Deutsches Institut für Bautechnik

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Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment

ETA-20/0029 of 17 January 2020

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	fischer FIF-SV II
Product family to which the construction product belongs	Screwed-in plastic anchor for fixing of external thermal insulation composite systems with rendering in concrete and masonry
Manufacturer	fischerwerke GmbH & Co. KG Klaus-Fischer-Straße 1 72178 Waldachtal DEUTSCHLAND
Manufacturing plant	fischerwerke
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 screwed-in anchor fischer FIF-SV II consist of an anchor sleeve and a screw plate in different colours, both made of polyamide (virgin material) and an accompanying specific screw of galvanised steel.

The product description is 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 verification 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 C1
Edge distances and spacing	See Annex B2
Displacements	See Annex C2

3.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance	See Annex C2

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 17 January 2020 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Ziegler

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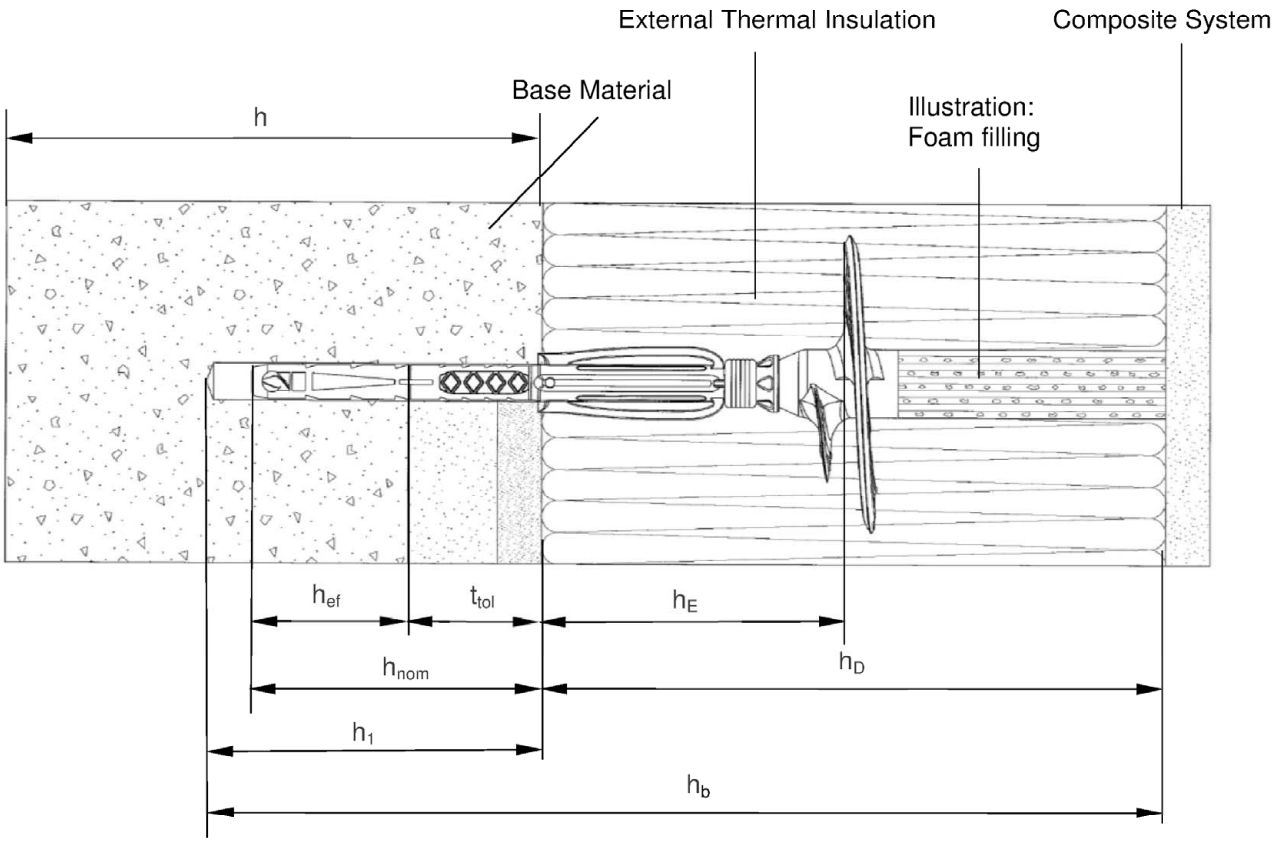
Installed anchor : FIF-SV II



