

# **MB Nylon Frame Plug for softer materials**

MB Nylon Frame Plug with a special screw made from high quality Polyamide PA6, approved for multiple use in concrete and masonry





#### 1 SPECIFICATIONS OF INTENDED USE

#### Anchorages subject to:

- For multiple use in concrete and masonry for non-structural applications, such as façade systems, for fixing or supporting elements which contribute to the stability of the systems

#### Base materials:

- Cracked and non-cracked, reinforced or unreinforced normal weight concrete of strength classes  $\geq$  C12/15 according to EN 206-1:2014
- -Masonry walls and aerated concrete blocks

#### Approvals:

- European Technical Approval, ETAG 020 anchors for for multiple use in concrete and masonry for nonstructural applications

#### Installation:

- The influence of larger embedment depths, lower mortar strength and/or different bricks and blocks (according ETA-15/0068 regarding base material, size of the units, compressive strength) has to be detected by job site tests

#### **Product assortment:**

- MB Nylon Frame Plug for softer materials can be complied with countersunk, hexagon or with hexagon collar screw in stainless steel (A4/316) or in zinc plated version

#### Safety in case of fire:

- Anchorages satisfy requirements for Class A 1
- Assessment of resistance under fire exposure F90 for fastening of façade systems (for further information see ETA-15/0068, issued on 16.03.2015)

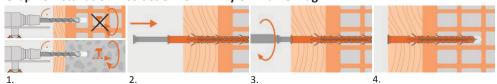
## **2 PRODUCT DESCRIPTION - MATERIALS**

Product	Designation	Material	Nominal characteristic steel yield strength $f_{yk} [N/mm^2]$	Nominal characteristic steel ultimate strength $f_{uk} \left[ N/mm^2 \right]$	Surface coating
1	MB Frame Plug (sleeve)	Polyamide, PA6 (Nylon)	_	_	_
2	Carbon steel (screw)	Carbon steel	480	600	Galvanized >5μm, blue passivated
3	Stainless steel (screw)	Stainless steel A4 (EN 10088)	450	700	_

## **3 INSTALATION INSTRUCTIONS**

- 1. Make the hole (no hammer drilling in hollow masonry brick or aerated concrete),
- 2. cleaning the hole (not necessary with hollow brick) and setting the preassembled fastener through the part to be fixed,
- 3. push the anchor till the collar of the sleeve contacts the part to be fixed, then fix the part with screw,
- 4. tightening the screw until sleeve collar contact.

## **Graphic installation instruction for MB Nylon Frame Plug**

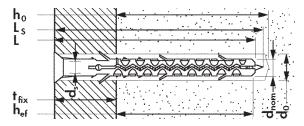






# **4 INSTALATION DATA**

Fastener size				MB 10		
Anchor outer diameter	$d_{nom}$	[mm]		9.8		
Anchor length	L	[mm]		80-300		
Screw diameter	d <sub>s</sub>	[mm]		7.3		
Installation parameters			Concrete	Masonry	AAC	
Nominal drilling diameter	d <sub>0</sub>	[mm]		10		
Depth of the drill hole	h <sub>0</sub> ≥	[mm]	80	80	100	
Effective anchorage depth	<b>h</b> ef	[mm]	70	70	90	
Screw length	L <sub>s</sub>	[mm]	L + 5 mm	L + 5 mm	L + 5 mm	
Maximum fixture thickness	t <sub>fix</sub>	[mm]	≤230 ≤230 ≤210			



### **5 BASIC PERFORMANCE DATA IN CRACKED OR NON-CRACKED CONCRETE**

Basic performance data for MB Nylon Frame Plug in cracked or non-cracked concrete, without influence of edge distance, spacing and splitting failure due to dimensions of concrete member.

