



ETAG 001-5 Option 7 13 1020

ETAG 001-5 Option 1 14 1020

DECLARATION OF PERFORMANCE

Sika AnchorFix®-2 Arctic

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1. Product Type:

Unique identification code of the product-type:

Sika AnchorFix®-

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

2 Arctic

(batch nr. See cartridge)

3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:

Bonded injection type anchor made of steel elements for non-cracked concrete – steel threaded rods: sizes M8, M10, M12, M16, M20, M24, M27 and M30 or rebars sizes Ø8 to Ø32

Technical specification in reference: ETA-13/0719

Bonded injection type anchor made of steel elements – steel threaded rods: sizes M8, M10, M12, M16, M20, M24, M27 and M30 or rebars sizes Ø8 to Ø32 for use in cracked and non-cracked concrete
Technical specification in reference: ETA-14/0346

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required under Article 11(5):

Sika AnchorFix®

**Sika Services AG
Tueffenwies 16
CH-8048 Zuerich
Switzerland**

5. Contact Address:

Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2):

Not relevant (see 4)

6. AVCP:

System or systems of assessment and verification of constancy of performance of the construction product as set out in CPR, Annex V:

System 1

System 1

7. Notified body:

In case of the declaration of performance concerning a construction product covered by a harmonised standard:

Not relevant (see 8)

Declaration of Performance



8. Notified body:

In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:

Approval body 1020 issued an ETA 13/0719 on the basis of ETAG 001 Part 5, Option 7. Notified factory production control certification body No. 1020 performed the initial inspection of the manufacturing plant and of factory production control and the continuous surveillance, assessment and evaluation of factory production control, system 1, and issued the certificate of conformity of the factory production control (FPC) 1020-CPD-090-029805.

Approval body 1020 issued an ETA 14/0346 on the basis of ETAG 001 Part 5, Option 1. Notified factory production control certification body No. 1020 performed the initial inspection of the manufacturing plant and of factory production control and the continuous surveillance, assessment and evaluation of factory production control, system 1, and issued the certificate of conformity of the factory production control (FPC) 1020-CPR-090-032534.



9. Declared performance

Characteristic values of resistance to tension load of threaded rod

Steel failure – Characteristic resistance			M8	M10	M12	M16	M20	M24	M27	M30
Size										
Steel grade 4.6	$N_{Rk,s}$	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	γ_{Mc}	[-]	2							
Steel grade 5.8	$N_{Rk,s}$	[kN]	18	29	42	79	123	177	230	281
Partial safety factor	γ_{Mc}	[-]	1,5							
Steel grade 8.8	$N_{Rk,s}$	[kN]	29	46	67	128	198	282	367	449
Partial safety factor	γ_{Mc}	[-]	1,5							
Steel grade 10.9	$N_{Rk,s}$	[kN]	37	58	84	157	245	353	459	561
Partial safety factor	γ_{Mc}	[-]	1,4							
Stainless steel grade A4-70	$N_{Rk,s}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Mc}	[-]	1,9							
Stainless steel grade A4-80	$N_{Rk,s}$	[kN]	29	46	67	128	198	282	367	449
Partial safety factor	γ_{Mc}	[-]	1,6							
Stainless steel grade 1.4529	$N_{Rk,s}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Mc}	[-]	1,5							

Combined pullout and concrete cone failure in non-cracked concrete C20/25											
Size			M8	M10	M12	M16	M20	M24	M27	M30	
Characteristic bond resistance in non-cracked concrete											
Dry and wet concrete	τ_{Rk}	[N/mm ²]	11	10	9,5	9	8,5	8	6,5	6,5	
Partial safety factor	γ_{Mc}	[-]	1,8 ²⁾								2,1 ²⁾
Flooded hole	τ_{Rk}	[N/mm ²]	9	8	7,5	7	7	6			
Partial safety factor	γ_{Mc}	[-]	2,1 ²⁾								
Factor for concrete C50/60	ψ_c	[-]	1								

