# UL-EU CERTIFICATE

**Certificate No.**
UL-EU-00640-EN

**Issue date**
25-09-2014

**Issue No.**
3

**Re-Issue date**
30-09-2024

**Expiry date**
29-09-2034

**Certificate Holder:**
FSi Limited

**Address:**
Westminster Industrial Estate
Tamworth Road
Measham
DE12 7DS
United Kingdom

**Product:**
S-Line Pillows

**Places of production:**
A/008

**Standard:**
EAD 350454-00-1104, September 2017 / EN 13501-2

Authorised Signatory:

Chris Johnson
Issued by UL International (UK) Ltd

UKAS PRODUCT CERTIFICATION
4705

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shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.





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# Appendix UL-EU CERTIFICATE UL-EU-00640-EN

This certificate relates to the use of S-Line Pillows for fire stopping where services pass through flexible or rigid walls. The detailed scope is given in pages 3 to 12 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 20/1031
ii) EC – CERTIFICATE OF CONSTANCY OF PERFORMANCE 2812 – CPR – JA5008
iii) Inspection and surveillance of factory production control by UL
iv) Fire resistance test data in accordance with EN 1366-3: 2009.
v) Classification in accordance with EN 13501-2
vi) Durability and Servicability as defined in EAD 350454-00-1104

The durability class of S-Line Pillows is $Z_1$ - 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 | |
|---|---|---|
| Assessment method | Essential characteristic | Product Performance |
| **BWR 2 Safety in case of fire** | | |
| EN 13501-1 | Reaction to fire | Class F |
| EN 13501-2 | Resistance to fire | See pages 6 - 12 |
| **BWR 3 Hygiene, health and environment** | | |
| EN 1026 | Air permeability | See page 4 |
| 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: IA2 Declaration of manufacturer |
| Declaration of manufacturer & EN 16516 | Content, emission and/or 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 | Adhesion | No performance determined |
| EAD 350454-00-1104, Clause 2.2.9 | Durability | $Z_1$ |
| **BWR 5 Protection against noise** | | |
| EN 10140-1,2,4,5/ EN ISO 717-1 | Airborne sound insulation | Rw(C;Ctr)= 33 (0;-2) 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 |
| * 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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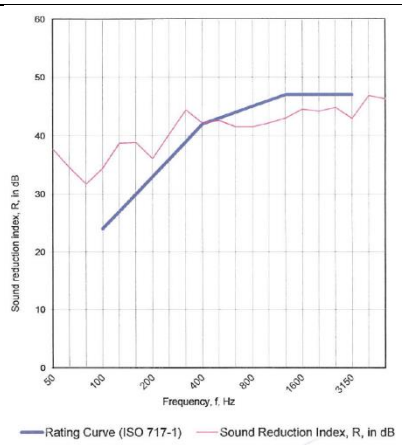
| S-Line Pillows: Acoustic performance according to BS EN ISO 10140-2:2010 | | |
|---|---|---|
| **Configuration** | **$R_w(C; C_{tr})$ Specimen only, 1m²** | **$D_{new}$ Partition & Specimen** |
| 500mm wide x 2000mm high, aperture filled with 114 No. S-Line Pillows | 33 (0; -2)<br>  | 43 (0; -2) |





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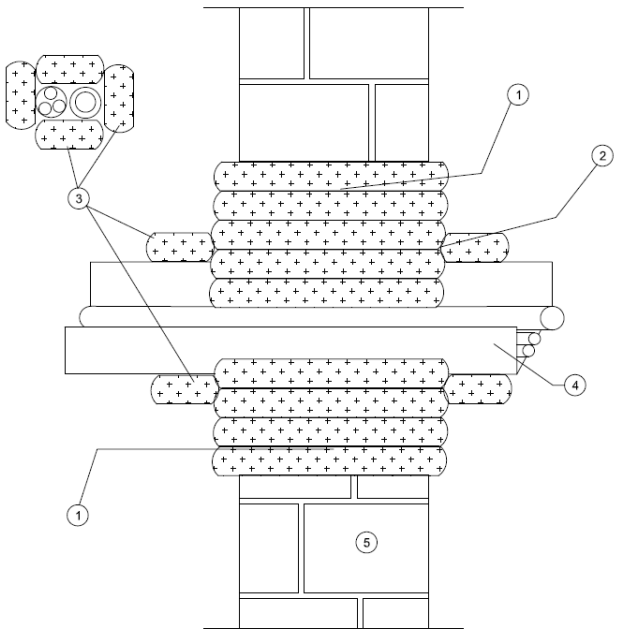
# Appendix UL-EU CERTIFICATE UL-EU-00640-EN

