

**MAT**

Falcon Acoustics & Passive Fire Solutions Pvt. Ltd. Plot No 60/A, Kandivali Industrial Area, Charkop, Kandivali (W), Mumbai -400067.
Tel : +91 22 28699520 +91 22 28672800, Web Site : www.falcontchno.in

PROJECT NAME: ETERNIA		LOCATION: Tower A,B,C,D			
Document Title : Material Submittal for Fire Sealant Application				Date of Issue: 09-02-2022	
Document No./Submittal:ET-FAL-MEP-MAT-0001				Revision Number: 0	
Consultants:			Contractor: Falcon Acoustics & Passive Fire Solutions Pvt Ltd.		
Pre-Qlfcn	Method Statement	Work Program	PQP	Test Results	Surveys
Calcultns	Certificate	Warranty	O & M Manuals	HSE	Others
Submittal Originator : Falcon Acoustics & Passive Fire Protection Pvt. Ltd.					Date: 09-02-2022
Co-ordination Sign off : Prashant Ravindran					Date: 09-02-2022
Planned Submission :		Actual Submission: 09-02-2022			Approval Reqd By:
Submittal Received : <Consultant /Employer>					Date:
The Contractor hereby certifies that the documents/data submitted are in accordance with the contract conditions, scope of works and local regulations and building standards					
Engineers Review and Comments			Approvals		
			Code A - NO OBJECTION		
			Code B - NO OBJECTION WITH COMMENTS		
			Code C - OBJECTION		
			Code D - FOR INFO & RECORDS ONLY		
Consultant Review Comments					
Employer's (ORL HO) Comments					
NOTE: The concerned contractor's action is required within 3 days.					
Approval of the Documents/Data does not relieve the Contractor of his obligation in completing the works in accordance with contract documents , drawings and any applicable local regulations and standards					
Released by:	< Name >		< Date & Signature >		
Falcon Acoustics & Passive Fire Solutions Pvt Ltd	Prashant Ravindran				
			09-02-2022		
Released by:	< Name >		< Date & Signature >		
Oberoi Construction Limited	Kaustubh Burange				



TECHNICAL DATA SHEET

Protecta®

General Product Description

Protecta® FR Acrylic is designed to prevent the spread of fire and smoke through joints and openings in fire rated walls and floors including openings formed around building service penetrations. Protecta® FR Acrylic will also maintain the acoustic design performance in walls and floors.

Protecta® FR Acrylic cures when it is subjected to atmospheric conditions, however it will retain a degree of elasticity for joint movement. Under fire exposure, Protecta® FR Acrylic creates a robust fire seal by the formation of a durable intumescent char.

Protecta® FR Acrylic can be used with a suitable filling material, i.e. stone wool or Protecta® Backing material in order to secure correct width to depth ratio and to reduce the shrinking of the sealant during curing. Minimum depth and maximum width of the joints are included in the installation instructions. Thermal activation takes place at about 180°C when the material will expand (intumesce) and prevent the passage of fire and smoke for periods up to and beyond 4 hours.

Properties

- High end formula, certified Worldwide
- Classified for fire sealing all types of constructions and building service penetrations
- Very high sound insulation
- Low emissions - environmentally and user friendly
- Simple to apply with a smooth surface finish
- Permanently flexible – will accommodate movement up to 12.5%
- No priming necessary for application to most materials
- Suitable for most surfaces, included concrete, masonry, steel, gypsum, glass, plastics and most non-porous surfaces
- Hardens quickly, tack free after 1 hour (the fire performance specification of the joint filler has been derived when the joint filler has been let to cure for a month)
- 18 months storage time (under correct conditions)
- 30 years working life

Sound Insulation

Description	Sound reduction
Single sided seal ≥12mm depth	62 dB
Double sided seal ≥12mm depth	> 62 dB

Protecta® FR Acrylic has been tested at EXOVA BM Trada (UKAS accredited); according to EN ISO 10140-2:2010. Usage of any backing material is optional, due to the tests being conducted with sealant only.



Emission data (indoor air quality)

Compound	Emission rate after 3 days	Emission rate after 4 weeks
TVOC	83 µg/m³	< 5 µg/m³
TSVOC	n.d.	< 5 µg/m³
VOC w/o NIK	n.d.	< 5 µg/m³
R Value	n.d.	< 1
Formaldehyde	< 3 µg/m³	n.d.
Acetaldehyde	< 3 µg/m³	n.d.
Sum for+ace	< 0.002 ppm	n.d.
Carcinogenic	< 1 µg/m³	< 1 µg/m³
n.d. or < means not detected		

Protecta® FR Acrylic complies with the requirements of GEV and the results correspond to the EMICODE emission class EC 1^{PLUS} which is the best possible environmental and indoor hygiene health protection mark. Tested by Eurofins Product Testing, report number G12870B.

Technical Data

Condition	Ready for use, acrylic based filler
Specific gravity	1.56 – 1.60
Flash point	None
Reaction to fire	Class D-s1, d1
Expansion in fire	1 : 2-3
Non-sticky	Max. 75 minutes
Film forming	Max. 25 minutes
Totally hardened	3 to 5 days depending on thickness and temperature
Flexibility	12.5% according to ISO 11600
Durability/service	Class Z ₂
BWR 3	Use category IA1, S/W3
Thermal conduct.	0.845 W/mK (+/- 3%) @ 20mm depth
Storage	18 months stored in unopened cartridges. To be stored in temperatures between 10°C and 30°C
Working life	30 years
Service temperature	-20 to +70°C
Application temp.	+5 to +30°C
Compatibility	Suitable for use with most materials, but should not be used in direct contact with bituminous materials
Limitations	Should not be used in permanently damp areas or in joints with high movement
Classification	CE-marked - Sealant for fire rated joints and penetrations class EI 240
Standard colours	White, grey or red
Colour codes	White: RAL 9002 / NCS S1002-Y Grey: NCS: S5500-N
Packaging	Box containing 25 cartridges each 310 ml Box containing 12 foil packed each 600 ml Pallets 310 ml: 64 boxes per pallet equals 1600 pcs Pallets 600 ml: 91 boxes per pallet equals 1092 pcs



Resistance to Fire – Linear Seals

Construction	Seal position	Minimum seal depth	Backing material	Maximum seal width	Fire resistance
Flexible walls comprise gypsum, masonry, aerated concrete or concrete (≥ 75 mm thick)	Both sides against steel partition head track	12.5 mm	None necessary	25 mm	EI 45 (E 60)
	Both sides against steel partition side track	12.5 mm	None necessary	15 mm	EI 45 (E 60)
Flexible walls comprise gypsum, masonry, aerated concrete or concrete (≥ 100 mm thick)	Both sides against steel partition head track	12.5 mm	None necessary	25 mm	EI 90 (E 90)
		12.5 mm	Mineral stone wool minimum 12.5mm deep	30 mm	EI 120 (E 120)
		25.0 mm	None necessary	30 mm	EI 120 (E 120)
	Both sides against steel partition side track	12.5 mm	None necessary	15 mm	EI 90 (E 90)
	Both sides in vertical seals	12.5 mm	Mineral stone wool minimum 20mm deep	30 mm	EI 120 (E 120)
Rigid walls comprise masonry, aerated concrete or concrete, within walls or between the head of walls and the soffit of floor slabs (≥ 150 mm thick)	Single sided in horizontal seals	25.0 mm	Mineral stone wool minimum 20mm deep	30 mm	EI 60 (E 240)
		10.0 mm	Mineral stone wool minimum 60mm deep	50 mm	EI 60 (E 240)
		25.0 mm	Protecta Mineral Fibre BIO minimum 48mm deep	30 mm	EI 120 (E 240)
	Single sided in vertical seals	10.0 mm	Mineral stone wool minimum 60mm deep	50 mm	EI 120 (E 120)
	Double sided in horizontal or vertical seals	15.0 mm	Mineral stone wool minimum 20mm deep	30 mm	EI 240 (E 240)
Rigid floors comprise aerated concrete or concrete within floors or between floors and walls (≥ 150 mm thick)	Single sided soffit face	25.0 mm	Protecta Mineral Fibre BIO minimum 25mm deep	100 mm	EI 60 (E 120)
	Single sided top face	25.0 mm	Protecta Mineral Fibre BIO minimum 25mm deep	100 mm	EI 180 (E 180)
		10.0 mm	Mineral stone wool minimum 90mm deep	100 mm	EI 240 (E 240)
	Double sided top and soffit	15.0 mm	Mineral stone wool minimum 25mm deep	100 mm	EI 120 (E 120)
		15.0 mm	Mineral stone wool with density $\geq 140\text{kg/m}^3$ minimum 25mm deep	100 mm	EI 180 (E 180)
		15.0 mm	Mineral stone wool minimum 25mm deep	30 mm	EI 240 (E 240)

PROTECTA® FR PIPE WRAP

TECHNICAL DATA SHEET



Protecta®

GENERAL PRODUCT DESCRIPTION

Protecta® FR Pipe Wrap is designed to maintain the fire resistance of fire separating walls and floors when these are breached by continuous plastic pipes or metal pipes with combustible insulation, and may be used in gypsum, masonry or concrete walls and concrete floors.

Each pipe wrap consists of a graphite based reactive intumescent strip which reacts to heat and closes the opening left by the softening plastic pipe or pipe insulation in fire.

The pipe wrap is installed completely around the pipes or insulation and secured with the self-adhesive tab. The annular space around the pipe wrap is sealed with Protecta® EX Mortar or Protecta® FR Board.

FIRE CLASSIFICATION - TABLE

Penetration type & max dimensions	Minimum width and number of layers of pipe wrap	Classification
FLEXIBLE AND RIGID WALL CONSTRUCTIONS $\geq 100\text{MM}$		
$\leq \varnothing 110\text{mm}$ PVC-U & PVC-C pipe	50 x 3.6mm (2 layers) both sides	E 120 U/C, C/C EI 90 U/C, C/C
$\varnothing 125\text{mm}$ PVC-U & PVC-C pipe	50 x 5.4mm (3 layers) both sides	E 120 U/C, C/C EI 90 U/C, C/C
$\varnothing 160\text{mm}$ PVC-U & PVC-C pipe	50 x 7.2mm (4 layers) both sides	E 120 U/C, C/C EI 90 U/C, C/C
RIGID FLOOR CONSTRUCTIONS $\geq 150\text{MM}$		
$\leq \varnothing 110\text{mm}$ PVC-U & PVC-C pipe	75 x 1.8mm (1 layer), or 50 x 3.6mm (2 layers) soffit side	EI 180 C/C
$\varnothing 125\text{mm}$ PVC-U & PVC-C pipe	50 x 7.2mm (4 layers) soffit side	EI 180 C/C
$\varnothing 160\text{mm}$ PVC-U & PVC-C pipe	50 x 10.8mm (6 layers), or 75 x 5.4mm (3 layers) soffit side	EI 180 C/C

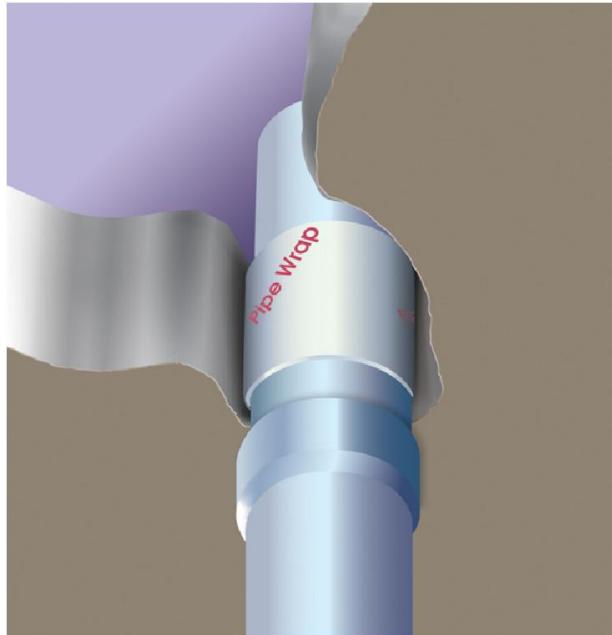
Please note: The minimum permitted separation between adjacent seals/apertures is 20cm. An aperture can include several services, and they may also be different. Services should be a minimum of 30mm from seal edges or other services so that the fire seals can be correctly fitted around each service. Services in floors require a minimum separation of 10cm from other services. The total amount of cross sections of services (including insulation) should not exceed 60% of the penetration area. Please see the Installation Instructions for the fire stopping system used with this product.

Supporting construction: Flexible walls must have a minimum thickness of 100 mm and comprise steel studs lined on both faces with minimum 2 layers of 12.5 mm thick boards. The walls must also incorporate a full fill core insulation of stone wool (35kg/m^3 density). Rigid walls and floors must comprise concrete, aerated concrete or masonry, with a minimum density of 650 kg/m^3 . The service support must be classified in accordance with EN 13501-2 for the required fire resistance period.

CERTIFICATION

This Installation Instruction is based on the product's European Technical Assessment, issued in accordance with regulation (EU) No 305/2011, on the basis of ETAG 026-2 and 3, edition 2011, used as European Assessment Document (EAD).

TYPICAL DETAIL



INSTALLATION

1. Fix a suitable pipe wrap around the service penetration and fasten with the tape as tightly as possible in order to prevent any excess opening between the pipe wrap and the service.
2. In floors, only one pipe wrap is required to be installed flush with the soffit so that the edge of the wrap is visible from the underside when back-filled. For walls it is normal to fit a wrap on both sides of the wall, again with the edge just visible.
3. Where wraps are installed in hollow core slabs or planks, the tubular voids should be filled with stone-wool insulation, normally the same thickness as the depth of the floor.
4. Once the wrap is securely installed, using a suitable shuttering board, cast around the pipe wrap with Protecta® EX Mortar to the required depth.
5. The Protecta® FR Pipe Wrap may be installed in a Protecta® FR Board. Cut the hole around the penetrating service to be sealed slightly oversize so that the pipe wrap may be slid in to the middle of the board. Finally the end of the pipe wrap is sealed with Protecta® FR Acrylic on both outer sides.
6. See the detail drawings of various installation methods on pages 2 to 7.

UL-EU CERTIFICATE

Certificate No. UL-EU-00912-CPR

Page 1/41

Date of Issue 2015-10-09

Revision 2017-12-18

Certificate Holder Polyseam AS

Ravneveien 7

Linnestad Næringsområde

N-3174 Revetal, Norway

<http://www.polyseam.com>

Manufacturer Polyseam Ltd

15 St Andrews Road

Huddersfield, West Yorkshire

HD1 6SB, UK

Certified Product Type Fire Stop - Sealant

Product Trade Name Protecta FR Acrylic

Trademark N/A

Rating/Classification See Appendix

Harmonised Technical Specifications

Supporting Documentation

ETAG 026-2 / ETAG 026-3 / EN 13501-2

ETA 13/0880, ETA 13/0879, EC – CERTIFICATE OF CONFORMITY - 0843 – CPR – 0139 and Classification Report No. 13CA21782 A Issue 2 / 4786594903 A Issue 2 /

4788077223 Issue 1

Additional test evidence is held on file

Expiry date 2025-10-08

Certification Manager

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.



Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00912-CPR

Page 2/41

Date of Issue 2015-10-09

This certificate relates to the use of Protecta FR Acrylic for fire stopping where there are joints in or between walls & floors or service penetrations through floors and walls. The detailed scope is given in pages 3 to 35 of this Certificate. This shows the thickness and acceptable dimensions, substrates and orientations required to provide fire resistance periods of up to 240 minutes for differing services and wall/floor constructions.

The product is certificated on the basis of:

- i) ETA 13/0880 & ETA 13/0879
- ii) EC – CERTIFICATE OF CONFORMITY - 0843 – CPD – 0139
- iii) Inspection and surveillance of factory production control by UL
- iv) Fire resistance test data in accordance with EN 1366-3 and 1366-4
- v) Classification in accordance with EN 13501-2
- vi) Durability and Serviceability as defined in ETAG 026-3, Clause 2.4.13*

* Protecta FR Acrylic sealant has been tested in accordance with BS EN ISO 8339: 2005 and BS EN ISO 9046: 2004 to demonstrate its suitability for use in internal conditions with humidity lower than 85 % RH, excluding temperatures below 0°C, without exposure to rain or UV. These conditions are designated Z₂ in ETAG 026-2 and ETAG 026-3.

The movement capability of Protecta FR Acrylic joint seals is restricted to ≤ 7.5%

Protecta FR Acrylic is a sealant used to form a penetration seal around metallic pipes, plastic pipes, composite pipes and electrical cables to reinstate the fire resistance performance of wall and floor constructions, where they have been provided with apertures for the penetration of services. It is also used to form linear gap seals where gaps are present in wall and floor constructions and linear joint seals where wall and floor constructions abut.

