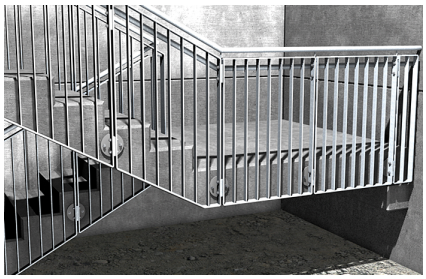
The powerful screw solution for fast and simple installation



VERSIONS

- zinc-plated steel
- stainless steel

APPROVALS

ETA-11/0095
ETAG 001-3
Option 1 for cracked concrete

Fire resistance classification R 120
Anchor types see test report

EDELSTAHL Rost frei INOX STAINLESS STEEL

BUILDING MATERIALS

Approved for:

- Concrete C20/25 to C50/60, cracked
- Concrete C20/25 to C50/60, non-cracked

Also suitable for:

- Concrete C12/15
- Natural stone with dense structure

ADVANTAGES

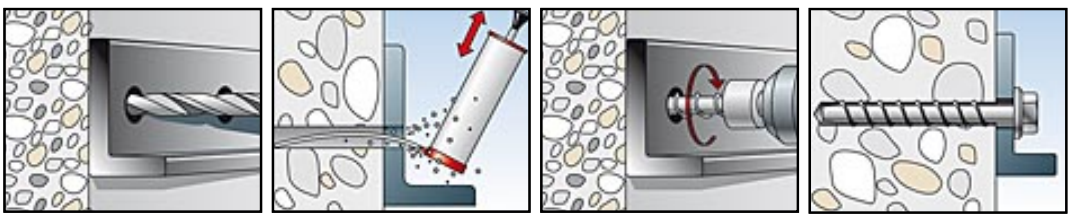
- The FBS ensures very high loads, thus resulting in fewer anchoring points.
- The FBS is installed in a single step, which saves time and money.
- The special zinc-flake coating ensures higher resistance to corrosion and provides more security.
- The newly added and enhanced A4 stainless steel version now also allows anchoring applications in outdoor areas.
- The FBS can also be used for temporary anchorings thanks to the fact that it can be fully disassembled.
- The ETA Approval Option 1 governs the use of single-point fixings in cracked and non-cracked concrete.

APPLICATIONS

- Railings
- Consoles
- Shelving systems
- Gates
- Façade sub-structures
- Threshold / beam anchors
- Pipeline routes
- Cable trays
- Temporary anchors

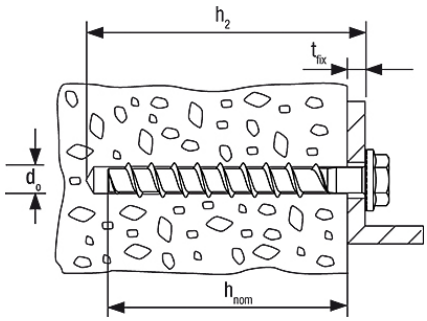
FUNCTIONING

- The FBS is suitable for push-through installation.
- When the concrete screw is screwed into the drill hole, the thread flanks cut positively into the concrete.
- For installation, a tangential impact screw driver with a socket suited to impact wrenches is recommended.
- Use FBS A4 for external applications and those in a damp environment.



