

DECLARACIÓN DE PRESTACIONES

Según el Anexo III de la Norma Europea n.º 305/2011 (Reglamento Europeo de Productos de Construcción)

Almohadilla ignífuga Hilti CFS-CU

N.º Hilti CFS-CU "1121-CPD-EA0001"

1. Código de identificación único del tipo de producto:

Almohadilla ignífuga Hilti CFS-CU

2. Usos previstos:

Producto intumescente y de sellado para atravesamientos, véase la ETA-08/0213 (17-03-2016)

Atravesamientos de cables	Cables, mazos de cables, conductos
Inserciones de tuberías	Tuberías de plástico
Atravesamientos mixtos	Cables, bandejas de cables, tuberías de plástico

3. Fabricante:

HILTI Corporation, Feldkircherstrasse 100, 9494 Schaan, Principado de Liechtenstein

4. Sistemas de evaluación y verificación de la constancia de las prestaciones (EVCP):

Sistema 1

5. Documento de evaluación europeo:

EAD 350454-00-1104 "Productos intumescentes y de sellado: sellado de atravesamientos"

Evaluación técnica europea:

ETA-08/0213 (17-04-2016)

Organismo de Evaluación Técnica:

Warrington Certification Limited

Organismos notificados:

Warrington Certification Limited, N.º 1121

6. Prestaciones declaradas:

Características básicas	Prestaciones declaradas/especificación técnica armonizada
Reacción en caso de incendio	Clase B - s1 d0 conforme a la norma EN 13501-1.
Resistencia en caso de incendio	Prestaciones de resistencia al fuego y campo de aplicación de conformidad con la norma EN 13501-2. Consulte el Anexo
Sustancias peligrosas	Consulte el Anexo
Durabilidad y operatividad	Z2 de conformidad con el Informe técnico EOTA - TR024.
Estabilidad y resistencia mecánica	Impacto de cuerpo blando: 300 Nm, impacto de cuerpo duro: 10 Nm
Protección acústica	Pruebas realizadas según las normas EN ISO 140-3, EN ISO 140-10 y EN ISO 717-1. Consulte el Anexo

Las prestaciones del producto identificado anteriormente son conformes con el conjunto de prestaciones declaradas. La presente declaración de prestaciones se emite, de conformidad con el Reglamento (UE) n.º 305/2011, bajo la responsabilidad del fabricante arriba identificado.

Firmado en nombre del fabricante por:

Dr. Christoph Aubauer
Jefe de producto global
Unidad empresarial de Protección contra incendios
Hilti Corporation

Martin Althof
Presidente de Calidad
Unidad empresarial de Protección contra incendios
Hilti Corporation

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.

- 1) The specific elements of construction that the Hilti Firestop Cushion CFS-CU 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 timber or steel studs lined on both faces with minimum 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 of the seal to any stud and the cavity between stud and seal must be closed and minimum 100 mm insulation of Class A1 or A2 in the cavity between stud and seal.

Rigid walls: The wall must have a minimum thickness of 100 mm and comprise concrete or masonry, with a minimum density of 650 kg/m³.

Rigid floors: The floor must have a minimum thickness of 150 mm and comprise concrete with a minimum density of 2200 kg/m³.

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

- 2) The 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
---------------	------------------------------

- 3) 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.

The provisions made in this European Technical Approval are based on an assumed working life of the Hilti Firestop Cushion CFS-CU of 10 years, provided that the conditions laid down in Annex B 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.

Abbreviation 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)

Resistance to fire

Hilti Firestop Cushion CFS-CU have 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 clause 7.5.8 in EN 13501-2:2007. 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 $w \times h = 1200\text{mm} \times 1500\text{mm}$, in flexible and rigid walls with minimum thickness $t_E = 100\text{mm}$ 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^2/m^2) with minimum thickness of 150mm.

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.

