



ETA-Danmark A/S
Göteborg Plads 1
DK-2150 Nordhavn
Tel. +45 72 24 59 00
Internet www.etadanmark.dk

Authorised and notified
according to Article 29 of the
Regulation (EU)
No 305/2011 of the European
Parliament and of the Council
of 9 March 2011

MEMBER OF EOTA



European Technical Assessment ETA-20/1031 of 2020/12/08

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

S Line Pillows

Product family to which the above construction product belongs:

Fire Stopping, Fire Sealing & Fire Protective Products.
Fire Retardant Products

Manufacturer:

FSi Ltd
Westminster Industrial Estate
Tamworth Rd
Measham
GB-Swadlincote DE12 7DS
Telephone: +44 1530 515130
www.FSiLtd.com

Manufacturing plant:

FSi Ltd
Westminster Industrial Estate
Tamworth Rd
Measham
GB-Swadlincote DE12 7DS
Telephone: +44 1530 515130
www.FSiLtd.com

This European Technical Assessment contains:

13 pages including 3 annexes which form an integral part of the document

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:

EAD 350454-00-1104 Fire Stopping and Fire Sealing Products – Penetration Seals, Issued September 2017

This version replaces:

-

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full [except the confidential Annex(es) referred to above]. However, partial reproduction may be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such.

1 Technical Description of the Product

- 1) FSI Ltd S Line Pillows are a compressible combination of reactive and non-reactive components, encased in a thin woven glass fibre casing used to reinstate the fire resistance performance of wall constructions where they have been provided with apertures for the penetration of single or multiple services.
- 2) FSI Ltd S Line Pillows is a dry system and does not require the use of any sealant or sealing products
- 3) The FSI Ltd S Line Pillows are supplied in three different sizes referenced Large (330mm x 200mm x 45mm), Medium (330mm x 200mm x 25mm) and Small (330mm x 50mm x 20mm), a mixture of which may be utilized to obtain a tight compression
- 4) Installation of the S Line Pillows – See 6.2

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

The intended use of S Line Pillows is to reinstate the fire resistance performance of rigid wall constructions where they are penetrated by various cables and metallic pipes

The specific elements of construction that the system S Line Pillows may be used to provide a penetration seal in, are as follows:

Rigid walls: The wall must have a minimum thickness of 150 mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650 kg/m³.

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

- 5) The S Line Pillows may be used to provide a penetration seal with pipes and cables (for details see Annex C).
- 6) The total amount of cross sections of services (including insulation) should not exceed 60% of the penetration area.
- 7) The system S Line Pillows may be used to seal apertures in the separating element up to 1100mm wide by 1100mm high dependant on the configuration. The minimum permitted separation between adjacent seals/apertures is 200mm.
- 8) Pipes must be installed singular, cables require no minimum separation.
- 9) Services in walls shall be supported at maximum 250mm from the face of the separating element.

The provisions made in this European Technical Assessment are based on an assumed working life of the S Line Pillows of 10 years, provided that the conditions laid down in sections 4.2/5.1/5.2 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 or the Technical Assessment Body, 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

Use Category

Type Z₁: Intended for use in internal conditions with humidity equal to or higher than 85% RH excluding temperatures below 0°C, without exposure to rain or UV.

3 Performance of The Product And References To The Methods Used For Its Assessment

BWR	Characteristic	Assessment of characteristic
2	Safety in case of fire	
	Reaction to fire	See Clause 1.1
	Resistance to fire	See clause 1.2
3	Hygiene, Health and the Environment	
	Air permeability	See clause 2.1
	Content and Release of Dangerous substances	See clause 2.2
4	Safety and applicability in use	
	Durability	See clause 3.1
5	Protection against noise	
	Airborne sound insulation	See Clause 4.1

3.1 Safety in case of fire

3.1.1 Reaction to fire

No performance assessed

3.1.2 Resistance to fire

S Line Pillows has been tested in accordance with BS EN 1366-3: 2009 based upon the test results and the field of direct application specified within EN 1366-3: 2009, the S Line Pillows has been classified in accordance with EN 13501-2, as given in Annex C:

The seals may only be penetrated by the services described in Annex C; other parts or support constructions must not penetrate the seal.

