Authorised and notified according to Article 10 of the Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products

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European technical approval ETA-11/0153

(English language translation, the original version is in German language)

Handelsbezeichnung *Trade name*	**Hilti Brandschutzhülse CFS-SL** **Hilti Firestop Sleeve CFS-SL**
Zulassungsinhaber *Holder of approval*	**Hilti AG** **Feldkircherstrasse 100** **9494 Schaan** **Liechtenstein**
Zulassungsgegenstand und Verwendungszweck	**Abschottung**
Generic type and use of construction product	**Penetration seal**
Geltungsdauer vom *Validity from* bis *to*	**28.06.2013** **27.06.2018**
Herstellwerk *Manufacturing plant*	**Hilti Werk 14**
Diese Europäische technische Zulassung umfasst *This European technical approval contains*	**14 Seiten inklusive 3 Anhängen** *14 pages including 3 Annexes*
Diese Europäische technische Zulassung ersetzt *This European technical approval replaces*	**ETA-11/0153 mit Geltungsdauer von 06.06.2011 bis 05.06.2016** *ETA-11/0153 with validity from 06.06.2011 to 05.06.2016*

I LEGAL BASES AND GENERAL CONDITIONS

1 This European technical approval is issued by Österreichisches Institut für Bautechnik in accordance with:

- Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products [1] modified by Council Directive 93/68/EEC [2] and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council [3];
- Bauproduktegesetz. LGBl. V Nr. 33/1994;
- Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC[4];
- Guideline for European technical approval for "Fire Stopping and Fire Sealing Products - : Part 2: Penetration Seals" ETAG no. 026-Part 2, edition 2011.

2 The Österreichisches Institut für Bautechnik is authorized to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant(s). Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.

3 This European technical approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European technical approval.

4 This European technical approval may be withdrawn by Österreichisches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.

5 Reproduction of this European technical approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of Österreichisches Institut für Bautechnik. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.

6 The European technical approval is issued by the approval body in English. This version corresponds fully to the version circulated in EOTA. Translations into other languages have to be designated as such.

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1 Official Journal of the European Communities N° L 40, 11.2.1989, p. 12
2 Official Journal of the European Communities N° L 220, 30.8.1993, p. 1
3 Official Journal of the European Union N° L 284, 31.10.2003, p.1
4 Official Journal of the European Communities N° L 17, 20.1.1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product(s) and intended use

1.1 Definition of the construction product

1.1.1 Hilti Firestop Sleeve CFS-SL

Hilti Firestop Sleeve CFS-SL is a cable management firestop device (cable box), offered in two diameter sizes (CFS-SL S and CFS-SL M) and CFS-SL M in two length variants (CFS-SL M and CFS-SL L) intended to from a cable penetration seal to reinstate the fire resistance performance of flexible wall constructions, rigid walls and rigid floors, where they have been provided with apertures for the penetration of services. The “sleeve” portion consists of a corrugated, electrolytically galvanised steel tube that houses a pair of plastic parts ("tabs") at each end, intumescent wrap strips, and a twistable inner fabric smoke seal. Two flanges made from electrolytically galvanised steel are provided with each sleeve; they are used to mount the sleeve to the wall or floor (one flange on each side). Flanges are turned clockwise on the threading of the metal housing. Pressing the tabs allows twisting the fabric smoke seal to close the seal.

For Installation of Hilti Firestop Sleeve CFS-SL – see 4.2.

1.1.2 Additional components

Hilti Firestop Acrylic Sealant CFS-S ACR is a 1-component product and is composed essentially of filling substances and an acrylic binder. It is delivered in various colours. Hilti Firestop Acrylic Sealant CFS-S ACR is supplied in 310 ml cartridges, 580 ml foil packs, 5 litre pails and 19 litre pails. For a detailed specification see ETA No. 10/0292.

1.2 Intended use and use category

1.2.1 Intended use

The intended use of Hilti Firestop Sleeve CFS-SL is to reinstate the fire resistance performance of flexible wall constructions, rigid walls and rigid floors where they are penetrated by services.
The specific elements of construction that Hilti Firestop Sleeve CFS-SL may be used to provide a penetration seal in, are as follows:

(1) Construction elements for use of CFS-SL S and CFS-SL M

Flexible walls: The wall must have a minimum thickness of 100 mm and a maximum thickness of 200 mm and comprise timber or steel studs lined on both faces with boards of an overall thickness of minimum 25 mm. 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 accordance with EN 13501-1) in the cavity between stud and seal.

