UL-EU CERTIFICATE

Certificate No. UL-EU-00834-A2-CPR

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Date of Issue 2015-09-09 Revised 2021-12-16

> Unit 8, I.O Centre, Stephenson Road, Segensworth, Fareham, PO15 5RU

Manufacturer A/008

Certified Product Type Fire Stop – Coated Board Product Trade Name Astro Batt and Coating

Trademark N/A

Rating/Classification See Appendix

Harmonised Technical Specifications ETAG 026-2 / EN 13501-2 / EN 13501-3

Expiry date 2025-09-08





Authorized Certification Decision Maker Chris Miles This is to certify that representative samples of the Certified Product listed above have been investigated by Underwriters Laboratories to the Standard(s) indicated on this Certificate, in accordance with the UL Global Services Agreement and the UL-EU Mark Service Terms and Conditions ("Agreement"). The Certificate Holder is entitled to use the UL-EU Mark for the Certified Product listed on the certificate and manufactured at the production site(s) listed, in accordance with the terms of the Agreement. Only those products bearing the UL-EU Mark for Europe should be considered as being covered by UL's UL-EU Mark Service. This Certificate shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.



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This certificate relates to the use of Astro Batt and Coating for fire stopping where services penetrate floors and walls. The detailed scope is given in pages 3 to 156 of this Certificate. This shows the thickness and acceptable dimensions, substrates and orientations required to provide fire resistance periods of up to 120 minutes (EI 120).

The product is certificated on the basis of:

- i) Inspection and surveillance of factory production control by UL
- ii) Fire resistance test data in accordance with 1366-3: 2009 & EN 1366-1: 2000
- iii) Classification in accordance with EN 13501-2 & EN 13501-3
- iv) Durability and Servicability as defined in ETAG 026-2

The durability class of Astro Batt and Coating is Z_1 -intended for use at internal conditions with high humidity, excluding temperatures below $0^{\circ}C$

VOC test report – Indoor Air Comfort GOLD® referenced – eurofins 392-2017-00008801_A_EN, is also available.

Fire resisting & smoke extraction ducts penetrating the Astro Batt and Coating shall be classified (EN13501-3/4) for the required performance period, in addition to the details given on page 156.



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Product-type: Coated board	Intended use: Penet	ration Seal
Basic requirement for construction work	Basic Requirement	Basic requirement for construction work
	BWR 1 Mechanical resistance and stabili	ty
人りに人りし人り	None	レル・ロンド・ロンバー
$\times \times >$	BWR 2 Safety in case of fire	$\langle \times \times \rangle$
EN 13501-1	Reaction to fire	Class E
EN 13501-2	Resistance to fire	See pages 7 to 156
Vii.Vii.Vii	BWR 3 Hygiene, health and environmen	t \//\//_
EN 1026:2000	Air permeability (material property)	See page 4
ETAG 026-3, Annex C	Water permeability (material property)	No performance determined
Declaration of manufacturer	Release of dangerous substances	Declaration of manufacturer
	BWR 4 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 ISO 11600	Adhesion	No performance determined
$\times \times \times$	BWR 5 Protection against noise	$\langle \times \times \rangle$
EN 10140-2/ EN ISO 717-1	Airborne sound insulation	Rw (C;C _{tr})= 24(-2;-3) and See pages 5&6
EN 10140-3/ EN ISO 717-2	Impact sound insulation	No performance determined
)(U ₁)(U ₁)(U ₁	BWR 6 Energy economy and heat retention	on
EN 12664, EN 12667 or EN 12939	Thermal properties	No performance determined
EN ISO 12572 EN 12086	Water vapour permeability	No performance determined
$YU_1YU_1YU_2$	General aspects relating to fitness for us	e
ISO 8339: 2005, ISO 9046: 2004 & ISO 7389: 2003	Durability and serviceability	Z_1
X OF X OF X OF	BWR 7 Sustainable use of natural resource	ees
		No performance determined



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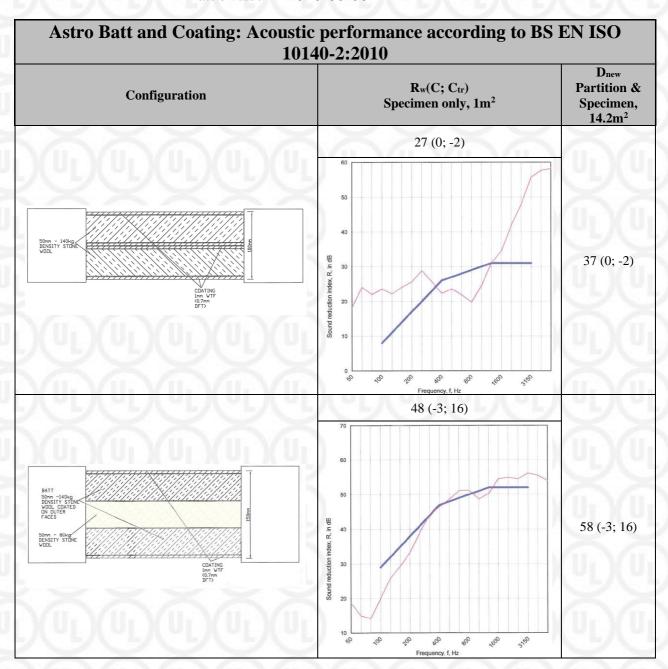
Astro Batt and Coating: Air Permeability according to BS EN 1026				
Pressure (Pa)	Results under positive chamber pressure		Results under negative chamber pressure	
riessure (ra)	Leakage (m³/h)	Leakage (m³/m²/ h)	Leakage (m³/h)	Leakage (m³/m²/ h)
50	0.6	0.8	1.1	1.5
100	1.0	1.4	1.3	1.8
150	2.8	3.9	1.5	2.1
200	3.8	5.3	1.9	2.6
250	4.5	6.3	2.0	2.8
300	5.0	6.9	2.4	3.3
450	5.1	7.1	1.9	2.6
600	6.7	9.3	2.2	3.1



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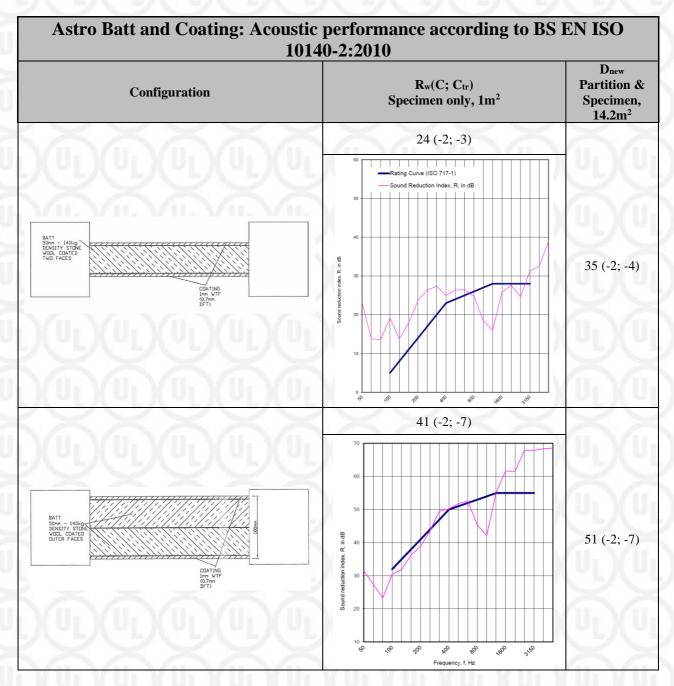




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Rigid Walls Minimum Thickness 70mm

Single Layer Pattress Astro Batt and Coating 50mm, Electrical Cables

[70]	Key 1. Supporting Construction
	2. Astro intu mastic
1_ .	3. Astro Batt and Coating
	4. <u>Service Penetration</u>
2	
4- 3- .	/(or)(or)(or
)(UL)(UL)(UL
	$\times \times \times$
	$(U_L)(U_L)(U_L)$
	$\times \times \times$
X(I	(U1)(U1)(U1
. 4	Vu \/u \/u \
VII. VII. VII. VII. VII. VII. VII. VII.	VII. VII. VII.
ervice(s)	Classification
20 11 60 1 11 11 1 1 1 1 1 1 1 1 1 1 1 1	100 100 100
Omm wide x 60mm deep steel cable basket containing 3 x type 'B' cable and 20 x undle of telecoms cables	Willia Willia Willia

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed on all edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres



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Single Layer Pattress Astro Batt and Coating 50mm, Electrical Cables and Conduits

Max Aperture 730mm Wide x 1200mm High	i)($(\Pi^{\dagger})(\Pi^{\dagger})(\Pi^{\dagger})$
	<u>Key</u> 1.	Supporting Construction
	2.	Astro intu mastic
	3.	Astro Batt and Coating
4	4.	Service Penetration
Service(s)	Ď	Classification
20mm dia Adaptaflex SPL20 flexible conduit 20mm dia Kopex KSU 316 stainless steel flexible conduit	N	EI 90
150mm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm dia red) Cables		E 90 EI 60

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed on all edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres



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Single Layer Pattress Astro Batt and Coating 50mm, Electrical Cables

Max Aperture 2600mm Wide x 2600mm High Key **Supporting Construction** Astro intu mastic Astro Batt and Coating Service Penetration \triangleleft Service(s) Classification 500mm wide x 60mm deep steel cable basket containing 3 x type 'B' cable and 20 x bundle of telecoms cables EI 60 500mm wide x 60mm deep steel cable tray containing 1 x type 'B' cable, 3 x type 'A1' cable, 3 x type 'A2' cable, and 3 x type 'A3' cable

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed on all edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres



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Single Layer Pattress Astro Batt and Coating 50mm, Electrical Cables and Conduits

1. Supporting Construction 2. Astro intu mastic 3. Astro Batt and Coat 4. Service Penetration Classification Classification Classification Classification Classification Classification Classification El 60		LAC-LAC-LAC-L		Key	
2. Astro intu mastic 3. Astro Batt and Coat 4. Service Penetration Classification Classification Classification Elifon Somm dia Adaptaflex SPL20 flexible conduit Comm dia Kopex KSU 316 stainless steel flexible conduit Somm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm		- / 0 -		1.	Supporting
Astro Batt and Coat 4. Service Penetration Classification Classification Omm dia Adaptaflex SPL20 flexible conduit Omm dia Kopex KSU 316 stainless steel flexible conduit 50mm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm)(U _L)(U _I		Construction
ervice(s) Classification Omm dia Adaptaflex SPL20 flexible conduit Omm dia Kopex KSU 316 stainless steel flexible conduit 50mm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm		1_		2.	Astro intu mastic
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ervice(s) Classification Omm dia Adaptaflex SPL20 flexible conduit Omm dia Kopex KSU 316 stainless steel flexible conduit El 60 Somm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm				4.	Service Penetration
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Classification Omm dia Adaptaflex SPL20 flexible conduit Omm dia Kopex KSU 316 stainless steel flexible conduit EI 60 Somm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm			Vii.Vii		
Classification Omm dia Adaptaflex SPL20 flexible conduit Omm dia Kopex KSU 316 stainless steel flexible conduit EI 60 Somm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm		<i>V///A</i> . <i>V////A</i>	, (이,)(이		
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Classification Omm dia Adaptaflex SPL20 flexible conduit Omm dia Kopex KSU 316 stainless steel flexible conduit EI 60 Somm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm)(U ₁)(U ₁		
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ervice(s) Classification Omm dia Adaptaflex SPL20 flexible conduit Omm dia Kopex KSU 316 stainless steel flexible conduit EI 60 50mm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm			VII.VIII		
ervice(s) Classification Omm dia Adaptaflex SPL20 flexible conduit Omm dia Kopex KSU 316 stainless steel flexible conduit EI 60 50mm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm		•	V.N.		
Omm dia Adaptaflex SPL20 flexible conduit Omm dia Kopex KSU 316 stainless steel flexible conduit EI 60 50mm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm		<u> </u>			
0mm dia Kopex KSU 316 stainless steel flexible conduit EI 60 50mm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm	ervice(s)	יייעיייעיייעי	ハーノノーノノーノ	٠X	Classification
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50mm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm	0mm dia Kopex KSU 316 s	ainless steel flexible conduit	M OF M OF M O	1	EI 60
1) (1.11	50mm wide x 60mm deep state lia red) Cables	eel cable tray containing 4 x FP200 C	Gold (Firealarm cable 7mm	/ >	EI 60

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed on all edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres



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Rigid Walls Minimum Thickness 75mm

Single Layer Pattress Astro Batt and Coating 50mm, Electrical Cables and Cable Trunking

Max Aperture 2600mm Wide x 2600mm High	U <u>L</u>)(n ^r)(n ^r)(n
75	<u>Key</u> 1.	Supporting Construction
	2.	Astro intu mastic
3	3.	Astro Batt and Coating
5	4.	<u>Insulation</u>
	5.	Service Penetration
Service(s)	u Y	Classification
150mm x 150mm Insulated steel cable trunking, Stone Wool 40mm thick, 45kg/m³ (LI 400mm). Astro X Series Pillow tightly fitted around the cables in the section of trunking within the depth of the partition	**	EI 60 U/U
Cables 1xB1, 1xC1, 1xG1, 1xG2		
Cables 1xB1		EI 60
Cables 1xC1	ш. У/	LIO
Unsheathed electrical cables 0-24mm dia		

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres

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Single Layer Pattress Astro Batt and Coating 50mm, Electrical Cables and Cable Trunking

I I U I I U I I U I		UL M UL M UL M UL M UL M U
	₁ 75 ₁	<u>Key</u> 1. <u>Supporting Construction</u>
	· ·	2. Astro intu mastic
	1-	3. Astro Batt and Coating
		4. <u>Insulation</u>
4~ 3-	2	5. <u>Service Penetrations</u>
	→ → → →	
		$(U_L)(U_L)(U_L)(U_L)(U_L)(U_L)(U_L)(U_L)$
	. 4	
	A	
Service(s)		Classification
60mm x 50mm Insulated steel ca Astro X Series Pillow tightly fitte lepth of the partition	ble trunking, Stone Wool 40mm thic d around the cables in the section of	, 45kg/m³ (LI 400mm). runking within the EI 60 U/U
Cables 1xA1, 1xA2, 1xA3	1/11/11/11/11	0 V0 V0 V0 V0 V0
Cables 1xA1	Mar Kar Mar	EI 60
Cables 1xA2 Cables 1xA3		

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres



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Single Layer Astro Batt and Coating 50mm, Plastic Pipes

Max Aperture 600mm Wide x 600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating

t)	Service(s)	Astro X Ser Pipe Colla
2	₹ •	
R		
(E)(5 4	
2	1	
1-//	75	17(-1

Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Service Penetration

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness	32mm	$\times \times \rangle$
PVC Pipe 40mm Ø, 1.8mm wall thickness	40mm	
PVC Pipe 50mm Ø, 1.8mm wall thickness	50mm	
PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness	55mm	
PVC Pipe 63mm Ø, 2.3-3mm wall thickness	63mm	
PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness	75mm	EI 60 U/C
PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness	82mm	EI 00 U/C
PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness	90mm	
PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness	100mm	
PVC Pipe 110mm Ø, 4.2-7.4mm wall thickness	110mm	
PVC Pipe 125mm Ø, 6mm wall thickness	125mm	
PVC Pipe 140mm Ø, 6.1-7.5mm wall thickness	140mm	



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Max Aperture 600mm Wide x 600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating

75 4 5 4 4 4

Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Service Penetration

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PE Pipe 32mm Ø, 2.9mm wall thickness	32mm	
PE Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PE Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PE Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PE Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PE Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PE Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	EI 60 U/C
PE Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PE Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PE Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PE Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PE Pipe 140mm Ø, 3.9-5.8mm wall thickness	140mm	
PE Pipe 160mm Ø, 4.9-9.5mm wall thickness	160mm	

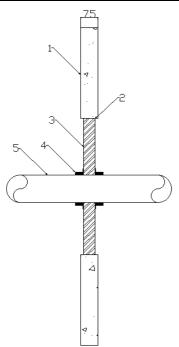


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Max Aperture 600mm Wide x 600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating



Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Service Penetration

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PP Pipe 32mm Ø, 2.9mm wall thickness	32mm	
PP Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PP Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PP Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PP Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PP Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PP Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	EI 60 U/C
PP Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PP Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PP Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PP Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PP Pipe 140mm Ø, 3.5-8mm wall thickness	140mm	
PP Pipe 160mm Ø, 4-14.6mm wall thickness	160mm	



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Rigid Walls Minimum Thickness 100mm

Double Layer Astro Batt and Coating 50mm, Electrical Cables and Conduits

100	Key
1- 100	Supporting construction Astro intu mastic Astro Batt and Coating Service Penetration
4	
Service(s)	Classification
Electrical cables 0mm to 21mm dia	EI 60
Electrical capies offini to 21 min dia	F 40
Electrical cables 22mm to 50mm dia	E 60 EI 45
11 \/11 \/21 \/21 \/21 \/21 \/21 \/21 \/	EI 45 E 60 EI 30
Electrical cables 22mm to 50mm dia Electrical cables 51mm to 80mm dia Cable Trays and Ladders	EI 45 E 60
Electrical cables 22mm to 50mm dia Electrical cables 51mm to 80mm dia Cable Trays and Ladders 100 mm diameter bundle telecommunication cable type "F"	EI 45 E 60 EI 30 E 60 EI 45
Electrical cables 22mm to 50mm dia Electrical cables 51mm to 80mm dia Cable Trays and Ladders 100 mm diameter bundle telecommunication cable type "F" Unsheathed electrical cables 0-24mm dia	EI 45 E 60 EI 30 E 60 EI 45 EI 60
Electrical cables 22mm to 50mm dia Electrical cables 51mm to 80mm dia Cable Trays and Ladders 100 mm diameter bundle telecommunication cable type "F"	EI 45 E 60 EI 30 E 60 EI 45



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Double Layer Astro Batt and Coating 50mm, Insulated Metallic Pipes

ax Aperture 730mm Wide x 1200mm High	Kev
100 1	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service 6. Astro HPE Sealant
Service(s)	Classification
¹ Single copper or mild steel pipe 40mm diameter and 1.5 – 14.2 mm wall with sustained/continuous 20mm thick foil faced glass wool insulation (min 80Kg/m ³)	E 90 U/C EI 60 U/C
Single copper or mild steel pipe 40-159mm diameter and $1.5 - 14.2$ mm wall (see raph below) with sustained/continuous 30mm thick foil faced glass wool insulation (min 80Kg/m^3)	EI 60 U/C

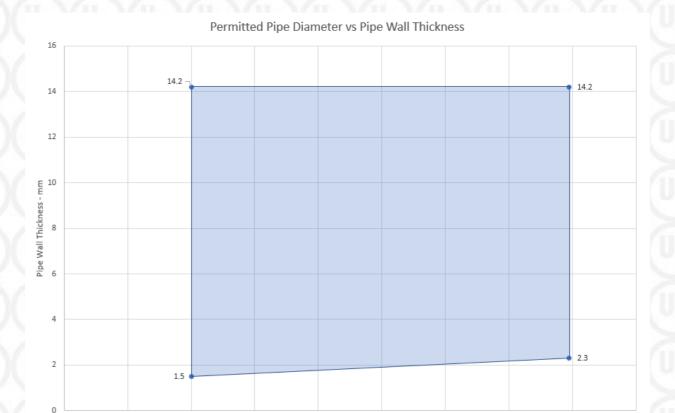
¹15mm deep x 15mm wide annulus Astro HPE Sealant to both faces of the pipe



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60



Pipe Diameter - mm



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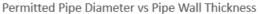
ax Aperture 2600mm Wide x 2600mm High	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro HPE Sealant 5. Insulation 6. Penetration Service
Service(s)	Classification
¹ Single copper or mild steel pipe 40mm diameter and 1.5 – 14.2 mm wall with sustained/continuous 20mm thick foil faced glass wool insulation (min 80Kg/m³)	EI 60 U/C
Single copper or mild steel pipe 40-159mm diameter and 1.5 – 14.2 mm wall (see raph below) with sustained/continuous 30mm thick foil faced glass wool insulation (min 80Kg/m³)	EI 60 U/C

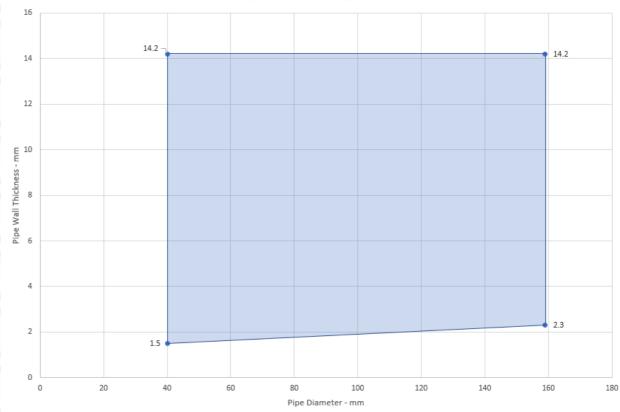
¹15mm deep x 15mm wide annulus Astro HPE Sealant to both faces of the pipe