CONCRETE				MB 10
Effective anchorage depth		h <sub>ef</sub>	[mm]	70
Minimum thickness of concrete member		h <sub>min</sub>	[mm]	100
Minimum adaa distansa	≥ C16/20	S <sub>min</sub>	[mm]	50
Minimum edge distance	C12/15	S <sub>min</sub>	[mm]	70
Minimum spacing	≥C16/20	C <sub>min</sub>	[mm]	50
Minimum spacing	C12/15	C <sub>min</sub>	[mm]	70
CHARACTERI	STIC RESISTANCE			
Tension load for cracked or non-cracked concrete	≥C16/20	$N_{Rk}$	[kN]	2.50
Tension load for cracked of flori-cracked concrete	C12/15	$N_{Rk}$	[kN]	1.50
Shear load for cracked or non-cracked	Galvanized Steel	$V_{Rk}$	[kN]	8.50
concrete	Stainless Steel	$V_{Rk}$	[kN]	8.50
Danding mamont, steel failure	Galvanized Steel	$M_{Rk}$	[Nm]	15.30
Bending moment, steel failure	Stainless Steel	$M_{Rk}$	[Nm]	17.80
DESIGN	RESISTANCE			
Tension load for cracked or non-cracked concrete	≥ C16/20	$N_{Rd}$	[kN]	1.39
Tension load for cracked of flori-cracked concrete	C12/15	$N_{Rd}$	[kN]	0.83
Shear load for cracked or non-cracked	Galvanized Steel	$V_{Rd}$	[kN]	6.80
concrete	Stainless Steel	$V_{Rd}$	[kN]	5.45
Bending moment, steel failure	Galvanized Steel	$M_{Rd}$	[Nm]	12.24
bending moment, steer failure	Stainless Steel	$M_{Rd}$	[Nm]	11.41
RECOMEND	DED RESISTANCE			
Tension load for cracked or non-cracked concrete	≥ C16/20	$N_{rec}$	[kN]	0.99
Tension load for cracked or non-cracked concrete	C12/15	$N_{rec}$	[kN]	0.60
Shear load for cracked or non-cracked	Galvanized Steel	$V_{rec}$	[kN]	4.86
concrete	Stainless Steel	$V_{rec}$	[kN]	3.89
Bending moment, steel failure	Galvanized Steel	M <sub>rec</sub>	[Nm]	8.74
benuing moment, steer failure	Stainless Steel	$M_{rec}$	[Nm]	8.15





# **6 VALUES OF RESISTANCE UNDER TENSION AND SHEAR LOADS IN MASONRY UNITS**

# 6.1 Clay masonry

CLAY SOLID BRICK	MB 10					
Effective anchorage de	Effective anchorage depth					70
		Brick dimens	ions [mm]		237x11	2x71
		Bulk density		≥ P	[kg/dm <sup>3</sup> ]	1.8
Clay solid brick		Minimum me	ember thickness	h <sub>min</sub>	[mm]	112
Mz 12-1.8-NF		Minimum ed	ge distance	C <sub>min</sub>	[mm]	120
		Min. spacing	(Vertical to edge)	S <sub>1,min</sub>	[mm]	240
		Min. spacing	(Parallel to edge)	S <sub>2,min</sub>	[mm]	480
	CHA	ARACTERISTI	C RESISTANCE			
Tanaian land for minim	Tansian land for minimum compressive strength ≥ 10 N/mm <sup>2</sup>			N <sub>Rk</sub>	[kN]	1.50
Tension load for minim	um compressive strengt	N .	≥ 20 N/mm <sup>2</sup>	N <sub>Rk</sub>	[kN]	2.00
Shoar load for minimur			≥ 10 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	1.50
Shear load for millimur	ii compressive strengtii		≥ 20 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	2.00
		DESIGN RE	SITANCE			
Tonsion load for minim	um compressive strengtl	h	≥ 10 N/mm <sup>2</sup>	$N_{Rd}$	[kN]	0.60
Tension load for millim	um compressive strengt		≥ 20 N/mm <sup>2</sup>	$N_{Rd}$	[kN]	0.80
Shoar load for minimur	n compressive strength		≥ 10 N/mm <sup>2</sup>	$V_{Rd}$	[kN]	0.60
Shear load for millimur	ii compressive strengtii		≥ 20 N/mm <sup>2</sup>	$V_{Rd}$	[kN]	0.80
	RE	ECOMENDED	RESISTANCE			
Tension load for minim	um compressive strengt	h	≥ 10 N/mm <sup>2</sup>	$N_{rec}$	[kN]	0.43
Tension load for minimum compressive strength		111	≥ 20 N/mm <sup>2</sup>	$N_{rec}$	[kN]	0.57
Shear load for minimur	n compressive strength		≥ 10 N/mm <sup>2</sup>	$V_{rec}$	[kN]	0.43
Shear load for minimum compressive strength  ≥ 20 N/mm <sup>2</sup>			$V_{rec}$	[kN]	0.57	

