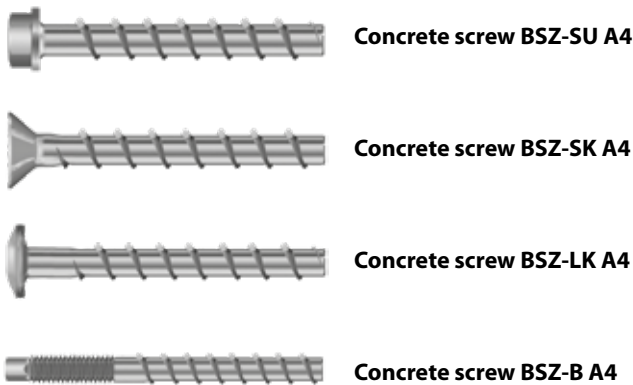


# Concrete screw BSZ A4

Stainless steel A4



**Range of loading:** 0,4 kN - 19,4 kN  
**Range of concrete quality:** C20/25 - C50/60

## Description

Option 1 approved concrete screw BSZs cut a positive thread in the concrete when being screwed in and enable attachment to be made close to the edge through the expansion-free operating principle (=undercut). The approved adjustment enables subsequent alignment to compensate for unevenness. The BSZ A4 concrete screw is also ideal for temporary fixings since it is fully removable. Installation with an impact screwdriver means that you do not need to use a torque wrench. It is quick, reliable and reduces assembly errors.

The BSZ A4 concrete screws are available with connection thread and with a range of different head shapes for a wide variety of applications.

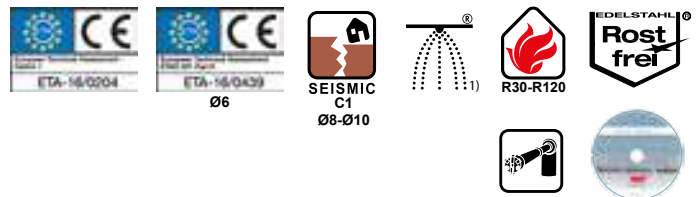
## Advantages

- European Technical Assessment for anchoring in cracked and non-cracked concrete (Option 1) for concrete screws in sizes 6, 8 and 10
- With up to 3 embedment depths, it is versatile for high loads or low levels of drilling and installation effort
- European Technical Assessment for multiple use for non-structural systems in concrete and precast pre-stressed hollow core slabs for concrete screws in diameter 6
- Approved for use under seismic conditions of category C1 ( $\varnothing 8$  to  $\varnothing 10$  for embedment depth  $h_{nom}$  3)
- Approved for use under fire exposure (R30-R120).
- Small drill hole diameter, small edge and axial gap
- Rapid push-through installation with an impact screwdriver without torque regulation
- No curing times, can be loaded immediately
- Adjustable to compensate for unevenness ( $\varnothing 8$ -  $\varnothing 10$  mm)
- Can be fully removed
- Wide range of possible applications through numerous variants
- Visually appealing through different head shapes
- Without assessment, can also be used in compression-resistant natural stone, various solid bricks and green concrete

<sup>1)</sup>Not for applications in precast pre-stressed hollow core slabs



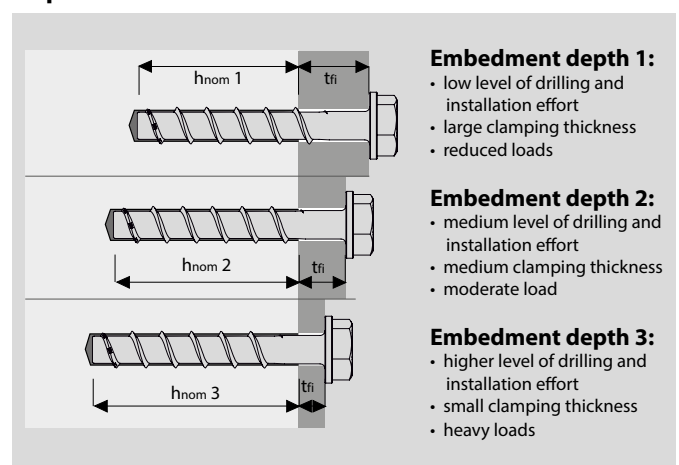
## Approvals and Certificates



## Applications

To anchor moderate to heavy loads outside and inside in cracked and non-cracked concrete: Railings and handrails, steel beams, wooden beams, supports and braces, brackets, pipeline and cable routes, suspended ceilings, etc.

