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Member of EOTA
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Designated according to Article 29 of Regulation (EU) No 305/2011

designated according to Article 29 of the Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment, www.eota.eu)

European Technical Assessment

ETA 17/0388
of 23/10/2017

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011:	**UL International (UK) Ltd**
Trade name of the construction product	Nullifire FS709
Product family to which the construction product belongs	Fire Stopping and Sealing Product: • Penetration Seals
Manufacturer	Tremco Illbruck Limited Coupland Rd Hindley Green Wigan WN2 4HT
Manufacturing plant(s)	A/017
This European Technical Assessment contains	24 pages including 1 Annex which forms an integral part of this assessment.
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	ETAG 026-2, edition 2011, used as European Assessment Document (EAD).

Table of Contents

I. SPECIFIC PARTS OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of the product

1) Nullifire FS709 is a high expansion intumescent sealant used to reinstate the fire resistance performance of wall and floor constructions where they have been provided with apertures for the penetration of single or multiple services.

2) The Nullifire FS709 is supplied in a 310 ml tube, and is then gunned into the aperture in the wall or floor, around the services, tot he required depth and with the required backing material (as specified in Annex A).

3) Tremco Illbruck Limited have submitted a written declaration that Nullifire FS709 does not contain substances which have to be classified as dangerous according to Directive 67/548/EEC and Regulation (EC) No 1272/2008 and listed in the "Indicative list on dangerous substances" of the EGDS - taking into account the installation conditions of the construction product and the release scenarios resulting from there.

   In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

2 Specification of the intended uses of the product in accordance with the applicable European Assessment Document (Hereinafter EAD): ETAG 026-2.

Detailed information and data is given in Annex A.

1) The intended use of Nullifire FS709 is to reinstate the fire resistance performance of flexible wall, rigid wall and floor constructions where they are penetrated by various services.

2) The specific elements of construction that the system Nullifire FS709 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 lined on both faces with minimum 2 layers of 12.5 mm thick boards.

   b. Rigid walls: The wall must have a minimum thickness of 100 mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650 kg/m^3.

   c. Rigid floors: The floor must have a minimum thickness of 150 mm and comprise aerated concrete or concrete with a minimum density of 650 kg/m^3.

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

3) The System Nullifire DS709 may be used to provide a penetration seal with cables, cable trays, insulated metallic pipes and plastic pipes (for details see Annex A).

4) The total amount of cross sections of services (including insulation) shall not exceed 60% of the penetration area.

5) The provisions made in this European Technical Assessment are based on an assumed working life of the Nullifire FS709 of 10 years, provided that the conditions laid down in the product datasheet for the packaging/transport/ storage/installation/use/repair are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

6) Type Z_1: intended for use at internal conditions with high humidity, excluding temperatures below 0°C

3 Performance of the product and references to the methods used for its assessment

Product-type: Sealant Pipe Closure	Intended use: Penetration Seal	
Basic requirement for construction work	Essential characteristic	Performance
	Mechanical resistance and stability	
-	None	Not relevant
Safety in case of fire		
EN 13501-1	Reaction to fire	Class E
EN 13501-2	Resistance to fire	Annex A
Hygiene, health and environment		
EN 1026:2000	Air permeability (material property)	No performance determined
ETAG 026-2, Annex C	Water permeability (material property)	No performance determined
Declaration of manufacturer	Release of dangerous substances	Use categories: IA3, S/W3 Declaration of manufacturer
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
Protection against noise		
EN 10140-2/ EN ISO 717-1	Airborne sound insulation	No performance determined
Energy economy and heat retention		
EN 12664, EN 12667 or EN 12939	Thermal properties	No performance determined
EN ISO 12572 EN 12086	Water vapour permeability	No performance determined
General aspects relating to fitness for use		
EN 13162 or EN 14303, EN ISO 1519	Durability and serviceability	Z_1

4 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE (HEREINAFTER AVCP) SYSTEM APPLIED, WITH REFERENCE TO ITS LEGAL BASE

According to the decision 1999/454/EC – Commission Decision of date 22nd June 1999 on on the procedure for attesting the conformity of construction products pursuant to Article 20(2) of Council Directive 89/106/EEC as regards fire stopping, fire sealing and fire protective products, published in the Official Journal of the European Union (OJEU) L178/52 of 14/07/1999, see http://eur-lex.europa.eu/JOIndex.do) of the European Commission[1], as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table(s) applies (apply).

Product(s)	Intended use(s)	Level(s) or class(es)	System(s)
Fire stopping and Fire Sealing Products	For fire compartmentation and/or fire protection or fire performance	Any	1

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Tasks of the manufacturer:

Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall ensure that the product is in conformity with this European technical Assessment.

The manufacturer may only use initial / raw / constituent materials stated in the technical documentation of this European Technical Assessment.

The factory production control shall be in accordance with the Control Plan of 27th April 2017 relating to the European technical assessment ETA 17/0388 issued on 23/10/2017 which is part of the technical documentation of this European technical assessment. The "Control Plan" is laid down in the context of the factory production control system operated by the manufacturer and deposited at UL International (UK) Ltd.

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the Control Plan.

[1] Official Journal of the European Communities L178/52 of 14/7/1999

Other tasks of the manufacturer

Additional information

The manufacturer shall provide a technical data sheet and an installation instruction with the following minimum information:

(a) Technical data sheet:

- Field of application:
- Building elements for which the penetration seal is suitable, type and properties of the building elements like minimum thickness, density, and - in case of lightweight constructions – the construction requirements.
- Limits in size, minimum thickness etc. of the penetration seal
- Construction of the penetration seal including the necessary components and additional products (e.g. backfilling material) with clear indication whether they are generic or specific.
- Services which the penetration seal is suitable, type and properties of the services like material, diameter, thickness etc. in case of pipes including insulation materials; necessary/allowed supports/fixings (e.g. cable trays)

(b) Installation instruction:

- Steps to be followed
- Procedure in case of retrofitting
- Stipulations on maintenance, repair and replacement

6 Issued on:

23rd October 2017

Report by:

C. Johnson
Staff Engineer
Building and Life Safety Technologies

Reviewed by:

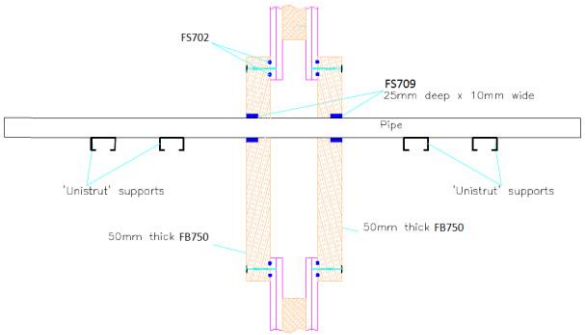
C. W. Miles
Business Manager – Europe & Latin America
Building and Life Safety Technologies

For and on behalf of UL International (UK) Ltd.

ANNEX A – Resistance to Fire Classification – Nullifire FS709

A.1 Flexible and Rigid wall constructions with wall thickness of minimum 130 mm

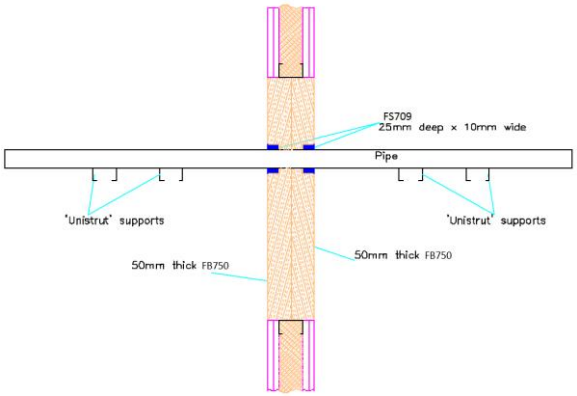
A.1.1 Pipe penetration seal with 2 x 50 mm thick Nullifire FB750, pattress fixed

