance with BS EN 1366-3: 2009 and BS EN 1363-1: 2012 including three fire seals with pipe penetrations, 19 pipe penetration sealing systems and 2 electrical penetration sealing systems within a 120 mm thick flexible wall supporting construction.

The test demonstrated the ability of the specimens to provide up to 90 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:19.07.2017

WF No. 388867

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 150 mm thick rigid floor supporting construction.

The test demonstrated the ability of the specimens to provide up to 120 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:10.10.2017

WF No. 384988

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 150 mm thick rigid floor supporting construction.

The test demonstrated the ability of the specimens to provide up to 120 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:31.01.2018

WF No. 392115

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 150 mm thick rigid floor supporting construction.

The test demonstrated the ability of the specimens to provide up to 240 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:28.02.2018

WF No. 388973 Rev A

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 150 mm thick rigid floor supporting construction.

The test demonstrated the ability of the specimens to provide up to 240 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:07.03.2018

WF No. 398517

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 100 mm thick flexible wall (60 minute) supporting construction.

The test demonstrated the ability of the specimens to provide up to 90 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:04.09.2018

WF No. 407685

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 120 mm thick flexible wall (120 minute) supporting construction.

The test demonstrated the ability of the specimens to provide up to 120 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:15.03.2019

WF No. 405608

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 120 mm thick flexible wall (120 minute) supporting construction.

The test demonstrated the ability of the specimens to provide up to 120 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:31.09.2019

WF No. 405610

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 150 mm thick rigid floor supporting construction.

The test demonstrated the ability of the specimens to provide up to 241 minutes integrity 42 minutes.

Test Sponsor: Polyseam Ltd
Report Date:27.02.2019

WF No. 400805

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 150 mm thick rigid floor supporting construction.

The test demonstrated the ability of the specimens to provide up to 240 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:22.02.2019

WFG No. 19324

A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 150 mm thick rigid floor supporting construction.

The test demonstrated the ability of the specimens to provide up to 240 minutes integrity and insulation performance.

Test Sponsor: Polyseam Ltd
Report Date:28.03.2019

ETA 22/0032

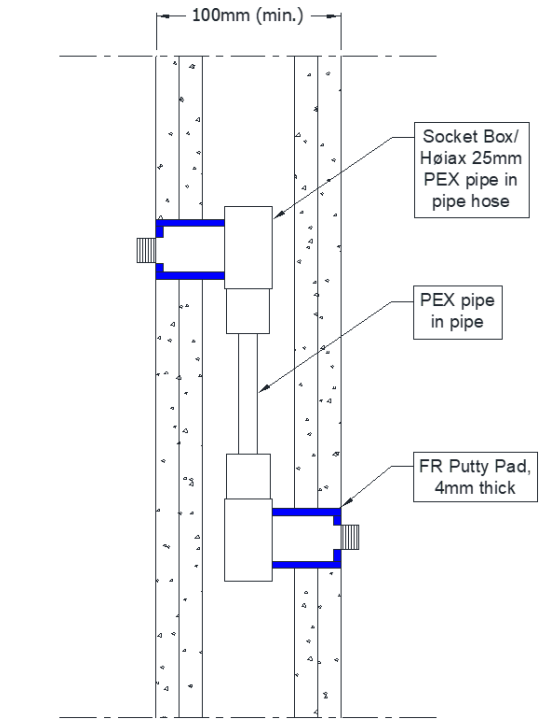
A European Technical Assessment of Protecta FR ASF in accordance with EAD 350454-00-1104, September 2017.

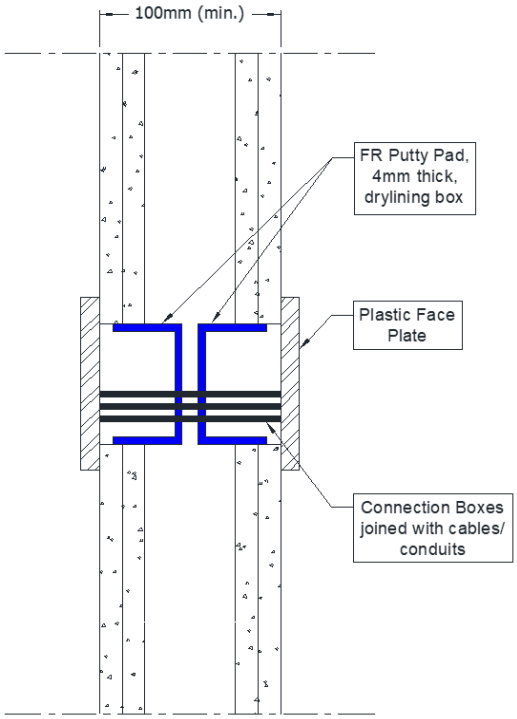
Annex B – Summary of assessed scope

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:





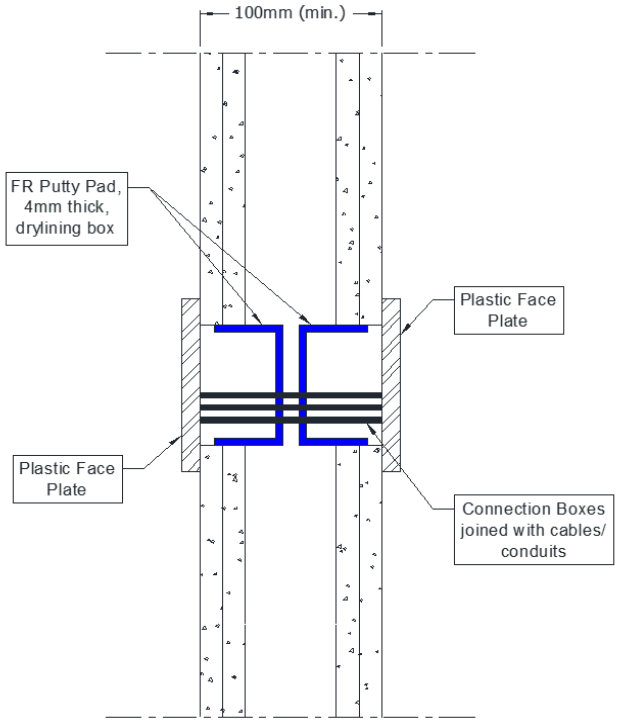
Double side penetration seal with pipes or cables in socket boxes

Services	Socket box	Protecta FR Putty - mm	Aperture mm	Classification
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	**EI 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	**EI 60**

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:



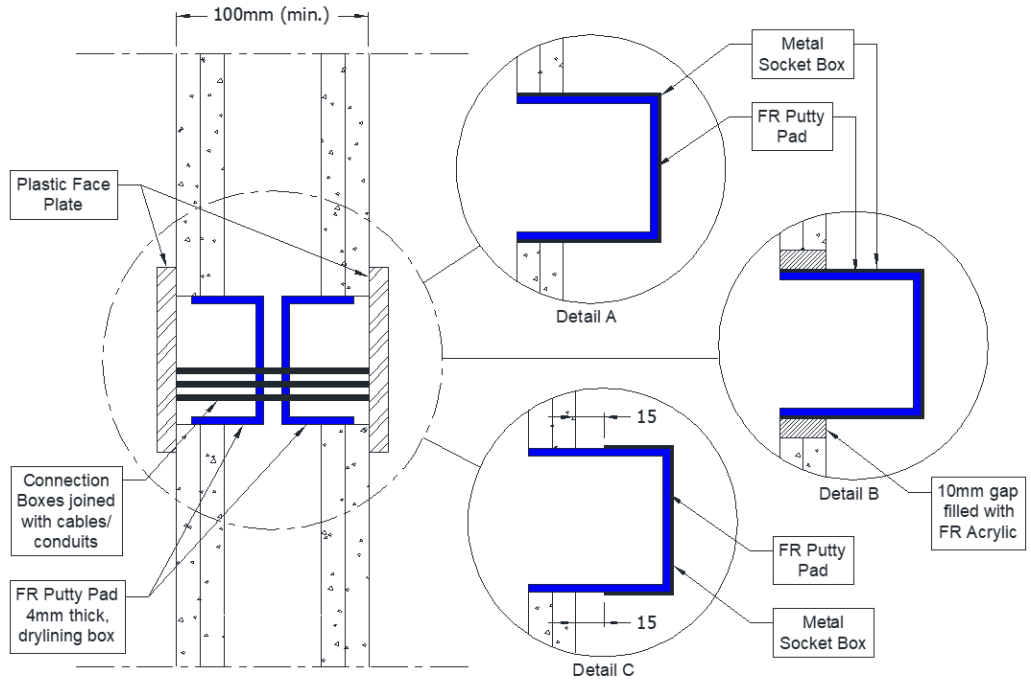
Double sided penetration seal with cables in socket boxes

Services	Socket box	Protecta FR Putty	Aperture mm	Classification
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	**E 60, EI 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	**EI 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	**EI 90**

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:



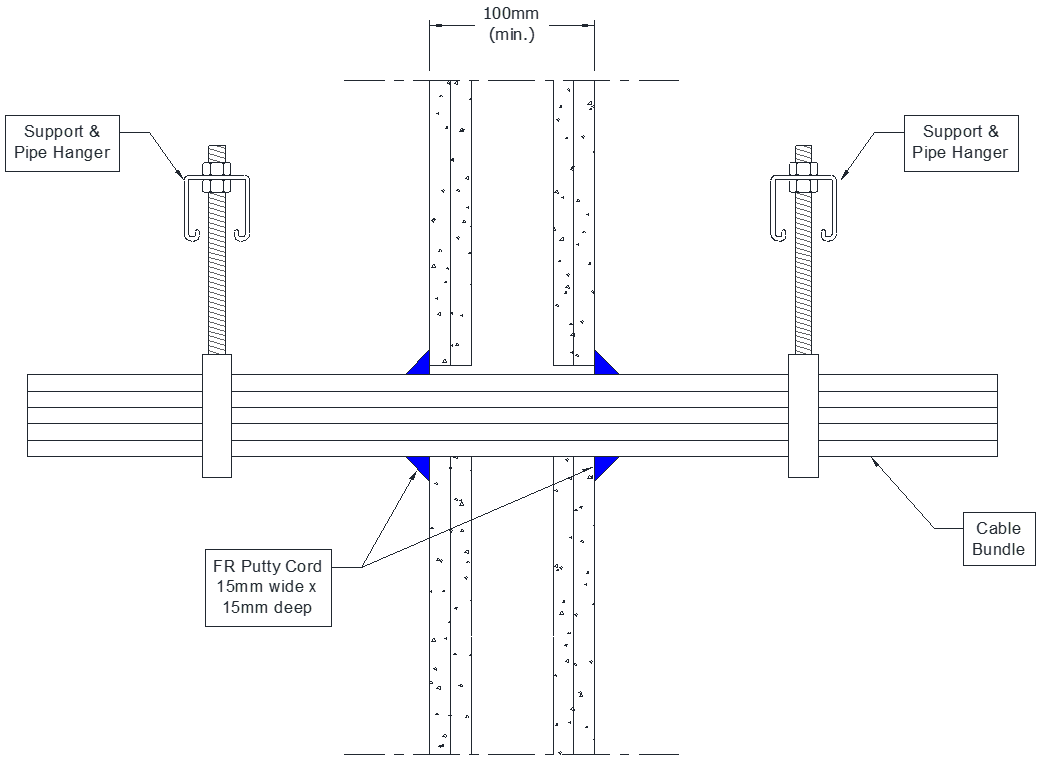
Double sided penetration seal with cables in socket boxes

Services	Steel standard UK double socket box with plastic socket cover	Protecta FR Putty pad	Detail drawing	Aperture mm (max)	Classification
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	**E 90 EI 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	**E 120 EI 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	**E 120 EI 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	**EI 90**

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:



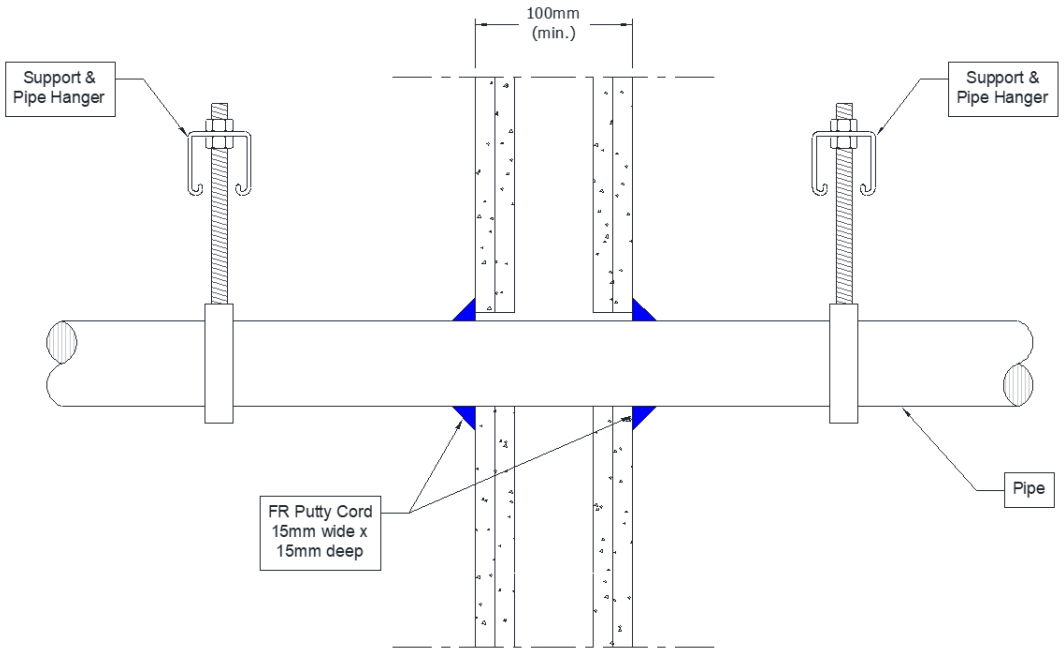
Services	Classification
Blank seal with a 15 mm deep cord of Protecta FR Putty on both sides of the wall	**EI 120**
Cables up to 21 mm diameter, single or in a bundle up to 50 mm diameter*	**EI 120**
Cables up to 80 mm diameter, single or in a bundle up to 50 mm diameter*	**EI 60**