Protecta FR Acrylic is supplied in liquid form contained within 310 ml & 380 ml cartridges and 600 ml foil packs. The sealant is gunned into the aperture in the separating element/elements and around the service or services, to a specified depth utilising mineral fibre insulation backing material.



Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00912-CPR

Page 3/41

Date of Issue 2015-10-09

Product: Protecta FR Acrylic		
Product-type: Sealant		Intended use: Linear Joint, Gap Seal & Penetration Seal
Basic requirement for construction work	Basic Requirement	Performance
BWR 1 Mechanical resistance and stability		
-	None	Not relevant
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	Class D-s1, d1
EN 13501-2	Resistance to fire	See pages 5 to 40
BWR 3 Hygiene, health and environment		
EN 1026:2000	Air permeability (material property)	No performance determined
ETAG 026-2, Annex C ETAG 026-3, Annex C	Water permeability (material property)	No performance determined
Declaration of manufacturer	Release of dangerous substances	Use categories: IA1, S/W3 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
BWR 5 Protection against noise		
EN 10140-2/ EN ISO 717-1	Airborne sound insulation	Rw(C;Ctr)= 62 (-1;-5) dB*
EN 10140-3/ EN ISO 717-2	Impact sound insulation	No performance determined
BWR 6 Energy economy and heat retention		
EN 12664, EN 12667 or EN 12939	Thermal properties	No performance determined
EN ISO 12572 EN 12086	Water vapour permeability	No performance determined
General aspects relating to fitness for use		
ISO 8339: 2005, ISO 9046: 2004 & ISO 7389: 2003	Durability and serviceability	Z ₂
BWR 7 Sustainable use of natural resources		
-	-	No performance determined

*12 mm depth and only applicable to linear joint and gap seals



Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00912-CPR

Page 4/41

Date of Issue 2015-10-09

Protecta FR Acrylic: Acoustic performance according to BS EN ISO 10140-2:2010

Configuration	$R_w(C; C_{tr})$																								
	$R_w(C; C_{tr})$ 62 (-1;-5) dB 37 (0; -2)																								
<p>Source room face Receiving room face</p> <p>125mm x 44mm x 1200mm softwood timber Cassette A</p> <p>125mm x 44mm x 1200mm softwood timber Cassette B</p> <p>Intumescence mastic strip</p> <p>Protecta FR Acrylic Seal is 12mm deep x 30mm wide x 1200mm long inside cassette aperture Batch No-20019715.</p>	<table border="1"> <caption>Data points estimated from the Sound Reduction Index graph</caption> <thead> <tr> <th>Frequency, f, Hz</th> <th>Rating Curve (ISO 717-1), R, dB</th> <th>Sound Reduction Index, R, dB</th> </tr> </thead> <tbody> <tr><td>50</td><td>35</td><td>35</td></tr> <tr><td>100</td><td>45</td><td>38</td></tr> <tr><td>200</td><td>55</td><td>48</td></tr> <tr><td>400</td><td>62</td><td>68</td></tr> <tr><td>800</td><td>65</td><td>60</td></tr> <tr><td>1600</td><td>68</td><td>62</td></tr> <tr><td>3150</td><td>68</td><td>65</td></tr> </tbody> </table> <p>Rating Curve (ISO 717-1) Sound Reduction Index, R, in dB</p>	Frequency, f, Hz	Rating Curve (ISO 717-1), R, dB	Sound Reduction Index, R, dB	50	35	35	100	45	38	200	55	48	400	62	68	800	65	60	1600	68	62	3150	68	65
Frequency, f, Hz	Rating Curve (ISO 717-1), R, dB	Sound Reduction Index, R, dB																							
50	35	35																							
100	45	38																							
200	55	48																							
400	62	68																							
800	65	60																							
1600	68	62																							
3150	68	65																							



Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00912-CPR
 Page 5/41
 Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in Walls								
Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally)	Sealant Depth (mm)	Backing Material	Minimum Backing Depth (mm)	Maximum Seal Size	Fire Resistance (mins.)	
							E	EI
Masonry/ Concrete	150	Single electrical cables up to 21 mm Ø	25 (to either face of wall)	Protecta Mineral Fibre BIO	48	87 mm Ø	240	90
		Blank seals				300 x 300 mm	240	60
		Single electrical cables up to 21 mm Ø				35 x 35 mm / 36 mm Ø	240	120
		Blank seals			48			
		Single electrical cables up to 21 mm Ø						

Minimum separation between cables and the edge of the seal of 7 mm.



Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00912-CPR

Page 6/41

Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided Penetration Seals in Walls									
Substrate	Minimum Substrate Thickness (mm)	Services	Sealant Depth (mm)	Backing Material	Minimum Backing Depth (mm)	Maximum Seal Size	Fire Resistance (mins.)		
							E	EI	
Masonry/ Concrete	150	Blank seals	15	Stone wool 35 kg/m ³	25	300 x 300 mm	240	240	
		Electric cables up to 21 mm diameter, single or in a bundle.					240	120	
		Electric cables 22-80 mm diameter, single or in a bundle.					120	60	
		Blank seals	25	Protecta Mineral Fibre BIO	48		240	240	
		Electric cables up to 80 mm diameter, single or in a bundle.					240	60	
		Telecoms cables up to 21 mm diameter, single or in a bundle up to 100 mm diameter					240	240	

Minimum separation between cables and the edge of the seal of 10 mm



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR

Page 7/41

Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in Walls 15 mm deep Protecta FR Acrylic / 20 mm deep 40 kg/m ³ stone wool backing					
Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally)	Seal Width Around Pipe (mm)	Insulation LI or CI	Fire Resistance (mins.)
					E EI
Masonry/ Concrete	150	Copper pipe up to 54 mm diameter/0.9-14.2 mm wall	8-9	1000 mm length 20 mm Stone wool insulation 80 kg/m ³	240 180
		Copper pipe up to 12 mm diameter/0.9-5 mm wall	8		240 240
		Alupex composite pipe 75 mm diameter/7.5 mm wall	30	25 mm Protecta Mineral Fibre BIO insulation, 600 mm long (min.)	120 120
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Seal Width Around Pipe (mm)	Insulation LI or CI	Fire Resistance (mins.)
					E EI
Masonry/ Concrete	150	40 mm diameter/1.5-14.2 mm wall*	6-18	1000 mm length of 20 mm Stone wool insulation 80 kg/m ³	240 240
		40 mm diameter/1.5-14.2 mm wall*			
		50 mm diameter/1.7-14.2 mm wall*			
		60 mm diameter/1.9-14.2 mm wall*			
		75 mm diameter/2.2-14.2 mm wall*			
		90 mm diameter/2.5-14.2 mm wall*			
		100 mm diameter/2.7-14.2 mm wall*			
		115 mm diameter/3-14.2 mm wall*			
		140 mm diameter/3.5-14.2 mm wall*			
		165 mm diameter/ 3.9-14.2 mm wall*			
		180 mm diameter/ 4.2-14.2 mm wall*			
		200 mm diameter/ 4.6-14.2 mm wall*			
		219 diameter/ 5.0-14.2 mm wall*			

LI = Local Interrupted

CI = Continuous Interrupted

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

* Typical pipe diameters shown, intermediate sizes are possible.



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 8/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in Walls						
15 mm deep Protecta FR Acrylic / 25 mm deep 40 kg/m ³ stone wool backing						
Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally)	Maximum Seal Size (mm)	Insulation LI or CI	Fire Resistance (mins.)	
					E	EI
Masonry/ Concrete	150	Copper pipe up to 54 mm diameter/0.9-14.2 mm wall	300 x 300	1000 mm length 20 mm Stone wool insulation 80 kg/m ³	240	60
		Copper pipe up to 12 mm diameter/0.9-5 mm wall				
		Alupex composite pipe 75 mm diameter/7.5 mm wall		25 mm Protecta Mineral Fibre BIO insulation, 600 mm long (min.)		
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Maximum Seal Size (mm)	Insulation LI or CI	Fire Resistance (mins.)	
					E	EI
Masonry/ Concrete	150	40 mm diameter/1.5-14.2 mm wall*	300 x 300	1000 mm length of 20 mm Stone wool insulation 80 kg/m ³	240	60
		40 mm diameter/1.5-14.2 mm wall*				
		50 mm diameter/1.7-14.2 mm wall*				
		60 mm diameter/1.9-14.2 mm wall*				
		75 mm diameter/2.2-14.2 mm wall*				
		90 mm diameter/2.5-14.2 mm wall*				
		100 mm diameter/2.7-14.2 mm wall*				
		115 mm diameter/3-14.2 mm wall*				
		140 mm diameter/3.5-14.2 mm wall*				
		165 mm diameter/ 3.9-14.2 mm wall*				
		180 mm diameter/ 4.2-14.2 mm wall*				
		200 mm diameter/ 4.6-14.2 mm wall*				
		219 mm diameter/ 5.0-14.2 mm wall*				

LI = Local Interrupted

CI = Continuous Interrupted

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

* Typical pipe diameters shown, intermediate sizes are possible.



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 9/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in Walls 15 mm deep Protecta FR Acrylic / 25 mm deep 48 mm Protecta Mineral Fibre BIO backing - Maximum seal size 300 x 300 mm or 504 mm Ø						Fire Resistance (mins.)
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Seal Width Around Pipe (mm)	Insulation CS	Fire Resistance (mins.)	
					E	EI
Masonry/ Concrete	150	40 mm diameter/1.0-14.2 mm wall*	10	20 mm Stone wool insulation 80 kg/m ³	240	240
		40 mm diameter/1.0-14.2 mm wall*		30-80 mm thick stone, mineral wool min. 80 kg/m ³	180	180
		50 mm diameter/1.2-14.2 mm wall*				
		60 mm diameter/1.4-14.2 mm wall*				
		75 mm diameter/1.6-14.2 mm wall*				
		90 mm diameter/1.9-14.2 mm wall*				
		100 mm diameter/2.1-14.2 mm wall*				
		115 mm diameter/2.4-14.2 mm wall*				
		140 mm diameter/2.9-14.2 mm wall*				
		165 mm diameter/ 3.4-14.2 mm wall*				
		180 mm diameter/ 3.6-14.2 mm wall*				
		200 mm diameter/ 4.0-14.2 mm wall*				
		219 mm diameter/ 4.3-14.2 mm wall*				
		250 mm diameter/ 5.0-14.2 mm wall*				
		300 mm diameter/ 5.9-14.2 mm wall*				
		324 mm diameter/ 6.35-14.2 mm wall*				

CS = Continuous Sustained

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

* Typical pipe diameters shown, intermediate sizes are possible.



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
 Page 10/41
 Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Walls 15 mm deep Protecta FR Acrylic / 30 mm deep 40 kg/m ³ stone wool backing						
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Maximum Seal Size (mm)	Insulation LI or CI	Fire Resistance (mins.)	
					E	EI
Masonry/ Concrete	150	40 mm diameter/1.5-14.2 mm wall*	300 x 300	1000 mm length of 20 mm Stone wool insulation 80 kg/m ³	240	240
		40 mm diameter/1.5-14.2 mm wall*				
		50 mm diameter/1.7-14.2 mm wall*				
		60 mm diameter/1.9-14.2 mm wall*				
		75 mm diameter/2.2-14.2 mm wall*				
		90 mm diameter/2.5-14.2 mm wall*				
		100 mm diameter/2.7-14.2 mm wall*				
		115 mm diameter/3-14.2 mm wall*				
		140 mm diameter/3.5-14.2 mm wall*				
		165 mm diameter/ 3.9-14.2 mm wall*				
		180 mm diameter/ 4.2-14.2 mm wall*				
		200 mm diameter/ 4.6-14.2 mm wall*				
		219 mm diameter/ 5.0-14.2 mm wall*				

LI = Local Interrupted

CI = Continuous Interrupted

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

* Typical pipe diameters shown, intermediate sizes are possible.

** seal applied to both sides of the wall



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
 Page 11/41
 Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Walls								
Substrate	Minimum Substrate Thickness (mm)	Services	Sealant Depth (mm)	Backing Material	Maximum Seal Size	Fire Resistance (mins.)		
						E	EI	
Drywall/ Masonry/ Concrete	75	None (blank)	12.5	Any material	150 x 150 mm [^]	60	60	
		Electric cables up to 21 mm Ø, single		none		60	45	
		Electric cables up to 21 mm Ø, in bundles up to 100 mm Ø				45	30	
Mild or stainless steel pipe								
Drywall/ Masonry/ Concrete	75	4 mm diameter /0.7-2.0 mm wall	12.5	none	150 x 150 mm [^]	60	45	
		5-22 mm diameter /0.7-11 mm wall*				60	30	
Mild or stainless steel pipe with 80 kg/m ³ density stone wool insulation Continuous Sustained (CS)								
Drywall/ Masonry/ Concrete	75	40 mm diameter /1-14.2 mm wall, 20 mm insulation	12.5	none	150 x 150 mm [^]	60	45	
		40-324 mm diameter /1.0-14.2 mm wall, 30 mm insulation*						
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1, PVC-C according to EN 1566-1								
Drywall/ Masonry/ Concrete	75	6-32 mm Ø/1.0-1.8 mm wall, with bundle of cables up to 21 mm diameter*	12.5	none	150 x 150 mm [^]	60	45	
PP pipe according to EN 1451-1								
Drywall/ Masonry/ Concrete	75	20 mm Ø/2.3 mm wall	12.5	none	150 x 150 mm [^]	45	45	
		21-32 mm Ø/2.3-4.4 mm wall*				30	30	
		21-32 mm Ø/2.3-4.4 mm wall, with bundle of cables up to 21 mm diameter*				45	30	
PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1								
Drywall/ Masonry/ Concrete	75	20 mm Ø/2.0 mm wall	12.5	none	150 x 150 mm [^]	45	45	
		21-32 mm Ø/2.0-3.0 mm wall*				30	30	
		21-32 mm Ø/2.0-3.0 mm wall, with bundle of cables up to 21 mm* diameter				45	30	

All metal or stainless steel pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

All plastic pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

* Typical pipe diameters shown, intermediate sizes are possible.

** seal applied to both sides of the wall

[^] Or 344 mm diameter when incorporating a pipe of seal diameter -20 mm.



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 12/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Walls								
Substrate	Minimum Substrate Thickness (mm)	Services	Sealant Depth (mm)	Backing Material	Minimum Backing Depth (mm)	Maximum Seal Size	Fire Resistance (mins.)	
							E	EI
Drywall/ Masonry/ Concrete	100	None (blank)	12.5	Stone wool 35-140 kg/m ³	20	300 x 300 mm*	120	120
		Electrical cables up to 21 mm Ø, single or in bundles up to 100 mm Ø	25	Stone wool 40 kg/m ³	20		120	120
		Electrical cables up to 80 mm Ø, single or in bundles up to 100 mm Ø		Protecta Mineral Fibre BIO	25		120	60
		Telecommunication cables up to 21 mm Ø single or in bundles up to 100 mm Ø		Stone wool 40 kg/m ³	20		120	120
		Single 'E cable' - 1 x 185 mm ² core HD603.3 electrical cable with PVC insulation, PVC sheath and 23-27 mm diameter	12.5	Stone wool 140 kg/m ³	20		120	60

* Or 30 mm wide x 3000 mm high for cables up to 21 mm Ø

** seal applied to both sides of the wall



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 13/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Walls 300 x 300 mm maximum seal size.						
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Sealant Depth (mm)	Backing Material	Insulation CS	Fire Resistance (mins.)
						E EI
Drywall/ Masonry/ Concrete	100	22 mm diameter/3-10 mm wall	25	Stone wool, 25 mm deep, 35 kg/m ³	None	120 120
		40 mm diameter/1-14.2 mm wall	12.5	Stone wool, 20 mm deep, 40 kg/m ³		120 120
		40 mm diameter/1-14.2 mm wall*				
		50 mm diameter/1.3-14.2 mm wall*				
		60 mm diameter/1.6-14.2 mm wall*				
		75 mm diameter/2-14.2 mm wall*				
		90 mm diameter/2.4-14.2 mm wall*				
		100 mm diameter/2.7-14.2 mm wall*				
		115 mm diameter/3.1-14.2 mm wall*				
		140 mm diameter/3.8-14.2 mm wall*				
		165 mm diameter/ 4.5-14.2 mm wall*				

CS = Continuous Sustained

All pipe classifications are pipe end configuration C/C (C=Capped).

* Typical pipe diameters shown, intermediate sizes are possible.

