

# Heavy-duty anchor SLA



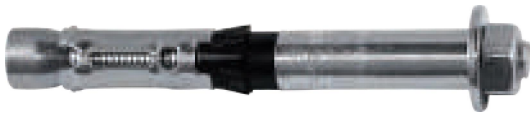
## Advantages



SLA C with countersunk head



SLA S with hex-head screw



SLA B with bolt and hexagon nut

- Torque controlled heavy-duty anchor, designed for heaviest loads
- Available with various heads
- The integrated plastic ring prevents twisting of the anchor and allows to overcome gaps between the attached part and the concrete surface
- Anchorage depth marking for quick installation

## Suitable building materials

### Very suitable

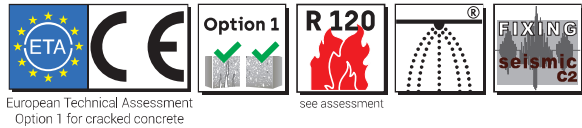


- Concrete

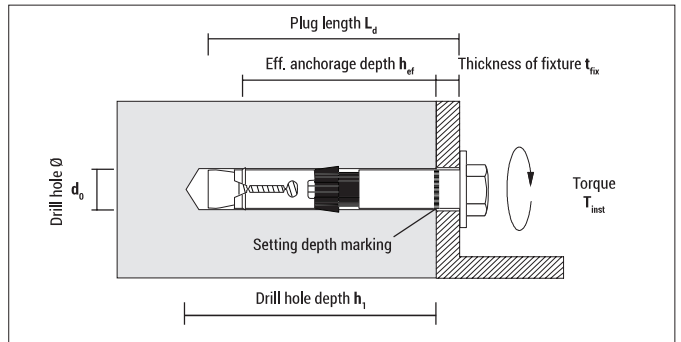
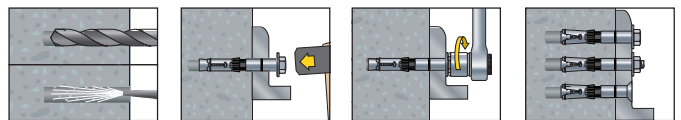


**SLA C, zinc plated** with countersunk screw; steel quality 8.8

## Approvals and certificates



## Mounting



Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>ef</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Thread	ETA	e / 100 pcs	[pcs]	[pcs]
C 12-80/16	91280SLAC	12	85	59	80	16	M8	●		30	150
C 12-90/26	91290SLAC	12	85	59	90	26	M8	●		30	150
C 12-120/56	912120SLAC	12	85	59	120	56	M8	●		25	125
C 15-90/17	91590SLAC	15	95	67	90	17	M10	●		20	100
C 15-100/27	915100SLAC	15	95	67	100	27	M10	●		15	75

## Heavy-duty anchor SLA



**SLA S, zinc plated** with hex-head screw; steel quality 8.8

Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>ef</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Thread	ETA	€/100 pcs	[pcs]	[pcs]
S 12-80/10	91280SLAS	12	85	59	80	10	M8	●		30	150
S 12-90/20	91290SLAS	12	85	59	90	20	M8	●		30	150
S 12-120/50	912120SLAS	12	85	59	120	50	M8	●		25	125
S 15-90/10	91590SLAS	15	95	67	90	10	M10	●		20	100
S 15-100/20	915100SLAS	15	95	67	100	20	M10	●		15	75
S 15-130/50	915130SLAS	15	95	67	130	50	M10	●		15	75
S 18-110/10	918110SLAS	18	115	88	110	10	M12	●		10	50
S 18-125/25	918125SLAS	18	115	88	125	25	M12	●		10	50
S 18-150/50	918150SLAS	18	115	88	150	50	M12	●		5	25
S 24-125/10	924125SLAS	24	130	99	125	10	M16	●		5	25
S 24-140/25	924140SLAS	24	130	99	140	25	M16	●		5	25
S 24-165/50	924165SLAS	24	130	99	165	50	M16	●		4	20



**SLA B, zinc plated** with bolt and hexagon nut; steel quality 8.8

Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>ef</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Thread	ETA	€/100 pcs	[pcs]	[pcs]
B 12-80/10	91280SLAB	12	85	59	80	10	M8	●		30	150
B 12-90/20	91290SLAB	12	85	59	90	20	M8	●		30	150
B 12-120/50	912120SLAB	12	85	59	120	50	M8	●		25	125
B 15-90/10	91590SLAB	15	95	67	90	10	M10	●		20	100
B 15-100/20	915100SLAB	15	95	67	100	20	M10	●		15	75
B 15-130/50	915130SLAB	15	95	67	130	50	M10	●		15	75
B 15-180/100	915180SLAB	15	115	67	180	100	M10	●		10	50
B 18-110/10	918110SLAB	18	115	88	110	10	M12	●		10	50
B 18-125/25	918125SLAB	18	115	88	125	25	M12	●		10	50
B 18-150/50	918150SLAB	18	115	88	150	50	M12	●		5	25
B 18-200/100	918200SLAB	18	115	88	200	100	M12	●		5	25
B 24-125/10	924125SLAB	24	130	99	125	10	M16	●		5	25
B 24-140/25	924140SLAB	24	130	99	140	25	M16	●		5	25
B 24-165/50	924165SLAB	24	130	99	165	50	M16	●		4	20
B 24-215/100	924215SLAB	24	130	99	215	100	M16	●		4	–

