

The versatile injection mortar system for anchorings in masonry and cracked concrete



BUILDING MATERIALS

Approved for anchorings in:

- Concrete C20/25 to C50/60, cracked and non-cracked
- Hollow blocks made from lightweight concrete
- Hollow blocks made from concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Solid sand-lime brick
- Aerated concrete
- Solid brick

Approved for:

- Rebar connections
- Remedial wall tie VBS 8
- Weather facing reconstruction system FWS II
- Stand-off installation Thermax

APPROVALS



ADVANTAGES

- The FISV injection mortar has numerous system approvals, such as in non-cracked concrete, masonry and for rebar connections. FISV is thus the universal injection mortar family with guaranteed reliability for practically all areas of application.
- FISVW HIGH SPEED has a significantly shorter curing time than FISV, thus also ensuring swift work progress even at low temperatures.
- FISVS LOW SPEED with extended gelling time prevents premature curing of the mortar at higher temperatures and is ideally suited to large drill hole depths.
- The extensive range of accessories is ideally suited to the FISV injection mortar family, increases the great flexibility of the system and thus allows for a broad range of applications.

APPLICATIONS

- Steelwork constructions
- Timber constructions
- Guard rails
- Façades
- Staircases
- Steel brackets
- Machines
- Masts
- Awnings
- Canopies
- Gates
- Consoles
- Pipelines
- Gratings
- Satellite antennas

FUNCTIONING

- The FIS V is a 2-component injection mortar based on vinyl ester hybrid.
- Resin and hardener are stored in two separate chambers and are not mixed and activated until extrusion through the static mixer.
- The injection cartridges are quick and easy to use with the fischer dispensers.
- Partially used cartridges can be reused, simply by changing the static mixer.
- Related accessories for the various applications can be found on pages (concrete), (masonry), (aerated concrete) and (rebar connection).

TECHNICAL DATA



Injection mortar FIS V

Type	Art.-No.	DIBt-approval	ETA-approval	Languages on the cartridge	Contents	Sales unit [pcs]
FIS VS 300 T	093180	■	■	D, GB, F, NL, E, P	1 cartridge 300 ml, 1 x FIS easy mixer	12
FIS V 360 S	094404	●	■	D, F, NL, TR, H, RUS	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 360 S	094405	●	■	GB, I, P, E, PRC, JP	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 360 S	068435	●	■	DK, S, N, FIN, PL, CZ	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 360 S	502283	●	■	LT, LV, EE, UA, RUS, KZ	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 360 S	043994	●	■	CZ, SK, PL, H, RO, RUS	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 950 S	017101	●	■	D, GB, F, NL, I, E, P, JP, PRC	1 cartridge 950 ml, 1 x static mixer big, 1 x easy mixer	6
FIS V 360 S HWK big	091936	●	■	D, F, NL, H, RUS, TR	20 cartridges 360 ml, 40 x FIS easy mixer	1
FIS V 360 S HWK big	503027	●	■	CZ, SK, PL, H, RO, RUS	12 cartridges 360 ml, 24 x FIS easy mixer, 1 x dispenser FIS DM S	1
FIS V 360 S HWK big	096554	●	■	GB, I, P, E, PRC, JP	20 cartridges 360 ml, 40 x FIS easy mixer	1
FIS V 360 S HWK small	092430	●	■	D, F, NL, H, RUS, TR	10 cartridges 360 ml, 20 x FIS easy mixer	1
FIS V 360 S in bucket	503025	●	■	GB, I, P, E, PRC, JP	20 cartridges 360 ml, 20 x FIS easy mixer	1
FIS V 360 S in bucket	518538	●	■	CZ, SK, PL, H, RO, RUS	20 cartridges 360 ml, 20 x FIS easy mixer	1
FIS V 410 C	521431			I, GB, D	1 cartridge 410 ml, 2 x Easy mixer	16
FIS V 410 in bucket	531504	●	■	GB, TR, RU	16 cartridge 410 ml, 32 x Easy mixer	1
FIS VS 150 C	045302		■	D, GB, F, I, NL, E	1 cartridge 145 ml, 2 x FIS easy mixer	6
FIS VS 150 C Set	045303		■	D, GB, F, I, NL, E	Set for hollow bricks: 1 cartridge 145 ml, 2 x FIS easy mixer, 6 x FIS H 16 x 85 K	6
FIS VS 100 P	072525		■	D, GB, F, I, NL, E	1 cartridge 100 ml, 2 x FIS easy mixer	6
FIS VS 300 T in bucket	512062		■	D, GB, F, NL, E, P	20 cartridges 300 ml, 20 x FIS easy mixer	1
FIS VS 300 T in bucket	518539		■	CZ, SK, PL, H, RO, RUS, GR	20 cartridges 300 ml, 20 x FIS easy mixer	1
FIS VS 300 T HWK big	517645		■	D, GB, F, NL, E, P	20 cartridges 300 ml, 40 x FIS easy mixer	1
FIS VS 300 T HWK small	518832		■	D, GB, F, NL, E, P	10 cartridges 300 ml, 20 x FIS easy mixer	1
FIS VS 360 S	078664		■	GB, PRC, E, P, JP	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS VS 360 S	518583		■	D, F, NL	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS VS 360 S in bucket	518943		■	GB, PRC, E, P, JP	20 cartridges 360 ml, 20 x FIS easy mixer	1
FIS VW 360 S	090753	●	■	D, GB, F, I, NL, E	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS VW 360 S	043997	●	■	CZ, SK, PL, H, RO, RUS	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS VW 360 S	502284	●	■	RUS, LT, LV, EST, UA, KZ	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS VW 300 T	507793		■	D, GB, HR, SLO, SRB, BG	1 cartridge 300 ml, 2 x Easy mixer	12

