

friulsider**Declaration of Performance****FM-MP3 evo**

Anchor sleeve 3 sectors made of zinc plated steel

1. Identification of the product: **FM-MP3 evo**

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

d	L ¹⁾ [mm]	t _{fix} ³⁾ [mm]	Marking	Cod. (only anchor)
M6	45	L _{screw8.8} ²⁾ - L	FM MP3 M6 Ø10	73300b10045
M8	50		FM MP3 M8 Ø12	73300b12050
M10	60		FM MP3 M10 Ø15	73300015060
M12	80		FM MP3 M12 Ø18	73300018080

d	L ¹⁾ [mm]	t _{fix} ³⁾ [mm]	Marking	Cod. FM-MP3 evo-HEX. HEAD
M6	45	5	FM MP3 M6 Ø10	73301b10045
M8	50	10	FM MP3 M8 Ø12	73301b12050
M10	60	20	FM MP3 M10 Ø15	73301b15060
M12	80	20	FM MP3 M12 Ø18	73301b18080

d	L ¹⁾ [mm]	t _{fix} ³⁾ [mm]	Marking	Cod. FM-MP3 evo LONG- HEX. HEAD
M6	70	25	FM MP3 M6 Ø10	73310b10070
M8	75	25	FM MP3 M8 Ø12	73310b12075
M10	85	25	FM MP3 M10 Ø15	73310b15085
M12	105	25	FM MP3 M12 Ø18	73310b18105

d	L ¹⁾ [mm]	t _{fix} ³⁾ [mm]	Marking	Cod. FM-MP3 evo LONG- C.SUNK HEAD
M6	70	30	FM MP3 M6 Ø10	73311b10070
M8	75	30	FM MP3 M8 Ø12	73311b12075
M10	85	30	FM MP3 M10 Ø15	73311b15085
M12	105	30	FM MP3 M12 Ø18	73311b18105

¹⁾ Length of anchor; ²⁾ Length of screw (grade 8.8); ³⁾ Thickness fixture max of screw in use.

3. Intended use:

Generic type	Torque controlled expansion anchor sleeve type
Material of anchor	Steel zinc coated acc. to EN ISO 4042 (bolt cl. 8.8 acc. to EN ISO 898-1)
Durability	Internal dry conditions
Fire Reaction	A1 according to EN 13501-1
ETA-09/0067	
Base material	Un-cracked concrete C20/25 to C50/60 acc. to EN 206-1
Loading	Static and quasi-static load for Structural applications
Fire Resistance	NPD
ETA-10/0074	
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	F120

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 and System 2+**

7/8. Harmonised Specification & Notified Body:

	Name of Body	System of Assessment	Reference	EAD / hEN Document
Technical Specification Document	ZAG ^[TAB]	1	ETA-09/0067	ETAG001 p.1-2
Constancy of Performance & FPC	ZAG nr.1404 ^[NB]	1	1404-CPR-2552	ETAG001 p.1
Technical Specification Document	ZAG ^[TAB]	2+	ETA-10/0074	ETAG001 p.6
Factory Product Control	ZAG nr.1404 ^[NB]	2+	1404-CPR-2558	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 Friulsider SpA.

Signed for and behalf of the manufacturer by:

Name and functions	Signature	Place and date of issue
Fabrizio Fasan Sales Manager		San Giovanni al Natisone, 26-06-2017