Combined pullout and concrete cone failure in cracked concrete C20/25							
Size			M10	M12	M16	M20	M24
Characteristic bond resistance in cracked concrete							
Dry and wet concrete	τ_{Rk}	[N/mm ²]	5	5	5	4,5	4,5
Partial safety factor	γ_{Mc}	[-]	1,8 ²⁾				
Flooded hole	τ_{Rk}	[N/mm ²]	5	5	5	4,5	4,5
Partial safety factor	γ_{Mc}	[-]	2,1 ³⁾				
Factor for cracked concrete	ψ_c	[-]					
C30/37			1,12				
C40/50			1,23				
C50/60			1,30				

Splitting failure										
Size			M8	M10	M12	M16	M20	M24	M27	M30
Edge distance	$c_{cr,sp}$	[mm]	1,5h _{ef}							
Spacing	$s_{cr,sp}$	[mm]	3,0h _{ef}							
Partial safety factor	$\gamma_{M,sp}$	[-]	1,8							

¹⁾ In absence of national regulations

²⁾ The partial safety factor $\gamma_c=1,2$ is included

³⁾ The partial safety factor $\gamma_c=1,4$ is included

Characteristic values of resistance to tension load of rebar

Steel failure – Characteristic resistance			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Size									
Rebar BSt 500 S	$N_{Rk,s}$	[kN]	28	43	62	111	173	270	442
Partial safety factor	γ_{Mc}	[-]	1,4						

Combined pullout and concrete cone failure in non-cracked concrete C20/25									
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Characteristic bond resistance in non-cracked concrete									
Dry and wet concrete	τ_{Rk}	[N/mm ²]	12	10	10	9	9	9	5,5
Partial safety factor	γ_{Mc}	[-]	1,8 ²⁾						
Flooded hole	τ_{Rk}	[N/mm ²]	12	10	10	9	9	9	5,5
Partial safety factor	γ_{Mc}	[-]	2,1 ²⁾						
Factor for concrete C50/60	ψ_c	[-]	1						

Splitting failure									
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Edge distance	$c_{cr,sp}$	[mm]	1,5h _{ef}						
Spacing	$s_{cr,sp}$	[mm]	3,0h _{ef}						
Partial safety factor	$\gamma_{M,sp}$	[-]	1,8						

¹⁾ In absence of national regulations

²⁾ The partial safety factor $\gamma_c=1,2$ is included

³⁾ The partial safety factor $\gamma_c=1,4$ is included

Characteristic values of resistance to shear load of threaded rod

Steel failure without lever arm			M8	M10	M12	M16	M20	M24	M27	M30
Size										
Steel grade 4.6	$V_{Rk,s}$ [kN]		7	12	17	31	49	71	92	112
Partial safety factor	γ_{M5} [-]		1,67							
Steel grade 5.8	$V_{Rk,s}$ [kN]		9	15	21	39	61	88	115	140
Partial safety factor	γ_{M5} [-]		1,25							
Steel grade 8.8	$V_{Rk,s}$ [kN]		15	23	34	63	98	141	184	224
Partial safety factor	γ_{M5} [-]		1,25							
Steel grade 10.9	$V_{Rk,s}$ [kN]		18	29	42	79	123	177	230	281
Partial safety factor	γ_{M5} [-]		1,5							
Stainless steel grade A4-70	$V_{Rk,s}$ [kN]		13	20	30	55	86	124	161	198
Partial safety factor	γ_{M5} [-]		1,56							
Stainless steel grade A4-80	$V_{Rk,s}$ [kN]		15	23	34	63	98	141	184	224
Partial safety factor	γ_{M5} [-]		1,33							
Stainless steel grade 1.4529	$V_{Rk,s}$ [kN]		13	20	30	55	86	124	161	198
Partial safety factor	γ_{M5} [-]		1,25							

