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European Technical Assessment

ETA 13/0355 of 29/03/2017

Technical Assessment Body issuing the ETA: Technical and Test Institute
for Construction Prague

Trade name of the construction product

PTB-PRO

**Product family to which the construction
product belongs**

Product area code: 33
Anchor for multiple use for non-structural
applications in concrete

Manufacturer

DEWALT/ POWERS
Richard-Klinger-Str. 11
65510 Idstein
Germany

Manufacturing plant

Plant 2

**This European Technical Assessment
contains**

9 pages including 6 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**

ETAG 001-Part 1, edition 2013 and
ETAG 001-Part 6, edition 2011, used as
European Assessment Document (EAD)

This version replaces

ETA 13/0355 issued on 02/05/2013

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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1. Technical description of the product

The throughbolt anchor PTB-PRO is made of galvanized steel, which is placed into a drilled hole and anchored by load-controlled expansion.

The installed anchor is shown in Annex 1.

2. Specification of the intended use in accordance with the applicable EAD

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 provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 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 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)

Essential characteristic	Performance
Characteristic resistance	See Annex C 1

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 environment (BWR 3)

Regarding dangerous substances contained in this European Technical Assessment, there may be requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Regulation (EU) No 305/2011, these requirements need also to be complied with, when and where they apply.

3.4 Safety in use (BWR 4)

For basic requirement safety in use the same criteria are valid as for Basic Requirement Mechanical resistance and stability.

3.5 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was determined for this product.

3.6 General aspects relating to fitness for use

Durability and serviceability are only ensured if the specifications of intended use according to Annex B 1 are kept.

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

According to the Decision 96/582/EC of the European Commission¹ the system of assessment verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table apply.

Product	Intended use	Level or class	System
Metal anchors for use in concrete	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 in the applicable EAD**

5.1 **Tasks of the manufacturer**

The manufacturer may only use raw materials stated in the technical documentation of this European Technical Assessment.

The factory production control shall be in accordance with the control plan which is a part of the technical documentation of this European Technical Assessment. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited at Technický a zkušební ústav stavební Praha, s.p.² The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

5.2 **Tasks of the notified bodies**

The notified body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in a written report.

The notified certification body involved by the manufacturer shall issue a certificate of constancy of performance of the product stating the conformity with the provisions of this European Technical Assessment.

In cases where the provisions of the European Technical Assessment and its control plan are no longer fulfilled the notified body shall withdraw the certificate of constancy of performance and inform Technický a zkušební ústav stavební Praha, s.p without delay.

