PTB-PRO HEAVY DUTY THROUGHBOLTS

CRACKED CONCRETE THROUGHBOLT APPROVED FOR FLEXIBLE EMBEDMENTS.

The PTB-PRO throughbolt is a fully threaded, torque controlled, wedge expansion anchor designed for consistent performance in cracked and uncracked concrete.

The anchor is easy to install and suitable for a variety of base materials with a nominal drill bit size the same as the anchor diameter. The wide range of available PTB-PRO anchor sizes also covers all common capacity demands with a superior load-displacement response that qualifies the PTB-PRO throughbolt for both standard and adverse loading conditions.

- ETA Option 1 approval for cracked and uncracked concrete*
- Approved for seismic load applications (M8-M16** C1 approved and M12* C2 approved)
- Two approved embedment depths (M12 and M16)*
- Long thread for flexibility in fixture thicknesses
- Special cone angle for quick installation
- Fire resistance*

* PTB-PRO zinc plated and stainless steel ** PTB-PRO zinc plated

ZINC PLATED | STAINLESS STEEL | HOT DIP GALVANISED

PTB-PRO HEAVY DUTY THROUGHBOLTS

APPLICATIONS

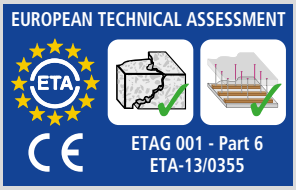
- Piping and heating supports
- Heating pumps
- Ventilation systems and air conditioning
- Safety barriers
- Fire escapes

MATERIALS

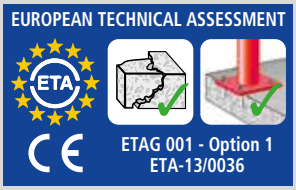
See front cover foldout for details.