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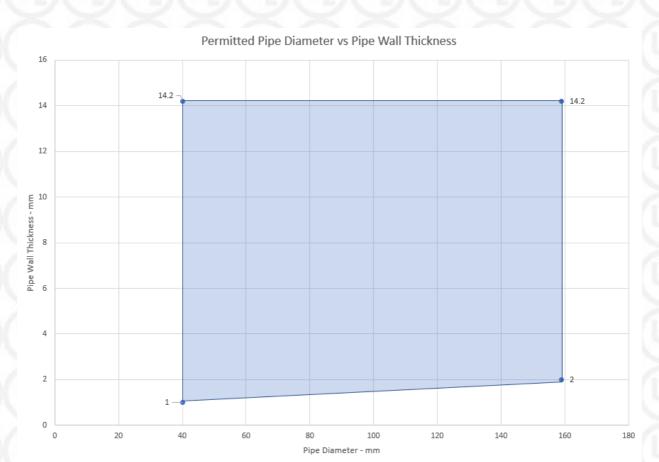
100	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness (see graph below). 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	E 120 C/U EI 45 C/U
Steel or Copper Pipe 42mm Ø, 1mm – 14.2mm wall thickness. 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	E 120 C/U EI 60 C/U



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100	J)(L	1. Supporting construction 2. Astro intu mastic
1-		2. Astro intu maste3. Astro Batt and Coating4. Insulation5. Penetration Service
2 4.		
3		$(0^{\circ})(0^{\circ})(0^{\circ})(0^{\circ})$
		$(U_L)(U_L)(U_L)$
1 3 .)(nr)(nr)(nr)
	M	
Service(s)		Classification
teel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness below). 25mm thick foil faced glassfibre insulation min. 30kg/m		E 60 C/U EI 45 C/U
teel or Copper Pipe 42mm Ø, 1mm – 14.2mm wall thickness. 25m faced glassfibre insulation min. 30kg/m ³ (C/S)	m thick foil	E 60 C/U EI 60 C/U

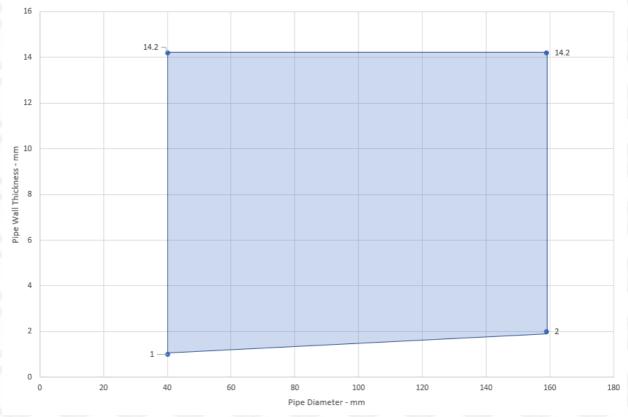


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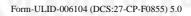


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Max Aperture 730mm Wide x 1200mm Hig	
(Penetrations positioned as per option 1 or 2 below, 0mm distance between ser	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro PST Coating 5. Penetration Service
Service(s)	Classification
C. I. C. D. 100 C. 15 142 IId. I. 50 d. I. C. I	E 120 C/II
Steel or Copper Pipe 108mm Ø, 1.5mm – 14.2mm wall thickness, 50mm thick foil faced stonewool insulation min. 100kg/m³ (L/I 500mm)	E 120 C/U EI 45 C/U
Steel or Copper Pipe 108mm Ø, 1.5mm – 14.2mm wall thickness, 50mm thick foil	E 120 C/U
faced stonewool insulation min. 100kg/m ³ (C/I)	EI 60 C/U
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness (see graph below), 40mm thick foil faced stonewool insulation min. 40kg/m³ (L/I 400mm)	EI 45 C/U
Steel 42-324mm Ø, 16mm wall thickness. 40mm thick foil faced stonewool insulation min. 40kg/m³ (L/I 400mm)	EI 45 C/U
Steel or Copper Pipe 42mm Ø, 1.0mm – 14.2mm wall thickness, Astro PST Coating	E 120 C/U
along the penetration 2mm DFT (L/I 300mm)	EI 45 C/U
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness (see graph	E 120 C/U
below), Astro PST Coating along the penetration 2mm DFT (L/I 300mm)	EI 20 C/U
Steel 42-324mm Ø, 16mm wall thickness. 14.2mm wall thickness Astro PST	E 120 C/U
Coating along the penetration 2mm DFT (L/I 300mm)	EI 45 C/U





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60

80

100

Pipe Diameter - mm

120

140

20



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160

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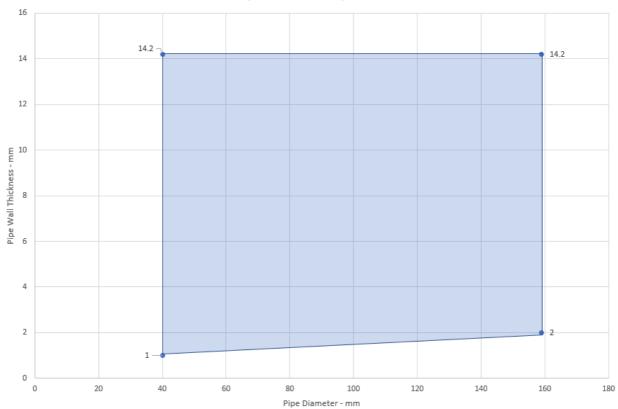
Max Aperture 2600mm Wide x 2600mm Hig (Penetrations positioned as per option 1 or 2 below, 0mm distance between se	
100	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
Steel or Copper Pipe 108mm Ø, 1.5mm – 14.2mm wall thickness 50mm thick foil	E 60 C/U
faced stonewool insulation min. 100kg/m³ (L/I 500mm) Steel or Copper Pipe 108mm Ø, 1.5mm – 14.2mm wall thickness, 50mm thick foil faced stonewool insulation min. 100kg/m³ (C/I)	EI 45 C/U EI 60 C/U
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness (see graph below), 40mm thick foil faced stonewool insulation min. 40kg/m³ (L/I 400mm)	EI 45 C/U
Steel 42-324mm Ø, 16mm wall thickness. 40mm thick foil faced stonewool insulation min. 40kg/m³ (L/I 400mm)	EI 45 C/U
Steel or Copper Pipe 42mm Ø, 1.0mm – 14.2mm wall thickness, Astro PST Coating	E 60 C/U
TT T	EI 45 C/U
along the penetration 2mm DFT (L/I 300mm)	
along the penetration 2mm DFT (L/I 300mm) Steel or Copper Pipe 42-159mm Ø, 1.2mm – 14.2mm wall thickness (see graph	E 60 C/U
along the penetration 2mm DFT (L/I 300mm) Steel or Copper Pipe 42-159mm Ø, 1.2mm – 14.2mm wall thickness (see graph below), Astro PST Coating along the penetration 2mm DFT (L/I 300mm)	E 60 C/U EI 20 C/U
along the penetration 2mm DFT (L/I 300mm) Steel or Copper Pipe 42-159mm Ø, 1.2mm – 14.2mm wall thickness (see graph	E 60 C/U



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Permitted Pipe Diameter vs Pipe Wall Thickness





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Max Aperture 750mm Wide x 1200mm Hig	gh
100 1 2 4.	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service 6. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap
Service(s)	Classification
¹ Steel or Copper Pipe 42-159mm Ø, 1.2mm – 14.2mm wall thickness. 13-25mm thick K Flex ST Insulation ² (C/S)	E 120 C/U EI 60 C/U
¹ Steel or Copper Pipe 42mm Ø, 1 – 14.2mm wall thickness. 25-13mm thick K Flex ST insulation ² (C/S)	E 120 C/U EI 90 C/U
¹ Steel or Copper Pipe 42-108mm Ø, 1.2 – 14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM insulation ³ (C/S)	E 120 C/U EI 60 C/U
¹ Steel or Copper Pipe 42mm Ø, 1–14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM insulation ³ (C/S)	E 120 C/U EI 90 C/U
¹ Steel or Copper Pipe 42mm Ø, 1.0–14.2mm wall thickness. 50mm thick glassfibre insulation (C/S)	E 120 C/U EI 90 C/U

¹2 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the Astro Batt and Coating



²Or equivalent elastomeric pipe insulation classified BL − s2, d0 or better to EN 13501-1

³Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1

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Max Aperture 2600mm Wide x 2600mm Hi	gh
1 100 1 2 3 4 4 4 5 5	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service 6. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap
Service(s)	Classification
¹ Steel or Copper Pipe 42-159mm Ø, 1.2mm – 14.2mm wall thickness. 13-25mm thick K Flex ST Insulation ² (C/S)	EI 60 C/U
¹ Steel or Copper Pipe 42mm Ø, 1 – 14.2mm wall thickness. 25-13mm thick K Flex ST insulation ² (C/S)	EI 60 C/U
¹ Steel or Copper Pipe 42-108mm Ø, 1.2 – 14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM insulation ³ (C/S)	EI 60 C/U
¹ Steel or Copper Pipe 42mm Ø, 1–14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM insulation ³ (C/S)	EI 60 C/U
¹ Steel or Copper Pipe 42mm Ø, 1.02–14.2mm wall thickness. 50mm thick glassfibre insulation (C/S)	EI 60 C/U

 $^{^{1}}$ 2 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the Astro Batt and Coating

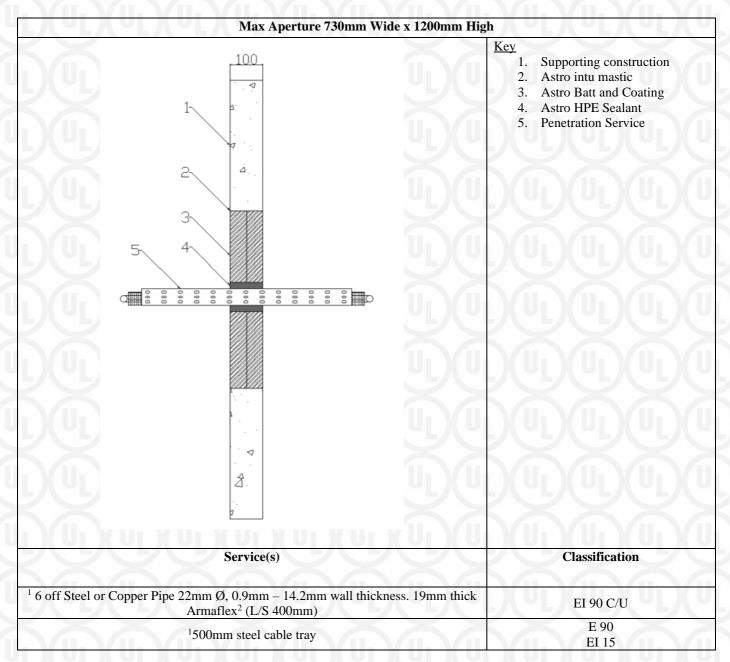


²Or equivalent elastomeric pipe insulation classified BL − s2, d0 or better to EN 13501-1

 $^{^3}$ Or equivalent Phenloic foam pipe insulation classified BL - s1, d0 or better to EN 13501-1 Form-ULID-006104 (DCS:27-CP-F0855) 5.0

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¹Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



 $^{^2}$ Or equivalent elastomeric pipe insulation classified BL - s2, d0 or better to EN 13501-1

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Max Aperture 2600mm Wide x 2600mm H	igh
	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro HPE Sealant 5. Penetration Service
Service(s)	Classification
6 off Steel or Copper Pipe 22mm Ø, 0.9mm – 14.2mm wall thickness. 19mm thick Armaflex ² (L/S 400mm)	EI 60 C/U
¹ 500mm steel cable tray	E 60 EI 15

¹Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



²Or equivalent elastomeric pipe insulation classified BL – s2, d0 or better to EN 13501-1

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Double Layer Astro Batt and Coating 50mm, Plastic Pipes

Max Aperture 730mm Wide x 1200mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating

	11/1 11/1		
	2 3 5 4	100 100 100 100 100 100 100 100 100 100	
$LX^{\mu}LX$	Service(s)	$L \times U \cup X$	Astro X Series

Kev

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness	32mm	
PVC Pipe 40mm Ø, 1.8mm wall thickness	40mm	
PVC Pipe 50mm Ø, 1.8mm wall thickness	50mm	
PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness	55mm	
PVC Pipe 63mm Ø, 2.3-3mm wall thickness	63mm	
PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness	75mm	EI 120 U/C
PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness	82mm	EI 120 U/C
PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness	90mm	
PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness	100mm	
PVC Pipe 110mm Ø, 4.2-7.4mm wall thickness	110mm	
PVC Pipe 125mm Ø, 6mm wall thickness	125mm	
PVC Pipe 140mm Ø, 6.1-7.5mm wall thickness	140mm	Mir. Vir. Vir. V



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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating

100

Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness	32mm	EI 60 U/C
PVC Pipe 40mm Ø, 1.8mm wall thickness	40mm	
PVC Pipe 50mm Ø, 1.8mm wall thickness	50mm	
PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness	55mm	
PVC Pipe 63mm Ø, 2.3-3mm wall thickness	63mm	
PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness	75mm	
PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness	82mm	
PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness	90mm	
VC Pipe 100mm Ø, 4.2-7.4mm wall thickness	100mm	
VC Pipe 110mm Ø, 4.2-7.4mm wall thickness	110mm	
PVC Pipe 125mm Ø, 6mm wall thickness	125mm	
VC Pipe 140mm Ø, 6.1-7.5mm wall thickness	140mm	
PVC Pipe 160mm Ø, 6.2-9.5mm wall thickness	160mm	



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Max Aperture 730mm Wide x 1200mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating

Service(s) Astro 2

Kev

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PP Pipe 32mm Ø, 2.9mm wall thickness	32mm	EI 120 U/C
PP Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PP Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PP Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PP Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PP Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PP Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	
PP Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PP Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
P Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PP Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PP Pipe 140mm Ø, 3.5-8mm wall thickness	140mm	
PP Pipe 160mm Ø, 4-14.6mm wall thickness	160mm	

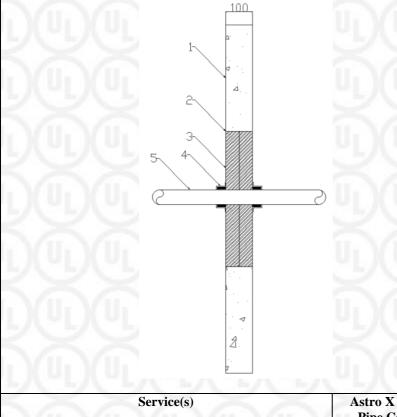


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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating



Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PP Pipe 32mm Ø, 2.9mm wall thickness	32mm	EI 60 U/C
PP Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PP Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PP Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PP Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PP Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PP Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	
PP Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PP Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PP Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PP Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PP Pipe 140mm Ø, 3.5-8mm wall thickness	140mm	
PP Pipe 160mm Ø, 4-14.6mm wall thickness	160mm	

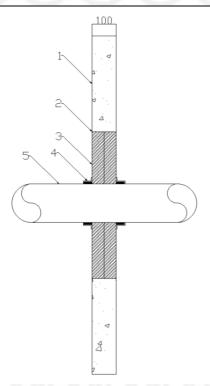


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Max Aperture 730mm Wide x 1200mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating



Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PE Pipe 32mm Ø, 2.9mm wall thickness	32mm	
PE Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PE Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PE Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PE Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PE Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PE Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	EI 120 U/C
PE Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PE Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PE Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PE Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PE Pipe 140mm Ø, 3.9-5.8mm wall thickness	140mm	
PE Pipe 160mm Ø, 4.9-9.5mm wall thickness	160mm	

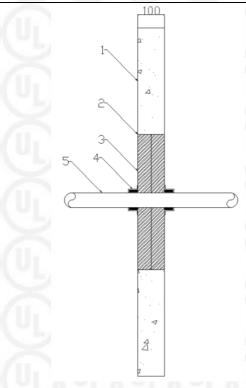


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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating



Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PE Pipe 32mm Ø, 2.9mm wall thickness	32mm	
PE Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PE Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PE Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PE Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PE Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PE Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	EI 60 U/C
PE Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PE Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PE Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PE Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PE Pipe 140mm Ø, 3.9-5.8mm wall thickness	140mm	
PE Pipe 160mm Ø, 4.9-9.5mm wall thickness	160mm	



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Double Layer Astro Batt and Coating 50mm, Insulated Plastic Pipes

Max Aperture 7 (Penetrations positioned as per option 1 or 2 below	30mm Wide x 1200mm Hig	
1 100 2 0 1		Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap 5. Insulation 6. Penetration Service
Service(s)	Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap Ref	Classification
PVC Pipe 40mm Ø, 1.9mm wall thickness. 25 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	3 x 2mm thickness	E 120 U/C
PVC Pipe 40mm Ø, 3mm wall thickness. 15 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	3 x 2mm thickness	EI 90 U/C
PVC Pipe 110mm Ø, 4.2mm wall thickness. 25 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	5 x 2mm thickness	EI 120 U/C
PVC Pipe 110mm Ø, 6.6mm wall thickness. 20 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	5 x 2mm thickness	E 120 U/C EI 90 U/C
PVC Pipe 40mm Ø, 1.9mm wall thickness. 32 mm thick Armacell Armaflex Class O ² (C/S)	3 x 2mm thickness	E 120 U/C
PVC Pipe 40mm Ø, 3mm wall thickness. 9 mm thick Armacell Armaflex Class O ² (C/S)	3 x 2mm thickness	EI 90 U/C
PVC Pipe 110mm Ø, 4.2mm wall thickness. 32 mm thick Armacell Armaflex Class O ² (C/S)	5 x 2mm thickness	EI 120 U/C
PVC Pipe 110mm Ø, 6.6mm wall thickness. 13 mm thick Armacell Armaflex Class O ² (C/S)	5 x 2mm thickness	E 120 U/C EI 90 U/C

¹Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap secured internally within both faces of the Astro Batt and Coating



 $^{^2}$ Or equivalent elastomeric pipe insulation classified BL – s2, d0 or better to EN 13501-1

³Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1

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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 100mm distance between services and 50mm to edge of seal)

		 Supporting construction Astro intu mastic Astro Batt and Coating Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap Insulation Penetration Service
Service(s)	Astro X Series CE Pipe	Classification
Scrvice(s)	Wrap UL/ Astro X Series CE Pipe Wrap Ref	
T)(nT)(nT)(nT)(nT)(nT)	Wrap UL/ Astro X Series CE Pipe Wrap)(UL)(UL)(UL)(UL)(UL)(UL)(UL)(UL)(UL)(UL
PVC Pipe 40mm Ø, 1.9mm wall thickness. 25 mm thick	Wrap UL/ Astro X Series CE Pipe Wrap Ref	EI 60 U/C
PVC Pipe 40mm Ø, 1.9mm wall thickness. 25 mm thick Kingspan Kooltherm FM insulation ³ (C/S) PVC Pipe 40mm Ø, 3mm wall thickness. 15 mm thick Kingspan Kooltherm FM ³ insulation (C/S) PVC Pipe 110mm Ø, 4.2mm wall thickness. 25 mm	Wrap UL/ Astro X Series CE Pipe Wrap Ref 3 x 2mm thickness)(UL)(UL)(UL)(VIII. VIII. VIII. V
PVC Pipe 40mm Ø, 1.9mm wall thickness. 25 mm thick Kingspan Kooltherm FM insulation ³ (C/S) PVC Pipe 40mm Ø, 3mm wall thickness. 15 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	Wrap UL/ Astro X Series CE Pipe Wrap Ref 3 x 2mm thickness	EI 60 U/C

PVC Pipe 40mm Ø, 1.9mm wall thickness. 32 mm thick

Armacell Armaflex Class O² (C/S)
PVC Pipe 40mm Ø, 3mm wall thickness. 9 mm thick

Armacell Armaflex Class O² (C/S)
PVC Pipe 110mm Ø, 4.2mm wall thickness. 32 mm

thick Armacell Armaflex Class O² (C/S)
PVC Pipe 110mm Ø, 6.6mm wall thickness. 13 mm

thick Armacell Armaflex Class O² (C/S)

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3 x 2mm thickness

3 x 2mm thickness

5 x 2mm thickness

5 x 2mm thickness



EI 60 U/C

EI 60 U/C

EI 60 U/C

¹Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap secured internally within both faces of the Astro Batt and Coating

²Or equivalent elastomeric pipe insulation classified BL − s2, d0 or better to EN 13501-1

³Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1

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Single Layer Patress, Astro Batt and Coating 50mm, Electrical Cables and Conduits

Max Aperture 750mm Wide x 1200mm	n High
	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
² Electrical cables upto 80mm Ø	
² Cable Trays and Ladders	
² 100 mm diameter bundle telecommunication cable type "F"	EI 120
² Unsheathed electrical cables up to 24mm Ø	27.120
² Steel or Copper Conduits up to 16mm Ø	
² Plastic conduits up to 16mm Ø	

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres



²Cables and cable trays wrapped with a single layer of 40mm thick, 40kg/m³ Stonewool (L/I 300mm)

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Max Aperture 2600mm Wide x 2600m	m High
	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
² Electrical cables upto 80mm Ø	
² Cable Trays and Ladders	
² 100 mm diameter bundle telecommunication cable type "F"	EI 60
² Unsheathed electrical cables up to 24mm Ø	E1 00
² Steel or Copper Conduits up to 16mm Ø	

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres



²Cables and cable trays wrapped with a single layer of 40mm thick, 40kg/m³ Stonewool (L/I 300mm)

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Single Layer Patress, Astro Batt and Coating 50mm, Insulated Metallic Pipes

Max Aperture 750mm Wide x 1200mm High	M OF M OF M OF M
	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap 5. Insulation 6. Penetration Service
Service(s)	Classification
² Steel or Copper Pipe 42-159mm Ø, 1.2mm – 14.2mm wall thickness. 13-25mm thick K Flex ST Insulation ³ (C/S)	E 120 C/U EI 60 C/U
² Steel or Copper Pipe 42-159mm Ø, 1.2 – 14.2mm wall thickness. 25mm thick K Flex ST insulation ³ (C/S)	E 120 C/U EI 90 C/U
Steel or Copper Pipe 42mm Ø, 1 – 14.2mm wall thickness. 25-13mm thick K Flex ST insulation ³ (C/S)	EI 120 C/U
² Steel or Copper Pipe 42-108mm Ø, 1.2 – 14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM insulation ⁴ (C/S)	E 120 C/U EI 90 C/U
² Steel or Copper Pipe 42mm Ø, 1–14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM insulation ⁴ (C/S)	EI 120 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.



