

SUORITUSTASOILMOITUS

DoP 0374

fischer Ceiling Anchor FDN II (mekaaninen kiinnitin betoniin)

FI

- Tuotetyypin yksilöllinen tunnistus: DoP 0374
- Aiottu käyttötarkoitus (aiotut käyttötarkoitukset): Jälkiasennettu kiinnitin käytettäväksi betonissa tarpeettomille ei-rakenteellisille järjestelmille, katso lisäys, erityisesti liitteet B1 - B3.
- Valmistaja: fischerwerke GmbH & Co. KG, Klaus-Fischer-Str. 1, 72178 Waldachtal, Saksa
- Valtuutettu edustaja: –
- Suoritustason pysyvyyden arvioinnissa ja varmentamisessa käytetty järjestelmä/käytetyt järjestelmät: 2+
- Eurooppalainen arviointiasiakirja: EAD 330747-00-0601, Edition 06/2018
Eurooppalainen tekninen arviointi: ETA-17/0736; 2025-04-10
Teknisestä arvioinnista vastaava laitos: DIBt- Deutsches Institut für Bautechnik
Ilmoitettu laitos/ilmoitetut laitokset: 2873 TU Darmstadt
- Ilmoitettu suoritustaso/ilmoitetut suoritustasot:
Käyttöturvallisuus (BWR 4)
Tyypillinen kestävyys kuormitukselle (staattinen ja lähes staattinen kuormitus):
Teräksen murtokuorma: NPD $E_s = 210\,000\text{ MPa}$
Ulosvetoarvon murtokuorma: NPD
Betonimassan murtokuorma: NPD
Kestävyys: Liite C1
Pienin reuna- ja keskinäis etäisyys: Liitteet B2, C1
Reunaetäisyys halkeamien estämiseksi kuormituksessa: NPD

Tyypillinen kestävyys leikkauskuormalle (staattinen ja näennäisstaattinen kuormitus):
Teräksen murtokuorma (leikkauskuorma): Liite C1 $V_{Rk,s} = \text{NPD}; k_7 = \text{NPD}$
Taivutusvoiman murtokuorma: NPD
Betonireunan murtokuorma: NPD

Ominaisvastus kaikille kuorman suunnille ja vikatiloille yksinkertaistettua suunnittelua varten:
Ominaisarvo: Liite C1

Kestävyys:
Kestävyys: Liite A1

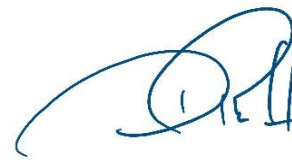
Turvallisuus tulipalon sattuessa (BWR 2)
Reaktio paloon: Luokka (A1)
Tulenkestävyys:
Teräksen murtokuorma tulipalossa (vetokuorma): Liite C1
Ulosvedon murtokuorma tulipalossa (vetokuorma): Liite C1
Teräksen murtokuorma tulipalossa (leikkauskuorma): Liite C1
- Asianmukainen tekninen asiakirja ja/tai tekninen erityisasiakirja: –

Edellä yksilöidyn tuotteen suoritustaso on ilmoitettujen suoritustasojen joukon mukainen. Tämä suoritustasoilmoitus on asetuksen (EU) N:o 305/2011 mukaisesti annettu edellä ilmoitetun valmistajan yksinomaisella vastuulla.

Valmistajan puolesta allekirjoittanut:



Dr. Ronald Mihala, Kehitys- ja tuotantojohtaja
Tumlingen, 2025-05-19



Dieter Pfaff, Kansainvälisen tuotantoliiton ja laadunhallinnan johtaja

Tämä suoritustasoilmoitus on laadittu useilla kielillä. Jos tulkinnasta syntyy erimielisyyttä, englanninkielinen versio on aina katsottava ensisijaiseksi.

Lisäys sisältää vapaaehtoisesti ilmoitettua ja täydentävää englanninkielistä tietoa, joka ylittää (kielestä riippumatta määritellyt) lakisääteiset vaatimukset.

Translation guidance Essential Characteristics and Performance Parameters for Annexes

