

LOADS

Concrete screw ULTRACUT FBS II

Highest permissible loads for a single anchor¹⁾ in concrete C20/25⁴⁾

For the design the complete assessment ETA-15/0352 has to be considered.

Type	Embedment depth			Cracked concrete				Non-cracked concrete			
				Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance
	h_{nom} [mm]	h_{min} [mm]	Installation torque $T_{inst, max}^{5)}$ [Nm]	$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{2)}$ [mm]	$c_{min}^{2)}$ [mm]	$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{2)}$ [mm]	$c_{min}^{2)}$ [mm]
FBS II 8	50	100	≤ 600	2,9	4,2	35	35	5,9	5,9	35	35
	65	120		5,7	9,0	35	35	9,0	9,0	35	35
FBS II 10	55	100	≤ 650	4,3	4,8	40	40	6,8	6,8	40	40
	65	120		5,7	12,5	40	40	8,8	14,0	40	40
	85	140		9,6	16,6	40	40	13,5	16,6	40	40
FBS II 12	60	110		5,5	11,0	50	50	7,7	15,2	50	50
	75	130		8,0	15,2	50	50	11,2	15,2	50	50
	100	150		12,5	20,3	50	50	17,5	20,3	50	50
FBS II 14	65	120		6,1	12,1	60	60	8,5	17,0	60	60
	85	140		9,4	18,8	60	60	13,2	22,1	60	60
	115	180		15,4	29,4	60	60	21,6	29,4	60	60

¹⁾ The partial safety factors for material resistance as regulated in the assessment 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 assessment.

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

⁵⁾ Maximum allowable torque moment for installation with any tangential impact screw driver.

LOADS

Concrete screw ULTRACUT FBS II

Highest recommended loads^{1) 3) 4) 5) 6) 7)} for each fixing point in solid brick masonry.

Base material	Compressive strength class [N/mm ²]	Type	FBS II 8		FBS II 10	
		h_{nom} [mm]	[kN]	[kN]	[kN]	[kN]
Solid clay brick (EN771-1), 240x113x115 mm	≥ 12	Femp ²⁾	[kN]	1,1	1,4	1,4
	≥ 20	Femp ^{2), 8)}	[kN]	1,6	1,6	1,6
Solid sand-lime brick (EN771-2), ≥ 240x71x115 mm	≥ 12	Femp ^{2), 8)}	[kN]	1,2	1,2	1,2
	≥ 20	Femp ^{2), 8)}	[kN]	1,2	1,2	1,2
Aerated concrete (EN771-4), ≥ 499x100x100 mm	≥ 6	Femp ²⁾	[kN]	0,7	0,9	0,9
Minimum spacing within anchor groups of 2 or 4 anchors		s_{min}	[mm]	80		
Minimum distance to the horizontal joint		$c_{min,v}$	[mm]	20		
Minimum distance to the vertical joint		$c_{min,h}$	[mm]	40		
Minimum distance to the free edge		$c_{min,free}$	[mm]	200		

¹⁾ An appropriate safety factor is considered.

²⁾ The given loads apply to the given brick measures. For bigger sizes higher recommended loads may be possible. In this case please contact our technical department for further advice.

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

⁴⁾ On - site screw testing is recommended to validate technical data. If the joints are not visible 100% anchor testing is recommended due to the screws are only working in the bricks and not in the mortar joints.

⁵⁾ The given data are valid for multiple fixings of non-structural applications.

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.

⁸⁾ Brick pull-out is decisive