* Cable specification from EN 1366-3 standard cable configuration

Double sided penetration seal with pipes

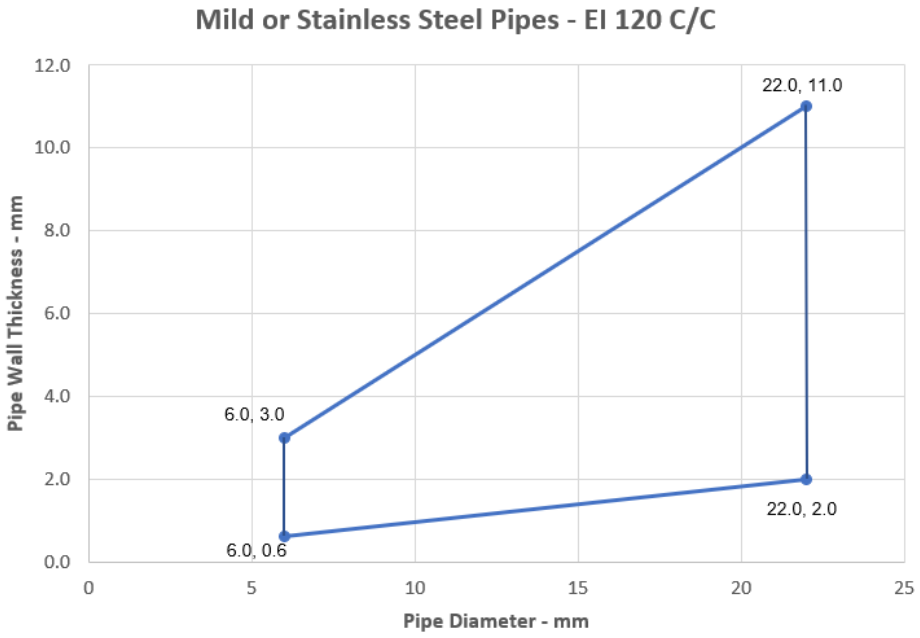
Penetration Seal: Pipes penetrating through a flexible or rigid wall construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the wall. Maximum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

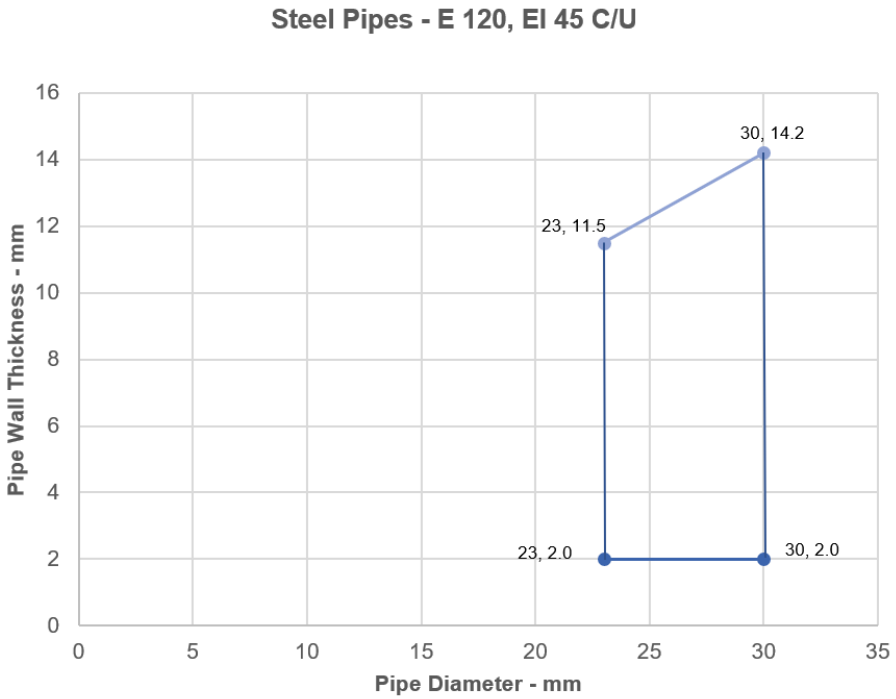
Construction details:

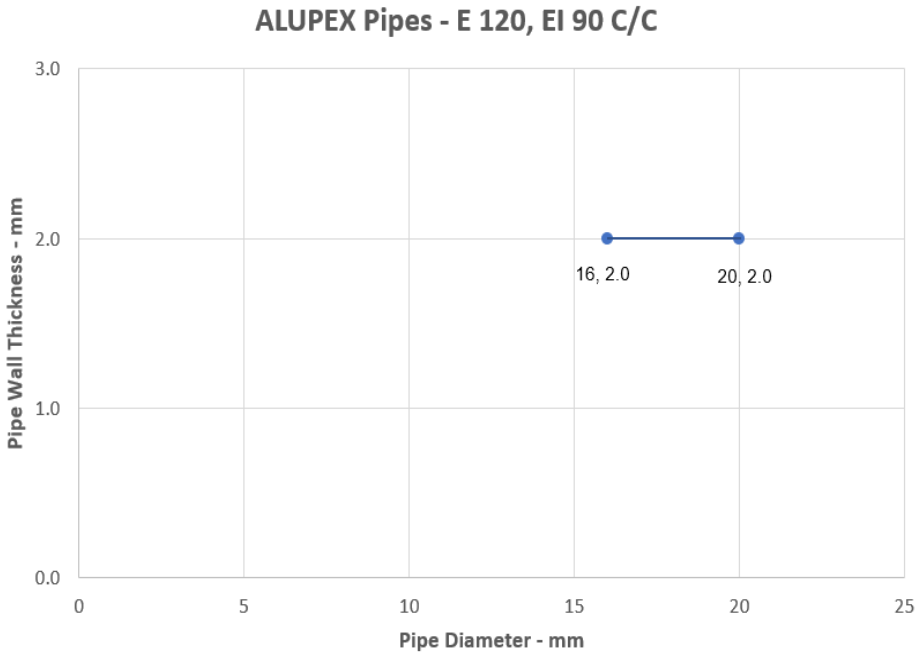


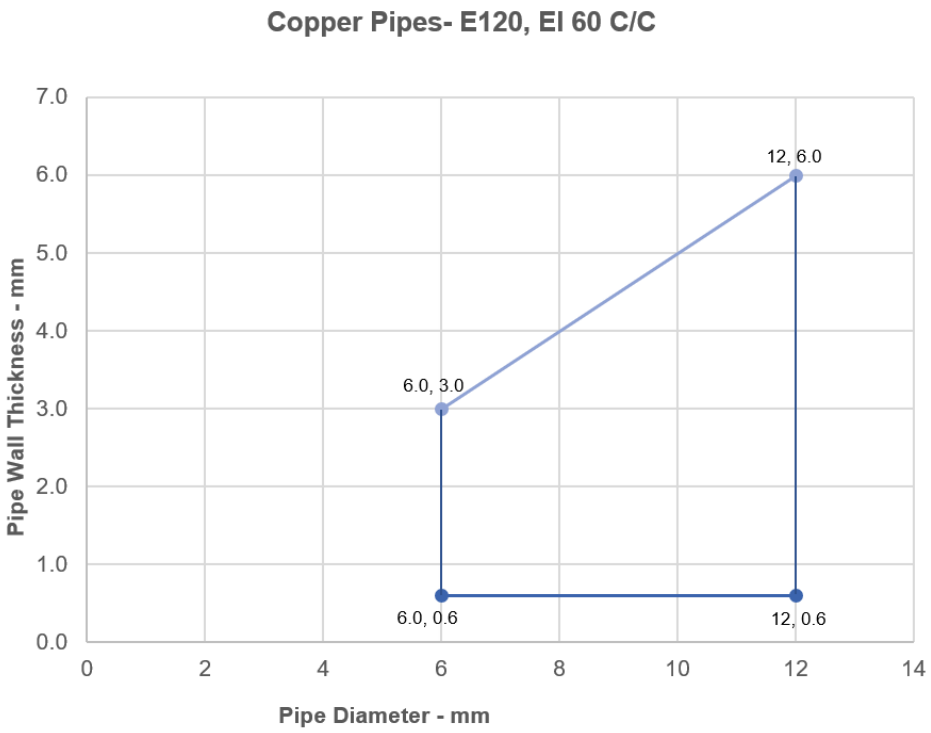
Services	Insulation	Classification
Mild or stainless steel pipe		
Maximum 22 mm diameter*	None needed	**EI 120 C/U**
23-30 mm diameter*	None needed	**E 120, EI 45 C/U**
ALUPEX pipe		
16 mm diameter*	None needed	**EI 120 C/C**
17-20 mm diameter*	None needed	**E 120, EI 90 C/C**
Copper or steel pipe		
6 mm diameter*	None needed	**EI 120 C/C**
7-12 mm diameter*	None needed	**E 120, EI 60 C/C**

*See below graphs for interpolation pipe sizes


Mild or Stainless Steel Pipes - EI 120 C/C
Pipe Wall Thickness - mm
Pipe Diameter - mm
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
5
10
15
20
25
22.0, 11.0
6.0, 3.0
22.0, 2.0
6.0, 0.6


Steel Pipes - E 120, EI 45 C/U
Pipe Wall Thickness - mm
Pipe Diameter - mm
16
14
12
10
8
6
4
2
0
0
5
10
15
20
25
30
35
30, 14.2
23, 11.5
23, 2.0
30, 2.0

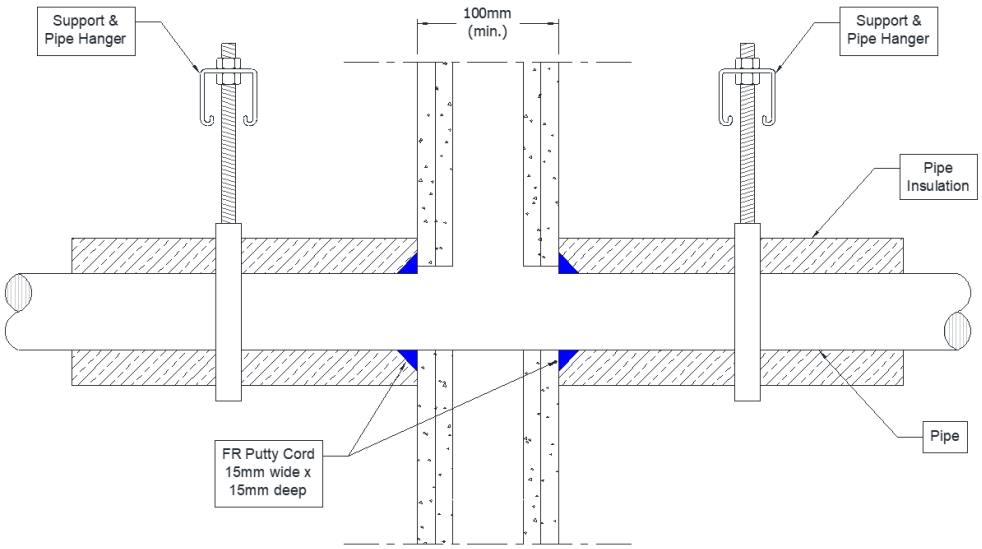

ALUPEX Pipes - E 120, EI 90 C/C
Pipe Wall Thickness - mm
3.0
2.0
1.0
0.0
16, 2.0
20, 2.0
0
5
10
15
20
25
Pipe Diameter - mm


Copper Pipes- E120, EI 60 C/C
Pipe Wall Thickness - mm
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
12, 6.0
6.0, 3.0
6.0, 0.6
12, 0.6
0
2
4
6
8
10
12
14
Pipe Diameter - mm

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

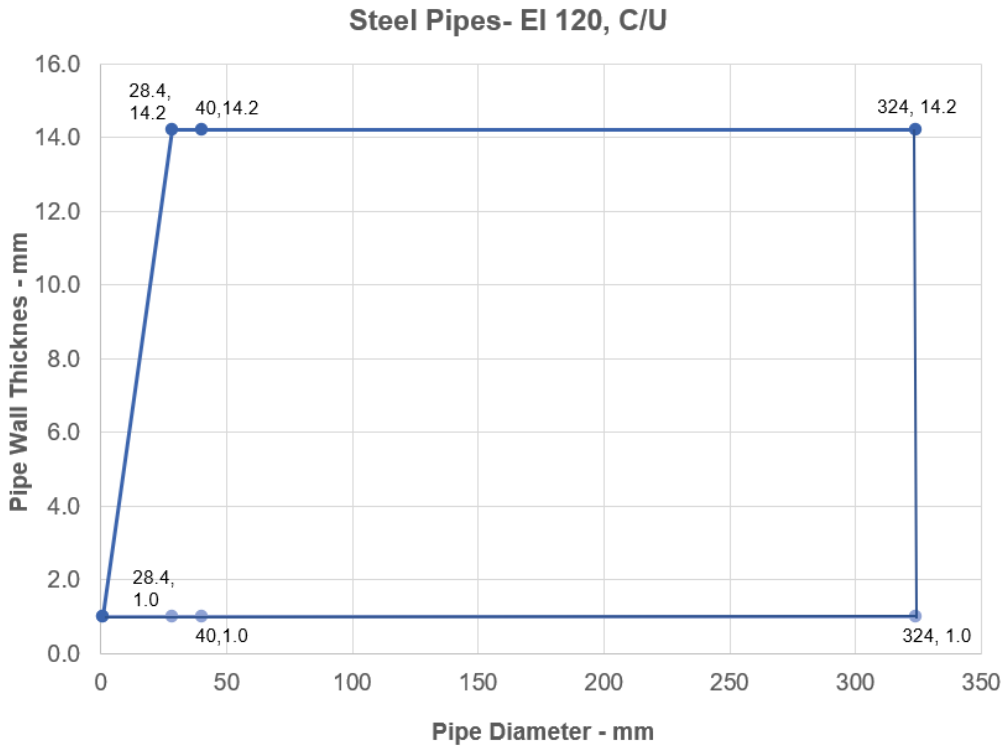
Penetration Seal: Metallic pipes insulated with minimum 80 kg/m^3 density mineral wool insulation, Local Interrupted (LI), penetrating through a flexible or rigid wall construction, fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the wall. Maximum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

