

LOADS

Concrete screw FBS US A4 and FBS SK A4

Highest permissible loads for a single anchor¹⁾ in cracked concrete (concrete tension zone) C20/25⁴⁾

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]			
FBS 8 A4	65	120	≤ 20	4,3	6,2	50	120	155	50	50
FBS 10 A4	85	130	≤ 40	7,6	19,0	75	375	205	70	70
FBS 12 A4	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.

¹⁾ 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 $c \geq 1,5 \times h_{ef}$.

²⁾ Minimum possible axial spacings resp. edge distance while reducing the permissible load.

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

⁴⁾ 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 anchor¹⁾ in non-cracked concrete (concrete compression zone) C20/25⁴⁾

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]			
FBS 8 A4	65	120	≤ 20	5,7	8,8	50	120	155	50	50
FBS 10 A4	85	130	≤ 40	13,5	19,0	75	375	205	70	70
FBS 12 A4	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.

¹⁾ 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 $c \geq 1,5 \times h_{ef}$.

²⁾ Minimum possible axial spacings resp. edge distance while reducing the permissible load.

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

⁴⁾ 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 loads¹⁾ for each fixing point^{5) 6)} 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]	⁷⁾
Minimum brick dimensions			240x115x71
Recommended total load for a single anchor resp. anchor group Frec^{3) 6)}			
Recommended load ³⁾ in solid brick Mz ⁴⁾	$f_{ck} \geq 12 \text{ N/mm}^2$	[kN]	1,14
Recommended load ³⁾ in Solid sand-lime brick KS ⁴⁾	$f_{ck} \geq 12 \text{ N/mm}^2$	[kN]	0,90

¹⁾ An appropriate safety factor is considered.

²⁾ Smallest possible spacing resp. edge distance without reducing the recommended load.

³⁾ Valid for tensile load, shear load and oblique load under any angle.

⁴⁾ Solid bricks acc. EN 771-1 resp. EN 772-2.

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

⁶⁾ 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.

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