

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-06/0259
of 8 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

TOGE ceiling anchor TDN 6

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

TOGE Dübel GmbH & Co. KG
Illesheimer Straße 10
90431 Nürnberg
DEUTSCHLAND

Manufacturing plant

TOGE Dübel GmbH & Co. KG

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 TOGE ceiling anchor TDN 6 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+

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.

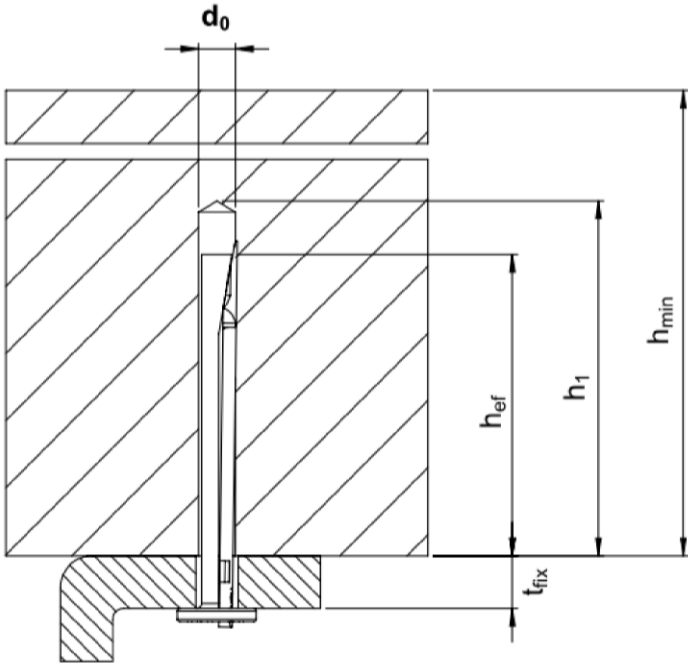
Issued in Berlin on 8 Dezember 2016 by Deutsches Institut für Bautechnik

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} = thickness of member
- t_{fix} = Thickness of fixture
- d_0 = nominal drill bit diameter

