

SM0BS001



- *Unique identification code of the product-type:*
TURBO SMART concrete screw
- *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	
Generic type	Concrete screws "TURBO SMART"
Base material	Cracked and non-cracked concrete C20/25 to C50/60 acc. to EN 206-1:2003
Material:	Carbon steel, zinc plated or zinc flake coating : ISO 4042 A2K $\geq 5\mu\text{m}$ Stainless steel A4 (1.4401, 1.4404, 1.4571, 1.4578) Stainless steel HCR (1.4529)
Durability	• Internal dry conditions : all type of screws • Structural subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition no particular aggressive conditions exits: screw types made of stainless steel with marking A4, • Structural subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition if particular aggressive conditions exits: screw types made of stainless steel with marking HCR
Loading	static or quasi-static loads Seismic category C1
Fire Resistance	F120
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

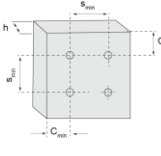
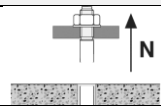
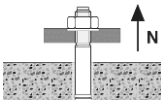
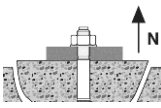
- *System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:*
System 1
- *In case of the declaration of performance concerning a construction product for which European Technical Assessment has been issued:*

ETA - 16/0308 issued by	DIBt - Deutsches Institut für Bautechnik
On the basis of	ETAG 001
Under System	1
And issued	1343-CPR-M 565-1/16.06

DECLARATION OF PERFORMANCE

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Declared performance – Essential characteristics – Performances

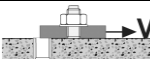
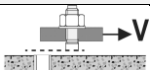
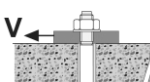
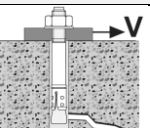
TURBO SMART				ANCHOR SIZE				6		8			10			12			14		
	h _{nom}	Nominal embedment depth	[mm]	1 40	2 55	1 45	2 55	3 65	1 55	2 75	3 85	1 65	2 85	3 100	1 75	2 100	3 115				
Installation parameters (ETAG001)																					
	d ₀	Nominal diameter of drill bit	[mm]	6		8			10			12			14						
	d _s	Thread diameter	[mm]	7,5		10,6			12,6			14,6			16,6						
	d _f	Fixture clearance hole diameter	[mm]	8		12			14			16			18						
	T _{inst}	Installation torque	[Nm]	10		20			40			60			80						
		Max. torque for impact screw driver	[Nm]	160		300			400			500			500						
	h ₁	Depth of drilled hole	[mm]	45	60	55	65	75	65	85	95	75	95	110	85	110	125				
	h _{min}	Min. thickness of concrete member	[mm]	100		100		120	100	130		120	130	150	130	150	170				
	S _{min}	Minimum spacing	[mm]	40		40	50		50			50		70	50		70				
C _{min}	Minimum edge distance	[mm]	40		40	50		50			50		70	50		70					
Tension load: steel failure																					
	N _{Rk,s}	Tension steel characteristic resistance	[kN]	14		27			45			67			94						
	γ _{Ms}	Partial safety factor ¹	[-]	1,4																	
Tension load: pull-out failure																					
	N _{Rk,p,cr}	Tension characteristic resistance in CRACKED concrete C20/25	[kN]	2	4	5	9	12	9	Pull-out failure is not decisive		12	Pull-out failure is not decisive		Pull-out failure is not decisive						
	N _{Rk,p,ucr}	Tension characteristic resistance in NON-CRACKED concrete C20/25	[kN]	4	9	7,5	12	16	12	20	25	16	Pull-out failure is not decisive		Pull-out failure is not decisive						
	γ _{Mp}	Partial safety factor ¹	[-]	1,5																	
	Ψ _C	Increasing factor C30/37	[-]	1,22																	
		Increasing factor C40/50	[-]	1,41																	
		Increasing factor C50/60	[-]	1,55																	
Tension load: concrete cone and splitting failure in concrete																					
	h _{ef}	Effective anchorage depth	[mm]	31	44	35	43	52	43	60	68	50	67	80	58	79	92				
	S _{cr,N}	Critical spacing	[mm]	3 x h _{ef}																	
	S _{cr,sp}	Critical spacing (splitting)	[mm]																		
	C _{cr,N}	Critical edge distance	[mm]	1,5 x h _{ef}																	
	C _{cr,sp}	Critical edge distance (splitting)	[mm]																		
	γ ₂	Installation safety factor ²	[-]	1,0																	
Tension load: displacements																					
CRACKED concrete	N _{cr}	Tension load	[kN]	0,95	1,9	2,4	4,3	5,7	4,3	7,9	9,6	5,7	9,4	12,3	7,6	12,0	15,1				
	δ _{N0}	Displacements under short term	[mm]	0,3	0,6	0,6	0,7	0,8	0,6	0,5	0,9	0,9	0,5	1,0	0,5	0,8	0,7				
	δ _{N∞}	Displacements under long term	[mm]	0,4	0,4	0,6	1,0	0,9	0,4	1,2	1,2	1,0	1,2	1,2	0,9	1,2	1,0				
UNCRAKED concrete	N _{ucr}	Tension load	[kN]	1,9	4,3	3,6	5,7	7,6	5,7	9,5	11,9	7,6	13,2	17,2	10,6	16,9	21,2				
	δ _{N0}	Displacements under short term	[mm]	0,4	0,6	0,7	0,9	0,5	0,7	1,1	1,0	1,0	1,1	1,2	0,9	1,2	0,8				
	δ _{N∞}	Displacements under long term	[mm]	0,4	0,4	0,6	1,0	0,9	0,4	1,2	1,2	1,0	1,2	1,2	0,9	1,2	1,0				

