

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-06/0179  
of 15 September 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

Hilti wedge anchor DBZ

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

Hilti Aktiengesellschaft  
Feldkircherstrasse 100  
9494 SCHAAN  
FÜRSTENTUM LIECHTENSTEIN

Manufacturing plant

Hilti Werke

This European Technical Assessment  
contains

9 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 Hilti wedge anchor DBZ of size 6/4,5 and 6/35 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 1

#### 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+

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**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

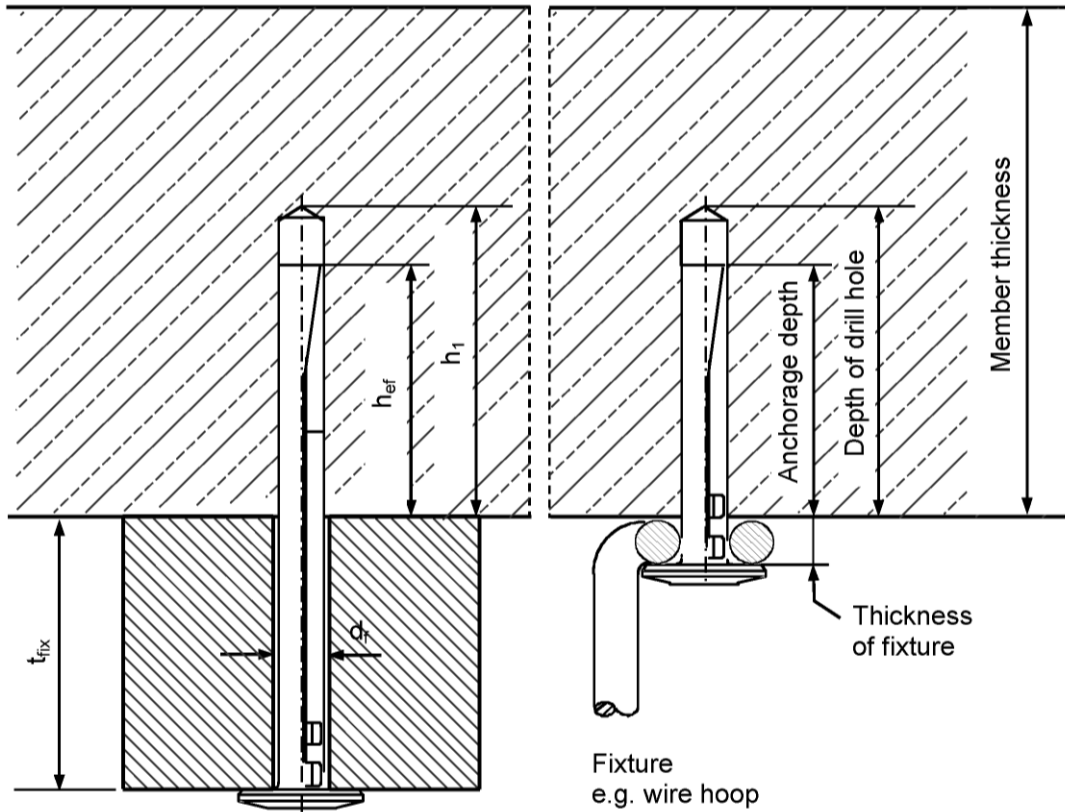
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 15 September 2016 by Deutsches Institut für Bautechnik