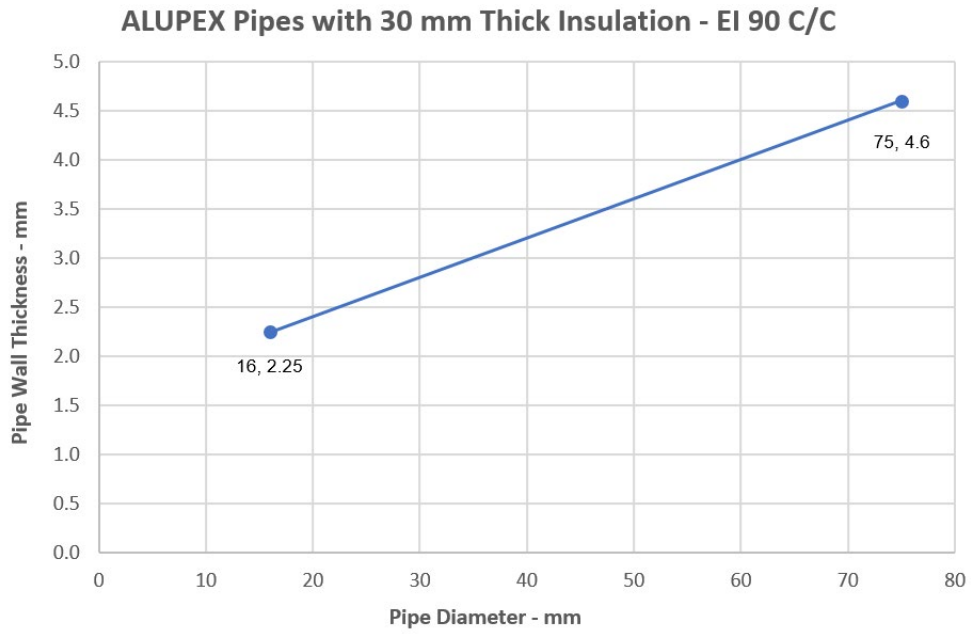
Construction details:



Services	Insulation	Classification
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	**EI 120 C/U**
40-324 mm diameter*	Minimum 30 mm thick insulation, 500 mm long butted up to the wall on both faces	**EI 120 C/U**
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, EI 60 C/C**
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	**EI 90 C/C**
Maximum 75 mm diameter*	Minimum 30 mm thick insulation, 500 mm long butted up to the wall on both faces	**EI 90 C/C**

*See below graphs for interpolation pipe sizes

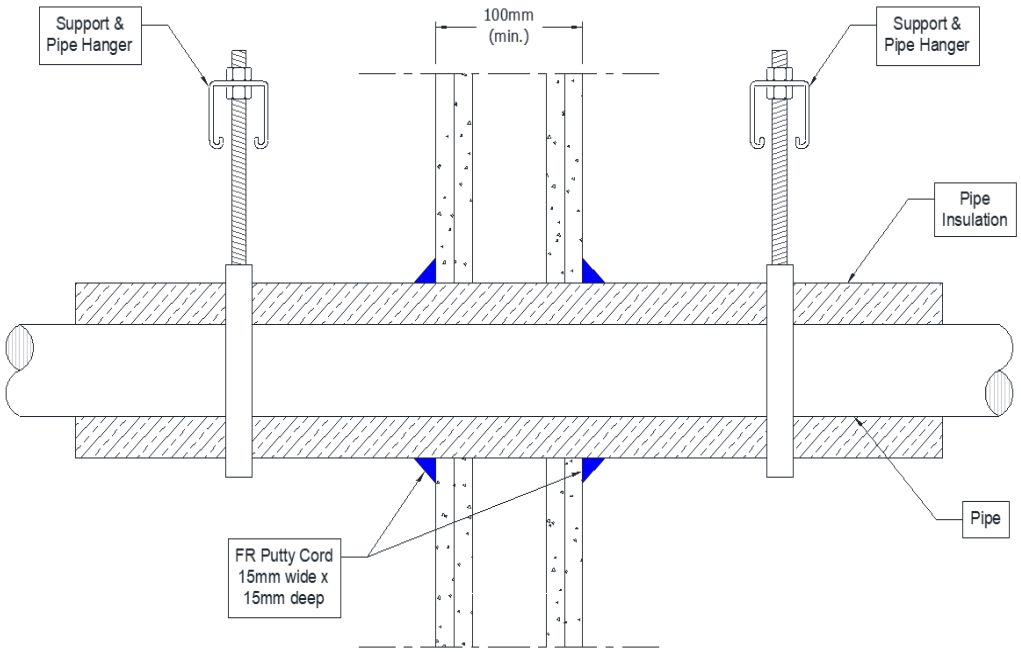

Steel Pipes- EI 120, C/U
Pipe Wall Thicknes - mm
Pipe Diameter - mm
28.4, 14.2
40,14.2
324, 14.2
28.4, 1.0
40,1.0
324, 1.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
50
100
150
200
250
300
350


ALUPEX Pipes with 30 mm Thick Insulation - EI 90 C/C
Pipe Wall Thickness - mm
Pipe Diameter - mm
75, 4.6
16, 2.25
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80

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

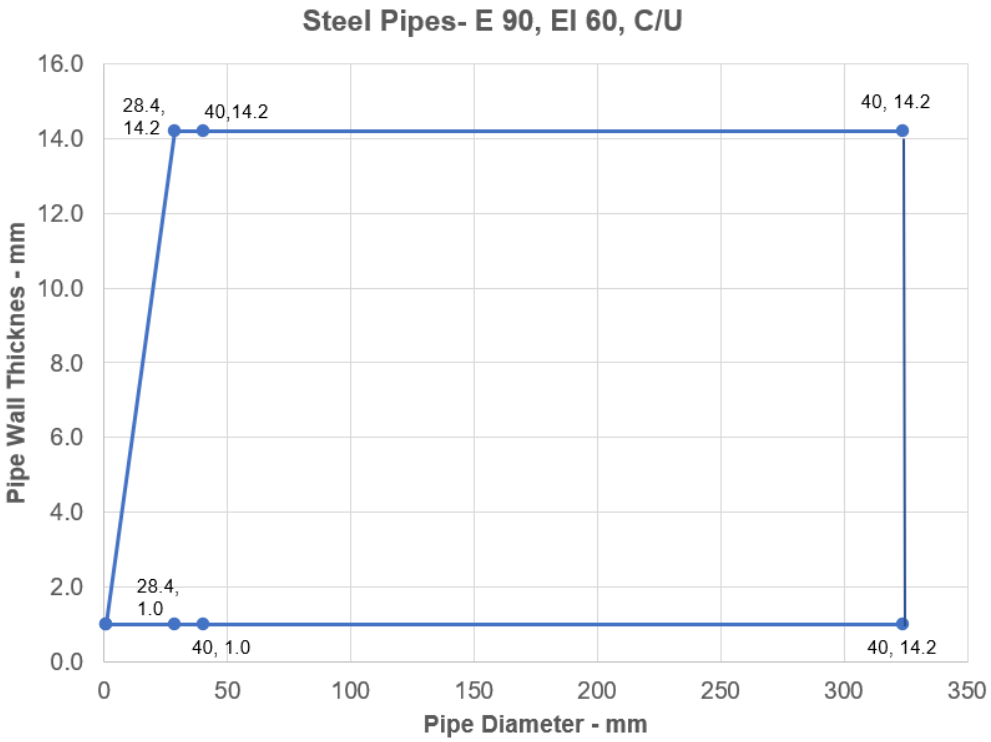
Penetration Seal: Metallic pipes insulated with minimum 80 kg/m^3 density mineral wool insulation, Continuous Sustained (CS), penetrating through a flexible or rigid wall construction, fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the wall. Maximum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

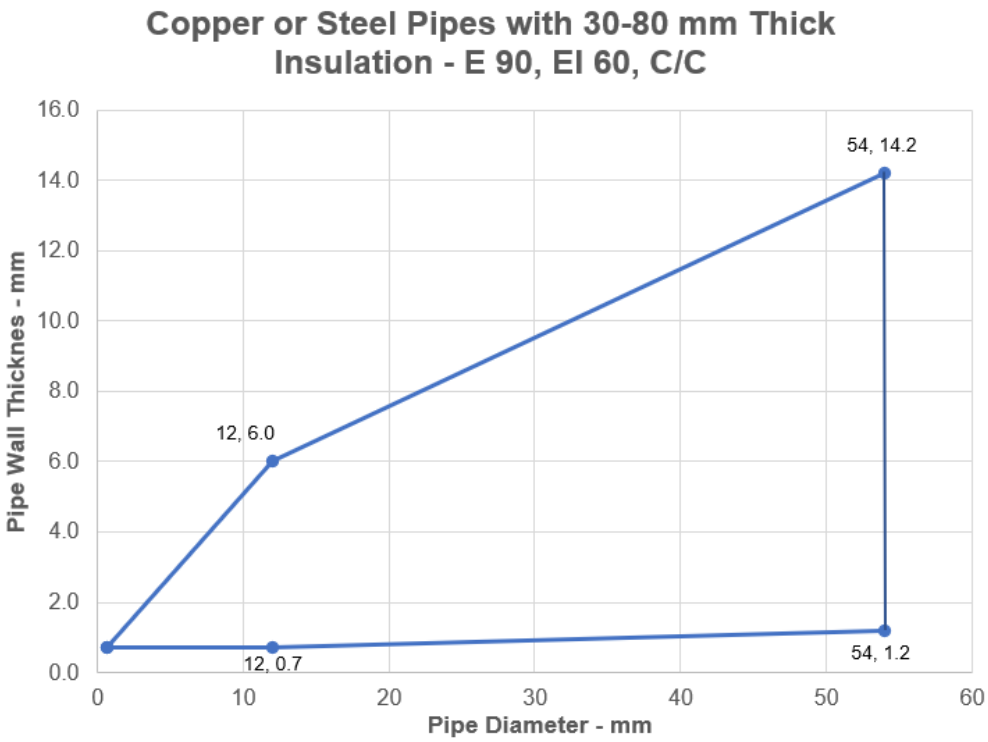
Construction details:

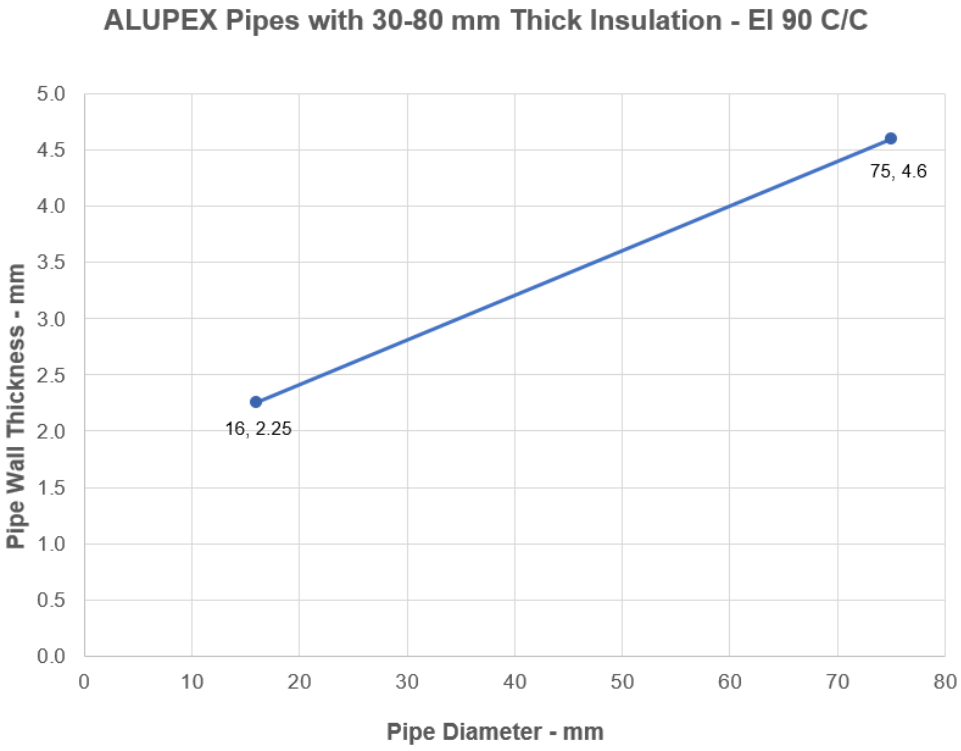


Services	Insulation	Classification
Mild or stainless steel pipe, with minimum 80 kg/m^3 density mineral wool insulation		
Maximum 40 mm diameter*	20 mm thick	**EI 120 C/U**
40-324 mm diameter*	30-80 mm thick	**E 90, EI 60 C/U**
Copper or steel pipe with minimum 80 kg/m^3 density mineral wool insulation		
Maximum 12 mm diameter/0.7-6.0 mm wall*	20 mm thick	**E90, EI 60 C/C**
Maximum 54 mm diameter/1.2-14.2 mm wall,	30-80 mm thick	**E 90, EI 60 C/C**
ALUPEX pipe with minimum 80 kg/m^3 density mineral wool insulation		
Maximum 16 mm diameter*	20 mm thick	**EI 90 C/C**
Maximum 75 mm diameter*	30-80 mm thick	**EI 90 C/C**

*See below graphs for interpolation pipe sizes


Steel Pipes- E 90, EI 60, C/U
Pipe Wall Thicknes - mm
Pipe Diameter - mm
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
50
100
150
200
250
300
350
28.4, 14.2
40,14.2
40, 14.2
28.4, 1.0
40, 1.0
40, 14.2


Copper or Steel Pipes with 30-80 mm Thick Insulation - E 90, EI 60, C/C
Pipe Wall Thicknes - mm
Pipe Diameter - mm
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
10
20
30
40
50
60
54, 14.2
12, 6.0
12, 0.7
54, 1.2

