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appointed according to Article 29 of Construction Products Regulation 2011 as amended by the Construction Products (Amendment etc.) (EU Exit) Regulations 2019 and the Construction Products (Amendment etc.) (EU Exit) Regulations 2020

UK Technical Assessment

0843-UKTA-22/0054 of 29/05/2024

Technical Assessment Body Issuing the UKTA:	UL International (UK) Ltd
Trade name of the construction product	Hilti Firestop Cushion CFS-CU
Product family to which the construction product belongs	Fire Stopping and Fire Sealing Products - Penetration Seals
Manufacturer	Hilti Corporation Feldkircherstrasse 100 9494 Schaan LIECHTENSTEIN
Manufacturing plant(s)	HILTI production plant 24
This UK Technical Assessment contains	20 pages including Annexes A to D which form an integral part of this assessment
This UK Technical Assessment* is issued, on the basis of	EAD 350454-00-1104, September 2017

*** in accordance with Construction Products Regulation 2011 as amended by the Construction Products (Amendment etc.) (EU Exit) Regulations 2019 and the Construction Products (Amendment etc.) (EU Exit) Regulations 2020**

Content

SPECIFIC PARTS OF THE UK TECHNICAL ASSESSMENT

1 Technical description of the product

Hilti Firestop Cushion CFS-CU is a 'Pillow/Cushion' used in combination with further Hilti Firestop Cushion CFS-CU to form a penetration seal to reinstate the fire resistance performance of wall and floor constructions, where they have been provided with apertures for the penetration of services. The Hilti Firestop Cushion CFS-CU is available in three sizes referenced Hilti Firestop Cushion CFS-CU S, Hilti Firestop Cushion CFS-CU M and Hilti Firestop Cushion CFS-CU L.

Hilti Firestop Cushion CFS-CU is a service penetration seal to reinstate the fire resistance performance of wall and floor constructions, where they have been provided with apertures for the penetration of services, constructed from groups of Hilti Firestop Cushions CFS-CU.

Hilti Firestop Acrylic Sealant CFS-S ACR may be used together with Hilti Firestop Cushions CFS-CU (reaction to fire class D-s1 d0 according to EN 13501-1). For a detailed product information see UKTA-22/0045.

2 Specification of the intended use(s) in accordance with the applicable UK Assessment Document (Pre-Exit European Assessment Document): EAD 350454-00-1104

2.1 Intended use

The intended use of Hilti Firestop Cushion CFS-CU is to temporarily or permanently reinstate the fire resistance performance of flexible wall constructions, rigid wall constructions and rigid floor constructions where they are penetrated by various services.

The specific elements of construction that the Hilti Firestop Cushion CFS-CU may be used to provide a penetration seal in, are as follows:

Construction element	Construction
1. Rigid walls	The wall must have a minimum thickness of 100 mm and comprise concrete or masonry, with a minimum density of 650 kg/m^3.
2. Rigid floors	The floor must have a minimum thickness of 150 mm and comprise concrete with a minimum density of 2200 kg/m^3.
3. Flexible walls	The wall must have a minimum thickness of 100 mm and comprise timber or steel studs lined on both faces with a minimum of 2 layers of 12.5 mm thick boards. The aperture within the wall shall be lined with studs and 12.5 mm board (of the same type as the facings). A 12.5 mm thick Gypsum support board (E1), 200 mm long, shall be fixed within this lining. For timber stud walls there must be a minimum distance of 100 mm between the seal to any stud. Additionally, the cavity between stud and seal must be closed with a minimum 100 mm insulation of Class A1 or A2 in the cavity between stud and seal.

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

“Hilti Firestop Cushion CFS-CU” may be used to provide a penetration seal with the following specific services – single, multiple or in combination:

- Cables/cable trays/conduits: Services as given in Annex C
- Plastic pipes: Services as given in Annex C

Cable trays/ladders and pipes shall be supported at most 250 mm and 500 mm away from the surface of the seal and all cables shall be supported by trays or ladders.

2.2 Use Conditions

"Hilti Firestop Cushion CFS-CU" is intended for use in internal conditions with humidity lower than 85 % RH excluding temperatures below 0° C, without exposure to rain or UV, and can therefore - according to EAD 350454-00-1104, clause·1.2.1 - be categorized as Type Z_2.

