Refurbishment
Declaration of Performance
Edition 01.2015
Identification No. 02 02 05 01 002 0 000004
Version no. 1



ETAG 001-5 Option 7

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1020

ETAG 001-5 Option 1

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DECLARATION OF PERFORMANCE Sika AnchorFix®-2 Arctic

02 02 05 01 002 0 000004 5034408

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)



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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 re	sistance									
Size			MB	M10	M12	M16	M20	M24	M27	M30
Steel grade 4.6	Naka.	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	(le	[-]					2			
Steel grade 5.8	Nets	[kN]	18	29	42	79	123	177	230	281
Partial safety factor	The Thin	[-]				Ü	5			
Steel grade 8.8	Naka	[kN]	29	46	87	128	196	282	367	449
Partial safety factor	Yes	[-]				1	,5			
Steel grade 10.9	Nets	[kN]	37	58	84	157	245	353	459	561
Partial safety factor	Tree	[-]				. 1	4			
Stainless steel grade A4-70	Naks	[kN]	28	41	59	110	172	247	321	393
Partial safety factor	(1)E	[-]				4	.9			
Stainless steel grade A4-80	Nexa	[kN]	29	46	67	128	196	282	367	449
Partial safety factor	Yes	[-]				1	6			
Stainless steel grade 1.4529	Naks	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	YAS	[-]				t	,5			

Combined pullout and concre	te cone faile	ure in non-	crack	ed co	ncrete	C20/	25			
Size			MB	M10	M12	M16	M20	M24	M27	M30
Characteristic bond resistance	e in non-cra	cked conc	rete							2.0
Dry and wet concrete	TRA	[N/mm ²]	1 \$	10	9.5	9	8,5	8	6,5	5,5
Partial safety factor	YMC	[-]			1,	827			2,	2)
Flooded hole	TRI	[N/mm ²]	9	8	7,5	7	7	6		
Partial safety factor	Ykk	[-]				2,	21			
Factor for concrete C50/60	Ψε	[-]					i			

Size				M 10	M12	M16	M20	M24
Characteristic bond resist:	ance in c	racked	concrete					
Dry and wet concrete		TRE	[N/mm ²]	5	5	5	4,5	4,5
Partial safety factor		YMC	[-]			1,82)		
Flooded hole		TRA	[N/mm*]	5	5	5	4,5	4,5
Partial safety factor		YM:	[-]			2,131		
Factor for cracked concrete	C30/37 C40/50 C50/60	Ψε	[-]			1,12 1,23 1,30		

Splitting failure Size											
Size			M8	M10	M12	M16	M20	M24	M27	M30	
Edge distance	C _{cr,sp}	[mm]				1,5	her		-		
Spacing	Scr.on	[mm]	3,0her								
Partial safety factor	(Na	[-]				1	.8				

Characteristic values of resistance to tension load of rebar

Steel failure – Characterist	ic resistance								
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar BSt 500 S	NRx,s	[kN]	28	43	62	111	173	270	442
Partial safety factor	YME	[-]				1,4			

Combined pullout and concret	e cone faill	ure in non-	Cracke	a conc					,
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Characteristic bond resistance	in non-cra	cked conc	rete	4					
Dry and wet concrete	Rax	[N/mm ²]	12	10	10	ð	9	9	5,5
Partial safety factor	YALC	[-]				1,820			
Flooded hole	TRE	[N/mm]	12	10	10	9	9	9	5,5
Partial safety factor	YMc 17	[-]				2,120			
Factor for concrete C50/60	Ψς	[-]				1			

Splitting failure				2				5	
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Edge distance	Corso	[mm]		11		1,5her			
Spacing	5 _{cr.so}	[mm]				3,0h _{ef}			
Partial safety factor	YMsp	[-]				1.8			

¹⁾ In absence of national regulations

In absence of national regulations
The partial safety factor γ_2 =1,2 is included
The partial safety factor γ_2 =1,4 is included