The service support construction must be fixed to the building element containing the penetration seal or a suitable adjacent building element, in such a manner that in the case of fire, no additional load is imposed on the seal. Furthermore it is assumed that the unexposed face support is maintained for the required period of fire resistance.

Certain pipe and cable configurations should be insulated with minimum 300mm long, 6mm thick FSI Thermal Defence Wrap, or S Line Pillows to provide additional insulation to the pipes. See Annex C

Pipes must be perpendicular to the seal surface.

It is assumed that compressed air systems are switched off by other means in the case of fire.

3.2 Hygiene, Health and the environment.

3.1.1 Air permeability

S Line Pillows has been tested in accordance with BS EN 1314-1 to provide the following results:

Product tested		S-line fire pillows		
Pressure (Pa)	Results under positive chamber pressure		Results under negative chamber pressure	
	Leakage (m ³ /h)	Leakage (m ³ /m ² /h)	Leakage (m ³ /h)	Leakage (m ³ /m ² /h)
50	2.5	13.9	3.1	17.2
100	4.1	22.8	5.6	31.1
150	5.8	32.2	7.4	41.1
200	7.2	40.0	8.9	49.4
250	8.7	48.3	10.3	57.2
300	9.8	54.4	11.1	61.7
450	13.4	74.4	15.3	85.0
600	17.5	97.2	18.6	103.3

3.2.1. Content and release of Dangerous Substances

FSi Ltd has presented a declaration that S Line Pillows does not contain any substance of high concern with regards to REACH Regulations and are compliant with the requirements reference to <http://ec.europa.eu/enterprise/construction/cpd-ds/index.cfm>

Confirmation has further been declared that all dangerous chemical substances ≥ 1.0 % w/w as well as all toxic, carcinogenic, toxic for reproduction and mutagenic chemical substances ≥ 0.1 % w/w (Status: 29. adaption – 2004/73/EG – of the EU directive 67/548/EEC - classification, packaging and labelling of dangerous substances) are stated in the S Line Pillows safety data sheets (according to 91/155/EEC including amendments) and have been considered for the classification of the products according to the directive 1999/45/EG (classification of preparations, including amendments).

All dangerous chemical substances are below the classification limits of 67/548/EEC.

In addition to the specific clauses relating to dangerous substances contained in this European technical approval, 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.

3.3 Safety and accessibility in use

3.3.1 Durability

S Line Pillows has been tested in accordance with EOTA Technical Report - TR024 – Edition November 2006, for the type Z₁ use category specified in EAD 350454-00-1104, and the results of the tests have demonstrated suitability for penetration seals intended for use in internal conditions with humidity equal to or higher than 85% RH excluding temperatures below 0°C, without exposure to rain or UV.

3.4 Protection against noise

3.4.1 Airborne sound insulation

The results of the test provided the following single number rating: $R_w (C;Ctr) = 33(0;-2)$

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 of the European Commission the system of assessment and verification of constancy of performance (see Annex V to the Regulation (EU) No 305/2011) given in the following table apply:

Products	Intended use/s	AVCP System
Fire stopping and fire sealing products	For fire compartmentation and / or fire protection or fire performance	System 1

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

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark A/S prior to CE marking

Issued in Copenhagen on 2020-12-08 by



Thomas Bruun

Managing Director, ETA-Danmark

Annex A

Reference Documents

- | | |
|-------------|---|
| EN 13501-1 | Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests |
| EN 13501-2 | Fire classification of construction products and building elements – Part 2: Classification using test data from fire resistance tests |
| EOTA TR 024 | Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products |

