

GENERAL INFORMATION

PB-PRO

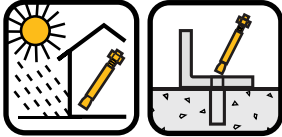
Heavy Duty Anchor

PRODUCT DESCRIPTION

The PB-PRO is a heavy duty, torque controlled, sleeve style anchor for high load capacities in tension and shear. It is easy to install and its design ensures a tight and reliable connection. The range of available PB-PRO anchor sizes covers all common capacity demands. The internal bolt is removable after installation, making the PB-PRO suitable for temporary applications.



GENERAL APPLICATIONS AND USES



FEATURES AND BENEFITS

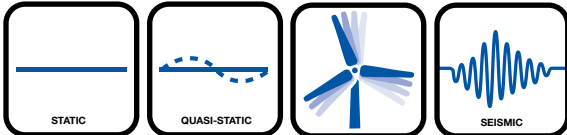
- High load capacity
- Excellent performance in tension and shear
- Anchor can be removed after installation

APPROVALS AND LISTINGS



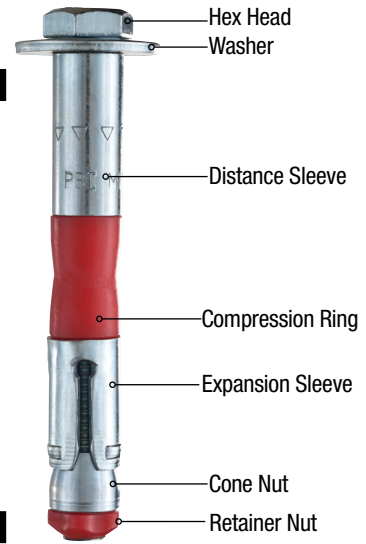
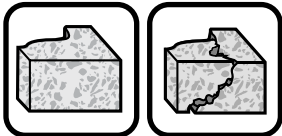
* Please refer to ETA-13/0060 for load capacities under fire

LOADING CONDITIONS



* Please refer to ETA-13/0060 for seismic performance load data

SUITABLE BASE MATERIALS



VERSIONS

- Hex Head
- Carbon Steel

APPROVALS

- ETA-13/0060

MECHANICAL ANCHORS

PB-PRO
HEAVY DUTY ANCHOR



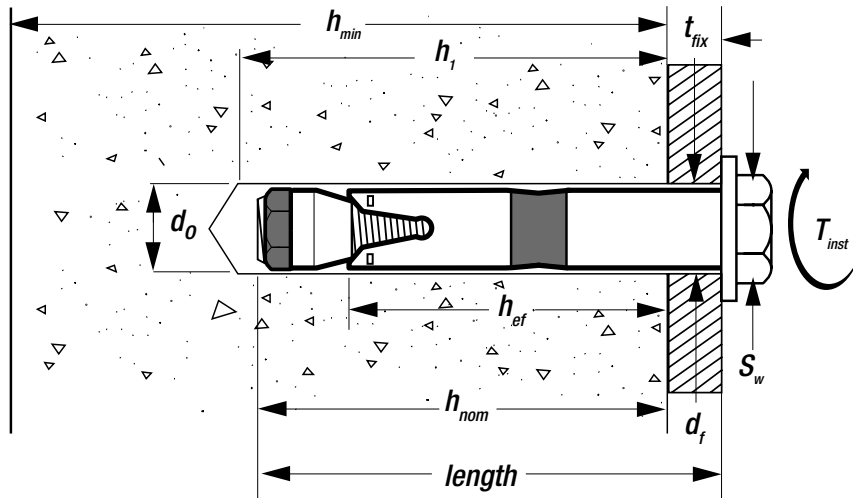
Real-Time Anchor Design Software
anchors.dewalt.com/anchors/
tech-support-software/
dewalt_design_assist.php

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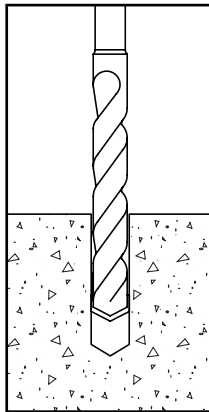
INSTALLATION INFORMATION

INSTALLATION DATA

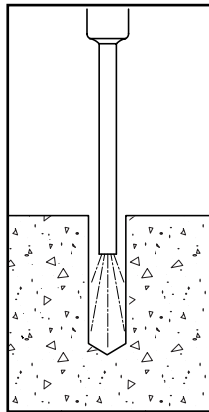
	Notation	Unit	M12
Anchor diameter	d_{nom}	[mm]	18
Nominal drill bit diameter	d_o	[mm]	18
Diameter of hole clearance in fixture	d_f	[mm]	20
Effective embedment depth	h_{ef}	[mm]	80
Nominal embedment depth	h_{nom}	[mm]	101
Drill hole depth for h_{ef}	h_1	[mm]	125
Minimum member thickness	h_{min}	[mm]	160
Minimum spacing	s_{min}	[mm]	100
Corresponding edge distance	for $c \geq$	[mm]	220
Minimum edge distance	c_{min}	[mm]	120
Corresponding spacing	for $s \geq$	[mm]	220
Installation torque	T_{inst}	[Nm]	90
Torque wrench socket size	S_w	[mm]	19