CLAY HOLLOW BRICK	CLAY HOLLOW BRICK						
Effective anchorage de	epth	h <sub>ef</sub>	[mm]	70			
	70,400	Brick dimensions [mm]		308x240	)x249		
	AND THE REAL PROPERTY.	Bulk density	≥p	[kg/dm <sup>3</sup> ]	1.2		
Klosterbeuren,		Minimum member thickness	h <sub>min</sub>	[mm]	240		
Germany Z-17.1-993		Minimum edge distance	C <sub>min</sub>	[mm]	150		
		Min. spacing (Vertical to edge)	S <sub>1,min</sub>	[mm]	300		
	Min. spacing (Parallel to edge)			[mm]	600		
	CH	ARACTERISTIC RESISTANCE					
Tension load for minim	um compressive strengt	h ≥ 12 N/mm <sup>2</sup>	N <sub>Rk</sub>	[kN]	0.50		
Shear load for minimur	n compressive strength*	<sup>2</sup> ≥ 12 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	0.50		
		DESIGN RESISTANCE					
Tension load for minim	um compressive strengt	h ≥ 12 N/mm <sup>2</sup>	N <sub>Rd</sub>	[kN]	0.20		
Shear load for minimum compressive strength* ≥ 12 N/mm <sup>2</sup>			$V_{Rd}$	[kN]	0.20		
RECOMENDED RESISTANCE							
Tension load for minimum compressive strength $\geq 12 \text{ N/mm}^2$			N <sub>rec</sub>	[kN]	0.14		
Shear load for minimur	n compressive strength*	<sup>2</sup> ≥ 12 N/mm <sup>2</sup>	$V_{rec}$	[kN]	0.14		

<sup>\*</sup>Shear load with lever arm is not allowed





CLAY HOLLOW BRICK	MB 10					
Effective anchorage de	epth	h <sub>ef</sub>	[mm]	70		
		Brick dimensions [mm]		300x150	)x190	
		Bulk density	≥P	[kg/dm <sup>3</sup> ]	0.8	
Swiss Modul		Minimum member thickness	h <sub>min</sub>	[mm]	150	
SWISS MOUUI		Minimum edge distance	C <sub>min</sub>	[mm]	150	
		Min. spacing (Vertical to edge)	S <sub>1,min</sub>	[mm]	300	
	Min. spacing (Parallel to edge)				600	
	CHA	ARACTERISTIC RESISTANCE				
Tension load for minim	um compressive strengt	h ≥ 25 N/mm <sup>2</sup>	$N_{Rk}$	[kN]	0.75	
Shear load for minimur	n compressive strength*	<sup>2</sup> ≥ 25 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	0.75	
		DESIGN RESISTANCE				
Tension load for minim	um compressive strengt	h ≥ 25 N/mm <sup>2</sup>	$N_{Rd}$	[kN]	0.30	
Shear load for minimum compressive strength* ≥ 25 N/mm <sup>2</sup>			$V_{Rd}$	[kN]	0.30	
RECOMENDED RESISTANCE						
Tension load for minim	Tension load for minimum compressive strength $\geq 25 \text{ N/mm}^2$			[kN]	0.21	
Shear load for minimur	n compressive strength*	≥ 25 N/mm <sup>2</sup>	$V_{rec}$	[kN]	0.21	

