

Injection system FIS EP 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-24/0960 of 13.12.2024 has to be considered.

Type	Material / surface ³⁾	Effective anchorage depth h _{ef} [mm]	Minimum member thickness h _{min} [mm]	Maximum installation torque T _{inst,max} [Nm]	Non-cracked concrete			
					Permissible tension (N _{perm}) and shear loads (V _{perm}); minimum spacing (s _{min}) and edge distances (c _{min}) with reduced loads			
					N _{perm} ⁴⁾ [kN]	V _{perm} ⁴⁾ [kN]	S _{min} ⁴⁾ [mm]	c _{min} ⁴⁾ [mm]
FIS A M10	5.8	60	90	20	6.4	9.9	45	45
	5.8	200	230	20	13.8	9.9	45	45
	R-70	60	90	20	6.4	9.3	45	45
	R-70	200	230	20	15.5	9.3	45	45
FIS A M12	5.8	70	100	40	9.0	14.4	55	55
	5.8	240	270	40	20.0	14.4	55	55
	R-70	70	100	40	9.0	13.5	55	55
	R-70	240	270	40	22.5	13.5	55	55
FIS A M16	5.8	80	120	60	12.3	26.9	65	65
	5.8	320	360	60	37.4	26.9	65	65
	R-70	80	120	60	12.3	25.1	65	65
	R-70	320	360	60	42.0	25.1	65	65
FIS A M20	5.8	90	140	120	15.7	37.7	85	85
	5.8	400	450	120	58.3	42.0	85	85
	R-70	90	140	120	15.7	37.7	85	85
	R-70	400	450	120	65.5	39.2	85	85

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 43 °C (resp. short term up to 60 °C). Drilling method and borehole cleaning according to ETA specifications. The factor Ψ_{sust} 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, as well as reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the full ETA and EN 1992-4:2018.