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-18/0393 of 29 May 2018

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	FIF - CN II
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	EAD 330196-01-0604

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Specific Part

1 Technical description of the product

The fischer FIF-CN II consists of an anchor sleeve with an enlarged shaft made of polypropylene (virgin material), an insulation plate made of glass fibre reinforced polyamide (virgin material) and a specific compound nail (for FIF-CN II 60-180) made of glass fibre reinforced polyamide with galvanized steel or a specific nail (for FIF-CN II 200-340) made of galvanised steel which is installed together with a plastic cylinder made of glass fibre reinforced polyamide.

The anchor may in addition be combined with the slip-on-plate DT 90, DT 110 and DT 140.

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 C 1
Edge distances and spacing	See Annex B 2
Plate stiffness	See Annex C 1
Displacements	See Annex C 1

3.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance	See Annex C 1

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.

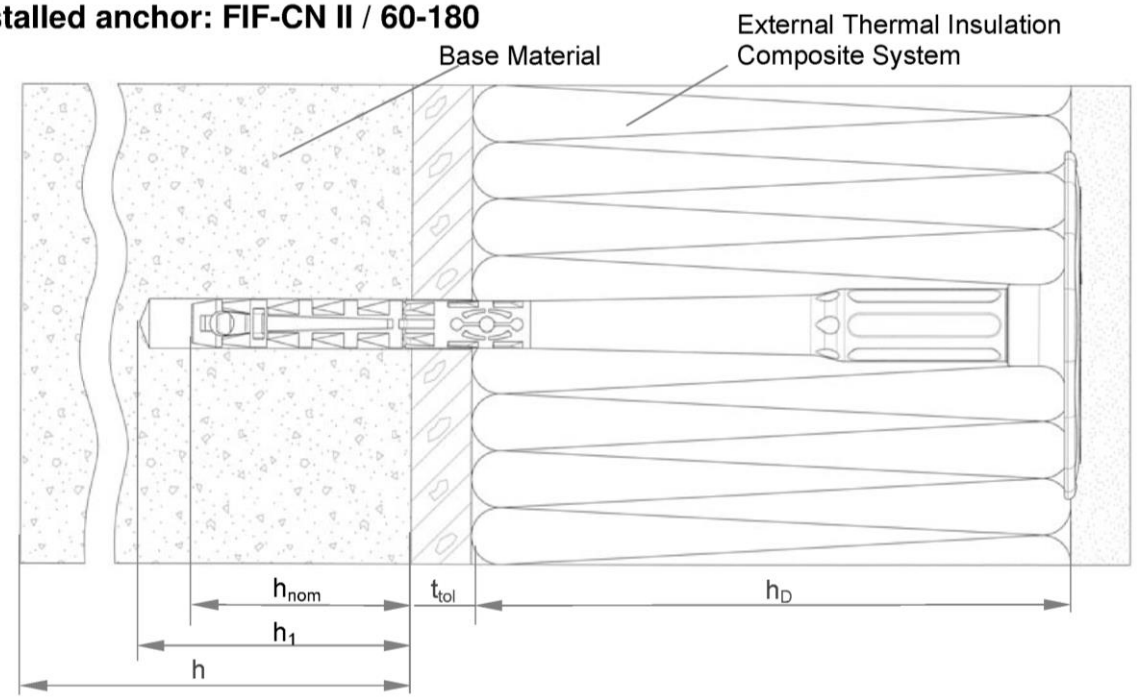
Issued in Berlin on 29 May 2018 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow
Head of Department