<sup>\*</sup>Shear load with lever arm is not allowed

# **6.2 Calcium silicate masonry**

CALCIUM SILICATE SOI	LID BRICK					MB 10
Effective anchorage depth				h <sub>ef</sub>	[mm]	70
Bric			sions [mm]	240x115		x113
		Bulk density	,	≥ P	[kg/dm <sup>3</sup> ]	1.8
Calcium silicate solid		Minimum m	ember thickness	h <sub>min</sub>	[mm]	115
brick KSV 12-1.8-2DF		Minimum e	dge distance	C <sub>min</sub>	[mm]	120
	Valley and	Min. spacing	g (Vertical to edge)	S <sub>1,min</sub>	[mm]	240
		Min. spacing	g (Parallel to edge)	S <sub>2,min</sub>	[mm]	480
	CHA	ARACTERIST	IC RESISTANCE			
Tanaian laad fan minim		L	≥ 10 N/mm <sup>2</sup>	N <sub>Rk</sub>	[kN]	1.50
rension load for minim	um compressive strength	11	≥ 20 N/mm <sup>2</sup>	N <sub>Rk</sub>	[kN]	2.00
		≥ 10 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	1.50	
Shear load for minimur	n compressive strength		≥ 20 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	2.00
		DESIGN RE	SISTANCE			
Tansian load for minim	um compressive strength	h	≥ 10 N/mm <sup>2</sup>	$N_{Rd}$	[kN]	0.60
Terision load for minim	um compressive strengti		$\geq$ 20 N/mm <sup>2</sup>	$N_{Rd}$	[kN]	0.80
Shoar load for minimur	n compressive strength		≥ 10 N/mm <sup>2</sup>	$V_{Rd}$	[kN]	0.60
Silear load for millimitul	ii compressive strengtii		≥ 20 N/mm <sup>2</sup>	$V_{Rd}$	[kN]	0.80
	RE	COMENDED	RESISTANCE			
Tonsian load for minimum compressive strongth		≥ 10 N/mm <sup>2</sup>	$N_{rec}$	[kN]	0.43	
Tension load for minimum compressive strength		≥ 20 N/mm <sup>2</sup>	$N_{rec}$	[kN]	0.57	
Shear load for minimur	m compressive strength		≥ 10 N/mm <sup>2</sup>	$V_{rec}$	[kN]	0.43
Shear load for minimum compressive strength			≥ 20 N/mm <sup>2</sup>	$V_{rec}$	[kN]	0.57



<b>CALCIUM SILICATE HO</b>			MB 10			
Effective anchorage de	epth		h <sub>ef</sub>	[mm]	70	
		Brick dimensions [mm]		300x240	)x238	
Calcium silicate		Bulk density	≥ P	[kg/dm <sup>3</sup> ]	1.2	
hollow brick KSL	100	Minimum member thickness	h <sub>min</sub>	[mm]	240	
		Minimum edge distance	C <sub>min</sub>	[mm]	150	
12-1,2-10DF		Min. spacing (Vertical to edge)	S <sub>1,min</sub>	[mm]	300	
		Min. spacing (Parallel to edge)	S <sub>2,min</sub>	[mm]	600	
	CHA	ARACTERISTIC RESISTANCE				
Tension load for minim	um compressive strengt	h ≥8 N/mm²	$N_{Rk}$	[kN]	0.40	
Shear load for minimur	n compressive strength*	<sup>s</sup> ≥ 8 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	0.40	
		DESIGN RESISTANCE				
Tension load for minim	um compressive strengt	h ≥8 N/mm²	N <sub>Rd</sub>	[kN]	0.16	
Shear load for minimum compressive strength* ≥ 8 N/mm <sup>2</sup>				[kN]	0.16	
Shear load for minimum compressive strength* ≥ 8 N/mm²   V <sub>Rd</sub>   [kN]   0.16  RECOMENDED RESISTANCE						
Tension load for minimum compressive strength ≥ 8 N/mm <sup>2</sup>			$N_{rec}$	[kN]	0.11	
Shear load for minimum compressive strength* ≥ 8 N/mm <sup>2</sup>				[kN]	0.11	