2.3 Working life

The provisions made in this UK Technical Assessment are based on an assumed working life of "Hilti Firestop Cushion CFS-CU" of 10 years, provided the conditions laid down in the technical literature of the manufacturer relating to packaging, transport, storage, installation, use and repair are met.

The indications given on the intended working life cannot be interpreted as a guarantee given by the producer or the Technical Assessment Body, but are to be regarded only as a means for selecting the appropriate product in relation to the expected economically reasonable working life of the works.

The real working life might be, in normal use conditions, considerably longer without major degradation affecting the Basic requirements for construction works.

2.4 Manufacturing

The UK Technical Assessment is issued for the product on the basis of agreed data/information, deposited with UL International (UK) Ltd, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to UL International (UK) Ltd before the changes are introduced.

UL International (UK) Ltd will decide whether or not such changes affect the UK Technical Assessment and consequently the validity of the UKCA marking on the basis of the UK Technical Assessment and if so whether further assessment or alterations to the UK Technical Assessment, shall be necessary.

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

Essential characteristics, method of verification and their performance

Basic requirements for construction works	Essential characteristic	Method of Verification	Performance
BWR 2	Reaction to fire	EN 13501-1	Clause 3.1.1
	Resistance to fire	EN 13501-2	Clause 3.1.2 and Annex C
BWR 3	Air permeability	No performance assessed	
	Water permeability	No performance assessed	
	Content and/or release of dangerous substances	Declaration of conformity by the manufacturer	
BWR 4	Mechanical resistance and stability	No performance assessed	
	Resistance to impact/movement	EOTA TR 001	Clause 3.3.2
	Adhesion	No performance assessed	
	Durability	Section 2.2.9 of EAD 350454-00-1104	Clause 3.3.4
BWR 5	Airborne sound insulation	No performance assessed	
BWR 6	Thermal properties	No performance assessed	
	Water vapour permeability	No performance assessed	

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

"Hilti Firestop Cushion CFS-CU" is classified 'B-s1, d0' in accordance with EN 13501-1

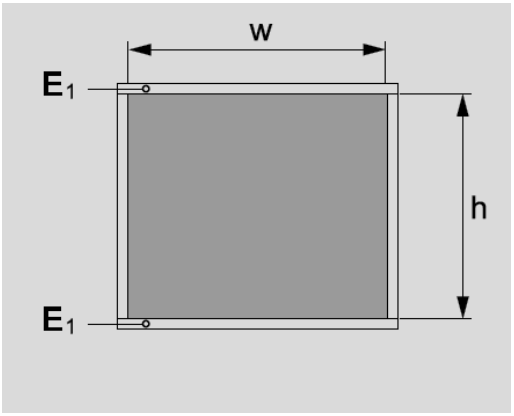
3.1.2 Resistance to fire

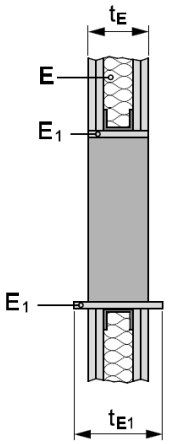
"Hilti Firestop Cushion CFS-CU" has been tested in accordance with prEN 1366-3, installed within apertures in flexible walls (drywalls), rigid walls (masonry) and concrete floors.

The classification of the resistance to fire performance has been carried out in accordance with EN 13501-2. Penetration seals made from "Hilti Firestop Cushion CFS-CU" with additional materials and services are classified according to combinations of performance parameters and classes as shown in Annex C. The classifications are valid for services running through openings of maximum dimensions w x h = 1200 mm x 1500 mm, in flexible and rigid walls with minimum thickness t_E = 100 mm and concrete floors up to 700 mm wide (length may be unlimited subject to a minimum length to seal area ratio of 4.86:1 m/m^2) with minimum thickness of 150 mm.

The classifications are not valid for sandwich panel constructions.

An aperture framing made from gypsum board must be fixed inside openings in flexible wall constructions. The frame must be made of gypsum boards 12.5 mm thick on each side of the opening fixed by minimum 2 metal screws per side.