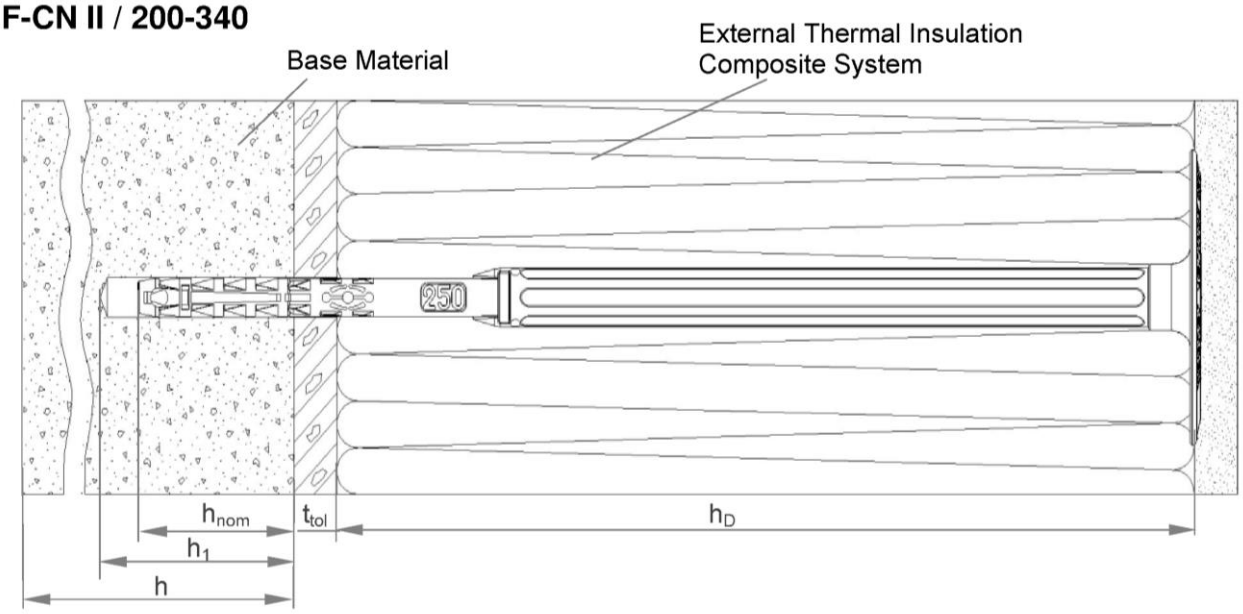
beglaubigt:
E. Aksünger

Deutsches Institut für Bautechnik DIBt

Installed anchor: FIF-CN II / 60-180



FIF-CN II / 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

Figures not to scale

fischer FIF-CN II	
Product description Installed anchor	**Annex A 1**

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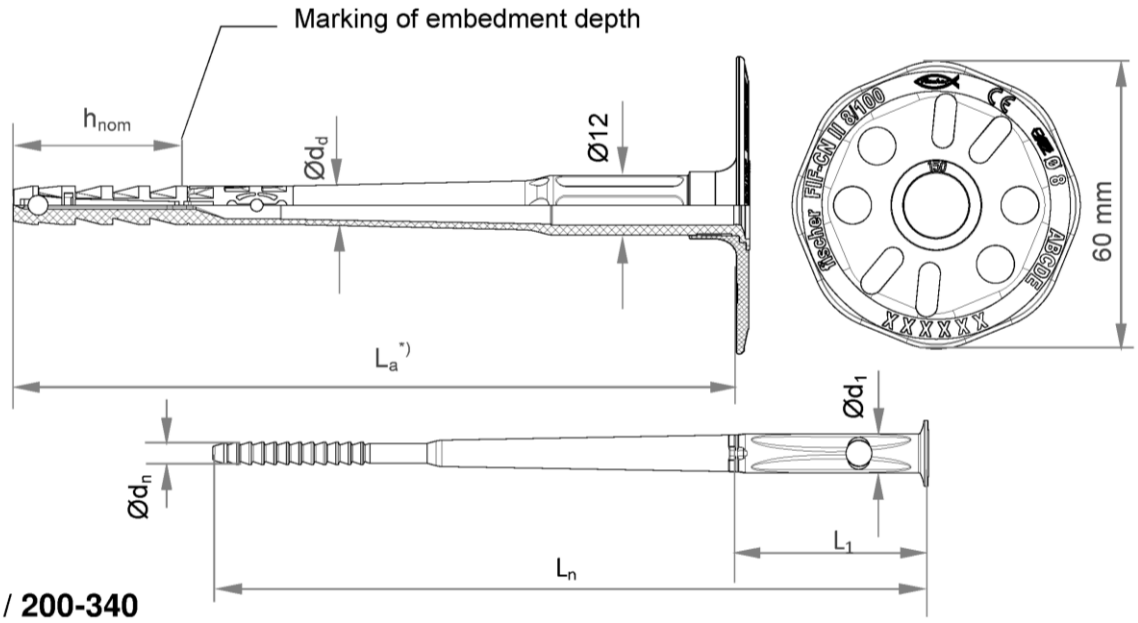
