Loads

Injection system FIS VL with threaded rod FIS A in solid and perforated masonry

Permissible loads[1) 2)] for a single anchor in masonry for pre-positioned installation.
For the design the complete current assessment ETA-15/0263 has to be considered.

Type	Compressive brick strength f_b [N/mm²]	Brick raw density ρ [kg/dm³]	Minimum brick dimensions[3)] (L x B x H) [mm]	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Maximum installation torque $T_{inst,max}$ [Nm]	Permissible tensile load[4)] N_{perm} [kN]	Permissible shear load[4)] V_{perm} [kN]	Minimum spacing[5)] $s_{min\,\parallel}$ / $s_{min\,\perp}$ [mm]	Characteristic resp. minimum edge distance[5)] $c_{cr} = c_{min}$ [mm]
Solid sand-lime brick KS, acc. to EN 771-2										
M8	≥ 12	≥ 1.8	240 x 115 x 71	≥ 50	115	5	1.14	0.43	80 / 150	60
M8	≥ 12	≥ 1.8	240 x 115 x 71	100	240	5	2.29	0.86	80 / 300	60
M10	≥ 12	≥ 1.8	240 x 115 x 71	100	240	15	1.57	0.57	80 / 300	60
M10	≥ 12	≥ 1.8	240 x 115 x 71	200	240	15	3.43	0.57	80 / 600	60
M12	≥ 12	≥ 1.8	240 x 115 x 71	100	240	15	1.29	0.57	80 / 300	60
M12	≥ 12	≥ 1.8	240 x 115 x 71	200	240	15	3.43	0.57	80 / 300	60
Perforated sand-lime brick KSL, acc. to EN 771-2[3)]										
M8 with FIS H 12 x 85 K	≥ 12	≥ 1.4	240 x 175 x 113	85	175	2	0.71	0.71	100 / 115	60
M8 / M10 with FIS H 16 x 85 K	≥ 12	≥ 1.4	240 x 175 x 113	85	175	2	0.86	1.29	100 / 115	80
M12 with FIS H 20 x 85 K	≥ 12	≥ 1.4	240 x 175 x 113	85	175	2	0.86	1.29	100 / 115	80
M8 / M10 with FIS H 16 x 130 K	≥ 12	≥ 1.4	240 x 175 x 113	130	175	2	0.86	1.29	100 / 115	80
Vertically perforated brick Hlz, acc. to EN 771-1[3)]										
M8 with FIS H 12 x 85 K	≥ 10	≥ 0.9	240 x 175 x 113	85	175	2	1.14	1.14	240 / 115	100
M8 / M10 with FIS H 16 x 85 K	≥ 10	≥ 0.9	240 x 175 x 113	85	175	2	1.00	1.57	240 / 115	100
M12 with FIS H 20 x 85 K	≥ 10	≥ 0.9	240 x 175 x 113	85	175	2	1.43	1.71	240 / 115	100
M8 / M10 with FIS H 16 x 130 K	≥ 10	≥ 0.9	240 x 175 x 113	130	175	2	1.43	1.57	240 / 115	100
M12 with FIS H 20 x 130 K	≥ 10	≥ 0.9	240 x 175 x 113	130	175	2	1.43	1.71	240 / 115	100
Aerated concrete acc. to EN 771-4[6)]										
M8	≥ 2	≥ 0.35	-	≥ 100	130	1	0.54	0.43	250 / 250	100
M8	≥ 4	≥ 0.50	-	200	230	8	1.07	0.71	80 / 80	100
M10	≥ 2	≥ 0.35	-	≥ 100	130	2	0.54	0.43	250 / 250	100
M10	≥ 4	≥ 0.50	-	200	230	12	1.79	0.71	80 / 80	100
M12	≥ 2	≥ 0.35	-	≥ 100	130	2	0.71	0.54	250 / 250	100
M12	≥ 4	≥ 0.50	-	200	230	16	1.79	0.71	80 / 80	100

[1)] The required partial safety factors for material resistance as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. Load values are valid for zinc-plated steel, stainless steel R and highly corrosion-resistant steel HCR. In perforated bricks and hollow blocks threaded rod FIS A in combination with anchor sleeve FIS H K.

[2)] The given loads are valid for installation and use of fixations in dry masonry - use category d/d - for temperatures in the substrate up to 50 °C (resp. short term up to 80 °C) and drill hole cleaning according to assessment. The given brick types in combination with the permissible loads are an extract of the assessment.

[3)] More information about, e.g. hole patterns, assortment of anchor sleeves FIS H K see assessment.

[4)] In the case of combinations of tensile and shear loads, bending moments and reduced edge and axial spacings (anchor groups), the design must be carried out in accordance with the provisions of the complete assessment.

[5)] Minimum feasible spacing resp. edge distance. Details as well as to the distances to joints see assessment.

[6)] Cylindrical drill hole.