

EKSPLOATACINIŲ SAVYBIŲ DEKLARACIJA

DoP 0374
fischer lubų inkaras FDN II (mechaninis tvirtinimo elementas betonui) LT

1. Unikalus produkto tipo identifikacinis kodas:

DoP 0374
2. Naudojimo paskirtis (-ys):

Po įrengimo tvirtinimo elementas betonui perteklinėms nekonstrukcinėms sistemoms, Žr. priedėlį, ypač priedus B1 - B3.
3. Gamintojas:

fischerwerke GmbH & Co. KG, Klaus-Fischer-Str. 1, 72178 Waldachtal, Vokietija
4. Įgaliotasis atstovas:

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5. Eksploatacinių savybių pastovumo vertinimo ir tikrinimo sistema (-os):

2+
6. Europos vertinimo dokumentas:

EAD 330747-00-0601, Edition 06/2018
- Europos techninis įvertinimas:

ETA-17/0736; 2025-04-10
- Techninio vertinimo įstaiga:

DIBt- Deutsches Institut für Bautechnik
- Notifikuotoji (-osios) įstaiga (-os):

2873 TU Darmstadt

7. Deklaruojama (-os) eksploatacinė (-ės) savybė (-ės):

Sauga ir prieinamumas naudojant (BWR 4)

Charakterinis atsparumas tempimo apkrovai (statinė ir kvazistatinė apkrova):

Atsparumas plieninės dalies lūžiui: NPD E_s= 210 000 MPa

Atsparumas ištraukimo lūžiui: NPD

Atsparumas betono kūgio lūžiui: NPD

Tvirtumas: Priedas C1

Mažiausias atstumas iki krašto ir tarp tvirtinimo elementų: Priedai B2, C1

Atstumas iki krašto, kad apkrova neleistų medžiagai skilti: NPD

- Charakterinis atsparumas kirpimo apkrovai (statinė ir kvazistatinė apkrova):**

Atsparumas plieninės dalies lūžiui veikiant kirpimo apkrovai: Priedas C1 V_{Rk,s}=NPD; k₇=NPD

Atsparumas išplėšimo lūžiui dėl svirties poveikio: NPD

Atsparumas betono krašto lūžiui: NPD

- Charakterinis atsparumas visomis apkrovos kryptimis ir gedimo režimais supaprastintam projektavimui:**

Charakterinis atsparumas: Priedas C1

- Patvarumas:**

Patvarumas: Priedas A1

- Sauga gaisro atveju (BWR 2)**

Reakcija į ugnį: Klasė (A1)

Atsparumas ugniai:

Atsparumas ugniai plienui tempiant: Priedas C1

Atsparumas ugniai ištraukimo lūžiui tempiant: Priedas C1

Atsparumas ugniai iki plieno gedimo (kirpimo apkrova): Priedas C1

8. Atitinkami techniniai dokumentai ir (arba) specifiniai techniniai dokumentai:

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Nurodyto produkto eksploatacinės savybės atitinka visas deklaruotas eksploatacines savybes. Ši eksploatacinių savybių deklaracija pateikiama vadovaujantis Reglamentu (ES) Nr. 305/2011, atsakomybė už jos turinį tenka tik joje nurodytam gamintojui.

Pasirašyta (gamintojo ir jo vardu):


Dr. Ronald Mihala, Plėtros ir gamybos valdymo vadovas
Tumlingen, 2025-05-19


Dieter Pfaff, Tarptautinės gamybos federacijos ir kokybės valdymo vadovas

Ši eksploatacinių savybių deklaracija paruošta įvairiomis kalbomis. Jei kyla ginčų dėl teksto aiškinimo, viršenybė teikiama angliškai versijai.

Priedas, kuriame yra savanoriška ir papildoma informacija anglų kalba (kalba neutrali) ir viršija teisinius reikalavimus.

