



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-20/1085 of 2023/11/23

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 CE pipe Collar

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

Manufacturing plant:

E/122

This European Technical Assessment contains:

20 pages including 1 annex 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 Firestopping and fire sealing products, Penetration Seals

This version replaces:

The ETA with the same number issued on 2020-12-09

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1 Technical Description of the Product

- 1) Astro X-series CE pipe Collar is installed round combustible pipes to form a penetration seal used to reinstate the fire resistance performance of wall and floor constructions, where they have been provided with apertures for the penetration of combustible pipe services.
- 2) Astro X-series CE pipe Collar include an intumescent component incorporated into a mild steel case to close any gaps and joints and provide a closure of combustible pipes when heated and to prevent the passage of fire.
- 3) Astro X-series CE pipe Collar are supplied in assembled form, without fixings. The collar is wrapped around the pipe at the soffit or both faces of walls, depending on application. Fixing specifications are detailed in Annex A.
- 4) Astro X-series CE pipe Collar can be used with Astro Intu Mastic to seal the space between the combustible pipe and the aperture to close gap sizes as specified in Annex A.

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

The intended use of Astro X-series CE pipe Collar Sealant is to reinstate the fire resistance performance of rigid and flexible. The intended use of Astro X-series CE pipe Collar is to reinstate the fire resistance performance of wall and floor constructions, where they are penetrated by various combustible pipe services.

The specific elements of construction that the system Astro X-series CE pipe Collar may be used is as follows:

Flexible walls: The wall must have a minimum thickness of 75 mm and comprise timber or steel studs line on both faces with minimum 2 layers of 12.5 mm thick, 'Type F' Gypsum boards according to EN 520. In timber stud walls, no part of the penetration seal shall be closer than 100mm to a stud, and minimum 100 mm of insulation of class A1 or A2 according to EN 13501-1, is provided within the cavity between the penetration seal and the stud.

Rigid walls: The wall must have a minimum thickness of 75 mm and comprise of concrete, aerated concrete or masonry, with a minimum density of 650 km/m³.

Rigid floor: The floor must have a minimum thickness of 100 mm and comprise of concrete, aerated concrete or masonry, with a minimum density of 650 km/m³.

- 1) The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.
- 2) The system Astro X-series CE pipe Collar may be used to provide a penetration seal with specific combustible pipes (for details see Annex A).
- 3) Apertures in the separating element shall be maximum 10 mm diameter oversize with respect to the pipe diameter. The remaining annular space/gap shall be infilled with Astro X-series CE pipe Collar. Apertures for the penetration of pipes shall be separated by a minimum of 200 mm.
- 4) The provisions made in this European Technical Assessment are based on an assumed working life of the Astro X-series CE pipe Collar of 10 years, 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.
- 5) Services in walls shall be supported at maximum 400mm from the face of the separating element for walls, and 400mm above the surface of the floor.

Use Category

Type X: Intended for use in conditions exposed to weathering.

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

Characteristic	Assessment of characteristic
BWR 2 Safety in case of fire	
Reaction to fire	See clause 3.1.1
Resistance to fire	See clause 3.1.2
BWR 3 Hygiene, Health and the Environment	
Release of dangerous substances	See clause 3.2.1
BWR 4 Safety in use	
Durability and serviceability	See clause 3.3.1
BWR 5 Protection against noise	
BWR 6 Energy, Economy and Heat Retention	
BWR 7 Sustainable use of natural resources	

3.1 Safety in case of fire

3.1.1 Reaction to fire

Astro X Series CE Pipe Collar is classified **E** in accordance with EN 13501-1

3.1.2 Resistance to fire

See Annex A

3.2 Hygiene, Health and the Environment.

3.2.1 Release of dangerous substance

Category IA1, S/W3 Declaration of manufacturer

The applicant has presented a declaration that Astro X-series CE pipe Collar release no dangerous substances in compliance with Council Directive 67/548/EEC of 1st June 2015 on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (incl. All amendments and adaptations).

The manufacturer declares that the product contains no dangerous substances according to current European and National regulations.

The applicant has submitted a written declaration that the product and/or constituents of the product contains no substances which have been 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.

The use category of Astro X-series CE pipe Collar in relation to BWR 3 (Hygiene, health and environment) is IA1, S/W3.

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 CE pipe Collar has been tested in accordance with EOTA Technical Report - TR024 – Edition November 2006, Fire Stopping and Fire Sealing Products-Penetration Seals for the type X, environmental conditions: Products for penetration seals intended for outdoor use exposed to weathering – rain, UV, high temperatures, frost and frost-thaw in winter.

