

# Sika AnchorFix<sup>®</sup>-1

## DECLARATION OF PERFORMANCE

### No. 97239786

1	<b>UNIQUE IDENTIFICATION CODE OF THE PRODUCT-TYPE:</b>	97239786
2	<b>INTENDED USE/S</b>	ETA-13/0720 of 18/05/2018 Bonded injection type anchor for use in uncracked concrete
3	<b>MANUFACTURER:</b>	Sika Services AG Tüffenwies 16-22 8064 Zürich
4	<b>AUTHORISED REPRESENTATIVE:</b>	
5	<b>SYSTEM/S OF AVCP:</b>	System 1
6b	<b>EUROPEAN ASSESSMENT DOCUMENT:</b>	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

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**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	$maxT_{fix}$	[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

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**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 <b>5.8</b>	$N_{Rk,s}$	[kN]	18	29	42	79	123	177
Partial safety factor	$\gamma_{Ms}$	[-]	1,5					
Steel grade <b>8.8</b>	$N_{Rk,s}$	[kN]	29	46	67	126	196	282
Partial safety factor	$\gamma_{Ms}$	[-]	1,5					
Steel grade <b>10.9</b>	$N_{Rk,s}$	[kN]	37	58	84	157	245	353
Partial safety factor	$\gamma_{Ms}$	[-]	1,4					
Stainless steel grade <b>A2-70, A4-70</b>	$N_{Rk,s}$	[kN]	26	41	59	110	172	247
Partial safety factor	$\gamma_{Ms}$	[-]	1,9					
Stainless steel grade <b>A4-80</b>	$N_{Rk,s}$	[kN]	29	46	67	126	196	282
Partial safety factor	$\gamma_{Ms}$	[-]	1,6					
Stainless steel grade <b>1.4529</b>	$N_{Rk,s}$	[kN]	26	41	59	110	172	247
Partial safety factor	$\gamma_{Ms}$	[-]	1,5					
Stainless steel grade <b>1.4565</b>	$N_{Rk,s}$	[kN]	26	41	59	110	172	247
Partial safety factor	$\gamma_{Ms}$	[-]	1,9					

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

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

- 1) Design according EOTA Technical Report TR 055  
2) Design according EN 1992-4:2016

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

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

<b>Steel failure with lever arm</b>								
Size			<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M16</b>	<b>M20</b>	<b>M24</b>
Steel grade <b>5.8</b>	$M^o_{RK,S}$	[N.m]	19	37	66	166	325	561
Partial safety factor	$\gamma_{Ms}$	[-]	1,25					
Steel grade <b>8.8</b>	$M^o_{RK,S}$	[N.m]	30	60	105	266	519	898
Partial safety factor	$\gamma_{Ms}$	[-]	1,25					
Steel grade <b>10.9</b>	$M^o_{RK,S}$	[N.m]	37	75	131	333	649	1123
Partial safety factor	$\gamma_{Ms}$	[-]	1,50					
Stainless steel grade <b>A2-70, A4-70</b>	$M^o_{RK,S}$	[N.m]	26	52	92	233	454	786
Partial safety factor	$\gamma_{Ms}$	[-]	1,56					
Stainless steel grade <b>A4-80</b>	$M^o_{RK,S}$	[N.m]	30	60	105	266	519	898
Partial safety factor	$\gamma_{Ms}$	[-]	1,33					
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Stainless steel grade <b>1.4565</b>	$M^o_{RK,S}$	[N.m]	26	52	92	233	454	786
Partial safety factor	$\gamma_{Ms}$	[-]	1,56					
<b>Concrete pry-out failure</b>								
Factor for resistance to pry-out failure $k_8$		[-]	2					

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

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**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	$\delta_{N0}$	[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	$\delta_{V0}$	[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

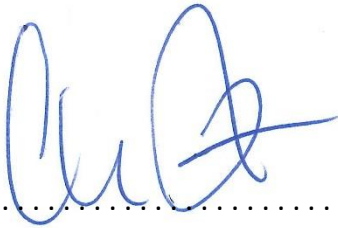
**8 APPROPRIATE TECHNICAL DOCUMENTATION AND/OR - SPECIFIC TECHNICAL DOCUMENTATION**

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:

Name : Anders Beier  
 Function: General Manager  
 At Farum on 29 November 2019

Name : Lasse Jakobsen  
 Function: Senior Technical Manager  
 At Farum on 29 November 2019




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

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**FULL CE MARKING**



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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
- 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

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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 <sup>2</sup> ]	9	8	9	9,5	8,5	8
Installation safety factor	$\gamma_z^{1)} = \gamma_{inst}^{2)}$	[-]	1,2					
	C30/37		1,12					
Factor for concrete	C35/45	$\psi_c$	1,19					
	C50/60		1,30					

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

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

- 1) Design according EOTA Technical Report TR 055  
2) Design according EN 1992-4:2016

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

<b>Steel failure without lever arm</b>							
<b>Size</b>		<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M16</b>	<b>M20</b>	<b>M24</b>
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Partial safety factor	$\gamma_{Ms}$ [-]	1,56					
<b>Characteristic resistance of group of fasteners</b>							
Ductility factor $k_7 = 1,0$ for steel with rupture elongation $A_5 > 8\%$							

<b>Steel failure with lever arm</b>							
<b>Size</b>		<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M16</b>	<b>M20</b>	<b>M24</b>
Steel grade <b>5.8</b>	$M^o_{Rk,s}$ [N.m]	19	37	66	166	325	561
Partial safety factor	$\gamma_{Ms}$ [-]	1,25					
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Stainless steel grade <b>1.4565</b>	$M^o_{Rk,s}$ [N.m]	26	52	92	233	454	786
Partial safety factor	$\gamma_{Ms}$ [-]	1,56					
<b>Concrete pry-out failure</b>							
Factor for resistance to pry-out failure	$k_8$ [-]	2					

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

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**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	$\delta_{N0}$	[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	$\delta_{V0}$	[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>

## CE MARKING TO BE PLACED ON THE LABEL



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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

Any information or suggestions for use concerning Sika's products, which we either in writing or orally have given buyers or endusers of the product have been given in good faith based on our own experiences and based of approved praxis and the technological and scientific knowledge on the time of giving such suggestions and information, which are given without any type of guarantees, and which do not lead to any further responsibility from Sika Danmark A/S, besides what is stated in the sales agreement in question. The buyer or end-user should themselves investigate or otherwise make sure that our products are suitable for the use in question and further make sure that the products are kept and used correct and in agreement with the published rules and considering the actual conditions in order to avoid damages or less satisfactory results. Any order is accepted and any deliverance is affected according to the general terms of sales and delivery from Sika Danmark A/S, which are considered known and accepted, and which could be handed out when asked for. Our catalogues are not up-dated automatically. The present product data sheet is only for use in Denmark. Values stated in the present product data sheet should be seen as recommended, unless stated otherwise.

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