DECLARATION OF PERFORMANCE
N° BETOFASTEVO 01A EN

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

BETOFAST EVO

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

ETA-16/0177
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	**Concrete screw made of galvanized steel, sizes 8, 10, 12 and 14**
For use in	**Cracked and un-cracked concrete (C20/25 to C50/60 according to EN 206-1 :2003)**
Option / category	**ETAG 001 option 1 + TR 020**
Loading	**Static and quasi-static, fire resistance**
Material	**Steel 10B21 according to SAE-J403** **Zinc-plated steel according to EN ISO 4042 or EN ISO 12683 : Dry internal conditions only**
Fire resistance and class	**A1 according to EN 13501-1** **F120 according to TR020**

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

LR ETANCO SAS
66 route de Sartrouville – BP 49
78231 Le Pecq Cedex
France

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:

ITB approval body issued ETA-XX/XXXX on the basis of 'ETAG 001 part 2.
ITB notified body n°1488 issued according to system 1 the certificate of conformity n° 1488-CPR-0552/W

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9. Declared Performances:

Essential characteristics – ETAG 001 Annex C			Performances												
Installation parameters			**8**			**10**			**12**			**14**			
d_1	External diameter	[mm]	10			12			14			16			
d_0	Nominal diameter of drill bit	[mm]	8			10			12			14			
d_f	Clearance hole in the fixture	[mm]	12			14			16			18			
h_{nom}	Nominal anchorage depth	[mm]	45	50	65	50	60	75	50	60	95	60	70	115	
$h_1 \geq$	Depth of drill hole	[mm]	55	60	75	60	70	85	60	70	105	70	80	125	
h_{min}	Minimum thickness of member	[mm]	110			110			130			150			
s_{min}	Minimum spacing	[mm]	60			70			80			90			
c_{min}	Minimum edge distance	[mm]	60			70			80			90			
Steel failure under tension loads															
$N_{Rk,s}$	Characteristic resistance	[kN]	42,4			67,2			99,4			134,0			
γ_{Ms} [1)]	Partial safety factor	[-]	1,4												
Pullout failure under tension loads															
$N_{Rk,p,cr}$	Characteristic resistance in cracked concrete	[kN]	**3**	**4**	**7,5**	**4**	**6**	**9**	**4**	**6**	**19**	**5**	**7,5**	**20**	
$N_{Rk,p,ucr}$	Characteristic resistance in non-cracked concrete	[kN]	**6**	**6**	**12**	**6**	**9**	**16**	**6**	**9**	**25**	**9**	**12**	**35**	
γ_{Mp} [1)]	Partial safety factor	[-]	1,8												
ψ_c **C30/37**	Increasing factors for $N_{Rk,p}$	[-]	1,17			1,17			1,17			1,22			
ψ_c **C40/50**		[-]	1,32			1,32			1,32			1,41			
ψ_c **C50/60**		[-]	1,42			1,42			1,42			1,55			
Concrete cone and splitting failure under tension loads															
h_{ef}	Effective anchorage depth	[mm]	30	34	47	33	42	54	33	42	71	40	48	86	
$s_{cr,N}$	Spacing	[mm]	90	102	141	100	124	162	100	124	213	118	144	258	
$c_{cr,N}$	Edge distance	[mm]	45	51	71	50	62	81	50	62	107	59	72	129	
$s_{cr,sp}$	Spacing	[mm]	90	102	141	100	124	162	100	124	213	118	144	258	
$c_{cr,sp}$	Edge distance	[mm]	45	51	71	50	62	81	50	62	107	59	72	129	
Displacements under tension loads															
N_{cr}	Tension load in cracked concrete C20/25	[kN]	**3,2**			**4,0**			**6,9**			**9,6**			
$\delta_{N0,cr}$	Displacement	[mm]	0,4			0,5			0,5			0,6			
$\delta_{N\infty,cr}$	Displacement	[mm]	2,0			2,0			2,0			2,0			
N_{ucr}	Tension load in non-cracked concrete C20/25	[kN]	**5,8**			**8,5**			**12,6**			**15,6**			
$\delta_{N0,ucr}$	Displacement	[mm]	0,3			0,4			0,4			0,6			
$\delta_{N\infty,ucr}$	Displacement	[mm]	1,4			1,5			1,8			1,9			
Steel failure under shear loads															
$V_{Rk,s}$	Characteristic resistance without lever arm	[kN]	**17,0**			**26,9**			**39,8**			**53,5**			
$M^0_{Rk,s}$	Characteristic resistance with lever arm	[Nm]	46,8			93,2			167,7			261,8			
γ_{Ms} [1)]	Partial safety factor	[-]	1,5												
Concrete pryout failure and concrete edge failure under shear loads															
k	Factor in equation (5.6) of ETAG 001, Annexe C, § 5.2.3.3	[-]	1,0						2,0						
l_{ef}	Effective length of anchor	[mm]	30	34	47	33	42	54	33	42	71	40	48	86	
d_{nom}	Effective diameter of anchor	[mm]	10			12			14			16			
γ_{Mc} [1)]	Partial safety factor ($\gamma_{m,c}=\gamma_{m,pr}$)	[-]	1,5												
Displacement under shear loads															
V	Shear load	[kN]	**6,9**			**11**			**15**			**15,5**			
δ_{V0}	Displacement	[mm]	1,5			1,7			2,0			2,7			
$\delta_{V\infty}$	Displacement	[mm]	2,3			2,6			3,0			4,1			