ANNEX I°

Declared Performances acc. to ETA-09/0067 - ETAG001 p.1 and 2

Design Method acc. to ETAG001-Annex C or CEN/TS 1992-4

ESSENTIAL CHARACTERISTICS			PERFORMANCE			
Installation parameters			M6²⁾	M8	M10	M12
d₀	Nominal diameter of drill bit	[mm]	10	12	15	18
h_{nom}	Minimum installation depth	[mm]	45	50	60	80
h_{ef}	Effective anchorage depth	[mm]	36 ²⁾	43	50	69
h_{min}	Minimum thickness of the concrete member	[mm]	100	100	100	140
T_{inst}	Nominal torque moment	[Nm]	8	15	30	50
s_{min}	Minimum spacing	[mm]	35	45	50	75
c_{min}	Minimum edge distance	[mm]	35	45	50	75
TENSION Steel failure						
N_{Rk,s}	Tension Steel characteristic failure	(cl. 8.8) [kN]	16	29	46	67
γ_{m,sN}¹⁾	Partial safety factor for tension steel failure	[-]	1,50			
Pull-out failure						
N_{Rk,p,ucr}	Tension characteristic load in un-cracked concrete C20/25	[kN]	7,5²⁾	12	17,8³⁾	25
γ_z	Partial safety factor	[-]	1,0			
γ_{mp}¹⁾	Partial safety factor	[-]	1,5			
Ψ_{c C30/37}	Increasing factor for concrete C30/37	[-]	1,22			
Ψ_{c C40/50}	Increasing factor for concrete C40/50	[-]	1,41			
Ψ_{c C50/60}	Increasing factor for concrete C50/60	[-]	1,55			
Concrete cone failure and Splitting failure						
K_{ucr}	Factor for un-cracked concrete ref. CEN/TS 1992-4-4 §. 6.2.1.4	[-]	10,1			
s_{cr,N}	Critical spacing for concrete cone failure	[mm]	108	129	150	207
c_{cr,N}	Critical edge distance for concrete cone failure	[mm]	54	65	75	104
s_{cr,sp}	Critical spacing for splitting failure	[mm]	216	258	300	414
c_{cr,sp}	Critical edge distance for splitting failure	[mm]	108	129	150	207
γ_{mc} = γ_{m,sp}¹⁾	Partial safety factor	[-]	1,5			
Displacement on Tension Load						
N_{ucr}	Service tension load in un-cracked concrete C20/25	[kN]	3,6	5,7	8,5	11,9
δ_{N0,ucr}	Short term displacement under tension load	[mm]	0,12	0,11	0,27	0,37
δ_{N∞,ucr}	Long term displacement under tension load	[mm]	0,95	0,95	0,95	0,95
SHEAR Steel failure			M8	M10	M12	M16
V_{Rk,s}	Shear Steel characteristic failure	(cl. 8.8) [kN]	6,4	14,4	23,2	33,7
K₂	Ductility factor acc.to CEN/TS 1992-4-5 Section § 6.3.2.1	[-]	0,8			
M⁰_{Rk,s}	Bending Moment characteristic failure	(cl. 8.8) [Nm]	12	30	60	105
γ_{m,sV}¹⁾	Partial safety factor	[-]	1,25			
Shear Concrete Pry-out failure						
k	Factor equation (5.6) of ETAG 001-Annex C, § 5.2.3.3	[-]	1,0			2,0
k₃	Factor equation (16) of CEN/TS 1992-4-4, § 6.2.2.3	[-]	1,0			2,0
γ_{mc}¹⁾	Partial safety factor	[-]	1,5			
Shear Concrete Edge failure						
l_{ef}	Effective anchorage length	[mm]	36	43	50	69
d_{nom}	Nominal diameter of anchor	[mm]	10	12	15	18
γ_{mc}¹⁾	Partial safety factor	[-]	1,5			
Displacement on Shear Load						
V	Service shear load in concrete	(cl. 8.8) [kN]	3,7	8,2	13,3	19,3
δ_{V0}	Short term displacement under shear load	[mm]	0,96	2,95	2,42	3,94
δ_{V∞}	Long term displacement under shear load	[mm]	1,40	4,42	3,63	5,91

¹⁾ In absence of other national regulations;²⁾ Use restricted to anchoring of structural components statically indetermined;³⁾ Pull-out failure not decisive.

ANNEX II°

Declared Performances acc. to ETA-10/0074 - ETAG 001 p.6 - [Multiple use in Non-structural applications] Design Method acc. to ETAG001 p.6 Annex 1 and TR020*							
ESSENTIAL CHARACTERISTICS				PERFORMANCE			
Installation parameters				M6	M8	M10	M12
d_0	Nominal diameter of drill bit	[mm]		10	12	15	18
h_{nom}	Minimum installation depth	[mm]		45	50	60	80
h_{ef}	Effective anchorage depth	[mm]		36	43	50	69
h_{min}	Minimum thickness of the concrete member	[mm]		100	100	100	140
T_{inst}	Nominal torque moment	[Nm]		8	15	30	50
s_{min}	Minimum spacing	[mm]		35	45	50	75
c_{min}	Minimum edge distance	[mm]		35	45	50	75
All load directions				M6	M8	M10	M12
F_{Rk}^0	Characteristic load in concrete C20/25 to C50/60	[kN]		6	12	16	20
γ_2	Partial safety factor	[-]		1,0			
$\gamma_M^{1)}$	Partial safety factor	[-]		1,5			
F_{Rd}^0	Design load value in concrete C20/25 to C50/60	[kN]		4	8	10,6	13,3
F^0	Service load value in concrete C20/25 to C50/60	[kN]		2,9	5,7	7,6	9,5
s_{cr}	Critical spacing	[mm]		200	200	200	280
c_{cr}	Critical edge distance	[mm]		100	130	150	210
Shear load with lever arm							
$M_{Rk,s}^0$	Bending Moment characteristic failure (cl. 8.8)	[Nm]		12	30	60	105
$\gamma_{ms}^{1)}$	Partial safety factor	[-]		1,55			
Fire Resistance* (All load direction)							
$F_{Rk,s,fi,30}$	For fire resistance duration = 30 minutes	[kN]		0,2	0,4	0,9	1,7
$F_{Rk,s,fi,60}$	For fire resistance duration = 60 minutes	[kN]		0,2	0,3	0,8	1,3
$F_{Rk,s,fi,90}$	For fire resistance duration = 90 minutes	[kN]		0,1	0,3	0,6	1,1
$F_{Rk,s,fi,120}$	For fire resistance duration = 120 minutes	[kN]		0,1	0,2	0,5	0,8
$\gamma_{M,fi}^{2)}$	Partial safety factor under fire exposure	[-]		1,0			
$s_{cr,fi}$	Critical spacing under fire exposure	[mm]		$\geq 200\text{mm e } 4xh_{ef}$			
$s_{min,fi}$	Minimum spacing	[mm]		35	45	50	75
$c_{cr,fi}^{3)}$	Critical edge distance under fire exposure	[mm]		$\geq 200\text{mm e } 4xh_{ef}$			
$c_{min}^{3)}$	Critical edge distance	[mm]		35	45	50	75

¹⁾ In absence of other national regulations;

²⁾ In absence of other national regulations, under fire exposure is recommended the safety factor $\gamma_{M,fi} = 1,0$;

³⁾ If fire attack from more than one side, the edge distance of the anchor has to be $C \geq 300\text{mm}$.