

TOIMIVUSDEKLARATSIOON

DoP 0374

fischer laekinnitus FDN II (mehhaaniline kinniti betooni jaoks)

ET

- | | |
|--|---|
| 1. <u>Tootetüübi kordumatu identifitseerimiskood:</u> | DoP 0374 |
| 2. <u>Kavandatud kasutusala(d):</u> | Hiljem paigaldatav kinniti betooni jaoks mittekandvate süsteemide dubleerimiseks, Vt lisa, eelkõige lisad B1 - B3. |
| 3. <u>Tootja:</u> | fischerwerke GmbH & Co. KG, Klaus-Fischer-Str. 1, 72178 Waldachtal, Saksamaa |
| 4. <u>Volitatud esindaja:</u> | – |
| 5. <u>Toimivuse püsivuse hindamise ja kontrolli süsteem:</u> | 2+ |

- | | |
|-------------------------------------|--|
| 6. <u>Euroopa hindamisdokument:</u> | EAD 330747-00-0601, Edition 06/2018 |
| Euroopa tehniline hinnang: | ETA-17/0736; 2025-04-10 |
| Tehnilise hindamise asutus: | DIBt- Deutsches Institut für Bautechnik |
| Teavitatud asutus(ed): | 2873 TU Darmstadt |

7. Deklareeritud toimivus:

Kasutusohutus (BWR 4)

Iseloomulik tõmbekoormuse taluvus (staatiline ja kvasi-staatiline koormus):

Terasdetaili purunemiskindlus: NPД

$E_s = 210\,000\text{ MPa}$

Väljatõmbetõrke taluvus: NPД

Betooni koonuspurunemise taluvus: NPД

Robustsus: Lisa C1

Minimaalne servavahe ja ankrutevaheline kaugus: Liited B2, C1

Servavahe koormuse all lõhenemise vältimiseks: NPД

Iseloomulik nihkekoormuse taluvus (staatiline ja kvasi-staatiline koormus):

Terasdetaili purunemiskindlus nihkejõu korral: Lisa C1

$V_{Rk,s} = \text{NPД}; k_7 = \text{NPД}$

Väljatõmbamisest tingitud purunemise taluvus: NPД

Betoonserva purunemiskindlus: NPД

Iseloomulik taluvus kõikides koormussuundades ja purunemisviisides lihtsustatud projekteerimiseks:

Iseloomulik taluvus: Lisa C1

Vastupidavus:

Vastupidavus: Lisa A1

Ohutus tulekahju korral (BWR 2)

Reaktsioon tulele: Klass (A1)

Tulekindlus:

Tulekindlus terase purunemise vastu (tõmbekoormus): Lisa C1

Tulekindlus väljatõmbetõrke vastu (tõmbekoormus): Lisa C1

Tulekindlus terase purunemise vastu (nihkejõud): Lisa C1

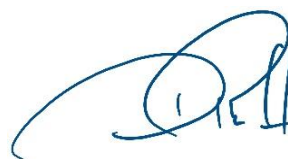
8. Asiakohane tehniline dokumentatsioon ja/või tehniline eridokumentatsioon: –

Eespool kirjeldatud toote toimivus vastab deklareeritud toimivusele. Käesolev toimivusdeklaratsioon on välja antud kooskõlas määrusega (EL) nr 305/2011 eespool nimetatud tootja ainuvastutusel.

Tootja poolt ja nimel allkirjastanud:



Dr. Ronald Mihala, Arenduse ja tootmise juhtimise juht
Tumlingen, 2025-05-19



Dieter Pfaff, Rahvusvahelise tootmisföderatsiooni ja kvaliteedijuhtimise juht

Toimivusdeklaratsioon on koostatud mitmes keeles. Kui tõlked on omavahel vastuolus, tuleb lähtuda ingliskeelsest versioonist.

Lisa sisaldab (keeleneutraalselt määratletud) juriidilisi nõudeid ületavat vabatahtlikku ja täiendavat teavet inglise keeles.

