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designated according to Article 29 of the Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment, www.eota.eu)

European Technical Assessment

ETA 19/0748 of 20/11/2019

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: **UL International (UK) Ltd**

Trade name of the construction product

Hensotherm Kitt

Product family to which the construction product belongs

Fire Stopping and Sealing Product:
 • Penetration Seals

Manufacturer

Rudolf Hensel GmbH
 Lack-und Farbenfabrik
 Lauenburger Landstr. 11
 21039 Börnsen
 Germany

Manufacturing plant(s)

A/001

This European Technical Assessment contains

21 pages including 1 Annex which forms an integral part of this assessment.

This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of

EAD 350454-00-1104, September 2017.

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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I. SPECIFIC PARTS OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of the product

- 1) Hensotherm Kitt is a sealant used to form a penetration seal around metallic 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.
- 2) The Hensotherm Kitt is supplied in liquid form contained within 310 ml cartridges, 600ml foils or in 5, 10, 15 or 19 litre tubs. The sealant is gunned or trowelled into the aperture in or between the separating element/elements and where appropriate around the service or services, to a specified depth utilising various backing materials.
- 3) The applicant has presented a declaration that the product and/or constituents of the product contains no substances which have been classified as dangerous according to Directive 67/548/EEC and Regulation (EC) No. 1272/2008 and listed in the 'indicative list on dangerous substances' of the EGDS – taking into account the installation conditions of the construction product and the release scenarios resulting from there.

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

- 4) The use category of Hensotherm Kitt in relation to BWR 3 (Health, hygiene and environment) is IA1.

2 Specification of the intended uses of the product in accordance with the applicable European Assessment Document (Hereinafter EAD): EAD 350454-00-1104

Detailed information and data is given in Annex A.

- 1) The intended use of system Hensotherm Kitt is to reinstate the fire resistance performance of rigid wall constructions and rigid floor constructions where they are penetrated by various metal pipe services with and without combustible insulation and electrical cables.
- 2) The specific elements of construction that the system Hensotherm Kitt may be used to provide a penetration seal in, are as follows:

Flexible walls:	The wall 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.
Rigid walls:	The wall must have a minimum thickness of 100 mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650 kg/m ³ .
Rigid floors:	The floor must have a minimum thickness of 150 mm and comprise aerated concrete or concrete with a minimum density of 650 kg/m ³ .

The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.

- 3) The system Hensotherm Kitt may be used to provide a penetration seal with specific single insulated metal pipes, uninsulated metal pipes and with specific electrical cables, single or in a bundle (for details see Annex A).

- 4) Apertures in the separating element shall be maximum 150 mm diameter or 400 x 300 mm. The annular space/gap around the services shall be infilled with stone wool insulation material backing material and Hensotherm Kitt sealant. Blank seals (without services) are not permitted. For full details, see Annex A.
- 5) Pipes shall be supported at maximum 350 mm away from both faces of the wall constructions and from the upper face of floor constructions.
- 6) The provisions made in this European Technical Assessment are based on an assumed working life of the Hensotherm Kitt of 10 years, provided that the conditions laid down in sections manufacturer's instructions and datasheet for the packaging/transport/ storage/installation/use/ repair are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.
- 7) Type Z₁: Intended for use at internal conditions with high or other humidity classes, excluding temperatures below 0°C.

3 Performance of the product and references to the methods used for its assessment

Product-type: Sealant		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 (untested)	
EN 13501-2	Resistance to fire	Annex A	
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 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	No performance determined	
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	

4 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE (HEREINAFTER AVCP) SYSTEM APPLIED, WITH REFERENCE TO ITS LEGAL BASE

According to the decision 1999/454/EC – Commission Decision of date 22nd June 1999 on the procedure for attesting the conformity of construction products pursuant to Article 20(2) of Council Directive 89/106/EEC as regards fire stopping, fire sealing and fire protective products, published in the Official Journal of the European Union (OJEU) L178/52 of 14/07/1999, see <http://eur-lex.europa.eu/JOIndex.do> of the European Commission¹, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table(s) applies (apply).

Product(s)	Intended use(s)	Level(s) or class(es)	System(s)
Fire stopping and Fire Sealing Products	For fire compartmentation and/or fire protection or fire performance	Any	1

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Tasks of the manufacturer:

Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall ensure that the product is in conformity with this European technical Assessment.

The manufacturer may only use initial / raw / constituent materials stated in the technical documentation of this European Technical Assessment.

The factory production control shall be in accordance with the Control Plan of 18th April 2013 relating to the European technical assessment ETA 19/0748 issued on 20/11/2019 which is part of the technical documentation of this European technical approval. The "Control Plan" is laid down in the context of the factory production control system operated by the manufacturer and deposited at UL International (UK) Ltd.

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the Control Plan.

¹ Official Journal of the European Communities L178/52 of 14/7/1999

Other tasks of the manufacturer

Additional information

The manufacturer shall provide a technical data sheet and an installation instruction with the following minimum information:

(a) Technical data sheet:

- Field of application:
- Building elements for which the penetration seal is suitable, type and properties of the building elements like minimum thickness, density, and - in case of lightweight constructions – the construction requirements.
- Limits in size, minimum thickness etc. of the penetration seal
- Construction of the penetration seal including the necessary components and additional products (e.g. backfilling material) with clear indication whether they are generic or specific.
- Services which the penetration seal is suitable, type and properties of the services like material, diameter, thickness etc. in case of pipes including insulation materials; necessary/allowed supports/fixings (e.g. cable trays)

(b) Installation instruction:

- Steps to be followed
- Procedure in case of retrofitting
- Stipulations on maintenance, repair and replacement

6 Issued on:

20th November 2019

Report by:



D. Yates
Project Engineer
Building and Life Safety Technologies

Reviewed by:



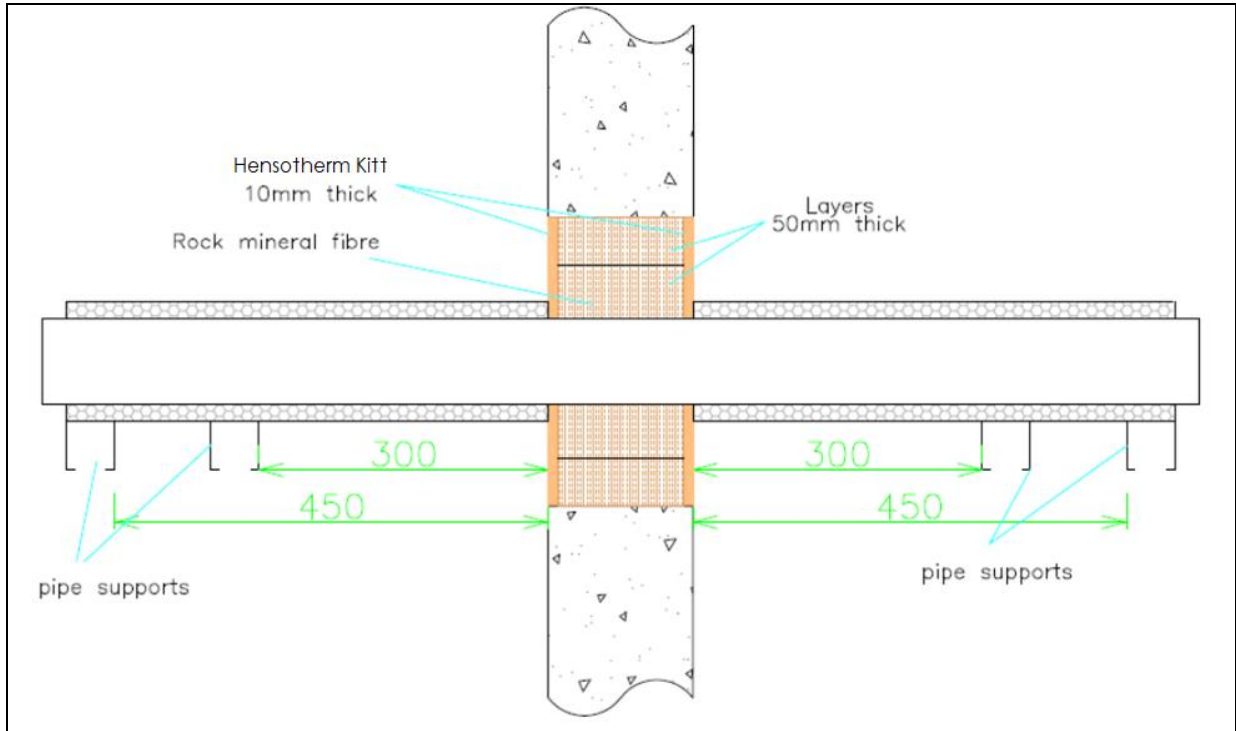
C. Johnson
Staff Engineer
Building and Life Safety Technologies

For and on behalf of UL International (UK) Ltd.

ANNEX A – Resistance to Fire Classification – Hensotherm Kitt

A.1 Rigid wall constructions with wall thickness of minimum 150 mm

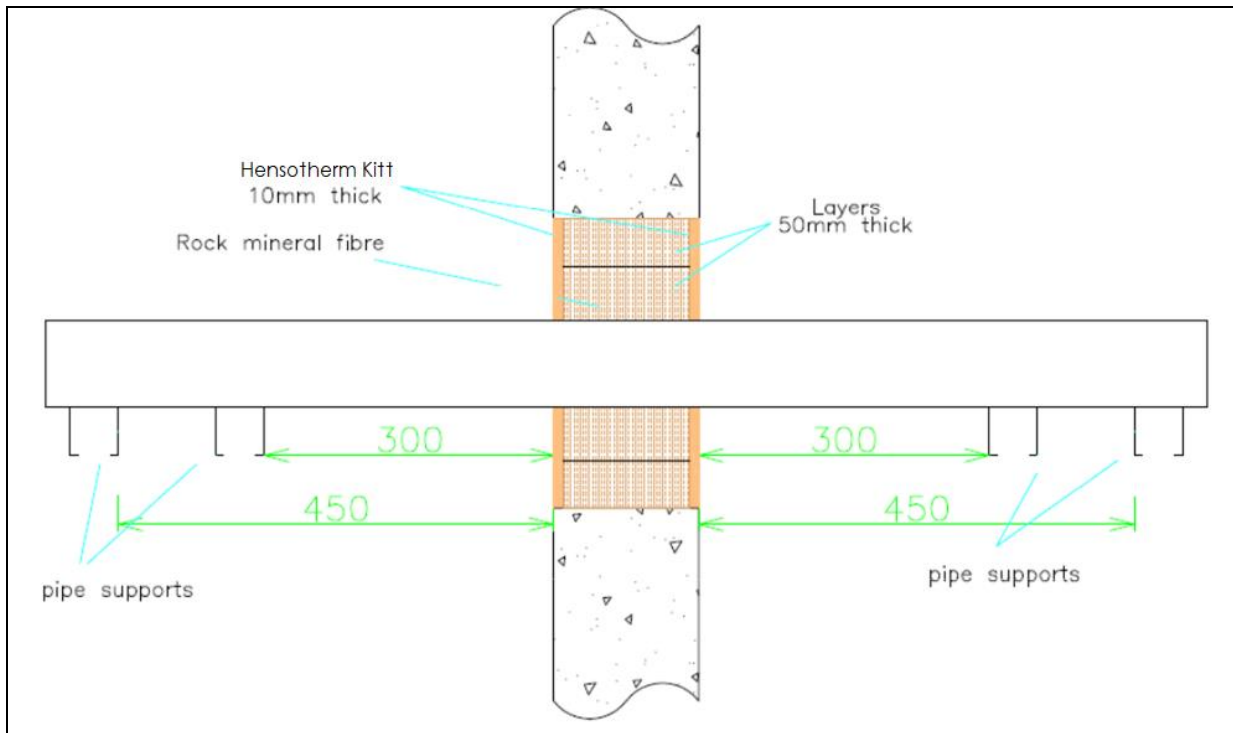
A.1.1 Penetration seal with metal pipe including combustible insulation



A.1.1.1 Pipes with local interrupted (minimum 500 mm) or continuous 19 mm thick Armacell 'Class O Armaflex' Insulation

