Styrene-free polyester universal mortar anchor, for use in non-cracked concrete and masonry

MO-PSU

Assessed ETA Option 7 (non-cracked concrete).

PRODUCT INFORMATION

DESCRIPTION
Styrene-free polyester universal chemical anchor.

OFFICIAL DOCUMENTATION
- ETA 24/0872 option 7, M8 to M16 for non-cracked concrete.
- ETA 24/1141 for installation in masonry.
- Declaration features DoP MO-PSU..
- Certificate EVCP 1020-CPR-090-059598 for use in concrete.
- Certificate EVCP 1020-CPR-090-060246 for use in masonry.

VALID FOR
Stud

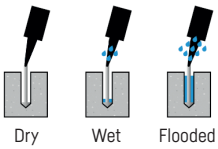
DIMENSIONS
Stud M8 - M16

RANGE OF CACULATION LOADS
From 6,48 to 14,66 kN (non-cracked).

BASE MATERIAL
Concrete quality C20/25 to C50/60 non-cracked.

ASSESSMENTS
- ETA 24/0872 Option 7: non-cracked concrete.
- ETA 24/1141 Masonry.

DRILL HOLE CONDITION

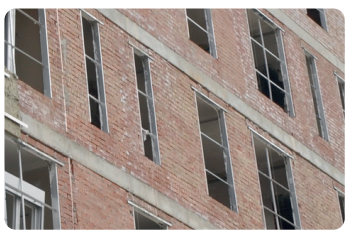


CHARACTERISTICS AND BENEFITS
- Easy installation.
- Use in non-cracked concrete, hollow and solid plasterboard.
- Used for medium loads.
- Temperature range -40°C to +80°C (maximum long-term temperature +50°C).
- Variety of lengths and diameters: M8-M16-assessed studs, flexible assembly.
- For static or quasi-static loads.
- Version in zinc plated steel, stainless steel A2 and A4.
- Styrene-free polyester resin for all types of materials
- Available in INDEXcal.

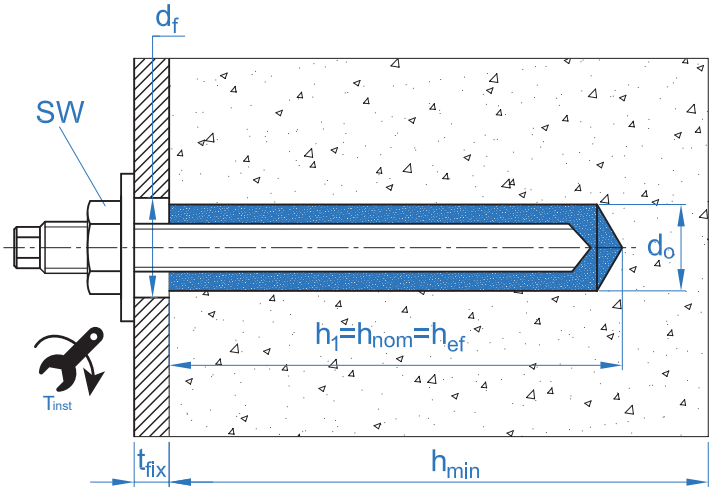
MATERIALS
Standard stud:
Carbon steel 5.8, 8.8.

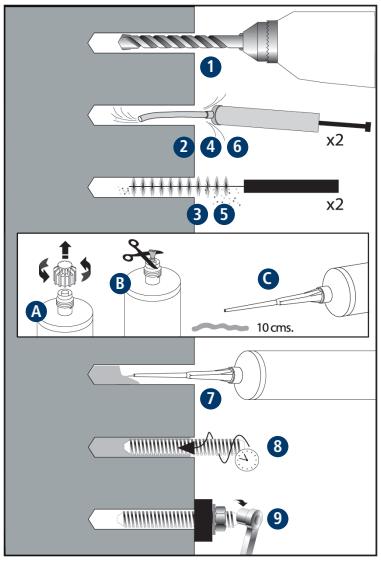
Stainless standard stud:
Stainless steel A2-70 and A4-70.

APPLICATIONS
- For indoor and outdoor use.
- Fixing of building substructures.
- Rehabilitation of facades. For fixing air-conditioning supports, boilers, awnings, signs, balconies, shelving units, railings, etc.
- Large metric sizes, retaining walls.
- Structural applications.