Issued in Prague on 29.03.2017

By

Ing. Mária Schaan

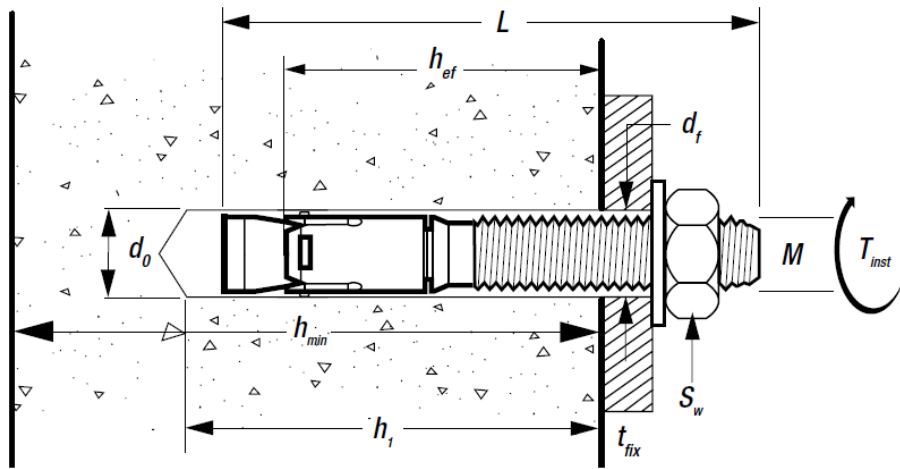
Head of the Technical Assessment Body

¹ Official Journal of the European Communities L 254 of 08.10.1996

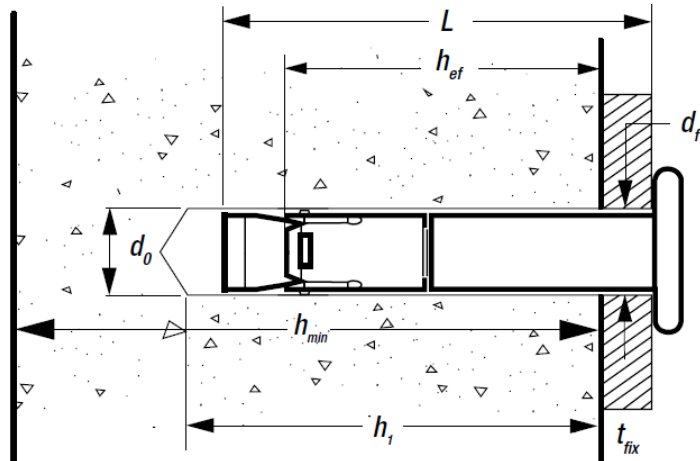
² The control plan is a confidential part of the documentation of the European Technical Assessment, but not published together with the ETA and only handed over to the approved body involved in the procedure of AVCP.

Installed anchor

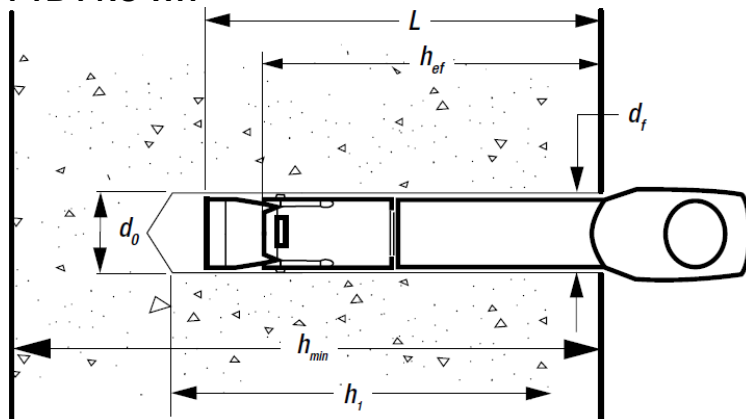
PTB-PRO M6



PTB-PRO FH



PTB-PRO WH

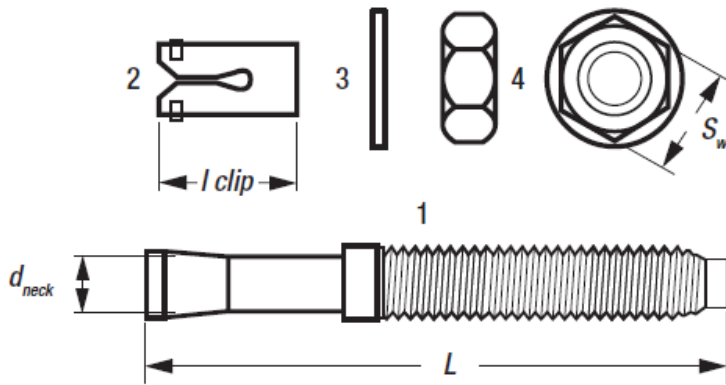


PTB-PRO

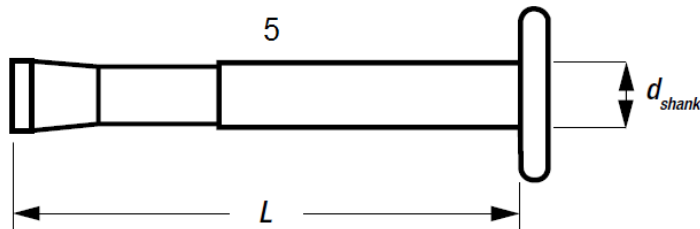
Product description
Installed conditions

Annex A 1

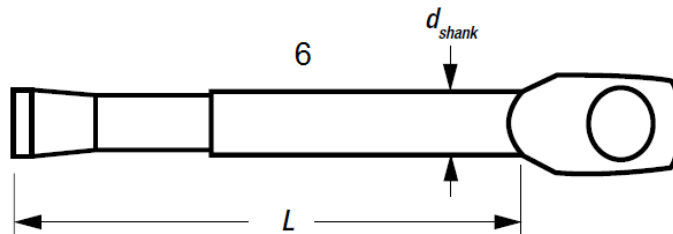
PTB-PRO M6 (stud version)



