

## DECLARATION OF PERFORMANCE

DoP Nr.: **Sikla-1.2-101\_en**

**Unique identification code of product-type:** **Sikla Drop-in Anchor AN / AN ES**

**Intended use/es:** Fastener for use in concrete for redundant non-structural systems, see Annex B

**Manufacturer:** Sikla Holding GmbH  
Kornstraße 4  
4614 Marchtrenk - Österreich

**System/s of AVCP:** 2+

**European Assessment Document:** **EAD 330747-00-0601**  
 European Technical Assessment: **ETA-10/0258, 26.11.2021**  
 Technical Assessment Body: DIBt, Berlin  
 Notified body/ies: NB 2873 – Technische Universität Darmstadt

**Declared performance/s:**

Essential characteristics	Performance
<b>Safety in case of fire (BWR 2)</b>	
Reaction to fire	Class A1
Resistance to fire	Annex C5
<b>Safety in use (BWR 4)</b>	
Characteristic resistance for all load directions and modes of failure for simplified design	Annex B3, C1-C4
Durability	Annex B1

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:



**Günter Brugger**  
(Head of IPRM)  
**Villingen-Schwenningen 12.10.2022**



**Achim Münch**  
(Head of Management Systems)



The original of this declaration of performance was written in German. In the event of deviations in the translation, the German version shall be valid.

## Specifications of intended use

Drop-in Anchor AN / AN ES	Anchorage depth $h_{ef} \geq 30$ mm						
	M6x30	M8x30	M8x40	M10x30	M10x40	M12x50	M16x65
Steel, zinc plated				✓			
Stainless steel A4 and high corrosion resistant steel HCR		✓		-		✓	
Static and quasi-static loads				✓			
Fire exposure				✓			
Cracked and uncracked concrete				✓			
Solid concrete <b>C20/25 to C50/60</b>				✓			

Drop-in Anchor AN ES	Anchorage depth $h_{ef} = 25$ mm			
	M6x25	M8x25	M10x25	M12x25
Steel, zinc plated			✓	
Stainless steel A4 and high corrosion resistant steel HCR			-	
Static and quasi-static loads			✓	
Fire exposure (solid concrete, C20/25 to C50/60)			✓	
Cracked and uncracked concrete			✓	
Solid concrete <b>C12/15 to C50/60</b>			✓	
Precast pre-stressed hollow core slabs C30/37 to C50/60			✓	

**Use only for redundant, non-structural systems!**

### Base materials:

- Compacted, reinforced or unreinforced normal weight concrete (without fibers) acc. to EN 206:2013 + A1:2016

### Use conditions:

- Structures subject to dry internal conditions (zinc plated steel, stainless steel or high corrosion resistant steel)
- Structures subject to external atmospheric exposure (including industrial and marine environment) or exposure to permanently damp internal condition, if no particular aggressive conditions exist (stainless steel or high corrosion resistant steel)
- Structures subject to external atmospheric exposure and to permanently damp internal condition, if other particular aggressive conditions (high corrosion resistant steel)

Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used.)

## SIKLA Drop-in Anchor AN / AN ES

Intended use  
Specifications

**Annex B1**

## Specifications of intended use

### Design:

- 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 loads to be anchored. The position of the anchor is indicated on the design drawings (e.g. position of the anchor relative to reinforcement or to supports, etc.)
- The strength class and the length of the fastening screw or threaded rod shall be defined by the designing engineer
- Anchorages are designed acc. to EN 1992-4:2018 (if necessary in connection with TR 055, Edition February 2018)

### Installation:

- Anchor installation in accordance with the manufacturer's specifications and drawings and using the appropriate tools
- Drill hole by hammer drilling or vacuum drilling