Penetration Seal: Pipe penetrating through a 2 x 50 mm Nullifire FB750 pattress fixed (130 mm air gap) and overlapped onto the a flexible or rigid wall construction by 100 mm all around. The batts are fixed with 75 mm long screws, with 'penny' washers at 300 mm centres and Nullifire FS702 is applied to seal around on both faces at the interface between seal and supporting construction. Maximum Nullifire FB750 seal size of 1200mm wide by 1800mm high. Minimum separation between pipes of 95mm and 100 mm to the edges of the seal.
Construction details: 

A.1.1.1 Double layer pattress penetration seal with pipes

Services	Seal components	Classification
PEX pipe, up to 28mm diameter / 2.6 mm wall	25 x 10 mm Nullifire FS709, flush to both faces	**EI 90 U/C**

A.1.2 Pipe penetration seal with 2 x 50 mm thick Nullifire FB750, back to back

Penetration Seal: Pipes penetrating through a flexible or rigid wall construction. 2 x 50 mm Nullifire FB750 installed back to back. Nullifire FS702 is applied to seal at the interface between seal and supporting construction. Maximum seal size of 1200mm wide by 1800mm high. Minimum separation between pipes of 65mm and 100 mm to the edges of the seal.
Construction details: 

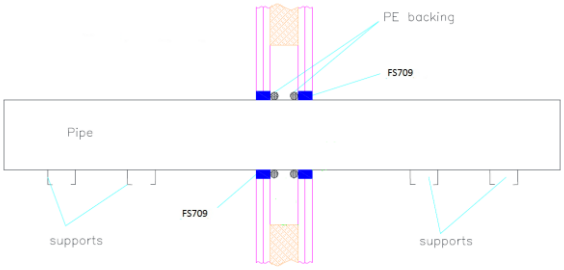
A.1.2.1 Back to back penetration seal with pipes

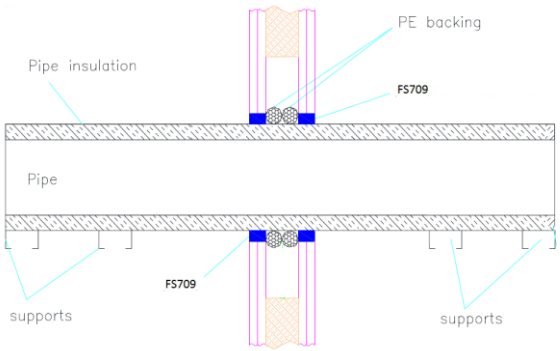
Services	Additional seal components	Classification
PEX pipe, up to 28mm diameter / 2.6 mm wall	25 x 10 mm Nullifire FS709, flush to both faces	**EI 60 U/C**

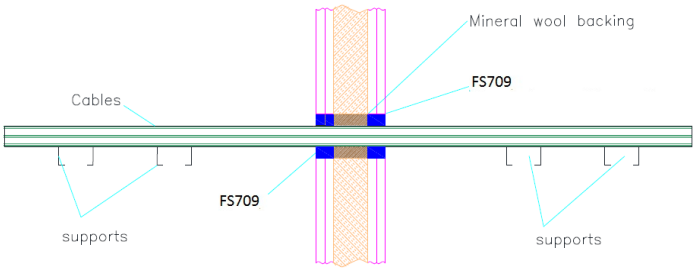
A.1.3 Pipe and cable penetration seal in minimum 100 mm thick walls

Penetration Seal: Pipes penetrating through a flexible or rigid wall construction. Nullifire FS709 is applied to seal around the services on both faces at the interface between seal and supporting construction. Maximum seal size of 1200mm wide by 1800mm high. Minimum separation between pipes of 65mm and 100 mm to the edges of the seal.

Construction details:







A.1.3.1 Penetration seal with cables and pipes

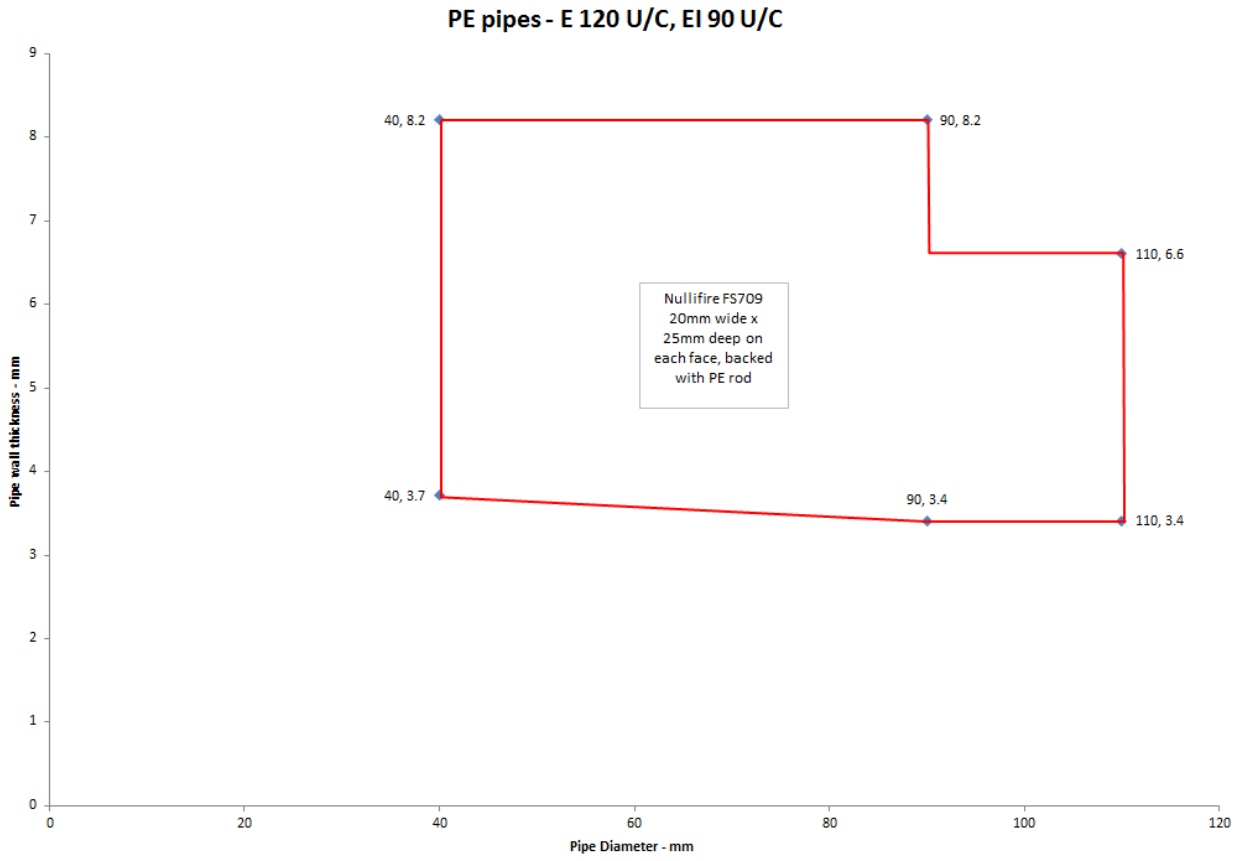
Services	Opening size	Seal structure	Classification
uPVC[#] pipe, 125 mm diameter / 4.8 – 7.4 mm wall	157 mm Ø	Nullifire FS709 16mm wide x 25mm deep on each face, backed with PE rod	**EI 120 U/C**
PE[$] pipe, 90 mm diameter / 8.2 mm wall	115 mm Ø	Nullifire FS709 12.5mm wide x 25mm deep on each face, backed with PE rod	
ABS* pipe, 90 mm diameter / 6.0 mm wall			
uPVC[#] pipe, 40 mm diameter / 1.9-3.0 mm wall	60 mm Ø	Nullifire FS709 10mm wide x 25mm deep on each face, backed with PE rod	
Copper pipe, 15 mm diameter / 0.7mm wall	55 mm Ø	Nullifire FS709 20mm wide x 25mm deep on each face, backed with PE rod	**E 120 C/U EI 90 C/U**
Copper pipe, 160 mm diameter / 2mm wall, insulated with 30 mm thick foil face glass wool CS	260 mm Ø		
PEX pipe, 28mm diameter / 2.0 mm wall	62 mm Ø		**EI 120 U/C**
uPVC[#] pipe, 125 mm diameter / 8.2 mm wall	165 mm Ø		
uPVC[#] pipe, 40 mm diameter / 1.9 mm wall	80 mm Ø		
PE[$] pipe, 90 mm diameter / 8.2 mm wall	130 mm Ø		
ABS pipe, 40 mm diameter / 7.2 mm wall	80 mm Ø		
uPVC[#] pipe, 110 mm diameter / 3.2 mm wall	150 mm Ø		**E 120 U/C EI 90 U/C**
PE[$] pipe, 110 mm diameter / 6.3 mm wall			**EI 120 U/C**
PE[$] pipe, 40 mm diameter / 3.7 mm wall	80 mm Ø		
PE[$] pipe, 110 mm diameter / 6.6 mm wall	150 mm Ø		
PE[$] pipe, 110 mm diameter / 3.4 mm wall			**E 120 U/C EI 90 U/C**
ABS* pipe, 114 mm diameter / 6.4 mm wall			
ABS* pipe, 110 mm diameter / 11.2 mm wall			**E 120 U/C EI 60 U/C**
PE[$] pipe, 63 mm diameter / 5.8 mm wall	600 x140 mm	Nullifire FS709, 25mm deep on each face, backed with 50 mm thick tightly packed stone wool (33 kg/m^3)	**E 120 U/C EI 90 U/C**
Single electrical and telecoms cables up to 21mm diameter (including bundles up to 40 mm diameter)			**E 120 EI 90**
Pipe in pipe – Copper 15 mm diameter / 0.7 mm in PE[$] 63 mm diameter / 5.8 mm			**E 120 U/C EI 90 U/C**
Steel cable trays and ladders up to 300 mm wide			**E 120 EI 90**
Bundles of up to 10 electrical cables, up to 80 mm diameter			**E 120 EI 60**
Non-sheathed cables up to 24 mm diameter			**E 120 EI 45**