** seal applied to both sides of the wall



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 14/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided* Penetration Seals in Walls						
Substrate	Minimum Substrate Thickness (mm)	Services – Copper Pipe (fitted centrally)	Sealant Depth (mm)	Backing Material	Insulation CS	Fire Resistance (mins.)
						E EI
Drywall/ Masonry/ Concrete	100	12 mm diameter/1 mm wall	25 mm	25 mm Protecta Mineral Fibre BIO	9 mm Elastomeric insulation minimum class B-s3,d0	120 120
		12-54 mm diameter/1-1.2 mm wall			9-13 mm Elastomeric insulation minimum class B-s3,d0	120 60
		12-54 mm diameter/1-1.2 mm wall			13-25 mm Elastomeric insulation minimum class B-s3,d0	60 60
Substrate	Minimum Substrate Thickness (mm)	Services – Alupex Composite Pipe (fitted centrally)	Sealant Depth (mm)	Backing Material	Insulation CS	Fire Resistance (mins.)
						E EI
Drywall/ Masonry/ Concrete	100	16 mm diameter/2.25 mm wall	25 mm	25 mm Protecta Mineral Fibre BIO	9 mm Elastomeric insulation minimum class B-s3,d0	120 120
		16 mm diameter/2.25 mm wall				
		20 mm diameter/2.5 mm wall				
		26 mm diameter/3 mm wall				
		32 mm diameter/3 mm wall				
		40 mm diameter/3.5 mm wall				
		50 mm diameter/4 mm wall				
		63 mm diameter/4.5 mm wall				
		75 mm diameter/4.7 mm wall				

All pipe classifications are pipe end configuration C/C (C=Capped).

* seal applied to both sides of the wall



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 15/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided* Penetration Seals in Walls Maximum seal size 300 x 300 mm							
Substrate	Minimum Substrate Thickness (mm)	Services – Gerberit Mepla MLC (PE-Xb/Aluminium/PE-HD pipe) (fitted centrally)	Sealant Depth (mm)	Backing Material	Insulation LI or CI	Fire Resistance (mins.)	
						E	EI
Drywall/ Masonry/ Concrete	100	16 mm diameter/2.25 mm wall	12.5 mm	12.5 mm Stone wool 40 kg/m ³	20 mm Stone wool 80 kg/m ³ , 500 mm length from both sides of the seal	120	120
		20 mm diameter/2.5 mm wall					
		26 mm diameter/3 mm wall					
		32 mm diameter/3 mm wall					
		40 mm diameter/3.5 mm wall					
		50 mm diameter/4 mm wall					
		63 mm diameter/4.5 mm wall					
		75 mm diameter/4.7 mm wall					

LI = Local Interrupted

CI = Continuous Interrupted

All pipe classifications are pipe end configuration C/C (C=Capped).

* seal applied to both sides of the wall



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
 Page 16/41
 Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Walls Maximum seal size 300 x 300 mm / min. 10 mm seal width around service						
Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally)	Sealant Depth (mm)	Backing Material	Insulation LI or CI	Fire Resistance (mins.)
						E EI
Drywall/ Masonry/ Concrete	100	Copper pipe up to 54 mm diameter/1-14.2 mm wall	12.5 mm	20 mm Stone wool 40 kg/m ³	500 mm length of 20 mm Stone wool 80 kg/m ³	120 120
		Alupex composite pipe 75 mm diameter/7.5 mm wall		20 mm Stone wool 140 kg/m ³	600 mm length of 25 mm Protecta Mineral Fibre BIO	60 60
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Sealant Depth (mm)	Backing Material	Insulation LI or CI	Fire Resistance (mins.)
						E EI
Drywall/ Masonry/ Concrete	100	40 mm diameter/1-14.2 mm wall	12.5	20mm Stone wool 40 kg/m ³	500 mm length of 20 mm stone wool 80 kg/m ³	120 120
		40 mm diameter/1-14.2 mm wall*			500 mm length of 30 mm stone wool 80 kg/m ³	120 90
		50 mm diameter/1.2-14.2 mm wall*				
		60 mm diameter/1.4-14.2 mm wall*				
		75 mm diameter/1.7-14.2 mm wall*				
		90 mm diameter/2-14.2 mm wall*				
		100 mm diameter/2.2-14.2 mm wall*				
		115 mm diameter/2.5-14.2 mm wall*				
		140 mm diameter/3-14.2 mm wall*				
		165 mm diameter/3.5-14.2 mm wall*				
		180 mm diameter/3.8-14.2 mm wall*				
		200 mm diameter/4.2-14.2 mm wall*				
		219 mm diameter/4.5-14.2 mm wall*				

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

LI = Local Interrupted

CI = Continuous Interrupted

* Typical pipe diameters shown, intermediate sizes are possible.

** seal applied to both sides of the wall



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR

Page 17/41

Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Walls 15 mm deep Protecta FR Acrylic / 25 mm deep stone wool insulation 35 kg/m³ backing - Maximum seal size 300 x 300 mm or 504 mm Ø

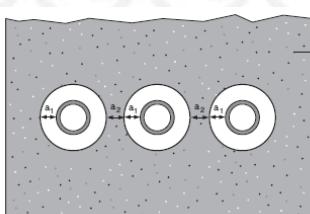
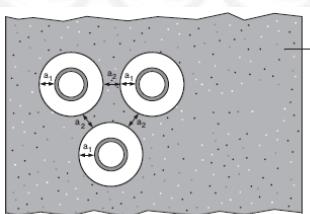
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Seal Width Around Pipe (a1)	Insulation CS	Fire Resistance (mins.)	
					E	EI
Masonry/ Concrete	150	40 mm diameter/1.0-14.2 mm wall*	10 mm	20 mm Stone wool insulation 80 kg/m ³	240	240
		40 mm diameter/1.0-14.2 mm wall*				
		50 mm diameter/1.2-14.2 mm wall*				
		60 mm diameter/1.4-14.2 mm wall*				
		75 mm diameter/1.6-14.2 mm wall*				
		90 mm diameter/1.9-14.2 mm wall*				
		100 mm diameter/2.1-14.2 mm wall*				
		115 mm diameter/2.4-14.2 mm wall*				
		140 mm diameter/2.9-14.2 mm wall*				
		165 mm diameter/ 3.4-14.2 mm wall*				
		180 mm diameter/ 3.6-14.2 mm wall*				
		200 mm diameter/ 4.0-14.2 mm wall*				
		219 mm diameter/ 4.3-14.2 mm wall*				
		250 mm diameter/ 5.0-14.2 mm wall*				
		300 mm diameter/ 5.9-14.2 mm wall*				
		324 mm diameter/ 6.35-14.2 mm wall*				

CS = Continuous Sustained

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

* Typical pipe diameters shown, intermediate sizes are possible.

** seal applied to both sides of the wall

Configuration 1	Configuration 2
	
Key 1 Supporting construction a ₁ Pipe / edge of seal separation (annular space) = 10 mm a ₂ Separation between penetration seals = 30 mm	



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR

Page 18/41

Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Walls

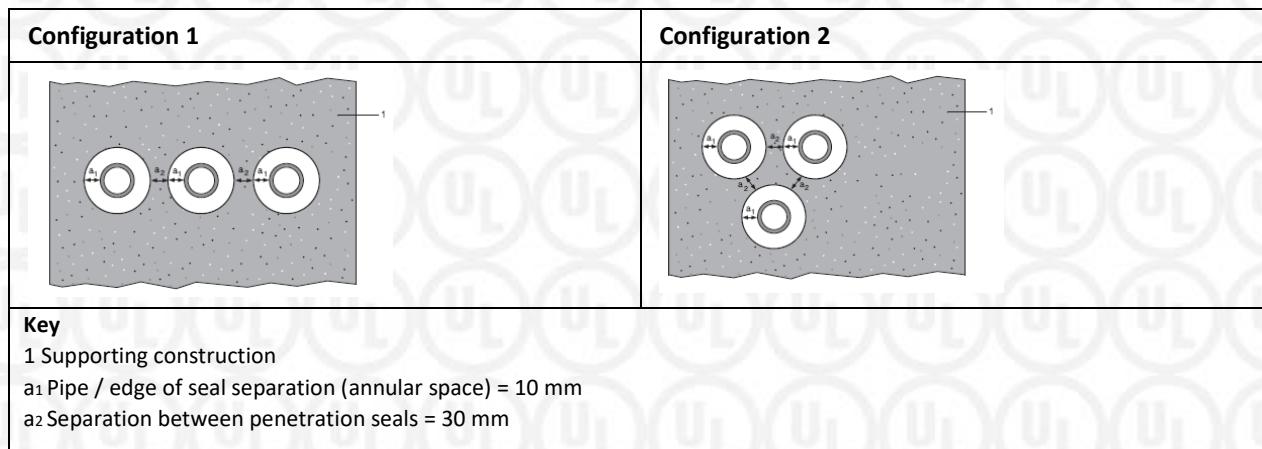
**25 mm deep Protecta FR Acrylic / 25 mm deep stone wool insulation 35 kg/m³ backing
- Maximum seal size 300 x 300 mm or 300 mm Ø**

Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Seal Width Around Pipe (a1)	Insulation CS	Fire Resistance (mins.)	
					E	EI
Masonry/ Concrete	150	22 mm diameter/2-11 mm wall	10 mm	13 mm thick Elastomeric insulation minimum class B-s3,d0	240	180
		22-114 mm diameter/2-14.2 mm wall		13-25 mm thick Elastomeric insulation minimum class B-s3,d0	120	90
		22-114 mm diameter/2-14.2 mm wall		25-50 mm thick Elastomeric insulation minimum class B-s3,d0	60	60

CS = Continuous Sustained

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

** seal applied to both sides of the wall



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR

Page 19/41

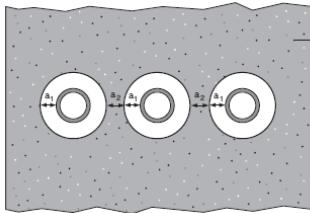
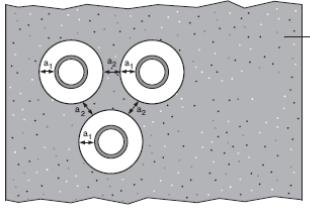
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Walls 25 mm deep Protecta FR Acrylic / 25 mm deep stone wool insulation 35 kg/m³ backing - Maximum seal size 300 x 300 mm or 300 mm Ø

Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally)	Seal Width Around Pipe (a1)	Sealant Depth (mm)	Backing Material	Fire Resistance (mins.)	
						E	EI
Masonry/ Concrete	150	PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1, PVC-C according to EN 1566-1 32 mm Ø/1.6 mm wall#	10 mm	25	25 mm stone wool insulation 35 kg/m ³	240	240
		PP pipe according to EN 1451-1 32 mm Ø/2.0-4.4 mm wall*				180	180
		PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-120-32 mm Ø /2.0 mm wall*				240	240

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped) Except PVC-U pipes which are U/C.

** seal applied to both sides of the wall

Configuration 1	Configuration 2
	
Key 1 Supporting construction a ₁ Pipe / edge of seal separation (annular space) = 10 mm a ₂ Separation between penetration seals = 30 mm	



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
 Page 20/41
 Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Walls 12.5 mm deep Protecta FR Acrylic / 12.5 mm deep stone wool insulation 35 kg/m ³ backing - Maximum seal size 300 x 300 mm or 504 mm Ø								
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Seal Width Around Pipe (a1)	Insulation CS	Fire Resistance (mins.)			
					E	EI		
Gypsum drywall	150	40 mm diameter/1.0-14.2 mm wall*	10 mm	20 mm Stone wool insulation 80 kg/m ³	120	90		
		40 mm diameter/1.0-14.2 mm wall*		30-80 mm thick stone, mineral wool min. 80 kg/m ³				
		50 mm diameter/1.2-14.2 mm wall*						
		60 mm diameter/1.4-14.2 mm wall*						
		75 mm diameter/1.6-14.2 mm wall*						
		90 mm diameter/1.9-14.2 mm wall*						
		100 mm diameter/2.1-14.2 mm wall*						
		115 mm diameter/2.4-14.2 mm wall*						
		140 mm diameter/2.9-14.2 mm wall*						
		165 mm diameter/ 3.4-14.2 mm wall*						
		180 mm diameter/ 3.6-14.2 mm wall*						
		200 mm diameter/ 4.0-14.2 mm wall*						
		219 mm diameter/ 4.3-14.2 mm wall*						
		250 mm diameter/ 5.0-14.2 mm wall*						
Substrate	Minimum Substrate Thickness (mm)	Services – PEX pipe in pipe system (fitted centrally)		Seal Width Around Pipe (a1)	Fire Resistance (mins.)			
					E	EI		
Gypsum drywall	150	15 mm diameter x 2.5 mm wall inner /25mm diameter outer	10 mm	None	120	120		
Substrate	Minimum Substrate Thickness (mm)	Services – Alupex pipe in pipe system (fitted centrally)	Seal Width Around Pipe (a1)	Insulation	Fire Resistance (mins.)			
Gypsum drywall	150	16-20 mm diameter/ 2.0 mm wall	10 mm	None	E	EI		
CS = Continuous Sustained All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped) Except PEX and Alupex pipes which are C/C. * Typical pipe diameters shown, intermediate sizes are possible. ** seal applied to both sides of the wall								



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
 Page 21/41
 Date of Issue 2015-10-09

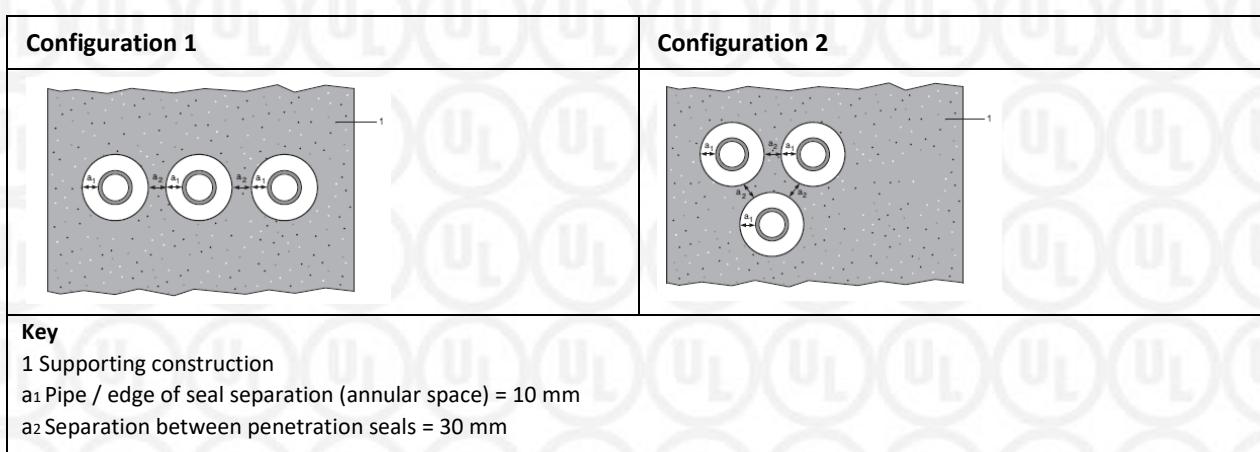
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel pipe system (fitted centrally)	Seal Width Around Pipe (a1)	Insulation	Fire Resistance (mins.)	
					E	EI
Gypsum drywall	150	4 mm diameter/ 1.0-2.0 mm wall	10 mm	None	90	90
		5-30 mm diameter/ 1.0-14.2 mm wall			120	120
		30 mm diameter/ 2.0-14.2 mm wall				
Substrate	Minimum Substrate Thickness (mm)	Services – Copper or Steel pipe system (fitted centrally)	Seal Width Around Pipe (a1)	Insulation	Fire Resistance (mins.)	
					E	EI
Gypsum drywall	150	6 mm diameter/ 0.7-3.0 mm wall	10 mm	None	90	60
		7-22 mm diameter/ 0.7-11 mm wall			90	30

CS = Continuous Sustained

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped) Except PEX and Alupex pipes which are C/C.

* Typical pipe diameters shown, intermediate sizes are possible.

** seal applied to both sides of the wall



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR

Page 22/41

Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided* Penetration Seals in Walls 10 mm seal width around PVC pipes and 29 mm around PP pipes							
Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally)	Sealant Depth (mm)	Backing Material	Aperture Ø (mm)	Fire Resistance (mins.)	
						E	EI
Drywall/ Masonry/ Concrete	100	PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1, PVC-C according to EN 1566-1 32 mm Ø/1.7 mm wall	12.5	None required (PE foam may be utilised if required)	52	45	45
		PP pipe according to EN 1451-1 32 mm Ø/2 mm wall	25			90	90

All pipe classifications are pipe end configuration U/C and C/C (U=Uncapped, C=Capped).