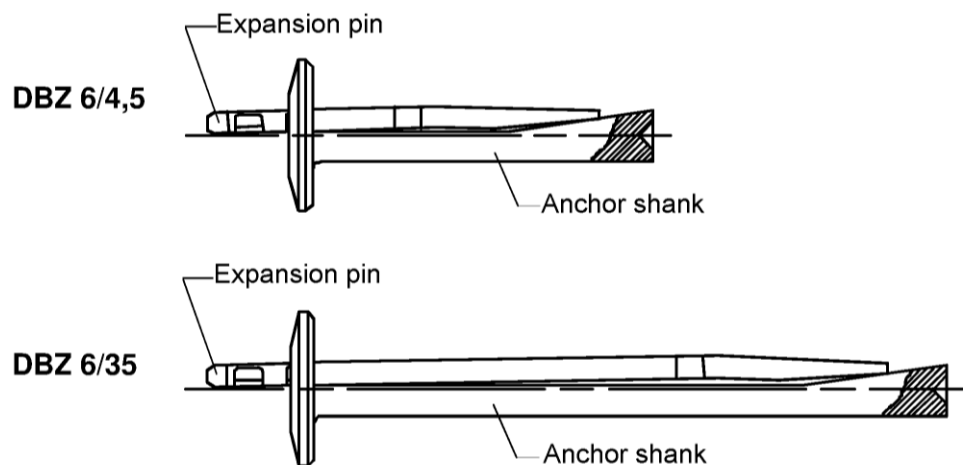
Uwe Bender  
Head of Department

*beglaubigt:*  
Tempel

**Product and installed condition**



**Product description: Hilti wedge anchor DBZ 6/4,5 and DBZ 6/35**



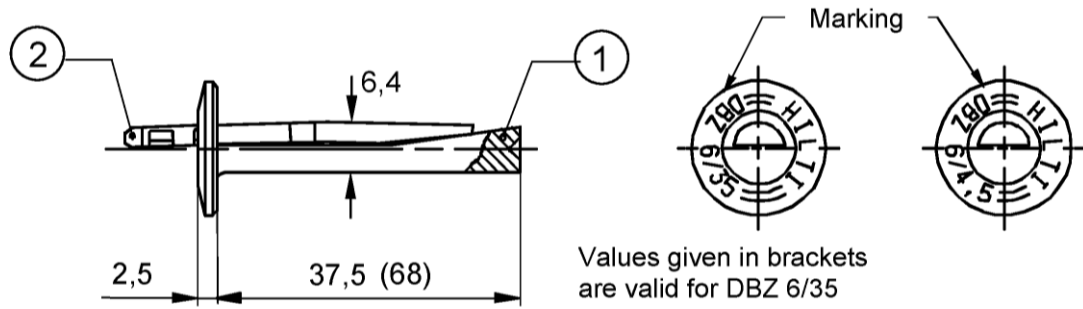
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**Hilti wedge anchor DBZ**

**Product description**  
Installed condition

**Annex A 1**

### Product dimensions



**Table A1: Materials**

Part	Designation	Material
1	Anchor shank	Cold-formed steel acc. DIN EN 10263-2:2002-02; galvanized $\geq 5\mu\text{m}$
2	Expansion pin	Cold-formed steel acc. DIN EN 10263-4:2002-02; galvanized $\geq 5\mu\text{m}$

## Specifications of intended use

### Anchorage subject to:

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

### Base materials:

- Reinforced or unreinforced normal weight 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):

- Anchorages subject to dry internal conditions.

### Design:

- The anchorages are to be designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings (e.g. position of the anchor relative to reinforcement or to supports) are prepared taking account of the loads to be anchored.
- Anchorages under static or quasi-static actions are designed in accordance with:
  - ETAG 001, Annex C, Edition August 2010.
- Anchorages under fire exposure are designed in accordance with:
  - EOTA Technical report TR 020, Edition May 2004.

### Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Anchor installation in accordance with the manufacturer's specifications and drawings and using the appropriate tools.
- Check of concrete being well compacted, e.g. without significant voids.
- 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 the aborted hole or smaller distance if the aborted drill hole is filled with high strength mortar and if under shear or oblique tension load it is not in the direction of load application.