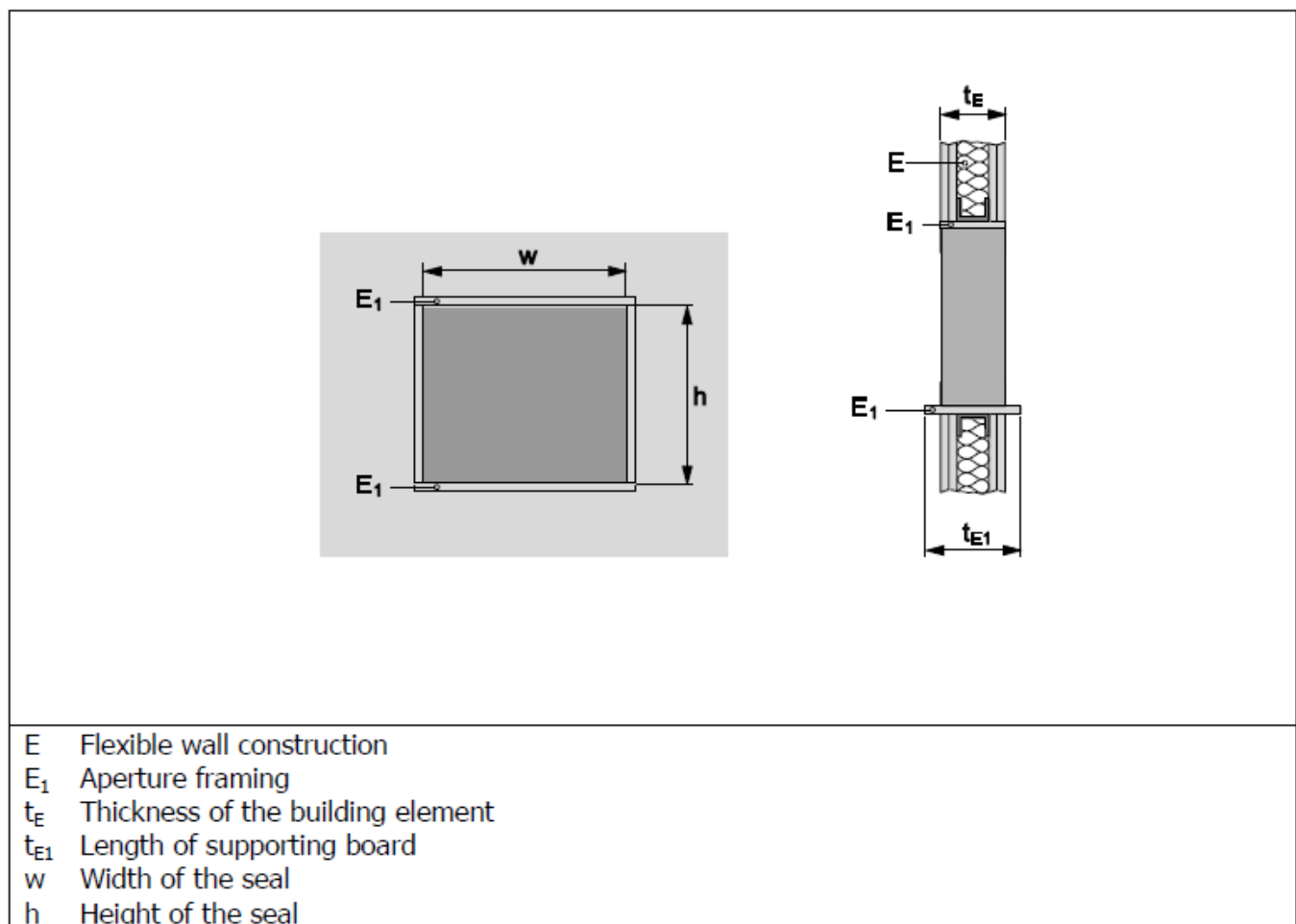


Fig. 1 Aperture framing

Dangerous substances

Hilti AG have presented a Material Safety Data Sheet according to 91/155 EEC and a declaration that Hilti Firestop Cushion CFS-CU is in compliance with Council Directive 76/769/EEC of 27th July 1976 on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (incl. All amendments and adaptations).

Confirmation has further been declared that all dangerous chemical substances ≥ 1.0 % w/w as well as all toxic, carcinogenic, toxic for reproduction and mutagenic chemical substances ≥ 0.1 % w/w (Status: 29. adaption – 2004/73/EG – of the EU directive 67/548/EEC - classification, packaging and labelling of dangerous substances) are stated in Hilti safety data sheets (according to 91/155/EEC including amendments) and have been considered for the classification of the products according to the directive 1999/45/EG (classification of preparations, including amendments).

Dangerous chemical substances below the classification limits of 67/548/EEC: None

In addition to the specific clauses relating to dangerous substances contained in this European technical approval, 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 Directive, these requirements need also to be complied with, when and where they apply.

Airborne sound insulation

A test was conducted in accordance with EN ISO 140-3: 2005-03 and EN ISO 140-10: 1992-09, including classification in accordance with EN ISO 717-1: 1997-01. The test was conducted without services, as required by EOTA ETAG N° 026: Part 2.