APPROVALS

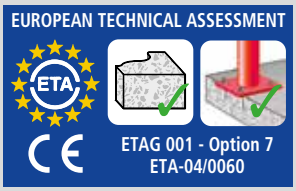
1 EUROPEAN TECHNICAL ASSESSMENT



2 EUROPEAN TECHNICAL ASSESSMENT



3 EUROPEAN TECHNICAL ASSESSMENT



A

B

PRODUCT OVERVIEW - PTB-PRO ZINC PLATED

Cat No.	1	2	3	A	B	Thread Size [mm]	Length [mm]	Head Size [mm]	Max t_{fix} [mm]	Box	Blister Pack	Pack Qty
DFM1110010						M6 x 40		10	2	•		100
DFM1110000	•			•		M6 x 55		10	5	•		100
DFM111000P	•			•		M6 x 55		10	5		•	4
DFM1110020	•			•		M6 x 60		10	10	•		100
DFM1110040	•			•		M6 x 85		10	35	•		100
DFM111004P	•			•		M6 x 85		10	35		•	4
DFM1110050						M8 x 50		13	5	•		100
DFM1110060		•		•	•	M8 x 60		13	5	•		100
DFM111006P		•		•	•	M8 x 60		13	5		•	4
DFM1110080		•		•	•	M8 x 65		13	10	•		100
DFM1110100		•		•	•	M8 x 75		13	20	•		100
DFM111010P		•		•	•	M8 x 75		13	20		•	4
DFM1110120		•		•	•	M8 x 85		13	30	•		100
DFM1110140		•		•	•	M8 x 95		13	40	•		100
DFM111014P		•		•	•	M8 x 95		13	40		•	4
DFM1110160		•		•	•	M8 x 105		13	50	•		100
DFM1110180		•		•	•	M8 x 130		13	75	•		50
DFM1110200		•		•	•	M8 x 155		13	100	•		50
DFM1110220		•		•	•	M8 x 205		13	150	•		50
DFM1110230						M10 x 60		17	5	•		50
DFM111023P						M10 x 60		17	5		•	2
DFM1110260		•		•	•	M10 x 85		17	5	•		50
DFM1110280		•		•	•	M10 x 90		17	10	•		50
DFM1110320		•		•	•	M10 x 100		17	20	•		50
DFM111032P		•		•	•	M10 x 100		17	20		•	2
DFM1110340		•		•	•	M10 x 110		17	30	•		50
DFM1110360		•		•	•	M10 x 120		17	40	•		50
DFM1110400		•		•	•	M10 x 130		17	50	•		50
DFM111040P		•		•	•	M10 x 130		17	50		•	2
DFM1110440		•		•	•	M10 x 160		17	80	•		50
DFM1110460		•		•	•	M10 x 180		17	100	•		25
DFM1110480		•		•	•	M10 x 220		17	140	•		25
DFM1110520		•		•	•	M12 x 90		19	5	•		50
DFM111052P		•		•	•	M12 x 90		19	5		•	2
DFM1110540		•		•	•	M12 x 95		19	10	•		50
DFM1110560		•		•	•	M12 x 100		19	15	•		50
DFM1110580		•		•	•	M12 x 105		19	20	•		25
DFM111058P		•		•	•	M12 x 105		19	20		•	2
DFM1110600		•		•	•	M12 x 115		19	30	•		25
DFM1110620		•		•	•	M12 x 120		19	35	•		25
DFM1110640		•		•	•	M12 x 135		19	50	•		25
DFM111064P		•		•	•	M12 x 135		19	50		•	2
DFM1110660		•		•	•	M12 x 165		19	80	•		25
DFM1110680		•		•	•	M12 x 175		19	90	•		25
DFM1110700		•		•	•	M12 x 185		19	100	•		25
DFM1110720		•		•	•	M12 x 220		19	135	•		10
DFM1110740		•		•	•	M16 x 115		24	5	•		25
DFM1110760		•		•	•	M16 x 125		24	15	•		20
DFM1110780		•		•	•	M16 x 135		24	25	•		20
DFM1110800		•		•	•	M16 x 150		24	40	•		20
DFM1110810		•		•	•	M16 x 160		24	50	•		10
DFM1110830		•		•	•	M16 x 210		24	100	•		10
DFM1110870						M20 x 125		30	5	•		10
DFM1110880		•		•		M20 x 160		30	5	•		10
DFM1110900		•		•		M20 x 170		30	15	•		10
DFM1110920		•		•		M20 x 175		30	20	•		10
DFM1110940		•		•		M20 x 185		30	30	•		10
DFM1110960		•		•		M20 x 200		30	45	•		10
DFM1110980		•		•		M20 x 215		30	60	•		10

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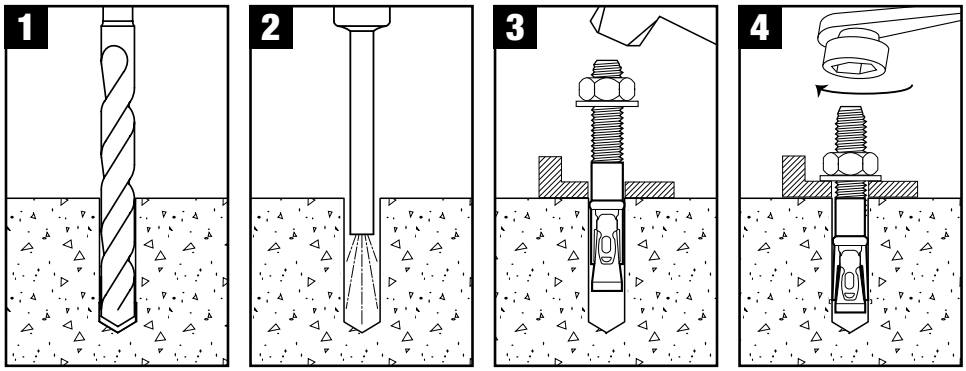
APPLICATIONS

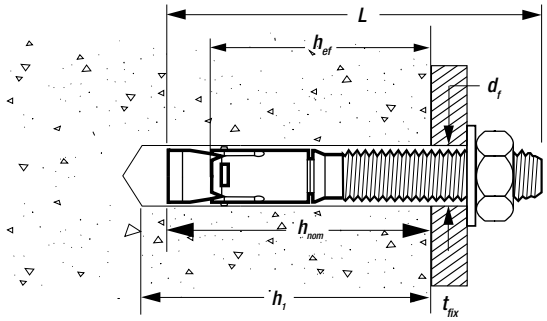
- Piping and heating supports
- Heating pumps
- Ventilation systems and air conditioning
- Safety barriers
- Fire escapes

