BUILDING TRUST

Sika AnchorFix®-2020

DECLARATION OF PERFORMANCE
No. 44890326

1	**UNIQUE IDENTIFICATION CODE OF THE PRODUCT-TYPE:**	44890326
2	**INTENDED USE/S**	Post installed rebar connections with Sika AnchorFix®-2020, Sika AnchorFix®-2020 Arctic, Sika AnchorFix®- 2020 Tropical injection mortar
3	**MANUFACTURER:**	Sika Services AG Tüffenwies 16 8064 Zürich Switzerland
5	**SYSTEM/S OF AVCP:**	System 1
6b	**EUROPEAN ASSESSMENT DOCUMENT:**	EAD 330087-01-0601:2020 Systems for post-installed rebar connections with mortar
	European Technical Assessment:	ETA 22/0892 of 09/01/2023
	Technical Assessment Body:	TECHNICKY A ZKUSEBNI USTAV STAVEBNI PRAHA s.p.
	Notified body/ies:	1020

7 DECLARED PERFORMANCE/S

Essential Characteristics	Performance	AVCP	Harmonised Technical Specification
Bond strength of post-installed rebar	See Annex C 1	System 1	EAD 330087-01-0601:2020
Reduction factor	See Annex C 1	System 1	
Amplification factor for minimum anchorage length	See Annex C 1	System 1	
Reaction to fire	Class (A1) according to EN 13501-1	System 1	
Resistance to fire	See Annex C 2	System 1	
General aspects relating to fitness for use	Durability and serviceability are only ensured if the specifications of intended use according to Annex B 1 are kept.	System 1	

Annex B1

Specifications of intended use

Anchorages subject to:

- Static and quasi-static load.

Base materials

- Reinforced or unreinforced normal weight concrete according to EN 206:2013
- Strength classes C12/15 to C50/60 according to EN 206:2013.
- Maximum chloride concrete of 0,40% (CL 0.40) related to the cement content according to EN 206:2013.
- Non-carbonated concrete.

Note: In case of a carbonated surface of the existing concrete structure the carbonated layer shall be removed in the area of the post installed rebar connection (with a diameter d_s + 60 mm) prior to the installation of the new rebar. The depth of concrete to be removed shall correspond to at least minimum concrete cover in accordance with EN 1992-1-1.
The foregoing may be neglected if building components are new and not carbonated.

Temperature range:

- -40°C to +80°C (max. short. term temperature +80°C and max. long term temp. +50°C)

Use conditions (Environmental conditions)

- The rebars may be used in dry or wet concrete.

Design:

- The anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the forces to be transmitted.
- Design according to EN 1992-1-1 and EN 1992-1-2.
- The position of the reinforcement in the existing structure shall be determined on the basis of the construction documentation and taken into account when designing.

Installation:

- Dry or wet concrete.
- It must not be installed in flooded holes.
- Hole drilling by hammer drill or compressed air drill mode.
- The installation of post-installed rebars shall be done only by suitable trained installer and under supervision on site. The conditions under which an installer may be considered as suitable trained and the conditions for supervision on site are up to the Member States in which the installation is done.
- Check the position of the existing rebars (if the position is not known, it shall be determined using a rebar detector suitable for this purpose)

Annex C1
Design bond strength of post-installed rebar $f_{bd,PIR}$ and $f_{bd,PIR,100y}$ for working life 50 and 100 years

$f_{bd,PIR} = k_b \bullet f_{bd}$

k_b = reduction factor

f_{bd} = design bond strength of cast-in rebar according to EN 1992-1-1

Table C1: Values of the design bond strength of post installed rebar $f_{bd,PIR} = f_{bd,PIR,100y}$ with reduction factor $k_b = k_{b,100y}$ for all drilling methods for good bond conditions