CONCRETE INSTALLATION PARAMETERS						
METRIC			M8	M10	M12	M16
d_0	nominal diameter	[mm]	10	12	14	18
d_f	diameter in anchor plate ≤	[mm]	9	12	14	18
T_{inst}	tightening torque ≤	[Nm]	10	20	40	80
Circular cleaning brush			Ø14		Ø20	
$h_{ef,min}$ = 8d						
h_1	depth of the drill hole	[mm]	64	80	96	128
$s_{cr,N}$	critical distance between anchors	[mm]	192	240	288	384
$c_{cr,N}$	critical distance from the edge	[mm]	96	120	144	192
c_{min}	minimum distance from the edge	[mm]	35	40	50	70
s_{min}	minimum distance between anchors	[mm]	40	40	50	70
h_{min}	minimum concrete thickness	[mm]	100	110	126	158
Standard stud						
h_1	depth of the drill hole	[mm]	80	90	110	128
$s_{cr,N}$	critical distance between anchors	[mm]	240	270	330	384
$c_{cr,N}$	critical distance from the edge	[mm]	120	135	165	192
c_{min}	minimum distance from the edge	[mm]	35	40	50	70
s_{min}	minimum distance between anchors	[mm]	40	40	50	70
h_{min}	minimum concrete thickness	[mm]	110	120	140	158
$h_{ef,max}$ = 12d						
h_1	depth of the drill hole	[mm]	96	120	144	192
$s_{cr,N}$	critical distance between anchors	[mm]	288	360	432	576
$c_{cr,N}$	critical distance from the edge	[mm]	144	180	216	288
c_{min}	minimum distance from the edge	[mm]	35	40	50	70
s_{min}	minimum distance between anchors	[mm]	40	40	50	70
h_{min}	minimum concrete thickness	[mm]	126	150	174	222
Zinc-plated stud code 5.8 / 8.8 			EQAC08110 EQ8808110	EQAC10130 EQ8810130	EQAC12160 EQ8812160	EQAC16190 EQ8816190
Stainless steel stud code A2 / A4 			EQA208110 EQA408110	EQA210130 EQA410130	EQA212160 EQA412160	EQA216190 EQA416190



INSTALLATION ACCESSORIES			INSTALLATION PROCEDURE
CODE	PRODUCT	MATERIAL	CONCRETE
MOPISSI	APPLICATION GUNS	Gun for 300 ml cartridges	
MOPISTO		Guns for 410 ml cartridges, professional use	
MOPISNEU		Pneumatic gun for 410 ml coaxial cartridges, professional use	
EQ-AC **EQ-8.8** **EQ-A2** **EQ-A4**	STUD	Studs threaded steel, class 5.8 ISO 898-1 Studs threaded steel, class 8.8 ISO 898-1 Studs stainless steel A2-70 Studs stainless steel A4-70	
MORCEPKIT	CLEANING BRUSHES	Kit with 3 cleaning brushes measuring ø14, ø20 and ø29 mm	
MOBOMBA	CLEANING PUMP	Pump for cleaning leftover dust and fragments in the drill hole	
MORCANU	MIXING TUBE	Plastic. Static labyrinth mixture	

MINIMUM CURING TIME				
TYPE	Cartridge temperature [ºC]	Handling time [min]	Base material temperature [ºC]	Curing time [min]
MO-PSU	min +5	18	min +5	160
	+5 a +10	10	+5 a +10	160
	+10 a +20	6	+10 a +20	90
	+20 a +25	5	+20 a +25	60
	+25 a +30	4	+25 a +30	50
	+30	4	+30	40

Resistance in concrete C20/25 for an insulated anchor, without effects of distance from the edge or spacing between anchors, with a standard stud EQ-AC, EQ-8.8, EQ-A2 or EQ-A4.

Characteristic tensile strength N_{Rk}						
	Metric		M8	M10	M12	M16
N_{Rk}	Non-cracked concrete	[kN]	11,7	15,3	19,1	26,4
Calculated tensile strength N_{Rd}						
	Metric		M8	M10	M12	M16
N_{Rd}	Non-cracked concrete	[kN]	6,48	8,48	10,60	14,66
Maximum recommended tensile load N_{rec}						
	Metric		M8	M10	M12	M16
N_{rec}	Non-cracked concrete	[kN]	4,6	6,1	7,6	10,5
Characteristic resistance to shear stress V_{Rk}						
	Metric		M8	M10	M12	M16
V_{Rk}	Zinc-plated stud 5.8	[kN]	*9,0*	*15,0*	*21,0*	*39,0*
	Zinc-plated stud 8.8	[kN]	*15,0*	*23,0*	*34,0*	*63,0*
	Stainless steel stud	[kN]	*13,0*	*20,0*	*30,0*	*55,0*
Calculated resistance to shearing V_{Rd}						
	Metric		M8	M10	M12	M16
V_{Rd}	Zinc-plated stud 5.8	[kN]	*7,2*	*12,0*	*16,8*	*31,2*
	Zinc-plated stud 8.8	[kN]	*12,0*	*18,4*	*27,2*	*50,4*
	Stainless steel stud	[kN]	*8,3*	*12,8*	*19,2*	*35,3*
Maximum recommended load to shear stress V_{rec}						
	Metric		M8	M10	M12	M16
V_{rec}	Zinc-plated stud 5.8	[kN]	*5,1*	*8,6*	*12,0*	*22,3*
	Zinc-plated stud 8.8	[kN]	*8,6*	*13,1*	*19,4*	*36,0*
	Stainless steel stud	[kN]	*6,0*	*9,2*	*13,7*	*25,2*
Effective depth of studs EQ-AC / EQ-A2 / EQ-A4						
	Metric		M8	M10	M12	M16
	Effective depth	[mm]	80	90	110	128

The values underlined and in italics indicate steel failure

Simplified calculation method. European Technical Assessment ETA 24/0872

Simplified version of the calculation method according to Eurocode 2 EN 1992-4. Resistance is calculated according to the data shown in assessment ETA 24/0872.

