UL-EU CERTIFICATE

Certificate No.	UL-EU-01135-CPR
Page	1/12
Date of Issue	2020-04-29
Certificate Holder	Bostik BV Denariusstraat 11 4903 RC Oosterhout The Netherlands
Manufacturer	A/003
Certified Product Type	Fire Stop - Penetration Seals
Product Trade Name	Bostik FP 311 Intumescent Graphite
Trademark	N/A
Rating/Classification	See Appendix
Expiry date	2030-04-28

4705

Authorized Certification Decision Maker
Chris Miles

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shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.

Appendix UL-EU CERTIFICATE

This certificate relates to the use of Bostik FP 311 Intumescent Graphite for fire stopping where there are service penetrations through floors and walls. The detailed scope is given in pages 3 to 8 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) Inspection and surveillance of factory production control by UL
ii) Fire resistance test data in accordance with EN 1366-3: 2009
iii) Classification in accordance with EN 13501-2
iv) Durability and Serviceability as defined in EAD 350454-00-1104, September 2017

The durability class of Bostik FP 311 Intumescent Graphite is Z_2 - intended for use at internal conditions with humidity classes other than Z_1, excluding temperatures below 0°C.

The Bostik FP 311 Intumescent Graphite is supplied in liquid form contained within 310 & 380 ml cartridges and 600 ml foil packs.

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Product-type: Sealant/Pipe closure	Intended use: Penetration Seal	
Basic requirement for construction work	Basic Requirement	Performance
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	Class F (not tested)
EN 13501-2	Resistance to fire	See pages 4 - 11
BWR 3 Hygiene, health and environment		
EN 1026	Air permeability	No performance determined
EAD 350454-00-1104, Annex C	Water permeability	No performance determined
Declaration of manufacturer & EN 16516	Content, emission and/or 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
EAD 350454-00-1104, Clause 2.2.9	Durability	Z_2
BWR 5 Protection against noise		
EN 10140-1,2,4,5/ EN ISO 717-1	Airborne sound insulation*	53 (0;-1) dB
BWR 6 Energy economy and heat retention		
EN 12664, EN 12667, EN 12939, EN ISO 8990, EN ISO 6946, EN ISO 14683, EN ISO 10211, EN ISO 10456	Thermal properties	No performance determined
EN ISO 12572, EN 12086, EN ISO 10456	Water vapour permeability	No performance determined

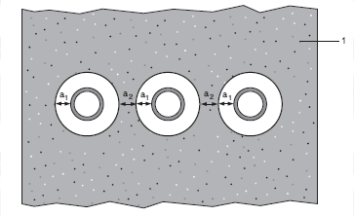
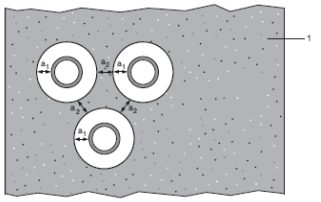
* At 25 mm depth

Appendix UL-EU CERTIFICATE

Bostik FP 311 Intumescent Graphite: Service Penetration Seals in Drywalls and Masonry Walls							
Substrate	**Minimum Wall Thickness (mm)**	**Penetrating Services**	**Seal Position**	**Seal & Backing Width (a_1)**	**Permitted Configuration for Seal Separation**	**Fire Resistance (mins.)**	
						E	**EI**
Gypsum board/ Masonry/ Concrete	100	PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1, PVC-C according to EN 1566-1					
		Diameter 40 mm, wall thickness 1.9 – 3.7 mm to diameter 110 mm, wall thickness 2.7-6.6 mm	Both Sides	10-30 mm	1 & 2 between PVC-U pipes	120	120
		Diameter 40, wall thickness 1.9 – 3.7 mm			1 & 2 between PVC-U pipes & between 40 mm Ø PE pipes	120	120
		Diameter 40 mm, wall thickness 1.9 – 3.7 mm to diameter 110 mm, wall thickness 2.7-6.6 mm			1 & 2 between PVC-U pipes & between 40-110 mm Ø PE pipes	60	60
		Diameter 40 mm, wall thickness 1.9 – 3.7 mm to diameter 110 mm, wall thickness 2.7-6.6 mm			1 & 2 between PVC-U pipes & between 110 mm Ø PP pipes	120	120
		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					
		Diameter 40 mm, wall thickness 2.4-3.7 mm	Both Sides	10-30 mm	1 & 2 between PE pipes & between 40 mm Ø PVC-U pipes	120	120
		Diameter 40, wall thickness 2.4-3.7 mm to diameter 110 mm, wall thickness 4.3-10 mm			1 & 2 between PE pipes & between 40-110 mm Ø PVC-U pipes	60	60
		Diameter 110 mm, wall thickness 4.3-10 mm			1 between PE pipes	120	90
		PP pipe according to EN 1852-1: 2009					
		Diameter 40 mm, wall thickness 1.8-5.5 mm	Both Sides	10 mm	1 & 2	90	90
		Diameter 110 mm, wall thickness 6.6 mm	Both Sides	30 mm	1 & 2 between 40-110 mm Ø PVC-U pipes	120	120

