BUILDING TRUST

Sika AnchorFix®-3030

DECLARATION OF PERFORMANCE
No. 68247540

1	**UNIQUE IDENTIFICATION CODE OF THE PRODUCT-TYPE:**	68247540
2	**INTENDED USE/S**	Bonded injection type anchor for use in cracked and uncracked concrete
3	**MANUFACTURER:**	Sika Services AG Tüffenwies 16 8064 Zürich
4	**SYSTEM/S OF AVCP:**	System 1
5b	**EUROPEAN ASSESSMENT DOCUMENT:**	EAD 330499-02-0601; edition September 2022
	European Technical Assessment:	ETA 17/0694 of 09/09/2025
	Technical Assessment Body:	Technical and Test Institute for Construction Prague
	Notified body/ies:	1020

6 DECLARED PERFORMANCE/S

Essential Characteristics	Performance	AVCP	Harmonised Technical Specification
Mechanical resistance and stability (BWR 1)			EAD 330499-02-0601; edition September 2022
Characteristic resistance to tension load (static and quasi-static loading)	See Annex C 1 to C 7	System 1	
Characteristic resistance to shear load (static and quasi-static loading)	See Annex C 8 to C 10	System 1	
Displacements under short-term and long-term loading	See Annex C 11	System 1	
Characteristic resistance and displacement for seismic performance categories C1 and C2	See Annex C 12 to C 14	System 1	
Safety in case of fire (BWR 2)			
See Annex C 12 to C 14	Anchorages satisfy requirements for Class A1	System 1	
Resistance to fire	See Annex C 15 to C 16	System 1	
Hygiene, health and environment (BWR 3)	NPD	System 1	
Durability and serviceability	ensured if the specifications of intended use according to Annex B 1 are kept.	System 1	

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

Steel failure – Characteristic resistance									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Steel grade **4.6**	$N_{Rk,s}$	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	γ_{Ms}	[-]	2,00							
Steel grade **5.8**	$N_{Rk,s}$	[kN]	18	29	42	79	123	177	230	281
Partial safety factor	γ_{Ms}	[-]	1,50							
Steel grade **8.8**	$N_{Rk,s}$	[kN]	29	46	67	126	196	282	367	449
Partial safety factor	γ_{Ms}	[-]	1,50							
Steel grade **10.9**	$N_{Rk,s}$	[kN]	37	58	84	157	245	353	459	561
Partial safety factor	γ_{Ms}	[-]	1,40							
Stainless steel grade **A2-70, A4-70**	$N_{Rk,s}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,87							
Stainless steel grade **A4-80**	$N_{Rk,s}$	[kN]	29	46	67	126	196	282	367	449
Partial safety factor	γ_{Ms}	[-]	1,60							
Stainless steel grade **1.4529**	$N_{Rk,s}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,50							
Stainless steel grade **1.4565**	$N_{Rk,s}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,87							

Table C2: Design method EN 1992-4
Steel failure - Characteristic values of resistance to tension load of threaded socket

Steel failure – Characteristic resistance								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Steel grade **4.6**	$N_{Rk,s}$	[kN]	8	15	23	34	63	98
Partial safety factor	γ_{Ms}	[-]	2,00					
Steel grade **5.8**	$N_{Rk,s}$	[kN]	10	18	29	42	79	123
Partial safety factor	γ_{Ms}	[-]	1,50					
Steel grade **8.8**	$N_{Rk,s}$	[kN]	16	29	46	67	126	196
Partial safety factor	γ_{Ms}	[-]	1,50					
Steel grade **10.9**	$N_{Rk,s}$	[kN]	20	37	58	84	157	245
Partial safety factor	γ_{Ms}	[-]	1,40					
Stainless steel grade **A2-70, A4-70**	$N_{Rk,s}$	[kN]	14	26	41	59	110	172
Partial safety factor	γ_{Ms}	[-]	1,87					
Stainless steel grade **A4-80**	$N_{Rk,s}$	[kN]	16	29	46	67	126	196
Partial safety factor	γ_{Ms}	[-]	1,60					
Stainless steel grade **1.4529**	$N_{Rk,s}$	[kN]	14	26	41	59	110	172
Partial safety factor	γ_{Ms}	[-]	1,50					
Stainless steel grade **1.4565**	$N_{Rk,s}$	[kN]	14	26	41	59	110	172
Partial safety factor	γ_{Ms}	[-]	1,87					

Table C3: Design method EN 1992-4
Steel failure - Characteristic values of resistance to tension load of rebar

Steel failure – Characteristic resistance								
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Rebar BSt 500 S	$N_{Rk,s}$	[kN]	28	43	62	111	173	270	442
Partial safety factor	γ_{Ms}	[-]	1,4						

Sika AnchorFix®-3030	
Performances Steel failure characteristic resistance	**Annex C 1**

Table C4: Design method EN 1992-4
Characteristic values of resistance to tension load of threaded rod

Hammer drilling, Dustless drilling

Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Characteristic bond resistance in uncracked concrete										
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	17,1	14,8	14,8	12,2	12,2	12,2	10,7	9,6
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	16,6	14,3	14,3	11,8	11,8	11,8	10,4	9,3
Installation safety factor										
Dry, wet concrete	γ_{inst}	[-]	1,0							
Hammer drilling – Flooded hole	γ_{inst}	[-]	1,0							
Dustless drilling – Flooded hole	γ_{inst}	[-]	1,2							
Characteristic bond resistance in cracked concrete										
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	9,7	9,7	9,7	9,5	9,1	8,8	6,2	6,1
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	9,4	9,4	9,4	9,2	8,8	8,5	6,0	5,9
Installation safety factor										
Dry, wet concrete	γ_{inst}	[-]	1,0							
Hammer drilling – Flooded hole	γ_{inst}	[-]	1,0							
Dustless drilling – Flooded hole	γ_{inst}	[-]	1,2							
Factor for influence of sustained load for a working life 50 years	T3: 50°C / 70°C T4: 55°C / 75°C	ψ^0_{sus}	[-]	0,72 1,00						
Factor for concrete	C25/30 C30/37 C35/45 C40/50 C45/55 C50/60	ψ_c	[-]	1,02 1,04 1,06 1,07 1,08 1,09						
Concrete cone failure										
Factor for concrete cone failure for uncracked concrete		$k_{ucr,N}$	[-]	11						
Factor for concrete cone failure for cracked concrete		$k_{cr,N}$		7,7						
Edge distance		$c_{cr,N}$	[mm]	$1,5h_{ef}$						
Splitting failure										
Size				**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Edge distance		$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$						
Spacing		$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$						

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Performances
Hammer drilling, Dustless drilling
Characteristic resistance for tension loads - threaded rod

Annex C 2

Table C5: Design method EN 1992-4
Characteristic values of resistance to tension load of threaded socket

Hammer drilling, Dustless drilling

Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years								
Size				**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Nominal external diameter of socket				M10	M12	M16	M20	M24	M30
Characteristic bond resistance in uncracked concrete									
Temperature T3: 50°C / 70°C		$\tau_{Rk,ucr}$	[N/mm²]	14,8	14,8	12,2	12,2	12,2	9,6
Temperature T4: 55°C / 75°C		$\tau_{Rk,ucr}$	[N/mm²]	14,3	14,3	11,8	11,8	11,8	9,3
Installation safety factor									
Dry, wet concrete		γ_{inst}	[-]	1,0					
Hammer drilling – Flooded hole		γ_{inst}	[-]	1,0					
Dustless drilling – Flooded hole		γ_{inst}	[-]	1,2					
Characteristic bond resistance in cracked concrete									
Temperature T3: 50°C / 70°C		$\tau_{Rk,ucr}$	[N/mm²]	9,7	9,7	9,5	9,1	8,8	6,1
Temperature T4: 55°C / 75°C		$\tau_{Rk,ucr}$	[N/mm²]	9,4	9,4	9,2	8,8	8,5	5,9
Installation safety factor									
Dry, wet concrete		γ_{inst}	[-]	1,0					
Hammer drilling – Flooded hole		γ_{inst}	[-]	1,0					
Dustless drilling – Flooded hole		γ_{inst}	[-]	1,2					
Factor for influence of sustained load for a working life 50 years	T3: 50°C / 70°C	ψ^0_{sus}	[-]	0,72					
	T4: 55°C / 75°C			1,00					
Factor for concrete	C25/30	ψ_c	[-]	1,02					
	C30/37			1,04					
	C35/45			1,06					
	C40/50			1,07					
	C45/55			1,08					
	C50/60			1,09					
Concrete cone failure									
Factor for concrete cone failure for uncracked concrete		$k_{ucr,N}$	[-]	11					
Factor for concrete cone failure for cracked concrete		$k_{cr,N}$		7,7					
Edge distance		$c_{cr,N}$	[mm]	$1,5h_{ef}$					
Splitting failure									
Size				**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Edge distance		$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$					
Spacing		$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$					

Sika AnchorFix®-3030

Performances
Hammer drilling, Dustless drilling
Characteristic resistance for tension loads - threaded socket

Annex C 3

Table C6: Design method EN 1992-4
Characteristic values of resistance to tension load of rebar

Hammer drilling, Dustless drilling									
Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years									
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Characteristic bond resistance in uncracked concrete									
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	13,3	13,3	13,3	11,7	11,7	11,7	8,1
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	12,9	12,9	12,9	11,3	11,3	11,3	7,8
Installation safety factor									
Hammer drilling - Dry, wet concrete	γ_{inst}	[-]	1,0						
Dustless drilling - Dry, wet concrete	γ_{inst}	[-]	1,2						
Flooded hole	γ_{inst}	[-]	1,2						
Characteristic bond resistance in cracked concrete									
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	8,1	11,4	10,7	10,4	9,9	8,6	6,4
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	7,8	11,0	10,3	10,1	9,6	8,4	6,2
Installation safety factor									
Hammer drilling - Dry, wet concrete	γ_{inst}	[-]	1,0						
Dustless drilling - Dry, wet concrete	γ_{inst}	[-]	1,2						
Flooded hole	γ_{inst}	[-]	1,2						
Factor for influence of sustained load for a working life 50 years — T3: 50°C / 70°C	ψ^0_{sus}	[-]	0,72						
Factor for influence of sustained load for a working life 50 years — T4: 55°C / 75°C	ψ^0_{sus}	[-]	1,00						
Factor for concrete — C25/30	ψ_c	[-]	1,02						
Factor for concrete — C30/37	ψ_c	[-]	1,04						
Factor for concrete — C35/45	ψ_c	[-]	1,06						
Factor for concrete — C40/50	ψ_c	[-]	1,07						
Factor for concrete — C45/55	ψ_c	[-]	1,08						
Factor for concrete — C50/60	ψ_c	[-]	1,09						

Concrete cone failure			
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11
Factor for concrete cone failure for cracked concrete	$k_{cr,N}$	[-]	7,7
Edge distance	$c_{cr,N}$	[mm]	$1,5h_{ef}$

Splitting failure									
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Edge distance	$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$						
Spacing	$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$						

Sika AnchorFix®-3030

Performances
Hammer drilling, Dustless drilling
Characteristic resistance for tension loads - rebar

Annex C 4

Table C7: Design method EN 1992-4
Characteristic values of resistance to tension load of threaded rod

Diamond core drilling									
Combined pullout and concrete cone failure in concrete C20/25									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Characteristic bond resistance in uncracked concrete for a working life of 50 years and 100 years									
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	16,1	14,8	14,8	12,2	12,2	12,2	10,7	9,6
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	15,6	14,3	14,3	11,8	11,8	11,8	10,4	9,3
Installation safety factor										
Dry, wet concrete	γ_{inst}	[-]	1,0							
Flooded hole	γ_{inst}	[-]	1,2							
Characteristic bond resistance in cracked concrete for a working life of 50 years									
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	9,7	9,7	9,7	9,5	8,7	8,7	6,2	6,1
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	9,4	9,4	9,4	9,2	8,4	8,4	6,0	5,9
Characteristic bond resistance in cracked concrete for a working life of 100 years									
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	8,6	8,6	8,6	8,6	8,2	8,2	6,2	5,5
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	8,3	8,3	8,3	8,3	7,9	7,9	6,0	5,3
Installation safety factor										
Dry, wet concrete	γ_{inst}	[-]	1,0							
Flooded hole	γ_{inst}	[-]	1,2							
Factor for influence of sustained load for a working life 50 years T3: 50°C / 70°C	ψ^0_{sus}	[-]	0,76							
Factor for influence of sustained load for a working life 50 years T4: 55°C / 75°C	ψ^0_{sus}	[-]	0,76							
Factor for concrete C25/30	ψ_c	[-]	1,02							
Factor for concrete C30/37	ψ_c	[-]	1,04							
Factor for concrete C35/45	ψ_c	[-]	1,06							
Factor for concrete C40/50	ψ_c	[-]	1,07							
Factor for concrete C45/55	ψ_c	[-]	1,08							
Factor for concrete C50/60	ψ_c	[-]	1,09							
Concrete cone failure									
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11							
Factor for concrete cone failure for cracked concrete	$k_{cr,N}$	[-]	7,7							
Edge distance	$c_{cr,N}$	[mm]	$1,5h_{ef}$							
Splitting failure									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Edge distance	$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$							
Spacing	$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$							

