

Highload Anchor SZ

Steel, zinc plated



Highload Anchor SZ-S



Highload Anchor SZ-B



Highload Anchor SZ-SK



Range of loading: 2,4 kN - 96,8 kN

Range of concrete quality: C20/25 - C50/60

Description

The ETA (Option 1) approved Highload Anchor SZ is a high-performance through fastening Anchor System with three part expansion sleeve. This allows for smaller spacings and edge distances with high loads. The plastic compression ring ensures the clamping of the mounted piece to the work surface. Three different models of the Highload Anchor SZ are available: Screw/washer SZ-S, Bolt head SZ-B and for flush surface mounting SZ-SK. All models have been shock-tested by the federal office for population protection in Bern/Switzerland.



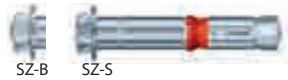
Advantages

- High tension and shear loads
- Screw/washer (SZ-B) model and flat 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)

Applications

Medium to highload anchoring in cracked and non-cracked concrete, e.g. trusses, railings, machines, scaffolding and consoles.

Highload Anchor SZ



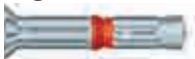
- Steel, zinc plated
- ETA approval for cracked and non-cracked concrete

Description	Type SZ-S Ref. No.	Type SZ-B Ref. No.	Drill hole Ø x depth mm	Drill hole depth through fixture mm	Setting depth mm	Anchor length		Seismic C1 / C2	Fixture thickness t _{fix} mm	Thread	Pkg. cont. pcs.	Weight per pkg. kg
						Typ S mm	Typ B mm					
SZ 10-0	14005301	16005301	10x65	65	60	65	67	- / -	0	M 6	100	3,25
SZ 10-10	14010301	16010301	10x65	75	60	75	77	- / -	10	M 6	50	1,94
SZ 10-30	14025301	16025301	10x65	95	60	95	97	- / -	30	M 6	50	2,47
SZ 10-50	14030301	16030301	10x65	115	60	115	117	- / -	50	M 6	50	2,94
SZ 10-100	-	16045301	10x65	165	60	-	167	- / -	100	M 6	25	2,05
SZ 12-0	14105301	16105301	12x80	80	70	75	80	✓ / ✓	0	M 8	50	2,93
SZ 12-10	14110301	16110301	12x80	90	70	85	90	✓ / ✓	10	M 8	50	3,31
SZ 12-30	14125301	16125301	12x80	110	70	105	110	✓ / ✓	30	M 8	50	4,10
SZ 12-50	14130301	16130301	12x80	130	70	125	130	✓ / ✓	50	M 8	25	2,47
SZ 12-100	-	16145301	12x80	180	70	-	180	✓ / ✓	100	M 8	25	3,22
SZ 15-0	14205301	16205301	15x95	95	85	91	96	✓ / ✓	0	M 10	25	2,85
SZ 15-15	14215301	16215301	15x95	110	85	110	111	✓ / ✓	15	M 10	25	3,31
SZ 15-25	14220301	16220301	15x95	120	85	116	121	✓ / ✓	25	M 10	25	3,59
SZ 15-45	14225301	16225301	15x95	140	85	136	141	✓ / ✓	45	M 10	25	4,20
SZ 15-95	14240301	16240301	15x95	190	85	186	191	✓ / ✓	95	M 10	25	5,60
SZ 18-0	14305301	16305301	18x105	105	95	107	112	✓ / ✓	0	M 12	20	3,84
SZ 18-10	14310301	16310301	18x105	115	95	117	122	✓ / ✓	10	M 12	20	4,18
SZ 18-20	14315301	16315301	18x105	125	95	127	132	✓ / ✓	20	M 12	20	4,53
SZ 18-40	14325301	16325301	18x105	145	95	147	152	✓ / ✓	40	M 12	20	5,21
SZ 18-70	14335301	16335301	18x105	175	95	177	182	✓ / ✓	70	M 12	20	6,26
SZ 18-100	-	16340301	18x105	205	95	-	212	✓ / ✓	100	M 12	10	3,55
SZ 24-0	14505301	16505301	24x130	130	120	130	137	✓ / ✓	0	M 16	10	4,11
SZ 24-20	14515301	16515301	24x130	150	120	150	157	✓ / ✓	20	M 16	10	4,71
SZ 24-50	14525301	16525301	24x130	180	120	180	187	✓ / ✓	50	M 16	10	5,58
SZ 24-100	-	16530301	24x130	230	120	-	237	✓ / ✓	100	M 16	5	3,49
SZ 24-0 L	14555301	16555301	24x145	145	135	150	152	✓ / ✓	0	M 16	10	4,70
SZ 24-30 L	14565301	16565301	24x145	175	135	180	182	✓ / ✓	30	M 16	10	5,57
SZ 24-50 L	14575301	16575301	24x145	195	135	200	202	✓ / ✓	50	M 16	10	6,20
SZ 28-10	14610301	16610301	28x160	170	150	172	181	✓ / ✓	10	M 20	10	7,76
SZ 28-30	14615301	16615301	28x160	190	150	192	201	✓ / ✓	30	M 20	5	4,35
SZ 28-60	14625301	16625301	28x160	220	150	222	231	✓ / ✓	60	M 20	5	5,02
SZ 28-100	14630301	16630301	28x160	260	150	262	271	✓ / ✓	100	M 20	5	5,88
SZ 32-10	14710301	16710301	32x180	190	170	212	217	✓ / ✓	10	M 24	5	5,93
SZ 32-30	14715301	16715301	32x180	210	170	232	237	✓ / ✓	30	M 24	5	6,41
SZ 32-60	14725301	16725301	32x180	240	170	262	267	✓ / ✓	60	M 24	5	7,21