FIS VW 300 T	507795		■	S, DK, N, CZ, SK, PL, RUS	1 cartridge 360 ml, 2 x FIS easy mixer	12
FIS VW 380 C	519328		■	CZ, SK, PL	1 cartridge 380 ml, 2 x FIS easy mixer	12
Thermosafe Case set, empty	518134				empty, for cartridges 360 ml, FIS DM S and Blow-out pump ABG	1

LOADS

Injection system FIS V with threaded rod FIS A (property class 5.8)

Highest permissible loads for a single anchor^{1) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA - 02/0024 has to be considered.

Type	Min. effective anchorage depth $h_{ef,min}$ [mm]	Max. effective anchorage depth $h_{ef,max}$ [mm]	Min. member thickness h_{min} [mm]	Max. torque moment $T_{inst,max}$ [Nm]	Cracked concrete				Non-cracked concrete			
					Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]	Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]
FIS A M6 (5.8)	50		100	5,0					4,0	2,9	40	40
		72	102	5,0					5,2	2,9	40	40
FIS A M8 (5.8)	60		100	10,0					7,9	5,1	40	40
		160	190	10,0					9,0	5,1	40	40
FIS A M10 (5.8)	60		100	20,0	5,4	8,6	45	45	9,9	8,6	45	45
		200	230	20,0	13,8	8,6	45	45	13,8	8,6	45	45
FIS A M12 (5.8)	70		100	40,0	7,5	12,0	55	55	13,8	12,0	55	55
		240	270	40,0	20,5	12,0	55	55	20,5	12,0	55	55
FIS A M16 (5.8)	80		116	60,0	11,5	22,3	65	65	17,2	22,3	65	65
		320	356	60,0	37,6	22,3	65	65	37,6	22,3	65	65
FIS A M20 (5.8)	90		138	120,0	14,6	29,3	85	85	20,5	34,9	85	85
		400	448	120,0	58,6	34,9	85	85	58,6	34,9	85	85
FIS A M24 (5.8)	96		152	150,0	15,5	31,0	105	105	22,6	45,2	105	105
		480	536	150,0	77,6	50,9	105	105	84,3	50,9	105	105
FIS A M27 (5.8)	108		168	200,0	17,4	34,9	125	125	27,0	54,0	125	125
		540	600	200,0	87,2	65,7	125	125	109,5	65,7	125	125
FIS A M30 (5.8)	120		190	300,0	21,5	43,1	140	140	31,6	63,2	140	140
		600	670	300,0	107,7	80,6	140	140	133,8	80,6	140	140