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 2023-11-23 by



Thomas Bruun

Managing Director, ETA-Danmark

Annex A

Resistance to Fire Classification of Astro X-series CE pipe Collar

Table 1

Plastic Type and pipe wall thickness (mm)			
Astro X-series CE pipe Collar ref. *	PVC-U, PVC-C	PE, ABS, SAN-PVC	PP
32	1.8	2.9	2.9
40	1.8	2.9	2.9
50	1.8	2.9	2.9
55	1.8 - 2.3	2.9 - 5.1	2.9 - 4.4
63	2.3 – 3.0	2.9 - 5.8	2.9 - 4.4
75	3.1 - 4.8	2.8 - 6.9	2.8 - 6.7
82	3.1 - 4.8	2.8 - 7.5	2.8 - 6.7
90	4.2 - 7.4	2.8 - 8.2	2.7 - 10.0
100	4.2 - 7.4	2.7 - 9.1	2.7 - 10.0
110	4.2 - 7.4	2.7 – 10.0	2.7 - 10.0
125	6.0	3.1	3.1
140	6.1 - 7.5	3.9 - 5.8	3.5 - 8.0
160	6.2 - 9.5	4.9 - 9.5	4.0 - 14.6

* See graphs below for specific intumescent layers

Table 2

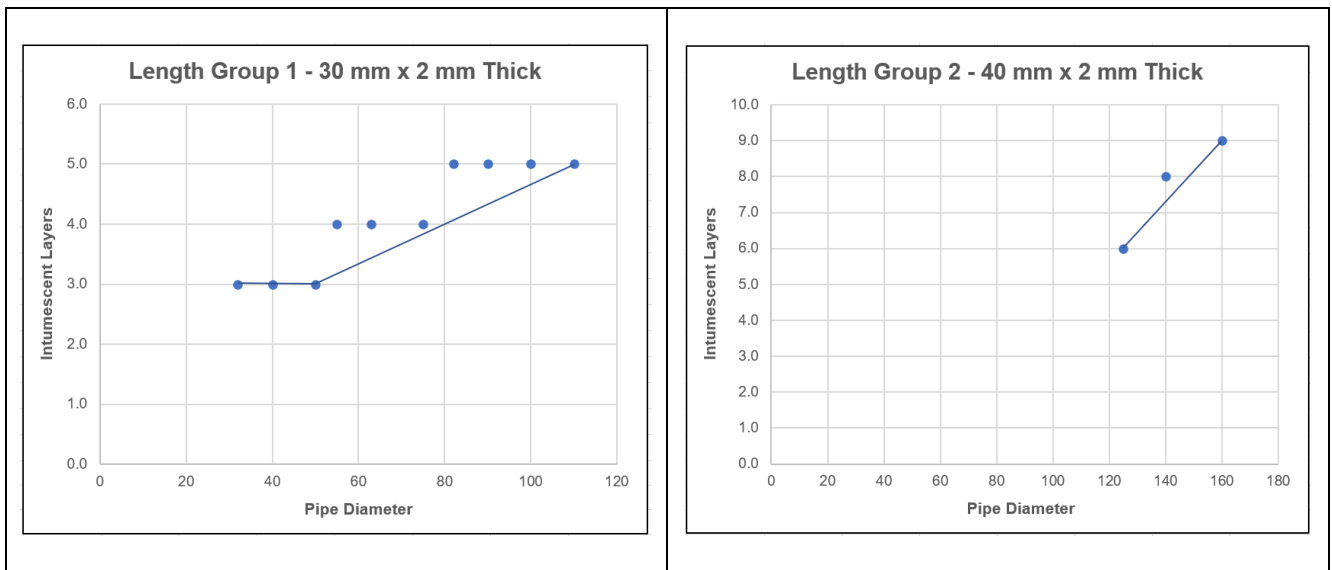
Plastic Type and pipe wall thickness (mm)			
Astro X-series CE pipe Collar ref.	PVC-U, PVC-C	PE, ABS, SAN-PVC	PP
32	1.8	3.0	2.0
40	1.8	3.0	2.0
50	1.8 – 3.7	3.0 – 4.6	2.0 – 6.9
55	2.0 - 3.9	3.0- 5.1	2.1 - 7.2
63	2.3 - 4.3	3.0 - 5.8	2.2 - 7.6
75	2.8 -4.9	2.9 - 6.9	2.3 - 8.2
82	3.1 - 5.2	2.9 - 7.5	2.4 - 8.6
90	3.4 - 5.6	2.8 - 8.2	2.5 – 9.0
100	3.8 - 6.1	2.8 - 9.1	2.6 - 9.5
110	4.2 - 6.6	2.7 – 10.0	2.7 – 10.0
125	4.8 - 7.4		
140	5.4 - 8.3		
160	6.2 - 9.5		