* seal applied to both sides of the wall

PROTECTA FR Acrylic: Double Sided* Penetration Seals in Walls 25 mm deep Protecta FR Acrylic							
Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally)	Sealant Depth (mm)	Backing Material	Maximum Annular Space (mm)	Fire Resistance (mins.)	
						E	EI
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1, PVC-C according to EN 1566-1							
Drywall/ Masonry/ Concrete	100	6-32 mm Ø/1.0-2.4 mm wall*	25	None	10	120	120
					30	120	90
PP pipe according to EN 1451-1							
Drywall/ Masonry/ Concrete	100	20 mm Ø/2.2 mm wall	25	none	30	120	120
		20 mm Ø/2.2-4.4 mm wall*			60	60	60
PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1							
Drywall/ Masonry/ Concrete	100	20 mm Ø/2.0 mm wall	25	none	10	60	60
					30	120	120

All pipe classifications are pipe end configuration U/C and C/C (U=Uncapped, C=Capped).

* seal applied to both sides of the wall



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR

Page 23/41

Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in Floors							
Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally*)	Sealant Depth (mm)	Backing Material	Aperture Ø (mm)	Fire Resistance (mins.)	
						E	EI
Concrete	150	Single electrical cables up to 21 mm Ø	25	Protecta Mineral Fibre BIO 25 mm deep	82 Ø or max. 100 x 1000	120	60

* for circular seals or min. 30 mm from the edges of rectilinear apertures

PROTECTA FR Acrylic: Single Sided Penetration Seals in Floors Installed to top side of floor / 10 mm seal width around service								
Substrate	Minimum Substrate Thickness (mm)	Services	Sealant Depth (mm)	Backing Material	Aperture (mm)	Fire Resistance (mins.)		
						E	EI	
Concrete	150	Blanks Seals	15	20 mm Stone wool 35 kg/m ³	300 x 300	90	60	
			25	25 mm Stone wool 35 kg/m ³		120	120	
		Electric cables up to 21 mm diameter, single.		48 mm Mineral Fibre BIO		240	240	
		23-27 mm diameter, 1 mm × 185 mm ² core, PVC sheath and insulation electrical cable, single	25			120	90	
						240	240	



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 24/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in Floors 25 mm deep Protecta FR Acrylic / 48 mm deep stone wool insulation 33 kg/m³ backing - Maximum seal size 300 x 300 mm or 300 mm Ø							
Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally)	Sealant Depth (mm)	Backing Material	Minimum Annular Space (mm)	Fire Resistance (mins.)	
Mild or stainless steel pipe							
Concrete	150	4 -16 mm diameter /1.0-8.0 mm wall	25	48 mm stone wool	10	120	120
Copper or steel pipe							
Concrete	150	6 mm diameter /0.7-3.0 mm wall	25	48 mm stone wool	10	120	120
		6 -15 mm diameter /0.7-7.5 mm wall				120	60
Copper or steel pipe with 80 kg/m ³ density stone wool insulation Continuous Sustained (CS)							
Concrete	150	12 mm diameter/0.9-6 mm wall, 20-80 mm insulation	25	48 mm stone wool	10	240	240
		13-54 mm diameter/0.9-14.2 mm wall, 20-80 mm insulation*				240	180
Alupex Pipe							
Concrete	150	16 -20 mm diameter/2.0 mm wall	25	48 mm stone wool	10	120	120

All pipe classifications are pipe end configuration C/C and C/C (C=Capped, C=Capped). Except for Mild or stainless steel pipe which are C/U (C=Capped, U=Uncapped)

* Typical pipe diameters shown, intermediate sizes are possible.



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR

Page 25/41

Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Floors 25 mm deep Protecta FR Acrylic / 25 mm deep stone wool insulation 33 kg/m³ backing - Maximum seal size 300 x 300 mm or 300 mm Ø							
Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally)	Sealant Depth (mm)	Backing Material	Minimum Annular Space (mm)	Fire Resistance (mins.)	
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1, PVC-C according to EN 1566-1							
Concrete	150	Up to 50 mm Ø/1.6-3.7 mm wall Up to 40 mm Ø/1.6-3.7 mm wall, with bundle of cables up to 21 mm diameter	25	25 mm stone wool	10	240	240
PP pipe according to EN 1451-1							
Concrete	150	12 mm Ø/1.2 mm wall	25	25 mm stone wool	10	240	240
		13-75 mm Ø/1.2-6.8 mm wall*				90	90
		Up to 40 mm Ø/1.2-1.8 mm wall, with bundle of cables up to 21 mm diameter				180	180
PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1							
Concrete	150	20-40 mm Ø/2.0-2.4 mm wall*	25	25 mm stone wool	10	240	240
		Up to 40 mm Ø/2.0-2.4 mm wall, with bundle of cables up to 21 mm diameter				180	180

All pipe classifications are pipe end configuration U/C and C/C (U=Uncapped, C=Capped).

* Typical pipe diameters shown, intermediate sizes are possible.

** seal fitted to both faces of the floor



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 26/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided* Penetration Seals in Floors							
Substrate	Minimum Substrate Thickness (mm)	Services (fitted centrally)	Sealant Depth (mm)	Backing Material	Aperture (mm)	Fire Resistance (mins.)	
						E	EI
Concrete	150	Blank seals	15	25 mm Stone wool 35 kg/m ³	300 x 300	240	240
		Electric cables up to 21 mm diameter, single or in a bundle.				120	120
		Electric cables 22-50 mm diameter, single or in a bundle.				120	90
		Electric cables 51-80 mm diameter, single or in a bundle.				120	60

* seal fitted to both faces of the floor



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 27/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in Floors								
Substrate	Minimum Substrate Thickness (mm)	Services – Copper Pipe	Max. Seal Size	Sealant / Backing Depth*	Insulation LI or CI	Fire Resistance (mins.)		
						E	EI	
Concrete	150	Up to 54 mm diameter/0.9-14.2 mm wall	10 mm width around pipe	15 mm / 20 mm	Min. 1000 mm of 20 mm Stone wool insulation 80 kg/m ³	240	180	
		Up to 12 mm diameter/0.9-5 mm wall				240	240	
		Up to 54 mm diameter/0.9-14.2 mm wall	Up to 100 x 1000 mm	25 mm / 20 mm		120	120	
		Up to 54 mm diameter/0.9-14.2 mm wall	300 x 300 mm	15 mm / 20 mm		90	60	
		Up to 12 mm diameter/0.9-5 mm wall				120	120	
		Up to 54 mm diameter/0.9-14.2 mm wall		25 mm / 20 mm				

LI = Local Interrupted

CI = Continuous Interrupted

* backed with 40 kg/m³ stone wool insulation or Protecta Mineral Fibre BIO.

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
 Page 28/41
 Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in Floors						
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Max. Seal Size	Sealant/Backing** Depth	Insulation min. 1000 mm LI or CI	Fire Resistance (mins.)
						E EI
Concrete	150	40 mm diameter/1-14.2 mm wall	10 mm width around pipe	15 mm / 20 mm	20 mm Stone wool insulation 80 kg/m ³	240 240
		40 mm diameter/1-14.2 mm wall			30 mm Stone wool insulation 80 kg/m ³	240 90
		50 mm diameter/1.2-14.2 mm wall*				
		60 mm diameter/1.4-14.2 mm wall*				
		75 mm diameter/1.7-14.2 mm wall*				
		90 mm diameter/2-14.2 mm wall*				
		100 mm diameter/2.2-14.2 mm wall*				
		115 mm diameter/2.5-14.2 mm wall*				
		140 mm diameter/3-14.2 mm wall*				
		165 mm diameter/3.5-14.2 mm wall*				
	Up to 1000 mm	180 mm diameter/3.8-14.2 mm wall*	Up to 100 x 1000 mm	25 mm / 20 mm	20mm Stone wool 80 kg/m ³	
		200 mm diameter/4.2-14.2 mm wall*			30 mm Stone wool 80 kg/m ³	120 90
		219 mm diameter/4.5-14.2 mm wall*				
		40 mm diameter/1-14.2 mm wall				
		50 mm diameter/1.2-14.2 mm wall*				
		60 mm diameter/1.4-14.2 mm wall*				
		75 mm diameter/1.7-14.2 mm wall*				
		90 mm diameter/2-14.2 mm wall*				
		100 mm diameter/2.2-14.2 mm wall*				
		115 mm diameter/2.5-14.2 mm wall*				

LI = Local Interrupted

CI = Continuous Interrupted

** backed with 40 kg/m³ stone wool insulation or Protecta Mineral Fibre BIO. All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

* Typical pipe diameters, intermediate sizes are possible.



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
 Page 29/41
 Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in Floors							
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Max. Seal Size	Sealant / Backing** Depth	Insulation min 1000 mm LI or CI	Fire Resistance (mins.)	
						E EI	
Concrete	150	40 mm diameter/1-14.2 mm wall	300 x 300 mm	15 mm / 20 mm	20 mm Stone wool insulation 80 kg/m ³	90 60	
		40 mm diameter/1-14.2 mm wall			30 mm Stone wool insulation 80 kg/m ³		
		50 mm diameter/1.2-14.2 mm wall*					
		60 mm diameter/1.4-14.2 mm wall*					
		75 mm diameter/1.7-14.2 mm wall*					
		90 mm diameter/2-14.2 mm wall*		25 mm / 20 mm	20mm Stone wool 80 kg/m ³	120 90	
		100 mm diameter/2.2-14.2 mm wall*			30 mm Stone wool 80 kg/m ³		
		115 mm diameter/2.5-14.2 mm wall*					
		140 mm diameter/3-14.2 mm wall*					
		165 mm diameter/3.5-14.2 mm wall*					
		180 mm diameter/3.8-14.2 mm wall*					
		200 mm diameter/4.2-14.2 mm wall*					
		219 mm diameter/4.5-14.2 mm wall*					
		40 mm diameter/1-14.2 mm wall			20mm Stone wool 80 kg/m ³		
		50 mm diameter/1.2-14.2 mm wall*			30 mm Stone wool 80 kg/m ³		
		60 mm diameter/1.4-14.2 mm wall*					
		75 mm diameter/1.7-14.2 mm wall*					
		90 mm diameter/2-14.2 mm wall*					
		100 mm diameter/2.2-14.2 mm wall*					
		115 mm diameter/2.5-14.2 mm wall*					
		140 mm diameter/3-14.2 mm wall*					
		165 mm diameter/3.5-14.2 mm wall*					
		180 mm diameter/3.8-14.2 mm wall*					
		200 mm diameter/4.2-14.2 mm wall*					
		219 mm diameter/4.5-14.2 mm wall*					

LI = Local Interrupted

CI = Continuous Interrupted

**backed with 40 kg/m³ stone wool insulation or Protecta Mineral Fibre BIO. All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

* Typical pipe diameters, intermediate sizes are possible.



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR

Page 30/41

Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in Floors Maximum seal size 300 x 300 mm							
Substrate	Minimum Substrate Thickness (mm)	Services – Gerberit Mepla MLC (PE-Xb/Aluminium/PE-HD pipe (fitted centrally)	Sealant Depth	Backing	Insulation CI	Fire Resistance (mins.)	
						E	EI
Concrete	150	16 mm diameter/2.25 mm wall	25 mm	48 mm Protecta Mineral Fibre BIO	20 mm Stone wool 80 kg/m ³ , 500 mm length from both sides of the seal	240	240
		20 mm diameter/2.5 mm wall					
		26 mm diameter/3 mm wall					
		32 mm diameter/3 mm wall					
		40 mm diameter/3.5 mm wall					
		50 mm diameter/4 mm wall					
		63 mm diameter/4.5 mm wall					
		75 mm diameter/4.7 mm wall					

CI = Continuous Interrupted

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 31/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Single Sided Penetration Seals in floors

25 mm deep Protecta FR Acrylic / 48 mm deep Protecta Mineral Fibre BIO backing - Maximum seal size 300 x 300 mm or 504 mm Ø

Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Seal Width Around Pipe (a1)	Insulation CS	Fire Resistance (mins.)	
					E	EI
Masonry/ Concrete	150	40 mm diameter/1.0-14.2 mm wall*	10 mm	20 mm Stone wool insulation 80 kg/m ³	240	240
		40 mm diameter/1.0-14.2 mm wall*				
		50 mm diameter/1.2-14.2 mm wall*				
		60 mm diameter/1.4-14.2 mm wall*				
		75 mm diameter/1.6-14.2 mm wall*				
		90 mm diameter/1.9-14.2 mm wall*				
		100 mm diameter/2.1-14.2 mm wall*				
		115 mm diameter/2.4-14.2 mm wall*				
		140 mm diameter/2.9-14.2 mm wall*				
		165 mm diameter/ 3.4-14.2 mm wall*				
		180 mm diameter/ 3.6-14.2 mm wall*				
		200 mm diameter/ 4.0-14.2 mm wall*				
		219 mm diameter/ 4.3-14.2 mm wall*				
		250 mm diameter/ 5.0-14.2 mm wall*				
Substrate	Minimum Substrate Thickness (mm)	Services – PEX pipe in pipe system (fitted centrally)	Seal Width Around Pipe (a1)	Insulation	Fire Resistance (mins.)	
					E	EI
Concrete	150	15 mm diameter x 2.5 mm wall inner /25mm diameter outer	10 mm	None	90	90

CS = Continuous Sustained

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped) Except PEX pipes which are C/C.

* Typical pipe diameters shown, intermediate sizes are possible.

** seal applied to both sides of the wall

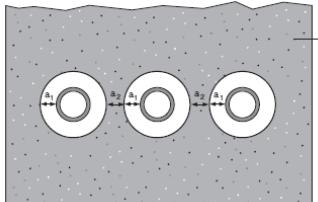
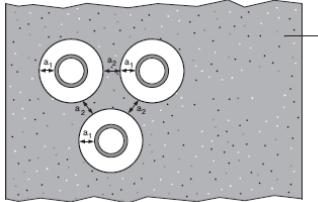


Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR

Page 32/41

Date of Issue 2015-10-09

Configuration 1	Configuration 2
	
Key	
1 Supporting construction	
a1 Pipe / edge of seal separation (annular space) = 10 mm	
a2 Separation between penetration seals = 30 mm	



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 33/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Floors						
Substrate	Minimum Substrate Thickness (mm)	Services	Max. Seal Size	Backing	Insulation	Fire Resistance (mins.)
						E EI
Concrete	150	Copper pipe 54 mm diameter/2-14.2 mm wall	300 x 300 mm	25 mm deep 140 kg/m ³ Stone wool	None	120 20
		Mild steel pipe 16 mm diameter/1.5-7.5 mm wall				240 240
		Mild steel pipe 16 mm diameter/1.5-7.5 mm wall	Up to 100 x 1000 mm	25 mm deep Protecta Mineral Fibre BIO		120 120

* Seal to both faces of floor

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 34/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Floors							
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Max. Seal Size	Backing	Insulation CS	Fire Resistance (mins.)	
						E	EI
Concrete	150	40 mm diameter/1-14.2 mm wall	300 x 300 mm	20 mm Stone wool 40 kg/m ³	13 -19 mm Elastomeric insulation minimum class B-s3,d0	180	180
		40 mm diameter/1-14.2 mm wall*					
		50 mm diameter/1.3-14.2 mm wall*					
		60 mm diameter/1.6-14.2 mm wall*					
		75 mm diameter/2-14.2 mm wall*					
		90 mm diameter/2.4-14.2 mm wall*					
		100 mm diameter/2.7-14.2 mm wall*					
		115 mm diameter/3.1-14.2 mm wall*					
		140 mm diameter/3.8-14.2 mm wall*					
		165 mm diameter/ 4.5-14.2 mm wall*					

CS = Continuous Sustained

* Typical pipe diameters, intermediate sizes are possible.

** seal to both faces of floor



Appendix UL-EU Certificate

Certificate No. **UL-EU-00912-CPR**
Page **35/41**
Date of Issue **2015-10-09**

PROTECTA FR Acrylic: Double Sided* Penetration Seals in Floors							
Substrate	Minimum Substrate Thickness (mm)	Services – Copper Pipe	Max. Seal Size	Backing	Insulation CS	Fire Resistance (mins.)	
						E	EI
Concrete	150	12 mm diameter/1 mm wall	300 x 300 mm	25 mm Protecta Mineral Fibre BIO	9 mm Elastomeric insulation minimum class B-s3,d0	240	180
		12-54 mm diameter/1-1.2 mm wall			9-13 mm Elastomeric insulation minimum class B-s3,d0	180	120
		12-54 mm diameter/1-1.2 mm wall			13-25 mm Elastomeric insulation minimum class B-s3,d0	90	60
Substrate	Minimum Substrate Thickness (mm)	Alupex Composite Pipe	Max. Seal Size	Backing	Insulation CS	Fire Resistance (mins.)	
						E	EI
Concrete	150	16 mm diameter/2.25 mm wall	300 x 300 mm	25 mm Protecta Mineral Fibre BIO	9 mm Elastomeric insulation minimum class B-s3,d0	180	180
		16 mm diameter/2.25 mm wall					
		20 mm diameter/2.5 mm wall					
		26 mm diameter/3 mm wall					
		32 mm diameter/3 mm wall					
		40 mm diameter/3.5 mm wall					
		50 mm diameter/4 mm wall					
		63 mm diameter/4.5 mm wall					
		75 mm diameter/4.7 mm wall					
		16 mm diameter/2.25 mm wall					
		20 mm diameter/2.5 mm wall					
		26 mm diameter/3 mm wall					
		32 mm diameter/3 mm wall					
		40 mm diameter/3.5 mm wall					
		50 mm diameter/4 mm wall					
		63 mm diameter/4.5 mm wall					
		75 mm diameter/4.7 mm wall					

CS = Continuous Sustained

All pipe classifications are pipe end configuration C/C (C=Capped).

