

Declaration of Performance

DoP nr. tap ce
 Rimmed hammer-set anchor



1. Identification of the product: **TAP CE**

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

d	L ¹⁾ [mm]	Code Static and quasi-static load for Structural applications
M8	30	75205b08000
M10	40	75205b10000
M12	50	75205b12000
M16	65	75205b16000

d	L ¹⁾ [mm]	Code Multiple use in Non-structural applications
M6	25	75205b06000
M8	30	75205b08000
M10	30	75205b10030
M10	40	75205b10000
M12	50	75205b12000

¹⁾ Length of anchor.

3. Intended use:

Generic type	Deformation-controlled expansion anchor
Material of anchor	Steel Q195 to GB/T 700 zinc coated acc. to EN ISO 4042
Durability	Internal dry conditions
Fire Reaction	A1 according to EN 13501-1
ETA-18/0432	
Base material	Un-cracked concrete C20/25 to C50/60 acc. to EN 206-1
Loading	Static and quasi-static load for Structural applications
ETA-18/0433	
Base material	Cracked and un-cracked concrete C20/25 to C50/60 acc. to EN 206-1
Loading	Static and quasi-static load for Multiple use in Non-structural applications
Fire Resistance	R120 according to TR020

4. Manufacturer (art. 11.5): **Friulside 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 and System 2+**

7/8. Harmonised Specification & Notified Body:

	Name of Body	System of Assessment	Reference	EAD / hEN Document
Technical Specification Document	ITB [TAB]	1	ETA-18/0432	EAD 330232-00-0601
Constancy of Performance & FPC	ITB nr.1488 [NB]	1	1488-CPR-0697/W	EAD 330232-00-0601
Technical Specification Document	ITB [TAB]	2+	ETA-18/0433	ETAG001 p.6
Factory Product Control	ITB nr.1488 [NB]	2+	1488-CPR-0561/Z	ETAG001 p.1-6

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 Friulside SpA.

Signed for and behalf of the manufacturer by:

Function	Name	Signature	Place and date of issue
Technical Manager	Raffaele Palmieri		San Giovanni al Natisone, 08-04-2020

ANNEX I° "STATIC and QUASI-STATIC LOAD FOR STRUCTURAL APPLICATIONS"Declared Performances acc. to **ETA-18/0432 - EAD 330232-00-0601**