* See graphs below for specific intumescent layers

Table 3

Plastic Type and pipe wall thickness (mm)			
Astro X-series CE pipe Collar ref.	PVC-U, PVC-C	PE, ABS, SAN-PVC	PP
32	1.8	2.9	2.9
40	1.8	2.9	2.9
50	1.8	2.9	2.9
55	2.0 - 2.3	2.9 - 3.5	2.9 - 3.5
63	2.3 - 3.0	2.9 - 4.4	2.9 - 4.4
75	2.8 - 4.1	2.8 - 5.9	2.8 - 5.9
82	3.1 - 4.7	2.8 - 6.7	2.8 - 6.7
90	3.4 - 5.5	2.8 - 7.6	2.8 - 7.6
100	3.8 - 6.4	2.7 - 8.8	2.7 - 8.8
110	4.2 - 7.3	2.7 - 10.0	2.7 - 10.0
125	6.0	3.1	3.1
140	6.1 - 7.5	3.9 - 5.8	3.5 - 8.0
160	6.2 - 9.5	4.9 - 9.5	4.0 - 14.6

* See below graphs for specific intumescent layers

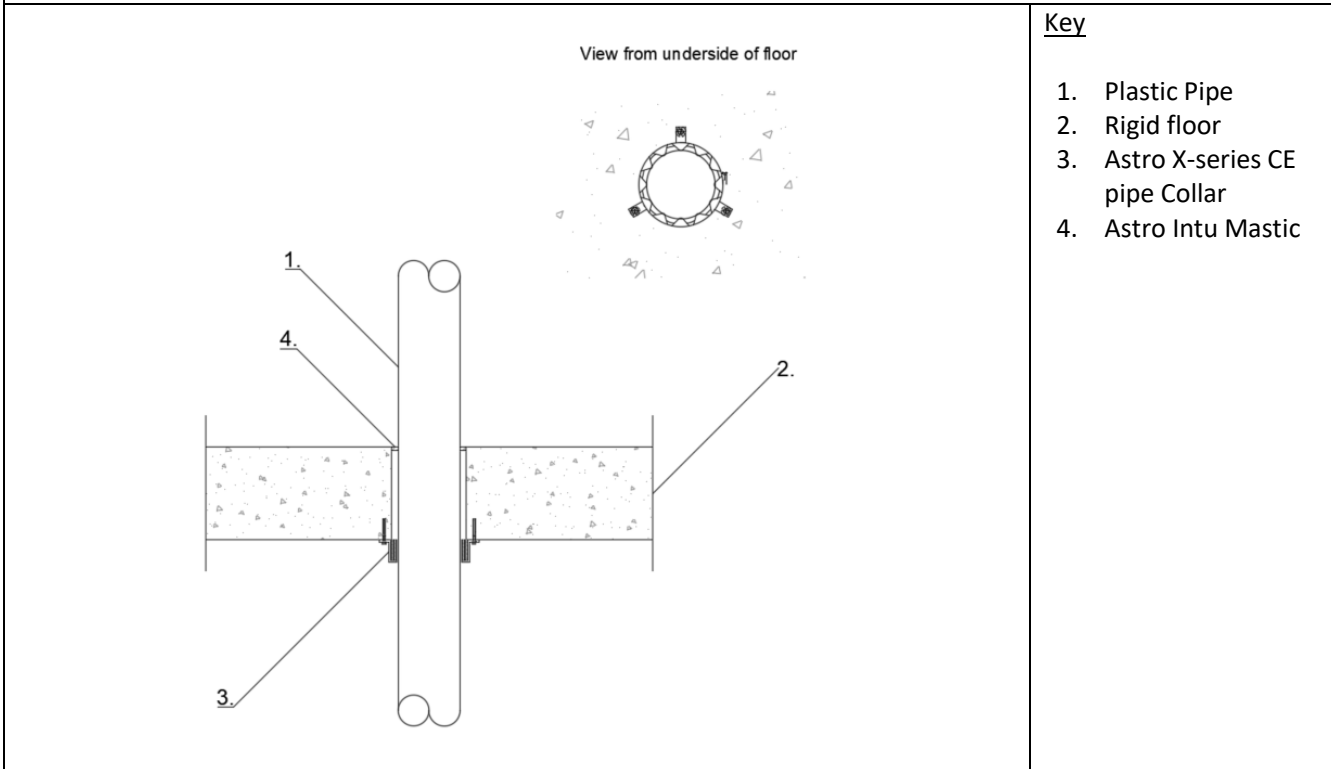


A.1. Floors

A.1.1 Rigid floors Minimum Thickness 150 mm

A.1.1.1 Plastic pipes

Rigid Floors ≥ 150 mm



- Key
1. Plastic Pipe
 2. Rigid floor
 3. Astro X-series CE pipe Collar
 4. Astro Intu Mastic