²2 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the substrate within the patress installation

³Or equivalent elastomeric pipe insulation classified BL – s2, d0 or better to EN 13501-1

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Max Aperture 2600mm Wide x 2600mm High	YUNYUNYUNY
	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap 5. Insulation 6. Penetration Service
Service(s)	Classification
² Steel or Copper Pipe 42-159mm Ø, 1.2mm – 14.2mm wall thickness. 13-25mm thick K Flex ST ³ Insulation (C/S) ² Steel or Copper Pipe 42-159mm Ø, 1.2 – 14.2mm wall thickness. 25mm thick K Flex ST ³ insulation (C/S) ² Steel or Copper Pipe 42mm Ø, 1 – 14.2mm wall thickness. 25-13mm thick K Flex ST ³ insulation (C/S) ² Steel or Copper Pipe 42-108mm Ø, 1.2 – 14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM ⁴ insulation (C/S) ² Steel or Copper Pipe 42mm Ø, 1–14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM ⁴ insulation (C/S) ² Steel or Copper Pipe 42mm Ø, 1.2–14.2mm wall thickness. 50mm thick glassfibre	EI 60 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.



 $^{^2}$ 2 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the substrate within the patress installation

³Or equivalent elastomeric pipe insulation classified BL – s2, d0 or better to EN 13501-1

⁴Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1 Form-ULID-006104 (DCS:27-CP-F0855) 5.0

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Max Aperture 750mm Wide x 1200mm High	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness (see graph below). 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	E 120 C/U EI 90 C/U
teel or Copper Pipe 42mm Ø, 1mm – 14.2mm wall thickness. 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	EI 120 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

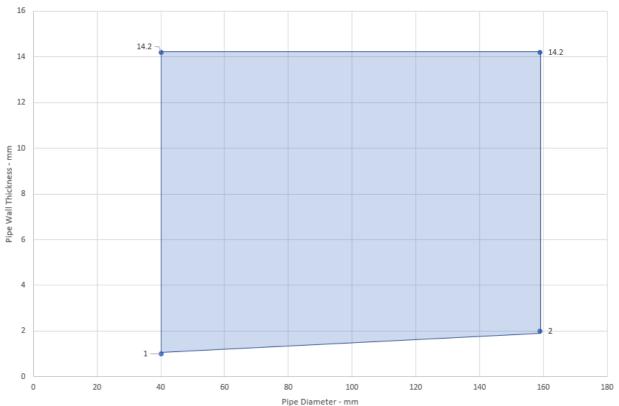


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Max Aperture 2600mm Wide x 2600mm High	
1 2 2	 Key Supporting construction Astro intu mastic Astro Batt and Coating Insulation Penetration Service
3 4	
Service(s)	Classification
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness (see graph below). 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	EI 60 C/U
Steel or Copper Pipe 42mm Ø, 1mm – 14.2mm wall thickness. 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	EI 60 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

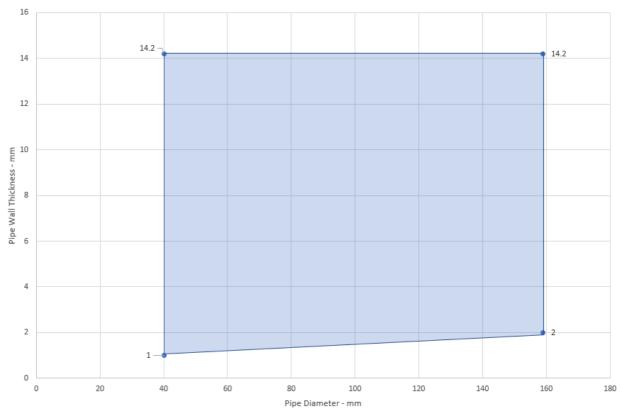
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Permitted Pipe Diameter vs Pipe Wall Thickness





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Single Layer Patress, Astro Batt and Coating 50mm, Plastic Pipes

	nm Wide x 1200mm High	
(Penetrations positioned as per option 1 or 2 below, 0	mm distance between services a	and 50mm to edge of seal)
100 2 d d d d d d d d d d d d d d d d d d d	Key	 Supporting constructio Astro intu mastic Astro Batt and Coating Astro X Series CE Pipe Collar Penetration Service
2d. 2d. 2d.		
Service(s)	Astro X Series CE Pipe Collar Ref	Classification
Service(s)	Astro X Series CE Pipe Collar Ref 32mm	Classification
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness	Pipe Collar Ref	Classification
Service(s)	Pipe Collar Ref 32mm	Classification
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness	Pipe Collar Ref 32mm 40mm	Classification
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm	Classification
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm	Մլ)(Մլ)(Մլ Մլ)(Մլ)(Մլ)
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm	Classification EI 120 U/C
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm	Մլ)(Մլ)(Մլ Մլ)(Մլ)(Մլ)
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm	Մլ)(Մլ)(Մլ Մլ)(Մլ)(Մլ)
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm	Մլ)(Մլ)(Մլ Մլ)(Մլ)(Մլ)
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness PVC Pipe 110mm Ø, 4.2-7.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm 110mm	Մլ)(Մլ)(Մլ Մլ)(Մլ)(Մլ)
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm	Մլ)(Մլ)(Մլ Մլ)(Մլ)(Մլ)

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating

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(Penetrations positioned as per option 1 or 2 below, 0	Ke	0 ,
		 Supporting construction Astro intu mastic Astro Batt and Coating Astro X Series CE Piper Collar Penetration Service
2 2 3.	$\overline{U_L}(\overline{U_L})(U_L$	
Service(s)	Astro X Series CE Pipe Collar Ref	Classification
Service(s) PVC Pipe 32mm Ø, 1.8mm wall thickness	Astro X Series CE Pipe Collar Ref 32mm	Classification
	Pipe Collar Ref	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness	Pipe Collar Ref 32mm	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness	Pipe Collar Ref 32mm 40mm	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm	Classification EI 60 U/C
PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm	
PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm	
PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm	
PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness PVC Pipe 110mm Ø, 4.2-7.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm 110mm	
PVC Pipe 32mm Ø, 1.8mm wall thickness PVC Pipe 40mm Ø, 1.8mm wall thickness PVC Pipe 50mm Ø, 1.8mm wall thickness PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness PVC Pipe 63mm Ø, 2.3-3mm wall thickness PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm	

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating



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Max Aperture 730mm Wide x 1200mm High (Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating Astro X Series CE Pipe Collar Penetration Service Service(s) Astro X Series CE Classification Pipe Collar Ref PP Pipe 32mm Ø, 2.9mm wall thickness 32mm PP Pipe 40mm Ø, 2.9mm wall thickness 40mm PP Pipe 50mm Ø, 2.9mm wall thickness 50mm PP Pipe 55mm Ø, 2.9-4.4mm wall thickness 55mm PP Pipe 63mm Ø, 2.9-4.4mm wall thickness 63mm PP Pipe 75mm Ø, 2.8-6.7mm wall thickness 75mm EI 120 U/C PP Pipe 82mm Ø, 2.8-6.7mm wall thickness 82mm PP Pipe 90mm Ø, 2.7-10mm wall thickness 90mm PP Pipe 100mm Ø, 2.7-10mm wall thickness 100mm

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

110mm

125mm

140mm

160mm

Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating

PP Pipe 110mm Ø, 2.7-10mm wall thickness

PP Pipe 125mm Ø, 3.1mm wall thickness

PP Pipe 140mm Ø, 3.5-8mm wall thickness

PP Pipe 160mm Ø, 4-14.6mm wall thickness



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	nm Wide x 2600mm High	
(Penetrations positioned as per option 1 or 2 below,	Omm distance between services a	and 50mm to edge of seal)
		1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro X Series CE Pipe Collar 5. Penetration Service
2.		
	Astro X Series CE Pipe Collar Ref	Classification
ਹੈ. ਹੈ. ਹ.		Classification
Service(s)	Pipe Collar Ref	Classification
Service(s) PP Pipe 32mm Ø, 2.9mm wall thickness	Pipe Collar Ref 32mm	Classification
Service(s) PP Pipe 32mm Ø, 2.9mm wall thickness PP Pipe 40mm Ø, 2.9mm wall thickness	Pipe Collar Ref 32mm 40mm	Classification
Service(s) PP Pipe 32mm Ø, 2.9mm wall thickness PP Pipe 40mm Ø, 2.9mm wall thickness PP Pipe 50mm Ø, 2.9mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm	Classification
Service(s) PP Pipe 32mm Ø, 2.9mm wall thickness PP Pipe 40mm Ø, 2.9mm wall thickness PP Pipe 50mm Ø, 2.9mm wall thickness PP Pipe 55mm Ø, 2.9-4.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm	n ^r)(n ^r)(n ^r)(n
Service(s) PP Pipe 32mm Ø, 2.9mm wall thickness PP Pipe 40mm Ø, 2.9mm wall thickness PP Pipe 50mm Ø, 2.9mm wall thickness PP Pipe 55mm Ø, 2.9-4.4mm wall thickness PP Pipe 63mm Ø, 2.9-4.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm	Classification EI 60 U/C
Service(s) PP Pipe 32mm Ø, 2.9mm wall thickness PP Pipe 40mm Ø, 2.9mm wall thickness PP Pipe 50mm Ø, 2.9mm wall thickness PP Pipe 55mm Ø, 2.9-4.4mm wall thickness PP Pipe 63mm Ø, 2.9-4.4mm wall thickness PP Pipe 75mm Ø, 2.8-6.7mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm	n ^r)(n ^r)(n ^r)(n
Service(s) PP Pipe 32mm Ø, 2.9mm wall thickness PP Pipe 40mm Ø, 2.9mm wall thickness PP Pipe 50mm Ø, 2.9mm wall thickness PP Pipe 55mm Ø, 2.9-4.4mm wall thickness PP Pipe 63mm Ø, 2.9-4.4mm wall thickness PP Pipe 75mm Ø, 2.8-6.7mm wall thickness PP Pipe 82mm Ø, 2.8-6.7mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm	n ^r)(n ^r)(n ^r)(n
Service(s) PP Pipe 32mm Ø, 2.9mm wall thickness PP Pipe 40mm Ø, 2.9mm wall thickness PP Pipe 50mm Ø, 2.9mm wall thickness PP Pipe 55mm Ø, 2.9-4.4mm wall thickness PP Pipe 63mm Ø, 2.9-4.4mm wall thickness PP Pipe 75mm Ø, 2.8-6.7mm wall thickness PP Pipe 82mm Ø, 2.8-6.7mm wall thickness PP Pipe 90mm Ø, 2.7-10mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm	n ^r)(n ^r)(n ^r)(n
Service(s) PP Pipe 32mm Ø, 2.9mm wall thickness PP Pipe 40mm Ø, 2.9mm wall thickness PP Pipe 50mm Ø, 2.9mm wall thickness PP Pipe 55mm Ø, 2.9-4.4mm wall thickness PP Pipe 63mm Ø, 2.9-4.4mm wall thickness PP Pipe 63mm Ø, 2.9-4.4mm wall thickness PP Pipe 75mm Ø, 2.8-6.7mm wall thickness PP Pipe 82mm Ø, 2.8-6.7mm wall thickness PP Pipe 90mm Ø, 2.7-10mm wall thickness PP Pipe 100mm Ø, 2.7-10mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm	n ^r)(n ^r)(n ^r)(n
Service(s) PP Pipe 32mm Ø, 2.9mm wall thickness PP Pipe 40mm Ø, 2.9mm wall thickness PP Pipe 50mm Ø, 2.9mm wall thickness PP Pipe 55mm Ø, 2.9-4.4mm wall thickness PP Pipe 63mm Ø, 2.9-4.4mm wall thickness PP Pipe 63mm Ø, 2.9-4.4mm wall thickness PP Pipe 75mm Ø, 2.8-6.7mm wall thickness PP Pipe 82mm Ø, 2.8-6.7mm wall thickness PP Pipe 90mm Ø, 2.7-10mm wall thickness PP Pipe 100mm Ø, 2.7-10mm wall thickness PP Pipe 110mm Ø, 2.7-10mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm 110mm	n ^r)(n ^r)(n ^r)(n

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating



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	m Wide x 1200mm High		
(Penetrations positioned as per option 1 or 2 below, 0	mm distance between service		.)
100 2 3 4		 Key Supporting construct Astro intu mastic Astro Batt and Coat Astro X Series CE In Collar Penetration Service 	ting Pipe
		(II) (II) (II)	
	Մ <u>լ</u>)(Մլ)(Մլ) Մլ)(Մլ)(Մլ)))
	Astro X Series CE	Classification	<u>)</u>
Service(s)	Pipe Collar Ref	Classification	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness	Pipe Collar Ref 32mm	Classification	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness	Pipe Collar Ref 32mm 40mm	Classification	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm	Classification	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm	Classification	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm	Classification	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm	Classification EI 120 U/C	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm		
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness PE Pipe 90mm Ø, 2.7-10mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm		
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness PE Pipe 90mm Ø, 2.7-10mm wall thickness PE Pipe 100mm Ø, 2.7-10mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm		
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness PE Pipe 90mm Ø, 2.7-10mm wall thickness PE Pipe 100mm Ø, 2.7-10mm wall thickness PE Pipe 110mm Ø, 2.7-10mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm		
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness PE Pipe 90mm Ø, 2.7-10mm wall thickness PE Pipe 100mm Ø, 2.7-10mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm		

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating



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75		
(Penetrations positioned as per option 1 or 2 below, 0	mini distance between service	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro X Series CE Pipe Collar 5. Penetration Service
	UL)(UL)(UL)	
N YEA YEA	Astro X Series CE Pipe Collar Ref	Classification
ੈ . ਕੈ.		Classification
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness	Pipe Collar Ref	Classification
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm	Classification
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm	Classification
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm	Classification
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm	Classification EI 60 U/C
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness PE Pipe 90mm Ø, 2.7-10mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness PE Pipe 90mm Ø, 2.7-10mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness PE Pipe 90mm Ø, 2.7-10mm wall thickness PE Pipe 100mm Ø, 2.7-10mm wall thickness PE Pipe 110mm Ø, 2.7-10mm wall thickness PE Pipe 125mm Ø, 3.1mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm	
Service(s) PE Pipe 32mm Ø, 2.9mm wall thickness PE Pipe 40mm Ø, 2.9mm wall thickness PE Pipe 50mm Ø, 2.9mm wall thickness PE Pipe 55mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 63mm Ø, 2.9-4.4mm wall thickness PE Pipe 75mm Ø, 2.8-6.7mm wall thickness PE Pipe 82mm Ø, 2.8-6.7mm wall thickness PE Pipe 90mm Ø, 2.7-10mm wall thickness PE Pipe 100mm Ø, 2.7-10mm wall thickness PE Pipe 110mm Ø, 2.7-10mm wall thickness	Pipe Collar Ref 32mm 40mm 50mm 55mm 63mm 75mm 82mm 90mm 100mm 110mm	

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

Collars secured both faces of the substrate utilsing 80mm long pig tail screw through to the Astro Batt and Coating

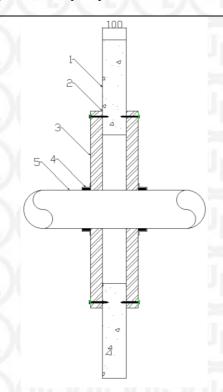
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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal)



Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Scope and Classifications as below

Intumescent Thickness			
Pipe Diameter	Intumescent Material		
ø 32 mm - ø 50 mm	40 mm (W) x 2 mm (T)		
ø 51 mm - ø 82 mm	40 mm (W) x 4 mm (T)		
ø 83 mm - ø 115 mm	40 mm (W) x 6 mm (T)		
ø 116 mm - ø 160 mm	40 mm (W) x 8 mm (T)		
ø 161 mm - ø 200 mm	40 mm (W) x 10 mm (T)		
ø 201 mm - ø 250 mm	40 mm (W) x 12 mm (T)		

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

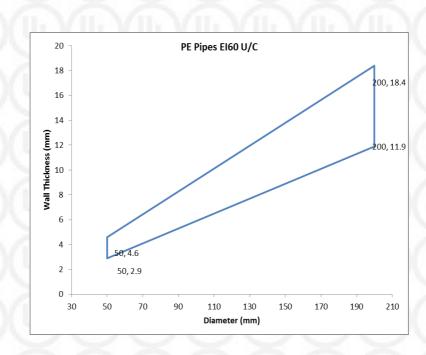
Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating

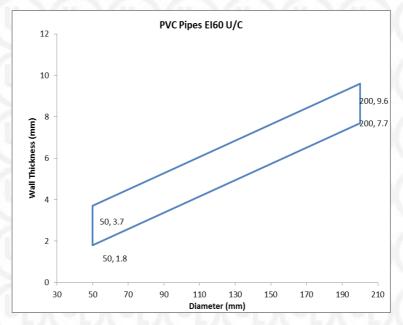


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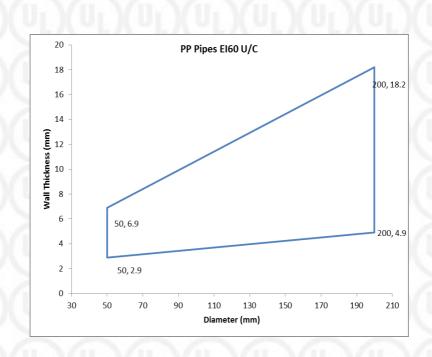




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Rigid Walls Minimum Thickness 150mm

Double Layer, Astro Batt and Coating 50mm, Electrical Cables

Max Aperture 750mm Wide x	1100mm High
150 2 4 2 4 4 4 4 4	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Penetration Service
Service(s)	Classification
Electrical cables up to 0-21mm Ø	E120 EI90
Cable Tray	EI 60



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Single Layer, Astro Batt and Coating 50mm, Electrical Cables

Max Aperture 750mm Wide x 1100mm High		
150 4 2 4 4 4 4 4 4	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service	
Service(s)	Classification	
¹ Electrical cables up to 80mm Ø	EI 60	
¹ Cable Trays and Ladders	EI 60	
¹ 100 mm diameter bundle telecommunication cable type "F"	EI 60	
¹ Unsheathed electrical cables up to 24mmØ	EI 60	

¹Cables and cable trays wrapped with a single layer of 6mm thick Astro Thermal Defense Wrap (L/I 300mm)



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Max Aperture 750mm Wide x 1100	mm High
150 A A A A A A A A A A A A A	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Penetration Specification	Classification
*500mm perforated cable tray	EI 30
*Electrical cables up to 21mm ø	
*1 off 'C1' Cable	EI 45
*1 off 'C2' Cable	E1 43
*1 off 'C3' Cable)(U ₁)(U ₁)(U ₁)(U ₁)(U ₁)(U ₁

^{*}All cables coated with 2mm DFT Astro PST Coating 300mm along the cables both sides of the seal



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Single Layer, Astro Batt and Coating 50mm, Insulated Metallic Pipes