Intended use

- Fixing of external thermal insulation composite systems (ETICS) in concrete and masonry
- Fixing of external thermal insulation composite systems (ETICS) in autoclaved aerated concrete and lightweight aggregated concrete

Legend

h_{nom} = Overall plastic anchor embedment depth in the base material with non-load bearing coating (t_{tol})

h_1 = Depth of drilled hole to deepest point in the base material

h = Thickness of base material (wall)

h_D = Thickness of insulation material

t_{tol} = Thickness of equalizing layer and / or non–load bearing coating

h_E = Embedment depth

h_b = Total bore hole depth

h_{ef} = Effective anchor embedment depth in the base material

Figures not to scale.

fischer FIF-SV II	**Annex A1**
Product description Installed anchor	

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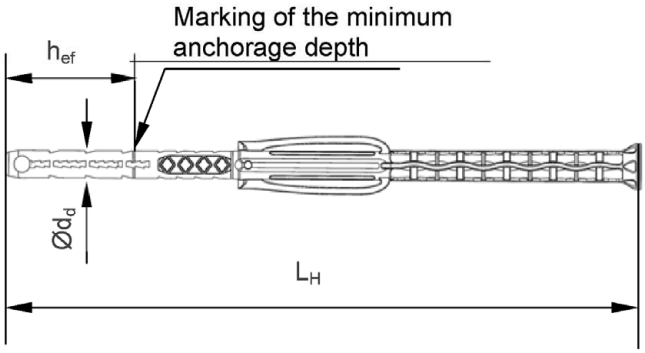
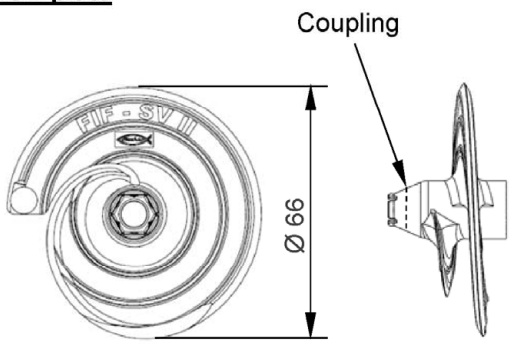
Parts: FIF-SV II

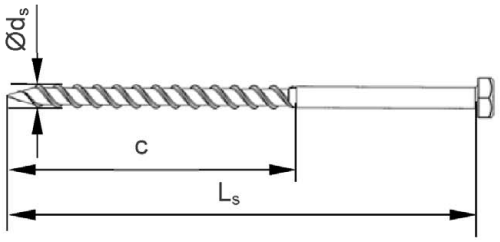
Anchor sleeve



Screw plate

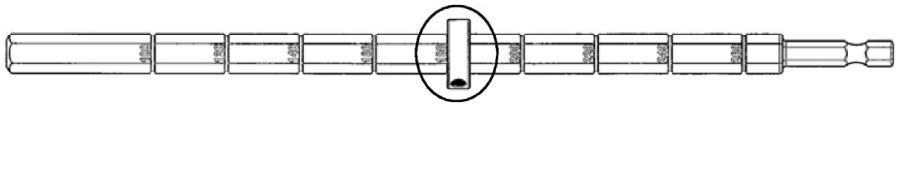


Special screw

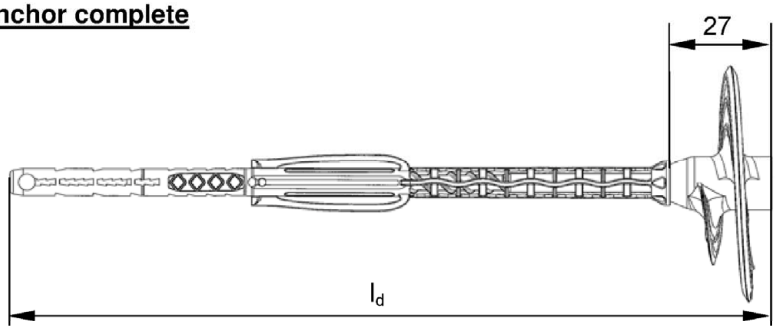


Adjustment of the ring depends of the insulation material thickness, e.g. h_D = 180 mm
→adjust value 180 at the setting tool

