

Bolt anchor FBZ

Permissible loads of a single anchor¹⁾ in normal concrete of strength class C20/25.
For the design the complete current assessment ETA-17/0624 has to be considered.

Type	Material/ surface ²⁾	Effective anchorage depth h _{ef} [mm]	Minimum member thickness h _{min} [mm]	Instal- lation torque T _{inst} [Nm]	Cracked concrete				Non-cracked concrete			
					Permissible tension (N _{perm}) and shear loads (V _{perm}); minimum spacing (s _{min}) and edge distances (c _{min}) with reduced loads				Permissible tension (N _{perm}) and shear loads (V _{perm}); minimum spacing (s _{min}) and edge distances (c _{min}) with reduced loads			
					N _{perm} ³⁾ [kN]	V _{perm} ³⁾ [kN]	s _{min} ³⁾ [mm]	c _{min} ³⁾ [mm]	N _{perm} ³⁾ [kN]	V _{perm} ³⁾ [kN]	s _{min} ³⁾ [mm]	c _{min} ³⁾ [mm]
FBZ 8	gvz	35 ⁴⁾	80	20	1.9	6.9	40	45	3.8	6.9	40	45
	R	35 ⁴⁾	80	20	1.9	8.5	40	45	3.8	9.2	40	45
	gvz	45	80	20	2.9	6.9	35	40	5.2	6.9	35	40
	gvz	45	100	20	2.9	6.9	35	40	5.2	6.9	40	40
	R	45	80	20	2.9	9.2	35	40	5.2	9.2	35	40
	R	45	100	20	2.9	9.2	35	40	5.2	9.2	40	40
FBZ 10	gvz	40	80	45	3.3	10.8	40	45	4.8	12.2	40	45
	R	40	80	45	3.3	10.8	40	45	4.8	15.1	40	45
	gvz	60	100	45	4.8	12.2	40	60	7.6	12.2	40	60
	gvz	60	120	45	4.8	12.2	40	45	7.6	12.2	40	45
	R	60	100	45	4.8	15.1	40	60	7.6	15.1	40	60
	R	60	120	45	4.8	15.1	40	45	7.6	15.1	40	45
FBZ 12	gvz	50	100	60	4.8	17.5	50	55	7.1	17.5	50	55
	R	50	100	60	4.8	18.0	50	55	7.1	21.4	50	55
	gvz	70	120	60	7.6	17.5	50	60	8.1	17.5	50	60
	gvz	70	140	60	7.6	17.5	50	55	8.1	17.5	50	55
	R	70	120	60	7.6	21.4	50	60	8.1	21.4	50	60
	R	70	140	60	7.6	21.4	50	55	8.1	21.4	50	55
FBZ 16	gvz	65	140	110	7.1	27.5	65	65	10.5	31.4	65	65
	R	65	140	110	7.1	27.5	65	65	10.5	32.7	65	65
	gvz	85	140	110	12.4	31.4	80	65	16.2	31.4	80	65
	gvz	85	170	110	12.4	31.4	65	65	16.2	31.4	65	65
	R	85	140	110	12.4	32.7	80	65	16.2	32.7	80	65
	R	85	170	110	12.4	32.7	65	65	16.2	32.7	65	65

¹⁾ Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance as regulated in the ETA as well as a partial safety factor for load actions of γ_f = 1.4 are considered. As a single anchor counts e.g. an anchor with a spacing s ≥ 3 x h_a and an edge distance c ≥ 1.5 x h_a. Accurate data see ETA.

²⁾ Further steel grades, versions and technical data see ETA, e.g. for dry internal conditions, galvanised steel (gvz); for damp interiors and for outdoor use, stainless steel (R).

³⁾ In the case of combinations of tension and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete ETA and the provisions of the EN 1992-4:2018. We recommend using our anchor design software C-FIX.

⁴⁾ The anchorage depths smaller than 40 mm are only allowed for single anchors as part of a multiple fixing of non-structural systems.