## Highly versatile for up to three different embedment depths:



### Concrete screw BSZ-SU A4



- Hex head with pressed disc
- Stainless Steel A4
- Through smaller drive and pressed on washer also suitable for areas where access is difficult and elongated holes

Description	Ref. No.	Embedment depth 1 <sup>1)</sup>			Embedment depth 2			Embedment depth 3			Seismic C1	Anchor length L	Pressed disk Ø	Drive	Pkg. content	Weight per pkg.
		Fixture thickness t <sub>fi</sub>	Drill hole Ø x depth	Embedment depth h <sub>nom 1</sub>	Fixture thickness t <sub>fi</sub>	Drill hole Ø x depth	Embedment depth h <sub>nom 2</sub>	Fixture thickness t <sub>fi</sub>	Drill hole Ø x depth	Embedment depth h <sub>nom 3</sub>						
		mm	mm	mm	mm	mm	mm	mm	mm	mm						
BSZ-SU 6x50 A4	59121001	15	6x40	35	10	6x45	40	-	-	-	-	50	17	SW 13	100	1,79
BSZ-SU 6x60 A4	59121501	25	6x40	35	20	6x45	40	5	6x60	55	-	60	17	SW 13	100	2,17
BSZ-SU 8x70 A4	59132001	25	8x55	45	15	8x65	55	5	8x75	65	✓	70	16	SW 13	50	2,05
BSZ-SU 8x80 A4	59132501	35	8x55	45	25	8x65	55	15	8x75	65	✓	80	16	SW 13	50	2,20
BSZ-SU 10x90 A4	59142501	35	10x65	55	15	10x85	75	5	10x95	85	✓	90	20	SW 15	50	3,82
BSZ-SU 10x100 A4	59143001	45	10x65	55	25	10x85	75	15	10x95	85	✓	100	20	SW 15	50	4,13
BSZ-SU 10x120 A4	59144001	65	10x65	55	45	10x85	75	35	10x95	85	✓	120	20	SW 15	50	4,73

<sup>1)</sup>For embedment depth h<sub>nom 1</sub> = 35 mm: Only for multiple use for non-structural systems in concrete and precast pre-stressed hollow core slabs.

### Concrete screw BSZ-SK A4



- Countersunk head with Torx drive
- Stainless Steel A4
- For installations being flush with the fixture

Description	Ref. No.	Embedment depth 1 <sup>1)</sup>			Embedment depth 2			Embedment depth 3			Seismic C1	Anchor length L	Head-Ø	Drive	Pkg. content	Weight per pkg.
		Fixture thickness t <sub>fi</sub>	Drill hole Ø x depth	Embedment depth h <sub>nom 1</sub>	Fixture thickness t <sub>fi</sub>	Drill hole Ø x depth	Embedment depth h <sub>nom 2</sub>	Fixture thickness t <sub>fi</sub>	Drill hole Ø x depth	Embedment depth h <sub>nom 3</sub>						
		mm	mm	mm	mm	mm	mm	mm	mm	mm						
BSZ-SK 6x50 A4	59321501	15	6x40	35	10	6x45	40	-	-	-	-	50	13	T 30	100	1,30
BSZ-SK 6x65 A4	59322501	30	6x40	35	25	6x45	40	10	6x60	55	-	65	13	T 30	100	1,57
BSZ-SK 6x85 A4	59323501	50	6x40	35	45	6x45	40	30	6x60	55	-	85	13	T 30	100	2,05
BSZ-SK 6x105 A4	59324501	70	6x40	35	65	6x45	40	50	6x60	55	-	105	13	T 30	100	2,35
BSZ-SK 8x80 A4	59332501	35	8x55	45	25	8x65	55	15	8x75	65	✓	80	19,5	T 40	50	1,95
BSZ-SK 10x90 A4	59342501	35	10x65	55	15	10x85	75	5	10x95	85	✓	90	21,5	T 50	50	3,10

<sup>1)</sup>For embedment depth h<sub>nom 1</sub> = 35 mm: Only for multiple use for non-structural systems in concrete and precast pre-stressed hollow core slabs.