Hensotherm Kitt Penetration Seals in Rigid Walls 150 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
300 x 300	10 mm deep Hensotherm Kitt flush to both faces of the wall backed with 130 mm deep Stone wool (90 kg/m ³)	Single mild steel pipe 89 mm diameter and 3 – 14.2 mm wall	Central	EI 120 C/U
		Single copper or mild steel pipe 35 mm diameter and 1 – 14.2 mm wall		EI 90 C/U

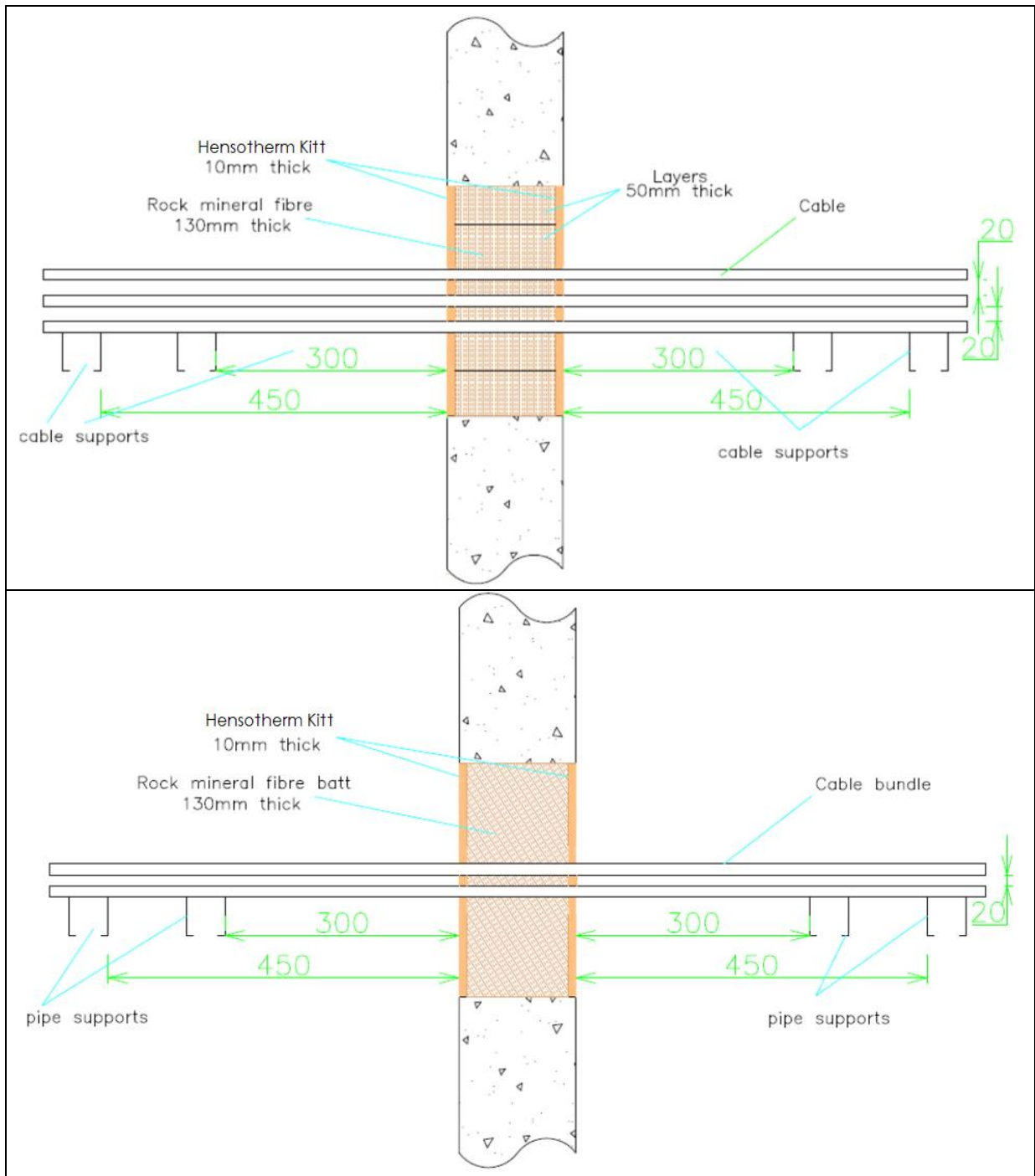
A.1.2 Penetration seal with metal pipe without insulation



A.1.2.1 Pipes without insulation

Hensotherm Kitt Penetration Seals in Rigid Walls 150 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
300 x 300	10 mm deep Hensotherm Kitt flush to both faces of the wall backed with 130 mm deep Stone wool (90 kg/m ³)	Single mild steel pipe 89 mm diameter and 3 – 14.2 mm wall	Central	E 120 C/U EI 30 C/U
		Single copper or mild steel pipe 35 mm diameter and 1 – 14.2 mm wall		E 90 C/U

