Declaration of performance 2323-CPR-0003

Valid from lot no 922237 bis ******

MB/MBR Nylon Frame Plug
(Plastic anchor for multiple use in concrete and masonry for non-structural applications)

Intended use or uses of the construction product according to ETAG 001 parts 1 and 2					
Generic type	Plastic anchor for multiple use for non-structural applications				
Base material concrete	Un-cracked concrete ≥ C12/15 acc. EN 206-1:2014				
Base material all masonry	Mortar strength min. M2,5 acc. to EN 998-2:2010				
	Name	Standard	Minimum size	Compression strength fb [N/mm²] / Bulk density class [kg/dm³]	
Base material use cat. „b"	Clay brick MZ 12-1,8-NF	DIN 105-100:2012-01	237x112x71	10/1,8	20/1,8
Base material use cat. „b"	KSV 12-1,8-2DF	DIN V 106:2005-10	240x115x113	10/1,8	20/1,8
	KS-Ratio flat element 20-2,0-8DF	DIN V 106:2005-10	498x115x248	10/2,0	20/2,0
Base material use cat. „b"	Light concrete solid brick Vbl 2-0,8-2DF	DIN V 18152-100:2005-10	240x115x113	2/0,5 10/1,2	4/0,8 20/2,0
	Ligth concrete –flat element PE12-0,5	Z-17.1-699 vom 19.10.2012	997x240x623	2/0,5	4/0,8
	Liapor solid brick		240x115x95	10/1,2	
Base material use cat. „c"	ROGGWILL *QS/SZ* CE 21-12-13 SWISSMODUL		300x150x190	25/0,8	
	Block 37/17,5 brickyard 87727 Klosterbeuren, Germany	Z-17.1-1038 (16.07.2010)	373x175x238	12/1,4	
	Plan 30/24 brickyard 87727 Klosterbeuren, Germany	Z-17.1-993 (09.07.2010)	308x240x249	12/1,2	
Base material use cat. „c"	Calcium silicate hollow brick KSL 12-1,2-10DF	DIN V 106:2005-10	300x240x238	12/1,2	
	KS-Ratio flat element 12-1,6-8DF	DIN V 106:2005-10	498x115x248	12/1,6	
Base material use cat. „c"	Concrete hollow block Hbn 6-1,2-8DF	DIN V 18153-100:2005-10	495x115x238	6/1,2	
Base material use cat. „d"	Autoclaved aerated concrete (AAC)	EN 771-3:2011	250x150x240	2,0/0,35	5,2/0,55
	Reinforced autoclaved aerated concrete	EN 12602:2013	250x150x240	3,0/0,35	5,2/0,55

Material Anchor sleeve	Polyamid, PA6
Material screw 1	Steel 6.8, gvz ≥ 5 µm acc. to EN ISO 4042:2001-01, blue passivated
Material screw 2 (stainless)	Stainless steel A4 EN10088-3:2014 with f_{uk} = 700N/mm² & f_{yk} = 450 N/m²
Durability (corrosion protection) screw 1	internal dry conditions and external atmospheric exposure if intrusion of moisture into the anchor shaft is prevented. E.g. external cladding + soft plastic, permanently elastic bitumen-oil-combination coating = body cavity protection for cars
Durability (corrosion protection) screw 2 (stainless)	Internal and external atmospheric exposure (including industrial and marine environment), or exposure in permanently damp internal conditions, if no particular aggressive conditions exist
Loading	static, quasi-static
Temperature range	b) -20 °C to +50 °C (max long term temperature +50 °C and max short term temperature +80 °C)
Fire Resistance	R90 if the admissible load [FRk / (γM·γF)] is ≤ 0,8 kN acc TR020

ETA - 15/0068 issued by	DIBt Deutsches Institut für Bautechnik
On the basis of	ETAG 020, Parts 1-4
Certificate of Conformity 2323-CPD-0003 issued by	IEA GmbH & Co. KG
Under AVCP System	2+

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Declared performances according to ETAG 0020 parts 1 to 4

Essential characteristics

Installation parameters masonry, concrete and aerated concrete			MBR 10	MB 10	MB10
Base material			Concrete / Solid brick / Hollow brick	Concrete / Solid brick / Hollow brick	Aerated concrete (AAC)
d_0	Nominal drill hole diameter	[mm]	10	10	9
d_{cut}	Cutting diameter of drill bit	[mm]	10,45	10,45	9,45
d_f	Diameter of clearance hole in fixture	[mm]	10,5		
h_0	Depth of drill hole	[mm]	60	80	100
h_{nom}	Embedment depth	[mm]	50	70	90