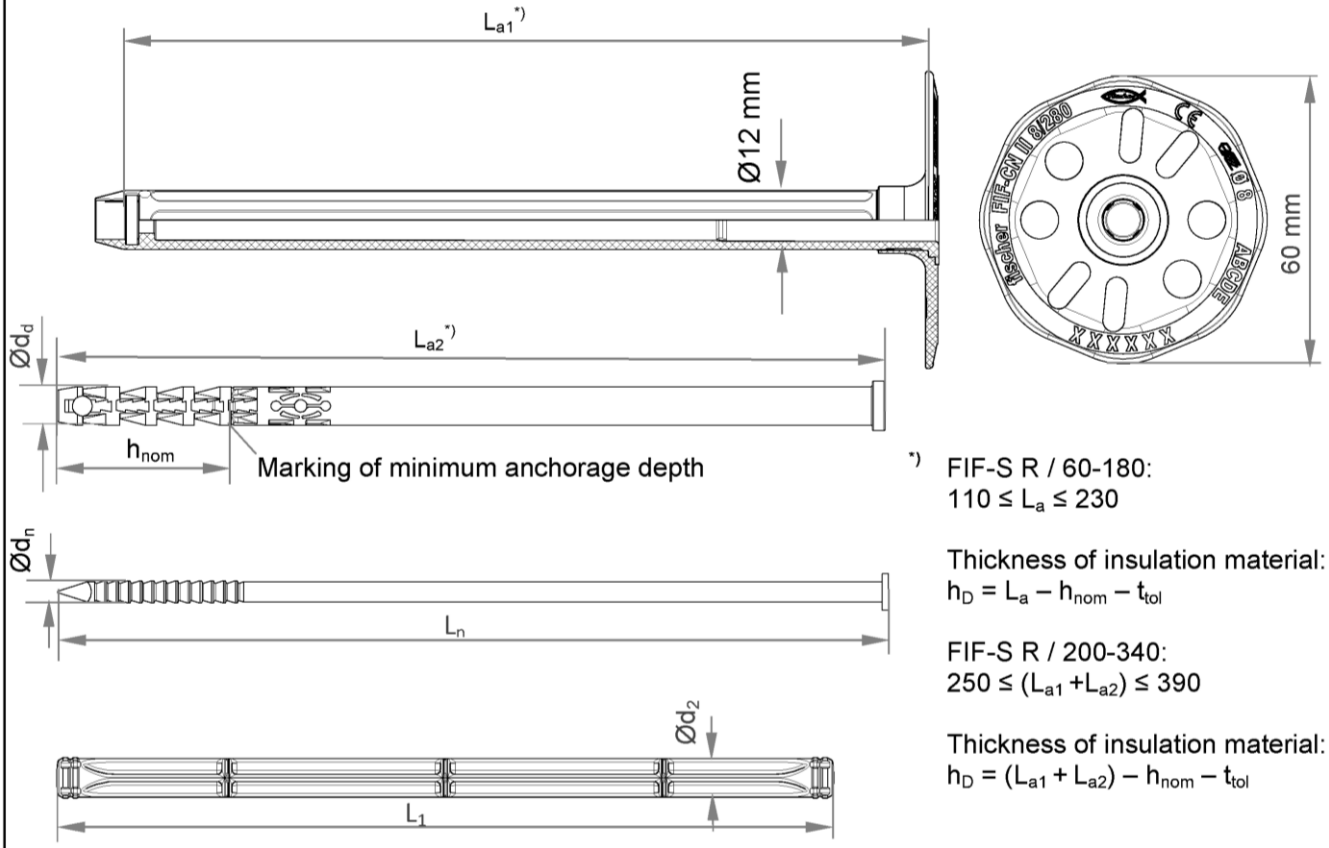
Single parts: FIF-CN II / 60-180



FIF-CN II / 200-340



*) FIF-S R / 60-180:
$110 \le L_a \le 230$

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

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

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

Figures not to scale

fischer FIF-CN II	**Annex A 2**
Product description Marking and dimensions of the anchor	

