Deutsches Institut für Bautechnik

Public-law institution jointly founded by the federal states and the Federation

European Technical Assessment Body for construction products

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Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment ETA-15/0068 of 7 January 2026

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	MB/ MBR
Product family to which the construction product belongs	Plastic anchor for redundant non-structural systems in concrete and masonry
Manufacturer	MUNGO Befestigungstechnik AG Webereiweg 6 4802 Strengelbach SCHWEIZ
Manufacturing plant	Mungo Plants
This European Technical Assessment contains	16 pages including 3 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 330284-00-0604
This version replaces	ETA-15/0068 issued on 21 April 2021

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Specific part

1 Technical description of the product

The MB / MBR is a plastic anchor consisting of a plastic sleeve made of polyamide and an accompanying specific screw of galvanised steel or of stainless steel.

The plastic sleeve is expanded by screwing in the specific screw which presses the sleeve against the wall of the drilled hole.

The product description is given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchors of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	see Annex C 1

3.2 Mechanical resistance and stability (BWR 4)

Essential characteristic	Performance
Resistance to steel failure under tension loading	see Annex C 1
Resistance to steel failure under shear loading	see Annex C 1
Resistance to pull-out or concrete failure under tension loading (base material group a)	see Annex C 1
Resistance in any load direction without lever arm (base material group b, c, d)	see Annexes C 2 – C 4
Edge distance and spacing (base material group a)	see Annex B 2
Edge distance and spacing (base material group b, c, d)	see Annex B 3
Displacements under short-term and long-term loading	see Annex C 1
Durability	see Annex B 1

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with European Assessment Document EAD 330284-00-0604 the applicable European legal act is: 97/463/EC.

The system to be applied is: 2+

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

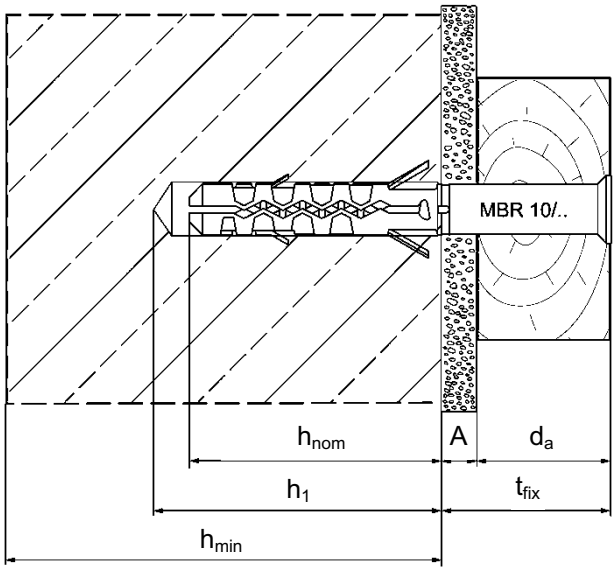
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 7 January 2026 by Deutsches Institut für Bautechnik

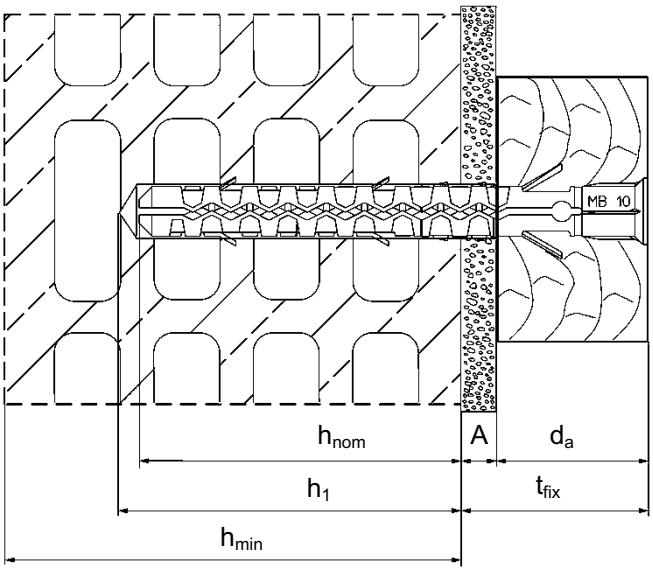
Dipl.- Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Ziegler