Installation parameters in concrete

Plug type	Festigkeitsklasse	Minimum thikness of structural part	Caracteristic edge distance	Characteristic spacing distance	Minimum edge distance	Minimum spacing distance
		h_{min} [mm]	$c_{cr,Nn}$ [mm]	$s_{cr,Nn}$ [mm]	c_{min} [mm]	s_{min} [mm]
MB 10	Beton ≥C12/15	100	70	75	70	70
	Beton ≥C16/20	100	50	55	50	50
MBR 10	Beton ≥C12/15	100	70	75	70	70
	Beton ≥C16/20	100	50	55	50	50

Installation parameter in hollow brick and AAC

Plug type	Base material	Drilling method	h_{min} [mm]	c_{min} [mm]	s_{min1} [mm] vertical to edge	s_{min2} [mm] parallel to edge
MB 10	Clay brick MZ 12-1,8-NF	H	112	120	240	480
MB 10	KSV 12-1,8-2DF	H	115	120	240	480
MBR 10 MB 10	KS-Ratio flat element 20-2,0-8DF	H	115	100	200	400
MB 10	Light concrete solid brick Vbl 2-0,8-2DF	H	115	120	240	480
MB 10	Light concrete –flat element PE12-0,5	H	115	120	240	480
MBR 10	Liapor solid brick	H	115	100	200	400
MBR 10 MB 10	ROGGWILL *QS/SZ* CE 21-12-13 SWISSMODUL	R	150	150	300	600
MBR 10	Block 37/17,5 brickyard 87727 Klosterbeuren, Germany	R	175	185	370	740
MB 10	Plan 30/24 brickyard 87727 Klosterbeuren, Germany	R	240	150	300	600
MB 10	Calcium silicated hollow brick KSL 12-1,2-10DF	R	240	150	300	600
MBR10 MB 10	KS-Ratio flat element12-1,6-8DF	R	115	100	200	400
MBR 10	Concrete hollow block Hbn 6-1,2-8DF	R	115	100	200	400
MB 10	Autoclaved aerated concrete (AAC)	R	150	125	250	500
MB 10	Reinforced autoclaved aerated concrete (AAC)	R	150	125	250	500
	(1 for slabs of width ≤700mm)	R		(150[1])	(300[1])	(600[1])

Steel failure mode: Tension

		Screw material	Steel	Stainless Steel
$N_{Rk,s}$	Tension Steel characteristic failure	[kN]	17,0	19,8
$\gamma_{m,sN}$	Partial safety factor for tension steel failure	[-]	1,5	1,87

Steel failure mode: Shear

$V_{Rk,s}$	Shear Steel characteristic failure	[kN]	8,5	8,5
$\gamma_{m,sV}$	Partial safety factor for shear steel failure	[-]	1,25	1,56

Steel failure mode: Bending

$M_{Rk,s}$	Bending Moment characteristic failure	[Nm]	15,3	17,8
$\gamma_{m,s}$	Partial safety factor for steel failure bending	[-]	1,25	1,56

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Pull-out failure mode concrete (nylon sleeve)			MBR 10	MB 10
h_{nom}	Tension characteristic load in cracked concrete ≥C12/15	[mm]	50	70
$N_{Rk,p,cr}$	Partial safety factor	[kN]	0,9	1,5
γ_2	Tension characteristic load in cracked concrete ≥C16/20	[-]	1,8	
$N_{Rk,p,cr}$	Partial safety factor	[kN]	1,5	2,5
γ_2	Tension characteristic load in cracked concrete ≥C12/15	[-]	1,8	

Pull-out failure mode masonry (nylon sleeve)									
	Name	Min compressive strength f_b [N/mm²]		Caracteristic resistance F_{Rk} for tension, shear or bending [kN]					
				MBR 10		MB 10			
Base material use cat. „b"	Clay brick MZ 12-1,8-NF	10	20	-	-	1,5	2,0		
Base material use cat. „b"	KSV 12-1,8-2DF	10	20	-	-	1,5	2,0		
	KS-Ratio flat element 20-2,0-8DF	10	20	2.0	2.5	1,5	2,0		
Base material use cat. „b"	Light concrete solid brick Vbl 2-0,8-	2	4	10	20	-	-	-	-	0,3	0,4	1,2	1,5
	Light concrete –flat element PE12-0,5	2	4	-	-	0,3	0,4		
	Liapor solid brick	10		0,9		-			
Partial safety factor (in absence of other national regulations) γ_m				2,5					
Base material use cat. „c"	ROGGWILL *QS/SZ* CE 21-12-13 SWISSMODUL	25		0,4[2)]		0,75[2)]			
	Block 37/17,5 brickyard 87727 Klosterbeuren, Germany	12		0,6[2)]		-			
	Plan 30/24 brickyard 87727 Klosterbeuren, Germany	12		-		0,5[2)]			
Base material use cat. „c"	Calcium silicated hollow brick KSL 12-	12		-		0,4[2)]			
	KS-Ratio flat element12-1,6-8DF	12		1,2		0,75			
Base material use cat. „c"	Concrete hollow block Hbn 6-1,2-8DF	6		0,3		-			
Partial safety factor (in absence of other national regulations) γ_m				2,5					
Base material use cat. „d"	Autoclaved aerated concrete (AAC)	2,0	5,2	-	-	0,4	0,5		
	Reinforced autoclaved aerated concrete (AAC)	3,0	5,2	-	-	0,3	0,9		
Partial safety factor (in absence of other national regulations) γ_m				2,0					
[2)] shear load with lever arm is not allowed									
For unknown or in the ETA not specified base grounds, tests on the construction side acc. to ETAG 020 annex B have to be carried out.									