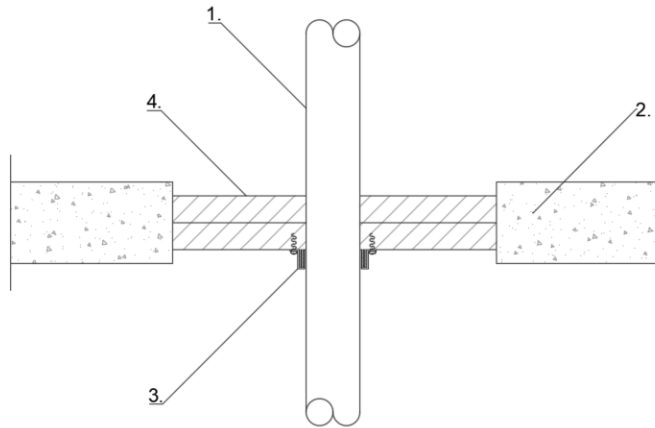
Penetration Service	Annular Space (mm)	Distances (mm)	Installation	Classification
PVC-U, PVC-C ⁽¹⁾ – See Table 3 for scope	≤ 10	Edge – 10 Penetration Service ≥ 100	Face fixed on the underside of the floor with 3no 60mm, M6 fire resistant hexagon head bolts. Astro Intu Mastic applied to top side of floor ≥ 5 mm	EI 240 U/C, C/C
PE, ABS, SAN-PVC ⁽²⁾ – See Table 3 for scope				
PP ⁽³⁾ – See Table 3 for scope				

All services supported with pipe supports at 400 mm from the upper face of the floor.

⁽¹⁾ PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1

⁽²⁾ PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1

⁽³⁾ PP pipe according to EN 1852-1: 2009

A.1.1.2 Plastic pipes in Astro Batt and CoatingRigid Floors ≥ 150 mmKey

1. Plastic Pipe
2. Rigid floor
3. Astro X-series CE pipe Collar
4. Astro Batt and Coating

Penetration Service	Opening Size (mm)	Distances (mm)	Installation	Classification		
PVC-U, PVC-C ⁽¹⁾ – See Table 3 for scope	$\leq 1500 \times 1100$	Edge – ≥ 100 Penetration Service ≥ 50	Two 50 mm back-to-back Astro Batt and Coating friction fit using Astro Intu Mastic between joints, Astro X-series CE pipe Collar collar fixed to the exposed face of the fire batt using pigtail screws.	EI 60 U/C, C/C		
PE, ABS, SAN-PVC ⁽²⁾ – See Table 3 for scope						
PP ⁽³⁾ – See Table 3 for scope						
PVC-U, PVC-C ⁽¹⁾ – Table 3 for scope	$\leq 1000 \times 350$			Edge – ≥ 100 Penetration Service ≥ 50	Two 50 mm back-to-back Astro Batt and Coating friction fit using Astro Intu Mastic between joints, Astro X-series CE pipe Collar collar fixed to the exposed face of the fire batt using pigtail screws.	EI 120 U/C, C/C
PE, ABS, SAN-PVC ⁽²⁾ – Table 3 for scope						
PP ⁽³⁾ – See Table 3 for scope						

All services supported with pipe supports at 400 mm from the upper face of the floor.

⁽¹⁾ PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1

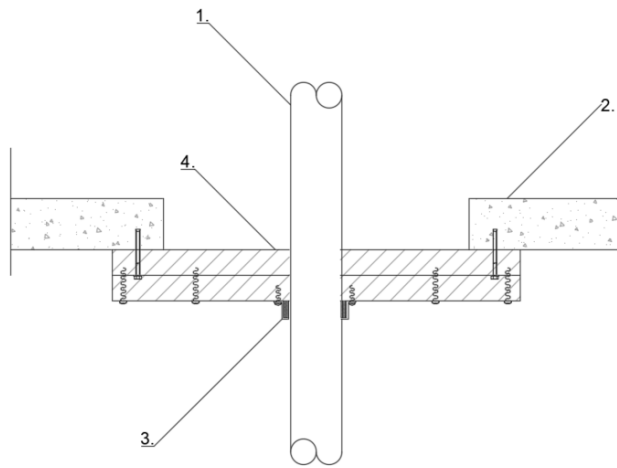
⁽²⁾ PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1

⁽³⁾ PP pipe according to EN 1852-1: 2009

A.1.2 Rigid floors Minimum Thickness 100 mm

A.1.2.1 Plastic pipes in Astro Batt and Coating

Rigid Floors ≥100 mm



Key

- 1. Plastic Pipe
- 2. Rigid floor
- 3. Astro X-series CE pipe Collar
- 4. Astro Batt and Coating

Penetration Service	Opening Size (mm)	Distances (mm)	Installation	Classification
PVC-U, PVC-C ⁽¹⁾ – See Table 3 for scope	≤ 1300 x 1000	Edge – ≥ 0 Penetration Service ≥ 0	Two 50 mm back-to-back Astro Batt and Coating pattress fit using Astro Intu Mastic between joints. Fire resistant insulation fixings 110mm used to fix first fire batt to substrate, 100mm overlap onto substrate. Pig tail screws 90 mm used to fix second fire batt to first. Astro X-series CE pipe Collar collar fixed to the exposed face of the fire batt using pigtail screws.	EI 60 U/C, C/C
PE, ABS, SAN-PVC ⁽²⁾ Table 3 for scope				
PP ⁽³⁾ – See Table 3 for scope				

All services supported with pipe supports at 400 mm from the upper face of the floor.