<sup>\*</sup>Shear load with lever arm is not allowed

CALCIUM SILICATE HOLLOW BRICK						MB 10
Effective anchorage de	epth			h <sub>ef</sub>	[mm]	70
	Brick dim		sions [mm]		498x115	5x248
Calcium silicate		Bulk density	Bulk density		[kg/dm <sup>3</sup> ]	2.0
Ratio flat element		Minimum m	ember thickness	h <sub>min</sub>	[mm]	115
20-2.0-8DF		Minimum ed	lge distance	C <sub>min</sub>	[mm]	100
20-2.0-801		Min. spacing	g (Vertical to edge)	S <sub>1,min</sub>	[mm]	200
		Min. spacing	g (Parallel to edge)	S <sub>2,min</sub>	[mm]	400
	СН	IARACTERISTI	IC RESISTANCE			
Tanaian land for minim	una aanan naasius stuon si	<b>L</b> la	≥ 10 N/mm <sup>2</sup>	N <sub>Rk</sub>	[kN]	1.50
Tension load for minim	THEOSON IOAO TOCHUUUUUU COMOLESSIVE SILENYIN		≥ 20 N/mm <sup>2</sup>	N <sub>Rk</sub>	[kN]	2.00
		≥ 10 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	1.50	
Silear load for millimin	ii compressive strengtii		≥ 20 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	2.00
		DESIGN RE	SISTANCE			
Tancian load for minim	um compressive strong	th.	≥ 10 N/mm <sup>2</sup>	$N_{Rd}$	[kN]	0.60
Tension load for minim	um compressive streng	uı	≥ 20 N/mm <sup>2</sup>	$N_{Rd}$	[kN]	0.80
Charland for minimum	m compressive strongth		≥ 10 N/mm <sup>2</sup>	$V_{Rd}$	[kN]	0.60
Shear load for minimur	n compressive strength		≥ 20 N/mm <sup>2</sup>	$V_{Rd}$	[kN]	0.80
	R	ECOMENDED	RESISTANCE			
Tansian load for minimum compressive strength ≥ 10 N/m		≥ 10 N/mm <sup>2</sup>	$N_{rec}$	[kN]	0.43	
Tension load for minimum compressive strength		uı	≥ 20 N/mm <sup>2</sup>	$N_{rec}$	[kN]	0.57
Shear load for minimus	m compressive strongth		≥ 10 N/mm <sup>2</sup>	$V_{rec}$	[kN]	0.43
Silear load for milliminu	Shear load for minimum compressive strength $\geq 20 \text{ N}$			$V_{rec}$	[kN]	0.57



<b>CALCIUM SILICATE HO</b>	MB 10				
Effective anchorage de	epth		h <sub>ef</sub>	[mm]	70
		Brick dimensions [mm]		498x115	5x248
Calcium silicate	Lagrana and and	Bulk density	≥ P	[kg/dm <sup>3</sup> ]	1.6
Ratio flat element		Minimum member thickness	h <sub>min</sub>	[mm]	115
12-1.6-8DF		Minimum edge distance	C <sub>min</sub>	[mm]	100
12-1.0-8DF		Min. spacing (Vertical to edge)	S <sub>1,min</sub>	[mm]	200
	Min. spacing (Parallel to edge)			[mm]	400
	СН	ARACTERISTIC RESISTANCE			
Tension load for minim	um compressive strengt	th ≥ 12 N/mm²	N <sub>Rk</sub>	[kN]	0.75
Shear load for minimur	n compressive strength	≥ 12 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	0.75
		DESIGN RESISTANCE			
Tension load for minim	um compressive strengt	th ≥ 12 N/mm <sup>2</sup>	$N_{Rd}$	[kN]	0.30
Shear load for minimum compressive strength ≥ 12 N/mm <sup>2</sup>			$V_{Rd}$	[kN]	0.30
	R	ECOMENDED RESISTANCE			
Tension load for minimum compressive strength ≥ 12 N/mm <sup>2</sup>			N <sub>rec</sub>	[kN]	0.21
Shear load for minimur	n compressive strength	≥ 12 N/mm <sup>2</sup>	$V_{rec}$	[kN]	0.21