E	Flexible wall construction
E_1	Aperture framing
t_E	Thickness of the building element
t_{E1}	Length of supporting board
w	Width of the seal
h	Height of the seal

It is assumed that compressed air systems are switched off by other means in the case of fire.

The function of the pipe seal in case of pneumatic dispatch systems, pressurised air systems etc. is guaranteed only when the systems are shut off in case of fire.

The assessment does not cover the avoidance of destruction of the seal or of the abutting building element(s) by forces caused by temperature changes in case of fire. This has to be considered when designing tile piping system.

This UK Technical Assessment does not address any risks associated with leakage of dangerous liquids or gases caused by failure of the pipe(s) in case of fire.

The classifications relate to C/U (capped inside the furnace/uncapped outside) for metal pipes and U/C (capped outside/uncapped inside the furnace) for plastic and composite pipes.

The durability assessment does not take account of the possible effect of substances permeating through the pipe on the penetration seal.

3.2 Hygiene, health and the environment (BWR 3)

3.2.1 Air permeability

No performance assessed.

3.2.2 Water permeability

No performance assessed.

3.2.3 Content, emission and/or release of dangerous substances.

The manufacturer has provided a declaration on the content, emission and/or release of dangerous substances in relation to their products with the title "Statement on Product Regulatory Compliance: Version 1.3 October 2023).

In addition to the specific clauses relating to dangerous substances contained in this UK Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed UK 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.

3.3 Safety and accessibility in use (BWR 4)

3.3.1 Mechanical resistance and stability

No performance assessed.

3.3.2 Resistance to impact and movement

"Hilti Firestop Cushion CFS-CU" has been tested in accordance with EOTA Technical Report – TR001 at dimensions of 1500 mm x 1200 mm and without penetrating services.

The results demonstrate suitability for the following foreseen applications in accordance with EOTA Technical Report – TR001: A1:

- Zones accessible primarily to those with high incentive to exercise care. Small risk of accidents occurring and of misuse.
- Zones accessible primarily to those with some incentive to exercise care. Some risk of accidents occurring and of misuse.
- Zones readily accessible to public and other with little incentive to exercise care. Risk of accidents occurring and of misuse.

3.3.3 Adhesion

No performance assessed.

3.3.4 Durability

"Hilti Firestop Cushion CFS-CU" has been tested in accordance with EAD 350454-00-1104 for the intended use condition.

"Hilti Firestop Cushion CFS-CU" is therefore appropriate for use in internal conditions with humidity lower than 85% RH excluding temperatures below 0^{o} C, without exposure to rain or UV, and can therefore – according to EAD 350454-00-1104, clause 1.2.1 – be categorized as Type Z_2.

3.4 Protection against noise (BWR 5)

3.4.1 Airborne sound insulation

No performance assessed.

3.5 Energy economy and heat retention (BWR 6)

3.5.1 Thermal properties

No performance assessed.

3.5.2 Water vapour permeability

Not relevant, no performance determined (NPD)

3.1.3 Sustainable use of natural resources (BWR 7)

No performance assessed.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

According to the Statutory Instrument 2019 No. 465 – made 5th March 2019 and cited as the Construction Products (Amendment etc.) (EU Exit) Regulations 2019 and coming into force on exit day and Statutory Instrument 2020 No. 1359 – made 26th November 2020 and cited as the Construction Products (Amendment etc.) (EU Exit) Regulations 2020 and coming into force immediately before the 2019 Regulations come into force, on the procedure for attesting the conformity of construction products as regards fire stopping, fire sealing and fire protective products, published as 'Pre-Exit' European Assessment Documents, (see https://www.gov.uk/guidance/pre-exit-european-assessment-documents-construction-products), the system of assessment and verification of constancy of performance (see Annex V to Construction Products Regulation 2011 as amended by the Construction Products (Amendment etc.) (EU Exit) Regulations 2019 and the Construction Products (Amendment etc.) (EU Exit) Regulations 2020) given in the following table(s) apply.

Product(s)	Intended use(s)	Level(s) or class(es)	System
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 UK Technical Assessment.

