Deutsches Institut für Bautechnik

Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

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European Technical Assessment ETA-07/0302 of 22 November 2017

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Hilti ETICS nailed-in anchor SDK-FV 8
Product family to which the construction product belongs	Nailed-in plastic anchor for fixing of external thermal insulation composite systems with rendering in concrete and masonry
Manufacturer	Hilti AG Feldkircherstraße 100 9494 Schaan FÜRSTENTUM LIECHTENSTEIN
Manufacturing plant	Hilti Werke
This European Technical Assessment contains	12 pages including 3 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	EAD 330196-01-0604

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Specific part

1 Technical description of the product

The Hilti ETICS screwed-in anchor D 8-FV with a plate made of virgin polypropylene and an accompanying specific expansion pin of glass fibre reinforced virgin polyamide.

The anchor may in addition be combined with the slip-on plates HDT 90 and HDT 140.

An illustration and the description of the product are given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchor of at least 25 years. 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.

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

3.1 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic tension resistance	See Annex C 1
Edge distances and spacing	See Annex B 2
Displacements	See Annex C 2

3.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance	See Annex C 2

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

In accordance with EAD No. 330196-01-0604, the applicable European legal act is: [97/463/EC].

The system to be applied is: 2+

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 with Deutsches Institut für Bautechnik.

Issued in Berlin on 22 November 2017 by Deutsches Institut für Bautechnik

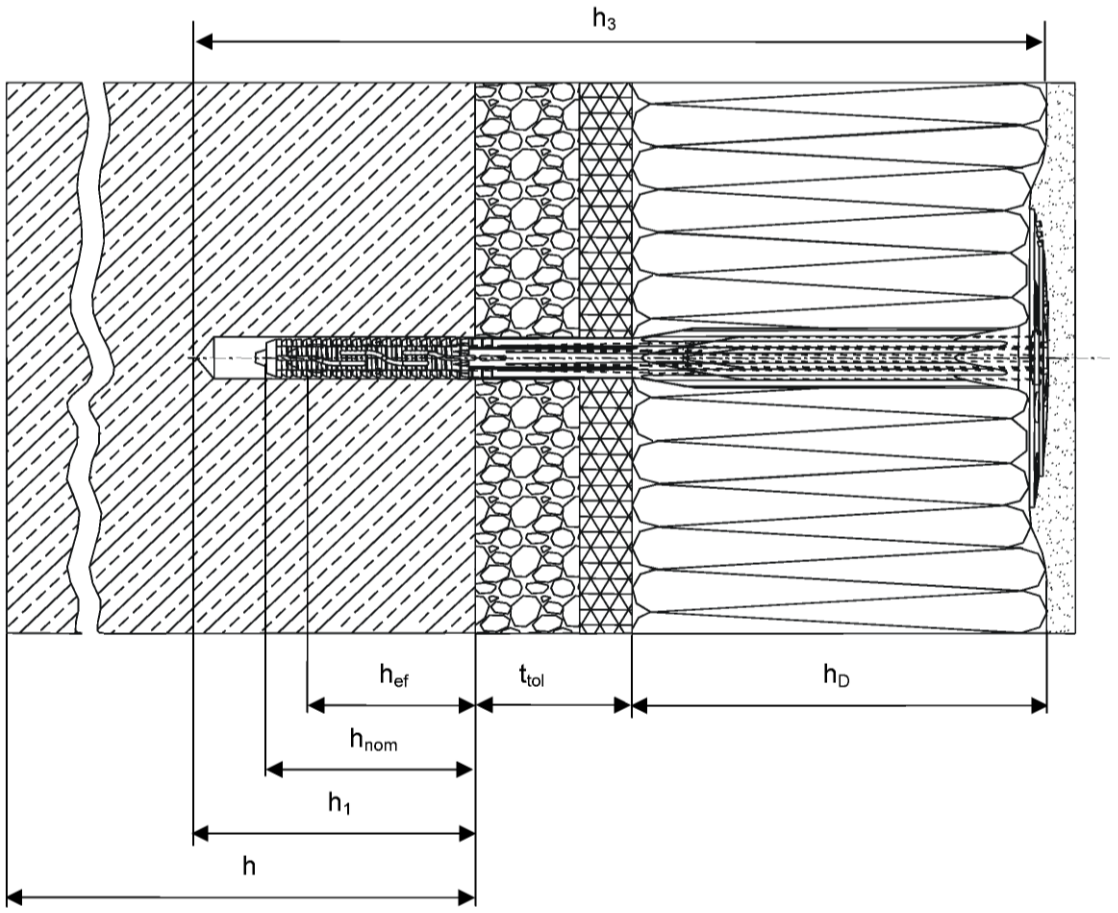
BD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Ziegler

