

UL-EU CERTIFICATE

Certificate No. UL-EU-00640
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Certificate Holder FSi Ltd
Westminster Industrial Estate
Tamworth Rd
Measham
DE12 7DS
United Kingdom

Manufacturer A/008

Certified Product Type Fire Stop – Pillows
Product Trade Name S Line Pillows
Trademark N/A
Rating/Classification See Appendix

Harmonised Technical Specifications ETAG 026-2 / EN 13501-2
Supporting Documentation ETA 13/1056, EC – CERTIFICATE OF CONSTANCY OF PERFORMANCE - 1121 – CPR – JA5008
Additional information Additional test evidence is held on file
Expiry date 201-09-24

Director, Global Market Access Operations
Helena Y. Wolf

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shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.



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This certificate relates to the use of S Line Pillows for fire stopping where services pass through rigid walls. The detailed scope is given in pages 3 to 9 of this Certificate. This shows the thickness and acceptable dimensions, substrates, services and orientations required to provide fire resistance periods of up to 120 minutes.

The product is certificated on the basis of:

- i) ETA 13/1056 EC – CERTIFICATE OF CONSTANCY OF PERFORMANCE 1121 – CPR – JA5008
- ii) Inspection and surveillance of factory production control by UL
- iii) Fire resistance test data in accordance with 1366-3: 2009
- iv) Classification in accordance with EN 13501-2
- v) Durability and Servicability as defined in ETAG 026-2

The durability class of S Line Pillows is Z₁ - intended for use at internal conditions with high humidity, excluding temperatures below 0°C



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Product-type: Pillow		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 page 5
BWR 3 Hygiene, health and environment		
EN 1026:2000	Air permeability (material property)	See page 4
ETAG 026-3, Annex C	Water permeability (material property)	No performance determined
Declaration of manufacturer	Release of dangerous substances	Declaration of manufacturer
BWR 4 Safety in use		
EOTA TR 001:2003	Mechanical resistance and stability	No performance determined
EOTA TR 001:2003	Resistance to impact/movement	No performance determined
EOTA TR 001:2003 ISO 11600	Adhesion	No performance determined
BWR 5 Protection against noise		
EN 10140-2/ EN ISO 717-1	Airborne sound insulation	Rw(C;Ctr)= 33 (0;-2) 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 ₁
BWR 7 Sustainable use of natural resources		
-	-	No performance determined

* As given in ETA, see page 5 for additional ratings



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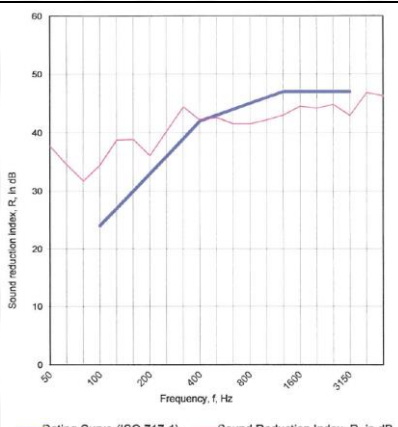
S Line Pillows: Air Permeability according to BS EN 1314-1

Pressure (Pa)	Results under positive chamber pressure		Results under negative chamber pressure	
	Leakage (m ³ /h)	Leakage (m ³ /m ² / h)	Leakage (m ³ /h)	Leakage (m ³ /m ² / h)
50	2.5	13.9	3.1	17.2
100	4.1	22.8	5.6	31.1
150	5.8	32.2	7.4	41.1
200	7.2	40.0	8.9	49.4
250	8.7	48.3	10.3	57.2
300	9.8	54.4	11.1	61.7
450	13.4	74.4	15.3	85.0
600	17.5	97.2	18.6	103.3



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Flexi Coat: Acoustic performance according to BS EN ISO 10140-2:2010		
Configuration	$R_w(C; C_{tr})$ Specimen only, 1m ²	D_{new} Partition & Specimen
500mm wide x 2000mm high, aperture filled with 114 No. S-Line Pillows	30 (0; -2)	43 (0; -2)
	 <p>Sound reduction index, R, in dB</p> <p>Frequency, f, Hz</p> <p>— Rating Curve (ISO 717-1) — Sound Reduction Index, R, in dB</p>	