* Seal to both faces of floor



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 36/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Floors 15 mm deep Protecta FR Acrylic						
Substrate	Minimum Substrate Thickness (mm)	Services – Mild or Stainless Steel Pipe (fitted centrally)	Max. Seal Size	Backing	Insulation Min. 1000 mm LI or CI	Fire Resistance (mins.)
					E	EI
Concrete	150	40 mm diameter/1-14.2 mm wall	300 x 300 mm or 100 x 1000 mm	20 deep 40 kg/m ³ stone wool insulation	20 mm Stone wool 80 kg/m ³	240
		40 mm diameter/1-14.2 mm wall*				240
		50 mm diameter/1.2-14.2 mm wall*				
		60 mm diameter/1.7-14.2 mm wall*				
		75 mm diameter/2-14.2 mm wall*				
		90 mm diameter/2-14.2 mm wall*				
		100 mm diameter/2.2-14.2 mm wall*				
		115 mm diameter/2.5-14.2 mm wall*				
		140 mm diameter/3-14.2 mm wall*				
		165 mm diameter/ 3.5-14.2 mm wall*				
		180 mm diameter/3.8-14.2 mm wall*				
		200 mm diameter/4.2-14.2 mm wall*				
		219 mm diameter/4.5-14.2 mm wall*				

LI = Local Interrupted)

CI = Continuous Interrupted

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

* Typical pipe diameters, intermediate sizes are possible.

* seal to both faces of floor

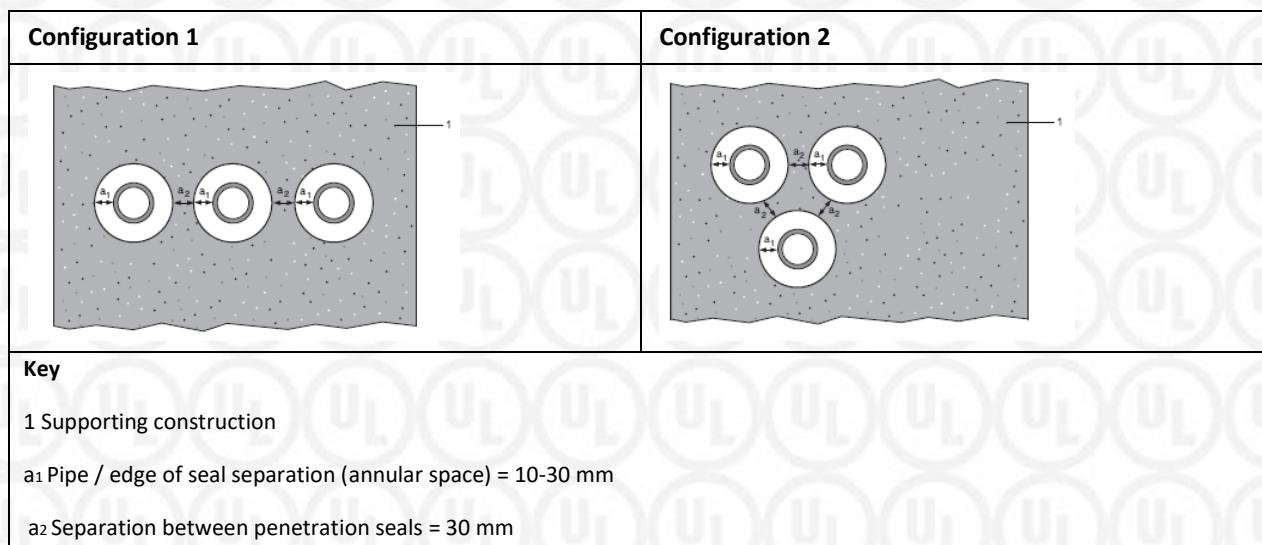


Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
 Page 37/41
 Date of Issue 2015-10-09

PROTECTA FR Acrylic: Double Sided** Penetration Seals in Floors						
Substrate	Minimum Substrate Thickness (mm)	Services (separation as per configuration 1 or 2)	Sealant Depth (mm)	Backing Material	Aperture Ø (mm)	Fire Resistance (mins.)
						E EI
Concrete	150	PP pipe according to EN 1451-1	25	25 mm Protecta Mineral Fibre BIO	65	120 120
		40 mm Ø/3 mm wall			115	180 180
		75 mm Ø/2.8 mm wall				
		PE (PE-HD) pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1	25	25 mm stone wool 140 kg/m ³	65	240 240
		40 mm Ø/4 mm wall				
		PVC-U pipes according to EN 1329-1, EN 1453-1 or EN 1452-1, PVC-C according to EN 1566-1	25	25 mm stone wool 35 kg/m ³	Up to 100	240 240
		up to 40 mm Ø and 1.6-3.4 mm wall				

All pipe classifications are pipe end configuration U/C & C/C (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
 Page 38/41
 Date of Issue 2015-10-09

PROTECTA FR Acrylic: Linear Gaps Head of Flexible Wall to Concrete Floor Soffit and Vertical End of Flexible Wall and Concrete Wall									
Substrates	Minimum Substrate Thickness (mm)	Maximum Gap Size (mm)	Seal Position/ Orientation	Minimum Seal Depth (mm)	Backing Material	Minimum Backing Depth (mm)	Fire Resistance (mins.)		
							E	EI	
Plasterboard & Concrete	100	30	Both Sides, Horizontal Joint	12.5	Stone wool 35 kg/m ³ plus 50 mm steel partition head track	12.5	120	120	
			Both Sides, Vertical Joint		Stone wool 35 kg/m ³ *	20			
			Both Sides, Horizontal Joint	25	50 mm steel partition head track / stud	50	90	90	
	75	25	Both Sides, Horizontal Joint	12.5		50			
		15	Both Sides, Vertical Joint			50			
		25	Both Sides, Horizontal Joint	12.5	50 mm steel partition head track / stud	50	60	45	
		15	Both Sides, Vertical Joint						

* Maximum partition/wall height of 3 metres.



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 39/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Linear Gaps Head of Rigid Wall to Concrete Floor Soffit and Between Rigid Walls

Substrates	Minimum Substrate Thickness (mm)	Maximum Gap Size (mm)	Seal Position/ Orientation	Minimum Seal Depth (mm)	Backing Material	Minimum Backing Depth (mm)	Fire Resistance (mins.)	
							E	EI
Masonry/ Concrete	150	30	One Side, Horizontal Joint	25	Stone wool 40 kg/m ³	20	240	60
			Both Sides, Vertical or Horizontal Joint	15			240	240
			One Side, Horizontal Joint	25	Protecta Mineral Fibre BIO	48	240	120
	50	50	One Side, Vertical joint	10	Stone wool 33 kg/m ³	60	120	120
			One Side, horizontal joint				240	60

Single sided seals may be either side (or any position between) of the wall.



Appendix UL-EU Certificate

Certificate No. UL-EU-00912-CPR
Page 40/41
Date of Issue 2015-10-09

PROTECTA FR Acrylic: Linear Gaps Between Concrete Floor Slabs or Between Floor Slab and Rigid Wall								
Substrate	Minimum Substrate Thickness (mm)	Maximum Gap Size (mm)	Seal Position	Minimum Seal Depth (mm)	Backing Material	Minimum Backing Depth (mm)	Fire Resistance (mins.)	
							E	EI
Masonry/ Concrete	150	100	Either face	25	Protecta Mineral Fibre BIO	25	120	60
			Top face				180	180
			Both sides	25	Stone wool 40 kg/m ³		120	120
				15	Stone wool 140 kg/m ³		180	180
		30	Both sides	15	Stone wool 35 kg/m ³	90	240	240
		100	Top face	10	Stone wool 33 kg/m ³		240	240



Appendix UL-EU Certificate

Certification Mark	UL-EU mark
Certificate No.	UL-EU-00912-CPR
Page	41/41
Date of Issue	2015-10-09

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.

The UL-EU Mark may appear on a label, nameplate, or may be cast, stamped or molded into the product. When appearing on a label or nameplate, the Manufacturer's name or trademark along with a model number are also required on that same label or nameplate. If cast, stamped or molded, the Manufacturer's name or trademark and model number shall also appear elsewhere on the product.

All content shall be in accordance with the details provided on this UL-EU Certificate.

PROCUREMENT

The Production site may reproduce the Mark or obtain it from a UL authorized supplier. The list of UL authorized suppliers can be found on UL's online directory at www.ul.com.



UL-EU CERTIFICATE

Certificate No. UL-EU-00915-CPR
Page 1/28
Date of Issue 2015-10-09
Revised 2016-10-04

Certificate Holder
Polyseam AS
Ravneveien 7
Linnestad Næringsområde
N-3174 Revetal
Norway

Manufacturer
Polyseam Ltd
Shaw Park
Silver Street
Huddersfield, West Yorkshire
HD5 9AF, UK

Certified Product Type Fire Stop – Pipe Wrap
Product Trade Name Protecta FR Wrap
Trademark N/A

Rating/Classification See Appendix

Harmonised Technical Specifications
Supporting Documentation

ETAG 026-2 / EN 13501-2
ETA 14/0247 EC – CERTIFICATE OF CONSTANCY OF
PERFORMANCE - 0843 – CPR – 0202, Classification
Report No. 4786457138 Issue 2

Additional information
Expiry date

N/A
2025-10-08

Certification Manager
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.



Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00915-CPR
Page 2/28
Date of Issue 2015-10-09

This certificate relates to the use of Protecta FR Wrap for fire stopping where there are service penetrations through floors and walls. The detailed scope is given in pages 3 to 28 of this Certificate. This shows the thickness and acceptable dimensions, substrates and orientations required to provide fire resistance periods of up to 240 minutes for differing services and wall/floor constructions.

The products are certificated on the basis of:

- i) ETA 14/0247
- ii) EC – CERTIFICATE OF CONSTANCY OF PERFORMANCE 0843 – CPR – 0202
- iii) Classification report No. 4786457138
- iv) Inspection and surveillance of factory production control by UL
- v) Fire resistance test data in accordance with EN 1366-3: 2009
- vi) Classification in accordance with EN 13501-2
- vii) Durability and Servicability as defined in ETAG 026-2

The durability class of Protecta FR Wrap is X - intended for use at conditions exposed to weathering. Includes lower use categories.

Protecta FR Wrap is a pipe closure device used to form penetration seals where combustible pipes and insulated metal pipes penetrate walls and floors. The Protecta FR Wrap is supplied in Polyethylene bags size according to pipe diameter.



Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00915-CPR

Page 3/28

Date of Issue 2015-10-09

Products: Protecta FR Wrap		
Product-type: Pipe Wrap		Intended use: Penetration Seal
Basic requirement for construction work	Basic Requirement	Performance
BWR 1 Mechanical resistance and stability		
-	None	Not relevant
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	Class F
EN 13501-2	Resistance to fire	See pages 4 - 25
BWR 3 Hygiene, health and environment		
EN 1026:2000	Air permeability (material property)	No performance determined
ETAG 026-2, Annex C	Water permeability (material property)	No performance determined
Submission of chemical constitution or declaration of manufacturer	Release of dangerous substances	Use categories: IA1, S/W3 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	Adhesion	No performance determined
BWR 5 Protection against noise		
EN 10140-2/ EN ISO 717-1	Airborne sound insulation	No performance determined
BWR 6 Energy economy and heat retention		
EN 12664, EN 12667 or EN 12939	Thermal properties	No performance determined
EN ISO 12572 EN 12086	Water vapour permeability	No performance determined
General aspects relating to fitness for use		
EOTA TR 024:2009, clause 3.1.11 & 3.1.12	Durability and serviceability	X
BWR 7 Sustainable use of natural resources		
-	-	No performance determined



Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00915-CPR

Page 4/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals in 100 mm thick Protecta EX Mortar seals in Walls Maximum mortar seal size 2400 mm wide x 1200 mm high**

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Mild or stainless steel pipe	Wrap Position	Wrap	Insulation	Fire Resistance (mins.)	
						E	EI
Masonry/ Concrete	150	40 mm diameter/1.5-14.2 mm wall*	Central	1 off 50 x 1.8mm	CS 13-19 mm Kaiflex ST	240	60
		50 mm diameter/1.6-14.2 mm wall*					
		60 mm diameter/1.7-14.2 mm wall*					
		75 mm diameter/1.9-14.2 mm wall*					
		90 mm diameter/2-14.2 mm wall*					
		100 mm diameter/2.1-14.2 mm wall*					
		115 mm diameter/2.3-14.2 mm wall*					
		140 mm diameter/2.6-14.2 mm wall*					
		165 mm diameter/2.8-14.2 mm wall*					
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Mild or stainless steel pipe	Wrap Position	Wrap	Insulation	Fire Resistance (mins.)	
Masonry/ Concrete	150	40 mm diameter/1.5-14.2 mm wall	Central	1 off 50 x 3.6mm	CS 13 mm Kaiflex ST	240	240
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Mild or stainless steel pipe	Wrap Position	Wrap	Insulation	Fire Resistance (mins.)	
Masonry/ Concrete	150	165 mm diameter/4.5-14.2 mm wall	Central	1 off 50 x 3.6mm	CS 9 mm Kaiflex ST	240	30
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Mild or stainless steel pipe	Wrap Position	Wrap	Insulation	Fire Resistance (mins.)	
Masonry/ Concrete	150	40 mm diameter/1.5-14.2 mm wall*	Central	1 off 50 x 3.6 mm	CS 13-25 mm Kaiflex ST	180	60
		50 mm diameter/1.8-14.2 mm wall*					
		60 mm diameter/2-14.2 mm wall*					
		75 mm diameter/2.3-14.2 mm wall*					
		90 mm diameter/2.7-14.2 mm wall*					
		100 mm diameter/2.9-14.2 mm wall*					
		115 mm diameter/3.3-14.2 mm wall*					
		140 mm diameter/3.9-14.2 mm wall*					
		165 mm diameter/4.5-14.2 mm wall*					

CS = Continuous Sustained

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).