### Concrete screw BSZ-LK A4



- Pan head with Torx drive
- Stainless Steel A4
- For a flat fixing which has a high quality look

Description	Ref. No.	Embedment depth 1 <sup>1)</sup>			Embedment depth 2			Embedment depth 3			Seismic C1	Anchor length L	Head-Ø	Drive	Pkg. content	Weight per pkg.
		Fixture thickness t <sub>fi</sub>	Drill hole Ø x depth	Embedment depth h <sub>nom 1</sub>	Fixture thickness t <sub>fi</sub>	Drill hole Ø x depth	Embedment depth h <sub>nom 2</sub>	Fixture thickness t <sub>fi</sub>	Drill hole Ø x depth	Embedment depth h <sub>nom 3</sub>						
		mm	mm	mm	mm	mm	mm	mm	mm	mm						
BSZ-LK 6x50 A4	59421501	15	6x40	35	10	6x45	40	-	-	-	-	50	15	T 30	100	1,45
BSZ-LK 6x60 A4	59422001	25	6x40	35	20	6x45	40	5	6x60	55	-	60	15	T 30	100	1,67
BSZ-LK 6x80 A4	59423001	45	6x40	35	40	6x45	40	25	6x60	55	-	80	15	T 30	100	2,08
BSZ-LK 6x100 A4	59424001	65	6x40	35	60	6x45	40	45	6x60	55	-	100	15	T 30	100	2,57

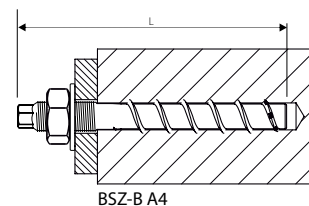
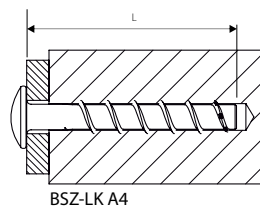
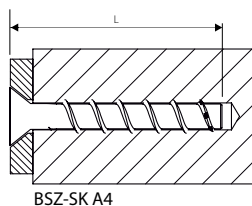
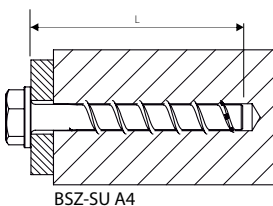
<sup>1)</sup>For embedment depth h<sub>nom 1</sub> = 35 mm: Only for multiple use for non-structural systems in concrete and precast pre-stressed hollow core slabs.

**Concrete screw BSZ-B A4**



- ➔ With metric connection thread and hex drive
- ➔ Stainless Steel A4
- ➔ For pre-setting and through-setting installation and for distance mounting

Description	Ref. No.	Embedment depth 1			Embedment depth 2			Embedment depth 3			Seismic C1	Anchor length L	Con-nection thread	Drive	Pkg. content	Weight per pkg.
		Fixture thickness $t_{fi}$	Drill hole $\varnothing \times$ depth	Embedment depth $h_{nom,1}$	Fixture thickness $t_{fi}$	Drill hole $\varnothing \times$ depth	Embedment depth $h_{nom,2}$	Fixture thickness $t_{fi}$	Drill hole $\varnothing \times$ depth	Embedment depth $h_{nom,3}$						
		mm	mm	mm	mm	mm	mm	mm	mm	mm						
BSZ-B 8x105 A4	59834001	39	8x55	45	29	8x65	55	19	8x75	65	✓	105	M10x30	SW 7	50	2,30
BSZ-B 10x140 A4	59845001	59	10x65	55	39	10x85	75	29	10x95	85	✓	140	M12x35	SW 9	50	4,58
BSZ-B 10x160 A4	59846001	79	10x65	55	59	10x85	75	49	10x95	85	✓	160	M12x55	SW 9	50	5,30



