LOADS

M10

M12

M16

M8

M10

M12

M16

M16

M8

M10

M12

M16

load actions of $\gamma_1 = 1.4$ are considered.

distances or spacings (anchor groups) see approval.

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

Highest permissible loads 1161 for a single anchor in solid brick masonry for pre-positioned or push-through installation

				THORIEU OF PUSI		tallation.		
				Solid brick masonry				
Compressive brick strength	Min. effective anchorage depth ⁴⁾	Brick type, na- ming acc. DIN	Installation torque	Permissible tensile load ³⁾	Permissible shear load ³⁾	Min. spacing ²⁾	Min. edge distanc	
f _b	h _{ef,min}	[-]	T _{inst}	N _{perm}	V _{perm}	s _{min}	c _{min}	
[N/mm²]	[mm]	[-]	[Nm]	[kN]	[kN]	[mm]	[mm]	
10	50	Mz	4,0	0,43	0,71	80	50	
10	50	Mz	4,0	0,57	0,71	80	50	
10	50	Mz	4,0	0,71	0,71	80	50	
10	64	Mz	4,0	0,71	0,71	80	55	
16	50	Mz	4,0	0,57	0,86	80	50	
16	50	Mz	4,0	0,71	0,86	80	50	
16	50	Mz	4,0	0,86	1,00	80	50	
16	64	Mz	4,0	1,00	1,14	80	55	
lid block KS								
10	50	KS (2DF)	4,0	0,43	0,71	80	50	
	Compressive brick strength fb [N/mm²] 10 10 10 10 16 16 16 16 16	Compressive brick strength	Compressive brick strength	Compressive brick strength Min. effective anchorage depth ⁴⁾ hef,min [I-] [Nm] [N/mm²] [mm] [I-] [Nm] [Nm]	Compressive brick strength Min. effective anchorage depth* hef,min [N/mm²] [mm] [N] [Nm] [Nm]	Compressive brick strength Min. effective anchorage depth ⁴⁾ F _b N _{ef,min} F-J Installation Installation N _{em,min} Installation N _{em,min} Image. N _{em,min} Image. Image Image	Compressive brick strength Min. effective anchorage depth*	

KS (2DF)

KS (8DF)

KS (8DF)

KS (8DF)

KS (8DF)

KS (8DF)

M8	10	50	KS (8DF)
M10	10	50	KS (8DF)
M12	10	50	KS (8DF)

10

10

10

20

20

20

20

10

28

28

28

28

1) The required partial safety factors for material resistance as well as a partial safety factor for

50

50

64

50

50

50

64

64

50

50

50

64

0.43

0,43

0,57

0,57

0,71

0.71

0,71

1,43

1.43

1,43

2,57

2,14

2,57

0.71

0,71

0,71

1,00

1,00

1.00

1.00

0,71

0.71

0,71

0,86

1,29

1,29

1.29

1,43

ce²⁾

50

50

55

50

50

50

55

50

50

50

55

50

50

50

55

80

80

80

80

80

80

80

80

80

80

80

80

80

80

80

4.0

4.0

4,0

4,0

4,0

4.0

4.0

4.0

4.0

4,0

4,0

4,0

4,0

4.0

^{4.0}

^{2.57}

^{2.57}

⁴⁾ Max. effective anchorage depth 100 mm.

⁵⁾ gyz, A4 and C. 6) The given loads are valid for fixations in dry and wet masonry for temperatures in the substrate

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

up to +50°C (resp. short term up to 80°C) and best possible drillhole cleaning according approval.

LOADS

Solid brick Mz

Type

M8

M10

M8

Injection system FIS V, FIS VS and FIS VW with threaded rod FIS A⁵⁾ and anchor sleeve FIS H..K.

Brick type, na-

ming acc. DIN

[-]

[-]

Мz

Mz

Mz

Installation

torque

Tinst

[Nm]

4,0

4,0

4.0

4.0

technical data).

gvz, A4 and C.

Permissible

tensile load³⁾

Nperm

[kN]

0,71

0,71

0.71

1.00

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

Min. effective

anchorage

depth4)

h_{ef.min}

[mm]

85

85

85

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

Compressive

brick strength

fb

[N/mm²]

10

10

16

M10	16	85	Mz	4,0	0,71	1,14	80	50			
Solid sand-lime brick and solid block KS											
M8	10	85	KS (2DF)	4,0	0,43	0,86	80	50			
M10	10	85	KS (2DF)	4,0	0,43	0,86	80	50			
M8	20	85	KS (2DF)	4,0	0,57	1,29	80	50			
M10	20	85	KS (2DF)	4,0	0,57	1,29	80	50			
M8	10	85	KS (8DF)	4,0	1,43	0,86	80	50			
M10	10	85	KS (8DF)	4,0	1,43	0,86	80	50			
M8	28	85	KS (8DF)	4,0	2,57	1,43	80	50			
M10	28	85	KS (8DF)	4,0	2,57	1,43	80	50			
Solid block of lightweight a	ggregate con	crete without	slots Vbl								
M8	2	110	Vbl	4,0	0,57	0,43	80	50			
M10	2	110	Vbl	4,0	0,57	0,43	80	50			
M12	2	110	Vbl	4,0	0,71	0,43	80	60			
M12	2	180	VbI	4,0	1,00	0,43	80	60			
M16	2	110	Vbl	4,0	0,71	0,43	80	60			

Solid brick masonry

Min.

spacing²⁾

Smin

[mm]

80

80

80

80

50

50

50

60

60

60

Min.

edge distance²⁾

Cmin

[mm]

50

50

50

Permissible

shear Inad3)

V_{perm}

[kN]

0,86

0,86

1.14

0.43

6) 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.