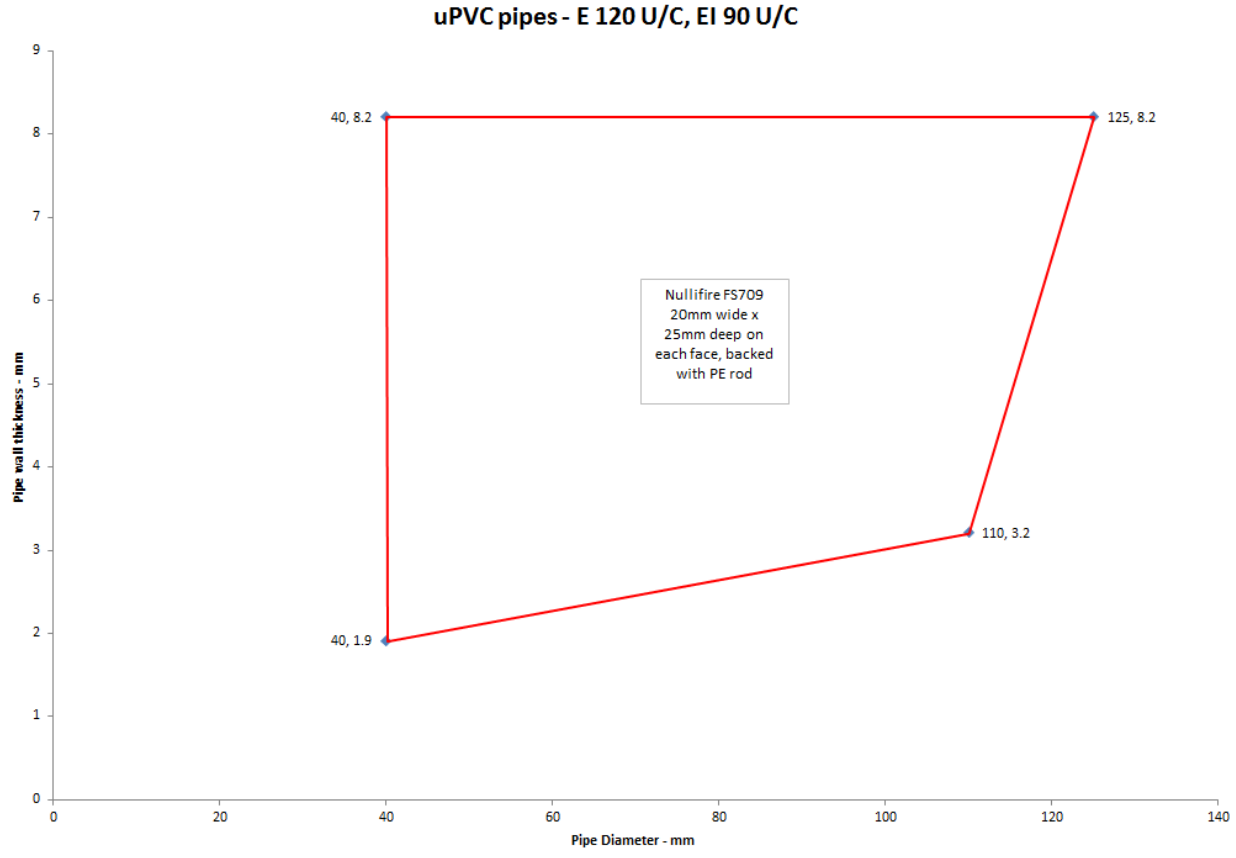
[#] EN1452-2

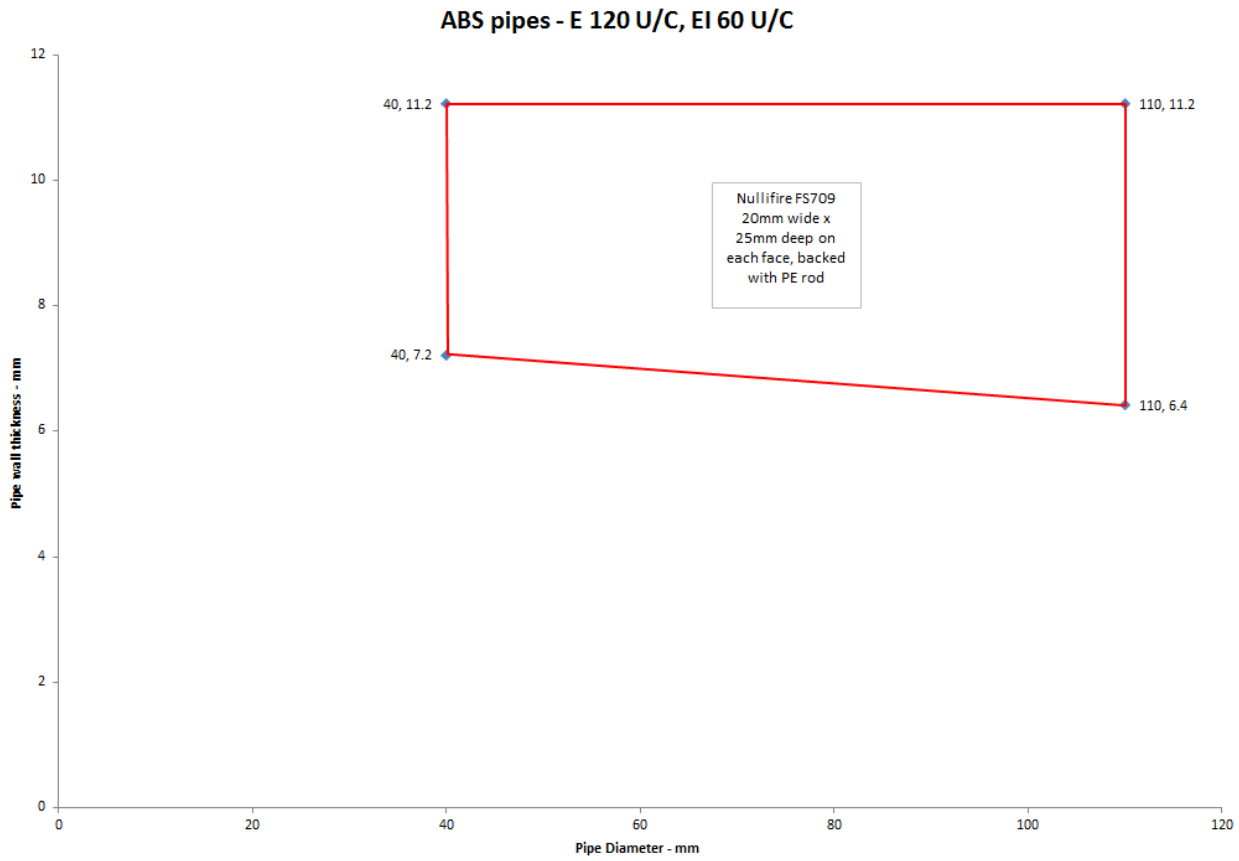
[$] EN12201 DIN 8074/8075

* BS 5391-1:2006

CS – Continuous Sustained


PE pipes - E 120 U/C, EI 90 U/C
Pipe wall thickness - mm
Pipe Diameter - mm
40, 8.2
90, 8.2
110, 6.6
40, 3.7
90, 3.4
110, 3.4
Nullifire FS709
20mm wide x
25mm deep on
each face, backed
with PE rod


uPVC pipes - E 120 U/C, EI 90 U/C
Pipe wall thickness - mm
Pipe Diameter - mm
40, 8.2
125, 8.2
110, 3.2
40, 1.9
Nullifire FS709
20mm wide x
25mm deep on
each face, backed
with PE rod

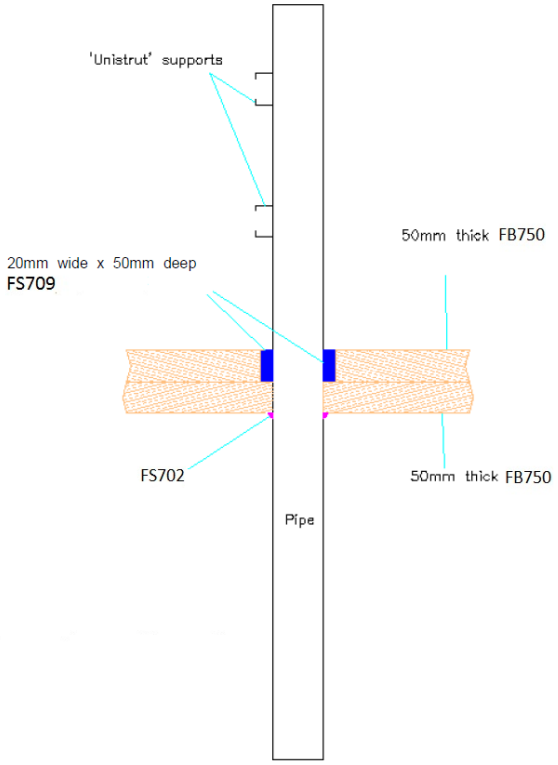

ABS pipes - E 120 U/C, EI 60 U/C
40, 11.2
110, 11.2
Nullifire FS709
20mm wide x
25mm deep on
each face, backed