Rigid walls: The wall must have a minimum thickness of 100 mm and a maximum thickness of 200 mm and comprise aerated concrete, 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 a maximum thickness of 200 mm and comprise aerated concrete, concrete or masonry with a minimum density of 550 kg/m^3.

(2) Construction elements for use of CFS-SL L

Flexible walls: The wall must have a minimum thickness of 200 mm and a maximum thickness of 300 mm and comprise timber or steel studs lined on both faces with boards of an overall thickness of minimum 25 mm. 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 accordance with EN 13501-1) in the cavity between stud and seal.

Rigid walls: The wall must have a minimum thickness of 200 mm and a maximum thickness of 300 mm and comprise aerated concrete, concrete or masonry with a minimum density of 650 kg/m^3.

Rigid floors: The floor must have a minimum thickness of 250 mm and a maximum thickness of 300 mm and comprise aerated concrete, concrete or masonry with a minimum density of 550 kg/m^3.

The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.
This ETA does not cover use of this product as a penetration seal in sandwich panel constructions.

(3) Hilti Firestop Sleeve CFS-SL may be used to provide a penetration seal with the following specific services:

Cables Services as given in Annex C

(4) Apertures for the penetration of sleeves require a minimum separation of 200 mm in wall constructions and of 58 mm in rigid floor constructions.

(5) The aperture diameter for the penetration of sleeves shall be between 63 and 73 mm for sleeve size "S" and between 113 and 122 mm for sleeve size "M".

(6) Cables shall be supported at maximum 320 mm away from both faces of wall constructions and 250 mm from a floor construction.

1.2.2 Working life

The provisions made in this European technical approval are based on an assumed working life of Hilti Firestop Sleeve CFS-SL of 10 years, provided that the conditions laid down in sections 4.2/5.1/5.2 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.

1.2.3 Use Category

The use category of Hilti Firestop Sleeve CFS-SL is Type Z_2.
Type Z_2: Products for penetration seals intended for uses at internal conditions with humidity classes other than Z_1 [5], excluding temperatures below 0°C ("internal dry conditions").

[5] These uses apply for internal humidity class 5 in accordance with EN ISO 13788

2 Characteristics of the product and methods of verification

The identification tests and the assessment of the fitness for use according to the Essential Requirements were carried out in compliance with the "ETA Guidance no. 026-Part 2" concerning Penetration Seals – edition January 2008 (called ETAG 026-2 in this ETA).

ETAG Clause No.	ETA Clause No.	Characteristic	Assessment of characteristic
Mechanical resistance and stability			
		None	Not relevant
Safety in case of fire			
2.4.1	2.1	Reaction to fire	Class E according to EN 13501-1:2007
2.4.2	2.2	Resistance to fire	see clause 2.2 and Annex C
Hygiene, health and environment			
2.4.3	2.3	Air permeability (material property)	No performance determined
2.4.4	2.4	Water permeability (material property)	No performance determined
2.4.5	2.4	Release of dangerous substances	Declaration of manufacturer
Safety in use			
2.4.6	2.6	Mechanical resistance and stability	No performance determined
2.4.7	2.7	Resistance to impact/movement	No performance determined
2.4.8	2.8	Adhesion	No performance determined
Protection against noise			
2.4.9	2.9	Airborne sound insulation	No performance determined
Energy economy and heat retention			
2.4.10	2.10	Thermal properties	No performance determined
2.4.11	2.11	Water vapour permeability	No performance determined
General aspects relating to fitness for use			
2.4.12	2.12	Durability and serviceability	Z_2

2.1 Reaction to fire

The reaction to fire classification for the plastic parts, the fabric and the inlay of Hilti Firestop Sleeve CFS-SL is class 'E' in accordance with EN 13501-1. The metal housing is classified A1 in accordance with the provisions of EC decision 96/603/EC (as amended) without the need for testing on the basis of its listing in that decision.

The reaction to fire classification for Hilti Firestop Acrylic Sealant CFS-S ACR is class 'D-s1 d0' in accordance with EN 13501-1.

2.2 Resistance to fire

Hilti Firestop Sleeve CFS-SL has been tested in accordance with EN 1366-3:2009, installed within apertures in flexible walls (drywalls) and an aerated concrete floor construction.

The seals were penetrated by cables according to EN 1366-3:2009 Annex A.

Based upon these test results and the field of direct application specified within EN 1366-3:2009, Hilti Firestop Sleeve CFS-SL has been classified in accordance with EN 13501-2, as shown in Annex C.