Translation guidance Essential Characteristics and Performance Parameters for Annexes

Tõlkimisjuhised Lisade olulised omadused ja tulemuslikkuse parameetrid

Safety in case of fire (BWR 2)		
Ohutus tulekahju korral (BWR 2)		
1	Reaction to fire: Reaktsioon tulele:	Class Klass (A1)
Resistance to fire: Tulekindlus:		
2	Fire resistance to steel failure (tension load): Tulekindlus terase purunemise vastu (tõmbekoormus):	$N_{Rk,s,fi}$ [kN]
3	Fire resistance to pull-out failure (tension load): Tulekindlus väljatõmbetõrke vastu (tõmbekoormus):	$N_{Rk,p,fi}$ [kN]
4	Fire resistance to steel failure (shear load): Tulekindlus terase purunemise vastu (nihkejõud):	$V_{Rk,s,fi}$ [kN], $M^0_{Rk,s,fi}$ [Nm]
Safety and accessibility in use (BWR 4)		
Kasutusohutus (BWR 4)		
Characteristic resistance to tension load (static and quasi-static loading): Iseloomulik tõmbekoormuse taluvus (staatiline ja kvasi-staatiline koormus):		
6	Resistance to steel failure: Terasdetaili purunemiskindlus:	$N_{Rk,s}$ [kN], E_s [N/mm ²]
7	Resistance to pull- out failure: Väljatõmbetõrke taluvus:	$N_{Rk,p}$ [kN], ψ_c , $T_{Rk,p}$ [N/mm ²]
8	Resistance to concrete cone failure: Betooni koonuspurunemise taluvus:	$k_{cr,N}$, $k_{ucr,N}$ [-], h_{ef} , $c_{cr,N}$ [mm]
9	Robustness: Robustus:	γ_{inst} [-]
10	Minimum edge distance and spacing: Minimaalne servavahe ja ankrutevaheline kaugus:	c_{min} , s_{min} , h_{min} [mm]
11	Edge distance to prevent splitting under load: Servavahe koormuse all lõhenemise vältimiseks:	$N^0_{Rk,sp}$ [kN], $c_{cr,sp}$ [mm]
Characteristic resistance to shear load (static and quasi-static loading): Iseloomulik nihkekoormuse taluvus (staatiline ja kvasi-staatiline koormus):		
12	Resistance to steel failure (shear load): Terasdetaili purunemiskindlus nihkejõu korral:	$V_{Rk,s}$ [kN], $M^0_{Rk,s}$ [Nm], k_7 [-]
13	Resistance to pry-out failure: Väljatõmbamisest tingitud purunemise taluvus:	k_8 [-]
14	Resistance to concrete edge failure: Betoonserva purunemiskindlus:	d_{nom} , l_f [mm]
Characteristic resistance for all load directions and modes of failure for simplified design: Iseloomulik taluvus kõikides koormussuundades ja purunemisviisides lihtsustatud projekteerimiseks:		
15	Characteristic resistance: Iseloomulik taluvus:	F^0_{Rk} [kN], s_{cr} , c_{cr} [mm]
Durability: Vastupidavus:		
16	Durability: Vastupidavus:	Description

Specific Part

1 Technical description of the product

The fischer Ceiling Anchor FDN II is an anchor made of galvanized steel which is placed into a drilled hole and anchored by deformation-controlled expansion.

Product and 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 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 50 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 in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C 1

3.2 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance for all load directions and modes of failure for simplified design	See Annex C 1
Durability	See Annex B 1

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

In accordance with European Assessment Document EAD No. 330747-00-0601, the applicable European legal act is: [97/161/EC].