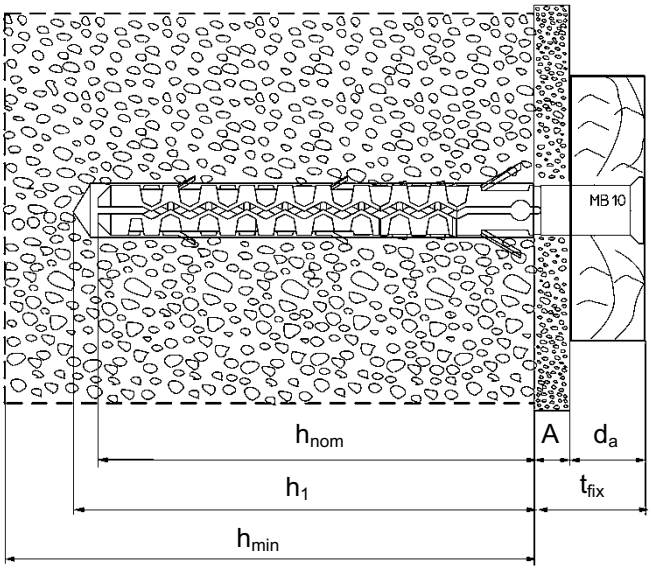
Installed condition for MB 10 and MBR 10



Installation in concrete and solid brick (e.g. MBR 10)



Installation in hollow brick (e.g. MB 10)



Installation in autoclaved aerated concrete (only for MB 10)

Legend

h_{min} = Thickness of structural part
d_a = Thickness of attached part
h_{nom} = Embedment depth
h_1 = Drill hole depth
A = Tolerance compensation
t_{fix} = Thickess of fixture

MB/ MBR	**Annex A 1**
Product description Installed condition	

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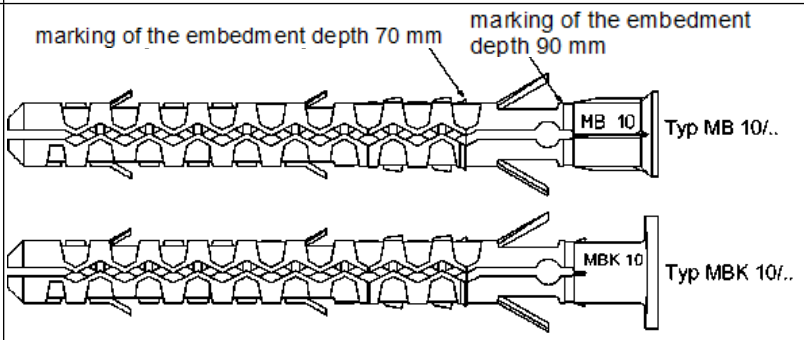
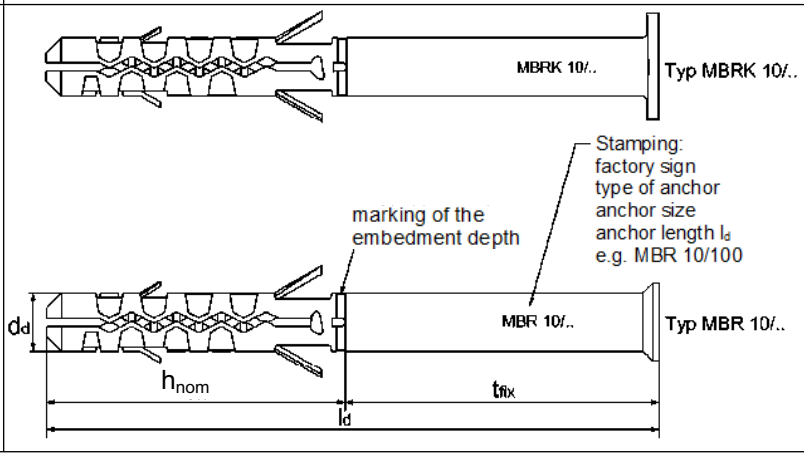
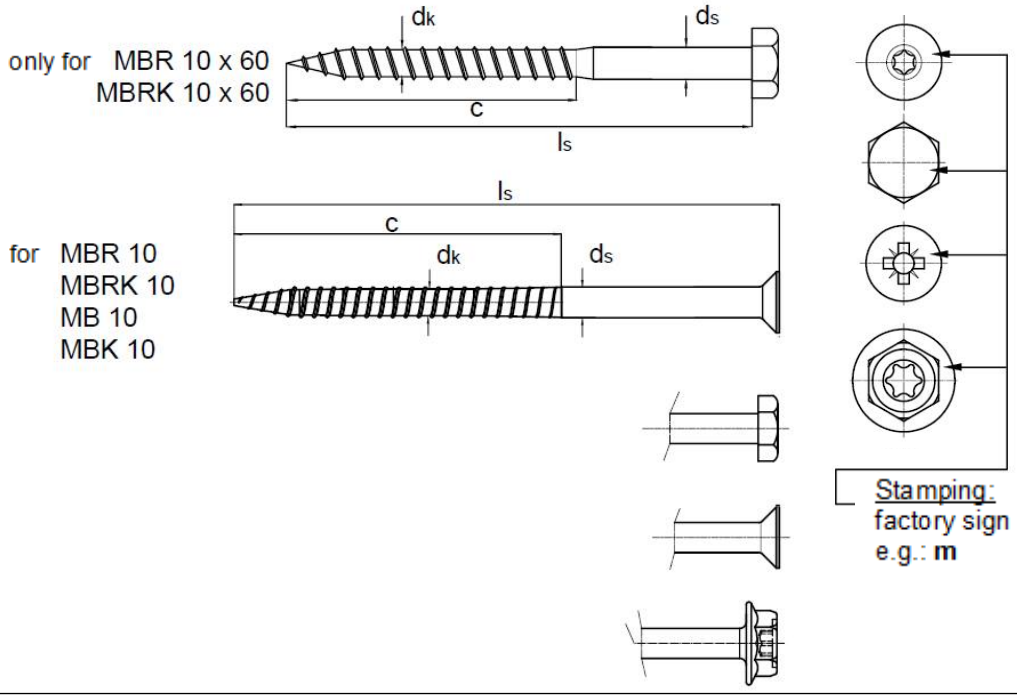
Anchor type	Embedment depth h_{nom} [mm]	Anchor sleeve
MB 10	70 For autoclaved aerated concrete: 90	
MBR 10	50	
Special screws MB 10 and MBR 10		

