

## LOADS

### Injection system FIS V, FIS VS and FIS VW with threaded rod FIS A<sup>5)</sup> and anchor sleeve FIS H..K

Highest permissible loads<sup>1) 6)</sup> for a single anchor in perforated brick masonry for pre-positioned installation.

For the design the complete approval ETA-10/0383 has to be considered.

Type	Compressive brick strength $f_b$ [N/mm <sup>2</sup> ]	Min. effective anchorage depth <sup>4)</sup> $h_{ef,min}$ [mm]	Brick type, naming acc. DIN [-] [-]	Installation torque $T_{inst}$ [Nm]	Perforated brick masonry			
					Permissible tensile load <sup>3)</sup> $N_{perm}$ [kN]	Permissible shear load <sup>3)</sup> $V_{perm}$ [kN]	Min. spacing <sup>2)</sup> $s_{min}$ [mm]	Min. edge distance <sup>2)</sup> $c_{min}$ [mm]
<b>Vertically perforated brick Hlz</b>								
M8 / M10	8	110	Hlz	2,0	0,57	0,57	80	100
M12 / M16	8	110	Hlz	2,0	0,43	0,57	80	120
M8 / M10	10	110	Hlz	2,0	0,71	0,43	80	100
M12 / M16	10	110	Hlz	2,0	1,00	0,43	80	120
M8 / M10	12	110 <sup>7)</sup>	Hlz	2,0	0,57	0,57	80	100
M12 / M16	12	110	Hlz	2,0	1,00	0,57	80	120
M8 / M10	28	85	Hlz	2,0	1,00	1,71	100	240
M12 / M16	28	110	Hlz	2,0	-	-	-	-
<b>Perforated sand-lime brick KSL</b>								
M8 / M10	12	85	KSL	2,0	0,71	1,29	80	100
M12 / M16	12	110	KSL	2,0	0,86	1,29	80	120
M8 / M10	20	85	KSL	2,0	1,00	1,71	80	100
M12 / M16	20	110	KSL	2,0	1,29	1,71	80	120
<b>Hollow block of lightweight aggregate concrete Hbl</b>								
M8 / M10	6	110	Hbl	2,0	0,34	0,71	80	100
M12 / M16	6	110	Hbl	2,0	0,34	0,71	80	120

<sup>1)</sup> 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.

<sup>2)</sup> Minimum possible axial spacings resp. edge distance while reducing the permissible load.

<sup>3)</sup> For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.

<sup>4)</sup> The max. anchorage depth is corresponding with the relevant anchor sleeves FIS H..K (see technical data).

<sup>5)</sup> gvz, A4 and C.

<sup>6)</sup> The given loads are valid for fixations in dry and wet masonry for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and best possible drillhole cleaning according approval.

<sup>7)</sup> For bricks with certain hole patterns 85 mm are possible. Please see approval.

## LOADS

### Injection system FIS V, FIS VS and FIS VW with threaded rod FIS A<sup>5)</sup> resp. internal threaded socket FIS E<sup>5)</sup> and anchor sleeve FIS H..K

Highest permissible loads<sup>1) 6)</sup> for a single anchor in perforated brick masonry for pre-positioned installation.

For the design the complete approval Z-2 1.3-1824 has to be considered.

Type	Compressive brick strength $f_b$ [N/mm <sup>2</sup> ]	Effective anchorage depth <sup>4)</sup> $h_{ef}$ [mm]	Brick type, naming acc. DIN [-] [-]	Installation torque $T_{inst}$ [Nm]	Perforated brick masonry			
					Permissible load <sup>3)</sup> $F_{perm}$ [kN]	Permissible load <sup>3) 7)</sup> $F_{perm}$ [kN]	Min. spacing <sup>2)</sup> $s_{min} (a_{min})$ [mm]	Min. edge distance <sup>2)</sup> $c_{min} (a_r)$ [mm]
<b>Vertically perforated brick Hlz</b>								
M6 - M16	4	85	Hlz	2,0	0,30	0,60	50	50
M6 - M16	6	85	Hlz	2,0	0,40	0,80	50	50
M6 - M16	12	85	Hlz	2,0	0,80	1,00	50	50
<b>Perforated sand-lime brick KSL</b>								
M6 - M16	4	85	KSL	2,0	0,40	0,60	50	50
M6 - M16	6	85	KSL	2,0	0,60	0,80	50	50
M6 - M16	12	85	KSL	2,0	0,80	1,40	50	50
<b>Hollow block of lightweight aggregate concrete Hbl</b>								
M6 - M16	2	85	Hbl	2,0	0,30	0,50	50	200
M6 - M16	4	85	Hbl	2,0	0,60	0,80	50	200
<b>Hollow block of normal concrete Hbn</b>								
M6 - M16	4	85	Hbn	2,0	0,60	0,80	50	200
<b>Lightweight aggregate concrete TGL</b>								
M8 - M16	-	85	TGL	2,0	2,00 <sup>8)</sup>	-	50	50

<sup>1)</sup> Required safety factors are considered.

<sup>2)</sup> Minimum possible axial spacings resp. edge distance while reducing the permissible load.

<sup>3)</sup> Valid for tensile load, shear load and oblique load under any angle. For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see approval.

<sup>4)</sup> Anchorage depths apply for FIS A and FIS E (M6 - M12).

<sup>5)</sup> gvz and A4. For FIS E screw with grade 5.8 resp. A4-70.

<sup>6)</sup> The given loads are valid for fixations in dry and humid masonry for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and best possible drillhole cleaning according approval.

<sup>7)</sup> The given values apply for rotary drilling (without impact). The thickness of the outer web of the KSL has to be min. 30 mm (old bricks).

<sup>8)</sup> For M8 and M10 the highest permissible load is 1,3 kN.