Setting tool



Anchor complete



Figures not to scale.

fischer FIF-SV II	**Annex A2**
Product description Anchor type and parts	

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Table A3.1: Dimensions

Anchor type	Anchor sleeve					Special screw		
FIF-SV II	Ø d_d	h_{ef} [1)]	h_E [1)]	l_d	L_H	Ø d_s	L_s	c
	[mm]							
t_{tol} 0-10 mm	8	35	70	162	135	6	100	74
t_{tol} 0-30 mm				202	175		120	
t_{tol} 30-60 mm				232	205		150	

[1)] see Annex A1

Table A3.2: Marking on the plate

	Marking
Anchor type	FIF-SV II
Works symbol	or
Example	fischer (optional) FIF-SV II or CE (optional); Ø 8 (optional); ABCDE (optional) XXXXX= various additional markings allowed

Table A3.3: Marking on the anchor sleeve

	Marking
FIF-SV II t_{tol} 0-10 mm	t_{tol} 0-10
FIF-SV II t_{tol} 0-30 mm	t_{tol} 0-30
FIF-SV II t_{tol} 30-60 mm	t_{tol} 30-60

Table A3.4: Material

Designation	**Material**
Anchor sleeve	PA6 (virgin material), colour: grey
Screw plate	PA6 (virgin material) GF, colour: grey, yellow, red, orange, green, blue
Special screw	Steel; gal Zn A2G or A2F according to EN ISO 4042:2018

fischer FIF-SV II	**Annex A3**
Product description Anchor types, marking on the anchor plate/sleeve, dimensions and material	

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Specifications of intended use

Anchorages 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 external thermal insulation composite system (ETICS).

Base materials:

- Normal weight concrete (use category A), according to Annex C1
- Solid masonry (use category B), according to Annex C1
- Hollow or perforated masonry (use category C), according to Annex C1
- Lightweight aggregate concrete (use category D), according to Annex C1
- Autoclaved aerated concrete (use category E), according to Annex C1
- For other base materials of the use categories A, B, C, D and E the characteristic resistance of the anchor may be determined by job site tests acc. 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 in absence of other national regulations.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchors is indicated on the design drawings.
- Fasteners are only to be used for multiple fixings of ETICS.

Installation:

- Drillmethod according to Annex C1
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on 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

fischer FIF-SV II	**Annex B1**
Intended use Specifications	

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Table B2.1: Installation parameters

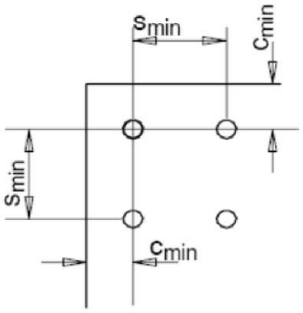
				FIF-SV II
Drill hole diameter	d_0	=		8
Cutting diameter of drill bit	d_{cut}	≤		8,45
Depth of drill hole to deepest point	h_1	≥		55/75/105
Total bore hole depth **at FIF-SV II** t_{tol} 0-10 mm	h_b	≥	[mm]	h_D + 55
Total bore hole depth **at FIF-SV II** t_{tol} 0-30 mm				h_D + 75
Total bore hole depth **at FIF-SV II** t_{tol} 30-60 mm				h_D + 105
Overall plastic anchor embedment depth in the base material (see Annex A1) **at FIF-SV II** t_{tol} 0-10 mm	h_{nom}	=		45
Overall plastic anchor embedment depth in the base material (see Annex A1) **at FIF-SV II** t_{tol} 0-30 mm				65
Overall plastic anchor embedment depth in the base material (see Annex A1) **at FIF-SV II** t_{tol} 30-60 mm				95

Table B2.2: Minimum distances and dimensions

				FIF-SV II
Minimum thickness of member	h_{min}	=	[mm]	100[1)]
Minimum allowable spacing	s_{min}			100
Minimum allowable edge distance	c_{min}			100

[1)] For weather resistant external wall panels: h_{min}=40 mm

Scheme of distances and spacing



fischer FIF-SV II	**Annex B2**
Intended use Installation parameters Minimum thickness of member, distances and spacing	