¹⁾ The partial safety factors for material resistance as regulated in the approval 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 $c \geq 1,5 \times h_{ef}$.

²⁾ Minimum possible axial spacings resp. edge distance while reducing the permissible load.

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

⁴⁾ For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

⁶⁾ The given loads are valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). Erection of the drill hole by hammer drilling with best possible drill hole cleaning according approval. The anchor may be installed in dry or wet concrete.

LOADS

Injection system FIS V, FIS VW, FIS VS with threaded rod FIS A (property class 8.8)

Highest permissible loads for a single anchor^{1) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA - 02/0024 has to be considered.

Type	Min. effective anchorage depth $h_{ef,min}$ [mm]	Max. effective anchorage depth $h_{ef,max}$ [mm]	Min. member thickness h_{min} [mm]	Max. torque moment $T_{inst,max}$ [Nm]	Cracked concrete				Non-cracked concrete			
					Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]	Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]
FIS A M6 (8.8)	50		100	5,0					4,0	4,6	40	40
		72	102	5,0					5,8	4,6	40	40
FIS A M8 (8.8)	60		100	10,0					7,9	8,6	40	40
		160	190	10,0					14,3	8,6	40	40
FIS A M10 (8.8)	60		100	20,0	5,4	10,8	45	45	9,9	13,1	45	45
		200	230	20,0	18,0	13,1	45	45	22,4	13,1	45	45
FIS A M12 (8.8)	70		100	40,0	7,5	15,1	55	55	13,8	19,4	55	55
		240	270	40,0	25,9	19,4	55	55	32,4	19,4	55	55
FIS A M16 (8.8)	80		116	60,0	11,5	23,0	65	65	17,2	36,0	65	65
		320	356	60,0	46,0	36,0	65	65	60,0	36,0	65	65
FIS A M20 (8.8)	90		138	120,0	14,6	29,3	85	85	20,5	41,1	85	85
		400	448	120,0	65,8	56,0	85	85	93,3	56,0	85	85
FIS A M24 (8.8)	96		152	150,0	15,5	31,0	105	105	22,6	45,2	105	105
		480	536	150,0	77,6	80,6	105	105	134,3	80,6	105	105
FIS A M27 (8.8)	108		168	200,0	17,4	34,9	125	125	27,0	54,0	125	125
		540	600	200,0	87,2	105,1	125	125	175,2	105,1	125	125
FIS A M30 (8.8)	120		190	300,0	21,5	43,1	140	140	31,6	63,2	140	140
		600	670	300,0	107,7	128,6	140	140	213,8	128,6	140	140

¹⁾ The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of $\gamma_L = 1,4$ are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1,5 \times h_{ef}$.

²⁾ Minimum possible axial spacings resp. edge distance while reducing the permissible load.

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

⁴⁾ For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

⁶⁾ The given loads are valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). Erection of the drill hole by hammer drilling with best possible drill hole cleaning according approval. The anchor may be installed in dry or wet concrete.

LOADS

Injection system FIS V, FIS VW, FIS VS with threaded rod FIS A A4 (property class A4-70)

Highest permissible loads for a single anchor^{1) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA - 02/0024 has to be considered.

