

KEM-P

STYRENE FREE
POLYESTER RESIN



PRODUCT DESCRIPTION

Two-component polyester anchoring mass (resin and hardener) for installation of threaded rods for un-cracked concrete and masonry.

APPLY

Design for fastening lightweight components (sanitary equipment, electrical installations, cable trays, hinges, shutters, awnings, blinds, small household elements, gazebos, porches, fences) in un-cracked concrete and masonry. Suitable for water flooded holes in concrete, Direct application in concrete and solid clay bricks, for application in hollow bricks use special mesh sleeve. Available in two different cartridges, 280 ml capacity for use with single piston standard dispenser and 380 ml capacity for use with special chemical anchor dispenser. Each cartridge comes with two mixers.

CAPACITY

About the importance of	Capacity [ml]	Unit /Quantity/Bulk [pcs]
KEM P	280	1/12/12
KEM P	380	1/10/10

CURING TIME

Substrate temperature [°C]	Gelling/machining time [min]	Minimum curing time [min]
-5 do -1	90	360
0 do +4	45	180
+5 do +9	25	120
+10 do +14	20	100
+15 do +19	15	80
+20 do +29	6	45
+30 do +34	4	25
+35 do +39	2	20
cartridge temperature		+15°C do +40°C

EUROPEAN TECHNICAL ASSESMENT ETA-12/0608:2016 (CONCRETE – OPTION 7)

CHARACTERISTIC LOADS FOR THREADED ROD IN CONCRETE								
ESSENTIAL CHARACTERISTICS				PERFORMANCE				
Installation parameters		Threaded rods	M8	M10	M12	M16	M20	M24
d_0	Nominal diameter of drill bit	[mm]	10	12	14	18	24	28
d_b	Diameter of steel brush	[mm]	12	14	16	20	26	30
$h_{ef,min}$	Effective embedment depth (min)	[mm]	60	60	70	80	90	96
$h_{ef,max}$	Effective embedment depth (max)	[mm]	160	200	240	320	40	480
h_{min}	Minimum thickness of the concrete member	[mm]	$h_{ef} + 30 \geq 100$			$h_{ef} + 2d_0$		
T_{inst}	Torque moment (max)	[Nm]	10	20	40	60	120	160
s_{min}	Minimum spacing	[mm]	40	50	60	80	100	120
c_{min}	Minimum edge distance	[mm]	40	50	60	80	100	120
TENSION failure								
$N_{Rk,s}$	Tension Steel characteristics failure		$A_s \times f_{uk}$					
Combined pull-out and concrete cone failure			M8	M10	M12	M16	M20	M24
$\tau_{Rk,ucr}$	"DRY & WET"	Temperature range I°: 40°C/24 °C [MPa]	8,5	8	8	8	8	8
		Temperature range II°: 80°C/50 °C [MPa]	6,5	6	6	6	6	6
$\tau_{Rk,ucr}$	"FLOODED HOLE"	Temperature range I°: 40°C/24 °C [MPa]	8,5	8	8	8	8	8
		Temperature range II°: 80°C/50 °C [MPa]	6,5	6	6	6	6	6
γ_2	Installation safety factor	[-]	1,2					
ψ_c	Increasing factor for concrete	C30/37 [-]	1,08					
		C40/50 [-]	1,15					
		C50/60 [-]	1,19					
k_8	Factor acc. to CEN/TS 1992-4-5 sec.6.2.2.3	[-]	10,1					
Concrete cone failure								
k_{ucr}	Factor acc. to CEN/TS 1992-4-5 sec.6.2.3.1	[-]	10,1					
$c_{cr,N}$	Critical edge distance	[mm]	$1,5 \times h_{ef}$					
$s_{cr,N}$	Critical spacing	[mm]	$3,0 \times h_{ef}$					
Splitting failure								
$c_{cr,sp}$	Critical edge distance (for splitting)	[mm]	$1,0 \times h_{ef} \leq 2 \times h_{ef} (2,5 - h / h_{ef}) \leq 2,4 \times h_{ef}$					
$s_{cr,sp}$	Critical spacing (for splitting)	[mm]	$2 \times c_{cr,sp}$					
γ_2	Installation safety factor	[-]	1,2					
SHEAR failure			M8	M10	M12	M16	M20	M24
$V_{Rk,s}$	Characteristic Shear Steel failure without lever arm	[kN]	$0,5 \times A_s \times f_{uk}$					
k_2	Factor acc. to CEN/TS 1992-4-5 sec.6.3.2.1	[-]	0,8					
$M^0_{Rk,s}$	Characteristic bending moment with lever arm	[Nm]	$1,2 \times W_{el} \times f_{uk}$					
Concrete Pry-out failure								
k_3	Factor in equation 27 of CEN/TS 1992-4-5 sec.6.3.3	[-]	2					
k	Factor in equation 5.7 of TR029	[-]	2					
γ_2	Installation safety factor	[-]	1,0					
Concrete edge failure								
l_f	Effective length of anchor	[-]	$l_f \leq \min(h_{ef}; 8 \times d_{nom})$					
d_{nom}	Outside diameter of anchor	[mm]	8	10	12	16	20	24
γ_2	Installation safety factor	[-]	1,0					

Displacement under TENSION Load ¹⁾ in un-cracked concrete C20/25			M8	M10	M12	M16	M20	M24
$\delta_{N0,ucr}$	Short term displacement	40°/24°C	0,03	0,04	0,05	0,07	0,08	0,10
		80°/50°C	0,02	0,03	0,03	0,04	0,04	0,05
$\delta_{N\infty,ucr}$	Long term displacement	40°/24°C	0,07	0,08	0,08	0,08	0,08	0,10
		80°/50°C	0,15	0,17	0,17	0,17	0,17	0,17

