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Designated according to Article 29 of Regulation (EU) No 305/2011

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European Technical Assessment

ETA-10/0389
of 01/12/2014

General part

Technical Assessment Body issuing the ETA	Austrian Institute of Construction Engineering (OIB)
Trade name of the construction product	Hilti Firestop Acrylic Sealant CFS-S ACR
Product family to which the construction product belongs	Fire Stopping and Fire Sealing Products: Linear Joint and Gap Seals
Manufacturer	Hilti AG Feldkircherstrasse 100 9494 Schaan Liechtenstein
Manufacturing plant	Hilti Werk CP 606 Hilti Werk 4a
This European Technical Assessment contains	18 pages including 4 Annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	Guideline for European technical approval (ETAG) No. 026 Fire Stopping and Fire Sealing Products – Part 3: Linear Joint and Gap Seals, edition August 2011, used as European Assessment Document (EAD)
This European Technical Assessment replaces	European technical approval ETA-10/0389 with validity from 22.11.2010 to 21.11.2015

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This European Technical Assessment is not to be transferred to manufacturers or agents of manufacturer other than those indicated on page 1, or manufacturing plants other than those laid down in the context of this European Technical Assessment.

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Specific part

1 Technical description of the product

Hilti Firestop Acrylic Sealant CFS-S ACR is a sealant used to form a linear joint or gap seal with mineral wool or Hilti Firestop Round Cord CFS-CO as backfilling material. For details of the seal design depending on orientation, building elements forming the joint/gap or backfilling material and the related classifications see Annex 3.

For further details on Hilti Firestop Acrylic Sealant CFS-S ACR, Hilti Firestop Round Cord CFS-CO, and for a specification of suitable mineral wool as backfilling material, see Annex 2.

For a description of the installation procedure, see Annex 4.

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

2.1 Intended use

The intended use of Hilti Firestop Acrylic Sealant CFS-S ACR is to reinstate the fire resistance performance of flexible wall constructions, rigid wall constructions, rigid floor constructions and horizontal and vertical steel constructions at linear gaps/joints within those constructions or where they are abutting another wall or floor construction.

The specific elements of construction between which Hilti Firestop Acrylic Sealant CFS-S ACR may be used to provide a linear joint seal, are:

- Flexible walls
- Rigid walls
- Rigid floors
- Steel constructions

For detail specifications of construction elements see Annex 3.

2.2 Use category

Hilti Firestop Acrylic Sealant CFS-S ACR has been tested in accordance with EOTA TR 024, table 4.2 for the Y_2 use category specified in ETAG 026-3 and the results of the test have demonstrated suitability for linear joint and gap seals intended for use at temperatures between - 5 °C and + 70 °C but with no exposure to rain nor UV ($Y_{2,\ (-5/+70)°\ C}$).

2.3 Working life

The provisions made in this European Technical Assessment are based on an assumed working life of Hilti Firestop Acrylic Sealant CFS-S ACR 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 General assumptions

It is assumed that damages to the linear joint or gap seal are repaired accordingly.

2.5 Manufacturing control

The European Technical Assessment is issued for the product on the basis of agreed data/information, deposited with the 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 the Österreichisches Institut für Bautechnik before the changes are introduced.

The Österreichisches Institut für Bautechnik will decide whether or not such changes affect the European Technical Assessment and consequently the validity of the CE marking based on the European Technical Assessment and if so whether further assessment or alterations to the European Technical Assessment shall be necessary.

2.6 Installation

The product shall be installed and used as described in this European Technical Assessment. Additional marking of the linear joint or gap seal shall be done in case of national requirements.

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

Basic requirements for construction works	Essential characteristics	Method of verification	Performance
BWR 1	None	Not relevant	
BWR 2	Reaction to fire	EN 13501-1	class D - s1, d0 see clause 3.2.1
	Resistance to fire	EN 13501 2:2007+A1:2009	see clause 3.2.2
BWR 3	Air permeability (material property)	EN 1026	see clause 3.3.1
	Water permeability (material property)	ETAG 026-3	see clause 3.3.2
	Content and/or release of dangerous substances	European Council Directive 67/548/EEC and Regulation (EC) No 1272/2008 as well as EOTA TR 034, edition March 2012	see clause 3.3.3
BWR 4	Mechanical resistance and stability	ETAG 026-3	see clause 3.4.1
	Resistance to impact / movement	ETAG 026-3	see clause 3.4.2
	Adhesion	ISO 11600	see clause 3.4.3
BWR 5	Airborne sound insulation	EN ISO 140-3 / 20140-10 / 717-1	see clause 3.5.1
BWR 6	Thermal properties	No performance assessed	see clause 3.6.1
	Water vapour permeability	No performance assessed	see clause 3.6.2
BWR 7	No performance assessed		

3.1 Mechanical resistance and stability (BWR 1)

Not relevant.