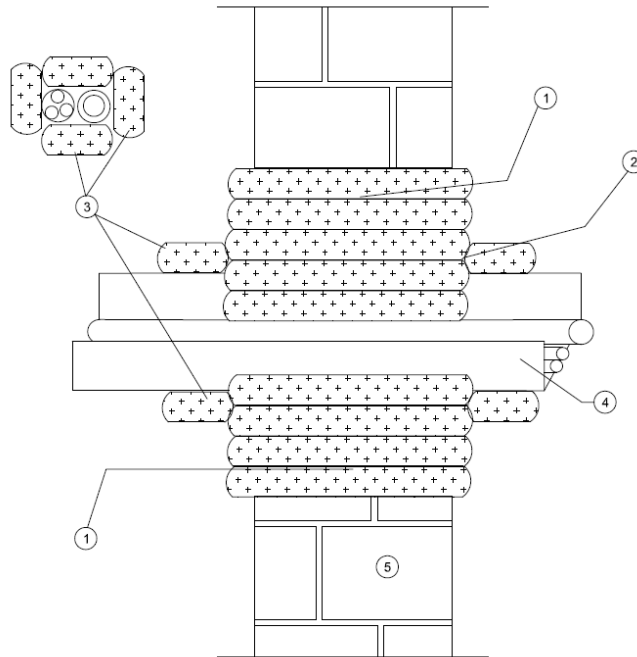


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S Line Pillow: Penetration Seals in Walls (cables)

S-LINE PILLOWS FIRE RESISTANT CABLE & CABLE TRAY PENETRATION
 SEAL WITH ADDITIONAL PILLOWS THROUGH RIGID WALL HORIZONTAL
 ORIENTATION



- 1 - S-LINE FIRE PILLOWS
 2 - S-LINE PILLOWS - VARIOUS SIZES TO FIT VOID
 3 - ADDITIONAL S-LINE PILLOWS
 4 - CABLE TRAY AND CABLES
 5 - RIGID WALL CONSTRUCTION

Substrate	Minimum Substrate Thickness (mm)	Maximum Seal Size (mm)	Seal Position	Minimum Seal Depth (mm)	Services (wrapped with additional 300 mm long pillows where they exit the seal)	Fire Resistance (mins.)	
						E	EI
Masonry/ Concrete	150	1100 x 1100	Central	300*	Telecom cables up to 21 mm Ø (single or in bundles up to 100 mm Ø)	120	120
					Electrical cables up to 21 mm Ø	120	90
					Electrical cables up to 80 mm Ø	120	120
					Unsheathed wires up to 24 mm Ø	120	60
					Steel, copper or Plastic conduits and tubes up to 16 mm Ø	120	90
					Cable trays or ladders up to 300 mm wide	120	60
					Cable trays up to 500 mm wide	120	90

* with equal projection to both faces

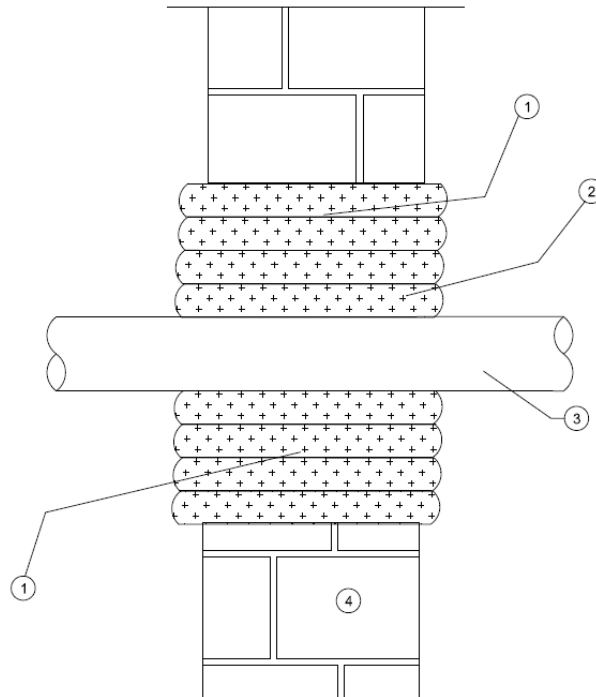


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S Line Pillow: Penetration Seals in Walls (uninsulated metal pipes)

S-LINE PILLOWS FIRE RESISTANT UN-INSULATED METALLIC PIPE
 PENETRATION SEAL THROUGH RIGID WALL HORIZONTAL ORIENTATION



- 1 - S-LINE FIRE PILLOWS
- 2 - S-LINE PILLOWS - VARIOUS SIZES TO FIT VOID
- 3 - UN-INSULATED METALLIC PIPE - COPPER / STEEL
- 4 - RIGID WALL CONSTRUCTION

