



## Declaration of Performance

No. DEA990065

### Expandet Throughbolt EXG II (Hot dipped galvanised $\geq 40 \mu\text{m}$ )

Intended use or uses of the construction product according to ETAG 001 parts 1 and 2		
Generic type	Torque controlled expansion anchor (Bolt type)	
Base material	Un-cracked concrete C20/25 to C50/60 acc. to EN 206-1:2003	
A	Material	Hot dipped galvanized carbon steel
	Durability	Internal dry conditions
Loading	static, quasi-static	
Fire Reaction	A1 according to EN13501-1	
ETA - 10/0180 issued by	DEUTSCHES INSTITUT FÜR BAUTECHNIK (DIBt)	
On the basis of	ETAG 001	
Certificate of Conformity 0756-CPD-0346 issued by	Technische Universität Darmstadt Institut für Massivbau	
Under System	1	

Declared performances according to ETAG 001 parts 1 and 2													
Essential Characteristics				Performance									
<b>Installation parameters</b>													
d	Diameter of anchor bolt or thread	[mm]		M8		M10		M12		M16		M20	
h <sub>eff</sub>	Effective anchorage depth	[mm]		44	35	48	42	65	50	82	64	100	78
d <sub>0</sub>	Nominal diameter of drill bit	[mm]		8		10		12		16		20	
d <sub>fix</sub>	Diameter of clearance hole in the fixture	[mm]		9		12		14		18		22	
h <sub>nom</sub>	Minimum installation depth	[mm]		56	47	62	56	82	67	102	84	121	99
h <sub>min</sub>	Minimum thickness of the concrete member	[mm]		100	80	100	100	130	100	170	130	200	160
T <sub>inst</sub>	Nominal torque moment	[Nm]		15		30		50		100		200	
S <sub>min</sub>	Minimum spacing	[mm]		40		55		75		100		140	
	for c $\geq$ Edge distance	[mm]		40		55		75		100		140	
C <sub>min</sub>	Minimum edge distance	[mm]		45		65		90		105		140	
	for s $\geq$ Anchor spacing	[mm]		45		65		90		105		140	
<b>Tension Steel failure mode</b>													
N <sub>Rk,s</sub>	Tension Steel characteristic failure	[kN]		15,3		26,0		35,0		65,0		107,0	
$\gamma_{m,sN}$	Partial safety factor for tension steel failure	[-]		1,5						1,6			
<b>Pull-out failure mode</b>													
N <sub>Rk,p,ucr</sub>	Tension characteristic load in un-cracked	[kN]		12	<sup>1)</sup>	16	<sup>1)</sup>	<sup>1)</sup>	<sup>1)</sup>	<sup>1)</sup>	<sup>1)</sup>	<sup>1)</sup>	<sup>1)</sup>
$\gamma_2$	Partial safety factor	[-]		1,0									
$\psi_c$ C30/37	Increasing factor for concrete C30/37	[-]		1,22									
$\psi_c$ C40/50	Increasing factor for concrete C40/50	[-]		1,41									
$\psi_c$ C50/60	Increasing factor for concrete C50/60	[-]		1,55									
<sup>1)</sup> Pullout is not decisive													
<b>Concrete Cone failure mode</b>													
S <sub>cr,N</sub>	Critical spacing	[mm]		132	105	144	126	195	150	246	192	300	234
C <sub>cr,N</sub>	Critical edge distance	[mm]		66	52,5	72	63	97,5	75	123	96	150	117
$\gamma_2$	Partial safety factor	[-]		1,0									
<b>Splitting failure mode</b>													
S <sub>cr,sp</sub>	Critical spacing (splitting)	[mm]		220	210	240	230	330	240	410	320	500	400
C <sub>cr,sp</sub>	Critical edge distance (splitting)	[mm]		110	105	120	115	165	120	205	160	250	200
$\gamma_2$	Partial safety factor	[-]		1,0									



