

Declaration of Performance

No. **DPGEB1021 v1**

1. Unique identification code of the product-type: **GETO Plus CE1**

2. Intended uses:

Intended use of the construction product according to ETA 15/0017	
Anchorage subject to:	Static and quasi-static loads, fire exposure
Base materials:	Cracked and non-cracked, reinforced or unreinforced normal weight concrete C20/25 to C50/60 according to EN 206
Environmental conditions:	Dry internal conditions
Reaction to fire:	Anchorage satisfy requirements for Class A1
Resistance to fire:	F120
Installation:	Perforation by hammer drilling Installation using a torque wrench or an electrical impact diver (power input 500 W, torque 50-250 Nm) Installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on job site

3. Manufacturer: **G&B Fissaggi S.r.l.** C.so Savona 22, Villastellone (TO), Italy

5. System of AVCP: 1

6b.

European Assessment Document: ETAG 001 used as an EAD

European Technical Assessment: ETA 15/0017

Technical Assessment Body: Instituto de Ciencias de la Construcción Eduardo Torroja

Notified body: 1219 IETCC Instituto de Ciencias de la Construcción Eduardo Torroja

7. Declared performances:

Declared performances according to ETAG 001:2013 Part 1 and Part 2, EOTA Technical Report TR 020:2004-05, ETA 15/0017 (Design method A - ETAG 001 Annex C)

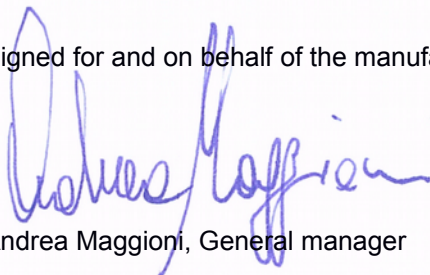
Anchor size			7.5 hole 6	10.5 hole 8	12.5 hole 10	16.5 hole 14
Essential characteristics			Performance			
<i>Installation parameters</i>						
d ₀	Nominal diameter of drill bit	[mm]	6	8	10	14
d	Outer diameter of thread	[mm]	7.5	10.5	12.5	16.5
d _f	Diameter of clearance hole in the fixture	[mm]	9	12	14	18
h _{ef}	Effective anchorage depth	[mm]	42	45	52	86
h _{nom}	Overall installation depth	[mm]	55	60	70	110
h ₁	Minimum hole depth	[mm]	65	70	85	130
h _{min}	Minimum thickness of the concrete member	[mm]	100	100	105	175
T _{inst}	Installation torque	[Nm]	20	50	80	120
s _{min}	Minimum spacing	[mm]	45	50	60	100
c _{min}	Minimum edge distance	[mm]	45	50	60	100
<i>Tension steel failure mode</i>						
N _{Rk,s}	Characteristic tension resistance of steel	[kN]	18.7	32.7	51.2	115.9
γ _{M,s}	Partial safety factor	[-]	1.5			

Anchor size			7.5 hole 6	10.5 hole 8	12.5 hole 10	16.5 hole 14
Essential characteristics			Performance			
Pull-out failure mode						
N _{Rk,p,ucr}	Tension characteristic resistance in non-cracked concrete C20/25	[kN]	9	12	20	40
Ψ _{c,C30/37}	Increasing factor for non-cracked concrete C30/37	[-]	1.22	1.08	1.04	1.04
Ψ _{c,C40/50}	Increasing factor for non-cracked concrete C40/50	[-]	1.41	1.15	1.07	1.07
Ψ _{c,C50/60}	Increasing factor for non-cracked concrete C50/60	[-]	1.55	1.19	1.09	1.09
N _{Rk,p,cr}	Tension characteristic resistance in cracked concrete C20/25	[kN]	6	9	12	30
Ψ _{c,C30/37}	Increasing factor for cracked concrete C30/37	[-]	1.22	1.22	1.22	1.12
Ψ _{c,C40/50}	Increasing factor for cracked concrete C40/50	[-]	1.41	1.41	1.41	1.23
Ψ _{c,C50/60}	Increasing factor for cracked concrete C50/60	[-]	1.55	1.55	1.55	1.30
γ _{M,p}	Partial safety factor	[-]	1.8			1.5
Concrete cone failure mode						
s _{cr,N}	Critical spacing	[mm]	126	135	156	258
c _{cr,N}	Critical edge distance	[mm]	63	67	78	129
γ _{M,c}	Partial safety factor	[-]	1.8			1.5
Splitting failure mode						
s _{cr,sp}	Critical spacing (splitting)	[mm]	126	135	177	292
c _{cr,sp}	Critical edge distance(splitting)	[mm]	63	67	88	146
γ _{M,sp}	Partial safety factor	[-]	1.8			1.5
Displacement on tension load, non-cracked concrete C20/25 to C50/60						
N	Service tension load	[kN]	3.6	4.8	9.5	19.0
δ _{N0}	Short term displacement under tension load	[mm]	0.4	0.4	0.4	0.9
δ _{N∞}	Long term displacement under tension load	[mm]	1.0	1.1	1.4	1.4
Displacement on tension load, cracked concrete C20/25to C50/60						
N	Service tension load	[kN]	2.4	3.6	5.7	11.9
δ _{N0}	Short term displacement under tension load	[mm]	0.6	0.7	0.5	0.6
δ _{N∞}	Long term displacement under tension load	[mm]	1.4	1.2	1.4	1.2
Shear steel failure mode without lever arm						
V _{Rk,s}	Characteristic shear resistance of steel	[kN]	7,5	16,3	35,6	57,9
γ _{M,s}	Partial safety factor	[-]	1.25			
Shear steel failure mode with lever arm						
M ⁰ _{Rk,s}	Characteristic bending resistance of steel	[Nm]	15.2	35.3	69.3	235.9
γ _{M,s}	Partial safety factor	[-]	1.25			
Concrete pry-out failure mode						
k = k ₃	Concrete pry-out failure factor	[-]	1			2
γ _{M,c}	Partial safety factor	[-]	1.5			
Concrete edge failure mode						
l _{ef}	Effective length of anchor under shear loading	[mm]	42	45	52	86
d _{nom}	Outside diameter of anchor	[mm]	7.5	10.5	12.5	16.5
γ _{M,c}	Partial safety factor	[-]	1.5			