* Typical pipe diameters shown, intermediate sizes are possible

** min. separation 10 mm from mortar seal edges



Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00915-CPR

Page 5/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals in 100 mm thick Protecta EX Mortar seals* in Walls Maximum mortar seal size 2400 mm wide x 1200 mm high

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1	Wrap Position	Wrap	Insulation	Fire Resistance (mins.)	
						E	EI
Masonry/ Concrete	150	315 mm diameter/9.2 mm wall	Central	1 off 75 x 18 mm	None	120	120

* min. separation 10 mm from mortar seal edges

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00915-CPR

Page 6/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals in 100 mm thick Protecta EX Mortar seals** in Floors Maximum mortar seal size 400 mm x 400 mm							
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Copper pipe	Wrap Position	Wrap	Insulation CS	Fire Resistance (mins.)	
						E EI	
Concrete	150	12 mm diameter/1 mm wall	Fitted to soffit of floor	1 off 50 x 3.6 mm	9 mm Kaiflex ST insulation	240	240
		12-54 mm diameter/1-1.2 mm wall			13-25 mm Kaiflex ST insulation	240	60
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Geberit Mepla MLC (PE-Xb/Aluminium/PE-HD pipe)	Wrap Position	Wrap	Insulation	Fire Resistance (mins.)	
Concrete	150	16 mm diameter/2.25 mm wall	Fitted to soffit of floor	1 off 50 x 3.6 mm	9 mm Kaiflex ST insulation	240	240
		16 mm diameter/2.25 mm wall			9-13 mm Kaiflex ST insulation	240	
		20 mm diameter/2.5 mm wall					
		26 mm diameter/3 mm wall					
		32 mm diameter/3 mm wall					
		40 mm diameter/3.5 mm wall					
		50 mm diameter/4 mm wall					
		63 mm diameter/4.5 mm wall					
		75 mm diameter/4.7 mm wall					
		16 mm diameter/2.25 mm wall			13-25 mm Kaiflex ST insulation	180	90
		20 mm diameter/2.5 mm wall					
		26 mm diameter/3 mm wall					
		32 mm diameter/3 mm wall					
		40 mm diameter/3.5 mm wall					
		50 mm diameter/4 mm wall					
		63 mm diameter/4.5 mm wall					
		75 mm diameter/4.7 mm wall					

CS = Continuous Sustained

* min. separation 25 mm from seal mortar edges and 100 mm from other services

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 7/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals in 100 mm thick Protecta EX Mortar seals* in Floors Maximum mortar seal size 2400 mm x 1200 mm							
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Copper pipe	Wrap Position	Wrap	Insulation CS	Fire Resistance (mins.)	
						E	EI
Concrete	150	12 mm diameter/1 mm wall	Fitted to soffit of floor	1 off 50 x 3.6 mm	9 mm Kaiflex ST insulation	180	180
		12-54 mm diameter/1-1.2 mm wall			13-25 mm Kaiflex ST insulation	180	60
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Geberit Mepla MLC (PE-Xb/Aluminium/PE-HD pipe)	Wrap Position	Wrap	Insulation	Fire Resistance (mins.)	
						E	EI
Concrete	150	16 mm diameter/2.25 mm wall	Fitted to soffit of floor	1 off 50 x 3.6 mm	9 mm Kaiflex ST insulation	180	180
		16 mm diameter/2.25 mm wall			13-25 mm Kaiflex ST insulation	180	90
		20 mm diameter/2.5 mm wall					
		26 mm diameter/3 mm wall					
		32 mm diameter/3 mm wall					
		40 mm diameter/3.5 mm wall					
		50 mm diameter/4 mm wall					
		63 mm diameter/4.5 mm wall					
		75 mm diameter/4.7 mm wall					

CS = Continuous Sustained

* min. separation 25 mm from seal edges and 100 mm from other services

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 8/29

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals in 100 mm thick Protecta EX Mortar seals** in Floors Maximum mortar seal size 2400 mm x 1200 mm						
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Mild or stainless steel pipe	Wrap Position	Wrap	Insulation CS	Fire Resistance (mins.)
						E EI
Concrete	150	40 mm diameter/1.5-14.2 mm wall	Fitted to soffit of seal	1 off 50 x 1.8 mm	13 mm Kaiflex ST insulation	180
		40 mm diameter/1.5-14.2 mm wall*			13-19 mm Kaiflex ST insulation	180
		50 mm diameter/1.6-14.2 mm wall*				
		60 mm diameter/1.7-14.2 mm wall*				
		75 mm diameter/1.9-14.2 mm wall*				
		90 mm diameter/2-14.2 mm wall*				
		100 mm diameter/2.1-14.2 mm wall*				
		115 mm diameter/2.3-14.2 mm wall*				
		140 mm diameter/2.6-14.2 mm wall*				
		165 mm diameter/2.8-14.2 mm wall*				

CS = Continuous Sustained

* Typical pipe diameters shown, intermediate sizes are possible

**min. separation 25 mm from seal edges and 100 mm from other services

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 9/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals in 100 mm thick Protecta EX Mortar seals* in Floors Maximum mortar seal size 2400 mm x 1200 mm fitted to top of floor						
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1	Wrap Position	Wrap	Maximum aperture	Fire Resistance (mins.)
						E EI
Concrete	150	110 mm diameter / 3 mm wall	Fitted to bottom of seal	50 x 3.6 mm	200 x 200 mm	240 240
		110 mm diameter / 3 mm wall		50 x 3.6 mm	2400 x 1200 mm	180 180
		160 mm diameter / 4.0 mm wall		75 x 6 mm	2400 x 1200 mm	180 180
		160 mm diameter / 4.0 mm wall		75 x 8 mm	300 x 300 mm	240 240
		160 mm diameter / 4.0 mm wall		75 x 8 mm	2400 x 1200 mm	180 180
		110 mm diameter / 3.4 mm wall		75 x 2 mm	2400 x 1200 mm	180 180
		110 mm diameter / 3 mm wall		50 x 5.4 mm	300 x 300 mm	240 240
		110 mm diameter / 3 mm wall		50 x 5.4 mm	2400 x 1200 mm	180 180
		125 mm diameter / 3.5 mm wall		50 x 7.2 mm	300 x 300 mm	240 240
		125 mm diameter / 3.5 mm wall		50 x 7.2 mm	2400 x 1200 mm	180 180
		160 mm diameter / 4.5 mm wall		50 x 10.8 mm	300 x 300 mm	240 240
		160 mm diameter / 4.5 mm wall		50 x 10.8 mm	2400 x 1200 mm	180 180
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - PP pipe according to EN 1451-1	Wrap Position	Wrap	Maximum aperture	Fire Resistance (mins.)
						E EI
Concrete	150	50 mm diameter / 2.5 mm wall	Fitted to bottom of seal	50 x 3.6 mm	300 x 300 mm	240 240
		50 mm diameter / 2.5 mm wall		50 x 3.6 mm	2400 x 1200 mm	180 180
		75 mm diameter / 3.5 mm wall		50 x 3.6 mm	300 x 300 mm	240 240
		75 mm diameter / 3.5 mm wall		50 x 3.6 mm	2400 x 1200 mm	180 180
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1	Wrap Position	Wrap	Maximum aperture	Fire Resistance (mins.)
						E EI
Concrete	150	125 mm diameter / 4.9 mm wall	Fitted to bottom of seal	75 x 4 mm	300 x 300 mm	240 180
		125 mm diameter / 4.9 mm wall		75 x 6 mm	2400 x 1200 mm	180 180
		250 mm diameter / 7.8 mm wall		75 x 14 mm	2400 x 1200 mm	180 180
		160 mm diameter / 6.2 mm wall		75 x 8 mm	2400 x 1200 mm	180 180

* min. separation 80 mm from seal edges and 100 mm from other services

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 10/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals in 50 mm thick Protecta EX Mortar seals*, backed with 50 mm stone wool 150 kg/m³ in Floors – mortar seal flush to top of floor

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1	Wrap Position	Wrap	Maximum aperture	Fire Resistance (mins.)	
						E	EI
Concrete	150	110 mm diameter / 4.3 mm wall	Central	50 x 2 mm	2400 x 1200 mm	60	60

* min. separation 80 mm from seal edges and 100 mm from other services

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 11/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 25 mm deep Protecta EX Mortar to both faces backed with 50 mm mineral fibre board 150 kg/m³, or 50 mm Protecta EX Mortar to both sides of the wall without backing, installed within flexible or rigid wall
Maximum mortar seal size of 2400 mm wide x 1200 mm high**

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Mild or stainless steel pipe	Wrap	Wrap Position	Insulation CS	Fire Resistance (mins.)	
						E	EI
Gypsum board, Masonry/ Concrete	100	40 mm diameter/1-14.2 mm wall	2 off 50 x 1.8 mm	One fitted flush to each face of seal	13 mm Kaiflex ST insulation	120	120
		40 mm diameter/1-14.2 mm wall*					
		50 mm diameter/1.3-14.2 mm wall*					
		60 mm diameter/1.6-14.2 mm wall*					
		75 mm diameter/2-14.2 mm wall*					
		90 mm diameter/2.4-14.2 mm wall*					
		100 mm diameter/2.7-14.2 mm wall*					
		115 mm diameter/3.1-14.2 mm wall*					
		140 mm diameter/3.8-14.2 mm wall*					
		165 mm diameter/ 4.5-14.2 mm wall*					

CS = Continuous Sustained

* Typical pipe diameters shown, intermediate sizes are possible.

**min. separation 30 mm from seal edges

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 12/28

Date of Issue 2015-10-09

**Protecta FR Wrap: Service Penetration Seals comprising 25 mm deep Protecta EX Mortar to both faces backed with 50 mm mineral fibre board 150 kg/m³, installed within flexible or rigid wall
Maximum seal size 2400 mm wide x 1200 mm high**

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Geberit Mepla MLC (PE-Xb/Aluminium/PE-HD) pipe*	Wrap	Wrap Position	Insulation LI or CI	Fire Resistance (mins.)	
						E	EI
Gypsum board, Masonry/Concrete	100	16 mm diameter/2.25 mm wall	2 off 50 x 3.6 mm	One fitted flush to each face of seal	Minimum 500 mm long by 20 mm stone wool, minimum 80 kg/m ³	120	120
		20 mm diameter/2.5 mm wall					
		26 mm diameter/3 mm wall					
		32 mm diameter/3 mm wall					
		40 mm diameter/3.5 mm wall					
		50 mm diameter/4 mm wall					
		63 mm diameter/4.5 mm wall					
		75 mm diameter/4.7 mm wall					

LI = Local Interrupted

CI = Continuous Interrupted

*min. separation 40 mm from mortar seal edges and 100 mm from other services

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 13/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 25 mm deep Protecta EX Mortar to both faces backed with 50 mm mineral fibre board 150 kg/m³, installed within flexible or rigid wall
Maximum seal size 2400 mm wide x 1200 mm long

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Copper pipe*	Wrap	Wrap Position	Insulation CS	Fire Resistance (mins.)	
						E	EI
Gypsum board, Masonry/Concrete	100	12-54 mm diameter/1-1.2 mm wall	2 off 50 x 3.6 mm	Fitted to each face of seal	9-25 mm Kaiflex ST insulation	120	120
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Geberit Mepla MLC (PE-Xb/Aluminium/PE-HD) pipe	Wrap	Wrap Position	Insulation	Fire Resistance (mins.)	
Gypsum board, Masonry/Concrete	100	16 mm diameter/2.25 mm wall				120	120
		20 mm diameter/2.5 mm wall					
		26 mm diameter/3 mm wall					
		32 mm diameter/3 mm wall					
		40 mm diameter/3.5 mm wall					
		50 mm diameter/4 mm wall					
		63 mm diameter/4.5 mm wall					
		75 mm diameter/4.7 mm wall					

CS = Continuous Sustained

*min. separation 25 mm from seal edges

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 14/28

Date of Issue 2015-10-09

**Protecta FR Wrap: Service Penetration Seals comprising 50 mm deep Protecta EX Mortar to both faces,
installed within flexible or rigid wall
Maximum seal size 2400 mm wide x 1200 mm long**

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services** - Mild or stainless steel pipe	Wrap	Wrap Position	Insulation CS	Fire Resistance (mins.)	
						E	EI
Gypsum board, Masonry/Concrete	100	40 mm diameter/1-14.2 mm wall*	2 off 50 x 3.6 mm	One fitted to each face of seal	13-32 mm Kaiflex ST insulation	120	60
		50 mm diameter/1.3-14.2 mm wall*					
		60 mm diameter/1.6-14.2 mm wall*					
		75 mm diameter/2-14.2 mm wall*					
		90 mm diameter/2.4-14.2 mm wall*					
		100 mm diameter/2.7-14.2 mm wall*					
		115 mm diameter/3.1-14.2 mm wall*					
		140 mm diameter/3.8-14.2 mm wall*					
		165 mm diameter/ 4.5-14.2 mm wall*					

CS = Continuous Sustained

* Typical pipe diameters shown, intermediate sizes are possible.

**min. separation 30 mm from seal edges)

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 15/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 1x 60 mm Protecta FR Board 2-S seals, in rigid walls - Maximum aperture size 2400 mm x 1200 mm.

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services* - Mild or stainless steel pipe	Wrap	Wrap Position	Insulation CS	Fire Resistance (mins.)	
						E	EI
Masonry/ Concrete	150	165 mm diameter/ 4.5-14.2 mm wall	1 off 50 x 1.8 mm	Central	9-25 mm Kaiflex ST/KK insulation	120	45

CS = Continuous Sustained

*min. separation 40 mm from seal edges and 100 mm from other services

All pipe classifications are pipe end configurations U/C, C/U and C/C (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 16/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 2x 50 mm Protecta FR Board 1-S seals, in flexible and rigid walls - Maximum aperture size 2400 mm x 1200 mm.						
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services* - Mild or stainless steel pipe	Wrap to both sides	Wrap Position	Insulation CS	Fire Resistance (mins.)
						E EI
Gypsum board/ Masonry/ Concrete	100	40 mm diameter/1-14.2 mm wall	50 x 5.4 mm (3 x 1.8 layer)	Central	32 mm thick K-flex Elastomeric insulation	90
		40 mm diameter/1-14.2 mm wall*				
		50 mm diameter/1.2-14.2 mm wall*				
		60 mm diameter/1.4-14.2 mm wall*				
		75 mm diameter/1.6-14.2 mm wall*				
		90 mm diameter/1.9-14.2 mm wall*				
		100 mm diameter/2.1-14.2 mm wall*				
		115 mm diameter/2.4-14.2 mm wall*				
		140 mm diameter/2.9-14.2 mm wall*			90	
		165 mm diameter/3.4-14.2 mm wall*				
		180 mm diameter/3.6-14.2 mm wall*				
		200 mm diameter/4.0-14.2 mm wall*				
		219 mm diameter/4.3-14.2 mm wall*				
		250 mm diameter/5.0-14.2 mm wall*				
		300 mm diameter/5.9-14.2 mm wall*				
		324 mm diameter/6.35-14.2 mm wall*				

CS = Continuous Sustained

* Typical pipe diameters shown, intermediate sizes are possible.

All pipe classifications are pipe end configurations C/U and C/C (U=Uncapped, C=Capped).

Configuration 1	Configuration 2
Key 1 Supporting construction a1 Pipe / top edge of seal separation = 30 mm a2 Pipe / side edge of seal separation = 30 mm a3 Pipe / pipe separation = 30 mm	



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR
Page 17/28
Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 1x 50 mm Protecta FR Board 2-S seals, in floors - Maximum aperture size 400 mm x 400 mm						
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services* - PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1	Wrap	Wrap Position	Fire Resistance (mins.)	
					E	EI
Concrete	150	110 mm diameter/ 3.4 mm wall	1 off 50 x 3.6 mm	Central	90	90

*min. separation 40 mm from seal edges and 100 mm from other services

All pipe classifications are pipe end configurations U/C and C/C (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 18/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 1x 50 mm Protecta FR Board 2-S seals, in floors - Maximum aperture size 2400 mm x 1200 mm

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services* - Mild or stainless steel pipe	Wrap	Wrap Position	Insulation CS	Fire Resistance (mins.)	
						E	EI
Concrete	150	165 mm diameter/ 4.5-14.2 mm wall	1 off 50 x 3.6 mm	Fitted to the bottom of the seal	13 mm Kaiflex ST insulation	120	45
					19 mm Kaiflex ST insulation	90	90

CS = Continuous Sustained

*min. separation 40 mm from seal edges and 100 mm from other service

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 19/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 2x 60 mm Protecta FR Board 2-S seals (separated), in floors - Maximum aperture size 2400 mm x 1200 mm							
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Mild or stainless steel pipe	Wrap	Wrap Position	Insulation CS	Fire Resistance (mins.)	
						E	EI
Concrete	150	40 mm diameter/ 1-14.2 mm wall	1 off 50 x 3.6 mm	Fitted to the bottom of the seal	13 mm Kaiflex ST insulation	180	120

CS = Continuous Sustained

*min. separation 40 mm from seal edges and 100 mm from other services

All pipe classifications are pipe end configuration C/U (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 20/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 2x 60 mm Protecta FR Board 2-S seals (back to back), in floors - Maximum aperture size 2400 mm x 1200 mm						
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services* - Copper pipe	Wrap	Wrap Position	Insulation CS	Fire Resistance (mins.)
						E EI
Concrete	150	12-54 mm diameter/1-1.2 mm wall	1 off 50 x 3.6 mm	Fitted to both sides of the seal	9-13 mm Kaiflex ST insulation	240 60
					13-25 mm Kaiflex ST insulation	180 45
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Geberit Mepla MLC (PE-Xb/Aluminium/PE-HD pipe)	Wrap	Wrap Position	Insulation CS	Fire Resistance (mins.)
						E EI
Concrete	150	16 mm diameter/2.25 mm wall	1 off 50 x 3.6 mm	Fitted to both sides of the seal	9 mm Kaiflex ST insulation	120 120
		20 mm diameter/2.5 mm wall				
		26 mm diameter/3 mm wall				
		32 mm diameter/3 mm wall				
		40 mm diameter/3.5 mm wall				
		50 mm diameter/4 mm wall				
		63 mm diameter/4.5 mm wall				
		75 mm diameter/4.7 mm wall				
		16 mm diameter/2.25 mm wall			13-25 mm Kaiflex ST insulation	60 45
		20 mm diameter/2.5 mm wall				
		26 mm diameter/3 mm wall				
		32 mm diameter/3 mm wall				
		40 mm diameter/3.5 mm wall				
		50 mm diameter/4 mm wall				
		63 mm diameter/4.5 mm wall				
		75 mm diameter/4.7 mm wall				

CS = Continuous Sustained

*min. separation 40 mm from seal edges and 100 mm from other services

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 21/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 2x 50 mm Protecta FR Board 1-S, in flexible or rigid walls - Maximum aperture size 2400 mm x 1200 mm

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services** - Copper pipe	Wrap	Wrap Position	Insulation CS	Fire Resistance (mins.)	
						E	EI
Gypsum board, Concrete/Masonry	100	40 mm diameter/1-14.2 mm wall	1 off 50 x 1.8 mm	Central	13 mm Kaiflex ST insulation	120	120
		40 mm diameter/1-14.2 mm wall*	2 off 50 x 3.6 mm	One fitted flush to each side of the seal	13 -32 mm Kaiflex ST insulation	120	60
		50 mm diameter/1.3-14.2 mm wall*					
		60 mm diameter/1.6-14.2 mm wall*					
		75 mm diameter/2-14.2 mm wall*					
		90 mm diameter/2.4-14.2 mm wall*					
		100 mm diameter/2.7-14.2 mm wall*					
		115 mm diameter/3.1-14.2 mm wall*					
		140 mm diameter/3.8-14.2 mm wall*					
		165 mm diameter/ 4.5-14.2 mm wall*					

CS = Continuous Sustained

* Typical pipe diameters shown, intermediate sizes are possible.

