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Authorised and notified
according to Article 29 of the
Regulation (EU)
No 305/2011 of the European
Parliament and of the Council
of 9 March 2011

MEMBER OF EOTA



European Technical Assessment ETA-20/1235 of 2020/12/20

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

Hilti Firestop Joint Spray CFS-SP SIL

Product family to which the above construction product belongs:

Fire Stopping and Sealing Product:
Linear Joint and Gap Seals, Perimeter seal of curtain walls

Manufacturer:

Hilti AG
Feldkircherstraße 100
DE-9494 Schaan
Liechtenstein
Telephone +49 423 234 21 11
Internet: www.hilti.group

Manufacturing plant:

Hilti Plant 15

This European Technical Assessment contains:

13 pages including 4 annexes which form an integral part of the document

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

EAD 350141-00-1106 Linear joint and gap seals,
Issued March 2017

This version replaces:

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1 Technical Description of the Product

1.1 Definition of the construction product

1. Hilti Firestop Joint Spray CFS-SP SIL is a membrane-forming coating used to form a perimeter seal between rigid floor slabs and curtain walling with mineral wool as backfilling material. In facade constructions the coating is normally only applied on the top side. Very porous joint edges are treated with Hilti Firestop Joint Spray diluted with a suitable solvent, to achieve better adhesion. For details of the seal design depending on orientation, building elements forming the joint/gap or backfilling material and the related classifications see Annex 2.
2. For further details on Hilti Firestop Joint Spray CFS-SP SIL and for a specification of suitable mineral wool as backfilling material see Annex 1.
3. For a description of the installation procedure see Annex 3.

1.2 Ancilliary products

1. Mineral wool backfilling, see Annex 1

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

The intended use of Hilti Firestop Joint Spray CFS-SP SIL is to provide fire resistance performance in the area of the perimeter joint between a curtain wall and rigid floor slabs.

The specific elements of construction between which Hilti Firestop Joint Spray CFS-SP SIL may be used are as follows:

- a) Rigid floors: The floor must have a minimum thickness of 150 mm and comprise concrete with a minimum density of 2400 kg/m³.
- b) Curtain walls: with steel or aluminium framing (transoms, mullions). The cavity formed by the spandrel panel and the framing filled with stone wool or stone wool board of a nominal density of minimum:

~60 kg/m ³	With: Calcium Silicate boards and/or Steel or Aluminium sheet
~120 kg/m ³ (Foil faced)	Without: Calcium Silicate boards and/or Steel or Aluminium sheet

This forming the perimeter joint edge. See figures in Annex 2.4.

The provisions made in this European Technical Assessment are based on an assumed working life of the Hilti Firestop Joint Spray CFS-SP SIL of 25 years, provided that the conditions laid down in the manufacturer's datasheet and instructions for the packaging / transport / storage / installation / use / repair are met. It is assumed that damage to the joint seals are repaired according to the manufacturers instructions or are replaced with a new joint seal.

The indications given on the 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 choosing the right products in relation to the expected economically reasonable working life of the works.

2.1 Use category

The Hilti Firestop Joint Spray CFS-SP SIL is intended for environmental conditions as defined by use category Type X in accordance with EAD 350141-00-1106, Section 1.2. Since the requirements for type X are met also the requirements for type Y₁, Y₂, Z₁ and Z₂ are fulfilled.

Type X: Products intended for use at conditions exposed to weathering

Type Y₁: Products intended for use at temperatures between -5°C and + 70°C with exposure to UV but without exposure to rain.

Type Y₂: Products intended for use at temperatures between -5°C and + 70°C but without exposure to rain and UV.

Type Z₁: Products intended for use at internal conditions with high humidity, excluding temperatures below 0°C.

Type Z₂: Products intended for uses at internal conditions with humidity classes other than Z₁, excluding temperatures below 0°C.

