

Sika AnchorFix®-1

DECLARATION OF PERFORMANCE

No. 97239786

1	UNIQUE IDENTIFICATION CODE OF THE PRODUCT- TYPE:	97239786
2	INTENDED USE/S	ETA-13/0720 of 18/05/2018 Bonded injection type anchor for use in uncracked concrete
3	MANUFACTURER:	Sika Services AG Tüffenwies 16-22 8064 Zürich
4	AUTHORISED REPRESENTATIVE:	
5	SYSTEM/S OF AVCP:	System 1
6b	EUROPEAN ASSESSMENT DOCUMENT:	EAD 330499-00-0601
	European Technical Assessment:	ETA-13/0720 of 18/05/2018
	Technical Assessment Body:	TECHNICKY A ZKUSEBNI USTAV STAVEBNI PRAHA s.p.
	Notified body/ies:	1020

Declaration of Performance

Sika AnchorFix®-1
97239786
2018.05 , ver. 1
1138

7 DECLARED PERFORMANCE/S

Table B1: Installation parameter

Size		M8	M10	M12	M16	M20	M24
Nominal drill hole diameter	$\varnothing d_0$ [mm]	10	12	14	18	22	26
Diameter of cleaning brush	d_b [mm]	14	14	20	20	29	29
Torque moment	$\max T_{fix}$ [Nm]	10	20	40	80	150	200
Depth of drill hole for $h_{ef,min}$	$h_0 = h_{ef}$ [mm]	64	80	96	128	160	192
Depth of drill hole for $h_{ef,max}$	$h_0 = h_{ef}$ [mm]	96	120	144	192	240	288
Minimum edge distance	c_{min} [mm]	35	40	50	65	80	96
Minimum spacing	s_{min} [mm]	35	40	50	65	80	96
Minimum thickness of member	h_{min} [mm]	$h_{ef} + 30 \text{ mm} \geq 100 \text{ mm}$				$h_{ef} + 2d_0$	

Table B2: Cleaning

All diameters
- 2 x blowing
- 2 x brushing
- 2 x blowing
- 2 x brushing
- 2 x blowing

Table B3: Minimum curing time Sika AnchorFix-1

Resin cartridge temperature [°C]	T Work [mins]	Base material Temperature [°C]	T Load [mins]
min +5	18	min +5	145
+5 to +10	10	+5 to +10	
+10 to +20	6	+10 to +20	85
+20 to +25	5	+20 to +25	50
+25 to +30	4	+25 to +30	40
+30		+30	35

T work is typical gel time at highest temperature

T load is set at the lowest temperature

Declaration of Performance

Sika AnchorFix®-1

97239786

2018.05 , ver. 1

1138

Table C1: Design method EN 1992-4
Characteristic values of resistance to tension load

Steel failure – Characteristic resistance								
Size			M8	M10	M12	M16	M20	M24
Steel grade 5.8	N _{Rk,s}	[kN]	18	29	42	79	123	177
Partial safety factor	γ _{Ms}	[-]	1,5					
Steel grade 8.8	N _{Rk,s}	[kN]	29	46	67	126	196	282
Partial safety factor	γ _{Ms}	[-]	1,5					
Steel grade 10.9	N _{Rk,s}	[kN]	37	58	84	157	245	353
Partial safety factor	γ _{Ms}	[-]	1,4					
Stainless steel grade A2-70, A4-70	N _{Rk,s}	[kN]	26	41	59	110	172	247
Partial safety factor	γ _{Ms}	[-]	1,9					
Stainless steel grade A4-80	N _{Rk,s}	[kN]	29	46	67	126	196	282
Partial safety factor	γ _{Ms}	[-]	1,6					
Stainless steel grade 1.4529	N _{Rk,s}	[kN]	26	41	59	110	172	247
Partial safety factor	γ _{Ms}	[-]	1,5					
Stainless steel grade 1.4565	N _{Rk,s}	[kN]	26	41	59	110	172	247
Partial safety factor	γ _{Ms}	[-]	1,9					

Combined pullout and concrete cone failure in uncracked concrete C20/25									
Size			M8	M10	M12	M16	M20	M24	
Characteristic bond resistance in non-cracked concrete									
Dry/wet concrete and flooded hole		$\tau_{Rk,ucr}$	[N/mm ²]	9	8	9	9,5	8,5	8
Installation safety factor		$\gamma_2^{(1)}=\gamma_{inst}^{(2)}$	[-]	1,2					
Factor for concrete	C30/37	ψ_c	[-]	1,12					
	C35/45			1,19					
	C50/60			1,30					