Annex B

Description of Product and Product Literature S Line Pillows

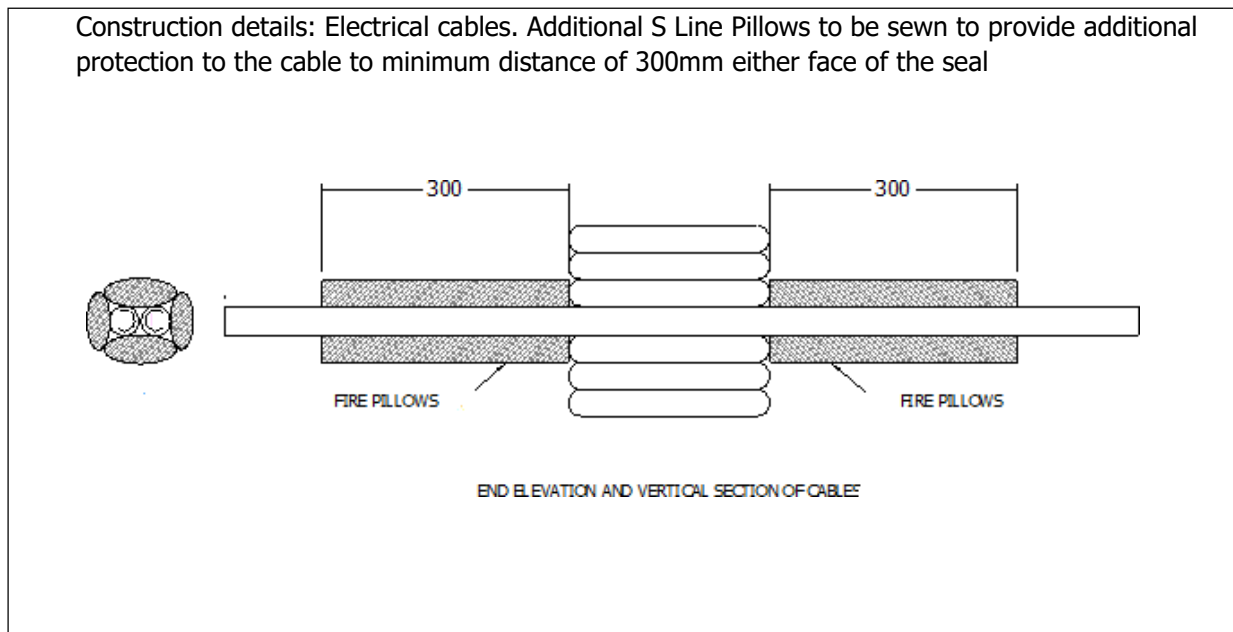
A detailed specification of the product is contained in document "Evaluation Report" relating to the European Technical Assessment ETA – 13/1056 issued on 20/5/14, of S Line Pillows which is a non-public part of this ETA.

Annex C

Resistance to Fire Classification of S Line Pillows

C 1.1 Rigid wall constructions according to 1.2.1 with wall thickness of minimum 150 mm

C 1.2 Penetration seal with S Line Pillows installed 75mm projection from each face of the wall

