

Stand-off installation TherMax 12 and 16 with load-bearing anchor rod made of stainless steel R-70 and a displacement of 3 mm

The below load table is valid for short-term loading (e.g. wind load). Measures for sealing see approval, section 3.2.4.
Highest permissible loads^(15/7) of a TherMax within an anchor group²⁾ in concrete with the injection mortars FIS V Plus or FIS SB and in masonry with the injection mortar FIS V Plus.

	Minimum effective anchor-age depth	Permis-sible tensile load	Permis-sible shear load at e = 62 mm	Permis-sible shear load at e = 100 mm	Permis-sible shear load at e = 120 mm	Permis-sible shear load at e = 140 mm	Permis-sible shear load at e = 160 mm	Permis-sible shear load at e = 180 mm	Permis-sible shear load at e = 200 mm	Permis-sible shear load at e = 250 mm	Permis-sible shear load at e = 300 mm	Minimum member thick-ness	Minimum spacing	Minimum edge dis-tance
	$h_{ef}^{(4)}$	$N_{perm}^{(3)}$	$V_{perm}^{(3)}$	$V_{perm}^{(3)}$	$V_{perm}^{(3)}$	$V_{perm}^{(3)}$	$V_{perm}^{(3)}$	$V_{perm}^{(3)}$	$V_{perm}^{(3)}$	$V_{perm}^{(3)}$	$V_{perm}^{(3)}$	h_{min}	$S_{min} \parallel / S_{min} \perp^{(9)}$	c_{min}
Type	[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[mm]	[mm]	[mm]
Concrete, cracked and non-cracked, strength class \geq C20/25														
TherMax 12 ⁸⁾	70	3.40 ⁶⁾	1.22	0.75	0.63	0.54	0.47	0.42	0.38	0.30	0.15	100	55	55
TherMax 16 ⁸⁾	80	3.40 ⁶⁾	1.59	0.99	0.82	0.70	0.62	0.55	0.49	0.39	0.31	116	65	65
Solid brick, Mz, EN 771-1; $f_b \geq 12$ N/mm ² ; $\rho \geq 1.8$ kg/dm ³ ; LxWxH \geq 240x115x71 mm, NF														
TherMax 12 ⁸⁾	200	2.71	0.85	0.75	0.63	0.54	0.47	0.42	0.38	0.30	0.15	240	80/80	60
TherMax 16 ⁸⁾	200	2.71	1.29	0.99	0.82	0.70	0.62	0.55	0.49	0.39	0.31	240	80/80	60
Solid sand-lime brick, KS, EN 771; $f_b \geq 20$ N/mm ² ; $\rho \geq 2.0$ kg/dm ³ ; LxWxH \geq 250x240x240 mm, 8DF														
TherMax 12 ⁸⁾	50	2.86	1.22	0.75	0.63	0.54	0.47	0.42	0.38	0.30	0.15	240	80/80	60
TherMax 16 ⁸⁾	50	2.14	1.59	0.99	0.82	0.70	0.62	0.55	0.49	0.39	0.31	240	80/80	60
Vertically perforated brick type B, HLz, EN 771-1; $f_b \geq 12$ N/mm ² ; $\rho \geq 1.0$ kg/dm ³ ; LxWxH = 370x240x237 mm resp. 500x175x237 mm														
TherMax 12 ⁴⁾	110	1.14	0.57	0.57	0.57	0.54	0.47	0.42	0.38	0.30	0.15	175	100/100	100
TherMax 16 ⁴⁾	110	1.14	0.57	0.57	0.57	0.57	0.57	0.55	0.49	0.39	0.31	175	100/100	100
Perforated sand-lime brick, KSL, EN 771-2; $f_b \geq 12$ N/mm ² ; $\rho \geq 1.4$ kg/dm ³ ; LxWxH = 240x175x113 mm, 3DF														
TherMax 12 ⁴⁾	85	1.00	1.22	0.75	0.63	0.54	0.47	0.42	0.38	0.30	0.15	175	100/115	80
TherMax 16 ⁴⁾	85	1.00	1.14	0.99	0.82	0.70	0.62	0.55	0.49	0.39	0.31	175	100/115	80
Hollow block made of light weight concrete, Hbl, EN 771-3; $f_b \geq 2$ N/mm ² ; $\rho \geq 1.0$ kg/dm ³ ; LxWxH = 362x240x240 mm														
TherMax 12 ⁴⁾	110	0.43	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.15	240	100/240	60
TherMax 16 ⁴⁾	180	0.71	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	240	100/240	60
Aerated concrete (cylindrical drill hole), EN 771-4; $f_b \geq 2$ N/mm ² ; $\rho \geq 0.35$ kg/dm ³ ; LxWxH \geq 599x240x249 mm														
TherMax 12 ⁸⁾	200	1.43	0.43	0.43	0.43	0.43	0.43	0.42	0.38	0.30	0.15	240	80/80	100
TherMax 16 ⁸⁾	200	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.39	0.31	240	80/80	100