NEW

Mechanical Heavy Duty Anchors

Highload Anchor SZ-SK



- Steel, zinc plated; with countersunk head
- ETA approval for cracked and non-cracked concrete

Description	Ref. No.	Drill hole Ø x depth mm	Drill hole depth through fixture mm	Setting depth mm	Anchor length mm	Seismic C1 / C2	Fixture thickness t _{fix} mm	Thread	Pkg. cont. pcs.	Weight per pkg. kg
SZ-SK 10-10	14011801	10 x 65	75	60	70	- / -	10	M 6	50	1,69
SZ-SK 10-25	14021801	10 x 65	90	60	85	- / -	25	M 6	50	2,30
SZ-SK 10-40	14031801	10 x 65	105	60	100	- / -	40	M 6	50	2,58
SZ-SK 12-10	14111801	12 x 80	90	70	80	✓ / ✓	10	M 8	50	3,01
SZ-SK 12-25	14121801	12 x 80	105	70	95	✓ / ✓	25	M 8	50	3,65
SZ-SK 12-50	14131801	12 x 80	130	70	120	✓ / ✓	50	M 8	25	2,33
SZ-SK 15-10	14211801	15 x 95	105	85	100	✓ / ✓	10	M 10	25	2,95
SZ-SK 15-25	14221801	15 x 95	120	85	110	✓ / ✓	25	M 10	25	3,29
SZ-SK 15-35	14226801	15 x 95	130	85	120	✓ / ✓	35	M 10	25	3,55
SZ-SK 15-50	14231801	15 x 95	145	85	135	✓ / ✓	50	M 10	25	3,96
SZ-SK 18-20	14316801	18 x 105	125	95	115	✓ / ✓	20	M 12	20	3,99
SZ-SK 18-40	14326801	18 x 105	145	95	135	✓ / ✓	40	M 12	20	4,62

Other lengths and special assemblies on demand.



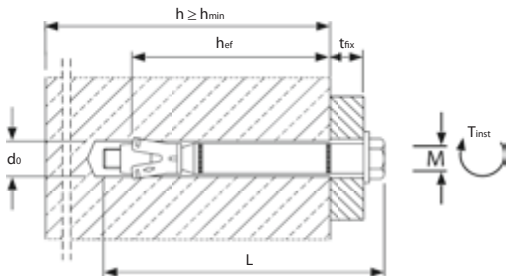
Extract from Permissible Service Conditions of European Technical Assessment ETA-02/0030

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

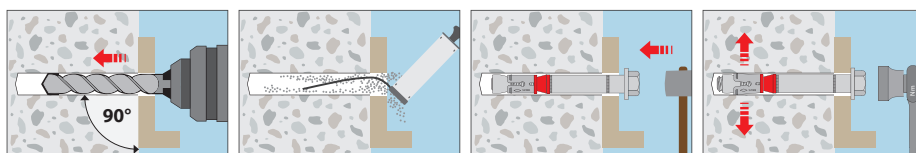
Total safety factor as per ETAG 001 included (γ_M and γ_F). Load capacities under fire exposure see page 167.