3.2 Safety in case of fire (BWR 2)

3.2.1 Reaction to fire

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

The reaction to fire classification for Hilti Firestop Round Cord CFS-CO is class 'A1' in accordance with EN 13501-1.

3.2.2 Resistance to fire

Hilti Firestop Acrylic Sealant CFS-S ACR has been tested in accordance with EN 1366-4:2006, installed within linear joints in flexible and rigid walls, steel constructions and floors. As backfilling material mineral wool Rockwool RP-V and Termarock 40 has been used as well as Hilti Firestop Round Cord CFS-CO.

Based upon these test results and the field of direct application specified within EN 1366-4:2006, Hilti Firestop Acrylic Sealant CFS-S ACR has been classified in accordance with EN 13501-2, as shown in Annex C.

For details of suitable wall and floor constructions, see Annex 3.

3.3 Hygiene, health and environment (BWR 3)

3.3.1 Air permeability

The gas permeability regarding the gases air, nitrogen (N_2), carbon dioxide (CO_2) and CH_4 (methane) has been tested according to the principles of EN 1026 for an Acrylic Sealant thickness of 10 mm. The following flow rates per area (q/A) have been achieved for the given air pressure differences (Δp). The flow rate index indicates the type of gas:

Gas permeability of Hilti Firestop Acrylic Sealant CFS-S ACR

Δp [Pa]	q/A air [$m^3/(h \cdot m^2)$]	q/A N_2 [$m^3/(h \cdot m^2)$]	q/A CO_2 [$m^3/(h*m^2)$]	q/A CH_4 [$m^3/(h*m^2)$]
50	≤ 1,9E-06	≤ 1,1E-06	≤ 6,4E-05	≤ 4,3E-05
250	≤ 9,7E-06	≤ 5,5E-06	≤ 3,2E-04	≤ 2,1E-04

The declared values refer to a body of pure Hilti Firestop Acrylic Sealant CFS-S ACR without any penetrating installation.

3.3.2 Water permeability

The water permeability has been tested using the principles of the test procedure according to Annex C of ETAG 026-3. The specimen consisted of 2 mm Hilti Firestop Acrylic Sealant CFS-S ACR (dry film thickness) on mineral wool. Test result: Water tight to 1000 mm head of water or 9806 Pa.

3.3.3 Release of dangerous substances

According to the manufacturer's declaration Hilti Firestop Acrylic Sealant CFS-S ACR does not contain dangerous substances detailed in Council Directive 67/548/EEC and Regulation (EC) no 1272/2008 as well as EOTA TR 034 (General ER 3 Checklist for ETAGs/CUAPs/ETAs- Content and/or release of dangerous substances in products/kits), edition March 2012 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 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.

3.4 Safety and accessibility in use (BWR 4)

3.4.1 Mechanical resistance and stability

Due to the maximum joint width of 100 mm impact tests are not necessary according to ETAG 026 part 3 and therefore no performance has been assessed.

3.4.2 Resistance to impact / movement

See 3.4.1

3.4.3 Adhesion

Adhesion is covered by tests for determining movement capability according to ISO 11600.

3.5 Protection against noise (BWR 5)

3.5.1 Airborne sound insulation

Test reports from noise reduction according to EN ISO 140-3, EN ISO 20140-10 and EN ISO 717-1 have been provided.

The acoustic tests were performed in a flexible wall and in a rigid wall. Hilti Firestop Acrylic Sealant CFS-S ACR was tested as seal around a steel pipe, filled with concrete. The seal was 50 mm wide (annular space) and consisted of 160 mm mineral wool, covered by 20 mm Hilti Firestop Acrylic Sealant CFS-S ACR on both sides (rigid wall) and 50 mm mineral wool covered by 25 mm on both sides (flexible wall). This set up simulates a linear joint as well as a single penetration seal. The area of Hilti Firestop Acrylic Sealant CFS-S ACR was 0,0236 m². The acoustic characteristics of the walls itself have not been measured. According to these tests reports the single number ratings are.

Flexible wall:
Weighted element-normalized level difference: $D_{n,w}$ = 60 dB
From this $D_{n,w}$ the weighted sound reduction index calculates to: R_w = 53 dB

Structure of the flexible wall: 2 x 12,5 mm plasterboard on both sides of a 50 mm metal stud frame. The void was filled with a 50 mm mineral wool slab.

