

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-15/0055**  
**of 3 March 2015**

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.

**European Technical Assessment**  
**ETA-15/0055**

Page 2 of 10 | 3 March 2015

English translation prepared by DIBt

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 has to 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This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission according to Article 25 Paragraph 3 of Regulation (EU) No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	Anchorage satisfy requirements for Class A1
Resistance to fire	See Annex C 1

#### 3.3 Hygiene, health and the environment (BWR 3)

Not applicable.

#### 3.4 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

English translation prepared by DIBt

**3.5 Protection against noise (BWR 5)**

Not applicable.

**3.6 Energy economy and heat retention (BWR 6)**

Not applicable.

**3.7 Sustainable use of natural resources (BWR 7)**

The sustainable use of natural resources was not investigated.

**3.8 General aspects**

The verification of durability is part of testing the essential characteristics. Durability is only ensured if the specifications of intended use according to Annex B are taken into account.

**4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base**

According to Decision of the Commission of 17 February 1997 (97/161/EC) (OJ L 062 of 04.03.97 p. 41-42), the system of assessment and verification of constancy of performance (see Annex V and Article 65 Paragraph 2 to Regulation (EU) No 305/2011) given in the following table applies.

Product	Intended use(s)	Level or class	System
Metal anchors for use in concrete (light-duty type)	For use in redundant systems for fixing and/or supporting to concrete elements such as lightweight suspended ceilings, as well as installations	—	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.

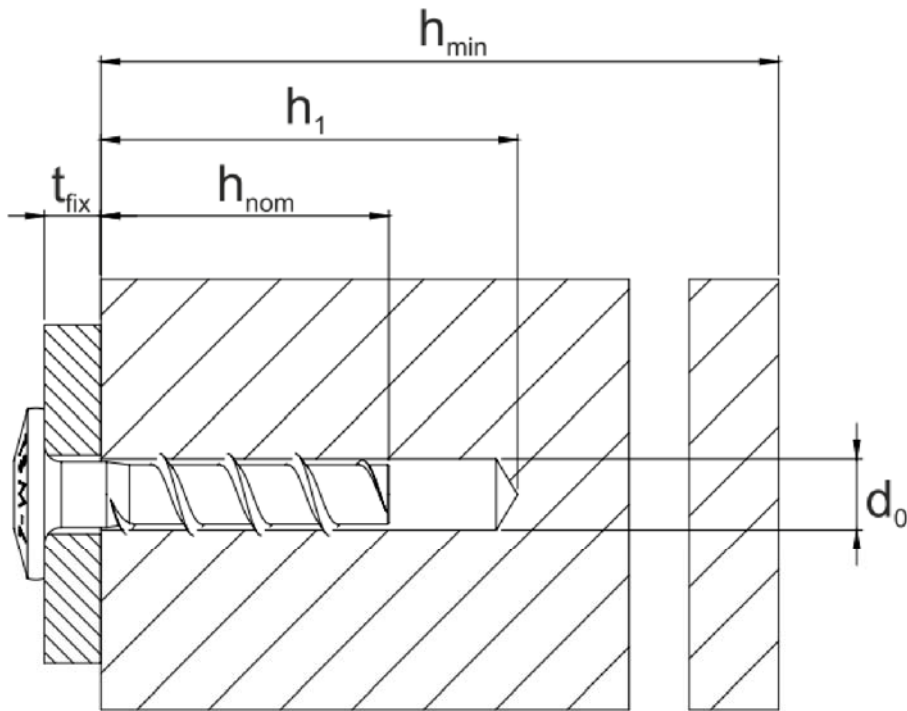
Issued in Berlin on 3 March 2015 by Deutsches Institut für Bautechnik

Uwe Bender  
Head of Department

*beglaubigt:*  
Tempel

**Product and installation condition**

Installed anchor



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



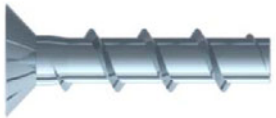





**TOGE concrete screw TSM L 6**

**Product description**  
Installation conditions

**Annex A 1**

**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 ( $\geq 5\mu\text{m}$ )
		nominal characteristic steel yield strength   $f_{yk}$   [N/mm <sup>2</sup> ]   400
		nominal characteristic steel ultimate strength   $f_{uk}$   [N/mm <sup>2</sup> ]   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**