Max Aperture 750mm Wide x 1100mm I	ligh
	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
¹ Steel or Copper Pipe 108mm Ø, 1.5mm − 14.2mm Wall Thickness. (C/S) 40mm stone wool insulation (min 140Kg/m³)	E60 C/U EI45 C/U
Steel or Copper Pipe 42mm Ø, 1.2mm – 14.2mm wall thickness. (L/I 300mm) 40mm stone wool insulation (min 40Kg/m³)	EI45 C/U
Steel or Copper Pipe 42mm – 159mm Ø, 2mm – 14.2mm wall thickness. (L/I 300mm) 40mm stone wool insulation (min 40Kg/m³)	E45 C/U EI20 C/U
Steel or Copper Pipe $42mm - 159mm \ \emptyset$, $2mm - 14.2mm$ wall thickness. (C/I) $40mm$ stone wool insulation (min $40Kg/m^3$)	E45 C/U EI30 C/U



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Single Layer, Astro Batt and Coating 50mm, Plastic Pipes

X X X X X X X X X X X X X X X X X X X	Key
150 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro HPE Sealant 5. Penetration Service
5 4	
4 	
Penetration Specification	Classification
Uponor MLC (Multi-Layer Composite) Pipe 40mm ø 4mm wall thickness	[)(U[)(U[)(U[)
Uponor MLC (Multi-Layer Composite) Pipe 50mm ø 4.5mm wall thickness	
Uponor MLC (Multi-Layer Composite) Pipe 63mm ø 6mm wall thickness	E 45 U/C
Uponor MLC (Multi-Layer Composite) Pipe 75mm ø 7.5mm wall thickness	EI 30 U/C
	[](U[)(U[)(U[)
Uponor MLC (Multi-Layer Composite) Pipe 90mm ø 8.5mm wall thickness	

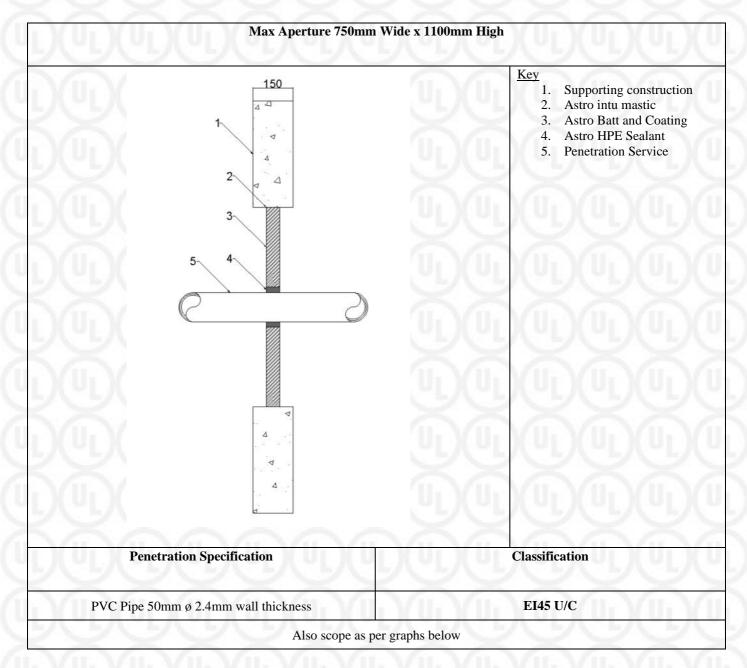
Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



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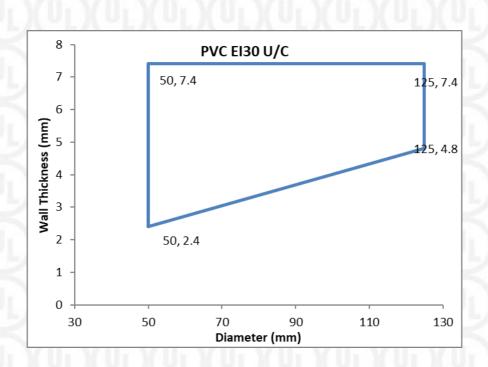


Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



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Double Layer, Astro Batt and Coating 50mm, Electrical Cables

Max Aperture 730mm Wide x 1200mm High		
150 1	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service	
Service(s)	Classification	
¹ Electrical cables up to 21mm dia	EI 120	
¹ Electrical cables 22mm – 80mm dia	E 120 EI 90	
¹ Cable Trays and Ladders	EI 120	
¹ 100 mm diameter bundle telecommunication cable type "F"	EI 120	
¹ Unsheathed electrical cables up to 24mm dia	EI 120	

¹Cables and cable trays wrapped with Stone Wool Insulation 45mm thick, 40Kg/m³ (L/I 200mm)



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Max Aperture 2600mm Wide x 2600mm High	
	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
¹ Electrical cables up to 21mm dia	VII. VII. VII. VII. VI
¹ Electrical cables 22mm – 80mm dia	M OF M OF M OF M OF M
¹ Cable Trays and Ladders	EI 60
¹ 100 mm diameter bundle telecommunication cable type "F"	
¹ Unsheathed electrical cables up to 24mm dia	vii. vii. vii. vii. v

 1 Cables and cable trays wrapped with Stone Wool Insulation 45mm thick, 40Kg/m^{3} (L/I 200mm)



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Max Aperture 750mm Wide x 1100mm	
	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro HPE Sealant 5. Astro PST Coating 6. Penetration Service
Penetration Specification	Classification
*500mm perforated cable tray	\times
*Electrical cables up to 21mm ø	EI120
*1 off 'C1' Cable	$\times \times \times \times \times \times$
*1 off 'C2' Cable	E120 EI90
*1 off 'C3' Cable	EI120

 $^{^*}$ All cables coated with 2mm DFT Astro PST Coating 300mm along the cables both sides of the seal Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



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Max Aperture 2600mm Wide x 2600mm High	
	Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro HPE Sealant 5. Astro PST Coating 6. Penetration Service
Penetration Specification	Classification
*500mm perforated cable tray	
*Electrical cables up to 21mm ø	
*1 off 'C1' Cable	EI 60
*1 off 'C2' Cable	
*1 off 'C3' Cable	

^{*}All cables coated with 2mm DFT Astro PST Coating 300mm along the cables both sides of the seal Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



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Double Layer, Astro Batt and Coating 50mm, Insulated Metallic Pipes

Max Aperture 730mm Wide x 1200mm High Service(s) Key 1. Supporting construction Astro intu mastic Astro Batt and Coating 4. Insulation Penetration Service 4 4 Classification **Penetration Specification** Steel or Copper Pipe 42mm Ø, 1.2mm – 14.2mm wall thickness. (L/I 300mm) 40mm E 120 C/U stone wool insulation (min 40Kg/m³) EI 60 C/U Steel or Copper Pipe 42mm – 159mm Ø, 2mm – 14.2mm wall thickness. (L/I E 120 C/U 300mm) 40mm stone wool insulation (min 40Kg/m³) EI 30 C/U



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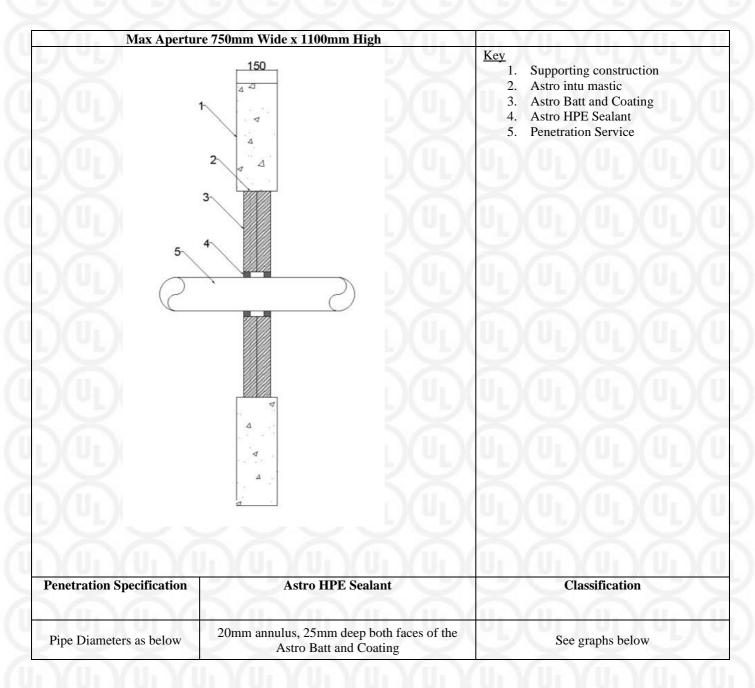
Max Aperture 2600mm Wide x 2600mm High	
Service(s)	<u>Key</u>
150	 Supporting construction Astro intu mastic Astro Batt and Coating Insulation Penetration Service
3	
. Д)(n ^r
Penetration Specification	Classification
teel or Copper Pipe 42mm Ø, 1.2mm – 14.2mm wall thickness. (L/I 300mm) 40mm stone wool insulation (min 40Kg/m³)	EI 60 C/U
Steel or Copper Pipe 42mm – 159mm Ø, 2mm – 14.2mm wall thickness. (L/I 300mm) 40mm stone wool insulation (min 40Kg/m³)	E 60 C/U EI 30 C/U



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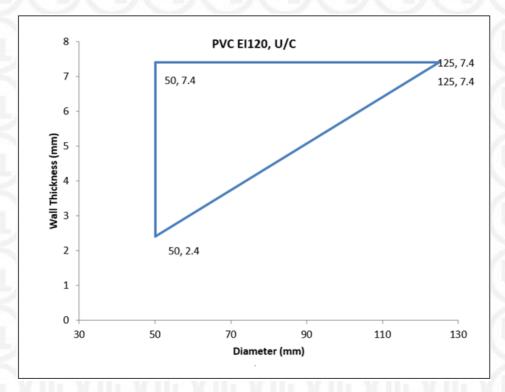


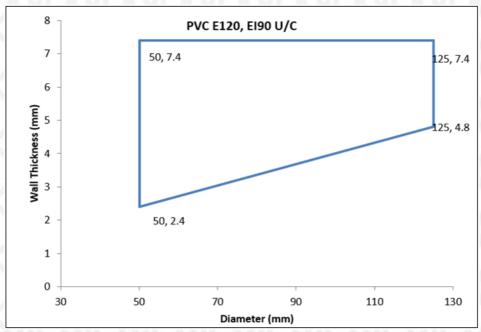


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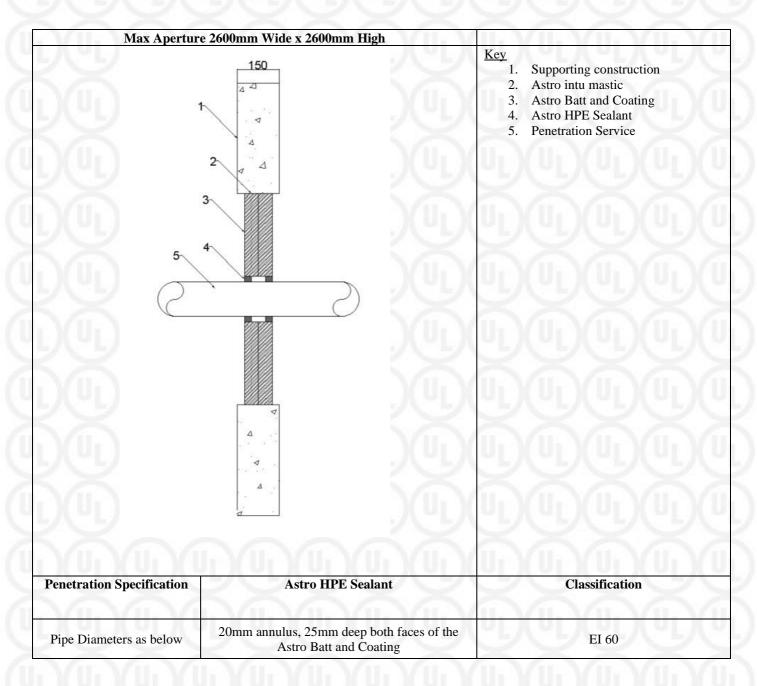




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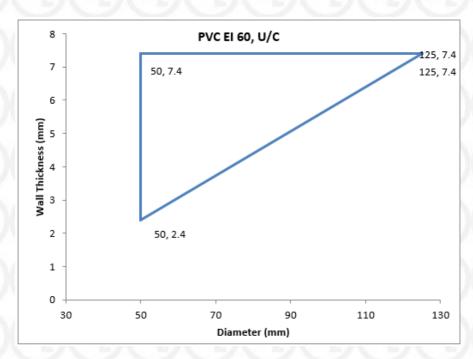
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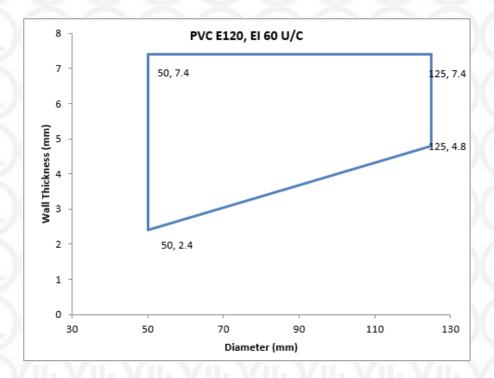




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A. V.	Vari
150 a 4 2 a 4	1. Supporting constructio 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro HPE Sealant 5. Penetration Service
Penetration Specification	Classification
An Mar Mar Mar Mar Mar Mar Mar	
Uponor MLC (Multi-Layer Composite) Pipe 40mm ø 4mm wall thickness	
Uponor MLC (Multi-Layer Composite) Pipe 50mm ø 4.5mm wall thickness	
Uponor MLC (Multi-Layer Composite) Pipe 63mm ø 6mm wall thickness	EI 120 U/C
Uponor MLC (Multi-Layer Composite) Pipe 75mm ø 7.5mm wall thickness	
Uponor MLC (Multi-Layer Composite) Pipe 90mm ø 8.5mm wall thickness	/(nr)(nr)(nr)

Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



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Max Aperture 2600mm Wide x 2600mm	n High
150 1 2 4 4 3 4 3 4 4 3 4 4 4 4 4 4 4 4 4 4 4	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro HPE Sealant 5. Penetration Service
5 4	
Penetration Specification	Classification
Uponor MLC (Multi-Layer Composite) Pipe 40mm ø 4mm wall thickness	
Uponor MLC (Multi-Layer Composite) Pipe 50mm ø 4.5mm wall thicknes	S
Uponor MLC (Multi-Layer Composite) Pipe 63mm ø 6mm wall thickness	EI 60 U/C
Uponor MLC (Multi-Layer Composite) Pipe 75mm ø 7.5mm wall thicknes	S
Uponor MLC (Multi-Layer Composite) Pipe 90mm ø 8.5mm wall thicknes	S
Uponor MLC (Multi-Layer Composite) Pipe 110mm ø 10mm wall thicknes	3S

Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



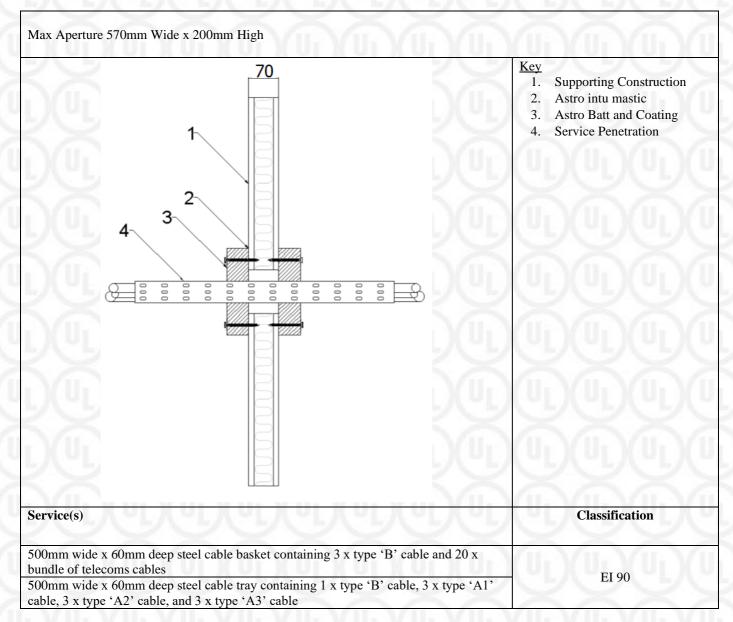
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Flexible Walls Minimum Thickness 70mm

Single Layer Pattress Astro Batt and Coating 50mm, Electrical Cables



¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed on all edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres



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Single Layer Pattress Astro Batt and Coating 50mm, Electrical Cables and Conduits

Max Aperture 570mm Wide x 200mm High	Key 1. Supporting Construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Service Penetration
Service(s)	Classification
20mm dia Adaptaflex SPL20 flexible conduit 20mm dia Kopex KSU 316 stainless steel flexible conduit	EI 90
150mm wide x 60mm deep steel cable tray containing 4 x FP200 Gold (Firealarm cable 7mm dia red) Cables	E 90 EI 60

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed on all edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres

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Flexible Walls Minimum Thickness 75mm

Single Layer Patress Astro Batt and Coating 50mm, Electrical Cables

VII. L			3	4 3
Service(s)	Classification	Classif		rvice(s)

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres



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Single Layer Patress Astro Batt and Coating 50mm, Electrical Cables and Conduits

Max Aperture 200mm Wide x 200mm High	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Penetration Service
Service(s)	Ciassification
20mm dia Adaptaflex SPL20 flexible conduit	VALVE VALVETV
20mm dia Kopex KSU 316 stainless steel flexible conduit	FLOC
50mm wide x 60mm deep steel cable tray	EI 90
4 x FP200 Gold (Firealarm cable 7mm dia red) Cables	E 90 EI 60

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres

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Flexible Walls Minimum Thickness 75mm

Single Layer Pattress Astro Batt and Coating 50mm, Electrical Cables and Cable Trunking

Max Aperture 70mm Wide x 70mm High	
75	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
50mm x 50mm Insulated steel cable trunking, Stone Wool 40mm thick, 45kg/m³ (LI 400mm). Astro X Series Pillow tightly fitted around the cables in the section of trunking within the depth of the partition.	EI 60 U/U
Cables 1xA1, 1xA2, 1xA3 Cables 1xA1 Cables 1xA2	EI 60

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres



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Single Layer Pattress Astro Batt and Coating 50mm, Electrical Cables and Cable Trunking

Max Aperture 170mm Wide x 170mm High	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
150mm x 150mm Insulated steel cable trunking, Stone Wool 40mm thick, 45kg/m³ (LI 400mm). Astro X Series Pillow tightly fitted around the cables in the section of trunking within the depth of the partition.	EI 60 U/U
Cables 1xB1, 1xC1, 1xG1, 1xG2 Cables 1xB1 Cables 1xC1 Unsheathed electrical cables 0-24mm dia	EI 60

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres

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Single Layer Astro Batt and Coating 50mm, Plastic Pipes

Max Aperture 600mm Wide x 600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating

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Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness	32mm	/ LIVER
PVC Pipe 40mm Ø, 1.8mm wall thickness	40mm	
PVC Pipe 50mm Ø, 1.8mm wall thickness	50mm	
PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness	55mm	
PVC Pipe 63mm Ø, 2.3-3mm wall thickness	63mm	
PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness	75mm	
PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness	82mm	EI 60 U/C
PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness	90mm	
PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness	100mm	
PVC Pipe 110mm Ø, 4.2-7.4mm wall thickness	110mm	
PVC Pipe 125mm Ø, 6mm wall thickness	125mm	
PVC Pipe 140mm Ø, 6.1-7.5mm wall thickness	140mm	

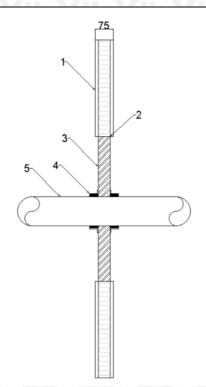


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Max Aperture 600mm Wide x 600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating



Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PE Pipe 32mm Ø, 2.9mm wall thickness	32mm	
PE Pipe 40mm Ø, 2.9mm wall thickness	40mm	EI 60 U/C
PE Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PE Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PE Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PE Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PE Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	
PE Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PE Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PE Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PE Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PE Pipe 140mm Ø, 3.9-5.8mm wall thickness	140mm	
PE Pipe 160mm Ø, 4.9-9.5mm wall thickness	160mm	

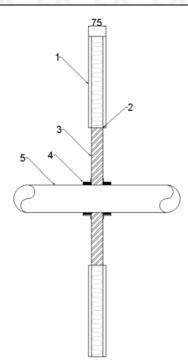


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Max Aperture 600mm Wide x 600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating



Key

- Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PP Pipe 32mm Ø, 2.9mm wall thickness	32mm	
PP Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PP Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PP Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	EI 60 U/C
PP Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PP Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PP Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	
PP Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PP Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PP Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PP Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PP Pipe 140mm Ø, 3.5-8mm wall thickness	140mm	
PP Pipe 160mm Ø, 4-14.6mm wall thickness	160mm	



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Flexible Walls Minimum Thickness 100mm