Rigid wall:
Weighted element-normalized level difference: $D_{n,w}$ = 58 dB
From this $D_{n,w}$ the weighted sound reduction index calculates to: R_w = 51 dB

Structure of the rigid wall: 200 mm thick concrete wall with a density of 2000 kg/m³ which was plastered on both sides.

It should be noticed that both above mentioned results apply to the total wall construction of the size S = 1,25 m x 1,50 m (= 1,88 m²), i.e. the given wall with 0,0236 m² Hilti Firestop Acrylic Sealant CFS-S ACR.

3.6 Energy economy and heat retention (BWR 6)

3.6.1 Thermal properties

No performance assessed.

3.6.2 Water vapour permeability

No performance assessed.

3.7 Sustainable use of natural resources (BWR 7)

No performance assessed.

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

4.1 AVCP system

According to the Decision 1999/454/EC[1], amended by Decision 2001/596/EC[2] of the European Commission the system(s) of assessment and verification of constancy of performance (see Annex V of Regulation (EU) No 305/2011) is 1.

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

5.1 Tasks of the manufacturer

5.1.1 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 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" relating to this European technical assessment, which is part of the technical documentation of this European technical assessment. 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.

5.1.2 Other tasks of the manufacturer

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 in which the product may be installed, type and properties of the building elements like minimum thickness, density, and - in case of lightweight constructions - the construction requirements.

Services which may penetrate the building element, 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), separations etc.

Design of the Linear Joint Seal (s) including limits in size, minimum thickness, separations etc. of the penetration seal(s).

Definitions of ancillary products (e.g. backfilling material) with clear indication whether they are generic or specific.

Environmental conditions covered by the ETA.

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1 Official Journal of the European Communities no. L 178, 14.7.1999, p. 52

2 Official Journal of the European Communities no. L 209, 2.8.2001, p. 33

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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
- Stipulations on maintenance, repair and replacement

The manufacturer shall, based on a contract, involve a notified product certification body, which is notified for the tasks referred to in clause 4.1 of the ETA in the field of Assessment product. For this purpose, the control plan referred to in clause 5.1 and 5.2 of the ETA shall be handed over by the manufacturer to the notified product certification body involved.

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

5.1.3 Further testing of samples taken at the factory

Testing of samples taken at the factory by the manufacturer is not required.

5.2 Tasks of notified product certification body

The Notified Body shall retain the essential points of its actions referred to clause 5.2.1 to 5.2.3, state the results obtained and conclusions drawn in written report.

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

5.2.1 Determination of the product type

Notified bodies undertaking tasks under System 1 shall consider the European Technical Assessment issued for the construction product in question as the assessment of the performance of that product. Notified bodies shall therefore not undertake the tasks referred to in point 1.2 (b)(i), in Annex V of Regulation (EU) No 305/2011, unless there are changes in the manufacture or manufacturing plant. In such cases, the necessary initial type testing has to be agreed between the Österreichisches Institut für Bautechnik and notified product certification body involved.

5.2.2 Initial inspection of the manufacturing plant and of factory production control

The notified product certification body shall ascertain that, in accordance with the control plan, the manufacturing plant, in particular personnel and equipment, and the factory production control are suitable to ensure a continuous and orderly manufacturing of the kit according to the specifications given in clause 2 and in the Annexes of the European Technical Assessment.

5.2.3 Continuous surveillance, assessment and evaluation of factory production control

The notified product certification body shall visit the factory at least once a year for surveillance of the manufacturer.

It has to be verified that the system of factory production control and the specified manufacturing process are maintained taking into account the control plan.

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Continuous surveillance and assessment of factory production control have to be performed according to the control plan.

The results of continuous surveillance shall be made available on demand by the notified product certification body or the Österreichisches Institut für Bautechnik. In cases where the provisions of the European Technical Assessment and the control plan are no longer fulfilled, the certificate of constancy of performance shall be withdrawn.

Issued in Vienna on 01.12.2014
by Österreichisches Institut für Bautechnik

[redacted]

Managing Director

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ANNEX 1

1 Reference documents and list of abbreviations

1.1 Reference to standards mentioned in the ETA

EN 1026	Windows and doors – Air permeability – Test method
EN 1366-4	Fire resistance tests for service installations - Part 4: Linear joint 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
EN ISO 140-3	Acoustics – Measurement of sound insulation in buildings and of building elements – Part 3: Laboratory measurements of airborne sound insulation of building elements
EN ISO 140-10	Acoustics – Measurements of sound insulation in buildings and of building elements – Part 10: Laboratory measurement of airborne sound insulation of small building elements
EN ISO 717-1	Acoustics – Rating of sound insulation of buildings and of building elements – Part 1: Airborne sound insulation