²⁾ The partial safety factor $\gamma_1 = 1, 2$ is included

³⁾ The partial safety factor y₁=1,4 is included

Characteristic values of resistance to shear load of threaded rod

Steel failure without lever arm										
Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel grade 4.6	V _{Rx,s}	[kN]	7	12	17	31	49	71	92	112
Partial safety factor	YAR	[-]				. 1,	67			
Steel grade 5.8	V _{RX.s}	[kN]	9	15	21	39	61	88	115	140
Partial safety factor	Yke	[-]				. 1,:	25			
Steel grade 8.8	Vetra	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	YAR	[-]				1,	25			
Steel grade 10.9	V _{Ex.s}	[kN]	18	29	42	79	123	177	230	281
Partial safety factor	Yes	[-]				1	5		7	
Stainless steel grade A4-70	Vexa	[kN]	13	20	30	55	86	124	161	198
Partial safety factor	yke "	[-]				1,	56			
Stainless steel grade A4-80	Vess	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	YME 13	[-]				1,	33			
Stainless steel grade 1.4529	Vaxa	[kN]	13	20	30	55	86	124	161	198
Partial safety factor	YKE	[-]				1,3	25			

Steel failure with lever arm										
Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel grade 4.6	Messa	[N.m]	15	30	52	133	260	449	666	900
Partial safety factor	YES	[-]				₹.	67	27 0		
Steel grade 5.8	M°sk,s	[N.m]	19	37	66	166	325	561	832	1125
Partial safety factor	YME	[-]				1.	25			
Steel grade 8.8	Mana	[N.m]	30	60	105	266	519	898	1332	1799
Partial safety factor	Yes	[-]			87 - V	t.	25	8 3		
Steel grade 10.9	Maks	[N.m]	37	75	131	333	649	1123	1664	2249
Partial safety factor	YMs	[-]				1,	50	v		
Stainless steel grade A4-70	Man	[N.m]	26	52	92	233	454	786	1185	1574
Partial safety factor	Yes	[-]			44	1,	56			
Stainless steel grade A4-80	M°sks	[N.m]	30	60	105	266	519	898	1332	1799
Partial safety factor	YES	[-]_				t,	33			
Stainless steel grade 1.4529	MORKS	[N.m]	26	52	92	233	454	786	1105	1574
Partial safety factor	Yes	[-]			,	1,	25			
Concrete pryout failure										
Factor & from TR 829							,			
Design of bonded anchors, Part 5.2.3.3							2			
Partial safety factor	'(Mo	[-]				1.	5			

Concrete edge failure										
Size			М8	M10	M12	M16	M20	M24	M27	M30
See section 5.2.3.4 of Technical Re	port TR 029	e for t	he De	sign of	Bond	ed And	chors			
Partial safety factor	Year 12	[-]				1	.5			

¹⁾ In absence of national regulations

Characteristic values of resistance to shear load of rebar

Steel failure without lever arm									
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar BSt 500 S	Vaxe	[kN]	14	22	31	55	86	135	221
Partial safety factor	Ykt	[-]				1,5			

Steel failure with lever arm									
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar 8St 500 S	M ² Fig. 2	[N.m]	33	65	112	265	518	1013	2122
Partial safety factor	YME	[-]				1,5			
Concrete pryout failure									
Factor k from TR 029						_			
Design of bonded anchors, Par	t 5.2.3.3					- 2			
Partial safety factor	7200	I-1				1,5			

Concrete edge failure									= =
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
See section 5.2.3.4 of Technica	Report TR 029	for th	ne Des	ign of E	onded	Anchor	5		
Partial safety factor	YME	[-]				1,5			

¹⁾ In absence of national regulations

Characteristic values of resistance to tension load of threaded rod

Steel failure – Characteristic re	sistance		ė.							
Size	2		M8	M10	M12	M16	M20	M24	M27	M30
Steel grade 4.6	NREE	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	254	[-]					2			
Steel grade 5.8	NRA	[kN]	18	29	42	79	123	177	23/0	281
Partial safety factor	YMa	[-]				1	5			
Steel grade 8.8	Nexa	[kN]	29	46	67	126	196	282	367	449
Partial safety factor	Yista	[-]		-		1	5			
Steel grade 10.9	Nexa	[kN]	37	58	84	£57	245	353	459	561
Partial safety factor	You	[-]				1	4			
Stainless steel grade A4-70	Nicka	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	YAM	[-]				1	9			
Stainless steel grade A4-80	Nicka	[kN]	29	46	67	126	196	282	367	449
Partial safety factor	NAME	[-]	1,6							
Stainless steel grade 1.4529	Nexa	[kN]	28	41	59	110	172	247	321	393
Partial safety factor	Yesta	[-]				1.	5			

