

Highload Anchor SZ A4

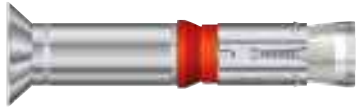
Stainless steel A4/316



**Highload Anchor
SZ-S A4**



**Highload Anchor
SZ-B A4**



**Highload Anchor
SZ-SK A4**

Loads: 4,3 kN - 52,6 kN
Concrete quality: C20/25 - C50/60



Mechanical Heavy Duty Anchors



Description

The SZ A4/316 is the stainless-steel version of the tried and tested Highload anchor SZ. It also possesses ETA (Option 1) approval. Highload Anchor SZ is a high-performance through fastening Anchor System with plastic compression ring and with three part expansion sleeve. This allows for smaller spacings and edge distances with high loads. Through deeper placing, the variable anchorage depth of Highload Anchor SZ A4 allows higher permissible shear loads in many cases, extending its range of possible uses.

Three different models of The Highload Anchor SZ are available: screw/washer SZ-S, Bolt head SZ-B and for a flush surface mounting SZ-SK. All models have been shock-tested by the federal office for population protection in Bern/Switzerland, the models from M8 are also approved for use under seismic actions C1 and C2.

The use of the hollow drill bit SB allows mounting the Highload Anchor SZ A4 without additional blowing out of the drill-hole.

Advantages

- High tension and shear loads
- Variable anchoring depths for even higher shear loads
- Screw/washer (SZ-S) model and fl t head (SZ-SK) model for finished surfaces
- Can be dismantled with a flush surface result (only the cone and expansion sleeve remain in the drill-hole)
- Smaller spacings and edge distances
- ICC Evaluation Service listing, USA
- Fire protection approved
- Approved to use under seismic action according to the performance category C1+C2 (M8 - M24)
- Independent Technical Assessment for fixing in fiber reinforced concrete

Applications

Medium to highload mounting in cracked and non-cracked concrete, e.g. trusses, railings, machines, scaffolding and consoles. Even in damp rooms and outdoors.

Highload Anchor SZ A4



- Stainless steel A4/316
- Approval for cracked and non-cracked concrete
- Variable anchorage depths

Description	Ref. No.		max. Fixture thickness ¹⁾ t _f mm	Drill hole- ø d ₀ mm	Drill hole depth ²⁾ h ₁ mm	Drill hole depth through fixture h _f mm	Setting depth ²⁾ h _{nom} mm	min. anchorage depth - max. effective anchorage depth h _{ef,min} - h _{ef,max} mm	Anchor length l		Seismic C1 / C2	Thread	Pkg. cont.	Weight per pkg. kg
	Type SZ-S	Type SZ-B							Typ SZ-S mm	Typ SZ-B mm				
SZ 12-0 A4	14105501	16105501	0	12	80	80	70	60	75	80	✓/✓	M 8	50	2,93
SZ 12-10 A4	14110501	16110501	10	12	80 - 90	90	70 - 80	60 - 70	85	90	✓/✓	M 8	50	3,31
SZ 12-30 A4	14125501	16125501	30	12	80 - 110	110	70 - 100	60 - 90	105	110	✓/✓	M 8	50	4,10
SZ 12-50 A4	14130501	16130501	50	12	80 - 120	130	70 - 110	60 - 100	125	130	✓/✓	M 8	25	2,47
SZ 12-100 A4	-	16145501	100	12	80 - 120	180	70 - 110	60 - 100	-	180	✓/✓	M 8	25	3,22
SZ 15-0 A4	14205501	16205501	0	15	95	95	85	71	91	96	✓/✓	M 10	25	2,85
SZ 15-15 A4	14215501	16215501	15	15	95 - 110	110	85 - 100	71 - 86	106	111	✓/✓	M 10	25	3,31
SZ 15-25 A4	14220501	16220501	25	15	95 - 120	120	85 - 110	71 - 96	116	121	✓/✓	M 10	25	3,59
SZ 15-45 A4	14225501	16225501	45	15	95 - 134	140	85 - 124	71 - 110	136	141	✓/✓	M 10	25	4,20
SZ 15-95 A4	14240501	16240501	95	15	95 - 134	190	85 - 124	71 - 110	186	191	✓/✓	M 10	25	5,60
SZ 18-0 A4	14305501	16305501	0	18	105	105	95	80	107	112	✓/✓	M 12	20	3,84
SZ 18-10 A4	14310501	16310501	10	18	105 - 115	115	95 - 105	80 - 90	117	122	✓/✓	M 12	20	4,18
SZ 18-20 A4	14315501	16315501	20	18	105 - 125	125	95 - 115	80 - 100	127	132	✓/✓	M 12	20	4,53
SZ 18-40 A4	14325501	16325501	40	18	105 - 145	145	95 - 135	80 - 120	147	152	✓/✓	M 12	20	5,21
SZ 18-70 A4	14335501	16335501	70	18	105 - 155	175	95 - 145	80 - 130	177	182	✓/✓	M 12	20	6,26
SZ 18-100 A4	-	16340501	100	18	105 - 155	205	95 - 145	80 - 130	-	212	✓/✓	M 12	10	3,55
SZ 24-0 A4	14505501	16505501	0	24	130	130	120	100	130	137	✓/✓	M 16	10	4,11
SZ 24-20 A4	14515501	16515501	20	24	130 - 144	150	120 - 134	100 - 114	150	157	✓/✓	M 16	10	4,71
SZ 24-50 A4	14525501	16525501	50	24	130 - 144	180	120 - 134	100 - 114	180	187	✓/✓	M 16	10	5,58
SZ 24-100 A4	-	16530501	100	24	130 - 144	230	120 - 134	100 - 114	-	237	✓/✓	M 16	5	3,49