1.2 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
ISO 11600	Building construction — Jointing products — Classification and requirements for sealants

Safety Data Sheet acc. to 1907/2006/EC, Article 31, for Hilti Firestop Acrylic Sealant CFS-S ACR

1.3 Abbreviations used in drawings

Abbreviation	Description
A, A_1, A_2,..	Firestop product
B	Backfilling material
E	Building element (wall, floor)
t_A	Thickness of sealant
t_B	Thickness of backfilling material
t_E	Thickness of the building element / joint depth

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ANNEX 2

2 DESCRIPTION OF PRODUCT(S) & PRODUCT LITERATURE

2.1 Hilti Firestop Acrylic Sealant CFS-S ACR

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 Liter buckets and 19 Liter buckets.

A detailed specification of the product is contained in document "Identification / Product Specification and Control Plan of 19.05.2010 relating to ETA-10/0292 and ETA-10/0389 - Hilti Firestop Acrylic Sealant CFS-S ACR" which is a non-public part of this ETA.

2.2 Ancillary products

2.2.1 Mineral wool

Mineral wool products suitable for being used as backfilling material

Characteristics	Specification
Stone wool	EN 13162 or EN 14303
Density	30 to 70 kg/m^3
Facing	No Al-facing, no other facing

2.3 Hilti Firestop Round Cord CFS-CO

Hilti Firestop Round Cord CFS-CO is a rod made from stone wool weaved in glass fibre. It is provided in diameters of 20, 30, 40, 50 and 60 mm to accommodate various joint widths.

A detailed specification of the product is contained in document "Identification / Product Specification and Control Plan of 30.03.2010 relating to ETA-10/0291 and ETA-10/0389 - Hilti Firestop Round Cord CFS-CO" which is a non-public part of the referenced ETAs.

2.4 Technical product literature:

Technical Datasheet and Instructions for Use Hilti Firestop Acrylic Sealant CFS-S ACR (including Hilti Firestop Round Cord CFS-CO).

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ANNEX 3

3 RESISTANCE TO FIRE CLASSIFICATION OF LINEAR JOINT/GAP SEALS MADE FROM HILTI FIRESTOP ACRYLIC SEALANT CFS-S ACR

3.1 General information:

3.1.1 Wall / Floor constructions covered:

a) 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. 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.

b) 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.

c) Rigid walls: The wall must have a minimum thickness of 150 mm and comprise concrete or masonry, with a minimum density of 2400 kg/m^3.

d) Rigid floors: The floor must have a minimum thickness of 150 mm and comprise aerated concrete or concrete with a minimum density of 2400 kg/m^3.

e) Steel constructions: The constructions, e.g. columns, beams or joint edges protected by steel angles, must form a minimum seal depth of 150 mm.

The walls / floors must be classified in accordance with EN 13501-2 for the required fire resistance period or fulfil the requirements of the relevant Eurocode. This ETA

3.1.2 Application of Hilti Firestop Acrylic Sealant CFS-S ACR (A),

- t_A = 6 mm, compression of mineral wool minimum 60%
- t_A = 10 mm, compression of mineral wool minimum 50%
- Movement capability: ± 12,5%

3.1.3 Application of mineral wool (B)

- compression of mineral wool ≥ 50%,
- splice distance minimum 625 mm

3.1.4 In wall constructions the sealant is used on both sides, in floor constructions in most cases only on the top side. Very porous joint edges are treated with Hilti Firestop Acrylic Sealant CFS-S ACR, diluted with water, to achieve better adhesion.

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3.2 RESISTANCE TO FIRE CLASSIFICATION OF LINEAR JOINT/GAP SEALS MADE FROM HILTI FIRESTOP ACRYLIC SEALANT CFS-S ACR

3.2.1 Hilti Firestop Acrylic Sealant CFS-S ACR (A) together with **mineral wool products** (B) as specified in annex 2.2.1 as backfilling material: $t_B \geq 100$ mm

3.2.2 Within or between **rigid constructions** (E) according to 1.2.1c) and d) of $t_E \geq 150$ mm in linear joints with maximum ± 12,5 % movement, splice distance minimum 625 mm:

For symbols and abbreviations see Annex 1.3

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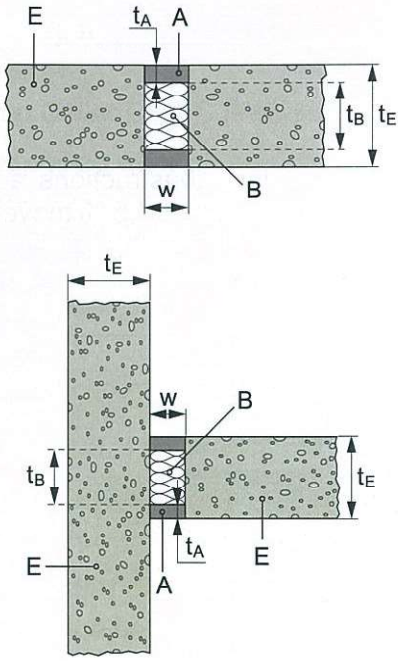
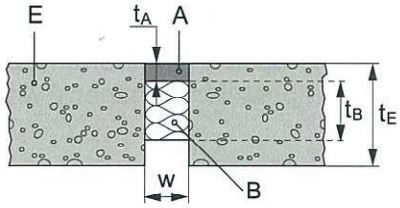
<tr><td>Vertical joints in / between wall constructions</td><td>Joints in floor constructions</td></tr>
<tr><td> 
</td><td> 
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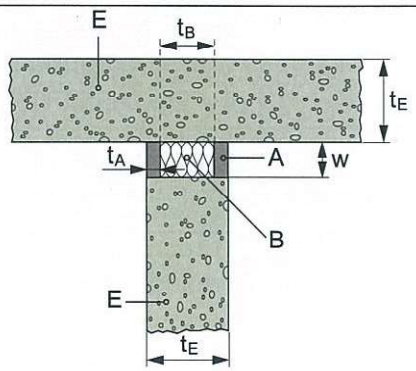
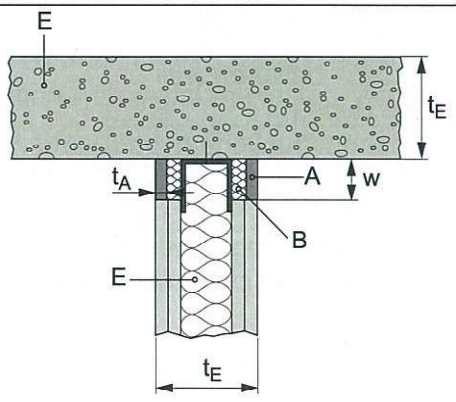
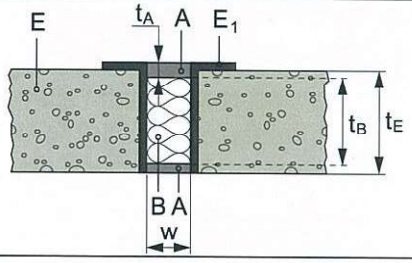
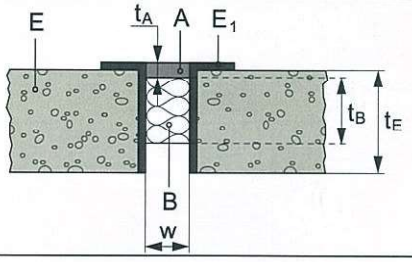
<tr><td>type III</td><td>type IV</td></tr>
<tr><td>Horizontal joints in a wall abutting a floor, ceiling or roof</td><td>Horizontal joints in a wall abutting a floor, ceiling or roof</td></tr>
<tr><td> 
</td><td> 
</td></tr>
</table>

Orientation	Joint width (mm)	Classification
Vertical joints in / between wall constructions (type I)	6 to 20 [a]	EI 180-V-M 12,5-F-W 6 to 20 E 240-V-M 12,5-F-W 6 to 20
Joints in floor constructions (type II) and Horizontal joints in a wall abutting a floor, ceiling or roof (type III)		EI 180-H-M 12,5-F-W 6 to 20
Vertical joints in / between wall constructions (type I)	20 to 100 [b]	EI 180-V-M 12,5-F-W 20 to 100 E 240-V-M 12,5-F-W 20 to 100
Joints in floor constructions (type II) and Horizontal joints in a wall abutting a floor, ceiling or roof (type III)		EI 120-H-M 12,5-F-W 20 to 100 E 180-H-M 12,5-F-W 20 to 100
Horizontal joints in a flexible wall abutting a floor, ceiling or roof (type IV)	6 to 30 [a]	EI 120-T-M 12,5-F-W 6 to 30

[a] t_A = 6 mm, compression of mineral wool minimum 60%
[b] t_A = 10 mm, compression of mineral wool minimum 50

3.2.3 Between steel construction elements according to 1.2.1e) or in rigid constructions according to 1.2.1c) or d) with steel elements as joint faces in linear joints with maximum ± 7,5 % movement (non-movement joints), splice distance minimum 1250 mm, $t_E \geq 150$ mm:

For symbols and abbreviations see Annex 1.3

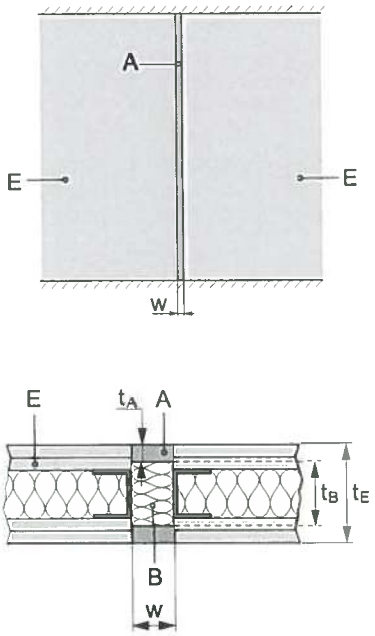
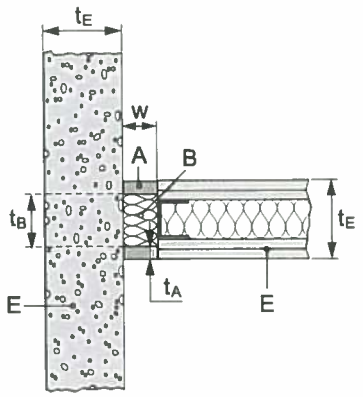
type I	type II
Vertical joints in / between wall constructions	Joints in floor constructions
	

Orientation	Joint width (mm)	Classification
Vertical joints in / between wall constructions (type I)	6 to 20 [a]	EI 60-V-X-F-W 6 to 20 E 240-V-X-F-W 6 to 20
Joints in floor constructions (type II) and Horizontal joints in a wall abutting a floor, ceiling or roof		EI 120-H-X-F-W 20 to 100
Vertical joints in / between wall constructions (type I)	20 to 100 [b]	EI 60-V-X-F-W 20 to 100 E 240-V-X-F-W 20 to 100
Joints in floor constructions (type II) and Horizontal joints in a wall abutting a floor, ceiling or roof		EI 60-H-X-F-W 20 to 100 E 120-H-X-F-W 20 to 100

[a] t_A = 6 mm, compression of mineral wool minimum 60 %
[b] t_A = 10 mm, compression of mineral wool minimum 50 %

3.2.4 Within or between flexible wall constructions and rigid wall constructions according to annex 3.1.1 in vertical linear joints with maximum ± 7,5 % movement (non-movement joints), splice distance minimum 1250 mm, t_A = 10 mm on both sides, $t_{E\ flexible\ wall} \geq 100$ mm, $t_{E\ rigid\ wall} \geq 150$ mm:

For symbols and abbreviations see Annex 1.3

type I	type II
Vertical joints in / between flexible wall constructions	Vertical joints between flexible and rigid wall constructions
	

Orientation	Joint width (mm)	Classification
Vertical joints in / between wall constructions (type I)	10 to 30 [b]	EI 120-V-X-F-W 10 to 30
Vertical joints in / between wall constructions (type II)	10 to 20 [b]	EI 120-V-X-F-W 10 to 20

[a] t_A = 6 mm, compression of mineral wool minimum 60 %
[b] t_A = 10 mm, compression of mineral wool minimum 50 %

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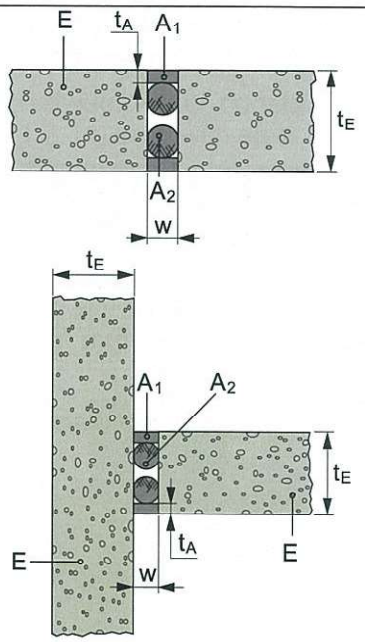
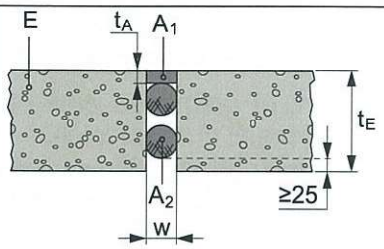
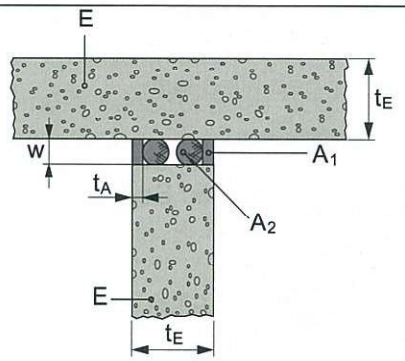
3.3 RESISTANCE TO FIRE CLASSIFICATION OF LINEAR JOINT/GAP SEALS MADE FROM HILTI FIRESTOP ACRYLIC SEALANT CFS-S AC TOGETHER WITH HILTI FIRESTOP ROUND CORD CFS-CO