Steel failure with lever arm			M8	M10	M12	M16	M20	M24	M27	M30
Size										
Steel grade 4.6	$M_{Rk,s}^p$ [N.m]		15	30	52	133	260	449	666	900
Partial safety factor	γ_{M5} [-]		1,67							
Steel grade 5.8	$M_{Rk,s}^p$ [N.m]		19	37	66	166	325	561	832	1125
Partial safety factor	γ_{M5} [-]		1,25							
Steel grade 8.8	$M_{Rk,s}^p$ [N.m]		30	60	106	266	519	898	1332	1799
Partial safety factor	γ_{M5} [-]		1,25							
Steel grade 10.9	$M_{Rk,s}^p$ [N.m]		37	75	131	333	649	1123	1664	2249
Partial safety factor	γ_{M5} [-]		1,50							
Stainless steel grade A4-70	$M_{Rk,s}^p$ [N.m]		26	52	92	233	454	786	1165	1574
Partial safety factor	γ_{M5} [-]		1,56							
Stainless steel grade A4-80	$M_{Rk,s}^p$ [N.m]		30	60	106	266	519	898	1332	1799
Partial safety factor	γ_{M5} [-]		1,33							
Stainless steel grade 1.4529	$M_{Rk,s}^p$ [N.m]		26	52	92	233	454	786	1165	1574
Partial safety factor	γ_{M5} [-]		1,25							
Concrete pryout failure										
Factor k from TR 029			2							
Design of bonded anchors, Part 5.2.3.3										
Partial safety factor	γ_{M5} [-]		1,5							

Concrete edge failure			M8	M10	M12	M16	M20	M24	M27	M30
Size										
See section 5.2.3.4 of Technical Report TR 029 for the Design of Bonded Anchors										
Partial safety factor	γ_{M5} [-]		1,5							

¹⁾ In absence of national regulations

Characteristic values of resistance to shear load of rebar

Steel failure without lever arm			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Size									
Rebar BSt 500 S	$V_{Rk,s}$ [kN]		14	22	31	55	86	135	221
Partial safety factor	γ_{M5} [-]		1,5						

Steel failure with lever arm			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Size									
Rebar BSt 500 S	$M_{Rk,s}^p$ [N.m]		33	65	112	265	518	1013	2122
Partial safety factor	γ_{M5} [-]		1,5						
Concrete pryout failure									
Factor k from TR 029			2						
Design of bonded anchors, Part 5.2.3.3									
Partial safety factor	γ_{M5} [-]		1,5						

Concrete edge failure			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Size									
See section 5.2.3.4 of Technical Report TR 029 for the Design of Bonded Anchors									
Partial safety factor	γ_{M5} [-]		1,5						

¹⁾ In absence of national regulations

Characteristic values of resistance to tension load of threaded rod

Steel failure – Characteristic resistance													
Size			M8	M10	M12	M16	M20	M24	M27	M30			
Steel grade 4.6	$N_{Rk,s}$	[kN]	15	23	34	63	98	141	184	224			
Partial safety factor	γ_{Mc}	[-]	2										
Steel grade 5.8	$N_{Rk,s}$	[kN]	18	29	42	79	123	177	230	281			
Partial safety factor	γ_{Mc}	[-]	1,5										
Steel grade 8.8	$N_{Rk,s}$	[kN]	29	46	67	126	196	282	367	449			
Partial safety factor	γ_{Mc}	[-]	1,5										
Steel grade 10.9	$N_{Rk,s}$	[kN]	37	58	84	157	245	353	459	561			
Partial safety factor	γ_{Mc}	[-]	1,4										
Stainless steel grade A4-70	$N_{Rk,s}$	[kN]	26	41	59	110	172	247	321	393			
Partial safety factor	γ_{Mc}	[-]	1,9										
Stainless steel grade A4-80	$N_{Rk,s}$	[kN]	29	46	67	126	196	282	367	449			
Partial safety factor	γ_{Mc}	[-]	1,6										
Stainless steel grade 1.4529	$N_{Rk,s}$	[kN]	26	41	59	110	172	247	321	393			
Partial safety factor	γ_{Mc}	[-]	1,5										
Combined pullout and concrete cone failure in non-cracked concrete C20/25													
Size			M8	M10	M12	M16	M20	M24	M27	M30			
Characteristic bond resistance in non-cracked concrete													
Dry and wet concrete	τ_{bh}	[N/mm ²]	11	10	9,5	9	9,5	8	8,5	5,5			
Partial safety factor	γ_{Mc}	[-]	1,8 ²⁾										
Flooded hole	τ_{bh}	[N/mm ²]	9	8	7,5	7	7	6	2,1 ³⁾				
Partial safety factor	γ_{Mc}	[-]	2,1 ³⁾										
Factor for concrete C50/60	ψ_c	[-]	1										
Factor according to CEN/TS 1992-4-5 Section 6.2.2	k_b		10,1										
Combined pullout and concrete cone failure in cracked concrete C20/25													
Size			M10	M12	M16	M20	M24						
Characteristic bond resistance in cracked concrete													
Dry and wet concrete	τ_{bh}	[N/mm ²]	5	5	5	5	4,5	4,5					
Partial safety factor	γ_{Mc}	[-]	1,8 ²⁾										
Flooded hole	τ_{bh}	[N/mm ²]	5	5	5	5	4,5	4,5					
Partial safety factor	γ_{Mc}	[-]	2,1 ³⁾										
Factor for cracked concrete C30/37	ψ_c	[-]	1,12										
Factor for cracked concrete C40/50			1,23										
Factor for cracked concrete C50/60			1,30										
Factor according to CEN/TS 1992-4-5 Section 6.2.2	k_b		7,2										
Concrete cone failure													
Size			M8	M10	M12	M16	M20	M24	M27	M30			
Factor according to CEN/TS 1992-4-5 Section 6.2.3	$k_{1,2}$		10,1										
	$k_{2,2}$		7,2										
Edge distance	$c_{ef,N}$	[mm]	1,5h _{ef}										
Spacing	$s_{ef,N}$	[mm]	3,0h _{ef}										
Splitting failure													
Edge distance	$c_{1,sp}$	[mm]	1,5h _{ef}										
Spacing	$s_{1,sp}$	[mm]	3,0h _{ef}										
Partial safety factor	γ_{Msd}	[-]	1,9										