**SIKLA Drop-in Anchor AN / AN ES**

**Intended use**  
Specifications

**Annex B2**

**Table B1: Installation parameters for  $h_{ef} \geq 30$  mm**

Anchor size			M6x30	M8x30	M8x40	M10x30	M10x40	M12x50	M16x65
Depth of drill hole E	$h_0 =$	[mm]	30	30	40	30	40	50	65
Depth of drill hole ES	$h_0 \geq$	[mm]	30	30	40	30	40	50	65
Drill hole diameter	$d_0 =$	[mm]	8	10	10	12	12	15	20
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45	10,45	10,45	12,5	12,5	15,5	20,55
Maximum installation torque	$T_{inst} \leq$	[Nm]	4	8	8	15	15	35	60
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	7	9	9	12	12	14	18
Thread length	$L_{th}$	[mm]	13	13	20	12	15	18	23
Minimum screw-in depth	$L_{sdmin}$	[mm]	7	9	9	10	11	13	18
<b>Steel, zinc plated</b>									
Minimum thickness of member	$h_{min}$	[mm]	100	100	100	120	120	130	160
Minimum spacing	$s_{min}$	[mm]	55	60	80	100	100	120	150
Minimum distance	$c_{min}$	[mm]	95	95	95	115	135	165	200
<b>Stainless steel A4, HCR</b>									
Minimum thickness of member	$h_{min}$	[mm]	100	100	100	-	130	140	160
Minimum spacing	$s_{min}$	[mm]	50	60	80	-	100	120	150
Minimum distance	$c_{min}$	[mm]	80	95	95	-	135	165	200

**Table B2: Installation parameters for  $h_{ef} = 25$  mm**

Anchor size			M6x25	M8x25	M10x25	M12x25
Depth of drill hole	$h_0 \geq$	[mm]	25	25	25	25
Drill hole diameter	$d_0 =$	[mm]	8	10	12	15
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45	10,45	12,5	15,5
Maximum installation torque	$T_{inst} \leq$	[Nm]	4	8	15	35
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	7	9	12	14
Thread length	$L_{th}$	[mm]	12	12	12	12
Minimum screw-in depth	$L_{sdmin}$	[mm]	6	8	10	12
<b>Minimum thickness of member</b>	$h_{min,1}$	[mm]	<b>80</b>			
Minimum spacing	$s_{min}$	[mm]	30	70	70	100
Minimum edge distance	$c_{min}$	[mm]	60	100	100	130
<b>Standard thickness of member</b>	$h_{min,2}$	[mm]	<b>100</b>			
Minimum spacing	$s_{min}$	[mm]	30	50	60	100
Minimum edge distance	$c_{min}$	[mm]	60	100	100	110
<b>Installation in precast pre-stressed hollow core slabs C30/37 to C50/60</b>						
Spacing	$s_{min}$	[mm]	200			
Edge distance	$c_{min}$	[mm]	150			

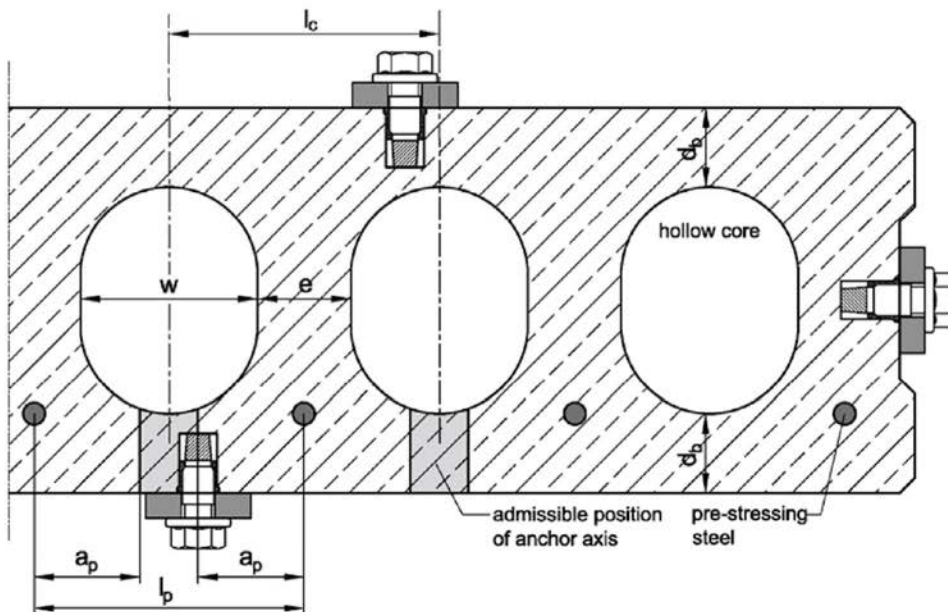
**SIKLA Drop-in Anchor AN / AN ES**Intended use  
Installation parameters**Annex B3**