**Recommended impact screwdriver**

**Description of concrete screw recommended impact screwdriver**

**BSZ 6**

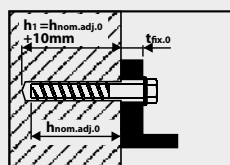
- Milwaukee C 12 IW (Square drive, Battery operation, max. torque 136 Nm)
- Milwaukee C 12ID (Multi-toothed drive, Battery operation, max. torque 96 Nm)
- DeWalt DEDC 840 KB (Square drive, Battery operation, max. torque 160 Nm)
- Würth ASS 14 (1/4 inch drive, Battery operation, max. torque 150 Nm)

**BSZ 8  
BSZ 10**

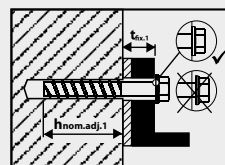
- Milwaukee C 18 IW (Square drive, Battery operation, max. torque 250 Nm)
- Bosch GDS 18E (Square drive, Mains operation, max. torque 250 Nm)
- Makita 6905H (Square drive, Mains operation, max. torque 300 Nm)
- Würth ASS 18 (1/2 inch drive, Battery operation, max. torque 180 Nm)
- Würth ESS (1/2 inch drive, Mains operation, max. torque 250 Nm)

Mechanical Heavy Duty Anchors

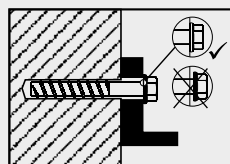
**Notes for subsequent adjustment**



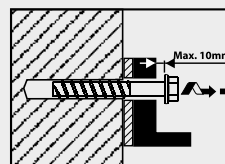
1. In order to be able to carry out subsequent adjustment, the concrete screw must be screwed at least 10mm deeper than the nominal embedment depth. This must be taken into account at the point when you are selecting the length of the concrete screw.



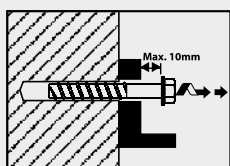
4. After fitting the lining, then re-mount the fixture in accordance with the installation instructions.



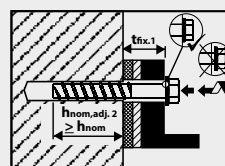
2. After successful installation, if relining is necessary for compensation, this is possible with the concrete screw BSZ ( $\varnothing$  8 – 14 mm).



5. If the first lining is not sufficient then it is possible to repeat the adjustment. To do this, once again, the concrete screw must be turned back by a maximum of 10 mm so that another lining can be fit ed.



3. To do this, when the adjustment is carried out for the first time, the concrete screw must be turned back by a maximum of 10 mm.



6. After the second lining, then re-mount the fixture in accordance with the installation instructions..

- The anchor can only be adjusted twice. When doing this the anchor can only be screwed back to a maximum of 10 mm.
- In total the lining which is a result of the adjustment must be a maximum of 10 mm.
- The required seating depth  $h_{nom}$  must be maintained after adjustment ( $h_{nom} = L - t_{fi}$ ).



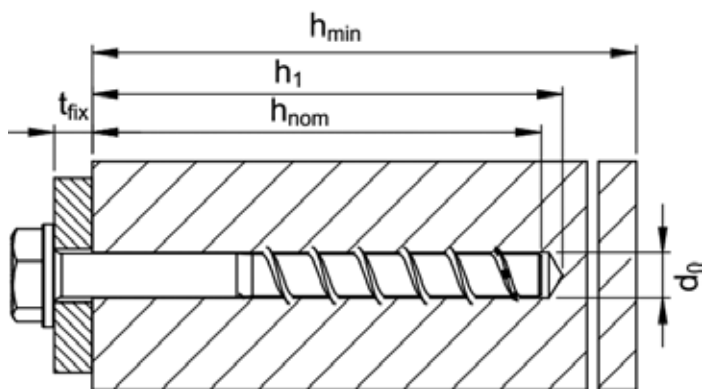
**Extract from the application conditions of the European Technical Assessment ETA-16/0204**

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

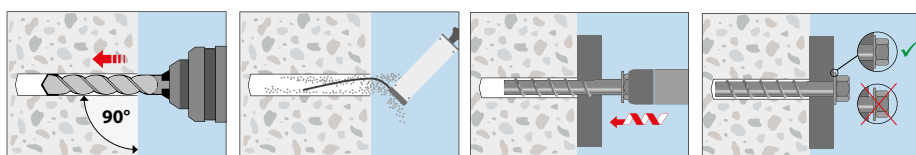
Total safety factor as per ETAG 001 included ( $\gamma_M$  and  $\gamma_F$ ). Load capacities under fire exposure see page 168.