Deutsches Institut für Bautechnik DIBt

Hilti ETICS hammer-in anchor SDK-FV 8

Intended use: Fixing of external thermal insulation composite systems in concrete and masonry



Legend:

h	=	thickness of member (wall)
h_1	=	depth of drilled hole to the deepest point
h_3	=	total length of bore hole from insulation surface to the deepest point
h_{ef}	=	effective anchorage depth
h_{nom}	=	overall plastic anchor embedment depth in the base material
h_D	=	insulation thickness
t_{tol}	=	thickness of equalizing layer or non-load-bearing layer

HILTI ETICS hammer-in anchor SDK-FV	**Annex A 1**
Product description Installed condition	

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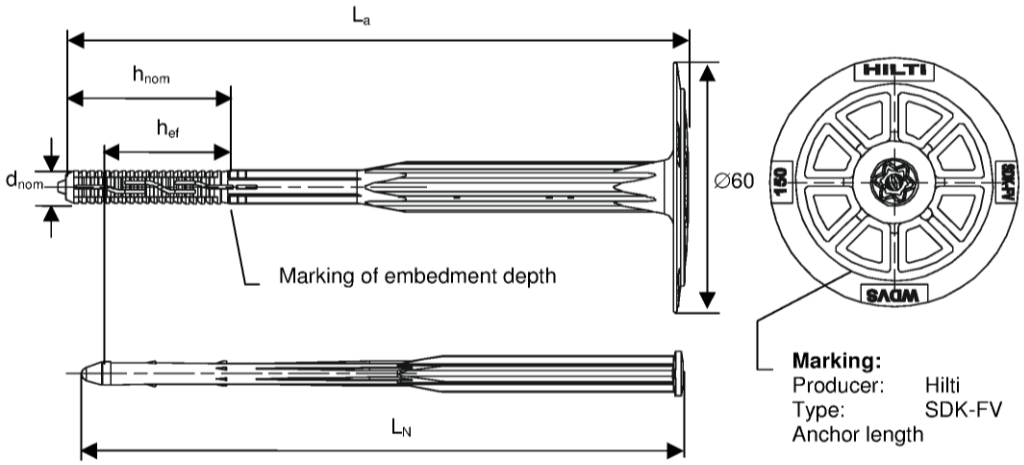
Anchor sleeve and expansion pin



Stepped drill TE-C 8/12-370 for use, if t_{tol} > 30mm

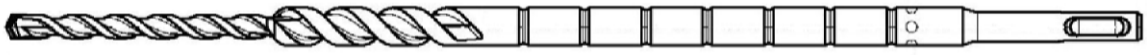


Table A1: Anchor types and dimensions [mm]

Anchor type	Anchor sleeve				Expansion pin
	d_{nom}	h_{ef}	h_{nom}	L_a	L_N
SDK-FV 8x70	8	30	40	70	65
SDK-FV 8x90	8	30	40	90	85
SDK-FV 8x110	8	30	40	110	105
SDK-FV 8x130	8	30	40	130	125
SDK-FV 8x150	8	30	40	150	145
SDK-FV 8x170	8	30	40	170	165
SDK-FV 8x190	8	30	40	190	185
SDK-FV 8x210	8	30	40	210	205
SDK-FV 8x230	8	30	40	230	225
SDK-FV 8x250	8	30	40	250	245
SDK-FV 8x270	8	30	40	270	265
SDK-FV 8x290	8	30	40	290	285
SDK-FV 8x310	8	30	40	310	305

Determination of maximum thickness of insulation material h_D

$h_D = L_a - t_{tol} - h_{nom}$

e.g. L_a = 210 mm; t_{tol} = 30 mm
h_D = 210 – 30 – 40 = 140 mm

Table A2 Material

Element	Material
Anchor sleeve	virgin Polypropylene, beige
Expansion pin	virgin Polyamide, fibre reinforced, nature

HILTI ETICS hammer-in anchor SDK-FV

Product description
Marking, dimensions and material of anchor sleeve and pin

Annex A 2

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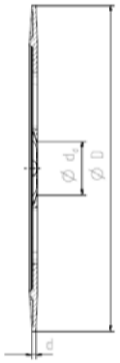
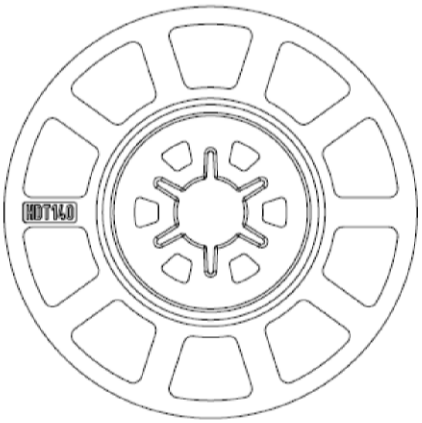
Slip-on plate HDT 90