¹⁾ Calculation of displacement = $\delta_N \cdot \tau$

Displacement under SHEAR Load ¹⁾ in un-cracked concrete C20/25			M8	M10	M12	M16	M20	M24
$\delta_{V0,ucr}$	Short term displacement	[mm/kN]	0,02	0,02	0,01	0,01	0,01	0,01
$\delta_{V\infty,ucr}$	Spostamento a lungo termine		0,03	0,02	0,02	0,01	0,01	0,01

¹⁾ Calculation of displacement = $\delta_V \cdot V$

EUROPEAN TECHNICAL ASSESMENT ETA-12/0534:2017 (MASONRY)

CHARACTERISTIC LOADS FOR THREADED ROD IN MASONRY									
ESSENTIAL CHARACTERISTICS						PERFORMANCE			
Installation parameters in SOLID CLAY BRICK ¹⁾						M8	M10	M12	M16
d_0	Nominal diameter of drill bit				[mm]	10	12	14	18
d_b	Diameter of stell brush				[mm]	12	14	16	20
h_{ef}	Effective embedment depth				[mm]	80	90	100	100
T_{MAX}	Torque moment (max)				[Nm]	6	10	10	10
Characteristic values for TENSION and SHEAR loads						Temperature Range 40°C / 24°C			
Type of solid clay brick ¹⁾	density [Kg/dm ³]	compress [N/mm ²]	Characteristic resistance			M8	M10	M12	M16
Mattone Pieno Mz-DF	$\rho \geq 1,64$	$f_b \geq 20$	N_{Rk} (tension) [kN]			2,5	2,5	2	3,5
			V_{Rk} (shear) [kN]			4,5	5,5	7,5	7,5
Mattone Pieno Mz-DF	$\rho \geq 1,64$	$f_b \geq 28$	N_{Rk} (tension) [kN]			3	3	2,5	4,5
			V_{Rk} (shear) [kN]			5,5	6,5	9,0	9,0
γ_M	Partial safety factor				[-]	2,5			
Installation parameters in HOLLOW CLAY BRICK "with Sleeve" ¹⁾						M8	M10	M12	M16
d_0	Nominal diameter of drill bit				[mm]	12	16	20	20
d_b	Diameter of stell brush				[mm]	14	18	22	22
h_{ef}	Effective embedment depth				[mm]	80	85	85	85
T_{MAX}	Torque moment (max)				[Nm]	4			
Characteristic values for TENSION and SHEAR loads						Temperature Range 40°C / 24°C			
Type of hollow clay brick ¹⁾	density [Kg/dm ³]	compress [N/mm ²]	Characteristic resistance			M8	M10	M12	M16
Doppio UNI	$\rho \geq 0,92$	$f_b \geq 20$	N_{Rk} (tension) [kN]			1,2	1,2	1,5	1,5
			V_{Rk} (shear) [kN]			3,0	3,0	3,0	3,0
Blocco Leggero	$\rho \geq 0,55$	$f_b \geq 6$	N_{Rk} (tension) [kN]			0,5	0,5	0,6	0,6
			V_{Rk} (shear) [kN]			2,0	2,0	2,0	2,0
γ_M	Partial safety factor				[-]	2,5			

Displacement under TENSION and SHEAR loads		M8		M10		M12		M16	
		δ_0	δ_{∞}	δ_0	δ_{∞}	δ_0	δ_{∞}	δ_0	δ_{∞}
Solid clay brick Mz-DF	N = $N_{rk}/1,4*\gamma_M$ [mm]	0,1	0,2	0,1	0,1	0,2	0,4	0,2	0,4
	V = $V_{rk}/1,4*\gamma_M$ [mm]	2,3	3,4	0,7	1,1	0,4	0,6	0,4	0,6
Doppio UNI	N = $N_{rk}/1,4*\gamma_M$ [mm]	0,5	1,1	0,2	0,3	0,2	0,3	0,2	0,3
	V = $V_{rk}/1,4*\gamma_M$ [mm]	1,6	2,4	1,8	2,6	1,8	2,6	1,8	2,6
Blocco Leggero	N = $N_{rk}/1,4*\gamma_M$ [mm]	0,3	0,6	0,3	0,5	0,3	0,5	0,3	0,5
	V = $V_{rk}/1,4*\gamma_M$ [mm]	1,2	1,7	2,5	3,8	2,5	3,8	2,5	3,8

Characteristic bending moments		M8	M10	M12	M16
$M^0_{Rk,s}$ Bending Moment characteristic	cl. 4.8 [Nm]	15	30	52	133
	cl. 5.8 [Nm]	19	37	66	166
	cl. 8.8 [Nm]	30	60	105	266
	A4-70 [Nm]	26	52	92	232

Factor for job side testing under tension loading		Temperature Range 40°C / 24°C
β_{factor} Factor acc. to ETAG029 w/w and d/d	[-]	0,72

1) See ETA-12/0534 for other information, installation data, resistance and other type of Bricks.

OTHER PERFORMANCE FEATURES

SUBSTRATE MATERIAL:	REINFORCED OR UNREINFORCED CONCRETE C20/25 TO C50/60 CONCRETE UNCRACKED/CRACKED SOLID AND HOLLOW BRICKS
LIVESTOCK CAPACITY:	280, 380 [ml]
TEMPERATURE RANGE:	I: -40°C to +40°C II: -40°C to +80°C
INSTALLATION IN HOLES:	DRY & WET FLOODED THREADED BARS PLASTIC MESH PUMP FOR BLOWING
ACCESSORIES:	BRUSH TO CLEAN THE HOLE MIXER EXTENSION GUN 280/380