Loads and performance data			Concrete screw size		BSZ 6 A4		BSZ 8 A4			BSZ 10 A4	
Nominal embedment depth 1	$h_{nom 1}$	[mm]	-	-	45	-	-	55	-	-	-
Nominal embedment depth 2	$h_{nom 2}$	[mm]	40	-	-	-	55	-	-	75	-
Nominal embedment depth 3	$h_{nom 3}$	[mm]	-	55	-	-	65	-	-	-	85
cracked concrete											
Approved loads, tension	C20/25	appr. N	[kN]	1,0	1,9	2,4	4,3	5,7	4,3	8,0	9,6
	C25/30	appr. N	[kN]	1,0	2,1	2,6	4,7	6,3	4,7	8,7	10,5
	C30/37	appr. N	[kN]	1,2	2,3	2,9	5,2	7,0	5,2	9,7	11,7
	C40/50	appr. N	[kN]	1,3	2,7	3,4	6,1	8,1	6,1	11,3	13,6
	C50/60	appr. N	[kN]	1,5	3,0	3,7	6,6	8,9	6,6	12,3	14,9
non-cracked concrete											
Approved loads, tension	C20/25	appr. N	[kN]	1,9	4,3	3,6	5,7	7,6	5,7	9,5	11,9
	C25/30	appr. N	[kN]	2,1	4,7	3,9	6,3	8,3	6,3	10,4	13,0
	C30/37	appr. N	[kN]	2,3	5,2	4,3	7,0	9,3	7,0	11,6	14,5
	C40/50	appr. N	[kN]	2,7	6,1	5,1	8,1	10,8	8,1	13,5	16,8
	C50/60	appr. N	[kN]	3,0	6,6	5,5	8,9	11,8	8,9	14,8	18,4
cracked / non-cracked concrete											
Approved loads, shear	C20/25	appr. V	[kN]	3,0/4,0	4,0/4,0	3,5/5,0	4,8/6,8	6,4/9,0	4,8/6,8	15,9/19,4	19,2/19,4
	$\geq$ C25/30	appr. V	[kN]	3,2/4,0	4,0/4,0	3,9/5,5	5,3/7,4	7,0/9,7	5,3/7,4	17,5/19,4	19,4/19,4
Approved bending moments		appr. M	[Nm]	6,2	6,2	14,9	14,9	14,9	32,0	32,0	32,0
<b>Spacing and edge distance</b>											
Effective anchorage depth	$h_{ef}$	[mm]	31	44	35	43	52	43	60	68	
Characteristic spacing	$s_{cr, N}$	[mm]	93	132	105	129	156	129	180	204	
Characteristic edge distance	$c_{cr, N}$	[mm]	46,5	66	52,5	64,5	78	64,5	90	102	
Minimum thickness of concrete slab	$h_{min}$	[mm]	100	100	100	100	120	100	130	130	
Minimum spacing	$s_{min}$	[mm]	40	40	40	50	50	50	50	50	
Minimum edge distance	$c_{min}$	[mm]	40	40	40	50	50	50	50	50	
<b>Installation parameters</b>											
Drill hole diameter	$d_o$	[mm]	6	6	8	8	8	10	10	10	
Diameter of clearance hole in the fixture	$d_{r \leq}$	[mm]	8	8	12	12	12	14	14	14	
Depth of drill hole	$h_1 \geq$	[mm]	45	60	55	65	75	65	85	95	
Installation torque for metric connection thread	$T_{inst \leq}$	[Nm]	10	10	20	20	20	40	40	40	
Tangential impact screwdriver <sup>1)</sup>	$T_{imp, max}$	[Nm]	160	160	300	300	300	400	400	400	

<sup>1)</sup>It is possible to fit with a tangential screwdriver with maximum output of  $T_{imp, max}$  in accordance with the manufacturer's specifications



**Installation**





### Extract from Permissible Service Conditions of European Technical Assessment ETA-16/0439

Multiple use for non-structural applications. Total safety factor as per ETAG 001 included ( $\gamma_M$  and  $\gamma_F$ ). Depending on national regulations, the maximum allowable load per fixing point may be lower than the approved load of the anchor. The allowable loads per fixing point are regulated for the particular countries in the ETAG 001, Part 6.