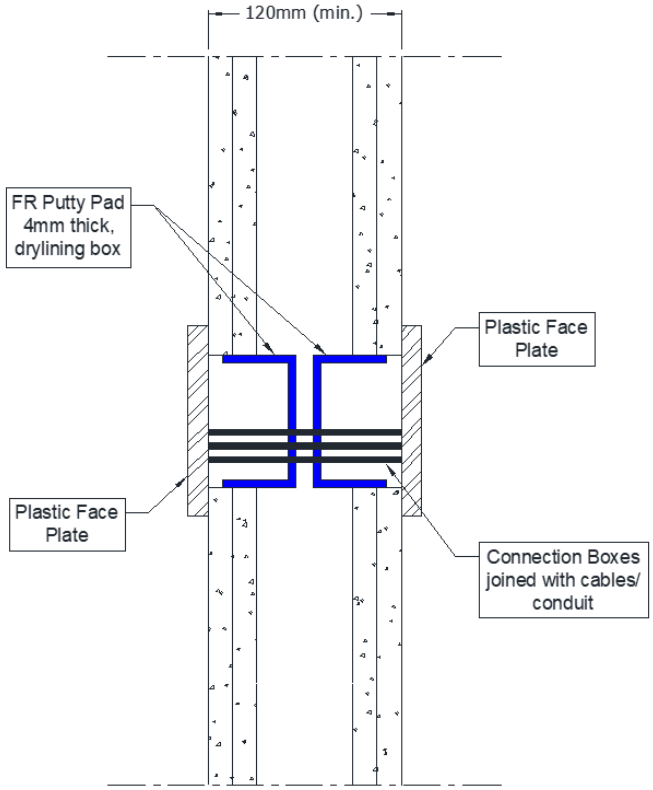

ALUPEX Pipes with 30-80 mm Thick Insulation - EI 90 C/C
Pipe Wall Thickness - mm
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
Pipe Diameter - mm
16, 2.25
75, 4.6

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:



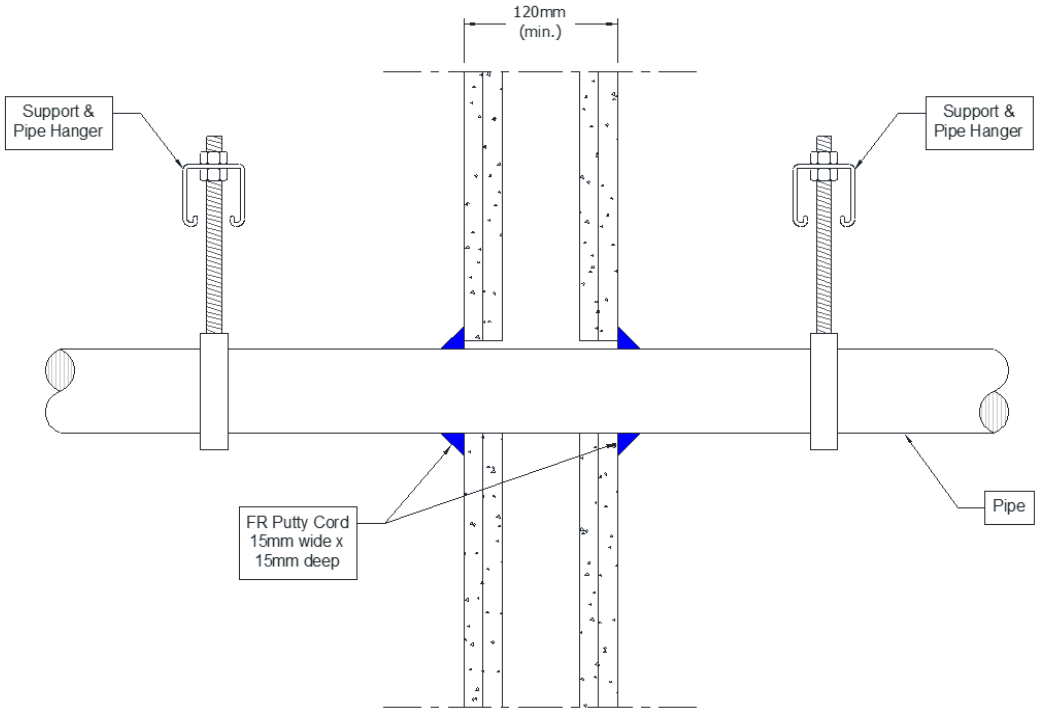
Double side penetration seal with cables in plastic socket boxes

Services	Socket box	Protecta FR Putty	Aperture mm	Classification
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	**EI 120**
2.5 mm twin and earth cables				

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:

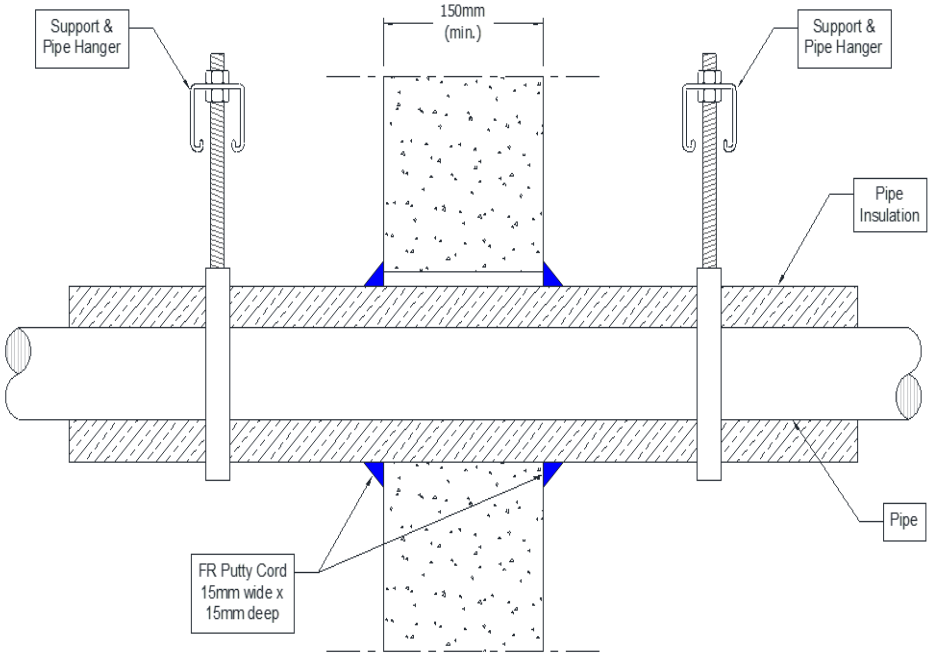


Services	Insulation	Classification
Mild or stainless steel pipe		
Maximum 324 mm diameter/6.35-14.2 mm wall	None needed	**E 90, EI 20 C/U**
ALUPEX pipe		
Maximum 75 mm diameter/4.6-14.2 mm wall	None needed	**EI 90 C/C**
Copper or steel pipe		
Maximum 54 mm diameter/1.2-14.2 mm wall	None needed	**E 90, EI 15 C/C**

Rigid wall constructions with wall thickness of minimum 150 mm
Double sided penetration seal with insulated metallic pipes, Continuous Sustained (CS)

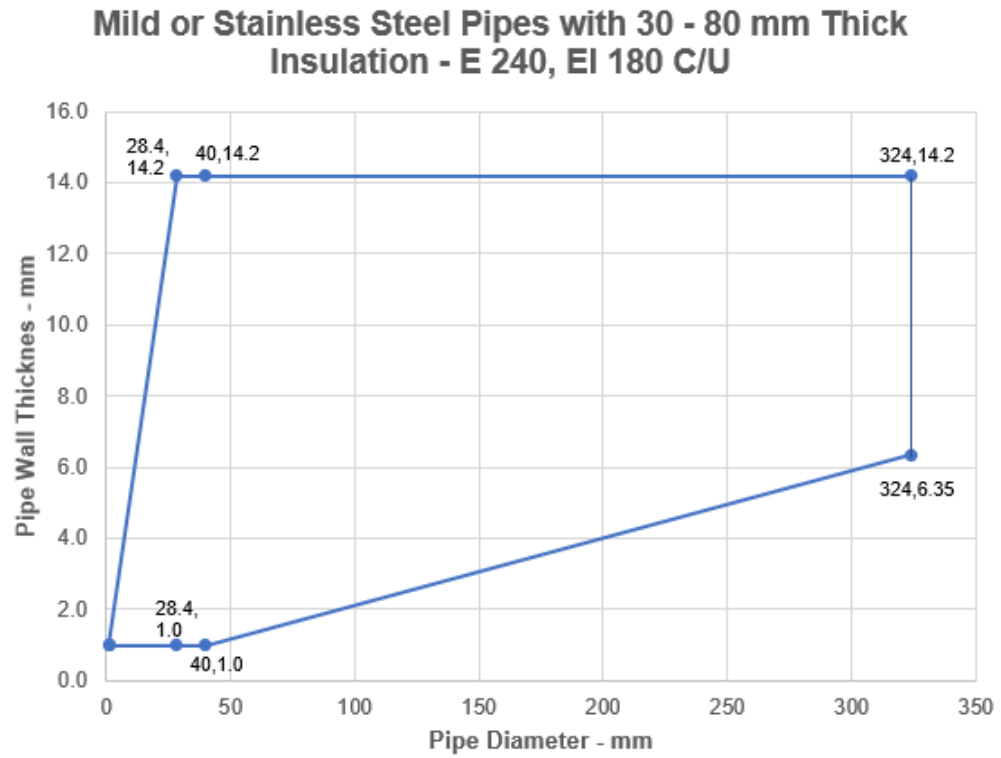
Penetration Seal: Metallic pipes insulated with minimum 80 kg/m^3 density mineral wool insulation, Continuous Sustained (CS), penetrating through a rigid wall construction, fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on both sides of the wall. Maximum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

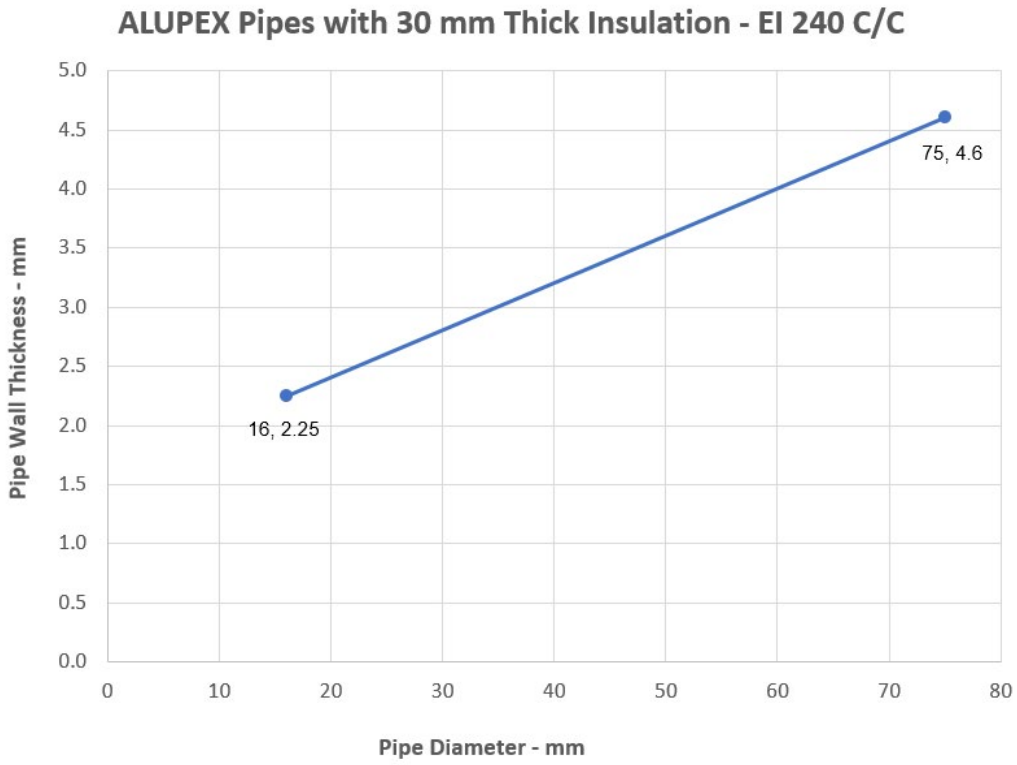
Construction details:



Services	Insulation	Classification
Mild or stainless steel pipe, with minimum 80 kg/m^3 density mineral wool insulation		
Maximum 40 mm diameter*	20 mm thick	**EI 120 C/U**
Maximum 324 mm diameter*	30-80 mm thick	**E 240, EI 180 C/U**
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	**E 240, EI 120 C/C**
ALUPEX pipe with minimum 80 kg/m^3 density mineral wool insulation		
Maximum 16 mm diameter*	20 mm thick	**EI 240 C/C**
Maximum 75 mm diameter*	30 mm thick	**EI 240 C/C**

*See below graphs for interpolation pipe sizes


Mild or Stainless Steel Pipes with 30 - 80 mm Thick Insulation - E 240, EI 180 C/U
Pipe Wall Thicknes - mm
Pipe Diameter - mm
28.4, 14.2
40,14.2
324,14.2
324,6.35
28.4, 1.0
40,1.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
50
100
150
200
250
300
350

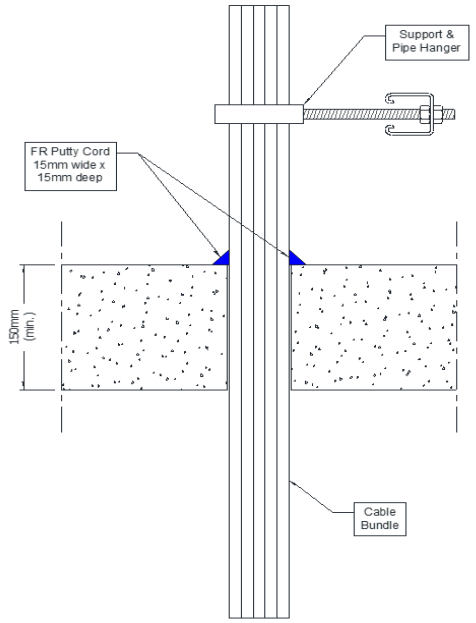

ALUPEX Pipes with 30 mm Thick Insulation - EI 240 C/C
Pipe Wall Thickness - mm
Pipe Diameter - mm
75, 4.6
16, 2.25
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80