**min. separation 40 mm from seal edges and 100 mm from other services

All pipe classifications are pipe end configurations U/C, U/U, C/U and C/C (U=Uncapped, C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 22/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 2x 50 mm Protecta FR Board 1-S, in flexible or rigid wall - Maximum aperture size 2400 mm x 1200 mm.

Substrate	Minimum Substrate Thickness (mm)	Penetrating Services* - Copper pipe	Wrap	Wrap Position	Insulation LS or CS Min. 350 mm	Fire Resistance (mins.)	
						E	EI
Gypsum board, Masonry/Concrete	100	12 mm diameter/1 mm wall	2 off 50 x 3.6 mm	One fitted to each face of seal	9 mm Kaiflex ST insulation	120	120
		12-54 mm diameter/1-1.2 mm wall			9-13 mm Kaiflex ST insulation	120	90
		12-54 mm diameter/1-1.2 mm wall			13-25 mm Kaiflex ST insulation	120	60
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - Geberit Mepla MLC (PE-Xb/Aluminium/PE-HD) pipe	Wrap	Wrap Position	Insulation LS or CS Min. 350 mm	Fire Resistance (mins.)	
Gypsum board, Masonry/Concrete	100	16 mm diameter/2.25 mm wall	2 off 50 x 3.6 mm	One fitted to each face of seal	9-25 mm Kaiflex ST insulation	120	120
		20 mm diameter/2.5 mm wall					
		26 mm diameter/3 mm wall					
		32 mm diameter/3 mm wall					
		40 mm diameter/3.5 mm wall					
		50 mm diameter/4 mm wall					
		63 mm diameter/4.5 mm wall					
		75 mm diameter/4.7 mm wall					

LS = Local Sustained

CS = Continuous Sustained

*min. separation 40 mm from seal edges and 100 mm from other services

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 23/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals comprising 2x Protecta FR Board 1-S, in flexible or rigid wall - Maximum aperture size 2400 mm x 1200 mm						
Substrate	Minimum Substrate Thickness (mm)	Penetrating Services - PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1	Wrap	Wrap Position	Fire Resistance (mins.)	
					E	EI
Gypsum board, Masonry/Concrete	100	315 mm diameter/ 9.2 mm wall	1 off 75 x 18 mm	Central	45	45

All pipe classifications are pipe end configuration C/C (C=Capped).



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 24/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals Comprising 2x Protecta FR Board 1-S, in flexible or rigid walls						
Substrate	Minimum Wall Thickness (mm)	Penetrating Services* - PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1, PVC-C according to EN 1566-1	Wrap Position	Wrap	Permitted Configuration for Seal Separation#	Fire Resistance (mins.)
						E EI
Gypsum board, Masonry/Concrete	100	Diameter up to 40 mm, wall thickness 1.9 – 3.0 mm*	Both Sides	50 x 1.8 mm (1 layer)	1 & 2 between PVC-U/PVC-C, PE/ABS/SAN+PVC and PP pipes in any combination	120 120
		Diameter up to 110 mm, wall thickness 2.7 - 6.6 mm		50 x 3.6 mm (2 x 1.8 layer)		120 90
		Diameter up to 125 mm, wall thickness 3.7 – 7.4 mm		50 x 5.4 mm (3 x 1.8 layer)		
		Diameter up to 160 mm, wall thickness 9.5 mm		50 x 7.2 mm (4 x 1.8 layer)		
Gypsum board, Masonry/Concrete	100	Penetrating Services* - PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1	Both Sides	Wrap	Permitted Configuration for Seal Separation#	Fire Resistance (mins.)
		Diameter up to 40 mm, wall thickness 2.4 – 3.7 mm*		50 x 1.8 mm (1 layer)	1 & 2 between PVC-U/PVC-C, PE/ABS/SAN+PVC and PP pipes in any combination	120 120
		Diameter up to 110 mm, wall thickness 4.2 - 10 mm		50 x 3.6 mm (2 x 1.8 layer)		120 90
		Diameter up to 125 mm, wall thickness 4.8 – 12 mm		50 x 5.4 mm (3 x 1.8 layer)		
Gypsum board, Masonry/Concrete	100	Diameter up to 160 mm, wall thickness 14.6 mm		50 x 7.2 mm (4 x 1.8 layer)		
Gypsum board, Masonry/Concrete	100	Penetrating Services* - PP pipe according to EN 1852-1: 2009	Both Sides	Wrap	Permitted Configuration for Seal Separation#	Fire Resistance (mins.)
		Diameter up to 40 mm, wall thickness 1.8 – 5.5 mm*		50 x 1.8 mm (1 layer)	1 & 2 between PVC-U/PVC-C, PE/ABS/SAN+PVC and PP pipes in any combination	120 120
		Diameter up to 110 mm, wall thickness 2.7 - 15.1 mm*		50 x 3.6 mm (2 x 1.8 layer)		90 90
		Diameter up to 125 mm, wall thickness 3.1 – 17.1 mm		50 x 5.4 mm (3 x 1.8 layer)		120 90
		Diameter up to 160 mm, wall thickness 21.9 mm		50 x 7.2 mm (4 x 1.8 layer)		

* Minimum separation between penetration seals and seal edges of 30 mm.

All pipe classifications are pipe end configurations U/C & C/C only, with the exception of those marked '*' which are U/C, U/U, C/U and C/C (U=Uncapped, C=Capped).

For further details of permitted seal configuration see diagrams on page 25.



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 25/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals Comprising 25 mm deep Protecta EX Mortar to both faces backed with 50 mm mineral fibre board, installed within flexible or rigid wall

Substrate	Minimum Wall Thickness (mm)	Penetrating Services* - PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1, PVC-C according to EN 1566-1	Wrap Position	Wrap	Permitted Configuration for Seal Separation#	Fire Resistance (mins.)	
						E	EI
Gypsum board, Masonry/Concrete	100	Diameter up to 40 mm, wall thickness 3.0 – 4.3 mm*	Both Sides	50 x 1.8 mm (1 layer)	1 & 2 between PVC-U/PVC-C, PE/ABS/SAN+PVC and PP pipes in any combination	120	60
		Diameter up to 110 mm, wall thickness 2.7 - 6.6 mm*		50 x 3.6 mm (2 x 1.8 layer)		120	90
		Diameter up to 125 mm, wall thickness 3.7 – 7.4 mm		50 x 5.4 mm (3 x 1.8 layer)		120	120
		Diameter up to 160 mm, wall thickness 3.2 - 9.5 mm		50 x 7.2 mm (4 x 1.8 layer)		60	60
Gypsum board, Masonry/Concrete	100	Penetrating Services* - PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1	Both Sides	Wrap	Permitted Configuration for Seal Separation#	Fire Resistance (mins.)	
		Diameter up to 40 mm, wall thickness 3.2 – 3.7 mm		50 x 1.8 mm (1 layer)		120	120
		Diameter up to 110 mm, wall thickness 4.2 - 10 mm		50 x 3.6 mm (2 x 1.8 layer)		60	60
		Diameter up to 125 mm, wall thickness 12 mm		50 x 5.4 mm (3 x 1.8 layer)		120	120
		Diameter up to 160 mm, wall thickness 4.9 – 12.0 mm		50 x 7.2 mm (4 x 1.8 layer)		120	120
Gypsum board, Masonry/Concrete	100	Diameter up to 160 mm, wall thickness 12.0 mm		Wrap	Permitted Configuration for Seal Separation#	Fire Resistance (mins.)	
		Penetrating Services* - PP pipe according to EN 1852-1: 2009	Both Sides	Wrap		Fire Resistance (mins.)	
		Diameter up to 40 mm, wall thickness 4.0 – 5.5 mm		50 x 1.8 mm (1 layer)		120	120
		Diameter up to 110 mm, wall thickness 6.6 mm*		50 x 3.6 mm (2 x 1.8 layer)		120	90
		Diameter up to 125 mm, wall thickness 17.1 mm*		50 x 5.4 mm (3 x 1.8 layer)		120	90
Gypsum board, Masonry/Concrete	100	Diameter up to 160 mm, wall thickness 4.0 - 21.9 mm	Both Sides	50 x 7.2 mm (4 x 1.8 layer)	1 & 2 between PVC-U/PVC-C, PE/ABS/SAN+PVC and PP pipes in any combination	120	120
		Diameter up to 160 mm, wall thickness 21.9 mm		Wrap		60	60

*Minimum separation between penetration seals and seal edges of 30 mm.

Partition walls must incorporate a full fill core insulation of Stonewool (35kg/m³ density).

All pipe classifications are pipe end configurations U/C & C/C only, with the exception of those marked '*' which are U/C, U/U, C/U and C/C (U=Uncapped, C=Capped).

For further details of permitted seal configuration see diagrams on page 25.

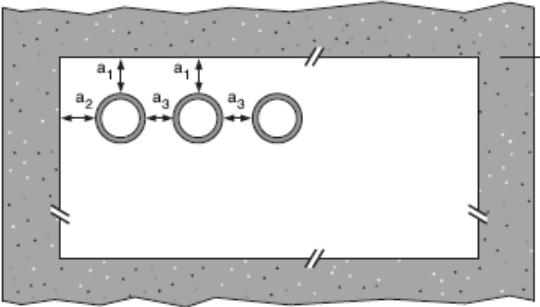
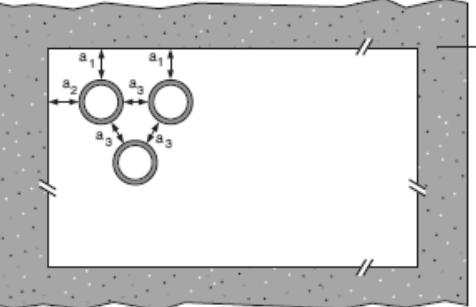


Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

Page 26/28

Date of Issue 2015-10-09

Configuration 1	Configuration 2
	

Key

- 1 Supporting construction
- a1 Pipe / top edge of seal separation
- a2 Pipe / side edge of seal separation
- a3 Pipe / pipe separation



Appendix UL-EU Certificate

Certificate No. UL-EU-00915-CPR

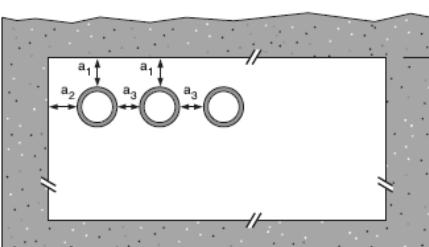
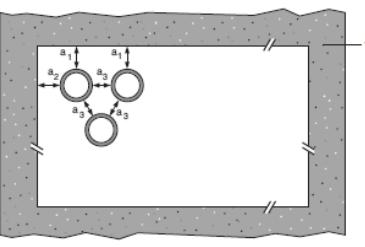
Page 27/28

Date of Issue 2015-10-09

Protecta FR Wrap: Service Penetration Seals Comprising 100 mm deep Protecta EX Mortar, Installed in a Concrete Floor

Substrate	Minimum Floor Thickness (mm)	Penetrating Services* - Mild or Stainless Steel pipe	Wrap Position	Wrap	Pipe insulation CS	Fire Resistance (mins.)	
						E	EI
Concrete	150	40 mm diameter/1-14.2 mm wall	Soffit	50 x 3.6 mm (2 x 1.8 layer)	25mm thick K-flex Elastomeric insulation	240	240
		50 mm diameter/1.2-14.2 mm wall*				240	120
		60 mm diameter/1.4-14.2 mm wall*				240	120
		75 mm diameter/1.6-14.2 mm wall*				240	120
		90 mm diameter/1.9-14.2 mm wall*				240	120
		100 mm diameter/2.1-14.2 mm wall*				240	120
		115 mm diameter/2.4-14.2 mm wall*				240	120
		140 mm diameter/2.9-14.2 mm wall*				240	120
		165 mm diameter/ 3.4-14.2 mm wall*		50 x 5.4 mm (3 x 1.8 layer)	25-50mm thick K-flex Elastomeric insulation	120	120
		180 mm diameter/ 3.6-14.2 mm wall*				120	120
		200 mm diameter/ 4.0-14.2 mm wall*				120	120
		219 mm diameter/ 4.3-14.2 mm wall*				120	120
		250 mm diameter/ 5.0-14.2 mm wall*				120	120
		300 mm diameter/ 5.9-14.2 mm wall*				120	120
		324 mm diameter/ 6.35-14.2 mm wall*				120	120
		40 mm diameter/1-14.2 mm wall*				120	120

All pipe classifications are pipe end configurations C/U and C/C (U=Uncapped, C=Capped).

Configuration 1	Configuration 2
	

Key

- 1 Supporting construction
- a1 Pipe / top edge of seal separation = 30 mm
- a2 Pipe / side edge of seal separation = 30 mm
- a3 Pipe / pipe separation = 30 mm



Appendix UL-EU Certificate

Certification Mark **UL-EU mark**
Certificate No. **UL-EU-00915-CPR**
Page **28/28**
Date of Issue **2015-10-09**

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.

The UL-EU Mark may appear on a label, nameplate, or may be cast, stamped or molded into the product. When appearing on a label or nameplate, the Manufacturer's name or trademark along with a model number are also required on that same label or nameplate. If cast, stamped or molded, the Certificate Manufacturer's name or trademark and model number shall also appear elsewhere on the product.

All content shall be in accordance with the details provided on this UL-EU Certificate.

PROCUREMENT

The Production site may reproduce the Mark or obtain it from a UL authorized supplier. The list of UL authorized suppliers can be found on UL's online directory at www.ul.com.