MATERIALS

INSTALLATION INSTRUCTIONS



TECHNICAL INFORMATION



Nrec/Nall

Vrec/Vall

1 kN = 100kg

RECOMMENDED LOADS - UNCRACKED CONCRETE - PTB-PRO ZINC PLATED

$$\frac{N_{Rk}}{\gamma_M \cdot \gamma_F} = N_{rec}$$

$\gamma_M = 2.1$ $\gamma_f = 1.4$

Size - Thread x L [mm]	h_{nom} [mm]		h_1 [mm]		d_f [mm]	t_{fix} [mm]	T_{inst} [Nm]	N_{rec} [kN]		V_{rec} [kN]
	min	max	min	max				min	max	min & max
M6 x 40	25		35		7	2	10	0.8		0.8
M8 x 50	30		40		9	5	25	2.3		2.8
M10 x 60	35		50		12	5	45	3.4		3.5
M20 x 125	75		115		22	5	200	11.9		22.3

PTB-PRO HEAVY DUTY THROUGHBOLTS

ALLOWABLE LOADS - UNCRACKED CONCRETE - PTB-PRO ZINC PLATED


C20/25

$$\frac{N_{Rk}}{\gamma_M \bullet \gamma_F} = N_{all}$$

$\gamma_{f=1.4}$


M6


M8-M20

Size - Thread x L [mm]	h_{nom} [mm]		h_1 [mm]		d_f [mm]	t_{fix} [mm]		T_{inst} [Nm]	N_{all} [kN]		V_{all} [kN]
	min	max	min	max		min h_{nom}	max h_{nom}		min	max	min & max
M6 x 55	35		45		7	5		10	1.4		1.4
M6 x 60	35		45		7	10		10	1.4		1.4
M6 x 85	35		45		7	35		10	1.4		1.4
M8 x 60	40		55		9	5		25	3.6		5.7
M8 x 65	40		55		9	10		25	3.6		5.7
M8 x 75	40		55		9	20		25	3.6		5.7
M8 x 85	40		55		9	30		25	3.6		5.7
M8 x 95	40		55		9	40		25	3.6		5.7
M8 x 105	40		55		9	50		25	3.6		5.7
M8 x 130	40		55		9	75		25	3.6		5.7
M8 x 155	40		55		9	100		25	3.6		5.7
M8 x 205	40		55		9	150		25	3.6		5.7
M10 x 85	60		75		12	5		45	7.6		8.9
M10 x 90	60		75		12	10		45	7.6		8.9
M10 x 100	60		75		12	20		45	7.6		8.9
M10 x 110	60		75		12	30		45	7.6		8.9
M10 x 120	60		75		12	40		45	7.6		8.9
M10 x 130	60		75		12	50		45	7.6		8.9
M10 x 160	60		75		12	80		45	7.6		8.9
M10 x 180	60		75		12	100		45	7.6		8.9
M10 x 220	60		75		12	140		45	7.6		8.9
M12 x 90	60		75		14	5		70	11.2		12
M12 x 95	60		75		14	10		70	11.2		12
M12 x 100	60	80	75	95	14	15	1	70	11.2	14.3	12
M12 x 105	60	80	75	95	14	20	5	70	11.2	14.3	12
M12 x 115	60	80	75	95	14	30	10	70	11.2	14.3	12
M12 x 120	60	80	75	95	14	35	15	70	11.2	14.3	12
M12 x 135	60	80	75	95	14	50	30	70	11.2	14.3	12
M12 x 165	60	80	75	95	14	80	60	70	11.2	14.3	12
M12 x 175	60	80	75	95	14	90	70	70	11.2	14.3	12
M12 x 185	60	80	75	95	14	100	80	70	11.2	14.3	12
M12 x 220	60	80	75	95	14	135	115	70	11.2	14.3	12
M16 x 115	80		100		18	5		120	14.3		21.1
M16 x 125	80		100		18	15		120	14.3		21.1
M16 x 135	80	100	100	120	18	25	5	120	14.3	24	21.1
M16 x 150	80	100	100	120	18	40	20	120	14.3	24	21.1
M16 x 160	80	100	100	120	18	50	30	120	14.3	24	21.1
M16 x 210	80	100	100	120	18	100	80	120	14.3	24	21.1
M20 x 160	110		150		22	5		200	19.8		30.9
M20 x 170	110		150		22	15		200	19.8		30.9
M20 x 185	110		150		22	30		200	19.8		30.9
M20 x 200	110		150		22	45		200	19.8		30.9
M20 x 215	110		150		22	60		200	19.8		30.9