Double Layer Astro Batt and Coating 50mm, Electrical Cables and Conduits

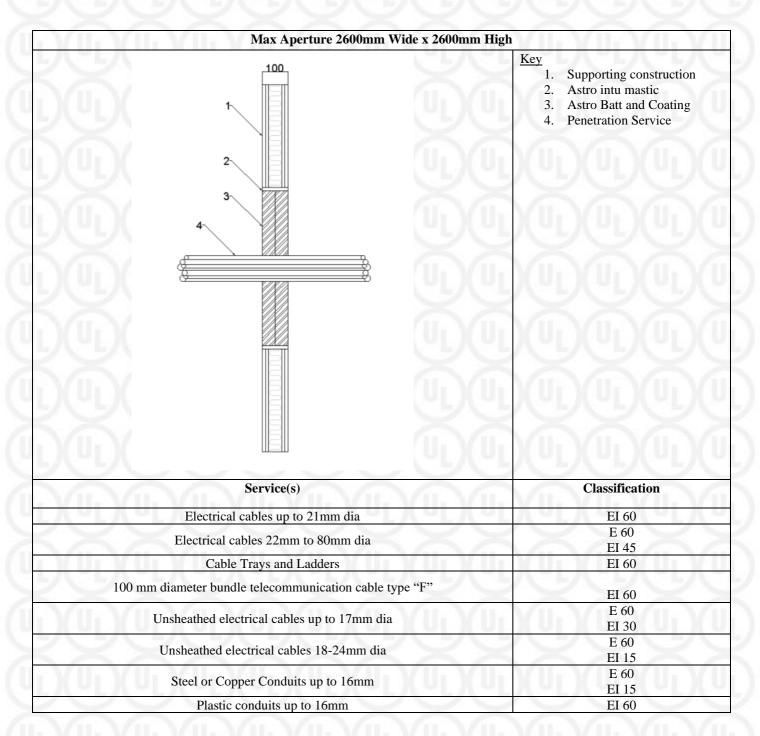
Max Aperture 2600mm Wide x 2600mm	n High
100 2 3 4 2 3 4 4 2 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Penetration Service
Service(s)	Classification
Electrical cables 0mm to 21mm dia	EI 60
Electrical cables 22mm to 50mm dia	E 60 EI 45
Electrical cables 51mm to 80mm dia	E 60 EI 30
Cable Trays and Ladders	E 60 EI 45
100 mm diameter bundle telecommunication cable type "F"	EI 60
Unsheathed electrical cables 0-24mm dia	II. WII. WII. WII. W
Steel or Copper Conduits up to 16mm	E 60 C/U
Plastic conduits up to 16mm	EI 60 C/U



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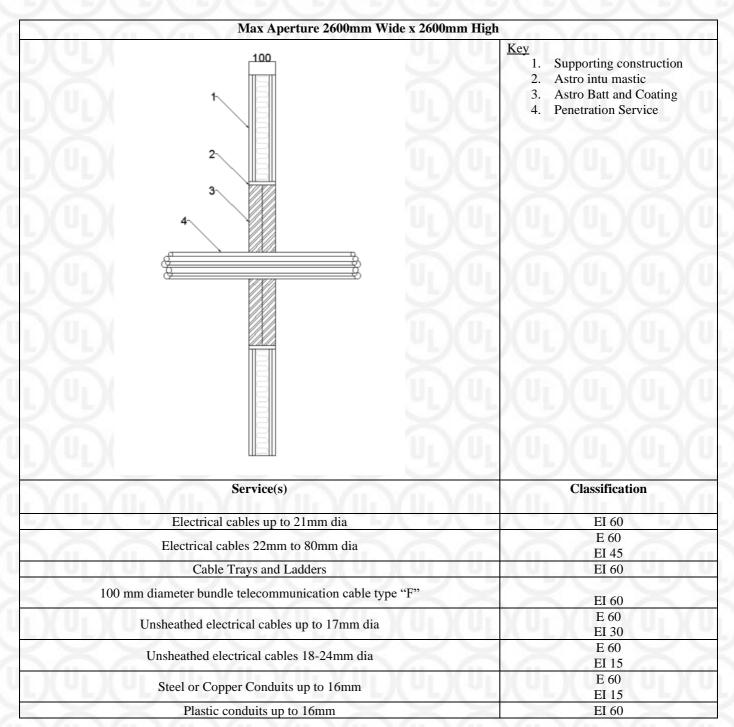




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Double Layer Astro Batt and Coating 50mm, Insulated Metallic Pipes

Max Aperture 730mm Wide x 1200mm High	
1 100	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Astro HPE Sealant 6. Penetration Service
Service(s) Single copper or mild steel pipe 40mm diameter and 1.5 – 14.2 mm wall with ustained/continuous 20mm thick foil faced glass wool insulation (min 80K g/m³)	Classification E 90 U/C
ustained/continuous 20mm thick foil faced glass wool insulation (min 80Kg/m ³)	EI 60 U/C

¹15mm deep x 15mm wide annulus Astro HPE Sealant to both faces of the pipe

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1.2m. 1.2p. 1.2m. 1.1d. A 2000mm Mg		LX ULX UL
Max Aperture 2600mm Wide x 2600mm Hig	Key 1. 2. 3. 4. 5. 6.	Supporting construction Astro intu mastic Astro Batt and Coating Astro HPE Sealant Insulation Penetration Service
Service(s)	A	Classification
¹ Single copper or mild steel pipe 40mm diameter and 1.5 – 14.2 mm wall with sustained/continuous 20mm thick foil faced glass wool insulation (min 80Kg/m³))(U	EI 60 U/C
Single copper or mild steel pipe 40-159mm diameter and 2.3 – 14.2 mm wall with		EI 60 U/C

¹15mm deep x 15mm wide annulus Astro HPE Sealant to both faces of the pipe



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Max Aperture 730mm Wide x 1200mm High	VII.VII.VII.V
	 Supporting construction Astro intu mastic Astro Batt and Coating Insulation Penetration Service
Service(s)	Classification
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness. 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	E 120 C/U EI 45 C/U
Steel or Copper Pipe 42mm Ø, 1mm – 14.2mm wall thickness. 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	E 120 C/U EI 60 C/U

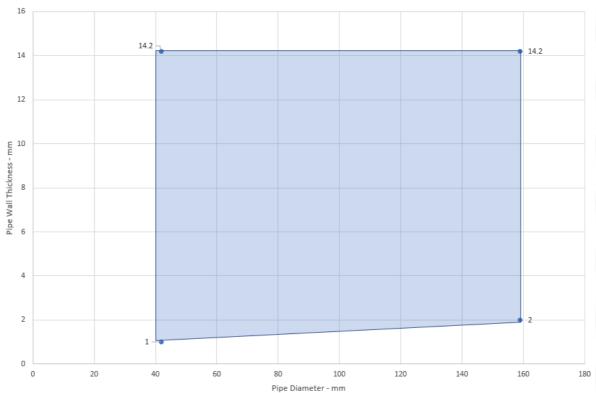


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Max Aperture 2600mm Wide x 2600mm Hig	h
	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Ciassification
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness. 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	E 60 C/U EI 45 C/U
Steel or Copper Pipe 42mm Ø, 1mm – 14.2mm wall thickness. 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	E 60 C/U EI 60 C/U

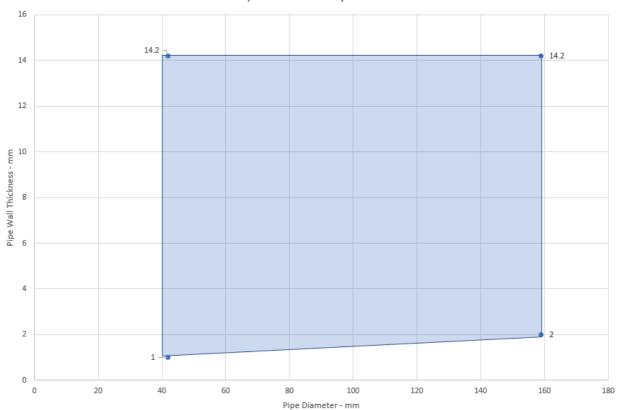


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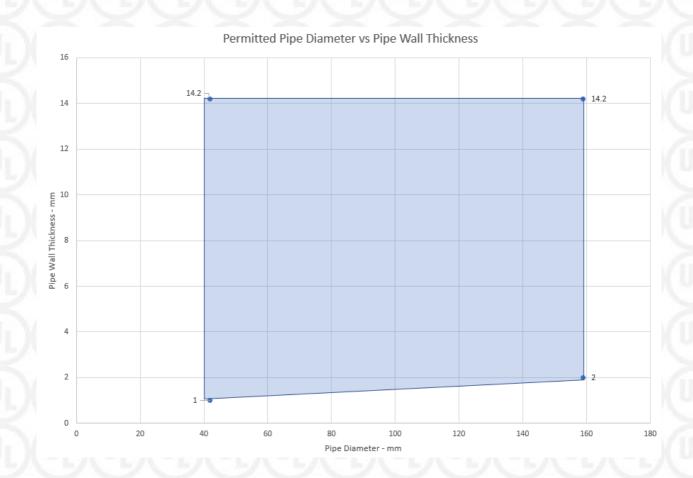
Max Aperture 730mm Wide x 1200mm I	
(Penetrations positioned as per option 1 or 2 below, 0mm distance between	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro PST Coating 5. Penetration Service
Service(s)	Classification
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness 40mm thick foil faced stonewool insulation min. 40kg/m³ (L/I 400mm)	EI 45 C/U
Steel 42-324mm Ø, 16mm wall thickness. 40mm thick foil faced stonewool insulation min. 40kg/m³ (L/I 400mm)	EI 45 C/U
Steel 42-324mm Ø, 16mm wall thickness. 40mm thick foil faced stonewool insulation min. 40kg/m³ (C/I)	EI 60 C/U
Steel or Copper Pipe 42mm Ø, 1.0mm – 14.2mm wall thickness Astro PST Coating along the penetration 2mm DFT (L/I 300mm)	E 120 C/U EI 45 C/U
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness Astro PST Coating along the penetration 2mm DFT (L/I 300mm)	E 120 C/U EI 20 C/U
Steel 42-324mm Ø, 16mm wall thickness. 14.2mm wall thickness Astro PST Coating along the penetration 2mm DFT (L/I 300mm)	E 120 C/U EI 45 C/U



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Max Aperture 2600mm Wide x 2600mm Hig	
(Penetrations positioned as per option 1 or 2 below, 0mm distance between se	
Service(s)	Classification
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness 40mm thick foil faced stonewool insulation min. 40kg/m³ (L/I 400mm)	EI 45 C/U
Steel 42-324mm Ø, 16mm wall thickness. 40mm thick foil faced stonewool insulation min. 40kg/m³ (L/I 400mm)	EI 45 C/U
Steel 42-324mm Ø, 16mm wall thickness. 40mm thick foil faced stonewool insulation min. 40kg/m³ (C/I)	EI 60 C/U
Steel or Copper Pipe 42mm Ø, 1.2mm – 14.2mm wall thickness Astro PST Coating along the penetration 2mm DFT (L/I 300mm)	E 60 C/U EI 45 C/U
Steel or Copper Pipe 42-159mm Ø, 1.0mm – 14.2mm wall thickness Astro PST Coating along the penetration 2mm DFT (L/I 300mm)	E 60 C/U EI 20 C/U
Steel 42-324mm Ø, 16mm wall thickness. 14.2mm wall thickness Astro PST	E 60 C/U

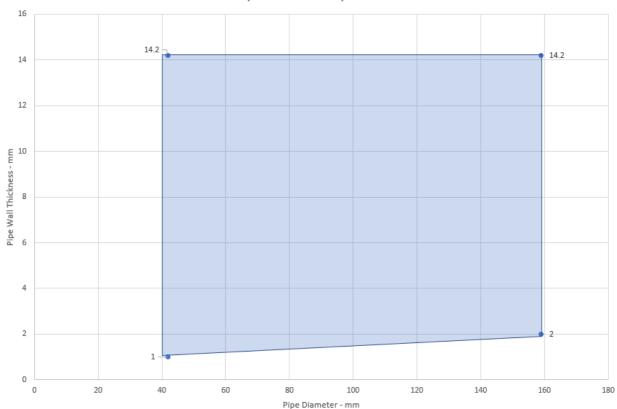


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Permitted Pipe Diameter vs Pipe Wall Thickness





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Max Aperture 730mm Wide x 1200mm Hig	h
	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap 6. Penetration Service
Service(s)	Classification
¹ Steel or Copper Pipe 42-159mm Ø, 1.2mm – 14.2mm wall thickness. 13-25mm thick K Flex ST ² Insulation (C/S)	E 120 C/U EI 60 C/U
¹Steel or Copper Pipe 42mm Ø, 1 − 14.2mm wall thickness. 25-13mm thick K Flex ST² insulation (C/S)	E 120 C/U EI 90 C/U
¹ Steel or Copper Pipe 42-108mm Ø, 1.2 – 14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM3 insulation (C/S)	E 120 C/U EI 60 C/U
¹Steel or Copper Pipe 42mm Ø, 1–14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM³ insulation (C/S)	E 120 C/U EI 90 C/U
¹ Steel or Copper Pipe 42mm Ø, 1.0–14.2mm wall thickness. 50mm thick glassfibre insulation (C/S)	E 120 C/U EI 90 C/U

¹2 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the Astro Batt and Coating



²Or equivalent elastomeric pipe insulation classified BL – s2, d0 or better to EN 13501-1

³Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1

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Max Aperture 2600mm Wide x 2600mm Hig	gh
	 Key Supporting construction Astro intu mastic Astro Batt and Coating Insulation Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap Penetration Service
Service(s)	Classification
¹ Steel or Copper Pipe 42-159mm Ø, 1.2mm – 14.2mm wall thickness. 13-25mm thick K Flex ST ² Insulation (C/S)	EI 60 C/U
¹ Steel or Copper Pipe 42mm Ø, 1 – 14.2mm wall thickness. 25-13mm thick K Flex ST ² insulation (C/S)	EI 60 C/U
¹ Steel or Copper Pipe 42-108mm Ø, 1.2 – 14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM ³ insulation (C/S)	EI 60 C/U
¹ Steel or Copper Pipe 42mm Ø, 1–14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM ³ insulation (C/S)	EI 60 C/U
¹ Steel or Copper Pipe 42mm Ø, 1.2–14.2mm wall thickness. 50mm thick glassfibre insulation (C/S)	EI 60 C/U

 $^{^{1}}$ 2 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the Astro Batt and Coating



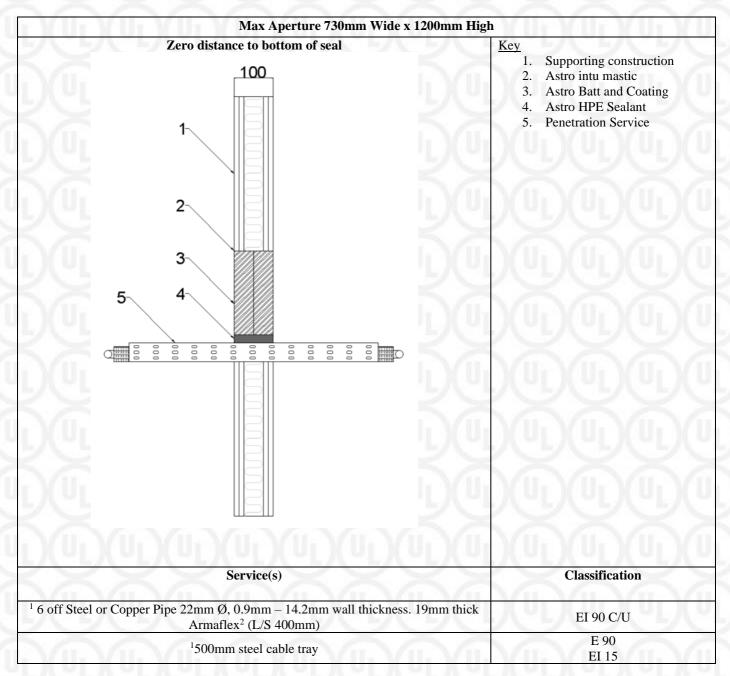
²Or equivalent elastomeric pipe insulation classified BL − s2, d0 or better to EN 13501-1

³Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1

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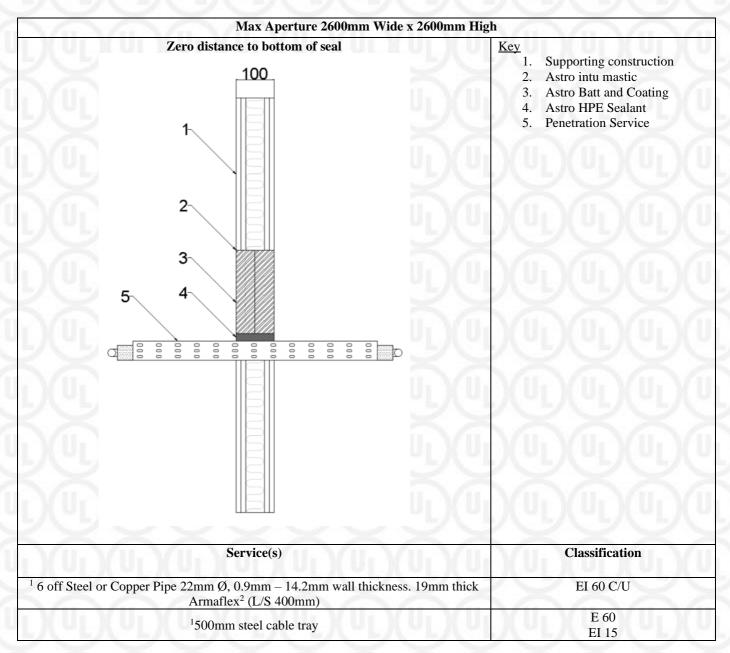
¹Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



²Or equivalent elastomeric pipe insulation classified BL – s2, d0 or better to EN 13501-1

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¹Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating

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²Or equivalent elastomeric pipe insulation classified BL – s2, d0 or better to EN 13501-1

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Double Layer Astro Batt and Coating 50mm, Plastic Pipes

Max Aperture 730mm Wide x 1200mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating

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Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness	32mm	EI 120 U/C
PVC Pipe 40mm Ø, 1.8mm wall thickness	40mm	
PVC Pipe 50mm Ø, 1.8mm wall thickness	50mm	
PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness	55mm	
PVC Pipe 63mm Ø, 2.3-3mm wall thickness	63mm	
PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness	75mm	
PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness	82mm	
PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness	90mm	
PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness	100mm	
PVC Pipe 110mm Ø, 4.2-7.4mm wall thickness	110mm	
PVC Pipe 125mm Ø, 6mm wall thickness	125mm	
PVC Pipe 140mm Ø, 6.1-7.5mm wall thickness	140mm	



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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating

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Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness	32mm	
PVC Pipe 40mm Ø, 1.8mm wall thickness	40mm	
PVC Pipe 50mm Ø, 1.8mm wall thickness	50mm	
PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness	55mm	
PVC Pipe 63mm Ø, 2.3-3mm wall thickness	63mm	
PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness	75mm	
PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness	82mm	EI 60 U/C
PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness	90mm	
PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness	100mm	
PVC Pipe 110mm Ø, 4.2-7.4mm wall thickness	110mm	
PVC Pipe 125mm Ø, 6mm wall thickness	125mm	
PVC Pipe 140mm Ø, 6.1-7.5mm wall thickness	140mm	
PVC Pipe 160mm Ø, 6.2-9.5mm wall thickness	160mm	



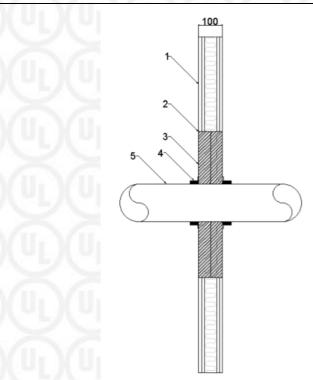
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Max Aperture 730mm Wide x 1200mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating



Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- . Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PP Pipe 32mm Ø, 2.9mm wall thickness	32mm	
PP Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PP Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PP Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PP Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PP Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PP Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	EI 120 U/C
PP Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PP Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PP Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PP Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PP Pipe 140mm Ø, 3.5-8mm wall thickness	140mm	
PP Pipe 160mm Ø, 4-14.6mm wall thickness	160mm	

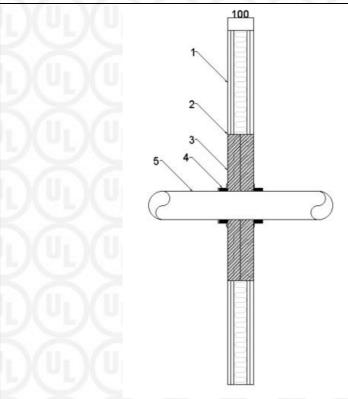


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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating



Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PP Pipe 32mm Ø, 2.9mm wall thickness	32mm	
PP Pipe 40mm Ø, 2.9mm wall thickness	40mm	EI 60 U/C
PP Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PP Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PP Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PP Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PP Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	
PP Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PP Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PP Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PP Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PP Pipe 140mm Ø, 3.5-8mm wall thickness	140mm	
PP Pipe 160mm Ø, 4-14.6mm wall thickness	160mm	

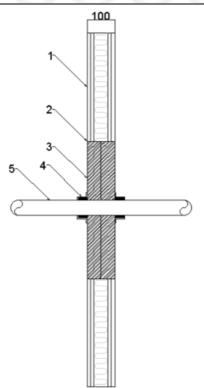


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Max Aperture 730mm Wide x 1200mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating



<u>Key</u>

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PE Pipe 32mm Ø, 2.9mm wall thickness	32mm	EI 120 U/C
PE Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PE Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PE Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PE Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PE Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PE Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	
PE Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PE Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PE Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PE Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PE Pipe 140mm Ø, 3.9-5.8mm wall thickness	140mm	
PE Pipe 160mm Ø. 4.9-9.5mm wall thickness	160mm	



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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Collars secured both faces of the substrate utilising 80mm long steel pig tail screw through to Astro Batt and Coating

100

Kev

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PE Pipe 32mm Ø, 2.9mm wall thickness	32mm	EI 60 U/C
PE Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PE Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PE Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PE Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PE Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PE Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	
PE Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PE Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PE Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PE Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PE Pipe 140mm Ø, 3.9-5.8mm wall thickness	140mm	
PE Pine 160mm Ø. 4.9-9.5mm wall thickness	160mm	



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Double Layer Astro Batt and Coating 50mm, Insulated Plastic Pipes

Max Aperture 73 (Penetrations positioned as per option 1 or 2 below	30mm Wide x 1200mm High , 100mm distance between se	
		Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap 5. Insulation 6. Penetration Service
Service(s)	Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap Ref	Classification
PVC Pipe 40mm Ø, 1.9mm wall thickness. 25 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	3 x 2mm thickness	E 120 U/C
PVC Pipe 40mm Ø, 3mm wall thickness. 15 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	3 x 2mm thickness	EI 90 U/C
PVC Pipe 110mm Ø, 4.2mm wall thickness. 25 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	5 x 2mm thickness	EI 120 U/C
PVC Pipe 110mm Ø, 6.6mm wall thickness. 20 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	5 x 2mm thickness	E 120 U/C EI 90 U/C
PVC Pipe 40mm Ø, 1.9mm wall thickness. 32 mm thick	3 x 2mm thickness	WULWULWULWU
Armacell Armaflex Class O ² (C/S)	\ h/\ h/\ l	EI 120 U/C
Armacell Armaflex Class O ² (C/S) PVC Pipe 40mm Ø, 3mm wall thickness. 9 mm thick Armacell Armaflex Class O ² (C/S)	3 x 2mm thickness	EI 120 U/C
	3 x 2mm thickness 5 x 2mm thickness	EI 120 U/C EI 120 U/C

¹Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap secured internally within both faces of the Astro Batt and Coating



²Or equivalent elastomeric pipe insulation classified BL – s2, d0 or better to EN 13501-1

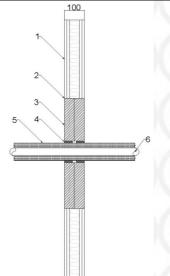
 $^{^3}Or$ equivalent Phenloic foam pipe insulation classified BL - s1, d0 or better to EN 13501-1 $_{\rm Form\text{-}ULID\text{-}006104}$ (DCS:27-CP-F0855) 5.0

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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 100mm distance between services and 50mm to edge of seal)



- <u>Key</u>
 - Supporting construction
 Astro intu mastic
 - 3. Astro Batt and Coating
 - 4. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap
 - 5. Insulation
 - 6. Penetration Service

Service(s)	Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap Ref	Classification
PVC Pipe 40mm Ø, 1.9mm wall thickness. 25 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	3 x 2mm thickness	
PVC Pipe 40mm Ø, 3mm wall thickness. 15 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	3 x 2mm thickness	EI 60 U/C
PVC Pipe 110mm Ø, 4.2mm wall thickness. 25 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	5 x 2mm thickness	EI 60 U/C
PVC Pipe 110mm Ø, 6.6mm wall thickness. 20 mm thick Kingspan Kooltherm FM ³ insulation (C/S)	5 x 2mm thickness	EI 60 U/C
PVC Pipe 40mm Ø, 1.9mm wall thickness. 32 mm thick Armacell Armaflex Class O ² (C/S)	3 x 2mm thickness	EI 60 U/C
PVC Pipe 40mm Ø, 3mm wall thickness. 9 mm thick Armacell Armaflex Class O ² (C/S)	3 x 2mm thickness	
PVC Pipe 110mm Ø, 4.2mm wall thickness. 32 mm thick Armacell Armaflex Class O ² (C/S)	5 x 2mm thickness	EI 60 U/C
PVC Pipe 110mm Ø, 6.6mm wall thickness. 13 mm thick Armacell Armaflex Class O ² (C/S)	5 x 2mm thickness	EI 60 U/C

¹Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap secured internally within both faces of the Astro Batt and Coating



 $^{^2}$ Or equivalent elastomeric pipe insulation classified BL – s2, d0 or better to EN 13501-1

³Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1

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Single Layer Patress, Astro Batt and Coating 50mm, Electrical Cables and Conduits

Max Aperture 730mm Wide x 1200mm	n High
3	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
² Electrical cables up to 80mm Ø	
² Cable Trays and Ladders	(U _L)(U _L)(U _L)(U _L)(U
² 100 mm diameter bundle telecommunication cable type "F"	XXXXX
² Unsheathed electrical cables up to 24mm Ø	EI 120
² Steel or Copper Conduits up to 16mm Ø	
² Plastic conduits up to 16mm Ø	'UI X(UI X(UI X(UI X(I

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres

²Cables and cable trays wrapped with a single layer of 40mm thick, 40kg/m³ Stonewool (L/I 300mm)



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Max Aperture 2600mm Wide x 2600mm	n High
	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
² Electrical cables upto 80mm Ø	
² Cable Trays and Ladders	(")(")(")(")("
² 100 mm diameter bundle telecommunication cable type "F"	\times
² Unsheathed electrical cables up to 24mm Ø	EI 60
² Steel or Copper Conduits up to 16mm Ø	$\times \times \times \times$
	11. VII. VII. VII.

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres

²Cables and cable trays wrapped with a single layer of 40mm thick, 40kg/m³ Stonewool (L/I 300mm)



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Single Layer Patress, Astro Batt and Coating 50mm, Insulated Metallic Pipes

orting construction intu mastic Batt and Coating X Series CE Pipe UL/ Astro X Series ipe Wrap attion ration Service
assification
E 120 C/U
EI 60 C/U
E 120 C/U
T OO CAT
EI 90 C/U
$LLV_{L}LV_{L}$
E 120 C/U
E 120 C/U EI 60 C/U
E 120 C/U EI 60 C/U E 120 C/U
E 120 C/U EI 60 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.



 $^{^2}$ 2 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the substrate within the patress installation

³Or equivalent elastomeric pipe insulation classified BL – s2, d0 or better to EN 13501-1

⁴Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1 Form-ULID-006104 (DCS:27-CP-F0855) 5.0

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Max Aperture 2600mm Wide x 2600mm High	VIII. VIII. VIII. VII
	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap 5. Insulation 6. Penetration Service
Service(s)	Classification
² Steel or Copper Pipe 42-159mm Ø, 1.2mm − 14.2mm wall thickness. 13-25mm thick K Flex ST ³ Insulation (C/S) ² Steel or Copper Pipe 42-159mm Ø, 1.2 − 14.2mm wall thickness. 25mm thick K Flex ST ³ insulation (C/S) ² Steel or Copper Pipe 42mm Ø, 1 − 14.2mm wall thickness. 25-13mm thick K Flex ST ³ insulation (C/S) ² Steel or Copper Pipe 42-108mm Ø, 1.2 − 14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM ⁴ insulation (C/S) ² Steel or Copper Pipe 42mm Ø, 1−14.2mm wall thickness. 25 -40mm thick Kingspan Kooltherm FM ⁴ insulation (C/S) ² Steel or Copper Pipe 42mm Ø, 1.2−14.2mm wall thickness. 50mm thick glassfibre insulation min. 30kg/m³ (C/S)	EI 60 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.



²2 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the substrate within the patress installation

³Or equivalent elastomeric pipe insulation classified BL − s2, d0 or better to EN 13501-1

⁴Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1

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Max Aperture 730mm Wide x 1200mm High	
Max Aperure / Sommi wide x 1200mm ing.	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
Steel or Copper Pipe 42-159mm Ø, 2mm – 14.2mm wall thickness. 25mm thick foil	E 120 C/U
faced glassfibre insulation min. 30kg/m³ (C/S)	EI 45 C/U E 120 C/U
Steel or Copper Pipe 42mm Ø, 1mm – 14.2mm wall thickness. 25mm thick foil faced glassfibre insulation min. 30kg/m^3 (C/S)	E 120 C/U EI 60 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.



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Max Aperture 2600mm Wide x 2600mm Hig	
Saming(s)	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Insulation 5. Penetration Service
Service(s)	Classification
Steel or Copper Pipe 42-159mm Ø, 2mm – 14.2mm wall thickness. 25mm thick foil faced glassfibre insulation min. 30kg/m³ (C/S)	E 60 C/U EI 45 C/U
Steel or Copper Pipe 42mm Ø, 1mm – 14.2mm wall thickness. 25mm thick foil faced glassfibre insulation min. 30kg/m^3 (C/S)	E 60 C/U EI 60 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.



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Max Aperture 730mm Wide x 1200	mm High
30mm overlap patress installed flush to soffit	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro X Series CE Pipe Wrap Wrap 5. Insulation 6. Penetration Service
Service(s)	Classification
Steel or Copper Pipe 42mm Ø, 1.0mm – 14.2mm wall thickness. 50mm the Kingspan ³ (C/S 400mm)	hick EI 60 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 30mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres. No fixing is applied to the head flush to the soffit

(U)

 $^{^{2}}$ 2 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the substrate within the patress installation

³Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1

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Max Aperture 2600mm Wide x 2600mm Hi	gh
30mm overlap patress installed flush to soffit	Key 1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap 5. Insulation 6. Penetration Service
Service(s)	Classification
Steel or Copper Pipe 42mm Ø, 1.0mm – 14.2mm wall thickness. 50mm thick Kingspan ³ (C/S 400mm)	EI 60 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 30mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres. No fixing is applied to the head flush to the soffit

(III)

 $^{^2}$ 2 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the substrate within the patress installation

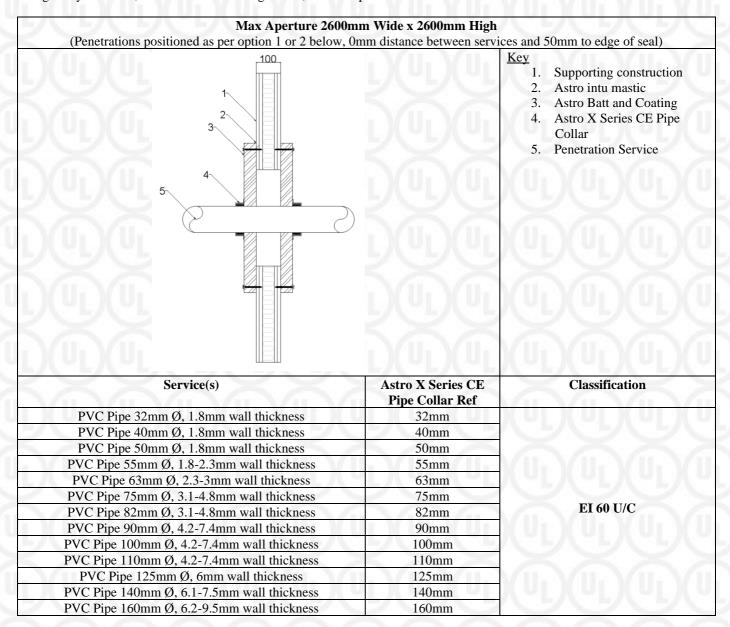
³Or equivalent Phenloic foam pipe insulation classified BL – s1, d0 or better to EN 13501-1

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Single Layer Patress, Astro Batt and Coating 50mm, Plastic Pipes



Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating ¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

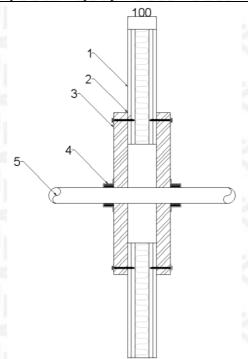


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Max Aperture 730mm Wide x 1200mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal)



- Key
 - 1. Supporting construction
 - 2. Astro intu mastic
 - 3. Astro Batt and Coating
 - 4. Astro X Series CE Pipe Collar
 - 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PVC Pipe 32mm Ø, 1.8mm wall thickness	32mm	EI 120 U/C
PVC Pipe 40mm Ø, 1.8mm wall thickness	40mm	
PVC Pipe 50mm Ø, 1.8mm wall thickness	50mm	
PVC Pipe 55mm Ø, 1.8-2.3mm wall thickness	55mm	
PVC Pipe 63mm Ø, 2.3-3mm wall thickness	63mm	
PVC Pipe 75mm Ø, 3.1-4.8mm wall thickness	75mm	
PVC Pipe 82mm Ø, 3.1-4.8mm wall thickness	82mm	
PVC Pipe 90mm Ø, 4.2-7.4mm wall thickness	90mm	
PVC Pipe 100mm Ø, 4.2-7.4mm wall thickness 100n	100mm	
PVC Pipe 110mm Ø, 4.2-7.4mm wall thickness	110mm	
PVC Pipe 125mm Ø, 6mm wall thickness	125mm	
PVC Pipe 140mm Ø, 6.1-7.5mm wall thickness	140mm	
PVC Pipe 160mm Ø, 6.2-9.5mm wall thickness	160mm	

Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating ¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.



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Max Aperture 730mm Wide x 1200mm High (Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Key Supporting construction Astro intu mastic Astro Batt and Coating Astro X Series CE Pipe Collar Penetration Service Astro X Series CE Classification Service(s) **Pipe Collar Ref** PP Pipe 32mm Ø, 2.9mm wall thickness 32mm PP Pipe 40mm Ø, 2.9mm wall thickness 40mm PP Pipe 50mm Ø, 2.9mm wall thickness 50mm PP Pipe 55mm Ø, 2.9-4.4mm wall thickness 55mm PP Pipe 63mm Ø, 2.9-4.4mm wall thickness 63mm PP Pipe 75mm Ø, 2.8-6.7mm wall thickness 75mm EI 120 U/C PP Pipe 82mm Ø, 2.8-6.7mm wall thickness 82mm PP Pipe 90mm Ø, 2.7-10mm wall thickness 90mm PP Pipe 100mm Ø, 2.7-10mm wall thickness 100mm PP Pipe 110mm Ø, 2.7-10mm wall thickness 110mm PP Pipe 125mm Ø, 3.1mm wall thickness 125mm PP Pipe 140mm Ø, 3.5-8mm wall thickness 140mm PP Pipe 160mm Ø, 4-14.6mm wall thickness 160mm

Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating ¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.



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Max Aperture 2600mm Wide x 2600mm High (Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Key Supporting construction Astro intu mastic Astro Batt and Coating Astro X Series CE Pipe Penetration Service Astro X Series CE Classification Service(s) Pipe Collar Ref PP Pipe 32mm Ø, 2.9mm wall thickness 32mm PP Pipe 40mm Ø, 2.9mm wall thickness 40mm PP Pipe 50mm Ø, 2.9mm wall thickness 50mm PP Pipe 55mm Ø, 2.9-4.4mm wall thickness 55mm PP Pipe 63mm Ø, 2.9-4.4mm wall thickness 63mm PP Pipe 75mm Ø, 2.8-6.7mm wall thickness 75mm EI 60 U/C PP Pipe 82mm Ø, 2.8-6.7mm wall thickness 82mm PP Pipe 90mm Ø, 2.7-10mm wall thickness 90mm PP Pipe 100mm Ø, 2.7-10mm wall thickness 100mm PP Pipe 110mm Ø, 2.7-10mm wall thickness 110mm PP Pipe 125mm Ø, 3.1mm wall thickness 125mm PP Pipe 140mm Ø, 3.5-8mm wall thickness 140mm PP Pipe 160mm Ø, 4-14.6mm wall thickness 160mm

Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating ¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.



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Max Aperture 730mm Wide x 1200mm High (Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal) Key Supporting construction Astro intu mastic Astro Batt and Coating Astro X Series CE Pipe Penetration Service Astro X Series CE Classification Service(s) **Pipe Collar Ref** PE Pipe 32mm Ø, 2.9mm wall thickness 32mm PE Pipe 40mm Ø, 2.9mm wall thickness 40mm PE Pipe 50mm Ø, 2.9mm wall thickness 50mm PE Pipe 55mm Ø, 2.9-4.4mm wall thickness 55mm PE Pipe 63mm Ø, 2.9-4.4mm wall thickness 63mm PE Pipe 75mm Ø, 2.8-6.7mm wall thickness 75mm EI 120 U/C PE Pipe 82mm Ø, 2.8-6.7mm wall thickness 82mm PE Pipe 90mm Ø, 2.7-10mm wall thickness 90mm PE Pipe 100mm Ø, 2.7-10mm wall thickness 100mm PE Pipe 110mm Ø, 2.7-10mm wall thickness 110mm 125mm PE Pipe 125mm Ø, 3.1mm wall thickness PE Pipe 140mm Ø, 3.9-5.8mm wall thickness 140mm PE Pipe 160mm Ø, 4.9-9.5mm wall thickness 160mm

Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating ¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

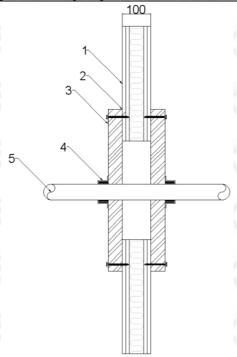


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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal)



Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Service(s)	Astro X Series CE Pipe Collar Ref	Classification
PE Pipe 32mm Ø, 2.9mm wall thickness	32mm	EI 60 U/C
PE Pipe 40mm Ø, 2.9mm wall thickness	40mm	
PE Pipe 50mm Ø, 2.9mm wall thickness	50mm	
PE Pipe 55mm Ø, 2.9-4.4mm wall thickness	55mm	
PE Pipe 63mm Ø, 2.9-4.4mm wall thickness	63mm	
PE Pipe 75mm Ø, 2.8-6.7mm wall thickness	75mm	
PE Pipe 82mm Ø, 2.8-6.7mm wall thickness	82mm	
PE Pipe 90mm Ø, 2.7-10mm wall thickness	90mm	
PE Pipe 100mm Ø, 2.7-10mm wall thickness	100mm	
PE Pipe 110mm Ø, 2.7-10mm wall thickness	110mm	
PE Pipe 125mm Ø, 3.1mm wall thickness	125mm	
PE Pipe 140mm Ø, 3.9-5.8mm wall thickness	140mm	
PE Pipe 160mm Ø, 4.9-9.5mm wall thickness	160mm	

Collars secured both faces of the substrate utilising 80mm long pig tail screw through to the Astro Batt and Coating ¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.

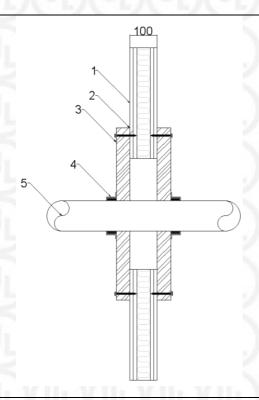


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Max Aperture 2600mm Wide x 2600mm High

(Penetrations positioned as per option 1 or 2 below, 0mm distance between services and 50mm to edge of seal)



Key

- 1. Supporting construction
- 2. Astro intu mastic
- 3. Astro Batt and Coating
- 4. Astro X Series CE Pipe Collar
- 5. Penetration Service

Scope and Classifications as below

Intumescent Thickness			
Pipe Diameter	Intumescent Material		
ø 32 mm - ø 50 mm	40 mm (W) x 2 mm (T)		
ø 51 mm - ø 82 mm	40 mm (W) x 4 mm (T)		
ø 83 mm - ø 115 mm	40 mm (W) x 6 mm (T)		
ø 116 mm - ø 160 mm	40 mm (W) x 8 mm (T)		
ø 161 mm - ø 200 mm	40 mm (W) x 10 mm (T)		
ø 201 mm - ø 250 mm	40 mm (W) x 12 mm (T)		

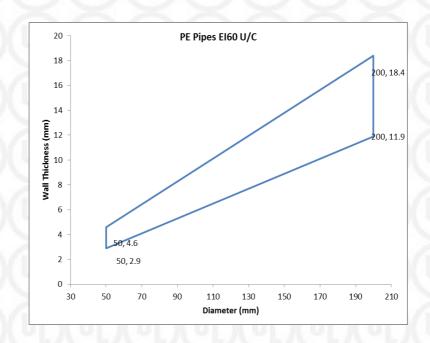
Wrap secured internally within both faces of the Astro Batt and Coating

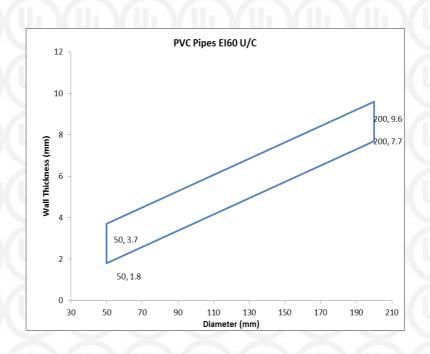
¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 100mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres.