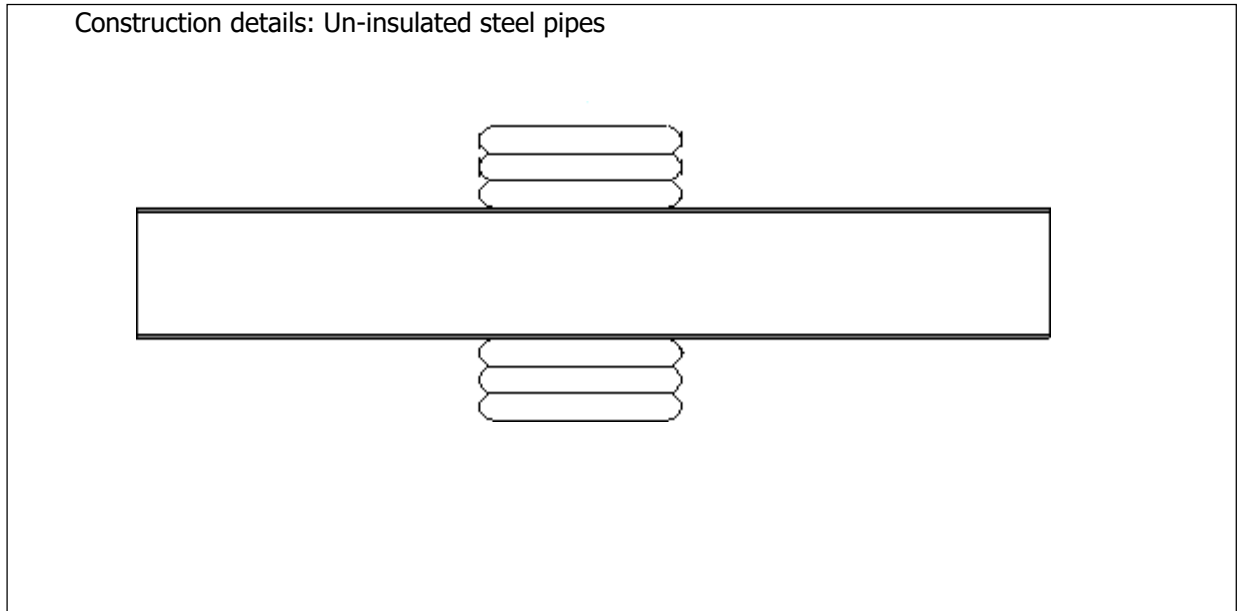


C.1.3

S-Line Fire Pillow Penetration Seals 300 mm deep, in Rigid Walls 150 mm thick (min.)	
Services	Classification
Telecom cables up to 21mm Ø (single or bundles up 100 mm Ø)	EI 120
Electrical cables up to 21 mm Ø	EI 120
Electrical cables up to 50 mm Ø	E 120, EI90
Electrical cables up to 80 mm Ø	E120, EI 90
Unsheathed wires up to 24 mm Ø	EI 120
Steel or Copper conduits and tubes up to 16 mm Ø	EI 120
Plastic (any) conduits and tubes up to 16 mm Ø	EI 120
Cable trays or ladders up to 300 mm wide	E 120, EI 60
Cable trays up to 500mm wide	E 120, EI 90

C.2 Rigid wall constructions according to 1.2.1 with wall thickness of minimum 150 mm

C.2.1 Penetration seal with S Line Pillows installed 75mm projection from each face of the wall