Sika AnchorFix®-3030	**Annex C 5**
Performances Diamond core drilling Characteristic resistance for tension loads - threaded rod	

Table C8: Design method EN 1992-4
Characteristic values of resistance to tension load of threaded socket

Diamond core drilling

Combined pullout and concrete cone failure in concrete C20/25								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Nominal external diameter of socket			M10	M12	M16	M20	M24	M30
Characteristic bond resistance in uncracked concrete for a working life of 50 years and 100 years								
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	14,8	14,8	12,2	12,2	12,2	9,6
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	14,3	14,3	11,8	11,8	11,8	9,3
Installation safety factor								
Dry, wet concrete	γ_{inst}	[-]	1,0					
Flooded hole	γ_{inst}	[-]	1,2					
Characteristic bond resistance in cracked concrete for a working life of 50 years								
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	9,7	9,7	9,5	8,7	8,7	6,1
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	9,4	9,4	9,2	8,4	8,4	5,9
Characteristic bond resistance in cracked concrete for a working life of 100 years								
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	8,6	8,6	8,6	8,2	8,2	5,5
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	8,3	8,3	8,3	7,9	7,9	5,3
Installation safety factor								
Dry, wet concrete	γ_{inst}	[-]	1,0					
Flooded hole	γ_{inst}	[-]	1,2					
Factor for influence of sustained load for a working life 50 years — T3: 50°C / 70°C	ψ^0_{sus}	[-]	0,76					
Factor for influence of sustained load for a working life 50 years — T4: 55°C / 75°C	ψ^0_{sus}	[-]	0,76					
Factor for concrete — C25/30	ψ_c	[-]	1,02					
Factor for concrete — C30/37	ψ_c	[-]	1,04					
Factor for concrete — C35/45	ψ_c	[-]	1,06					
Factor for concrete — C40/50	ψ_c	[-]	1,07					
Factor for concrete — C45/55	ψ_c	[-]	1,08					
Factor for concrete — C50/60	ψ_c	[-]	1,09					
Concrete cone failure								
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11					
Factor for concrete cone failure for cracked concrete	$k_{cr,N}$	[-]	7,7					
Edge distance	$c_{cr,N}$	[mm]	$1{,}5h_{ef}$					
Splitting failure								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Edge distance	$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$					
Spacing	$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$					

Sika AnchorFix®-3030	
Performances Diamond core drilling Characteristic resistance for tension loads - threaded socket	**Annex C 6**

Table C9: Design method EN 1992-4
Characteristic values of resistance to tension load of rebar

Diamond core drilling									
Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years									
Size				**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Characteristic bond resistance in uncracked concrete										
Temperature T3: 50°C / 70°C		$\tau_{Rk,ucr}$	[N/mm²]	13,3	12,3	12,3	11,7	11,0	10,9	8,1
Temperature T4: 55°C / 75°C		$\tau_{Rk,ucr}$	[N/mm²]	12,9	11,9	11,9	11,9	10,7	10,5	7,8
Installation safety factor										
Dry, wet concrete		γ_{inst}	[-]	1,0						
Flooded hole		γ_{inst}	[-]	1,2						
Characteristic bond resistance in cracked concrete for a working life of 50 years										
Temperature T3: 50°C / 70°C		$\tau_{Rk,ucr}$	[N/mm²]	8,1	8,3	8,1	8,1	7,3	6,6	6,4
Temperature T4: 55°C / 75°C		$\tau_{Rk,ucr}$	[N/mm²]	7,8	8,0	7,8	7,8	7,1	6,4	6,2
Characteristic bond resistance in cracked concrete for a working life of 100 years										
Temperature T3: 50°C / 70°C		$\tau_{Rk,ucr}$	[N/mm²]	6,4	7,2	7,2	7,2	6,9	6,3	5,8
Temperature T4: 55°C / 75°C		$\tau_{Rk,ucr}$	[N/mm²]	6,2	7,0	7,0	7,0	6,7	6,1	5,6
Installation safety factor										
Dry, wet concrete		γ_{inst}	[-]	1,0						
Flooded hole		γ_{inst}	[-]	1,2						
Factor for influence of sustained load for a working life 50 years	T3: 50°C / 70°C	ψ^0_{sus}	[-]	0,76						
	T4: 55°C / 75°C			0,76						
Factor for concrete	C25/30	ψ_c	[-]	1,02						
	C30/37			1,04						
	C35/45			1,06						
	C40/50			1,07						
	C45/55			1,08						
	C50/60			1,09						

Concrete cone failure			
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11
Factor for concrete cone failure for cracked concrete	$k_{cr,N}$		7,7
Edge distance	$c_{cr,N}$	[mm]	$1,5h_{ef}$

Splitting failure									
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Edge distance	$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$						
Spacing	$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$						

Sika AnchorFix®-3030

Performances
Diamond core drilling
Characteristic resistance for tension loads - rebar

Annex C 7

Table C10: Design method EN 1992-4
Characteristic values of resistance to shear load of threaded rod

Steel failure without lever arm									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Steel grade **4.6**	$V^0_{Rk,s}$	[kN]	9	14	20	38	59	85	110	135
Partial safety factor	γ_{Ms}	[-]	1,67							
Steel grade **5.8**	$V^0_{Rk,s}$	[kN]	11	17	25	47	74	106	138	168
Partial safety factor	γ_{Ms}	[-]	1,25							
Steel grade **8.8**	$V^0_{Rk,s}$	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	γ_{Ms}	[-]	1,25							
Steel grade **10.9**	$V^0_{Rk,s}$	[kN]	18	29	42	79	123	177	230	281
Partial safety factor	γ_{Ms}	[-]	1,5							
Stainless steel grade **A2-70, A4-70**	$V^0_{Rk,s}$	[kN]	13	20	30	55	86	124	161	196
Partial safety factor	γ_{Ms}	[-]	1,56							
Stainless steel grade **A4-80**	$V^0_{Rk,s}$	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	γ_{Ms}	[-]	1,33							
Stainless steel grade **1.4529**	$V^0_{Rk,s}$	[kN]	13	20	30	55	86	124	161	196
Partial safety factor	γ_{Ms}	[-]	1,25							
Stainless steel grade **1.4565**	$V^0_{Rk,s}$	[kN]	13	20	30	55	86	124	161	196
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**	**M27**	**M30**
Steel grade **4.6**	$M^{0}_{Rk,s}$	[N.m]	15	30	52	133	260	449	666	900
Partial safety factor	γ_{Ms}	[-]	1,67							
Steel grade **5.8**	$M^{0}_{Rk,s}$	[N.m]	19	37	66	166	325	561	832	1125
Partial safety factor	γ_{Ms}	[-]	1,25							
Steel grade **8.8**	$M^{0}_{Rk,s}$	[N.m]	30	60	105	266	519	898	1332	1799
Partial safety factor	γ_{Ms}	[-]	1,25							
Steel grade **10.9**	$M^{0}_{Rk,s}$	[N.m]	37	75	131	333	649	1123	1664	2249
Partial safety factor	γ_{Ms}	[-]	1,50							
Stainless steel grade **A2-70, A4-70**	$M^{0}_{Rk,s}$	[N.m]	26	52	92	233	454	786	1165	1574
Partial safety factor	γ_{Ms}	[-]	1,56							
Stainless steel grade **A4-80**	$M^{0}_{Rk,s}$	[N.m]	30	60	105	266	519	898	1332	1799
Partial safety factor	γ_{Ms}	[-]	1,33							
Stainless steel grade **1.4529**	$M^{0}_{Rk,s}$	[N.m]	26	52	92	233	454	786	1165	1574
Partial safety factor	γ_{Ms}	[-]	1,25							
Stainless steel grade **1.4565**	$M^{0}_{Rk,s}$	[N.m]	26	52	92	233	454	786	1165	1574
Partial safety factor	γ_{Ms}	[-]	1,56							
Concrete pryout failure										
Factor for resistance to pry-out failure	k_8	[-]	2							

Concrete edge failure									
Size		**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Outside diameter of fastener	d_{nom} [mm]	8	10	12	16	20	24	27	30
Effective length of fastener	ℓ_f [mm]	min (h_{ef}, 8 d_{nom})							

Sika AnchorFix®-3030

Performances
Design according to EN 1992-4
Characteristic resistance for shear loads - threaded rod

Annex C 8

Table C11: Design method EN 1992-4
Characteristic values of resistance to shear load of threaded socket

Steel failure without lever arm								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Nominal external diameter of socket			M10	M12	M16	M20	M24	M30
Steel grade **4.6**	$V_{Rk,s}$	[kN]	5	9	14	20	38	59
Partial safety factor	γ_{Ms}	[-]	1,67					
Steel grade **5.8**	$V_{Rk,s}$	[kN]	6	11	17	25	47	74
Partial safety factor	γ_{Ms}	[-]	1,25					
Steel grade **8.8**	$V_{Rk,s}$	[kN]	8	15	23	34	63	98
Partial safety factor	γ_{Ms}	[-]	1,25					
Steel grade **10.9**	$V_{Rk,s}$	[kN]	10	18	29	42	79	123
Partial safety factor	γ_{Ms}	[-]	1,5					
Stainless steel grade **A2-70, A4-70**	$V_{Rk,s}$	[kN]	7	13	20	30	55	86
Partial safety factor	γ_{Ms}	[-]	1,56					
Stainless steel grade **A4-80**	$V_{Rk,s}$	[kN]	8	15	23	34	63	98
Partial safety factor	γ_{Ms}	[-]	1,33					
Stainless steel grade **1.4529**	$V_{Rk,s}$	[kN]	7	13	20	30	55	86
Partial safety factor	γ_{Ms}	[-]	1,25					
Stainless steel grade **1.4565**	$V_{Rk,s}$	[kN]	7	13	20	30	55	86
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			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Nominal external diameter of socket			M10	M12	M16	M20	M24	M30
Steel grade **4.6**	$M^0_{Rk,s}$	[N.m]	6	15	30	52	133	260
Partial safety factor	γ_{Ms}	[-]	1,67					
Steel grade **5.8**	$M^0_{Rk,s}$	[N.m]	8	19	37	66	166	325
Partial safety factor	γ_{Ms}	[-]	1,25					
Steel grade **8.8**	$M^0_{Rk,s}$	[N.m]	12	30	60	105	266	519
Partial safety factor	γ_{Ms}	[-]	1,25					
Steel grade **10.9**	$M^0_{Rk,s}$	[N.m]	15	37	75	131	333	649
Partial safety factor	γ_{Ms}	[-]	1,50					
Stainless steel grade **A2-70, A4-70**	$M^0_{Rk,s}$	[N.m]	11	26	52	92	233	454
Partial safety factor	γ_{Ms}	[-]	1,56					
Stainless steel grade **A4-80**	$M^0_{Rk,s}$	[N.m]	12	30	60	105	266	519
Partial safety factor	γ_{Ms}	[-]	1,33					
Stainless steel grade **1.4529**	$M^0_{Rk,s}$	[N.m]	11	26	52	92	233	454
Partial safety factor	γ_{Ms}	[-]	1,25					
Stainless steel grade **1.4565**	$M^0_{Rk,s}$	[N.m]	11	26	52	92	233	454
Partial safety factor	γ_{Ms}	[-]	1,56					
Concrete pryout failure								
Factor for resistance to pry-out failure	k_8	[-]	2					

Concrete edge failure								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Nominal external diameter of socket			M10	M12	M16	M20	M24	M30
Outside diameter of fastener	d_{nom}	[mm]	10	12	16	20	24	30
Effective length of fastener	ℓ_f	[mm]	min (h_{ef}, 8 d_{nom})					

Sika AnchorFix®-3030	
Performances Design according to EN 1992-4 Characteristic resistance for shear loads - threaded socket	**Annex C 9**

Table C12: Design method EN 1992-4
Characteristic values of resistance to shear load of rebar

Steel failure without lever arm								
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Rebar BSt 500 S	$V_{Rk,s}$	[kN]	14	22	31	55	86	135	221
Partial safety factor	γ_{Ms}	[-]	1,5						
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			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Rebar BSt 500 S	$M^0_{Rk,s}$	[N.m]	33	65	112	265	518	1013	2122
Partial safety factor	γ_{Ms}	[-]	1,5						
Concrete pryout failure									
Factor for resistance to pry-out failure	k_8	[-]	2						