Loads and performance data	Concrete screw size	BSZ 6 A4		
<b>Nominal embedment depth 1</b>	<b>h<sub>nom 1</sub></b>	<b>[mm]</b>	<b>35</b>	<b>-</b>
<b>Nominal embedment depth 2</b>	<b>h<sub>nom 2</sub></b>	<b>[mm]</b>	<b>-</b>	<b>-</b>
<b>Nominal embedment depth 3</b>	<b>h<sub>nom 3</sub></b>	<b>[mm]</b>	<b>-</b>	<b>55</b>
cracked concrete				
Approved loads, tension	C20/25	appr. N	[kN]	0,6 3,6
	C25/30	appr. N	[kN]	0,7 3,9
	C30/37	appr. N	[kN]	0,7 4,3
	C40/50	appr. N	[kN]	0,8 5,1
	C50/60	appr. N	[kN]	0,9 5,5
non-cracked concrete				
Approved loads, tension	C20/25	appr. N	[kN]	0,6 3,6
	C25/30	appr. N	[kN]	0,7 3,9
	C30/37	appr. N	[kN]	0,7 4,3
	C40/50	appr. N	[kN]	0,8 5,1
	C50/60	appr. N	[kN]	0,9 5,5
cracked / non-cracked concrete				
Approved loads, shear	C20/25	appr. V	[kN]	2,0/2,8 4,0/4,0
	≥ C25/30	appr. V	[kN]	2,2/3,1 4,0/4,0
Approved bending moments		appr. M	[Nm]	6,2 6,2

Spacing and edge distance				
Effective anchorage depth	h <sub>ef</sub>	[mm]	27	44
Characteristic spacing	s <sub>cr, N</sub>	[mm]	81	132
Characteristic edge distance	c <sub>cr, N</sub>	[mm]	40,5	66
Minimum thickness of concrete slab	h <sub>min</sub>	[mm]	80	100
Minimum spacing	s <sub>min</sub>	[mm]	35	40
Minimum edge distance	c <sub>min</sub>	[mm]	35	40

Installation parameters				
Drill hole diameter	d <sub>o</sub>	[mm]	6	6
Diameter of clearance hole in the fixture	d <sub>f</sub>	[mm]	8	8
Depth of drill hole	h <sub>1</sub> ≥	[mm]	40	60
Installation torque for metric connection thread	T <sub>inst, ≤</sub>	[Nm]	10	10
Tangential impact screwdriver <sup>1)</sup>	T <sub>imp, max</sub>	[Nm]	160	160

<sup>1)</sup> It is possible to fit with a tangential screwdriver with maximum output of T<sub>imp, max</sub> in accordance with the manufacturer's specifications

Approved loads with exposure to fire				
in cracked and non-cracked concrete C20/25 to C50/60				
Approved loads, tension	R30	appr. N <sub>fi</sub>	[kN]	0,38 1,2
	R60	appr. N <sub>fi</sub>	[kN]	0,38 1,2
	R90	appr. N <sub>fi</sub>	[kN]	0,38 1,2
	R120	appr. N <sub>fi</sub>	[kN]	0,30 0,8
Approved loads, shear	R30	appr. V <sub>fi</sub>	[kN]	0,68 1,2
	R60	appr. V <sub>fi</sub>	[kN]	0,68 1,2
	R90	appr. V <sub>fi</sub>	[kN]	0,68 1,2
	R120	appr. V <sub>fi</sub>	[kN]	0,55 0,8
Characteristic spacing	s <sub>cr, fi</sub>	[mm]	108	176
Characteristic edge distance	c <sub>cr, fi</sub>	[mm]	54	88