MB/ MBR

Product description
Anchor types and special screws

Annex A 2

Table A1: Dimensions

Anchor [1]	**Sleeve**			**Special screw** [2)3)]		
	d_d [mm]	h_{nom} [mm]	l_d [mm]	d_s [mm]	d_k [mm]	c [mm]
MBR 10/60 **MBRK 10/60**	10	50	60	7	6,1	50
MBR 10/xx **MBRK 10/xx**	10	50	80 - 240	7	6,1	75
MB 10/xx **MBK 10/xx**	10	70 / 90[4)]	80 - 300	7	6,1	75

[1)] For the anchor's description the sleeve's length l_d is indicated additionally, e.g. for l_d = 140 mm: anchor MBR 10/ 140

[2)] The screw's length l_s amounts 5 mm longer than the sleeve's length l_d, so that the special screw penetrates correctly the appropriate sleeve.

[3)] For attached metal parts the screw with hexagonal drive may be used in the version zinc plated.

[4)] When applied in autoclaved aerated concrete an embedment depth of h_{nom} = 90 mm has to be used.

Table A2: Materials

Part	**Material**	
Sleeve	Polyamide, PA6 Colour: orange	
Special screw	Steel 6.8 (f_{uk} = 600 N/mm², f_{yk} = 480 N/mm²), zinc plated ≥ 5µm according to EN ISO 4042:2022 blue passivated	
	Stainless steel "A4" (f_{uk} = 700 N/mm², f_{yk} = 450 N/mm²) according to EN 10088-3:2014	
	Material number	Corrosion resistance class (CRC) in accordance with EN 1993-1-4:2006+A1:2015
	1.4401	III
	1.4571	III

MB/ MBR

Product description
Dimensions and materials

Annex A 3

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Specifications of intended use

Anchorages subject to:

- Static and quasi-static loads
- Redundant non-structural systems

Table B1: Intended use in terms of base material and temperature range

Intended use		See Annex	Anchor type	
			MB 10	MBR 10
Base material [3]				
a	Reinforced or unreinforced compacted normal weight concrete without fibres ≥ C12/15 according to EN 206:2013 + A1:2016	C 1	✓	✓
b	Solid brick masonry [1][2]	C 2	✓	✓
c	Hollow brick masonry [2]	C 3 + C 4	✓	✓
d	Autoclaved aerated concrete	C 4	✓	-
Temperature range				
Tb	min T = -20°C to +80°C (maximum short term temperature +80°C and maximum long term temperature +50°C)		✓	✓

[1] Note: The characteristic resistance is also valid for larger brick sizes and higher compressive strength.
[2] Mortar strength class of the masonry ≥ M2,5 according to EN 998-2:2016.
[3] For other base materials of base material group a, b, c or d the characteristic resistance of the anchor may be determined by job site tests according to TR 051:2018-04.

Use conditions (environmental conditions):

- Structures subject to dry internal conditions: screw zinc plated or of stainless steel.
- The specific screw made of galvanised steel may also be used in structures to external atmospheric exposure, if the area of the head of the screw is protected against moisture and driving rain after mounting of the fixing unit in this way, that intrusion of moisture into the anchor shaft is prevented. Therefore, there shall be an external cladding or a ventilated rainscreen mounted in front of the head of the screw and the head of the screw itself shall be coated with a soft plastic, permanently elastic bitumen-oil-combination coating (e. g. undercoating or body cavity protection for cars)
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist: screw made of stainless steel of corrosion resistance class CRC III (see Annex A 3, Table A2).

  Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).

Design:

- The anchorages are to be designed in accordance with TR 064:2018-05 under the responsibility of an engineer experienced in anchorages and masonry work.
- Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored, the nature and strength of the base materials and the dimensions of the anchorage members as well as of the relevant tolerances. The position of the anchor is indicated on the design drawings.

Installation:

- Hole drilling by the drill modes to Annex C 1 to C 4.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site and according to Annex B 4 or B 5.
- Installation temperature: -20°C to +50°C.
- Exposure to UV due to solar radiation of the anchor not protected ≤ 6 weeks.
- No ingress of water in the bore hole < 0°C.

MB/ MBR	**Annex B 1**
Intended use Specifications	

Table B2: Installation parameters

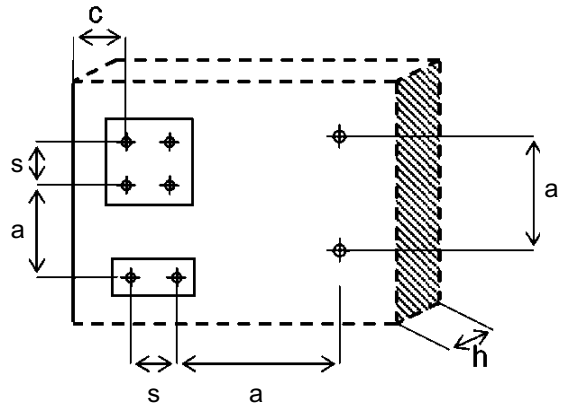
Anchor type			**MBR 10**	**MB 10**	**MB 10**
Base material			Concrete, solid brick and hollow brick	Concrete, solid brick and hollow brick	Autoclaved aerated concrete (reinforced / unreinforced)
Embedment depth	h_{nom}	[mm]	50	70	90
Nominal drill hole diameter	d_{nom}	[mm]	10	10	9
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	10,45	10,45	9,45
Depth of drill hole	h_1	[mm]	60	80	100
Diameter of clearance hole in fixture	d_f	[mm]	10,5		
Maximum thickness of fixture	max t_{fix}	[mm]	190	230	210
Minimum thickness of fixture	min t_{fix}	[mm]	0		

Table B3: Minimum thickness of member, edge distance and spacing in concrete (base material group "a")

Anchor type	**Strength class**	Minimum thickness of member h_{min}	Characteristic edge distance $c_{cr,N}$	Characteristic spacing $s_{cr,N}$	Minimum edge distance c_{min}	Minimum spacing s_{min}
		[mm]	[mm]	[mm]	[mm]	[mm]
MB 10	C12/15	100	70	75	70	70
	≥C16/20	100	50	55	50	50
MBR 10	C12/15	100	70	75	70	70
	≥C16/20	100	50	55	50	50

Fixing points with a spacing a ≤ $s_{cr,N}$ are considered as a group with a maximum characteristic resistance $N_{Rk,p}$ according Table C3. For a spacing a > $s_{cr,N}$ the anchors are considered as single anchors, each with a characteristic resistance $N_{Rk,p}$ according to Table C3.

Scheme of spacing and edge distances



MB/ MBR

Intended use
Installation parameters, edge distance and spacing in concrete

Annex B 2

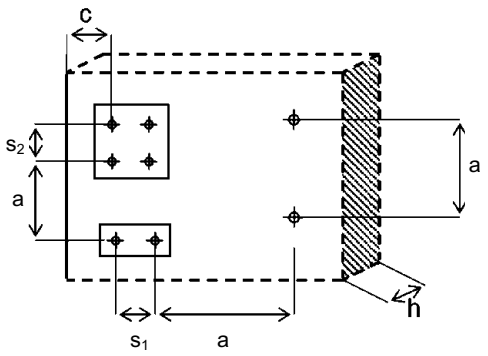
Tabelle B4: Minimum thickness of member, edge distance and spacing in solid and hollow masonry and autoclaved aerated concrete (base material group "b", "c" and "d")

