

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-14/0087
of 15 December 2016

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-S R

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

fischerwerke GmbH & Co. KG
Klaus-Fischer-Straße 1
72178 Waldachtal
DEUTSCHLAND

Manufacturing plant

fischerwerke

This European Technical Assessment
contains

11 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

Guideline for European technical approval of "Plastic
anchors for fixing of external thermal insulation composite
systems with rendering", ETAG 014, Edition February
2011,
used as European Assessment Document (EAD)
according to Article 66 Paragraph 3 of Regulation (EU)
No 305/2011.

This version replaces

ETA-14/0087 issued on 29 April 2014

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Specific part

1 Technical description of the product

The Fischer nailed-in anchor FIF-S R consists of an anchor sleeve with an enlarged shaft made of polypropylene, an insulation plate made of glass fibre reinforced polyamide and a specific compound nail (for FIF-S R 60-180) made of glass fibre reinforced polyamide with galvanized steel or a specific nail (for FIF-S R 200-340) made of galvanized steel which is installed together with a plastic cylinder made of glass fibre reinforced polyamide.

The anchor may in addition be combined with the anchor plates DT 90, DT 110 and DT 140.

The 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 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 Mechanical resistance and stability (BWR 1)

Requirements with respect to the mechanical resistance and stability of non-load bearing parts of the works are not included in this Essential requirement but are under the Essential Requirement safety in use.

3.2 Hygiene, health and the environment (BWR 3)

Regarding dangerous substances there may be requirements (e.g. transposed European legislation and national laws, regulations and administrative provisions) applicable to the products falling within the scope of this European Technical Assessment. In order to meet the provisions of the Regulation (EU) No 305/2011, these requirements need also to be complied with, when and where they apply.

3.3 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance	See Annex C 1
Edge distances and spacing	See Annex B 2
Point thermal transmittance	See Annex C 1
Plate stiffness	See Annex C 1
Displacements	See Annex C 1

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

In accordance with guideline for European technical approval ETAG 014, February 2011 used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011 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

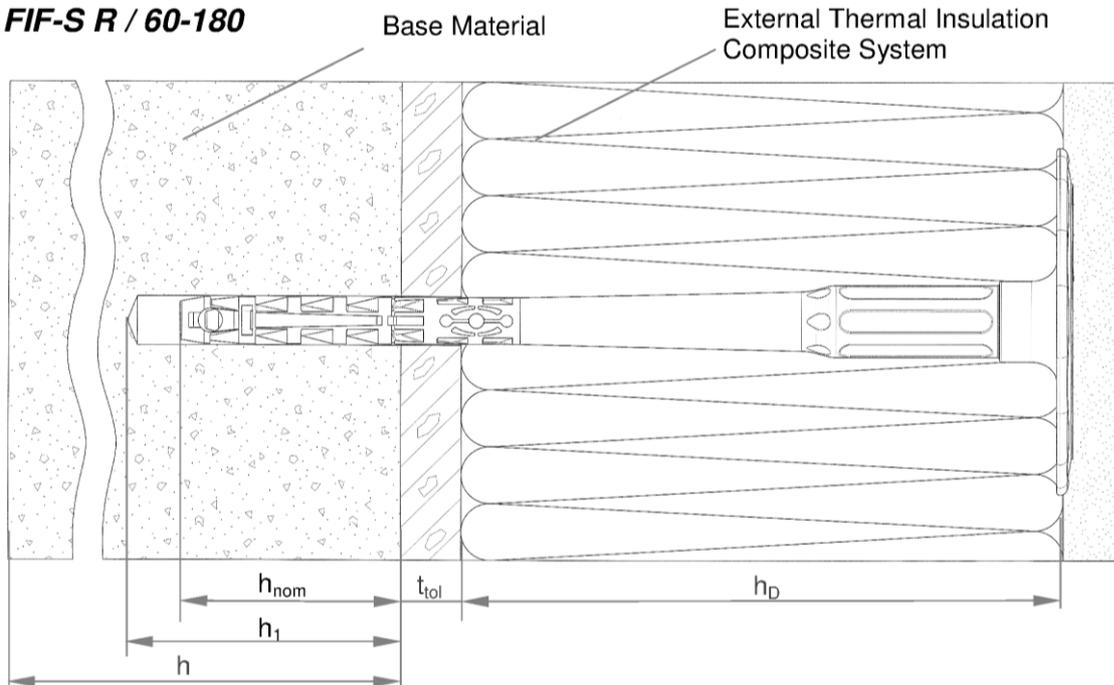
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 15 December 2016 by Deutsches Institut für Bautechnik