Käännösopas oleellisten piirteiden ja suorituskyvyn parametrien liitteille

Safety in case of fire (BWR 2)		
Turvallisuus tulipalon sattuessa (BWR 2)		
1	Reaction to fire: Reaktio paloon:	Class Luokka (A1)
Resistance to fire: Tulenkestävyys:		
2	Fire resistance to steel failure (tension load): Teräksen murtokuorma tulipalossa (vetokuorma):	$N_{RK,s,fi}$ [kN]
3	Fire resistance to pull-out failure (tension load): Ulosvedon murtokuorma tulipalossa (vetokuorma):	$N_{RK,p,fi}$ [kN]
4	Fire resistance to steel failure (shear load): Teräksen murtokuorma tulipalossa (leikkauskuorma):	$V_{RK,s,fi}$ [kN], $M^0_{RK,s,fi}$ [Nm]
Safety and accessibility in use (BWR 4)		
Käyttöturvallisuus (BWR 4)		
Characteristic resistance to tension load (static and quasi-static loading): Tyypillinen kestävyys kuormitukselle (staattinen ja lähes staattinen kuormitus):		
6	Resistance to steel failure: Teräksen murtokuorma:	$N_{RK,s}$ [kN], E_s [N/mm ²]
7	Resistance to pull- out failure: Ulosvetoarvon murtokuorma:	$N_{RK,p}$ [kN], ψ_c , $T_{RK,p}$ [N/mm ²]
8	Resistance to concrete cone failure: Betonimassan murtokuorma:	$k_{cr,N}$, $k_{ucr,N}$ [-], h_{ef} , $c_{cr,N}$ [mm]
9	Robustness: Kestävyys:	γ_{inst} [-]
10	Minimum edge distance and spacing: Pienin reuna- ja keskinäis etäisyys:	c_{min} , s_{min} , h_{min} [mm]
11	Edge distance to prevent splitting under load: Reunaetäisyys halkeamien estämiseksi kuormituksessa:	$N^0_{RK,sp}$ [kN], $c_{cr,sp}$ [mm]
Characteristic resistance to shear load (static and quasi-static loading): Tyypillinen kestävyys leikkauskuormalle (staattinen ja näennäisstaattinen kuormitus):		
12	Resistance to steel failure (shear load): Teräksen murtokuorma (leikkauskuorma):	$V_{RK,s}$ [kN], $M^0_{RK,s}$ [Nm], k_7 [-]
13	Resistance to pry-out failure: Taivutusvoiman murtokuorma:	k_8 [-]
14	Resistance to concrete edge failure: Betonireunan murtokuorma:	d_{nom} , l_f [mm]
Characteristic resistance for all load directions and modes of failure for simplified design: Ominaisvastus kaikille kuorman suunnille ja vikatiloille yksinkertaistettua suunnittelua varten:		
15	Characteristic resistance: Ominaisarvo:	F^0_{RK} [kN], s_{cr} , c_{cr} [mm]
Durability: Kestävyys:		
16	Durability: Kestävyys:	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

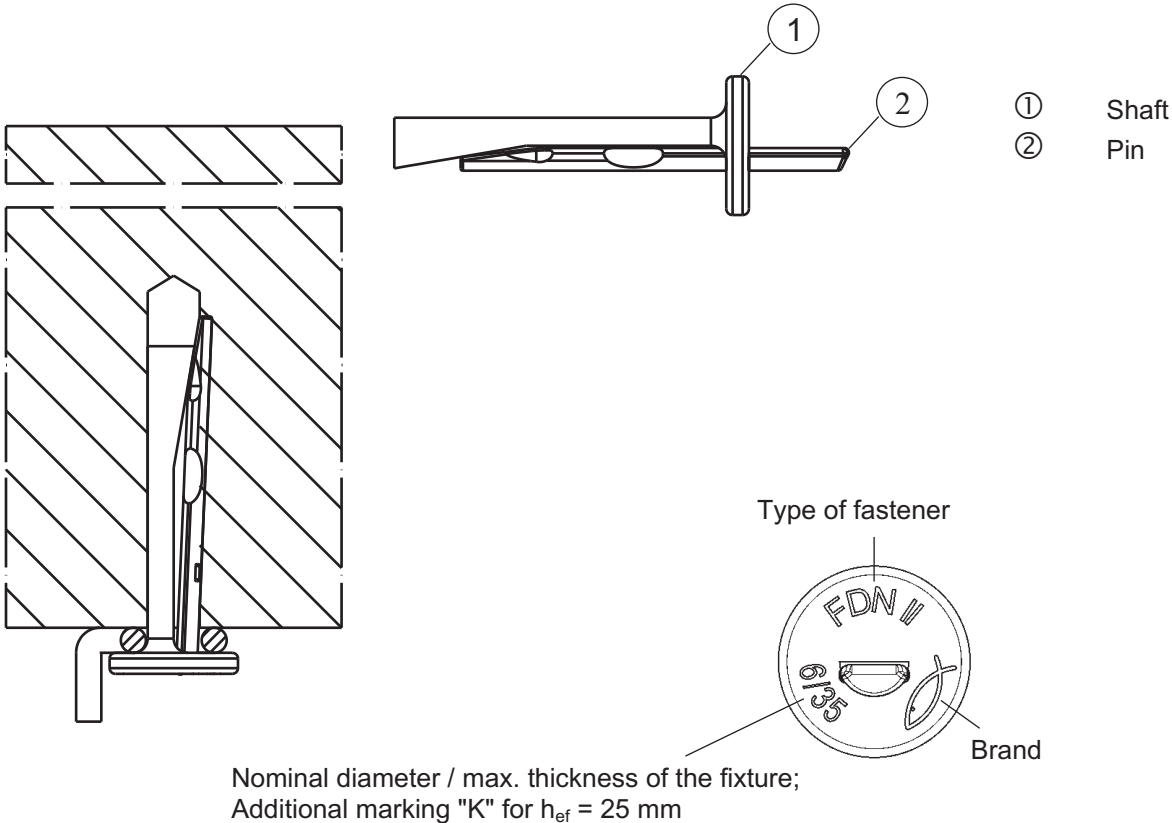
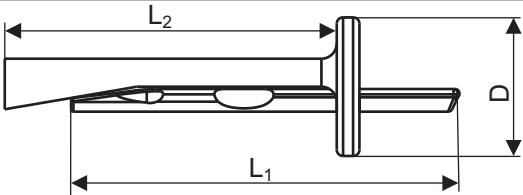