Anchor type	Base material	See Annex	Minimum thickness of member h_{min} [mm]	Minimum edge distance c_{min} [mm]	Minimum spacing	
					Vertical to edge $s_{1,min}$ [mm]	parallel to edge $s_{2,min}$ [mm]
MB 10	Clay brick Mz 12-1,8-NF (EN 771-1:2011+A1:2015)	C 2	112	120	240	480
MB 10	KSV 12-1,8-2DF (EN 771-2:2011+A1:2015)	C 2	115	120	240	480
MB 10 MBR 10	KS-Ratio flat element 20-2,0-8DF (EN 771-2:2011+A1:2015)	C 2	115	100	200	400
MB 10	Light concrete solid brick Vbl 2-0,8-2DF (EN 771-3:2011+A1:2015)	C 2	115	120	240	480
MB 10	Light concrete – flat element PE12-0,5 (EN 771-3:2011+A1:2015)	C 2	115	120	240	480
MBR 10	Liapor solid brick	C 2	115	100	200	400
MB 10 MBR 10	Vertical perforated brick SWISSMODUL	C 3	150	150	300	600
MBR 10	Vertical perforated block 37/17,5	C 3	175	185	370	740
MB 10	Vertical perforated plan 30/24	C 3	240	150	300	600
MB 10	Calcium silicate hollow brick KSL 12-1,2-10DF (EN 771-2:2011+A1:2015)	C 3	240	150	300	600
MB 10 MBR 10	Calcium silicate hollow brick KS-Ratio flat element 12-1,6-8DF (EN 771-2:2011+A1:2015)	C 3	115	100	200	400
MBR 10	Concrete hollow block Hbn 6-1,2 8DF (EN 771-3:2011+A1:2015)	C 4	115	100	200	400
MB 10	Autoclaved aerated concrete according to EN 771-4:2011	C 4	150	125	250	500
MB 10	Reinforced autoclaved aerated concrete according to EN 12602:2016	C 4	150	125 (150[1])	250 (300[1])	500 (600[1])

[1] For slabs of width ≤ 700 mm

Scheme of spacing and edge distances

$a \geq \max (250\ mm; s_{1,min}; s_{2,min})$



MB/ MBR

Intended use
Edge distance and spacing in masonry and autoclaved aerated concrete

Annex B 3

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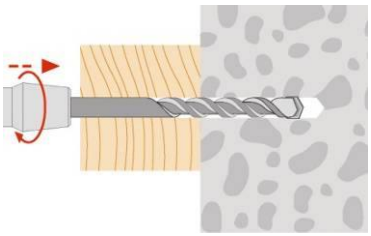
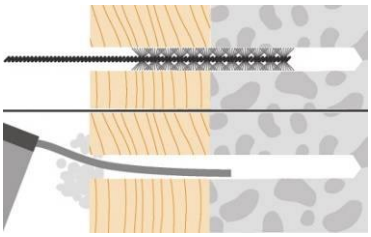
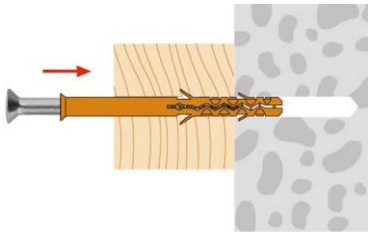
Installation instructions in concrete and solid brick:



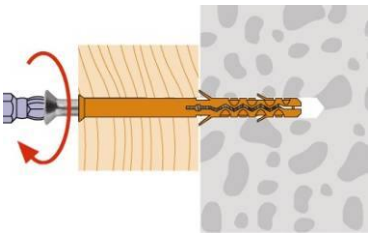
Drill the hole by hammer drilling.
Chose drill diameter and drill hole depth according to Table B2.
Temperature base material ≥ -20°C.



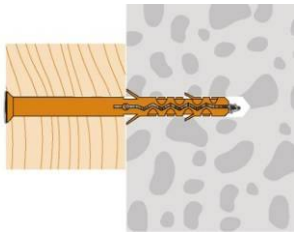
Pre-cleaning the drill hole with a brush, then hole-blowing with a pump or compressed air.



Setting the anchor with the preassembled fastener through the part to be fixed.



Push the anchor till the collar of the sleeve contacts the part to be fixed, then fix the part with screw.



Tightening the fastener head contacts.

MB/ MBR	**Annex B 4**
Intended use Installation instructions for concrete and solid bricks	

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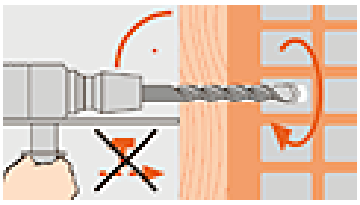
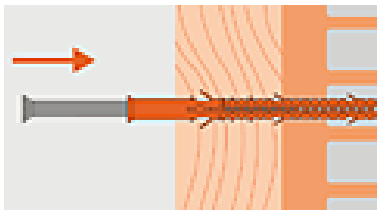
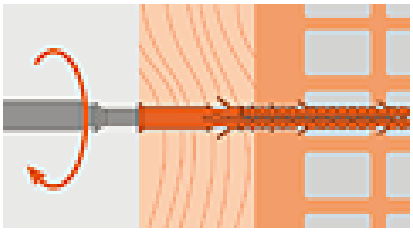
Installation instructions for hollow masonry and autoclaved aerated concrete:



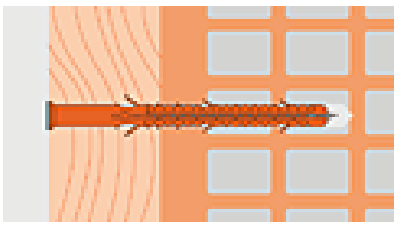
Drill the hole by rotary drilling (without hammering).
Drill hole diameter and drill hole depth according to Table B2.
Temperature of base material ≥ -20°C.