Slip-on plate HDT 140



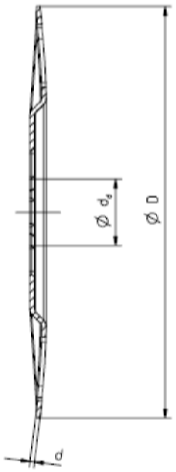


Table A3 Dimensions and materials of slip-on plates

Item	Ø D [mm]	Ø d_d [mm]	d [mm]	Material
HDT 90	90	23	1.5	Fibre reinforced polypropylene - white
HDT 140	140	23	1.5	Fibre reinforced polyamide - white

HILTI ETICS hammer-in anchor SDK-FV	**Annex A 3**
Product description Dimensions and materials of slip-on plates	

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Specification of intended use

Anchorage subject to:

- The anchor may only be used for transmission of wind suction loads and shall not be used for the transmission of dead loads of the thermal insulation composite system (ETICS).

Base materials:

- Normal weight concrete (use category A), according to Annex C 1
- Solid masonry (use category B), according to Annex C 1
- Hollow or perforated masonry (use category C), according to Annex C 1
- For other base materials of the use categories A, B or C the characteristic resistance of the anchor may be determined by job site tests according to EOTA Technical Report TR 051 edition December 2016

Temperature range:

- 0°C to +40°C (max. short term temperature +40°C and max. long term temperature +24°C)

Design:

- The anchorages are designed under the responsibility of an engineer experienced in anchorages and masonry work with the partial safety factors γ_M = 2,0 and γ_F = 1,5, if there are no other national regulations.
- Verifiable calculation notes and drawings with anchor positions are prepared taking into account of the loads to be anchored.
- Fasteners are only to be used for multiple fixings of thermal insulation composite systems.

Installation:

- Regard hole drilling mode according Annex C 1
- Anchor installation carried out by appropriate qualified personnel under the supervision of the person responsible for technical matters of the site
- Installation temperature from 0°C to +40°C
- Exposure to UV due to solar radiation of the anchor not protected by rendering ≤ 6 weeks

HILTI ETICS hammer-in anchor SDK-FV	**Anhang B 1**
Intended use Specifications	

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Table B1 Installation parameters

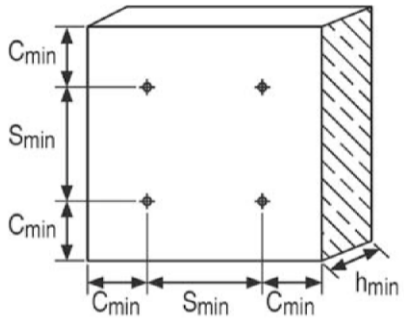
				SDK-FV
Nominal diameter of drill bit	d_0	=	[mm]	8
Cutting diameter of drill bit	d_{cut}	≤	[mm]	8,45
Depth of drilled hole to deepest point	h_1	≥	[mm]	50
Effective anchorage depth	h_{ef}	=	[mm]	30
Overall plastic anchor embedment depth in the base material	h_{nom}	=	[mm]	40
thickness of equalizing layer or non-load bearing coating	t_{tol}	≤	[mm]	30[1)]
Total length of bore hole from insulation surface to the deepest point	h_3	≥	[mm]	L_a + 10mm

[1)] If stepped-drill TE-C 8/12-370 is used, t_{tol} can be greater

Table B2 Minimum thickness of base material, anchor spacing and edge distance

			SDK-FV
Minimum thickness of the base material	h_{min}	[mm]	100
Minimum allowable spacing	s_{min}	[mm]	100
Minimum allowable edge distance	c_{min}	[mm]	100