Penetration Seal: Combustible pipes sealed with 25 mm deep Bostik FP 311 Intumescent Graphite, to both sides of the wall backed with Stonewool (35kg/m^3 density), 25 mm deep. Minimum separation between penetration seals of 30 mm.

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

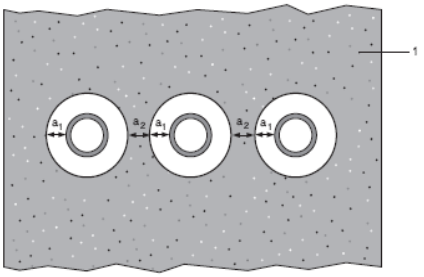
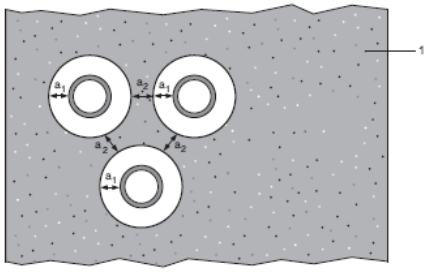
Configuration 1	**Configuration 2**
	
Key 1 Supporting construction a_1 Pipe / edge of seal separation (annular space) a_2 Separation between penetration seals	Partition wall must incorporate a full fill core insulation of Stonewool (35kg/m^3 density)

Appendix UL-EU CERTIFICATE

Bostik FP 311 Intumescent Graphite: Service Penetration Seals with no backing, in Drywalls and Masonry Walls							
Substrate	**Minimum Wall Thickness (mm)**	**Penetrating Services**	**Seal Position**	**Seal & Backing Width (a_1)**	**Permitted Configuration for Seal Separation**	**Fire Resistance (mins.)**	
						E	**EI**
Gypsum board/ Masonry/ Concrete	100	PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1, PVC-C according to EN 1566-1 or PP pipe					
		Maximum diameter 110 mm, wall thickness 1.9-6.6 mm for PVC pipes, fully or partially filled conduits with cables up to 20mm diameter	Both Sides	10-30 mm	1 & 2	90	90
		Maximum diameter 110 mm, wall thickness 2.7-6.6 mm for PP pipes, fully or partially filled conduits with cables up to 20mm diameter			1 & 2	90	90
		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					
		Maximum diameter 110 mm, wall thickness 2.4-10 mm, fully or partially filled conduits with cables up to 20mm conduit	Both Sides	10-30 mm	1 & 2	60	60
		PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1, PVC-C according to EN 1566-1 or PP pipe					
		Maximum 160 mm diameter, wall thickness 3.2-9.5 mm	Both Sides	10-30 mm	1 & 2	30	30
		Maximum 160 mm diameter, wall thickness 9.5 mm	Both Sides	10-30 mm	1 & 2	90	90
		PP pipe according to EN 1852-1: 2009					
		Maximum 110 mm, wall thickness 2.7 mm	Both Sides	10-30 mm	1 & 2	60	60*
		Maximum 110 mm*	Both Sides	10-30 mm	1 & 2	60	60

Penetration Seal: Combustible cable conduit and combustible pipes sealed with 25 mm deep Bostik FP 311 Intumescent Graphite, to both sides of the wall without backing material. Minimum separation between penetration seals of 30 mm.