# 6.3 Solid brick made of concrete (with dense and lightweight aggregates)

LIGHTWEIGHT CONCRETE SOLID BRICK						MB 10	
Effective anchorage de	Effective anchorage depth				[mm]	70	
		Brick dimens	ions [mm]		240x115	5x113	
Lightureight commete		Bulk density		≥ P	[kg/dm <sup>3</sup> ]	1.2/2.0	
Lightweight concrete solid brick		Minimum me	ember thickness	h <sub>min</sub>	[mm]	115	
Vbl 2-0.8-2DF		Minimum eda	ge distance	C <sub>min</sub>	[mm]	120	
VDI 2-0.8-2DF		Min. spacing	(Vertical to edge)	S <sub>1,min</sub>	[mm]	240	
		Min. spacing	(Parallel to edge)	S <sub>2,min</sub>	[mm]	480	
	CH	ARACTERISTIC	CRESISTANCE				
Tanaian land for minim		la.	≥ 10 N/mm <sup>2</sup>	N <sub>Rk</sub>	[kN]	1.20	
Tension load for minimum compressive strength $\geq 20 \text{ N/mm}^2$		N <sub>Rk</sub>	[kN]	1.50			
		≥ 10 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	1.20		
Silear load for millimur	ii compressive strengtii		≥ 20 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	1.50	
		DESIGN RES	ISTANCE				
Tonsion load for minim	um compressive strengt	h -	≥ 10 N/mm <sup>2</sup>	$N_{Rd}$	[kN]	0.48	
Terision load for millim	uni compressive strengt		≥ 20 N/mm <sup>2</sup>	N <sub>Rd</sub>	[kN]	0.60	
Shear load for minimur	n compressive strength	_	≥ 10 N/mm <sup>2</sup>	$V_{Rd}$	[kN]	0.48	
Silear load for millimin	ii compressive strength		≥ 20 N/mm <sup>2</sup>	$V_{Rd}$	[kN]	0.60	
	RI	ECOMENDED					
Tension load for minimum compressive strength		h -	≥ 10 N/mm <sup>2</sup>	$N_{rec}$	[kN]	0.34	
Tension load for millim	ani compressive strengt	11	≥ 20 N/mm <sup>2</sup>	$N_{rec}$	[kN]	0.43	
Shear load for minimur	n compressive strength	-	≥ 10 N/mm <sup>2</sup>	$V_{rec}$	[kN]	0.34	
Silear load for millimar	Shear load for minimum compressive strength $\geq 20 \text{ N/mm}^2$				[kN]	0.43	





LIGHTWEIGHT CONCRE			MB 10			
Effective anchorage de	epth		h <sub>ef</sub>	[mm]	70	
		Brick dimensions [mm]		997x240	)x623	
		Bulk density	≥p	[kg/dm <sup>3</sup> ]	0.8	
Lightweight concrete flat element		Minimum member thickness	h <sub>min</sub>	[mm]	115	
PE12-0.5		Minimum edge distance	C <sub>min</sub>	[mm]	120	
PE12-0.5		Min. spacing (Vertical to edge)	S <sub>1,min</sub>	[mm]	240	
	Min. spacing (Parallel to edge)				480	
	СН	ARACTERISTIC RESISTANCE				
Tension load for minim	um compressive strengt	h ≥4 N/mm²	$N_{Rk}$	[kN]	0.40	
Shear load for minimur	n compressive strength	≥ 4 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	0.40	
		DESIGN RESISTANCE				
Tension load for minim	um compressive strengt	h ≥4 N/mm²	$N_{Rd}$	[kN]	0.16	
Shear load for minimur	n compressive strength	$V_{Rd}$	[kN]	0.16		
	RECOMENDED RESISTANCE					
Tension load for minimum compressive strength ≥ 4 N/mm <sup>2</sup>			N <sub>rec</sub>	[kN]	0.11	
Shear load for minimur	n compressive strength	$V_{rec}$	[kN]	0.11		