## S-Line Pillows: 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 | | |
| | | | | | Electrical cables up to 80 mm Ø | 120 | 60 |
| | | | | | Unsheathed wires up to 24 mm Ø | 120 | 120 |
| | | | | | Plastic conduits and tubes up to 16 mm Ø | | |
| | | | | | Steel, copper 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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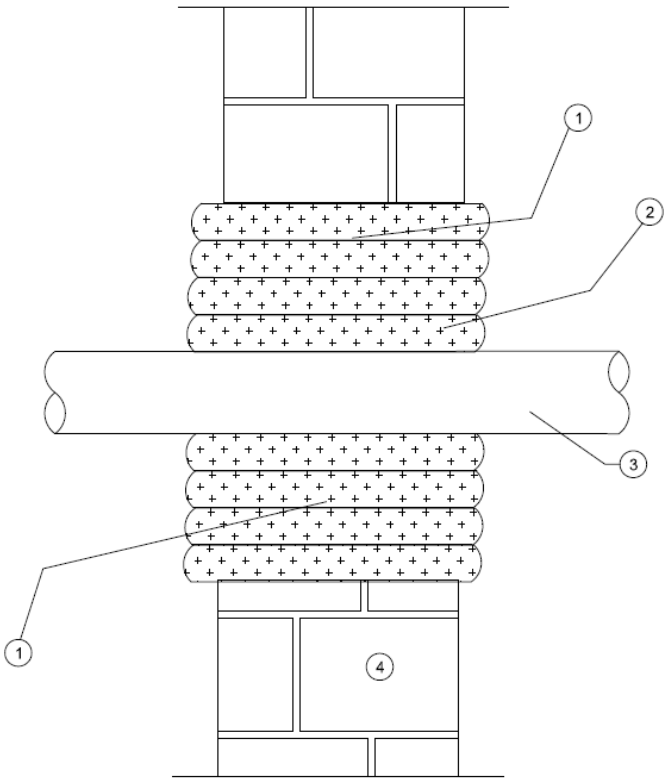
## S-Line Pillows: Penetration Seals in Walls (uninsulated metal pipes)

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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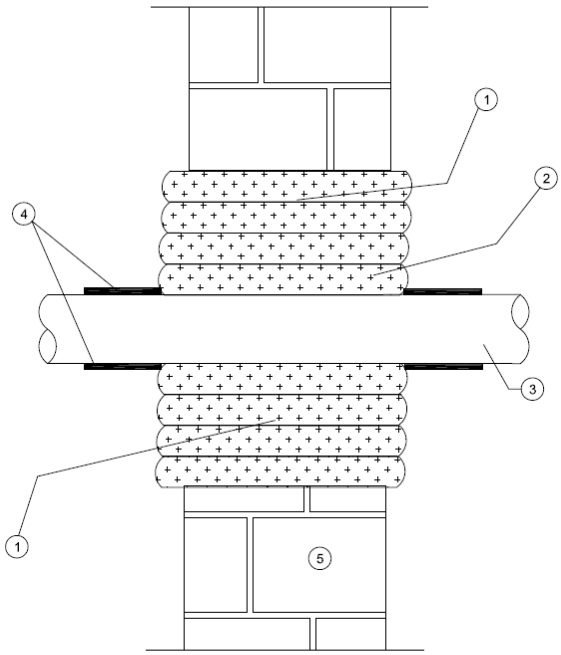
## S-Line Pillows: Penetration Seals in Walls (local interrupted insulated metal pipes)

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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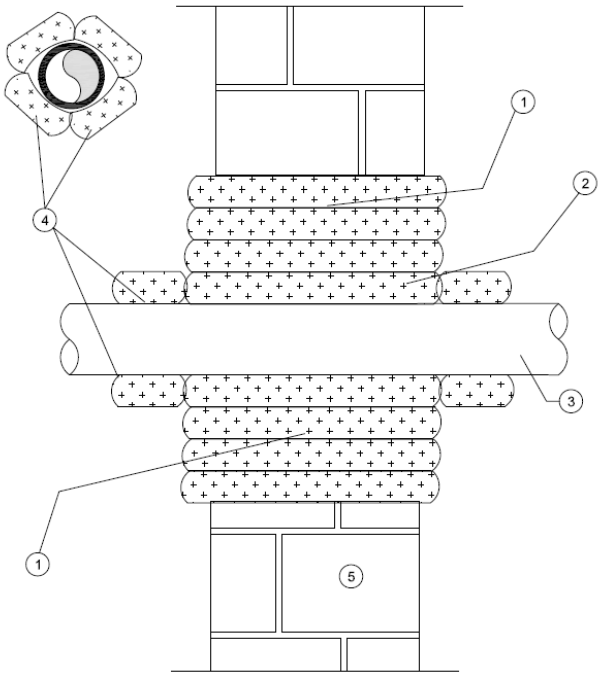
**S-Line Pillows: Penetration Seals in Walls (local interrupted insulated metal pipes)**

