

Declaration of Performance CE-050199-A1

m2r Throughbolt

(Torque-controlled expansion anchor made of stainless steel for use in non-cracked concrete)

Intended use or uses of the construction product according to ETAG 001 parts 1 and 2	
Generic type	torque controlled expansion anchor sleeve type
Base material	un-cracked concrete C20/25 to C50/60 acc. to EN 206-1:2000-12
Material	made of galvanized steel
Durability	internal dry conditions and external atmospheric conditions including industrial & marine environment, without particular aggressive conditions.
Loading	static, quasi-static
Fire Resistance	No performance declared
Fire Reaction	A1 according to EN13501-1
ETA - 05/0199 issued by	Deutsches Institut für Bautechnik DIBt, Berlin
On the basis of	ETAG 001, Part 2 Option 7
Certificate of Conformity 1109-CPD-0070 issued by	IFBT GmbH, Leipzig
Under AVCP System	1

Declared performances according to ETAG 001 parts 1 and 2							
Essential characteristics			Performance				
			M6	M8	M10	M12	M16
Installation parameters							
d_o	Nominal diameter of drill bit	[mm]	6	8	10	12	16
h_{ef}	Effective anchorage depth	[mm]	40	50	58	68	80
h_{nom}	Minimum installation depth	[mm]	46,9	58,5	68,8	79,6	96,4
h_{min}	Minimum thickness of the concrete member	[mm]	100	100	120	140	160
T_{inst}	Nominal torque moment	[Nm]	6,5	25	35	125	140
s_{min}	Minimum spacing	[mm]	40	50	60	75	100
for $c \geq$	Edge distance	[mm]	70	90	115	150	190
c_{min}	Minimum edge distance	[mm]	40	50	60	100	130
for $s \geq$	Anchor spacing	[mm]	80	100	120	150	190
Tension Steel failure mode							
$N_{Rk,s}$	Tension Steel characteristic failure	[kN]	9,6	19,0	32,6	46,5	81,7
$\gamma_{m,sN}$	Partial safety factor for tension steel failure	[-]	1,6				
Pull-out failure mode							
$N_{Rk,o,cr}$	Tension characteristic load in cracked concrete C20/25	[kN]					
$N_{Rk,o,ucr}$	Tension characteristic load in un-cracked concrete	[kN]	7,5	12	16	25	30
γ_2	Partial safety factor	[-]	1,0				
$s_{cr,N}$	Critical spacing	[mm]	$3 h_{ef}$				
$c_{cr,N}$	Critical edge distance	[mm]	$1,5 h_{ef}$				
ψ_c C30/37	Increasing factor for concrete C30/37	[-]	1,17				
ψ_c C40/50	Increasing factor for concrete C40/50	[-]	1,32				
ψ_c C50/60	Increasing factor for concrete C50/60	[-]	1,42				
Splitting failure mode							
$s_{cr,sp}$	Critical spacing (splitting)	[mm]	$6 h_{ef}$			$5 h_{ef}$	
$c_{cr,sp}$	Critical edge distance (splitting)	[mm]	$3 h_{ef}$			$2,5 h_{ef}$	
Displacement on Tension Load							
N_{cr}	Service tension load in cracked concrete	[kN]	n.a.				

$\delta_{N0,cr}$	Short term displacement under tension load	[mm]	n.a.					
$\delta_{N^{se},cr}$	Long term displacement under tension load	[mm]	n.a.					
N_{ucr}	Service tension load in un-cracked concrete	[kN]	3,6	5,7	7,6	9,9	11,9	
$\delta_{N0,ucr}$	Short term displacement under tension load	[mm]	0,3					
$\delta_{N^{se},ucr}$	Long term displacement under tension load	[mm]	1,3					
Shear Steel failure mode								
$V_{Rk,s}$	Shear Steel characteristic failure	[kN]	7,2	13,2	20,9	30,3	56,4	
$M_{Rk,s}^0$	Bending Moment characteristic failure	[Nm]	12	30	60	105	266	
$\gamma_{m,sV}$	Partial safety factor for shear steel failure	[-]	1,33					
Shear Concrete Edge failure mode								
l_{ef}	Effective anchorage length in shear loading	[mm]	40	50	58	68	80	
Concrete pryout failure								
k	Factor in equation (5.6) of ETAG Annex C, § 5.2.3.3	[-]	1,0			2,0		
Displacement on Shear Load								
V	Service shear load in concrete	[kN]	3,9	7,1	11,2	16,3	30,3	
δ_{V0}	Short term displacement under shear load	[mm]	1,5	1,9	2,3	3,1	3,9	
$\delta_{V^{se}}$	Long term displacement under shear load	[mm]	2,3	2,9	3,5	4,7	5,9	
Fire Resistance								
$N_{Rk,s,fi,30}$	For fire resistance duration = 30 minutes	[kN]	n.a.					
$N_{Rk,s,fi,60}$	For fire resistance duration = 60 minutes	[kN]	n.a.					
$N_{Rk,s,fi,90}$	For fire resistance duration = 90 minutes	[kN]	n.a.					
$N_{Rk,s,fi,120}$	For fire resistance duration = 120 minutes	[kN]	n.a.					
Seismic Resistance – Performance Category CX								
$N_{Rk,s,seis}$	Characteristic steel tension resistance under seismic	[kN]	n.a.					
$N_{Rk,p,seis}$	Characteristic tension pullout resistance under seismic	[kN]	n.a.					
$V_{Rk,s,seis}$	Characteristic steel shear resistance under seismic action	[kN]	n.a.					
Displacement on Seismic Load								
$\delta_{N,seis(DLS)}$	Displacement of the anchor under tension loading at DLS	[mm]	n.a.					
$\delta_{N,seis(ULS)}$	Displacement of the anchor under tension loading at ULS	[mm]	n.a.					
$\delta_{V,seis(DLS)}$	Displacement of the anchor under shear loading at DLS	[mm]	n.a.					
$\delta_{V,seis(ULS)}$	Displacement of the anchor under shear loading at ULS	[mm]	n.a.					

The above performances apply for the following article numbers:

d	Märkning d _e x L / t _{fix} [mm]	Art. Nr
M6	M6x65/10	15176 4927
	M8x80/10	15177
M8	M8x95/25	4930
	M8x115/45	15178 4931
	M10x95/15	15180
M10	M10x110/30	4934
	M10x125/45	7954
	M10x140/60	4935
	M12x125/30	15182 4937
M12	M12x145/50	15183
	M16x160/45	4939

The performances of the product identified by the above identification code are in conformity with the declared performance.

This declaration of performance is issued under the sole responsibility of Gbo Fastening Systems AB.

Signed for and on behalf of the manufacturer by:

Gunnebo September 04, 2013



.....
Claes Arnesson, Head of Operation

Revised September 12, 2013

Further information:

Liability for printing errors is excluded. The full content of the corresponding ETA has to be observed.

