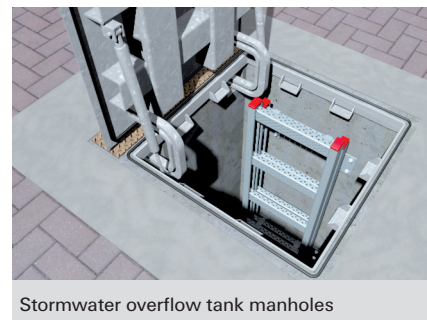


The cost-efficient fixing for flexible use in non-cracked concrete



Column bases



Stormwater overflow tank manholes

VERSIONS

- Zinc-plated steel
- Stainless steel
- Hot-dip galvanised steel (with variable working life for outdoor areas)

BUILDING MATERIALS

Approved for:

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

Also suitable for:

- Concrete C12/15
- Natural stone with dense structure

CERTIFICATES



ADVANTAGES

- The standard anchorage depth achieves the maximum load-bearing capacities.
- The reduced anchorage depth reduces the drill hole depth. This minimises the amount of time needed for installation whilst increasing flexibility.
- Additional short version „K“ with short anchoring depth.
- The long thread balances component tolerances and allows for stand-off installations, thus increasing flexibility.
- Few hammer blows and the minimal torque slippage allow for a noticeably simpler installation.
- The drive-in pin protects the thread from damage, and thus ensures a faster installation and dismantling of the attachment.
- The larger washer included with the FBN II GS creates a larger supporting surface and, as such, allows for the fixing of wood constructions.
- When using hollow drills with suction is no drill hole cleaning required.
- New ETA assessment for hot-dip galvanised version for variable working life in outdoor areas.

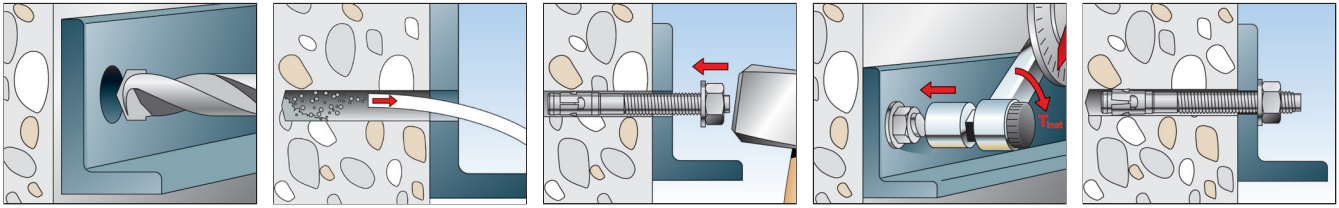
APPLICATIONS

- Steel constructions
- Guard rails
- Consoles
- Ladders
- Cable trays
- Machines
- Staircases
- Gates
- Façades

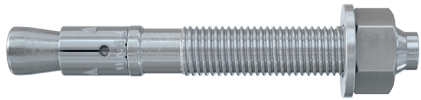
FUNCTIONING

- The FBN II is suitable for pre-positioned and push-through installation; also suitable for stand-off installation under certain conditions.
- Prior to installation, place the hexagon nut in the optimal position (the drive-in pin projects by approx. 3 mm out of the hexagon nut).
- When applying the torque, the cone bolt is pulled into the expansion clip and expands it against the drill hole wall.
- The head embossing offers a simple control of the anchoring.
- In the case of series installation, we recommend using the FABS bolt anchor setting tool.