with PE rod
40, 7.2
110, 6.4
Pipe wall thickness - mm
Pipe Diameter - mm
0
2
4
6
8
10
12
0
20
40
60
80
100
120

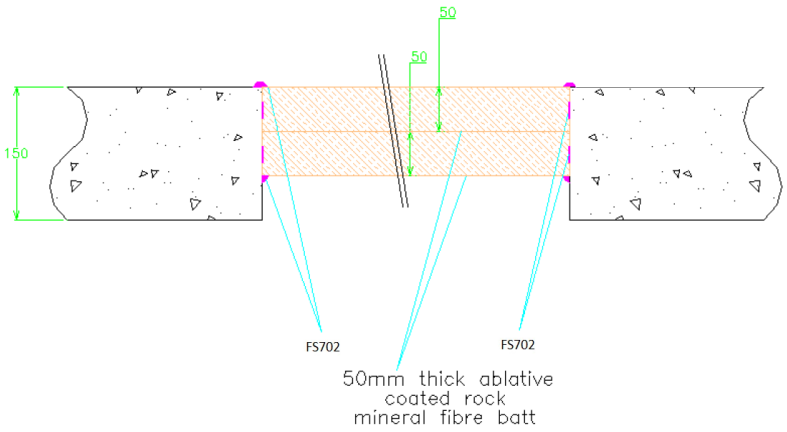
A.2 Rigid floor constructions with floor thickness of minimum 150 mm

A.2.1 Pipe and cable penetration seal with 2 x 50 mm thick Nullifire FB750 flush to the top face and Nullifire FS709 with combustible pipes

Penetration Seal: Pipes and cables penetrating through a 2 x 50 mm Nullifire FB750 flush to the top face to the top face of a rigid floor construction. Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum seal opening size of 1100 x 1100 mm. Minimum separation between pipes of 145mm and 110 mm to the edges of the seal.

Construction details:

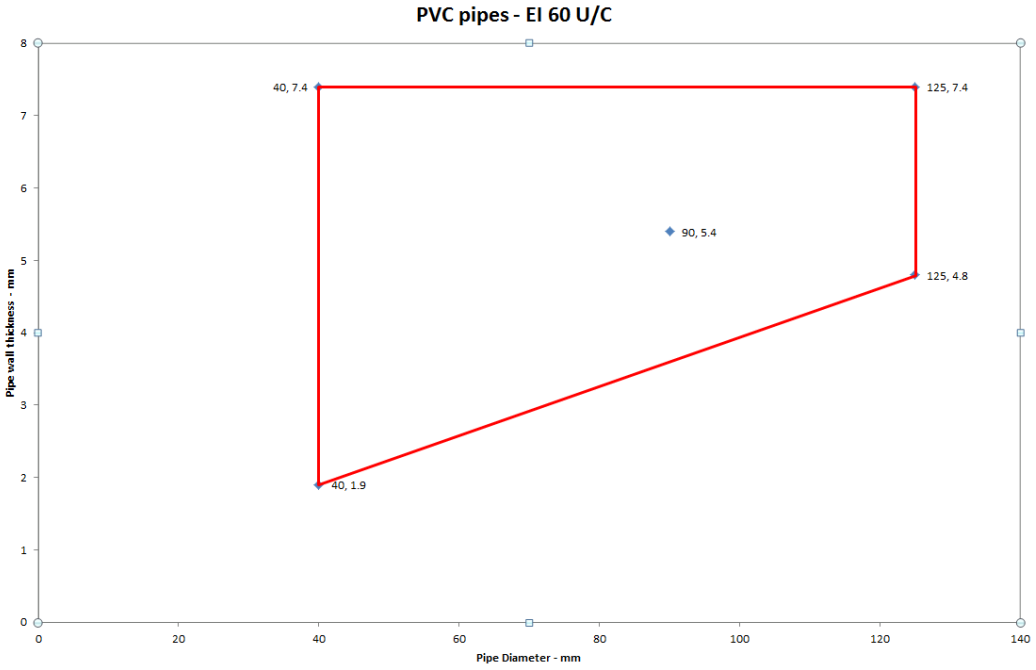




A.2.1.1 Single layer penetration seal with cables

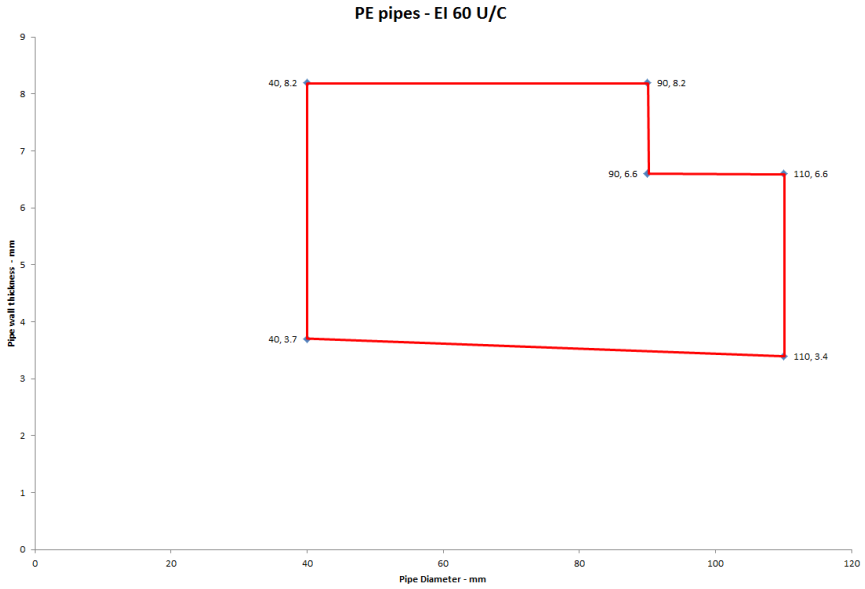
Services	Seal structure	Classification
PVC[#] pipe, up to 40 mm diameter / 1.9 mm wall thickness PVC[#] pipe, up to 90 mm diameter / 5.4 mm wall thickness PVC[#] pipe, up to 125 mm diameter / 4.8 - 7.4 mm wall thickness	20 mm wide x 50 mm deep Nullifire FS709 installed from the top face	**EI 60 U/C**

[#] EN1452-2


PVC pipes - EI 60 U/C
Pipe wall thickness - mm
Pipe Diameter - mm
40, 7.4
125, 7.4
90, 5.4
125, 4.8
40, 1.9
0
1
2
3
4
5
6
7
8
0
20
40
60
80
100
120
140

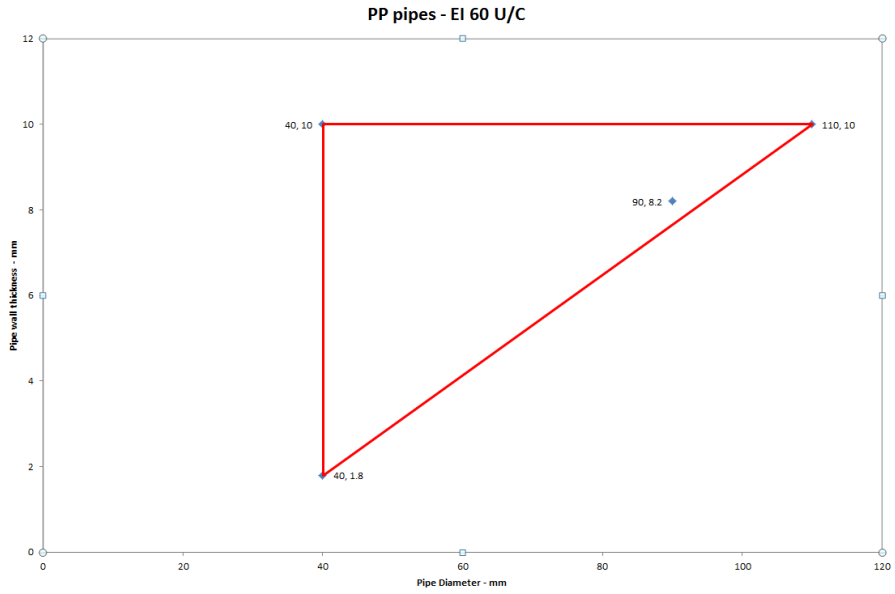
Services	Seal structure	Classification
PE[$] pipe, up to 40 mm diameter / 3.7 mm wall thickness PE[$] pipe, up to 90 mm diameter / 8.2 mm wall thickness PE[$] pipe, up to 110 mm diameter / 3.4 – 6.6 mm wall thickness	20 mm wide x 50 mm deep Nullifire FS709 installed from the top face	**EI 60 U/C**

[$] EN12201 DIN 8074/8075



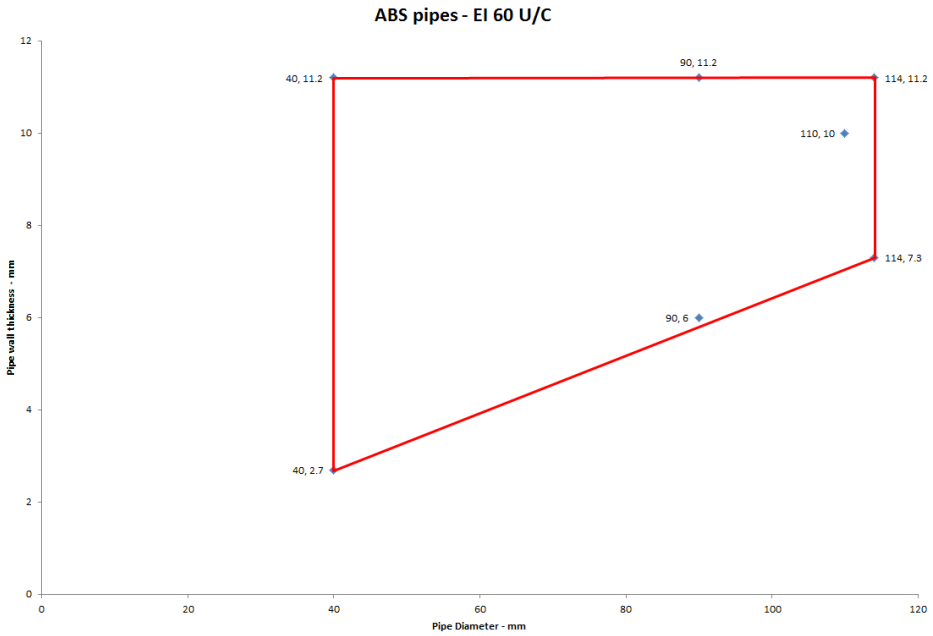
Services	Seal structure	Classification
PP[@] pipe, up to 40 mm diameter / 1.8 mm wall thickness PP[@] pipe, up to 90 mm diameter / 8.2 mm wall thickness PP[@] pipe, up to 110 mm diameter / 10 mm wall thickness	20 mm wide x 50 mm deep Nullifire FS709 installed from the top face	**EI 60 U/C**
PP[@] pipe, up to 110 mm diameter / 2.7 mm wall thickness		**E 30 U/C** **EI 20 U/C**

[@] ISO 15494 DIN 8077/8078

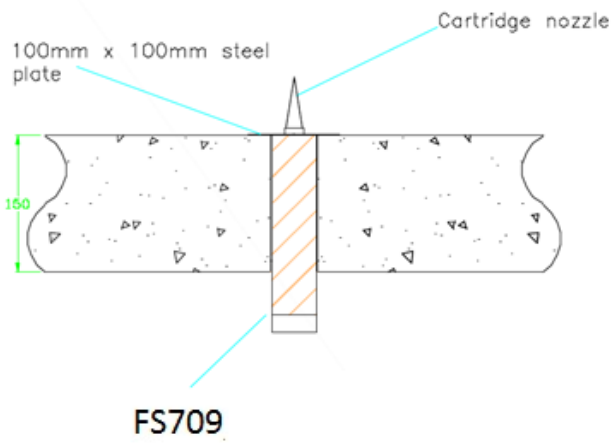


Services	Seal structure	Classification
ABS* pipe, up to 40 mm diameter / 2.7 mm wall thickness ABS* pipe, up to 90 mm diameter / 6.0 - 11.2 mm wall thickness ABS* pipe, up to 114 mm diameter / 7.3 - 11.2 mm wall thickness	20 mm wide x 50 mm deep Nullifire FS709 installed from the top face	**EI 60 U/C**

