Deutsches Institut für Bautechnik

Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

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European Technical Assessment

ETA-15/0091 of 26 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	Würth Concrete Screw W-BS Compact
Product family to which the construction product belongs	Concrete screw in size of 6 mm 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	Werk 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", Edition 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 Concrete Screw W-BS Compact 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 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

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 26 March 2015 by Deutsches Institut für Bautechnik

Andreas Kummerow
p. p. Head of Department

beglaubigt:
Tempel

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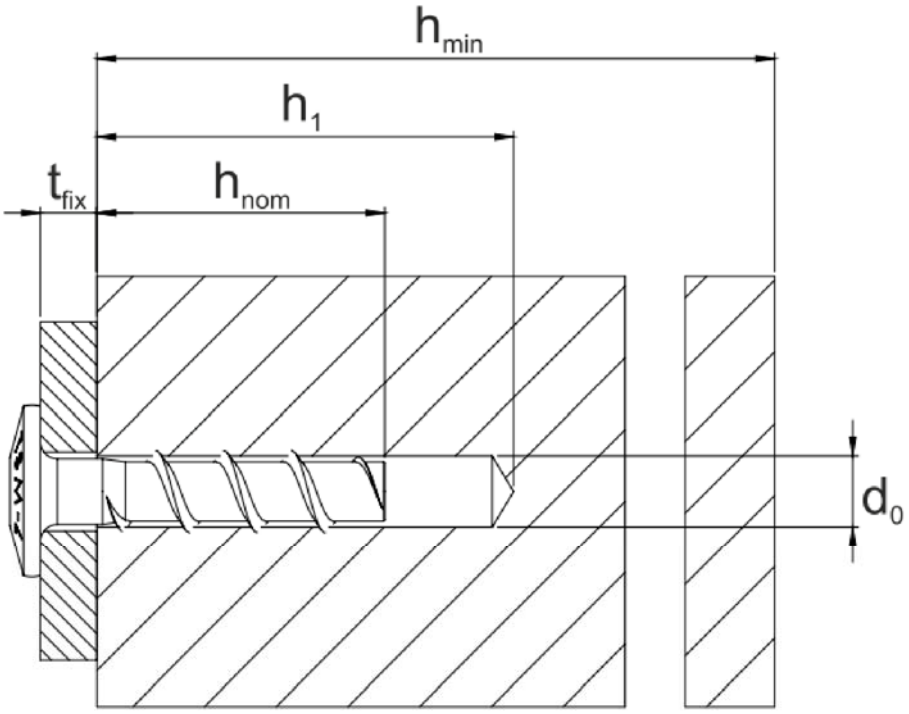
Product and installation condition

Installed anchor



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

Würth Concrete Screw W-BS Compact

Product description

Installation conditions

Annex A 1

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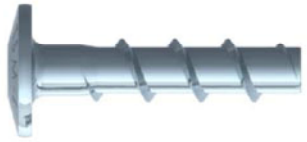
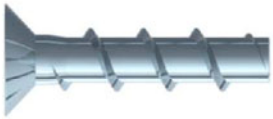
Table A 1: Materials and variants

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

Würth Concrete Screw W-BS Compact

Product description
Material and variants

Annex A 2

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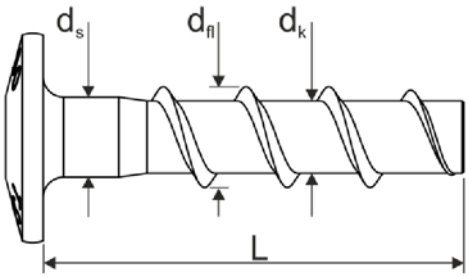
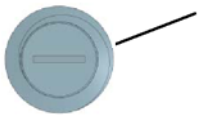
Table A 2: Dimensions and markings

anchor identity			W-BS Compact 6
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: e.g. 30



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

Würth Concrete Screw W-BS Compact

Product descriptions

Dimensions and markings

Annex A 3

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Intended use

Anchorages 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.

Würth Concrete Screw W-BS Compact	Annex B 1
Intended use Specifications	

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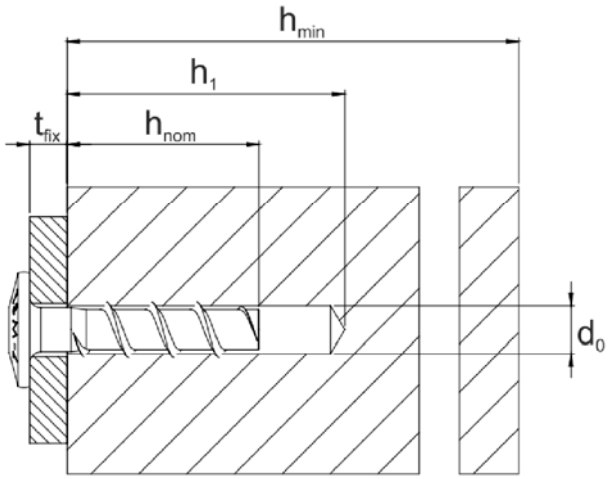
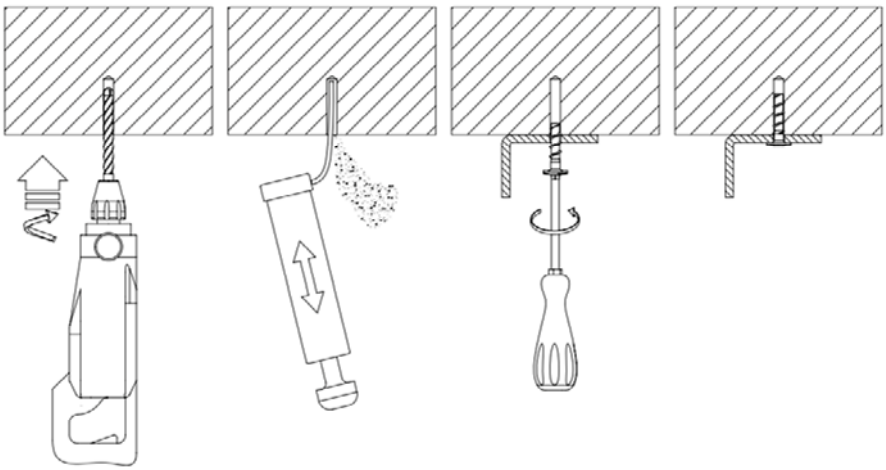
Table B 1: Installation parameters

anchor identity				W-BS Compact 6
Nominal drill bit diameter	d_0		[mm]	6,0
Cutting diameter of drill bit	d_{cut}	≤	[mm]	6,40
Depth of drill hole	h_1	≥	[mm]	28
Nominal anchorage depth	h_{nom}	≥	[mm]	25
Diameter of clearing hole in the fixture	d_f	≤	[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.

Würth Concrete Screw W-BS Compact	Annex B 2
Intended use Installation parameters	

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

anchor identity			W-BS Compact 6
Any load direction and failures			
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	γ_2 [1] = γ_{inst} [2]	[-]	1,0
Shear load with lever arm			
Characteristic bending moment	$M_{Rk,s}$	[Nm]	11,8

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

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

Table C 2: Characteristic resistance to fire exposure

ancor identity				W-BS Compact 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	$c_{cr,fi}$		150

Würth Concrete Screw W-BS Compact

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

Annex C 1