Concrete edge failure								
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Outside diameter of fastener	d_{nom}	[mm]	8	10	12	16	20	25	32
Effective length of fastener	ℓ_f	[mm]	min (h_{ef}, 8 d_{nom})						

Sika AnchorFix®-3030	
Performances Design according to EN 1992-4 Characteristic resistance for shear loads - rebar	**Annex C 10**

Table C13: Displacement of threaded rod under tension and shear load
Hammer drilling, dustless drilling

Size		M8	M10	M12	M16	M20	M24	M27	M30
Tension load									
Uncracked concrete									
δ_{N0}	[mm/kN]	0,03	0,02	0,02	0,02	0,01	0,01	0,01	0,01
$\delta_{N\infty}$	[mm/kN]	0,05	0,04	0,03	0,03	0,02	0,02	0,01	0,01
Cracked concrete									
δ_{N0}	[mm/kN]	0,05	0,04	0,03	0,03	0,02	0,02	0,02	0,02
$\delta_{N\infty}$	[mm/kN]	0,35	0,21	0,14	0,12	0,08	0,07	0,07	0,07
Shear load									
δ_{V0}	[mm/kN]	0,71	0,45	0,31	0,17	0,11	0,07	0,06	0,05
$\delta_{V\infty}$	[mm/kN]	1,06	0,67	0,46	0,25	0,16	0,11	0,08	0,07

Table C14: Displacement of threaded rod under tension and shear load
Diamond core drilling

Size		M8	M10	M12	M16	M20	M24	M27	M30
Tension load									
Uncracked concrete									
δ_{N0}	[mm/kN]	0,01	0,01	0,02	0,02	0,02	0,02	0,01	0,02
$\delta_{N\infty}$	[mm/kN]	0,09	0,07	0,05	0,04	0,03	0,02	0,02	0,02
Cracked concrete									
δ_{N0}	[mm/kN]	0,03	0,04	0,04	0,04	0,03	0,03	0,04	0,04
$\delta_{N\infty}$	[mm/kN]	0,33	0,28	0,20	0,14	0,12	0,09	0,09	0,08
Shear load									
δ_{V0}	[mm/kN]	0,71	0,45	0,31	0,17	0,11	0,07	0,06	0,05
$\delta_{V\infty}$	[mm/kN]	1,06	0,67	0,46	0,25	0,16	0,11	0,08	0,07

Table C15: Displacement of rebar under tension and shear load
Hammer drilling, dustless drilling

Size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Tension load								
Uncracked concrete								
δ_{N0}	[mm/kN]	0,04	0,03	0,02	0,01	0,01	0,01	0,01
$\delta_{N\infty}$	[mm/kN]	0,08	0,05	0,04	0,02	0,02	0,01	0,01
Cracked concrete								
δ_{N0}	[mm/kN]	0,05	0,04	0,03	0,03	0,02	0,02	0,02
$\delta_{N\infty}$	[mm/kN]	0,35	0,21	0,17	0,11	0,08	0,07	0,06
Shear load								
δ_{V0}	[mm/kN]	0,38	0,24	0,17	0,10	0,06	0,04	0,02
$\delta_{V\infty}$	[mm/kN]	0,56	0,36	0,25	0,14	0,09	0,06	0,04

Table C16: Displacement of rebar under tension and shear load
Diamond drilling

Size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Tension load								
Uncracked concrete								
δ_{N0}	[mm/kN]	0,02	0,02	0,02	0,01	0,01	0,01	0,01
$\delta_{N\infty}$	[mm/kN]	0,09	0,06	0,04	0,03	0,02	0,01	0,01
Cracked concrete								
δ_{N0}	[mm/kN]	0,04	0,03	0,03	0,02	0,02	0,01	0,01
$\delta_{N\infty}$	[mm/kN]	0,39	0,26	0,18	0,10	0,07	0,04	0,03
Shear load								
δ_{V0}	[mm/kN]	0,38	0,24	0,17	0,10	0,06	0,04	0,02
$\delta_{V\infty}$	[mm/kN]	0,56	0,36	0,25	0,14	0,09	0,06	0,04

Sika AnchorFix®-3030

Performances
Displacements

Annex C 11

Table C17: Seismic performance category C1 of threaded rod - Hammer drilling, Dustless drilling

Size			M8	M10	M12	M16	M20	M24	M27	M30
Tension load										
Steel failure										
Characteristic resistance grade **4.6**	$N_{Rk,s,C1}$	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	γ_{Ms}	[-]	2,00							
Characteristic resistance grade **5.8**	$N_{Rk,s,C1}$	[kN]	18	29	42	79	123	177	230	281
Partial safety factor	γ_{Ms}	[-]	1,50							
Characteristic resistance grade **8.8**	$N_{Rk,s,C1}$	[kN]	29	46	67	126	196	282	367	449
Partial safety factor	γ_{Ms}	[-]	1,50							
Characteristic resistance grade **10.9**	$N_{Rk,s,C1}$	[kN]	37	58	84	157	245	353	459	561
Partial safety factor	γ_{Ms}	[-]	1,40							
Characteristic resistance **A2-70, A4-70**	$N_{Rk,s,C1}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,87							
Characteristic resistance **A4-80**	$N_{Rk,s,C1}$	[kN]	29	46	67	126	196	282	367	449
Partial safety factor	γ_{Ms}	[-]	1,60							
Characteristic resistance **1.4529**	$N_{Rk,s,C1}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,50							
Characteristic resistance **1.4565**	$N_{Rk,s,C1}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,87							
Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years										
Characteristic bond resistance										
Temperature T3: 50°C / 70°C	$\tau_{Rk,p,C1}$	[N/mm²]	9,4	8,5	10,0	8,7	7,4	7,7	5,7	4,9
Temperature T4: 55°C / 75°C	$\tau_{Rk,p,C1}$	[N/mm²]	9,1	8,2	10,0	8,4	7,2	7,5	5,5	4,7
Installation safety factor										
Dry, wet concrete	γ_{inst}	[-]	1,0							
Hammer drilling – Flooded hole	γ_{inst}	[-]	1,0							
Dustless drilling – Flooded hole	γ_{inst}	[-]	1,2							
Shear load										
Steel failure without lever arm										
Characteristic resistance grade **4.6**	$V_{Rk,s,C1}$	[kN]	5	9	13	20	32	28	37	45
Partial safety factor	γ_{Ms}	[-]	1,67							
Characteristic resistance grade **5.8**	$V_{Rk,s,C1}$	[kN]	7	11	16	26	40	35	46	56
Partial safety factor	γ_{Ms}	[-]	1,25							
Characteristic resistance grade **8.8**	$V_{Rk,s,C1}$	[kN]	11	17	25	41	64	56	73	90
Partial safety factor	γ_{Ms}	[-]	1,25							
Characteristic resistance grade **10.9**	$V_{Rk,s,C1}$	[kN]	14	22	32	51	80	71	92	112
Partial safety factor	γ_{Ms}	[-]	1,50							
Characteristic resistance **A2-70, A4-70**	$V_{Rk,s,C1}$	[kN]	10	15	22	36	56	49	64	79
Partial safety factor	γ_{Ms}	[-]	1,56							
Characteristic resistance **A4-80**	$V_{Rk,s,C1}$	[kN]	11	17	25	41	64	56	73	90
Partial safety factor	γ_{Ms}	[-]	1,33							
Characteristic resistance **1.4529**	$V_{Rk,s,C1}$	[kN]	10	15	22	36	56	49	64	79
Partial safety factor	γ_{Ms}	[-]	1,25							
Characteristic resistance **1.4565**	$V_{Rk,s,C1}$	[kN]	10	15	22	36	56	49	64	79
Partial safety factor	γ_{Ms}	[-]	1,56							
Characteristic shear load resistance $V_{Rk,s,eq}$ in the Table C13 shall be multiplied by following reduction factor for **hot-dip galvanized** commercial standard rods										
Reduction factor for hot-dip galvanized rods	$\alpha_{v,h\text{-}dg,c1}$	[-]	0,47	0,47	0,47	0,54	0,54	0,88	0,88	0,88
Factor for annular gap without filling gap	α_{gap}	[-]	0,5							
Factor for annular gap with filling gap	α_{gap}	[-]	1,0							

The anchor shall be used with minimum rupture elongation after fracture $A_5 \geq 9\%$.

Sika AnchorFix®-3030	
Performances Hammer drilling, Dustless drilling Seismic performance category C1 of threaded rod	**Annex C 12**

Table C18: Seismic performance category C1 of rebar - Hammer drilling, Dustless drilling

Size			Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Tension load								
Steel failure								
Rebar BSt 500 S	$N_{Rk,s,C1}$	[kN]	43	62	111	173	270	442
Partial safety factor	γ_{Ms}	[-]	1,4					
Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years								
Characteristic bond resistance								
Temperature T3: 50°C / 70°C	$\tau_{Rk,p,C1}$	[N/mm²]	9,4	9,8	9,5	8,8	8,0	5,3
Temperature T4: 55°C / 75°C	$\tau_{Rk,p,C1}$	[N/mm²]	9,1	9,5	9,2	8,5	7,7	5,2
Installation safety factor								
Hammer drilling - Dry, wet concrete	γ_{inst}	[-]	1,0					
Dustless drilling - Dry, wet concrete	γ_{inst}	[-]	1,2					
Flooded hole	γ_{inst}	[-]	1,2					
Shear load								
Steel failure without lever arm								
Rebar BSt 500 S	$V_{Rk,s,C1}$	[kN]	16	23	41	69	67	111
Partial safety factor	γ_{Ms}	[-]	1,5					
Factor for annular gap without filling gap	α_{gap}	[-]	0,5					
Factor for annular gap with filling gap	α_{gap}	[-]	1,0					

Sika AnchorFix®-3030	
Performances Hammer drilling, Dustless drilling Seismic performance category C1 of rebar	**Annex C 13**

Table C19: Seismic performance category C2 of threaded rod - Hammer drilling, Dustless drilling

Size			M12	M16	M20
Tension load					
Steel failure					
Characteristic resistance grade **4.6**	$N_{Rk,s,C2}$	[kN]	34	63	98
Partial safety factor	γ_{Ms}	[-]		2,00	
Characteristic resistance grade **5.8**	$N_{Rk,s,C2}$	[kN]	42	79	123
Partial safety factor	γ_{Ms}	[-]		1,50	
Characteristic resistance grade **8.8**	$N_{Rk,s,C2}$	[kN]	67	126	196
Partial safety factor	γ_{Ms}	[-]		1,50	
Characteristic resistance grade **10.9**	$N_{Rk,s,C2}$	[kN]	84	157	245
Partial safety factor	γ_{Ms}	[-]		1,40	
Characteristic resistance **A2-70, A4-70**	$N_{Rk,s,C2}$	[kN]	59	110	172
Partial safety factor	γ_{Ms}	[-]		1,87	
Characteristic resistance **A4-80**	$N_{Rk,s,C2}$	[kN]	67	126	196
Partial safety factor	γ_{Ms}	[-]		1,60	
Characteristic resistance **1.4529**	$N_{Rk,s,C2}$	[kN]	59	110	172
Partial safety factor	γ_{Ms}	[-]		1,50	
Characteristic resistance **1.4565**	$N_{Rk,s,C2}$	[kN]	59	110	172
Partial safety factor	γ_{Ms}	[-]		1,87	
Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years					
Characteristic bond resistance					
Temperature T3: 50°C / 70°C	$\tau_{Rk,p,C2}$	[N/mm²]	3,5	4,0	4,5
Temperature T4: 55°C / 75°C	$\tau_{Rk,p,C2}$	[N/mm²]	3,3	3,8	4,4
Installation safety factor	γ_{inst}	[-]		1,0	
Dry and wet concrete, Flooded hole	γ_{inst}	[-]		1,0	
Dustless drilling – Flooded hole	γ_{inst}	[-]		1,2	
Shear load					
Steel failure without lever arm					
Characteristic resistance grade **4.6**	$V_{Rk,s,C2}$	[kN]	13	18	28
Partial safety factor	γ_{Ms}	[-]		1,67	
Characteristic resistance grade **5.8**	$V_{Rk,s,C2}$	[kN]	16	22	35
Partial safety factor	γ_{Ms}	[-]		1,25	
Characteristic resistance grade **8.8**	$V_{Rk,s,C2}$	[kN]	25	36	56
Partial safety factor	γ_{Ms}	[-]		1,25	
Characteristic resistance grade **10.9**	$V_{Rk,s,C2}$	[kN]	32	45	70
Partial safety factor	γ_{Ms}	[-]		1,50	
Characteristic resistance **A2-70, A4-70**	$V_{Rk,s,C2}$	[kN]	22	31	49
Partial safety factor	γ_{Ms}	[-]		1,56	
Characteristic resistance **A4-80**	$V_{Rk,s,C2}$	[kN]	25	36	56
Partial safety factor	γ_{Ms}	[-]		1,33	
Characteristic resistance **1.4529**	$V_{Rk,s,C2}$	[kN]	22	31	49
Partial safety factor	γ_{Ms}	[-]		1,25	
Characteristic resistance **1.4565**	$V_{Rk,s,C2}$	[kN]	22	31	49
Partial safety factor	γ_{Ms}	[-]		1,56	
Characteristic shear load resistance $V_{Rk,s,eq}$ in the Table C15 shall be multiplied by following reduction factor for **hot-dip galvanized** commercial standard rods					
Reduction factor for hot-dip galvanized rods	$\alpha_{v,h\text{-}dg,c2}$	[-]	0,46	0,61	0,61
Factor for annular gap without filling gap	α_{gap}	[-]		0,5	
Factor for annular gap with filling gap	α_{gap}	[-]		1,0	

Table C20: Displacement under tensile and shear load - seismic category C2 of threaded rod

Size		M12	M16	M20
$\delta_{N,C2(50\%)}$	[mm]	0,20	0,40	0,77
$\delta_{N,C2(100\%)}$	[mm]	0,76	0,74	1,68
$\delta_{V,C2(50\%)}$	[mm]	5,29	4,12	4,94
$\delta_{V,C2(100\%)}$	[mm]	10,20	9,05	10,99

The anchor shall be used with minimum rupture elongation after fracture $A_5 \geq 9\%$.