* BS 5391-1:2006



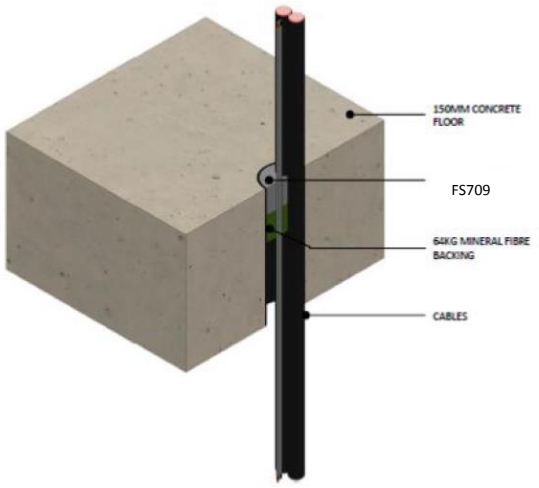
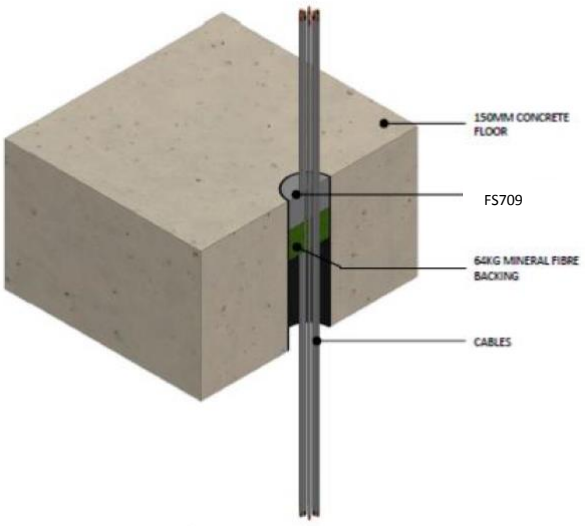
A.3.1 Temporary penetration seal

Penetration Seal: Unopened tube of Nullifire FS709 inserted into circular aperture and retained from above via a steel plate screw fixed via the nozzle. Seal opening size of 50 mm.
Construction details: 

A.3.1.1 Single layer penetration seal with cables

Cartridge size	Additional seal component	Classification
215mm long x Ø48mm	Mastic cartridge held in position in aperture by steel plate 100mm x 100mm x 0.7mm thick with a Ø12mm hole in the centre, clamped between the cartridge and nozzle	**EI 120**

A.3.2 Penetration seal with cables

Penetration Seal: Cables penetrating through a rigid floor construction. 30 mm depth Nullifire FS709 flush to the top face, backed by 30 mm depth stone wool insulation min. 64 kg/m^3 within a PVC sheath. Maximum seal opening size of 50 mm diameter.
Construction details:  

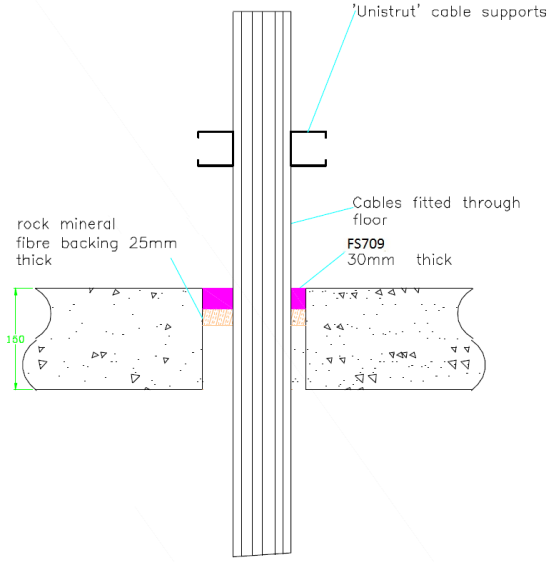
A.3.2.1 Single layer penetration seal with cables

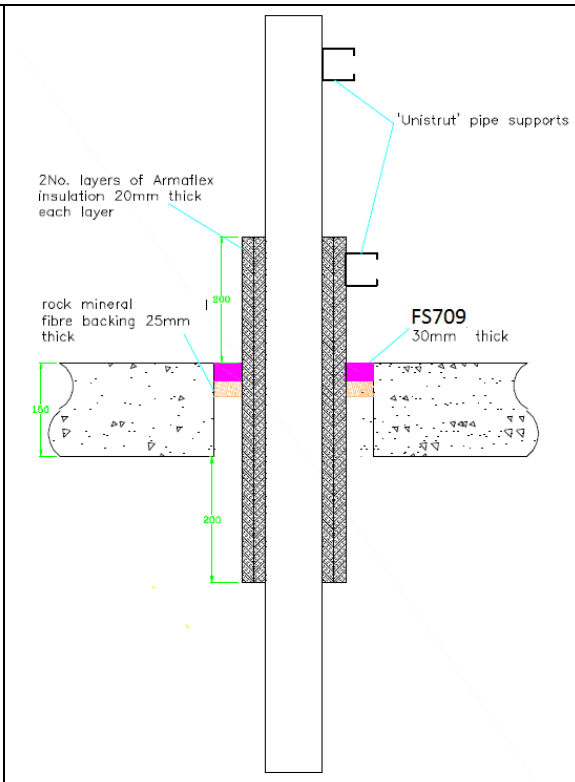
Services	Seal construction (within PVC pipe/sheath)	Classification
50 mm / 2mm wall PVC sheath containing 2 x 19-23 mm diameter single sheath wires and a three core twin and earth cable	30 mm depth Nullifire FS709 flush to the top face, backed by 30 mm depth stone wool insulation min. 64 kg/m^3.	**EI 120**
50 mm / 2mm wall PVC sheath containing 6 x three core twin and earth cable		

A.3.3 Penetration seal with cables

Penetration Seal: Cables and metal pipes penetrating through a rigid floor construction. 30 mm depth Nullifire FS709 flush to the top face, backed by 25 mm stone wool insulation min. 64kg/m^3.

Construction details:





A.3.3.1 Single layer penetration seal with cables

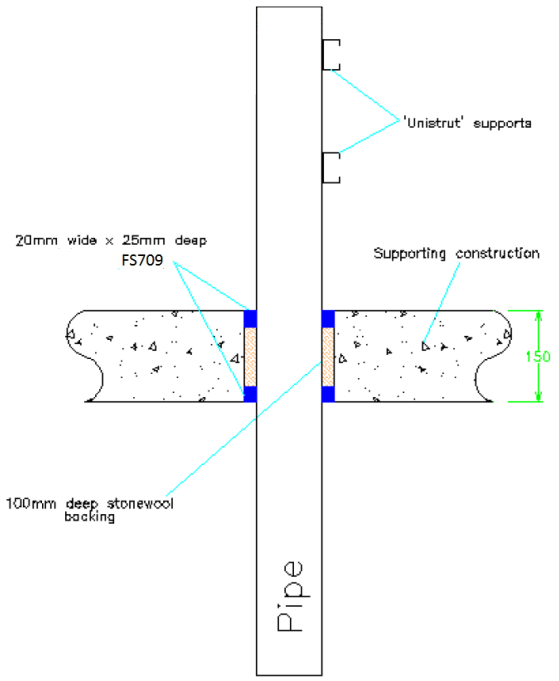
Services	Opening size	Seal construction	Classification
20 No. 3-core twin and earth cables	80 mm diameter	30 mm depth Nullifire FS709 flush to the top face, backed by 25 mm stone wool insulation min. 64kg/m^3.	**EI 120**
36 No. Cat 5 cables			
89 mm diameter / 5 mm wall steel pipe insulated with 2No. layers Armaflex insulation 450mm long x 20mm thick (each layer), LS	160 mm diameter		**E 90 U/C** **EI 60 U/C**