3.3.1 Within or between rigid wall constructions according to 1.2.1c) in vertical joints, within rigid floor constructions according to 1.2.1d) and between such floor and wall constructions ("head of wall joint"), $t_E \geq 150$ mm, with maximum ± 7,5 % movement (non-movement joints). In case of two or more rod layers an air gap has to be maintained between the rods. Displacement of splices in the two rod layers minimum 140 mm (vertical joints, joint width ≤ 17 mm), 450 mm (vertical joints, joint width > 17 mm) and 645 mm (horizontal joints).

For symbols and abbreviations see Annex 1.3

type I	type II	type III
Vertical joints in / between wall constructions	Joints in floor constructions	Horizontal joints in a wall abutting a floor, ceiling or roof
		

Orientation	Joint width W (mm)	Size of Hilti Firestop Round Cord CFS-CO	Classification
Vertical joints in / between wall constructions (type I)	12 to 17 a)	20	EI 180-V-X-F E 240-V-X-F
	17 to 27 b)	30	
	27 to 37 b)	40	
	37 to 47 b)	50	
	47 to 55 b)	60	
Joints in floor constructions (type II) and Horizontal joints in a wall abutting a floor, ceiling or roof (type III)	12 to 17 a)	20	EI 180-H-X-F
	17 to 27 b)	30	
	27 to 37 b)	40	
	37 to 47 b)	50	
	47 to 55 b)	60	

a) t_A = 6 mm
b) t_A = 10 mm

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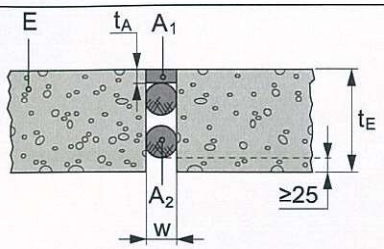
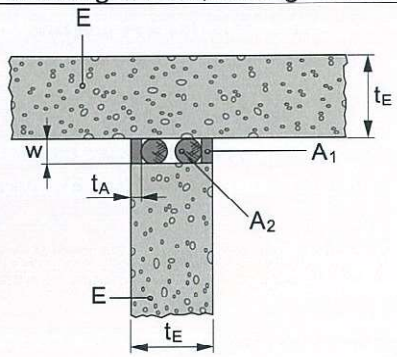
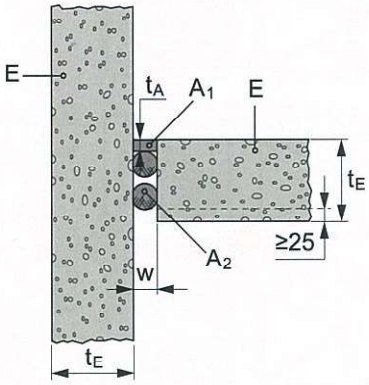
3.3.2 Within rigid floor constructions (E) according to 1.2.1d), $t_E \geq 150$ mm, with maximum ± 12,5 % movement (only shear movement). Minimum two rod layers with an air gap between the rods and a minimum distance of 25 mm from the surfaces of the floor construction. Displacement of splices in the two rod layers minimum 100 mm (joint width ≤ 30 mm).

For symbols and abbreviations see Annex 1.3

type I	type II	type III
Joints in floor constructions	Horizontal joints in a wall abutting a floor, ceiling or roof	Horizontal joints in a floor abutting a wall
		

Orientation	Joint width W (mm)	Size of Hilti Firestop Round Cord CFS-CO	Classification
Joints in floor constructions (type I) and Horizontal joints in a wall abutting a floor, ceiling or roof (type II) Horizontal joints in a floor abutting a wall (type III)	12 to 17 a)	20	EI 90-H-M 12,5-F
	17 to 27 b)	30	
	27 to 37 b)	40	
	37 to 47 b)	50	
	47 to 50 b)	60	