TOGE ceiling anchor TDN 6

Product description
Product and installation conditions

Annex A 1

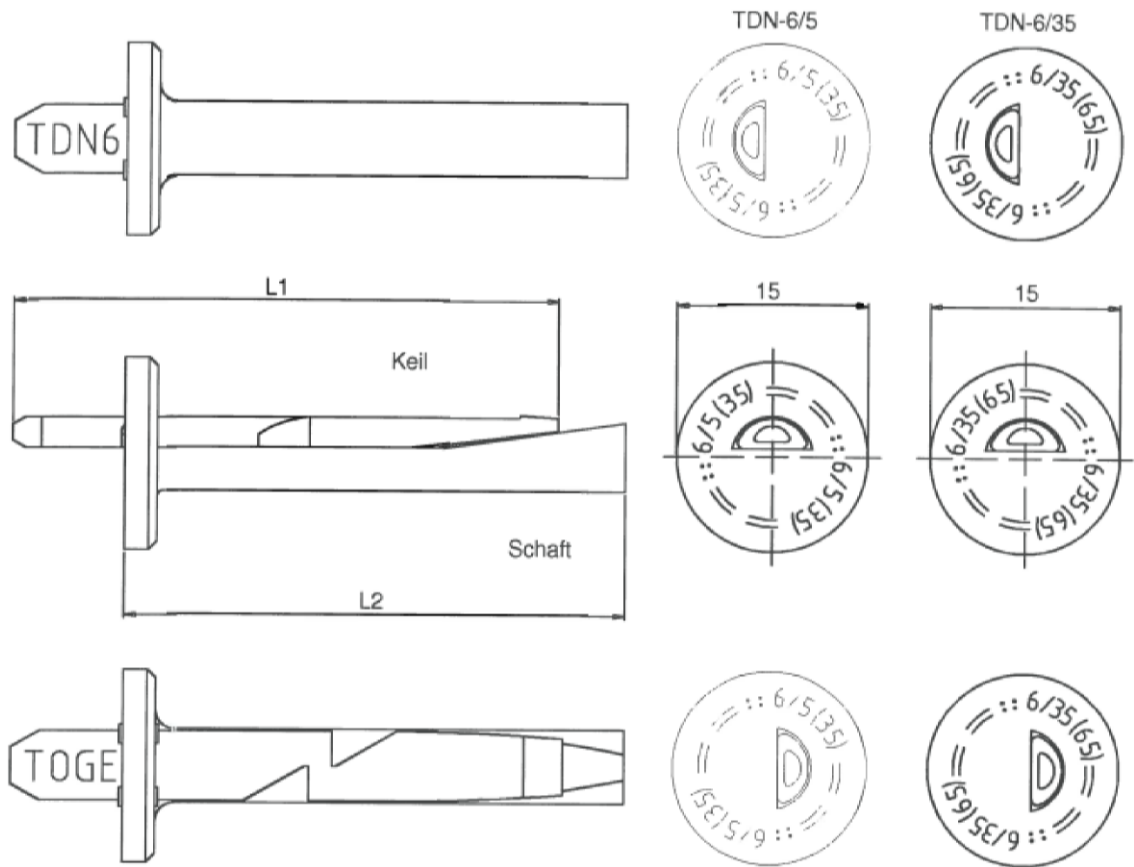


Table A 1: Materials

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

Table A 2: Dimensions

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

TOGE ceiling anchor TDN 6

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.

TOGE ceiling anchor TDN 6

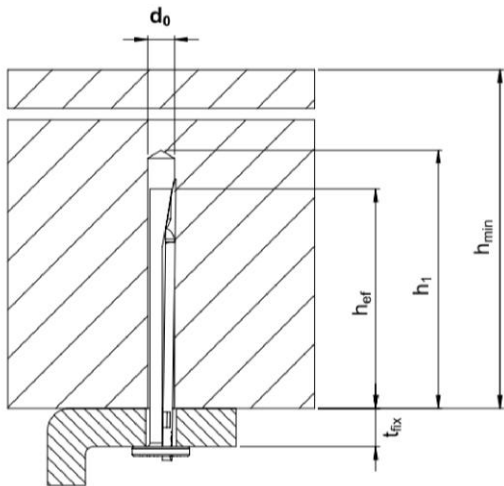
Intended use

Specifications

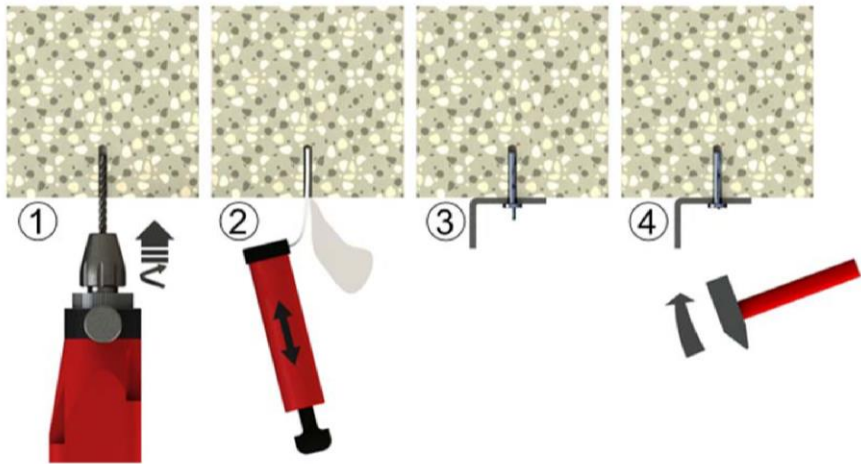
Annex B 1

Table B 1: Installation parameters

Anchorsize			TDN 6	
			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



TOGE ceiling anchor TDN 6

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 CEN/TS 1992-4

Anchorsize			TDN 6
For all load directions and for all failures			
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
Shear load with lever arm			
Characteristic bending moment	$M_{Rk,s}^0$	[Nm]	5,4
Partial safety factor	γ_{Ms}	[-]	1,25

¹⁾ The installation safety factor γ_2 resp. $\gamma_{inst} = 1,0$ is included

TOGE ceiling anchor TDN 6

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				TDN 6
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
Edge distance				
R30 to R120		$c_{cr, fi}$	[mm]	150
Spacing				
R30 to R120		$s_{cr, fi}$	[mm]	200

TOGE ceiling anchor TDN 6

Performances

Characteristic values for design under fire exposure

Annex C 2