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Declared performances according to ETAG 001 parts 1 and 2														
Essential Characteristics			Performance											
d	Diameter of anchor bolt or thread	[mm]		M8	M10	M12	M16	M20						
<b>Displacement on Tension loads</b>														
$N_{ucr}$	Service tension load in un-cracked concrete	[kN]		5,8	5,0	7,6	6,5	11,9	8,5	16,7	12,3	23,8	16,6	
$\delta_{NO,ucr}$	Short term displacement under tension	[mm]		0,5	0,4	0,5	0,4	0,5	0,4	0,5	0,4	0,5	0,4	
$\delta_{N\infty,ucr}$	Long term displacement under tension load	[mm]		2,7	1,8	2,7	1,8	2,7	1,8	2,7	1,8	2,7	1,8	
<b>Shear steel failure mode</b>														
$V_{Rk,s}$	Shear Steel characteristic failure	[kN]		11	11	17	17	25	25	44	44	69	69	
$M^0_{Rk,s}$	Bending Moment characteristic failure	[Nm]		23	23	45	45	78	78	156	186	363	363	
$\gamma_{m,sV}$	Partial safety factor for shear steel failure	[-]		1,25					1,33					
<b>Shear Concrete Pryout failure mode</b>														
k	Factor for concrete pryout failure	[-]		1,0					2,0	1,0	2,0			
$\gamma_2$	Partial safety factor	[-]		1,0										
<b>Shear Concrete edge failure mode</b>														
$l_f$	Effective length of anchor under shear loading	[mm]		44	35	48	42	65	50	82	64	100	78	
$d_{nom}$	Outside diameter of anchor	[mm]		8		10		12		16		20		
$\gamma_2$	Partial safety factor	[-]		1,0										
<b>Displacement on Shear Load</b>														
V	Service shear load in	[kN]		6,3	6,3	9,7	9,7	14,3	14,3	23,6	23,6	37	37	
$\delta_{V0}$	Short term displacement under shear load	[mm]		1,5	1,5	1,6	1,6	2,6	2,6	3,1	3,1	4,4	4,4	
$\delta_{V\infty}$	Long term displacement under shear load	[mm]		2,2	2,2	2,4	2,4	3,9	3,9	4,6	4,6	6,6	6,6	

The above performances apply for the following article numbers:

Article Number	Dimension	d x l	$t_{fix}$ (Standard $h_{ef}$ )	$t_{fix}$ (Reduced $h_{ef}$ )
		(mm)	(mm)	(mm)
0708060VG	M8	M8 x 60	-	4
0708075VG		M8 x 75	10	19
0708095VG		M8 x 95	30	39
0708110VG		M8 x 110	45	54
0708165VG		M8 x 165	100	109
0710090VG		M10	M10 x 90	15
0710105VG	M10 x 105		30	36
0710120VG	M10 x 120		45	51
0710145VG	M10 x 145		70	76
0710175VG	M10 x 175		100	106
0710215VG	M10 x 215		140	146

Article Number	Dimension	d x l	$t_{fix}$ (Standard $h_{ef}$ )	$t_{fix}$ (Reduced $h_{ef}$ )
		(mm)	(mm)	(mm)
0712110VG	M12	M12 x 110	15	30
0712125VG		M12 x 125	30	45
0712145VG		M12 x 145	50	65
0712160VG		M12 x 160	65	80
0712180VG		M12 x 180	85	100
0712200VG		M12 x 200	105	120
0712240VG		M12 x 240	145	160
0716115VG		M16	M16 x 115	-
0716130VG	M16 x 130		10	28
0716150VG	M16 x 150		30	48
0716180VG	M16 x 180		60	78
0716220VG	M16 x 220		100	118
0716250VG	M16 x 250		130	148
0716285VG	M16 x 285		165	183
0716320VG	M16 x 320		200	218
0720180VG	M20	M20 x 180	35	57
0720205VG		M20 x 205	60	82



**EXPANDET**® 

®

Svedebuen 2-6 DK-3230

Tlf.: +45 70227979

expandet@expandet.dk

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The performance of the product identified above is in conformity with the set of declared performance/s.

This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of Expandet Screw Anchors A/S by:

Place and date of issue: Græsted, 15/07/2014



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Peter van der Wel, Managing Director