Sika AnchorFix®-3030	
Performances Hammer drilling, Dustless drilling Seismic performance category C2 of threaded rod	**Annex C 14**

Characteristic resistance to combined pull-out and concrete failure $\tau_{Rk,fi}(\theta)$ under fire exposure for threaded rods for hammer or dustless drilling

The characteristic resistance to combined pull-out and concrete failure under fire $\tau_{Rk,fi,p}(\theta)$ shall be determined according to following equation:

$$\tau_{Rk,fi,p}(\theta) = k_{fi,p}(\theta) \cdot \tau_{Rk,cr}$$

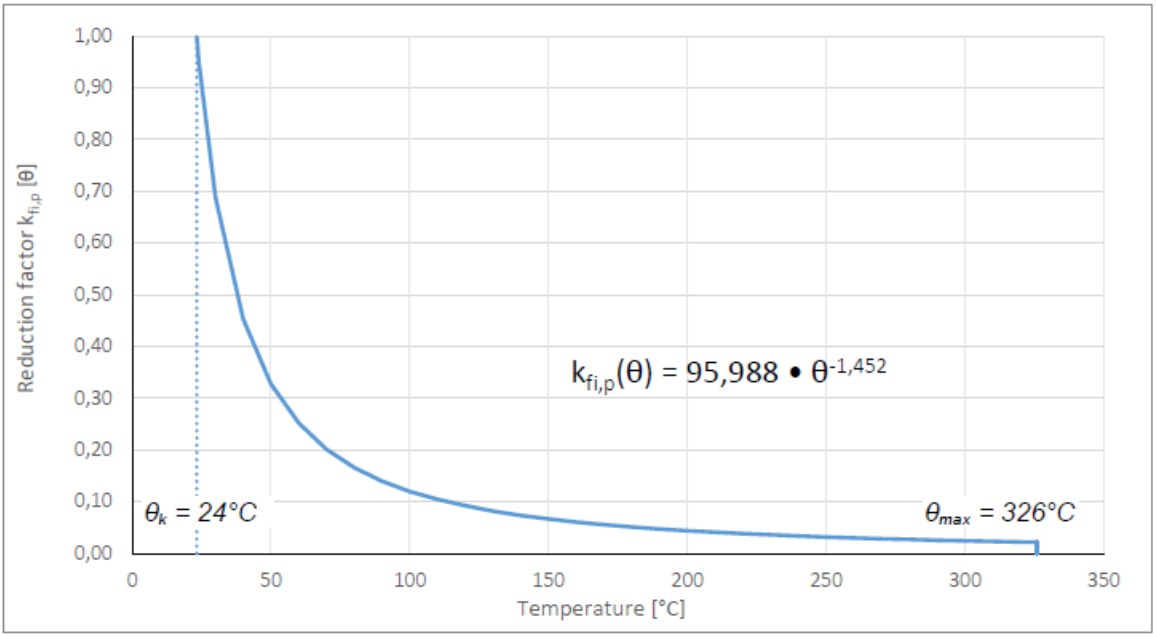
where:

$k_{fi,p}(\theta) = 1$	for	$\theta < \theta_k$
$k_{fi,p}(\theta) = 95{,}988 \bullet \theta^{-1{,}452} \leq 1$	for	$\theta \leq \theta_{max}$
$k_{fi,p}(\theta) = 0$	for	$\theta > \theta_{max}$

θ_k = 21°C
θ_{max} = 326°C

$\tau_{Rk,fi,p}$ = *characteristic bond resistance for cracked concrete under fire exposure tor given temperature (θ)*
$\tau_{Rk,cr}$ = *characteristic bond resistance for cracked concrete for concrete strength class C20/25*
$k_{fi,p}(\theta)$ = *reduction factor for bond resistance under fire conditions*

Figure C1: Reduction factor $k_{fi,p}(\theta)$



Sika AnchorFix®-3030	
Performances Bond resistance under fire conditions	**Annex C 15**

Table C21: Steel failure - Characteristic resistance under tension load under fire conditions for threaded rod

Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel grade: 4.6; 5.8; 8.8; 10.9	$N_{Rk,s,fi(30)}$	[kN]	0,37	0,87	1,69	3,14	4,90	7,06	9,18	11,22
	$N_{Rk,s,fi(60)}$	[kN]	0,33	0,75	1,26	2,36	3,68	5,30	6,89	8,42
	$N_{Rk,s,fi(90)}$	[kN]	0,26	0,58	1,10	2,04	3,19	4,59	5,97	7,29
	$N_{Rk,s,fi(120)}$	[kN]	0,18	0,46	0,84	1,57	2,45	3,53	4,59	5,61
Stainless steel grade: A2-70; A4-70; A4-80 High corrosion resistant steel grade: 1.4529; 1.4565	$N_{Rk,s,fi(30)}$	[kN]	0,73	1,45	2,53	4,71	7,35	10,59	13,77	16,83
	$N_{Rk,s,fi(60)}$	[kN]	0,59	1,16	2,11	3,93	6,13	8,83	11,48	14,03
	$N_{Rk,s,fi(90)}$	[kN]	0,44	0,93	1,69	3,14	4,90	7,06	9,18	11,22
	$N_{Rk,s,fi(120)}$	[kN]	0,37	0,81	1,35	2,51	3,92	5,65	7,34	8,98

Table C22: Steel failure - Characteristic resistance under tension load under fire conditions for rebar

Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar BSt 500 S	$N_{Rk,s,fi(30)}$	[kN]	0,50	1,18	2,26	4,02	6,28	9,82	16,08
	$N_{Rk,s,fi(60)}$	[kN]	0,45	1,02	1,70	3,02	4,71	7,36	12,06
	$N_{Rk,s,fi(90)}$	[kN]	0,35	0,79	1,47	2,61	4,08	6,38	10,45
	$N_{Rk,s,fi(120)}$	[kN]	0,25	0,63	1,13	2,01	3,14	4,91	8,04

Table C23: Steel failure - Characteristic resistance under shear load under fire conditions for threaded rod

Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel grade: 4.6; 5.8; 8.8; 10.9	$V_{Rk,s,fi(30)}$	[kN]	0,37	0,87	1,69	3,14	4,90	7,06	9,18	11,22
	$V_{Rk,s,fi(60)}$	[kN]	0,33	0,75	1,26	2,36	3,68	5,30	6,89	8,42
	$V_{Rk,s,fi(90)}$	[kN]	0,26	0,58	1,10	2,04	3,19	4,59	5,97	7,29
	$V_{Rk,s,fi(120)}$	[kN]	0,18	0,46	0,84	1,57	2,45	3,53	4,59	5,61
	$M^0_{Rk,s,fi(30)}$	[N.m]	0,4	1,1	2,6	6,7	13,0	22,5	33,3	45,0
	$M^0_{Rk,s,fi(60)}$	[N.m]	0,3	1,0	2,0	5,0	9,7	16,8	25,0	33,7
	$M^0_{Rk,s,fi(90)}$	[N.m]	0,3	0,7	1,7	4,3	8,4	14,6	21,6	29,2
	$M^0_{Rk,s,fi(120)}$	[N.m]	0,2	0,6	1,3	3,3	6,5	11,2	16,6	22,5
Stainless steel grade: A2-70; A4-70; A4-80 High corrosion resistant steel grade: 1.4529; 1.4565	$V_{Rk,s,fi(30)}$	[kN]	0,73	1,45	2,53	4,71	7,35	10,59	13,77	16,83
	$V_{Rk,s,fi(60)}$	[kN]	0,59	1,16	2,11	3,93	6,13	8,83	11,48	14,03
	$V_{Rk,s,fi(90)}$	[kN]	0,44	0,93	1,69	3,14	4,90	7,06	9,18	11,22
	$V_{Rk,s,fi(120)}$	[kN]	0,37	0,81	1,35	2,51	3,92	5,65	7,34	8,98
	$M^0_{Rk,s,fi(30)}$	[N.m]	0,7	1,9	3,9	10,0	19,5	33,7	49,9	67,5
	$M^0_{Rk,s,fi(60)}$	[N.m]	0,6	1,5	3,3	8,3	16,2	28,1	41,6	56,2
	$M^0_{Rk,s,fi(90)}$	[N.m]	0,4	1,2	2,6	6,7	13,0	22,5	33,3	45,0
	$M^0_{Rk,s,fi(120)}$	[N.m]	0,4	1,0	2,1	5,3	10,4	18,0	26,6	36,0

Table C24: Steel failure - Characteristic resistance under shear load under fire conditions for rebar

Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar BSt 500 S	$V_{Rk,s,fi(30)}$	[kN]	0,50	1,18	2,26	4,02	6,28	9,82	16,08
	$V_{Rk,s,fi(60)}$	[kN]	0,45	1,02	1,70	3,02	4,71	7,36	12,06
	$V_{Rk,s,fi(90)}$	[kN]	0,35	0,79	1,47	2,61	4,08	6,38	10,45
	$V_{Rk,s,fi(120)}$	[kN]	0,25	0,63	1,13	2,01	3,14	4,91	8,04
	$M^0_{Rk,s,fi(30)}$	[N.m]	0,6	1,8	4,1	9,7	18,9	36,8	77,2
	$M^0_{Rk,s,fi(60)}$	[N.m]	0,5	1,5	3,1	7,2	14,1	27,6	57,9
	$M^0_{Rk,s,fi(90)}$	[N.m]	0,4	1,2	2,6	6,3	12,3	23,9	50,2
	$M^0_{Rk,s,fi(120)}$	[N.m]	0,3	0,9	2,0	4,8	9,4	18,4	38,6

Sika AnchorFix®-3030

Performances
Bond resistance under fire conditions

Annex C 16

Specifications of intended use

Anchorages subject to:

- Static and quasi-static load:
  - threaded rod
  - threaded socket
  - rebar
- Seismic actions category C1 (max w = 0,5 mm):
  - threaded rod size M8, M10, M12, M16, M20, M24, M27, M30
  - rebar size Ø10, Ø12, Ø16, Ø20, Ø24, Ø25, Ø32
- Seismic actions category C2 (max w = 0,8 mm):
  - threaded rod size M12, M16, M20

Base materials

- Cracked and uncracked concrete
- Reinforced or unreinforced normal weight concrete without fibres of strength class C20/25 at minimum and C50/60 at maximum according EN 206:2013 + A2:2021.

Temperature range:

- T3: -40°C to +70°C (max. short. term temperature +70°C and max. long term temperature +50°C)
- T4: -40°C to +75°C (max. short. term temperature +75°C and max. long term temperature +55°C)

Use conditions (Environmental conditions)

- Structures subject to dry, internal conditions (all materials)
- For all other conditions according to EN 1993-1-4 corresponding to corrosion resistance class:
  - Stainless steel A2 according to Annex A 4, Table A1: CRC II
  - Stainless steel A4 according to Annex A 4, Table A1: CRC III
  - High corrosion resistance steel HCR according to Annex A 4, Table A1: CRC V

Concrete conditions:

- I1 – installation in dry or wet (water saturated) concrete and use in service in dry or wet concrete.
- I2 – installation in water-filled (not sea water) and use in service in dry or wet concrete

Design:

- The anchorages are designed in accordance with the EN 1992-4 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.
- Anchorages under seismic actions (cracked concrete) are designed in accordance with EN 1992-4.
- Anchorages under fire exposure are designed in accordance with EOTA TR 082.

Installation:

- Hole drilling by hammer drilling, dustless drilling or diamond core drilling mode.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.

