

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-15/0091
of 17 March 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 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",
August 2010,
used as European Assessment Document (EAD)
according to Article 66 Paragraph 3 of Regulation (EU)
No 305/2011.

This version replaces

ETA-15/0091 issued on 26 March 2015

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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 | Anchorage 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+

English translation prepared by DIBt

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.

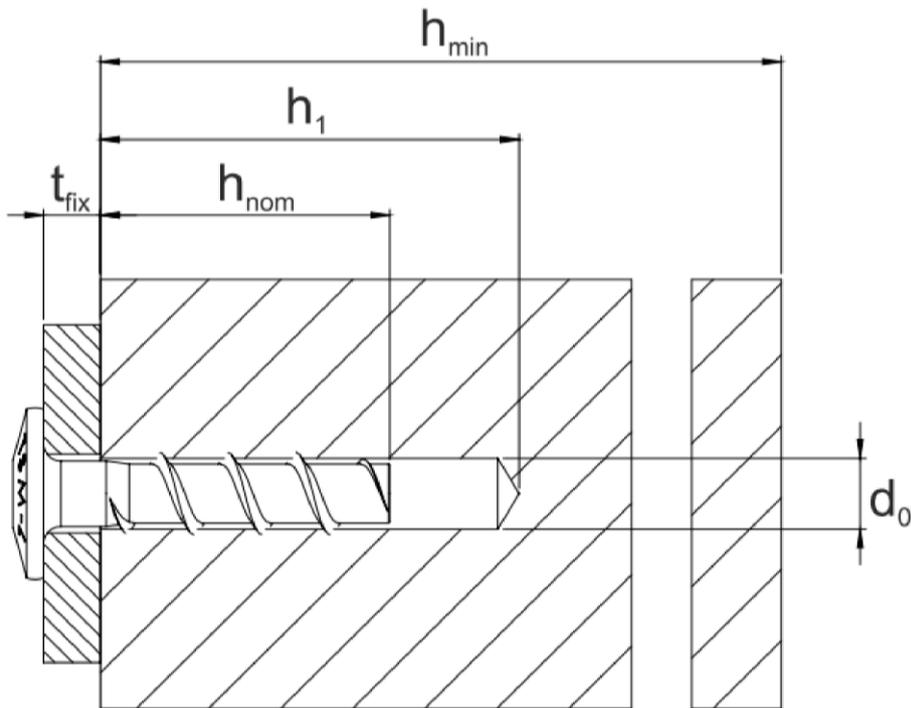
Issued in Berlin on 17 March 2016 by Deutsches Institut für Bautechnik

Andreas Kummerow
p. p. 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

Würth Concrete Screw W-BS Compact

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 ²] 400 |
| | | nominal characteristic steel ultimate strength f_{uk} [N/mm ²] 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

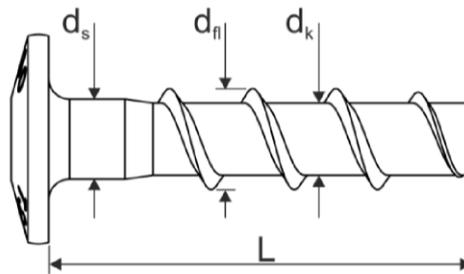
Product description

Material and variants

Annex A 2

Table A 2: dimensions and markings

| anchor name | | | W-BS Compact 6 |
|----------------------|----------|------|----------------|
| Length of the anchor | $L \geq$ | [mm] | 26 |
| Shaft diameter | d_s | [mm] | 5,75 |
| Shaft diameter | d_k | [mm] | 5,5 |
| Diameter of thread | d_s | [mm] | 7,0 |

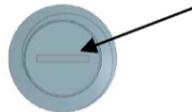


Marking:

Anchortype: TSM L

Anchorsize: e.g. 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

Intended use

Anchorage subject to:

- static and quasi static loads
- Used only for multiple use for con-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 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 1992-4-1:2009, 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

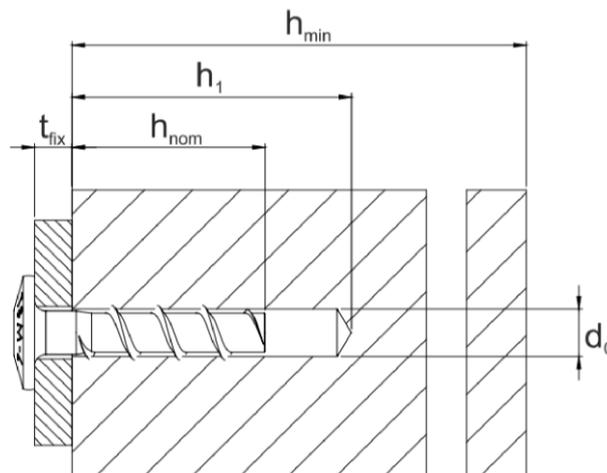
Intended use

Specifications

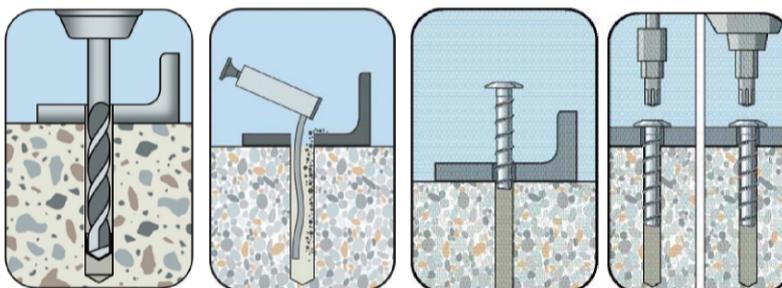
Annex B 1

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 | $d_{cut} \leq$ | [mm] | 6,35 |
| 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 torque | T_{inst} | [Nm] | 10 |



Installation instructions



Use of impact screw driver is not allowed. For installation with an 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.

Würth Concrete Screw W-BS Compact

Intended use

Installation parameters

Annex B 2

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

| anchor identity | | | W-BS Compact 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 | $\gamma_2^{1)} = \gamma_{inst}^{2)}$ | [-] | 1,0 |
| Shear load with lever arm | | | |
| Characteristic bending moment | $M_{Rk,s}^0$ | [Nm] | 11,8 |

¹⁾ Parameter relevant only for design according 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 | | | 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 bis R 120 | spacing | $s_{cr,fi}$ | [mm] 200 |
| | edge distance | $c_{cr,fi}$ | |

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Performances

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

Annex C 1