For the design the complete approval Z-218-1837 issued on 21.01.2022 as well as the European Technical Assessments ETA-20/0603, ETA-20/0729 or ETA-12/0258 have to be considered.

- 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.
- 2) Set-up of one or more TherMax in a row in direction of shear, for which the clamping of the attachment prevents a torsion on attachment side due to a sufficient stiffness of the attachment or connecting construction. For a clamping on base substrate side only, see approval.
- 3) For combinations of tensile and shear loads as well as reduced spacing or edge distances (anchor groups) see approval. The values for tensile loads in masonry are valid only, if the joints of the masonry is completely filled with masonry mortar. If the joints are not filled with masonry mortar are not filled with masonry mortar and the edge distance towards the joints is less than c_{min} , the loads have to be reduced by the factor $a_s = 0.75$. The values for shear loads are valid only, if the joints are filled with masonry mortar. For not completely filled joints they have to be handled like a free edge and a minimum edge distance c_{min} of the anchors to the joints has to be observed. For compression loads and perforated bricks or hollow blocks see approval. Calculative assumed thickness of the attachment $t_{fix} = 6$ mm.
- 4) In vertically perforated bricks HLz, perforated sand-lime bricks KSL as well as hollow blocks made of light weight concrete Hbl the TherMax 12 (standard version) can bridge non-load bearing layers up to 110 mm and the TherMax 16 can bridge them up to 170 mm. Larger usable lengths up to 300 mm are possible, if other perforated sleeves and where required longer anchor rods are used and again the anchorage depth gets reduced - see approval.
- 5) The stated permissible loads are valid for anchorages in dry base substrates - use category d/d - and for temperatures up to +50 °C (resp. short-term up to +80 °C) in the area of the injection mortar and during drill hole cleaning in accordance with the approval. The load values apply to anchor rods on base substrate side made of stainless steel of the grade A4-70.
- 6) Complies with the permissible tensile load of the TherMax cone.
- 7) Intermediate values of the shear load may be linearly interpolated in dependence of "e", if nothing else is mentioned in the approval.
- 8) In solid bricks Mz and solid sand-lime bricks KS the TherMax 12 (standard version) can bridge non-load bearing layers up to 190 mm (140 mm in aerated concrete) and the TherMax 16 can bridge them up to 300 mm (270 mm in aerated concrete) - but in solid brick Mz and aerated concrete the above load values have to be reduced. In concrete the TherMax 12 (standard version) can bridge non-loadbearing layers up to 170 mm and the TherMax 16 can bridge them up to 290 mm. Larger usable lengths up to 300 mm are possible, if longer anchor rods are used and again in solid bricks Mz if the anchorage depth (compared to above values) gets reduced where required - see approval.
- 9) Minimum spacing with simultaneous reduction of the permissible load for each TherMax.