

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-07/0144  
of 6 April 2017

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 Ceiling Anchor FDN

Product family  
to which the construction product belongs

Deformation- controlled expansion anchor  
for multiple use for non-structural  
applications in concrete

Manufacturer

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

Manufacturing plant

fischerwerke

This European Technical Assessment  
contains

10 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 "Metal  
anchors for use in concrete", ETAG 001 Part 6: "Anchors  
for multiple use for non-structural applications", January  
2011,  
used as European Assessment Document (EAD)  
according to Article 66 Paragraph 3 of Regulation (EU)  
No 305/2011.

**European Technical Assessment**

**ETA-07/0144**

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## Specific Part

### 1 Technical description of the product

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

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 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 Mechanical resistance and stability (BWR 1)

The essential characteristics regarding mechanical resistance and stability are included under the Basic Works Requirement Safety in use.

#### 3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Anchorage satisfy requirements for Class A1
Resistance to fire	See Annex C 2

#### 3.3 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance in concrete	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 001, April 2013 used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011 the applicable European legal act is: [97/161/EC].

The system to be applied is: 2+

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**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.

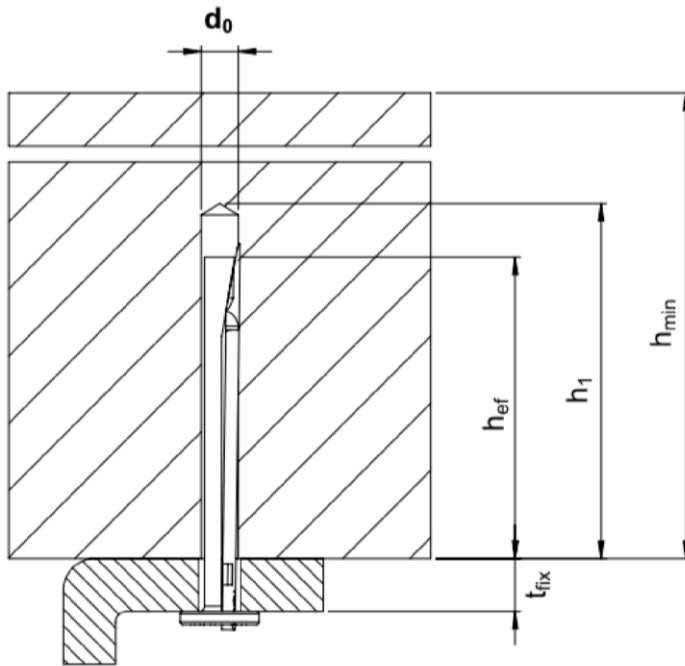
Issued in Berlin on 6 April 2017 by Deutsches Institut für Bautechnik

