

SM00K001



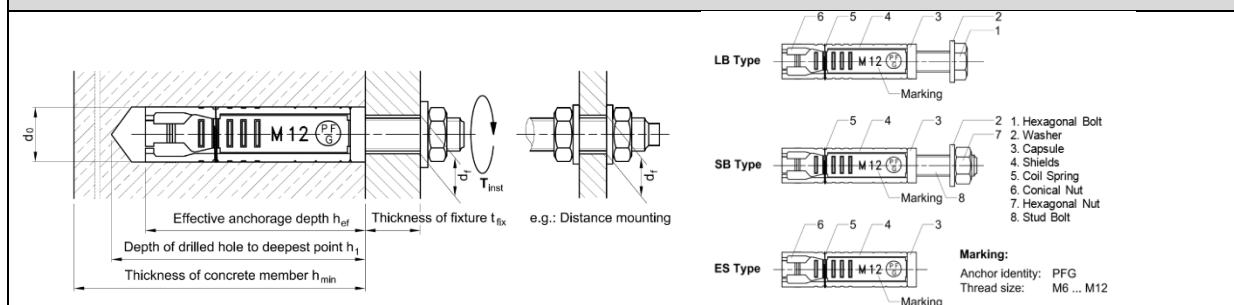
- *Unique identification code of the product-type:*
SMART TYPE K
- *Type or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):*
See annex 1 to this document
- *Intended uses of the construction product, in accordance with the applicable harmonized technical specification as foreseen by the manufacturer:*

Intended use or uses of the construction product according to ETAG 001 parts 1 - 2	
Generic type	Torque controlled expansion anchor with threaded rod
Base material	Un-cracked concrete C20/25 to C50/60 acc. to EN 206-1:2003
Material:	Galvanized steel, zinc plated ISO 4042 A2K $\geq 5\mu\text{m}$
Durability	internal dry conditions
Loading	static or quasi-static loads
Fire Resistance	R120
Assumed working life	50 years

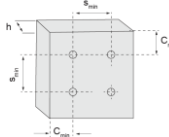
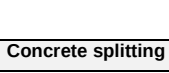
- *Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11 (5):*
pgb-Polska sp. z o.o. – Ul. Jondy 5 – 44-100 Gliwice – Polska
- *System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:*
System 1
- *In case of the declaration of performance concerning a construction product for which European Technical Assessment has been issued:*

ETA - 14/0239 issued by	CSTB
Body nr	NB 0679
On the basis of	ETAG 001, part 1 and 2 option 8
Under System	1
And issued	Certificate CE 0679-CPR-1032

Anchor types and installation parameters



• Declared performance – Essential characteristics – Performances

Installation parameters (ETAG001 part 1 and 2)				M6	M8	M10	M12
	d _o	Nominal diameter of drill bit	[mm]	10	14	16	20
	h _{ef}	Effective standard embedment depth	[mm]	40	50	60	80
	d _f	Fixture clearance hole diameter	[mm]	7	9	11	13
	T _{inst}	Nominal installation torque	[Nm]	10	25	50	85
	h ₁	Depth of drilled hole	[mm]	45	55	65	85
	T _{fix,min...max}	Fixture thickness	[mm]	0...100	0...120	0...140	0...160
	h _{min}	Min. thickness of concrete member	[mm]	100	100	120	160
	S _{min}	Minimum spacing	[mm]	60	75	90	120
	C _{min}	Minimum edge distance	[mm]	60	75	90	120
Characteristic values for tension loads							
Steel failure							
	N _{Rk,s}	Tension steel characteristic resistance	[kN]	16	29	46	67
	γ _{Ms} ¹	Partial safety factor	[-]	1,50			
Pull-out failure							
	N _{Rk,p}	Tension characteristic resistance in concrete C20/25	[kN]	5	9	12	16
	γ _{Mp} ¹	Partial safety factor ¹	[-]	1,50 ²			
Concrete cone failure							
	h _{ef}	Effective standard embedment depth	[mm]	40	50	60	80
	S _{cr,N}	Critical spacing	[mm]	120	150	180	240
	C _{cr,N}	Critical edge distance	[mm]	60	75	90	120
	γ _{Mc} ¹	Partial safety factor	[-]	1,50 ²			
Concrete splitting failure							
	S _{cr,sp}	Critical spacing (splitting)	[mm]	240	300	360	480
	C _{cr,sp}	Critical edge distance (splitting)	[mm]	120	150	180	240
	γ _{Msp} ¹	Partial safety factor ¹	[-]	1,50 ²			

¹ In absence of other national regulations

² The installation safety factor of γ₂= 1,0 is included.

