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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-21/0317 of 2021/03/15

### 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:**

Astro X Series Pillows

**Product family to which the above construction product belongs:**

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

**Manufacturer:**

Astroflame Fireseals Limited  
Intumescent House  
Unit 8 The IO Centre  
Stephenson Road  
Segensworth  
Fareham  
Hampshire  
PO15 5RU  
United Kingdom  
E055

**Manufacturing plant:**

**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:**

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

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## 1 Technical Description of the Product

- 1) Astro X Series 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) Astro X Series Pillows is a dry system and does not require the use of any sealant or sealing products
- 3) The Astro X Series 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 Astro X Series 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 Astro X Series 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 Astro X Series 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/m<sup>3</sup>.

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

- 5) The Astro X Series 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 Astro X Series 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 Astro X Series Pillows of 10 years, provided that the conditions laid down in this ETA 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 Z<sub>1</sub>: 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

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

Astro X Series Pillows has been tested in accordance with EN 1366-3: 2009 based upon the test results and the field of direct application specified within EN 1366-3: 2009, the Astro X Series 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 Astro Thermal Defence Wrap, or Astro X Series 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

Astro X Series 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 <sup>3</sup> /h)	Leakage (m <sup>3</sup> /m <sup>2</sup> /h)	Leakage (m <sup>3</sup> /h)	Leakage (m <sup>3</sup> /m <sup>2</sup> /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

Astrofalme Ltd has presented a declaration that Astro X Series 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  $\geq 1.0$  % w/w as well as all toxic, carcinogenic, toxic for reproduction and mutagenic chemical substances  $\geq 0.1$  % 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 Astro X Series 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

Astro X Series Pillows has been tested in accordance with EOTA Technical Report - TR024 – Edition November 2006, for the type Z<sub>1</sub> 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:

<b>Products</b>	<b>Intended use/s</b>	<b>AVCP System</b>
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 2021-03-15 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 Astro X Series Pillows**

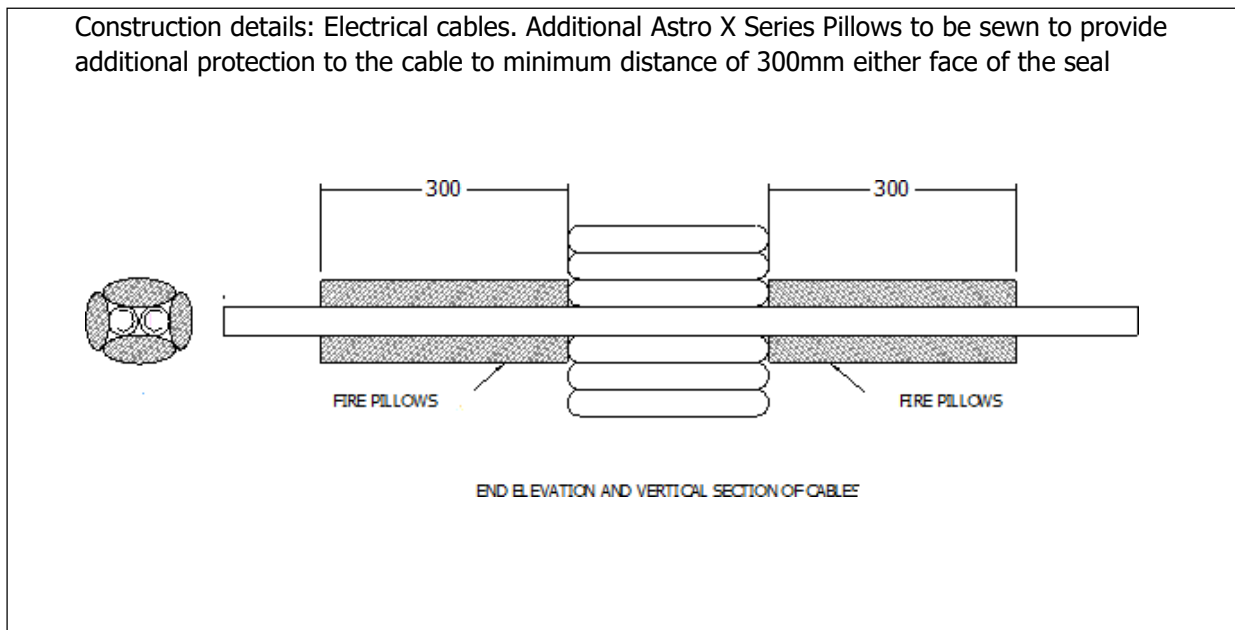
A detailed specification of the product is contained in document "Evaluation Report" relating to this ETA for Astro X Series Pillows which is a non- public part of this ETA.

