Deutsches Institut für Bautechnik

Member of EOTA
www.eota.eu

Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment ETA-15/0055 of 10 February 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 concrete screw TSM L 6
Product family to which the construction product belongs	Screw anchor in size of 6 mm 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", Edition August 2010, used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011.
This version replaces	ETA-15/0055 issued on 3 March 2015

Deutsches Institut für Bautechnik
Kolonnenstraße 30 B | 10829 Berlin | GERMANY | Phone: +49 30 78730-0 | Fax: +49 30 78730-320 | Email: dibt@dibt.de | www.dibt.de

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction shall be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 25(3) of Regulation (EU) No 305/2011.

Specific Part

1 Technical description of the product

The TOGE concrete screw TSM L in size of 6 mm is an anchor made of zinc-plated steel respectively steel with zinc flake coating. The anchor is screwed into a predrilled cylindrical drill hole. The special thread of the anchor cuts an internal thread into the member while setting. The anchorage is characterised by mechanical interlock in the special thread.

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	Anchorages satisfy requirements for Class A1
Resistance to fire	See Annex C 1

3.3 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance for tension and shear loads as well as bending moments in concrete	See Annex C 1
Edge distances and spacing	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 European Assessment Document

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 10 February 2016 by Deutsches Institut für Bautechnik

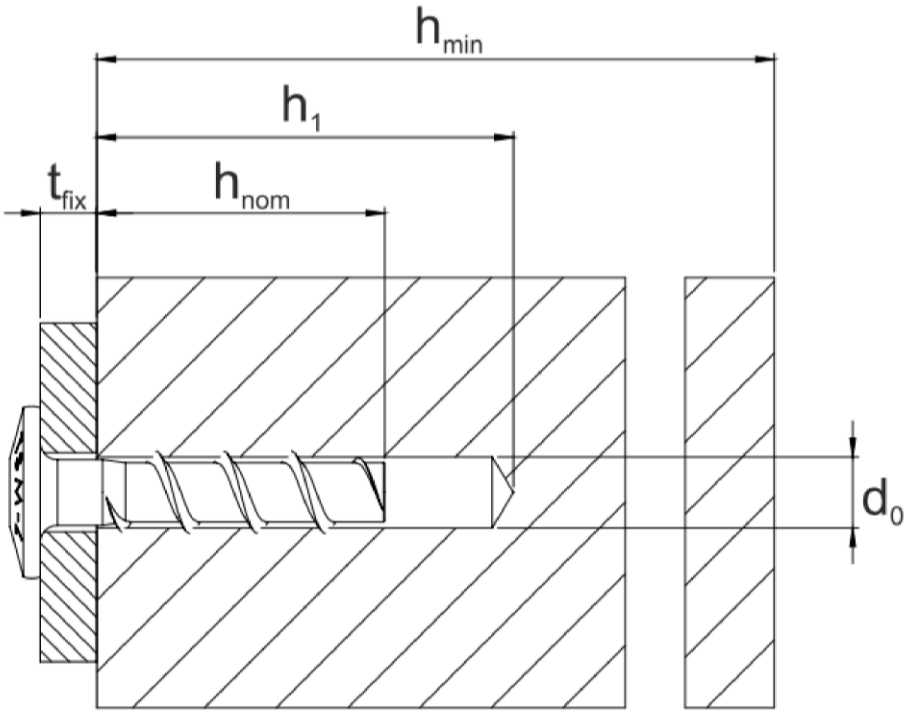
Uwe Bender
Head of Department

beglaubigt:
Tempel

Deutsches Institut für Bautechnik DIBt

product and installation condition

installed anchor



h_{nom}	=	nominal anchorage depth
h_1	=	depth of the drill hole
h_{min}	=	thickness of member
t_{fix}	=	thickness of fixture

TOGE concrete screw TSM L 6

Product description

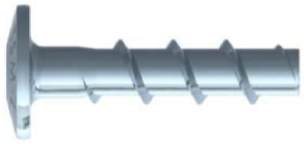
Installation conditions

Annex A 1

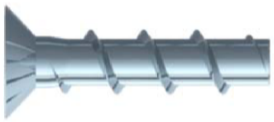
Deutsches Institut für Bautechnik DIBt

Table A 1: materials and variants

part	name	Material
1,2,3,4	screw	Steel EN 10263-4 galvanized acc. to EN ISO 4042 or zinc flake coating acc. to EN ISO 10683 (≥ 5µm) nominal characteristic steel yield strength: f_{yk} [N/mm²] 400 nominal characteristic steel ultimate strength: f_{uk} [N/mm²] 600




1) screw with pan cross head




2) screw with counter sunk cross head


3) screw with connection thread M6 and hexagon socket


4) screw with connection thread M8 and hexagon socket

TOGE concrete screw TSM L 6

Product description

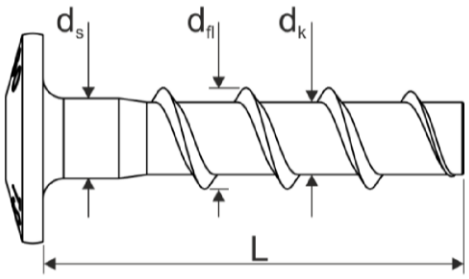
Material and variants

Annex A 2

Deutsches Institut für Bautechnik DIBt

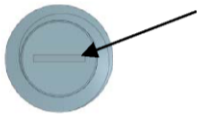
Table A 2: dimensions and markings

anchor name			TSM L
Length of the anchor	L ≥	[mm]	26
Shaft diameter	d_s	[mm]	5,75
Core diameter	d_k	[mm]	5,5
Diameter of thread	d_{fl}	[mm]	7,0



Marking:

Anchortype: TSM L
Anchorsize: 6
Length of the anchor: 30



Manufacturer marking "–" at the screw tip for version with metric connecting thread

TOGE concrete screw TSM L 6

Product descriptions

Dimensions and markings

Annex A 3

Deutsches Institut für Bautechnik DIBt

Intended use

Anchorages subject to:

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

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 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 in accordance with:
  - ETAG 001, Annex C, Design method C or
  - CEN/TS 1992-4:2009, Design method C.
- Anchorages under fire exposure are designed in accordance with:
  - ETAG 001, Annex C, Design method C and EOTA Technical report TR 020 or
  - CEN/TS 1992-4-4: 2009, Design method C and CEN/TS 1992-4, Annex D.

