

Sika AnchorFix[®]-2020

DICHIARAZIONE DI PRESTAZIONE

No. 44890326

1	CODICE DI IDENTIFICAZIONE UNICO DEL PRODOTTO-TIPO:	44890326
2	USI PREVISTI	Connessioni con barre di armatura post-installate
3	FABBRICANTE:	Sika Services AG Tüffenwies 16 8064 Zürich Switzerland
4	MANDATARIO:	
5	SISTEMI DI VVCP:	System 1
6b	DOCUMENTO DI VALUTAZIONE EUROPEA:	EAD 330087-01-0601:2020 Sistemi per connessioni con barre di armatura post-installate con malta
	Valutazione Tecnica europea:	ETA 22/0892 del 09/01/2023
	Organismi di valutazione tecnica:	TECHNICKY A ZKUSEBNI USTAV STAVEBNI PRAHA s.p.
	Organismi notificati:	1020

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7 PRESTAZIONI DICHIARATE

Caratteristiche Essenziali	Prestazioni	AVCP	Norma tecnica Armonizzata
Resistenza di adesione di barre di armatura post-installate	Annesso C 1	System 1	
Fattore di riduzione	Annesso C 1	System 1	
Fattore di amplificazione per minima lunghezza di ancoraggio	Annesso C 1	System 1	
Reazione al fuoco	Classe (A1) secondo la EN 13501-1	System 1	EAD 330087-01-0601:2020
Resistenza al fuoco	Annesso C 2	System 1	
Aspetti generali relativi all' idoneità d'uso	Durabilità e funzionamento in servizio sono assicurati solo se soddisfatti gli usi previsti da norma in accordo all Annesso B 1.	System 1	

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Annex B1

Specifications of intended use

Anchorage 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 $+80^{\circ}\text{C}$ (max. short. term temperature $+80^{\circ}\text{C}$ and max. long term temp. $+50^{\circ}\text{C}$)

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)

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Annex C1

Design bond strength of post-installed rebar fbd,PIR and fbd,PIR,100y for working life 50 and 100 years

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

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 $\varnothing 8$ to $\varnothing 16$									
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 $\varnothing 20$									
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 $\varnothing 24$ to $\varnothing 26$									
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 $\varnothing 28$									
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 $\varnothing 32$									
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
$\varnothing 8$	$\alpha_{lb} = \alpha_{lb,100y}$	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 10$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 12$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 14$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 16$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 20$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 24$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 25$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 26$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 28$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,1
$\varnothing 32$		1,0	1,0	1,0	1,0	1,0	1,1	1,2	1,3	1,4

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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:

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

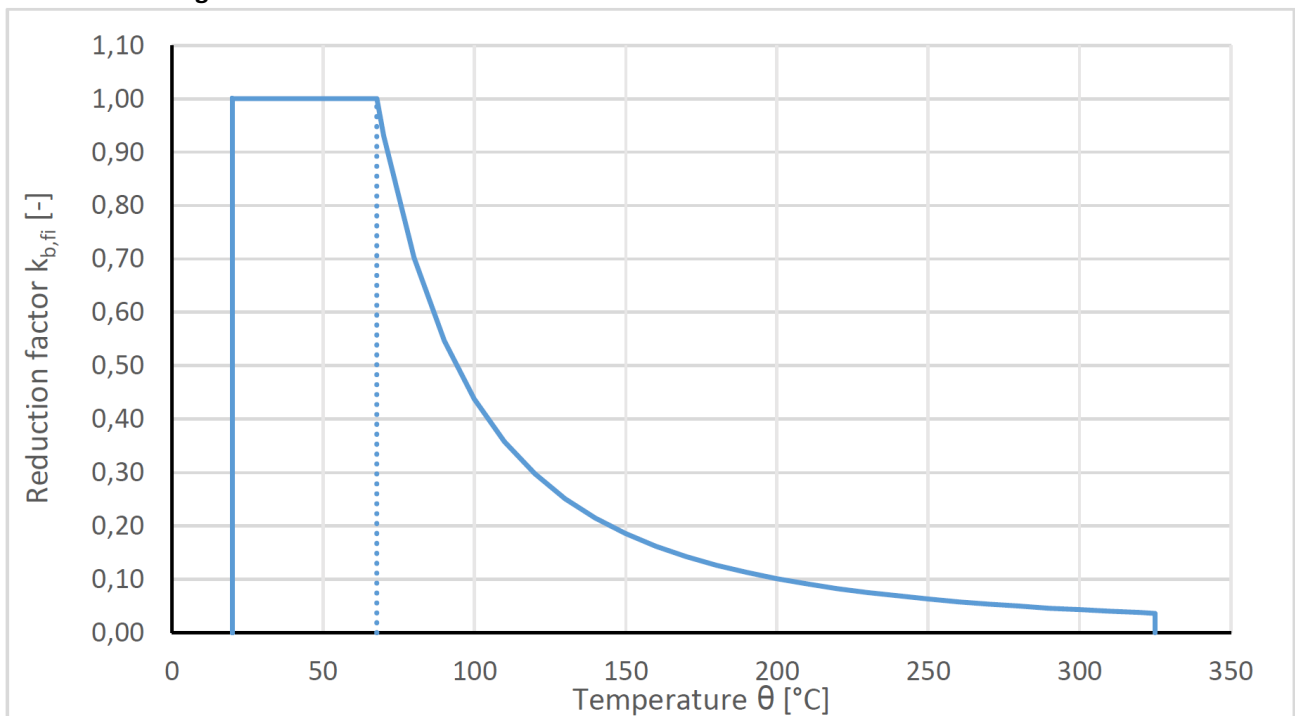
$$\begin{aligned} \text{if: } 20^{\circ}\text{C} \leq \theta \leq 68^{\circ}\text{C} & \quad k_{fi}(\theta) = 1 \\ > 68^{\circ}\text{C} \leq \theta \leq 325^{\circ}\text{C} & \quad k_{fi}(\theta) = 75000 \cdot \theta^{-2,117} / (f_{bd,PIR} \cdot 4,3) \leq 1 \\ \theta > 325^{\circ}\text{C} & \quad k_{fi}(\theta) = 0 \end{aligned}$$

with:

- k_{fi} temperature reduction factor
- (θ) temperature in °C
- f_{bd,PIR} design value of the bond strength in N/mm² 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
- γ_{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



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8 DOCUMENTAZIONE TECNICA APPROPRIATA E/O DOCUMENTAZIONE TECNICA SPECIFICA

La prestazione del prodotto sopra identificato è conforme all'insieme delle prestazioni dichiarate. La presente dichiarazione di responsabilità viene emessa, in conformità al regolamento (UE) n. 305/2011, sotto la sola responsabilità del fabbricante sopra identificato.

Firmato a nome e per conto del fabbricante da:

Name : Federico Moroni
Function: PE Refurbishment
At Peschiera Borromeo
on 29 March 2023

Name : Salvatore Schirinzi
Function: General Manager
At Peschiera Borromeo
on 29 March 2023

Federico Moroni
.....

Salvatore Schirinzi
.....

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

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ETICHETTA CE COMPLETA

	
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Sika Services AG, Zurich, Switzerland	
DoP No. 44890326	
Resistenza di adesione di barre di armatura post-installate	Annesso C 1
Fattore di riduzione	Annesso C 1
Fattore di amplificazione per minima lunghezza di ancoraggio	Annesso C 1
Reazione al fuoco	Classe (A1) secondo la EN 13501-1
Resistenza al fuoco	Annesso C 2
Aspetti generali relativi all'idoneità d'uso	Durabilità e funzionamento in servizio sono assicurati solo se soddisfatti gli usi previsti da norma in accordo all Annesso B 1.

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Annex C1

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

k_b = reduction factor

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

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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 $\varnothing 20$									
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 $\varnothing 24$ to $\varnothing 26$									
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				
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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
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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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$\varnothing 12$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 14$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 16$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 20$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 24$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 25$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 26$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$\varnothing 28$		1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,1
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Annex C2