Translation guidance Essential Characteristics and Performance Parameters for Annexes

Vertimo rekomendacijos Priedų esminės charakteristikos ir eksploataciniai parametrai

Safety in case of fire (BWR 2)		
Sauga gaisro atveju (BWR 2)		
1	Reaction to fire: Reakcija į ugnį:	Class Klasė (A1)
Resistance to fire: Atsparumas ugniai:		
2	Fire resistance to steel failure (tension load): Atsparumas ugniai plienui tempiant:	$N_{RK,s,fi}$ [kN]
3	Fire resistance to pull-out failure (tension load): Atsparumas ugniai ištraukimo lūžiui tempiant:	$N_{RK,p,fi}$ [kN]
4	Fire resistance to steel failure (shear load): Atsparumas ugniai iki plieno gedimo (kirpimo apkrova):	$V_{RK,s,fi}$ [kN], $M^0_{RK,s,fi}$ [Nm]
Safety and accessibility in use (BWR 4)		
Sauga ir prieinamumas naudojant (BWR 4)		
Characteristic resistance to tension load (static and quasi-static loading): Charakterinis atsparumas tempimo apkrovai (statinė ir kvazistatinė apkrova):		
6	Resistance to steel failure: Atsparumas plieninės dalies lūžiui:	$N_{RK,s}$ [kN], E_s [N/mm ²]
7	Resistance to pull- out failure: Atsparumas ištraukimo lūžiui:	$N_{RK,p}$ [kN], ψ_c , $T_{RK,p}$ [N/mm ²]
8	Resistance to concrete cone failure: Atsparumas betono kūgio lūžiui:	$k_{cr,N}$, $k_{ucr,N}$ [-], h_{ef} , $c_{cr,N}$ [mm]
9	Robustness: Tvirtumas:	V_{inst} [-]
10	Minimum edge distance and spacing: Mažiausias atstumas iki krašto ir tarp tvirtinimo elementų:	c_{min} , s_{min} , h_{min} [mm]
11	Edge distance to prevent splitting under load: Atstumas iki krašto, kad apkrova neleistų medžiagai skilti:	$N^0_{RK,sp}$ [kN], $c_{cr,sp}$ [mm]
Characteristic resistance to shear load (static and quasi-static loading): Charakterinis atsparumas kirpimo apkrovai (statinė ir kvazistatinė apkrova):		
12	Resistance to steel failure (shear load): Atsparumas plieninės dalies lūžiui veikiant kirpimo apkrovai:	$V_{RK,s}$ [kN], $M^0_{RK,s}$ [Nm], k_7 [-]
13	Resistance to pry-out failure: Atsparumas išplėšimo lūžiui dėl svirties poveikio:	k_8 [-]
14	Resistance to concrete edge failure: Atsparumas betono krašto lūžiui:	d_{nom} , l_f [mm]
Characteristic resistance for all load directions and modes of failure for simplified design: Charakterinis atsparumas visomis apkrovos kryptimis ir gedimo režimais supaprastintam projektavimui:		
15	Characteristic resistance: Charakterinis atsparumas:	F^0_{RK} [kN], s_{cr} , c_{cr} [mm]
Durability: Patvarumas:		
16	Durability: Patvarumas:	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