3 Performance of The Product And References To The Methods Used For Its Assessment

Basic requirements for construction works	Essential characteristic	Method of verification	Performance
BWR 2	Reaction to fire	EN 13501-1	Clause 3.1.1 of the ETA
	Resistance to fire	EN 13501-2	Clause 3.1.2 and Annex 2 of the ETA
BWR 3	Air permeability (material property)	No performance assessed	
	Water permeability (material property)	No performance assessed	
	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 October 2015	Declaration of conformity by the manufacturer
BWR 4	Mechanical resistance and stability	EOTA TR001	Clause 3.3 of the ETA
	Resistance to impact / movement	EOTA TR001	Clause 3.3 of the ETA
	Adhesion	EOTA TR001	Clause 3.3 of the ETA
	Durability	EOTA TR 024	Clause 2.2 of the ETA
	Movement capability	EAD 350141-00-1106	Clause 3.3 of the ETA
	Cycling of perimeter seals for curtain walls	2.2.14	Clause 3.3 of the ETA
	Compression set	No performance assessed	
	Linear expansion on setting	No performance assessed	
BWR 5	Airborne sound insulation	EN ISO 10140-1 and EN ISO 10140-2, EN ISO 717-1	Clause 3.4.1 of the ETA
BWR 6	Thermal properties	EN 12667:2001	Clause 3.5.1 of the ETA
	Water vapour permeability	No performance assessed	

3.1 Safety in case of fire

3.1.1 Reaction to fire

The reaction to fire classification for Hilti Firestop Joint Spray CFS-SP SIL is Class E in accordance with EN 13501-1:2007 +A1:2009.

3.1.2 Resistance to fire

Hilti Firestop Joint Spray CFS-SP SIL has been tested in accordance with EN 1364-4:2014.

Based upon these test results and the field of direct application specified within EN 1364-4:2014, Hilti Firestop Joint Spray CFS-SP SIL has been classified in accordance with EN 13501-2: 2010-02, as shown in Annex 2.

Before the fire test a cycling test according to EAD 350141-00-1106 has been performed to show the ability of the sealing system to accommodate movement ("mechanical ageing") without losing its fire resistance, using the frequency designated "seismic" (30 cycles per minute) at an amplitude of $\pm 12.5\%$.

For details of suitable floor constructions and curtain wall constructions see 1.2.1.

3.2 Hygiene, Health, and the environment.

3.2.1. Content and release of Dangerous Substances

Hilti AG have presented a Material Safety Data Sheet according to 91/155 EEC and a declaration that Hilti CFS-SP SIL 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 $\geq 1.0\%$ w/w as well as all toxic, carcinogenic, toxic for reproduction and mutagenic chemical substances $\geq 0.1\%$ 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).

All dangerous chemical substances are below the classification limits of 67/548/EEC.

3.3 Safety and accessibility in use

3.3.1 Mechanical resistance and stability – resistance to dynamic loads

See 3.3.2

3.3.2 Resistance to impact/movement

The resistance to impact/movement has been tested using the test procedure according to EAD 350141-00-1106, section 2.4.13.2.2.1. The test construction was subjected to cycling 500 times between the minimum and maximum joint width corresponding to a movement capability of 12.5%. A cyclic rate of 30 cpm (cycles per minute) was used, designated as seismic. This cycling rate also covers lower frequency cycling rates designated as "wind sway" and "thermal".

3.3.3 Adhesion

Adhesion is covered by tests carried out for the determination of movement capability described in 3.3.2

3.4 Protection against noise

3.4.1 Airborne sound insulation

Test reports from noise reduction according to EN 20140-10, EN ISO 140-1, EN 20140-3, EN ISO 10140-1, EN ISO 10140-2, EN ISO 10140-5 and EN ISO 717-1 have been provided.

A special test set-up was used to simulate the conditions of a perimeter seal of a curtain wall. The resulting $R_{w(C;Ctr)}$ and $D_{n,e,w (C; Ctr)}$ values are:

Joint width [mm]	Seal depth [mm]	Coating	$R_{w(C;Ctr)}$ [dB]	$D_{n,e,w (C; Ctr)}$ [dB]
200	200	Both sides	38 (-1;-5) ^{a)}	53 (-1;-4) ^{b)}
200	200	Top side	36 (-1;-3) ^{a)}	51 (-1;-3) ^{b)}

a) where $S = 0,3 \text{ m}^2$

b) where $A = 10 \text{ m}^2$

3.5 Energy, economy and heat retention (BWR 6)

3.5.1 Thermal properties

No performance assessed

3.5.2 Water vapour permeability

No performance assessed

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

According to the decision 1999/454/EC of the European Commission, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) and Article 20(2) of Council Directive 89/106/EEC as regards fire stopping, fire sealing and fire protective products the system 1 of Assessment and Verification of Constancy of Performance applies.