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

1,70

1,00

1,70

groups) see approval.

M16

load actions of $\gamma_1 = 1.4$ are considered.

distances or spacings (anchor groups) see approval.

Injection system FIS V, FIS VS and FIS VW with threaded rod FIS A⁵⁾ resp. internal threaded socket FIS E⁵⁾.

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

180

For the design the complete approval Z-21.3-1824 has to be considered.

2

The required partial safety factors for material resistance as well as a partial safety factor for

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

For combinations of tensile loads, shear loads, bending moments as well as reduced edge

						•
Туре	Compressive	Effective	Brick type,	Installation	Permissible	I

						Solid brick masonry	
Туре	Compressive	Effective	Brick type,	Installation	Permissible	Min.	Min.
	brick strength	anchorage depth ⁴⁾	naming acc. DIN	torque	tensile load³)	spacing ²⁾	edge distance ²⁾
	f _b	h _{ef}	[-]	T _{inst}	F _{perm}	s _{min} (a _{min})	c _{min} (a _r)
	[N/mm²]	[mm]	[-]	[Nm]	[kN]	[mm]	[mm]

Туре	Compressive	Effective	Brick type,	Installation	Permissible	Min.	Min.
	brick strength	anchorage depth ⁴⁾	naming acc. DIN	torque	tensile load³)	spacing ²⁾	edge distance ²⁾
	f _b	h _{ef}	[-]	T _{inst}	F _{perm}	s _{min} (a _{min})	c _{min} (a _r)
	[N/mm²]	[mm]	[-]	[Nm]	[kN]	[mm]	[mm]
Solid brick Mz							

	f _b [N/mm²]	h _{ef} [mm]	[-] [-]	T _{inst} [Nm]	F _{perm} [kN]	s _{min} (a _{min}) [mm]	c _{min} (a _r) [mm]
Solid brick Mz	1						
M6 - M8	12	75	Mz	2,0	1,00	50	60

KS

KS

M10 - M16 75 M₇

- Solid sand-lime brick and solid block KS
- M6 M8 12 75 M10 - M16 12 75
- Required safety factors are considered. Minimum possible axial spacings resp. edge distance while reducing the permissible load. 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

- 4) Values apply to threaded rod FIS A. When using the internal threaded socket FIS E (M6 to M12) the anchorage depth is 85 mm instead of 75 mm.

2.0

2,0

2,0

qvz and A4. For FIS E screw with grade 5.8 resp. A4-70. 6) 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.

LOADS

LOADS

Type

M16

M6

groups) see approval.

Injection system FIS V with threaded rod FIS A⁵⁾ resp. internal threaded socket FIS E⁵⁾ and anchor sleeve FIS H..K.

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

Effective

anchorage depth4

hef

85 - 200

50 - 85

For the design the complete approval Z-21.3-1824 has to be considered.

Compressive

brick strength

 f_b

12

12

	[N/mm²]	[mm]	[-]	[Nm]	[kN]	[mm]	[mm]
Solid brick Mz							
M6	12	50 - 85	Mz	2,0	1,00	50	60
M8	12	50 - 130	Mz	2,0	1,707)	50	60
M10	12	85 - 130	Mz	2,0	1,70	50	60
M12	12	85 - 130	Mz	2,0	1,70	50	60
M12	12	85 - 130	Mz		1,70	50	

M₇

KS

Brick type.

naming acc. DIN

[-]

Solid sand-lime brick and solid block KS

M12 12 85 - 130 M16 12 85 - 200

2.0

2,0

Installation

torque

Tinst

Solid brick masonry

Min.

spacing²⁾

s_{min} (a_{min})

50

50

50

50

Min.

edge distance2)

c_{min} (a_r)

60

60

60

60

60

1.70

1.00

Permissible

tensile load3)

Fperm

¹² 85 - 130

^{2.0} 2.0

⁶⁰

^{1.70}

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

KS 1.70 KS

gvz and A4. For FIS E screw with grade 5.8 resp. A4-70. 6) The given loads are valid for fixations in dry and humid masonry for temperatures in the substrate

¹⁾ Required safety factors are considered.

M8 12 50 - 130 KS 2,0 1.70^{7} M10 KS 2,0 1.70

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

³⁾ 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

data).

up to +50°C (resp. short term up to 80°C) and best possible drillhole cleaning according approval.

For anchor sleeve FIS H 12x50K F_{norm} = 1,00 kN.