Substrate	Minimum Substrate Thickness (mm)	Maximum Seal Size (mm)	Seal Position	Minimum Seal Depth (mm)	Services	Fire Resistance (mins.)^	
						E	EI
Masonry/Concrete	150	1100 x 1100	Central	300*	165 mm Ø by 5.6-14.2 mm thick walled mild steel pipe	120	0

* with equal projection to both faces

^ C/U pipe end configuration

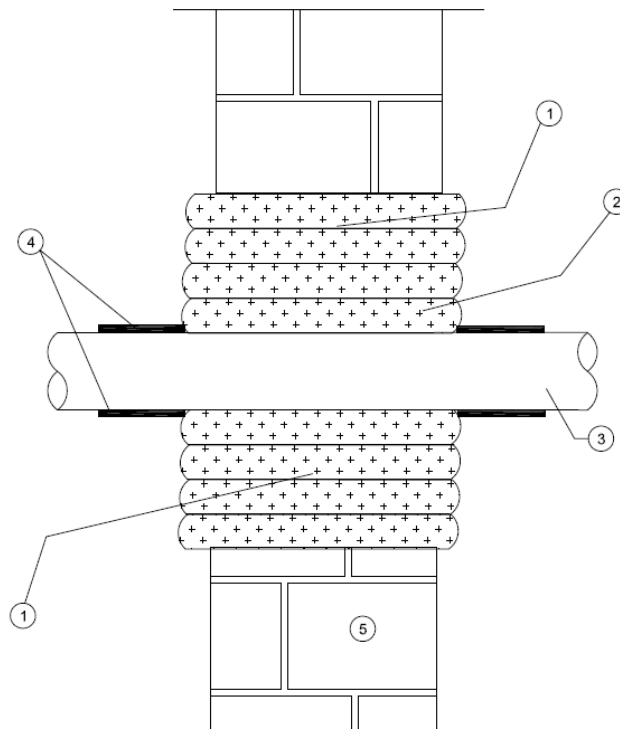


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S Line Pillow: Penetration Seals in Walls (locally insulated metal pipes)

S-LINE PILLOWS FIRE RESISTANT METALLIC PIPE PENETRATION
 SEAL WITH TDW THROUGH RIGID WALL HORIZONTAL
 ORIENTATION



- 1 - S-LINE FIRE PILLOWS
- 2 - S-LINE PILLOWS - VARIOUS SIZES TO FIT VOID
- 3 - METALLIC PIPE - COPPER / STEEL
- 4 - THERMAL DEFENSE WRAP - TDW 300mm - LI
- 5 - RIGID WALL CONSTRUCTION

Substrate	Minimum Substrate Thickness (mm)	Maximum Seal Size (mm)	Seal Position	Minimum Seal Depth (mm)	Services (wrapped with 300 mm long Thermal Defense Wrap where they exit the seal)	Fire Resistance (mins.)^	
						E	EI
Masonry/ Concrete	150	1100 x 1100	Central	300*	48 mm Ø by 3.5-14.2 mm thick walled mild steel pipe (7 mm TDW)	120	120
					113 mm Ø by 4.5-14.2 mm thick walled mild steel pipe (10 mm TDW)		

* with equal projection to both faces

^ C/U pipe end configuration

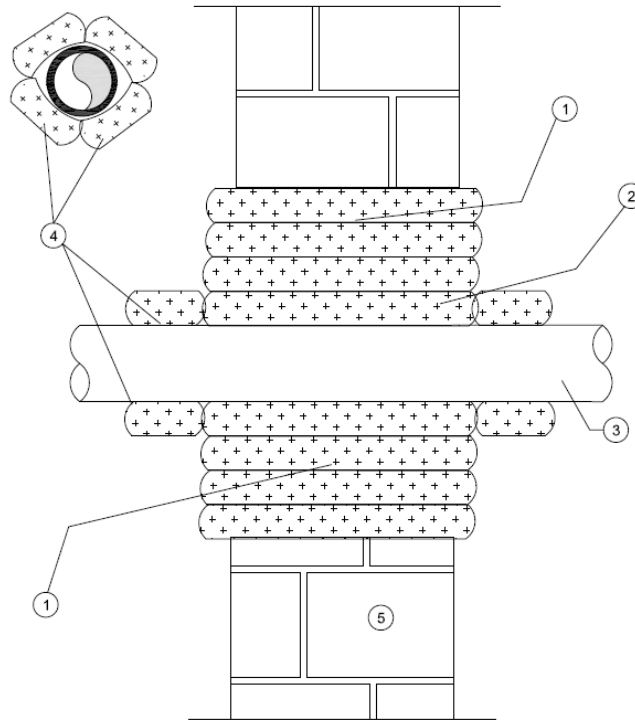


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S Line Pillow: Penetration Seals in Walls (locally insulated metal pipes)