Type	Min. effective anchorage depth $h_{ef,min}$ [mm]	Max. effective anchorage depth $h_{ef,max}$ [mm]	Min. member thickness h_{min} [mm]	Max. torque moment $T_{inst,max}$ [Nm]	Cracked concrete				Non-cracked concrete			
					Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]	Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]
FIS A M6 (A4-70)	50		100	5,0					4,0	3,2	40	40
		72	102	5,0					5,3	3,2	40	40
FIS A M8 (A4-70)	60		100	10,0					7,9	6,0	40	40
		160	190	10,0					9,9	6,0	40	40
FIS A M10 (A4-70)	60		100	20,0	5,4	9,2	45	45	9,9	9,2	45	45
		200	230	20,0	15,7	9,2	45	45	15,7	9,2	45	45
FIS A M12 (A4-70)	70		100	40,0	7,5	13,7	55	55	13,8	13,7	55	55
		240	270	40,0	22,5	13,7	55	55	22,5	13,7	55	55
FIS A M16 (A4-70)	80		116	60,0	11,5	23,0	65	65	17,2	25,2	65	65
		320	356	60,0	42,0	25,2	65	65	42,0	25,2	65	65
FIS A M20 (A4-70)	90		138	120,0	14,6	29,3	85	85	20,5	39,4	85	85
		400	448	120,0	65,7	39,4	85	85	65,7	39,4	85	85
FIS A M24 (A4-70)	96		152	150,0	15,5	31,0	105	105	22,6	45,2	105	105
		480	536	150,0	77,6	56,8	105	105	94,3	56,8	105	105
FIS A M27 (A4-70)	108		168	200,0	17,4	34,9	125	125	27,0	54,0	125	125
		540	600	200,0	87,2	73,7	125	125	123,0	73,7	125	125
FIS A M30 (A4-70)	120		190	300,0	21,5	43,1	140	140	31,6	63,2	140	140
		600	670	300,0	107,7	90,2	140	140	150,1	90,2	140	140

¹⁾ The partial safety factors for material resistance as regulated in the approval 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 $c \geq 1,5 \times h_{ef}$.

²⁾ Minimum possible axial spacings resp. edge distance while reducing the permissible load.

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

⁴⁾ For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

⁶⁾ The given loads are valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). Erection of the drill hole by hammer drilling with best possible drill hole cleaning according approval. The anchor may be installed in dry or wet concrete.

LOADS

Injection system FIS V, FIS VW, FIS VS with threaded rod FIS A C (property class C-70)

Highest permissible loads for a single anchor^{1) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA - 02/0024 has to be considered.

Type	Min. effective anchorage depth $h_{ef,min}$ [mm]	Max. effective anchorage depth $h_{ef,max}$ [mm]	Min. member thickness h_{min} [mm]	Max. torque moment $T_{inst,max}$ [Nm]	Cracked concrete				Non-cracked concrete			
					Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]	Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]
FIS A M6 (C-70)	50		100	5,0					4,0	4,0	40	40
		72	102	5,0					5,8	4,0	40	40
FIS A M8 (C-70)	60		100	10,0					7,9	7,4	40	40
		160	190	10,0					12,4	7,4	40	40
FIS A M10 (C-70)	60		100	20,0	5,4	10,8	45	45	9,9	11,4	45	45
		200	230	20,0	18,0	11,4	45	45	19,5	11,4	45	45
FIS A M12 (C-70)	70		100	40,0	7,5	15,1	55	55	13,8	17,1	55	55
		240	270	40,0	25,9	17,1	55	55	28,1	17,1	55	55
FIS A M16 (C-70)	80		116	60,0	11,5	23,0	65	65	17,2	31,4	65	65
		320	356	60,0	46,0	31,4	65	65	52,4	31,4	65	65
FIS A M20 (C-70)	90		138	120,0	14,6	29,3	85	85	20,5	41,1	85	85
		400	448	120,0	65,8	49,1	85	85	81,9	49,1	85	85
FIS A M24 (C-70)	96		152	150,0	15,5	31,0	105	105	22,6	45,2	105	105
		480	536	150,0	77,6	70,9	105	105	117,6	70,9	105	105
FIS A M27 (C-70)	108		168	200,0	17,4	34,9	125	125	27,0	54,0	125	125
		540	600	200,0	87,2	92,0	125	125	153,3	92,0	125	125
FIS A M30 (C-70)	120		190	300,0	21,5	43,1	140	140	31,6	63,2	140	140
		600	670	300,0	107,7	112,6	140	140	187,1	112,6	140	140