The seals may only be penetrated by the services described in Annex C. Other parts or support constructions must not penetrate the seal.

For details of suitable wall and floor constructions see 1.2.1.

The service support construction must be fixed to the building element containing the penetration seal or a suitable adjacent building element, on both sides of the penetration in such a manner that in the case of fire, no additional load is imposed on the seal. Furthermore it is assumed that this support is maintained on the unexposed side, for the required period of fire resistance.

Specific considerations:

- The total cross section of the cables must not be more than 60% of the total seal (opening) size (space between cables not included in 60%).

2.3 Air permeability

No performance determined

2.4 Water permeability

No performance determined

2.5 Dangerous substances

According to the manufacturer's declaration, the product specification has been compared with the list of dangerous substances of the European Commission to verify that that it does not contain such substances above the acceptable limits.

A written declaration in this respect was submitted by the ETA-holder.

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

2.6 Mechanical resistance and stability

No performance determined

2.7 Resistance to impact/movement

No performance determined

2.8 Adhesion

The product is rigidly fixed by means of a flange on both sides to the wall or floor construction.

2.9 Airborne sound insulation

No performance determined

2.10 Thermal properties

No performance determined

2.11 Water vapour permeability

No performance determined

2.12 Durability and serviceability

2.12.1 Durability

Hilti Firestop Sleeve CFS-SL has been assessed for the Z_2 use category specified in EOTA 026-2, and the results of the tests have demonstrated suitability for penetration seals intended for use at internal conditions with humidity classes other than Z_1, excluding temperatures below 0°C ("internal dry conditions").

3 Evaluation of Conformity and CE marking

3.1 Attestation of Conformity system

According to the decision 1999/454/EC of the European Commission[6] the system 1 of attestation of conformity applies.

This system of attestation of conformity is defined as follows:

System 1: Certification of the conformity of the product by a notified certification body on the basis of:

(a) Tasks for the manufacturer:

(1) factory production control;

(2) further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan;

(b) Tasks for the notified body

(3) initial type-testing of the product;

(4) initial inspection of factory and of factory production control;

(5) continuous surveillance, assessment and approval of factory production control.

3.2 Responsibilities

3.2.1 Tasks of the Manufacturer

3.2.1.1 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 insure that the product is in conformity with this European technical approval.

The manufacturer shall draw up and keep up-to-date documents defining the factory production control that applies. The documentation to be carried out by the manufacturer and the applicable procedures shall be appropriate to the product and manufacturing process. The factory production control shall ensure the conformity of the product to an appropriate level.

This involves:

a) the preparation of documented procedures and instructions relating to factory production control operations.
b) the effective implementation of these procedures and instructions.
c) the recording of these procedures and their results.

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[6] Official Journal of the European Communities N° L 178, 14.7.1999, p. 52

d) the use of these results to correct any deviations, repair the effects of such deviations, treat any resulting instances of non-conformity and, if necessary, revise the factory production control to rectify the cause of non-conformity.
e) a procedure to ensure that both the approval Body and the Notified (Certification) Bodies are advised before any significant change to the product, its components or manufacturing process, is made.
f) a procedure to ensure that personnel involved in the production processes and the quality control procedures are qualified and adequately trained to carry out their required tasks.
g) that all testing and measuring equipment is maintained and up to date calibration records are documented.
h) maintenance of records to ensure every batch produced is clearly labelled with the batch number, which allows traceability to its production to be identified.

The manufacturer may only use components stated in the technical documentation of this European technical approval.

For the components which the ETA-holder does not manufacture by himself, he shall make sure that factory production control carried out by the other manufacturers gives the guaranty of the components compliance with the European technical approval.

The factory production control and the provisions taken by the ETA-holder for components not produced by himself shall be in accordance with the control plan[7] relating to this European technical approval 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 the Österreichisches Institut für Bautechnik.

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

3.2.1.2 Other tasks of manufacturer

The manufacturer shall, on the basis of a contract, involve a body (bodies) which is (are) approved for the tasks referred to in section 3.1 in the field of penetration seals in order to undertake the actions laid down in section 3.3. For this purpose, the "control plan" referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the approved body or bodies involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of this European technical approval.

Additional information

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

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.
  - Services for 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
  - Limits in size, minimum dimensions etc. of the penetration seal

[7] The control plan is a confidential part of the European technical Approval and only handed over to the Notified Body or Bodies involved in the procedure of conformity.

- 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.