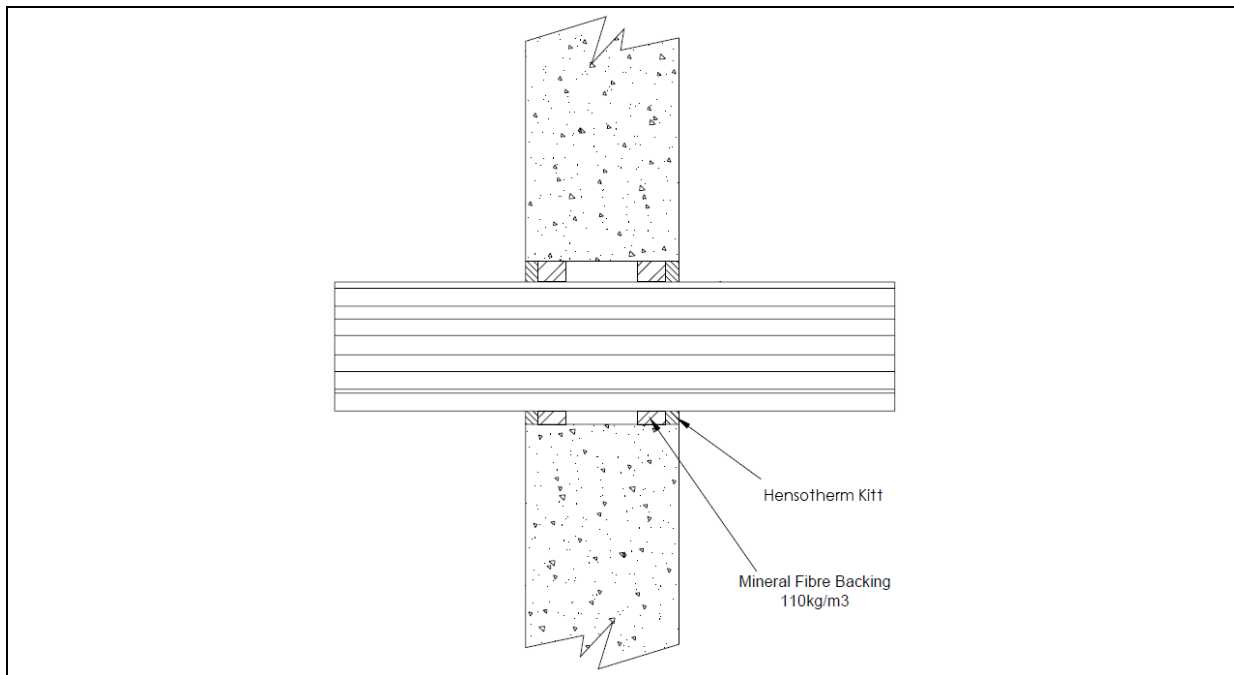
A.1.3 Penetration seal with cables



A.1.3.1 Cables

Hensotherm Kitt Penetration Seals in Rigid Walls 150 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
300 x 300	10 mm deep Hensotherm Kitt flush to both faces of the wall backed with 130 mm deep Stone wool (90 kg/m ³)	Up to 21 x 16 mm diameter – 3 x 6 mm copper core, steel armoured cables – (BS7671-6943XLH) with minimum 20 mm separation	Central	E 120 EI 60
		Single bundle of 9 x 30mm diameter– 4 x 25 mm copper core, steel armoured cables – (BS7671-6944XLH)	Central	

A.1.4 Penetration seal with cables



A.1.4.1 Cables

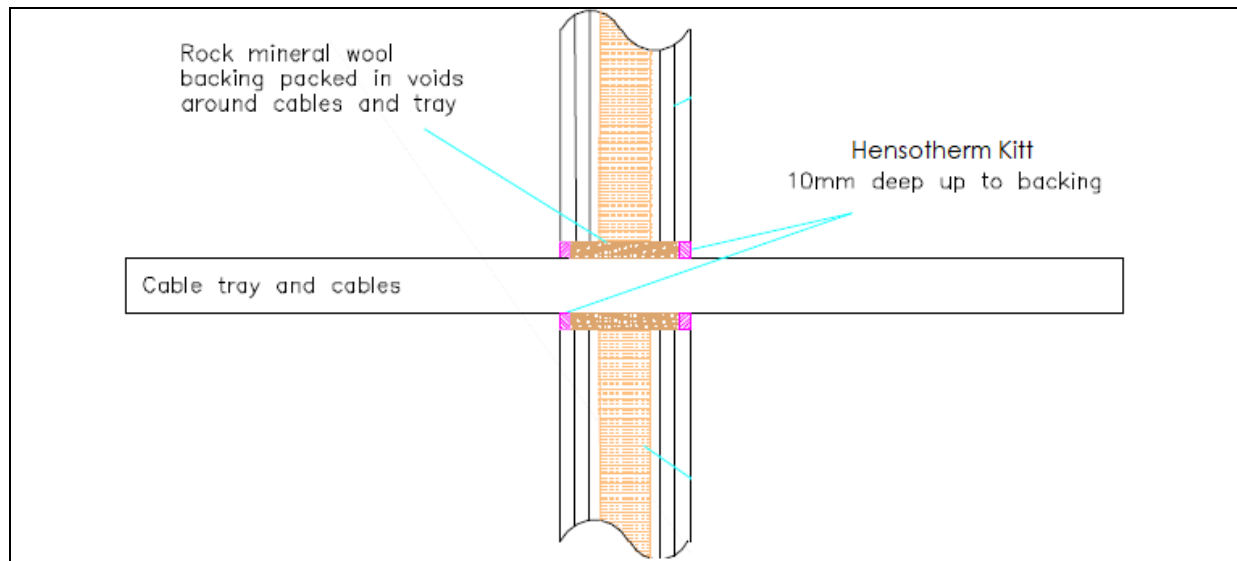
Hensotherm Kitt Penetration Seals in Rigid Walls 150 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
110 diameter	12mm deep Hensotherm Kitt flush to both faces of the wall backed with 25 mm deep Stone wool (110 kg/m ³)	Telecomms cables up to 21mm diameter in a bundle of up to 40 no.	Central	EI 60
120 diameter	15 mm deep Hensotherm Kitt flush to both faces of the wall backed with 25 mm deep Stone wool (110 kg/m ³)	Electrical cables – Type A3, in a bundle of up to 20 no.		E 240 EI 120
90 diameter	15 mm deep Hensotherm Kitt flush to both faces of the wall backed with 25 mm deep Stone wool (110 kg/m ³)	Electrical cables – Type C3, in a bundle of up to 2 no.		E 240 EI 60

Type A3 cable = 5 x 1.5 mm² core HD604.5 electrical cable with XLPE insulation, EVA sheath and 13 mm diameter

Type C3 cable = 4 x 95 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 42 mm diameter