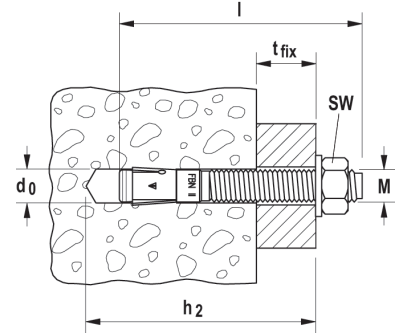
INSTALLATION



TECHNICAL DATA



Bolt anchor **FBN II**

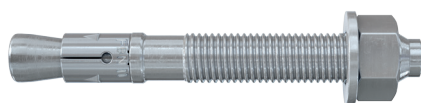


| Item | Zinc-plated steel | Stainless steel | Hot-dip galvanized steel | Approval ETA | Drill hole diameter | Min. drill hole depth for through fixings | Anchor length | Max. usable length hef,max./hef,min. | Thread | Width across nut | Sales unit |
|---------------|------------------------|------------------------|--------------------------|-----------------|------------------------|---|---------------|--------------------------------------|--------------------|------------------|------------|
| | Art.-No. | Art.-No. | Art.-No. | | d ₀ [mm] | h ₂ [mm] | l [mm] | t _{fix} [mm] | Ø x length [mm] | ○ SW [mm] | [pcs] |
| | gvz | A4 | hdg | | | | | | | | |
| FBN II 6/5 | 505526 ¹⁾²⁾ | — | — | ■ | 6 | 45 | 50 | 5/- | M 6 x 12 | 10 | 100 |
| FBN II 6/10 | 505527 ¹⁾²⁾ | 505532 ¹⁾²⁾ | — | ■ | 6 | 50 | 55 | 10/- | M 6 x 17 | 10 | 100 |
| FBN II 6/30 | 505528 ¹⁾²⁾ | 505535 ¹⁾²⁾ | — | ■ | 6 | 70 | 75 | 30/- | M 6 x 35 | 10 | 100 |
| FBN II 8/5 | 040662 | — | — | ■ | 8 | 61 | 66 | 5/15 | M 8 x 34 | 13 | 50 |
| FBN II 8/10 | 040664 | 507555 | 507575 | ■ | 8 | 66 | 71 | 10/20 | M 8 x 39 | 13 | 50 |
| FBN II 8/20 | 040669 | — | — | ■ | 8 | 76 | 81 | 20/30 | M 8 x 49 | 13 | 50 |
| FBN II 8/30 | 040700 | 507556 | 507576 | ■ | 8 | 86 | 91 | 30/40 | M 8 x 59 | 13 | 50 |
| FBN II 8/50 | 040771 | 507557 | 507577 | ■ | 8 | 106 | 111 | 50/60 | M 8 x 79 | 13 | 50 |
| FBN II 8/70 | 040777 | — | 507578 | ■ | 8 | 126 | 131 | 70/80 | M 8 x 99 | 13 | 20 |
| FBN II 8/100 | 040783 | — | — | ■ | 8 | 156 | 161 | 100/110 | M 8 x 129 | 13 | 20 |
| FBN II 10/10 | 040827 | 507558 | 507579 | ■ | 10 | 78 | 86 | 10/20 | M 10 x 46 | 17 | 50 |
| FBN II 10/20 | 040851 | 507559 | — | ■ | 10 | 88 | 96 | 20/30 | M 10 x 56 | 17 | 50 |
| FBN II 10/30 | 040854 | — | — | ■ | 10 | 98 | 106 | 30/40 | M 10 x 66 | 17 | — |