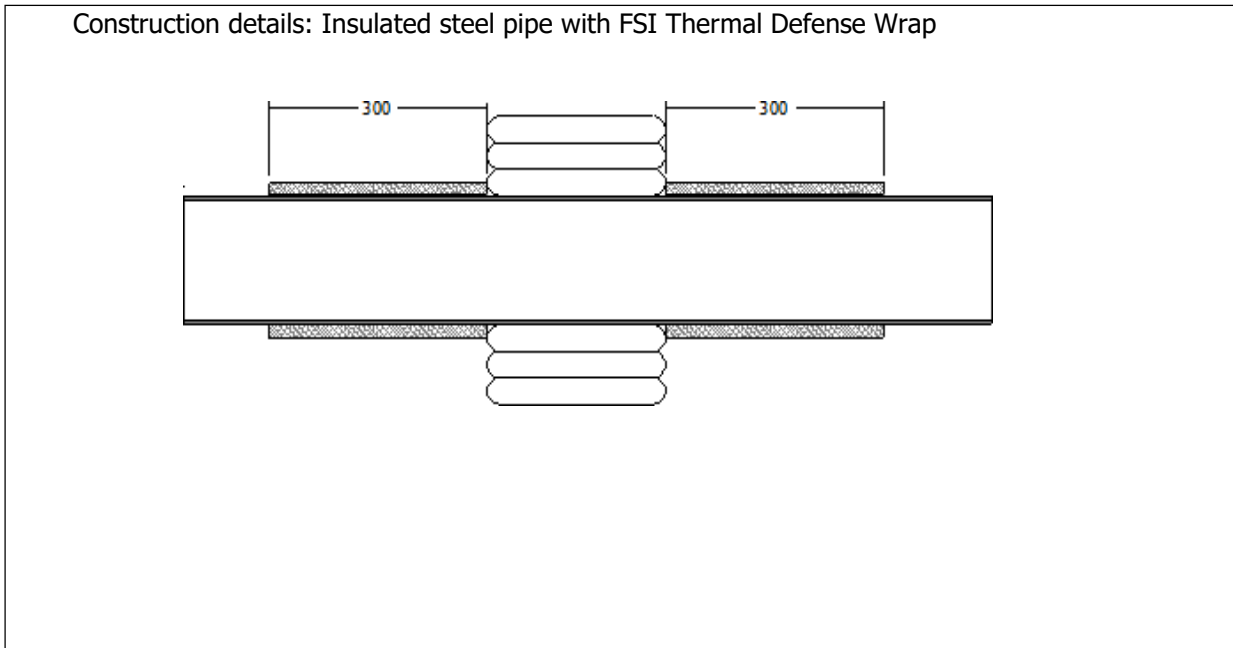


C.2.2

S-Line Fire Pillow Penetration Seals 300 mm deep, in Rigid Walls 150 mm thick (min.)	
Services	Classification
165 mm Ø x 5.6-14.2 mm thick mild steel pipe	E 120 C/U

C.3 Rigid wall constructions according to 1.2.1 with wall thickness of minimum 150 mm

C.3.1 Penetration seal with S Line Pillows installed 75mm projection from each face of the wall

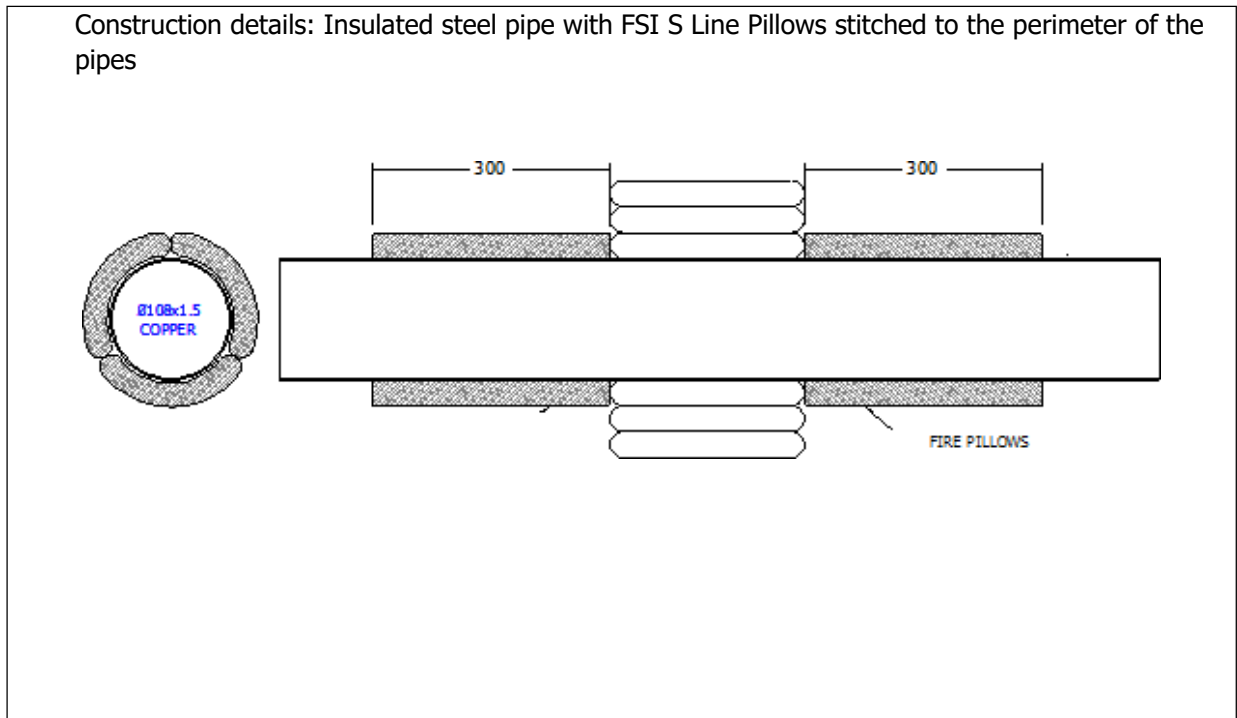


C.3.2

S-Line Fire Pillow Penetration Seals 300 mm deep, in Rigid Walls 150 mm thick (min.)	
Services	Classification
48mmØ x 3.5-14.2mm thick steel pipe with 300 mm Local Interrupted (LI) Firestopit Thermal Defence Wrap 7mm thick	EI 120 C/U
113mmØ x 4.5-14.2mm thick steel pipe with 300 mm Local Interrupted (LI) Firestopit Thermal Defence Wrap 10mm thick	EI 120 C/U