S-LINE PILLOWS FIRE RESISTANT METALLIC PIPE PENETRATION
SEAL WITH ADITIONAL 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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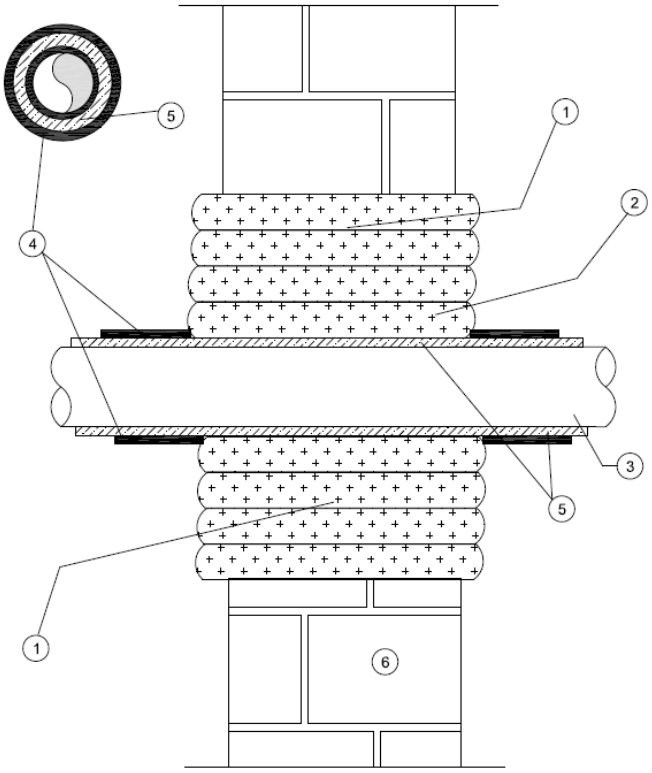
**S-Line Pillows: Penetration Seals in Walls (insulated metal pipes)**

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





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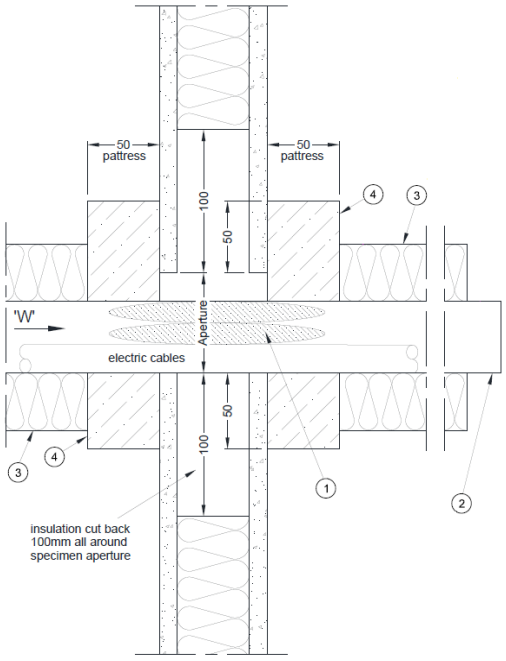
# Appendix UL-EU CERTIFICATE UL-EU-00640-EN

## S-Line Pillows: Penetration Seals in Walls (locally insulated electrical cables and cable trunking)

S-LINE PILLOWS FIRE RESISTANT ELECTRIC TRUNKING AND ELECTRIC CABLE PENETRATION SEAL WITH ROCK FIBRE INSULATION THROUGH SINGLE LAYER PATTRESS STOPSEAL FIRE BATT 50mm, IN FLEXIBLE OR RIGID WALL HORIZONTAL ORIENTATION




