



Declaration of Performance

DoP nr. fm753evo

Throughbolt anchor made of zinc plated steel

FRIULSIDER
YOUR FIXING FACTORY


1. Identification of the product: **FM 753 evo**

2. Intended use:

Generic type	Torque controlled expansion anchor throughbolt type
Base material	Un-cracked concrete C20/25 to C50/60 acc. to EN 206:2013+A2:2021
Material	Steel zinc coated $\geq 5\mu\text{m}$ according to EN ISO 4042
Durability	Internal dry conditions
Loading	Static and quasi-static
Fire Resistance	NPD
Fire Reaction	A1 according to EN 13501-1

3. Manufacturer (art. 11.5): **Friulsider SpA via Trieste, 1 - 33048 San Giovanni al Natisone (UD) - Italy**

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

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

6/7. Harmonised Specification & Notified Body:

	Name of Body	System of Assessment	Reference	EAD / hEN Document
Technical Specification	ZAG _[TAB]	1	ETA-22/0792	EAD 330232-01-0601
Constancy of Performance & FPC	ZAG nr.1404 _[NB]	1	1404-CPR-3650	EAD 330232-01-0601

8. Declared Performance: **See Annex**

9. 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		San Giovanni al Natisone, 11-10-2023

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

FM 753 evo – version with DIN 125 washer					
d ¹⁾	L ²⁾ [mm]	t _{fix} ³⁾ [mm]	Bolt marking	Sleeve marking	Cod.
M6	65	10	FM - 6/10 e	≠ M6	75340B06065
	85	30	FM - 6/30 e		75340B06085
	100	45	FM - 6/45 e		75340B06100
M8	68	5	FM - 8/5 e	≠ M8	75340B08068
	73	10	FM - 8/10 e		75340B08073
	83	20	FM - 8/20 e		75340B08083
	93	30	FM - 8/30 e		75340B08093
	103	40	FM - 8/40 e		75340B08103
	113	50	FM - 8/50 e		75340B08113
	133	70	FM - 8/70 e		75340B08133
M10	163	100	FM - 8/100 e	≠ M10	75340B08163
	78	5	FM - 10/5 e		75340B10078
	83	10	FM - 10/10 e		75340B10083
	93	20	FM - 10/20 e		75340B10093
	103	30	FM - 10/30 e		75340B10103
	113	40	FM - 10/40 e		75340B10113
	123	50	FM - 10/50 e		75340B10123
	143	70	FM - 10/70 e		75340B10143
	173	100	FM - 10/100 e		75340B10173
M12	213	140	FM - 10/140 e		75340B10213
	104	5	FM - 12/5 e	≠ M12	75340B12104
	109	10	FM - 12/10 e		75340B12109
	119	20	FM - 12/20 e		75340B12119
	129	30	FM - 12/30 e		75340B12129
	139	40	FM - 12/40 e		75340B12139
	149	50	FM - 12/50 e		75340B12149
	179	80	FM - 12/80 e		75340B12179
	199	100	FM - 12/100 e		75340B12199
	219	120	FM - 12/120 e		75340B12219
	239	140	FM - 12/140 e		75340B12239
	259	160	FM - 12/160 e		75340B12259
	269	170	FM - 12/170 e		75340B12269
	299	200	FM - 12/200 e		75340B12299
	319	220	FM - 12/220 e		75340B12319
	339	240	FM - 12/240 e		75340B12339
	369	270	FM - 12/270 e		75340B12369
M16	131	10	FM - 16/10 e	≠ M16	75340B16131
	151	30	FM - 16/30 e		75340B16151
	171	50	FM - 16/50 e		75340B16171
	201	80	FM - 16/80 e		75340B16201
	221	100	FM - 16/100 e		75340B16221
	241	120	FM - 16/120 e		75340B16241
	261	140	FM - 16/140 e		75340B16261
	281	160	FM - 16/160 e		75340B16281
	321	200	FM - 16/200 e		75340B16321

¹⁾ Nominal diameter of thread; ²⁾ Length of anchor; ³⁾ Thickness fixture max.