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

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark A/S prior to CE marking

Issued in Copenhagen on 2020-12-20 by



Thomas Bruun

Managing Director, ETA-Danmark

ANNEX 1

DESCRIPTION OF THE PRODUCT AND ANCILLARY PRODUCT(S)

1.1 Hilti Firestop Joint Spray CFS-SP SIL

Hilti Firestop Joint Spray CFS-SP SIL is a 1-component product composed essentially of filling substances and a neutral cross-linking silicone.

Hilti Firestop Joint Spray CFS-SP SIL is supplied in 19 Litre buckets.

A detailed specification of the product is contained in document "Identification / Product Specification relating to the European Technical Assessment ETA-17/0082 - Hilti Firestop Joint Spray CFS-SP SIL" which is a non-public part of this ETA.

The Control Plan is defined in document "Control Plan related to the European Technical Assessment ETA- 17/0082 - Hilti Firestop Joint Spray CFS-SP SIL" which is a non-public part of this ETA.

1907/2006 (REACH) with its amendment Regulation (EC) No. 830/2015

1.2 Mineral Wool

Mineral wool products suitable for being used as backfilling material of the perimeter seal

No.	Characteristics	Specification
1	Mineral /Stone wool	EN 13162 or EN 14303
2	Density	~60 kg/m ³
3	Facing	No Al-facing, no other facing
4	Reaction to fire class	A1 or A2 according EN 13501-1
5	Melting point	≥ 1000°C

ANNEX 2

RESISTANCE TO FIRE CLASSIFICATION OF HILTI FIRESTOP JOINT SPRAY CFS-SP SIL

2.1 Specific characteristics for rigid floor and curtain wall construction

- a) Rigid floors: The floor must have a minimum thickness $t_{E1} \geq 150$ mm and comprise of concrete with a minimum density of 2400 kg/m^3 .
- b) Curtain wall: Curtain walls with steel or aluminium framing (transoms, mullions). The cavity formed by the spandrel panel and the framing filled with stone wool or stone wool board of a nominal density of minimum:

$\sim 60 \text{ kg/m}^3$	with Calcium Silicate boards and/or Steel or Aluminium sheet
$\sim 120 \text{ kg/m}^3$ (Foil faced)	without Calcium Silicate boards and/or Steel or Aluminium sheet

This forming the perimeter joint edge.

See figures in Annex 2.4.

2.2 Perimeter seal installation specifics

Hilti Firestop Joint Spray CFS-SP SIL (A) should be applied with a $t_A = \sim 3$ mm wet film thickness and should overlap on floor construction and curtain wall (L_1) at minimum 15 mm. As backfilling material, a mineral wool product (B_1) as specified in Annex 1.2 should be installed by compressing in the A-A direction by $\geq 33\%$ to a depth $t_{B1} \geq 150$ mm. Splice distance is required to be ≥ 200 mm. The thickness of the mineral wool slab should be such as to result in the application of a minimum number of layers; a maximum number of 3 layers is considered acceptable.

Nominal joint width (w): 10 to 150

mm; Movement capability: max. \pm

12.5%

See figures in Annex 2.4.

