

Declaration of Performance

No. **DPGEB1001 v1**

Plastic plug **GX-L Nylon**

Intended use of the construction product according to ETA-12/0261																																
Generic type:	plastic anchor for multiple use in concrete and masonry for non-structural applications																															
Base material:	- cracked or non-cracked, reinforced or unreinforced normal weight concrete of strength class C12/15 or greater according to EN 206-1:2000-12 - solid and hollow masonry																															
Use:	- specific screw made of zinc plated or hot dip galvanized steel dry internal conditions, or structures subject to external atmospheric exposure, if the area of the head of the screw is protected against moisture and driving rain after mounting of the fixing unit in such way that intrusion of moisture into the anchor shaft is prevented - specific screw made of stainless steel dry internal conditions, external atmospheric exposure (including industrial and marine environment) or exposure in permanently damp internal conditions if no particular aggressive conditions exist																															
Loading:	multiple fixing for non-structural applications																															
Service temperature range	-20 °C to +40 °C (max. short term temperature +40 ° C and max. long term temperature +24 °C)																															
Use categories	a: concrete b: solid masonry<table><tr><td></td><td>min. density ρ [kg/dm³]</td><td>min. compr. strength f_b [N/mm²]</td></tr><tr><td>b1 - clay masonry</td><td>2.1</td><td>20</td></tr><tr><td>b2 - calcium silicate masonry</td><td>1.9</td><td>30</td></tr></table> c: hollow or perforated masonry<table><tr><td></td><td>type</td><td>min. density ρ [kg/dm³]</td><td>min. compr. strength f_b [N/mm²]</td></tr><tr><td>c1 - clay masonry</td><td>doppio UNI</td><td>0.91</td><td>15</td></tr><tr><td>c2 - clay masonry</td><td>Optibrick PV</td><td>0.60</td><td>7.5</td></tr><tr><td>c3 - clay masonry</td><td>HLZ 12</td><td>0.90</td><td>12</td></tr><tr><td>c4 - calcium silicate masonry</td><td>KSL-R 8DF</td><td>1.3</td><td>15</td></tr></table>				min. density ρ [kg/dm ³]	min. compr. strength f_b [N/mm ²]	b1 - clay masonry	2.1	20	b2 - calcium silicate masonry	1.9	30		type	min. density ρ [kg/dm ³]	min. compr. strength f_b [N/mm ²]	c1 - clay masonry	doppio UNI	0.91	15	c2 - clay masonry	Optibrick PV	0.60	7.5	c3 - clay masonry	HLZ 12	0.90	12	c4 - calcium silicate masonry	KSL-R 8DF	1.3	15
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Fire Resistance:	F90 (GX-L 10 in concrete)																															

ETA-12/0261 issued by Centre Scientifique et Technique du Bâtiment on the basis of ETAG 001, Certificate of Conformity 0679-CPD-0790 issued by Centre Scientifique et Technique du Bâtiment under AVCP System 1

Declared performances according to ETAG 020:2006 Parts 1, 2, 3 and 4, ETA-12/0261 (Design method ETAG 020 Annex C)					
Plug diameter			8	10	10 SS ¹
Essential Characteristics			Performance		
Installation parameters					
d	Nominal diameter of plug	[mm]	8	10	
d ₀	Nominal diameter of drill bit	[mm]	8	10	
d _{fix}	Maximum diameter of clearance hole in the fixture	[mm]	8.5	10.5	
h _{ef}	Effective anchorage depth	[mm]	70	70	

