

VERSIONS

- zinc-plated steel
- stainless steel
- highly corrosion-resistant steel

APPROVALS



BUILDING MATERIALS

Approved for:

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

Also suitable for:

- Concrete C12/15

ADVANTAGES

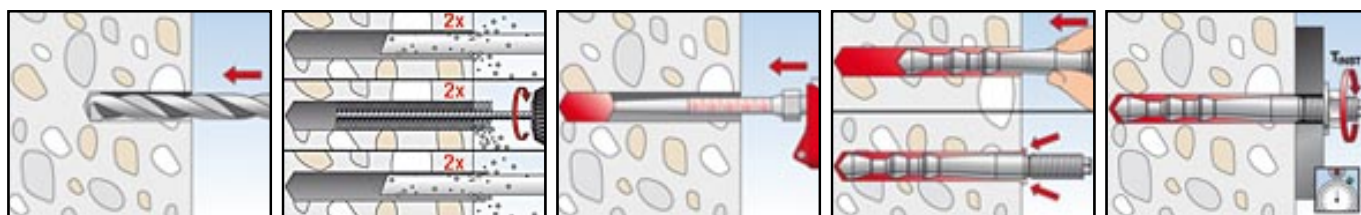
- The large anchorage depth of the anchor rod FHBII-AL allows the system to achieve maximum load values. Thus fewer fixing points and smaller anchor plates are required.
- The cone shape of the FHBII-AL anchor rods has been specially optimised for high tensile loads. As a result, the best performance in cracked concrete is achieved.
- The FHBII-AL anchor rod is approved for use both with capsules and with injection mortar. This guarantees maximum flexibility in the application.
- No drill hole cleaning is required, if the FHBII-AL anchor rod is used in combination with the FHBII-P/-PF capsule. This saves precious installation time.
- When using the FHBII-AL in combination with the injection mortar FISHB, push-through installation with annular gap filling is possible without the use of any further tools.

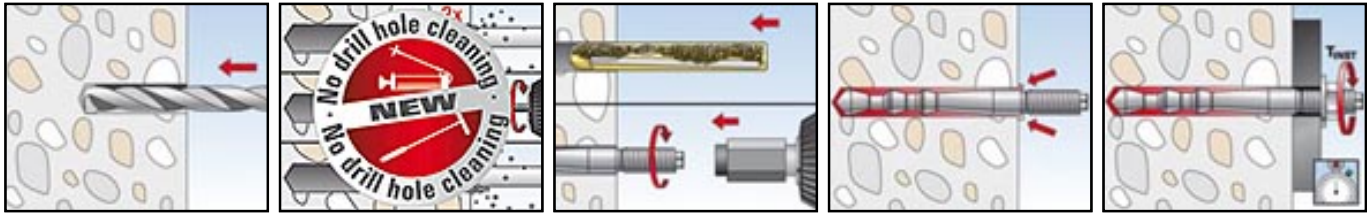
APPLICATIONS

- Guard rails
- Façades
- Staircases
- Steel brackets
- Machines
- Silo installations
- Masts
- Rash protection
- Steelwork constructions
- Timber constructions

FUNCTIONING

- The FHB II-A L is a bonded anchor with torque-controlled expansion for pre-positioned and push-through installation.
- When using FHB II-A L in push-through installation, the annular gap is to be filled with the injection mortar FIS HB.
- The anchor rod can be set either with injection mortar FIS HB or with the capsule FHBII-P / FHB II-PF HIGH SPEED, and is fully bonded in the drill hole.
- When tightening the hexagon nut, the anchor rod cones are pulled into the mortar shell, which expands against the drill hole wall.
- The styrene-free vinyl ester mortar fully seals the drill hole.
- When using the resin capsule, set the anchor rod through rotating and hitting motions with a hammer drill. Use the RA-SDS setting tool, Art.-No. 62420.

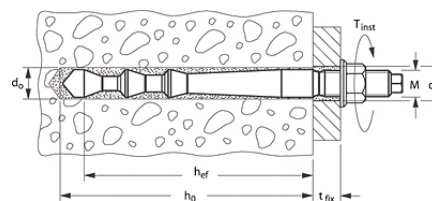




TECHNICAL DATA



Highbond anchor FHB II-A L



galvanized

Type	Art.-No.	ETA-approval	Drill hole diameter d_0 [mm]	Drill hole depth h_0 [mm]	Anchorage depth h_{ef} [mm]
FHB II-A L M8 x 60/10	097032	■	10	75	60
FHB II-A L M8 x 60/30	097033	■	10	75	60
FHB II-A L M8 x 60/50	097034	■	10	75	60
FHB II-A L M10 x 95/10	096907	■	12	110	95
FHB II-A L M10 x 95/20	096940	■	12	110	95
FHB II-A L M10 x 95/60	096941	■	12	110	95
FHB II-A L M10 x 95/100	096942	■	12	110	95
FHB II-A L M12 x 100/10	506893	■	14	115	100
FHB II-A L M12 x 100/25	506894	■	14	115	100
FHB II-A L M12 x 100/60	506895	■	14	115	100
FHB II-A L M12 x 100/100	506896	■	14	115	100
FHB II-A L M12 x 120/10	096943	■	14	135	120
FHB II-A L M12 x 120/25	096944	■	14	135	120
FHB II-A L M12 x 120/60	097014	■	14	135	120
FHB II-A L M12 x 120/100	097031	■	14	135	120
FHB II-A L M16 x 125/30	506903	■	18	140	125
FHB II-A L M16 x 125/60	506904	■	18	140	125
FHB II-A L M16 x 125/100	506905	■	18	140	125
FHB II-A L M16 x 145/30	506911	■	18	160	145
FHB II-A L M16 x 145/60	506912	■	18	160	145
FHB II-A L M16 x 145/100	506913	■	18	160	145
FHB II-A L M16 x 160/30	097035	■	18	175	160
FHB II-A L M16 x 160/60	097038	■	18	175	160
FHB II-A L M16 x 160/100	097070	■	18	175	160
FHB II-A L M20 x 210/50	097071	■	25	235	210
FHB II-A L M20 x 210/150	052370	■	25	235	210
FHB II-A L M24 x 210/50	506920	■	25	235	210