A.2 Flexible or rigid wall constructions with wall thickness of minimum 100 mm

A.2.1 Penetration seal with cables



A.2.1.1 Cables

Hensotherm Kitt Penetration Seals in Flexible or Rigid Walls 100 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
400 x 300	10 mm deep Hensotherm Kitt flush to both faces of the wall backed with 80 mm deep Stone wool (90 kg/m ³)	Electrical cables up to 50 mm diameter	Central	E 120 EI 30
		Electrical cable – Type D1		E 120 EI 60
		Electrical cable – Type A1 in a bundle of up to 10 no.		
		Electrical cable – Type A3 in a bundle of up to 10 no.		
		Electrical cable – Type A2 in a bundle of up to 10 no.		
		Electrical cable – Type B		
		Electrical cable – Type C1		
		Electrical cable – Type C2		
		Electrical cable – Type C3		
		Electrical cable – Type E		

Type A1 cable = 5 x 1.5 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 14 mm diameter

Type A2 cable = 5 x 1.5 mm² core HD22.4 electrical cable with EPR insulation, PO sheath and 11.2-14.4 mm diameter

Type A3 cable = 5 x 1.5 mm² core HD604.5 electrical cable with XLPE insulation, EVA sheath and 13 mm diameter

Type B cable = 1 x 95 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 18-21 mm diameter

Type C1 cable = 4 x 95 mm² core HD604.5 electrical cable with XLPE insulation, EVA sheath and 42 mm diameter

Type C2 cable = 4 x 95 mm² core HD22.4 electrical cable with EPR insulation, PO sheath and 48.4-61 mm diameter

Type C3 cable = 4 x 95 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 42 mm diameter

Type D1 cable = 4 x 185 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 52 mm diameter

Type E cable = 1 x 185 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 23-27 mm diameter

A.2.1.2 Cables wrapped with 290 mm long, 5 mm thick Insulwrap material*

Hensotherm Kitt Penetration Seals in Flexible or Rigid Walls 100 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
400 x 300	10 mm deep Hensotherm Kitt flush to both faces of the wall backed with 80 mm deep Stone wool (90 kg/m ³)	Electrical cables up to 21 mm diameter	Central	E 120 EI 60
		Electrical cables up to 50 mm diameter		E 120 EI 45
		Electrical cable – Type D1		E 120 EI 60
		Electrical cable – Type A1 in a bundle of up to 10 no.		E 120 EI 90
		Electrical cable – Type A3 in a bundle of up to 10 no.		
		Electrical cable – Type A2 in a bundle of up to 10 no.		E 120 EI 60
		Electrical cable – Type B		
		Electrical cable – Type C1		
		Electrical cable – Type C2		E 120 EI 45
		Electrical cable – Type C3		
		Electrical cable – Type E		E 120 EI 60

* On both sides or if the fire risk side is known, on the non-hazard side only

Type A1 cable = 5 x 1.5 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 14 mm diameter

Type A2 cable = 5 x 1.5 mm² core HD22.4 electrical cable with EPR insulation, PO sheath and 11.2-14.4 mm diameter

Type A3 cable = 5 x 1.5 mm² core HD604.5 electrical cable with XLPE insulation, EVA sheath and 13 mm diameter

Type B cable = 1 x 95 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 18-21 mm diameter

Type C1 cable = 4 x 95 mm² core HD604.5 electrical cable with XLPE insulation, EVA sheath and 42 mm diameter

Type C2 cable = 4 x 95 mm² core HD22.4 electrical cable with EPR insulation, PO sheath and 48.4-61 mm diameter

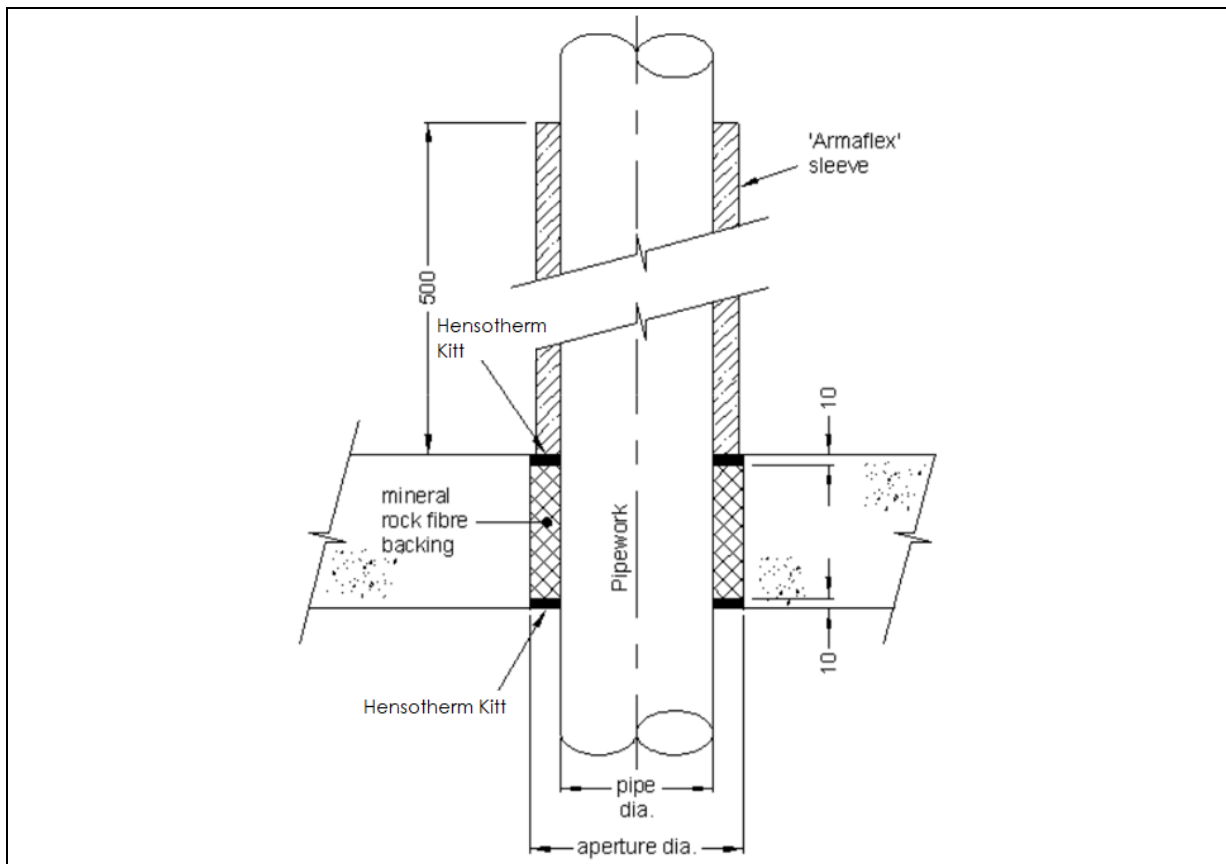
Type C3 cable = 4 x 95 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 42 mm diameter