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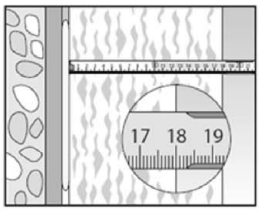
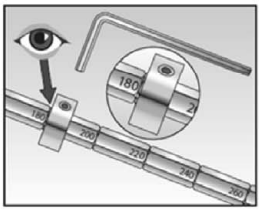
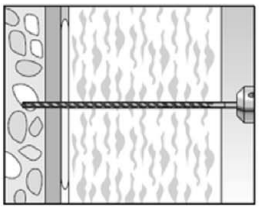
Installation instructions



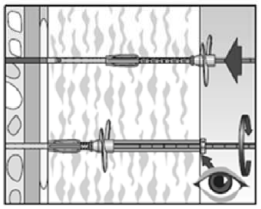
1. Measure insulation thickness h_D
(example: 18 cm = 180 mm).



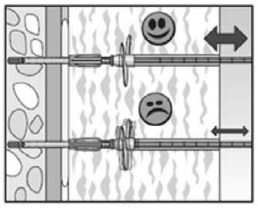
2. Adjust the setting tool ring corresponding to the insulation material thickness h_D in mm.
Number is legible.
Additionally to the setting tool ring a thin plastic plate (maximum 1 mm thickness) can be used as a stop unit for easier mounting.



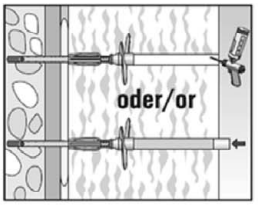
3. Drill bore hole.
Total drill hole depth must be at
t_{tol} 0-10 mm→ h_D + 55 mm
t_{tol} 0-30 mm→ h_D + 75 mm
t_{tol} 30-60 mm→ h_D + 105 mm.
Note: Hlz, AAC only with rotary drilling



4. Press the anchor with the screw plate tight against the surface of the insulation material, then start screwing-in the anchor.
Setting is finished when the surface of the ring is flush with the surface of the insulation material.



5. When step 4 is completed, press the adjustment tool tight against the installed anchor.
If there is no axial movement of the anchor, remove the setting tool.
In case of axial movement, a new anchor has to be set in a new drill hole.



5. The hole in the insulation material must be filled with a suitable foam (illustrated in Annex A1) or must be closed with an appropriate insulation cylinder.

fischer FIF-SV II	**Annex B3**
Intended use Installation instructions	

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Table C1.1: Characteristic resistance N_{Rk}

Base material	Use cat. [1]	Bulk density ρ [kg/dm³]	Minimum compressive strength f_b [N/mm²]	Remarks	Drill method [2]	Characteristic resistance N_{Rk} [kN]
Weather resistant skin of external wall panels, concrete C20/25 – C50/60	-	-	-	Thickness of concrete panels 40 mm ≤ h < 100 mm	H	**0,9**
Weather resistant skin of external wall panels, concrete C20/25 –C50/60	-	-	-	Thickness of concrete panels 40 mm ≤ h < 100 mm	R	**1,5**
Concrete C12/15- C 50/60 acc. to EN 206-1:2000	A	-	-	-	H	**1,5**
Sand-lime solid bricks, **KS** acc. to EN 771-2:2011	B	≥ 2,0	20	Cross section reduced up to 15% by perforation vertically to the resting area	H	**1,5**
			12			**1,2**
Clay bricks, **Mz** acc. to EN 771-1:2011	B	≥ 1,8	12	Cross section reduced up to 15% by perforation vertically to the resting area	H	**1,2**
Solid concrete block, **Vbn** acc. to EN 771-3:2011	B	≥ 2,0	20	Cross section reduced up to 10% by perforation vertically to the resting area	H	**1,5**
			12			**1,2**
Lightweight concrete solid blocks, **Vbl** acc. to EN 771-3:2011	B	≥ 1,4	8	Cross section reduced up to 15% by perforation vertically to the resting area, exterior web thickness ≥ 35 mm	H	**0,6**
Vertically perforated sand-lime bricks, **KSL** acc. to EN 771-2:2011	C	≥ 1,4	20	Cross section reduced more than 15% by perforation vertically to the resting area, Exterior web thickness ≥ 23 mm	H	**1,2**
			12			**0,75**
Vertically perforated clay bricks, **Hlz** acc. to EN 771-1:2011	C	≥ 1,0	12	Cross section reduced more than 15% and less than 50% by perforation vertically to the resting area, Exterior web thickness ≥ 12 mm	R	**0,75**
Lightweight concrete hollow blocks, **Hbl** acc. to EN 771-3:2011	C	≥ 1,2	10	Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness ≥ 38 mm	H	**1,2**
			8			**0,9**
			6			**0,75**
			4			**0,6**
Lightweight concrete hollow blocks, **Hbl4** acc. to EN 771-3:2011	C	≥ 0,9	4		H	**0,5**
Lightweight aggregate concrete, **LAC** acc. to EN 1520:2011 / EN 771-3:2011	D	≥ 0,9	6	-	H	**0,75**
Autoclaved aerated concrete blocks, **AAC** acc. to EN 771-4:2011	E	≥ 0,5	4	-	R	**0,4**