The test was conducted on a steel stud, drywall assembly with overall dimensions of 1230 x 1480 x 155 mm, which incorporated a 600 x 500 mm aperture filled with the Hilti Firestop Cushion CFS-CU.

Briefly the wall comprised a 50 x 50 mm steel stud framework, faced on both sides with 2 layers of 12.5 mm Knauf Piano sound insulation board F and with a core of 40 mm thick Termarock 40 mineral wool insulation. The aperture for the penetration seal was lined with 2 layers of the Knauf board.

The cushions were tightly packed into the aperture in the wall and projected in to the source room by approximately 80 mm and into the receiving room by approximately 60 mm.

The specimen was mounted into the window test rig ("Z-wall").

The test conditions were as follows:

Boundary conditions : As specified in the standards

Test noise : Pink noise

Measuring filter : One-third-octave band filter

Measurement limits

Background noise level : The background noise level of the receiving room was determined during measurement and the receiving room level L_2 was corrected by calculation as set out by EN 20140-3: 1995 + A1: 2004 Clause 6.5

Maximum sound insulation : Maximum sound insulation of the test set-up was $R_{w,Max} = 62$ dB. It was not corrected by calculation.

Measurement of reverberation time Arithmetic mean : Six measurements each of 2 loudspeaker and 6 microphone positions (total of 12 measurements)

Measurement of sound level difference : Minimum of 2 loudspeaker positions and rotating microphones

The results of the test provided the following single number ratings:

$$R_w (C;C_{tr}) = 50(-1;-5)$$

$$D_{n,e,w} (C;C_{tr}) = 58(-2;-6)$$

Resistance to Fire Classification of Hilti Firestop Cushion CFS-CU

C.1 Flexible wall constructions and rigid wall constructions according to 2.1 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 and DIN 8061/8062 arranged linear, diameter Ø50 mm with wall thickness between 1,8 mm and 5,3 mm.	EI 120 U/C	

C.2 Rigid wall constructions according to 2.1 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 and DIN 8061/8062 arranged linear, diameter \varnothing 50 mm with wall thickness between 1,8 mm and 5,3 mm.	EI 240 U/C	---

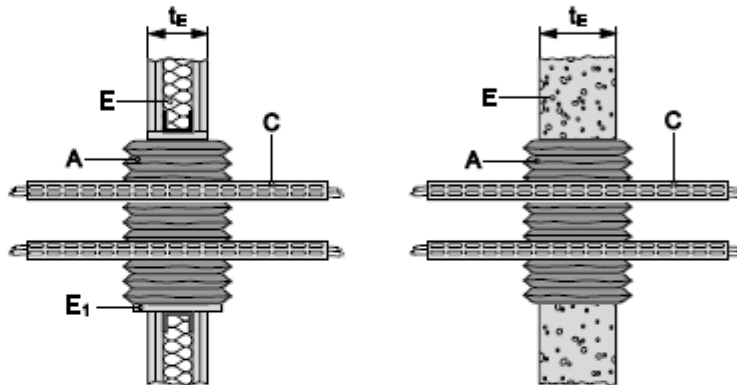
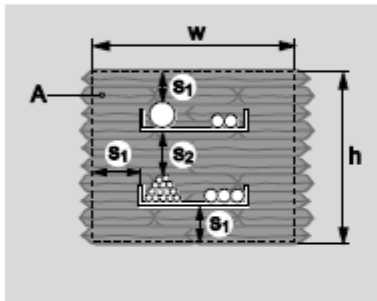
Construction details:

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.

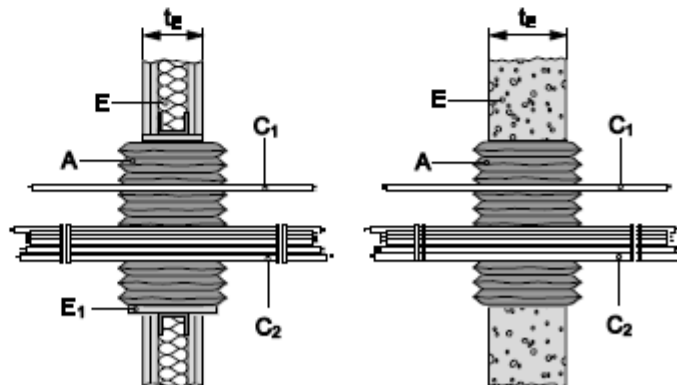
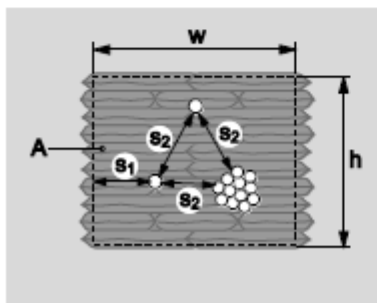
Minimum distance (mm):

