



# Declaration of Performance nr.fm744

## FM 744

Torque controlled expansion anchor sleeve type made of galvanised steel

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Intended use or uses of the construction product according to ETAG 001 p.1 and 2	
Generic type	torque controlled expansion anchor sleeve type
Base material	un-cracked concrete C20/25 to C50/60 acc. to EN 206-1:2003
Material	steel zinc coated acc. to EN ISO 4042 (bolt 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
ETA-05/0169 issued by	
	CSTB approval body nr.0679
On the basis of	ETAG001 p.1-2
Certificate of Conformity 0679-CPD-0112 issued by	CSTB notify body nr.0679
Under System	1

Declared performances according to ETAG 001 p.1 and 2 - Design method ETAG001 Annex C					
Essential Characteristics		Performance			
<b>Installation parameters</b>		<b>M6<sup>2)</sup></b>	<b>M8</b>	<b>M10</b>	<b>M12</b>
<b>d<sub>0</sub></b>	Nominal diameter of drill bit [mm]	10	14	16	20
<b>h<sub>nom</sub></b>	Minimum installation depth [mm]	40	50	60	80
<b>h<sub>ef</sub></b>	Effective anchorage depth [mm]	34 <sup>2)</sup>	41	50	67
<b>h<sub>min</sub></b>	Minimum thickness of the concrete member [mm]	100	100	100	135
<b>T<sub>inst</sub></b>	Nominal torque moment [Nm]	6	15	30	50
<b>s<sub>min</sub></b>	Minimum spacing [mm]	35	40	50	70
<b>c<sub>min</sub></b>	Minimum edge distance [mm]	35	40	50	70
<b>Tension Steel failure mode</b>					
<b>N<sub>Rk,s</sub></b>	Tension Steel characteristic failure (cl. 8.8) [kN]	16	29	46	67
<b>γ<sub>m,sN</sub><sup>1)</sup></b>	Partial safety factor for tension steel failure [-]	1,5			
<b>Pull-out failure mode</b>					
<b>N<sub>Rk,p,ucr</sub></b>	Tension characteristic load in un-cracked concrete C20/25 [kN]	6 <sup>2)</sup>	12	17,8 <sup>3)</sup>	27,3 <sup>3)</sup>
<b>γ<sub>2</sub></b>	Partial safety factor [-]	1,0			
<b>γ<sub>m,c</sub><sup>1)</sup></b>	Partial safety factor [-]	1,5			
<b>s<sub>cr,N</sub></b>	Critical spacing [mm]	100	125	150	200
<b>c<sub>cr,N</sub></b>	Critical edge distance [mm]	50	62	75	100
<b>ψ<sub>c</sub> C30/37</b>	Increasing factor for concrete C30/37 [-]	1,22			
<b>ψ<sub>c</sub> C40/50</b>	Increasing factor for concrete C40/50 [-]	1,41			
<b>ψ<sub>c</sub> C50/60</b>	Increasing factor for concrete C50/60 [-]	1,55			
<b>Splitting failure mode</b>					
<b>s<sub>cr,sp</sub></b>	Critical spacing (splitting) [mm]	200	250	300	400
<b>c<sub>cr,sp</sub></b>	Critical edge distance (splitting) [mm]	100	125	150	200
<b>γ<sub>m,c</sub><sup>1)</sup></b>	Partial safety factor [-]	1,5			
<b>Displacement on Tension Load</b>					
<b>N<sub>ucr</sub></b>	Service tension load in un-cracked concrete [kN]	2,9	5,7	8,5	13,0
<b>δ<sub>N0,ucr</sub></b>	Short term displacement under tension load [mm]	0,5	0,6	0,8	1,2
<b>δ<sub>N∞,ucr</sub></b>	Long term displacement under tension load [mm]	0,6	0,6	0,8	1,2
<b>Shear Steel failure mode</b>					
<b>V<sub>Rk,s</sub></b>	Shear Steel characteristic failure (cl. 8.8) [kN]	7,4	14,6	21,5	32,0
<b>M<sup>0</sup><sub>Rk,s</sub></b>	Bending Moment characteristic failure (cl. 8.8) [Nm]	12	30	60	105
<b>γ<sub>m,sV</sub><sup>1)</sup></b>	Partial safety factor for shear steel failure [-]	1,25			
<b>Shear Concrete Pry-out and and Edge failure mode</b>					
<b>k</b>	Factor equation (5.6) of ETAG, Annex C, § 5.2.3.3 [-]	1,0			2,0
<b>l<sub>ef</sub></b>	Effective anchorage length [mm]	34	41	50	67
<b>d<sub>nom</sub></b>	Nominal diameter of anchor [mm]	10	14	16	20
<b>γ<sub>m</sub><sup>1)</sup></b>	Partial safety factor (γ <sub>m,c</sub> =γ <sub>m,pr</sub> ) [-]	1,5			
<b>Displacement on Shear Load</b>					
<b>V</b>	Service shear load in concrete (cl. 8.8) [kN]	4,2	8,3	12,3	18,3
<b>δ<sub>V0</sub></b>	Short term displacement under shear load [mm]	2,5	3,3	2,9	3,5
<b>δ<sub>V∞</sub></b>	Long term displacement under shear load [mm]	4,5	6,4	5,6	6,8

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

We inform you that Friulsider is classified in the EC 1907/2006 Reach Directive as a Downstream-user of substances.  
 The product supplied does not contain substances classified as SVHC according to the Candidate List in a concentration equal or greater than 0.1% (weight / weight). Article 31 is not applicable to the present product.

The below performances apply for the following article numbers:

d	L <sup>4)</sup> [mm]	t <sub>fix</sub> <sup>5)</sup> [mm]	Marking	Cod. (only anchor)
M6	40	*	FM-744  M6 Ø10	74400b10040
M8	50	*	FM-744  M8 Ø14	74400b14050
M10	60	*	FM-744  M10 Ø16	74400b16060
M12	80	*	FM-744  M12 Ø20	74400b20080

\* t<sub>fix</sub> = L<sub>screw8.8</sub> - L

d	L <sup>4)</sup> [mm]	t <sub>fix</sub> <sup>5)</sup> [mm]	Marking	Cod.
M6	40	12	FM-744  M6 Ø10	74411b10040
M8	50	15	FM-744  M8 Ø14	74411b14050
M10	60	20	FM-744  M10 Ø16	74411b16060
M12	80	15	FM-744  M12 Ø20	74411b20080

<sup>4)</sup> Length of anchor; <sup>5)</sup> Thickness fixture max of screw in use.

The performances of the product identified by the above identification code are in conformity with the declared performance.  
 This declaration of performance is issued under the sole responsibility of Friulsider SpA.

Signed for and behalf of the manufacturer by:

Name and functions	Place and date of issue	Signature
<b>Eng. Vittorio Pilla</b> General Director	San Giovanni al Natisone, 01-07-2013	