## 6.4 Autoclaved aerated concrete (AAC)

Autoclaved aerated concrete  Bulk density ≥ P [kg/dm³]  Minimum member thickness h <sub>min</sub> [mm]	<b>90</b>						
Autoclaved aerated concrete     Bulk density     ≥ P [kg/dm³]       Minimum member thickness     h <sub>min</sub> [mm]	(240						
Autoclaved aerated   Minimum member thickness   h <sub>min</sub>   [mm]	250x150x240						
Concrete Minimum member thickness h <sub>min</sub> [mm]	0.55						
concrete	150						
(EN 771-4:2011) Minimum edge distance C <sub>min</sub> [mm]	125						
Min. spacing (Vertical to edge) S <sub>1,min</sub> [mm]	250						
Min. spacing (Parallel to edge) S <sub>2,min</sub> [mm]	500						
CHARACTERISTIC RESISTANCE							
Tension load for minimum compressive strength $\geq 5.2 \text{ N/mm}^2$ $N_{Rk}$ [kN]	1.50						
Shear load for minimum compressive strength $\geq 5.2 \text{ N/mm}^2$ $V_{Rk}$ [kN]	1.50						
DESIGN RESISTANCE							
Tension load for minimum compressive strength ≥ 5.2 N/mm <sup>2</sup> N <sub>Rd</sub> [kN]	0.75						
Shear load for minimum compressive strength ≥ 5.2 N/mm <sup>2</sup> V <sub>Rd</sub> [kN]	0.75						
RECOMENDED RESISTANCE							
Tension load for minimum compressive strength ≥ 5.2 N/mm <sup>2</sup> N <sub>rec</sub> [kN]	0.54						
Shear load for minimum compressive strength ≥ 5.2 N/mm <sup>2</sup> V <sub>rec</sub> [kN]	0.54						





REINFORCED AUTOCLA	MB 10						
Effective anchorage depth			h <sub>ef</sub>	[mm]	90		
	forced ed aerated crete 02:2013)	Brick dimensions [mm]	250x150x240				
Reinforced		Bulk density	≥ P	[kg/dm <sup>3</sup> ]	0.55		
Autoclaved aerated		Minimum member thickness	h <sub>min</sub>	[mm]	150		
concrete		Minimum edge distance	C <sub>min</sub>	[mm]	125		
(EN 12602:2013)		Min. spacing (Vertical to edge)	S <sub>1,min</sub>	[mm]	250		
		Min. spacing (Parallel to edge)	S <sub>2,min</sub>	[mm]	500		
CHARACTERISTIC RESISTANCE							
Tension load for minimum compressive strength ≥ 5.2 N/mn		:h ≥ 5.2 N/mm²	N <sub>Rk</sub>	[kN]	0.90		
Shear load for minimum compressive strength ≥ 5.2 N/mm		≥ 5.2 N/mm <sup>2</sup>	$V_{Rk}$	[kN]	0.90		
DESIGN RESISTANCE							
Tension load for minimum compressive strength $\geq 5.2 \text{ N/mm}^2$		$N_{Rd}$	[kN]	0.45			
Shear load for minimum compressive strength ≥ 5.2 N/mm <sup>2</sup>		$V_{Rd}$	[kN]	0.45			
RECOMENDED RESISTANCE							
Tension load for minimum compressive strength $\geq 5.2 \text{ N/mm}^2$		$N_{rec}$	[kN]	0.32			
Shear load for minimum compressive strength ≥ 5.2 N/mm <sup>2</sup>		≥ 5.2 N/mm <sup>2</sup>	$V_{rec}$	[kN]	0.32		

## **7 IMPORTANT NOTICE**

Values given in this document are valid under the assumptions of sufficient cleaning of the drill hole (not necessary with hollow brick). Resistance for tension, shear or combined tension and shear loading, is valid for a group of  $\geq 3$  anchors. For the design the complete European Technical Assessment has to be considered. In recommended resistance the partial safety factor for material as regulated in the ETA, as well as a partial safety factor for load action  $\gamma L = 1.4$  are considered. For combination of tensile loads, shear loads, bending moments as well as reduced edge distances or spacing's (anchor groups) see ETA or Mungo design software. The data must be checked by the user under the responsibility of an engineer experienced in anchorage and concrete work. This is to ensure there are no errors and all data is complete and accurate and complies with all rules and regulations for the actual conditions and application.