¹ In absence of other national regulations

² Parameter relevant only for design according to ETAG 001, Annex C

DECLARATION OF PERFORMANCE

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TURBO SMART			ANCHOR SIZE			6		8			10			12			14		
	h_{nom}	Nominal embedment depth	[mm]	$\frac{1}{40}$	$\frac{2}{55}$	$\frac{1}{45}$	$\frac{2}{55}$	$\frac{3}{65}$	$\frac{1}{55}$	$\frac{2}{75}$	$\frac{3}{85}$	$\frac{1}{65}$	$\frac{2}{85}$	$\frac{3}{100}$	$\frac{1}{75}$	$\frac{2}{100}$	$\frac{3}{115}$		
Shear load: steel failure without lever arm																			
	$V_{Rk,S}$	Characteristic resistance	[kN]	7		17			34			40			56				
	γ_{Ms}	Partial safety factor ¹	[-]	1,25															
Shear load: steel failure with lever arm																			
	$M_{Rk,S}^0$	Characteristic resistance	[Nm]	10		26			56			113			185				
	γ_{Ms}	Partial safety factor ¹	[-]	1,25															
Shear load: concrete pryout failure																			
	k	K-factor ²	[-]	1,0		1,0			1,0	2,0		1,0	2,0		1,0	2,0			
	γ_{Mpr}	Partial safety factor ¹	[-]	1,5															
Shear load: concrete edge failure																			
	l_f	Effective anchorage length	[mm]	31	44	35	43	52	43	60	68	50	67	80	58	79	92		
	d_{nom}	Outside anchor diameter	[mm]	6		8			10			12			14				
	γ_{Mc}	Partial safety factor ¹	[-]	1,5															
Shear load: displacements																			
CRACKED and UNCRACKED concrete	V_{cr}	Shear load	[kN]	3,3		8,6			16,2			20,0			30,5				
	δ_{N0}	Displacements under short term	[mm]	1,55		2,7			2,7			4,0			3,1				
	$\delta_{N\infty}$	Displacements under long term	[mm]	3,10		4,1			4,3			6,0			4,7				

Characteristic tension resistance in cracked and non-cracked concrete C20/25 to C50/60 under fire exposure



TURBO SMART		ANCHOR SIZE		6		8			10			12			14			
Nominal embedment depth h _{nom} [mm]				1	2	1	2	3	1	2	3	1	2	3	1	2	3	
				40	55	45	55	65	55	75	85	65	85	100	75	100	115	
Steel failure for tension and shear load (F _{Rk,fi} = N _{Rk,s,fi} = V _{Rk,fi})																		
Fire resistance class		Characteristic resistance																
R30		F _{Rk,fi 30}		[kN]	0,9		2,4			4,4			7,3			10,3		
R60		F _{Rk,fi 60}		[kN]	0,8		1,7			3,3			5,8			8,2		
R90		F _{Rk,fi 90}		[kN]	0,6		1,1			2,3			4,2			5,9		
R120		F _{Rk,fi 120}		[kN]	0,4		0,7			1,7			3,4			4,8		
Steel failure with lever arm																		
Fire resistance class		Characteristic resistance																
R30		M ⁰ _{Rk,s,fi 30}		[kN]	0,7		2,4			5,9			12,3			20,4		
R60		M ⁰ _{Rk,s,fi 60}		[kN]	0,6		1,8			4,5			9,7			15,9		
R90		M ⁰ _{Rk,s,fi 90}		[kN]	0,5		1,2			3,0			7,0			11,6		
R120		M ⁰ _{Rk,s,fi 120}		[kN]	0,3		0,9			2,3			5,7			9,4		
R 30 to R 120	Spacing		S _{cr,fi}	[mm]	4 x h _{ef}													
	Edge distance		C _{cr,fi}		2 x h _{ef}													