Rigid floor constructions with floor thickness of minimum 150 mm

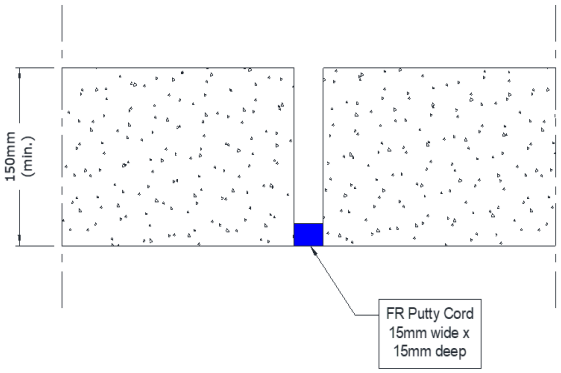
Single sided penetration seal with cables

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:



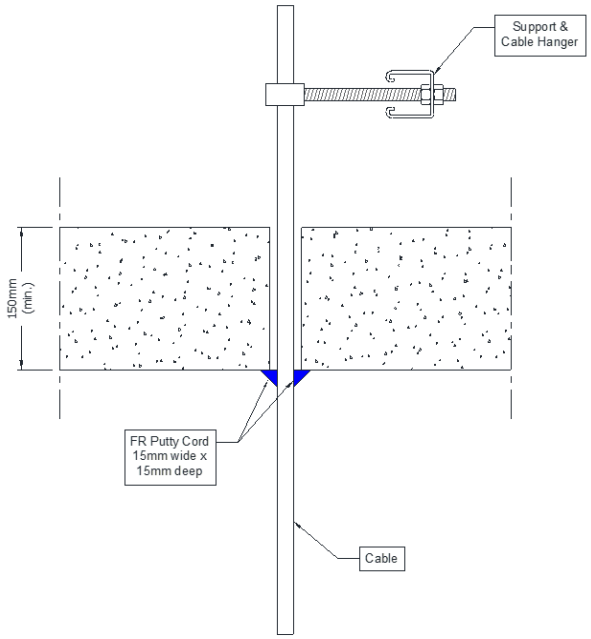
Services	Classification
None (blank)	**E 120, EI 30**
Cables up to 21 mm diameter in tied bundles up to 50 mm diameter*	**E 120, EI 60**
Cables up to 21 mm diameter*	**EI 120**
Cables 22-50 mm diameter*	**E 120, EI 90**
Cables 51-80 mm diameter*	**E 120, EI 60**
Single 'A1' type cable*	**EI 240**
Single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

* Cable specification from EN 1366-3 standard cable configuration

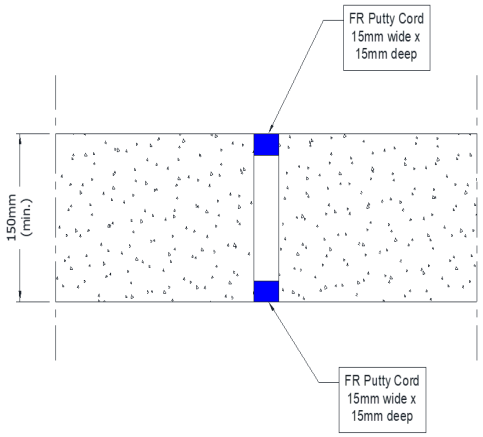
Single sided penetration seal with cables

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:



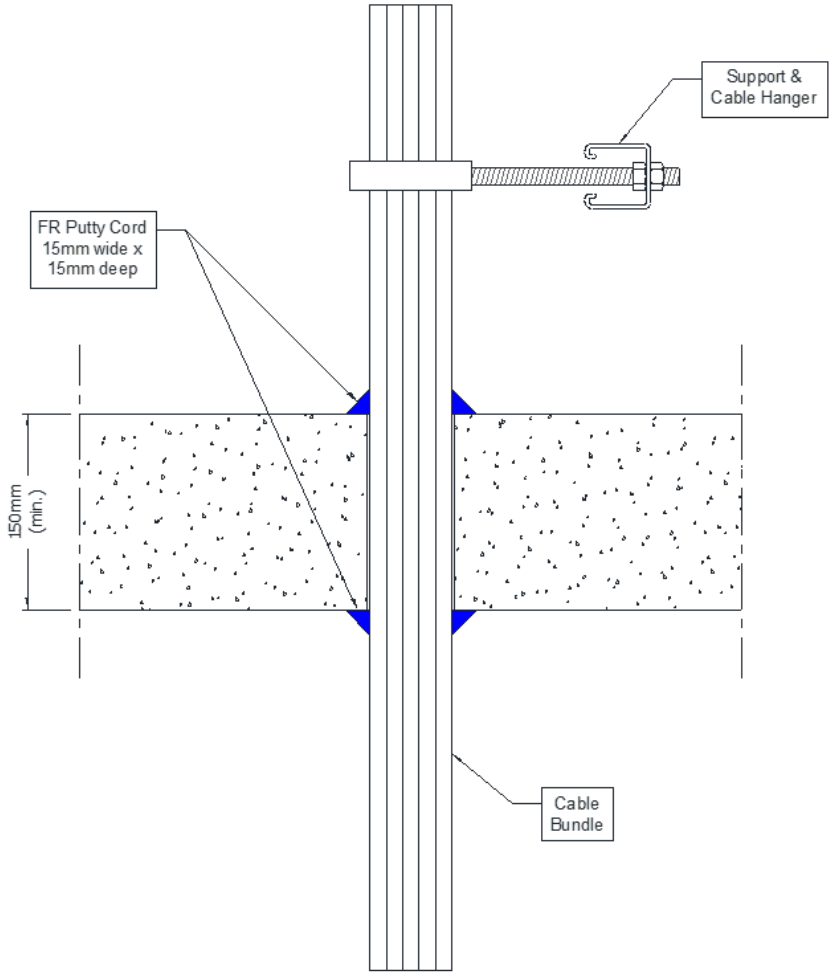
Services	Seal size	Classification
None (blank)	15mm deep	**EI 120**
Cables up to 21 mm diameter in tied bundles up to 75mm diameter*	15 mm diameter cord	**E 60, EI 45**
Cables up to 21 mm diameter*		**E 120, EI 60**
Cables 22-80 mm diameter*		**E 90, EI 45**

* Cable specification from EN 1366-3 standard cable configuration

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:



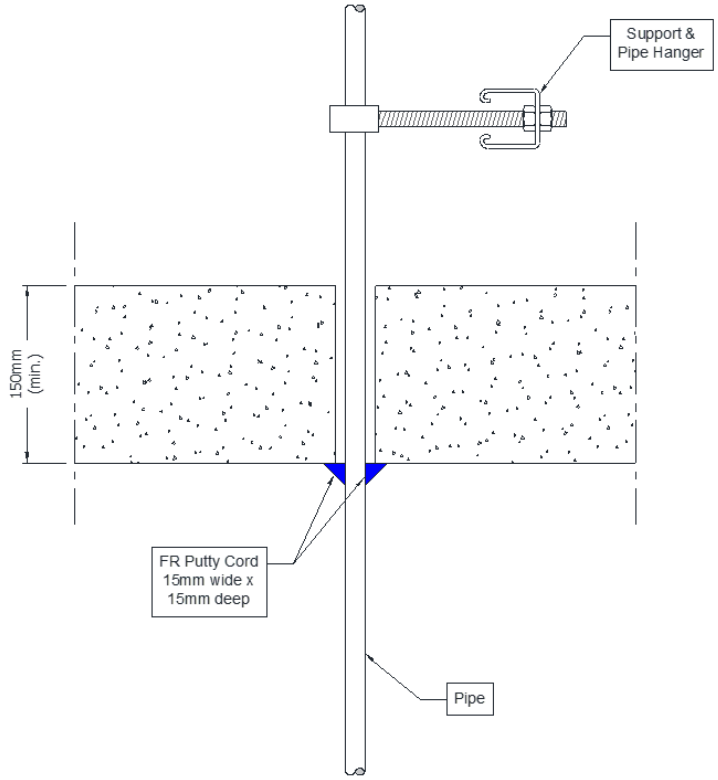
Services	Seal size	Classification
Cables up to 21 mm diameter in tied bundles up to 50 mm diameter*	15 mm diameter cord	**EI 240**

* Cable specification from EN 1366-3 standard cable configuration

Single sided penetration seal with metallic pipes

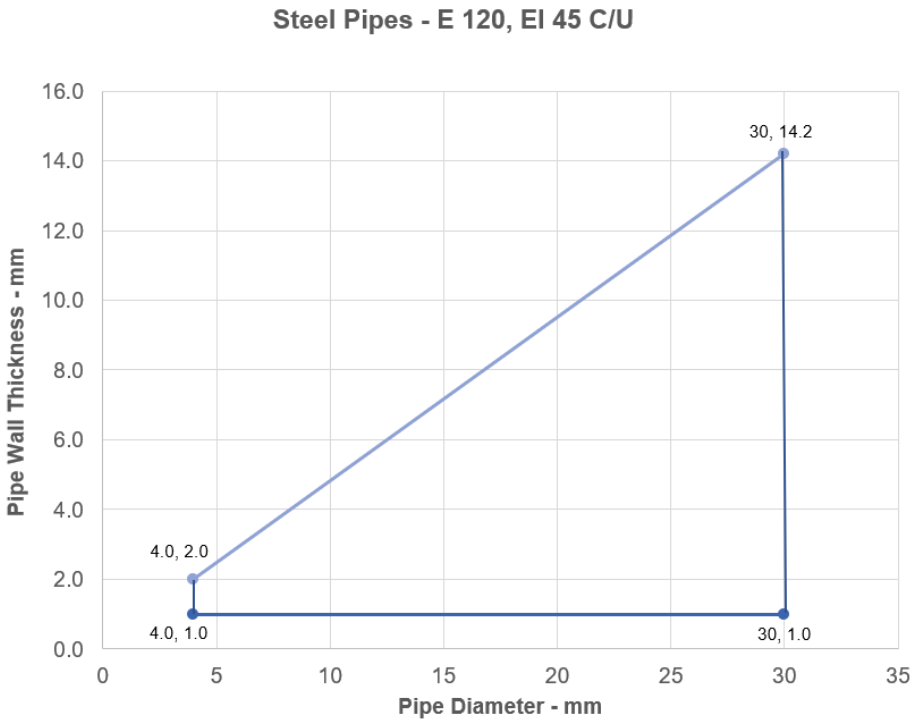
Penetration Seal: Metallic pipes penetrating through a rigid floor construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on the bottom face of the floor. Maximum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

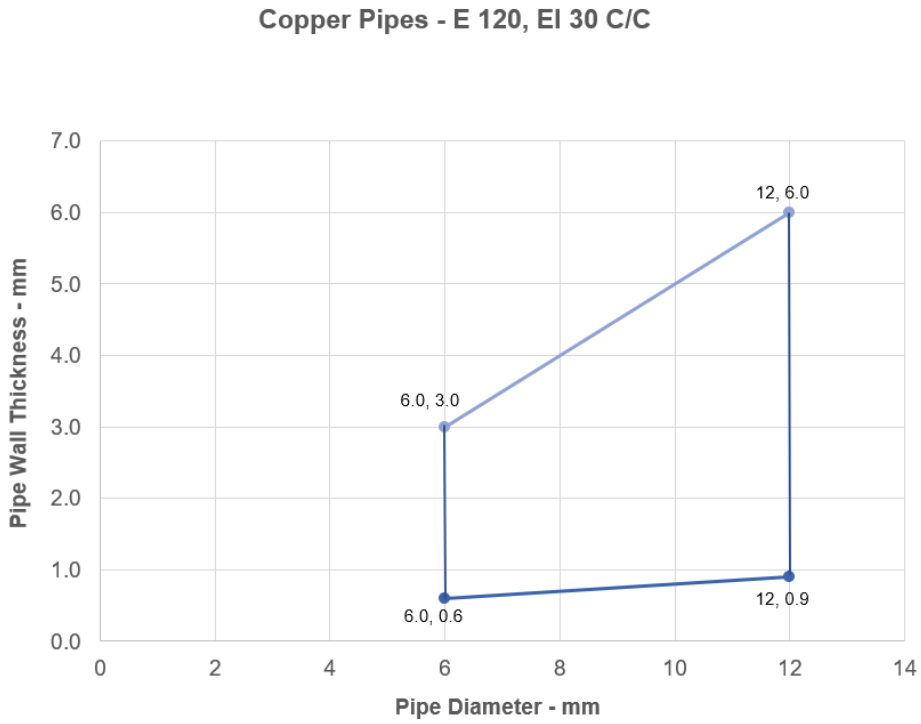
Construction details:



Services	Insulation	Classification
Mild or stainless steel pipe		
4 mm diameter*	None needed	**EI 120 C/U**
5-30 mm diameter*	None needed	**E 120, EI 45 C/U**
Copper or steel pipe		
6 mm diameter*	None needed	**E 120, EI 90 C/C**
7-12 mm diameter*	None needed	**E 120, EI 30 C/C**

*See below graphs for interpolation pipe sizes

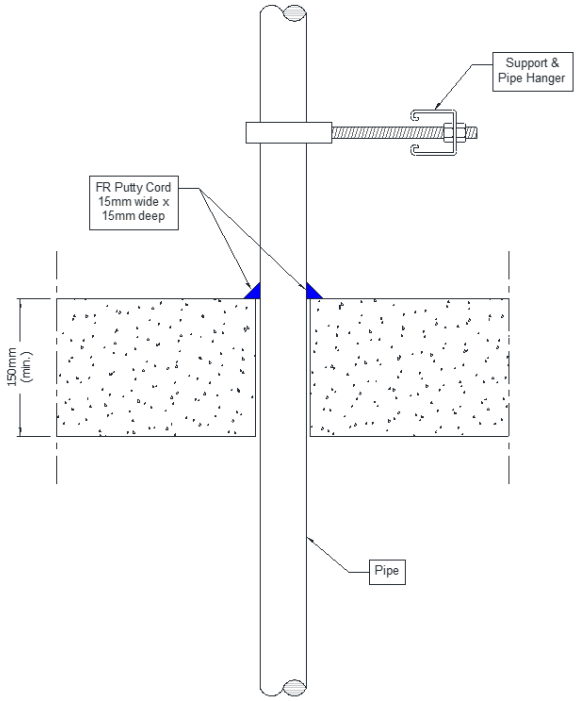

Steel Pipes - E 120, EI 45 C/U
Pipe Wall Thickness - mm
Pipe Diameter - mm
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
5
10
15
20
25
30
35
30, 14.2
4.0, 2.0
4.0, 1.0
30, 1.0