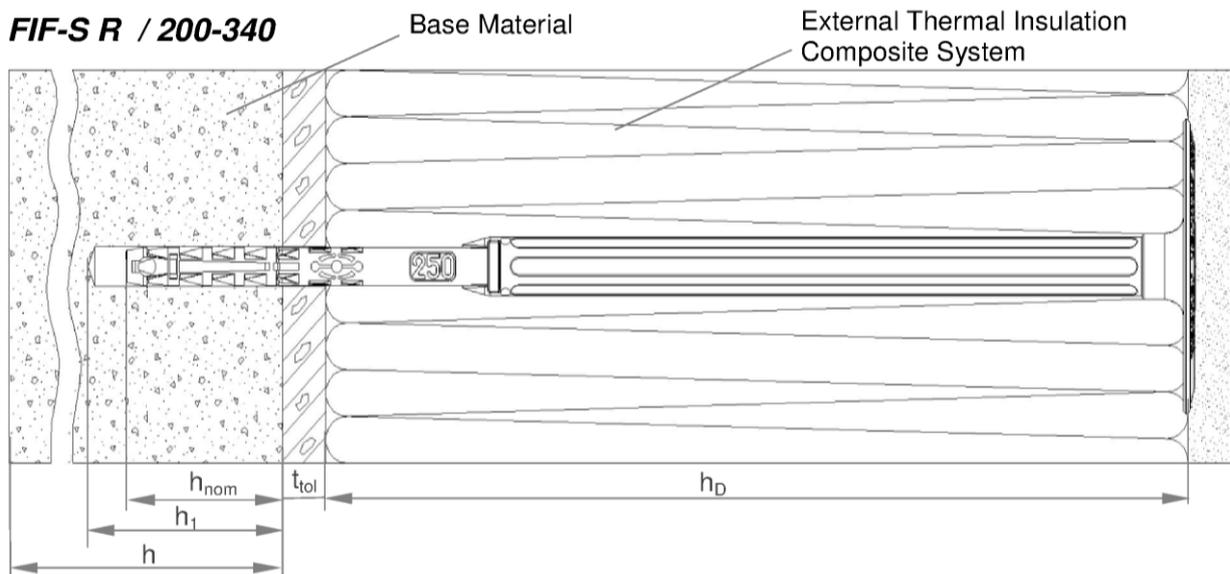
Uwe Bender
Head of Department

beglaubigt:
Ziegler

FIF-S R / 60-180



FIF-S R / 200-340



Legend

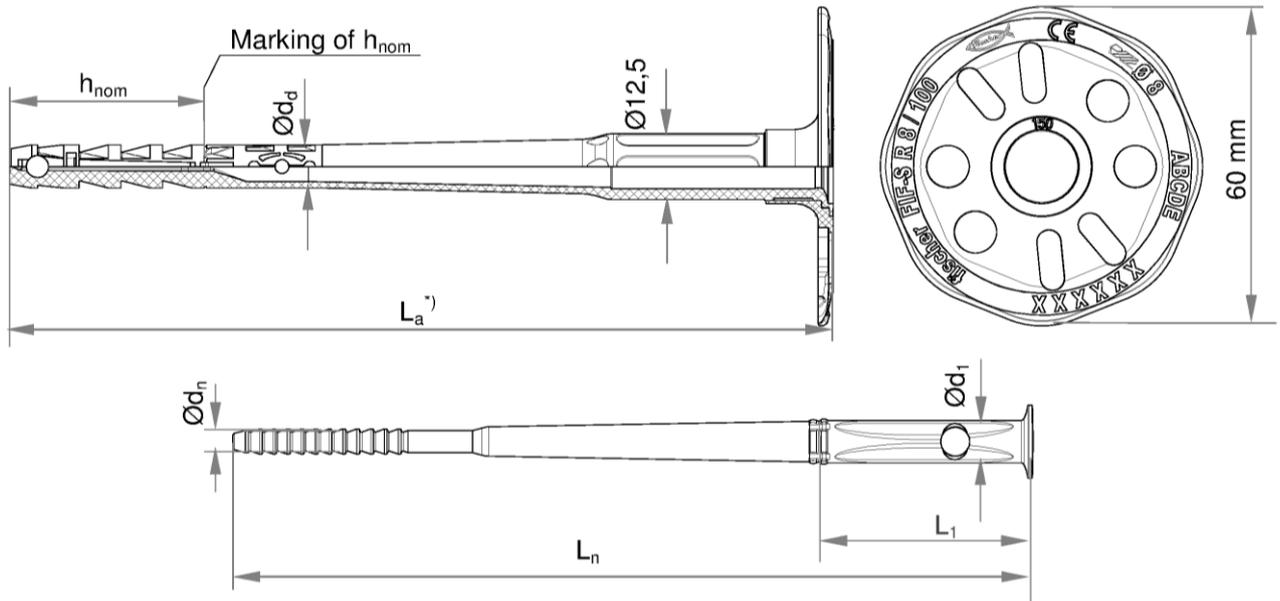
- h_{nom} = Overall plastic anchor embedment depth in the base material
- h_1 = Depth of drilled hole to deepest point
- h = Thickness of member (wall)
- h_D = Thickness of insulation material
- t_{tol} = Thickness of equalizing layer or non-load bearing coating