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

Configuration 1	**Configuration 2**
	

Key
1 Supporting construction
a_1 Pipe / edge of seal separation (annular space)
a_2 Separation between penetration seals

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Bostik FP 311 Intumescent Graphite: Service Penetration Seals for Pipes in Masonry Walls						
Substrate	**Minimum Wall Thickness (mm)**	**Penetrating Services**	**Seal Position**	**Seal & Backing Width (a_1)**	**Fire Resistance (mins.)**	
					E	**EI**
Masonry/ Concrete	150	PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1, PVC-C according to EN 1566-1				
		Diameter 48 mm, wall thickness 3.2 mm	Both Sides	17 mm	240	240
		Diameter 68 mm, wall thickness 2 mm		41 mm		
		Diameter 110 mm, wall thickness 3.5 mm		22 mm		
		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				
		Diameter 32 mm, wall thickness 3.2 mm	Both Sides	25 mm	240	240
		ABS pipe according to EN 1455-1				
		Diameter 36 mm, wall thickness 2.3 mm	Both Sides	23 mm	240	240
		Diameter 110 mm, wall thickness 3.5 mm		26 mm		

Penetration Seal: Combustible pipes sealed with 40 mm deep Bostik FP 311 Intumescent Graphite, to both sides of the wall backed with Bostik FP 320 Fire Batt 2S, 50 mm thick. Minimum separation between penetration seals of 30 mm.

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

Bostik FP 311 Intumescent Graphite: Service Penetration Seals for Cables in Masonry Walls						
Substrate	**Minimum Wall Thickness (mm)**	**Penetrating Services**	**Seal Position**	**Seal size (WxH or diameter)**	**Fire Resistance (mins.)**	
					E	**EI**
Masonry/ Concrete	150	150 x 25 mm perforated steel cable tray	Both Sides	200 x 100 mm	240	180
		20 mm diameter, single copper core armoured cable				
		Twin/earth cable				
		Ø 100 mm bundle of up to 4 no. 20mm diameter, single copper core armoured cable and 12 no. twin/earth cables	Both Sides	150 mm Ø	240	60

Penetration Seal: Cables sealed with 40 mm deep Bostik FP 311 Intumescent Graphite, to both sides of the wall backed with Bostik FP 320 Fire Batt 2S, 50 mm thick. Minimum separation between penetration seals of 30 mm.

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Bostik FP 311 Intumescent Graphite: Service Penetration Seals for Pipes in Masonry Walls						
Substrate	**Minimum Wall Thickness (mm)**	**Penetrating Services**	**Seal Position**	**Seal & Backing Width (a_1)**	**Fire Resistance (mins.)**	
					E	**EI**
Masonry/ Concrete	150	PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1, PVC-C according to EN 1566-1				
		Maximum 160 mm diameter, wall thickness 4.0-9.5 mm	Both Sides	10-30 mm	90	90
		Maximum 160 mm diameter, wall thickness 9.5 mm		10-30 mm	240	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				
		Maximum 160 mm diameter, wall thickness 4.9-9.5mm	Both Sides	10-30 mm	30	30
		PP pipe according to EN 1852-1: 2009				
		Maximum 160 mm diameter, wall thickness 6.2-9.1 mm	Both Sides	10 mm	30	30

Penetration Seal: Combustible pipes sealed with 35 mm deep Bostik FP 311 Intumescent Graphite, to both sides of the wall backed with AES Fibre ≥ 128kg/m^3 backing material, 25 mm thick. Minimum separation between penetration seals of 30 mm.