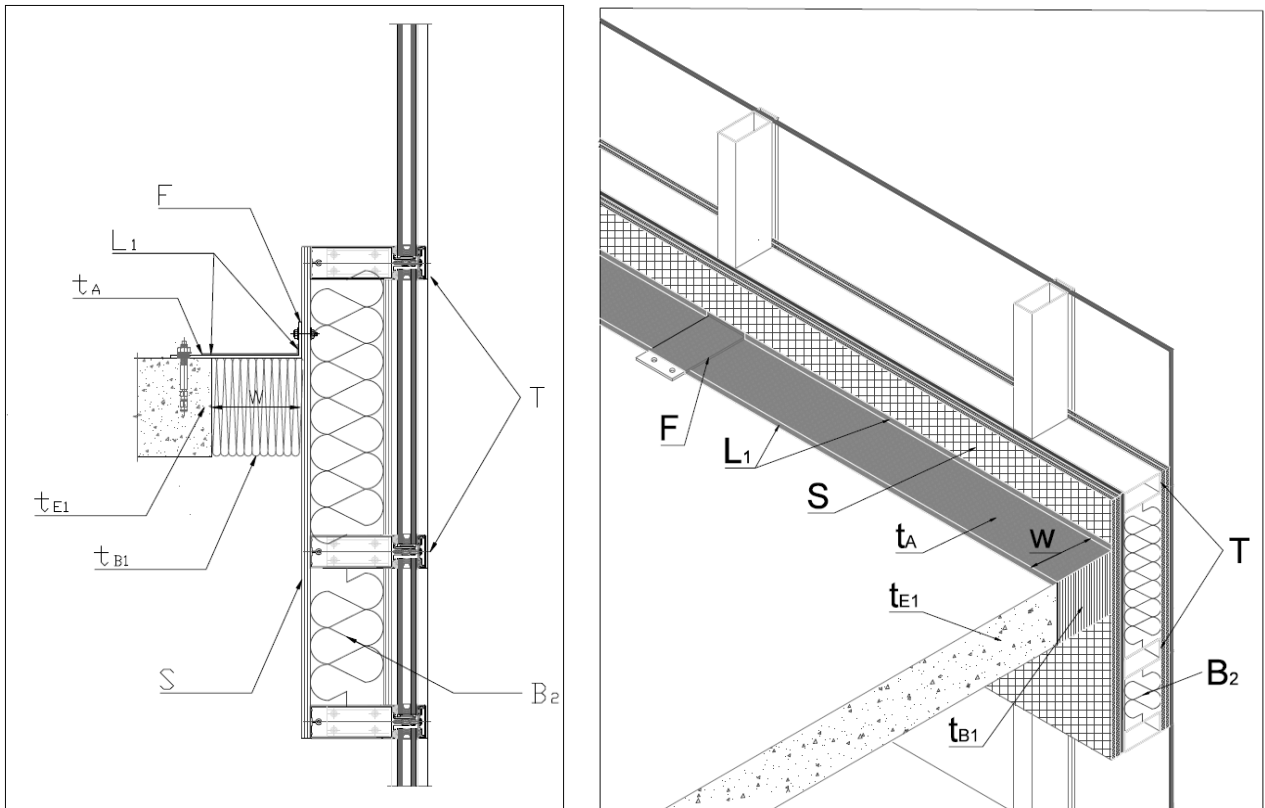
2.3 Classification for perimeter seal

Perimeter seal as described in 2.2 with

- A joint width (w) of 10 to 150 mm and
- a maximum movement capability of $\pm 12.5\%$ has a classification of:

EI 180 – H – F – M12.5 – W 10 to W 150

2.4 Typical Installation Detail for Floor slab to external façade:



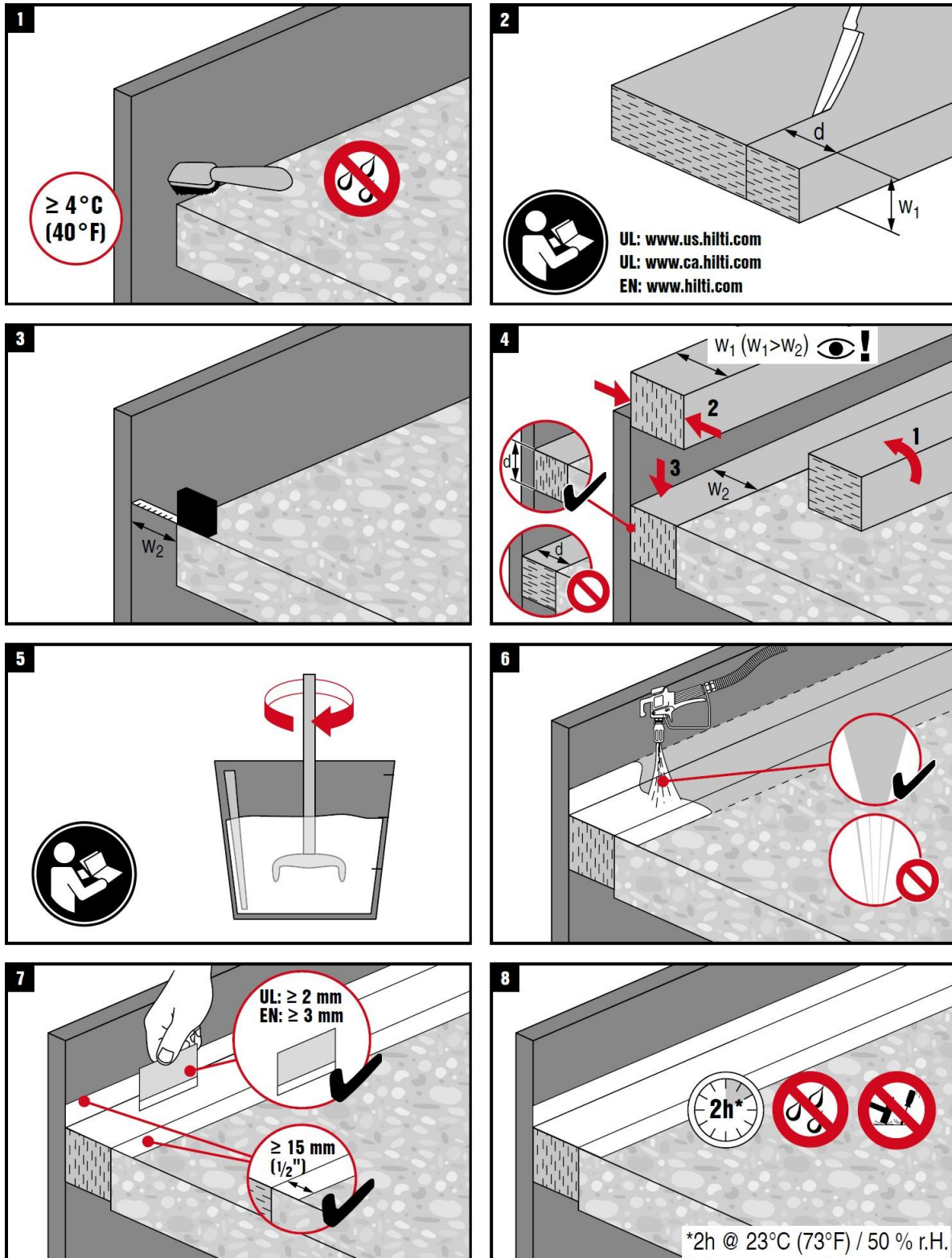
2.5 Abbreviations used in Drawing

Label	Description
A	Hilti Firestop Joint Spray CFS-SP SIL
B ₁	Backfilling material (mineral wool) of perimeter seal
B ₂	Backfilling material (mineral wool) of curtain wall
E ₁	Rigid floor construction
F	Fixing Bracket
L ₁	Overlap of Hilti Firestop Joint Spray CFS-SP SIL
S	Steel or Aluminium Sheet
T	Transom
t _A	Thickness of Hilti Firestop Joint Spray CFS-SP SIL
t _{B1}	Thickness of backfilling material
t _{E1}	Thickness of the rigid floor construction / joint depth
w	Joint width

ANNEX 3

INSTALLATION OF THE PRODUCT AND ANCILLARY PRODUCT(S)

Installation of the Hilti Firestop Joint Spray CFS-SP SIL should be conducted as follows:



ANNEX 4

REFERENCE DOCUMENTS

4.1 References to standards mentioned in the ETA:

EN 1364-4	Fire resistance tests for non-loadbearing elements - Part 4: Curtain walling – Part configuration
EN 13501	Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests Part 2: Classification using test data from fire resistance tests
EN ISO 140-1	Measurement of sound insulation in buildings and of building elements -- Part 1: Requirements for laboratory test facilities with suppressed flanking transmission
EN 20140	Acoustics – Measurement of sound insulation in buildings and of building elements Part 3: Laboratory measurements of airborne sound insulation of building elements Part 10: Laboratory measurement of airborne sound insulation of small building elements
EN ISO 10140	Acoustics - Laboratory measurement of sound insulation of building elements - Part 1: Application rules for specific products Part 2: Measurement of airborne sound insulation Part 5: Requirements for test facilities and equipment
EN ISO 717-1	Acoustics – Rating of sound insulation of buildings and of building elements – Part 1: Airborne sound insulation
ISO 11600	Building construction - Jointing products - Classification and requirements for sealants

4.2 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