

Declaration of Performance 1109-CPD-0069

valid from lot no 909809 to lot no *****

m2/m2-C Throughbolt

(Torque-controlled expansion anchor made of galvanized 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	non-cracked concrete C20/25 to C50/60 acc. to EN 206-1:2000-12
Material	made of galvanized steel
Durability	internal dry conditions
Loading	static, quasi-static
Fire resistance	No performance declared
Fire reaction	A1 according to EN13501-1
ETA - 05/0070 issued by	
Deutsches Institut für Bautechnik DIBt, Berlin	
On the basis of	
ETAG 001, Part 2 Option 7	
Certificate of Conformity 1109-CPD-0069 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	M20
Installation Parameters								
d_0	Nominal diameter of drill bit	[mm]	6	8	10	12	16	20
h_{ef}	Effective anchorage depth	[mm]	40	50	58	68	80	100
h_{nom}	Minimum installation depth	[mm]	46,9	58,5	68,8	79,6	96,4	118
h_{min}	Minimum thickness of the concrete member	[mm]	100	100	120	140	160	200
T_{inst}	Nominal torque moment	[Nm]	5	15	30	50	100	200
s_{min}	Minimum spacing	[mm]	40	50	60	75	100	200
for $c \geq$	Edge distance	[mm]	70	90	115	150	190	400
c_{min}	Minimum edge distance	[mm]	40	50	60	100	130	300
for $s \geq$	Anchor spacing	[mm]	80	100	120	150	190	350
Installation Parameters for $l > 185\text{mm}$								
s_{min}	Minimum spacing	[mm]	-	-	110	120	-	-
for $c \geq$	Edge distance	[mm]	-	-	200	320	-	-
c_{min}	Minimum edge distance	[mm]	-	-	150	240	-	-
for $s \geq$	Anchor spacing	[mm]	-	-	210	240	-	-
Tension Steel Failure Mode								
$N_{Rk,s}$	Tension Steel characteristic failure	[kN]	9,6	19,0	32,6	43,6	76,6	123,8
$\gamma_{m,sN}$	Partial safety factor for tension steel failure	[-]	1,4					
Pull-Out Failure Mode								
$N_{Rk,d,cr}$	Tension characteristic load in cracked concrete C20/25	[kN]						
$N_{Rk,p,ucr}$	Tension characteristic load in non-cracked concrete	[kN]	7,5	12	16	25	30	50
γ_2	Partial safety factor	[-]	1,0			1,2		
$s_{cr,N}$	Critical spacing	[mm]	120	150	174	204	240	300
$c_{cr,N}$	Critical edge distance	[mm]	60	75	87	102	120	150
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]	200	250	290	340	400	500
$c_{cr,sp}$	Critical edge distance (splitting)	[mm]	100	125	145	170	200	250
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.					
$\delta_{Nz,cr}$	Long term displacement under tension load	[mm]	n.a.					
N_{ucr}	Service tension load in non-cracked concrete	[kN]	3,6	5,7	7,6	9,9	11,9	19,8
$\delta_{N0,ucr}$	Short term displacement under tension load	[mm]	0,3					
$\delta_{Nz,ucr}$	Long term displacement under tension load	[mm]	1,3					
Shear Steel Failure Mode								
$V_{Rk,s}$	Shear Steel characteristic failure	[kN]	4,5	8,2	13,0	17,7	32,9	51,4
$M_{Rk,s}^0$	Bending Moment characteristic failure	[Nm]	12,2	30,0	59,8	98,2	249	486,2
$\gamma_{m,sV}$	Partial safety factor for shear steel failure	[-]	1,5					
Shear Concrete Edge Failure Mode								
l_{ef}	Effective anchorage length	[mm]	40	50	58	68	80	100
Concrete Pry-Out 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]	1,9	3,5	5,5	7,5	14,0	21,9
δ_{V0}	Short term displacement under shear load	[mm]	1,6	2,2	2,4	2,7	3,3	3,8
δ_{Vz}	Long term displacement under shear load	[mm]	2,4	3,2	3,6	4,1	4,9	5,7

The above performances apply for the following article numbers:

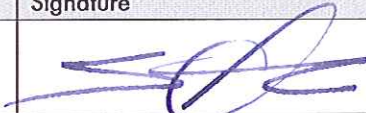
d	Marking $d_o \times L / t_{fix}$ [mm]	Art. No Washer DIN 125	Art. No Washer DIN 9021
M6	M6x65/10	3200606	-
	M6x80/25	3200608	-
M8	M8x80/10	3200808	3210808
	M8x85/15	3200885	-
	M8x95/25	3200809	-
	M8x115/45	3200811	-
	M8x165/95	3200816	3210816
M10	M10x95/15	3201009	3211009
	M10x110/30	3201011	3211011
	M10x125/45	3201012	3211012
	M10x140/60	3201014	-
	M10x160/80	3201016	3211016
	M10x180/100	3201018	3211018
M12	M12x110/15	3201211	3211211
	M12x125/30	3201212	3211212
	M12x145/50	3201214	3211214
	M12x165/70	3201216	3211216
	M12x185/90	3201218	3211218
	M12x200/105	-	1471220
	M12x220/125	-	1471222
	M12x240/145	-	1471224
	M12x260/165	-	1471226
	M12x280/185	-	1471228
	M12x300/205	-	1471230

	M12x330/235	-	1471233
	M12x360/265	-	1471236
M16	M16x130/15	3201613	-
	M16x145/30	3201614	-
	M16x160/45	3201616	-
	M16x180/65	3201618	-
	M16x220/105	-	1471622
	M16x240/125	-	1471624
	M16x260/145	-	1471626
	M16x280/165	-	1471628
	M16x300/185	-	1471630
	M16x330/215	-	1471633
	M16x440/325	-	1471644
	M20	M20x160/30	1452016
M20x200/70		-	1472020
M20x270/140		-	1472027

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 Mungo AG.

Signed for and on behalf of the manufacturer by:

Name and Functions	Place and Date of Issue	Signature
Arnold Schefer Owner and CEO	Olten, 4.6.2013	

Further Information:

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