Displacements under tension loads							
	N	Tension service load	[kN]	2,0	3,6	4,8	6,3
	$\bar{\delta}_{N0}$	Displacements under short term tension loads	[mm]	0,1	0,1	0,1	0,1
	$\bar{\delta}_{N\infty}$	Displacements under long term tension loads	[mm]	0,3	0,3	0,3	0,3
Characteristic values for shear loads							
Steel failure							
	$V_{Rk,s}$	Shear steel characteristic resistance	[kN]	8	14	23	33
	$M^0_{Rk,s}$	Characteristic bending moment (steel failure with lever arm)	[Nm]	12	30	60	105
	γ_{Ms}^3	Partial safety factor	[-]	1,25			
Concrete pryout failure							
	K	K factor (in equation (5.6) of ETAG Annex C, § 5.2.3.3)	[-]	1		2	
	γ_{Mcp}^3	Partial safety factor	[-]	1,5 ⁴			
Concrete edge failure							
	l_f	Effective anchorage depth under shear loads	[mm]	26	33	40	53
	d_{nom}	Outside anchor diameter	[mm]	10	14	16	20
	γ_{Mc}^3	Partial safety factor	[-]	1,5 ⁴			
Displacements under shear loads C20/25 – C50/60							
	V	Service shear load	[kN]	4,6	8,3	13,2	19,2
	$\bar{\delta}_{V0}$	Short term displacement under shear loads	[mm]	1,5 (+0,7)	1,9 (+1,2)	2,4 (+1,2)	3,3 (+1,2)
	$\bar{\delta}_{V\infty}$	Long term displacement under shear loads	[mm]	2,3 (+0,7)	2,9 (+1,2)	3,6 (+1,2)	4,9 (+1,2)
Characteristic tension resistance in non-cracked C20/25 to C50/60 under fire exposure							
R30 min	$N_{rk,s,fi,30}$	Tension load - fire duration = 30 min - steel failure	[kN]	0,2	0,4	0,9	1,7
	$N_{rk,p,fi,30}$	Tension load- fire duration = 30 min - pull-out failure	[kN]	1,3	2,3	3,0	4,0
	$N^0_{rk,c,fi,30}$	Tension load- fire duration = 30 min - concrete cone failure ⁵	[kN]	1,8	3,2	5,0	10,3
R60 min	$N_{rk,s,fi,60}$	Tension load - fire duration = 60 min -steel failure	[kN]	0,2	0,3	0,8	1,3
	$N_{rk,p,fi,60}$	Tension load - fire duration = 60 min - pull-out failure	[kN]	1,3	2,3	3,0	4,0
	$N^0_{rk,c,fi,60}$	Tension load - fire duration = 60 min - concrete cone failure ⁵	[kN]	1,8	3,2	5,0	10,3
R90 min	$N_{rk,s,fi,90}$	Tension load - fire duration = 90 min - steel failure	[kN]	0,1	0,3	0,6	1,1
	$N_{rk,p,fi,90}$	Tension load -fire duration = 90 min- pull-out failure	[kN]	1,3	2,3	3,0	4,0
	$N^0_{rk,c,fi,90}$	Tension load - fire duration = 90 min- concrete cone failure ⁵	[kN]	1,8	3,2	5,0	10,3
R120 min	$N_{rk,s,fi,120}$	Tension load - fire duration = 120 min - steel failure	[kN]	0,1	0,2	0,5	0,8
	$N_{rk,p,fi,120}$	Tension load - fire duration = 120 min -pull-out failure	[kN]	1,0	1,8	2,4	3,2
	$N^0_{rk,c,fi,120}$	Tension load- f ire duration = 120 min- concrete cone failure ⁵	[kN]	1,5	2,5	4,0	8,2
In absence of other national regulations the partial safety factor for resistance under fire exposure $\gamma_{M,fi} = 1,0$ is recommended.							

³ In absence of other national regulations⁴ The installation safety factor of $\gamma_2 = 1,0$ is included.⁵ Spacing $S_{cr,N} = 4x_{hef}$ and S_{min} = see table. Edge distance $C_{cr,N} = 2x_{hef}$. If fire attack from one side= $C_{min}=2x_{hef}$. If fire attack from more than one side $C_{min} \geq 300$ mm