| FBN II 10/30 | — | 507560 | 507580 | ■ | 10 | 98 | 106 | 30/40 | M 10 x 66 | 17 | 50 |
| FBN II 10/50 | 040855 | 507561 | 507582 | ■ | 10 | 118 | 126 | 50/60 | M 10 x 86 | 17 | 20 |
| FBN II 10/70 | 040931 | — | — | ■ | 10 | 138 | 146 | 70/80 | M 10 x 106 | 17 | 20 |
| FBN II 10/100 | 040943 | 507562 | 507583 | ■ | 10 | 168 | 176 | 100/110 | M 10 x 136 | 17 | 20 |
| FBN II 10/140 | 040944 | — | — | ■ | 10 | 208 | 216 | 140/150 | M 10 x 176 | 17 | 20 |
| FBN II 10/160 | 040945 | — | — | ■ | 10 | 228 | 236 | 160/170 | M 10 x 196 | 17 | 20 |
| FBN II 12/10 | 040950 | 507563 | 507589 | ■ | 12 | 95 | 106 | 10/25 | M 12 x 59 | 19 | 20 |
| FBN II 12/20 | 044558 | 507564 | — | ■ | 12 | 105 | 116 | 20/35 | M 12 x 69 | 19 | 20 |
| FBN II 12/30 | 045263 | 507565 | 507591 | ■ | 12 | 115 | 126 | 30/45 | M 12 x 79 | 19 | 20 |
| FBN II 12/50 | 045264 | 507566 | 507592 | ■ | 12 | 135 | 146 | 50/65 | M 12 x 99 | 19 | 20 |
| FBN II 12/80 | 045265 | — | — | ■ | 12 | 165 | 176 | 80/95 | M 12 x 129 | 19 | 20 |
| FBN II 12/100 | 045266 | 507567 | 507596 | ■ | 12 | 185 | 196 | 100/115 | M 12 x 149 | 19 | 20 |
| FBN II 12/120 | 045267 | — | — | ■ | 12 | 205 | 216 | 120/135 | M 12 x 169 | 19 | 20 |
| FBN II 12/140 | 045268 | — | — | ■ | 12 | 225 | 236 | 140/155 | M 12 x 189 | 19 | 20 |
| FBN II 12/160 | 045269 | — | — | ■ | 12 | 245 | 256 | 160/175 | M 12 x 189 | 19 | 20 |
| FBN II 16/10 | — | 507568 | — | ■ | 16 | 114 | 130 | 10/25 | M 16 x 74 | 24 | 10 |
| FBN II 16/25 | 045564 | 507569 | 507598 | ■ | 16 | 129 | 145 | 25/40 | M 16 x 89 | 24 | 10 |
| FBN II 16/50 | 045565 | 507570 | 507553 | ■ | 16 | 154 | 170 | 50/65 | M 16 x 105 | 24 | 10 |
| FBN II 16/80 | 045566 | — | — | ■ | 16 | 184 | 200 | 80/95 | M 16 x 144 | 24 | 10 |
| FBN II 16/100 | 045567 | — | 507554 | ■ | 16 | 204 | 220 | 100/115 | M 16 x 164 | 24 | 10 |
| FBN II 16/140 | 045568 | — | — | ■ | 16 | 244 | 260 | 140/155 | M 16 x 184 | 24 | 10 |