Combined pullout and concret Size				M10	M12	M16	M20	M24	M27	M30
Characteristic bond resistance	in non-cra	cked conc	rete	•	0					
Dry and wet concrete	Lek	[N/mm ²]	11	10	9.5	· · · · · ·	8.5	-8	6.5	5.5
Partial safety factor	Ywe	[-]			1.	8"			2,	3
Flooded hole	Trea	[N/mm*]	Э	8	7.5	7	. 7	6		
Partial safety factor	Year	[-]				2,	11			
Factor for concrete C50/60	Ψ.	[-]								
Factor according to CEN/TS 1992	4-5 Section	6.2.2 ks				įΩ	,1			

Size				M10	M12	M16	M20	M24
Characteristic bond resist:	ance in c	racked	concrete					
Dry and wet concrete		Tree	[N/mm*]	5	5	5	4,5	4,5
Partial safety factor		Yad:	[-]			1,821		
Flooded hole		Tops	[N/mm*]	5	5	5	4.5	4,5
Partial safety factor		Pine 1)	[-]			2,1		
Factor for cracked concrete	C30/37 C40/50 C50/60	Ψμ	[-]			1,12 1,23 1,30		
Factor according to CEN/TS 1		ection	6.2.2 k.			7,2		

Concrete cone failure										
Size			MB	M10	M12	M16	M20	M24	M27	M30
Factor according to CEN/TS	1002-4-5 Section 6	23 ku				10	1,1	***		
	1002-TO DECUDITO	k _e				7	.2			
Edge distance	Ctr.N	[mm]				1,5	her			
Spacing	S _{tr,N}	[mm]				3,0)h _{ef}			
Splitting failure	(10) (2000 to	12111112					- 50			
Edge distance	Cyran	[mm]				1,5	h _{et}			
Spacing	Supp	[mm]					h _{ef}			
Partial safety factor	YMac	[-]				1	8			

Characteristic values of resistance to tension load of rebar

Steel failure - Characteristic re	esistance								
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar BSt 500 S	Nesa	[kN]	2B	43	62	111	173	270	442
Partial safety factor	YMa 1)	FI				1,4			
Combined pullout and concret	te cone failu	re in non-	crack	ed con	crete C	20/25			
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Characteristic bond resistance	in non-cra	cked cond	rete						4.1
Dry and wet concrete	Tak	[N/mm ²]	12	10	10	9	9	9	5,5
Partial safety factor	Yate	[-]				1,821			
Flooded hole	Tak	[N/mm ²]	12	10	10	9	9	9	5,5
Partial safety factor	YME	[-]		***		2,131		•	
Factor for concrete C50/60	Ψε	[-]				1			
Factor according to CEN/TS 1992-	4-5 Section 6	3.2.2 k ₈				10,1			
Concrete cone failure	Ø 0								
Size	5. S.		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Factor according to CEN/TS 1992-	4-5 Section 6	3.2.3 kur				10,1	•	•	
Edge distance	Contra	fmml				1.5hu			

Concrete cone failure	W 3				_				
Size	85 8		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Factor according to CENTS 1	992-4-5 Section 6	3.2.3 kur				10,1	•	•	
Edge distance	CorN	[mm]				1,5h _w			
Spacing	Son	[mm]				3,0h			
Splitting failure									
Edge distance	Coras	[mm]				1,5h _w			
Spacing	Section	[mm]				3,0h			
Partial safety factor	YMap	[-]				1,8			