Installation instruction:

- Steps to be followed
- Procedure in case of retrofitting.

3.2.2 Tasks of Notified Bodies

The Notified Body (Bodies) shall perform the

- initial type-testing of the product (for system 1),
  The results of the tests performed as part of the assessment for the European technical approval may be used unless there are changes in the production line or plant. In such cases, the necessary initial type testing has to be agreed between the Österreichisches Institut für Bautechnik and the Notified Bodies involved.
- initial inspection of factory and of factory production control,
  The Notified Body (Bodies) shall ascertain that, in accordance with the control plan, the factory (in particular the employees and the equipment) and the factory production control are suitable to ensure continuous and orderly manufacturing of the components according to the specifications mentioned in clause 2 of this ETA.
- continuous surveillance, assessment and approval of factory production control,
  The Notified Body (Bodies) shall visit the factory at least twice a year or once a year for surveillance of this manufacturer having a FPC system complying with a quality management system covering the manufacturing of the approval product components. It has to be verified that the system of factory production control and the specified automated manufacturing process are maintained taking into account the control plan.

These tasks shall be performed in accordance with the provisions laid down in the control plan of this European technical approval.

The Notified Body (Bodies) shall retain the essential points of its (their) actions referred to above and state the results obtained and conclusions drawn in a written report.

The Notified Body involved by the manufacturer shall issue an EC certificate of conformity of the product stating the conformity with the provisions of this European technical approval.

In cases where the provisions of the European technical approval and its control plan are no longer fulfilled the certification body shall withdraw the certificate of conformity and inform the Österreichisches Institut für Bautechnik without delay.

3.3 CE marking

The CE marking shall be affixed on the product itself, on a label attached to it, on its packaging or on the commercial documents accompanying the components of the product. The letters „CE“ shall be followed by the identification number of the Notified Body involved and be accompanied by the following additional information:

- the name or identifying mark and address of the ETA holder,
- the last two digits of the year in which the CE marking was affixed,
- the number of the EC certificate of conformity for the product,
- the number of the European technical approval,
- the number of the ETAG (ETAG N° 026 part 2)
- the designation of the product (trade name)
- the use category in accordance with the ETA section 1 and 2
- “see ETA-11/0153 for other relevant characteristics (e.g. resistance to fire)”

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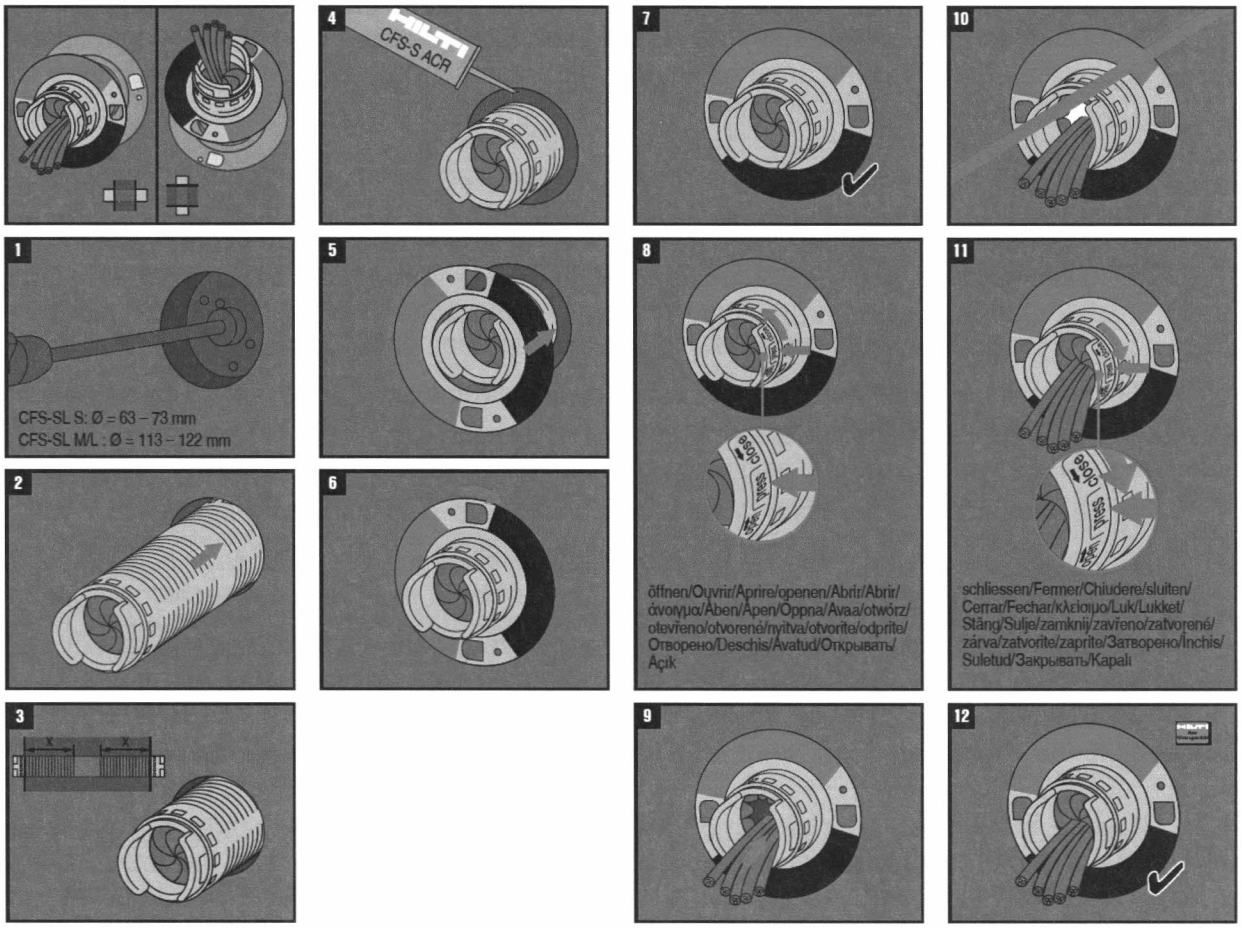
4 Assumptions under which the fitness of the product(s) for the intended use was favourably assessed