Tabelle A1.1: Materials

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.

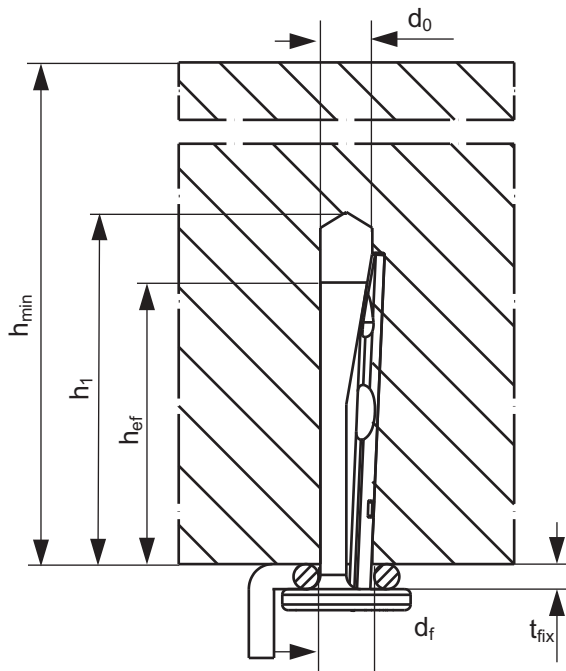
fischer Ceiling Anchor FDN II

Intended use
Specifications

Annex B 1
Appendix 3 / 6

Table B2.1: Installation parameters

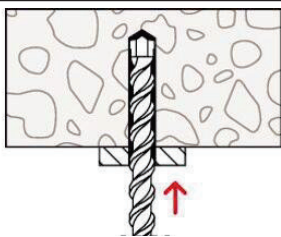
Size			FDN II					
			6/5 K	6/5	6/35 K	6/35		
Thickness of the fixture	t_{fix}	$\leq$	5		35			
Nominal drill hole diameter	d_0		6					
Diameter of clearance hole in the fixture	d_f	$\leq$	7					
Maximum drill bit diameter	$d_{cut,max}$	[mm]	6,40					
Effective embedment depth	h_{ef}		25	32	25	32		
Depth 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					



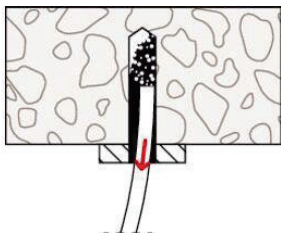
(Figure not to scale)

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Intended use Installation parameters		

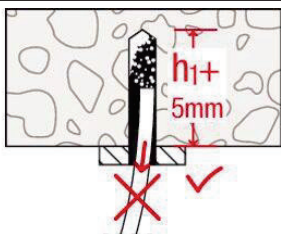
Installation instructions



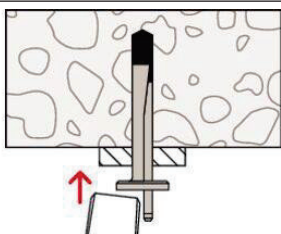
1. Drill the hole: hammer or hollow drilling only.



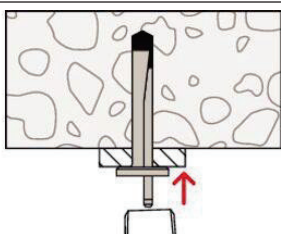
2. Clean the drill hole (only relates to hammer drilling).



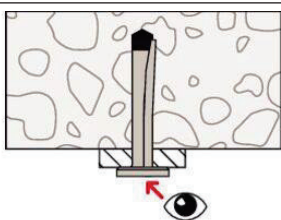
3. Cleaning of the drill hole not necessary, if the drill hole is 5 mm deeper (only relates to hammer drilling).



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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