⁽¹⁾ PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1

⁽²⁾ PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1

⁽³⁾ PP pipe according to EN 1852-1: 2009

A.2. Walls

A.2.1 Flexible or Rigid Walls Minimum Thickness 75 mm

A.2.1.1 Plastic pipes in Astro Batt and Coating

Flexible or Rigid Walls ≥ 75 mm				
				<p><u>Key</u></p> <ul style="list-style-type: none"> 1. Plastic Pipe 2. Flexible Wall 3. Astro X-series CE pipe Collar 4. Astro Batt and Coating
Penetration Service	Opening Size (mm)	Distances (mm)	Installation	Classification
PVC-U, PVC-C ⁽¹⁾ – See Table 1 for scope	$\leq 600 \times 600$	Edge – ≥ 70 Penetration Service ≥ 0	Astro Batt and Coating friction fit using Astro Intu Mastic between joints, Astro X-series CE pipe Collar collar fixed to both sides of wall to the face of the fire batt using pigtail screws	EI 60 U/C, C/C
PE, ABS, SAN-PVC ⁽²⁾ – See Table 1 for scope				
PP ⁽³⁾ – See Table 1 for scope				

All services supported with pipe supports at at 420 mm from both faces of the wall.

⁽¹⁾ PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1

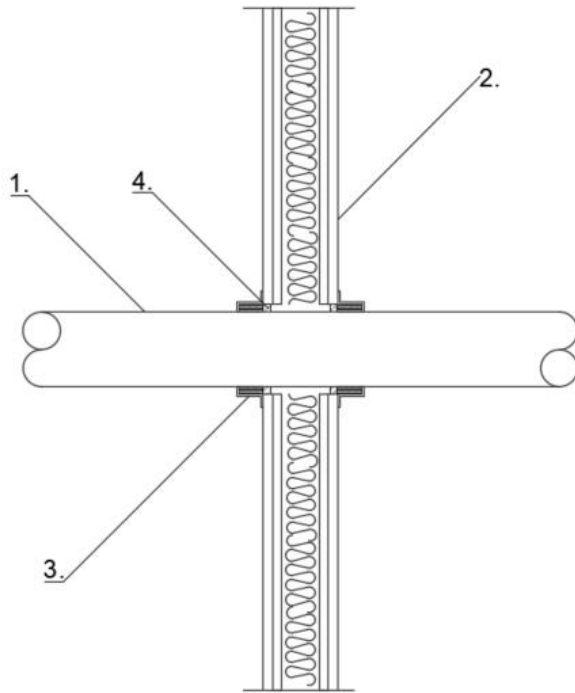
⁽²⁾ PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1

⁽³⁾ PP pipe according to EN 1852-1: 2009

A.2.2 Flexible or Rigid Walls Minimum Thickness 100 mm

A.2.2.1 Plastic pipes

Flexible or Rigid Walls ≥ 100 mm



Key

1. Plastic Pipe
2. Flexible Wall
3. Astro X-series CE pipe Collar
4. Astro Intu Mastic

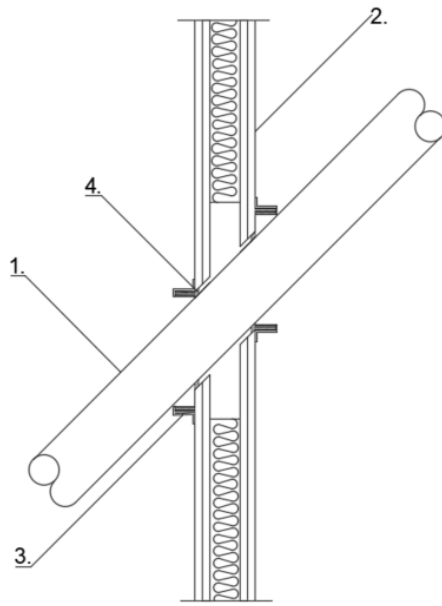
Penetration Service	Annular Space (mm)	Distances (mm)	Installation	Classification
PVC-U, PVC-C ⁽¹⁾ – See Table 1 for scope	≤ 10	Edge – ≥ 10 Penetration Service ≥ 100	Face fixed each side of the wall using 3no 6.0 mm diameter x 65 mm long steel toggle plasterboard anchor. Astro Intu Mastic applied to annular space 12.5mm depth both sides of wall.	EI 120 U/C, C/C
PE, ABS, SAN-PVC ⁽²⁾ – See Table 1 for scope				
PP ⁽³⁾ – See Table 1 for scope				
PVC-U, PVC-C ⁽¹⁾ – See Table 2 for scope				EI 60 U/U, C/U, U/C, C/C
PE, ABS, SAN-PVC ⁽²⁾ – See Table 2 for scope				
PP ⁽³⁾ – See Table 2 for scope				

All services supported with pipe supports at at 400 mm from both faces of the wall.