- Influence of concrete resistance.
- Influence of the distance from the edge of the concrete.
- Influence of the spacing between anchors.
- Influence of rebars.
- Influence of the base material thickness.
- Influence of the load application angle.
- Influence of the effective depth.
- Valid for a group of two anchors.
- Valid for dry or wet drill holes.

The calculation method is based on the following simplification:
No different loads act on individual anchors, without eccentricity.

INDEXcal
For a more precise calculation and taking into account more constructive arrangements we recommend the use of our INDEXcal calculation program. It can be downloaded free from our website **www.indexfix.com**

TENSILE LOADS

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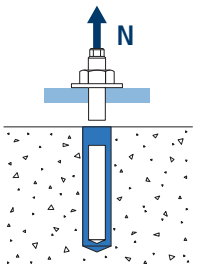
- Calculated steel resistance: $N_{Rd,s}$
- Calculated extraction resistance: $N_{Rd,p} = N^{o}_{Rd,p} \cdot \Psi_{c} \cdot \Psi_{hef,p}$
- Calculated concrete cone resistance: $N_{Rd,c} = N^{o}_{Rd,c} \cdot \Psi_{b} \cdot \Psi_{s,N} \cdot \Psi_{c,N} \cdot \Psi_{re,N} \cdot \Psi_{hef,N}$
- Calculated concrete cracking resistance: $N_{Rd,sp} = N^{o}_{Rd,c} \cdot \Psi_{b} \cdot \Psi_{s,sp} \cdot \Psi_{c,sp} \cdot \Psi_{re,N} \cdot \Psi_{h,sp} \cdot \Psi_{hef,N}$

Calculated steel resistance

$N_{Rd,s}$

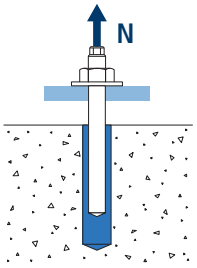
	Metric		M8	M10	M12	M16
$N^{o}_{Rd,s}$	Steel class 5.8	[kN]	12,0	19,3	28,0	52,7
	Steel class 8.8	[kN]	19,3	30,7	44,7	84,0
	Steel class 10.9	[kN]	27,8	43,6	63,2	118,0
	Stainless steel Class A2-70, A4-70	[kN]	13,9	21,9	31,6	58,8



Calculated extraction resistance

$N_{Rd,p} = N^{o}_{Rd,p} \cdot \Psi_{c} \cdot \Psi_{hef,p}$

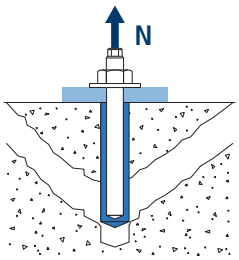
	Metric		M8	M10	M12	M16
$N^{o}_{Rd,p}$	Non-cracked concrete	[kN]	6,5	8,5	10,6	14,7



Calculated concrete cone resistance

$N_{Rd,c} = N^{o}_{Rd,c} \cdot \Psi_{b} \cdot \Psi_{s,N} \cdot \Psi_{c,N} \cdot \Psi_{re,N} \cdot \Psi_{hef,N}$

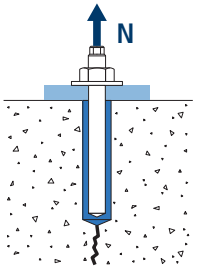
	Metric		M8	M10	M12	M16
$N^{o}_{Rd,c}$	Non-cracked concrete	[kN]	19,6	23,3	31,5	39,6



Calculated concrete cracking resistance

$N_{Rd,sp} = N^{o}_{Rd,c} \cdot \Psi_{b} \cdot \Psi_{s,sp} \cdot \Psi_{c,sp} \cdot \Psi_{re,N} \cdot \Psi_{h,sp} \cdot \Psi_{hef,N}$

	Metric		M8	M10	M12	M16
$N^{o}_{Rd,sp}$	Non-cracked concrete	[kN]	19,6	23,3	31,5	39,6



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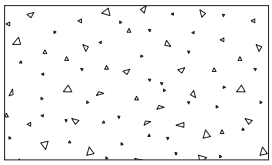
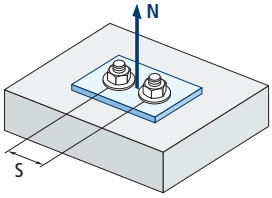
Influence coefficients



Influence of concrete resistance for extraction Ψ_c					
Concrete type		C20/25	C30/37	C40/50	C50/60
Ψ_c	Non-cracked concrete	1,00	1,04	1,07	1,09

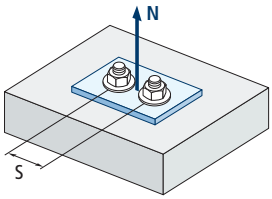
$$\Psi_b = \sqrt{\frac{f_{ck,cube}}{25}} \geq 1$$