Installation direction:

- D3 – downward and horizontal and upwards (e.g. overhead) installation

Sika AnchorFix®-3030	**Annex B 1**
Intended use Specifications	

7 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 : Tomasz Gutowski
Function: Corporate Product Certification Manager
At Warsaw on 22 September 2025

. . . . . .

Name : Patrycja Młynarska
Function: Data Processing Specialist
Corporate Technical Department
At Warsaw on 22 September 2025

. . . . . .

End of information as required by Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC Text with EEA relevance

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Sika Services AG, Zurich, Switzerland
DoP No. 68247540
Notified Body 1020

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

Steel failure – Characteristic resistance									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Steel grade **4.6**	$N_{Rk,s}$	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	γ_{Ms}	[-]	2,00							
Steel grade **5.8**	$N_{Rk,s}$	[kN]	18	29	42	79	123	177	230	281
Partial safety factor	γ_{Ms}	[-]	1,50							
Steel grade **8.8**	$N_{Rk,s}$	[kN]	29	46	67	126	196	282	367	449
Partial safety factor	γ_{Ms}	[-]	1,50							
Steel grade **10.9**	$N_{Rk,s}$	[kN]	37	58	84	157	245	353	459	561
Partial safety factor	γ_{Ms}	[-]	1,40							
Stainless steel grade **A2-70, A4-70**	$N_{Rk,s}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,87							
Stainless steel grade **A4-80**	$N_{Rk,s}$	[kN]	29	46	67	126	196	282	367	449
Partial safety factor	γ_{Ms}	[-]	1,60							
Stainless steel grade **1.4529**	$N_{Rk,s}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,50							
Stainless steel grade **1.4565**	$N_{Rk,s}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,87							

Table C2: Design method EN 1992-4
Steel failure - Characteristic values of resistance to tension load of threaded socket

Steel failure – Characteristic resistance								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Steel grade **4.6**	$N_{Rk,s}$	[kN]	8	15	23	34	63	98
Partial safety factor	γ_{Ms}	[-]	2,00					
Steel grade **5.8**	$N_{Rk,s}$	[kN]	10	18	29	42	79	123
Partial safety factor	γ_{Ms}	[-]	1,50					
Steel grade **8.8**	$N_{Rk,s}$	[kN]	16	29	46	67	126	196
Partial safety factor	γ_{Ms}	[-]	1,50					
Steel grade **10.9**	$N_{Rk,s}$	[kN]	20	37	58	84	157	245
Partial safety factor	γ_{Ms}	[-]	1,40					
Stainless steel grade **A2-70, A4-70**	$N_{Rk,s}$	[kN]	14	26	41	59	110	172
Partial safety factor	γ_{Ms}	[-]	1,87					
Stainless steel grade **A4-80**	$N_{Rk,s}$	[kN]	16	29	46	67	126	196
Partial safety factor	γ_{Ms}	[-]	1,60					
Stainless steel grade **1.4529**	$N_{Rk,s}$	[kN]	14	26	41	59	110	172
Partial safety factor	γ_{Ms}	[-]	1,50					
Stainless steel grade **1.4565**	$N_{Rk,s}$	[kN]	14	26	41	59	110	172
Partial safety factor	γ_{Ms}	[-]	1,87					

Table C3: Design method EN 1992-4
Steel failure - Characteristic values of resistance to tension load of rebar

Steel failure – Characteristic resistance								
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Rebar BSt 500 S	$N_{Rk,s}$	[kN]	28	43	62	111	173	270	442
Partial safety factor	γ_{Ms}	[-]	1,4						

Sika AnchorFix®-3030	
Performances Steel failure characteristic resistance	**Annex C 1**

Table C4: Design method EN 1992-4
Characteristic values of resistance to tension load of threaded rod

Hammer drilling, Dustless drilling

Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Characteristic bond resistance in uncracked concrete										
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	17,1	14,8	14,8	12,2	12,2	12,2	10,7	9,6
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	16,6	14,3	14,3	11,8	11,8	11,8	10,4	9,3
Installation safety factor										
Dry, wet concrete	γ_{inst}	[-]	1,0							
Hammer drilling – Flooded hole	γ_{inst}	[-]	1,0							
Dustless drilling – Flooded hole	γ_{inst}	[-]	1,2							
Characteristic bond resistance in cracked concrete										
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	9,7	9,7	9,7	9,5	9,1	8,8	6,2	6,1
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	9,4	9,4	9,4	9,2	8,8	8,5	6,0	5,9
Installation safety factor										
Dry, wet concrete	γ_{inst}	[-]	1,0							
Hammer drilling – Flooded hole	γ_{inst}	[-]	1,0							
Dustless drilling – Flooded hole	γ_{inst}	[-]	1,2							
Factor for influence of sustained load for a working life 50 years T3: 50°C / 70°C	ψ^0_{sus}	[-]	0,72							
Factor for influence of sustained load for a working life 50 years T4: 55°C / 75°C	ψ^0_{sus}	[-]	1,00							
Factor for concrete C25/30	ψ_c	[-]	1,02							
Factor for concrete C30/37	ψ_c	[-]	1,04							
Factor for concrete C35/45	ψ_c	[-]	1,06							
Factor for concrete C40/50	ψ_c	[-]	1,07							
Factor for concrete C45/55	ψ_c	[-]	1,08							
Factor for concrete C50/60	ψ_c	[-]	1,09							
Concrete cone failure										
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11							
Factor for concrete cone failure for cracked concrete	$k_{cr,N}$	[-]	7,7							
Edge distance	$c_{cr,N}$	[mm]	$1,5h_{ef}$							
Splitting failure										
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Edge distance	$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$							
Spacing	$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$							

Sika AnchorFix®-3030	**Annex C 2**
Performances Hammer drilling, Dustless drilling Characteristic resistance for tension loads - threaded rod	

Table C5: Design method EN 1992-4
Characteristic values of resistance to tension load of threaded socket

Hammer drilling, Dustless drilling

Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Nominal external diameter of socket			M10	M12	M16	M20	M24	M30
Characteristic bond resistance in uncracked concrete								
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	14,8	14,8	12,2	12,2	12,2	9,6
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	14,3	14,3	11,8	11,8	11,8	9,3
Installation safety factor								
Dry, wet concrete	γ_{inst}	[-]	1,0					
Hammer drilling – Flooded hole	γ_{inst}	[-]	1,0					
Dustless drilling – Flooded hole	γ_{inst}	[-]	1,2					
Characteristic bond resistance in cracked concrete								
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	9,7	9,7	9,5	9,1	8,8	6,1
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	9,4	9,4	9,2	8,8	8,5	5,9
Installation safety factor								
Dry, wet concrete	γ_{inst}	[-]	1,0					
Hammer drilling – Flooded hole	γ_{inst}	[-]	1,0					
Dustless drilling – Flooded hole	γ_{inst}	[-]	1,2					
Factor for influence of sustained load for a working life 50 years — T3: 50°C / 70°C	ψ^0_{sus}	[-]	0,72					
Factor for influence of sustained load for a working life 50 years — T4: 55°C / 75°C	ψ^0_{sus}	[-]	1,00					
Factor for concrete — C25/30	ψ_c	[-]	1,02					
Factor for concrete — C30/37	ψ_c	[-]	1,04					
Factor for concrete — C35/45	ψ_c	[-]	1,06					
Factor for concrete — C40/50	ψ_c	[-]	1,07					
Factor for concrete — C45/55	ψ_c	[-]	1,08					
Factor for concrete — C50/60	ψ_c	[-]	1,09					
Concrete cone failure								
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11					
Factor for concrete cone failure for cracked concrete	$k_{cr,N}$	[-]	7,7					
Edge distance	$c_{cr,N}$	[mm]	$1,5h_{ef}$					
Splitting failure								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Edge distance	$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$					
Spacing	$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$					

Sika AnchorFix®-3030	**Annex C 3**
Performances Hammer drilling, Dustless drilling Characteristic resistance for tension loads - threaded socket	

Table C6: Design method EN 1992-4
Characteristic values of resistance to tension load of rebar

Hammer drilling, Dustless drilling									
Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years									
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Characteristic bond resistance in uncracked concrete									
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	13,3	13,3	13,3	11,7	11,7	11,7	8,1
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	12,9	12,9	12,9	11,3	11,3	11,3	7,8
Installation safety factor									
Hammer drilling - Dry, wet concrete	γ_{inst}	[-]	1,0						
Dustless drilling - Dry, wet concrete	γ_{inst}	[-]	1,2						
Flooded hole	γ_{inst}	[-]	1,2						
Characteristic bond resistance in cracked concrete									
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	8,1	11,4	10,7	10,4	9,9	8,6	6,4
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	7,8	11,0	10,3	10,1	9,6	8,4	6,2
Installation safety factor									
Hammer drilling - Dry, wet concrete	γ_{inst}	[-]	1,0						
Dustless drilling - Dry, wet concrete	γ_{inst}	[-]	1,2						
Flooded hole	γ_{inst}	[-]	1,2						
Factor for influence of sustained load for a working life 50 years — T3: 50°C / 70°C	ψ^0_{sus}	[-]	0,72						
Factor for influence of sustained load for a working life 50 years — T4: 55°C / 75°C	ψ^0_{sus}	[-]	1,00						
Factor for concrete — C25/30	ψ_c	[-]	1,02						
Factor for concrete — C30/37	ψ_c	[-]	1,04						
Factor for concrete — C35/45	ψ_c	[-]	1,06						
Factor for concrete — C40/50	ψ_c	[-]	1,07						
Factor for concrete — C45/55	ψ_c	[-]	1,08						
Factor for concrete — C50/60	ψ_c	[-]	1,09						

Concrete cone failure			
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11
Factor for concrete cone failure for cracked concrete	$k_{cr,N}$	[-]	7,7
Edge distance	$c_{cr,N}$	[mm]	$1,5h_{ef}$

Splitting failure									
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Edge distance	$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$						
Spacing	$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$						

Sika AnchorFix®-3030

Performances
Hammer drilling, Dustless drilling
Characteristic resistance for tension loads - rebar

Annex C 4

Table C7: Design method EN 1992-4
Characteristic values of resistance to tension load of threaded rod

Diamond core drilling									
Combined pullout and concrete cone failure in concrete C20/25									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Characteristic bond resistance in uncracked concrete for a working life of 50 years and 100 years									
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	16,1	14,8	14,8	12,2	12,2	12,2	10,7	9,6
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	15,6	14,3	14,3	11,8	11,8	11,8	10,4	9,3
Installation safety factor										
Dry, wet concrete	γ_{inst}	[-]	1,0							
Flooded hole	γ_{inst}	[-]	1,2							
Characteristic bond resistance in cracked concrete for a working life of 50 years									
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	9,7	9,7	9,7	9,5	8,7	8,7	6,2	6,1
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	9,4	9,4	9,4	9,2	8,4	8,4	6,0	5,9
Characteristic bond resistance in cracked concrete for a working life of 100 years									
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	8,6	8,6	8,6	8,6	8,2	8,2	6,2	5,5
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	8,3	8,3	8,3	8,3	7,9	7,9	6,0	5,3
Installation safety factor										
Dry, wet concrete	γ_{inst}	[-]	1,0							
Flooded hole	γ_{inst}	[-]	1,2							
Factor for influence of sustained load for a working life 50 years T3: 50°C / 70°C T4: 55°C / 75°C	ψ^0_{sus}	[-]	0,76 0,76							
Factor for concrete C25/30 C30/37 C35/45 C40/50 C45/55 C50/60	ψ_c	[-]	1,02 1,04 1,06 1,07 1,08 1,09							
Concrete cone failure									
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11							
Factor for concrete cone failure for cracked concrete	$k_{cr,N}$		7,7							
Edge distance	$c_{cr,N}$	[mm]	$1,5h_{ef}$							
Splitting failure									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Edge distance	$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$							
Spacing	$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$							

Sika AnchorFix®-3030	**Annex C 5**
Performances Diamond core drilling Characteristic resistance for tension loads - threaded rod	

Table C8: Design method EN 1992-4
Characteristic values of resistance to tension load of threaded socket