⁽¹⁾ PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1

⁽²⁾ PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1

⁽³⁾ PP pipe according to EN 1852-1: 2009

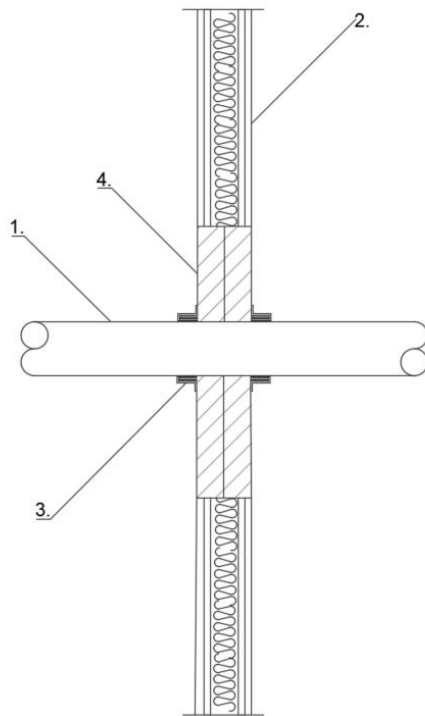
A.2.2.2 Angled plastic pipesFlexible or Rigid Walls ≥ 100 mm Insulated or uninsulated, lined, or unlinedKey

1. Plastic Pipe
2. Flexible Wall
3. Astro X-series CE pipe Collar
4. Astro Intu Mastic

Penetration Service	Annular Space (mm)	Distances (mm)	Collar	Installation	Classification
PVC-U, PVC-C ⁽¹⁾ , 110 mm \varnothing x 6.6 mm thick wall	≤ 10	Edge – ≥ 10 Penetration Service ≥ 0	160 mm Astro X-series CE pipe Collar with 40 x 18 mm inlay	Face fixed each side of the wall using 3 no 50 mm long x 5 mm diameter screw with penny washer. Astro Intu Mastic applied to annular space 10mm depth both sides of wall. Angle of pipe is permitted from 30° - 150°.	EI 90 U/C, C/C
PE, ABS, SAN-PVC ⁽²⁾ , 110 mm \varnothing x 2.7 mm thick wall			160 mm Astro X-series CE pipe Collar with 40 x 18 mm inlay		
PP ⁽³⁾ , 50 mm \varnothing x 2.9 mm thick wall			110 mm Astro X-series CE pipe Collar with 40 x 10 mm inlay		

All services supported with pipe supports at at 400 mm from both faces of the wall.

⁽¹⁾ PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1⁽²⁾ PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1⁽³⁾ PP pipe according to EN 1852-1: 2009

A.2.2.3 Plastic pipes in Astro Batt and CoatingFlexible or Rigid Walls ≥ 100 mm Insulated, unlined or linedKey

1. Plastic Pipe
2. Flexible Wall
3. Astro X-series CE pipe Collar
4. Astro Batt and Coating

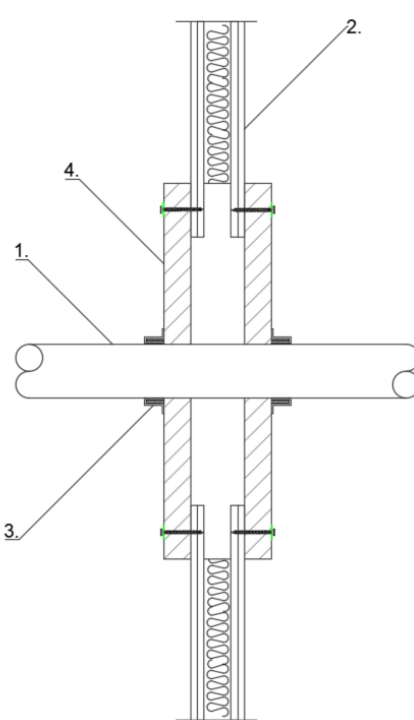
Penetration Service	Opening Size (mm)	Distances (mm)	Installation	Classification		
PVC-U, PVC-C ⁽¹⁾ – See Table 1 for scope	$\leq 1200 \times 730$	Edge – ≥ 100 Penetration Service ≥ 0	Two 50 mm back-to-back Astro Batt and Coating friction fit using Astro Intu Mastic between joints, Astro X-series CE pipe Collar collar fixed to both sides of wall to the face of the fire batt using pigtail screws.	EI 120 U/C, C/C		
PE, ABS, SAN-PVC ⁽²⁾ – See Table 1 for scope						
PP ⁽³⁾ – See Table 1 for scope						
PVC-U, PVC-C ⁽¹⁾ – See Table 1 for scope	$\leq 2600 \times 2600$			Edge – ≥ 100 Penetration Service ≥ 0	Two 50 mm back-to-back Astro Batt and Coating friction fit using Astro Intu Mastic between joints, Astro X-series CE pipe Collar collar fixed to both sides of wall to the face of the fire batt using pigtail screws.	EI 60 U/C, C/C
PE, ABS, SAN-PVC ⁽²⁾ – See Table 1 for scope						
PP ⁽³⁾ – See Table 1 for scope						