Characteristic shear resistance in non-cracked C20/25 to C50/60 under fire exposure							
R30 min	$V_{rk,s,fi,30}$	Shear load without lever arm- fire duration = 30 min	[kN]	0,2	0,4	0,9	1,7
	$M^0_{rk,s,fi,30}$	Shear load with lever arm- fire duration = 30 min	[kN]	0,2	0,4	1,1	2,6
R60 min	$V_{rk,s,fi,60}$	Shear load without lever arm -fire duration = 60 min	[kN]	0,2	0,3	0,8	1,3
	$M^0_{rk,s,fi,60}$	Shear load with lever arm - fire duration = 60 min	[kN]	0,1	0,3	1,0	2,0
R90 min	$V_{rk,s,fi,90}$	Shear load without lever arm- fire duration = 90 min	[kN]	0,1	0,3	0,6	1,1
	$M^0_{rk,s,fi,90}$	Shear load with lever arm -fire duration = 90 min	[kN]	0,1	0,3	0,7	1,7
R120 min	$V_{rk,s,fi,120}$	Shear load without lever arm- fire duration = 120 min	[kN]	0,1	0,2	0,5	0,8
	$M^0_{rk,s,fi,120}$	Shear load with lever arm -fire duration = 120 min	[kN]	0,1	0,2	0,6	1,3
Concrete pryout failure							
	k	Factor in equation (5.6) of ETAG 001 Annex C, 5.2.3.3	[-]	1,0	2,0	2,0	2,0
R30 min	$V^0_{RK,cp,fi}$	Characteristic resistance	[kN]	1,8	6,4	10,0	20,6
R60 min				1,8	6,4	10,0	20,6
R90 min				1,8	6,4	10,0	20,6
R120 min				1,5	5,1	8,0	16,5
Concrete edge failure							
The initial value $V^0_{RK,c,fi}$ of the characteristic resistance in concrete C20/25 to C50/60 under fire exposure may be determined by: $V^0_{RK,c,fi} = 0,25 \times V^0_{RK,c}$ ($\leq R90$) $V^0_{RK,c,fi} = 0,20 \times V^0_{RK,c}$ (R120) with $V^0_{RK,c}$ initial value of the characteristic resistance in cracked concrete C20/25 under normal temperature.							
In absence of other national regulations the partial safety factor for resistance under fire exposure $\gamma_{M,fi} = 1,0$ is recommended.							

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 pgb-Europe nv. Signed for and behalf of the manufacturer by:

Place and date of issue	Signature
Melle, 18/08/2014	nv pgb-Europe sa Gontrode Heirweg 170 9090 MELLE BE 0425 888 396

Annex 1 : Product overview



4 shield expansion anchor "PFG"



4 shield expansion anchor "PFG"



CARTON BOX PACKING

size	pgb code	EAN13		
M 6x62	SM00K306060 Z	5902134717555	50	
M 6x77	SM00K306075 Z	5902134717562	50	
M 8x78	SM00K308075 Z	5902134717579	50	
M 8x88	SM00K308085 Z	5902134717586	50	
M 8x103	SM00K308100 Z	5902134717593	50	
M 8x143	SM00K308140 Z	5902134717609	25	
M 10x84	SM00K310080 Z	5902134717616	25	
M 10x94	SM00K310090 Z	5902134717623	25	
M 10x104	SM00K310100 Z	5902134717630	25	
M 10x114	SM00K310110 Z	5902134717647	25	
M 10x124	SM00K310120 Z	5902134717654	25	
M 10x144	SM00K310140 Z	5902134717661	25	
M 12x115	SM00K312110 Z	5902134717678	10	
M 12x125	SM00K312120 Z	5902134717685	10	
M 12x145	SM00K312140 Z	5902134717692	10	
M 12x160	SM00K312155 Z	5902134717708	10	

WINDOW BOX PACKING

size	pgb code	EAN13		
M 6x62	SM00KE06060 Z	5902134719122	25	
M 6x77	SM00KE06075 Z	5902134719139	25	
M 8x78	SM00KE08075 Z	5902134719146	25	
M 8x88	SM00KE08085 Z	5902134719153	25	
M 8x103	SM00KE08100 Z	5902134719160	25	
M 8x143	SM00KE08140 Z	5902134719177	15	
M 10x84	SM00KE10080 Z	5902134719184	15	
M 10x94	SM00KE10090 Z	5902134719191	15	
M 10x104	SM00KE10100 Z	5902134719207	15	
M 10x114	SM00KE10110 Z	5902134719214	15	
M 10x124	SM00KE10120 Z	5902134719221	15	
M 10x144	SM00KE10140 Z	5902134719238	15	
M 12x115	SM00KE12110 Z	5902134719245	5	
M 12x125	SM00KE12120 Z	5902134719252	5	
M 12x145	SM00KE12140 Z	5902134719269	5	
M 12x160	SM00KE12155 Z	5902134719276	5	