¹⁾At minimum anchorage depth

²⁾For minimum anchorage depth - for maximum effective anchorage depth

Highload Anchor SZ-SK A4



- Stainless steel A4/316
- Approval for cracked and non-cracked concrete
- Variable anchorage depths

Description	Ref. No.	max. Fixture thickness ¹⁾ t _f mm	Drill hole- ø d ₀ mm	Drill hole depth ²⁾ h ₁ mm	Drill hole depth through fixture h _f mm	Setting depth ²⁾ h _{nom} mm	min. anchorage depth - max. effective anchorage depth h _{ef,min} - h _{ef,max} mm	Anchor length l mm	Seismic C1 / C2	Thread	Pkg. cont.	Weight per pkg. kg
SZ-SK 12-25 A4	14121531	25	12	80 - 85	105	70 - 85	60 - 75	95	✓/✓	M 8	50	3,65
SZ-SK 12-50 A4	14131531	50	12	80 - 120	130	70 - 110	60 - 100	120	✓/✓	M 8	25	2,33
SZ-SK 15-15 A4	14216531	15	15	95	105	85	71	100	✓/✓	M 10	25	2,95
SZ-SK 15-25 A4	14221531	25	15	95 - 106	120	85 - 96	71 - 82	110	✓/✓	M 10	25	3,29
SZ-SK 15-35 A4	14226531	35	15	95 - 116	130	85 - 106	71 - 92	120	✓/✓	M 10	25	3,55
SZ-SK 15-50 A4	14231531	50	15	95 - 131	145	85 - 121	71 - 107	135	✓/✓	M 10	25	3,96
SZ-SK 18-20 A4	14316531	20	18	105 - 107	125	95 - 97	80 - 82	115	✓/✓	M 12	20	3,99
SZ-SK 18-40 A4	14326531	40	18	105 - 127	195	95 - 117	80 - 102	135	✓/✓	M 12	20	4,62

¹⁾At minimum anchorage depth

²⁾For minimum anchorage depth - for maximum effective anchorage depth

Other lengths and special assemblies on demand.

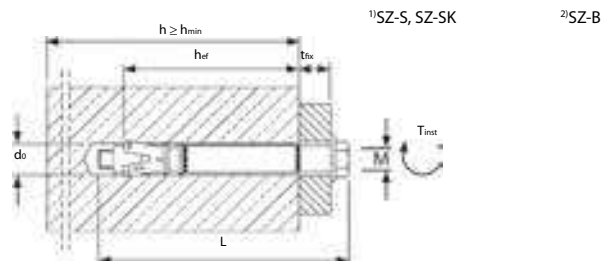


Extract from Permissible Service Conditions of European Technical Assessment ETA-02/0030

Approved loads for single anchor without influence of spacing and edge distance.

Total safety factor as per ETAG 001 included (γ_M and γ_P). Load capacities under fire exposure see page 167.