FIF-S R

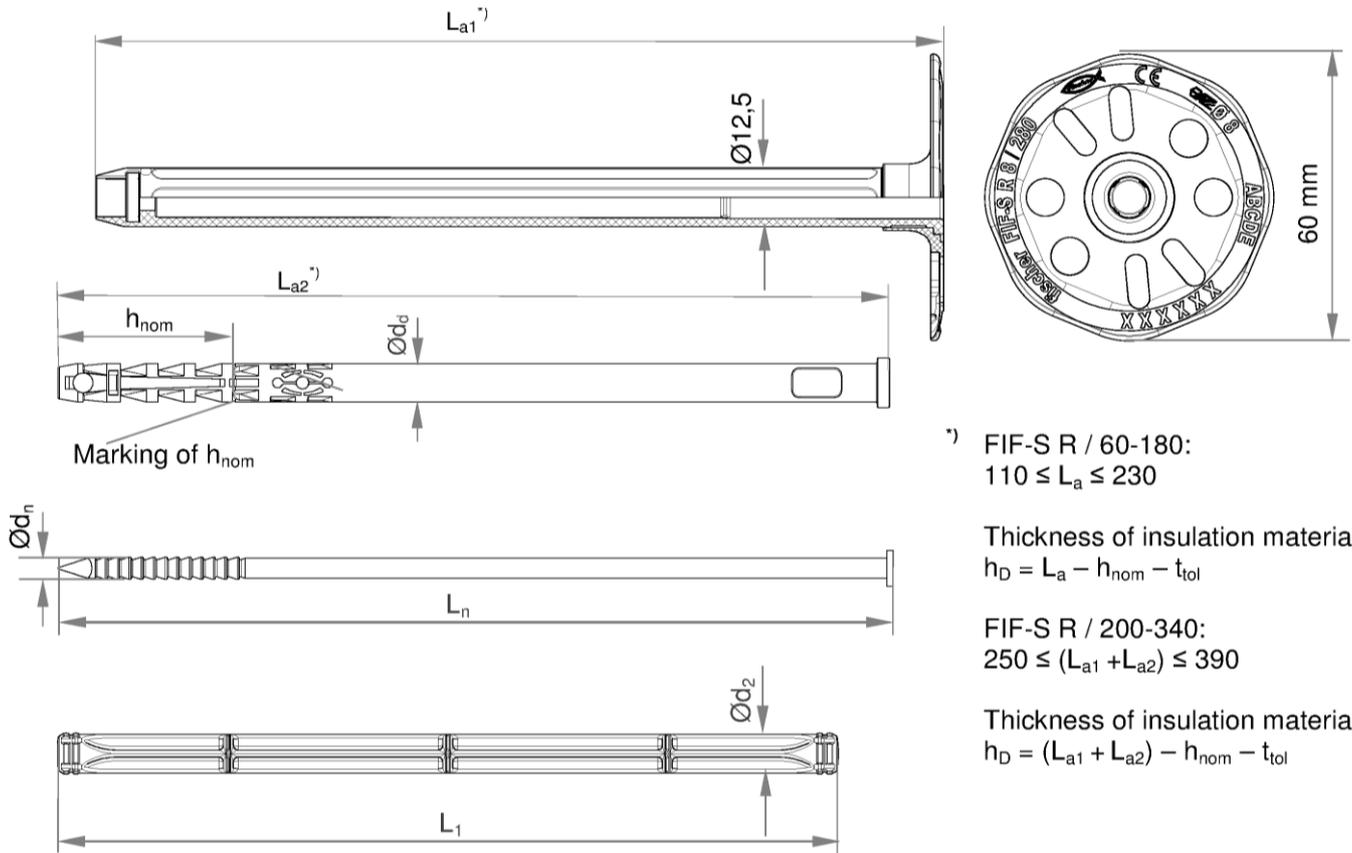
Product description
Installed anchor

Annex A 1

Anchor sleeve / Specific nail for FIF-S R 60-180



Shaft / Anchor sleeve / Specific nail / Plastic cylinder for FIF-S R 200-340



¹⁾ FIF-S R / 60-180:
 $110 \leq L_a \leq 230$

Thickness of insulation material:
 $h_D = L_a - h_{nom} - t_{tol}$

FIF-S R / 200-340:
 $250 \leq (L_{a1} + L_{a2}) \leq 390$

Thickness of insulation material:
 $h_D = (L_{a1} + L_{a2}) - h_{nom} - t_{tol}$

FIF-S R

Product description
Marking and dimensions of the anchor

Annex A 2

Table A3.1: Marking

Anchor type	FIF-S R
Name and size of anchor	FIF-S R 8
Thickness of insulation material	60, 80, 100, 120,, 340
Example	fischer FIF-S R 8/100  (optional) CE  (optional) Ø 8 ABCDE

Table A3.2: Dimensions [mm]

Anchor type	Anchor sleeve		Shaft		Specific nail			Plastic cylinder	
	Ø d _d	h _{nom}	L _{a1}	L _{a1} +L _{a2}	Ø d _n	L _n	Ø d ₁	L ₁	Ø d ₂
FIF-S R 60-180	8	35/55 ¹⁾	110-230	-	4,5	L _a - 4	8	40	-