¹⁾ In absence of national regulations

²⁾ The partial safety factor $\gamma_c=1,2$ is included

³⁾ The partial safety factor $\gamma_c=1,4$ is included

Characteristic values of resistance to tension load of rebar

Steel failure – Characteristic resistance			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Size									
Rebar BSt 500 S	$N_{Reb, s}$	[kN]	28	43	62	111	173	270	442
Partial safety factor	γ_{Ms}	[-]	1,4						

Combined pullout and concrete cone failure in non-cracked concrete C20/25									
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Characteristic bond resistance in non-cracked concrete									
Dry and wet concrete	τ_{Rk}	[N/mm ²]	12	10	10	9	9	9	5,5
Partial safety factor	$\gamma_{Mc}^{1)}$	[-]	1,8 ²⁾						
Flooded hole	τ_{Rk}	[N/mm ²]	12	10	10	9	9	9	5,5
Partial safety factor	$\gamma_{Mc}^{1)}$	[-]	2,1 ³⁾						
Factor for concrete C50/60	ψ_s	[-]	1						
Factor according to CEN/TS 1992-4-5 Section 6.2.2	k_s		10,1						

Concrete cone failure									
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Factor according to CEN/TS 1992-4-5 Section 6.2.3	k_{uot}		10,1						
Edge distance	$c_{ot, N}$	[mm]	1,5h _{ef}						
Spacing	$s_{ot, N}$	[mm]	3,0h _{ef}						
Splitting failure									
Edge distance	$c_{ot, sep}$	[mm]	1,5h _{ef}						
Spacing	$s_{ot, sep}$	[mm]	3,0h _{ef}						
Partial safety factor	$\gamma_{Mtd}^{1)}$	[-]	1,8						

