Loads

Injection system FIS VB with threaded rod FIS A resp. RG M

Permissible loads of a single anchor1) 2) in normal concrete of strength class C20/25
For the design the complete current assessment ETA-24/0274 of of 02.09.2026 has to be considered.

					Non-cracked concrete			
					Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads			
Type	Material / surface[3]	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Maximum Installation torque $T_{inst,max}$ [Nm]	N_{Nperm}[4] [kN]	V_{Nperm}[4] [kN]	s_{min}[4] [mm]	c_{min}[4] [mm]
FIS A M 8	5.8	60	100	10	5.1	6.2	40	40
	5.8	80	110	10	6.9	6.2	40	40
	5.8	160	190	10	8.7	6.2	40	40
	R-70	60	100	10	5.1	5.9	40	40
	R-70	80	110	10	6.9	5.9	40	40
	R-70	160	190	10	9.8	5.9	40	40
FIS A M 10	5.8	60	100	20	6.4	9.9	45	45
	5.8	90	120	20	9.6	9.9	45	45
	5.8	200	230	20	13.8	9.9	45	45
	R-70	60	100	20	6.4	9.3	45	45
	R-70	90	120	20	9.6	9.3	45	45
	R-70	200	230	20	15.5	9.3	45	45
FIS A M 12	5.8	70	100	40	9.0	14.4	55	45
	5.8	110	140	40	14.2	14.4	55	45
	5.8	240	270	40	20.0	14.4	55	45
	R-70	70	100	40	9.0	13.5	55	45
	R-70	110	140	40	14.2	13.5	55	45
	R-70	240	270	40	22.5	13.5	55	45
FIS A M 16	5.8	80	120	60	13.7	26.9	65	50
	5.8	125	170	60	21.4	26.9	65	50
	5.8	320	360	60	37.4	26.9	65	50
	R-70	80	120	60	13.7	25.1	65	50
	R-70	125	170	60	21.4	25.1	65	50
	R-70	320	360	60	42.0	25.1	65	50
FIS A M 20	5.8	90	140	120	14.3	40.0	85	55
	5.8	170	220	120	33.4	42.0	85	55
	5.8	400	450	120	58.3	42.0	85	55
	R-70	90	140	120	14.3	39.2	85	55
	R-70	170	220	120	33.4	39.2	85	55
	R-70	400	450	120	65.5	39.2	85	55

[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 $\gamma_F = 1.4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1.5 \times h_{ef}$. Accurate data see ETA.

[2] The specified loads are valid for anchorages in dry and damp concrete. For temperatures in the anchoring substrate up to 50 °C (resp. short term up to 80 °C). Drill hole cleaning as per specification in the ETA. The factor Ψ_{sus} for sustained load was taken into account with 1.0.

[3] 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).

[4] 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.