Influence of concrete resistance for concrete cone and concrete cracking Ψ_b					
Concrete type		C20/25	C30/37	C40/50	C50/60
Ψ_b		1,00	1,22	1,41	1,55



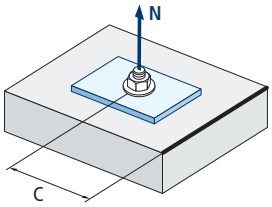
Influence of spacing between anchors (concrete cone) $\Psi_{s,N}$										
$s/s_{cr,N}$	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1,0
$\Psi_{s,N}$	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00

$$\Psi_{s,N} = 0.5\left(1+\frac{s}{S_{cr,N}}\right) \leq 1$$



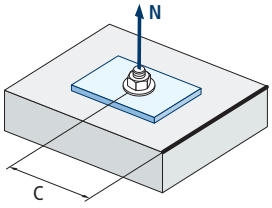
Influence of spacing between anchors (cracking) $\Psi_{s,N}$										
$s/s_{cr,sp}$	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1,0
$\Psi_{s,sp}$	0,55	0,60	0,65	0,70	0,75	0,80	0,85	0,90	0,95	1,00

$$\Psi_{s,sp} = 0.5\left(1+\frac{s}{S_{cr,sp}}\right) \leq 1$$



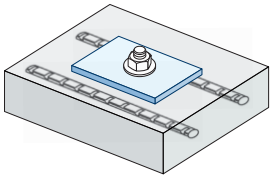
Influence of the distance from the edge of the concrete (concrete cone) $\Psi_{c,N}$												
$c/C_{cr,N}$	0,1	0,2	0,3	0,5	0,6	0,8	0,9	1,1	1,2	1,4	1,5	1,6
$\Psi_{c,N}$	0,40	0,46	0,51	0,45	0,49	0,55	0,61	0,67	0,75	0,83	0,91	1,00

$$\Psi_{c,N} = 0.35 + \frac{0.5 \cdot c}{C_{cr,N}} + \frac{0.15 \cdot c^2}{C_{cr,N}^{\ 2}} \leq 1$$



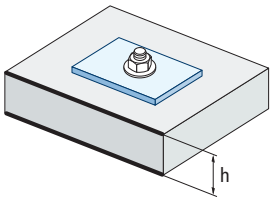
Influence of the distance from the edge of the concrete (cracking) $\Psi_{c,sp}$												
$c/C_{cr,sp}$	0,1	0,2	0,3	0,5	0,6	0,8	0,9	1,1	1,2	1,4	1,5	1,6
$\Psi_{c,sp}$	0,40	0,46	0,51	0,45	0,49	0,55	0,61	0,67	0,75	0,83	0,91	1,00

$$\Psi_{c,sp} = 0.35 + \frac{0.5 \cdot c}{C_{cr,sp}} + \frac{0.15 \cdot c^2}{C_{cr,sp}^{\ 2}} \leq 1$$



Influence of the rebars $\Psi_{re,N}$					
h_{ef} (mm)	64	70	80	90	100
$\Psi_{re,N}$	0,82	0,85	0,90	0,95	1,00

$$\Psi_{re,N} = 0.5 + \frac{h_{ef}}{200} \leq 1$$



Influence of the base material thickness $\Psi_{h,sp}$											
$\Psi_{h,sp}$	h/h_{ef}	2,00	2,20	2,40	2,60	2,80	3,00	3,20	3,40	3,60	3,68
	fh	1,00	1,07	1,13	1,19	1,25	1,31	1,37	1,42	1,48	1,50

$$\Psi_{h,sp} = \left(\frac{h}{2 \cdot h_{ef}}\right)^{2/3} \leq 1.5$$

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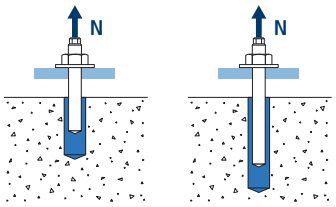
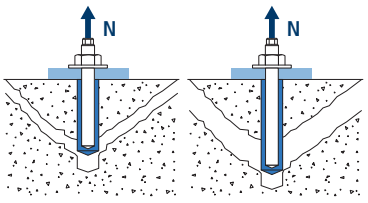
Influence of the effective depth for the extraction combination $\Psi_{hef,p}$				
Metric h_{ef}	M8	M10	M12	M16
64	0,80	Value not permitted		
80	1,00	0,89		
90	1,13	1,00	0,82	
96	1,20	1,07	0,87	
110		1,22	1,00	
120		1,33	1,09	
128			1,16	1,00
144			1,31	1,13
160	Value not permitted			1,25
170				1,33
192				1,50



$$\Psi_{hef,p} = \frac{h_{ef}}{h_{stand}}$$

Influence of the effective depth for the concrete cone $\Psi_{hef,N}$				
Metric h_{ef}	M8	M10	M12	M16
64	0,72	Value not permitted		
80	1,00	0,84		
90	1,19	1,00		
96	1,31	1,10	0,82	
110	1,61	1,35	1,00	
120	1,84	1,54	1,14	0,91
128	2,02	1,70	1,26	1,00
144		2,02	1,50	1,19
160		2,37	1,75	1,40
170		2,60	1,92	1,53
192	Value not permitted		2,31	1,84
210			2,64	2,10
240			3,22	2,57
288				3,38



$$\Psi_{hef,N} = \left(\frac{h_{ef}}{h_{stand}}\right)^{1.5}$$

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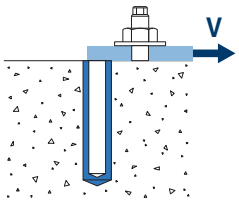
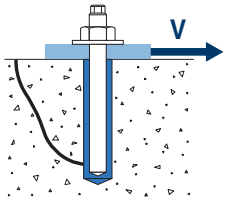
SHEARING LOADS