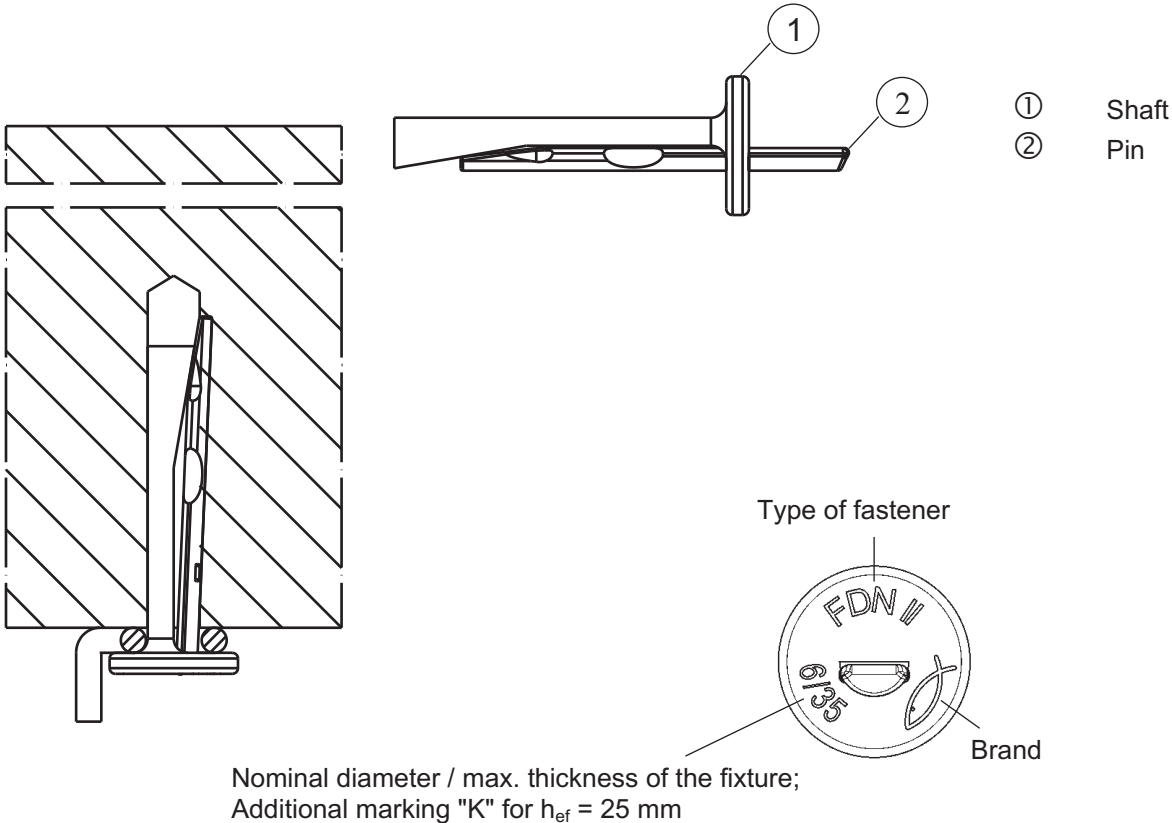
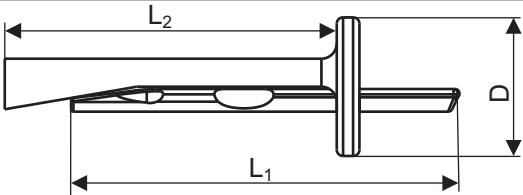


Tabelle A1.1: Materials

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

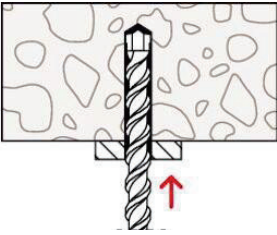
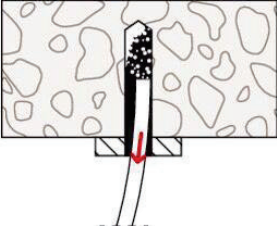
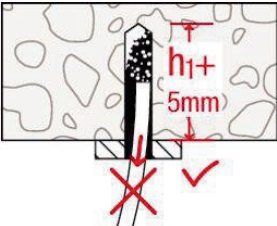
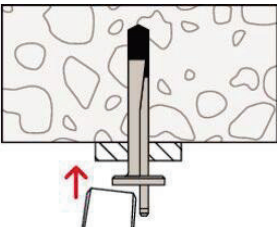
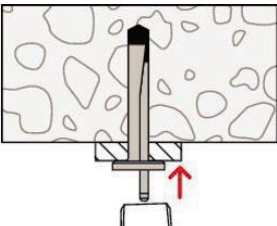
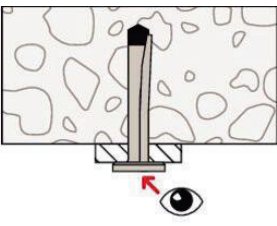
Annex B 1
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Table B2.1: Installation parameters							
Size			FDN II				
			6/5 K	6/5	6/35 K	6/35	
Thickness of the fixture	t_{fix}	$\leq$	5		35		
Nominal drill hole diameter	d_0		6				
Diameter of clearance hole in the fixture	d_f	$\leq$	7				
Maximum drill bit diameter	$d_{cut,max}$		6,40				
Effective embedment depth	h_{ef}	[mm]	25	32	25	32	
Depth of drill hole to with hole cleaning	h_1		30	37	30	37	
deepest point without hole cleaning			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		$M^0_{Rk,s}$	[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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