Loads

Injection system FIS EM Plus with internal threaded anchor FIS IG

Permissible loads of a single anchor[1) 2)] in normal concrete of strength class C20/25.
For the design the complete current assessment ETA-17/0979 of 12.02.2026 has to be considered.

					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			
Type	Screw material[3)]	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Maximum installation-torque $T_{inst.max}$ [Nm]	N_{perm}[4)] [kN]	V_{perm}[4)] [kN]	s_{min}[4)] [mm]	c_{min}[4)] [mm]	N_{perm}[4)] [kN]	V_{perm}[4)] [kN]	s_{min}[4)] [mm]	c_{min}[4)] [mm]
FIS IG 8	5.8	120	150	10	8.7	6.2	55	45	8.7	6.2	55	45
	8.8	120	150	10	11.0	8.3	55	45	11.0	8.3	55	45
	R-70	120	150	10	9.8	5.9	55	45	9.8	5.9	55	45
FIS IG 10	5.8	160	200	20	13.8	9.9	65	50	13.8	9.9	65	50
	8.8	160	200	20	22.1	13.3	65	50	22.1	13.3	65	50
	R-70	160	200	20	15.5	9.3	65	50	15.5	9.3	65	50
FIS IG 12	5.8	200	250	40	20.0	14.4	85	55	20.0	14.4	85	55
	8.8	200	250	40	32.1	19.3	85	55	32.1	19.3	85	55
	R-70	200	250	40	22.5	13.5	85	55	22.5	13.5	85	55
FIS IG 16	5.8	240	300	80	37.3	26.9	105	60	37.3	26.9	105	60
	8.8	240	300	80	46.1	35.9	105	60	46.1	35.9	105	60
	R-70	240	300	80	41.9	25.1	105	60	41.9	25.1	105	60
FIS IG 20	5.8	300	370	120	58.3	42.0	140	80	58.3	42.0	140	80
	8.8	300	370	120	74.7	56.0	140	80	74.7	56.0	140	80
	R-70	300	370	120	65.4	39.2	140	80	65.4	39.2	140	80

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 $\gamma_L = 1.4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1.5 \times h_{ef}$. 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 72 °C). Higher loads are possible at lower temperatures. Drilling method and borehole cleaning according to ETA specifications. 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.