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Table A3.1: Marking

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

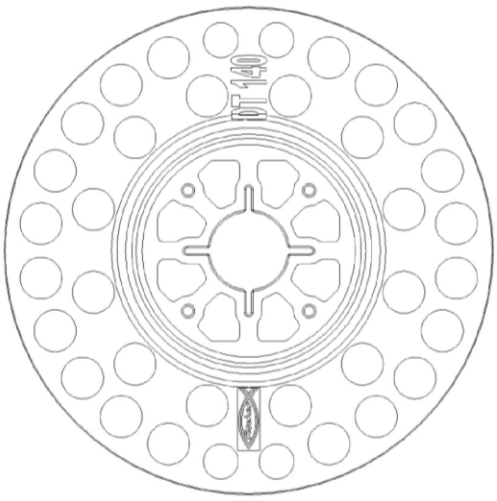
Table A3.2: Dimensions

Anchor type	Anchor sleeve				Specific nail			Plastic cylinder	
	$Ø\ d_d$	h_{nom}	$L_{a,min}$	$L_{a,max}$	$Ø\ d_n$	L_n	$Ø\ d_1$	L_1	$Ø\ d_2$
	[mm]								
FIF-CN II 60-180	8	35	110	230	4,5	L_a - 4	8	40	-
FIF-CN II 200-340	8	35	250	390	4,5	$(L_{a1} + L_{a2}) - L_1$ - 4		157	8

Table A3.3: Materials

Designation	Material
Anchor sleeve	PP (virgin material), colour: grey
Shaft (FIF-CN II / 200-340)	PA6 (virgin material) GF, colour: grey
Plastic cylinder (FIF-CN II / 60 – 180)	PA6 (virgin material) GF, colour: nature
Specific compound nail (FIF-CN II / 60-180) o Specific nail (FIF-CN II / 200-340)	PA6 (virgin material) GF, steel gal Zn A2G or A2F acc.to EN ISO 4042:2001-01 Steel gal Zn A2G or A2F acc. to EN ISO 4042:2001-01
Anchor plate	PA6 (virgin material) GF, colour: grey

Slip-on-plate combined with FIF-CN II



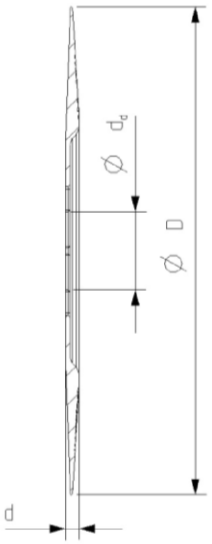


Table A3.4: Slip-on-plate, diameters and material

Slip-on-plate	Ø D	Ø d_d	d	Material
	[mm]			
DT 90 / 110 / 140	90 / 110 / 140	22,5	3,9	PA6 GF

Figures not to scale

fischer FIF-CN II

Product description
Marking, dimensions, materials, slip-on plates combined with FIF-CN II

Annex A 3

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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 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 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 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 the ETICS.

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.

fischer FIF-CN II	**Annex B 1**
Intended use Specification	

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Table B2.1: Installation parameters

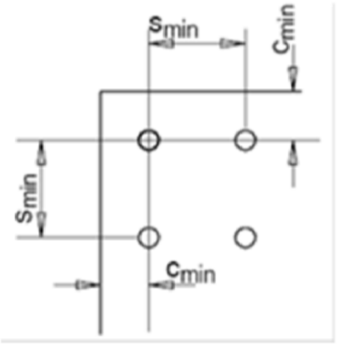
Anchor type				**FIF-CN II**
Drill hole diameter	d_0	=	[mm]	8
Cutting diameter of drill bit	d_{cut}	≤		8,45
Depth of drill hole to deepest point	h_1	≥		45 / 65[1)]
Overall plastic anchor embedment depth in the base material	h_{nom}	≥		35 / 55[1)]

[1)] only for use cat. "D" and "E"

Table B2.2: Minimum thickness, distance and spacing

Anchor type				**FIF-CN II**
Minimum thickness of member	h_{min}	=	[mm]	100
Minimum spacing	s_{min}			100
Minimum edge distance	c_{min}			100