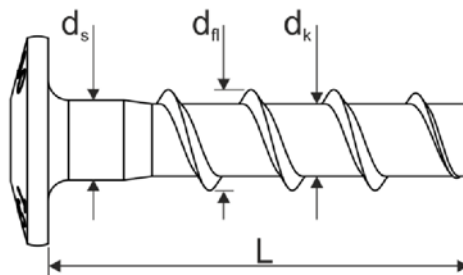
**Product description**

Material and variants

**Annex A 2**

**Table A 2: Dimensions and markings**

anchor identity			TSM L 6
Length of the anchor	$L \geq$	[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: e.g. 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**

## Intended use

### Anchorage subject to:

- static and quasi static loads
- Used only for multiple use for non-structural application according 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 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 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 1992-4-1:2009, 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.
- 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**

**Intended use**

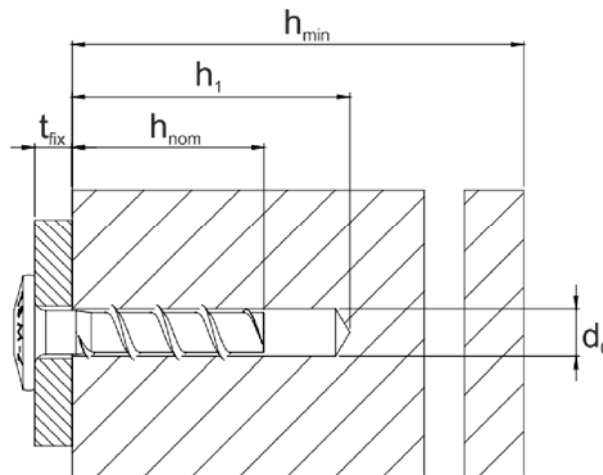
Specifications

**Annex B 1**

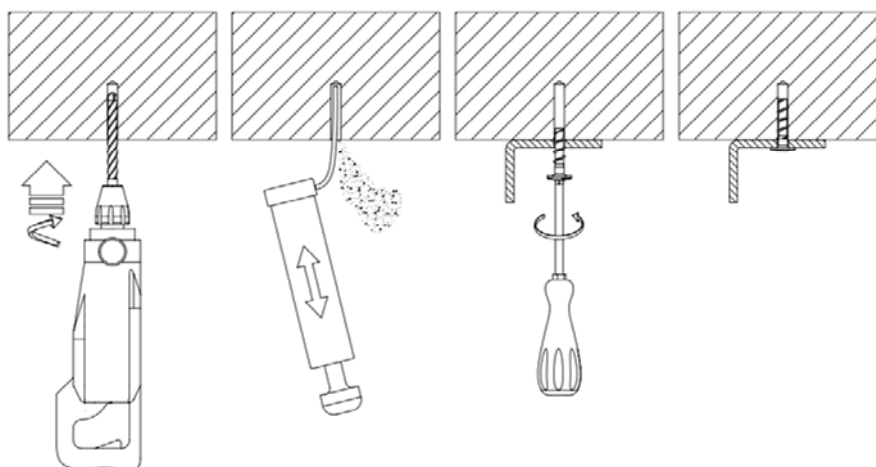


**Table B 1: Installation parameters**

anchor identity			TSM L 6
Nominal drill bit diameter	$d_0$	[mm]	6,0
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	6,40
Depth of drill hole	$h_1 \geq$	[mm]	28
Nominal anchorage depth	$h_{nom} \geq$	[mm]	25
Diameter of clearing hole in the fixture	$d_f \leq$	[mm]	8
Minimum thickness of member	$h_{min}$	[mm]	80
Thickness of fixture	$t_{fix}$	[mm]	$t_{fix} = L - h_{nom}$



**Installation instructions**



**Use of impact screw driver is not allowed. Use of a normal screw driver is allowed.**

**TOGE concrete screw TSM L 6**

**Intended use**

Installation parameters

**Annex B 2**

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

anchor identity			TSM L 6
<b>Any load direction and failures</b>			
Characteristic resistance in cracked and non cracked 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	$\gamma_2^{1)} = \gamma_{inst}^{2)}$	[-]	1,0
<b>Shear load with lever arm</b>			
Characteristic bending moment	$M_{Rk,s}$	[Nm]	11,8

<sup>1)</sup> Parameter relevant only for design according to ETAG 001, Annex C

<sup>2)</sup> 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 to R 120	spacing	$s_{cr,fi}$	[mm] 200
	edge distance	$c_{cr,fi}$	

**TOGE concrete screw TSM L**

**Performances**

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

**Annex C 1**