Diamond core drilling

Combined pullout and concrete cone failure in concrete C20/25								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Nominal external diameter of socket			M10	M12	M16	M20	M24	M30
Characteristic bond resistance in uncracked concrete for a working life of 50 years and 100 years								
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	14,8	14,8	12,2	12,2	12,2	9,6
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	14,3	14,3	11,8	11,8	11,8	9,3
Installation safety factor								
Dry, wet concrete	γ_{inst}	[-]	1,0					
Flooded hole	γ_{inst}	[-]	1,2					
Characteristic bond resistance in cracked concrete for a working life of 50 years								
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	9,7	9,7	9,5	8,7	8,7	6,1
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	9,4	9,4	9,2	8,4	8,4	5,9
Characteristic bond resistance in cracked concrete for a working life of 100 years								
Temperature T3: 50°C / 70°C	$\tau_{Rk,ucr}$	[N/mm²]	8,6	8,6	8,6	8,2	8,2	5,5
Temperature T4: 55°C / 75°C	$\tau_{Rk,ucr}$	[N/mm²]	8,3	8,3	8,3	7,9	7,9	5,3
Installation safety factor								
Dry, wet concrete	γ_{inst}	[-]	1,0					
Flooded hole	γ_{inst}	[-]	1,2					
Factor for influence of sustained load for a working life 50 years T3: 50°C / 70°C	ψ^0_{sus}	[-]	0,76					
Factor for influence of sustained load for a working life 50 years T4: 55°C / 75°C	ψ^0_{sus}	[-]	0,76					
Factor for concrete C25/30	ψ_c	[-]	1,02					
Factor for concrete C30/37	ψ_c	[-]	1,04					
Factor for concrete C35/45	ψ_c	[-]	1,06					
Factor for concrete C40/50	ψ_c	[-]	1,07					
Factor for concrete C45/55	ψ_c	[-]	1,08					
Factor for concrete C50/60	ψ_c	[-]	1,09					
Concrete cone failure								
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11					
Factor for concrete cone failure for cracked concrete	$k_{cr,N}$	[-]	7,7					
Edge distance	$c_{cr,N}$	[mm]	$1{,}5h_{ef}$					
Splitting failure								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Edge distance	$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$					
Spacing	$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$					

Sika AnchorFix®-3030

Performances
Diamond core drilling
Characteristic resistance for tension loads - threaded socket

Annex C 6

Table C9: Design method EN 1992-4
Characteristic values of resistance to tension load of rebar

Diamond core drilling									
Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years									
Size				**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Characteristic bond resistance in uncracked concrete										
Temperature T3: 50°C / 70°C		$\tau_{Rk,ucr}$	[N/mm²]	13,3	12,3	12,3	11,7	11,0	10,9	8,1
Temperature T4: 55°C / 75°C		$\tau_{Rk,ucr}$	[N/mm²]	12,9	11,9	11,9	11,9	10,7	10,5	7,8
Installation safety factor										
Dry, wet concrete		γ_{inst}	[-]	1,0						
Flooded hole		γ_{inst}	[-]	1,2						
Characteristic bond resistance in cracked concrete for a working life of 50 years										
Temperature T3: 50°C / 70°C		$\tau_{Rk,ucr}$	[N/mm²]	8,1	8,3	8,1	8,1	7,3	6,6	6,4
Temperature T4: 55°C / 75°C		$\tau_{Rk,ucr}$	[N/mm²]	7,8	8,0	7,8	7,8	7,1	6,4	6,2
Characteristic bond resistance in cracked concrete for a working life of 100 years										
Temperature T3: 50°C / 70°C		$\tau_{Rk,ucr}$	[N/mm²]	6,4	7,2	7,2	7,2	6,9	6,3	5,8
Temperature T4: 55°C / 75°C		$\tau_{Rk,ucr}$	[N/mm²]	6,2	7,0	7,0	7,0	6,7	6,1	5,6
Installation safety factor										
Dry, wet concrete		γ_{inst}	[-]	1,0						
Flooded hole		γ_{inst}	[-]	1,2						
Factor for influence of sustained load for a working life 50 years	T3: 50°C / 70°C	ψ^0_{sus}	[-]	0,76						
	T4: 55°C / 75°C			0,76						
Factor for concrete	C25/30	ψ_c	[-]	1,02						
	C30/37			1,04						
	C35/45			1,06						
	C40/50			1,07						
	C45/55			1,08						
	C50/60			1,09						

Concrete cone failure			
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11
Factor for concrete cone failure for cracked concrete	$k_{cr,N}$		7,7
Edge distance	$c_{cr,N}$	[mm]	$1,5h_{ef}$

Splitting failure									
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Edge distance	$c_{cr,sp}$	[mm]	$2 \cdot h_{ef}$						
Spacing	$s_{cr,sp}$	[mm]	$2 \cdot c_{cr,sp}$						

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Performances
Diamond core drilling
Characteristic resistance for tension loads - rebar

Annex C 7

Table C10: Design method EN 1992-4
Characteristic values of resistance to shear load of threaded rod

Steel failure without lever arm									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Steel grade **4.6**	$V^0_{Rk,s}$	[kN]	9	14	20	38	59	85	110	135
Partial safety factor	γ_{Ms}	[-]	1,67							
Steel grade **5.8**	$V^0_{Rk,s}$	[kN]	11	17	25	47	74	106	138	168
Partial safety factor	γ_{Ms}	[-]	1,25							
Steel grade **8.8**	$V^0_{Rk,s}$	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	γ_{Ms}	[-]	1,25							
Steel grade **10.9**	$V^0_{Rk,s}$	[kN]	18	29	42	79	123	177	230	281
Partial safety factor	γ_{Ms}	[-]	1,5							
Stainless steel grade **A2-70, A4-70**	$V^0_{Rk,s}$	[kN]	13	20	30	55	86	124	161	196
Partial safety factor	γ_{Ms}	[-]	1,56							
Stainless steel grade **A4-80**	$V^0_{Rk,s}$	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	γ_{Ms}	[-]	1,33							
Stainless steel grade **1.4529**	$V^0_{Rk,s}$	[kN]	13	20	30	55	86	124	161	196
Partial safety factor	γ_{Ms}	[-]	1,25							
Stainless steel grade **1.4565**	$V^0_{Rk,s}$	[kN]	13	20	30	55	86	124	161	196
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**	**M27**	**M30**
Steel grade **4.6**	$M^0_{Rk,s}$	[N.m]	15	30	52	133	260	449	666	900
Partial safety factor	γ_{Ms}	[-]	1,67							
Steel grade **5.8**	$M^0_{Rk,s}$	[N.m]	19	37	66	166	325	561	832	1125
Partial safety factor	γ_{Ms}	[-]	1,25							
Steel grade **8.8**	$M^0_{Rk,s}$	[N.m]	30	60	105	266	519	898	1332	1799
Partial safety factor	γ_{Ms}	[-]	1,25							
Steel grade **10.9**	$M^0_{Rk,s}$	[N.m]	37	75	131	333	649	1123	1664	2249
Partial safety factor	γ_{Ms}	[-]	1,50							
Stainless steel grade **A2-70, A4-70**	$M^0_{Rk,s}$	[N.m]	26	52	92	233	454	786	1165	1574
Partial safety factor	γ_{Ms}	[-]	1,56							
Stainless steel grade **A4-80**	$M^0_{Rk,s}$	[N.m]	30	60	105	266	519	898	1332	1799
Partial safety factor	γ_{Ms}	[-]	1,33							
Stainless steel grade **1.4529**	$M^0_{Rk,s}$	[N.m]	26	52	92	233	454	786	1165	1574
Partial safety factor	γ_{Ms}	[-]	1,25							
Stainless steel grade **1.4565**	$M^0_{Rk,s}$	[N.m]	26	52	92	233	454	786	1165	1574
Partial safety factor	γ_{Ms}	[-]	1,56							
Concrete pryout failure										
Factor for resistance to pry-out failure	k_8	[-]	2							

Concrete edge failure									
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Outside diameter of fastener	d_{nom}	[mm]	8	10	12	16	20	24	27	30
Effective length of fastener	ℓ_f	[mm]	min (h_{ef}, 8 d_{nom})							

Sika AnchorFix®-3030

Performances
Design according to EN 1992-4
Characteristic resistance for shear loads - threaded rod

Annex C 8

Table C11: Design method EN 1992-4
Characteristic values of resistance to shear load of threaded socket

Steel failure without lever arm								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Nominal external diameter of socket			M10	M12	M16	M20	M24	M30
Steel grade **4.6**	$V_{Rk,s}$	[kN]	5	9	14	20	38	59
Partial safety factor	γ_{Ms}	[-]	1,67					
Steel grade **5.8**	$V_{Rk,s}$	[kN]	6	11	17	25	47	74
Partial safety factor	γ_{Ms}	[-]	1,25					
Steel grade **8.8**	$V_{Rk,s}$	[kN]	8	15	23	34	63	98
Partial safety factor	γ_{Ms}	[-]	1,25					
Steel grade **10.9**	$V_{Rk,s}$	[kN]	10	18	29	42	79	123
Partial safety factor	γ_{Ms}	[-]	1,5					
Stainless steel grade **A2-70, A4-70**	$V_{Rk,s}$	[kN]	7	13	20	30	55	86
Partial safety factor	γ_{Ms}	[-]	1,56					
Stainless steel grade **A4-80**	$V_{Rk,s}$	[kN]	8	15	23	34	63	98
Partial safety factor	γ_{Ms}	[-]	1,33					
Stainless steel grade **1.4529**	$V_{Rk,s}$	[kN]	7	13	20	30	55	86
Partial safety factor	γ_{Ms}	[-]	1,25					
Stainless steel grade **1.4565**	$V_{Rk,s}$	[kN]	7	13	20	30	55	86
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			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Nominal external diameter of socket			M10	M12	M16	M20	M24	M30
Steel grade **4.6**	$M^0_{Rk,s}$	[N.m]	6	15	30	52	133	260
Partial safety factor	γ_{Ms}	[-]	1,67					
Steel grade **5.8**	$M^0_{Rk,s}$	[N.m]	8	19	37	66	166	325
Partial safety factor	γ_{Ms}	[-]	1,25					
Steel grade **8.8**	$M^0_{Rk,s}$	[N.m]	12	30	60	105	266	519
Partial safety factor	γ_{Ms}	[-]	1,25					
Steel grade **10.9**	$M^0_{Rk,s}$	[N.m]	15	37	75	131	333	649
Partial safety factor	γ_{Ms}	[-]	1,50					
Stainless steel grade **A2-70, A4-70**	$M^0_{Rk,s}$	[N.m]	11	26	52	92	233	454
Partial safety factor	γ_{Ms}	[-]	1,56					
Stainless steel grade **A4-80**	$M^0_{Rk,s}$	[N.m]	12	30	60	105	266	519
Partial safety factor	γ_{Ms}	[-]	1,33					
Stainless steel grade **1.4529**	$M^0_{Rk,s}$	[N.m]	11	26	52	92	233	454
Partial safety factor	γ_{Ms}	[-]	1,25					
Stainless steel grade **1.4565**	$M^0_{Rk,s}$	[N.m]	11	26	52	92	233	454
Partial safety factor	γ_{Ms}	[-]	1,56					
Concrete pryout failure								
Factor for resistance to pry-out failure	k_8	[-]	2					

Concrete edge failure								
Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Nominal external diameter of socket			M10	M12	M16	M20	M24	M30
Outside diameter of fastener	d_{nom}	[mm]	10	12	16	20	24	30
Effective length of fastener	ℓ_f	[mm]	min (h_{ef}, 8 d_{nom})					

Sika AnchorFix®-3030	
Performances Design according to EN 1992-4 Characteristic resistance for shear loads - threaded socket	**Annex C 9**

Table C12: Design method EN 1992-4
Characteristic values of resistance to shear load of rebar

Steel failure without lever arm								
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Rebar BSt 500 S	$V_{Rk,s}$	[kN]	14	22	31	55	86	135	221
Partial safety factor	γ_{Ms}	[-]	1,5						
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			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Rebar BSt 500 S	$M^0_{Rk,s}$	[N.m]	33	65	112	265	518	1013	2122
Partial safety factor	γ_{Ms}	[-]	1,5						
Concrete pryout failure									
Factor for resistance to pry-out failure	k_8	[-]	2						

Concrete edge failure								
Size			**Ø8**	**Ø10**	**Ø12**	**Ø16**	**Ø20**	**Ø25**	**Ø32**
Outside diameter of fastener	d_{nom}	[mm]	8	10	12	16	20	25	32
Effective length of fastener	ℓ_f	[mm]	min (h_{ef}, 8 d_{nom})						

Sika AnchorFix®-3030	
Performances Design according to EN 1992-4 Characteristic resistance for shear loads - rebar	**Annex C 10**

Table C13: Displacement of threaded rod under tension and shear load
Hammer drilling, dustless drilling

Size		M8	M10	M12	M16	M20	M24	M27	M30
Tension load									
Uncracked concrete									
δ_{N0}	[mm/kN]	0,03	0,02	0,02	0,02	0,01	0,01	0,01	0,01
$\delta_{N\infty}$	[mm/kN]	0,05	0,04	0,03	0,03	0,02	0,02	0,01	0,01
Cracked concrete									
δ_{N0}	[mm/kN]	0,05	0,04	0,03	0,03	0,02	0,02	0,02	0,02
$\delta_{N\infty}$	[mm/kN]	0,35	0,21	0,14	0,12	0,08	0,07	0,07	0,07
Shear load									
δ_{V0}	[mm/kN]	0,71	0,45	0,31	0,17	0,11	0,07	0,06	0,05
$\delta_{V\infty}$	[mm/kN]	1,06	0,67	0,46	0,25	0,16	0,11	0,08	0,07