Type D1 cable = 4 x 185 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 52 mm diameter

Type E cable = 1 x 185 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 23-27 mm diameter

A.3 Rigid floor constructions according to 1.2.1 with floor thickness of minimum 150 mm

A.3.1 Penetration seal with metal pipe including combustible insulation



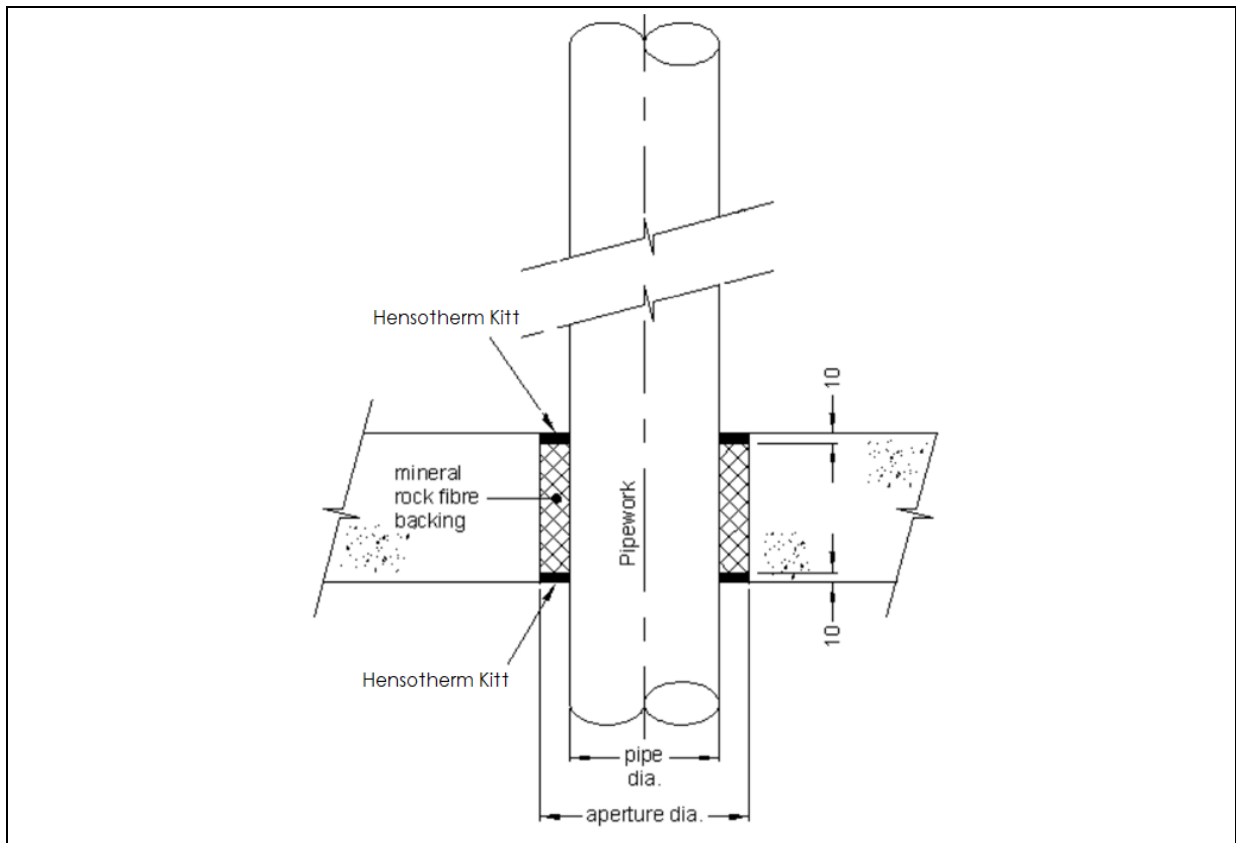
A.3.1.1 Pipes with local interrupted (minimum 500 mm) or continuous interrupted 25 mm thick Armacell 'Class O Armaflex' Insulation

Hensotherm Kitt Penetration Seals in Rigid Floors 150 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
150 diameter	10 mm deep Hensotherm Kitt flush to both faces of the wall backed with 130 mm deep Stone wool (90 kg/m ³)	Single mild steel pipe 89 mm diameter and 3 – 14.2 mm wall	Central	E 240 C/U EI 120 C/U

A.3.1.2 Pipes with local interrupted (minimum 500 mm) or continuous interrupted 19 mm thick Armacell 'Class O Armaflex' Insulation

Hensotherm Kitt Penetration Seals in Rigid Floors 150 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
150 diameter	10 mm deep Hensotherm Kitt flush to both faces of the wall backed with 130 mm deep Stone wool (90 kg/m ³)	Single copper or mild steel pipe 35 mm diameter and 1.2 – 14.2 mm wall with local (500 mm long) or continuous/interrupted 19 mm thick Armaflex insulation	Central	E 240 C/U EI 180 C/U

