Concrete screw ULTRACUT FBS II 6

zinc plated steel

Permissible loads of a single anchor in cracked normal concrete (concrete tension zone) of strength class C20/25 (~B25) [1) 2) 3) 10)]											Minimum spacings while reducing the load	
Type	Material fixing element	Minimum member thickness h_{min} [mm]	Screw-in depth h_{nom} [mm]	Maximum installation torque T_{max} [Nm]	Installation torque $T_{imp,max}$ [6)] [Nm]	Permissible tensile load N_{perm} [7)] [kN]	Permissible shear load V_{perm} [7)] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for: Max. Load s_{cr} [mm]	Min. spacing s_{min} [8)] [mm]	Min. edge distance c_{min} [8)] [mm]
FBS II 6x40 [5)]	gvz	80	40	10	450	1,2	4,3	35	110	100	35	35
FBS II 6x45 [5)]	gvz	90	45	10	450	1,7	4,3	35	105	110	35	35
FBS II 6x50 [5)]	gvz	90	50	10	450	1,9	4,3	35	100	120	35	35
FBS II 6x55 [5)]	gvz	100	55	10	450	2,4	6,3	35	145	135	35	35

For the design the complete assessment ETA-15/0352 has to be considered.[9)]

1) The partial safety factors for material resistance as regulated in the ETA-15/0352 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 $s \geq 3 \cdot h_{ef}$ and an edge distance $c \geq 1,5 \cdot h_{ef}$. Accurate data see ETA-15/0352.

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

3) Drill method hammer drilling resp. hollow drilling. For further allowable drill methods see ETA-15/0352.

4) The anchorage depths smaller than 40 mm are only allowed for single anchors as part of a multiple fixing of non-structural systems.

5) Diamond drilling not permitted.

6) Maximum allowable torque for installation with any tangential impact screw driver.

7) For combinations of tensile loads and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.

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

9) The given loads refer to the European Technical Assessment ETA-15/0352, issue date 30/10/2018. Design of the loads according ETAG 001, Annex C, Method A (for static resp. quasi-static loads).

10) A reinforcement in the concrete to prevent splitting is required. The width of the cracks has to be limited under consideration of the splitting forces at $w_k \sim 0,3$ mm.

LOADS

Concrete screw ULTRACUT FBS II 6

zinc plated steel

Permissible loads of a single anchor in non-cracked normal concrete (concrete compression zone) of strength class C20/25 (~B25) [1) 2) 3)]											Minimum spacings while reducing the load	
Type	Material fixing element	Minimum member thickness	Screw-in depth	Maximum installation torque	Installation torque	Permissible tensile load	Permissible shear load	Required edge distance (with one edge) for		Required spacing for	Min. spacing	Min. edge distance
								Max. tension load	Max. shear load	Max. Load		
		h_{min}	h_{nom}	T_{max}	$T_{imp,max}$ [6)]	N_{perm} [7)]	V_{perm} [7)]	c	c	s_{cr}	s_{min} [8)]	c_{min} [8)]
		[mm]	[mm]	[Nm]	[Nm]	[kN]	[kN]	[mm]	[mm]	[mm]	[mm]	[mm]
FBS II 6x40 [5)]	gvz	80	40	10	450	3,8	4,3	40	75	100	35	35
FBS II 6x45 [5)]	gvz	90	45	10	450	4,8	4,3	50	70	110	35	35
FBS II 6x50 [5)]	gvz	90	50	10	450	5,7	4,3	55	70	120	35	35
FBS II 6x55 [5)]	gvz	100	55	10	450	6,4	6,3	60	100	135	35	35

For the design the complete assessment ETA-15/0352 has to be considered.[9)]

[1)] The partial safety factors for material resistance as regulated in the ETA-15/0352 as well as a partial safety factor for load actions of γ_L = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq 3 \cdot h_{ef}$ and an edge distance $c \geq 1{,}5 \cdot h_{ef}$. Accurate data see ETA-15/0352.

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

[3)] Drill method hammer drilling resp. hollow drilling. For further allowable drill methods see ETA-15/0352.

[4)] The anchorage depths smaller than 40 mm are only allowed for single anchors as part of a multiple fixing of non-structural systems.

[5)] Diamond drilling not permitted.

[6)] Maximum allowable torque for installation with any tangential impact screw driver.

[7)] For combinations of tensile loads and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.

[8)] Minimum possible axial spacings resp. edge distance while reducing the permissible load.

[9)] The given loads refer to the European Technical Assessment ETA-15/0352, issue date 30/10/2018. Design of the loads according ETAG 001, Annex C, Method A (for static resp. quasi-static loads).

LOADS

Concrete screw ULTRACUT FBS II 6 zinc plated

Highest permissible loads for a single anchor[1)] for multiple use for non-structural applications in cracked concrete C20/25 to C50/60.