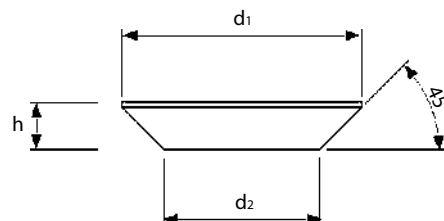
Loads and performance data				Highload Anchor SZ A4/316			
				SZ 12 M 8 A4	SZ 15 M 10 A4	SZ 18 M 12 A4	SZ 24 M 16 A4
Range of anchorage depths $h_{ef,min} - h_{ef,max}$		[mm]		60 - 100	71 - 110	80 - 130	100 - 150
Approved loads, tension for $h_{ef,min} - h_{ef,max}$				cracked concrete			
	C20/25 appr. N	[kN]		4,3	7,6	11,9	17,1
	C25/30 appr. N	[kN]		4,7	8,3	13,0	18,8
	C30/37 appr. N	[kN]		5,2	9,3	14,5	20,9
	C40/50 appr. N	[kN]		6,1	10,8	16,8	24,2
	C50/60 appr. N	[kN]		6,6	11,8	18,4	26,6
Approved loads, tension for $h_{ef,min} - h_{ef,max}$				non-cracked concrete			
	C20/25 appr. N	[kN]		7,6	11,9	16,7	23,8
	C25/30 appr. N	[kN]		8,3	13,0	18,3	26,1
	C30/37 appr. N	[kN]		9,3	14,5	20,3	29,0
	C40/50 appr. N	[kN]		9,9 ¹⁾ /10,8 ²⁾	15,7 ¹⁾ /16,8 ²⁾	22,9 ¹⁾ /23,6 ²⁾	33,7
	C50/60 appr. N	[kN]		9,9 ¹⁾ /11,8 ²⁾	15,7 ¹⁾ /18,4 ²⁾	22,9 ¹⁾ /25,8 ²⁾	36,9
Approved loads, shear $h_{ef,min} - h_{ef,max}$				cracked concrete			
SZ-S and SZ-SK	C20/25 appr. V	[kN]		12,6	19,4	24,5-32,6	34,3-48,3
	≥ C25/30 appr. V	[kN]		12,6	19,4	26,9-32,6	37,6-48,3
SZ-B	C20/25 appr. V	[kN]		13,7	20,5-21,1	24,5-35,4	34,3-52,6
	≥ C25/30 appr. V	[kN]		13,7	21,1	26,9-35,4	37,6-52,6
Approved loads, shear $h_{ef,min} - h_{ef,max}$				non-cracked concrete			
SZ-S and SZ-SK	C20/25 appr. V	[kN]		12,6	19,4	32,6	48,1-48,3
	≥ C25/30 appr. V	[kN]		12,6	19,4	32,6	48,3
SZ-B	C20/25 appr. V	[kN]		13,7	21,1	34,4-35,4	48,1-52,6
	≥ C25/30 appr. V	[kN]		13,7	21,1	35,4	52,6
Approved bending moments $h_{ef,min} - h_{ef,max}$				cracked concrete / non-cracked concrete			
Approved bending moments	appr. M	[Nm]		11,9 ¹⁾ /14,9 ²⁾	23,8 ¹⁾ /29,7 ²⁾	42,1 ¹⁾ /52,6 ²⁾	106,2 ¹⁾ /132,6 ²⁾
Spacing and edge distance							
Range of anchorage depths $h_{ef,min} - h_{ef,max}$		[mm]		60 - 100	71 - 110	80 - 130	100 - 150
Minimum thickness of concrete slab for $h_{ef,min} - h_{ef,max}$	h_{min}	[mm]		120 - 160	140 - 179	160 - 210	200 - 250
Characteristic spacing	$s_{cr, N}$	[mm]		180-300	213-330	240-390	300-450
Characteristic edge distance	$c_{cr, N}$	[mm]		90-150	106,5-165	120-195	150-225
				cracked concrete			
Minimum spacing / for edge distance c	s_{min} / c	[mm]		50/80	60/120	70/140	80/180
Minimum edge distance / for spacing s	c_{min} / s	[mm]		50/80	60/120	70/160	80/200
				non-cracked concrete			
Minimum spacing / for edge distance c	s_{min} / c	[mm]		50/80	60/120	70/140	80/180
Minimum edge distance / for spacing s	c_{min} / s	[mm]		50/80	85/185	70/160	180/80
Installation parameters							
Drill hole diameter	d_o	[mm]		12	15	18	24
Diameter of clearance hole in the fi ture	$d_f \leq$	[mm]		14	17	20	26
Range of drill hole depth for $h_{ef,min} - h_{ef,max}$	h_1	[mm]		80 - 120	96 - 135	105 - 155	130 - 180
Installation parameters SZ-S and SZ-B							
Installation torque	T_{inst}	[Nm]		30/35	50/55	80/90	170
Width across nut SZ (-S, -B)	SW			13	17	19	24
Outer diameter of washer		[mm]		20	25	30	40
Installation parameters SZ-SK							
Installation torque	T_{inst}	[Nm]		17,5	42,5	50	-
Internal hexagon size SZ-SK	SW _{Hex}			5	6	8	-
Thickness of countersunk washer		[mm]		5	5,7	6,7	-
Outer diameter of countersunk washer		[mm]		20,5	24,5	29,5	-
Minimum thickness of fi ture for maximum lateral force /without lateral force		[mm]		10 / 5	14 / 6	18 / 7	-



Dimensions countersunk head SZ-SK A4 [mm]

	d1	d2	h
SZ-SK 12 M 8	20,5	11,5	5,0
SZ-SK 15 M 10	24,5	14,5	5,7
SZ-SK 18 M 12	29,5	17,5	6,7

Countersunk head SZ-SK A4.



Installation

