



Declaration of Performance

N°CHIMFORTKEM_P_01A_EN

DoP num. kempoly

Bonded anchor resin in cartridge



1. Identification of the product: **KEM Polyester – KEM P**

2. Identification code (art. 11.4), for the batch or serial number see packaging:

Type of Cartridge	Format	Cod.
Coaxial	280 - 380 ml	344 610 000 – 344 611 000
Silicon gun	310 - 380 ml	344 586 000 – 344 596 000

3. Intended use:

Generic type	Bonded anchor for anchorage of threaded rod
Material of threaded rod and Durability	<ul style="list-style-type: none"> Galvanised steel cl. 4.6, 4.8, 5.8 and 8.8 acc. to EN ISO898 for dry internal conditions stainless steel cl. A4-70 acc. to EN ISO3506 for dry internal conditions, external atmospheric exposure (including industrial and marine environment) or exposure in permanently damp internal conditions if no particular aggressive conditions exist high resistant stainless steel HCR-70 acc. to EN ISO3506 for all conditions
Loading	Static, quasi-static
Temperature Range	<ul style="list-style-type: none"> 40°C to +40°C max long term temperature +24°C and max short term temperature +40°C - 40°C to +80°C max long term temperature +50°C and max short term temperature +80°C
Fire Reaction	A1 according to EN 13501-1
ETA-12/0608	
Base Material	Non-cracked Concrete C20/25 to C50/60 acc. to EN206-1 - size M8÷M24
Use category	<ul style="list-style-type: none"> Installation in dry, wet or flooded holes Concrete Overhead installation allowed
ETA-12/0534	
Base Material	Solid or hollow Masonry acc. to EN771 - size M8÷M16
Use category	<ul style="list-style-type: none"> d/d Installation and use in dry Masonry w/w Installation and use in wet Masonry

4. Manufacturer (art. 11.5): **FriulsideR SpA via trieste,1 - 33048 San Giovanni al Natisone (UD) - Italy**

5. Authorised representative (art. 12.2): **Not Relevant**

6. System of Assessment AVCP (annex V): **System 1**

7/8. Harmonised Specification & Notified Body:

	Name of Body	System of Assessment	Reference	EAD / hEN Document
Technical Specification Document	TZUS _[TAB]	1	ETA-12/0608	ETAG001 p.1-5 & TR029
Constancy of Performance & FPC	TUSM nr.1343 _[NB]	1	1343-CPR-M 527-5	ETAG001 p.1-5
Technical Specification Document	TZUS _[TAB]	1	ETA-12/0534	ETAG029
Constancy of Performance & FPC	TUSM nr.1343 _[NB]	1	1343-CPR-M 527-6	ETAG029

9. Declared Performance: **See Annexes**

10. The performance of the product identified in points 1 and 2 is in conformity with declared performance in point 9.

This declaration of performance is issued under the sole responsibility of ETANCO.

Signed for and behalf of the manufacturer by:

Function	Name	Signature	Place and date of issue
Chef de produits	Damien Loizelle		Le Pecq, 18.12.2018

ANNEX I°

Declared performances acc. to ETA-12/0608 - ETAG001 p.1-5
Design method TR029 or CEN/TS1992-4

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	[mm]	60	60	70	80	90	96
$h_{ef,max}$	Effective embedment depth	[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			$A_s \times f_{uk}$					
$N_{Rk,s}$	Tension Steel characteristic failure							
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					
			10,1					
k_g	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					
$M_{Rk,s}^0$	Characteristic Bending Moment with lever arm	[Nm]	$1,2 \times W_{el} \times f_{uk}$					
Concrete Pryout 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 Non-cracked concrete C20/25			M8	M10	M12	M16	M20	M24
$\delta_{N0,ucr}$	Short term displacement	40°/24°C [mm/MPa]	0,03	0,04	0,05	0,07	0,08	0,10
		80°/50°C [mm/MPa]	0,02	0,03	0,03	0,04	0,04	0,05
$\delta_{N\infty,ucr}$	Long term displacement	40°/24°C [mm/MPa]	0,07	0,08	0,08	0,08	0,08	0,10
		80°/50°C [mm/MPa]	0,15	0,17	0,17	0,17	0,17	0,17

¹⁾ Calculation of the displacement = $\delta_N \times \tau$

Displacement under SHEAR Load ²⁾ in Non-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
$\delta_{V\infty,ucr}$	Long term displacement	[mm/kN]	0,03	0,02	0,02	0,01	0,01	0,01

²⁾ Calculation of the displacement = $\delta_V \times V$

ANNEX II°

Declared performances acc. to ETA-12/0534 - ETAG029

Design method ETAG029-Annex C

ESSENTIAL CHARACTERISTICS				PERFORMANCE							
Installation parameters SOLID CLAY BRICK¹⁾				M8	M10	M12	M16				
d₀	Nominal diameter of drill bit	[mm]		10	12	14	18				
d_b	Diameter of steel brush	[mm]		12	14	16	20				
h_{ef}	Effective embedment depth	[mm]		80	90	100	100				
T_{MAX}	Maximum torque moment	[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				
Clay solid brick 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				
	$\rho \geq 1,64$	$f_b \geq 28$	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 HOLLOW CLAY BRICK "with sleeve"¹⁾				M8	M10	M12	M16				
d₀	Nominal diameter of drill bit	[mm]		12	16	20	20				
d_b	Diameter of steel brush	[mm]		14	18	22	22				
h_{ef}	Effective embedment depth	[mm]		80	85	85	85				
T_{MAX}	Maximum torque moment	[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 service loads				M8		M10		M12		M16	
				δ₀	δ_∞	δ₀	δ_∞	δ₀	δ_∞	δ₀	δ_∞
Solid clay brick Mz-DF	N = Nrk/1,4*γ_M [mm]			0,1	0,2	0,1	0,1	0,2	0,4	0,2	0,4
	V = Vrk/1,4*γ_M [mm]			2,3	3,4	0,7	1,1	0,4	0,6	0,4	0,6
Doppio UNI	N = Nrk/1,4*γ_M [mm]			0,5	1,1	0,2	0,3	0,2	0,3	0,2	0,3
	V = Vrk/1,4*γ_M [mm]			1,6	2,4	1,8	2,6	1,8	2,6	1,8	2,6
Blocco Leggero	N = Nrk/1,4*γ_M [mm]			0,3	0,6	0,3	0,5	0,3	0,5	0,3	0,5
	V = Vrk/1,4*γ_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				
M⁰_{Rk,s}	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 use [-]			0,72							

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