Setting the anchor with the preassembled fastener through the part to be fixed.



Push the anchor till the collar of the sleeve contacts the part to be fixed, then fix the part with screw.



Tightening the fastener head contacts.

MB/ MBR	**Annex B 5**
Intended use Installation instructions for hollow bricks and autoclaved aerated concrete	

Table C1: Characteristic bending resistance of the special screw

Steel type			**Steel zinc plated**	**Stainless steel**
Anchor type			**MBR 10 / MB 10**	**MBR 10 / MB 10**
Characteristic bending resistance	$M_{Rk,s}$	[Nm]	15,3	17,8
Partial safety factor	γ_{Ms} [1)]	[-]	1,25	1,56

Table C2: Characteristic resistance of the special screw

Steel type			**Steel zinc plated**		**Stainless steel**	
Anchor type			**MBR 10**	**MB 10**	**MBR 10**	**MB 10**
Total anchor length in base material	h_{nom}	[mm]	50	70	50	70
Failure of expansion element (Special screw)						
Characteristic tension resistance	$N_{Rk,s}$	[kN]	17,0		19,8	
Partial safety factor	γ_{Ms} [1)]	[-]	1,5		1,87	
Characteristic shear resistance	$V_{Rk,s}$	[kN]	8,5		8,5	
Partial safety factor	γ_{Ms} [1)]	[-]	1,25		1,56	

Table C3: Characteristic resistance in concrete (Base material "a")

Steel type			**Steel zinc plated**		**Stainless steel**	
Anchor type			**MBR 10**	**MB 10**	**MBR 10**	**MB 10**
Total anchor length in base material	h_{nom}	[mm]	50	70	50	70
Drilling method			Hammer drilling			
Pullout failure (sleeve)						
Concrete C12/15						
Characteristic resistance 50°C[2)] / 80°C[3)]	$N_{Rk,p}$	[kN]	0,9	1,5	0,9	1,5
Partial safety factor	γ_{Mc} [1)]	[-]	1,8			
Concrete ≥ C16/20						
Characteristic resistance 50°C[2)] / 80°C[3)]	$N_{Rk,p}$	[kN]	1,5	2,5	1,5	2,5
Partial safety factor	γ_{Mc} [1)]	[-]	1,8			

[1)] In absence of other national regulations. [2)] Maximum long term temperature.
[3)] Maximum short term temperature.

Table C4: Displacements [1)] under tension and shear loads in concrete and masonry

Anchor type	**Embedment depth**	**Tension load**			**Shear load**		
	h_{nom}	F=N [2)]	δ_{N0}	$\delta_{N\infty}$	F=V [2)]	δ_{V0}	$\delta_{V\infty}$
	[mm]	[kN]	[mm]	[mm]	[kN]	[mm]	[mm]
MB 10	70 Autoclaved aerated concrete: 90	1,0	0,2	0,4	4,8	3,4 [3)]	5,1 [3)]
MBR 10	50	0,8	0,2	0,4	4,8	3,4 [3)]	5,1 [3)]

[1)] Valid for all temperature ranges. [2)] Intermediate values by linear interpolation.
[3)] The displacements under shear load can increase in case of annular gap in the fixture.

Table C5: Characteristic values under fire exposure in concrete C20/25 to C50/60 in any load direction, no permanent centric tension load and without lever arm