The system to be applied is: 2+

Product installation conditions, product marking and product dimensions

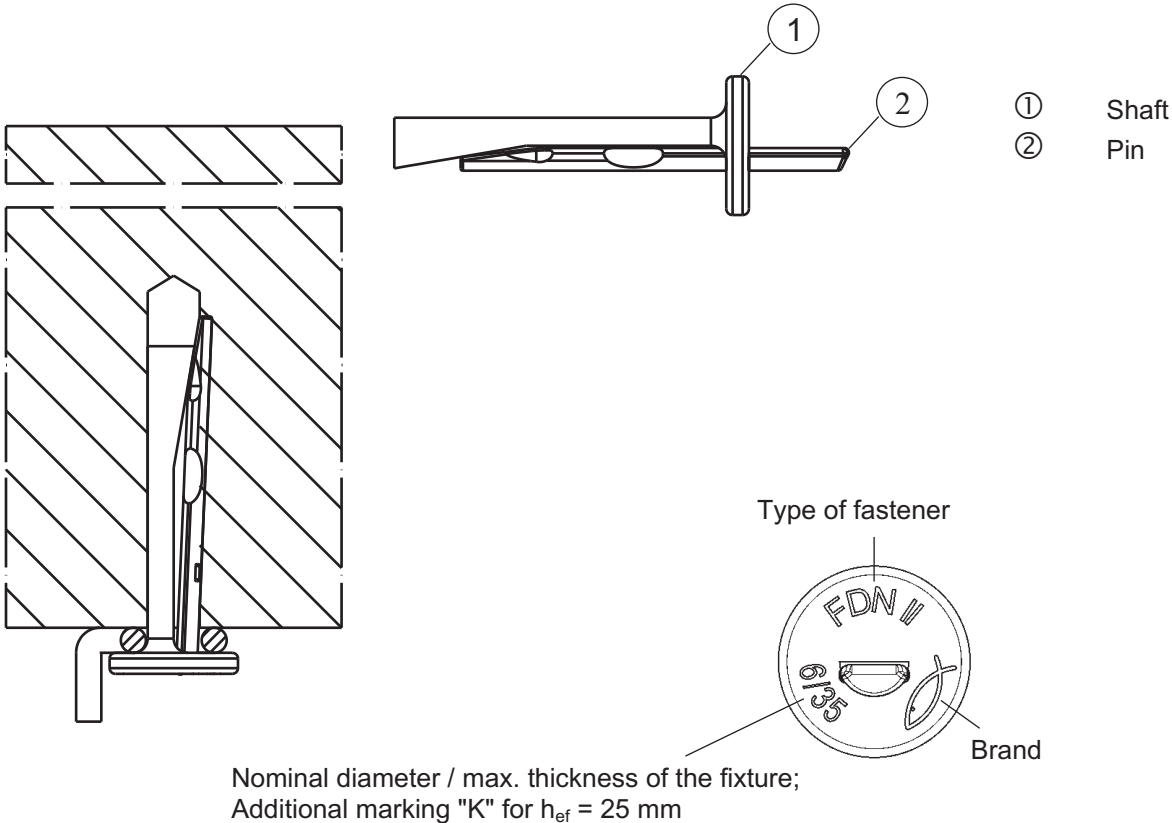
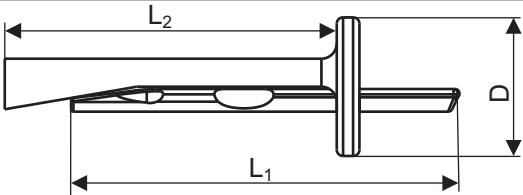


Tabelle A1.1: Materials

Part	Description	Material
1	Shaft	Steel, galvanised $\geq 5\mu\text{m}$ according to EN ISO 4042:2022
2	Pin	Steel, galvanised $\geq 5\mu\text{m}$ according to EN ISO 4042:2022

Table A1.2: Dimensions

Size		FDN II			
		6/5 K	6/5	6/35 K	6/35
Length of the	pin L_1	36	43	66	73
	shaft L_2 [mm]	30,5	37,5	60,5	67,5
Diameter of the head $D \geq$		13			



(Figures not to scale)

fischer Ceiling Anchor FDN II

Product description

Product installation conditions, product marking and product dimensions

Annex A 1

Appendix 2 / 6

Specifications of intended use

Anchorage subject to:

Size	FDN II 6
Static and quasi-static loads	✓
Only for redundant non-structural systems according to EN 1992-4:2018	
Fire exposure	

Base materials:

- Compacted reinforced and unreinforced normal weight concrete without fibres according to EN 206:2013+A2:2021.
- Strength classes C12/15 to C50/60 according to EN 206:2013+A2:2021.
- Cracked and uncracked concrete.

