

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-12/0029**  
**of 9 December 2016**

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

Würth Ceiling Anchor W-DN

Product family  
to which the construction product belongs

Deformation- controlled expansion anchor made of  
galvanised steel for multiple use for non-structural  
applications in concrete

Manufacturer

Adolf Würth GmbH & Co. KG  
Reinhold-Würth-Straße 12-17  
74653 Künzelsau  
DEUTSCHLAND

Manufacturing plant

Herstellwerk 9

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",  
August 2010,  
used as European Assessment Document (EAD)  
according to Article 66 Paragraph 3 of Regulation (EU)  
No 305/2011.

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## Specific Part

### 1 Technical description of the product

The Würth Ceiling Anchor W-DN 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 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.

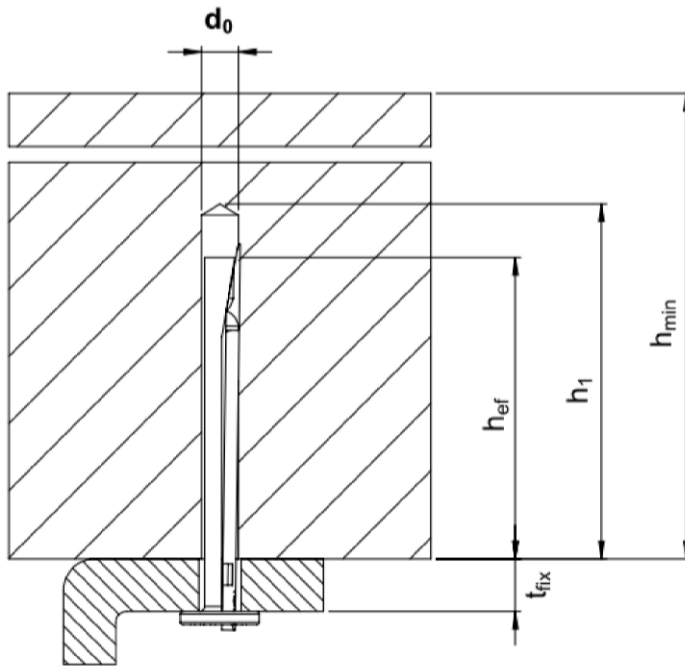
Issued in Berlin on 9 Dezember 2016 by Deutsches Institut für Bautechnik

Andreas Kummerow  
p. p. Head of Department

*beglaubigt:*  
Tempel

**product and installation condition**

installed anchor



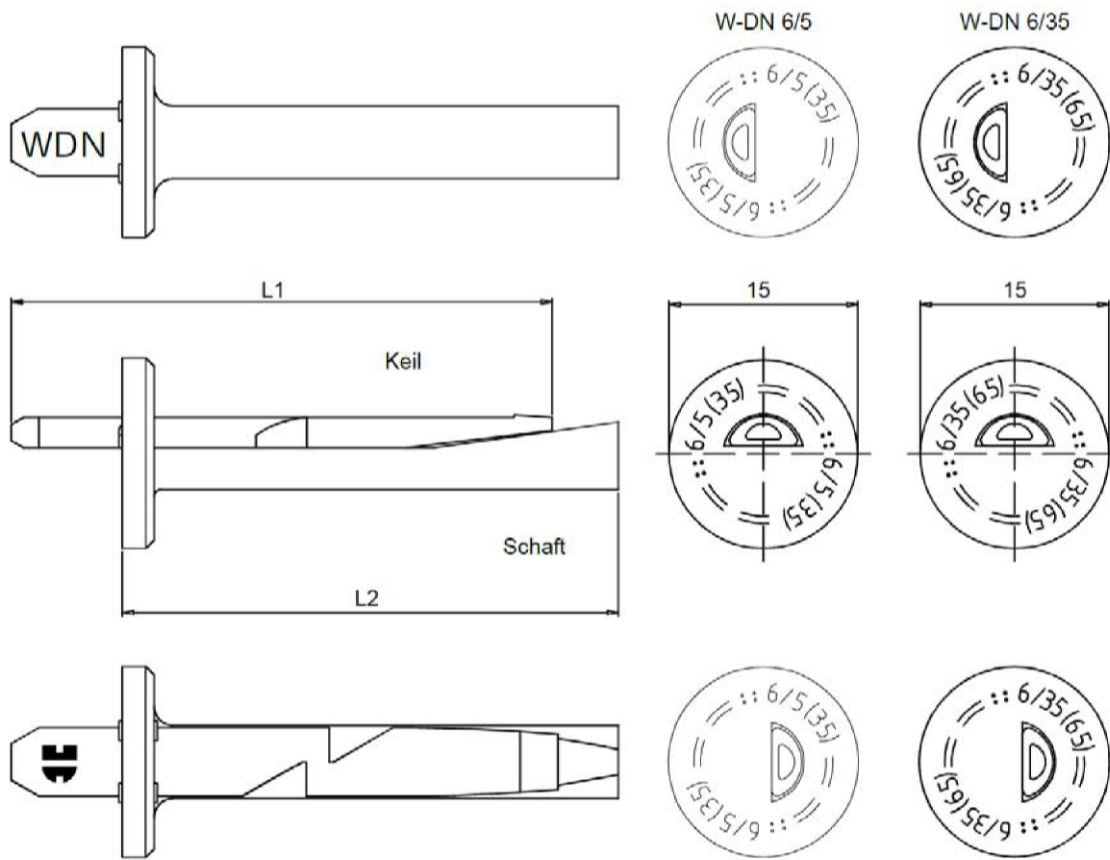
$h_{ef}$	=	effective anchorage depth
$h_1$	=	depth of the drill hole
$h_{min}$	=	minimum thickness of member
$t_{fix}$	=	thickness of fixture
$d_0$	=	nominal drill bit diameter