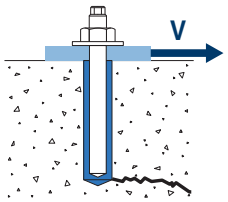
- Calculated steel resistance without lever arm: $V_{Rd,s}$
- Calculated spalling resistance: $V_{Rd,cp} = k \cdot N^{o}_{Rd,c}$
- Calculated concrete edge resistance: $V_{Rd,c} = V^{o}_{Rd,c} \cdot \Psi_b \cdot \Psi_{se,V} \cdot \Psi_{c,V} \cdot \Psi_{re,V} \cdot \Psi_{\alpha,V} \cdot \Psi_{h,V}$



Calculated steel resistance to shearing $V_{Rd,s}$						
Metric			M8	M10	M12	M16
$V^{o}_{Rd,s}$	Steel class 5.8	[kN]	7,2	12	16,8	31,2
	Steel class 8.8	[kN]	12	18,4	27,2	50,4
	Steel class 10.9	[kN]	12	19,3	28	52,7
	Stainless steel Class A2-70, A4-70	[kN]	8,3	12,8	19,2	35,3

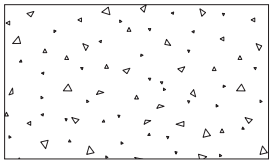


Calculated spalling resistance $V_{Rd,cp} = k \cdot N^{o}_{Rd,c}$				
Metric	M8	M10	M12	M16
k	2			



Calculated concrete edge resistance $V_{Rd,c} = V^{o}_{Rd,c} \cdot \Psi_b \cdot \Psi_{se,V} \cdot \Psi_{c,V} \cdot \Psi_{re,V} \cdot \Psi_{\alpha,V} \cdot \Psi_{h,V}$						
Metric			M8	M10	M12	M16
$V^{o}_{Rd,c}$	Non-cracked concrete	[kN]	5,7	8,6	11,8	19,0

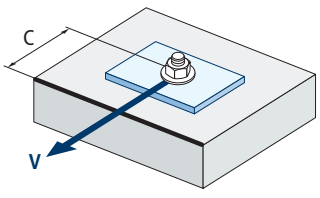
Influence coefficients

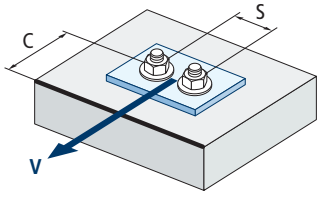


$$\Psi_b = \sqrt{\frac{f_{ck,cube}}{25}} \geq 1$$

Influence of concrete resistance for concrete cone and concrete cracking Ψ_b				
Concrete type	C20/25	C30/37	C40/50	C50/60
Ψ_b	1,00	1,22	1,41	1,55

Influence of the distance from the edge and spacing between anchors $\Psi_{se,V}$																	
For one anchor																	
c/h_{ef}	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50	2,75	3,00	3,25	3,50	3,75	4,00	4,50	5,00
Insulated	0,35	0,65	1,00	1,40	1,84	2,32	2,83	3,38	3,95	4,56	5,20	5,86	6,55	7,26	8,00	9,55	11,18
For two anchors																	
s/c	c/h_{ef}	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50	2,75	3,00	3,25	3,50	3,75	4,00	4,50	5,00
	1,0	0,24	0,43	0,67	0,93	1,22	1,54	1,89	2,25	2,64	3,04	3,46	3,91	4,37	4,84	5,33	6,36	7,45
	1,5	0,27	0,49	0,75	1,05	1,38	1,74	2,12	2,53	2,96	3,42	3,90	4,39	4,91	5,45	6,00	7,16	8,39
	2,0	0,29	0,54	0,83	1,16	1,53	1,93	2,36	2,81	3,29	3,80	4,33	4,88	5,46	6,05	6,67	7,95	9,32
	2,5	0,32	0,60	0,92	1,28	1,68	2,12	2,59	3,09	3,62	4,18	4,76	5,37	6,00	6,66	7,33	8,75	10,25
	≥ 3,0	0,35	0,65	1,00	1,40	1,84	2,32	2,83	3,38	3,95	4,56	5,20	5,86	6,55	7,26	8,00	9,55	11,18