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

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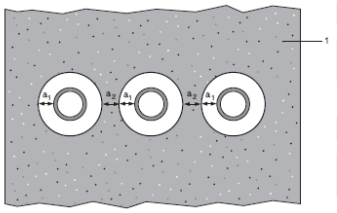
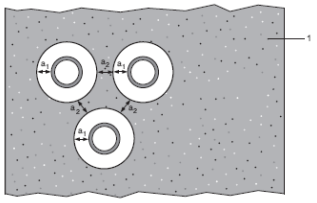
Bostik FP 311 Intumescent Graphite: Service Penetration Seals in Concrete Floors							
Substrate	**Minimum Floor Thickness (mm)**	**Penetrating Services**	**Seal Position**	**Seal & Backing Width (a_1)**	**Permitted Configuration for Seal Separation**	**Fire Resistance (mins.)**	
						E	**EI**
Concrete	150	PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1, PVC-C according to EN 1566-1					
		Diameter 40 mm, wall thickness 1.8 – 3.7 mm	Both Sides	10-30 mm	1 & 2 between PVC-U pipes	240*	240*
		Diameter 40 mm, wall thickness 1.8 – 3.7 mm to diameter 110 mm, wall thickness 2.7-6.6 mm			1 & 2 between PVC-U pipes & between 40-110 mm Ø PE pipes	90#	90#
		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					
		Diameter 40 mm, wall thickness 2.4-3.7 mm	Both Sides	10-30 mm	2 between PE pipes	60*	60*
						240	240
		Diameter 40, wall thickness 2.4-3.7 mm to diameter 110 mm, wall thickness 4.3-10 mm			1 & 2 between PE pipes & between 40-110 mm Ø PVC-U pipes	60	60
		Diameter 110 mm, wall thickness 4.3-10 mm			2 between PE pipes	90	90
		Diameter 110 mm, wall thickness 10 mm				60*	60*

Penetration Seal: Combustible pipes sealed with 25 mm deep Bostik FP 311 Intumescent Graphite, to both sides of the floor backed with Stonewool (35kg/m^3 density), 25 mm deep. Minimum separation between penetration seals of 30 mm.

All pipe classifications are pipe end configuration U/C and C/C, with the exception of that marked '#' which is C/U and C/C only. Those marked with '*' also have the additional pipe end configurations of U/U and C/U. (U=Uncapped, C=Capped)

Configuration 1	**Configuration 2**
	
Key 1 Supporting construction a_1 Pipe / edge of seal separation (annular space) a_2 Separation between penetration seals	

Appendix UL-EU CERTIFICATE

Bostik FP 311 Intumescent Graphite: Service Penetration Seals in Concrete Floors						
Substrate	**Minimum Floor Thickness (mm)**	**Penetrating Services**	**Seal Position**	**Seal & Backing Width (a_1)**	**Fire Resistance (mins.)**	
					E	**EI**
Concrete	150	PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1, PVC-C according to EN 1566-1				
		Maximum 160 mm diameter, wall thickness 4.0-9.5mm	Both Sides	10-30 mm	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				
		Maximum 160 mm diameter, wall thickness 4.9-14.6 mm	Both Sides	10-30 mm	30	30
		Maximum 160 mm diameter, wall thickness 4.9-14.6 mm			60	60

Penetration Seal: Combustible pipes sealed with 35 mm deep Bostik FP 311 Intumescent Graphite, to both sides of the floor backed with AES Fibre ≥ 128kg/m^3 Wool, 25 mm deep. Minimum separation between penetration seals of 30 mm.

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

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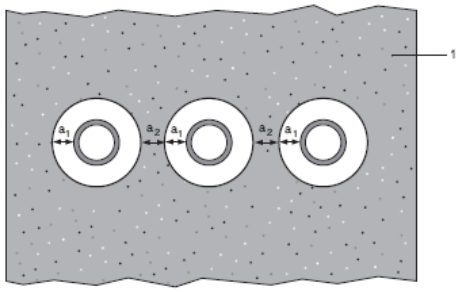
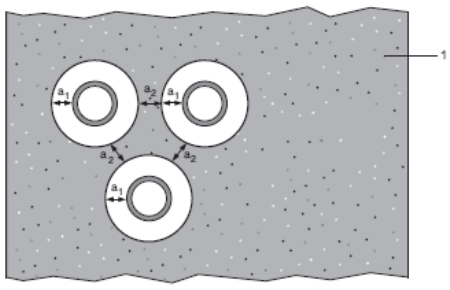
Bostik FP 311 Intumescent Graphite: Service Penetration Seals in Concrete Floors							
Substrate	**Minimum Wall Thickness (mm)**	**Penetrating Services**	**Seal Position**	**Seal & Backing Width (a_1)**	**Permitted Configuration for Seal Separation**	**Fire Resistance (mins.)**	
						E	**EI**
Concrete	150	PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1, PVC-C according to EN 1566-1 or PP pipe					
		Maximum diameter 110 mm, wall thickness 1.8-6.6 mm for PVC pipes, fully or partially filled conduits with cables up to 20 mm diameter	Both Sides	10-30 mm	1 & 2	90	90
		Maximum diameter 110 mm, wall thickness 2.7 mm for PP pipes, fully or partially filled conduits with cables up to 20 mm diameter			1 & 2	90	90
		Maximum diameter 110 mm, wall thickness 1.8-6.3 mm for PP pipes, fully or partially filled conduits with cables up to 20 mm diameter			1 & 2	30	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					
		Maximum diameter 110 mm, wall thickness 2.4-10 mm, fully or partially filled conduits with cables up to 20 mm diameter	Both Sides	10-30 mm	1 & 2	60	60
		PP pipe according to EN 1852-1: 2009					
		Maximum 40 mm diameter, wall thickness 1.8 mm	Both Sides	10-30 mm	1 & 2	120	120*
		Maximum 110 mm diameter, wall thickness 1.8-6.3 mm	Both Sides	10-30 mm	1 & 2	30	30