PTB-PRO FH (flathead version)



PTB-PRO WH (wire hanger version)



Marking: on the bolt: PTB M6 or PTB FH or PTB WH followed by Y, where Y = total length of the anchor

Table A1 - Materials

Part	Designation	Material	Protection
1	Stud M6	Coldformed steel, grade C-1035	Zinc plated min. 5 μm
2	Expansion clip	M6 Carbon steel	Zinc plated min. 5 μm
3	Washer	DIN 125 or EN ISO 7089	Zinc plated min. 5 μm
		DIN 9021	Zinc plated min. 5 μm
4	Hexagonal nut	DIN 934 or DIN EN ISO 4032, Grade 8 acc. to DIN EN ISO 20898-2	Zinc plated min. 5 μm
5	Flathead FH	Coldformed steel, grade C-1035	Zinc plated min. 5 μm
6	Wire hanger WH	Coldformed steel, grade C-1035	Zinc plated min. 5 μm

PTB-PRO

Product description
Product and materials

Annex A 2

Specifications of intended use

Anchorage subject to:

- Static and quasi-static load.

Base materials

- Cracked or non-cracked concrete.
- Reinforced or unreinforced normal weight concrete of strength class C20/25 at minimum and C50/60 at maximum according EN 206-1:2013.

Use conditions (Environmental conditions)

- Structures subject to dry internal conditions.

Design:

- The anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- The anchorages are designed in accordance with:
 - Method C of ETAG001 Annex C “Design Method for Anchorages” or
 - EN 1992-4
- For application with resistance under fire exposure the anchorages are designed in accordance with method given in:
 - TR020 “evaluation of anchorages in Concrete concerning Resistance to Fire” or
 - EN 1992-4, Annex D
- 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.
- The anchor may only be used if in the design and installation specifications for the fixture the excessive slip or failure of one anchor will not result in a significantly violation of the requirements on the fixture in the serviceability and ultimate state.
- The anchor is to be used only for multiple use for non-structural applications, the definition of multiple use according to the Member States is given in the informative Annex 1 of ETAG 001, Part 6.

Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Use of the anchor only as supplied by the manufacturer without exchanging any components of the anchor.
- Anchor installation in accordance with the manufacturer’s specifications and drawings using the appropriate tools.
- Effective anchoring depth, edge distance and spacing not less than the specified values without minus tolerance.
- In case of aborted drill 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.
- Cleaning of the hole of drilling dust.
- Anchor installation complied the specified embedment depth; that is ensured for the stud version PTB-PRO M6 and the flathead version (FH) if the fixture thickness is not bigger than the maximum fixture thickness given in this ETA and not bigger than the maximum fixture thickness given on the packaging label.
WH version needs to be installed until the transition area between eye and shaft is flush with the concrete surface (L = 40 mm version) or the effective embedment depth needs to be marked on the bolt by the installer (measured from the end of the clip, versions L > 40 mm).

PTB-PRO

Intended use
Specifications

Annex B 1

Table B1 – Anchor dimensions

				PTB-PRO M6	PTB-PRO FH	PTB-PRO WH
Length	Min.	L	[mm]	50	40	40
	Max.		[mm]	120	120	55
Fixture thickness	Min.	t_{fix}	[mm]	0	0	-
	Max.		[mm]	70	70	-
Diameter cone neck		d_{neck}	[mm]	4.3	4.3	4.3
Diameter shank		d_{shank}	[mm]	M6	5.9	5.9
Length expansion clip		l_{clip}	[mm]	10.9	10.9	10.9
Width torque wrench		S_w	[mm]	10	-	-

Table B2 – Installation data

				PTB-PRO M6	PTB-PRO FH	PTB-PRO WH
Drill hole diameter		d_{cut}	[mm]	≤ 6.45	≤ 6.45	≤ 6.45
Drill hole depth		h₁	[mm]	45	45	45 - 65
Embedment depth		h_{ef}	[mm]	35	35	35
Installation torque		T_{inst}	[Nm]	10	-	-
Diameter through hole fixture		d_f	[mm]	7	7	-
Min. member thickness		h_{min}	[mm]	80	80	80
Minimum edge distance		c_{min}	[mm]	105	105	105
Minimum spacing		s_{min}	[mm]	200	200	200