## Admissible anchor positions in precast pre-stressed hollow core slabs ( $w / e \leq 4,2$ )

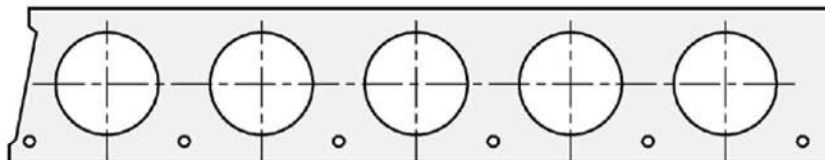
Core distance:  
 $l_c \geq 100 \text{ mm}$

Pre-stressing steel distance:  
 $l_p \geq 100 \text{ mm}$

Distance between anchor position and pre-stressing steel:  
 $a_p \geq 50 \text{ mm}$

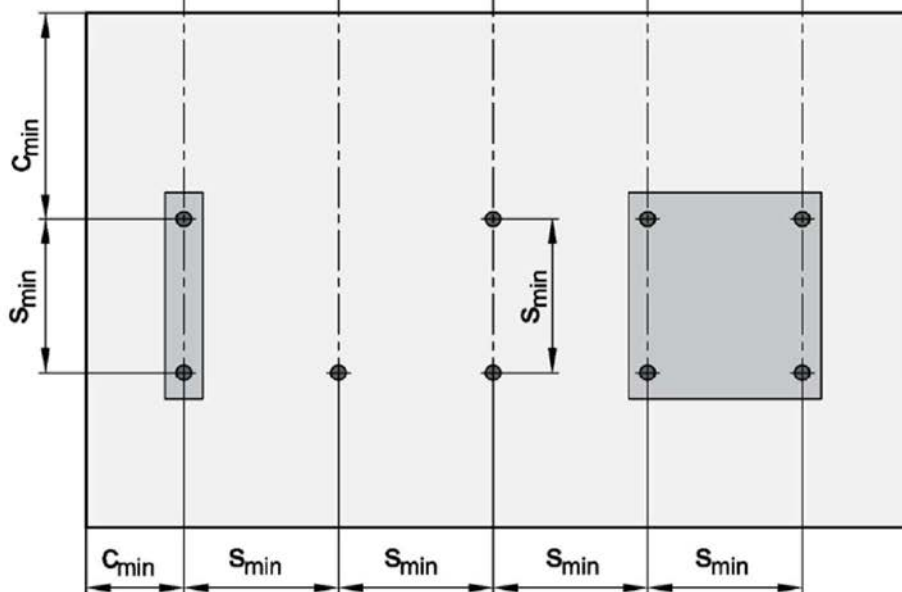


## Minimum spacing and edge distance of anchors and distance in precast pre-stressed hollow core slabs



Minimum edge distance  
 $c_{min} \geq 150 \text{ mm}$

Minimum spacing  
 $s_{min} \geq 200 \text{ mm}$

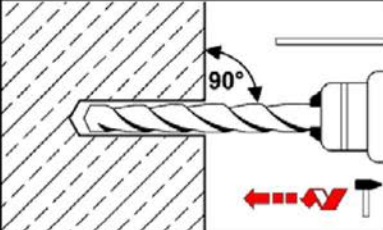
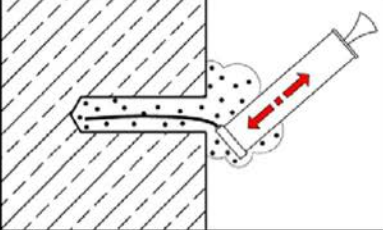
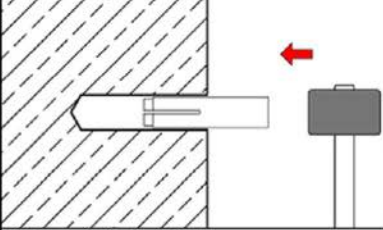
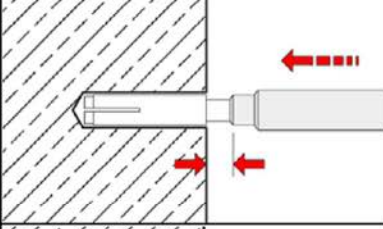
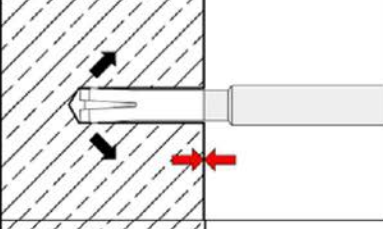
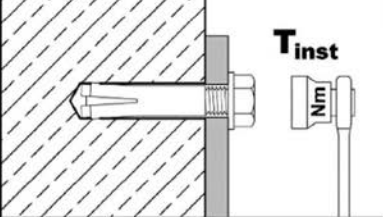