Uwe Bender  
Head of Department

*beglaubigt:*  
Baderschneider

**Product and installation condition**

Installed anchor



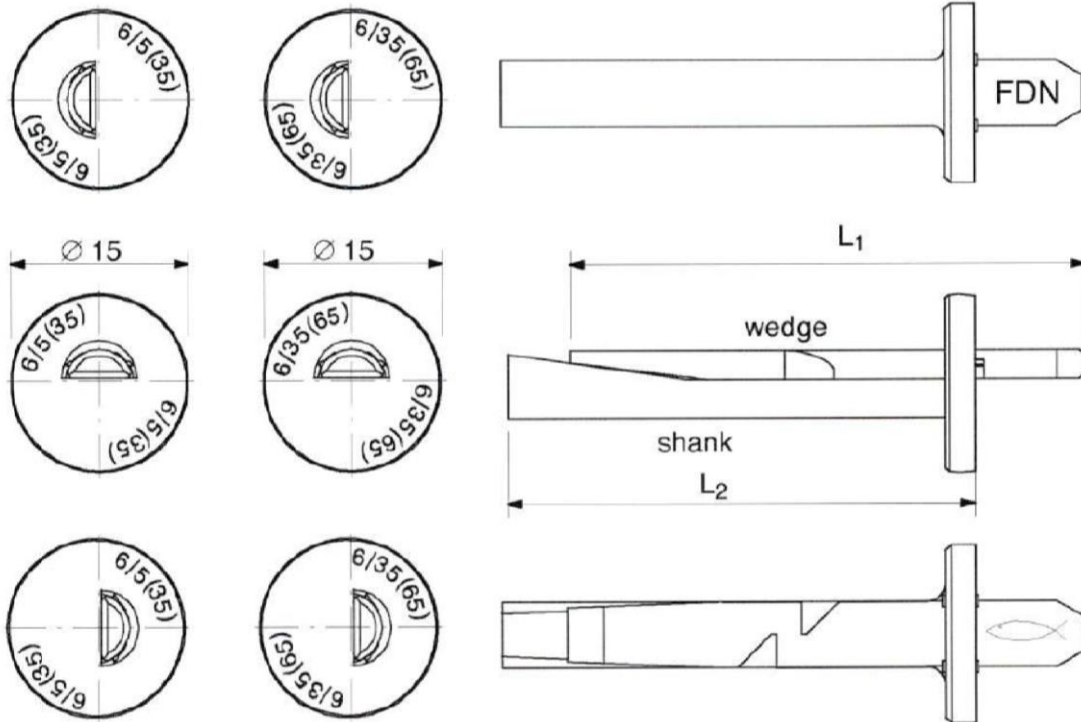
$h_{ef}$	=	effective anchorage depth
$h_1$	=	depth of the drill hole
$h_{min}$	=	thickness of member
$t_{fix}$	=	Thickness of fixture
$d_0$	=	nominal drill bit diameter

**fischer Ceiling Anchor FDN**

**Product description**

Installation conditions

**Annex A 1**



**Table A 1: Materials**

Material
Steel EN 10263-2:2002 galvanized according to EN ISO 4042:2001

**Table A 2: Dimensions**

Anchor size	FDN		
	6/5	6/35	
Length of the wedge	L1 [mm]	43	73
Length of the shaft	L2 [mm]	39	69,5

**fischer Ceiling Anchor FDN**

**Product description**  
Material and variants

**Annex A 2**

## Specifications of Intended use

### Anchorage subject to:

- static and quasi static loads
- use only for multiple use of non-structural applications acc. ETAG 001, Part 6
- use for anchorages with requirements related to resistance of fire

### Base materials:

- reinforced and unreinforced concrete according to EN 206-1:2000
- strength classes C 20/25 to C 50/60 according to EN 206-1:2000
- cracked and non-cracked concrete

### Use conditions (Environmental conditions):

- anchorage 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 are 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 or quasi-static actions are designed for design method C in accordance with:
  - ETAG 001, Annex C, Design Method C, Edition August 2010
  - CEN/TS 1992-4:2009.
- Anchorages under fire exposure are designed in accordance with
  - EOTA Technical Report TR 020, Edition May 2004
  - CEN/TS 1992-4:2009, Annex D (it must be ensured that local spalling of the concrete cover does not occur).

### Installation:

- Hammer drilling only.
- Anchor installation carried out by appropriately qualified personal and under the supervision of the person responsible for technical matters of the site.
- 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 and if under shear or oblique tension load it is not the direction of the load application.