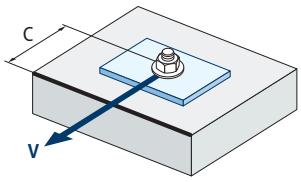
$$\Psi_{se,V} = \left(\frac{c}{h_{ef}}\right)^{1.5}$$

$$\Psi_{se,V} = \left(\frac{c}{h_{ef}}\right)^{1.5} \cdot \left(1 + \frac{s}{3 \cdot c}\right) \cdot 0.5 \leq \left(\frac{c}{h_{ef}}\right)^{1.5}$$

MO-PSU

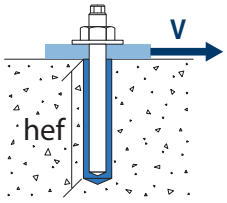
Influence of the distance from the edge of the concrete $\Psi_{c,V}$								
c/d	4	5	7	10	15	20	25	30
$\Psi_{c,V}$	0,76	0,72	0,68	0,63	0,58	0,55	0,53	0,51

$$\Psi_{c,V} = \left(\frac{d}{c}\right)^{0,20}$$

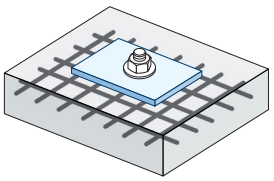


Influence of the effective depth $\Psi_{hef,V}$					
h_{ef}/d	8	9	10	11	12
$\Psi_{hef,V}$	1,65	2,04	2,47	2,93	3,42

$$\Psi_{hef,V} = 0,04 \cdot \left(\frac{h_{ef}}{d}\right)^{1,79}$$

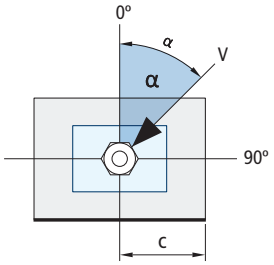


Influence of the rebars $\Psi_{re,v}$				
		Without perimeter rebar	Perimeter rebar ≥Ø12mm	Perimeter rebar with abutments at≤100mm
$\Psi_{re,v}$	Non-cracked concrete	1	1	1
	Cracked concrete	1	1,2	1,4



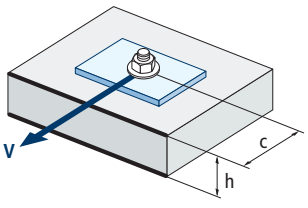
Influence of the load application angle $\Psi_{\alpha,v}$										
Angle, α(°)	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
$\Psi_{\alpha,v}$	1,00	1,01	1,05	1,13	1,24	1,40	1,64	1,97	2,32	2,50

$$\Psi_{\alpha,V} = \sqrt{\frac{1}{(\cos \alpha_v)^2 + \left(\frac{\sin \alpha_v}{2,5}\right)^2}} \geq 1$$



Influence of the base material thickness $\Psi_{h,V}$										
h/c	0,67	0,75	0,85	0,95	1,10	1,30	1,65	2,25	3,30	6,65
$\Psi_{h,v}$	1,00	1,06	1,13	1,19	1,28	1,40	1,57	1,84	2,22	3,16