a) t_A = 6 mm
b) t_A = 10 mm

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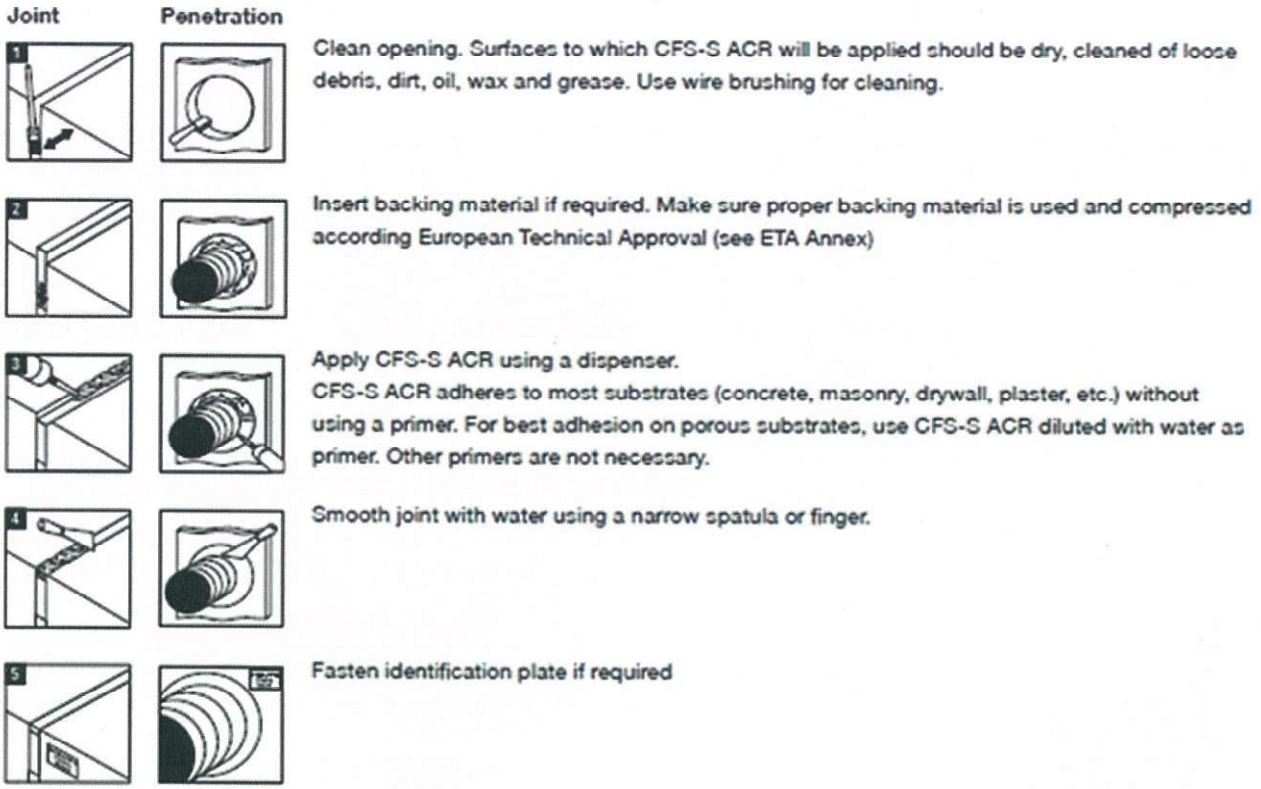
Annex 4

4 Installation of the Product

4.1 Instruction for use

Installation Instructions



Notes on Cleaning:

- Surfaces with cured acrylic sealant can only be cleaned mechanically e.g. using a knife, but not with a solvent.
- Remove uncured sealant first mechanically then clean with water.
- CFS-S ACR cannot be completely cleaned off porous surfaces – joints may be taped off to avoid staining.
- Dispenser equipment and tools have to be cleaned if a work break lasts longer than approximately 20 minutes.

Installation of the Hilti Firestop Acrylic Sealant CFS-S ACR should be conducted as follows:

- Clean joint faces. Surfaces to which Hilti Firestop Acrylic Sealant CFS-S ACR will be applied should be cleaned of loose debris, dirt, oil, wax and grease.
- Hilti Firestop Acrylic Sealant CFS-S ACR adheres to most substrates (concrete, masonry, drywall, plaster, etc.) without using a primer. For very porous substrates, a prior coating of Hilti Firestop Acrylic Sealant CFS-S ACR diluted with water is recommended as a primer. Other primers are not necessary.
- Insert backfilling material. Leave sufficient joint/gap depth for application of the Acrylic Sealant.
- Apply Hilti Firestop Acrylic Sealant CFS-S ACR using a manual dispenser (for 310 ml cartridges Hilti CB 200-P1, for 580 ml foil packs Hilti CS 270-P1).
- Smooth the Acrylic Sealant. Use either a diluted liquid soap or smoothing agent and carefully smooth using a finger or narrow spatula.
- Movement joints should never be designed smaller than 6 mm nominal width.
- Application temperature: +5°C to +40°C.