The characteristic resistance to fire exposure for pull-out failure, concrete cone failure, concrete pry-out failure and concrete edge failure shall be calculated according to TR 020 or CEN/TS 1992-4. If no value for $N_{Rk,p}$ is given, in the equation 2.4 and 2.5, TR 020 or in equation D.1 and D.2, CEN/TS 1992-4 the value of $N^0_{Rk,c}$ shall be inserted instead of $N_{Rk,p}$.

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Characteristic values for seismic category C1							
TURBO SMART		ANCHOR SIZE		8	10	12	14
Nominal embedment depth h_{nom} [mm]				65	85	100	115
Steel failure for tension and shear load							
$N_{Rk,s,seis}$	Characteristic load	[kN]	27,0	45,0	67,0	94,0	
$V_{Rk,s,seis}$		[kN]	8,5	15,3	21,0	22,4	
Pull-out failure							
$N_{Rk,p,seis}$	Characteristic tension load in cracked concrete C20/25		[kN]	12	Pull-out failure is not decisive		
Concrete cone failure							
h_{ef}	Effective anchorage depth		[mm]	52	68	80	92
$s_{cr,N}$	Critical spacing		[mm]	156	204	240	276
$c_{cr,N}$	Critical edge distance		[mm]	78	102	120	138
Y_2	Installation safety factor		[-]	1,0			
Concrete pryout failure							
k	k-factor		[-]	1,0	2,0		
Concrete edge failure							
$l_f = h_{ef}$	Effective anchor length		[mm]	52	68	80	92
d_{nom}	Outside anchor diameter		[mm]	8	10	12	14

- 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, 28/06/2016	nv pgb-Europe sa Gontrode Heirweg 170 9090 MELLE BE 0425 888 396 Johannes Heye, product manager 

Annex 1 : Product overview

SMBSZ: **CONCRETE SCREW “TURBO SMART” WITH HEXAGON HEAD AND PRESSED-ON WASHER**



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
*5x40	SMBSZ3050040RUS	5902134198330	100
*5x50	SMBSZ3050050RUS	5902134198347	100
*5x60	SMBSZ3050060RUS	5902134198354	100
6x40	SMBSZ3060040RUS	5902134198361	100
6x50	SMBSZ3060050RUS	5902134198378	100
6x60	SMBSZ3060060RUS	5902134198385	100
6x80	SMBSZ3060080RUS	5902134198392	100
6x100	SMBSZ3060100RUS	5902134198408	100
8x50	SMBSZ3080050RUS	5902134198415	50
8x60	SMBSZ3080060RUS	5902134198422	50
8x70	SMBSZ3080070RUS	5902134198439	50
8x80	SMBSZ3080080RUS	5902134198446	50
8x90	SMBSZ3080090RUS	5902134198453	50
8x100	SMBSZ3080100RUS	5902134198460	50
8x120	SMBSZ3080120RUS	5902134198477	50
8x140	SMBSZ3080140RUS	5902134198484	50
10x60	SMBSZ3100060RUS	5902134198491	50
10x70	SMBSZ3100070RUS	5902134198507	50
10x80	SMBSZ3100080RUS	5902134198514	50
10x90	SMBSZ3100090RUS	5902134198521	50

size	pgb code	EAN13	
10x100	SMBSZ3100100RUS	5902134198538	25
10x120	SMBSZ3100120RUS	5902134198545	25
10x140	SMBSZ3100140RUS	5902134198552	25
10x150	SMBSZ3100150RUS	5902134198569	25
10x160	SMBSZ3100160RUS	5902134198576	25
**10x180	SMBSZ3100180RUS	5902134198583	25
**10x200	SMBSZ3100200RUS	5902134198590	25
**10x240	SMBSZ3100240RUS	5902134198606	25
**10x280	SMBSZ3100280RUS	5902134198613	25
**10x320	SMBSZ3100320RUS	5902134198620	25
**10x360	SMBSZ3100360RUS	5902134198637	25
**10x400	SMBSZ3100400RUS	5902134198644	25
12x80	SMBSZ3120080RUS	5902134198651	25
12x110	SMBSZ3120110RUS	5902134198668	25
12x130	SMBSZ3120130RUS	5902134198675	25
12x150	SMBSZ3120150RUS	5902134198682	25
14x80	SMBSZ3140080RUS	5902134198699	25
14x110	SMBSZ3140110RUS	5902134198705	25
14x130	SMBSZ3140130RUS	5902134198712	20
14x150	SMBSZ3140150RUS	5902134198729	20