[1] See Annex B1
[2] R = Rotary drilling | H = Hammer drilling

Figures not to scale.

fischer FIF-SV II

Performance
Characteristic resistance

Annex C1

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Table C2.1: Point thermal transmittance acc. to EOTA Technical TR 025 : 2007 – 06

Anchor type	Thickness of insulation material h_D [mm]	Point thermal transmittance χ [W/K]
fischer FIF-SV II EPS-plug and air void t_{tol} = 0 - 10 mm	100 - 240	0,001
	> 240	0
fischer FIF-SV II PU-foam filled hole t_{tol} = 0 - 10 mm	100 - 150	0,001
	> 150	0
fischer FIF-SV II EPS-plug and air void t_{tol} = 0 - 30 mm	100 - 240	0,001
	> 240	0
fischer FIF-SV II PU-foam filled hole t_{tol} = 0 - 30 mm	100 - 150	0,001
	> 150	0
fischer FIF-SV II EPS-plug and air void t_{tol} = 30 - 60 mm	100	0,002
	120 - 240	0,001
	> 240	0
fischer FIF-SV II PU-foam filled hole t_{tol} = 30 - 60 mm	100	0,002
	120 - 150	0,001
	> 150	0

Table C2.2: Displacements

Base material	Minimum compressive strength f_b [N/mm²]	Tension load **N** [kN]	Displace-ments **δm(N)** [mm]
Concrete thin members 100 mm > h ≥ 40 mm ≥ C20/25 acc. to EN 206-1 (hammer drilling)	-	0,3	< 0,3
Concrete thin members 100 mm > h ≥ 40 mm ≥ C20/25 acc. to EN 206-1 (rotary drilling)	-	0,5	< 0,3
Concrete C16/20 - C50/60 acc. to EN 206-1 : 2000	-	0,5	< 0,3
Sand-lime solid bricks, **KS** acc.to EN 771-2 : 2011	20	0,5	< 0,3
	12	0,4	
Clay bricks, **Mz** acc. to EN 771-1:2011	12	0,4	< 0,3
Solid concrete block, **Vbn** acc. to EN 771-3:2011	20	0,5	< 0,3
	12	0,4	
Lightweight concrete solid blocks, **Vbl** acc. to EN 771-3:2011	8	0,2	< 0,2
Vertically perforated sand-lime bricks, **KSL** acc. to EN 771-2:2011	20	0,4	< 0,2
	12	0,25	
Vertically perforated clay bricks, **Hlz** acc. to EN 771-1:2011	12	0,25	< 0,3
Lightweight concrete hollow blocks, **Hbl** acc. to EN 771-3:2011	10	0,4	< 0,3
	8	0,3	
	6	0,25	
	4	0,2	
Lightweight concrete hollow blocks, **Hbl4** acc. to EN 771-3:2011	4	0,15	< 0,4
Lightweight aggregate concrete, **LAC** acc. to EN 1520 :2011 / EN 771-3:2011	6	0,25	< 0,2
Autoclaved aerated concrete blocks, **AAC** acc. to EN 771-4:2011	4	0,15	< 0,1

fischer FIF-SV II	**Annex C2**
Performance Point thermal transmittance, displacements	