$$\Psi_{h,V} = \left(\frac{h}{1,5 \cdot c}\right)^{0,5} \geq 1,0$$

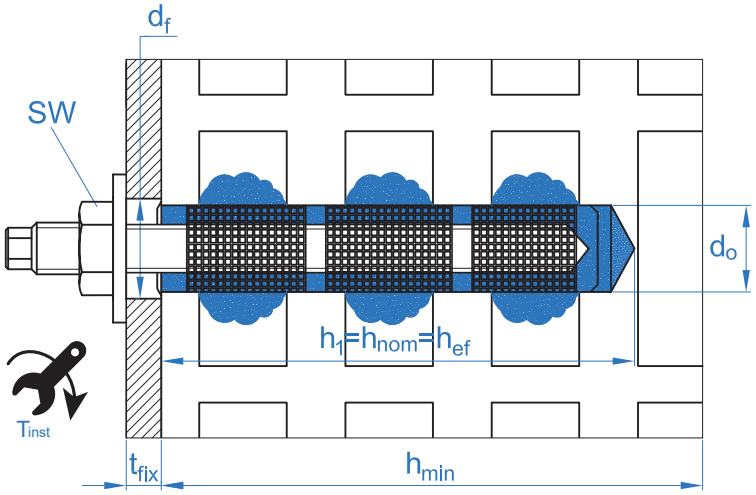


MO-PSU

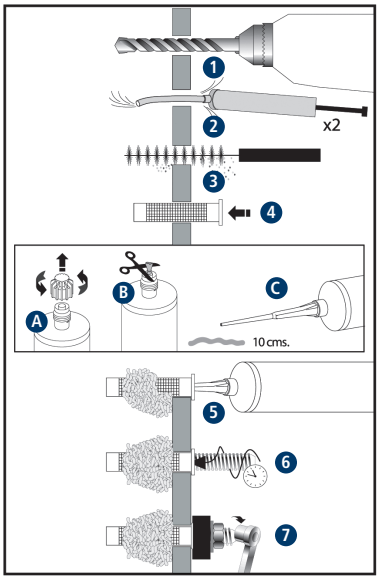
FIXING IN BRICKS

MO-PSU													
BASE MATERIAL			Brick number 1				Brick number 2				Brick number 3			
ANCHOR TYPE			Threaded rod with sleeve				Threaded rod with sleeve				Threaded rod without sleeve			
DIMENSION			M6	M8	M10	M12	M6	M8	M10	M12	M6	M8	M10	M12
l_s	Plastic sleeve length	[mm]	80	85	85	85	80	80	85	85	-	-	-	-
d_0	Nominal diameter	[mm]	12	16	16	16	12	12	16	16	-	-	-	-
v	Mortar volume per sleeve	[ml]												
d_0	Drill bit diameter	[mm]	12	16	16	16	12	12	16	16	8	10	12	14
h_1	Drill hole depth ≥	[mm]	85	90	90	90	85	85	90	90	80	90	90	90
h_{ef}	Stud depth ≥	[mm]	80	85	85	85	80	80	85	85	80	90	90	90
h_{nom}	Sleeve installation depth	[mm]	85	85	85	85	80	80	85	85	-	-	-	-
d_f	Diameter in metal sheet ≤	[mm]	7	9	12	14	9	9	12	14	7	9	12	14
T_{ins}	Tightening torque ≤	[Nm]	2	2	2	2	2	2	2	2	2	2	2	2
d_b	Circular brush	[mm]	14	14	20	20	14	14	20	20	9	14	14	14
	Sleeve code		MOTN12080	MOTN12080	MOTN15085	MOTN20080	MOTN12080	MOTN12080	MOTN15085	MOTN20080	-	-	-	-

		M6/M8 Sleeve Ø12				M8/M10/M12 Sleeve Ø16				M6			M10/M12		
Minimum distances and from the edge		$c_{cr} = c_{min}$		$s_{cr\parallel} = s_{min\parallel}$	$s_{cr\perp} = s_{min\perp}$	$c_{cr} = c_{min}$		$s_{cr\parallel} = s_{min\parallel}$	$s_{cr\perp} = s_{min\perp}$	$c_{cr} = c_{min}$	$s_{cr\parallel} = s_{min\parallel}$	$s_{cr\perp} = s_{min\perp}$	$c_{cr} = c_{min}$	$s_{cr\parallel} = s_{min\parallel}$	$s_{cr\perp} = s_{min\perp}$
Brick number 1	[mm]	100		245	110	-	-	-	-	-	-	-	-	-	-
Brick number 2	[mm]	-	-	-	-	100		373	238	-	-	-	-	-	-
Brick number 3	[mm]	-	-	-	-	-	-	-	-	100	245	110	135	270	270



MO-PSU

INSTALLATION ACCESSORIES			INSTALLATION PROCEDURE
CODE	PRODUCT	MATERIAL	BRICK
MOPISSI	APPLICATION GUNS	Gun for 300 ml cartridges	
MOPISTO		Guns for 410 ml cartridges, professional use	
MOPISNEU		Pneumatic gun for 410 ml coaxial cartridges, professional use	
EQ-AC	STUD	Stud threaded steel, class 5.8 ISO 898-1	
EQ-A2		Stainless steel A2-70	
EQ-A4		Stainless steel A4-70	
MORCEPKIT	CLEANING BRUSHES	Kit with 3 cleaning brushes measuring ø14, ø20 and ø29 mm	
MOBOMBA	CLEANING PUMP	Pump for cleaning leftover dust and fragments in the drill hole	
MORCANU	MIXING TUBE	Plastic. Static labyrinth mixture	
MO-TN	NYLON SLEEVE	Plastic white or grey	
MO-TR	THREADED METAL SLEEVE	Threaded metal sleeve M8, M10, M12, zinc-plated	
MO-TM	METAL SLEEVE	Metal sleeve ø12, ø16 and ø22 mm	

MINIMUM CURING TIME				
TYPE	Cartridge temperature [ºC]	Handling time [min]	Base material temperature [ºC]	Curing time [min]
MO-PSU	min +5	18	min +5	160
	+5 a +10	10	+5 a +10	160
	+10 a +20	6	+10 a +20	90
	+20 a +25	5	+20 a +25	60
	+25 a +30	4	+25 a +30	50
	+30	4	+30	40

MO-PSU

Characteristic resistances (F_{Rk})									
Anchor type		Threaded studs. Tensile and shear force [kN]							
Use conditions		d/d, w/d				w/w			
Base material	Sleeve	M6	M8	M10	M12	M6	M8	M10	M12
Brick number 1	Ø12 x 80	1,2	1,2	-	-	1,2	1,2	-	-
Brick number 2	Ø16 x 85	-	0,9	1,2	1,2	-	0,9	1,2	1,2
Brick number 3	-	1,2	1,2	1,5	2,0	0,9	0,9	1,5	1,5