FIF-S R 200-340	8	35/55 ¹⁾	-	250-390	4,5	(L _{a1} + L _{a2}) - L ₁ - 4	-	157	8

1) Only for use categorie „E“

Table A3.3: Materials

Designation	Material
Anchor sleeve	PP colour: grey
Shaft (FIF-S R / 200-340)	PA6 GF colour: grey
Plastic cylinder (FIF-S R / 200-340)	PA6 GF nature
Specific compound nail (FIF-S R / 60-180) or specific nail (FIF-S R / 200-340)	PA6 GF with Steel gal Zn A2G or A2F acc. to EN ISO 4042:2001 Steel gal Zn A2G or A2F according to EN ISO 4042:2001
Anchor plate	PA6 GF colour: grey

Drawing of the slip-on plates

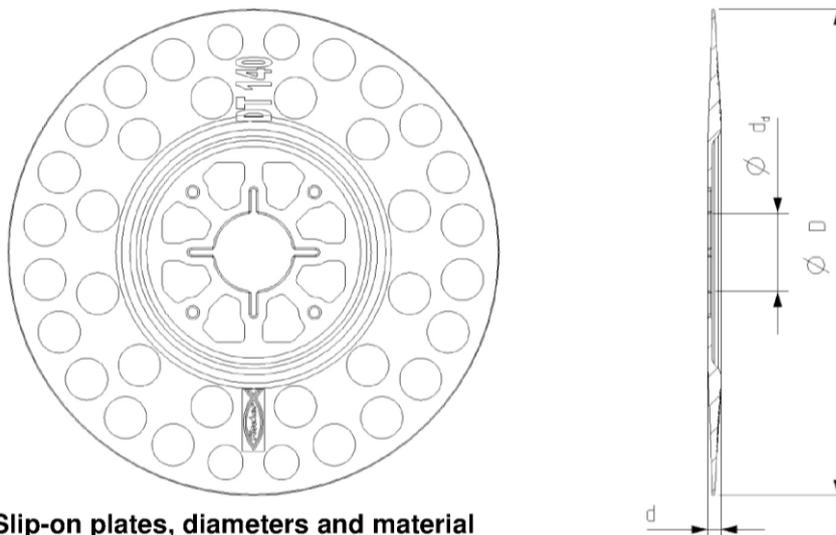


Table A3.4: Slip-on plates, diameters and material

Slip-on plate	Ø D [mm]	Ø d _d [mm]	d [mm]	Material
DT 90	90	22,5	3,9	PA 6 GF
DT 110	110	22,5	3,9	PA 6 GF
DT 140	140	22,5	3,9	PA 6 GF

FIF-S R

Product description
Marking, dimensions, materials,
Slip-on plates combined with FIF-S R

Annex A 3

Specifications 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.