¹⁾ The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of $\gamma_L = 1,4$ are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1,5 \times h_{ef}$.

²⁾ Minimum possible axial spacings resp. edge distance while reducing the permissible load.

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

⁴⁾ For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

⁶⁾ The given loads are valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). Erection of the drill hole by hammer drilling with best possible drill hole cleaning according approval. The anchor may be installed in dry or wet concrete.

LOADS

Injection system FIS V, FIS VW HIGH SPEED and FIS VS LOW SPEED with internal threaded anchor RG MI (screw property class 8.8)

Highest permissible loads for a single anchor^{1) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA - 02/0024 has to be considered.

Type	Effective anchorage depth h_{ef} [mm]	Min. member thickness h_{min} [mm]	Max. torque moment $T_{inst,max}$ [Nm]	Non-cracked concrete			
				Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]
RG M 8 I	90	120	10,0	13,8	8,3	40	40
RG M 10 I	90	125	20,0	19,0	13,3	45	45
RG M 12 I	125	165	40,0	23,8	19,3	60	60
RG M 16 I	160	208	80,0	35,7	35,8	80	80
RG M 20 I	200	264	120,0	54,8	42,9	125	125

¹⁾ The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of $\gamma_L = 1,4$ are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1,5 \times h_{ef}$.

²⁾ Minimum possible axial spacings resp. edge distance while reducing the permissible load.

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

⁴⁾ For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

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 best possible drillhole cleaning according approval.

LOADS

Injection system FIS V, FIS VW HIGH SPEED and FIS VS LOW SPEED with internal threaded anchor RG MI A4 (screw property class A4-70)

Highest permissible loads for a single anchor^{1) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA - 02/0024 has to be considered.

Type	Effective anchorage depth h_{ef} [mm]	Min. member thickness h_{min} [mm]	Max. torque moment $T_{inst,max}$ [Nm]	Non-cracked concrete			
				Permissible tensile load $N_{perm}^{3)}$ [kN]	Permissible shear load $V_{perm}^{3)}$ [kN]	Min. spacing $s_{min}^{2)}$ [mm]	Min. edge distance $c_{min}^{2)}$ [mm]
RG M 8 I A4	90	120	10,0	9,9	5,9	40	40
RG M 10 I A4	90	125	20,0	15,7	9,3	45	45
RG M 12 I A4	125	165	40,0	22,5	13,5	60	60
RG M 16 I A4	160	208	80,0	35,7	25,1	80	80
RG M 20 I A4	200	264	120,0	54,8	39,4	125	125

¹⁾ The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of $\gamma_L = 1,4$ are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1,5 \times h_{ef}$.

²⁾ Minimum possible axial spacings resp. edge distance while reducing the permissible load.

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

⁴⁾ For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

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 best possible drillhole cleaning according approval.

LOADS

Injection system FIS V, FIS VW HIGH SPEED and FIS VS LOW SPEED with threaded rod FIS A⁵⁾

Highest permissible loads^{1) 6)} for a single anchor in solid brick masonry for pre-positioned or push-through installation.