## Annex C

### Resistance to Fire Classification of Astro X Series 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 Astro X Series Pillows installed 75mm projection from each face of the wall

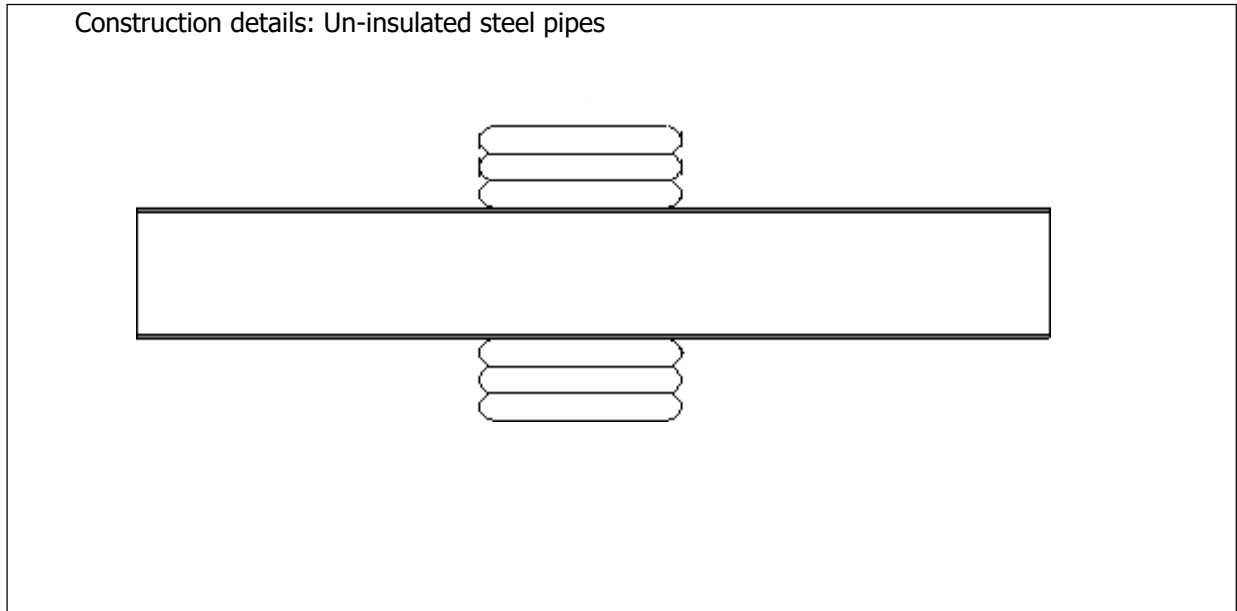


#### C.1.3

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

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

**C.2.1 Penetration seal with Astro X Series Pillows installed 75mm projection from each face of the wall**

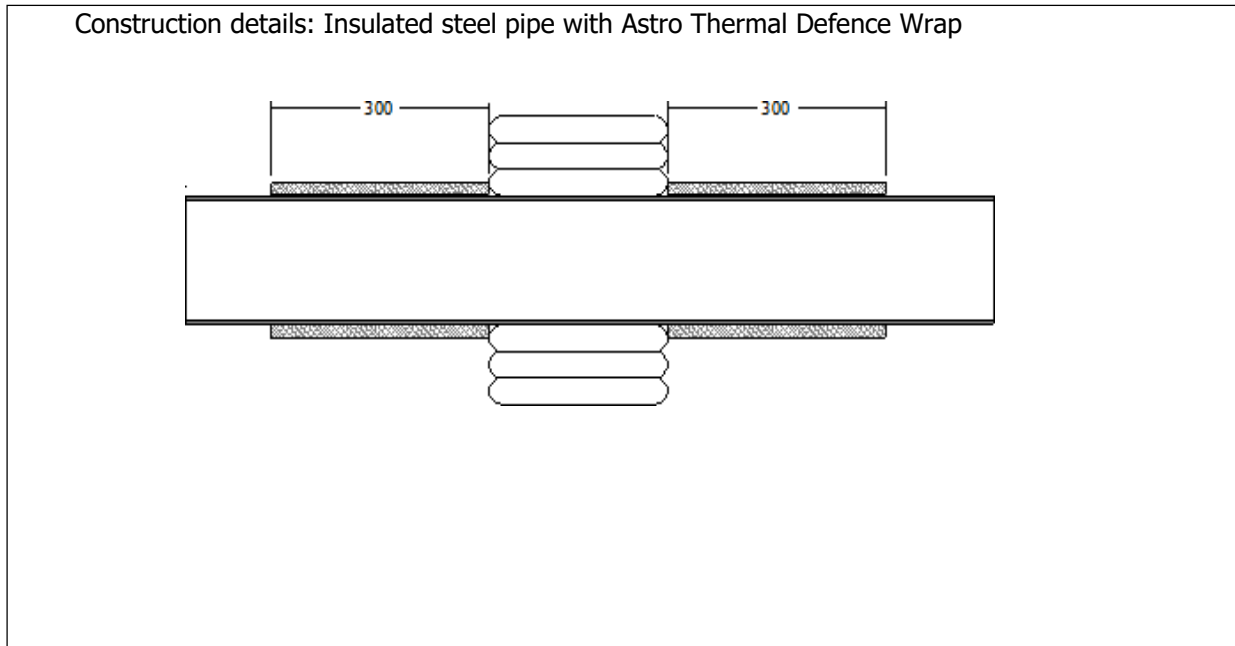