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

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

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

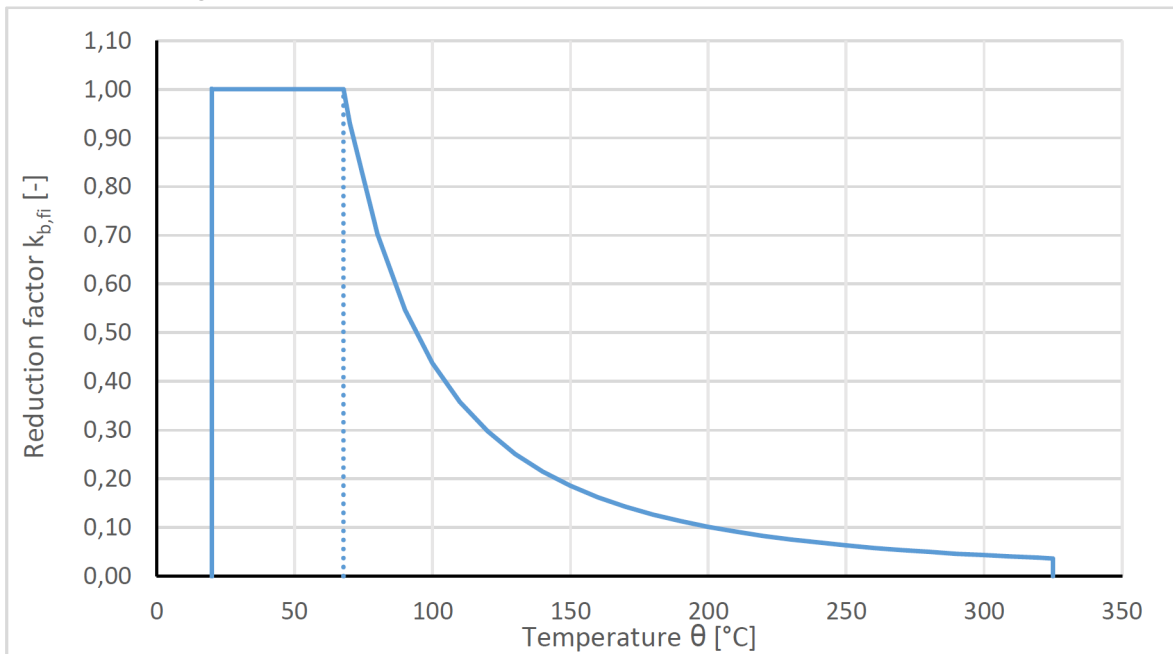
if: $20^\circ\text{C} \leq \theta \leq 88^\circ\text{C}$ $k_{fi}(\theta) = 1$
 $88^\circ\text{C} < \theta \leq 325^\circ\text{C}$ $k_{fi}(\theta) = 75000 \cdot \theta^{-2.17} / (f_{x,PR} + 4.3) \leq 1$
 $\theta > 325^\circ\text{C}$ $k_{fi}(\theta) = 0$

with:

- k_{fi} temperature reduction factor
- (θ) temperature in °C
- f_{b,d,PIR} design value of the bond strength in N/mm² 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
- γ_{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 $f_{b,k,fi}(\theta)$.

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>

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MARCATURA CE DA INSERIRE SULL'ETICHETTA DEL PRODOTTO

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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

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ECOLOGY, HEALTH AND SAFETY INFORMATION (REACH)

Per informazioni e consigli sulla manipolazione, sullo stoccaggio e sullo smaltimento sicuro di prodotti chimici, chi fa uso dei prodotti deve consultare la versione più recente della Scheda di sicurezza (SDS) che riporta le informazioni sulle caratteristiche fisiche, ecologiche e tossicologiche dei prodotti, insieme ad altre informazioni sulla sicurezza.

NOTE LEGALI

Le informazioni e, in particolare, le istruzioni relative all'applicazione e all'uso finale dei prodotti Sika sono fornite in buona fede in base alle conoscenze ed all'esperienza attuale di Sika sui prodotti a condizione che gli stessi vengano adeguatamente immagazzinati, movimentati ed utilizzati in condizioni normali ed osservando le raccomandazioni di Sika. In pratica, le differenze di materiale, substrati e reali condizioni del luogo sono tali da non permettere una garanzia per la commerciabilità o l'idoneità per uno scopo particolare, allo stesso modo nessuna responsabilità può emergere da queste informazioni, da qualsiasi raccomandazione scritta o da ogni altra consulenza prestata. L'utilizzatore del prodotto deve testarne l'idoneità per l'uso e lo scopo intesi. Sika si riserva il diritto di modificare le proprietà dei suoi prodotti. Devono essere rispettati i diritti di proprietà di terzi. Tutti gli ordini vengono accettati alle nostre vigenti condizioni di vendita e consegna. Gli utilizzatori devono fare sempre riferimento alla versione più recente della locale scheda dati relativa al prodotto in questione, le cui copie verranno fornite su richiesta.

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