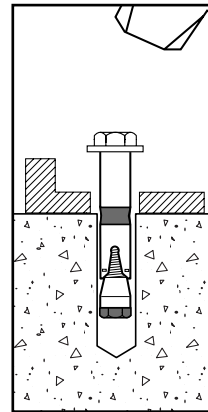
INSTALLATION INSTRUCTIONS



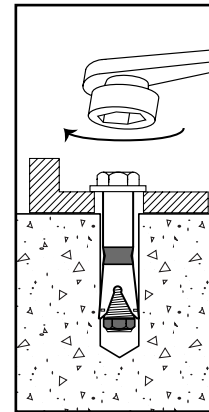
1.) Using the proper drill bit size, drill a hole into the base material to the required depth.



2.) Remove dust and debris from the hole using a hand pump or compressed air.



3.) Drive the anchor into the hole at least to the minimum required embedment depth.




4.) Tighten the anchor with a torque wrench by applying the required installation torque T_{inst} .

For complete installation instructions, see technical approval.

DESIGN INFORMATION

TENSION LOAD CAPACITIES - PARAMETERS FOR CALCULATION OF DESIGN STRENGTH

According to EN 1992-4 (and AS 5216).

	Notation	Unit	PB-PRO
			M12
Steel failure			
Characteristic resistance	$N_{Rk,s}$	[kN]	67.4
Partial safety factor	γ_{Ms}	[-]	1.5
Pullout failure			
Cracked concrete			
Characteristic resistance	$N_{Rk,p}$	[kN]	20
Partial safety factor	$\gamma_{Mp}^{1)}$	[-]	1.5 ²⁾
Uncracked concrete			
Characteristic resistance	$N_{Rk,p}$	[kN]	30
Partial safety factor	$\gamma_{Mp}^{1)}$	[-]	1.5 ²⁾
Increasing factor for concrete strength			
C30/37	ψ_c	[-]	1.22
C40/50	ψ_c	[-]	1.41
C50/60	ψ_c	[-]	1.55
Concrete failure			
Concrete cone failure			
Characteristic spacing	$s_{cr,N}$	[mm]	240
Characteristic edge distance	$c_{cr,N}$	[mm]	120
Partial safety factor	$\gamma_{Mc}^{1)}$	[-]	1.5 ²⁾
Splitting failure			
Characteristic spacing	$s_{cr,sp}$	[mm]	400
Characteristic edge distance	$c_{cr,sp}$	[mm]	200
Partial safety factor	$\gamma_{Msp}^{1)}$	[-]	1.5 ²⁾
Increasing factor for concrete strength			
C30/37	ψ_c	[-]	1.22
C40/50	ψ_c	[-]	1.41
C50/60	ψ_c	[-]	1.55
1) In absence of other national regulations			
2) Partial safety factor of $\gamma_z = 1.0$ is included			
 The DEWALT Design Assist is a powerful anchor design software which helps you to design simple and complex anchorages. The design data of all DEWALT anchor products is readily available. To download this software for free, go to anchors.DeWALT.com/anchors/tech-support-software/DeWALT_design_assist.php			

MECHANICAL ANCHORS

PB-PRO
HEAVY DUTY ANCHOR

SHEAR LOAD CAPACITIES - PARAMETERS FOR CALCULATION OF DESIGN STRENGTH

According to EN 1992-4 (and AS 5216).

	Notation	Unit	PB-PRO
			M12
Steel failure			
Steel failure without level arm			
Characteristic resistance	$V_{Rk,s}$	[kN]	76.6
Partial safety factor	$\gamma_{Mc}^{(1)}$	[-]	1.25
Steel failure with level arm (bending)			
Characteristic resistance	$M_{Rk,s}^0$	[Nm]	104.8
Partial safety factor	$\gamma_{Mc}^{(1)}$	[-]	1.25
Concrete failure			
Pry-out failure			
Factor in equation (5.6) of ETAG 001 Annex C	k_b	[-]	2
Partial safety factor	$\gamma_{Mc}^{(1)}$	[-]	1.5 ²⁾
Edge failure			
Effective length of anchor for h_{ef}	l_f	[mm]	80
Outside diameter of anchor	d_{nom}	[mm]	18
Partial safety factor	$\gamma_{Mc}^{(1)}$	[-]	1.5 ²⁾
1) In absence of other national regulations			
2) Partial safety factor of $\gamma_2 = 1.0$ is included			

DESIGN INFORMATION

PRECALCULATED TENSION AND SHEAR CAPACITIES

According to EN 1992-4 (and AS 5216).

- The following tables are meant to give the designer aid in the preliminary design process. No responsibility is taken for the correctness of these data.
- The given values are valid for normal concrete C20/25 ($f'_c = 20$ MPa) and static/quasi-static loads with the exact dimensional information given. For any other conditions, the use of DDA is recommended.
- The values in the table below are design level loads. This assumes a safety factor is included both on the loading and the resistance.
- For cracked concrete, splitting failure is not considered assuming that a reinforcement is present which limits the crack width to 0.3 mm.
- For further details and background information please see the introduction of this manual.