Rebar Ø 8 to Ø 16									
Concrete class	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
k_b [-]	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$f_{bd,PI}$ [N/mm^2]	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
Rebar Ø 20									
Concrete class	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
k_b [-]	1,0	1,0	1,0	1,0	1,0	1,0	1,0	0,92	0,86
$f_{bd,PI}$ [N/mm^2]	1,6	2,0	2,3	2,7	3,0	3,4	3,7		
Rebar Ø 24 to Ø 26									
Concrete class	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
k_b [-]	1,0	1,0	1,0	1,0	1,0	0,90	0,82	0,76	0,71
$f_{bd,PI}$ [N/mm^2]	1,6	2,0	2,3	2,7	3,0				
Rebar Ø 28									
Concrete class	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
k_b [-]	1,0	1,0	1,0	1,0	0,88	0,8	0,73	0,67	0,63
$f_{bd,PI}$ [N/mm^2]	1,6	2,0	2,3	2,7					
Rebar Ø 32									
Concrete class	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
k_b [-]	1,0	1,0	1,0	0,86	0,76	0,69	0,63	0,58	0,54
$f_{bd,PI}$ [N/mm^2]	1,6	2,0	2,3						

Tabulated values are valid for good bond conditions according to EN 1992-1-1. For all other bond conditions multiply the values by 0,7.

Table C2: Amplification factor for minimum anchorage length

Rebar	Amplification factor	Concrete class								
		C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
Ø 8	$\alpha_{lb} = \alpha_{lb,100y}$	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Ø 10		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Ø 12		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Ø 14		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Ø 16		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Ø 20		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Ø 24		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Ø 25		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Ø 26		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Ø 28		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,1
Ø 32		1,0	1,0	1,0	1,0	1,0	1,1	1,2	1,3	1,4

Annex C2

Design values of the bond strength $f_{bk,fi}$ and $f_{bk,fi,100y}$ under fire exposure for working life 50 and 100 years

The design value of the bond strength $f_{bk,fi} = f_{bk,fi,100y}$ under fire exposure has to be calculated according the following equation:

$$f_{bk,fi}(\theta) = f_{bk,fi,100y}(\theta) = k_{fi}(\theta) \cdot f_{bd,PIR} \cdot \frac{\gamma_c}{\gamma_{M,fi}}$$

if: $20°C \le \theta \le 68°C$ $\quad k_{fi}(\theta) = 1$

$> 68°C \le \theta \le 325°C$ $\quad k_{fi}(\theta) = 75000 \cdot \theta^{-2,117} / (f_{bd,PIR} \cdot 4,3) \le 1$

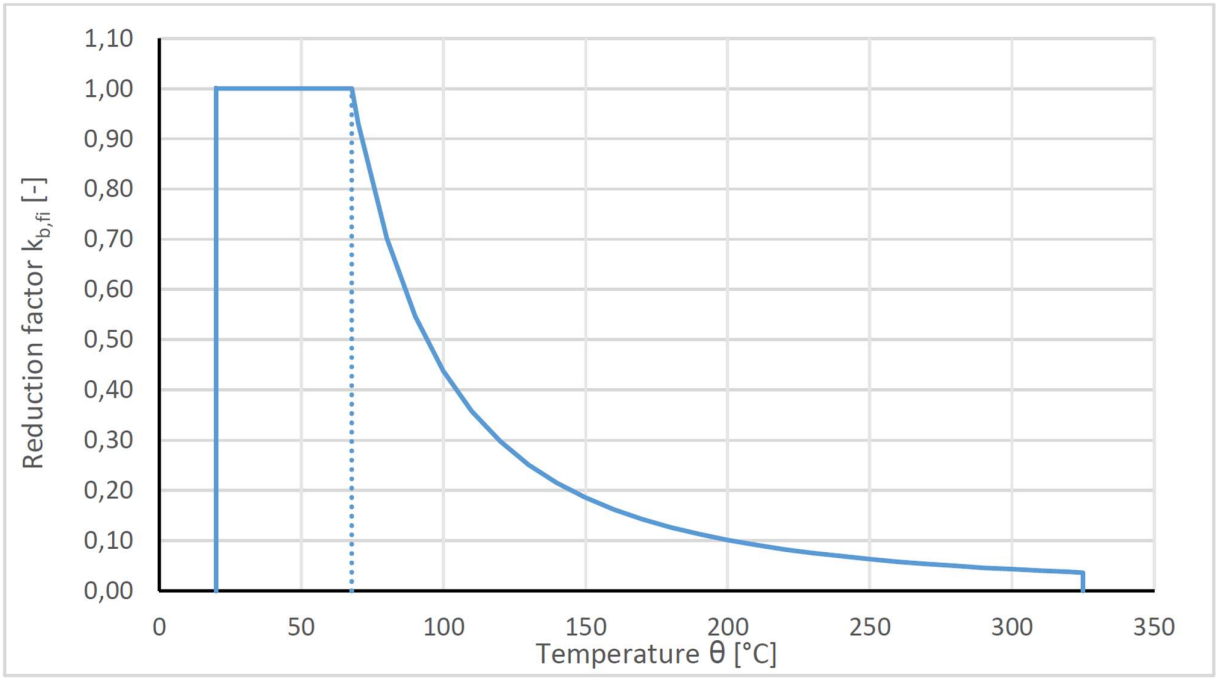
$\theta > 325°C$ $\quad k_{fi}(\theta) = 0$