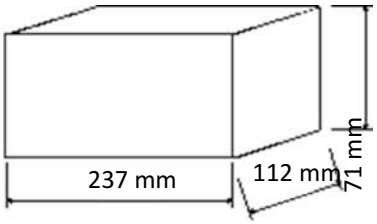
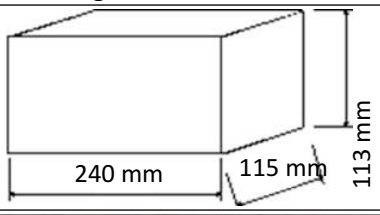
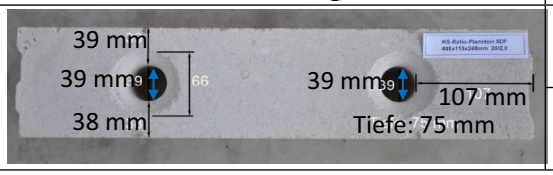
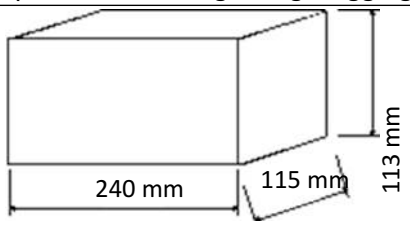
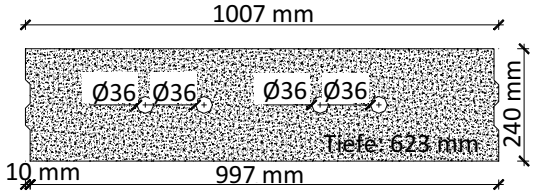
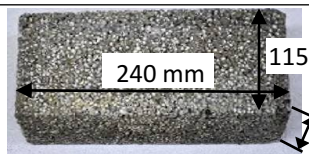
Anchor type	**Fire resistance class**	**$F_{Rk,fi}$**
MB 10 and MBR 10	R 90	≤ 0,8 kN

MB/ MBR

Performances
Characteristic resistances,
Displacements under tension and shear load in concrete and masonry

Annex C 1

Table C6: Characteristic resistance for MBR 10 and MB 10 in solid masonry (base material group "b") – clay brick, calcium silicate brick and lightweight concrete blocks

Base material	Geometry (Format/ length/ width/ height) [mm]	Minimum compressive strength as per EN 771 [N/mm²] / Bulk density ≥ ρ [kg/dm³]	Drill method[1]	Characteristic resistance F_{Rk} [kN]	
				MBR 10	MB 10
Solid brick according to EN 771-1:2011+A1:2015					
Clay brick Mz 12-1,8-NF	NF 237 112 71 	10 / 1,8	H	[2]	1,5
		20 / 1,8	H	[2]	2,0
Calcium silicate solid bricks according to EN 771-2:2011+A1:2015					
KSV 12-1,8-2DF	2DF 240 115 113 	10 / 1,8	H	[2]	1,5
		20 / 1,8	H	[2]	2,0
KS-Ratio-flat element 20-2,0-8DF	8DF 498 115 248 	10 / 2,0	H	2,0	1,5
		20 / 2,0	H	2,5	2,0
Solid brick made of concrete (with dense and lightweight aggregates) according to EN 771-3:2011+A1:2015					
Lightweight concrete solid brick Vbl 2-0,8-2DF	2DF 240 115 113 	4 / 0,8	H	[2]	0,4
		10 / 1,2	H	[2]	1,2
		20 / 2,0	H	[2]	1,5
Lightweight concrete flat element PE12-0,5	997 240 623 	2 / 0,5	H	[2]	0,3
		4 / 0,8	H	[2]	0,4
Liapor Solid brick	240 115 95 	10 / 1,2	H	0,9	[2]
Partial safety factor[3]			γ_{Mm}	2,5	

[1] H = Hammer drilling; R = Rotary drilling
[2] No performance assessed.
[3] In absence of national regulations.

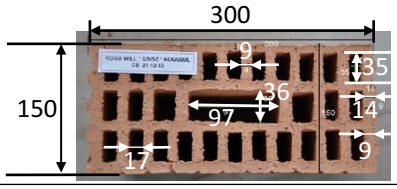
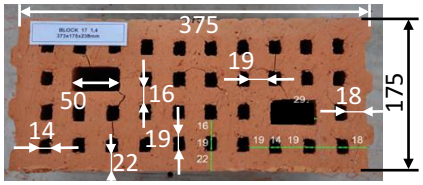
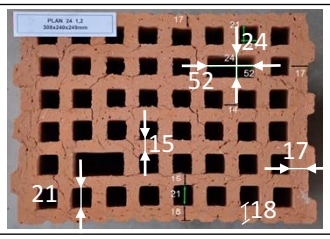
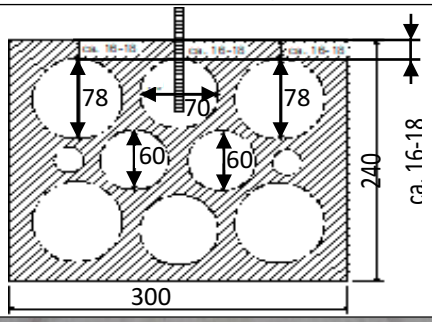
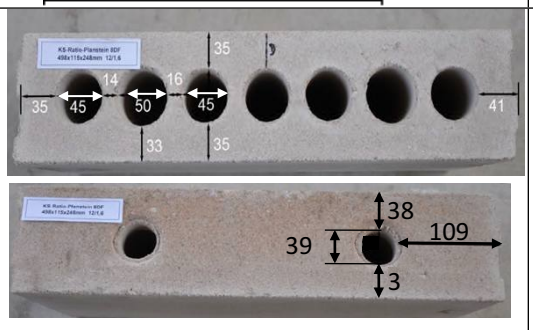
MB/ MBR