Use conditions (Environmental conditions):

- Anchorages subject to dry internal conditions.

Design:

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings have to be prepared taking account of the loads to be anchored. The position of the anchor is indicated on the design drawings (e.g. position of the anchor relative to reinforcement or to supports, etc.).
- Anchorages under static and quasi-static loading are designed in accordance with EN 1992-4:2018, Design Method C or Technical Report CEN/TR 17079.
- In case of requirements to resistance to fire local spalling of the concrete cover must be avoided.

Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Use of the fastener only as supplied by the manufacturer without exchanging the components of the fastener.
- Anchor installation in accordance with the manufacturer's specifications and drawings and using the appropriate tools.
- Check of concrete being well compacted, e.g. without significant voids.
- Positioning of the drill holes without damaging the reinforcement.
- In case of aborted hole: new drilling at a minimum distance away of twice the depth of aborted hole or smaller distance if the aborted hole is filled with high strength mortar (e.g. FIS HB, FIS SB, FIS EM Plus, FIS V Plus) and if under shear or oblique tension load it is not on the direction of the load application.

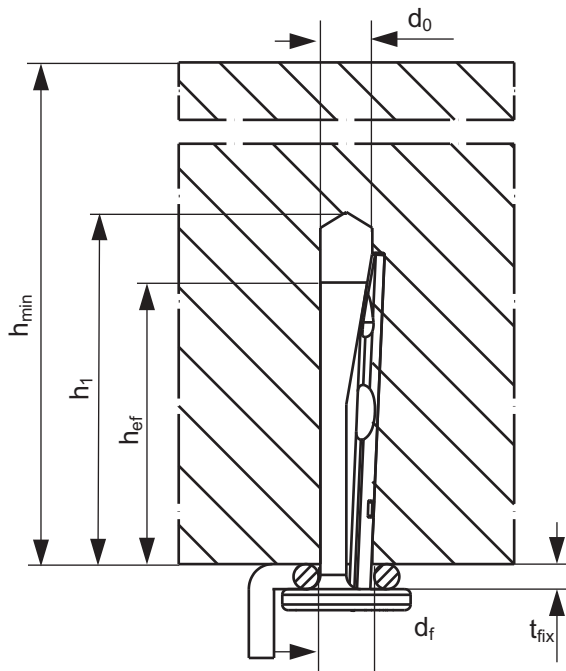
fischer Ceiling Anchor FDN II

Intended use
Specifications

Annex B 1
Appendix 3 / 6

Table B2.1: Installation parameters

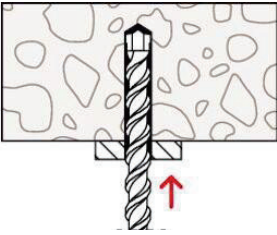
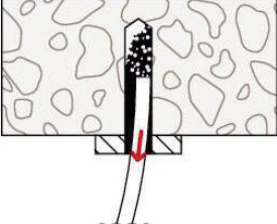
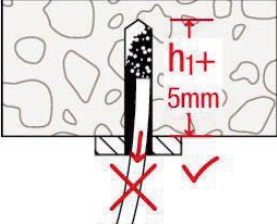
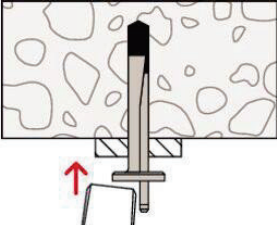
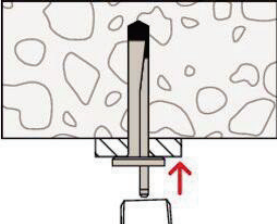
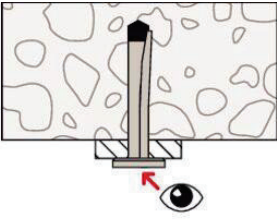
Size			FDN II					
			6/5 K	6/5	6/35 K	6/35		
Thickness of the fixture	t_{fix}	$\leq$	5		35			
Nominal drill hole diameter	d_0		6					
Diameter of clearance hole in the fixture	d_f	$\leq$	7					
Maximum drill bit diameter	$d_{cut,max}$	[mm]	6,40					
Effective embedment depth	h_{ef}		25	32	25	32		
Depth of drill hole to deepest point	with hole cleaning without hole cleaning		h_1	$\geq$	30	37	30	37
					35	42	35	42
Minimum thickness of concrete member	h_{min}		80					