**SIKLA Drop-in Anchor AN / AN ES**

**Intended use**  
 Installation in precast pre-stressed hollow core slabs

**Annex B4**

## Installation instructions for solid concrete slabs

1		<p>Drill hole perpendicular to concrete surface. Using vacuum drill bit proceed with step 3.</p>
2		<p>Blow out dust. Alternatively, vacuum clean down to the bottom of the hole.</p>
3		<p>Drive in anchor.</p>
4		<p>Drive in cone by using setting tool.</p>
5		<p>Shoulder of setting tool must fit on anchor rim.</p>
6		<p>Turn in screw or threaded rod with nut, observe minimum screw-in depth (see Annex B3). Apply installation torque <math>T_{inst}</math>.</p>

### SIKLA Drop-in Anchor AN / AN ES

**Intended use**  
Installation instructions for solid concrete slabs

**Annex B5**

## Installation instructions for precast pre-stressed hollow core slabs

1		Search for the position of the reinforcement.
2		Mark the position of the pre-stressing steel and search for the other position of the pre-stressing steel.
3		Mark the positions of next pre-stressing steel.
4		Drill hole while maintaining the required distances.
5		Blow out dust. Alternatively vacuum clean down to the bottom of the hole.
6		Drive in anchor.
7		Drive in cone by using setting tool.
8		Shoulder of setting tool must fit on anchor rim.
9		Turn in screw or threaded rod with nut, observe the minimum screw-in depth (see Annex B3). Apply installation torque $T_{inst}$ .

### SIKLA Drop-in Anchor AN / AN ES

#### Intended use

Installation instructions for precast pre-stressed hollow core slabs

Annex B6

**Table C1: Characteristic resistance for  $h_{ef} \geq 30$  mm in solid concrete slabs**

Anchor size			M6x30	M8x30	M8x40	M10x30	M10x40	M12x50	M16x65	
Installation factor	$\gamma_{inst}$	[-]	1,0							
<b>Load in any direction</b>										
Characteristic resistance in concrete <b>C20/25 to C50/60</b>	$F^{0}_{Rk}$	[kN]	3	5	6	6	6	6	16	
Partial factor	$\gamma_{M}^{1)}$	[-]	1,8	2,16		2,1	2,16	1,8	1,8	
Spacing	$s_{cr}$	[mm]	130	180	210	230	170	170	400	
Edge distance	$c_{cr}$	[mm]	65	90	105	115	85	85	200	
<b>Shear load with lever arm, steel zinc plated</b>										
Characteristic resistance <b>(property class 4.6)</b>	$M^{0}_{Rk,s}$	[Nm]	6,1	15	15	30	30	52	133	
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,67							
Characteristic resistance <b>(property class 4.8)</b>	$M^{0}_{Rk,s}$	[Nm]	6,1	15	15	30	30	52	133	
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,25							
Characteristic resistance <b>(property class 5.6)</b>	$M^{0}_{Rk,s}$	[Nm]	7,6	19	19	37	37	65	166	
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,67							
Characteristic resistance <b>(property class 5.8)</b>	$M^{0}_{Rk,s}$	[Nm]	7,6	19	19	37	37	65	166	
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,25							
Characteristic resistance <b>(property class 8.8)</b>	$M^{0}_{Rk,s}$	[Nm]	12	30	30	59	60	105	266	
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,25							
<b>Shear load with lever arm, stainless steel A4 / HCR</b>										
Characteristic resistance <b>(Property class 70)</b>	$M^{0}_{Rk,s}$	[Nm]	11	26	26	- <sup>2)</sup>	52	92	233	
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,56							
Characteristic resistance <b>(Property class 80)</b>	$M^{0}_{Rk,s}$	[Nm]	12	30	30	- <sup>2)</sup>	60	105	266	
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,33							