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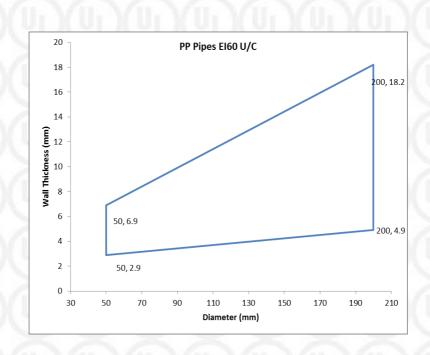






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Max Aperture 2600mm Wide x 2600mm High		
30mm overlap patress installed flush to soffit	Supporting construction	
Service(s)	Classification	
PVC Pipe 110mm Ø, 4.2mm wall thickness	EI 60 C/U	

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 30mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres. No fixing is applied to the head flush to the soffit ²4 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the substrate within the patress installation



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Max Aperture 2600mm Wide x 2600mm High	
30mm overlap patress installed flush to soffit	1. Supporting construction 2. Astro intu mastic 3. Astro Batt and Coating 4. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap 5. Penetration Service
Service(s)	Classification
PVC Pipe 110mm Ø, 4.2mm wall thickness	EI 60 C/U

¹Patress installation of Astro Batt and Coating. The Batts are installed in horizontal rows and fixed in minimum two vertical edges. Overlap of batts to substrate min 30mm. Batts mechanically fixed to substrate with min 6mm x 80mm steel screws and steel retaining washer. Fixings installed at max 300mm centres. No fixing is applied to the head flush to the soffit ²4 x 2mm thick layers of Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap installed both sides of the substrate within the patress installation



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Rigid Floors Minimum Thickness 150mm

Double Layer, Astro Batt and Coating 50mm, Electrical Cables

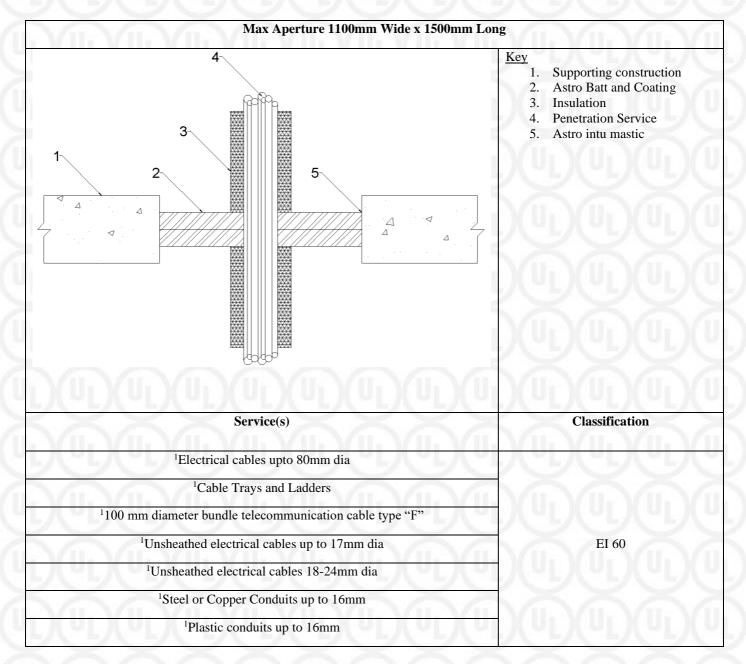
Max Aperture 1100mm Wide x 1500mm Long		
	1. Supporting construction 2. Astro Batt and Coating 3. Astro HPE Sealant 4. Astro PST Coating 5. Penetration Service 6. Astro intu mastic	
Penetration Specification	Classification	
*500mm perforated cable tray		
*Electrical cables up to 21mm ø		
*1 off 'C1' Cable	EI 60	
*1 off 'C2' Cable		
*1 off 'C3' Cable	V. P. C. P. P. C. P. P. C. P. P. C. P. C. P.	

^{*}All cables coated with 2mm DFT Astro PST Coating 300mm along the cables upper side of the seal Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating

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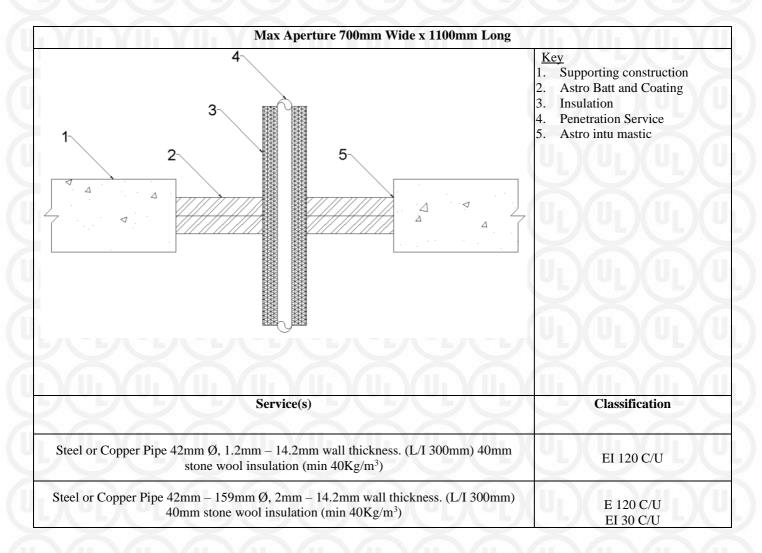


¹Cables and cable trays wrapped with a single layer of 40mm thick stonewool, min 40kg/m³ (L/I 300mm)

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Double Layer, Astro Batt and Coating 50mm, Insulated Metallic Pipes

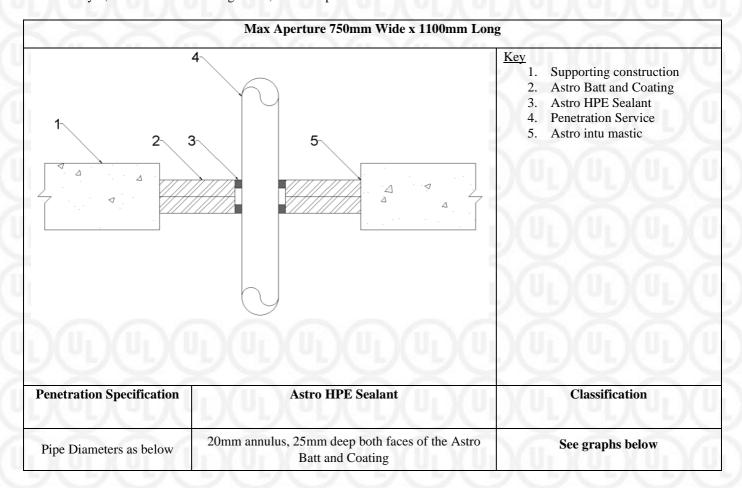
Max Aperture 1100mm Wide x 1500mm Long		
	Key 1. Supporting construction 2. Astro Batt and Coating 3. Insulation 4. Penetration Service 5. Astro intu mastic	
Service(s)	Classification	
Steel or Copper Pipe 42mm Ø, 1.2mm – 14.2mm wall thickness. (L/I 300mm) 40mm stone wool insulation (min 40Kg/m³)	E 90 C/U EI 60 C/U	
Steel or Copper Pipe 42mm – 159mm Ø, 2mm – 14.2mm wall thickness. (L/I 300mm) 40mm stone wool insulation (min 40Kg/m³)	E 90 C/U EI 30 C/U	



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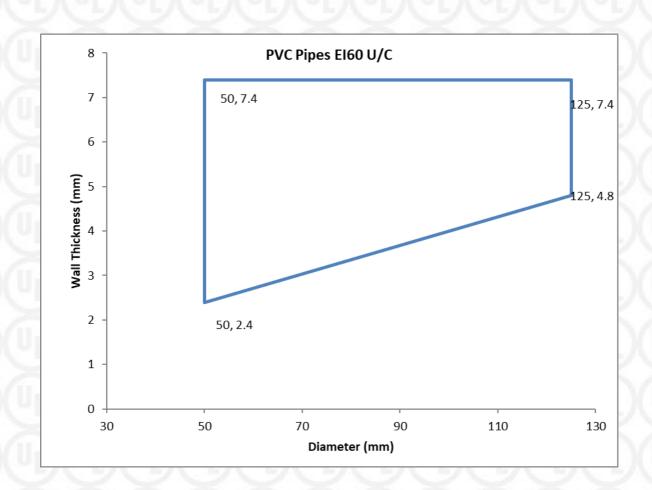
Double Layer, Astro Batt and Coating 50mm, Plastic Pipes





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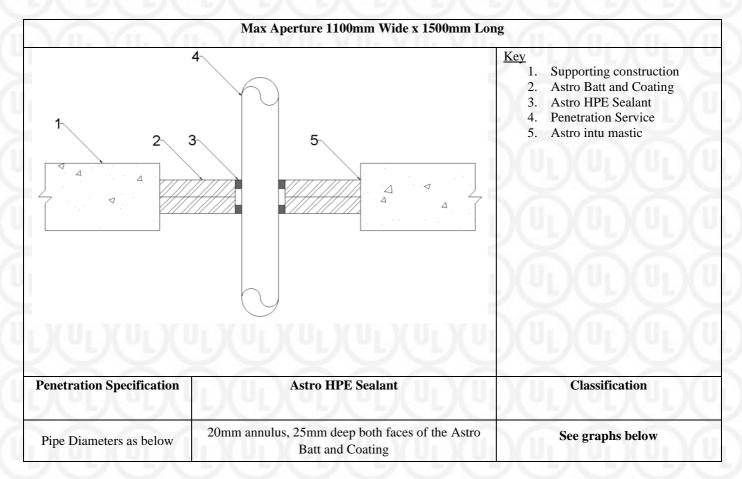
Max Aperture 750mm Wide x 1100mm Long Key 4-Supporting construction Astro Batt and Coating 3. Astro HPE Sealant 4. Penetration Service 5. Astro intu mastic 3-5 Penetration Specification Classification Uponor MLC (Multi-Layer Composite) Pipe 40mm ø 4mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 50mm ø 4.5mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 63mm ø 6mm wall thickness EI 60 U/C Uponor MLC (Multi-Layer Composite) Pipe 75mm ø 7.5mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 90mm ø 8.5mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 110mm ø 10mm wall thickness

Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating

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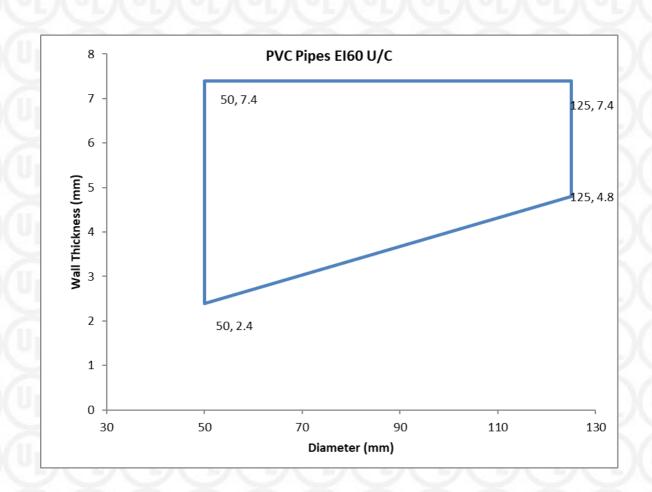
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Max Aperture 1100mm Wide x 1500mm Long Key Supporting construction Astro Batt and Coating 3. Astro HPE Sealant 4. Penetration Service 5. Astro intu mastic 3-5-Classification **Penetration Specification** Uponor MLC (Multi-Layer Composite) Pipe 40mm ø 4mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 50mm ø 4.5mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 63mm ø 6mm wall thickness EI 60 U/C Uponor MLC (Multi-Layer Composite) Pipe 75mm ø 7.5mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 90mm ø 8.5mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 110mm ø 10mm wall thickness

Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating

(III)

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Max Aperture 350mm Wide x 1000mm Long Key Supporting construction Astro Batt and Coating Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap Penetration Service Astro intu mastic Classification Astro X Series CE Pipe Service(s) Wrap UL/ Astro X Series CE Pipe Wrap Ref PVC Pipe up to 125mm Ø, 4.8-7.4mm wall thickness. 2mm thickness PP Pipe up to 40mm Ø, 3.1-17.1mm wall thickness. 2mm thickness EI 120 U/C PE Pipe up to 125mm Ø, 11.4mm wall thickness. 2mm thickness E 120 U/C 2mm thickness PE Pipe up to 125mm Ø, 3.1-11.4mm wall thickness.

EI 90 U/C

¹Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap secured internally within both faces of the Astro Batt and Coating

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Max Aperture 1100mm Wide x 1500mm Long Supporting construction Astro Batt and Coating Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap Penetration Service Astro intu mastic Classification Service(s) Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap Ref PVC Pipe up to 125mm Ø, 4.8-7.4mm wall thickness. 2mm thickness PP Pipe up to 40mm Ø, 3.1-17.1mm wall thickness. 2mm thickness EI 60 U/C PE Pipe up to 125mm Ø, 11.4mm wall thickness. 2mm thickness PE Pipe up to 125mm Ø, 3.1-11.4mm wall thickness. 2mm thickness

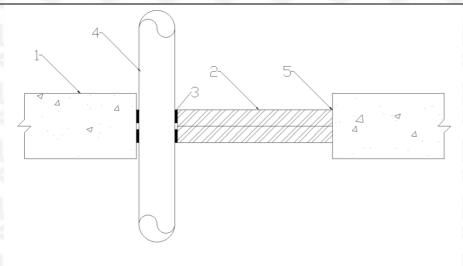
(III)

¹Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap secured internally within both faces of the Astro Batt and Coating

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Max Aperture 350mm Wide x 1000mm Long



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- 1. Supporting construction
- 2. Astro Batt and Coating
- 3. Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap
- 4. Penetration Service
- 5. Astro intu mastic

Service(s)	Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap Ref	Classification
PVC Pipe up to 125mm Ø, 4.8-7.4mm wall thickness.	2mm thickness	EI 120 U/C
PP Pipe up to 40mm Ø, 3.1-17.1mm wall thickness.	2mm thickness	
PE Pipe up to 125mm Ø, 11.4mm wall thickness.	2mm thickness	
PE Pipe up to 125mm Ø, 3.1-11.4mm wall thickness.	2mm thickness	E 120 U/C EI 90 U/C

¹Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap secured internally within both faces of the Astro Batt and Coating

(UL)

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Max Aperture 1100mm Wide x 1500mm Long 1. Supporting construction Astro Batt and Coating Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap Penetration Service Astro intu mastic **Astro X Series CE Pipe** Classification Service(s) Wrap UL/ Astro X Series CE Pipe Wrap Ref PVC Pipe up to 125mm Ø, 4.8-7.4mm wall thickness. 2mm thickness PP Pipe up to 40mm Ø, 3.1-17.1mm wall thickness. 2mm thickness EI 60 U/C PE Pipe up to 125mm Ø, 11.4mm wall thickness. 2mm thickness PE Pipe up to 125mm Ø, 3.1-11.4mm wall thickness. 2mm thickness

¹Astro X Series CE Pipe Wrap UL/ Astro X Series CE Pipe Wrap secured internally within both faces of the Astro Batt and Coating



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Max Aperture 350mm Wide x 1000mm Long Key Supporting construction 1. Penetration Service 2. Astro Batt and Coating Astro intu mastic Astro X Series CE Pipe Collar **Penetration Specification Astro X Series CE Pipe Collars** Classification Pipe Diameters as below. Fixed to the underside of the Astro Batt and Coating EI 120 U/C Zero Distance utilising steel pig tail fixings

Penetration Specification	Collar Reference	Intumescent Material
PVC Pipe 32mm Ø 1.8mm wall thickness	32mm Astro X Series CE Pipe Collar	1/01/01/0
PVC Pipe 40mm Ø 1.8mm wall thickness	40mm Astro X Series CE Pipe Collar	30mm (W) x 4mm (T)
PVC Pipe 50mm Ø 1.8mm wall thickness	50mm Astro X Series CE Pipe Collar	シヘット
PVC Pipe 55mm Ø 2.3-2.8mm wall thickness	55mm Astro X Series CE Pipe Collar	30mm (W) x 6mm (T)
PVC Pipe 63mm Ø 2.3-2.8mm wall thickness	63mm Astro X Series CE Pipe Collar	L-Mill-Mill-Mill
PVC Pipe 75mm Ø 3.1-4.4mm wall thickness	75mm Astro X Series CE Pipe Collar	30mm (W) x 8mm (T)
PVC Pipe 82mm Ø 3.1-4.4mm wall thickness	82mm Astro X Series CE Pipe Collar	
PVC Pipe 90mm Ø 4.2-6.6mm wall thickness	90mm Astro X Series CE Pipe Collar	30mm (W) x 10mm (T)
PVC Pipe 100mm Ø 4.2-6.6mm wall thickness	100mm Astro X Series CE Pipe Collar	L K UL K UL K U
PVC Pipe 110mm Ø 4.2-6.6mm wall thickness	110mm Astro X Series CE Pipe Collar	
PVC Pipe 125mm Ø 6.0mm wall thickness	125mm Astro X Series CE Pipe Collar	40mm (W) x 12mm (T)
PVC Pipe 140mm Ø 6.1-7.5mm wall thickness	140mm Astro X Series CE Pipe Collar	11 X U 1 X U 1 X U
PVC Pipe 160mm Ø 6.2-9.5mm wall thickness	160mm Astro X Series CE Pipe Collar	シヘシヘシ



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Penetration Specification	Collar Reference	Intumescent Material	
PP Pipe 32mm Ø 2.9mm wall thickness	32mm Astro X Series CE Pipe Collar		
PP Pipe 40mm Ø 2.9mm wall thickness	40mm Astro X Series CE Pipe Collar	30mm (W) x 4mm (T)	
PP Pipe 50mm Ø 2.9mm wall thickness	50mm Astro X Series CE Pipe Collar	1 1 1 U 1 1 U 1 1 U 1 1 Y	
PP Pipe 55mm Ø 2.9-4.4mm wall thickness	55mm Astro X Series CE Pipe Collar	30mm (W) x 6mm (T)	
PP Pipe 63mm Ø 2.9-4.4mm wall thickness	63mm Astro X Series CE Pipe Collar		
PP Pipe 75mm Ø 2.8-6.7mm wall thickness	75mm Astro X Series CE Pipe Collar	30mm (W) x 8mm (T)	
PP Pipe 82mm Ø 2.8-6.7mm wall thickness	82mm Astro X Series CE Pipe Collar	し人でレバでレバ	
PP Pipe 90mm Ø 2.7-10.0mm wall thickness	90mm Astro X Series CE Pipe Collar	30mm (W) x 10mm (T)	
PP Pipe 100mm Ø 2.7-10.0mm wall thickness	100mm Astro X Series CE Pipe Collar	N/0 N/0 N/	
PP Pipe 110mm Ø 2.7-10.0mm wall thickness	110mm Astro X Series CE Pipe Collar		
PP Pipe 125mm Ø 3.1mm wall thickness	125mm Astro X Series CE Pipe Collar	40mm (W) x 12mm (T)	
PP Pipe 140mm Ø 3.5-8.0mm wall thickness	140mm Astro X Series CE Pipe Collar		
PP Pipe 160mm Ø 4.0-14.6mm wall thickness	160mm Astro X Series CE Pipe Collar	T W U T W U T W	

