

## LOADS

### Concrete screw FBS US A4 and FBS SK A4

Highest permissible loads for a single anchor<sup>1)</sup> in cracked concrete (concrete tension zone) C20/25<sup>4)</sup>

Type	Screw-in depth $h_{nom}$ [mm]	Min. member thickness $h_{min}$ [mm]	Torque moment $T_{inst, max}$ [Nm]	Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Required edge distance (with one edge) for		Required spacing for  Max. Load s [mm]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]
						Max. tension load c [mm]	Max. shear load c [mm]			
<b>FBS 8 A4</b>	65	120	≤ 20	4,3	6,2	50	120	155	50	50
<b>FBS 10 A4</b>	85	130	≤ 40	7,6	19,0	75	375	205	70	70
<b>FBS 12 A4</b>	100	150	≤ 60	12,3	23,3	120	420	240	80	80

For the design the complete approval ETA - 11/0095 has to be considered.

<sup>1)</sup> The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of  $\gamma_L = 1,4$  are considered. As an single anchor counts e.g. an anchor with a spacing  $s \geq 3 \times h_{ef}$  and an edge distance  $c \geq 1,5 \times h_{ef}$ .

<sup>2)</sup> Minimum possible axial spacings resp. edge distance while reducing the permissible load.

<sup>3)</sup> For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.

<sup>4)</sup> For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

## LOADS

### Concrete screw FBS US A4 and FBS SK A4

Highest permissible loads for a single anchor<sup>1)</sup> in non-cracked concrete (concrete compression zone) C20/25<sup>4)</sup>

Type	Screw-in depth $h_{nom}$ [mm]	Min. member thickness $h_{min}$ [mm]	Torque moment $T_{inst, max}$ [Nm]	Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Required edge distance (with one edge) for		Required spacing for  Max. Load s [mm]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]
						Max. tension load c [mm]	Max. shear load c [mm]			
<b>FBS 8 A4</b>	65	120	≤ 20	5,7	8,8	50	120	155	50	50
<b>FBS 10 A4</b>	85	130	≤ 40	13,5	19,0	75	375	205	70	70
<b>FBS 12 A4</b>	100	150	≤ 60	17,2	23,3	120	420	240	80	80

For the design the complete approval ETA - 11/0095 has to be considered.

<sup>1)</sup> The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of  $\gamma_L = 1,4$  are considered. As an single anchor counts e.g. an anchor with a spacing  $s \geq 3 \times h_{ef}$  and an edge distance  $c \geq 1,5 \times h_{ef}$ .

<sup>2)</sup> Minimum possible axial spacings resp. edge distance while reducing the permissible load.

<sup>3)</sup> For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.

<sup>4)</sup> For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

## LOADS

### Concrete screw FBS US A4 and FBS SK A4

Highest recommended loads<sup>1)</sup> for each fixing point<sup>5) 6)</sup> in solid brick masonry.

Type	FBS 8 A4		
Minimum member thickness	$h_{min}$	[mm]	115
Embedment depth	$h_{nom}$	[mm]	65
Minimum spacing within anchor groups of 2 or 4 anchors	$s_{min}^{2)}$	[mm]	70
Minimum edge distance	$c_{min}^{2)}$	[mm]	200
Minimum distance to the horizontal joint	$s_{min}^{\perp}$	[mm]	20
Minimum distance to the vertical joint	$s_{min}^{\parallel}$	[mm]	40
Minimum distance between anchor groups	a	[mm]	<sup>7)</sup>
Minimum brick dimensions			240x115x71
<b>Recommended total load for a single anchor resp. anchor group Frec<sup>3) 6)</sup></b>			
Recommended load <sup>3)</sup> in solid brick Mz <sup>4)</sup>	$f_{ck} \geq 12 \text{ N/mm}^2$	[kN]	1,14
Recommended load <sup>3)</sup> in Solid sand-lime brick KS <sup>4)</sup>	$f_{ck} \geq 12 \text{ N/mm}^2$	[kN]	0,90

<sup>1)</sup> An appropriate safety factor is considered.

<sup>2)</sup> Smallest possible spacing resp. edge distance without reducing the recommended load.

<sup>3)</sup> Valid for tensile load, shear load and oblique load under any angle.

<sup>4)</sup> Solid bricks acc. EN 771-1 resp. EN 772-2.

<sup>5)</sup> The given data are valid for multiple fixings of non-structural applications. If the joints are not visible 100% anchor testing is recommended.

<sup>6)</sup> A fixing point can be a single anchor, 2 anchors or 4 anchors with a minimum spacing  $s_{min}$ . Anchor groups of 4 anchors are arranged in rectangular disposition.

<sup>7)</sup> The fixing points have to be arranged in this way that there will be always maximum one fixing point arranged in one brick.