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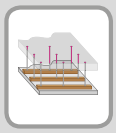
ALLOWABLE LOADS - CRACKED CONCRETE - PTB-PRO ZINC PLATED


C20/25

$$\frac{N_{Rk}}{\gamma_M \bullet \gamma_F} = N_{all}$$

$\gamma_f = 1.4$


M6


M8-M20

Size - Thread x L [mm]	h_{nom} [mm]		h_1 [mm]		d_f [mm]	t_{fix} [mm]		T_{inst} [Nm]	N_{all} [kN]		V_{all} [kN]
	min	max	min	max		min h_{nom}	max h_{nom}		min	max	min & max
M6 x 55	35		45		7	5		10	1.4		1.4
M6 x 60	35		45		7	10		10	1.4		1.4
M6 x 85	35		45		7	35		10	1.4		1.4
M8 x 60	40		55		9	5		25	1.6		4.3
M8 x 65	40		55		9	10		25	1.6		4.3
M8 x 75	40		55		9	20		25	1.6		4.3
M8 x 85	40		55		9	30		25	1.6		4.3
M8 x 95	40		55		9	40		25	1.6		4.3
M8 x 105	40		55		9	50		25	1.6		4.3
M8 x 130	40		55		9	75		25	1.6		4.3
M8 x 155	40		55		9	100		25	1.6		4.3
M8 x 205	40		55		9	150		25	1.6		4.3
M10 x 85	60		75		12	5		45	3.6		8.9
M10 x 90	60		75		12	10		45	3.6		8.9
M10 x 100	60		75		12	20		45	3.6		8.9
M10 x 110	60		75		12	30		45	3.6		8.9
M10 x 120	60		75		12	40		45	3.6		8.9
M10 x 130	60		75		12	50		45	3.6		8.9
M10 x 160	60		75		12	80		45	3.6		8.9
M10 x 180	60		75		12	100		45	3.6		8.9
M10 x 220	60		75		12	140		45	3.6		8.9
M12 x 90	60		75		14	5		70	4.8		12
M12 x 95	60		75		14	10		70	4.8		12
M12 x 100	60		75		14	15		70	4.8		12
M12 x 105	60	80	75	95	14	20	5	70	4.8	4.8	12
M12 x 115	60	80	75	95	14	30	10	70	4.8	4.8	12
M12 x 120	60	80	75	95	14	35	15	70	4.8	4.8	12
M12 x 135	60	80	75	95	14	50	30	70	4.8	4.8	12
M12 x 165	60	80	75	95	14	80	60	70	4.8	4.8	12
M12 x 175	60	80	75	95	14	90	70	70	4.8	4.8	12
M12 x 185	60	80	75	95	14	100	80	70	4.8	4.8	12
M12 x 220	60	80	75	95	14	135	115	70	4.8	4.8	12
M16 x 115	80		100		18	5		120	9.9		21.1
M16 x 125	80		100		18	15		120	9.9		21.1
M16 x 135	80	100	100	120	18	25	5	120	9.9	9.9	21.1
M16 x 150	80	100	100	120	18	40	20	120	9.9	9.9	21.1
M16 x 160	80	100	100	120	18	50	30	120	9.9	9.9	21.1
M16 x 210	80	100	100	120	18	100	80	120	9.9	9.9	21.1
M20 x 160	110		150		22	5		200	7.9		30.9
M20 x 170	110		150		22	15		200	7.9		30.9
M20 x 185	110		150		22	30		200	7.9		30.9
M20 x 200	110		150		22	45		200	7.9		30.9
M20 x 215	110		150		22	60		200	7.9		30.9