Anordnung Achs- und Randabstände



Figures not to scale

fischer FIF-CN II

Intended use
Installation parameters, edge distances and spacings

Annex B 2

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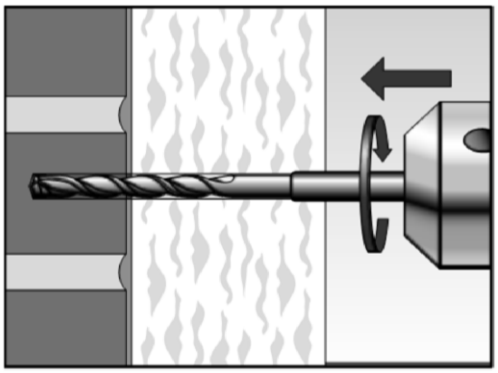
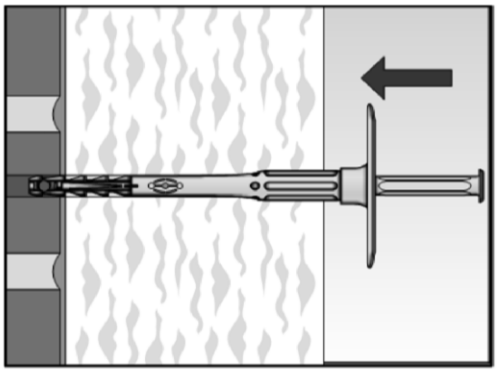
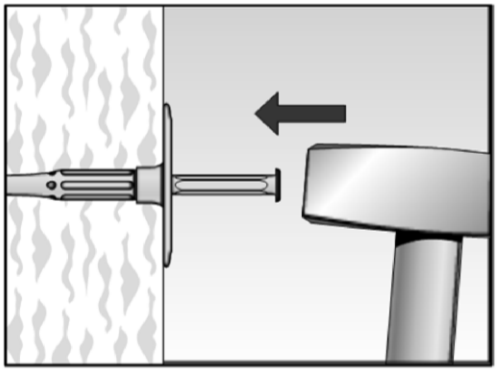
Installation instructions:



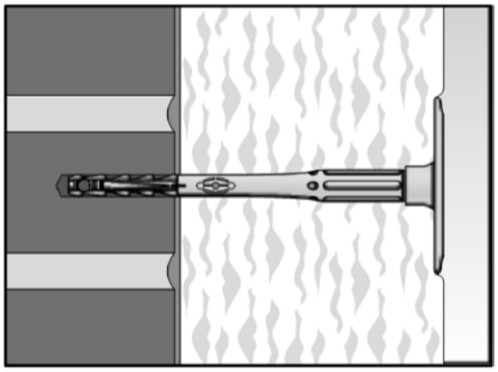
1. Drill the bore hole by the parameters acc. to Table B2.1 and the corresponding drilling method acc. to Annex C 1.



2. Insert anchor manually.



3. Set anchor by hammer blows. The bottom side of the plate must be flush with the ETICS.



4. Correctly installed anchor.

Figures not to scale

fischer FIF-CN II	**Annex B 3**
Intended use Installation instructions	

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

Base material	Use cat.	Bulk density class ρ [kg/dm³]	Min. compressive strength f_b [N/mm²]	Remarks	Drill method [1]	Characteristic resistance FIF-CN II N_{RK} [kN]
Concrete ≥ C12/15 – C50/60 acc.to EN 206-1:2000	A				H	**0,75**
Clay brick Mz, acc. to EN 771-1:2011	B	≥ 2,0	12	Cross section reduced up to 15% by perforation vertically to the resting area	H	**0,75**
Vertically perforated clay bricks **Hlz**, acc. to EN 771-1:2011	C	≥ 1,0	12	Cross section between 15 % and 50 % by perforation vertically to the resting area. Outer web thickness ≥ 12 mm	R	**0,5**
Lightweight aggregate concrete, **LAC**, acc. to EN 1520:2011	D	≥ 0,8	6	Minimum solid brick or minimum exterior web thickness t ≥ 50 mm	H	**0,5**
Autoclaved aerated concrete blocks **AAC,** acc. to EN 771-4:2011, h_{nom} = 35mm	E	≥ 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: 2016-05

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

Table C1.3: Plate stiffness acc. to EOTA Technical Report TR 026: 2016-05

Anchor plate	Size of the anchor plate [mm]	Load resistance of the anchor plate [kN]	Plate stiffness [kN/mm]
FIF-CN II	60	1,63	0,63

Table C1.4: Displacements of the FIF-CN II

Base material	Tension load F [kN]	Displacements δ [mm]
Concrete C12/15 – C50/60 (EN 206-1:2000)	0,25	< 0,3
Clay brick, **Mz 12** (EN 771-1:2011)	0,25	< 0,5
Vertically perforated clay brick, **Hlz 12** (EN 771-1:2011)	0,17	< 0,2
Lightweight aggregate concrete, **LAC 6** (EN 1520:2011)	0,17	< 0,3
Autoclaved aerated concrete blocks, **AAC 4** (EN 771-4:2011)	0,10	< 0,2

fischer FIF-CN II	**Annex C 1**
Performances Characteristic resistance of the anchor Point thermal transmittance, plate stiffness and displacements	