1 - S-LINE FIRE PILLOWS
2 - ELECTRICAL TRUNKING CONTAINING 3No. ELECTRIC CABLES
3 - ROCK FIBRE INSULATION - 400mm - LI (Local Interrupted)
4 - STOPSEAL FIRE BATT PATTRESS

| Substrate | Minimum Substrate Thickness (mm) | Maximum Seal Size (mm) | Seal Position | Minimum Seal Depth (mm) | Services (wrapped with 400 mm long rock fibre insulation where they exit the seal) | Fire Resistance (mins.)^ | |
|---|---|---|---|---|---|---|---|
| | | | | | | E | EI |
| Drywall/ Masonry/ Concrete | 75 | 70 x 70 | Central | 300* | 50mm x 50mm Insulated steel cable trunking, Stone Wool 40mm thick, 45kg/m$^3$ (LI 400mm). S-Line Pillow tightly fitted around the cables in the section of trunking within the depth of the partition. | 60 | 60 |
| | | | | | Cables 1xA1, 1xA2, 1xA3 | 60 | 60 |
| | | | | | Cables 1xA1 | | |
| | | | | | Cables 1xA2 | | |
| | | | | | Cables 1xA3 | | |

* with equal projection to both faces
^ U/U pipe end configuration

[1]Pattress installation of Stopseal Coated Batt. The Batts are installed in horizontal rows, bedded onto the partition using Pyrocoustic Fire Resistant Sealant and fixed in minimum two vertical edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 70mm steel screws and steel retaining washer.





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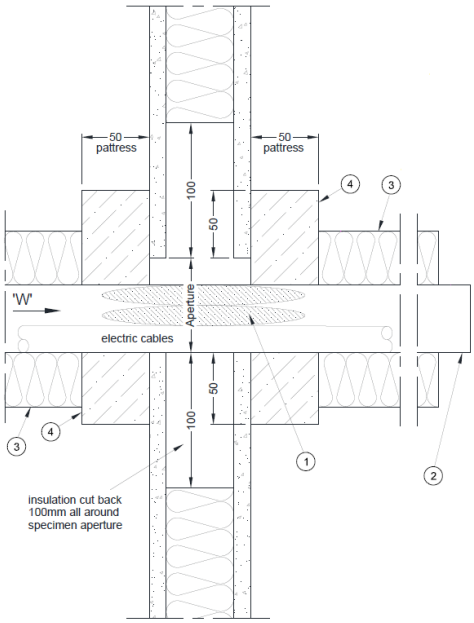
## S-Line Pillows: Penetration Seals in Walls (locally insulated electrical cables and cable trunking)

S-LINE PILLOWS FIRE RESISTANT ELECTRIC TRUNKING AND ELECTRIC CABLE PENETRATION SEAL WITH ROCK FIBRE INSULATION THROUGH SINGLE LAYER PATTRESS STOPSEAL FIRE BATT 50mm, IN FLEXIBLE OR RIGID WALL HORIZONTAL ORIENTATION




1 - S-LINE FIRE PILLOWS
2 - ELECTRICAL TRUNKING CONTAINING 3No. ELECTRIC CABLES
3 - ROCK FIBRE INSULATION - 400mm - LI (Local Interrupted)
4 - STOPSEAL FIRE BATT PATTRESS

| Substrate | Minimum Substrate Thickness (mm) | Maximum Seal Size (mm) | Seal Position | Minimum Seal Depth (mm) | Services (wrapped with 400 mm long rock fibre insulation where they exit the seal) | Fire Resistance (mins.)^ | |
|---|---|---|---|---|---|---|---|
| | | | | | | E | EI |
| Drywall/ Masonry/ Concrete | 75 | 170 x 170 | Central | 300* | 150mm x 150mm Insulated steel cable trunking, Stone Wool 40mm thick, 45kg/m$^3$ (LI 400mm). S-Line Pillow tightly fitted around the cables in the section of trunking within the depth of the partition. | 60 | 60 |
| | | | | | Cables 1xB, 1xC1, 1xG2, 1x G3 | 60 | 60 |
| | | | | | Cables 1xB | | |
| | | | | | Cables 1xC1 | | |
| | | | | | Cables 1xG1 | | |
| | | | | | Cables 1xG2 | | |

* with equal projection to both faces
^ U/U pipe end configuration

[1]Pattress installation of Stopseal Coated Batt. The Batts are installed in horizontal rows, bedded onto the partition using Pyrocoustic Fire Resistant Sealant and fixed in minimum two vertical edges. Overlap of batts to substrate min 50mm. Batts mechanically fixed to substrate with min 6mm x 70mm steel screws and steel retaining washer.





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## Appendix UL-EU CERTIFICATE UL-EU-00640-EN

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.

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