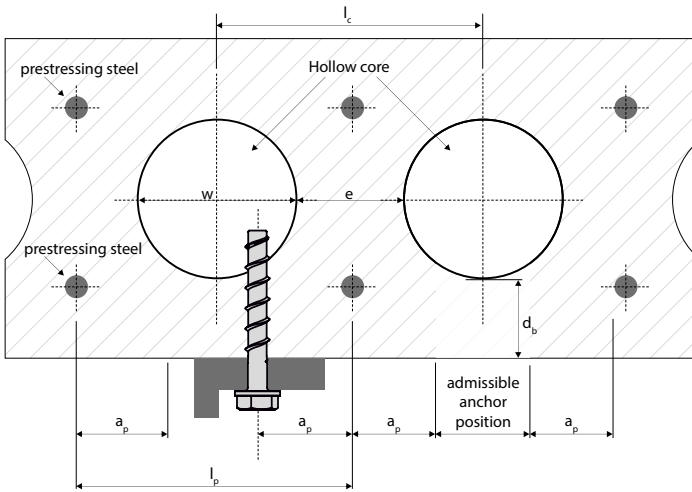


**Extract from Permissible Service Conditions of European Technical Assessment ETA-16/0439**

Multiple use for non-structural applications. Total safety factor as per ETAG 001 included ( $\gamma_M$  and  $\gamma_F$ ). Depending on national regulations, the maximum allowable load per fixing point may be lower than the approved load of the anchor. The allowable loads per fixing point are regulated for the particular countries in the ETAG 001, Part 6.

Loads and performance data		Concrete screw size		BSZ 6 A4	
<b>Nominal embedment depth</b>	$h_{nom}$	[mm]	$\geq 35$		
Precast pre-stressed hollow core slabs C30/37 to C50/60					
Flange thickness	$d_b \geq$	[mm]	25	30	35
	$F_{appr}$	[kN]	0,4	0,8	1,2
<b>Spacing and edge distance</b>					
Minimum spacing	$s_{min}$	[mm]	100		
Minimum edge distance	$c_{min}$	[mm]	100		
<b>Installation parameters</b>					
Drill hole diameter	$d_o$	[mm]	6		
Diameter of clearance hole in the flange	$d_f$	[mm]	8		
Depth of drill hole	$h_1 \geq$	[mm]	40		
Installation torque	$T_{inst} \leq$	[Nm]	10		

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

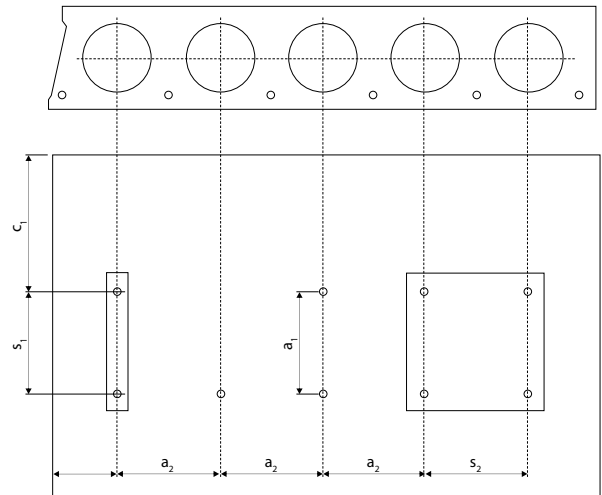


$w / e \leq 4,2$

- w Core width
- e Web thickness

- Core distance  $l_c \geq 100$  mm
- Distance between prestressing steel  $l_p \geq 100$  mm
- Distance between anchor position and pre-stressing steel  $a_p \geq 50$  mm

**Installation parameters for anchors in precast pre-stressed hollow core slabs**



- $c_1, c_2$  Edge distance
- $s_1, s_2$  Anchor spacing
- $a_1, a_2$  Distance between the anchor groups

- Minimum edge distance  $c_{min} \geq 100$  mm
- Minimum spacing  $s_{min} \geq 100$  mm
- Minimum distance between the anchor groups  $a_{min} \geq 100$  mm

**Installation**