Oberoi Constructions Limited					
Commerz, 3rd Floor, Int'l Business Park, Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063 Tel : 02266773333 CIN:U45202MH1993PLC074836					
WORK ORDER					
PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602
Please prepare challan / bill in the name of: Oberoi Constructions Limited					
Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia		
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080		
Contact: Tel:	Joseph Parackal 7506334402 Mobile: 9867134152	Contact: Tel:	02266773333 Mobile :		
PAN :		GSTIN	27AABCF2178C1ZX	PAN:	AAACO1805E GSTIN 27AAACO1805E1ZX
Sr. No.	Work Description with Specification		Unit	Qty	Rate
					Amount (INR)
00010.	TA -MCA Area - Bal Work HSN/SAC: :		AU	1.000	293,765.00
1)	50mm dia core X 32mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for PVC pipe of 32mm dia passing through RCC core of 50mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application to be provided on both ends of RCC core as per Annexure 3 - Technical Specification.		NOS	738.000	89.20
2)	50mm dia core X 12mm dia pipe X100mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 12mm dia passing through RCC core of 50mm dia and 100mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.		NOS	82.000	84.50
3)	80mm dia core X 50mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 50mm dia passing through RCC core of 80mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.		NOS	328.000	140.90
4)	80mm dia core X 65mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 65mm dia passing through RCC core of 80mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.		NOS	164.000	79.80
	Total (INR) :	1,189,390.00			

Date:-22.12.2021 Time:-16:44:55

Page:- 1 of *



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN:U45202MH1993PLC074836

WORK ORDER

PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080
Contact:	Joseph Parackal	Contact:	02266773333 Mobile :

PAN :	GSTIN	27AABC2178C1ZX	PAN:	AAACO1805E	GSTIN	27AAACO1805E1ZX
Sr. No.	Work Description with Specification		Unit	Qty	Rate	Amount (INR)
5)	50mm dia core X 20mm dia pipe X200mm dep Design, Supply and install fire stopping treatment (2 hr fire rated) for FRLS Cables of 20mm dia passing through RCC core of 50mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	82.000	75.10	6,158.20	
6)	150mm dia core X 80mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 80mm dia passing through RCC core of 150mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	41.000	572.90	23,488.90	
7)	150mm dia core X 75mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for PVC pipe of 75mm dia passing through RCC core of 150mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	41.000	1,619.80	66,411.80	
8)	75mm dia core X 50mm dia pipe X425mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 50mm dia passing through RCC core of 75mm dia and 425mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	246.000	112.70	27,724.20	
9)	50mm dia core X 12mm dia pipe X425mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS cables of 12mm dia passing through RCC core of 50mm dia and	NOS	246.000	84.50	20,787.00	

Total (INR) :

1,189,390.00

Date:-22.12.2021 Time:-16:44:55

Page:- 2 of *



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN:U45202MH1993PLC074836

WORK ORDER

PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia				
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080				
Contact: Tel:	Joseph Parackal 7506334402 Mobile: 9867134152	Contact: Tel:	02266773333 Mobile :				
PAN :		GSTIN	27AABCF2178C1ZX	PAN:	AAACO1805E	GSTIN	27AAACO1805E1ZX
Sr. No.	Work Description with Specification	Unit	Qty	Rate	Amount (INR)		
10)	425mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	41.000	126.80	5,198.80		
11)	100mm dia core X 80mm dia pipe X230mm de Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 80mm dia passing through RCC core of 100mm dia and 230mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	41.000	126.80	5,198.80		
12)	75mm dia core X 32mm dia pipe X230mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 32mm dia passing through RCC core of 75mm dia and 230mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	41.000	164.30	6,736.30		
00020.	Providing <>&<> installation fire proofing for MEP penetrations in Master Common Area as per Manufacturer's specification. TB- -MCA Area-Bal Work HSN/SAC: :	AU	1.000	293,765.00	293,765.00		
1)	50mm dia core X 32mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for PVS pipe of 32mm dia passing through RCC core of 50mm dia and	NOS	738.000	89.20	65,829.60		
Total (INR) :					1,189,390.00		

Date:-22.12.2021 Time:-16:44:55

Page:- 3 of *



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN:U45202MH1993PLC074836

WORK ORDER

PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia		
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080 -		
Contact:	Joseph Parackal	Contact:	02266773333 Mobile :		
PAN :		GSTIN	27AABCF2178C1ZX	PAN:	AAACO1805E GSTIN 27AAACO1805E1ZX
Sr. No.	Work Description with Specification	Unit	Qty	Rate	Amount (INR)
2)	<p>200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor.</p> <p>Application shall be as per Annexure 3 - Technical Specification.</p> <p>50mm dia core X 12mm dia pipe X100mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 12mm dia passing through RCC core of 50mm dia and 100mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor.</p>	NOS	82.000	84.50	6,929.00
3)	<p>Application method shall be as per Annexure 3 - Technical Specification.</p> <p>80mm dia core X 50mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 50mm dia passing through RCC core of 80mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor.</p>	NOS	328.000	140.90	46,215.20
4)	<p>Application method shall be as per Annexure 3 - Technical Specification.</p> <p>80mm dia core X 65mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 65mm dia passing through RCC core of 80mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor.</p>	NOS	164.000	79.80	13,087.20
5)	<p>Application method shall be as per Annexure 3 - Technical Specification.</p> <p>50mm dia core X 20mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 20mm dia passing through RCC core of 50mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement</p>	NOS	82.000	75.10	6,158.20
Total (INR) :			1,189,390.00		

Date:-22.12.2021 Time:-16:44:55

Page:- 4 of *



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN:U45202MH1993PLC074836

WORK ORDER

PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia		
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080		
Contact:	Joseph Parackal	Contact:	02266773333 Mobile :		
Tel:	7506334402 Mobile: 9867134152	Tel:	PAN:	AAACO1805E	GSTIN 27AAACO1805E1ZX
PAN :		GSTIN 27AABCF2178C1ZX	Unit	Qty	Rate
Sr. No.	Work Description with Specification				Amount (INR)
6)	accomodation factor. Application method shall be as per Annexure 3 - Technical Specification. 150mm dia core X 80mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 80mm dia passing through RCC core of 150mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor.	NOS	41.000	572.90	23,488.90
7)	Application method shall be as per Annexure 3 - Technical Specification. 150mm dia core X 75mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for PVC pipe of 75mm dia passing through RCC core of 150mm dia and 200mm deep in Master Common Are . The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor Application will be as per Annexure 3 - Technical Specification.	NOS	41.000	1,619.80	66,411.80
8)	75mm dia core X 50mm dia pipe X425mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 50mm dia passing through RCC core of 75mm dia and 425mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	246.000	112.70	27,724.20
9)	50mm dia core X 12mm dia pipe X425mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS cables of 12mm dia passing through RCC core of 50mm dia and 425mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	246.000	84.50	20,787.00
Total (INR) :			1,189,390.00		

Date:-22.12.2021 Time:-16:44:55

Page:- 5 of *



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN:U45202MH1993PLC074836

WORK ORDER

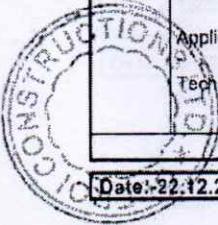
PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia				
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080				
Contact: Tel:	Joseph Parackal 7506334402 Mobile: 9867134152	Contact: Tel:	02266773333 Mobile :				
PAN :	GSTIN 27AABCF2178C1ZX	PAN:	AAACO1805E	GSTIN	27AAACO1805E1ZX		
Sr. No.	Work Description with Specification	Unit	Qty	Rate	Amount (INR)		
10)	100mm dia core X 80mm dia pipe X230mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 80mm dia passing through RCC core of 100mm dia and 230mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	41.000	126.80	5,198.80		
11)	100mm dia core X 80mm dia pipe X230mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 80mm dia passing through RCC core of 100mm dia and 230mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	41.000	126.80	5,198.80		
12)	75mm dia core X 32mm dia pipe X230mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 32mm dia passing through RCC core of 75mm dia and 230mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	41.000	164.30	6,736.30		
00030.	Providing <(>&<>) installation fire proofing for MEP penetrations in Master Common Area as per Manufacturer's specification. TC -MCA Area -Bal Work HSN/SAC: :	AU	1.000	300,930.00	300,930.00		
1)	50mm dia core X 32mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for PVC pipe of 32mm dia passing through RCC core of 50mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application to be provided on both ends of RCC core as per Annexure 3 Technical Specification.	NOS	756.000	89.20	67,435.20		
Total (INR) :				1,189,390.00			

Date:-22.12.2021 Time:-16:44:55

Page:- 6 of *



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN:U45202MH1993PLC074836

WORK ORDER

PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia		
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080		
Contact: Tel:	Joseph Parackal 7506334402 Mobile: 9867134152	Contact: Tel:	02266773333 Mobile :		
PAN :	GSTIN 27AABCF2178C1ZX	PAN:	AAACO1805E	GSTIN 27AAACO1805E1ZX	
Sr. No.	Work Description with Specification	Unit	Qty	Rate	Amount (INR)
2)	50mm dia core X 12mm dia pipe X100mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 12mm dia passing through RCC core of 50mm dia and 100mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	84.000	84.50	7,098.00
3)	80mm dia core X 50mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 50mm dia passing through RCC core of 80mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	336.000	140.90	47,342.40
4)	80mm dia core X 65mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 65mm dia passing through RCC core of 80mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	168.000	79.80	13,406.40
5)	50mm dia core X 20mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 20mm dia passing through RCC core of 50mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	84.000	75.10	6,308.40
6)	150mm dia core X 80mm dia pipe X200mm de Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 80mm dia passing through RCC core of 150mm dia	NOS	42.000	572.90	24,061.80
Total (INR) :			1,189,390.00		

Date:-22.12.2021 Time:-16:44:55

Page:- 7 of *



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN:U45202MH1993PLC074836

WORK ORDER

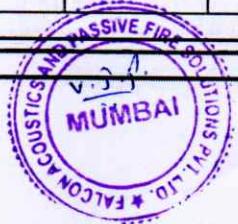
PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia				
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080				
Contact:	Joseph Parackal	Contact:					
Tel:	7506334402 Mobile: 9867134152	Tel:	02266773333 Mobile :				
PAN :		GSTIN	27AABCF2178C1ZX	PAN:	AAACO1805E	GSTIN	27AAACO1805E1ZX
Sr. No.	Work Description with Specification	Unit	Qty	Rate	Amount (INR)		
7)	and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	42.000	1,619.80	68,031.60		
8)	150mm dia core X 75mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for PVC pipe of 75mm dia passing through RCC core of 150mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 -Technical Specification.	NOS	252.000	112.70	28,400.40		
9)	75mm dia core X 50mm dia pipe X425mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 50mm dia passing through RCC core of 75mm dia and 425mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	252.000	84.50	21,294.00		
10)	50mm dia core X 12mm dia pipe X425mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS cables of 12mm dia passing through RCC core of 50mm dia and 425mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	42.000	126.80	5,325.60		
Total (INR) :			1,189,390.00				

Date:-22.12.2021 Time:-16:44:55

Page:- 8 of *



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN: U45202MH1993PLC074836

WORK ORDER

PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia			
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080			
Contact: Tel:	Joseph Parackal 7506334402 Mobile: 9867134152	Contact: Tel:	02266773333 Mobile :			
PAN :		GSTIN	27AABCF2178C1ZX	PAN:	AAACO1805E	GSTIN
Sr. No.	Work Description with Specification	Unit	Qty	Rate	Amount (INR)	
	UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	42.000	126.80	5,325.60	
11)	100mm dia core X 80mm dia pipe X230mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 80mm dia passing through RCC core of 100mm dia and 230mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	42.000	164.30	6,900.60	
12)	75mm dia core X 32mm dia pipe X230mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 32mm dia passing through RCC core of 75mm dia and 230mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS				
00040.	Providing <(>&<>) installation fire proofing for MEP penetrations in Master Common Area as per Manufacturer's specification. TD -MCA Area - Bal Work HSN/SAC: :	AU	1.000	300,930.00	300,930.00	
1)	50mm dia core X 32mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for PVC pipe of 32mm dia passing through RCC core of 50mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application to be provided on both ends of RCC core as per Annexure 3 - Technical Specification.	NOS	756.000	89.20	67,435.20	
2)	50mm dia core X 12mm dia pipe X100mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 12mm dia passing through RCC core of 50mm dia and 100mm deep in Master Common Area. The fire stopping system shall be	NOS	84.000	84.50	7,098.00	
Total (INR) :						1,189,390.00

Date:-22.12.2021 Time:-16:44:55

Page:- 9 of *



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN:U45202MH1993PLC074836

WORK ORDER

PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia			
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson 400080			
Contact:	Joseph Parackal	Contact:				
Tel:	7506334402 Mobile: 9867134152	Tel:	02266773333 Mobile :			
PAN :		GSTIN	27AABCF2178C1ZX	PAN:	AAACO1805E GSTIN	27AAACO1805E1ZK
Sr. No.	Work Description with Specification	Unit	Qty	Rate	Amount (INR)	
3)	compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification. 80mm dia core X 50mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 50mm dia passing through RCC core of 80mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	336.000	140.90	47,342.40	
4)	80mm dia core X 65mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 65mm dia passing through RCC core of 80mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	168.000	79.80	13,406.40	
5)	50mm dia core X 20mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 20mm dia passing through RCC core of 50mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	84.000	75.10	6,308.40	
6)	150mm dia core X 80mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS Cables of 80mm dia passing through RCC core of 150mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accomodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	42.000	572.90	24,061.80	

Total (INR) :

1,189,390.00

Date:-22.12.2021 Time:-16:44:55

Page:- 10 of 13



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN: U45202MH1993PLC074836

WORK ORDER

PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia					
Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080					
Contact: Tel:	Joseph Parackal 7506334402 Mobile: 9867134152	Contact: Tel:	02266773333 Mobile :					
PAN :	GSTIN 27AABC2178C1ZX	PAN:	AAACCO1805E	GSTIN 27AAACO1805E1ZX	Unit	Qty	Rate	Amount (INR)
Sr. No.	- Work Description with Specification							
7	Application method shall be as per Annexure 3 - Technical Specification. 150mm dia core X 75mm dia pipe X200mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for PVC pipe of 75mm dia passing through RCC core of 150mm dia and 200mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor Application method shall be as per Annexure 3 -Technical Specification.	NOS	42.000	1,619.80		68,031.60		
8	75mm dia core X 50mm dia pipe X425mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 50mm dia passing through RCC core of 75mm dia and 425mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	252.000	112.70		28,400.40		
9	50mm dia core X 12mm dia pipe X425mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for FRLS cables of 12mm dia passing through RCC core of 50mm dia and 425mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	252.000	84.50		21,294.00		
10	100mm dia core X 80mm dia pipe X230mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 80mm dia passing through RCC core of 100mm dia and 230mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification.	NOS	42.000	126.80		5,325.60		
Total (INR) :			1,189,390.00					

Date:-22.12.2021 Time:-16:44:55

Page:- 11 of 13



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN:U45202MH1993PLC074836

WORK ORDER

PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

Contractor:	Falcon Acoustics & Passive Fire Solution Pvt Ltd	Site:	Eternia
-------------	--	-------	---------

Address:	Plot 60-A, Kandivali Industrial Area, Charkop, Kandivali (W) Mumbai-400067	Address:	LBS Road Mulund Near Johnson & Johnson -400080
----------	--	----------	--

Contact:	Joseph Parackal	Contact:	
Tel:	7506334402 Mobile: 9867134152	Tel:	02266773333 Mobile :

PAN :	GSTIN 27AABCF2178C1ZX	PAN:	AAACO1805E	GSTIN 27AAACO1805E1ZX
-------	-------------------------	------	------------	-------------------------

Sr. No.	Work Description with Specification	Unit	Qty	Rate	Amount (INR)
11)	100mm dia core X 80mm dia pipe X230mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 80mm dia passing through RCC core of 100mm dia and 230mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification	NOS	42.000	126.80	5,325.60
12)	75mm dia core X 32mm dia pipe X230mm dep Design, Supply and Install fire stopping treatment (2 hr fire rated) for GI pipe of 32mm dia passing through RCC core of 75mm dia and 230mm deep in Master Common Area. The fire stopping system shall be compliant with UL standards, sealant shall provide sufficient movement accommodation factor. Application method shall be as per Annexure 3 - Technical Specification. Providing <(>&<>) installation fire proofing for MEP penetrations in Master Common Area as per Manufacturer's specification.	NOS	42.000	164.30	6,900.60

Approved By : Sunil Menon
Place : Mumbai
Date : 27-12-2021
1,189,390.00

Total (INR) :

Date:-22.12.2021 Time:-16:44:55

Page:- 12 of 13



Oberoi Constructions Limited

Commerz, 3rd Floor, Int'l Business Park,
Oberoi Garden City, Off W. E. Highway, Goregaon (E), Mumbai-400063
Tel : 02266773333 CIN:U45202MH1993PLC074836

WORK ORDER

PR No.	1010014240	PR Date	14.12.2021	W.O. No.	4610008602	W.O Date	22.12.2021
--------	------------	---------	------------	----------	------------	----------	------------

Please prepare challan / bill in the name of: Oberoi Constructions Limited

			Amount (INR)
*	IN: Central GST@9.000 %		107,045.10
*	IN: State GST@9.000 %		107,045.10
Work to Start : 25.12.2021			Work to Complete : 31.12.2022
Payment Terms :	100% pymt within 7 days from recp inv at site	Grand Total (INR) R/o: Amount in Words (INR) :	1,403,480 Fourteen Lakh Three Thousand Four Hundred Eighty Only

General Terms and Conditions:

- 1) Unsigned Purchase Order/Work Order would not be valid and binding on the company.
- 2) Along with each current invoice, vendor shall submit the copies of ESIC, PF, etc. as applicable for the preceding month/s OR on payment of such liabilities whichever is earlier.
- 3) Employer reserves the right to uphold the bill payment of the Vendor in the event of the Vendor fails to upload the correct GST returns for enabling the Employer to avail the credit.
- 4) HSN/SAC on the tax invoice shall match with corresponding HSN/SAC of the line item of the Work Order.
- 5) We will be deducting TDS u/s. 194Q of the Income Tax Act (the Act) w.e.f. 01st July 2021 @0.1% on the aggregate value of goods purchased from you exceeding Rs. 50 lakhs during the financial year 2021-22, if any. Therefore, you are requested not to collect TCS u/s. 206C (1H) of the Act.
- 6) If you are a #Specified person# u/s. 206AB of the Act as per the report received from the Income Tax Department, we will be deducting TDS at higher rate as specified u/s. 206AB of the Act
GST @ 18% (CGST 9% + SGST 9%) extra as above.

All other taxes and charges are included in the above rate.

All other Terms and conditions as per attached Work Order and agreement dated 22.12.2021.