FM 753 evo – version with large washer DIN 440					
d ¹⁾	L ²⁾ [mm]	t _{fix} ³⁾ [mm]	Bolt marking	Sleeve marking	Cod.
M10	123	50	FM - 10/50 e	≠ M10	75345B10123
	173	100	FM - 10/100 e		75345B10173
M12	149	50	FM - 12/50 e	≠ M12	75345B12149
	179	80	FM - 12/80 e		75345B12179
	199	100	FM - 12/100 e		75345B12199
	219	120	FM - 12/120 e		75345B12219
	239	140	FM - 12/140 e		75345B12239
	259	160	FM - 12/160 e		75345B12259

¹⁾ Nominal diameter of thread; ²⁾ Length of anchor; ³⁾ Thickness fixture max.

ANNEX

Declared Performances acc. to ETA-22/0792 - EAD 330232-01-0601							
Design method acc. to EN 1992-4:2018							
ESSENTIAL CHARACTERISTICS			PERFORMANCE				
Installation parameters			M6	M8	M10	M12	M16
d ₀	Nominal diameter of drill bit	[mm]	6	8	10	12	16
h _{ef}	Effective anchorage depth	[mm]	40	45	50	65	80
h _{min}	Minimum thickness of the concrete member	[mm]	100	100	100	130	160
T _{inst}	Nominal torque moment	[Nm]	8	15	30	50	100
s _{min}	Minimum spacing	[mm]	30	40	50	70	90
c _{min}	Minimum edge distance	[mm]	40	40	50	70	90
TENSION Steel failure			M6	M8	M10	M12	M16
N _{Rk,s}	Tension Steel characteristic failure	[kN]	10,9	20,5	32,3	45,6	79,2
γ _{ms,N}	Partial safety factor for tension steel failure	[-]	1,4				
Pull-out failure							
N _{Rk,p,ucr}	Tension characteristic load in un-cracked concrete C20/25	[kN]	6,0	12,0	17,4	25,8	35,2
γ _{inst}	Partial safety factor	[-]	1,0				
γ _{mp}	Partial safety factor	[-]	1,5				
Ψ _{c C30/37}	Increasing factor for concrete C30/37	[-]	1,01	1,04	1,22	1,21	1,15
Ψ _{c C40/50}	Increasing factor for concrete C40/50	[-]	1,01	1,06	1,41	1,39	1,27
Ψ _{c C50/60}	Increasing factor for concrete C50/60	[-]	1,02	1,09	1,58	1,55	1,38
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]	120	135	150	195	240
c _{cr,N}	Critical edge distance	[mm]	60	68	75	98	120
s _{cr,sp}	Critical spacing (splitting)	[mm]	160	225	250	360	400
c _{cr,sp}	Critical edge distance(splitting)	[mm]	80	112,5	125	180	200
γ _{mc} = γ _{msp}	Partial safety factor	[-]	1,5				
Displacement on Tension Load			M6	M8	M10	M12	M16
N _{ucr}	Service tension load in un-cracked concrete	[kN]	3,1	6,1	8,9	13,2	18,0
δ _{N0,ucr}	Short term displacement under tension load	[mm]	0,08	0,14	0,15	1,15	0,14
δ _{N∞,ucr}	Long term displacement under tension load	[mm]	3,19	3,19	3,19	3,19	3,19
SHEAR Steel failure			M6	M8	M10	M12	M16
V _{Rk,s}	Shear Steel characteristic failure	[kN]	6,4	9,9	17,4	25,1	46,9
K ₇	Ductility factor acc.to CEN/TS 1992-4-5 Section § 6.3.2.1	[-]	1,0				
M ⁰ _{Rk,s}	Bending Moment characteristic failure	[Nm]	11	28	56	98	233
γ _{ms,V}	Partial safety factor for shear steel failure	[-]	1,25				
Shear Concrete Pry-out failure							
k ₈	Factor acc. to EN 1992-4 EN 1992-4 § 7.2.2.4	[-]	1,0			2,0	
γ _{mc}	Partial safety factor	[-]	1,5				
Shear Concrete Edge failure							
l _f	Effective anchorage length	[mm]	40	45	50	65	80
d _{nom}	Nominal diameter of anchor	[mm]	6	8	10	12	16
γ _{mc}	Partial safety factor	[-]	1,5				
Displacement on Shear Load			M6	M8	M10	M12	M16
V	Service shear load in concrete	[kN]	3,6	5,6	9,9	16,4	26,8
δ _{V0}	Short term displacement under shear load	[mm]	0,84	1,06	3,40	1,56	2,18
δ _{V∞}	Long term displacement under shear load	[mm]	1,26	1,59	5,10	2,34	3,27