DESIGN INFORMATION

PRECALCULATED TENSION AND SHEAR CAPACITIES

According to EN 1992-4 (and AS 5216).

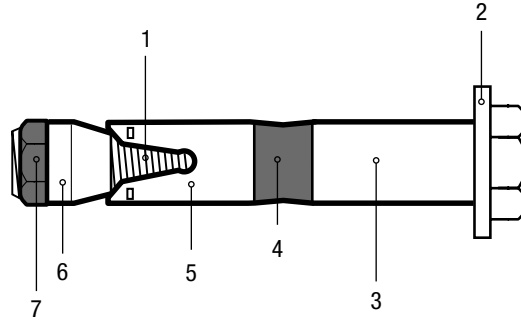
M12	C20/25	Anchoring located far from any edge					Anchoring located close to an edge				
Embedment depth	h_{ef} [mm]	80									
Member thickness	h [mm]	160									
Edge distance	c [mm]	-	-	-	-	-	120	120	120	120	120
Anchor spacing	s [mm]	-	100	240	100	240	-	220	240	220	240
	N_{Rd} [kN]	13.3	24.3	26.7	34.5	53.3	13.3	26.7	26.7	53.3	53.3
	$F_{Rd}^{45^\circ}$ [kN]	16.3	27.5	32.6	39.0	65.2	10.7	19.0	19.4	24.1	24.7
	V_{Rd} [kN]	34.3	48.7	68.7	68.9	137.4	12.0	19.3	20.0	19.3	20.0
	N_{Rd} [kN]	20.0	34.1	40.0	48.3	80.0	16.9	26.2	27.1	44.3	47.4
	$F_{Rd}^{45^\circ}$ [kN]	24.0	38.5	47.9	54.6	95.9	14.4	22.7	23.5	28.7	30.0
	V_{Rd} [kN]	48.1	68.1	96.2	96.5	192.3	16.9	27.3	28.2	27.3	28.2

■ - Steel strengths controls ■ - Concrete strength controls ■ - Anchor pullout strength controls

DDA The DEWALT Design Assist is a powerful anchor design software which helps you to design simple and complex anchorages. The design data of all DEWALT anchor products is readily available. To download this software for free, go to anchors.DeWALT.com/anchors/tech-support-software/DeWALT_design_assist.php

MATERIAL INFORMATION

MATERIAL SPECIFICATION



Part No.	Designation	Material	Protection
1	Threaded bolt	C-steel grade 8.8	Zinc plated 5 µm
2	Washer	Steel Property class 8.8 acc. to EN ISO 7093	Zinc plated 5 µm
3	Distance sleeve	C-steel	Zinc plated 5 µm
4	Compression ring	Plastic element HDPE	-
5	Expansion sleeve	C-steel	Zinc plated 5 µm
6	Cone nut	C-steel	Zinc plated 5 µm
7	Retainer nut	Plastic element HDPE	-

ORDERING INFORMATION

Part No.	Description	Dia. [mm]	Length [mm]	h _{nom.} [mm]	Max. t _{fix.}	Box Qty.	Carton Qty.
PB-PRO Hex head heavy duty load anchor - zinc plated							
27478S-PWR	18-M12/5 Heavy duty load anchor - zinc plated	M12	106	101	5	10	40
PB1810111-PWR	18-M12/10 Heavy duty load anchor - zinc plated	M12	111	101	10	10	40
PB1815116-PWR	18-M12/15 Heavy duty load anchor - zinc plated	M12	116	101	15	10	40
PB1825126-PWR	18-M12/25 Heavy duty load anchor - zinc plated	M12	126	101	25	10	40
27480S-PWR	18-M12/35 Heavy duty load anchor - zinc plated	M12	136	101	35	10	40



PB-PRO

MECHANICAL ANCHORS

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TECHNICAL SUPPORT CONTACT INFORMATION

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 F: 1800 080 898

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 T: (09) 265 6714
 F: (09) 273 3392

Disclaimer for Recommendations, Information and Use of Data

The recommendations, information and data contained in this manual are put together with the greatest care and accuracy possible. It is based on principles, equations and safety factors set out in the technical documentation of Stanley Black & Decker that are believed to be correct and current as of October 2019. The information and data is subject to change after such date as Stanley Black & Decker reserves the right to change the designs, materials and specifications of the products in this manual without notice.

It is the responsibility of the design professional to ensure that a suitable product is selected, properly designed and used in the intended application. This includes that the selected product and its use is compliant with the applicable building codes and other legal requirements and will satisfy durability and performance criteria and margins of safety which they determine are applicable. The products must be used, handled, applied and installed strictly in accordance with all current instructions for use published by Stanley Black & Decker.

The performance data given in this manual are the result of the evaluation of tests conducted under laboratory conditions. It is the responsibility of the designer and installer in charge to consider the conditions on site and to ensure the performance data given in the manual is applicable to the actual conditions. In particular the base material and environmental conditions have to be checked prior to installation. In case of doubt, contact the technical support of Stanley Black & Decker.

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