DECLARATION OF PERFORMANCE
N° BARACO 3DG 01A EN

LR ETANCO SAS
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1. Unique identification code of the product-type :

FM-753 BARACO 3DG

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):

ETA-13/0367
Batch number: see packaging of the product

3. Indented use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

Generic type and intended use of the product	**Torque controlled expansion anchor made of galvanized steel, sizes M6, M8, M10, M12, M16 and M20**
For use in	**Un-cracked concrete (C20/25 to C50/60 according to EN 206-1 :2003)**
Option / category	**ETAG 001 option 7**
Loading	**Static and quasi-static**
Material	**Steel class 5.8 according to EN ISO 898-1** **Zinc-plated steel according to EN ISO 4042 : Dry internal conditions only**
Fire class	**A1 according to EN 13501-1**

4. Name, registred trade name or registred trade mark and contract address of the manufacturer as required pursuant to Article 11(5):

FRIULSIDER S.p.A.
Via Trieste 1
33048 San Giovanni al Natisone (UD)
Italy

5. Where applicable name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12 (2):

Not relevant

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:

System 1

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard:

Not relevant

8. In case of the declaration of performance concerning a construction product for which European Technical Assessment has been issued:

ZAG approval body issued ETA-13/0367 on the basis of 'ETAG 001 part 2.
ZAG notified body n°1404 issued according to system 1 the certificate of conformity n° 1404-CPD-1977

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9. Declared Performances:

Essential characteristics – ETAG 001 Annex C			Performance										
Installation parameters			**M6**		**M8**		**M10**		**M12**		**M16**		**M20**
d_0	Nominal diameter of drill bit	[mm]	6		8		10		12		16		20
h_{nom}	Minimum installation depth	[mm]	36	41	38	48	44	59	56	71	76	96	115
h_{ef}	Effective anchorage depth	[mm]	30[2]	35[2]	30[2]	40	35[2]	50	45	60	65	85	95
h_{min}	Minimum thickness of the concrete member	[mm]	100							120	130	170	200
T_{inst}	Nominal torque moment	[Nm]	6		15		25		50		100		150
s_{min}	Minimum spacing	[mm]	45	50	45	55	50	55	120	90	140	130	200
c_{min}	Minimum edge distance	[mm]	45	50	45	55	50	55	80	90	100	130	145
Tension Steel failure mode													
$N_{Rk,s}$	Tension Steel characteristic failure	[kN]	11		17		28		33		72		108
$\gamma_{m,sN}$[1]	Partial safety factor for tension steel failure	[-]	1,5		1,4						1,5		
Pull-out failure mode													
$N_{Rk,p,ucr}$	Tension characteristic load in un-cracked concrete C20/25	[kN]	**5**[2]	**6**[2]	**6**[2]	**12**	**6**[2]	**12**	**12**	**23**[3]	**26**[3]	**35**	**40**
γ_2	Partial safety factor	[-]	1,0										
$\gamma_{m,c}$[1]	Partial safety factor	[-]	1,5										
$s_{cr,N}$	Critical spacing	[mm]	90	105	90	120	105	150	135	180	195	255	290
$c_{cr,N}$	Critical edge distance	[mm]	45	53	45	60	53	75	80	90	100	130	145
ψ_c **C30/37**	Increasing factor	[-]	1,07				1,10						1,22
ψ_c **C40/50**		[-]	1,14				1,20						1,41
ψ_c **C50/60**		[-]	1,20				1,30						1,55
Splitting failure mode													
$s_{cr,sp}$	Critical spacing (splitting)	[mm]	90	105	90	120	105	150	135	180	195	255	290
$c_{cr,sp}$	Critical edge distance(splitting)	[mm]	45	53	45	60	56	75	68	90	98	130	145
$\gamma_{m,c}$[1]	Partial safety factor	[-]	1,5										
Displacement on Tension Load													
N_{ucr}	Service tension load in un-cracked concrete C20/25	[kN]	**2,4**	**2,9**	**2,9**	**5,7**	**2,9**	**5,7**	**5,7**	**11,2**	**12,6**	**16,7**	**19,0**
$\delta_{N0,ucr}$	Short term displacement under tension load	[mm]	0,2	0,3	0,1	1,6	0,1	0,4	0,1				
$\delta_{N\infty,ucr}$	Long term displacement under tension load	[mm]	1,6										
Shear Steel failure mode													
$V_{Rk,s}$	Shear Steel characteristic failure	[kN]	**6,5**		**9,2**		**13,9**		**20,1**		**42,6**		**51,5**
$M^0_{Rk,s}$	Bending Moment characteristic failure	[Nm]	12		24		49		72		193		338
$\gamma_{m,sV}$[1]	Partial safety factor for shear steel failure	[-]	1,5										
Shear Concrete Pry-out and Edge failure mode													
k	Factor equation (5.6) of ETAG, Annex C, §	[-]	1,0							2,0			
l_{ef}	Effective anchorage length	[mm]	30	35	30	40	35	50	45	60	65	85	90
d_{nom}	Nominal diameter of anchor	[mm]	6		8		10		12		16		20
γ_m[1]	Partial safety factor ($\gamma_{m,c}=\gamma_{m,pr}$)	[-]	1,5										
Displacement on Shear Load													
V	Service shear load in concrete	[kN]	**3,1**		**4,4**		**6,6**		**9,6**		**20,3**		**24,5**
δ_{V0}	Short term displacement under shear load	[mm]	2,1		2,0		2,6		2,8		3,8		2,6
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	3,1		3,1		3,9		4,2		4,4		4,0

[1] In absence of other national regulations; [2] Use restricted to anchoring of structural components statically indeterminated; [3] Pull-out failure no 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.

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10. The performance of the product identified in points 1 and 2 is in conformity with declared performance in the point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and behalf of the manufacturer by:

Benoit Cheramy Product Manager	Le Pecq – France, 2015-07-17	