S-LINE PILLOWS FIRE RESISTANT METALLIC PIPE PENETRATION
 SEAL WITH ADDITIONAL PILLOWS THROUGH RIGID WALL
 HORIZONTAL ORIENTATION



- 1 - S-LINE FIRE PILLOWS
- 2 - S-LINE PILLOWS - VARIOUS SIZES TO FIT VOID
- 3 - METALLIC PIPE - COPPER / STEEL
- 4 - ADDITIONAL S-LINE PILLOWS - LI
- 5 - RIGID WALL CONSTRUCTION

Substrate	Minimum Substrate Thickness (mm)	Maximum Seal Size (mm)	Seal Position	Minimum Seal Depth (mm)	Services (wrapped with additional 300 mm long pillows where they exit the seal)	Fire Resistance (mins.) [^]	
						E	EI
Masonry/Concrete	150	1100 x 1100	Central	300*	108 mm Ø by 1.5-14.2 mm thick walled copper pipe	120	90

* with equal projection to both faces

[^] C/U pipe end configuration

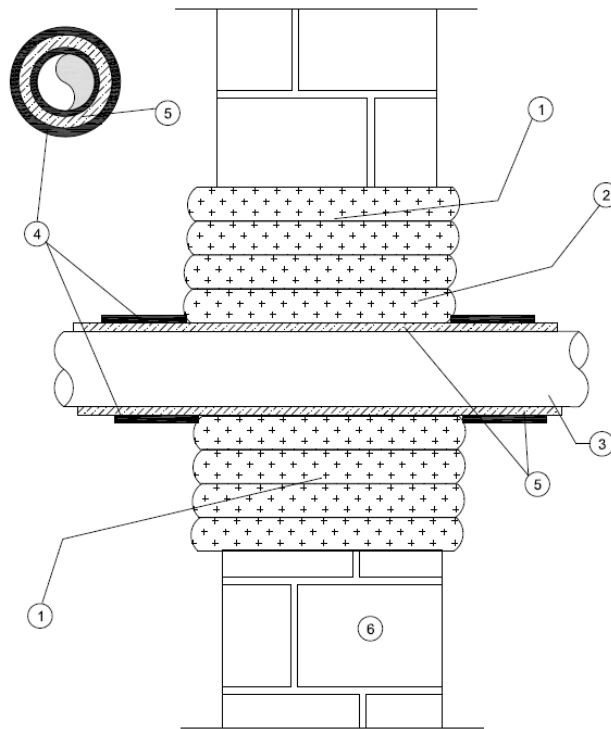


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S Line Pillow: Penetration Seals in Walls (locally insulated metal pipes)

S-LINE PILLOWS FIRE RESISTANT INSULATED WITH ARMAFLEX
 METALLIC PIPE PENETRATION SEAL WITH TDW THROUGH RIGID
 WALL HORIZONTAL ORIENTATION



- 1 - S-LINE FIRE PILLOWS
- 2 - S-LINE PILLOWS - VARIOUS SIZES TO FIT VOID
- 3 - METALLIC PIPE - COPPER / STEEL
- 4 - THERMAL DEFENSE WRAP - TDW 300mm - LI (Local Interrupted)
- 5 - ARMAFLEX INSULATION - LS (Local Sustained)
- 6 - RIGID WALL CONSTRUCTION

Substrate	Minimum Substrate Thickness (mm)	Maximum Seal Size (mm)	Seal Position	Minimum Seal Depth (mm)	Services (wrapped with 250 mm long Thermal Defense Wrap where they exit the seal)	Fire Resistance (mins.)^	
						E	EI
Masonry/Concrete	150	1100 x 1100	Central	300*	54 mm Ø by 1.0-14.2 mm thick walled copper pipe with 15 mm thick Armaflex AF insulation continuous through the seal and extending at least 400 mm to each face (2x layers of 100 mm TDW)	120	120

* with equal projection to both faces

^ C/U pipe end configuration



Appendix UL-EU Certificate

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



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

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.