with:

k_{fi}	temperature reduction factor
(θ)	temperature in °C
$f_{bd,PIR}$	design value of the bond strength in N/mm^2 according to Table C1 considering the concrete class, the rebar diameter and the bond conditions according to EN 1992-1-1
γ_c	partial safety factor according to EN 1992-1-1
$\gamma_{M,fi}$	partial safety factor according to EN 1992-1-1

The anchorage length shall be determined in accordance with EN 1992-1-1 equation (8.3) using the bond strength $f_{bk,fi}(\theta)$.

Figure C1: Example of the graph of reduction factor $k_{fi}(\theta)$ for concrete strength class C20/25 for good bond conditions



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 : Tomek Gutowski
Function: Corporate TM Manager
At Warsaw on 15 February 2023

. . . . . .

Name : Maciej Pietrus
Function: Standardization and Approvals
At Cracow on 15 February 2023

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

FUL CE MARKING

CE

23

Sika Services AG, Zurich, Switzerland

DoP No. 44890326

Bond strength of post-installed rebar	See Annex C 1
Reduction factor	See Annex C 1
Amplification factor for minimum anchorage length	See Annex C 1
Reaction to fire	Class (A1) according to EN 13501-1
Resistance to fire	See Annex C 2
General aspects relating to fitness for use	Durability and serviceability are only ensured if the specifications of intended use according to Annex B 1 are kept.

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$f_{bd,PIR} = k_b \bullet f_{bd}$

k_b = reduction factor

f_{bd} = design bond strength of cast-in rebar according to EN 1992-1-1

Table C1: Values of the design bond strength of post installed rebar $f_{bd,PIR} = f_{bd,PIR,100y}$ with reduction factor $k_b = k_{b,100y}$ for all drilling methods for good bond conditions