¹⁾ In absence of national regulations

²⁾ The partial safety factor $\gamma_s=1,2$ is included

³⁾ The partial safety factor $\gamma_s=1,4$ is included

Characteristic values of resistance to shear load of threaded rod

Steel failure without lever arm				M8	M10	M12	M16	M20	M24	M27	M30
Size											
Steel grade 4.6	$V_{Rk,s}$	[kN]		7	12	17	31	49	71	92	112
Partial safety factor	γ_{Ms}	[-]					1,67				
Steel grade 5.8	$V_{Rk,s}$	[kN]		9	15	21	39	61	88	115	140
Partial safety factor	γ_{Ms}	[-]					1,25				
Steel grade 8.8	$V_{Rk,s}$	[kN]		15	23	34	63	98	141	184	224
Partial safety factor	γ_{Ms}	[-]					1,25				
Steel grade 10.9	$V_{Rk,s}$	[kN]		18	29	42	79	123	177	230	281
Partial safety factor	γ_{Ms}	[-]					1,5				
Stainless steel grade A4-70	$V_{Rk,s}$	[kN]		13	20	30	55	86	124	161	196
Partial safety factor	γ_{Ms}	[-]					1,56				
Stainless steel grade A4-80	$V_{Rk,s}$	[kN]		15	23	34	63	98	141	184	224
Partial safety factor	γ_{Ms}	[-]					1,33				
Stainless steel grade 1.4529	$V_{Rk,s}$	[kN]		13	20	30	55	86	124	161	196
Partial safety factor	γ_{Ms}	[-]					1,25				
Ductility factor according to CENTS 1992-4-5 Section 6.3.2.1	k_2						0,8				
Steel failure with lever arm				M8	M10	M12	M16	M20	M24	M27	M30
Size											
Steel grade 4.6	$M_{Rk,s}^d$	[N.m]		15	30	52	133	280	449	686	900
Partial safety factor	γ_{Ms}	[-]					1,67				
Steel grade 5.8	$M_{Rk,s}^d$	[N.m]		19	37	66	168	325	561	832	1125
Partial safety factor	γ_{Ms}	[-]					1,25				
Steel grade 8.8	$M_{Rk,s}^d$	[N.m]		30	60	105	266	519	898	1332	1799
Partial safety factor	γ_{Ms}	[-]					1,25				
Steel grade 10.9	$M_{Rk,s}^d$	[N.m]		37	75	131	333	649	1123	1664	2249
Partial safety factor	γ_{Ms}	[-]					1,50				
Stainless steel grade A4-70	$M_{Rk,s}^d$	[N.m]		26	52	92	233	454	786	1165	1574
Partial safety factor	γ_{Ms}	[-]					1,56				
Stainless steel grade A4-80	$M_{Rk,s}^d$	[N.m]		30	60	105	266	519	898	1332	1799
Partial safety factor	γ_{Ms}	[-]					1,33				
Stainless steel grade 1.4529	$M_{Rk,s}^d$	[N.m]		26	52	92	233	454	786	1165	1574
Partial safety factor	γ_{Ms}	[-]					1,25				
Concrete pryout failure											
Factor according to CENTS 1992-4-5 Section 6.3.3	k_3						2,0				
Partial safety factor	γ_{M2}	[-]					1,5				
Concrete edge failure											
Size				M8	M10	M12	M16	M20	M24	M27	M30
See section 6.3.4 of CENTS 1992-4-5											
Effective length of anchor	l_e	[mm]		$l_e = \min(h_{ef}; 8 d_{nom})$							
Outside diameter of anchor	d_{nom}	[mm]		8	10	12	16	20	24	27	30
Partial safety factor	γ_{M2}	[-]					1,5				

¹⁾ In absence of national regulations

Characteristic values of resistance to shear load of rebar

Steel failure without lever arm				Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Size										
Rebar BSt 500 S	$V_{Rk,s}$	[kN]		14	22	31	55	86	135	221
Partial safety factor	γ_{Ms}	[-]					1,5			
Ductility factor according to CENTS 1992-4-5 Section 6.3.2.1	k_2						0,8			
Steel failure with lever arm				Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Size										
Rebar BSt 500 S	$M_{Rk,s}^d$	[N.m]		33	65	112	265	518	1013	2122
Partial safety factor	γ_{Ms}	[-]					1,5			
Concrete pryout failure										
Factor according to CENTS 1992-4-5 Section 6.3.3	k_3						2,0			
Partial safety factor	γ_{M2}	[-]					1,5			
Concrete edge failure										
Size				Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
See section 6.3.4 of CENTS 1992-4-5										
Effective length of anchor	l_e	[mm]		$l_e = \min(h_{ef}; 8 d_{nom})$						
Outside diameter of anchor	d_{nom}	[mm]		8	10	12	16	20	24	30
Partial safety factor	γ_{M2}	[-]					1,5			

¹⁾ In absence of national regulations

According to ETAG 001 Part 5, Option 1&7

10. Declaration

The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:



Marco Poltera
Corporate Product Engineer



Miroslav Tesic
Global Material Group Manager

Zuerich, 21 January 2015

Ecology, Health and Safety Information (REACH)

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety related data.

Legal note:

This information is given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

For Further Information:
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