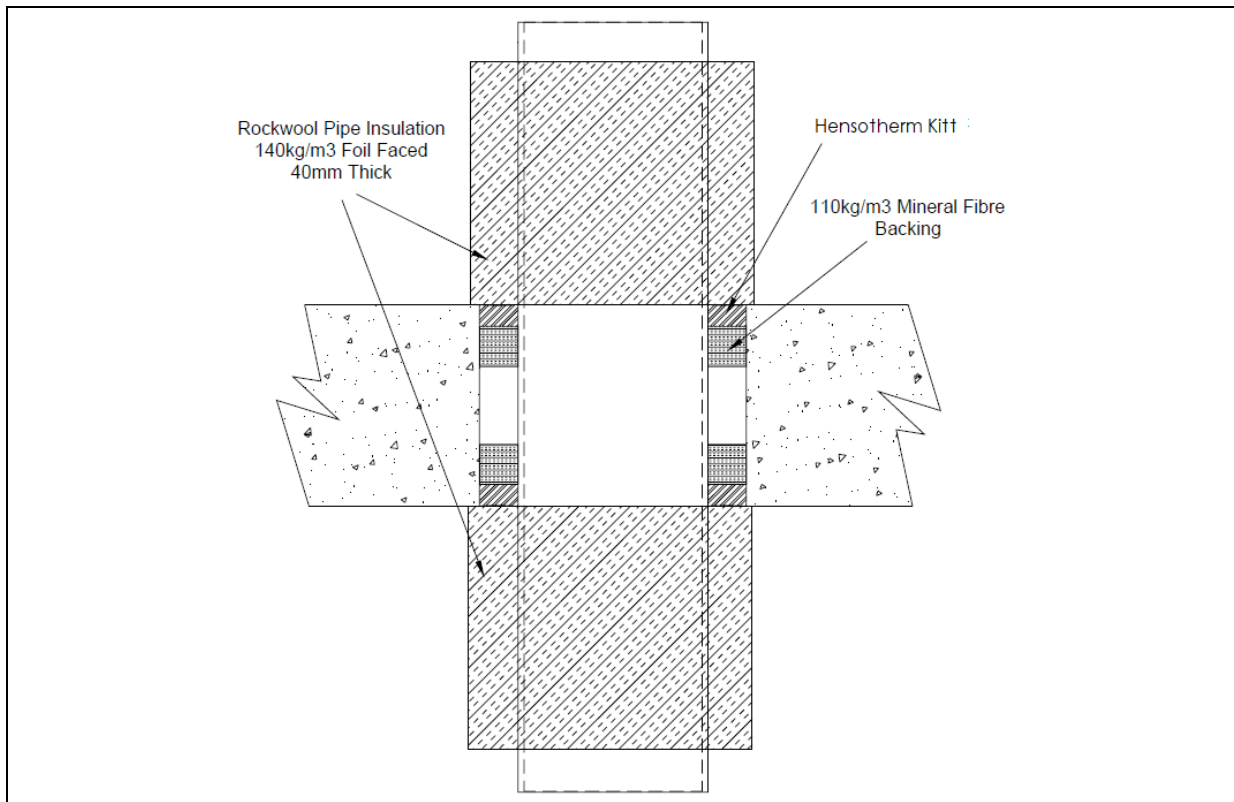
A.3.2 Penetration seal with metal pipe without insulation



A.3.2.1 Pipes without insulation

Hensotherm Kitt Penetration Seals in Rigid Floors 150 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
150 diameter	10 mm deep Hensotherm Kitt flush to both faces of the wall backed with 130 mm deep Stone wool (90 kg/m ³)	Single mild steel pipe 89 mm diameter and 3 – 14.2 mm wall	Central	E 240 C/U EI 15 C/U
		Single copper or mild steel pipe 35 mm diameter and 1.2 – 14.2 mm wall		E240

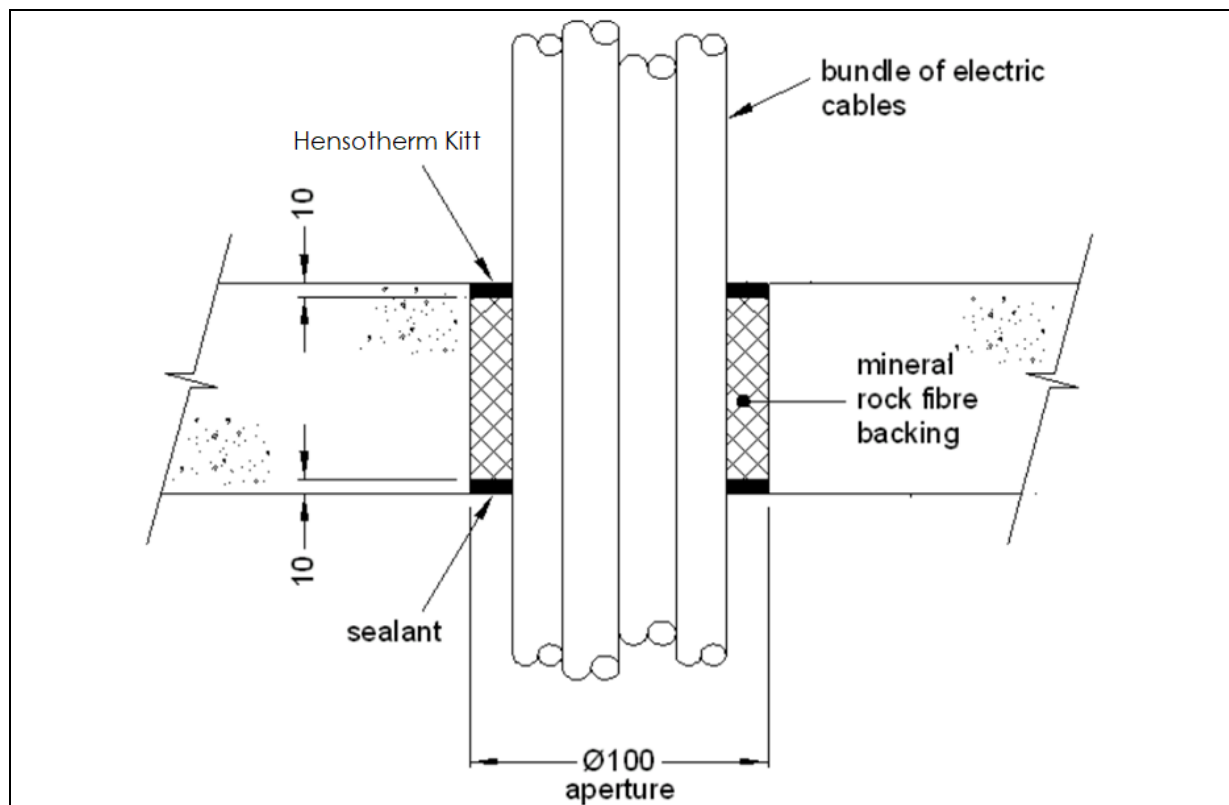
A.3.3 Penetration seal with metal pipe with stone wool insulation