TECHNICAL DATA

Concrete screw FBS 8-14



zinc flake coated steel

Article name	Art.-No.	ETA-approval	Drill hole diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Screw length l_s [mm]	Screw-in depth h_{nom} [mm]	Max. fixture thickness t_{fix} [mm]
FBS 8 x 80/15 US TX	**066956**	■	8	90	80	65	15
FBS 8 x 100/35 US TX	**066957**	■	8	110	100	65	35
FBS 8 x 70/5 US	**517875**	■	8	80	70	65	5
FBS 8 x 80/15 US	**517876**	■	8	90	80	65	15
FBS 8 x 90/25 US	**517877**	■	8	100	90	65	25
FBS 8 x 110/45 US	**517878**	■	8	120	110	65	45
FBS 8 x 130/65 US	**517880**	■	8	140	130	65	65
FBS 10 x 70/5 US	**517881**		10	80	70	65	5
FBS 10 x 90/5 US	**517883**	■	10	100	90	85	5
FBS 10 x 100/15 US	**517884**	■	10	110	100	85	15
FBS 10 x 120/35 US	**517885**	■	10	130	120	85	35
FBS 10 x 140/55 US	**517887**	■	10	150	140	85	55
FBS 10 x 160/75 US	**517891**	■	10	170	160	85	75
FBS 10 x 200/115 US	**517893**	■	10	210	200	85	115
FBS 10 x 230/145 US	**520469**	■	10	240	230	85	145
FBS 10 x 260/175 US	**520470**	■	10	270	260	85	175
FBS 12 x 90/5 US	**517895**		12	100	90	85	5
FBS 12 x 110/10 US	**517898**	■	12	120	110	100	10
FBS 12 x 130/30 US	**517900**	■	12	140	130	100	30
FBS 12 x 150/50 US	**517903**	■	12	160	150	100	50
FBS 14 x 110/10 US	**517905**		14	120	110	100	10
FBS 14 x 135/10 US	**517908**	■	14	145	135	125	10
FBS 14 x 160/35 US	**517910**	■	14	170	160	125	35

A4

Article name	Art.-No.	ETA-approval	Drill hole diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Screw length l_s [mm]	Screw-in depth h_{nom} [mm]	Max. fixture thickness t_{fix} [mm]
FBS 8 x 70/5 US A4	**523899**	■	8	80	70	65	5
FBS 8 x 80/15 US A4	**523900**	■	8	90	80	65	15
FBS 8 x 90/25 US A4	**523901**	■	8	100	90	65	25
FBS 10 x 90/5 US A4	**523902**	■	10	100	90	85	5
FBS 10 x 100/15 US A4	**523903**	■	10	110	100	85	15
FBS 10 x 120/35 US A4	**523904**	■	10	130	120	85	35
FBS 12 x 110/10 US A4	**523905**	■	12	120	110	100	10
FBS 12 x 130/30 US A4	**523906**	■	12	140	130	100	30

INSTALLATION OF CONCRETE SCREWS (USE A CORDLESS OR CABLED IMPACT WRENCH)

Betonschraube	Recommended nominal torque of the tangential impact wrench*) [Nm]	Maximum tightening torque with torque wrench [Nm]
FBS 8	250	20
FBS 10	300	40
FBS 12	450	60
FBS 14	450	80

*) Use socket (black) which fit percussion power screwdrivers!
The conversion of nominal output int o effective tightening torque varies from machine to machine - always therefore use torque control.

LOADS

Concrete screw FBS
Highest permissible loads for a single anchor[1)] in concrete C20/25[4)]
For the design the complete approval ETA - 11/0095 has to be considered.

				Cracked concrete				Non-cracked concrete			
Type	**Embedment 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]**	**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]**
FBS 8	65	120	≤ 20	4,3	6,2	50	50	5,7	8,6	50	50
FBS 10	85	130	≤ 40	7,6	16,2	70	70	13,5	16,2	70	70
FBS 12	100	150	≤ 60	12,3	20,0	80	80	17,2	20,0	80	80
FBS 14	125	200	≤ 80	17,1	30,5	100	100	24,0	30,5	100	100

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 $c \geq 1{,}5 \times h_{ef}$.
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.

LOADS

Concrete screw FBS A4
Highest permissible loads for a single anchor[1)] in concrete C20/25[4)]
For the design the complete approval ETA - 11/0095 has to be considered.

				Cracked concrete				Non-cracked concrete			
Type	**Embedment depth h_{nom} [mm]**	**Min. member thickness h_{min} [mm]**	**Torque moment $T_{inst, max}$ [Nm]**	**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]**
FBS 8 A4	65	120	≤ 20	4,3	6,2	50	50	5,7	8,8	50	50
FBS 10 A4	85	130	≤ 40	7,6	19,0	70	70	13,5	19,0	70	70
FBS 12 A4	100	150	≤60	12,3	23,3	80	80	17,2	23,3	80	80

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 approval.
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.