Characteristic values of resistance to shear load of threaded rod

Steel failure without lever arm					0 _					
Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel grade 4.6	Viace	[kN]	7	12	17	31	49	71	92	112
Partial safety factor	YMs	[-]				1,	67			
Steel grade 5.8	Vilka	[kN]	9	15	21	39	61	88	115	140
Partial safety factor	Ywa	[-]		rain.		1,	25			
Steel grade 8.8	Vaka	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	Yes	[-]				1,	25			
Steel grade 10.9	Vaka	[kN]	18	29	42	79	123	177	230	281
Partial safety factor	Ywa	[-]		-	-	. 1	5			
Stainless steel grade A4-70	Vita	[kN]	13	20	30	55	86	124	161	196
Partial safety factor	TMs	[-]				. 1,	56			
Stainless steel grade A4-80	Vaka	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	Ywa	[-]				. 1,	33			
Stainless steel grade 1.4529	Vak	[kN]	13	20	30	55	88	124	161	196
Partial safety factor	YME	[-1				1,	25			
Ductility factor according to CEN/TS 1992-4-5 Section 6.3.2.1		k ₂				0	, В			
Steel failure with lever arm	-			2		5 1 2				
Size			MB	M10	M12	M16	M20	M24	M27	M30
Steel grade 4.6	Make	[N_m]	15	30	52	133	260	449	666	900
Partial safety factor	Yana	[-]				1.	37			

Size			MB	M10	M12	M16	M20	M24	M27	M30
Steel grade 4.6	Make	[N_m]	15	30	52	133	260	449	686	900
Partial safety factor	Yana	[-]				1	37			
Steel grade 5,8	Make	[N.m]	19	37	66	160	325	561	832	1125
Partial safety factor	YME	[-]				1,	25			
Steel grade 8.8	Make	[N.m]	30	60	105	266	519	898	1332	1799
Partial safety factor	Note: 10	[-]				ħ.	25			
Steel grade 10.9		[N-m]	37	75	131	333	649	1123	1664	2249
Partial safety factor	Year	[-]			(7	1.	50			0
Stainless steel grade A4-70	ME	[N.m]	26	52	92	233	454	796	1165	1574
Partial safety factor	You.	[-]				Ď,	56			
Stainless steel grade A4-80	Make	[M.m]	30	60	105	288	519	898	1332	1799
Partial safety factor	Pints.	[-]				t.;	33			
Stainless steel grade 1.4529	Make	[N_m]	26	52	92	233	454	786	1165	1574
Partial safety factor	No.	[-]				1,	25			
Concrete pryout failure										
Factor according to CEN/TS 1992-4-5 Section 6.3.3		k _a				2,	0			
Partial safety factor	YMD	T-1				1	5			

Concrete edge failure										
Size			M8	M10	M12	M16	M20	M24	M27	M30
See section 6.3.4 of CEN/TS 1992-4-5										
Effective length of anchor	lı.	[mm]			Ja =	min(l	L. B d.	um l		
Outside diameter of anchor	d	[mm]	8	10	12	16	20	24	27	30
Partial safety factor	(Mc	[-]				1	.5			
In absence of national regulations										

In absence of national regulations

Characteristic values of resistance to shear load of rebar

Steel failure without lever arm							V		
Size			28	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar BSt 500 S	Was a	IkiNI	14	22	31	55	86	135	221
Partial safety factor	Yes	E]				1,5	•		
Ductility factor according to CEN/TS 1992-4-5 Section 6.3.2.1		k ₂				8,0			
Steel failure with lever arm									
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar BSt 500 S	Make	[N.m]	33	65	112	265	518	1013	2122
Partial safety factor	Yaka	[-]		*	•	1,5			
Concrete pryout failure									
Factor according to CEN/TS 1992-4-5 Section 6.3.3		k _s				2,0			
Partial safety factor	YMA	[-]				1,5			
Concrete edge failure									
Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
See section 6.3.4 of CEN/TS 1992-4-	5								
Effective length of anchor	l _i	[mm]			$l_i = m$	in(h _{er} ;8	d _{som})		,
Outside diameter of anchor	d	[mm]	8	10	12	16	20	24	30
Partial safety factor	TMC	[-]	1,5						
1) In absence of national regulations		1							

1) In absence of national regulations

According to ETAG 001 Part 5, Option 1&7

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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: Sika Services AG Tueffenwies 16 CH-8048 Zuerich Switzerland

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