4.1 Manufacturing

The European technical approval is issued for the product on the basis of agreed data/information, deposited with Österreichisches Institut für Bautechnik, 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 Österreichisches Institut für Bautechnik before the changes are introduced. Österreichisches Institut für Bautechnik will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

4.2 Installation

Installation of the Hilti Firestop Sleeve CFS-SL should be conducted as follows:



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5 Indications to the manufacturer

5.1 Packaging, transport and storage

In the accompanying document and/or on the packaging the manufacturer shall give information as to transport and storage.

At least the following shall be indicated: storing temperature, type of storage and required data related to minimum temperature for transport and storage.

Storage: Store in a dry place protected from moisture

Storage temperature: -5° up to max. +50°C

5.2 Use, maintenance, repair

The Hilti Firestop Sleeve CFS-SL should be installed and used as described earlier in this document.

The assessment of the fitness for use is based on the assumption that damage, for example caused by accidental impact, is repaired. The relevant manufacturer instructions shall be followed.

On behalf of Österreichisches Institut für Bautechnik

Rainer Mikulits
Managing Director

ANNEX A

REFERENCE DOCUMENTS and LIST OF ABBREVIATIONS

A.1 References to standards mentioned in the ETA:

EN 1366-3	Fire resistance tests for service installations - Part 3: Penetration seals
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 2: Classification using test data from fire resistance tests

A.2 Abbreviations used in drawings

Abbreviation	Description
A_1	Hilti Firestop Sleeve CFS-SL
A_2	Hilti Firestop Sealant CFS-S ACR
C	Services (cables)
E	Building element (wall, floor)
t_E	Thickness of the building element (wall, floor); see also 1.2.1

ANNEX B

DESCRIPTION OF PRODUCT(S) & PRODUCT LITERATURE

B.1 Hilti Firestop Sleeve CFS-SL

A detailed specification of the product is contained in document “Identification / Product Specification relating to the European technical approval ETA-13/0xxx Hilti Firestop Sleeve CFS-SL extension” which is a non-public part of this ETA.
The Control Plan is defined in document "Control Plan relating to the European technical approval ETA-13/0xxx - Hilti Firestop Sleeve CFS-SL extension” which is a non-public part of this ETA.

technical product literature:

- technical data sheet and instructions for use Hilti Firestop Sleeve CFS-SL (including Hilti Firestop Acrylic Sealant CFS-S ACR)

- Material Safety Data Sheet according to 1907/2006/EC for Hilti Firestop Sleeve CFS-SL and Hilti Firestop Acrylic Sealant CFS-S ACR

B.2 Hilti Firestop Acrylic Sealant CFS-S ACR

A detailed specification of the product is contained in document “Identification / Product Specification relating to the European technical approval ETA-10/0292 and ETA-10/0389 - Hilti Firestop Acrylic Sealant CFS-S ACR” which is a non-public part of this ETA.

