FRIULSIDER
YOUR FIXING FACTORY

Declaration of Performance

DoP nr. fm744

Anchor heavy 4 sectors made of zinc plated steel

CE

1. Identification of the product: **FM744**

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

d [1]	L [2] [mm]	t_{fix} [mm]	Marking	Cod. (only anchor)
M6	40	[3]	FM-744 M6 ∅10	74400b10040
M8	50	[3]	FM-744 M8 ∅14	74400b14050
M10	60	[3]	FM-744 M10 ∅16	74400b16060
M12	80	[3]	FM-744 M12 ∅20	74400b20080

d [1]	L [2] [mm]	t_{fix} [mm]	Marking	Cod.
M6	40	12 [4]	FM-744 M6 ∅10	74411b10040
M8	50	15 [4]	FM-744 M8 ∅14	74411b14050
M10	60	20 [4]	FM-744 M10 ∅16	74411b16060
M12	80	15 [4]	FM-744 M12 ∅20	74411b20080

[1] Nominal diameter of thread; [2] Length of anchor; [3] Thickness fixture max depending on screw length using $t_{fix} = L_{screw8.8} - L$;
[4] Thickness fixture max of screw in use.

3. Intended use:

Generic type	Torque controlled expansion anchor sleeve type
Base material	Un-cracked concrete C20/25 to C50/60 acc. to EN 206-1
Material	Steel zinc coated acc. to EN ISO 4042, screw cl. 8.8 acc. to EN ISO 898-1
Durability	Internal dry conditions
Loading	Static and quasi-static
Fire Resistance	NPD
Fire Reaction	A1 according to EN 13501-1

4. Manufacturer (art. 11.5): **Friulsider** SpA via trieste,1 - 33048 San Giovanni al Natisone (Udine) - 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	CSTB [TAB]	1	**ETA-05/0169**	**ETAG001 p.1-2**
Constancy of Performance & FPC	CSTB nr.0679 [NB]	1	0679-CPR-0112	ETAG001 p.1

9. Declared Performance: **See Annex**

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:

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

ANNEX

Declared Performances acc. to ETA-05/0169 - ETAG001 p.1 e 2 Design method ETAG001-Annex C or EN 1992-4:2018						
ESSENTIAL CHARACTERISTICS			**PERFORMANCE**			
Installation parameters			**M6 [2]**	**M8**	**M10**	**M12**
d_0	Nominal diameter of drill bit	[mm]	10	14	16	20
h_{nom}	Minimum installation depth	[mm]	40	50	60	80
h_{ef}	Effective anchorage depth	[mm]	34 [2]	41	50	67
h_{min}	Minimum thickness of the concrete member	[mm]	100	100	100	135
T_{inst}	Nominal torque moment	[Nm]	6	15	30	50
s_{min}	Minimum spacing	[mm]	35	40	50	70
c_{min}	Minimum edge distance	[mm]	35	40	50	70
TENSION Steel failure						
$N_{Rk,s}$	Tension Steel characteristic failure	[kN]	16	29	46	67
$\gamma_{ms,N}$ [1]	Partial safety factor for tension steel failure	[-]	1,5			
Pull-out failure			**M6 [2]**	**M8**	**M10**	**M12**
$N_{Rk,p,ucr}$	Tension characteristic load in un-cracked concrete C20/25	[kN]	**6 [2]**	**12**	**17,8 [3]**	**27,3 [3]**
γ_{inst}	Partial safety factor	[-]	1,0			
γ_{mc} [1]	Partial safety factor	[-]	1,5			
$\Psi_{c\ C30/37}$	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						
$K_{ucr,N}$	Factor for un-cracked concrete rif. EN 1992-4 § 7.2.1.4	[-]	11,0			
$s_{cr,N}$	Critical spacing	[mm]	100	125	150	200
$c_{cr,N}$	Critical edge distance	[mm]	50	62	75	100
$s_{cr,sp}$	Critical spacing (splitting)	[mm]	200	250	300	400
$c_{cr,sp}$	Critical edge distance(splitting)	[mm]	100	125	150	200
$\gamma_{mc} = \gamma_{msp}$ [1]	Partial safety factor	[-]	1,5			
Displacement on Tension Load			M6	M8	M10	M12
N_{ucr}	Service tension load in un-cracked concrete	[kN]	**2,9**	**5,7**	**8,5**	**13,0**
$\delta_{N0,ucr}$	Short term displacement under tension load	[mm]	0,5	0,6	0,8	1,2
$\delta_{N\infty,ucr}$	Long term displacement under tension load	[mm]	0,6	0,6	0,8	1,2
SHEAR Steel failure			**M6**	**M8**	**M10**	**M12**
$V_{Rk,s}$	Shear Steel characteristic failure	[kN]	**7,4**	**14,6**	**21,5**	**32,0**
k_7	Ductility factor acc.to EN 1992-4 § 7.2.2.3.1		0,8			
$M^0_{Rk,s}$	Bending Moment characteristic failure	[Nm]	12	30	60	105
$\gamma_{ms,V}$ [1]	Partial safety factor for shear steel failure	[-]	1,25			
Shear Concrete Pry-out failure						
K_8	Factor acc. to EN 1992-4 § 7.2.2.4	[-]	1,0			2,0
γ_{mc} [1]	Partial safety factor	[-]	1,5			
Shear Concrete Edge failure						
l_{ef}	Effective anchorage length	[mm]	34	41	50	67
d_{nom}	Nominal diameter of anchor	[mm]	10	14	16	20
γ_{mc} [1]	Partial safety factor	[-]	1,5			
Displacement on Shear Load			M6	M8	M10	M12
V	Service shear load in concrete	[kN]	**4,2**	**8,3**	**12,3**	**18,3**
δ_{V0}	Short term displacement under shear load	[mm]	2,5	3,3	2,9	3,5
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	4,5	6,4	5,6	6,8

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