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
6x50	SMBSZ3060050A4	5902134198736	50
6x60	SMBSZ3060060A4	5902134198743	50
8x0	SMBSZ3080070A4	5902134198750	50
8x80	SMBSZ3080080A4	5902134198767	50
10x90	SMBSZ3100090A4	5902134198774	50
10x100	SMBSZ3100100A4	5902134198781	25
10x120	SMBSZ3100120A4	5902134198798	25

SMBSV:

CONCRETE SCREW "TURBO SMART" WITH COUNTERSUNK HEAD



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
*5x40	SMBSV3050040Z	5902134198804	100
*5x50	SMBSV3050050Z	5902134198811	100
*5x60	SMBSV3050060Z	5902134198828	100
6x40	SMBSV3060040Z	5902134198835	100
6x50	SMBSV3060050Z	5902134198842	100
6x60	SMBSV3060060Z	5902134198859	100
6x80	SMBSV3060080Z	5902134198866	100
6x100	SMBSV3060100Z	5902134198873	100
6x120	SMBSV3060120Z	5902134198880	100
6x140	SMBSV3060140Z	5902134198897	100
8x80	SMBSV3080080Z	5902134198903	50
10x90	SMBSV3100090Z	5902134198910	50



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
6x50	SMBSV3060050A4	5902134198927	100
6x65	SMBSV3060065A4	5902134198934	100
6x85	SMBSV3060085A4	5902134198941	100
6x105	SMBSV3060105A4	5902134198958	100
8x80	SMBSV3080080A4	5902134198965	50
10x90	SMBSV3100090A4	5902134198972	50

SMBSP:

CONCRETE SCREW "TURBO SMART" WITH PAN HEAD



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
5x40	SMBSP3050040Z	5902134198989	100
5x50	SMBSP3050050Z	5902134198996	100
5x60	SMBSP3050060Z	5902134199009	100
6x40	SMBSP3060040Z	5902134199016	100
6x50	SMBSP3060050Z	5902134199023	100
6x60	SMBSP3060060Z	5902134199030	100
6x8	SMBSP3060080Z	5902134199047	100
6x100	SMBSP3060100Z	5902134199054	100



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
6x50	SMBSP3060050A4	5902134199061	100
6x60	SMBSP3060060A4	5902134199078	100
6x80	SMBSP3060080A4	5902134199085	100
6x100	SMBSP3060100A4	5902134199092	100

SMBSF:

CONCRETE SCREW “TURBO SMART” WITH LARGE PAN HEAD FOR RAIL CONNECTIONS



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
6x40	SMBSF3060040Z	5902134199108	100
6x60	SMBSF3060060Z	5902134199115	100

SMBSI:

CONCRETE SCREW “TURBO SMART” WITH METRIC INTERNAL THREAD



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
6x35	SMBSI3060035Z	5902134199245	50
6x55	SMBSI3060055Z	5902134199252	50

SMBSS:

CONCRETE SCREW “TURBO SMART” WITH HEX DRIVE METRIC CONNECTION THREAD



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
8x105	SMBSS3080105Z	5902134199122	50
10x120	SMBSS3100120Z	5902134199139	50
10x165	SMBSS3100165Z	5902134199146	50
12x145	SMBSS3120145Z	5902134199153	25



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
8x105	SMBSS3080105A4	5902134199207	50
10x140	SMBSS3100140A4	5902134199214	50
10x160	SMBSS3100160A4	5902134199221	50
14x220	SMBSS3140220A4	5902134199238	25

SMBSB:

CONCRETE SCREW “TURBO SMART” WITH HEX HEAD WITH METRIC CONNECTION THREAD



Carton box packing - Kartonverpakking - Boîte carton

size	pgb code	EAN13	
6x35	SMBSB3060035Z	5902134199160	100
6x55	SMBSB3060055Z	5902134199177	100
6x75	SMBSB3060075Z	5902134199184	100
6x95	SMBSB3060095Z	5902134199191	100