Rebar Ø 8 to Ø 16									
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k_b [-]	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$f_{bd,PI}$ [N/mm^2]	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
Rebar Ø 20									
Concrete class	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
k_b [-]	1,0	1,0	1,0	1,0	1,0	1,0	1,0	0,92	0,86
$f_{bd,PI}$ [N/mm^2]	1,6	2,0	2,3	2,7	3,0	3,4	3,7		
Rebar Ø 24 to Ø 26									
Concrete class	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
k_b [-]	1,0	1,0	1,0	1,0	1,0	0,90	0,82	0,76	0,71
$f_{bd,PI}$ [N/mm^2]	1,6	2,0	2,3	2,7	3,0				
Rebar Ø 28									
Concrete class	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
k_b [-]	1,0	1,0	1,0	1,0	0,88	0,8	0,73	0,67	0,63
$f_{bd,PI}$ [N/mm^2]	1,6	2,0	2,3	2,7					
Rebar Ø 32									
Concrete class	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
k_b [-]	1,0	1,0	1,0	0,86	0,76	0,69	0,63	0,58	0,54
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Ø 26		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
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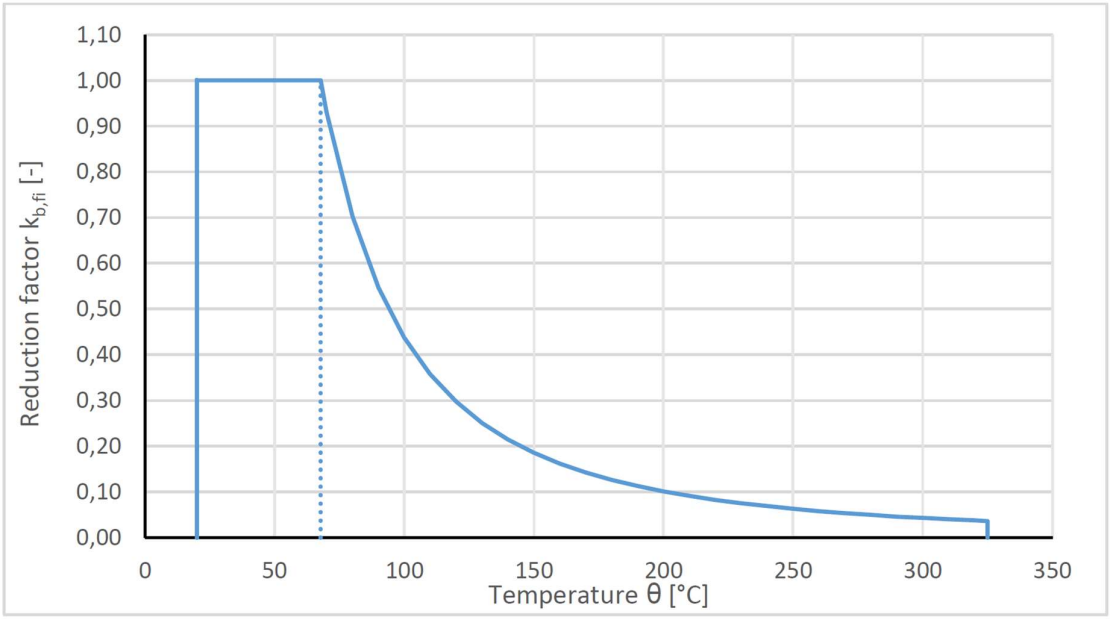
	θ > 325°C	$k_{fi}(\theta) = 0$

with:

k_{fi}	temperature reduction factor
(θ)	temperature in °C
$f_{bd,PIR}$	design value of the bond strength in N/mm^2 according to Table C1 considering the concrete class, the rebar diameter and the bond conditions according to EN 1992-1-1
γ_c	partial safety factor according to EN 1992-1-1
$\gamma_{M,fi}$	partial safety factor according to EN 1992-1-1

The anchorage length shall be determined in accordance with EN 1992-1-1 equation (8.3) using the bond strength $f_{bk,fi}(\theta)$.

Figure C1: Example of the graph of reduction factor $k_{fi}(\theta)$ for concrete strength class C20/25 for good bond conditions



EAD 330087-01-0601:2020
Notified Body 1020
Post installed rebar connections with Sika AnchorFix®-2020, Sika AnchorFix®-2020 Arctic, Sika AnchorFix®-2020 Tropical injection mortar

http://dop.sika.com

CE marking to be placed on the label

CE 23
Sika Services AG, Zurich, Switzerland
DoP No. 44890326
Reacton to Fire A1. For details see accompanying documents
EAD 330087-01-0601:2020
Notified Body 1020
Post installed rebar connections with Sika AnchorFix®-2020, Sika AnchorFix®-2020 Arctic, Sika AnchorFix®-2020 Tropical injection mortar

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

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