Copper Pipes - E 120, EI 30 C/C
Pipe Wall Thickness - mm
Pipe Diameter - mm
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0
2
4
6
8
10
12
14
12, 6.0
6.0, 3.0
6.0, 0.6
12, 0.9

Single sided penetration seal with metallic pipes

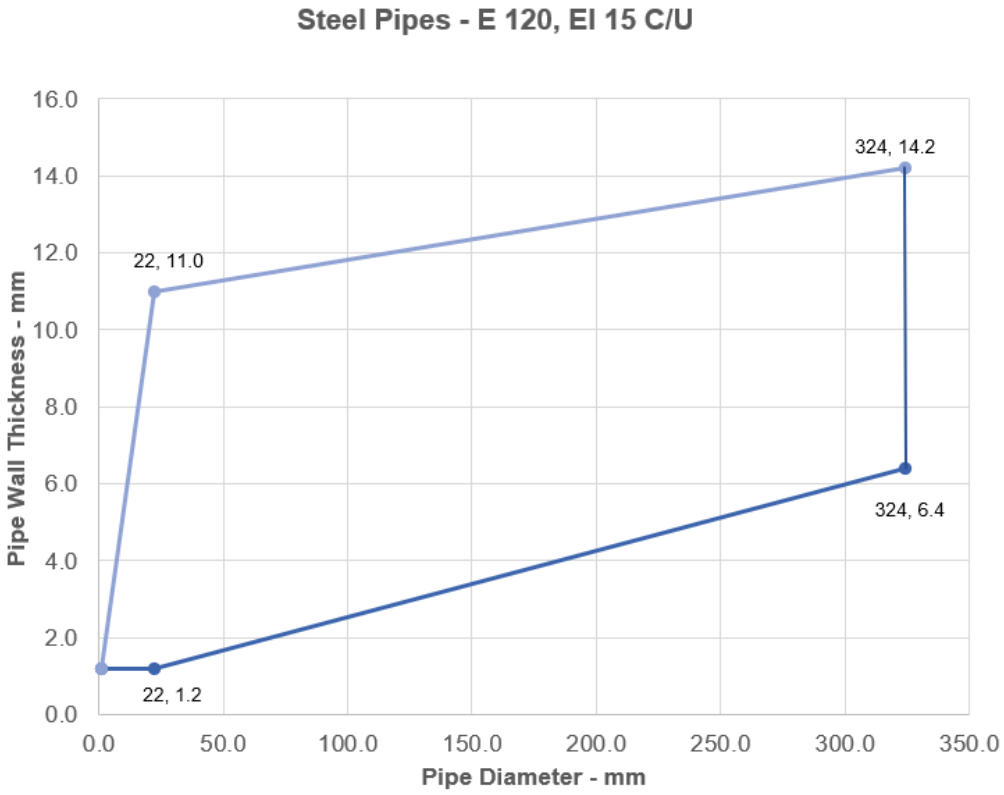
Penetration Seal: Metallic pipes penetrating through a rigid floor construction and fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on the top face of the floor. Maximum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

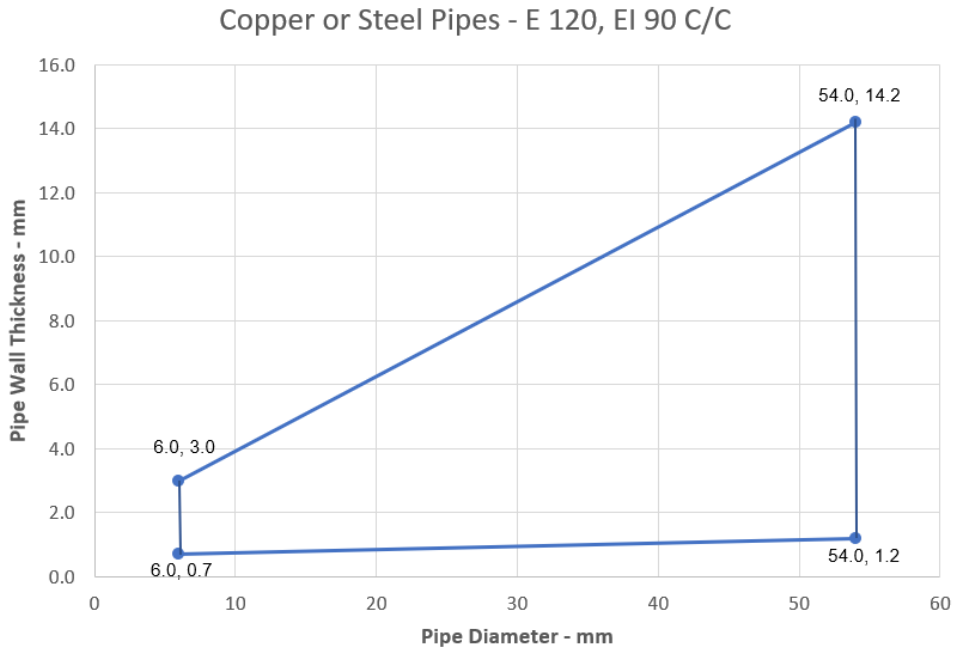
Construction details:

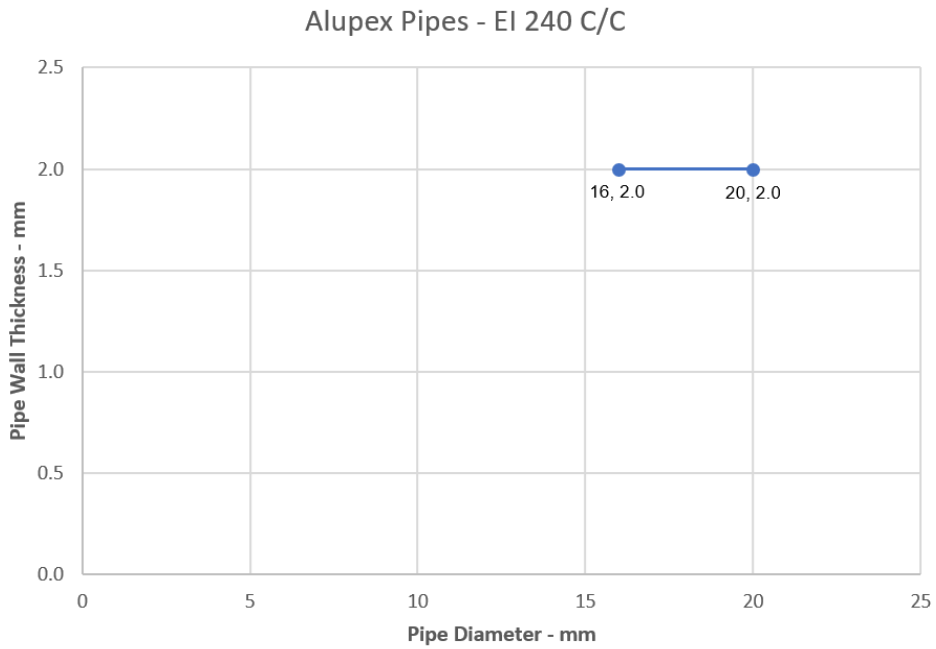


Services	Insulation	Classification
Mild or stainless steel pipe		
Maximum 22 mm diameter/1.2-11.0 mm wall*	None needed	**EI 120 C/U**
Maximum 324 mm diameter/6.35-14.2 mm wall*	None needed	**E 240, EI 15 C/U**
Copper or steel pipe		
6 mm diameter*	None needed	**EI 120 C/C**
7-10 mm diameter*	None needed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

*See below graphs for interpolation pipe sizes


Steel Pipes - E 120, EI 15 C/U
Pipe Wall Thickness - mm
Pipe Diameter - mm
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
324, 14.2
22, 11.0
324, 6.4
22, 1.2

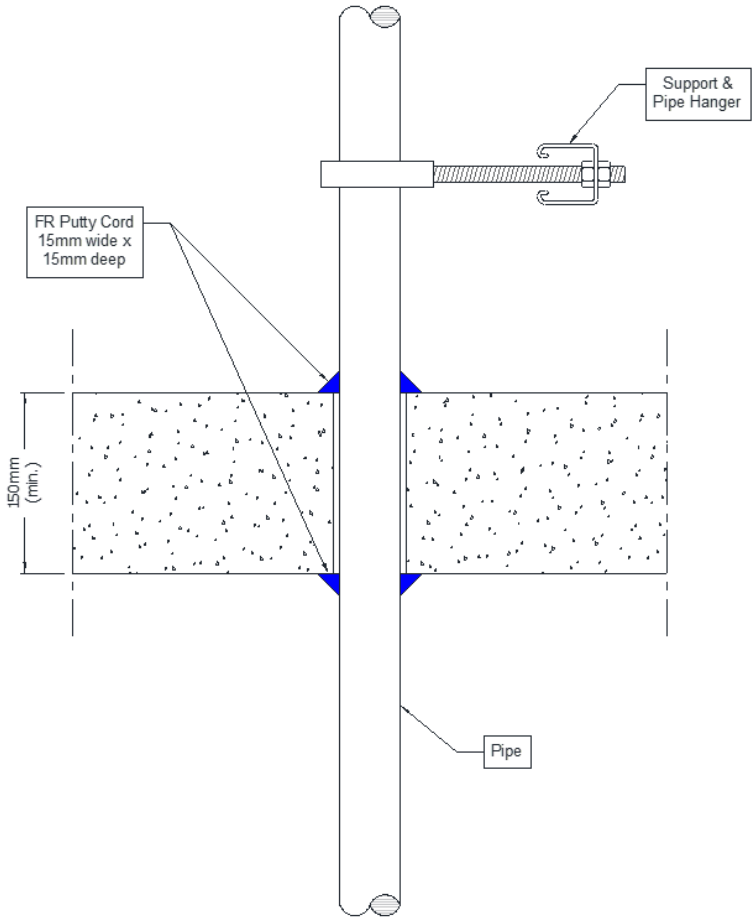

Copper or Steel Pipes - E 120, EI 90 C/C
Pipe Wall Thickness - mm
Pipe Diameter - mm
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
10
20
30
40
50
60
54.0, 14.2
6.0, 3.0
6.0, 0.7
54.0, 1.2


Alupex Pipes - EI 240 C/C
Pipe Wall Thickness - mm
2.5
2.0
1.5
1.0
0.5
0.0
0
5
10
15
20
25
Pipe Diameter - mm
16, 2.0
20, 2.0

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:

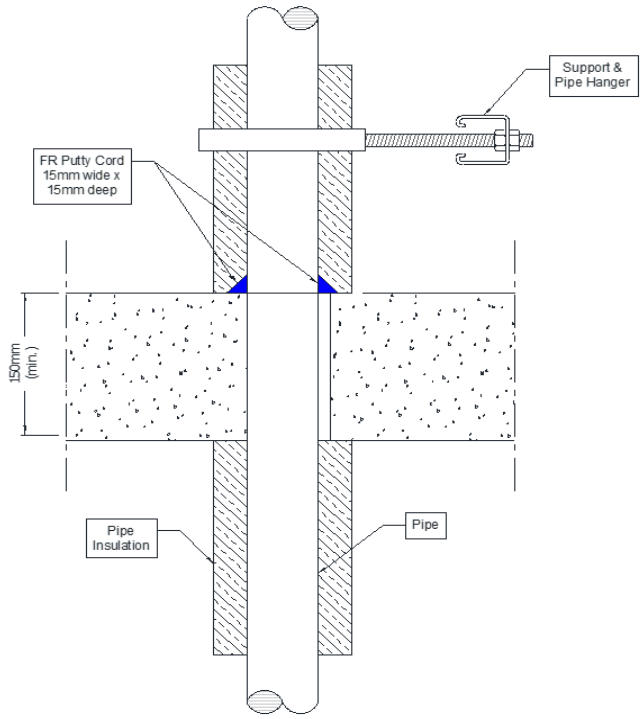


Services	Insulation	Classification
Copper or steel pipe		
Maximum 10 mm diameter/0.7-14.2 mm wall	None needed	**E 240, EI 180 C/C**

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

Penetration Seal: Metallic pipes insulated with minimum 80 kg/m^3 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).