**fischer Ceiling Anchor FDN**

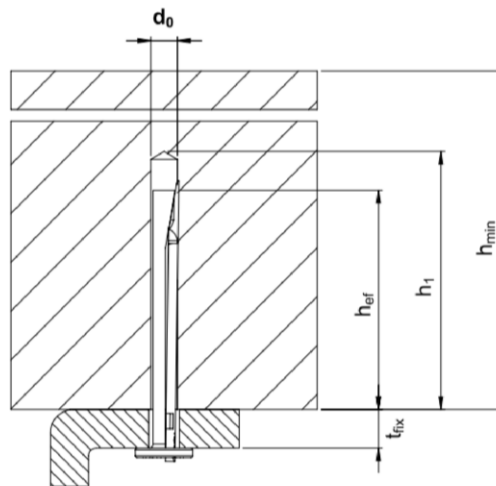
**Intended use**

Specifications

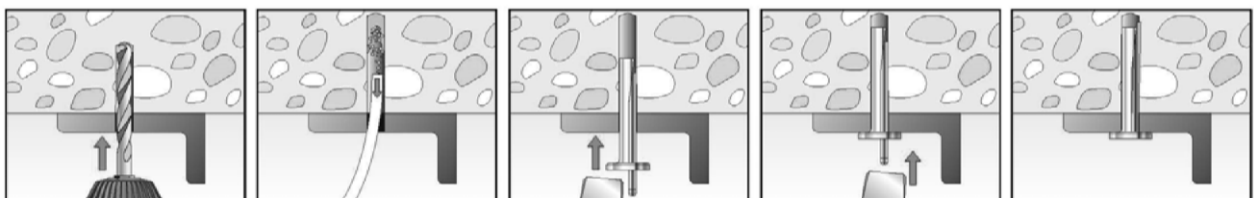
**Annex B 1**

**Table B 1: Installation parameters**

Anchorsize			FDN	
			6/5	6/35
nominal drill bit diameter	$d_0$	[mm]	6,0	
cutting diameter of drill bit	$d_{cut}$	$\leq$ [mm]	6,40	
depth of drill hole	$h_1$	$\geq$ [mm]	40	
effective anchorage depth	$h_{ef}$	$\geq$ [mm]	32	
Minimum thickness of member	$h_{min}$	[mm]	80	
Minimum edge distance	$c_{min}$	[mm]	150	
Minimum spacing	$s_{min}$	[mm]	200	
Maximal thickness of attachment	$t_{fix,max}$		5	35



**Installation instructions**



**fischer Ceiling Anchor FDN**

**Intended use**

Installation Parameters

**Annex B 2**



**Table C 1: Characteristic values for design method C according ETAG 001 Annex C or for design method C according CEN TS 19927-4**

Anchorsize			FDN
<b>For all load directions and for all failures</b>			
Characteristic resistance in cracked and non-cracked concrete C20/25 to C50/60	$F_{Rk}$	[kN]	5,0
Edge distance	$c_{cr,N} = c_{min}$	[mm]	150
Spacing	$s_{cr,N} = s_{min}$	[mm]	200
Partial safety factor	$\gamma_M^{1)}$	[ - ]	1,5
<b>Shear load with lever arm</b>			
Characteristic bending moment	$M^0_{Rk,s}$	[Nm]	5,4
Partial safety factor	$\gamma_{Ms}$	[ - ]	1,25

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

**fischer Ceiling Anchor FDN**

**Performances**

Characteristic values for design method C according to ETAG 001 or to CEN TS 1992-4

**Annex C 1**

**Table C2: Characteristic resistance under fire exposure**

Anchorsize		TDN 6		
<b>Steel failure for tension and shear load (<math>F_{Rk,s,fi} = N_{Rk,s,fi} = V_{Rk,s,fi}</math>)</b>				
Fire resistance class				
R30	Characteristic resistance	$F_{Rk,s,fi30}$	[kN]	0,8
R60		$F_{Rk,s,fi60}$	[kN]	0,7
R90		$F_{Rk,s,fi90}$	[kN]	0,6
R120		$F_{Rk,s,fi120}$	[kN]	0,4
R30	Characteristic resistance	$M^0_{Rk,s,fi30}$	[Nm]	0,67
R60		$M^0_{Rk,s,fi60}$	[Nm]	0,55
R90		$M^0_{Rk,s,fi90}$	[Nm]	0,43
R120		$M^0_{Rk,s,fi120}$	[Nm]	0,31
<b>Edge distance</b>				
R30 bis R120		$c_{cr, fi}$	[mm]	150
<b>Spacing</b>				
R30 bis R120		$s_{cr, fi}$	[mm]	200

**fischer Ceiling Anchor FDN**

**Performances**

Characteristic resistance under fire exposure

**Annex C 2**