**Hilti wedge anchor DBZ**

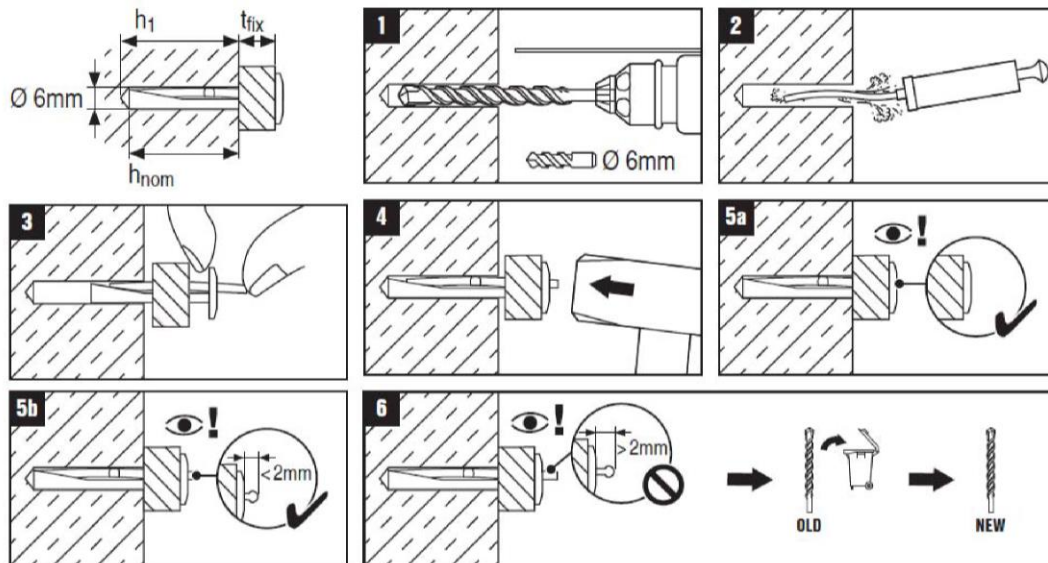
**Intended use  
Specifications**

**Annex B 1**

**Table B1: Installation data**

Hilti wedge anchor		DBZ 6/4,5	DBZ 6/35	
Nominal diameter of drill bit	$d_0$ [mm]	6		
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	6,4		
Depth of drill hole	$h_1 \geq$ [mm]	40	55	70
Thickness of fixture	$t_{fix}$ [mm]	$\leq 4,5$	$20 \leq t_{fix} \leq 35$	$5 \leq t_{fix} < 20$
Minimum member thickness	$h_{min} \geq$ [mm]	80		100
Effective anchorage depth	$h_{ef} \geq$ [mm]	32		
Clearance hole diameter	$d_f \leq$ [mm]	7		
Spacing	$s_{min} = s_{cr}$ [mm]	200		
Edge distance	$c_{min} = c_{cr}$ [mm]	150		

**Installation instructions**



- 1 Drill hole with drill bit
- 2 Blow out dust completely
- 3 Insert anchor with fixture
- 4 Hammer down the expansion pin
- 5 a) Proper setting is ensured if the pin is completely flattened  
b) A maximum exceedance of 2mm can be accepted
- 6 In case the pin exceedance is larger than 2mm replace the used drill bit with a new drill bit

**Hilti wedge anchor DBZ**

**Intended use**  
Installation data and instructions

**Annex B 2**



**Table C1: Characteristic values for static and quasi-static loads, design method C**

Hilti wedge anchor			DBZ 6/4,5 and DBZ 6/35
<b>All load directions</b>			
Characteristic resistance in C20/25 to C50/60	$F_{Rk}$	[kN]	5,0
Partial safety factor	$\gamma_M$	[-]	1,5 <sup>1)</sup>
<b>Shear load with lever arm</b>			
Characteristic bending resistance	$M_{Rk,s}^0$	[Nm]	5,0
Partial safety factor	$\gamma_{Ms}$	[-]	1,25

<sup>1)</sup> The installation safety factor  $\gamma_2 = 1,0$  is included.

**Table C2: Characteristic values under fire exposure in concrete C20/25 to C50/60 in any load direction without lever arm, design method C**

Fire resistance class	Hilti wedge anchor		DBZ 6/4,5 and DBZ 6/35
R30	Characteristic resistance	$F_{Rk,fi}$ [kN]	0,6
R60	Characteristic resistance	$F_{Rk,fi}$ [kN]	0,5
R90	Characteristic resistance	$F_{Rk,fi}$ [kN]	0,3
R120	Characteristic resistance	$F_{Rk,fi}$ [kN]	0,2
R30 to R120	Spacing	$s_{cr,fi}$ [mm]	200
	Edge distance	$c_{cr,fi}$ [mm]	150
In case of fire attack from more than one side, the edge distance shall be $\geq 300$ mm.			

**Hilti wedge anchor DBZ**

**Performance**

Characteristic resistance to static and quasi-static loads and under fire exposure  
Design according to ETAG 001, Annex C, method C

**Annex C 1**