Concrete cone failure			
Factor for concrete cone failure	$k_1^{1)}$	[-]	10,1
	$k_{ucr,N}^{2)}$		11
Edge distance	$c_{cr,N}$	[mm]	1,5h _{ef}

Splitting failure								
Size			M8	M10	M12	M16	M20	M24
Edge distance	$c_{cr,sp}$	[mm]	2,0h _{ef}			1,5h _{ef}		
Spacing	$s_{cr,sp}$	[mm]	4,0h _{ef}			3,0h _{ef}		
Partial safety factor	$\gamma_{Msp}^{1)}$	[-]	1,8					

1) Design according EOTA Technical Report TR 055

2) Design according EN 1992-4:2016

Declaration of Performance

Sika AnchorFix®-1

97239786

2018.05 , ver. 1

1138

Table C2: Design method EN 1992-4
Characteristic values of resistance to shear load

Steel failure without lever arm								
Size			M8	M10	M12	M16	M20	M24
Steel grade 5.8	$V_{Rk,s}$	[kN]	9	15	21	39	61	88
Partial safety factor	γ_{Ms}	[-]	1,25					
Steel grade 8.8	$V_{Rk,s}$	[kN]	15	23	34	63	98	141
Partial safety factor	γ_{Ms}	[-]	1,25					
Steel grade 10.9	$V_{Rk,s}$	[kN]	18	29	42	79	123	177
Partial safety factor	γ_{Ms}	[-]	1,5					
Stainless steel grade A2-70, A4-70	$V_{Rk,s}$	[kN]	13	20	30	55	86	124
Partial safety factor	γ_{Ms}	[-]	1,56					
Stainless steel grade A4-80	$V_{Rk,s}$	[kN]	15	23	34	63	98	141
Partial safety factor	γ_{Ms}	[-]	1,33					
Stainless steel grade 1.4529	$V_{Rk,s}$	[kN]	13	20	30	55	86	124
Partial safety factor	γ_{Ms}	[-]	1,25					
Stainless steel grade 1.4565	$N_{Rk,s}$	[kN]	13	20	30	55	86	124
Partial safety factor	γ_{Ms}	[-]	1,56					
Characteristic resistance of group of fasteners								
Ductility factor $k_7 = 1,0$ for steel with rupture elongation $A_5 > 8\%$								

Steel failure with lever arm								
Size			M8	M10	M12	M16	M20	M24
Steel grade 5.8	M° _{Rk,s}	[N.m]	19	37	66	166	325	561
Partial safety factor	γ _{Ms}	[-]	1,25					
Steel grade 8.8	M° _{Rk,s}	[N.m]	30	60	105	266	519	898
Partial safety factor	γ _{Ms}	[-]	1,25					
Steel grade 10.9	M° _{Rk,s}	[N.m]	37	75	131	333	649	1123
Partial safety factor	γ _{Ms}	[-]	1,50					
Stainless steel grade A2-70, A4-70	M° _{Rk,s}	[N.m]	26	52	92	233	454	786
Partial safety factor	γ _{Ms}	[-]	1,56					
Stainless steel grade A4-80	M° _{Rk,s}	[N.m]	30	60	105	266	519	898
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Stainless steel grade 1.4565	M° _{Rk,s}	[N.m]	26	52	92	233	454	786
Partial safety factor	γ _{Ms}	[-]	1,56					
Concrete pry-out failure								
Factor for resistance to pry-out failure	k _g	[-]	2					

Concrete edge failure								
Size			M8	M10	M12	M16	M20	M24
Outside diameter of fastener	d_{nom}	[mm]	8	10	12	16	20	24
Effective length of fastener	ℓ_f	[mm]	min (h_{ef} , 8 d_{nom})					

Declaration of Performance

Sika AnchorFix®-1
97239786
2018.05 , ver. 1
1138

Table C3: Displacement under tension and shear load

Anchor size			M8	M10	M12	M16	M20	M24
Tension load	F	[kN]	6,3	7,9	11,9	23,8	29,8	45,6
Displacement	δ_{N0}	[mm]	0,2	0,2	0,3	0,5	0,7	0,9
	$\delta_{N\infty}$	[mm]	0,4	0,4	0,4	0,4	0,4	0,4
Shear load	F	[kN]	5,2	8,3	12,0	22,4	35,0	50,4
Displacement	δ_{V0}	[mm]	0,1	0,1	0,2	0,4	0,8	1,5
	$\delta_{V\infty}$	[mm]	0,2	0,2	0,3	0,6	1,2	2,3

8 APPROPRIATE TECHNICAL DOCUMENTATION AND/OR - SPECIFIC TECHNICAL DOCUMENTATION

The performance of the product identified above is in conformity with the set of declared performance/s. 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:

Jamie Squires
Function: Product Engineer
At Sika Limited on 01.05.2018



Name : Martin Liska
Function: R&D Manager
At Sika Limited on 01.05.2018



End of information as required by Regulation (EU) No 305/2011

RELATED DECLARATION OF PERFORMANCE

Product Name	Harmonised technical specification	DoP Number
Sika AnchorFix®-1 Injection anchors for or use in masonry	ETA-17/0179	38701859
Sika AnchorFix®-1 galvanized or stainless steel bonded anchor	ETA-13/0720 of 12/06/2013	68816162

Declaration of Performance

Sika AnchorFix®-1
97239786
2018.05 , ver. 1
1138

FULL CE MARKING



13

Sika Services AG, Zurich, Switzerland

DoP No. 97239786

EAD 330499-00-0601

Notified Body 1020

Bonded injection type anchor for use in uncracked concrete

Table B1: Installation parameter

Size			M8	M10	M12	M16	M20	M24
Nominal drill hole diameter	$\varnothing d_0$	[mm]	10	12	14	18	22	26
Diameter of cleaning brush	d_b	[mm]	14	14	20	20	29	29
Torque moment	$\max T_{fix}$	[Nm]	10	20	40	80	150	200
Depth of drill hole for $h_{ef,min}$	$h_0 = h_{ef}$	[mm]	64	80	96	128	160	192
Depth of drill hole for $h_{ef,max}$	$h_0 = h_{ef}$	[mm]	96	120	144	192	240	288
Minimum edge distance	c_{min}	[mm]	35	40	50	65	80	96
Minimum spacing	s_{min}	[mm]	35	40	50	65	80	96
Minimum thickness of member	h_{min}	[mm]	$h_{ef} + 30 \text{ mm} \geq 100 \text{ mm}$				$h_{ef} + 2d_0$	

Table B2: Cleaning

All diameters
- 2 x blowing
- 2 x brushing
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Resin cartridge temperature [°C]	T Work [mins]	Base material Temperature [°C]	T Load [mins]
min +5	18	min +5	145
+5 to +10	10	+5 to +10	
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Installation safety factor		$\gamma_2^{(1)}=\gamma_{inst}^{(2)}$	[-]	1,2					
Factor for concrete	C30/37	ψ_c	[-]	1,12					
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Concrete cone failure			
Factor for concrete cone failure	$k_1^{(1)}$	[-]	10,1
	$k_{ucr,N}^{(2)}$		11
Edge distance	$c_{cr,N}$	[mm]	1,5h _{ef}

Splitting failure								
Size			M8	M10	M12	M16	M20	M24
Edge distance	$c_{cr,sp}$	[mm]	2,0h _{ef}			1,5h _{ef}		
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Declaration of Performance

Sika AnchorFix®-1
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1138

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Ductility factor $k_7 = 1,0$ for steel with rupture elongation $A_5 > 8\%$								

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Concrete pry-out failure								
Factor for resistance to pry-out failure	k_g	[-]	2					

Concrete edge failure								
Size			M8	M10	M12	M16	M20	M24
Outside diameter of fastener	d_{nom}	[mm]	8	10	12	16	20	24
Effective length of fastener	ℓ_f	[mm]	$\min(h_{ef}, 8 d_{nom})$					

Declaration of Performance

Sika AnchorFix®-1
97239786
2018.05 , ver. 1
1138

Table C3: Displacement under tension and shear load

Anchor size			M8	M10	M12	M16	M20	M24
Tension load	F	[kN]	6,3	7,9	11,9	23,8	29,8	45,6
Displacement	δ_{N0}	[mm]	0,2	0,2	0,3	0,5	0,7	0,9
	$\delta_{N\infty}$	[mm]	0,4	0,4	0,4	0,4	0,4	0,4
Shear load	F	[kN]	5,2	8,3	12,0	22,4	35,0	50,4
Displacement	δ_{V0}	[mm]	0,1	0,1	0,2	0,4	0,8	1,5
	$\delta_{V\infty}$	[mm]	0,2	0,2	0,3	0,6	1,2	2,3

<http://dop.sika.com>



13

Sika Services AG, Zurich, Switzerland

DoP No. 97239786

EAD 330499-00-0601

Notified Body 1020

Bonded injection type anchor for use in uncracked concrete

For details see accompanying documents

<http://dop.sika.com>

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

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are 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 Sikas 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 products 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.

Declaration of Performance

Sika AnchorFix®-1
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2018.05 , ver. 1
1138

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Declaration of Performance
Sika AnchorFix®-1
97239786
2018.05 , ver. 1
1138

10/10

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