### Installation parameters

SLA S/B/C Size		M8	M10	M12	M16
Torque	T <sub>inst</sub> [Nm]	20	45	80	150
SLA S/B width across flats	SW [mm]	13	17	19	24
SLA C internal hexagon	[mm]	6	8	–	–
Ø of clearance hole in fixture	d <sub>f</sub> [mm]	14	17	20	26

### Loads, spacing and edge distance

Type	Size	Cracked concrete <sup>1),2)</sup> C20/25		Non-cracked concrete <sup>1),2)</sup> C20/25		Permissible bending moment M <sub>per</sub> [Nm]	Spacing		Edge distance		Min. thickness of structural part h <sub>min</sub> [mm]
		Tension N <sub>per</sub> [kN]	Shear V <sub>per</sub> [kN]	Tension N <sub>per</sub> [kN]	Shear V <sub>per</sub> [kN]		S <sub>cr</sub> [mm]	S <sub>min</sub> [mm]	C <sub>cr</sub> [mm]	C <sub>min</sub> [mm]	
SLA 12	M8	5,7	7,8	10,9	10,9	17	177	60	89	60	120
SLA 15	M10	7,6	18,8	13,2	24,0	34	201	70	101	70	140
SLA 18	M12	11,9	28,3	19,8	28,6	60	264	80	132	80	180
SLA 24	M16	16,9	33,8	23,6	47,4	152	297	100	149	100	200

<sup>1)</sup> Permissible loads for single anchor without influence of spacing and edge distance.

<sup>2)</sup> Load values include the resistances' partial safety factors as per ETA assessment and a partial safety factor on the action of v<sub>F</sub> = 1,4.

For higher concrete strengths the values increase N<sub>per</sub> by max 55% (N<sub>per,C50,60</sub> = 1,55 × N<sub>per,C20/25</sub>)

If underrun the char. spacing or edge distance (C<sub>cr</sub> or S<sub>cr</sub>) the loads must be reduced. h<sub>min</sub>, S<sub>min</sub> and C<sub>min</sub> must be observed.

# Forced expansion anchor ZA



## Advantages



ZA Type S with hex-head screw



ZA Type B with bolt and hexagon nut

- Suitable for heavy fixings in non-cracked concrete
- ZA 12 (M8) with ETA assessment
- Force controlled spreading of the sleeve when the screw or nut is tightened
- Easy installation as the plug sleeve spreads with a low force
- Low setting depth
- The groove allows to overcome gaps between the attached part and the concrete surface

## Approvals and certificates



## Suitable building materials

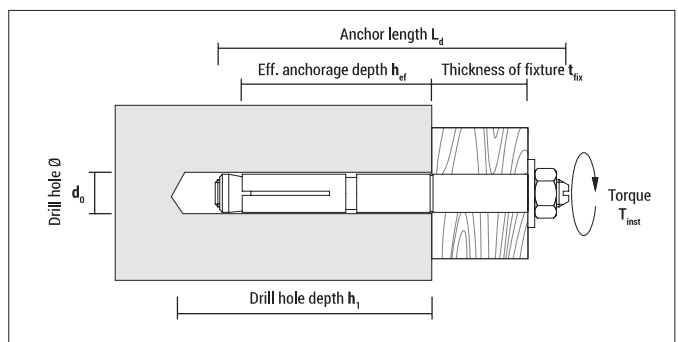
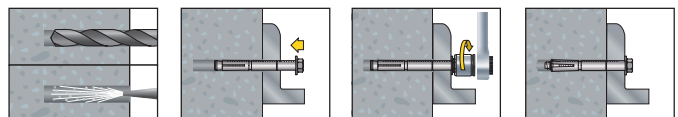
### Very suitable