**C.2.2**

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

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

#### C.3.1 Penetration seal with Astro X Series Pillows installed 75mm projection from each face of the wall

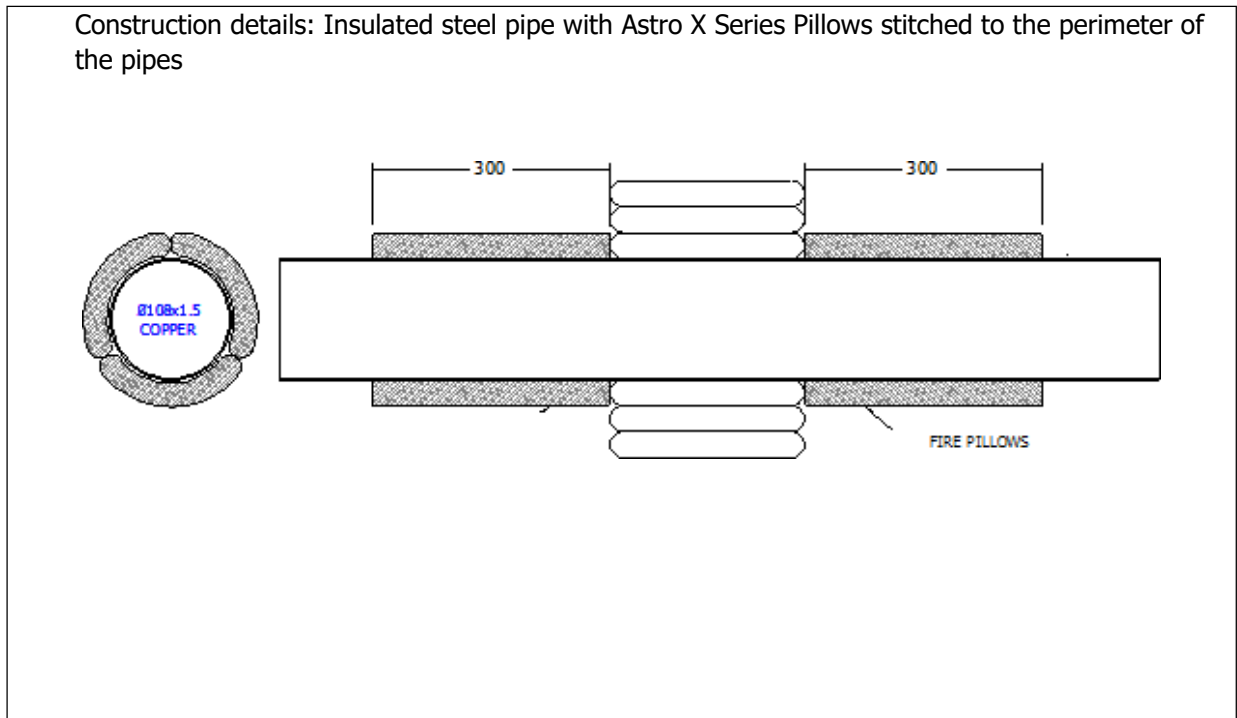


#### C.3.2

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

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