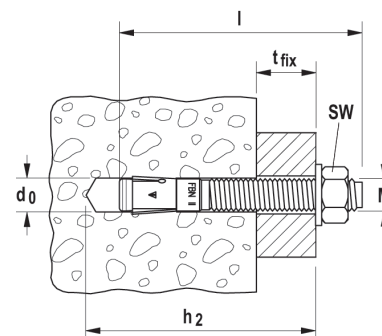
1) Use restricted to anchoring of structural components which are statically indeterminate.

2) Nut and washer not pre-assembled/supplied loose.

TECHNICAL DATA



Bolt anchor **FBN II**



| | Zinc-plated steel | Stainless steel | Hot-dip galvanised steel | Approval | Drill hole diameter | Min. drill hole depth for through fixings | Anchor length | Max. usable length hef,max./hef,min. | Thread | Width across nut | Sales unit |
|----------------------|-------------------|-----------------|--------------------------|----------|---------------------|---|---------------|--------------------------------------|--------------------------------|------------------|------------|
| | Art.-No. | Art.-No. | Art.-No. | ETA | d_0 [mm] | h_2 [mm] | l [mm] | t_{fix} [mm] | $\emptyset \times$ length [mm] | \circ SW [mm] | [pcs] |
| Item | gvz | A4 | hdg | | | | | | | | |
| FBN II 16/160 | 045569 | — | — | ■ | 16 | 264 | 280 | 160/175 | M 16 x 184 | 24 | 10 |
| FBN II 16/200 | 045570 | — | — | ■ | 16 | 304 | 320 | 200/215 | M 16 x 184 | 24 | 10 |
| FBN II 20/30 | 045573 | 507571 | 508015 | ■ | 20 | 165 | 187 | 30/55 | M 20 x 90 | 30 | 10 |
| FBN II 20/60 | 045574 | 507572 | — | ■ | 20 | 195 | 217 | 60/85 | M 20 x 90 | 30 | 10 |
| FBN II 20/80 | 045575 | — | — | ■ | 20 | 215 | 237 | 80/105 | M 20 x 90 | 30 | 10 |
| FBN II 20/120 | 045576 | — | — | ■ | 20 | 255 | 277 | 120/145 | M 20 x 90 | 30 | 10 |

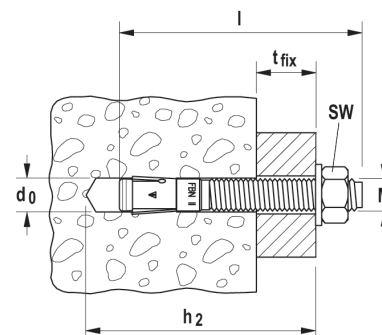
1) Use restricted to anchoring of structural components which are statically indeterminate.

2) Nut and washer not pre-assembled/supplied loose.

TECHNICAL DATA



Bolt anchor **FBN II K**

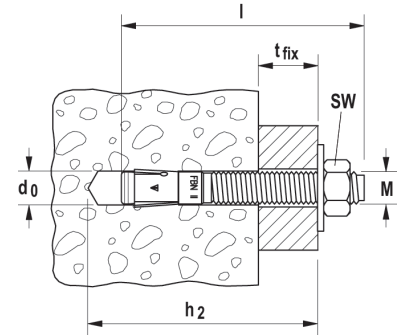


| | Zinc-plated steel, short version | Stainless steel, short version | Hot-dip galvanised steel, short version | Approval | Drill hole diameter | Min. drill hole depth for through fixings | Anchor length | Max. usable length hef,max./hef,min. | Thread | Width across nut | Sales unit |
|-----------------------|----------------------------------|--------------------------------|---|----------|---------------------|---|---------------|--------------------------------------|--------------------------------|------------------|------------|
| | Art.-No. | Art.-No. | Art.-No. | ETA | d_0 [mm] | h_2 [mm] | l [mm] | t_{fix} [mm] | $\emptyset \times$ length [mm] | \circ SW [mm] | [pcs] |
| Item | gvz | A4 | hdg | | | | | | | | |
| FBN II 8/5 K | 040806 | 508007 | 508012 | ■ | 8 | 51 | 56 | -/5 | M 8 x 24 | 13 | 50 |
| FBN II 8/10 K | 040807 | — | — | ■ | 8 | 56 | 61 | -/10 | M 8 x 29 | 13 | 50 |
| FBN II 10/5 K | 040946 | 508010 | 508013 | ■ | 10 | 63 | 71 | -/5 | M 10 x 31 | 17 | 50 |
| FBN II 10/10 K | 040947 | — | — | ■ | 10 | 68 | 76 | -/10 | M 10 x 36 | 17 | 50 |
| FBN II 12/5 K | 045272 | 508011 | 508014 | ■ | 12 | 75 | 86 | -/5 | M 12 x 39 | 19 | 20 |
| FBN II 12/10 K | 045273 | — | — | ■ | 12 | 80 | 91 | -/10 | M 12 x 44 | 19 | 20 |
| FBN II 12/30 K | 045274 | — | — | ■ | 12 | 100 | 111 | -/30 | M 12 x 64 | 19 | 20 |
| FBN II 16/15 K | 045571 | 508745 | 507597 | ■ | 16 | 104 | 120 | -/15 | M 16 x 64 | 24 | 10 |
| FBN II 16/25 K | 045572 | — | — | ■ | 16 | 114 | 130 | -/25 | M 16 x 74 | 24 | 10 |
| FBN II 20/10 K | 045577 | — | — | ■ | 20 | 120 | 142 | -/10 | M 20 x 50 | 30 | 10 |