<sup>1)</sup> in absence of other national regulations

<sup>2)</sup> Anchor version is not part of the ETA

**SIKLA Drop-in Anchor AN / AN ES**

**Performance**  
Characteristic resistance for  $h_{ef} \geq 30$  mm in **solid concrete**

**Annex C1**



**Table C2: Characteristic resistance for  $h_{ef} = 25$  mm in solid concrete slabs**

Anchor size			M6x25	M8x25	M10x25	M12x25
Installation factor	$\gamma_{inst}$	[-]	1,0			
<b>Load in any direction</b>						
Characteristic resistance in concrete <b>C12/15 and C16/20</b>	$F^0_{Rk}$	[kN]	2,5	2,5	3,5	3,5
Characteristic resistance in concrete <b>C20/25 to C50/60</b>	$F^0_{Rk}$	[kN]	3,5	4,0	4,5	4,5
Partial factor	$\gamma_M^{1)}$	[-]	1,5			
Spacing	$s_{cr}$	[mm]	75	75	75	75
Edge distance	$c_{cr}$	[mm]	38	38	38	38
<b>Shear load with lever arm</b>						
Characteristic resistance <b>(property class 4.6)</b>	$M^0_{Rk,s}$	[Nm]	6,1	15	30	52
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,67			
Characteristic resistance <b>(property class 4.8)</b>	$M^0_{Rk,s}$	[Nm]	6,1	15	30	52
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,25			
Characteristic resistance <b>(property class 5.6)</b>	$M^0_{Rk,s}$	[Nm]	7,6	19	37	65
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,67			
Characteristic resistance <b>(property class 5.8)</b>	$M^0_{Rk,s}$	[Nm]	7,6	19	37	65
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,25			
Characteristic resistance <b>(property class 8.8)</b>	$M^0_{Rk,s}$	[Nm]	12	30	60	105
Partial factor	$\gamma_{Ms}^{1)}$	[-]	1,25			

<sup>1)</sup> In absence of other national regulations

**SIKLA Drop-in Anchor AN / AN ES**

**Performance**  
Characteristic resistance for  $h_{ef} = 25$  mm in solid concrete

**Annex C2**

**Table C3: Characteristic resistance for  $h_{ef} = 25$  mm in precast pre-stressed hollow core slabs**

Anchor size			M6x25	M8x25	M10x25	M12x25
Installation factor	$\gamma_{inst}$	[-]	1,0			
<b>Load in any direction</b>						
Flange thickness	$d_b$	[mm]	$\geq 35$ (30) <sup>1)</sup>			
Characteristic resistance in precast pre-stressed hollow core slabs <b>C30/37 to C50/60</b>	$F_{RK}^0$	[kN]	3,5	4,0	4,5	4,5
Partial factor	$\gamma_{M^2)}$	[-]	1,5			
Spacing	$s_{cr}$	[mm]	200			
Edge distance	$c_{cr}$	[mm]	150			
<b>Shear load with lever arm</b>						
Characteristic resistance <b>(property class 4.6)</b>	$M_{RK,s}^0$	[Nm]	6,1	15	30	52
Partial factor	$\gamma_{Ms^2)}$	[-]	1,67			
Characteristic resistance <b>(property class 4.8)</b>	$M_{RK,s}^0$	[Nm]	6,1	15	30	52
Partial factor	$\gamma_{Ms^2)}$	[-]	1,25			
Characteristic resistance <b>(property class 5.6)</b>	$M_{RK,s}^0$	[Nm]	7,6	19	37	65
Partial factor	$\gamma_{Ms^2)}$	[-]	1,67			
Characteristic resistance <b>(property class 5.8)</b>	$M_{RK,s}^0$	[Nm]	7,6	19	37	65
Partial factor	$\gamma_{Ms^2)}$	[-]	1,25			
Characteristic resistance <b>(property class 8.8)</b>	$M_{RK,s}^0$	[Nm]	12	30	60	105
Partial factor	$\gamma_{Ms^2)}$	[-]	1,25			

<sup>1)</sup> The anchor may be set in a flange thickness of 30 mm with identical characteristic loads, if the borehole cuts no hollow core

<sup>2)</sup> In absence of other national regulations

**SIKLA Drop-in Anchor AN / AN ES**

**Performance**

Characteristic resistance for  $h_{ef} = 25$  mm in precast pre-stressed hollow core slabs

**Annex C3**

**Table C4:** Characteristic values under **fire exposure** in **solid concrete slabs**  
C20/25 to C50/60 for  $h_{ef} \geq 30$  mm