- Concrete



## Mounting



### Forced expansion anchor ZA



**ZA Type S, zinc plated** with hex-head screw, steel quality 8.8

Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>ef</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Thread	ETA	€ / 100 pcs	[pcs]	[pcs]
S 10-55/10 <sup>1)</sup>	91055ZAS	10	55	40	55	10	M6	–		100	–
S 10-95/50 <sup>1)</sup>	91095ZAS	10	55	40	95	50	M6	–		100	–
S 12-60/10	91260ZAS	12	55	40	60	10	M8	●		50	–
S 12-75/25	91275ZAS	12	55	40	75	25	M8	●		50	–
S 12-85/35	91280ZAS	12	55	40	85	35	M8	●		50	–
S 12-100/50	912100ZAS	12	55	40	100	50	M8	●		50	–
S 14-70/10	91470ZAS	14	70	50	70	10	M10	–		50	–
S 14-85/25	91485ZAS	14	70	50	85	25	M10	–		50	–
S 14-110/50	914110ZAS	14	70	50	110	50	M10	–		25	–
S 18-90/10 <sup>1)</sup>	91890ZAS	18	80	60	90	10	M12	–		25	–
S 18-100/25 <sup>1)</sup>	918100ZAS	18	80	60	100	25	M12	–		25	–
S 18-130/50 <sup>1)</sup>	918130ZAS	18	80	60	130	50	M12	–		25	–

<sup>1)</sup> discontinued article, delivery while stocks last



**ZA Type B, zinc plated** with bolt and hexagon nut, steel quality 8.8

Type	Art-No	d <sub>0</sub> [mm]	h <sub>1</sub> ≥ [mm]	h <sub>ef</sub> ≥ [mm]	L <sub>d</sub> [mm]	t <sub>fix</sub> ≤ [mm]	Thread	ETA	€ / 100 pcs	[pcs]	[pcs]
B 12-70/10	91270ZAB	12	55	40	70	10	M8	●		50	–
B 12-85/25	91285ZAB	12	55	40	85	25	M8	●		50	–
B 12-110/50	912110ZAB	12	55	40	110	50	M8	●		50	–
B 12-160/100	912160ZAB	12	55	40	160	100	M8	●		50	–
B 14-95/25 <sup>1)</sup>	91495ZAB	14	70	50	95	25	M10	–		50	–
B 14-120/50 <sup>1)</sup>	914120ZAB	14	70	50	120	50	M10	–		25	–
B 18-96/10 <sup>1)</sup>	91896ZAB	18	80	60	96	10	M12	–		25	–

<sup>1)</sup> discontinued article, delivery while stocks last

### Installation parameters

ZA S/B Size	M6	M8	M10	M12	
Torque	T <sub>inst</sub> [Nm]	8,5	20	40	70
Width across flats	SW [mm]	10	13	17	19
Ø of clearance hole in fixture	d <sub>f</sub> [mm]	12	14	16	22

### Loads, spacing and edge distance for ZA 12 according to ETA assessment in non-cracked concrete

Type	Size	Non-cracked concrete <sup>1) 2)</sup>		Permissible bending moment M <sub>per</sub> [Nm]	Spacing		Edge distance		Min. Thickness of structural part h <sub>min</sub> [mm]
		C20/25 N <sub>per</sub> [kN]	V <sub>per</sub> [kN]		S <sub>cr</sub> [mm]	S <sub>min</sub> [mm]	C <sub>cr</sub> [mm]	C <sub>min</sub> [mm]	
ZA 12	M8	5,7	6,1	17,1	120	90	60	60	120

<sup>1)</sup> Permissible loads for single anchor without influence of spacing and edge distance. (C > 10 x h<sub>ef</sub>)

<sup>2)</sup> Load values include the resistances' partial safety factors as per ETA assessment and a partial safety factor on the action of γ<sub>F</sub> = 1,4.

For higher concrete strengths the values increase N<sub>per</sub> by max 55 % (N<sub>per,C50/60</sub> = 1,55 x N<sub>per,C20/25</sub>)

If under the char. spacing or edge distance (C<sub>cr</sub> or S<sub>cr</sub>) the loads must be reduced. h<sub>min</sub>, S<sub>min</sub> and C<sub>min</sub> must be observed.

### Loads, spacing and edge distance according to former DIBt approval in non-cracked concrete

Type	Size	Non-cracked concrete			Reduction factor <sup>1)</sup>	Bending moment M <sub>emp</sub> [Nm]	Spacing S [mm]	Edge distance <sup>2)</sup> C [mm]	Min. thickness of structural part h <sub>min</sub> [mm]
		C12/15 F <sub>rec</sub> [kN]	C20/25 F <sub>rec</sub> [kN]	C30/37 F <sub>rec</sub> [kN]					
ZA 10	M6	1,5	2,1	2,5	0,70	7,0	260	130	110
ZA 14	M10	3,5	5,0	5,9	0,80	34,2	440	220	150
ZA 18	M12	5,2	7,4	8,7	0,90	60,0	500	250	180

F<sub>rec</sub>: Recommended loads in all directions in non-cracked concrete.

<sup>1)</sup> Reduction factor for the permissible load, if a reinforcement steel with an axis clearance of less than 15 cm exists in the area of the anchorage

<sup>2)</sup> Edge distance may be reduced by a factor of 0,72, if anchor is inserted at the edge of the structural member, instead of the corner