**C.4.1 Penetration seal with Astro X Series Pillows installed 75mm projection from each face of the wall**

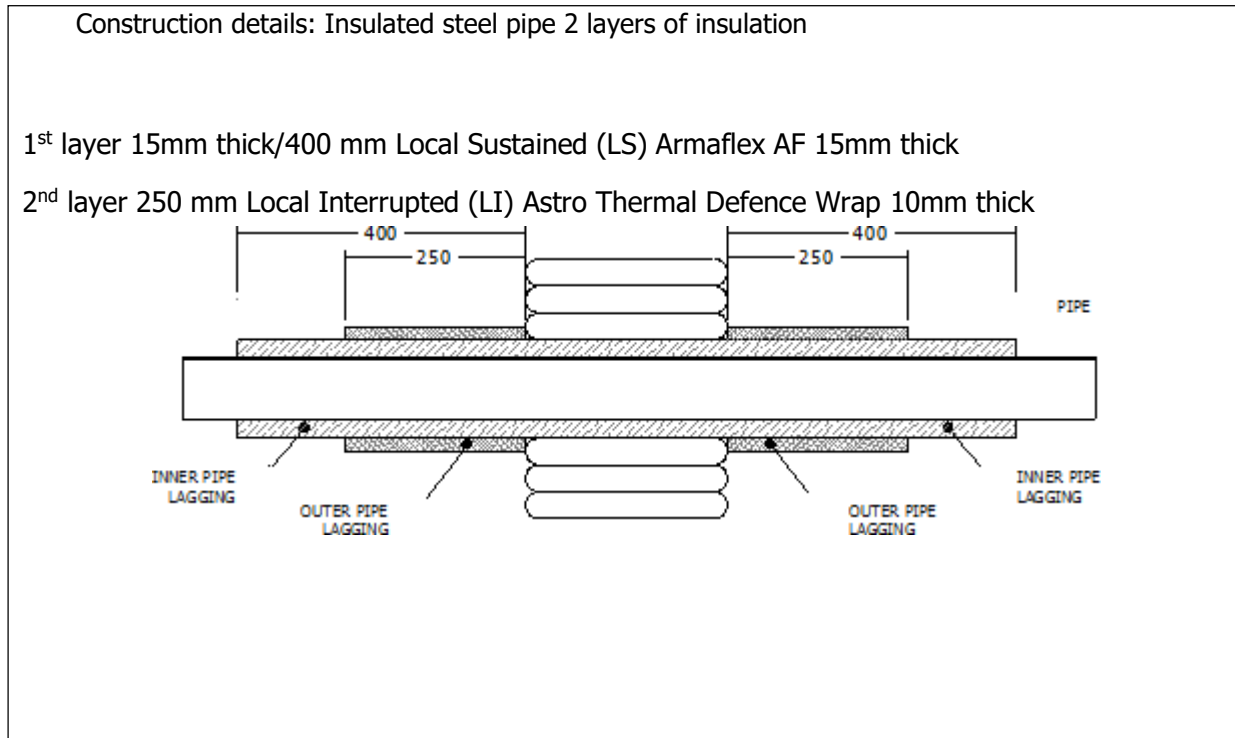


**C.4.2**

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

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

**C.5.1 Penetration seal with Astro X Series Pillows installed 75mm projection from each face of the wall**



**C.5.2**

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