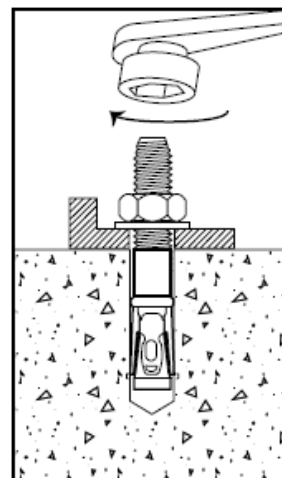
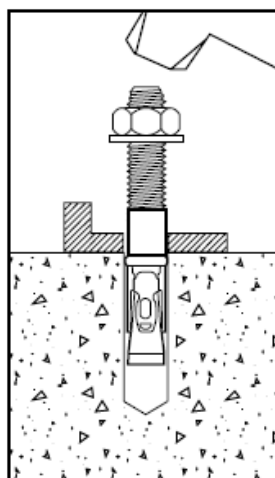
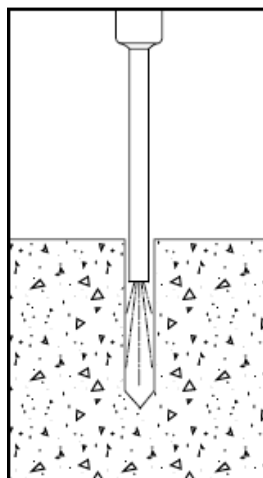
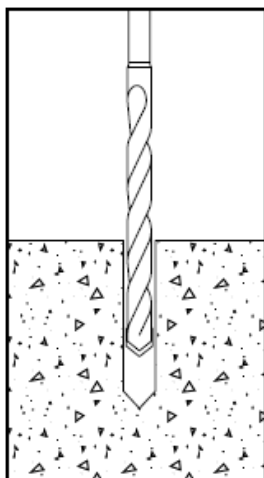
PTB-PRO

Intended use
Installation parameters

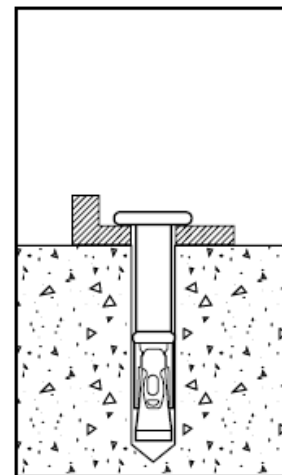
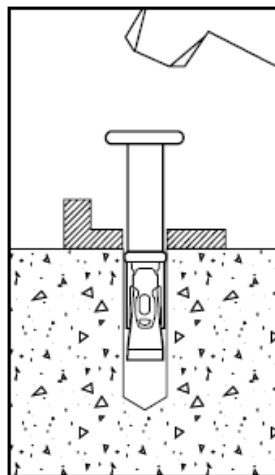
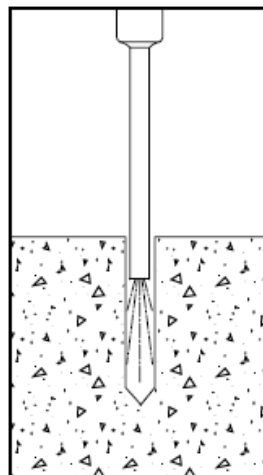
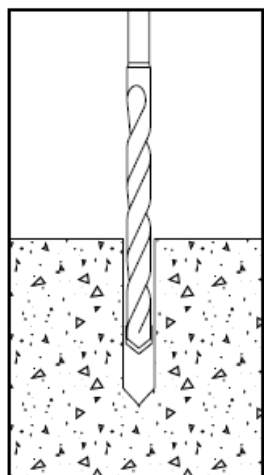
Annex B 2