Anchor size				M6x30	M8x30	M8x40	M10x30	M10x40	M12x50	M16x65	
<b>Fire resistance class</b>		<b>Load in any direction</b>									
Property class 4.6	R 30	Characteristic resistance	$F^{0}_{Rk,fi}$	[kN]	0,4	0,6	0,6	0,9	0,9	1,5	3,1
	R 60			[kN]	0,35	0,6	0,6	0,8	0,8	1,3	2,4
	R 90			[kN]	0,3	0,6	0,6	0,6	0,6	1,1	2,0
	R 120			[kN]	0,25	0,5	0,5	0,5	0,5	0,8	1,6
Property class 4.8	R 30	Characteristic resistance	$F^{0}_{Rk,fi}$	[kN]	0,4	0,9	1,1	0,9	1,5	1,5	4,0
	R 60			[kN]	0,35	0,9	0,9	0,9	1,5	1,5	4,0
	R 90			[kN]	0,3	0,6	0,6	0,9	1,1	1,5	3,0
	R 120			[kN]	0,3	0,5	0,5	0,7	0,9	1,2	2,4
Property class $\geq 5.6$	R 30	Characteristic resistance	$F^{0}_{Rk,fi}$	[kN]	0,8	0,9	1,5	0,9	1,5	1,5	4,0
	R 60			[kN]	0,8	0,9	1,5	0,9	1,5	1,5	4,0
	R 90			[kN]	0,4	0,9	0,9	0,9	1,5	1,5	3,7
	R 120			[kN]	0,3	0,5	0,5	0,7	1,0	1,2	2,4
A4 / HCR	R 30	Characteristic resistance	$F^{0}_{Rk,fi}$	[kN]	0,8	0,9	1,5	- <sup>1)</sup>	1,5	1,5	4,0
	R 60			[kN]	0,8	0,9	1,5	- <sup>1)</sup>	1,5	1,5	4,0
	R 90			[kN]	0,4	0,9	0,9	- <sup>1)</sup>	1,5	1,5	3,7
	R 120			[kN]	0,3	0,5	0,5	- <sup>1)</sup>	1,0	1,2	2,4
Partial factor			$\gamma_{M,fi}$	[-]	1,0						
<b>Steel zinc plated</b>											
Spacing		$s_{cr,fi}$	[mm]	130	180	210	170	170	200	400	
R 30 – R 120	Edge distance		$c_{cr,fi}$	[mm]	65	90	105	85	85	100	200
If the fire attack is from more than one side, the edge distance shall be $\geq 300$ mm.											
<b>Stainless steel A4, HCR</b>											
Spacing		$s_{cr,fi}$	[mm]	130	180	210	- <sup>1)</sup>	170	200	400	
R 30 – R 120	Edge distance		$c_{cr,fi}$	[mm]	65	90	105	- <sup>1)</sup>	85	100	200
If the fire attack is from more than one side, the edge distance shall be $\geq 300$ mm.											

<sup>1)</sup> Anchor version is not part of the ETA

**SIKLA Drop-in Anchor AN / AN ES**

**Performance**  
Characteristic values under **fire exposure** for  $h_{ef} \geq 30$  mm

**Annex C4**

**Table C5: Characteristic values under fire exposure in solid concrete slabs**  
C20/25 to C50/60 for  $h_{ef} = 25 \text{ mm}$

Anchor size				M6x25	M8x25	M10x25	M12x25
Fire resistance class		Load in any direction					
Property class $\geq 4.6$	R 30	Characteristic resistance	$F^{0}_{Rk,fi}$ [kN]	0,4	0,6	0,6	0,6
	R 60		[kN]	0,35	0,6	0,6	0,6
	R 90		[kN]	0,3	0,6	0,6	0,6
	R 120		[kN]	0,25	0,5	0,5	0,5
Partial factor			$\gamma_{M,fi}$ [-]	1,0			
Spacing			$s_{cr,fi}$ [mm]	100	100	100	100
R 30 – R 120			Edge distance	$c_{cr,fi}$ [mm]	50	50	50
If the fire attack is from more than one side, the edge distance shall be $\geq 300 \text{ mm}$ .							

**SIKLA Drop-in Anchor AN / AN ES**

**Performance**  
Characteristic values under fire exposure for  $h_{ef} = 25 \text{ mm}$

**Annex C5**