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Suite ↴

Characteristic resistance under fire – TR020			Performances			
Installation			**8**	**10**	**12**	**14**
h_{nom}	Nominal anchorage depth	[mm]	**65**	**75**	**95**	**115**
Steel failure under tension loads						
$N_{Rk,s,fi,30}$	R30	[kN]	0,64	1,34	1,99	2,68
$N_{Rk,s,fi,60}$	R60	[kN]	0,55	1,01	1,49	2,01
$N_{Rk,s,fi,90}$	R90	[kN]	0,42	0,87	1,29	1,74
$N_{Rk,s,fi,120}$	R120	[kN]	0,34	0,67	0,99	1,34
Pullout failure under tension loads						
$N_{Rk,p,fi,30}$	R30	[kN]	1,9	2,2	4,0	5,0
$N_{Rk,p,fi,60}$	R60	[kN]	1,9	2,2	4,0	5,0
$N_{Rk,p,fi,90}$	R90	[kN]	1,9	2,2	4,0	5,0
$N_{Rk,p,fi,120}$	R120	[kN]	1,5	1,8	3,2	4,0
Concrete cone failure						
$N_{Rk,c,fi,30}$	R30	[kN]	2,7	3,9	7,6	12,3
$N_{Rk,c,fi,60}$	R60	[kN]	2,7	3,9	7,6	12,3
$N_{Rk,c,fi,90}$	R90	[kN]	2,7	3,9	7,6	12,3
$N_{Rk,c,fi,120}$	R120	[kN]	2,2	3,1	6,1	9,9
Edge distance						
$C_{cr,N,30}$	R30	[mm]	$2 * h_{ef}$			
$C_{cr,N,60}$	R60	[mm]				
$C_{cr,N,90}$	R90	[mm]				
$C_{cr,N,120}$	R120	[mm]				
Spacing						
$S_{cr,N,30}$	R30	[mm]	$4 * h_{ef}$			
$S_{cr,N,60}$	R60	[mm]				
$S_{cr,N,90}$	R90	[mm]				
$S_{cr,N,120}$	R120	[mm]				
Steel failure under shear loads						
$V_{Rk,s,fi,30}$	R30	[kN]	0,64	1,34	1,99	2,68
$V_{Rk,s,fi,60}$	R60	[kN]	0,55	1,01	1,49	2,01
$V_{Rk,s,fi,90}$	R90	[kN]	0,42	0,87	1,29	1,74
$V_{Rk,s,fi,120}$	R120	[kN]	0,34	0,67	0,99	1,34
Steel failure with lever arm under shear loads						
$M^0_{Rk,s,fi,30}$	R30	[kN]	0,70	1,86	3,36	5,24
$M^0_{Rk,s,fi,60}$	R60	[kN]	0,61	1,40	2,52	3,93
$M^0_{Rk,s,fi,90}$	R90	[kN]	0,47	1,21	2,18	3,40
$M^0_{Rk,s,fi,120}$	R120	[kN]	0,37	0,93	1,68	2,62
Concrete pry-out failure						
k	R30	[-]	1	1	2	2
	R60					
	R90					
	R120					
Concrete edge failure						
$V^0_{Rk,c,fi,30}$	R30	[kN]	0,25 * $V^0_{Rk,c}$ [2)]			
$V^0_{Rk,c,fi,60}$	R60	[kN]				
$V^0_{Rk,c,fi,90}$	R90	[kN]				
$V^0_{Rk,c,fi,120}$	R120	[kN]	0,20 * $V^0_{Rk,c}$ [2)]			

[1)] In absence of other national regulations; [2)] Initial value of the characteristic resistance in cracked concrete C20/25 under normal temperature according to ETAG 001, annex C.

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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.

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, 2015-09-12