Loads and performance data	Highload Anchor SZ		SZ 10	SZ 12	SZ 15	SZ 18	SZ 24	SZ 24L	SZ 28	SZ 32
			M 6	M 8	M 10	M 12	M 16	M 16	M 20	M 24
cracked concrete										
Mean ultimate loads, tension	C25/30 Num	[kN]	16,1	21,1	32,8	42,5	60,8	79,8	80,0	134,4
Mean ultimate loads, shear	C25/30 V _{um}	[kN]	18,0/19,0 ¹⁾	28,3/33,4 ¹⁾	42,0/58,6 ¹⁾	71,3/83,7 ¹⁾	106,0/143,7 ¹⁾	106,0/143,7 ¹⁾	151,4/198,5 ¹⁾	213,9/213,9 ¹⁾
Approved loads, tension	C20/25 appr. N	[kN]	2,4	5,7	7,6	12,3	17,1	21,1	24,0	31,5
	C25/30 appr. N	[kN]	2,6	6,3	8,3	13,4	18,8	23,2	26,2	34,5
	C30/37 appr. N	[kN]	2,9	7,0	9,3	14,9	20,9	25,7	29,1	38,3
	C40/50 appr. N	[kN]	3,4	8,1	10,8	17,3	24,2	29,9	33,9	44,5
	C50/60 appr. N	[kN]	3,7	8,9	11,8	19,0	26,6	32,8	37,1	48,8
non-cracked concrete										
Approved loads, tension	C20/25 appr. N	[kN]	7,6	9,5	14,4	17,2	24,0	29,7	33,6	44,2
	C25/30 appr. N	[kN]	7,6	10,4	15,8	18,8	26,3	32,5	36,8	48,4
	C30/37 appr. N	[kN]	7,6	11,6	17,5	20,9	29,3	36,1	40,9	53,7
	C40/50 appr. N	[kN]	7,6	13,5	20,3	24,3	34,0	41,9	47,5	62,5
	C50/60 appr. N	[kN]	7,6	13,8	21,9	26,7	37,3	45,9	52,0	68,4
cracked concrete										
Approved loads, shear SZ-S and SZ-SK	C20/25 appr. V	[kN]	10,3	15,9	20,5	24,5	34,3	42,3	47,9	63,0
	≥ C25/30 appr. V	[kN]	10,3	17,1	22,5	26,9	37,6	46,3	52,5	69,0
Approved loads, shear SZ-B	C20/25 appr. V	[kN]	9,1	14,3	20,5	24,5	34,3	42,3	47,9	63,0
	≥ C25/30 appr. V	[kN]	9,1	14,3	20,6	26,9	37,6	46,3	52,5	69,0
non-cracked concrete										
Approved loads, shear SZ-S and SZ-SK	C20/25 appr. V	[kN]	10,3	17,1	27,4	34,4	48,1	59,3	67,2	88,4
	≥ C25/30 appr. V	[kN]	10,3	17,1	27,4	37,7	52,7	65,0	73,6	96,8
Approved loads, shear SZ-B	C20/25 appr. V	[kN]	9,1	14,3	20,6	34,4	48,1	52,0	67,2	88,4
	≥ C25/30 appr. V	[kN]	9,1	14,3	20,6	36,0	52,0	52,0	69,7	96,8
cracked concrete / non-cracked concrete										
Approved bending moments	appr. M	[Nm]	6,9	17,1	34,3	60,0	152,0	152,0	296,6	513,1
Spacing and edge distance										
Effective anchorage depth	h _{ef}	[mm]	50	60	71	80	100	115	125	150
Characteristic spacing	s _{cr, N}	[mm]	150	180	213	240	300	345	375	450
Characteristic edge distance	c _{cr, N}	[mm]	75	90	106,5	120	150	172,5	187,5	225
cracked concrete concrete										
Minimum spacing / for edge distance c	s _{min} / c	[mm]	50/50	50/80	60/120	70/140	100/180	100/180	125/300	150/300
Minimum edge distance / for spacing s	c _{min} / s	[mm]	50/50	55/100	60/120	70/160	100/220	100/220	180/540	150/300
non-cracked concrete										
Minimum spacing / for edge distance c	s _{min} / c	[mm]	50/80	60/100	60/120	70/140	100/180	100/180	125/300	150/300
Minimum edge distance / for spacing s	c _{min} / s	[mm]	50/100	60/120	60/120	70/160	100/220	100/220	180/540	150/300
Minimum thickness of concrete slab	h _{min}	[mm]	100	120	140	160	200	230	250	300
Installation parameters										
Drill hole diameter	d ₀	[mm]	10	12	15	18	24	24	28	32
Diameter of clearance hole in the fixture	d _f	[mm]	12	14	17	20	26	26	31	35
Depth of drill hole	h ₁	[mm]	65	80	95	105	130	145	160	180
Installation torque	T _{inst}	[Nm]	15/10 ²⁾	30/25 ²⁾	50/55 ²⁾	80/70 ²⁾	160	160	280	280
Width across nut SZ (-S, -B)	SW	[mm]	10	13	17	19	24	24	30	36
Internal hexagon size SZ-SK	SW _{Hex}	[mm]	4	5	6	8	-	-	-	-
Minimum thickness of fixture for SZ-SK	t _{fix} ≥	[mm]	8/4 ³⁾	10/5 ³⁾	14/6 ³⁾	18/7 ³⁾	-	-	-	-

¹⁾ SZ-B / SZ-S, SZ-SK ²⁾ Installation torque for type SZ-SK (with countersunk head). ³⁾ Full shear load/without shear load
 For anchor designing, an easy to operate CD-ROM is available on request or can be downloaded at www.mkt.de.



Installation



Dimensions countersunk head SZ-SK [mm]

	d1	d2	h
SZ-SK 10 M 6	16,5	9,5	3,9
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 (type SZ-SK).