All services supported with pipe supports at 400 mm from the upper face of the floor.

⁽¹⁾ PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1

⁽²⁾ PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1

⁽³⁾ PP pipe according to EN 1852-1: 2009

Flexible or Rigid Walls ≥ 100 mm Insulated or uninsulated, unlined or lined				
				<p><u>Key</u></p> <p>1. Plastic Pipe 2. Flexible Wall 3. Astro X-series CE pipe Collar 4. Astro Batt and Coating</p>
Penetration Service	Opening Size (mm)	Distances (mm)	Installation	Classification
PVC-U, PVC-C ⁽¹⁾ – See Table 1 for scope	$\leq 1200 \times 750$	Edge – 100 Penetration Service ≥ 0	Astro Batt and Coating pattress fit using Astro Intu Mastic between joints. Fixed to the substrate using 6 x 80 steel screws and steel washers, 100mm overlap onto substrate. Astro X-series CE pipe Collar collar fixed to the exposed face of the fire batt using pigtail screws.	EI 120 U/C, C/C
PE, ABS, SAN-PVC ⁽²⁾ – See Table 1 for scope				
PP ⁽³⁾ – See Table 1 for scope				

All services supported with pipe supports at at 400 mm from both faces of the wall.

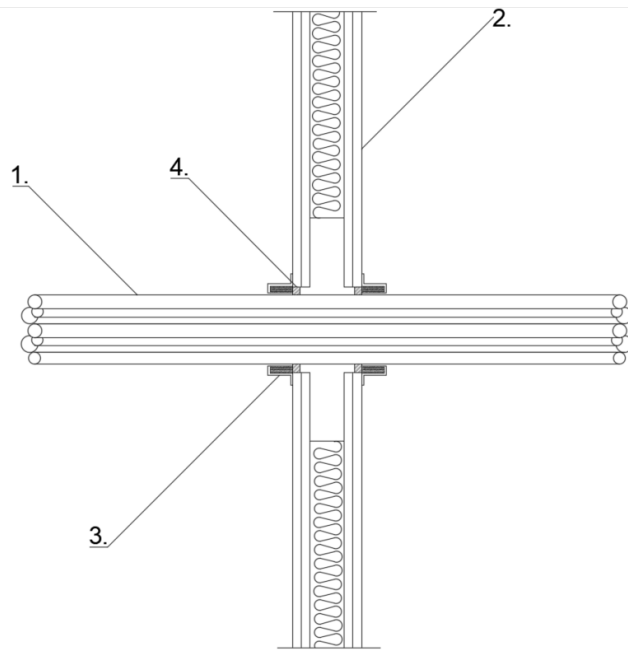
⁽¹⁾ PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1

⁽²⁾ PE pipe according to EN 1519-1, EN 12201-2 and EN 12006-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1