Anchor size			7.5 hole 6	10.5 hole 8	12.5 hole 10	16.5 hole 14
Essential characteristics			Performance			
Displacement on shear load, cracked and non-cracked concrete C20/25 to C50/60						
V	Service shear load	[kN]	3.0	6.5	12.2	27.6
δ _{V0}	Short term displacement under shear load	[mm]	1.3	1.4	1.8	2.3
δ _{V∞}	Long term displacement under shear load	[mm]	2.0	2.1	2.7	3.5
Fire Resistance – 30 minutes						
N _{Rk,s,fi,30}	Tension steel characteristic resistance	[kN]	0.23	0.31	1.28	2.90
N _{Rk,p,fi,30}	Pull-out characteristic resistance	[kN]	1.50	2.25	3.00	7.50
N _{Rk,c,fi,30}	Concrete cone characteristic resistance	[kN]	2.06	2.45	3.51	12.35
V _{Rk,s,fi,30}	Shear steel characteristic resistance	[kN]	0.23	0.61	1.28	2.90
M ⁰ _{Rk,s,fi,30}	Bending steel characteristic resistance	[Nm]	0.19	0.66	1.73	5.90
Fire Resistance – 60 minutes						
N _{Rk,s,fi,60}	Tension steel characteristic resistance	[kN]	0.21	0.53	0.96	2.17
N _{Rk,p,fi,60}	Pull-out characteristic resistance	[kN]	1.50	2.25	3.00	7.50
N _{Rk,c,fi,60}	Concrete cone characteristic resistance	[kN]	2.06	2.45	3.51	12.35
V _{Rk,s,fi,60}	Shear steel characteristic resistance	[kN]	0.21	0.53	0.96	2.17
M ⁰ _{Rk,s,fi,60}	Bending steel characteristic resistance	[Nm]	0.17	0.57	1.30	4.42
Fire Resistance – 90 minutes						
N _{Rk,s,fi,90}	Tension steel characteristic resistance	[kN]	0.16	0.41	0.83	1.88
N _{Rk,p,fi,90}	Pull-out characteristic resistance	[kN]	1.50	2.25	3.00	7.50
N _{Rk,c,fi,90}	Concrete cone characteristic resistance	[kN]	2.06	2.45	3.51	12.35
V _{Rk,s,fi,90}	Shear steel characteristic resistance	[kN]	0.16	0.41	0.83	1.88
M ⁰ _{Rk,s,fi,90}	Bending steel characteristic resistance	[Nm]	0.13	0.44	1.13	3.83
Fire Resistance – 120 minutes						
N _{Rk,s,fi,120}	Tension steel characteristic resistance	[kN]	0.12	0.33	0.64	1.45
N _{Rk,p,fi,120}	Pull-out characteristic resistance	[kN]	1.20	1.80	2.40	6.00
N _{Rk,c,fi,120}	Concrete cone characteristic resistance	[kN]	1.65	1.96	2.81	9.88
V _{Rk,s,fi,120}	Shear steel characteristic resistance	[kN]	0.12	0.33	0.64	1.45
M ⁰ _{Rk,s,fi,120}	Bending steel characteristic resistance	[Nm]	0.10	0.35	0.87	2.95
Spacing and edge distance under fire						
s _{cr,N}	Critical spacing	[mm]	168	180	208	344
s _{min}	Minimum spacing	[mm]	45	50	60	100
c _{cr,N}	Critical edge distance	[mm]	84	90	104	172
c _{cr,N}	Minimum edge distance (one side fire)	[mm]	84	90	104	172
c _{cr,N}	Minimum edge distance (two sides fire)	[mm]	300	300	300	300
γ _{M,sp}	Partial safety factor	[-]	1.0			

The performance of the product identified above is in conformity with the set of declared performances. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:



Andrea Maggioni, General manager

Villastellone, 9 June 2017



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