Table C14: Displacement of threaded rod under tension and shear load
Diamond core drilling

Size		M8	M10	M12	M16	M20	M24	M27	M30
Tension load									
Uncracked concrete									
δ_{N0}	[mm/kN]	0,01	0,01	0,02	0,02	0,02	0,02	0,01	0,02
$\delta_{N\infty}$	[mm/kN]	0,09	0,07	0,05	0,04	0,03	0,02	0,02	0,02
Cracked concrete									
δ_{N0}	[mm/kN]	0,03	0,04	0,04	0,04	0,03	0,03	0,04	0,04
$\delta_{N\infty}$	[mm/kN]	0,33	0,28	0,20	0,14	0,12	0,09	0,09	0,08
Shear load									
δ_{V0}	[mm/kN]	0,71	0,45	0,31	0,17	0,11	0,07	0,06	0,05
$\delta_{V\infty}$	[mm/kN]	1,06	0,67	0,46	0,25	0,16	0,11	0,08	0,07

Table C15: Displacement of rebar under tension and shear load
Hammer drilling, dustless drilling

Size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Tension load								
Uncracked concrete								
δ_{N0}	[mm/kN]	0,04	0,03	0,02	0,01	0,01	0,01	0,01
$\delta_{N\infty}$	[mm/kN]	0,08	0,05	0,04	0,02	0,02	0,01	0,01
Cracked concrete								
δ_{N0}	[mm/kN]	0,05	0,04	0,03	0,03	0,02	0,02	0,02
$\delta_{N\infty}$	[mm/kN]	0,35	0,21	0,17	0,11	0,08	0,07	0,06
Shear load								
δ_{V0}	[mm/kN]	0,38	0,24	0,17	0,10	0,06	0,04	0,02
$\delta_{V\infty}$	[mm/kN]	0,56	0,36	0,25	0,14	0,09	0,06	0,04

Table C16: Displacement of rebar under tension and shear load
Diamond drilling

Size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Tension load								
Uncracked concrete								
δ_{N0}	[mm/kN]	0,02	0,02	0,02	0,01	0,01	0,01	0,01
$\delta_{N\infty}$	[mm/kN]	0,09	0,06	0,04	0,03	0,02	0,01	0,01
Cracked concrete								
δ_{N0}	[mm/kN]	0,04	0,03	0,03	0,02	0,02	0,01	0,01
$\delta_{N\infty}$	[mm/kN]	0,39	0,26	0,18	0,10	0,07	0,04	0,03
Shear load								
δ_{V0}	[mm/kN]	0,38	0,24	0,17	0,10	0,06	0,04	0,02
$\delta_{V\infty}$	[mm/kN]	0,56	0,36	0,25	0,14	0,09	0,06	0,04

Sika AnchorFix®-3030

Performances
Displacements

Annex C 11

Table C17: Seismic performance category C1 of threaded rod - Hammer drilling, Dustless drilling

Size			M8	M10	M12	M16	M20	M24	M27	M30
Tension load										
Steel failure										
Characteristic resistance grade **4.6**	$N_{Rk,s,C1}$	[kN]	15	23	34	63	98	141	184	224
Partial safety factor	γ_{Ms}	[-]	2,00							
Characteristic resistance grade **5.8**	$N_{Rk,s,C1}$	[kN]	18	29	42	79	123	177	230	281
Partial safety factor	γ_{Ms}	[-]	1,50							
Characteristic resistance grade **8.8**	$N_{Rk,s,C1}$	[kN]	29	46	67	126	196	282	367	449
Partial safety factor	γ_{Ms}	[-]	1,50							
Characteristic resistance grade **10.9**	$N_{Rk,s,C1}$	[kN]	37	58	84	157	245	353	459	561
Partial safety factor	γ_{Ms}	[-]	1,40							
Characteristic resistance **A2-70, A4-70**	$N_{Rk,s,C1}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,87							
Characteristic resistance **A4-80**	$N_{Rk,s,C1}$	[kN]	29	46	67	126	196	282	367	449
Partial safety factor	γ_{Ms}	[-]	1,60							
Characteristic resistance **1.4529**	$N_{Rk,s,C1}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,50							
Characteristic resistance **1.4565**	$N_{Rk,s,C1}$	[kN]	26	41	59	110	172	247	321	393
Partial safety factor	γ_{Ms}	[-]	1,87							
Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years										
Characteristic bond resistance										
Temperature T3: 50°C / 70°C	$\tau_{Rk,p,C1}$	[N/mm²]	9,4	8,5	10,0	8,7	7,4	7,7	5,7	4,9
Temperature T4: 55°C / 75°C	$\tau_{Rk,p,C1}$	[N/mm²]	9,1	8,2	10,0	8,4	7,2	7,5	5,5	4,7
Installation safety factor										
Dry, wet concrete	γ_{inst}	[-]	1,0							
Hammer drilling – Flooded hole	γ_{inst}	[-]	1,0							
Dustless drilling – Flooded hole	γ_{inst}	[-]	1,2							
Shear load										
Steel failure without lever arm										
Characteristic resistance grade **4.6**	$V_{Rk,s,C1}$	[kN]	5	9	13	20	32	28	37	45
Partial safety factor	γ_{Ms}	[-]	1,67							
Characteristic resistance grade **5.8**	$V_{Rk,s,C1}$	[kN]	7	11	16	26	40	35	46	56
Partial safety factor	γ_{Ms}	[-]	1,25							
Characteristic resistance grade **8.8**	$V_{Rk,s,C1}$	[kN]	11	17	25	41	64	56	73	90
Partial safety factor	γ_{Ms}	[-]	1,25							
Characteristic resistance grade **10.9**	$V_{Rk,s,C1}$	[kN]	14	22	32	51	80	71	92	112
Partial safety factor	γ_{Ms}	[-]	1,50							
Characteristic resistance **A2-70, A4-70**	$V_{Rk,s,C1}$	[kN]	10	15	22	36	56	49	64	79
Partial safety factor	γ_{Ms}	[-]	1,56							
Characteristic resistance **A4-80**	$V_{Rk,s,C1}$	[kN]	11	17	25	41	64	56	73	90
Partial safety factor	γ_{Ms}	[-]	1,33							
Characteristic resistance **1.4529**	$V_{Rk,s,C1}$	[kN]	10	15	22	36	56	49	64	79
Partial safety factor	γ_{Ms}	[-]	1,25							
Characteristic resistance **1.4565**	$V_{Rk,s,C1}$	[kN]	10	15	22	36	56	49	64	79
Partial safety factor	γ_{Ms}	[-]	1,56							
Characteristic shear load resistance $V_{Rk,s,eq}$ in the Table C13 shall be multiplied by following reduction factor for **hot-dip galvanized** commercial standard rods										
Reduction factor for hot-dip galvanized rods	$\alpha_{v,h\text{-}dg,c1}$	[-]	0,47	0,47	0,47	0,54	0,54	0,88	0,88	0,88
Factor for annular gap without filling gap	α_{gap}	[-]	0,5							
Factor for annular gap with filling gap	α_{gap}	[-]	1,0							

The anchor shall be used with minimum rupture elongation after fracture $A_5 \geq 9\%$.

Sika AnchorFix®-3030	
Performances Hammer drilling, Dustless drilling Seismic performance category C1 of threaded rod	**Annex C 12**

Table C18: Seismic performance category C1 of rebar - Hammer drilling, Dustless drilling

Size			Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Tension load								
Steel failure								
Rebar BSt 500 S	$N_{Rk,s,C1}$	[kN]	43	62	111	173	270	442
Partial safety factor	γ_{Ms}	[-]	1,4					
Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years								
Characteristic bond resistance								
Temperature T3: 50°C / 70°C	$\tau_{Rk,p,C1}$	[N/mm²]	9,4	9,8	9,5	8,8	8,0	5,3
Temperature T4: 55°C / 75°C	$\tau_{Rk,p,C1}$	[N/mm²]	9,1	9,5	9,2	8,5	7,7	5,2
Installation safety factor								
Hammer drilling - Dry, wet concrete	γ_{inst}	[-]	1,0					
Dustless drilling - Dry, wet concrete	γ_{inst}	[-]	1,2					
Flooded hole	γ_{inst}	[-]	1,2					
Shear load								
Steel failure without lever arm								
Rebar BSt 500 S	$V_{Rk,s,C1}$	[kN]	16	23	41	69	67	111
Partial safety factor	γ_{Ms}	[-]	1,5					
Factor for annular gap without filling gap	α_{gap}	[-]	0,5					
Factor for annular gap with filling gap	α_{gap}	[-]	1,0					

Sika AnchorFix®-3030	
Performances Hammer drilling, Dustless drilling Seismic performance category C1 of rebar	**Annex C 13**

Table C19: Seismic performance category C2 of threaded rod - Hammer drilling, Dustless drilling

Size			M12	M16	M20
Tension load					
Steel failure					
Characteristic resistance grade **4.6**	$N_{Rk,s,C2}$	[kN]	34	63	98
Partial safety factor	γ_{Ms}	[-]		2,00	
Characteristic resistance grade **5.8**	$N_{Rk,s,C2}$	[kN]	42	79	123
Partial safety factor	γ_{Ms}	[-]		1,50	
Characteristic resistance grade **8.8**	$N_{Rk,s,C2}$	[kN]	67	126	196
Partial safety factor	γ_{Ms}	[-]		1,50	
Characteristic resistance grade **10.9**	$N_{Rk,s,C2}$	[kN]	84	157	245
Partial safety factor	γ_{Ms}	[-]		1,40	
Characteristic resistance **A2-70, A4-70**	$N_{Rk,s,C2}$	[kN]	59	110	172
Partial safety factor	γ_{Ms}	[-]		1,87	
Characteristic resistance **A4-80**	$N_{Rk,s,C2}$	[kN]	67	126	196
Partial safety factor	γ_{Ms}	[-]		1,60	
Characteristic resistance **1.4529**	$N_{Rk,s,C2}$	[kN]	59	110	172
Partial safety factor	γ_{Ms}	[-]		1,50	
Characteristic resistance **1.4565**	$N_{Rk,s,C2}$	[kN]	59	110	172
Partial safety factor	γ_{Ms}	[-]		1,87	
Combined pullout and concrete cone failure in concrete C20/25 for a working life of 50 years and 100 years					
Characteristic bond resistance					
Temperature T3: 50°C / 70°C	$\tau_{Rk,p,C2}$	[N/mm²]	3,5	4,0	4,5
Temperature T4: 55°C / 75°C	$\tau_{Rk,p,C2}$	[N/mm²]	3,3	3,8	4,4
Installation safety factor	γ_{inst}	[-]		1,0	
Dry and wet concrete, Flooded hole	γ_{inst}	[-]		1,0	
Dustless drilling – Flooded hole	γ_{inst}	[-]		1,2	
Shear load					
Steel failure without lever arm					
Characteristic resistance grade **4.6**	$V_{Rk,s,C2}$	[kN]	13	18	28
Partial safety factor	γ_{Ms}	[-]		1,67	
Characteristic resistance grade **5.8**	$V_{Rk,s,C2}$	[kN]	16	22	35
Partial safety factor	γ_{Ms}	[-]		1,25	
Characteristic resistance grade **8.8**	$V_{Rk,s,C2}$	[kN]	25	36	56
Partial safety factor	γ_{Ms}	[-]		1,25	
Characteristic resistance grade **10.9**	$V_{Rk,s,C2}$	[kN]	32	45	70
Partial safety factor	γ_{Ms}	[-]		1,50	
Characteristic resistance **A2-70, A4-70**	$V_{Rk,s,C2}$	[kN]	22	31	49
Partial safety factor	γ_{Ms}	[-]		1,56	
Characteristic resistance **A4-80**	$V_{Rk,s,C2}$	[kN]	25	36	56
Partial safety factor	γ_{Ms}	[-]		1,33	
Characteristic resistance **1.4529**	$V_{Rk,s,C2}$	[kN]	22	31	49
Partial safety factor	γ_{Ms}	[-]		1,25	
Characteristic resistance **1.4565**	$V_{Rk,s,C2}$	[kN]	22	31	49
Partial safety factor	γ_{Ms}	[-]		1,56	
Characteristic shear load resistance $V_{Rk,s,eq}$ in the Table C15 shall be multiplied by following reduction factor for **hot-dip galvanized** commercial standard rods					
Reduction factor for hot-dip galvanized rods	$\alpha_{v,h\text{-}dg,c2}$	[-]	0,46	0,61	0,61
Factor for annular gap without filling gap	α_{gap}	[-]		0,5	
Factor for annular gap with filling gap	α_{gap}	[-]		1,0	

Table C20: Displacement under tensile and shear load - seismic category C2 of threaded rod

Size		M12	M16	M20
$\delta_{N,C2(50\%)}$	[mm]	0,20	0,40	0,77
$\delta_{N,C2(100\%)}$	[mm]	0,76	0,74	1,68
$\delta_{V,C2(50\%)}$	[mm]	5,29	4,12	4,94
$\delta_{V,C2(100\%)}$	[mm]	10,20	9,05	10,99

The anchor shall be used with minimum rupture elongation after fracture $A_5 \geq 9\%$.