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

The factory production control shall be in accordance with the Control Plan of 08/05/2024 relating to the UK Technical Assessment 0843-UKTA-22/0054 issued on 29/05/2024 which is part of the technical documentation of this UK technical Assessment. 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.

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. pipe trays)

(b) Installation instruction:

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

Issued on: 29th May 2024

Report by:

C. Sweeney
Project Engineer
Built Environment
For and on behalf of UL International (UK) Ltd.

Reviewed by:

C. Johnson
Senior Staff Engineer
Built Environment

ANNEX A REFERENCE DOCUMENTS

A.1 Reference to standards mentioned in the UKTA

EN 13501-1	Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests
EN 13501-2	Fire classification of construction products and building elements – Part 1: Classification using test data from fire resistance tests
EN 1366-3	Fire resistance tests for service installations – Part 3: Penetration Seals

A.2 Other reference documents

EOTA TR 001	Determination of impact resistance of panels and panel assemblies
EOTA TR 024	Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products
EAD 350454-00-1104	Fire stopping and fire sealing products: Penetration Seals

ANNEX B DESCRIPTION OF THE PRODUCT "HILTI FIRESTOP CUSHION CFS-CU":

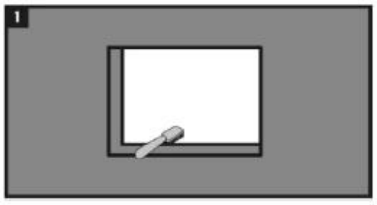
"Hilti Firestop Cushion CFS-CU" is a ready-to-use Firestop Cushion made of an intumescent material contained in a fibre glass bag.

A detailed specification of the product is contained in document "Identification / Product Specification and Control Plan relating to the UK Technical Assessment UKTA-22/0054 of "Hilti Firestop Cushion CFS-CU" which is a non-public part of this UKTA.

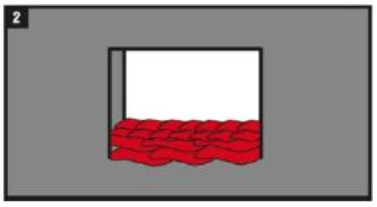
• Hilti Firestop Cushion CFS-CU S (small): (300mm x 40mm x 30mm)	
• Hilti Firestop Cushion CFS-CU M (medium): (300mm x 80mm x 30mm)	
• Hilti Firestop Cushion CFS-CU L (large): (300mm x 170mm x 30mm)	

B.1 **Installation**

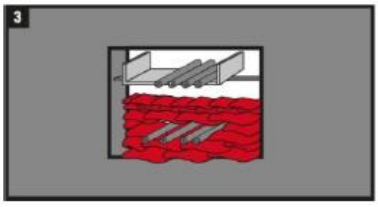
Installation of “Hilti Firestop Cushion CFS-CU” shall be conducted as follows:



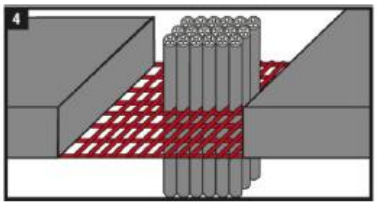
Clean the opening.



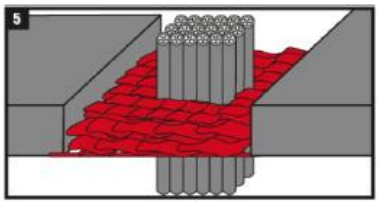
Cushion arrangement without cables running through wall partition. Opening must be framed in drywall applications.



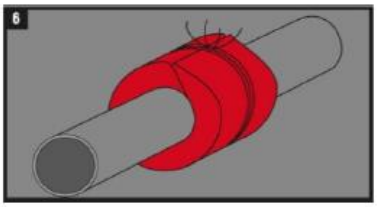
Cushion arrangement with cables/cable trays running through wall partition.



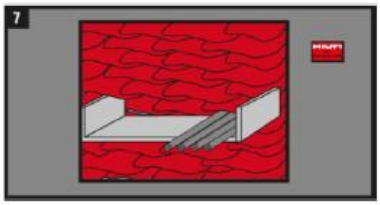
When closing floor openings, fasten wire mesh in place as shown in drawing.