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

Type	Compressive brick strength f_b [N/mm ²]	Brick raw density ρ [kg/dm ³]	Minimum brick dimensions ⁷⁾ (L x W x H) [mm]	Min. effective anchorage depth h_{ef} [mm]	Min. member thickness h_{min} [mm]	Maximum torque $T_{inst,max}$ [Nm]	Solid brick masonry			
							Permissible tensile load ³⁾ N_{perm} [kN]	Permissible shear load ³⁾ V_{perm} [kN]	Min. spacing ²⁾ s_{min} [mm]	Min. edge distance ²⁾ c_{min} [mm]
Solid brick Mz, 2DF acc. EN 771-1										
M8	≥ 10	≥ 1,8	240x115x113	50	115	10	0,86	0,86	115	60
M10	≥ 10			50			0,86	1,00	115	60
M12	≥ 10			100			1,57	1,00	115	60
M8	≥ 16			50			1,29	1,43	115	60
M10	≥ 16			50			1,29	1,57	115	60
M12	≥ 16			100			2,29	1,57	115	60
Solid sand-lime brick KS acc. EN 771										
M8	≥ 10	≥ 2,0	250x240x240	50	240	10	2,00	1,29	80	60
M10	≥ 10			50			2,00	1,29	80	60
M12	≥ 10			50			2,00	1,29	80	60
M16	≥ 10			50			1,57	1,29	80	60
M8	≥ 20			50			2,57	1,86	80	60
M10	≥ 20			50			2,57	1,86	80	60
M12	≥ 20			50			2,57	1,86	80	60
M16	≥ 20			50			2,14	1,86	80	60
M8	≥ 28			50			2,57	2,57	80	60
M10	≥ 28			50			2,57	2,57	80	60
M12	≥ 28			50			2,57	2,57	80	60
M16	≥ 28			50			2,57	2,57	80	60

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⁾ Minimum possible axial spacings resp. edge distance. Details concerning the distances to joints see assessment.

³⁾ For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see assessment.

⁵⁾ gvz, A4 and C.

⁶⁾ The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and drillhole cleaning according assessment. The given brick types in combination with the permissible loads are only a small extract of the assessment.

⁷⁾ Hole patterns see assessment.

LOADS

Injection system FIS V, FIS VW HIGH SPEED and FIS VS LOW SPEED with threaded rod FIS A⁵⁾ and anchor sleeve FIS H..K
Highest permissible loads^{1) 6)} for a single anchor in solid brick masonry for pre-positioned installation.
For the design the complete assessment ETA-10/0383 has to be considered.

Type	Compressive brick strength f_b [N/mm ²]	Brick raw density ρ [kg/dm ³]	Minimum brick dimensions ⁷⁾ (L x W x H) [mm]	Min. effective anchorage depth ⁴⁾ h_{ef} [mm]	Min. member thickness h_{min} [mm]	Maximum torque $T_{inst,max}$ [Nm]	Solid brick masonry			
							Permissible tensile load ³⁾ N_{perm} [kN]	Permissible shear load ³⁾ V_{perm} [kN]	Min. spacing ²⁾ s_{min} [mm]	Min. edge distance ²⁾ c_{min} [mm]
Solid brick Mz, 2DF acc. EN 771-1										
M8	≥ 10	≥ 1,8	240x115x113	85	115	10	0,86	0,86	115	60
M10	≥ 10						0,86	1,00	115	60
M8	≥ 16						1,29	1,43	115	60
M10	≥ 16						1,29	1,57	115	60
Solid sand-lime brick KS acc. EN 771										
M8/M10	≥ 10	≥ 2,0	250x240x240	85	240	10	2,29	1,29	80	60
M8/M10	≥ 20						2,57	1,86	80	60
M8/M10	≥ 28						2,57	2,57	80	60
Solid brick of lightweight aggregate concrete Vbl acc. EN 771-3										
M8	≥ 4	≥ 1,6	250x240x239	50	240	4	0,57	0,86	250	130
M8	≥ 4			85			1,00	1,00	250	130
M10	≥ 4			85			1,14	1,00	250	130
M8	≥ 6			50			0,86	1,29	250	130
M8	≥ 6			85			1,43	1,29	250	130
M10	≥ 6			85			1,86	1,57	250	130
M8	≥ 8			50			1,14	1,71	250	130
M8/M10	≥ 8			85			2,43	2,00	250	130
M12/M16	≥ 8			85			2,57	2,43	250	130

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⁾ Minimum possible axial spacings resp. edge distance. Details concerning the distances to joints see assessment.