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):	100	Cable to cable bundle (s_2):	80
Plastic pipe to plastic pipe (s_2):	100		
Plastic pipe to cable tray (s_2):	175		

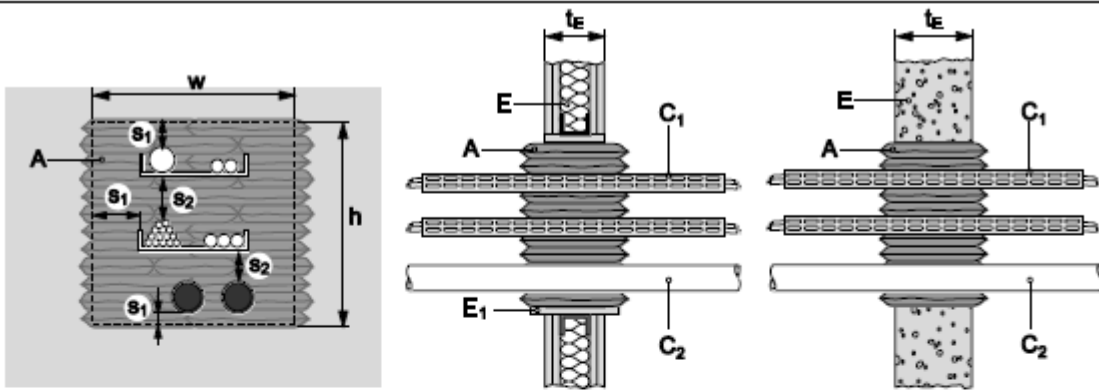
Cables/conduits on cable trays:



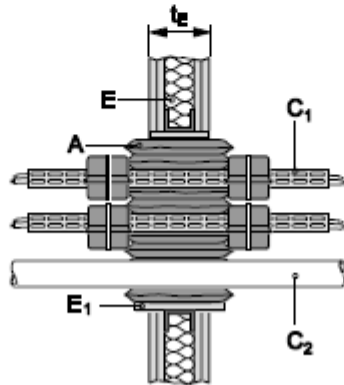
Cables/cable bundles/conduits without cable tray:



Cable trays/plastic pipes:

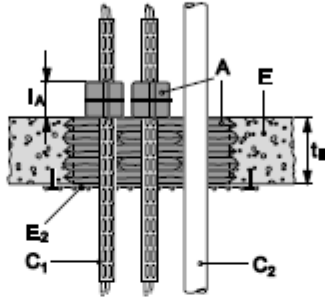
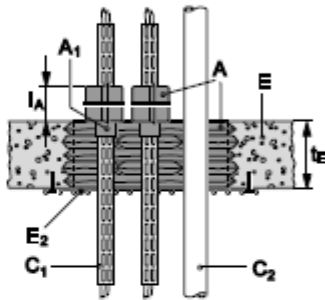


Additional cable wrapping
 (see Installation Instructions for details):



For explanation of abbreviations see the related text and Annex A

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

Penetration seal / Services	Classification	
	with additional cable wrapping ($l_A = 150\text{mm}$)	with additional cable wrapping ($l_A = 150\text{mm}$) ¹⁾ ($l_A = 300\text{mm}$) + 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 \varnothing 21 mm	EI 120	EI 120
$21 \leq \varnothing \leq 90$ 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 (C) according to EN 1452-1 and DIN 8061/8062 arranged linear, diameter \varnothing 50 mm with wall thickness between 1,8 mm and 5,3 mm.	EI 120 U/C	

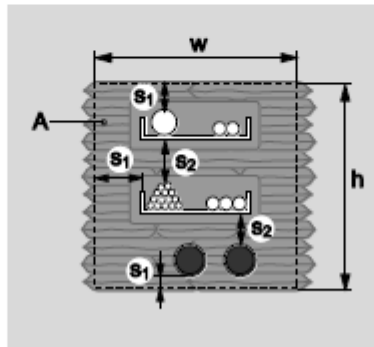
(see Installation Instructions for details)

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 A