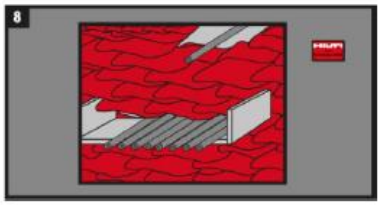
Cushion arrangement in floor. If required, seal gaps between cables and Hilti Firestop Cushions with Hilti Acrylic Sealant CFS-S ACR (please refer to Annex C).

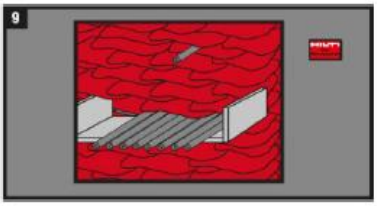


If required, wrap cable/ cable tray resp. pipe with Hilti Firestop Cushion CFS-CU L and fix with wire as shown in drawing (please refer to Annex C).



Fasten identification plate in place if required.





Re-installing cables:
Remove a Hilti Firestop Cushion from the seal and install the cable or pipe. Close the opening with Hilti Firestop Cushions.

B.2 **Use, maintenance, repair**

“Hilti Firestop Cushion CFS-CU” should be installed and used as described earlier in this document.

“Hilti Firestop Cushion CFS-CU” seals which are damaged should not be used or if damaged after installation, should be removed and replaced with undamaged cushions.

In the area covered by the UKTA when the set up recommendations have been followed there is no maintenance protocol to be followed.

ANNEX C RESISTANCE TO FIRE CLASSIFICATION OF PENETRATION SEALS MADE OF "HILTI FIRESTOP CUSHION CFS-CU"

C.1 Flexible wall constructions and rigid wall constructions according to clause 2.1 of the UKTA with wall thickness t_E of minimum 100 mm

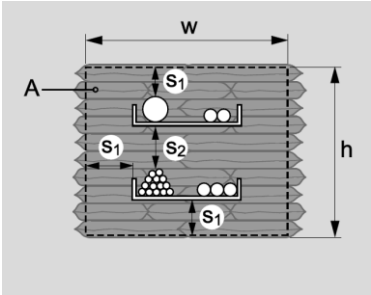
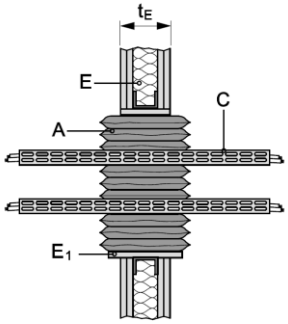
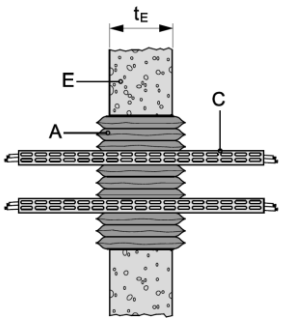
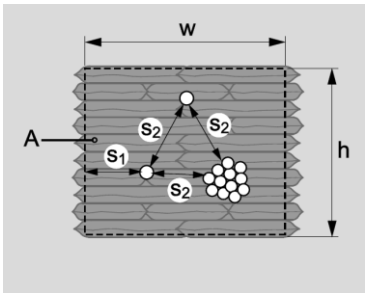
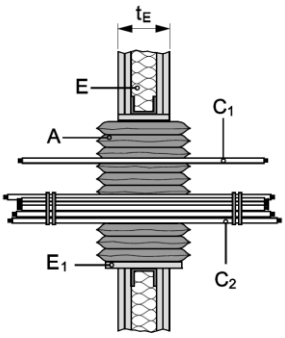
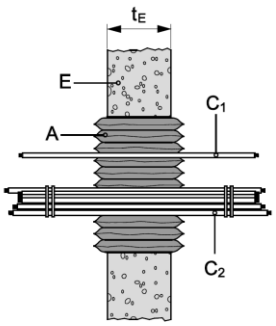
Penetration seal/ Services	**Classification**	
		With additional cable wrapping Additional Hilti Firestop Cushion wrapped around cables for an extension of the seal depth by 150 mm on both sides of the seal
All sheathed cable types currently and commonly used in building practice in Europe (e.g power, control, signal, telecommunication, data, optical fibre cables) up to 80 mm diameter	**EI 45 / E 120**	**EI 120**
Tied bundles of up to 80 mm overall diameter containing up to 21 mm diameter sheathed electrical/telecommunication/optical fibre cables	**EI 45 / E 120**	**EI 120**
All non-sheathed electrical cables up to 24 mm diameter	**EI 45 / E 120**	**EI 120**
All steel or plastic conduits up to 16 mm diameter	**EI 45 / E 120 U/U**	**EI 120 U/U**
PVC-U pipes according to EN 1452-1 arranged linear, diameter Ø 50 mm with wall thickness between 1.8 mm and 5.3 mm.	**EI 120 U/C**	-