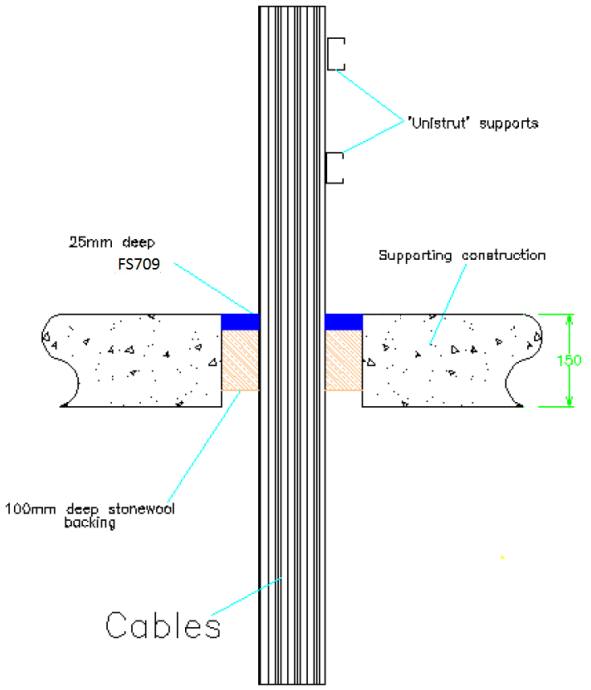
LS – Local Sustained

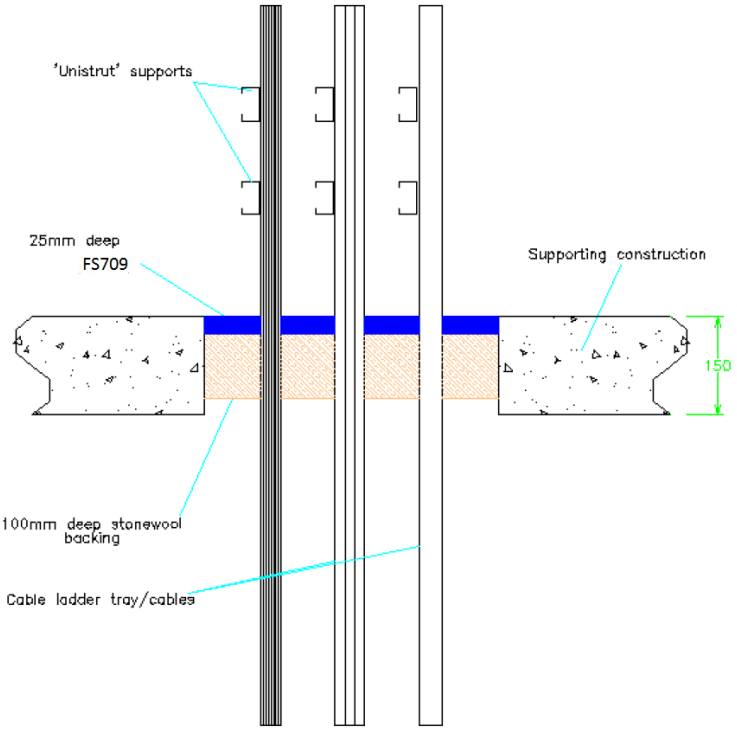
A.3.4 Penetration seal with cables

Penetration Seal: Cables, metal pipes and plastic pipes penetrating through a rigid floor construction. Minimum separation between services and edges of seal 20 mm and minimum separation between adjacent services 30 mm.

Construction details:





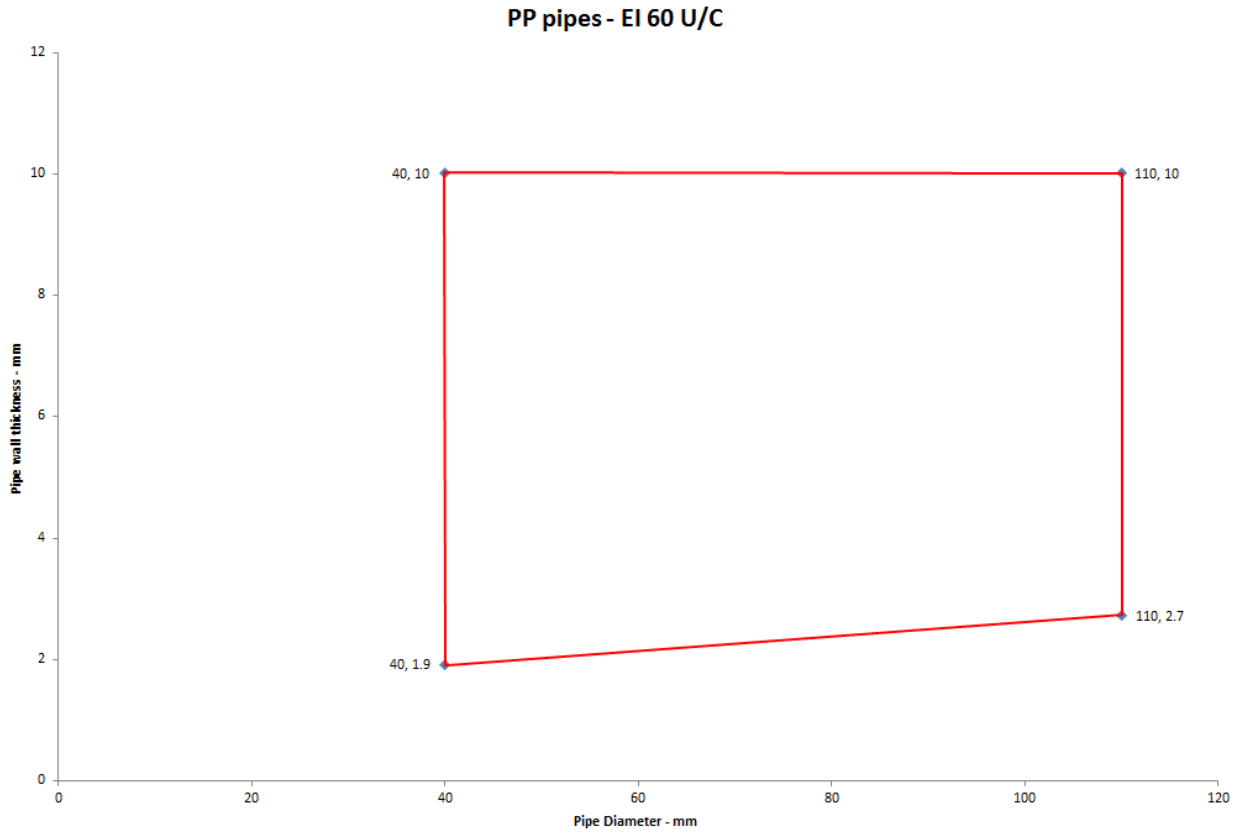


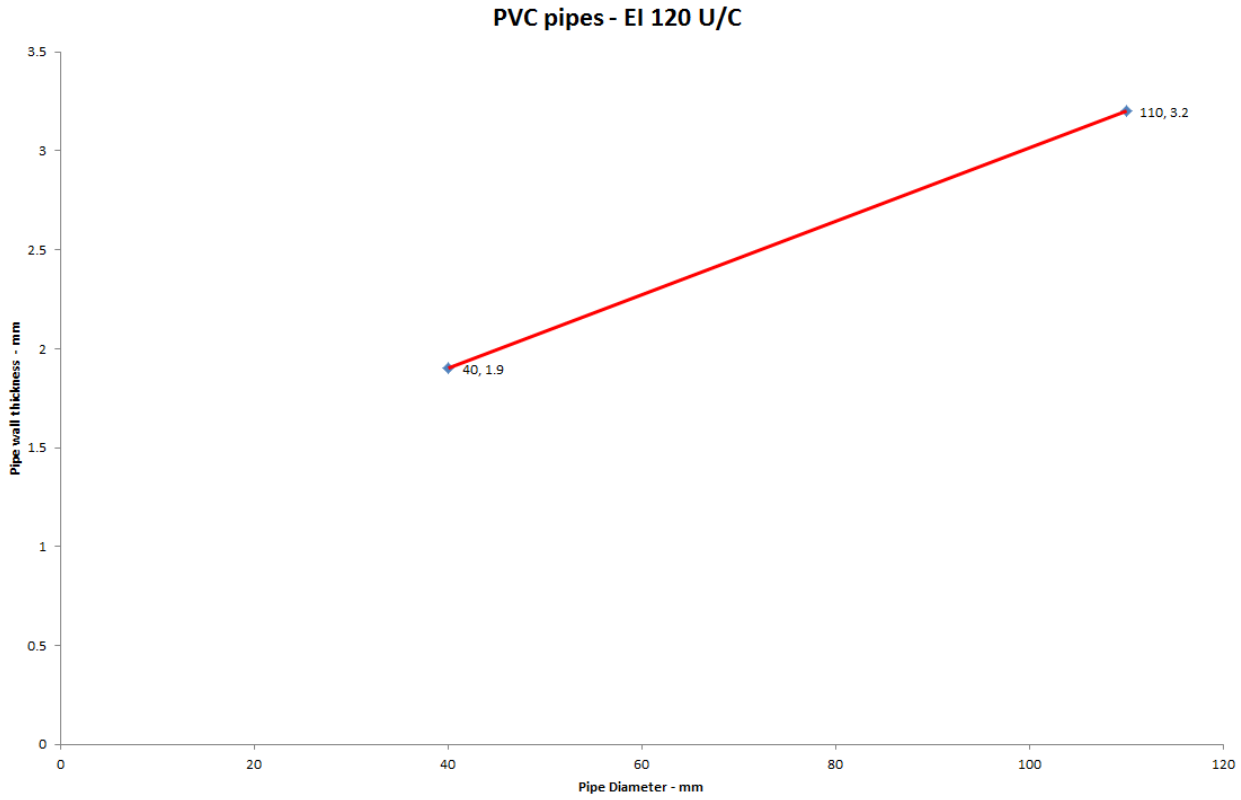
A.3.4.1 Single and double layer penetration seal with cables and pipes