Installation instructions

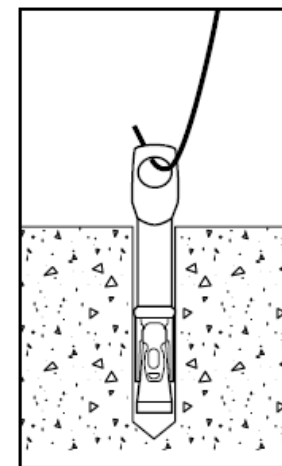
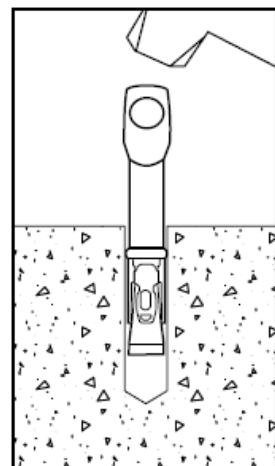
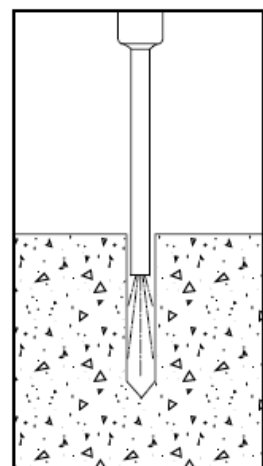
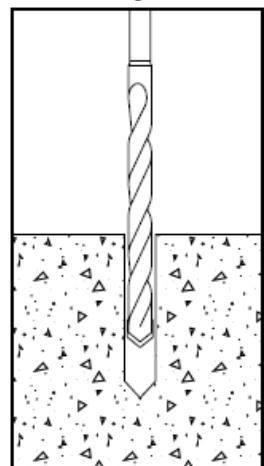
PTB-PRO M6



PTB-PRO FH



PTB-PRO WH



PTB-PRO

Intended use
Installation instructions

Annex B 3

Table C1 – Design method C: Characteristic resistances, safety factors and design values

PTB-PRO				
Tension and shear			PTB-PRO M6 PTB-PRO FH	PTB-PRO WH
Char. resistance (C20/25 to C50/60)	F_{Rk}	[kN]	4.0	4.0 ²⁾
Partial safety factor (installation safety factor $\gamma_2 = 1,4$)	$\gamma_M^{1)}$	[-]	2.1	2.1
Design value of resistance	F_{Rd}	[kN]	1.9	1.9
Char. spacing (design method C)	s_{cr}	[mm]	200	200
Char. edge distance (design method C)	c_{cr}	[mm]	105	105
Shear load with lever arm				
Characteristic bending Moment	$M^{0}_{Rk,s}$	[Nm]	9.3	9.3
Partial safety factor	$\gamma_M^{1)}$	[-]	1.5	1.5
Design value	$M^{0}_{Rd,s}$	[Nm]	6.2	6.2

¹⁾ In absence of other national regulations

²⁾ Value is valid only for tension load

Table C2 – Characteristic values under fire exposure in concrete C20/25 to C50/60 in any load direction without lever arm

Fire resistance class				PTB-PRO
Tension and shear				
R 30	Characteristic resistance	$F_{Rk,fi}^{1)}$	[kN]	0.14
R 60	Characteristic resistance	$F_{Rk,fi}^{1)}$	[kN]	0.12
R 90	Characteristic resistance	$F_{Rk,fi}^{1)}$	[kN]	0.10
R 120	Characteristic resistance	$F_{Rk,fi}^{1)}$	[kN]	0.07
Shear failure with lever arm				
R 30	Char. bending resistance	$M_{Rk,fi}^{1)}$	[Nm]	0.09
R 60	Char. bending resistance	$M_{Rk,fi}^{1)}$	[Nm]	0.08
R 90	Char. bending resistance	$M_{Rk,fi}^{1)}$	[Nm]	0.06
R 120	Char. bending resistance	$M_{Rk,fi}^{1)}$	[Nm]	0.04

¹⁾ In absence of other national regulations the partial safety factor for resistance under fire exposure. $\gamma_{M,fi} = 1,0$ is recommended

²⁾ In case of fire attack from more than one side, the edge distance shall be ≥ 300 mm

PTB-PRO	Annex C 1
Performances Characteristic resistance Characteristic resistance under fire exposure	