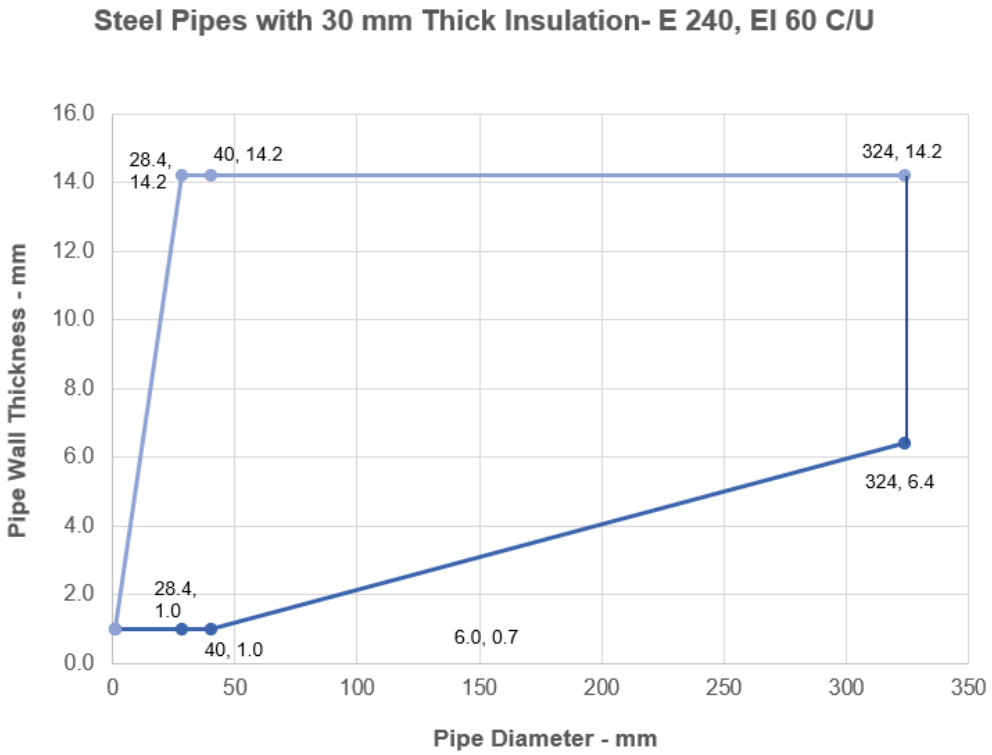
Construction details:

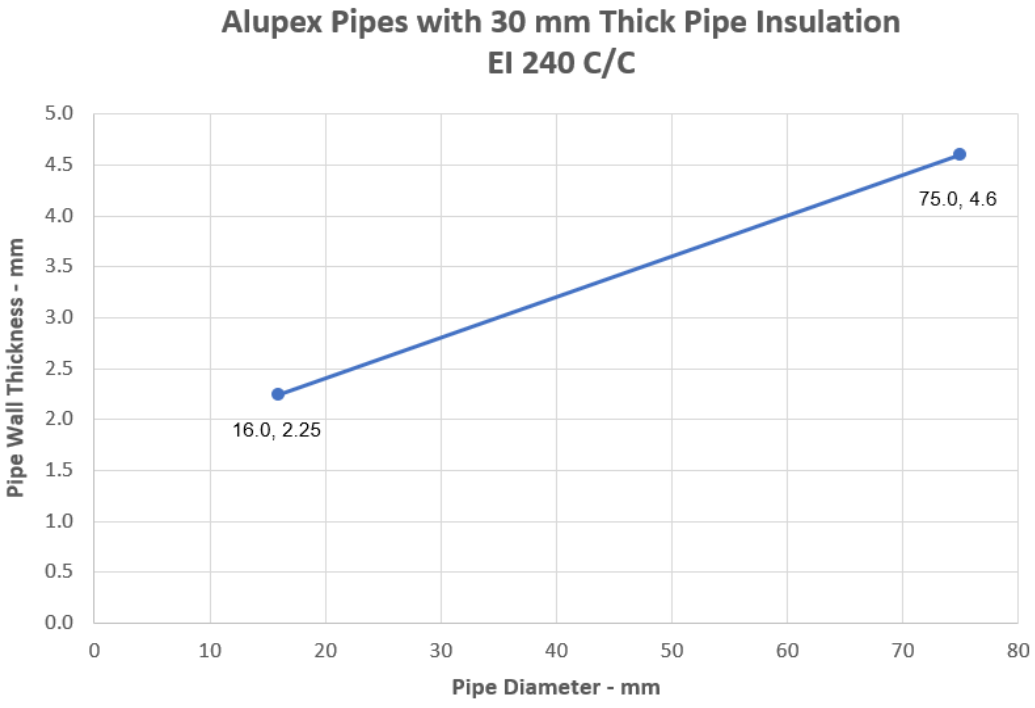


Single sided penetration seal with partially insulated metallic pipes

Services	Insulation	Classification
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 each face of the floor	**EI 240 C/U**
41-324 mm diameter*	Minimum 30 mm thick insulation, 500 mm long butted up to each face of the floor	**E 240, EI 60 C/U**
ALUPEX pipe with minimum 80 kg/m^3 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	**EI 240 C/C**
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	**EI 240 C/C**

*See below graphs for interpolation pipe sizes

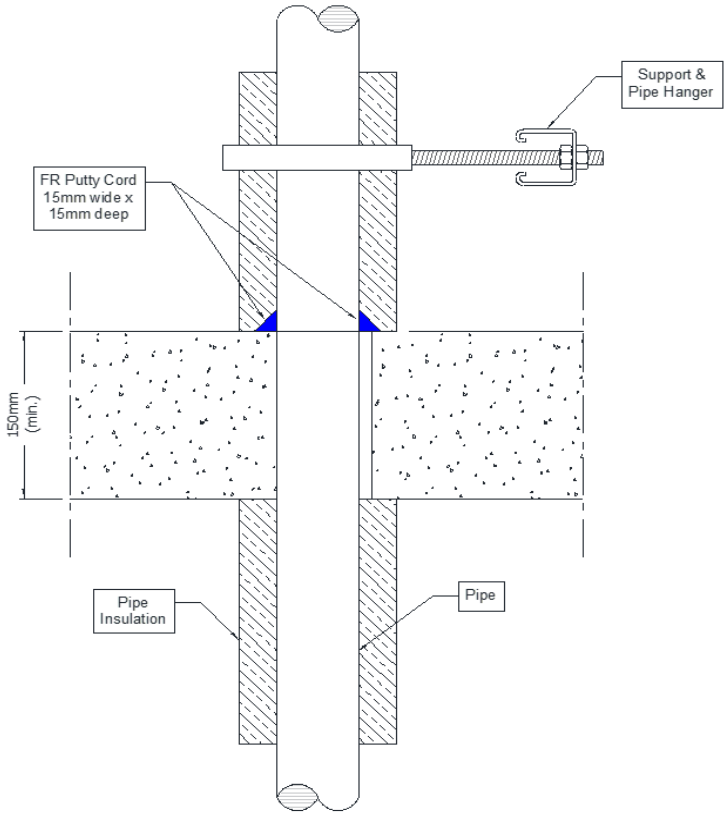

Steel Pipes with 30 mm Thick Insulation- E 240, EI 60 C/U
Pipe Wall Thickness - mm
Pipe Diameter - mm
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
50
100
150
200
250
300
350
28.4, 14.2
40, 14.2
324, 14.2
324, 6.4
28.4, 1.0
40, 1.0
6.0, 0.7


Alupex Pipes with 30 mm Thick Pipe Insulation
EI 240 C/C
Pipe Wall Thickness - mm
Pipe Diameter - mm
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
75.0, 4.6
16.0, 2.25

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

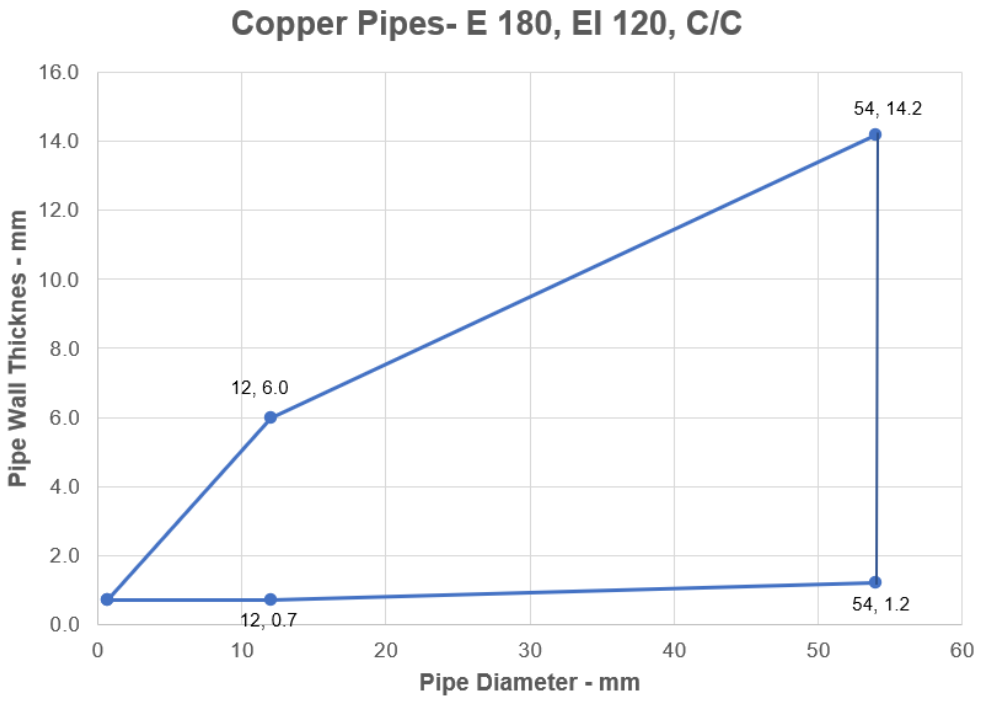
Penetration Seal: Metallic pipes insulated with minimum 75 kg/m³ density glass or mineral wool insulation, Local Interrupted (LI), penetrating through a rigid floor construction, fitted at any position within the aperture, sealed with a 15 mm diameter cord of Protecta FR Putty on the top face of the floor. Maximum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

Construction details:



Services	Insulation	Classification
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	**EI 180 C/U**
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	**EI 240 C/C**
Maximum 54 mm diameter/1.2-14.2 mm wall*		**E 180, EI 120 C/C**

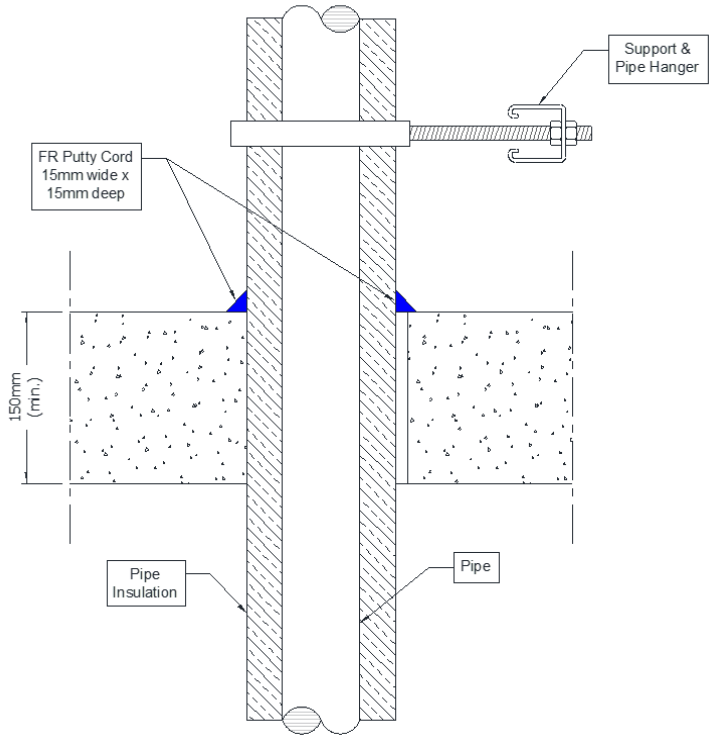
*See below graphs for interpolation pipe sizes


Copper Pipes- E 180, EI 120, C/C
Pipe Wall Thicknes - mm
Pipe Diameter - mm
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
10
20
30
40
50
60
54, 14.2
12, 6.0
12, 0.7
54, 1.2

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

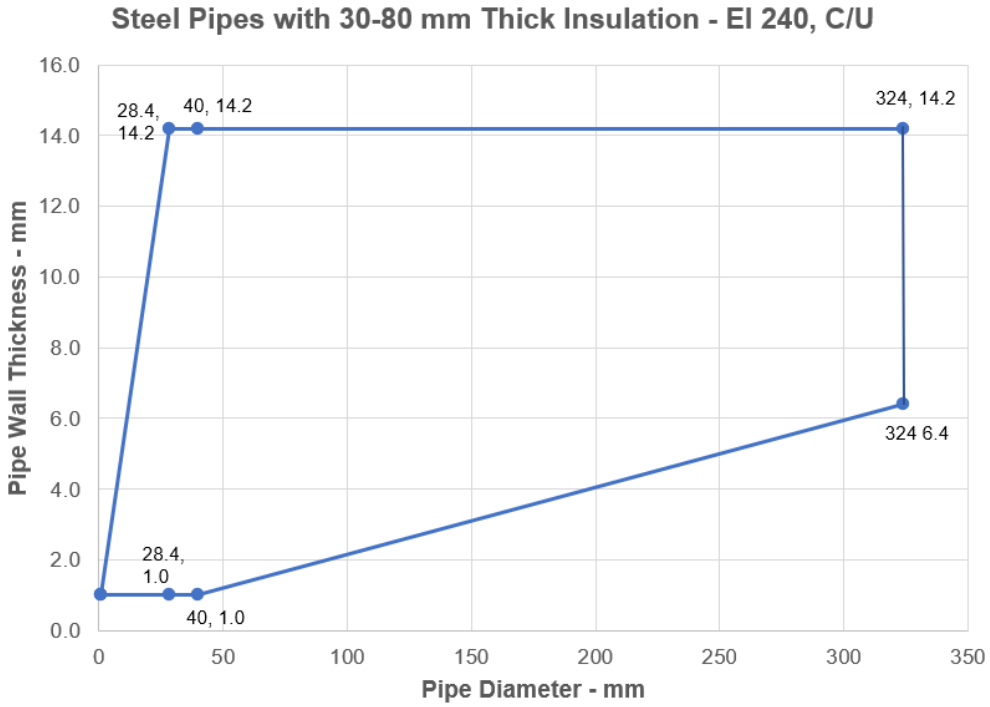
Penetration Seal: Metallic pipes insulated with minimum 80 kg/m^3 density mineral wool insulation, Continuous Sustained (CS), penetrating through a rigid floor construction, fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on the top face of the floor. Maximum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