The Control Plan is defined in document "Control Plan relating to the European technical approval ETA-10/0292 and ETA-10/0389 - Hilti Firestop Acrylic Sealant CFS-S ACR” which is a non-public part of this ETA.

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ANNEX C

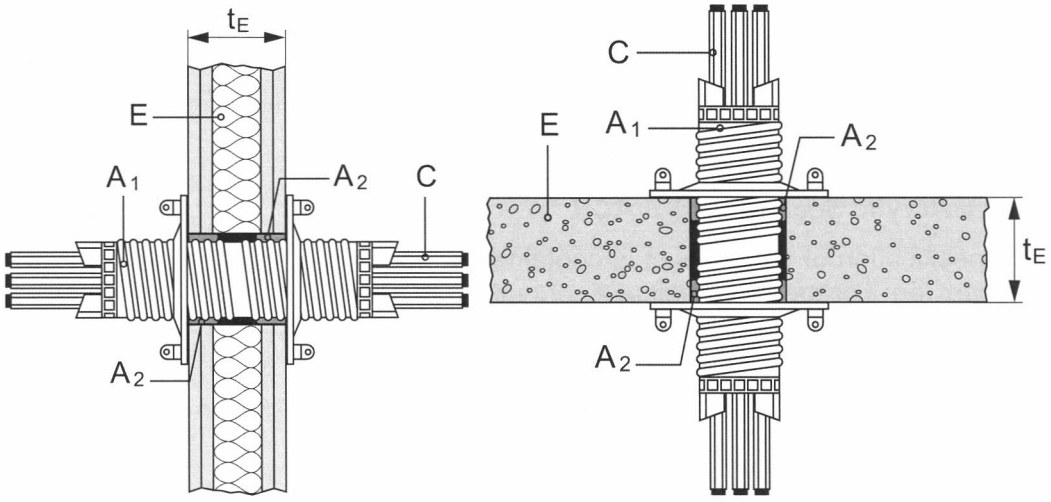
RESISTANCE TO FIRE CLASSIFICATION OF PENETRATIONS SEALS MADE FROM HILTI FIRE-STOP SLEEVE CFS-SL

Flexible and rigid walls and rigid floors according to 1.2.1

Penetration seal:

Hilti Firestop Sleeve CFS-SL (A_1) centred in the wall and fixed by means of two flanges delivered together with the sleeve. Hilti Firestop Acrylic Sealant CFS-S ACR is used to seal the gap between opening edge and sleeve (A_2). Opening size: CFS-SL S between 63 - 73 mm, CFS-SL M and CFS-SL L between 113 – 122 mm diameters.

Construction details:



Penetrating services	Classification			
	CFS-SL S		CFS-SL M / L	
	Wall	Floor	Wall	Floor
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:				
C.1 Maximum Ø 21 mm	EI 60	EI 120	EI 120	EI 120
C.2 Maximum Ø 50 mm	-	-	EI 90	EI 120
C.3 Maximum Ø 80 mm	-	-	EI 60	EI 60
C.4 Tied cable bundle, maximum diameter of 36 mm, maximum diameter of single cable 21 mm	EI 60	EI 120	-	-
C.5 Tied cable bundle, maximum diameter of 86 mm, maximum diameter of single cable 21 mm	-	-	EI 90	EI 120
C.6 Blank seal (no services penetrating)	EI 60	EI 120 [1)]	EI 120 [2)]	EI 120 [3)]

[1)] If cables are added later on only cables with a diameter < 21 mm (C.1) or a tied cable bundle according to C.4 may be added if the required classification is EI 120.

[2)] If cables are added later on only cables with a diameter < 21 mm (C.1) may be added if the required classification is EI 120.
If the seal is used in a wall with a requirement of EI 90 cables with a diameter < 50 mm (C.2) or a tied cable bundle according to C.5 may be added later on. If the seal is used in a wall with a requirement of EI 60 or EI 30 cables with a diameter ≤ 80 mm (C.3) or a tied cable bundle according to C.5 may be added later on.

[3)] If cables are added later on only cables with a diameter ≤ 50 mm (C.2) or a tied cable bundle according to C.5 may be added if the required classification is EI 120 or EI 90.
If the seal is used in a floor with a requirement of EI 60, EI 45 or EI 30 cables with a diameter ≤ 80 mm (C.3) or a tied cable bundle according to C.5 may be added later on.