Design Method acc. to EOTA Technical Report TR 055

ESSENTIAL CHARACTERISTICS				PERFORMANCE			
Installation Parameters				M8x30	M10x40	M12x50	M16x65
d_0	Drill hole diameter	[mm]		10	12	15	20
h_{ef}	Effective anchorage depth	[mm]		30	40	50	65
h_1	Drill hole depth	[mm]		33	43	54	70
h_{min}	Minimum thickness of the concrete member	[mm]		100	100	100	130
$l_{s,min}$	Screwing depth (min) on sleeve anchor	[mm]		10	12	12	16
T_{inst}	Nominal torque moment	[Nm]		8	15	35	60
s_{min}	Minimum spacing	[mm]		41	54	68	88
c_{min}	Minimum edge distance	[mm]		41	54	68	88
Installation PIN							
D_s	Setting pin diameter	[mm]		6,6	7,8	9,6	13,5
H_s	Setting pin length	[mm]		18	25	30	38
TENSILE failure				M8x30	M10x40	M12x50	M16x65
$N_{Rk,s}$	Tension Steel characteristic failure (cl. 4.8)	[kN]		15	23	34	63
	Tension Steel characteristic failure (cl. 8.8)	[kN]		29	46	67	126
$\gamma_{m,sN}^{2)}$	Partial safety factor for tension steel failure (cl. 4.8 - 8.8)	[-]		1,5			
Pull-out failure							
$N_{Rk,p}$	Tension characteristic load in un-cracked concrete C20/25	[kN]		- ¹⁾ (8,1)	- ¹⁾ (12,4)	- ¹⁾ (17,4)	25,0
$\gamma_2^{3)} = \gamma_{inst}^{4)5)}$	Installation partial safety factor	[-]		1,2	1,2	1,4	1,2
$\psi_{c\ C30/37}$	Increasing factor for concrete C30/37	[-]		1,22			
$\psi_{c\ C40/50}$	Increasing factor for concrete C40/50	[-]		1,41			
$\psi_{c\ C50/60}$	Increasing factor for concrete C50/60	[-]		1,55			
Concrete cone failure and Splitting failure							
h_{ef}	Effective anchorage depth	[mm]		30	40	50	65
$k_1^{3)} = k_{ucr}^{4)}$	Factor for un-cracked concrete	[-]		10,1			
$k_{ucr,N}^{5)}$	Factor for un-cracked concrete	[-]		11			
$N_{Rk,sp}$	Characteristic resistance to splitting	[kN]		- ¹⁾ (8,1)	- ¹⁾ (12,4)	- ¹⁾ (17,4)	25,0
$\gamma_2^{3)} = \gamma_{inst}^{4)5)}$	Installation partial safety factor	[-]		1,2	1,2	1,4	1,2
$s_{cr,N}$	Critical spacing for concrete cone failure	[mm]		90	120	150	195
$c_{cr,N}$	Critical edge distance for concrete cone failure	[mm]		45	60	75	97
$s_{cr,sp}$	Critical spacing for splitting failure	[mm]		210	280	350	455
$c_{cr,sp}$	Critical edge distance for splitting failure	[mm]		105	140	175	227
$\psi_{c\ C30/37}$	Increasing factor for concrete C30/37	[-]		1,22			
$\psi_{c\ C40/50}$	Increasing factor for concrete C40/50	[-]		1,41			
$\psi_{c\ C50/60}$	Increasing factor for concrete C50/60	[-]		1,55			
SHEAR failure				M8x30	M10x40	M12x50	M16x65
$V_{Rk,s}$	Shear Steel characteristic failure without lever arm (cl. 4.8)	[kN]		7,3	11,6	16,9	31,4
	Shear Steel characteristic failure without lever arm (cl. 8.8)	[kN]		14,6	23,2	33,7	62,8
$\gamma_{m,sV}^{2)}$	Partial safety factor	[-]		1,25			
$k^{3)} = k_2^{4)} = k_7^{5)}$	Ductility factor	[-]		0,8			
$M^0_{Rk,s}$	Bending Moment characteristic failure with lever arm (cl. 4.8)	[Nm]		15,0	29,9	52,4	133,3
	Bending Moment characteristic failure with lever arm (cl. 8.8)	[Nm]		30,0	59,9	104,9	266,6
$\gamma_{m,sV}^{2)}$	Partial safety factor	[-]		1,25			
Shear Concrete Pry-out failure							
$k^{2)} = k^{3)} = k_8^{5)}$	Factor for non-cracked concrete	[-]		1,0			2,0
$\gamma_{mc}^{2)}$	Partial safety factor	[-]		1,5			
Shear Concrete Edge failure							
d_{nom}	Nominal diameter of anchor	[mm]		10	12	15	20
l_{ef}	Effective anchorage length	[mm]		30	40	50	65
$\gamma_{mc}^{2)}$	Partial safety factor	[-]		1,5			

ANNEX II° "STATIC and QUASI-STATIC LOAD FOR STRUCTURAL APPLICATIONS"

Declared Performances acc. to ETA-18/0432 - EAD 330232-00-0601						
Design Method acc. to EOTA Technical Report TR 055						
ESSENTIAL CHARACTERISTICS			PERFORMANCE			
Displacements under static and quasi-static loading			M8x30	M10x40	M12x50	M16x65
F	Tension and shear load in un-cracked concrete C20/25 to C50/60	[kN]	3,2	4,9	5,9	9,9
δ_{N0}	Short term displacement under tension load	[mm]	0,98	3,54	3,06	1,15
$\delta_{N\infty}$	Long term displacement under tension load	[mm]	0,50	0,50	0,38	0,50
δ_{V0}	Short term displacement under shear load	[mm]	0,98	3,54	3,06	1,15
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	0,50	0,50	0,38	0,50