**Würth Ceiling Anchor W-DN**

**Product description**

Product and installation conditions

**Annex A 1**



**Table A 1: Materials**

Material
Steel according to EN 10263-2, galvanized according to EN ISO 4042

**Table A 2: Dimensions**

Anchorsize		W-DN	
		6/5	6/35
Length of the wedge	[mm]	43	73
Length of the shaft	[mm]	39	69,5

**Würth Ceiling Anchor W-DN**

**Product description**  
Material and variants

**Annex A 2**

## Intended use

### Anchorage subject to:

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

### Base materials:

- reinforced and unreinforced concrete according to EN 206-1:2000
- strength classes C20/25 to C50/60 according to EN 206-1:2000
- cracked and uncracked 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, Edition August 2010 or
  - CEN/TS 1992-4:2009.
- Anchorages under fire exposure are designed in accordance with
  - EOTA Technical Report TR 020, Edition May 2004 or
  - 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.

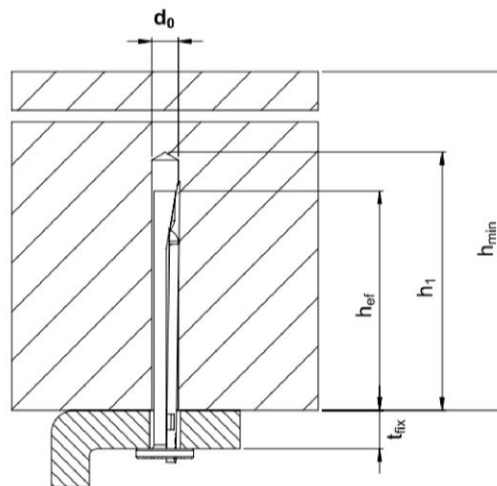
**Würth Ceiling Anchor W-DN**

**Intended use**  
Specifications

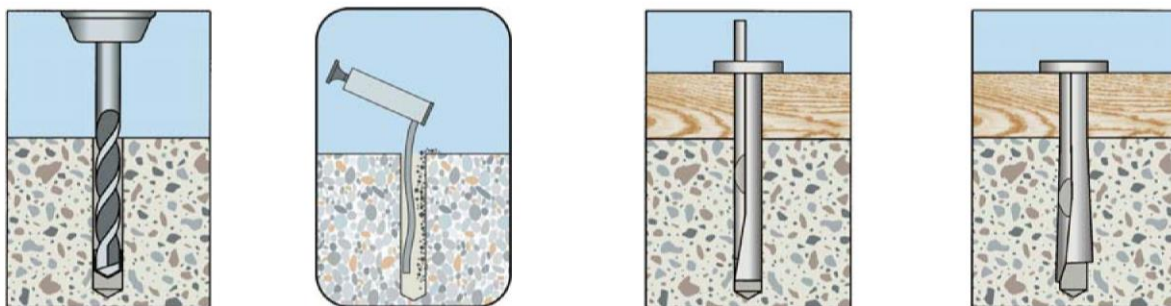
**Annex B 1**

**Table B 1: Installation parameters**

Anchorsize			W-DN	
			6/5	6/35
nominal drill bit diameter	$d_0$	[mm]	6,0	
cutting diameter of drill bit	$d_{cut}$	$\leq$ [mm]	6,4	
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	
Maximum thickness of fixture	$t_{fix}$	[mm]	5	35



**Installation Instructions**



**Würth Ceiling Anchor W-DN**

**Intended use**  
Installation parameters

**Annex B 2**



**Table C 1: Characteristic values for design method C according to ETAG 001, Annex C or for design method C according to CEN/TS 1992-4**

Anchorsize			W-DN
<b>For all load directions and for all failures</b>			
Characteristic resistance in cracked and uncracked 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	$M_{Rk,s}^0$	[Nm]	5,4
Partial safety factor	$\gamma_{Ms}$	[ - ]	1,25

<sup>1)</sup> The installation safety factor  $\gamma_2$  resp.  $\gamma_{inst} = 1,0$  is included

**Würth Ceiling Anchor W-DN**

**Performances**

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

**Annex C 1**

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

Anchorsize			W-DN	
Fire resistance class				
R30	Characteristic resistance	$F_{Rk,fi30}$	[kN]	0,8
R60		$F_{Rk,fi60}$	[kN]	0,7
R90		$F_{Rk,fi90}$	[kN]	0,6
R120		$F_{Rk,fi120}$	[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 to R120		$c_{cr, fi}$	[mm]	150
<b>Spacing</b>				
R30 to R120		$s_{cr, fi}$	[mm]	200

**Würth Ceiling Anchor W-DN**

**Performances**

Characteristic values for design under fire exposure

**Annex C 2**