Penetration Seal: Combustible pipes sealed with 25 mm deep Bostik FP 311 Intumescent Graphite, to both sides of the floor backed with Rock mineral wool (33kg/m^3 density), 25 mm deep. Minimum separation between penetration seals of 30 mm.

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

Configuration 1	**Configuration 2**
	

Key
1 Supporting construction
a_1 Pipe / edge of seal separation (annular space)
a_2 Separation between penetration seals

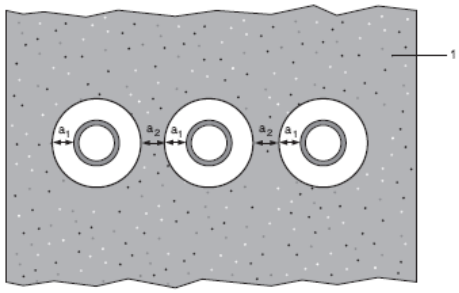
Appendix UL-EU CERTIFICATE

Bostik FP 311 Intumescent Graphite: Service Penetration Seals in Concrete Floors								
Substrate	**Minimum Wall Thickness (mm)**	**Penetrating Services**	**Seal Position**	**Seal & Backing Width (a_1)**	**Permitted Configuration for Seal Separation**	**Insulation CS**	**Fire Resistance (mins.)**	
							E	**EI**
Concrete	150	Mild or stainless steel pipe, with Elastomeric insulation minimum class B-s3, d0						
		Maximum 324 mm diameter, wall thickness 1.0-14.2 mm	Both Sides	10-30 mm	1 & 2	25-50 mm Elastomeric insulation minimum class B-s3, d0	60	60
		Maximum 324 mm diameter, wall thickness 6.35-14.2 mm			1 & 2	50 mm Elastomeric insulation minimum class B-s3, d0	120	120

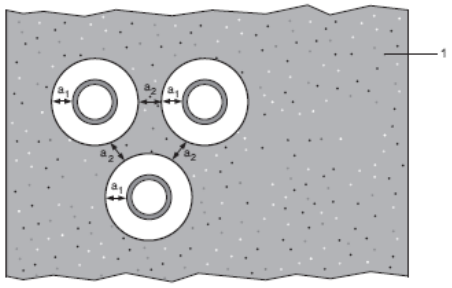
Penetration Seal: Metallic pipes insulated with Elastomeric insulation minimum class B-s3, d0, Continuous Sustained (CS), sealed with 45 mm deep Bostik FP 311 Intumescent Graphite, to both sides of the floor backed with AES Fibre ≥ 128kg/m^3 Wool, 30 mm deep. Minimum separation between penetration seals of 30 mm (a2).

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

Configuration 1



Configuration 2



Key
1 Supporting construction
a_1 Pipe / edge of seal separation (annular space)
a_2 Separation between penetration seals

Appendix UL-EU Certificate

Certification Mark	**UL-EU mark**
Certificate No.	UL-EU-01135-CPR
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Date of Issue	2020-04-29

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

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