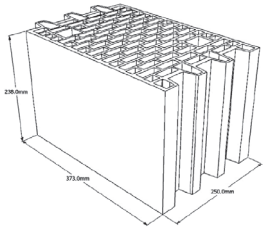
Calculated resistances (F_{Rd})									
Anchor type		Threaded studs. Tensile and shear force [kN]							
Use conditions		d/d, w/d				w/w			
Base material	Sleeve	M6	M8	M10	M12	M6	M8	M10	M12
Brick number 1	Ø12 x 80	0,48	0,48	-	-	0,48	0,48	-	-
Brick number 2	Ø16 x 85	-	0,36	0,48	0,48	-	0,36	0,48	0,48
Brick number 3	-	0,48	0,48	0,6	0,8	0,36	0,36	0,6	0,6

Recommended maximum loads (F_{recom}) (con $\gamma F = 1,4$)									
Use conditions		d/d, w/d				w/w			
Base material	Sleeve	M6	M8	M10	M12	M6	M8	M10	M12
Brick number 1	Ø12 x 80	0,34	0,34	-	-	0,34	0,34	-	-
Brick number 2	Ø16 x 85	-	0,26	0,34	0,34	-	0,26	0,34	0,34
Brick number 3	-	0,34	0,34	0,43	0,57	0,26	0,26	0,43	0,43

MO-PSU

BRICK TYPES

Brick no. 1
Perforated clay brick 10 according to EN 771-1
Length / width / height: 245 mm / 110 mm / 100 mm
fb b ≥ 15 N/mm² / ρ ≥ 2,05 kg/dm³



Brick no. 2
Hollow clay brick Porotherm 25 P+W KL15 according to EN 771-1
Length / width / height: 373 mm / 250 mm / 238 mm
fb b ≥ 12 N/mm² / ρ ≥ 0,9 kg/dm³

Brick no. 3
Solid clay brick Mz-NF according to EN 771-1
Length / width / height: 240 mm / 115 mm / 71 mm
fb b ≥ 20 N/mm² / ρ ≥ 1,9 kg/dm³

MO-PSU

RANGE

STYRENE-FREE POLYESTER UNIVERSAL

CODE	DIMENSION	
NORMAL		
MOPSU300	300 ml	12
MOPSU410	410 ml	12

Concrete | Hollow brick | Solid brick | Thermal clay

Accessories for chemical anchor cartridges

MO-PIS Application guns

CODE	MODEL
MOPISTO	Manual
MOPISPR	Professional 410 ml
MOPISSI	Silicone 300 ml
MOPISNEU	Pneumatic

MO-TN Plastic sleeve

CODE	DIMENSION
MOTN12050	12 x 50
MOTN12080	12 x 80
MOTN15085	15 x 85
MOTN15130	15 x 130
MOTN20085	20 x 85

MO-AC Mixing tubes and miscellaneous

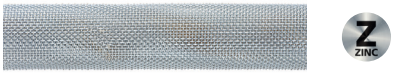
MORCEPKIT
Kit 3 brushes (ø15, ø20, ø30)

CODE	MODEL
MOBOMBA	Blower pump
MORCANU	Tube 170 - 300 - 410 ml
MORCEPKIT	Kit 3 brushes

MO-ES Threaded stud

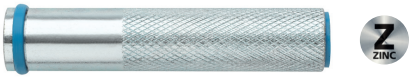
CODE	DIMENSION
MOES06070	M6 x 70
MOES08110	M8 x 110
MOES10115	M10 x 115
MOES12110	M12 x 110

MO-TM Metal sleeve



CODE	DIMENSION
MOTM12100	12 x 1000
MOTM16100	16 x 1000
MOTM22100	22 x 1000

MO-TR Threaded sleeve



CODE	DIMENSION
MOTRO08	M8/12 x 80
MOTRO10	M10/14 x 80
MOTRO12	M12/16 x 80

M0-PSU

Accessories for chemical anchor cartridges

Stud for chemical anchor with nut and washer

EQ-AC Zinc-plated 5.8

CODE	DIMENSION
EQAC08110	M8 x 110
EQAC10130	M10 x 130
EQAC10190	M10 x 190
EQAC12160	M12 x 160
EQAC12220	M12 x 220
EQAC16190	M16 x 190
EQAC16250	M16 x 250
EQAC20260	M20 x 260
EQAC20350	M20 x 350
EQAC24300	M24 x 300
EQAC24380	M24 x 380
EQAC30330	M30 x 330

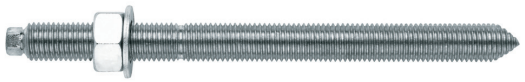
EQ-A2 Stainless steel A2

CODE	DIMENSION
EQA208110	M8 x 110
EQA210130	M10 x 130
EQA212160	M12 x 160
EQA216190	M16 x 190
EQA220260	M20 x 260
EQA224300	M24 x 300
EQA230330	M30 x 330

EQ-8.8 Zinc-plated 8.8

CODE	DIMENSION
EQ8808110	M8 x 11040
EQ8810130	M10 x 130
EQ8812160	M12 x 160
EQ8816190	M16 x 190
EQ8820260	M20 x 260
EQ8824300	M24 x 300

EQ-A4 Stainless steel A4



CODE	DIMENSION
EQA408110	M8 x 110
EQA410130	M10 x 130
EQA412160	M12 x 160
EQA416190	M16 x 190
EQA420260	M20 x 260
EQA424300	M24 x 300
EQA430330	M30 x 330

Notes