Sika AnchorFix®-3030	
Performances Hammer drilling, Dustless drilling Seismic performance category C2 of threaded rod	**Annex C 14**

Characteristic resistance to combined pull-out and concrete failure $\tau_{Rk,fi}(\theta)$ under fire exposure for threaded rods for hammer or dustless drilling

The characteristic resistance to combined pull-out and concrete failure under fire $\tau_{Rk,fi,p}(\theta)$ shall be determined according to following equation:

$$\tau_{Rk,fi,p}(\theta) = k_{fi,p}(\theta) \cdot \tau_{Rk,cr}$$

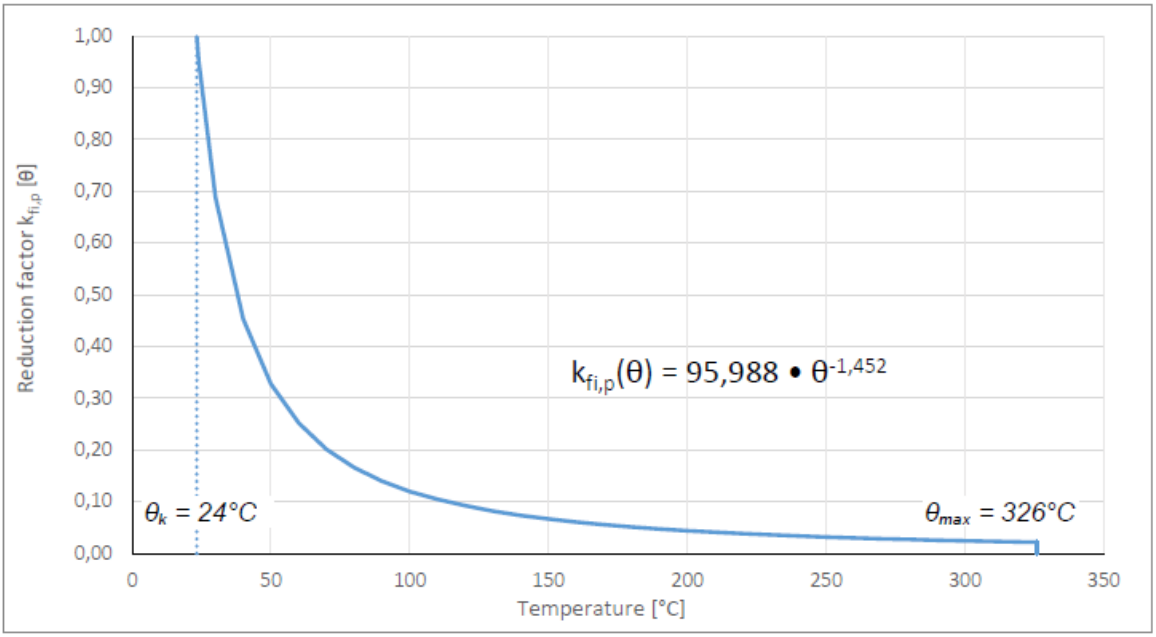
where:

$k_{fi,p}(\theta) = 1$	for	$\theta < \theta_k$
$k_{fi,p}(\theta) = 95{,}988 \bullet \theta^{-1{,}452} \leq 1$	for	$\theta \leq \theta_{max}$
$k_{fi,p}(\theta) = 0$	for	$\theta > \theta_{max}$

θ_k = 21°C
θ_{max} = 326°C

$\tau_{Rk,fi,p}$ = *characteristic bond resistance for cracked concrete under fire exposure tor given temperature (θ)*
$\tau_{Rk,cr}$ = *characteristic bond resistance for cracked concrete for concrete strength class C20/25*
$k_{fi,p}(\theta)$ = *reduction factor for bond resistance under fire conditions*

Figure C1: Reduction factor $k_{fi,p}(\theta)$



Sika AnchorFix®-3030	
Performances Bond resistance under fire conditions	**Annex C 15**

Table C21: Steel failure - Characteristic resistance under tension load under fire conditions for threaded rod

Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel grade: 4.6; 5.8; 8.8; 10.9	$N_{Rk,s,fi(30)}$	[kN]	0,37	0,87	1,69	3,14	4,90	7,06	9,18	11,22
	$N_{Rk,s,fi(60)}$	[kN]	0,33	0,75	1,26	2,36	3,68	5,30	6,89	8,42
	$N_{Rk,s,fi(90)}$	[kN]	0,26	0,58	1,10	2,04	3,19	4,59	5,97	7,29
	$N_{Rk,s,fi(120)}$	[kN]	0,18	0,46	0,84	1,57	2,45	3,53	4,59	5,61
Stainless steel grade: A2-70; A4-70; A4-80 High corrosion resistant steel grade: 1.4529; 1.4565	$N_{Rk,s,fi(30)}$	[kN]	0,73	1,45	2,53	4,71	7,35	10,59	13,77	16,83
	$N_{Rk,s,fi(60)}$	[kN]	0,59	1,16	2,11	3,93	6,13	8,83	11,48	14,03
	$N_{Rk,s,fi(90)}$	[kN]	0,44	0,93	1,69	3,14	4,90	7,06	9,18	11,22
	$N_{Rk,s,fi(120)}$	[kN]	0,37	0,81	1,35	2,51	3,92	5,65	7,34	8,98

Table C22: Steel failure - Characteristic resistance under tension load under fire conditions for rebar

Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar BSt 500 S	$N_{Rk,s,fi(30)}$	[kN]	0,50	1,18	2,26	4,02	6,28	9,82	16,08
	$N_{Rk,s,fi(60)}$	[kN]	0,45	1,02	1,70	3,02	4,71	7,36	12,06
	$N_{Rk,s,fi(90)}$	[kN]	0,35	0,79	1,47	2,61	4,08	6,38	10,45
	$N_{Rk,s,fi(120)}$	[kN]	0,25	0,63	1,13	2,01	3,14	4,91	8,04

Table C23: Steel failure - Characteristic resistance under shear load under fire conditions for threaded rod

Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel grade: 4.6; 5.8; 8.8; 10.9	$V_{Rk,s,fi(30)}$	[kN]	0,37	0,87	1,69	3,14	4,90	7,06	9,18	11,22
	$V_{Rk,s,fi(60)}$	[kN]	0,33	0,75	1,26	2,36	3,68	5,30	6,89	8,42
	$V_{Rk,s,fi(90)}$	[kN]	0,26	0,58	1,10	2,04	3,19	4,59	5,97	7,29
	$V_{Rk,s,fi(120)}$	[kN]	0,18	0,46	0,84	1,57	2,45	3,53	4,59	5,61
	$M^0_{Rk,s,fi(30)}$	[N.m]	0,4	1,1	2,6	6,7	13,0	22,5	33,3	45,0
	$M^0_{Rk,s,fi(60)}$	[N.m]	0,3	1,0	2,0	5,0	9,7	16,8	25,0	33,7
	$M^0_{Rk,s,fi(90)}$	[N.m]	0,3	0,7	1,7	4,3	8,4	14,6	21,6	29,2
	$M^0_{Rk,s,fi(120)}$	[N.m]	0,2	0,6	1,3	3,3	6,5	11,2	16,6	22,5
Stainless steel grade: A2-70; A4-70; A4-80 High corrosion resistant steel grade: 1.4529; 1.4565	$V_{Rk,s,fi(30)}$	[kN]	0,73	1,45	2,53	4,71	7,35	10,59	13,77	16,83
	$V_{Rk,s,fi(60)}$	[kN]	0,59	1,16	2,11	3,93	6,13	8,83	11,48	14,03
	$V_{Rk,s,fi(90)}$	[kN]	0,44	0,93	1,69	3,14	4,90	7,06	9,18	11,22
	$V_{Rk,s,fi(120)}$	[kN]	0,37	0,81	1,35	2,51	3,92	5,65	7,34	8,98
	$M^0_{Rk,s,fi(30)}$	[N.m]	0,7	1,9	3,9	10,0	19,5	33,7	49,9	67,5
	$M^0_{Rk,s,fi(60)}$	[N.m]	0,6	1,5	3,3	8,3	16,2	28,1	41,6	56,2
	$M^0_{Rk,s,fi(90)}$	[N.m]	0,4	1,2	2,6	6,7	13,0	22,5	33,3	45,0
	$M^0_{Rk,s,fi(120)}$	[N.m]	0,4	1,0	2,1	5,3	10,4	18,0	26,6	36,0

Table C24: Steel failure - Characteristic resistance under shear load under fire conditions for rebar

Size			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Rebar BSt 500 S	$V_{Rk,s,fi(30)}$	[kN]	0,50	1,18	2,26	4,02	6,28	9,82	16,08
	$V_{Rk,s,fi(60)}$	[kN]	0,45	1,02	1,70	3,02	4,71	7,36	12,06
	$V_{Rk,s,fi(90)}$	[kN]	0,35	0,79	1,47	2,61	4,08	6,38	10,45
	$V_{Rk,s,fi(120)}$	[kN]	0,25	0,63	1,13	2,01	3,14	4,91	8,04
	$M^0_{Rk,s,fi(30)}$	[N.m]	0,6	1,8	4,1	9,7	18,9	36,8	77,2
	$M^0_{Rk,s,fi(60)}$	[N.m]	0,5	1,5	3,1	7,2	14,1	27,6	57,9
	$M^0_{Rk,s,fi(90)}$	[N.m]	0,4	1,2	2,6	6,3	12,3	23,9	50,2
	$M^0_{Rk,s,fi(120)}$	[N.m]	0,3	0,9	2,0	4,8	9,4	18,4	38,6

Sika AnchorFix®-3030

Performances
Bond resistance under fire conditions

Annex C 16

Specifications of intended use

Anchorages subject to:

- Static and quasi-static load:
  - threaded rod
  - threaded socket
  - rebar
- Seismic actions category C1 (max w = 0,5 mm):
  - threaded rod size M8, M10, M12, M16, M20, M24, M27, M30
  - rebar size Ø10, Ø12, Ø16, Ø20, Ø24, Ø25, Ø32
- Seismic actions category C2 (max w = 0,8 mm):
  - threaded rod size M12, M16, M20

Base materials

- Cracked and uncracked concrete
- Reinforced or unreinforced normal weight concrete without fibres of strength class C20/25 at minimum and C50/60 at maximum according EN 206:2013 + A2:2021.

Temperature range:

- T3: -40°C to +70°C (max. short. term temperature +70°C and max. long term temperature +50°C)
- T4: -40°C to +75°C (max. short. term temperature +75°C and max. long term temperature +55°C)

Use conditions (Environmental conditions)

- Structures subject to dry, internal conditions (all materials)
- For all other conditions according to EN 1993-1-4 corresponding to corrosion resistance class:
  - Stainless steel A2 according to Annex A 4, Table A1: CRC II
  - Stainless steel A4 according to Annex A 4, Table A1: CRC III
  - High corrosion resistance steel HCR according to Annex A 4, Table A1: CRC V

Concrete conditions:

- I1 – installation in dry or wet (water saturated) concrete and use in service in dry or wet concrete.
- I2 – installation in water-filled (not sea water) and use in service in dry or wet concrete

Design:

- The anchorages are designed in accordance with the EN 1992-4 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.
- Anchorages under seismic actions (cracked concrete) are designed in accordance with EN 1992-4.
- Anchorages under fire exposure are designed in accordance with EOTA TR 082.

Installation:

- Hole drilling by hammer drilling, dustless drilling or diamond core drilling mode.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.

Installation direction:

- D3 – downward and horizontal and upwards (e.g. overhead) installation

Sika AnchorFix®-3030	**Annex B 1**
Intended use Specifications	

EAD 330499-02-0601; edition September 2022 (ETA 17/0694 of 09/09/2025)
Bonded injection type anchor for use in cracked and uncracked concrete

http://dop.sika.com

CE MARKING TO BE PLACED ON THE LABEL

CE 21
Sika Services AG, Zurich, Switzerland
DoP No. 68247540
Notified Body 1020
For detailed performance see accompanying documents and ETA 17/0694 of 09/09/2025
EAD 330499-02-0601; edition September 2022
Bonded injection type anchor for use in cracked and uncracked concrete

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ECOLOGY, HEALTH AND SAFETY INFORMATION (REACH)

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

LEGAL NOTE