Loads

Bolt Anchor FWA

Recommended loads of a single anchor[1] in normal concrete of strength class C20/25.

							Non-cracked concrete			
	Material / surface[3]	Effective anchorage depth	Minimum member thickness	Drill hole diameter	Drill hole diameter in fixture[2]	Installation torque	Recommended tension (N_{rec}), shear loads (V_{rec}), minimum spacing (s_{min}) and edge distances (c_{min})			
Type		$h_{ef} \geq$ [mm]	h_{min} [mm]	d_0 [mm]	d_f [mm]	T_{inst} [Nm]	N_{rec} [3] [kN]	V_{rec} [3] [kN]	s_{min} [3] [mm]	c_{min} [3] [mm]
FWA 6	gvz	25	100	6	8	4	1.3	1.3	80	40
	gvz	30	100	6	8	4	2.1	1.7	100	50
FWA 8	gvz / shrd	25	100	8	10	10	1.4	1.4	80	40
	gvz / shrd	35	100	8	10	10	2.8	2.8	90	45
FWA 10	gvz / shrd	25	100	10	13	25	1.8	1.8	90	45
	gvz / shrd	35	100	10	13	25	2.8	2.8	120	60
	gvz / shrd	45	100	10	13	25	3.8	3.8	150	75
FWA 12	gvz / shrd	35	100	12	15	40	3.2	3.2	120	60
	gvz / shrd	45	100	12	15	40	4.4	4.4	150	75
	gvz / shrd	55	110	12	15	40	5.8	5.8	180	90
FWA 16	shrd	45	100	16	19	100	4.4	4.4	150	75
	gvz	50	100	16	19	100	4.4	4.4	150	75
	shrd	60	120	16	19	100	6.2	6.2	200	100
	gvz	65	130	16	19	100	6.2	6.2	200	100
	shrd	75	150	16	19	100	8.5	8.5	240	120
	gvz	80	160	16	19	100	8.5	8.5	240	120
FWA 20	shrd	70	150	20	23	200	8.0	-	210	105
	gvz / shrd	75	150	20	23	200	9.7	9.7	240	120
	gvz / shrd	95	190	20	23	200	13.5	13.5	300	150
FWA 24	gvz	95	190	24	28	260	15.0	-	300	150
	gvz	120	240	24	28	260	16.0	-	360	180

[1] The partial safety factors for material resistance as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. As a 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] For push-throught installation.

[3] As recommended loades are given in the table, combinations of tensile and shear loads, bending moments and reduced edge and axial spacings (anchor groups) can not be carried out.