Displacement on tension load in concrete and masonry				
			MBR 10	MB 10
N_{cr}	Service tension load in cracked concrete	[kN]	0,8	1,0
$\delta_{N0,cr}$	Short term displacement under tension load	[mm]	0,2	
$\delta_{N\infty,cr}$	Long term displacement under tension load	[mm]	0,4	
Displacement on Shear Load in concrete and masonry				
V	Service shear load in concrete	[kN]	4,8	
δ_{V0}	Short term displacement under shear load	[mm]	3,4	
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	5,1	
Fire Resistance				
$N_{Rk,s,fi,90}$	For fire resistance duration = 90 minutes (façade systems only)	[kN]	≤0,8	

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The below performances apply for the following article numbers:

d	L [mm]	t_{fix} [mm]	Art. No
MB-ST 10 Countersunk T40	80	10	1122108
	100	30	1122110
	120	50	1122112
	140	70	1122114
	160	90	1122116
	200	130	1122120
	240	170	1122124
	280	210	1122128
	300	230	1122130
MB-SS 10 Hexagon screw	80	10	1121908
	100	30	1121910
	120	50	1121912
	140	70	1121914
	160	90	1121916
	200	130	1121920
	240	170	1121924
	280	210	1121928
	300	230	1121930
MB-S 10 Countersunk Pozi 3	80	10	1122308
	100	30	1122310
	120	50	1122312
	140	70	1122314
	160	90	1122316
	200	130	1122320
MBK-STB 10 Collar screw & collar sleeve	80	10	1120608
	100	30	1120610
	120	50	1120612
MB-STr 10 Stainless countersunk T40	80	10	1137208
	100	30	1137210
	120	50	1137212
	140	70	1137214
	160	90	1137216
	200	130	1137220
	240	170	1137224
	280	210	1137228
	300	230	1137230
MB-SSr 10 Stainless hexagon screw	80	10	1135208
	100	30	1135210
	120	50	1135212
	140	70	1135214
	160	90	1135216
	200	130	1135220
	240	170	1135224
	280	210	1135228
	300	230	1135230
MBK-STBr 10 Stainless collar screw & collar sleeve	80	10	1136208
	100	30	1136210

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d	L [mm]	t_{fix} [mm]	Art. No
MBR-ST 10 Countersunk T40	60	10	1122006
	80	30	1122008
	100	50	1122010
	120	70	1122012
	140	90	1122014
	160	110	1122016
	200	150	1122020
	240	190	1122024
MBR-SS 10 Hexagon screw	60	10	1121506
	80	30	1121508
	100	50	1121510
	120	70	1121512
	140	90	1121514
	160	110	1121516
	200	150	1121520
	240	190	1121524
MBR-S 10 Countersunk Pozi 3	60	10	1121006
	80	30	1121008
	100	50	1121010
	120	70	1121012
	140	90	1121014
	160	110	1121016
	200	150	1121018
MBRK-STB 10 Collar screw & collar sleeve	60	10	1120706
	80	30	1120708
	100	50	1120710
MBR-STr 10 Stainless countersunk T40	60	10	1137106
	80	30	1137108
	100	50	1137110
	120	70	1137112
	140	90	1137114
	160	110	1137116
	200	150	1137120
	240	190	1137124
MBR-SSr 10 Stainless collar screw & collar sleeve	60	10	1135106
	80	30	1135108
	100	50	1135110
	120	70	1135112
	140	90	1135114
	160	110	1135116
	200	150	1135120
	240	190	1135124

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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 und Funktion	Ort und Datum	Unterschrift
Roman Wyss Product Manager	Olten, 30.07.2015	

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Further information:

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