Performances
Characteristic resistances in solid masonry

Annex C 2

Deutsches Institut für Bautechnik DIBt

Table C7: Characteristic resistance for MBR 10 and MB 10 in hollow or perforated masonry (base material group "c") – clay bricks, calcium silicate bricks

Base material	Geometry (Format/ length/ width/ height) [mm]	Minimum compressive strength as per EN 771 [N/mm²] / Bulk density ≥ ρ [kg/dm³]	Drill method[1)]	Characteristic resistance F_{Rk} [kN]	
				MBR 10	MB 10
Clay brick with perforation according to EN 771-1:2011+A1:2015					
SWISSMODUL 300x150x190		25 / 0,80	R	0,4 [2)]	0,75 [2)]
Block 37/17,5 Ziegelwerk 87727 Klosterbeuren, Germany 373 175 238		12 / 1,4	R	0,6 [2)]	[3)]
Plan 30/24 Ziegelwerk 87727 Klosterbeuren, Germany 308 240 249		12 / 1,2	R	[3)]	0,5 [2)]
Calcium silicate brick with perforation according to EN 771-1:2011+A1:2015					
Calcium silicate hollow brick - KSL 12-1,2-10DF 10DF 300 240 238		12 / 1,2	R	[3)]	0,4 [2)]
KS-Ratio- flat element 12-1,6-8DF 8DF 498 115 248		12 / 1,6	R	1,2	0,75
Partial safety factor (In absence of national regulations)			γ_{Mm}	2,5	

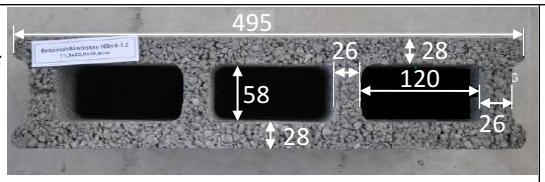
[1)]) H = Hammer drilling; R = Rotary drilling. [2)] Shear load with lever arm is not allowed. [3)] No performance assessed

MB/ MBR

Performances
Characteristic resistances in hollow or perforated masonry

Annex C 3

Table C8: Characteristic resistance for MBR 10 and MB 10 in hollow or perforated masonry (base material group "c") – lightweight concrete blocks

Base material	Geometry (Format/ length/ width/ height) [mm]	Minimum compressive strength as per EN 771 [N/mm²] / Bulk density ≥ ρ [kg/dm³]	Drill method[1]	Characteristic resistance F_{Rk} [kN]	
				MBR 10	MB 10
Concrete masonry units (with dense and lightweight aggregates) according to EN 771-3:2011+A1:2015					
Concrete hollow block Hbn 6-1,2 8DF	8DF 495 115 238 	6 / 1,2	R	0,3	[2]
Partial safety factor[3]			γ_{Mm}	2,5	

[1] H = Hammer drilling; R = Rotary drilling
[2] No performance assessed.
[3] In absence of national regulations.

Table C9: Characteristic resistance for MB 10 in unreinforced autoclaved aerated concrete (bricks) / reinforced autoclaved aerated concrete (plan element) (base material group "d")

Base material	Geometry (Format/ length/ width/ height) [mm]	Compressive strength [N/mm²]		Bulk density ≥ ρ [kg/dm³]	Drill method[1]	Characteristic resistance F_{Rk} [kN]
						MB 10
Autoclaved aerated concrete (bricks) according to EN 771-4:2011+A1:2015						
Solid bricks unreinforced autoclaved aerated concrete	250 150 240	Mean compressive strength as per EN 771-4	$f_{cm,decl} \geq 2,0$	0,35	R	0,4
			$f_{cm,decl} \geq 5,2$	0,55	R	1,5
Reinforced autoclaved aerated concrete (plan element) according to EN 12602:2016						
Reinforced autoclaved aerated concrete	250 150 240	Compressive strength as per EN 12602	$f_{ck} \geq 3,0$	0,35	R	0,3
			$f_{ck} \geq 5,2$	0,55	R	0,9
Partial safety factor[2]					γ_{MAAC}	2,0

[1] H = Hammer drilling; R = Rotary drilling
[2] In absence of national regulations.

MB/ MBR

Performances
Characteristic resistances in hollow or perforated masonry and autoclaved aerated concrete

Annex C 4