³⁾ For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see assessment.

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

⁵⁾ gvz, A4 and C.

⁶⁾ The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and drillhole cleaning according assessment. The given brick types in combination with the permissible loads are only a small extract of the assessment.

⁷⁾ Hole patterns see assessment.

LOADS

Injection system FIS V, FIS VW HIGH SPEED and FIS VS LOW SPEED with threaded rod FIS A⁵⁾ and anchor sleeve FIS H..K
Highest permissible loads^{1) 6)} for a single anchor in perforated brick masonry for pre-positioned installation.
For the design the complete assessment ETA-10/0383 has to be considered.

Type	Compressive brick strength f_b [N/mm ²]	Brick raw density ρ [kg/dm ³]	Minimum brick dimensions ⁷⁾ (L x W x H) [mm]	Min. effective anchorage depth ⁴⁾ h_{ef} [mm]	Min. member thickness h_{min} [mm]	Maximum torque $T_{inst,max}$ [Nm]	Perforated brick masonry			
							Permissible tensile load ³⁾ N_{perm} [kN]	Permissible shear load ³⁾ V_{perm} [kN]	Min. spacing ²⁾ s_{min} [mm]	Min. edge distance ²⁾ c_{min} [mm]
Vertically perforated brick Hlz, shape B acc. EN 771-1										
M6 / M8	≥ 6	≥ 1,0	370x240x237	50	240	2,0	0,17	0,21	100	100
M8 - M16	≥ 6			85			0,43	0,21	100	100
M6 / M8	≥ 8			50			0,21	0,26	100	100
M8 - M16	≥ 8			85			0,57	0,26	100	100
M6 / M8	≥ 16			50			0,86	0,43	100	100
M8 - M16	≥ 16			85			0,86	0,43	100	100
Perforated sand-lime brick KSL acc. EN 771-2										
M6 / M8	≥ 12	≥ 1,4	240x175x113	50	175	2,0	0,71	0,71	100	60
M12 / M16	≥ 12			85			1,00	1,29	100	80
M8 / M10	≥ 20			85			1,43	2,14	100	80
M12 / M16	≥ 20			85			1,71	2,14	100	80
Hollow block of lightweight aggregate concrete Hbl acc. EN 771-3										
M6 / M8	≥ 4	≥ 1,0	362x240x240	50	240	2,0	0,71	0,57	100	60
M12 / M16	≥ 4			85			0,86	0,57	100	60

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⁾ Minimum possible axial spacings resp. edge distance. Details concerning the distances to joints see assessment.

³⁾ For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see assessment.

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

⁵⁾ gvz, A4 and C.

⁶⁾ The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and drillhole cleaning according assessment. The given brick types in combination with the permissible loads are only a small extract of the assessment.

⁷⁾ Hole patterns see assessment.

LOADS

Injection system FIS V, FIS VW HIGH SPEED and FIS VS LOW SPEED with threaded rod FIS A⁵⁾ and push-through anchor sleeve FIS H..K
Highest permissible loads^{1) 6)} for a single anchor in perforated brick masonry for push-through installation.
For the design the complete assessment ETA-10/0383 has to be considered.