⁽³⁾ PP pipe according to EN 1852-1: 2009

A.2.2.4 Cables

Flexible or Rigid Walls ≥ 100 mm Insulated or uninsulated, lined, or unlined



Key

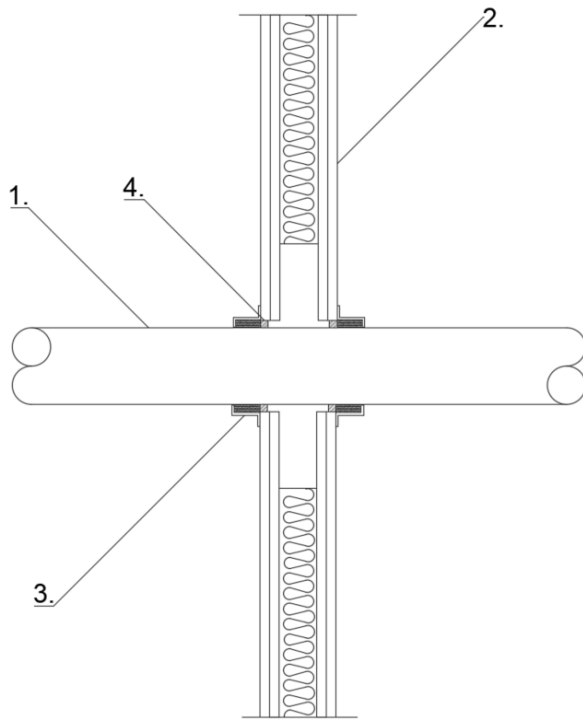
- 1. Cables
- 2. Flexible Wall
- 3. Astro X-series CE pipe Collar
- 4. Astro Intu Mastic

Penetration Service	Annular Space (mm)	Distances (mm)	Installation	Classification
Telecoms cable bunch $\leq 100\text{mm } \varnothing$	≤ 10	Edge – ≥ 10 Penetration Service ≥ 100	Face fixed each side of the wall using 3no 50 mm long x 5 mm diameter screw with penny washer. Astro Intu Mastic applied to annular space 10mm depth both sides of wall.	EI 120

All services supported with pipe supports at at 400 mm from both faces of the wall.

A.2.2.5 Aluminium pipes

Flexible or Rigid Walls ≥ 100 mm Insulated or uninsulated, unlined or lined



Key

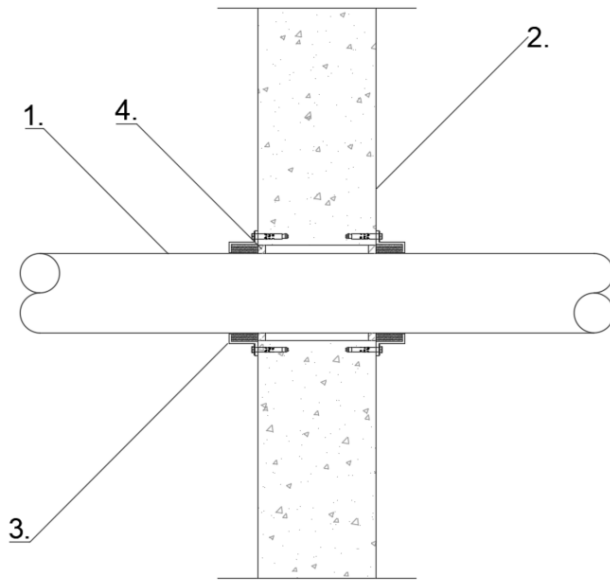
- 1. Aluminium Pipe
- 2. Flexible Wall
- 3. Astro X-series CE pipe Collar
- 4. Astro Intu Mastic

Penetration Service	Annular Space (mm)	Distances (mm)	Installation	Classification
Aluminium pipe , 101.6 mm outside diameter x 3.175 mm thick wall	≤ 10	Edge – ≥ 10 Penetration Service ≥ 100	Face fixed each side of the wall using 3no 50 mm long x 5 mm diameter screw with penny washer. Astro Intu Mastic applied to annular space 10mm depth both sides of wall.	E 120 - C/C

All services supported with pipe supports at at 400 mm from both faces of the wall.

A.2.3 Rigid Walls

A.2.3.1 Plastic pipes

Rigid Walls ≥ 100 mm

Key

1. Plastic Pipe
2. Rigid Wall
3. Astro X-series CE pipe Collar
4. Astro Intu Mastic

Penetration Service*	Annular Space (mm)	Distances (mm)	Installation	Classification
Polypropylenepipe, 110 mm \varnothing x 2.7 mm thick wall	≤ 10	Edge ≥ 10 Penetration Service ≥ 100	Face fixed each side of the wall using 3no 40mm fire resistant anchors. Astro Intu Mastic applied to annular space 10mm depth both sides of wall at a 10mm depth	EI 120 – U/U, C/U, U/C, C/C
Polypropylenepipe, 160 mm \varnothing x 4.0 mm thick wall	≤ 10	Edge ≥ 10 Penetration Service ≥ 100	Face fixed each side of the wall using 3no 70mm woodscrews and penny washers. Astro Intu Mastic applied to annular space 10mm depth both sides of wall at a 10mm depth	EI 120 – U/U, C/U, U/C, C/C
Polypropylenepipe, 250 mm \varnothing x 6.2 mm thick wall	≤ 10	Edge ≥ 10 Penetration Service ≥ 100	Face fixed each side of the wall using 3no 70mm woodscrews and penny washers. Astro Intu Mastic applied to annular space 10mm depth both sides of wall at a 10mm depth	EI 120 – U/C, C/C

All services supported with pipe supports at at 230 mm from both faces of the wall.

*PP pipe according to EN 1852-1: 2009