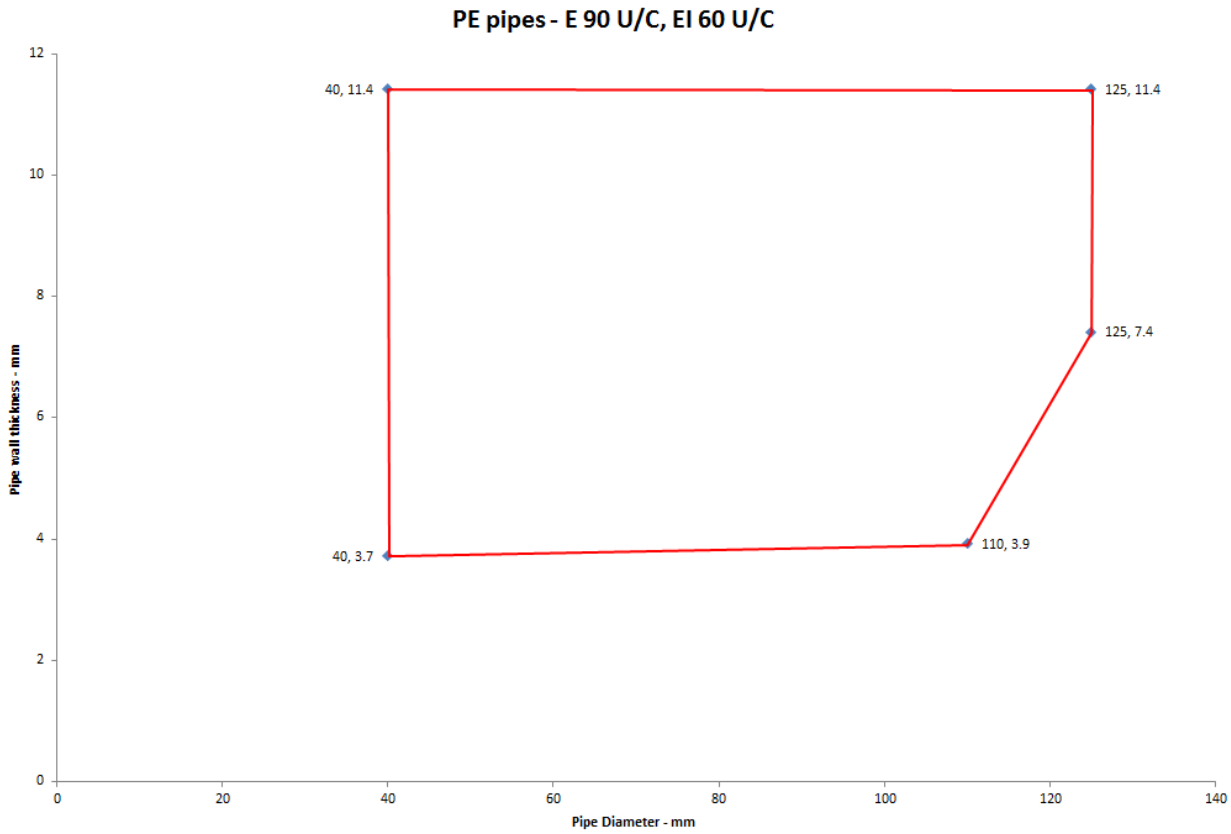
Services	Opening size	Seal construction	Classification
Electrical cables up to 21 mm diameter and steel cable trays and ladders up to 500 mm wide	600 x 600 mm	25 mm depth Nullifire FS709 flush to the top face, backed by 100 mm stone wool insulation min. 33kg/m$^{3.}$	**E 60 EI 45**
Electrical cables up to 80 mm diameter, telecoms cables up to 21 mm diameter, including bundles up to 100 mm diameter and non-sheathed wires up to 24 mm diameter			**E 60 EI 30**
Electrical cables up to 21 mm diameter, telecoms cables up to 21 mm diameter and non-sheathed wires up to 24 mm diameter	50 x 50 mm		**EI 120**
Telecoms cables up to 21 mm diameter, including bundles up to 85 mm diameter	200 x 200 mm		**E 90 EI 45**
Up to 40 mm diameter / 3.7 mm wall PE pipe$^{\$}$	80 mm Ø	20 mm wide by 25 mm depth Nullifire FS709 flush to both faces, backed by 100 mm stone wool insulation min. 33kg/m^3	**EI 120 U/C**
Up to 110 mm diameter / 3.2 mm wall uPVC pipe$^{\#}$	150 mm Ø		
Up to 110 mm diameter / 10.0 mm wall PP pipe$^{@}$			
Up to 40 mm diameter / 1.9 mm wall uPVC pipe$^{\#}$	80 mm Ø		
Up to 110 mm diameter / 2.7-10.0 mm wall PP pipe$^{@}$	150 mm Ø		**EI 60 U/C**
Up to 110 mm diameter / 3.4 mm wall PP pipe$^{@}$			**E 90 U/C EI 60 U/C**
Up to 125 mm diameter / 7.4 -11.4 mm wall PE pipe$^{\$}$	165 mm Ø		
Up to 40 mm diameter / 1.9 mm wall PP pipe	80 mm Ø		**EI 240 U/C**
Up to 110 mm diameter / 3.9 mm wall PE pipe$^{\$}$	150 mm Ø		**E 240 U/C EI 180 U/C**
Copper or steel pipe 159 mm diameter / 2 -14.2 mm wall insulated with 25 mm glass fibre 80 kg/m^3 CS	250 mm Ø	25mm depth Nullifire FS709 upper face, with 100mm of 33kg/m3 rock mineral fibre	**E 120 C/U EI 60 C/U**
Copper or steel pipe 15 mm diameter / 0.7 – 14.2 mm wall insulated with 30 mm glass fibre 80 kg/m^3 CS	115 mm Ø		**E 180 C/U EI 20 C/U**

$^{\#}$ EN1452-2
$^{\$}$ EN12201 DIN 8074/8075
$^{@}$ ISO 15494 DIN 8077/8078

CS – Continuous Sustained


PP pipes - EI 60 U/C
Pipe wall thickness - mm
Pipe Diameter - mm
40, 10
110, 10
110, 2.7
40, 1.9
0
2
4
6
8
10
12
0
20
40
60
80
100
120


PVC pipes - EI 120 U/C
Pipe wall thickness - mm
Pipe Diameter - mm
110, 3.2
40, 1.9
0
0.5
1
1.5
2
2.5
3
3.5
0
20
40
60
80
100
120


PE pipes - E 90 U/C, EI 60 U/C
Pipe wall thickness - mm
Pipe Diameter - mm
40, 11.4
125, 11.4
125, 7.4
110, 3.9
40, 3.7
0
2
4
6
8
10
12
0
20
40
60
80
100
120
140