C.4 Rigid wall constructions according to 1.2.1 with wall thickness of minimum 150 mm

C.4.1 Penetration seal with S Line Pillows installed 75mm projection from each face of the wall

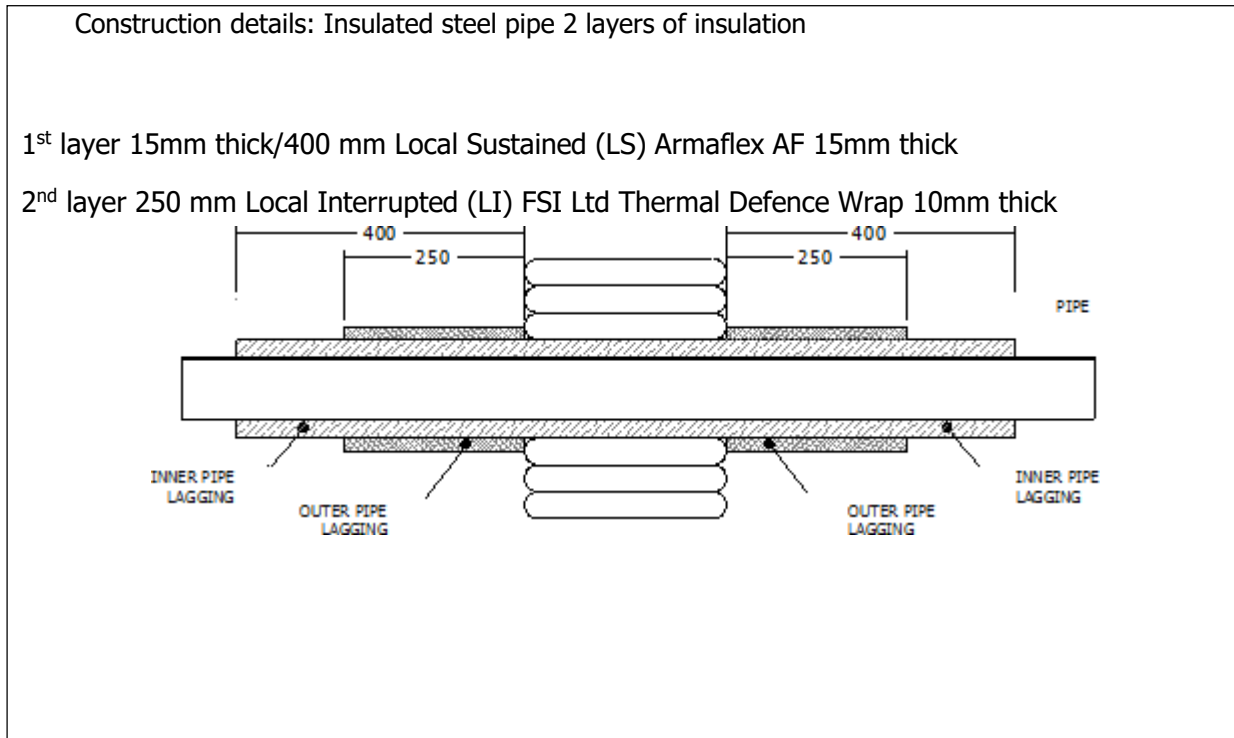


C.4.2

S-Line Fire Pillow Penetration Seals 300 mm deep, in Rigid Walls 150 mm thick (min.)	
Services	Classification
108 mm Ø x 1.5-14.2 mm thick copper pipe	E 120 C/U, EI 90 C/U

C.5 Rigid wall constructions according to 1.2.1 with wall thickness of minimum 150 mm

C.5.1 Penetration seal with S Line Pillows installed 75mm projection from each face of the wall



C.5.2

S-Line Fire Pillow Penetration Seals 300 mm deep, in Rigid Walls 150 mm thick (min.)	
Services	Classification
54mmØ x 1.0-14.2mm thick copper pipe with 2 layers of insulation	EI 120