Type	Material fixing element	Screw-in depth	Min. member thickness	Installation torque	Permissible tensile load	Permissible shear load	Required edge distance (with one edge) for		Required spacing for	Min. spacing	Min. edge distance
							Max. tension load	Max. shear load			
		h_{nom}	h_{min}	$T_{inst, max}$	N_{perm} [3)]	V_{perm} [3)]	c	c	s	s_{min} [2)]	c_{min} [2)]
		[mm]	[mm]	[Nm]	[kN]	[kN]	[mm]	[mm]	[mm]	[mm]	[mm]
FBS II 6	**gvz**	25	80	≤ 5	0.7	1.8	35	50	60	35	35
FBS II 6	**gvz**	30	80	≤ 5	1.2	2.3	35	55	70	35	35
FBS II 6	**gvz**	35	80	≤ 5	1.7	4.3	35	100	100	35	35
FBS II 6	**gvz**	40	80	≤ 10	2.4	4.3	35	105	110	35	35
FBS II 6	**gvz**	45	90	≤ 10	2.9	4.3	40	110	115	35	35
FBS II 6	**gvz**	50	90	≤ 10	3.6	4.3	50	115	120	35	35
FBS II 6	**gvz**	55	100	≤ 10	4.0	6.3	50	145	135	35	35

For the design the complete assessment ETA-18/0242, issued 30.10.2018 has to be considered.

[1)] The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of γ_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 $c \geq 1{,}5 \times h_{ef}$. Accurate data see assessment.

[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 assessment.

LOADS

Concrete screw ULTRACUT FBS II 6 zinc plated

Highest permissible loads for a single anchor[1] for multiple use for non-structural applications in non-cracked concrete C20/25 to C50/60.

Type	Material fixing element	Screw-in depth h_{nom} [mm]	Min. member thickness h_{min} [mm]	Installation torque $T_{inst, max}$ [Nm]	Permissible tensile load N_{perm} [3] [kN]	Permissible shear load V_{perm} [3] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for s [mm]	Min. spacing s_{min} [2] [mm]	Min. edge distance c_{min} [2] [mm]
FBS II 6	**gvz**	25	80	≤ 5	1.4	2.3	35	45	60	35	35
FBS II 6	**gvz**	30	80	≤ 5	2.4	2.3	35	45	70	35	35
FBS II 6	**gvz**	35	80	≤ 5	3.1	4.3	40	70	100	35	35
FBS II 6	**gvz**	40	80	≤ 10	3.8	4.3	55	70	110	35	35
FBS II 6	**gvz**	45	90	≤ 10	4.8	4.3	65	75	115	35	35
FBS II 6	**gvz**	50	90	≤ 10	5.7	4.3	75	75	120	35	35
FBS II 6	**gvz**	55	100	≤ 10	6.4	6.3	80	100	135	35	35

For the design the complete assessment ETA-18/0242, issued 30.10.2018 has to be considered.

[1] The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of γ_L = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing s ≥ 3 x h_{ef} and an edge distance c ≥ 1,5 x h_{ef}. Accurate data see assessment.

[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 assessment.

LOADS

Concrete screw ULTRACUT FBS II 6 zinc plated

Highest permissible loads[1] for a single anchor for multiple use for non-structural applications in pre-stressed hollow core slabs[4]

Type			FBS II 6						
Nominal embedment depth		h_{nom}	25	30	35	40	45	50	55
Permissible load in the respective bottom flange thickness F_{rec} [3]									
≥ 25 mm		[kN]	0,23	0,47	0,47	0,47	0,47	0,47	0,47
≥ 30 mm		[kN]	1,64	1,64	1,64	1,64	1,64	1,64	1,64
≥ 35 mm		[kN]	1,64	1,88	2,11	2,35	2,58	2,82	3,05
≥ 40 mm		[kN]	1,64	2,35	2,58	2,82	3,29	3,52	3,76
≥ 50 mm		[kN]	1,64	2,58	3,29	3,76	4,46	5,16	5,63
Installation torque	$T_{inst, max}$	[Nm]	5	5	10	10	10	10	10
Min. spacing	s1, s2 [2]	[mm]	100	100	100	100	100	100	100
Min. edge distance	c1, c2 [2]	[mm]	100	100	100	100	100	100	100

For the design the complete assessment ETA-18/0242, issued 30.10.2018 has to be considered.

[1] The required partial safety factors for material resistance as well as a partial safety factor for load actions of γ_L = 1,4 are considered.

[2] Minimum possible axial spacings resp. edge distance. For further measures see assessment.

[3] Valid for tensile load, shear load and oblique load under any angle.

[4] Concrete strength class C30/37 up to C50/60.