C.2 Rigid wall constructions according to clause 2.1 of the UKTA with wall thickness t_E of minimum 150 mm

Penetration seal/ Services	Classification	
		With additional cable wrapping Additional Hilti Firestop Cushion wrapped around cables for an extension of the seal depth by 150 mm on both sides of the seal
All sheathed cable types currently and commonly used in building practice in Europe (e.g power, control, signal, telecommunication, data, optical fibre cables) up to 80 mm diameter	**EI 60 / E 240**	**EI 120 / E 240**
Bundles of up to 80 mm overall diameter containing up to 21 mm diameter sheathed electrical/telecommunication/optical fibre cables	**EI 60 / E 240**	**EI 120 / E 240**
All non-sheathed electrical cables up to 24 mm diameter	**EI 60 / E 240**	**EI 120 / E 240**
All steel or plastic conduits up to 16 mm diameter	**EI 45 / E 240 U/U**	**EI 120 / E 240 U/U**
PVC-U pipes according to EN 1452-1 arranged linear, diameter Ø 50 mm with wall thickness between 1.8 mm and 5.3 mm.	**EI 240 U/C**	**-**

Construction details:

<table>
<tr><td colspan="3">Cable support construction: Perforated metal cable trays with a melting point higher than 1100°c (e.g. galvanised steel, stainless steel). Trays with organic coatings are covered if their overall classification is minimum A2 according to EN 13501-1.</td></tr>
<tr><td colspan="2">Minimum distance (mm):

Cables/cable tray to seal edge (s_1): 40
Cables to cable tray (s_2): 80
Plastic pipe to seal edge (s_1): 100
Plastic pipe to plastic pipe: (s_2): 100
Plastic pipe to cable tray (s_2): 175</td><td>Cable to seal edge (s_1): 40
Cable to cable (s_2): 0
Cable to cable bundle (s_2): 80</td></tr>
<tr><td colspan="3">Cables/conduits on cable trays:</td></tr>
<tr><td> 
</td><td> 
</td><td> 
</td></tr>
<tr><td colspan="3">Cables/cable bundles/conduits without cable tray:</td></tr>
<tr><td> 
</td><td> 
</td><td> 
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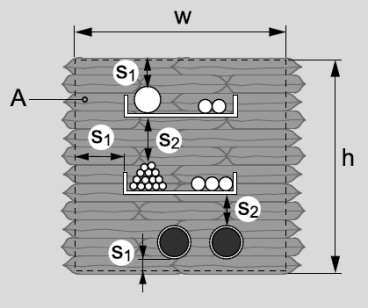
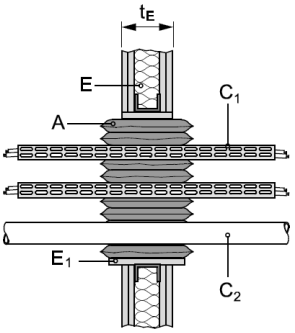
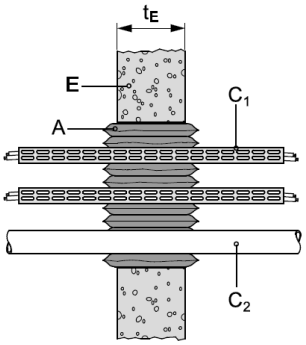
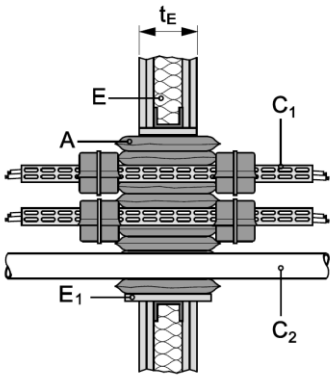
Cable trays/plastic pipes:





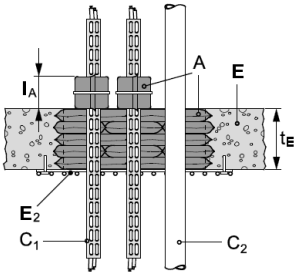
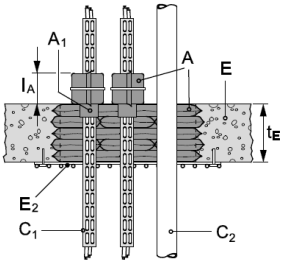


Additional cable wrapping
(see installation instructions for details):



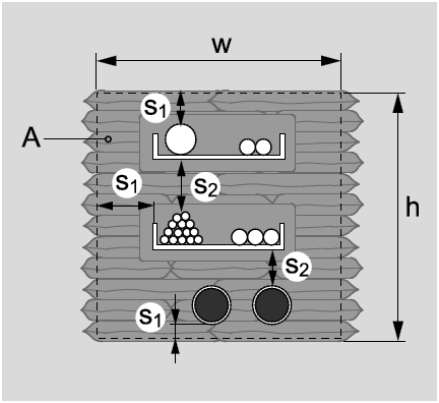
For explanation of abbreviations see the related text and Annex D

C.3 Rigid floor constructions according to clause 2.1 of the UKTA with floor thickness t_E of minimum 150 mm

Penetration seal/ Services	Classification	
	With additional cable wrapping (l_A = 150 mm)	**With additional cable wrapping (l_A = 150 mm) [1)](l_A = 300 mm) + Hilti Firestop Acrylic Sealant CFS-S ACR (A_1)**
		
All sheathed cable types currently and commonly used in building practice in Europe (e.g power, control, signal, telecommunication, data, optical fibre cables) with a diameter of:		
Maximum Ø 21 mm	**EI 120**	**EI 120**
21 ≤ Ø ≤ 90 mm	**EI 60 / E 120**	**EI 90** **EI 120[1)]**
Bundles of up to 80 mm overall diameter containing up to 21 mm diameter sheathed electrical/telecommunication/optical fibre cables	**EI 60 / E 120**	**EI 90 / E 120**
All non-sheathed electrical cables up to 24 mm diameter	**EI 60 / E 120**	**EI 120 / E 240**
All steel or plastic conduits up to 16 mm diameter	**EI 60 / E 120 U/U**	**EI 120 / E 240 U/U**
PVC-U pipes according to EN 1452-1 arranged linear, diameter Ø 50 mm with wall thickness between 1.8 mm and 5.3 mm.	**EI 120 U/C**	**-**

Construction details:

Cable support construction: Perforated metal cable trays with a melting point higher than 1100°c (e.g. galvanised steel, stainless steel). Trays with organic coatings are covered if their overall classification is minimum A2 according to EN 13501-1.			
Minimum distance (mm):			
Cables/cable tray to seal edge (s_1):	40	Cable to seal edge (s_1):	40
Cables to cable tray (s_2):	80	Cable to cable (s_2):	0
Plastic pipe to seal edge (s_1):	40	Cable to cable bundle (s_2):	80
Plastic pipe to plastic pipe: (s_2):	100		
Plastic pipe to cable tray (s_2):	50		



For explanation of abbreviations see the related text and Annex D

ANNEX D ABBREVIATIONS USED IN DRAWINGS

Abbreviation	Description
A, A_1, A_2,…	Firestop product
C, C_1, C_2,…	Penetration service
E	Building element (wall, floor)
E_1	Supporting board
E_2	Wire mesh
t_E	Thickness of building element (wall, floor)
t_{E1}	Length of supporting board
w	Width
H	Height
l_A	Length Firestop product (additional)