¹⁾ Pull-out failure is not decisive (in brackets the tensile values calculated with factor $k_{ucr,N} = 11,0$ ref ref. EN 1992-4:2018)

^{2) 3)} Parameters for design acc. to ETAG 001 - Annex C

⁴⁾ Parameter for design acc. to CEN/TS 1992-4-4:2009

⁵⁾ Parameter for design acc. to EN 1992-4:2018

ANNEX III° "MULTIPLE USE IN NON-STRUCTURAL APPLICATIONS"

Declared Performances acc. to **ETA-18/0433 - ETAG001 part 6**
Design Method acc. to EN 1992-4:2018

ESSENTIAL CHARACTERISTICS		PERFORMANCE				
		M6x25	M8x30	M10x30	M10x40	M12x50
Installation parameters						
d₀	Nominal diameter of drill bit [mm]	8	10	12	12	15
h_{ef}	Effective anchorage depth [mm]	25	30	30	40	50
h₁	Drill hole depth [mm]	28	33	33	43	54
h_{min}	Minimum thickness of the concrete member [mm]	80	80	80	80	100
L_{s,min}	Screwing depth (min) on sleeve anchor [mm]	6	8	8	10	12
T_{inst}	Nominal torque moment [Nm]	4	8	15	15	30
S_{min}	Minimum spacing [mm]	200	200	200	200	200
C_{min}	Minimum edge distance [mm]	150	150	150	150	150
Installation PIN						
D_s	Setting pin diameter [mm]	4,8	6,6	7,8	7,8	9,6
H_s	Setting pin length [mm]	15	18	18	25	30
Tensile-Shear load (all directions)		M6x25	M8x30	M10x30	M10x40	M12x50
F_{Rk}	Characteristic load in concrete C20/25 to C50/60 [kN]	1,5	2	3	3	4
γ_{inst}	Partial safety factor [-]	1,4				
S_{cr}	Critical spacing [mm]	200	200	200	200	200
C_{cr}	Critical edge distance [mm]	150	150	150	150	150
h_{min}	Minimum thickness of the concrete member [mm]	80	80	80	80	100
Shear load with lever arm						
M⁰_{Rk,s}	Bending Moment characteristic failure (cl.4.8) [Nm]	6	15	30	30	52
	Bending Moment characteristic failure (cl. 8.8) [Nm]	12	30	60	60	105
γ_{ms}¹⁾	Partial safety factor [-]	1,25				

¹⁾ In absence of other national regulations.

Fire Resistance (All load direction)		M6x25	M8x30	M10x30	M10x40	M12x50
Design Method acc. to to ETAG001 p.6 Annex C - Method B and TR020						
F_{Rk,s,fi,30}	For fire resistance duration = 30 minutes (R30) [kN]	0,2	0,5	0,8	0,8	1,0
F_{Rk,s,fi,60}	For fire resistance duration = 60 minutes (R60) [kN]	0,2	0,5	0,8	0,8	1,0
F_{Rk,s,fi,90}	For fire resistance duration = 90 minutes (R90) [kN]	0,1	0,4	0,8	0,8	1,0
F_{Rk,s,fi,120}	For fire resistance duration = 120 minutes (R120) [kN]	0,1	0,3	0,6	0,6	0,8
γ_{M,fi}¹⁾	Partial safety factor under fire exposure [-]	1,0				
S_{cr,fi}	Critical spacing under fire exposure [mm]	4 x h _{ef}				
C_{cr,fi}²⁾	Critical edge distance under fire exposure [mm]	2 x h _{ef}				

¹⁾ In absence of other national regulations, under fire exposure is recommended the safety factor γ_{M,fi} = 1,0;

²⁾ If fire attack from more than one side, the edge distance of the anchor has to be C ≥ 300mm.