TECHNICAL DATA



Bolt anchor **FBN II-GS** with large washer



| Item | Steel, zinc-plated, with large washer | Approval ETA | Drill hole diameter | Min. drill hole depth for through fixings | Anchor length | Max. usable length hef,max./ hef,min. | Thread | Width across nut | Washer (outer diameter x thickness) | Sales unit |
|-------------------------|---------------------------------------|-----------------|---------------------|---|---------------|---------------------------------------|------------------------------|------------------------|-------------------------------------|------------|
| | Art.-No. | | d_0 [mm] | h_2 [mm] | l [mm] | t_{fix} [mm] | \emptyset x length [mm] | \emptyset SW [mm] | [mm] | [pcs] |
| | gvz | | | | | | | | | |
| FBN II 12/80 GS | 045578 | ■ | 12 | 165 | 176 | 80/95 | M 12 x 129 | 19 | 44 x 4 | 20 |
| FBN II 12/100 GS | 045579 | ■ | 12 | 185 | 196 | 100/115 | M 12 x 149 | 19 | 44 x 4 | 20 |
| FBN II 12/120 GS | 045580 | ■ | 12 | 205 | 216 | 120/135 | M 12 x 169 | 19 | 44 x 4 | 20 |
| FBN II 12/140 GS | 045581 | ■ | 12 | 225 | 236 | 140/155 | M 12 x 189 | 19 | 44 x 4 | 10 |
| FBN II 12/160 GS | 045583 | ■ | 12 | 245 | 256 | 160/175 | M 12 x 189 | 19 | 44 x 4 | 10 |
| FBN II 12/180 GS | 045584 | ■ | 12 | 265 | 276 | 180/195 | M 12 x 189 | 19 | 44 x 4 | 10 |
| FBN II 12/200 GS | 045585 | ■ | 12 | 285 | 296 | 200/215 | M 12 x 189 | 19 | 44 x 4 | 10 |
| FBN II 12/250 GS | 045586 | ■ | 12 | 335 | 346 | 250/265 | M 12 x 100 | 19 | 44 x 4 | 10 |
| FBN II 16/100 GS | 045588 | ■ | 16 | 204 | 220 | 100/115 | M 16 x 164 | 24 | 56 x 5 | 10 |
| FBN II 16/140 GS | 045590 | ■ | 16 | 244 | 260 | 140/155 | M 16 x 184 | 24 | 56 x 5 | 10 |
| FBN II 16/160 GS | 045591 | ■ | 16 | 264 | 280 | 160/175 | M 16 x 184 | 24 | 56 x 5 | 10 |
| FBN II 16/200 GS | 045593 | ■ | 16 | 304 | 320 | 200/215 | M 16 x 100 | 24 | 56 x 5 | 10 |

ACCESSORIES



fischer Anchor bolt setting tool **FABS**

| Item | Art.-No. | Matching anchor type | Sales unit [pcs] |
|-------------|---------------|--|------------------|
| FABS | 077937 | FAZ II, FBN II, EXA for diameter from M6 - M12 | 1 |

