

## LOADS

### Bolt anchor FBN II

**Highest permissible loads for a single anchor<sup>1)</sup>** in concrete C20/25<sup>4)</sup>

For the design the complete approval ETA - 07/02 11 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]	Installation torque $T_{inst}$ [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]
<b>FBN II 6<sup>5)</sup></b>		30	100	4,0	2,9	3,4	40	40
<b>FBN II 8<sup>5)</sup></b>	30		100	15,0	2,9	7,1	40	40
		40	100	15,0	6,1	7,6	40	40
<b>FBN II 10</b>	40		100	30,0	6,1	12,0	50	80
		50	100	30,0	8,5	12,0	50	50
<b>FBN II 12</b>	50		100	50,0	8,5	17,9	70	100
		65	120	50,0	12,6	17,9	70	70
<b>FBN II 16</b>	65		120	100,0	12,6	29,0	90	120
		80	160	100,0	17,2	31,5	90	90
<b>FBN II 20</b>	80		160	200,0	17,2	38,3	120	120
		105	200	200,0	25,9	38,3	120	120

<sup>1)</sup> 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  $c \geq 1,5 \times h_{ef}$ . Accurate data see approval.

<sup>2)</sup> Minimum possible axial spacings resp. edge distance while reducing the permissible load.

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

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

<sup>5)</sup> The anchorage depths smaller than 40 mm are only allowed for multiple use for non-structural applications.

## LOADS

### Bolt anchor FBN II A4

**Highest permissible loads for a single anchor<sup>1)</sup>** in concrete C20/25<sup>4)</sup>

For the design the complete approval ETA - 07/02 11 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]	Installation torque $T_{inst}$ [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]
<b>FBN II 6 A4<sup>5)</sup></b>		30	100	4,0	2,9	3,0	40	40
<b>FBN II 8 A4<sup>5)</sup></b>	30		100	10,0	2,9	7,1	50	45
		40	100	10,0	6,1	7,3	40	45
<b>FBN II 10 A4</b>	40		100	20,0	6,1	11,6	50	80
		50	100	20,0	8,5	11,6	70	55
<b>FBN II 12 A4</b>	50		100	35,0	8,5	15,7	70	100
		65	120	35,0	12,6	15,7	70	70
<b>FBN II 16 A4</b>	65		120	80,0	12,6	29,0	90	120
		80	160	80,0	17,2	29,1	120	80
<b>FBN II 20 A4</b>	80		160	150,0	17,2	39,6	140	120
		105	200	150,0	25,9	49,1	120	120

<sup>1)</sup> 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  $c \geq 1,5 \times h_{ef}$ . Accurate data see approval.

<sup>2)</sup> Minimum possible axial spacings resp. edge distance while reducing the permissible load.

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

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

<sup>5)</sup> The anchorage depths smaller than 40 mm are only allowed for multiple use for non-structural applications.