Type	Compressive brick strength f_b [N/mm ²]	Brick raw density ρ [kg/dm ³]	Minimum brick dimensions ⁷⁾ (L x W x H) [mm]	Min. effective anchorage depth ⁴⁾ h_{ef} [mm]	Min. member thickness h_{min} [mm]	Maximum torque $T_{inst,max}$ [Nm]	Perforated brick masonry			
							Permissible tensile load ³⁾ N_{perm} [kN]	Permissible shear load ³⁾ V_{perm} [kN]	Min. spacing ²⁾ s_{min} [mm]	Min. edge distance ²⁾ c_{min} [mm]
Vertically perforated brick shape B, Hlz acc. EN 771-1										
M10 / M12	≥ 6	≥ 0,7	500x200x300	130	200	2,0	0,57	0,26	100	80
M16	≥ 6						0,71	0,26	100	80
M10 / M12	≥ 8						0,71	0,34	100	80
M16	≥ 8						0,86	0,34	100	80
M10 / M12	≥ 10						0,86	0,43	100	80
M16	≥ 10						1,14	0,43	80	120
Perforated sand-lime brick KSL acc. EN 771-2										
M10 / M12	≥ 12	≥ 1,4	240x175x113	130	175	2,0	1,00	1,29	100	80
M16	≥ 12						1,00	1,14	100	80
M10 / M12	≥ 20						1,71	2,14	100	80
M16	≥ 20						1,71	1,86	100	80
Hollow block of lightweight aggregate concrete Hbl acc. EN 771-3										
M10 - M16	≥ 2	≥ 1,0	362x240x240	130	240	2,0	0,43	0,26	100	60
M16	≥ 4						0,86	0,57	100	60

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⁾ Minimum possible axial spacings resp. edge distance. Details concerning the distances to joints see assessment.

³⁾ For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see assessment.

⁴⁾ The maximum anchorage depth is corresponding with the relevant push-through anchor sleeves FIS H 18 K and FIS H 22 K (see technical data).

⁵⁾ gvz, A4 and C.

⁶⁾ The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and drillhole cleaning according assessment. The given brick types in combination with the permissible loads are only a small extract of the assessment.

⁷⁾ Hole patterns see assessment.

LOADS

Injection system FIS V, FIS VW HIGH SPEED and FIS VS LOW SPEED with threaded rod FIS A⁵⁾

Highest permissible loads^{1) 6)} for a single anchor in aerated concrete.

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

Type	Compressive brick strength f_b [N/mm ²]	Brick raw density ρ [kg/dm ³]	Minimum brick dimensions (L x W x H) [mm]	Min. effective anchorage depth h_{ef} [mm]	Min. member thickness h_{min} [mm]	Maximum torque $T_{inst,max}$ [Nm]	Aerated concrete			
							Permissible tensile load ³⁾	Permissible shear load ³⁾	Min. spacing ²⁾	Min. edge distance ²⁾
							N_{perm} [kN]	V_{perm} [kN]	s_{min} [mm]	c_{min} [mm]
Aerated concrete acc. EN 771-4										
M8 ⁸⁾	≥ 4	≥ 0,50	130	100		1,0	0,71	0,71	250	100
M10 ⁸⁾	≥ 4	≥ 0,50		100		2,0	1,07	0,89	250	100
M12 ⁸⁾	≥ 4	≥ 0,50		100		2,0	0,89	0,89	250	100
M8 ⁷⁾	≥ 4	≥ 0,50	125	95		2,0	1,25	1,07	250	150
M10 ⁷⁾	≥ 6	≥ 0,65		95		2,0	1,43	2,14	250	150
M12 ⁷⁾	≥ 6	≥ 0,65		95		2,0	1,43	2,14	250	150

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⁾ Minimum possible axial spacings resp. edge distance. Details concerning the distances to joints see assessment.

³⁾ For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see assessment.

⁵⁾ gvz, A4 and C.

⁶⁾ The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and drillhole cleaning according assessment. The given brick types in combination with the permissible loads are only a small extract of the assessment.

⁷⁾ Drilling with cone drill PBB. Only pre-positioned installation possible.

⁸⁾ Cylindrical drill hole. Pre-positioned and push-through installation possible.