Penetration Specification	Collar Reference	Intumescent Material	
PE Pipe 32mm Ø 2.9mm wall thickness	32mm Astro X Series CE Pipe Collar	ソファン	
PE Pipe 40mm Ø 2.9mm wall thickness	40mm Astro X Series CE Pipe Collar	30mm (W) x 4mm (T)	
PE Pipe 50mm Ø 2.9mm wall thickness	50mm Astro X Series CE Pipe Collar	- VIII- VIII- VIII	
PE Pipe 55mm Ø 2.9-4.4mm wall thickness	55mm Astro X Series CE Pipe Collar	30mm (W) x 6mm (T)	
PE Pipe 63mm Ø 2.9-4.4mm wall thickness	63mm Astro X Series CE Pipe Collar	< $>$ $>$	
PE Pipe 75mm Ø 2.8-6.7mm wall thickness	75mm Astro X Series CE Pipe Collar	30mm (W) x 8mm (T)	
PE Pipe 82mm Ø 2.8-6.7mm wall thickness	82mm Astro X Series CE Pipe Collar	L/(UL/(UL/(U	
PE Pipe 90mm Ø 2.7-10.0mm wall thickness	90mm Astro X Series CE Pipe Collar	30mm (W) x 10mm (T)	
PE Pipe 100mm Ø 2.7-10.0mm wall thickness	100mm Astro X Series CE Pipe Collar	100 100 100	
PE Pipe 110mm Ø 2.7-10.0mm wall thickness	110mm Astro X Series CE Pipe Collar	1 1 U 1 1 U 1 1 U 1	
PE Pipe 125mm Ø 3.1mm wall thickness	125mm Astro X Series CE Pipe Collar	40mm (W) x 12mm (T)	
PE Pipe 140mm Ø 3.9-5.8mm wall thickness	140mm Astro X Series CE Pipe Collar		
PE Pipe 160mm Ø 4.9-9.5mm wall thickness	160mm Astro X Series CE Pipe Collar	- VIII. VIII. VIII	



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Double Layer, Astro Batt and Coating 50mm, Patress Installed Electrical Cables

Max Aperture 1000mm Wide x 1300mm	Long
	1. Supporting construction 2. Astro Batt and Coating 3. Astro HPE Sealant 4. Astro PST Coating 5. Penetration Service 6. Astro intu mastic
	\times
Penetration Specification	Classification
Penetration Specification *500mm perforated cable tray	Classification
*500mm perforated cable tray	Classification EI 60
*500mm perforated cable tray *Electrical cables up to 21mm ø	

^{*}All cables coated with 2mm DFT Astro PST Coating 300mm along the cables upper side of the seal Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



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Max Aperture 1000mm Wide x 1300mm Lo	ng
	 Supporting construction Astro Batt and Coating Insulation Penetration Service Astro intu mastic
Service(s)	Classification
¹ Electrical cables upto 80mm dia)(U _L)(U _L)(U _L)(U
¹ Cable Trays and Ladders	
¹ 100 mm diameter bundle telecommunication cable type "F"	$(U_L)(U_L)(U_L)(U_L)(U_L)$
¹ Unsheathed electrical cables up to 17mm dia	EI 60
¹ Unsheathed electrical cables 18-24mm dia	(U_{L})
¹ Steel or Copper Conduits up to 16mm	
¹ Plastic conduits up to 16mm	Yu Yu Yu Yu Yu

¹Cables and cable trays wrapped with a single layer of 40mm thick stonewool, min 40kg/m³ (L/I 300mm)



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Double Layer, Astro Batt and Coating 50mm, Pattress Installed Insulated Metallic Pipes

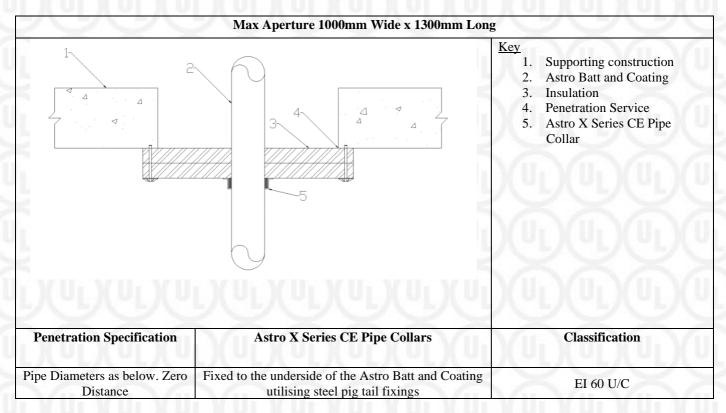
Max Aperture 1000mm Wide x 1300mm Lo	ng
	1. Supporting construction 2. Astro Batt and Coating 3. Insulation 4. Penetration Service 5. Astro intu mastic
Service(s)	Classification
Steel or Copper Pipe 42mm Ø, 1.2mm – 14.2mm wall thickness. (L/I 300mm) 40mm stone wool insulation (min 40Kg/m³)	EI 60 C/U
Steel or Copper Pipe 42mm – 159mm Ø, 2mm – 14.2mm wall thickness. (L/I 300mm) 40mm stone wool insulation (min 40Kg/m³)	E 60 C/U EI 30 C/U



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Double Layer, Astro Batt and Coating 50mm, Pattress Installed Plastic Pipes



Penetration Specification	Collar Reference	Intumescent Material	
PVC Pipe 32mm Ø 1.8mm wall thickness	32mm Astro X Series CE Pipe Collar	AZILAZILA	
PVC Pipe 40mm Ø 1.8mm wall thickness	40mm Astro X Series CE Pipe Collar	30mm (W) x 4mm (T)	
PVC Pipe 50mm Ø 1.8mm wall thickness	50mm Astro X Series CE Pipe Collar		
PVC Pipe 55mm Ø 2.3-2.8mm wall thickness	55mm Astro X Series CE Pipe Collar	30mm (W) x 6mm (T)	
PVC Pipe 63mm Ø 2.3-2.8mm wall thickness	63mm Astro X Series CE Pipe Collar	I X U X U I	
PVC Pipe 75mm Ø 3.1-4.4mm wall thickness	75mm Astro X Series CE Pipe Collar	30mm (W) x 8mm (T)	
PVC Pipe 82mm Ø 3.1-4.4mm wall thickness	82mm Astro X Series CE Pipe Collar		
PVC Pipe 90mm Ø 4.2-6.6mm wall thickness	90mm Astro X Series CE Pipe Collar	30mm (W) x 10mm (T)	
PVC Pipe 100mm Ø 4.2-6.6mm wall thickness	100mm Astro X Series CE Pipe Collar	レハーレハーレ	
PVC Pipe 110mm Ø 4.2-6.6mm wall thickness	110mm Astro X Series CE Pipe Collar	$< \times < \times$	
PVC Pipe 125mm Ø 6.0mm wall thickness	125mm Astro X Series CE Pipe Collar	40mm (W) x 12mm (T)	
PVC Pipe 140mm Ø 6.1-7.5mm wall thickness	140mm Astro X Series CE Pipe Collar	しパペレパペレル	
PVC Pipe 160mm Ø 6.2-9.5mm wall thickness	160mm Astro X Series CE Pipe Collar		



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Penetration Specification	Collar Reference	Intumescent Material	
PP Pipe 32mm Ø 2.9mm wall thickness	32mm Astro X Series CE Pipe Collar		
PP Pipe 40mm Ø 2.9mm wall thickness	40mm Astro X Series CE Pipe Collar	30mm (W) x 4mm (T)	
PP Pipe 50mm Ø 2.9mm wall thickness	50mm Astro X Series CE Pipe Collar	L ハ ロ L ハ ロ L ハ	
PP Pipe 55mm Ø 2.9-4.4mm wall thickness	55mm Astro X Series CE Pipe Collar	30mm (W) x 6mm (T)	
PP Pipe 63mm Ø 2.9-4.4mm wall thickness	63mm Astro X Series CE Pipe Collar		
PP Pipe 75mm Ø 2.8-6.7mm wall thickness	75mm Astro X Series CE Pipe Collar	30mm (W) x 8mm (T)	
PP Pipe 82mm Ø 2.8-6.7mm wall thickness	82mm Astro X Series CE Pipe Collar		
PP Pipe 90mm Ø 2.7-10.0mm wall thickness	90mm Astro X Series CE Pipe Collar	30mm (W) x 10mm (T)	
PP Pipe 100mm Ø 2.7-10.0mm wall thickness	100mm Astro X Series CE Pipe Collar	is Wills Wills Wills Wills Wills	
PP Pipe 110mm Ø 2.7-10.0mm wall thickness	110mm Astro X Series CE Pipe Collar	レハーレハーレハ	
PP Pipe 125mm Ø 3.1mm wall thickness	125mm Astro X Series CE Pipe Collar	40mm (W) x 12mm (T)	
PP Pipe 140mm Ø 3.5-8.0mm wall thickness	140mm Astro X Series CE Pipe Collar	· Vm. Vm. V	
PP Pipe 160mm Ø 4.0-14.6mm wall thickness	160mm Astro X Series CE Pipe Collar	ヒハヤレハヤレバ	

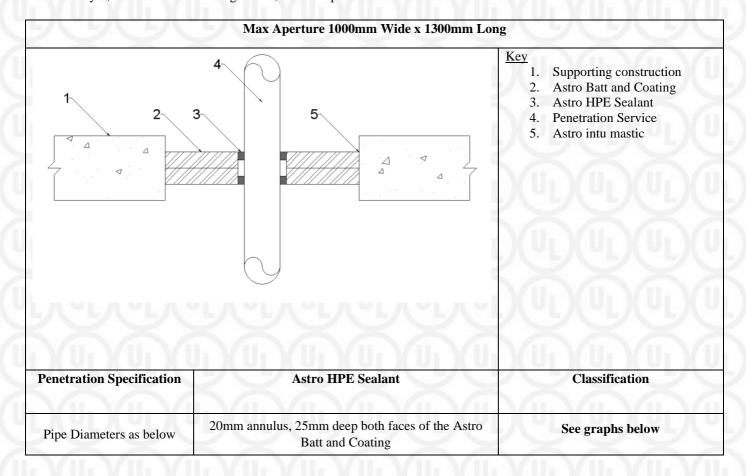
Penetration Specification	Collar Reference	Intumescent Material	
PE Pipe 32mm Ø 2.9mm wall thickness	32mm Astro X Series CE Pipe Collar		
PE Pipe 40mm Ø 2.9mm wall thickness	40mm Astro X Series CE Pipe Collar	30mm (W) x 4mm (T)	
PE Pipe 50mm Ø 2.9mm wall thickness	50mm Astro X Series CE Pipe Collar	・レハンレハンレハ	
PE Pipe 55mm Ø 2.9-4.4mm wall thickness	55mm Astro X Series CE Pipe Collar	30mm (W) x 6mm (T)	
PE Pipe 63mm Ø 2.9-4.4mm wall thickness	63mm Astro X Series CE Pipe Collar	. Mi. Mi. M	
PE Pipe 75mm Ø 2.8-6.7mm wall thickness	75mm Astro X Series CE Pipe Collar	30mm (W) x 8mm (T)	
PE Pipe 82mm Ø 2.8-6.7mm wall thickness	82mm Astro X Series CE Pipe Collar		
PE Pipe 90mm Ø 2.7-10.0mm wall thickness	90mm Astro X Series CE Pipe Collar	30mm (W) x 10mm (T)	
PE Pipe 100mm Ø 2.7-10.0mm wall thickness	100mm Astro X Series CE Pipe Collar	1 : 1/ U :: 1/ U :: 1/	
PE Pipe 110mm Ø 2.7-10.0mm wall thickness	110mm Astro X Series CE Pipe Collar	シベシベシハ	
PE Pipe 125mm Ø 3.1mm wall thickness	125mm Astro X Series CE Pipe Collar	40mm (W) x 12mm (T)	
PE Pipe 140mm Ø 3.9-5.8mm wall thickness	140mm Astro X Series CE Pipe Collar	I. VIII. VIII. V	
PE Pipe 160mm Ø 4.9-9.5mm wall thickness	160mm Astro X Series CE Pipe Collar	エストレストレス	



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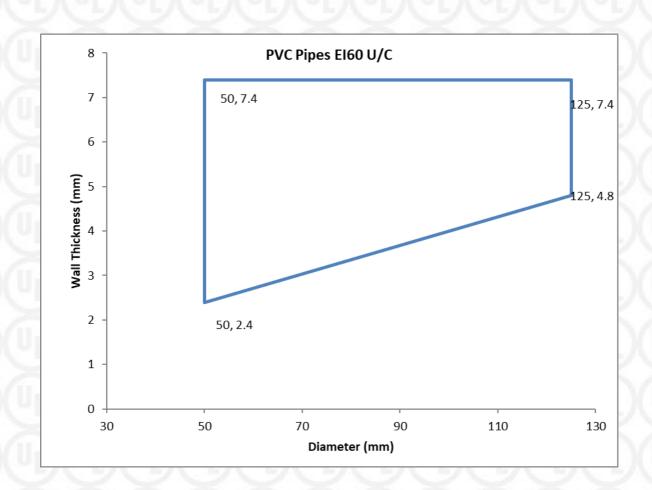
Double Layer, Astro Batt and Coating 50mm, Plastic Pipes





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Max Aperture 1000mm Wide x 1300mm Long Key Supporting construction 1. 2. Astro Batt and Coating 3. Astro HPE Sealant 4. Penetration Service 5. Astro intu mastic **Penetration Specification** Classification Uponor MLC (Multi-Layer Composite) Pipe 40mm ø 4mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 50mm ø 4.5mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 63mm ø 6mm wall thickness EI 60 U/C Uponor MLC (Multi-Layer Composite) Pipe 75mm ø 7.5mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 90mm ø 8.5mm wall thickness Uponor MLC (Multi-Layer Composite) Pipe 110mm ø 10mm wall thickness

Astro HPE Sealant 20mm annulus full 50mm depth of the Astro Batt and Coating



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Penetration Specification	Collar Reference	Intumescent Material	
PVC Pipe 32mm Ø 1.8mm wall thickness	32mm Astro X Series CE Pipe Collar		
PVC Pipe 40mm Ø 1.8mm wall thickness 40mm Astro X Series CE Pipe Collar		30mm (W) x 4mm (T)	
PVC Pipe 50mm Ø 1.8mm wall thickness	50mm Astro X Series CE Pipe Collar	レストレストレスト	
PVC Pipe 55mm Ø 2.3-2.8mm wall thickness	55mm Astro X Series CE Pipe Collar	30mm (W) x 6mm (T)	
PVC Pipe 63mm Ø 2.3-2.8mm wall thickness	63mm Astro X Series CE Pipe Collar	Mil. Mil. Mi	
PVC Pipe 75mm Ø 3.1-4.4mm wall thickness 75mm Astro X Series CE Pipe Collar		30mm (W) x 8mm (T)	
PVC Pipe 82mm Ø 3.1-4.4mm wall thickness	82mm Astro X Series CE Pipe Collar		
PVC Pipe 90mm Ø 4.2-6.6mm wall thickness 90mm Astro X Series CE Pipe 9		30mm (W) x 10mm (T)	
PVC Pipe 100mm Ø 4.2-6.6mm wall thickness	100mm Astro X Series CE Pipe Collar	1 3 CU 1 3 CU 1 3 CU	
PVC Pipe 110mm Ø 4.2-6.6mm wall thickness	110mm Astro X Series CE Pipe Collar	シヘシヘシへ	
PVC Pipe 125mm Ø 6.0mm wall thickness 125mm Astro X Series CE Pipe Collar		40mm (W) x 12mm (T)	
PVC Pipe 140mm Ø 6.1-7.5mm wall thickness	140mm Astro X Series CE Pipe Collar	- VIII-VII-VI	
PVC Pipe 160mm Ø 6.2-9.5mm wall thickness	160mm Astro X Series CE Pipe Collar	レスニレストレスト	



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Penetration Specification	Collar Reference	Intumescent Material	
PP Pipe 32mm Ø 2.9mm wall thickness	32mm Astro X Series CE Pipe Collar	:VII:VII:VII	
PP Pipe 40mm Ø 2.9mm wall thickness	40mm Astro X Series CE Pipe Collar	30mm (W) x 4mm (T)	
PP Pipe 50mm Ø 2.9mm wall thickness	50mm Astro X Series CE Pipe Collar		
PP Pipe 55mm Ø 2.9-4.4mm wall thickness	55mm Astro X Series CE Pipe Collar	30mm (W) x 6mm (T)	
PP Pipe 63mm Ø 2.9-4.4mm wall thickness	63mm Astro X Series CE Pipe Collar	11 30 U 1 30 U 1 30 U	
PP Pipe 75mm Ø 2.8-6.7mm wall thickness	75mm Astro X Series CE Pipe Collar	30mm (W) x 8mm (T)	
PP Pipe 82mm Ø 2.8-6.7mm wall thickness	82mm Astro X Series CE Pipe Collar		
PP Pipe 90mm Ø 2.7-10.0mm wall thickness	90mm Astro X Series CE Pipe Collar	30mm (W) x 10mm (T)	
PP Pipe 100mm Ø 2.7-10.0mm wall thickness	100mm Astro X Series CE Pipe Collar	レハンレハンレハン	
PP Pipe 110mm Ø 2.7-10.0mm wall thickness	110mm Astro X Series CE Pipe Collar		
PP Pipe 125mm Ø 3.1mm wall thickness	125mm Astro X Series CE Pipe Collar	40mm (W) x 12mm (T)	
PP Pipe 140mm Ø 3.5-8.0mm wall thickness	140mm Astro X Series CE Pipe Collar		
PP Pipe 160mm Ø 4.0-14.6mm wall thickness	160mm Astro X Series CE Pipe Collar		

Penetration Specification	Collar Reference	Intumescent Material	
PE Pipe 32mm Ø 2.9mm wall thickness	32mm Astro X Series CE Pipe Collar	LAMEACHA	
PE Pipe 40mm Ø 2.9mm wall thickness	40mm Astro X Series CE Pipe Collar	30mm (W) x 4mm (T)	
PE Pipe 50mm Ø 2.9mm wall thickness	50mm Astro X Series CE Pipe Collar		
PE Pipe 55mm Ø 2.9-4.4mm wall thickness	55mm Astro X Series CE Pipe Collar	30mm (W) x 6mm (T)	
PE Pipe 63mm Ø 2.9-4.4mm wall thickness	63mm Astro X Series CE Pipe Collar	シンシン	
PE Pipe 75mm Ø 2.8-6.7mm wall thickness 75mm Astro X Series CE Pipe Collar		30mm (W) x 8mm (T)	
PE Pipe 82mm Ø 2.8-6.7mm wall thickness	82mm Astro X Series CE Pipe Collar	1-0/111-0/11-0/1	
PE Pipe 90mm Ø 2.7-10.0mm wall thickness	90mm Astro X Series CE Pipe Collar	30mm (W) x 10mm (T)	
PE Pipe 100mm Ø 2.7-10.0mm wall thickness	100mm Astro X Series CE Pipe Collar		
PE Pipe 110mm Ø 2.7-10.0mm wall thickness	110mm Astro X Series CE Pipe Collar	- Mil. Mil. Mi	
PE Pipe 125mm Ø 3.1mm wall thickness	125mm Astro X Series CE Pipe Collar	40mm (W) x 12mm (T)	
PE Pipe 140mm Ø 3.9-5.8mm wall thickness	140mm Astro X Series CE Pipe Collar		
PE Pipe 160mm Ø 4.9-9.5mm wall thickness	160mm Astro X Series CE Pipe Collar	100 100 10	



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Substrate Substrate		Maximiim	Minimum Seal	Duct A	Duct Specification (Duct must be classified in accordance with	Fire Resistance (mins.)	
Thickness (mm)	(mm)	Depth (mm)	Duct B	EN 13501-3/4 for the required period)	E	S	
Drywall/ Concrete/	100	100	200*	A	1T)(nT)(nT)(nT)(nT)	60	120
Masonry wall	100	100	В			120	M
Concrete floor 150	150	250	275**	A	EN 13501-3 - Uninsulated 1.0mm GMS steel, rectangular duct, maximum dimensions 1250 mm wide by 1000 mm high.	120	120
	250	В		120	火		
Drywall/ Concrete/ Masonry wall	100	100	400***	A	I_L $(U_L)(U_L)(U_L)$	60	120
Drywall/ Concrete/ Masonry wall	100	100	200*	В	EN 13501-3 - Uninsulated 1.0mm GMS steel, rectangular duct, maximum dimensions 1250 mm wide by 1000 mm high. Duct insulated with Insulfrax 128 kg/m³, 25 mm thick for a length of 400 mm through the penetration seal (100 mm extending from both faces of the seal)	120	9(
Drywall/ Concrete/ Masonry wall	100	100	200*	С	EN 13501-4 - Uninsulated 1.0mm GMS steel, rectangular duct, maximum dimensions 1250 mm wide by 1000 mm high. Duct insulated with Insulfrax 128 kg/m³, 25 mm thick for a length of 400 mm through the penetration seal (100 mm extending from both faces of the seal)	120	120

^{* 4} layers, outer layers overlapped

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^{** 50} mm Astro Batt and Coating/100 mm Astro HS Compound /125 mm Astro Batt and Coating

^{*** 2} layers + 1 layer, 150 mm long fixed (with 75 and 100 mm pigtail screws and bedded on Astro HPE Sealant) around the duct to form a collar on both faces of the main seal.

Appendix UL-EU Certificate

Certification Mark UL-EU mark

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The UL-EU Mark, as displayed below, shall appear on certified products only. Minimum size is not specified, as long as the Mark is legible. The following is suggested.



The minimum height of the registered trademark symbol ® shall be 1 mm. When the overall diameter of the UL-EU Mark is less than 9.5 mm, the trademark symbol may be omitted if it is not legible to the naked eye.

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