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 ETAG 014 Edition February 2011, Annex D.

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 in accordance with ETAG 014 Edition February 2011 under the responsibility of an engineer experienced in anchorages and masonry work.
- 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 for non-structural applications, according to ETAG 014 Edition February 2011.

Installation:

- Hole drilling by the drill modes 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.

FIF-S R

Intended use
Specifications

Annex B 1

Table B2.1: Installation parameters

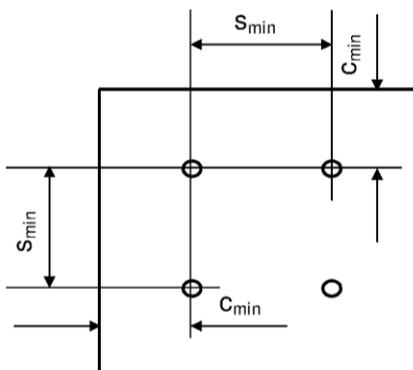
Anchor type		FIF-S R
Nominal drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8,45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	45 / 65 ¹⁾
Overall plastic anchor embedment depth in the base material	$h_{nom} \geq$ [mm]	35 / 55 ¹⁾

¹⁾ Only for use categorie „E“

Table B2.2: Anchor distances and dimensions of members

Anchor type		FIF-S R
Thickness of member	$h \geq$ [mm]	100
Minimum spacing	$s_{min} =$ [mm]	100
Minimum edge distance	$c_{min} =$ [mm]	100

Scheme of distances and spacing



FIF-S R

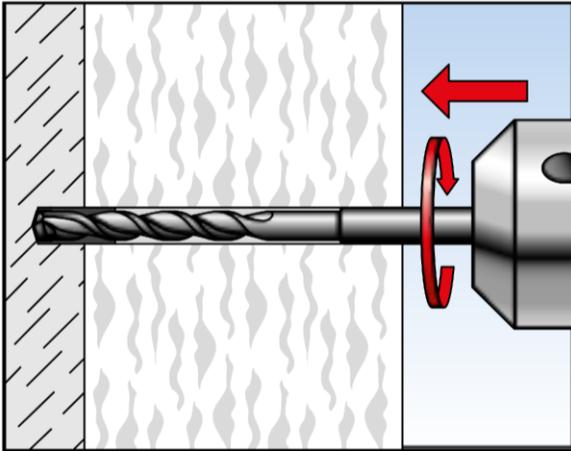
Intended use

Installation parameters, edge distances and spacings

Annex B 2

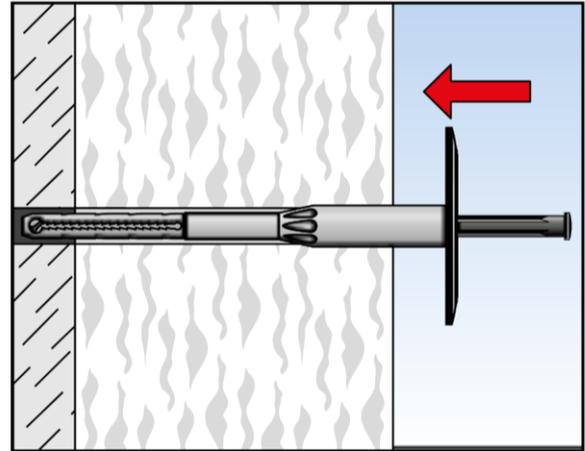
Installation instructions

1.



