LOADS

Stand-off installation Thermax 12 and 16

Highest permissible loads[1) 6)] for one Thermax in concrete and solid brick masonry[8)] for fixing in groups[2)]
For the design the complete approval Z-21.8-1837 has to be considered.

					Concrete + Solid brick masonry								
Type	**Compressive brick strength** f_b [N/mm²]	**Brick type, naming acc. DIN[7)]** [-]	**Effective anchorage depth** h_{ef} [mm]	**Installation torque** T_{inst}[9)] [Nm]	**Permissible tension load** N_{perm}[3)] [kN]	**Permissible shear load for t_{fix} = 100 mm[5)]** V_{perm}[3)] [kN]	**Permissible shear load for t_{fix} = 120 mm[5)]** V_{perm}[3)] [kN]	**Permissible shear load for t_{fix} = 140 mm[5)]** V_{perm}[3)] [kN]	**Permissible shear load for t_{fix} = 160 mm[5)]** V_{perm}[3)] [kN]	**Permissible shear load for t_{fix} = 180 mm[5)]** V_{perm}[3)] [kN]	**Permissible shear load for t_{fix} = 200 mm[5)]** V_{perm}[3)] [kN]	**Min. spacing[3)]** s_{min} (a_{min}) [mm]	**Min. spacing[3)]** c_{min} (a_r) [mm]
Non-cracked concrete													
Thermax 12	25	C20/25	95	20,0	3,40[4)]	0,49	0,31	0,21	0,16	0,11	0,08	55	55
Thermax 16	25	C20/25	125	20,0	3,40[4)]	0,85	0,62	0,45	0,34	0,26	0,21	65	65
Solid brick Mz													
Thermax 12	12	Mz	75	20,0	1,70	0,49	0,31	0,21	0,16	0,11	0,08	50	60
Thermax 16	12	Mz	75	20,0	1,70	0,85	0,62	0,45	0,34	0,26	0,21	50	60
Solid sand-lime brick and solid block KS													
Thermax 12	12	KS	75	20,0	1,70	0,49	0,31	0,21	0,16	0,11	0,08	50	60
Thermax 16	12	KS	75	20,0	1,70	0,85	0,62	0,45	0,34	0,26	0,21	50	60

1) Required safety factors are considered.
2) For single fixation see approval.
3) For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.
4) Corresponding to the permissible tension load of the Thermax cone.
5) 1 mm displacement under short term applied load (e.g. wind load).
6) The given loads are valid for fixations in dry and humid concrete for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and drillhole cleaning according approval.
7) For further conditions see approval.
8) Masonry with satisfactory surcharge and no edge influence.
9) Fixing screw M12.

LOADS

Stand-off installation Thermax 12 and 16

Highest permissible loads[1) 6)] for one Thermax in perforated brick masonry[8)] for fixing in groups[2)].
For the design the complete approval Z-21.8-1837 has to be considered.

					Perforated brick masonry								
Type	**Compressive brick strength** f_b [N/mm²]	**Brick type, naming acc. DIN[7)]** [-]	**Effective anchorage depth** $h_{ef,min}$[10)] [mm]	**Installation torque** T_{inst}[9)] [Nm]	**Permissible tension load** N_{perm}[3) 4)] [kN]	**Permissible shear load for t_{fix} = 100 mm[5)]** V_{perm}[3) 4)] [kN]	**Permissible shear load for t_{fix} = 120 mm[5)]** V_{perm}[3) 4)] [kN]	**Permissible shear load for t_{fix} = 140 mm[5)]** V_{perm}[3) 4)] [kN]	**Permissible shear load for t_{fix} = 160 mm[5)]** V_{perm}[3) 4)] [kN]	**Permissible shear load for t_{fix} = 180 mm[5)]** V_{perm}[3) 4)] [kN]	**Permissible shear load for t_{fix} = 200 mm[5)]** V_{perm}[3) 4)] [kN]	**Min. spacing[3)]** s_{min} (a_{min}) [mm]	**Min. spacing[3)]** c_{min} (a_r) [mm]
Vertically perforated brick Hlz													
Thermax 12	4	HLz	85	20,0	0,60	0,49	0,31	0,21	0,16	0,11	0,08	50	50
Thermax 16	4	HLz	85	20,0	0,60	0,60	0,60	0,45	0,34	0,26	0,21	50	50
Thermax 12	6	HLz	85	20,0	0,80	0,49	0,31	0,21	0,16	0,11	0,08	50	50
Thermax 16	6	HLz	85	20,0	0,80	0,80	0,62	0,45	0,34	0,26	0,21	50	50
Thermax 12	12	HLz	85	20,0	1,00	0,49	0,31	0,21	0,16	0,11	0,08	50	50
Thermax 16	12	HLz	85	20,0	1,00	0,85	0,62	0,45	0,34	0,26	0,21	50	50
Perforated sand-lime brick KSL													
Thermax 12	4	KSL	85	20,0	0,60	0,49	0,31	0,21	0,16	0,11	0,08	50	50
Thermax 16	4	KSL	85	20,0	0,60	0,60	0,60	0,45	0,34	0,26	0,21	50	50
Thermax 12	6	KSL	85	20,0	0,80	0,49	0,31	0,21	0,16	0,11	0,08	50	50
Thermax 16	6	KSL	85	20,0	0,80	0,80	0,62	0,45	0,34	0,26	0,21	50	50
Thermax 12	12	KSL	85	20,0	1,40	0,49	0,31	0,21	0,16	0,11	0,08	50	50
Thermax 16	12	KSL	85	20,0	1,40	0,85	0,62	0,45	0,34	0,26	0,21	50	50
Hollow block of lightweight aggregate concrete Hbl													
Thermax 12	2	Hbl	85	20,0	0,50	0,49	0,31	0,21	0,16	0,11	0,08	50	200
Thermax 16	2	Hbl	85	20,0	0,50	0,50	0,50	0,45	0,34	0,26	0,21	50	200
Thermax 12	4	Hbl	85	20,0	0,80	0,49	0,31	0,21	0,16	0,11	0,08	50	200
Thermax 16	4	Hbl	85	20,0	0,80	0,80	0,62	0,45	0,34	0,26	0,21	50	200
Hollow block of normal concrete Hbn													
Thermax 12	4	Hbn	85	20,0	0,80	0,49	0,31	0,21	0,16	0,11	0,08	50	200
Thermax 16	4	Hbn	85	20,0	0,80	0,80	0,62	0,45	0,34	0,26	0,21	50	200

1) Required safety factors are considered.
2) For single fixation see approval.
3) For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.
4) Values are valid for rotary drilling (without hammer action). KSL must have a thickness of the outer web of min. 30 mm (old bricks).
5) 1 mm displacement under short term applied load (e.g. wind load).
6) The given loads are valid for fixations in dry and humid concrete for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and drillhole cleaning according approval.
7) For further conditions see approval.
8) Masonry with satisfactory surcharge and no edge influence.
9) Fixing screw M12.
10) The fixed anchorage depth is corresponding with the relevant anchor sleeves FIS H..K (see technical data).