Scheme of minimum thickness of base material, edge distance and anchor spacing



HILTI ETICS hammer-in anchor SDK-FV

Intended use
Installation parameters

Annex B 2

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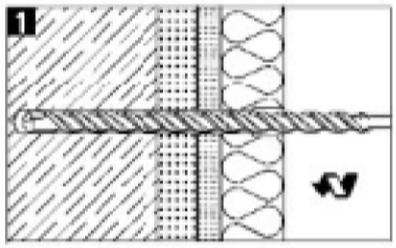
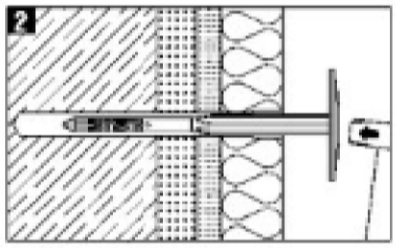
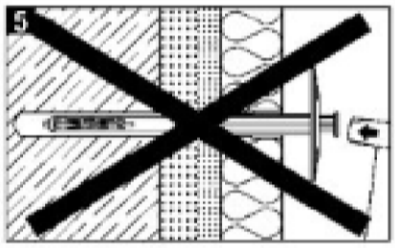
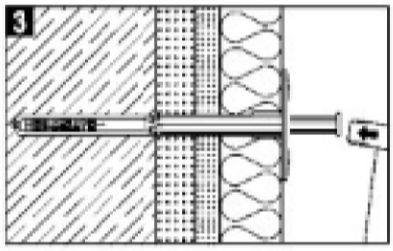
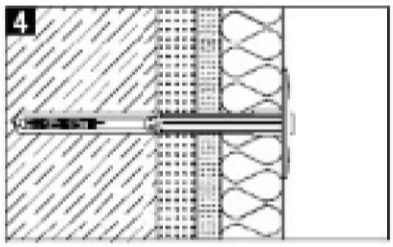
Installation instruction SDK-FV example of SDK-FV 8x110











HILTI ETICS hammer-in anchor SDK-FV	**Annex B 3**
Intended use Installation instruction	

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Table C1 Characteristic resistance to tension loads N_{Rk} in concrete and masonry for a single anchor

Base material	use cat.	Bulk density class ρ [kg/dm³]	Compressive strength class f_b [N/mm²]	Remarks	Drill method	N_{Rk} [kN]
Concrete C12/15 EN 206-1:2000	A	-	-	-	hammer	0,5
Concrete C16/20 – C50/60 EN 206-1:2000	A	-	-		hammer	0,6
Solid clay brick, Mz e.g. according to DIN 105-100:2012-01 / EN 771-1:2011	B	2,0	12	Cross section reduced by perforation vertically to the resting area up to 15%	hammer	0,6
Sand-lime solid brick, KS e.g. according to DIN V 106:2005-10 / EN 771-2:2011	B	1,8	12	Cross section reduced by perforation vertically to the resting area up to 15%	hammer	0,6
Vertically perforated clay brick, Hlz e.g. according to DIN 105-100:2012-01 / EN 771-1:2011	C	1,0	12	Cross section reduced by perforation vertically to the resting area more than 15% up to 50%, outer web thickness ≥ 14 mm	rotary only	0,4[1)]
Vertically perforated sand-lime brick, KSL e.g. according to EN 771-2:2011 / DIN V 106:2005-10	C	1,4	12	Cross section reduced by perforation vertically to the resting area more than 15% up to 50%, outer web thickness ≥ 23 mm	rotary only	0,5[2)]

[1)] The value applies only for outer web thickness ≥ 14 mm
[2)] The value applies only for outer web thickness ≥ 23 mm

Otherwise the characteristic resistance shall be determined by job-site pull-out tests

HILTI ETICS hammer-in anchor SDK-FV

Performances
Characteristic resistance to tension loads

Annex C 1

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Table C2 Point thermal transmittance according EOTA Technical Report TR 025

Anchor type	**Insulation thickness h_D [mm]**	**Point thermal transmittance χ [W/K]**
SDK-FV	≥ 50	0,000

Table C3 Plate stiffness and plate load resistance according EOTA Technical Report TR 026

Anchor type	**Diameter of the anchor plate [mm]**	**Load resistance of the anchor plate [W/K]**	**Anchor plate stiffness [kN/mm]**
SDK-FV	60	1,48	0,5

Table C4 Displacements

Base material	**Bulk density class ρ** [kg/dm³]	**Compressive strength class f_b** [N/mm²]	**Tension Force N** [kN]	**δ_m(N)** [mm]
Concrete C12/15 EN 206-1:2000	-	≥ C12/15	0,15	0,4
Concrete C16/20 – C50/60 EN 206-1:2000	-	≥ C16/20	0,20	0,6
		= C50/60	0,20	0,5
Clay brick, Mz e.g. according to DIN 105-100:2012-01 / EN 771-1:2011	2,0	12	0,20	0,5
Sand-lime solid brick, KS e.g. according to DIN V 106:2005-10 / EN 771-2:2011	1,8	12	0,20	0,7
Vertically perforated clay brick, Hlz e.g. according to DIN 105-100:2012-01 / EN 771-1:2011	1,0	12	0,15	1,2
Vertically perforated sand-lime brick, KSL e.g. according to DIN V 106:2005-10 / EN 771-2:2011	1,4	12	0,15	0,5

HILTI ETICS hammer-in anchor SDK-FV	**Annex C 2**
Performances Point thermal transmittance, plate stiffness and load resistance of plate, displacements	