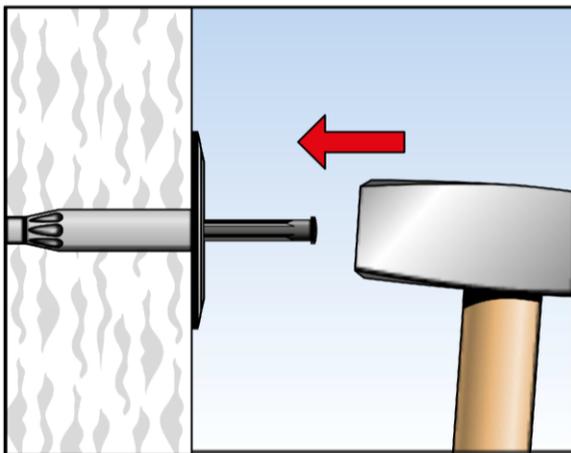
1. Drill hole by corresponding drilling method

2.



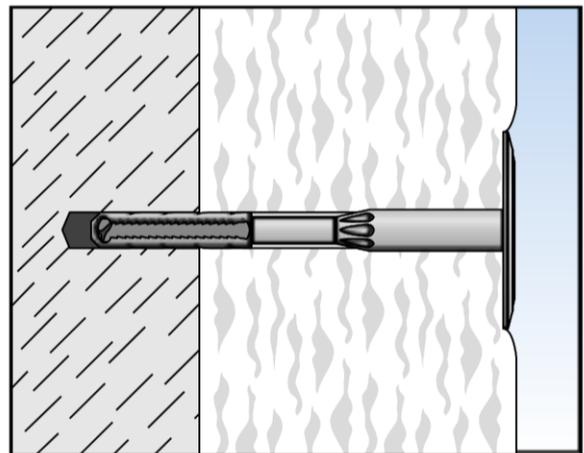
2. Set-in anchor manually

3.



3. Set anchor by hammer blows

4.



4. Correctly installed anchor

FIF-S R

Intended use
Installation instructions

Annex B 3

Table C1.1: Characteristic resistance to tension loads N_{Rk} in concrete and masonry for a single anchor in kN

Base material	Bulk density class ρ [kg/dm ³]	Minimum compressive strength f_b [N/mm ²]	Remarks	Drill mode ¹⁾	Characteristic resistance FIF-S R 8 N_{Rk} [kN]
Concrete C16/20 - C50/60 EN 206-1:2000	-	-		H	0,9
Clay bricks, Mz e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011	≥ 2,0	12	Cross section reduced up to 15% by perforation vertically to the resting area	H	0,9
Vertically perforated clay bricks HLz, e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011	≥ 1,0	12	Cross section reduced up to 15% by perforation vertically to the resting area	R	0,6
Lightweight aggregate concrete, LAC e.g. acc. to EN 1520:2011/ EN771-3:2011	≥ 0,8	6	Minimum solid brick or minimum exterior web thickness $t = 50$ mm	H	0,6
Autoclaved aerated concrete blocks, AAC e.g. acc. to DIN V 4165-100: 2005-10, EN 771-4:2011	> 0,4	4	-	R	0,3

¹⁾ H = Hammer drilling, R = Rotary drilling

Table C1.2: Point thermal transmittance acc. to EOTA Technical Report TR 025:2007-06

Anchor type	Thickness of insulation material h_D [mm]	Point thermal transmittance χ [W/K]
FIF-S R / 60-180	60	0,001
	80 - 180	0,000
FIF-S R / 200-340	200 - 300	0,000
	320 - 340	0,001

Table C1.3: Plate stiffness acc. to EOTA Technical Report TR 026:2007-06

Anchor type	size of the anchor plate [mm]	Load resistance of the anchor plate [kN]	Plate stiffness [kN/mm]
FIF-S R	60	1,63	0,63

Table C1.4: Displacements

Base material	Tension load N [kN]	Displacements δ [mm]
Concrete ≥ C16/20 – C50/60, acc. to EN 206-1:2000	0,3	0,3
Clay brick e.g. acc. to DIN 105-100:2012-01, EN 771-1:2011, Mz 12	0,3	0,5
Vertically perforated clay brick e.g. acc. to DIN 105-100:2012-01 EN 771-1:2011, HLz 12	0,2	0,2
Lightweight aggregate concrete e.g. acc. to EN 1520:2011/ EN 771-3:2011 LAC 6	0,2	0,3
Autoclaved aerated concrete blocks e.g. acc. to DIN V 4165-100:2005-10, EN 771-4:2011, AAC 4	0,1	0,2

FIF-S R

Performances

Characteristic resistance of the anchor
Point thermal transmittance, plate stiffness and displacements

Annex C 1