LOADS

Bolt anchor FBN II

zinc plated steel / stainless steel / hot dip galvanised 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 | Min. member thickness | Effective anchorage depth | 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 c | Max. shear load c | | | |
| | | h_{min} [mm] | h_{ef} [mm] | T_{inst} [Nm] | $N_{perm}^{4)}$ [kN] | $V_{perm}^{4)}$ [kN] | [mm] | [mm] | Max. Load s [mm] | $s_{min}^{5)6)}$ [mm] | $c_{min}^{5)6)}$ [mm] |
| FBN II 6 | gvz | 100 | 30 ⁸⁾ | 4 | 2,9 | 3,4 | 100 | 60 | 90 | 40 | 40 |
| | A4 | | | 4 | 2,9 | 3 | | 55 | | | |
| FBN II 8 | gvz | 100 | 30 ⁸⁾ | 15 | 2,9 | 7,1 | 65 | 115 | 90 | 40 | 40 |
| | A4 | | | 10 | 2,9 | 7,1 | | 115 | | 50 | 45 |
| | gvz | 100 | 40 | 15 | 6,1 | 7,6 | 95 | 120 | 120 | 40 | 40 |
| | A4 | | | 10 | | 7,3 | | 115 | | | 45 |
| | hdg | | | 15 | | 7,6 | | 120 | | | 40 |
| FBN II 10 | gvz | 100 | 40 | 30 | 6,1 | 12,0 | 100 | 190 | 120 | 50 | 80 |
| | A4 | | | 20 | | 11,6 | | 185 | | | |
| | gvz | 100 | 50 | 30 | 8,5 | 12,0 | 100 | 185 | 150 | 50 | 50 |
| | A4 | | | 20 | | 11,6 | | 180 | | 70 | 55 |
| | hdg | | | 30 | | 12,0 | | 185 | | 50 | 50 |
| FBN II 12 | gvz | 100 | 50 | 50 | 8,5 | 17,9 | 145 | 280 | 150 | 70 | 100 |
| | A4 | | | 35 | | 15,7 | | 245 | | | |
| | gvz | 120 | 65 | 50 | 12,6 | 17,9 | 145 | 245 | 195 | 70 | 70 |
| | A4 | | | 35 | | 15,7 | | 215 | | | |
| | hdg | | | 40 | | 17,9 | | 245 | | | |
| FBN II 16 | gvz | 120 | 65 | 100 | 12,6 | 29,0 | 175 | 410 | 195 | 90 | 120 |
| | A4 | | | 80 | | 29,0 | | 375 | | | |
| | gvz | 160 | 80 | 100 | 17,2 | 31,5 | 175 | 375 | 240 | 90 | 90 |
| | A4 | | | 80 | | 29,1 | | 340 | | 120 | 80 |
| | hdg | | | 70 | | 31,5 | | 375 | | 90 | 90 |
| FBN II 20 | gvz | 160 | 80 | 200 | 17,2 | 38,3 | 185 | 455 | 240 | 120 | 120 |
| | A4 | | | 150 | | 39,6 | | 470 | | 140 | |
| | gvz | 200 | 105 | 200 | 25,9 | 38,3 | 185 | 385 | 315 | 120 | 120 |
| | A4 | | | 150 | | 49,1 | | 510 | | | |
| | hdg | | | 200 | | 38,3 | | 385 | | | |

For the design the complete assessment ETA-07/0211 has to be considered. ⁷⁾

¹⁾ The partial safety factors for material resistance as regulated in the ETA-07/0211 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-07/0211.

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

³⁾ Drill method Hammer drilling resp. hollow drilling.

⁴⁾ For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see ETA-07/0211.

⁵⁾ Minimum possible axial spacings resp. edge distance while reducing the permissible load.

⁶⁾ Minimum possible spacing resp. edge distance while reducing the permissible load for the required minimum member thickness. The combination of minimum edge distance and minimum spacing is not possible. One of both values has to be increased acc. ETA-07/0211.

⁷⁾ The given loads refer to the European Technical Assessment ETA-07/0211, issue date 19/05/2016. Design of the loads according ETAG 001, Annex C, Method A (for static resp. quasi-static loads).

⁸⁾ Anchoring depth smaller than 40 mm are only approved for statically indeterminate systems.