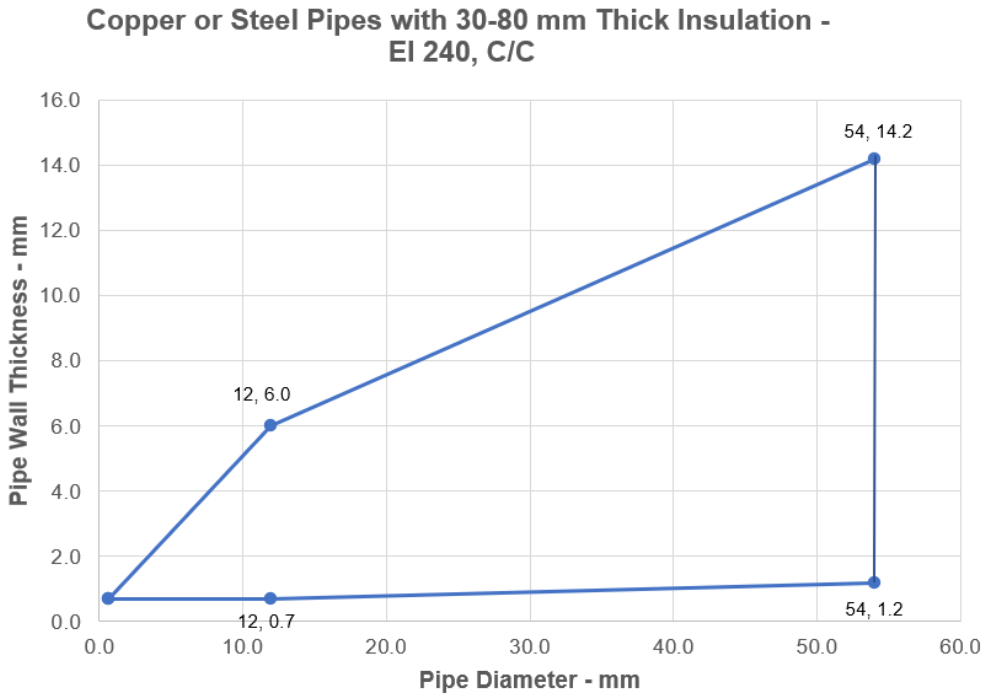
Construction details:

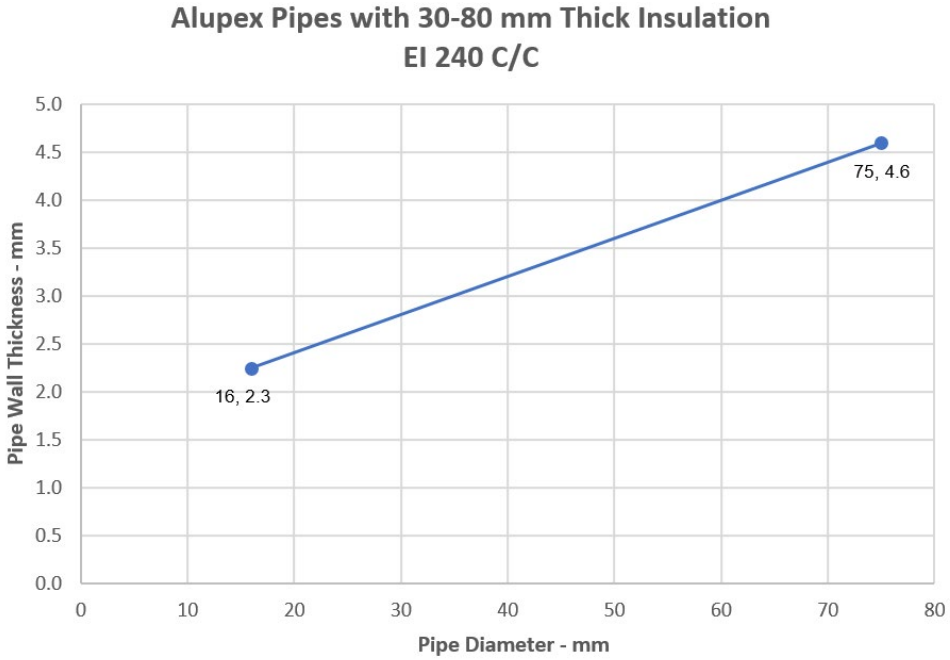


Services	Insulation	Classification
Mild or stainless steel pipe, with minimum 80 kg/m^3 density mineral wool insulation		
Maximum 40 mm diameter/1.0-14.2 mm wall	20 mm thick	**EI 240 C/U**
Maximum 324 mm diameter*	30-80mm thick	**EI 240 C/U**
Copper or steel pipe with minimum 80 kg/m^3 density mineral wool insulation		
Maximum 12 mm diameter/0.7-6.0 mm wall*	20 mm thick	**EI 240 C/C**
Maximum 54 mm diameter/1.2-14.2 mm wall*	30-80mm thick	**EI 240 C/C**
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	**EI 240 C/C**
Maximum 75 mm diameter/4.6-14.2 mm wall*	30-80mm thick	**EI 240 C/C**

*See below graphs for interpolation pipe sizes


Steel Pipes with 30-80 mm Thick Insulation - EI 240, C/U
Pipe Wall Thickness - mm
Pipe Diameter - mm
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
50
100
150
200
250
300
350
28.4, 14.2
40, 14.2
324, 14.2
324 6.4
28.4, 1.0
40, 1.0

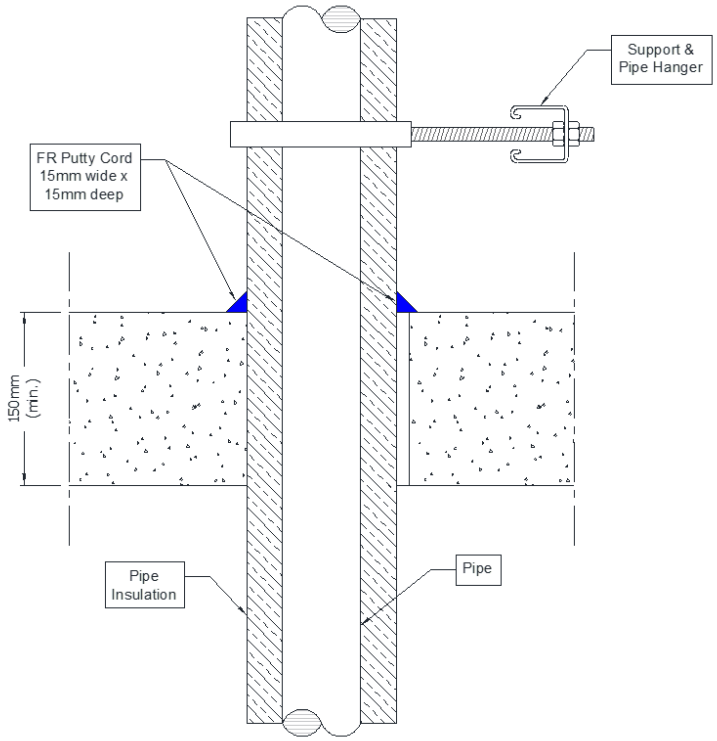

Copper or Steel Pipes with 30-80 mm Thick Insulation - EI 240, C/C
Pipe Wall Thickness - mm
Pipe Diameter - mm
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
54, 14.2
12, 6.0
12, 0.7
54, 1.2


Alupex Pipes with 30-80 mm Thick Insulation
EI 240 C/C
Pipe Wall Thickness - mm
Pipe Diameter - mm
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
16, 2.3
75, 4.6

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

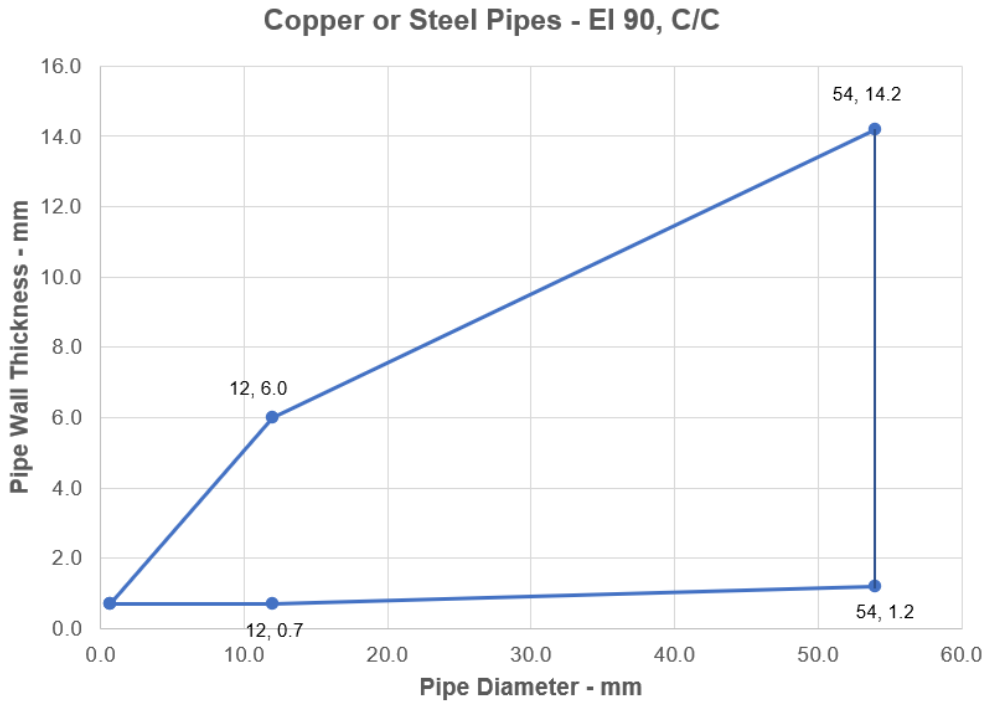
Penetration Seal: Metallic pipes insulated with minimum 75 kg/m³ density glass wool insulation, Continuous Sustained (CS), penetrating through a rigid floor construction, fitted at any position within the aperture, sealed with a 15mm diameter cord of Protecta FR Putty on the top face of the floor. Maximum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

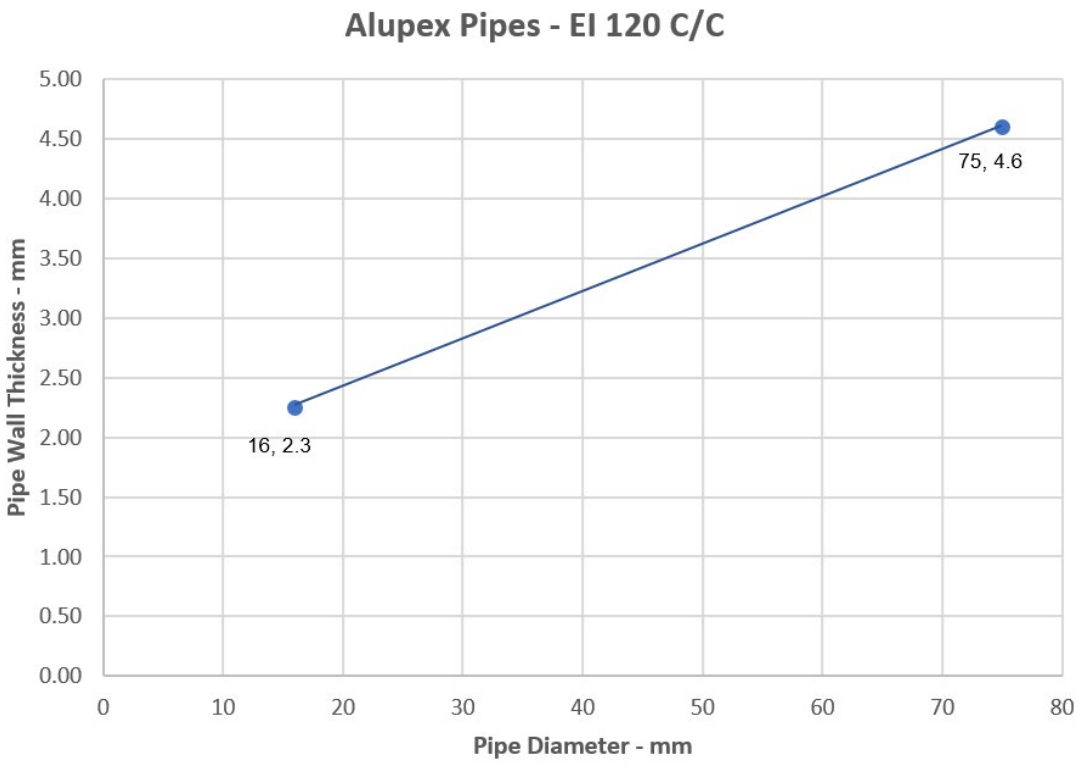
Construction details:



Services	Insulation	Classification
Steel pipe with minimum 75 kg/m3 density glass wool insulation		
Maximum 40 mm diameter/1.0-14.2 mm wall*	20 mm thick	**E 180 EI 120 C/U**
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	**E 240, EI 90 C/C**
Maximum 54 mm diameter/1.2-14.2 mm wall*	20-40mm thick	**EI 90 C/C**
ALUPEX pipe with minimum 75 kg/m³ density glass wool insulation		
Maximum 16 mm diameter/2.25-8.0 mm wall*	20 mm thick	**EI 120 C/C**
Maximum 75 mm diameter/4.6-14.2 mm wall*	20-50mm thick	**EI 120 C/C**

*See below graphs for interpolation pipe sizes


Copper or Steel Pipes - EI 90, C/C
Pipe Wall Thickness - mm
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Pipe Diameter - mm
54, 14.2
12, 6.0
12, 0.7
54, 1.2


Alupex Pipes - EI 120 C/C
Pipe Wall Thickness - mm
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0
10
20
30
40
50
60
70
80
Pipe Diameter - mm
75, 4.6
16, 2.3

Annex C – Declaration by the Applicant

Reference No. 25-04-24 - Protecta AS1530 Assessments Certification Declaration

We the undersigned confirm that we have read and complied with the obligations placed on us by the Passive Fire Protection Forum (PFPF)

Guide to undertaking technical assessments and engineering evaluations based on fire test evidence

2021

Industry Standard Procedure

We confirm that any changes which are the subject of this assessment have not to our knowledge been tested to the standard against which this assessment has been made.

We agree to withdraw this assessment from circulation should the component or element of structure, or any of its component parts be the subject of a failed fire resistance test to the standard against which this assessment is being made.

We understand that this assessment is based on test evidence and will be withdrawn should evidence become available that causes the conclusion to be questioned. In that case, we accept that new test evidence may be required.

We are not aware of any information that could affect the conclusions of this assessment. If we subsequently become aware of any such information, we agree to ask the assessing authority to withdraw the assessment.

(in accordance with the principles of FTSG Resolution 82)

Signature: _____

Name: _____

Position: _____

Company: _____

Date: _____