  (it must be ensured that local spalling of the concrete cover does not occur).

Installation:

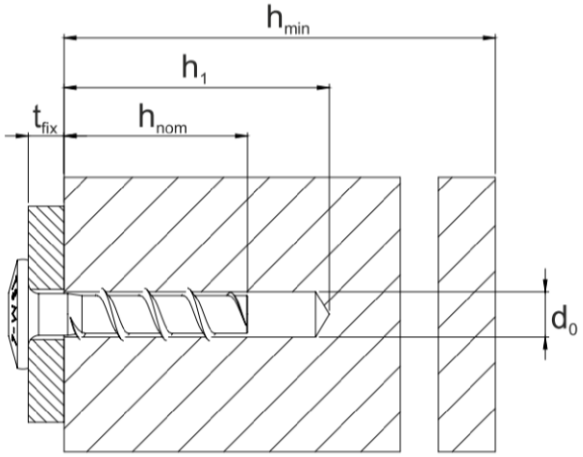
- Hammer drilling only.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- After installation further turning of the anchor is not possible. The head of the anchor is supported on the fixture and is not damaged.

TOGE concrete screw TSM L 6	Annex B 1
Intended use Specifications	

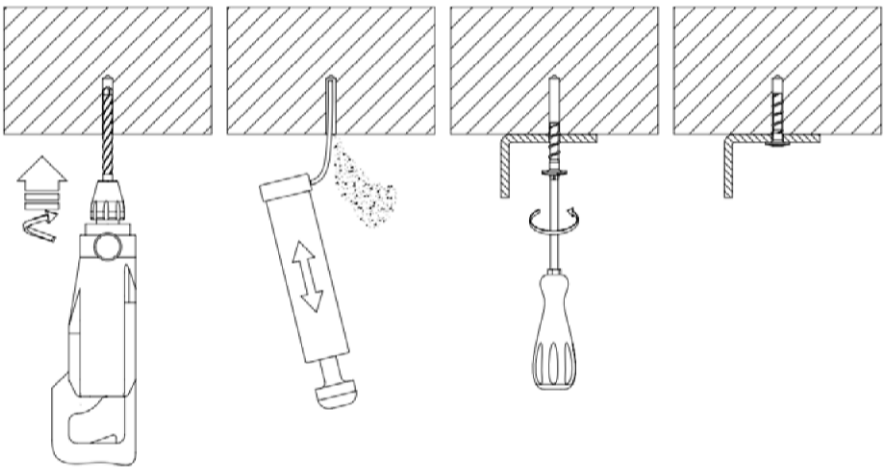
Deutsches Institut für Bautechnik DIBt

Table B 1: Installation parameters

anchor identity				TSM L 6
nominal drill bit diameter	d_0		[mm]	6,0
cutting diameter of drill bit	d_{cut}	≤	[mm]	6,35
depth of drill hole	h_1	≥	[mm]	28
nominal anchorage depth	h_{nom}	≥	[mm]	25
diameter of clearance hole in the fixture	d_f	≤	[mm]	7
Minimum thickness of member	h_{min}		[mm]	80
Thickness of fixture	t_{fix}		[mm]	$t_{fix} = L - h_{nom}$
Installation torque	T_{inst}		[Nm]	10



Installation instructions



Use of impact screw driver is not allowed. For installation with a electrical screwdriver please note the installation torque. The anchor is correct installed if the head of the anchor is supported on the fixture and further turning of the anchor is not possible

TOGE concrete screw TSM L 6	**Annex B 2**
Intended use Installation parameters	

Deutsches Institut für Bautechnik DIBt

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

anchor identity			TSM L 6
Any load direction and failures			
Characteristic resistance in cracked and uncracked concrete C20/25 to C50/60	F_{Rk}	[kN]	0,9
spacing	$s_{cr,N}$	[mm]	200
edge distance	$c_{cr,N}$	[mm]	150
installation safety factor	γ_2 [1] = γ_{inst} [2]	[-]	1,0
Shear load with lever arm			
Characteristic bending moment	$M^0_{Rk,s}$	[Nm]	11,8

[1] Parameter relevant only for design according to ETAG 001, Annex C

[2] Parameter relevant only for design according to CEN/TS 1992-4:2009

Table C 2: Characteristic resistance to fire exposure

anchor identity				TSM L 6
fire resistance class				
R 30	characteristic resistance	$F_{Rk,fi30}$	[kN]	0,27
R 60	characteristic resistance	$F_{Rk,fi60}$	[kN]	0,27
R 90	characteristic resistance	$F_{Rk,fi90}$	[kN]	0,22
R 120	characteristic resistance	$F_{Rk,fi120}$	[kN]	0,17
R 30 bis R 120	spacing	$s_{cr,fi}$	[mm]	200
	edge distance	$c_{cr,fi}$		150

TOGE concrete screw TSM L 6

Performances
Characteristic values according to ETAG 001, Annex C or CEN/TS 1992-4 and resistance to fire exposure

Annex C 1