h_{nom}	Minimum installation depth		[mm]	70	70	
h_1	Minimum depth of the drilling hole		[mm]	80	80	
Installation parameters in concrete						
h_{min}	Minimum thickness of the concrete member		[mm]	100	100	
s_{min}	Minimum spacing	concrete C12/15	[mm]	70	85	
		concrete $\geq$ C16/20	[mm]	50	60	
c_{min}	Minimum edge distance	concrete C12/15	[mm]	70	70	
		concrete $\geq$ C16/20	[mm]	50	50	
Installation parameters in masonry						
h_{min}	Minimum thickness of member	b1 masonry	[mm]	115		
		b2 masonry	[mm]	115		
		c1 masonry	[mm]	115		
		c2 masonry	[mm]	200		
		c3 masonry	[mm]	115		
		c4 masonry	[mm]	240		
s_{min}	Minimum spacing for single anchor		[mm]	250		
$s_{1,min}$	Minimum spacing for anchor group, perpendicular to edge		[mm]	200		
$s_{2,min}$	Minimum spacing for anchor group, parallel to edge		[mm]	400		
c_{min}	Minimum edge distance		[mm]	100		
Screw resistance for use in concrete and masonry						
$N_{Rk,s}$	Characteristic tension resistance of screw		[kN]	9.6	12.8	12.3
$\gamma_{Ms,N}$	Partial safety factor for tension steel failure		[-]	1.50	1.49	2.86
$N_{Rk,s}$	Characteristic shear resistance of screw		[kN]	4.8	6.4	6.2
$\gamma_{Ms,V}$	Partial safety factor for shear steel failure		[-]	1.25	1.50	2.38
$M_{Rk,s}$	Characteristic bending resistance of screw		[Nm]	5.6	10.7	10.3
d_s	Nominal screw diameter		[mm]	5.5	7.0	
γ_{MsM}	Partial safety factor for bending steel failure		[-]	1.25	1.50	2.38
Pull-out failure mode in concrete						
$N_{Rk,p}$	Characteristic tension resistance	concrete C12/15	[mm]	1.2	2.0	
		concrete $\geq$ C16/20	[mm]	2.0	3.0	
γ_{Mp}	Partial safety factor		[-]	1.8	1.8	
$c_{cr,N}$	Critical edge distance	concrete C12/15	[mm]	100	140	
		concrete $\geq$ C16/20	[mm]	70	100	
Characteristic resistance in masonry for tension, shear or combined tension and shear loading						
F_{rk}	Characteristic resistance	b1 masonry	$f_b \geq 75$	[kN]	3.5	4.0
			$f_b \geq 20$	[kN]	1.5	1.2
		b2 masonry	[kN]	1.5	2.5	
		c1 masonry	[kN]	0.5	0.75	
		c2 masonry	[kN]	0.3	0.5	
		c3 masonry	[kN]	0.5	0.9	
		c4 masonry	[kN]	0.5	1.2	
γ_{Mm}	Partial safety factor		[-]	2.5		

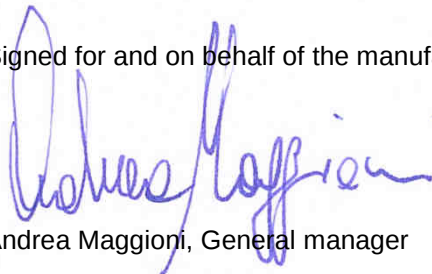
<i>Displacement on concrete</i>				
N	Service tension load	[kN]	0.79	1.19
δ_{N0}	Short term displacement under tension load	[mm]	0.46	0.35
$\delta_{N\infty}$	Long term displacement under tension load	[mm]	0.21	0.47
V	Service shear load	[kN]	1.14	1.71
δ_{V0}	Short term displacement under shear load	[mm]	0.74	1.57
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	1.11	2.35
<i>Displacement on b1 masonry</i>				
F	Service load	[kN]	1.00	1.14
δ_{N0}	Short term displacement under tension load	[mm]	0.20	0.39
$\delta_{N\infty}$	Long term displacement under tension load	[mm]	0.40	0.78
δ_{V0}	Short term displacement under shear load	[mm]	0.83	0.95
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	1.25	1.43
<i>Displacement on b2 masonry</i>				
F	Service load	[kN]	0.43	0.71
δ_{N0}	Short term displacement under tension load	[mm]	0.17	0.13
$\delta_{N\infty}$	Long term displacement under tension load	[mm]	0.34	0.26
δ_{V0}	Short term displacement under shear load	[mm]	0.35	0.59
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	0.54	0.88
<i>Displacement on c1 masonry</i>				
F	Service load	[kN]	0.14	0.21
δ_{N0}	Short term displacement under tension load	[mm]	0.15	0.11
$\delta_{N\infty}$	Long term displacement under tension load	[mm]	0.30	0.22
δ_{V0}	Short term displacement under shear load	[mm]	0.12	0.18
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	0.18	0.27
<i>Displacement on c2 masonry</i>				
F	Service load	[kN]	0.09	0.14
δ_{N0}	Short term displacement under tension load	[mm]	0.09	0.10
$\delta_{N\infty}$	Long term displacement under tension load	[mm]	0.18	0.20
δ_{V0}	Short term displacement under shear load	[mm]	0.07	0.12
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	0.11	0.18
<i>Displacement on c3 masonry</i>				
F	Service load	[kN]	0.14	0.26
δ_{N0}	Short term displacement under tension load	[mm]	0.10	0.27
$\delta_{N\infty}$	Long term displacement under tension load	[mm]	0.20	0.54
δ_{V0}	Short term displacement under shear load	[mm]	0.12	0.22
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	0.18	0.33
<i>Displacement on c4 masonry</i>				
F	Service load	[kN]	0.14	0.34
δ_{N0}	Short term displacement under tension load	[mm]	0.13	0.15
$\delta_{N\infty}$	Long term displacement under tension load	[mm]	0.26	0.30
δ_{V0}	Short term displacement under shear load	[mm]	0.12	0.29
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	0.18	0.43

¹ GX-L 10 with stainless steel screw

The performance of the product above identified is in conformity with the declared performance.

This declaration of performance is issued under the sole responsibility of G&B Fissaggi S.r.l.

Signed for and on behalf of the manufacturer by:



Andrea Maggioni, General manager

Villastellone, 1 July 2013



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