A.3.3.1 Pipes with 40 mm thick/500 mm long, 140 kg/m³ stone wool insulation

Hensotherm Kitt Penetration Seals in Rigid Floors 150 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
300 diameter	20 mm deep Hensotherm Kitt flush to both faces of the wall backed with 25 mm deep Stone wool (110 kg/m ³)	Steel pipe, diameter 219 mm, wall thickness 8-14.2 mm	Central	E 180 C/C EI 120-C/C
120 diameter	15 mm deep Hensotherm Kitt flush to both faces of the wall backed with 25 mm deep Stone wool (110 kg/m ³)	Copper or steel pipe, diameter 54 mm, wall thickness 1.2-14.2 mm		E 240 C/C EI 180-C/C

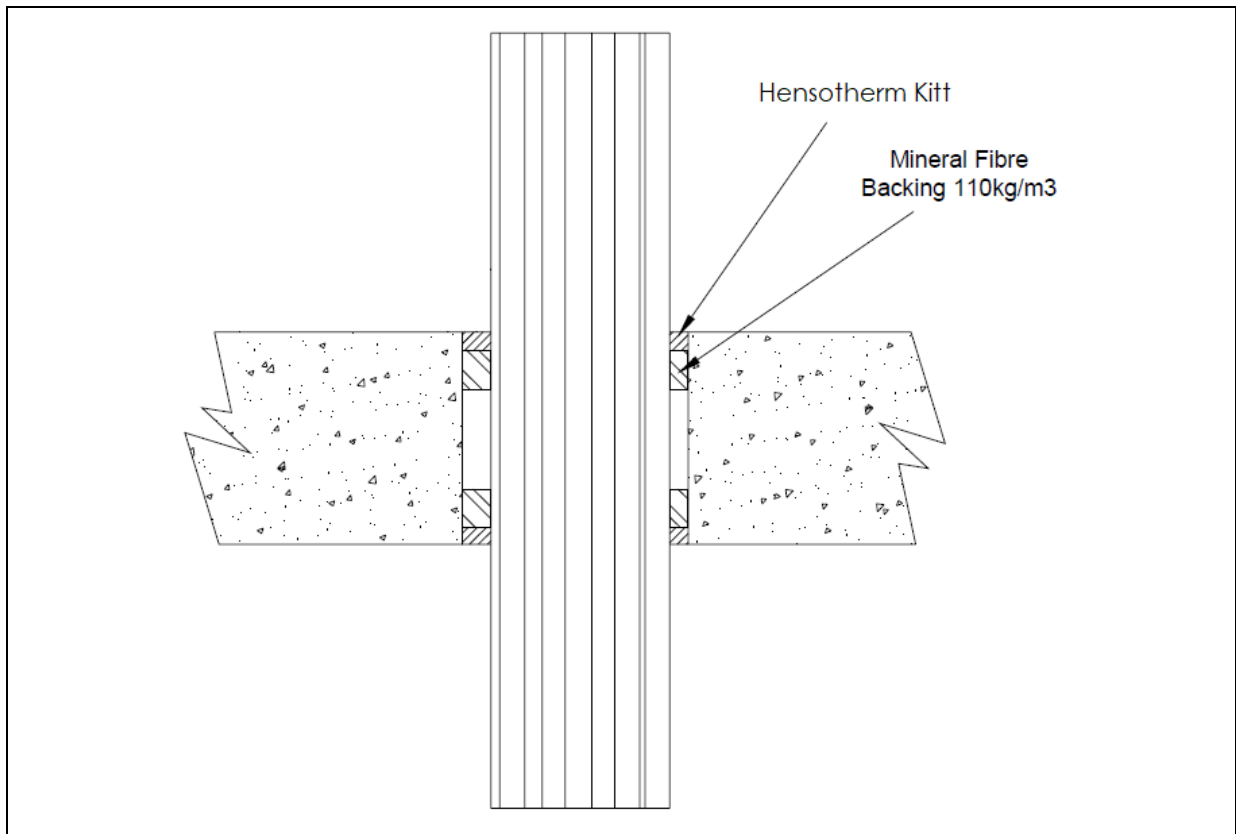
A.3.4 Penetration seal with cables



A.3.4.1 Cables

Hensotherm Kitt Penetration Seals in Rigid Floors 150 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
100 diameter	10 mm deep Hensotherm Kitt flush to both faces of the wall backed with 130 mm deep Stone wool (90 kg/m ³)	Single bundle of 21 x 14 mm diameter - 3 x 1.5 mm ² copper core/steel armoured cables (BS7671-6944XLH)	Central	E 240 EI 120
		Single bundle of 4 x 25 mm diameter - 4 x 16 mm ² core copper/steel armoured cables (BS7671-6944XLH), and 5 x 19 mm diameter - 4 x 6.0 mm ² core copper/steel armoured cables (BS7671-6944LSH)		E 240 EI 90

A.3.5 Penetration seal with cables



A.3.5.1 Cables

Hensotherm Kitt Penetration Seals in Rigid Floors 150 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
120 diameter	12 mm deep Hensotherm Kitt flush to both faces of the wall backed with 25 mm deep Stone wool (110 kg/m ³)	Telecomms cables up to 21mm diameter in a bundle of up to 40 no.	Central	E 240 EI 90
	20 mm deep Hensotherm Kitt flush to both faces of the wall backed with 25 mm deep Stone wool (110 kg/m ³)	Electrical cables – Type C1, in a bundle of up to 2 no.		E 240 EI 90
90 diameter	15 mm deep Hensotherm Kitt flush to both faces of the wall backed with 25 mm deep Stone wool (110 kg/m ³)	Electrical cables – Type C3, in a bundle of up to 2 no.		E 240 EI 90

Type C1 cable = 4 x 95 mm² core HD604.5 electrical cable with XLPE insulation, EVA sheath and 42 mm diameter

Type C3 cable = 4 x 95 mm² core HD603.3 electrical cable with PVC insulation, PVC sheath and 42 mm diameter