(Figure not to scale)

fischer Ceiling Anchor FDN II		Annex B 2 Appendix 4 / 6
Intended use Installation parameters		

Installation instructions

	1. Drill the hole: hammer or hollow drilling only.
	2. Clean the drill hole (only relates to hammer drilling).
	3. Cleaning of the drill hole not necessary, if the drill hole is 5 mm deeper (only relates to hammer drilling).
	4. Set the fastener: Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
	5. Set the pin, until flush to the surface: Positioning of the drill holes without damaging the reinforcement.
	6. Installed fastener: In case of aborted hole: New drilling at a minimum distance twice the depth of aborted hole away of or smaller distance if the aborted hole is filled with high strength mortar and if under shear or oblique tension load it is not in the direction of the load application.

(Figures not to scale)

fischer Ceiling Anchor FDN II

Intended use

Installation instructions

Annex B 3

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Table C1.1: Characteristic resistance for design method C

Size				FDN II 6	
For all load directions and for all failures modes					
Effective embedment depth		h_{ef}	[mm]	25	32
Characteristic resistance in cracked and un-cracked concrete	C12/15	F_{Rk}	[kN]	2,0	2,5
	C20/25 to C50/60			2,5	3,5
Characteristic	edge distance	$c_{cr,N} = c_{min}$	[mm]	70	60
	spacing	$s_{cr,N} = s_{min}$		60	50
Partial safety factor		$\gamma_M^{2)}$	[-]	1,5	
Shear load with lever arm					
Characteristic bending resistance		$M_{Rk,s}^0$	[Nm]	4,4	
Partial safety factor for steel failure		$\gamma_{Ms}^{1)}$	[-]	1,25	

¹⁾ In absence of other national regulations.

²⁾ The installation safety factor $\gamma_2 = \gamma_{inst} = 1,0$ is included.

Table C1.2: Characteristic resistance under fire exposure for all effective embedment depths

Size			FDN II 6	
For all load directions				
R30	Characteristic resistance	$F_{Rk,fi30}$	[kN]	1,00
R60		$F_{Rk,fi60}$		0,50
R90		$F_{Rk,fi90}$		0,34
R120		$F_{Rk,fi120}$		0,26
R180		$F_{Rk,fi180}$		0,17
Spacing and edge distance				
R30 – R180		$s_{cr,fi}$	[mm]	200
		$c_{cr,fi}$		150
Shear load with lever arm				
R30	Characteristic bending resistance	$M^0_{Rk,s,fi30}$	[Nm]	0,67
R60		$M^0_{Rk,s,fi60}$		0,33
R90		$M^0_{Rk,s,fi90}$		0,22
R120		$M^0_{Rk,s,fi120}$		0,16
R180		$M^0_{Rk,s,fi180}$		0,11

For fire exposure from one side c_{min} and s_{min} see Table C1.1.

For fire exposure from more than one side $c_{min} \geq 300$ mm.

fischer Ceiling Anchor FDN II**Performances**

Characteristic resistance and
characteristic resistance under fire exposure

Annex C 1

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