stainless steel A4

Type	Art.-No.	ETA-approval	Drill hole diameter d_0	Drill hole depth h_0	Anchorage depth h_{ef}
			[mm]	[mm]	[mm]
FHB II-A L M8 x 60/10 A4	097298	■	10	75	60
FHB II-A L M8 x 60/30 A4	097299	■	10	75	60
FHB II-A L M8 x 60/50 A4	097440	■	10	75	60
FHB II-A L M10 x 95/10 A4	097616	■	12	110	95
FHB II-A L M10 x 95/20 A4	097617	■	12	110	95
FHB II-A L M10 x 95/40 A4	097618	■	12	110	95
FHB II-A L M10 x 95/60 A4	097619	■	12	110	95
FHB II-A L M10 x 95/100 A4	097620	■	12	110	95
FHB II-A L M12 x 100/10 A4	506897	■	14	115	100
FHB II-A L M12 x 100/25 A4	506898	■	14	115	100
FHB II-A L M12 x 100/40 A4	506899	■	14	115	100
FHB II-A L M12 x 100/60 A4	506901	■	14	115	100
FHB II-A L M12 x 100/100 A4	506902	■	14	115	100
FHB II-A L M12 x 120/10 A4	097621	■	14	135	120
FHB II-A L M12 x 120/25 A4	097622	■	14	135	120
FHB II-A L M12 x 120/40 A4	097623	■	14	135	120
FHB II-A L M12 x 120/60 A4	097624	■	14	135	120
FHB II-A L M12 x 120/100 A4	097625	■	14	135	120
FHB II-A L M16 x 125/30 A4	506906	■	18	140	125
FHB II-A L M16 x 125/60 A4	506909	■	18	140	125
FHB II-A L M16 x 125/100 A4	506910	■	18	140	125
FHB II-A L M16 x 145/30 A4	506914	■	18	160	145
FHB II-A L M16 x 145/60 A4	506915	■	18	160	145
FHB II-A L M16 x 145/100 A4	506916	■	18	160	145
FHB II-A L M16 x 160/30 A4	097626	■	18	175	160
FHB II-A L M16 x 160/60 A4	097627	■	18	175	160
FHB II-A L M16 x 160/100 A4	097628	■	18	175	160
FHB II-A L M20 x 210/50 A4	097629	■	25	235	210
FHB II-A L M24 x 210/50 A4	506921	■	25	235	210

highly corrosion-resistant

Type	Art.-No.	ETA-approval	Drill hole diameter d_0 [mm]	Drill hole depth h_0 [mm]	Anchorage depth h_{ef} [mm]
FHB II-A L M8 x 60/10 C	097696	■	10	75	60
FHB II-A L M10 x 95/20 C	097699	■	12	110	95
FHB II-A L M12 x 120/25 C	097700	■	14	135	120
FHB II-A L M12 x 120/40 C	097701	■	14	135	120
FHB II-A L M16 x 160/30 C	097702	■	18	175	160
FHB II-A L M20 x 210/50 C	097703	■	25	235	210

LOADS

Highbond anchor FHB II

Highest permissible loads for a single anchor^{1) 5) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA - 05/0164 has to be considered.

Type	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Installation torque T_{inst} [Nm]	Cracked concrete				Non-cracked concrete			
				Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance
				$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{2)}$ [mm]	$c_{min}^{2)}$ [mm]	$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{2)}$ [mm]	$c_{min}^{2)}$ [mm]
FHB II-A L M8x60	60	100	15,0	8,0	7,8	40	40	11,2	7,8	40	40
FHB II-A L M10x95	95	140	20,0	15,9	11,9	40	40	16,4	11,9	40	40
FHB II-A L M12x100	100	140	40,0	17,1	17,3	50	50	23,7	17,3	50	50
FHB II-A L M12x120	120	170	40,0	22,5	17,3	50	50	23,7	17,3	50	50
FHB II-A L M16x125	125	170	60,0	24,0	32,2	55	55	33,6	32,2	55	55
FHB II-A L M16x145	145	190	60,0	29,9	32,2	60	60	42,0	32,2	60	60
FHB II-A L M16x160	160	220	60,0	34,7	32,2	70	70	46,0	32,2	70	70
FHB II-A L M20x210	210	280	100,0	52,2	50,2	90	90	65,5	50,2	90	90
FHB II-A L M24x210	210	280	100,0	52,2	72,5	90	90	65,5	72,5	90	90

¹⁾ 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.

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.

⁵⁾ Valid for injection mortar FIS HB. For using the glass capsule FHP II-P or FHP II-PF see approval.

⁶⁾ The given loads are valid for fixations in dry and humid concrete for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and best possible drillhole cleaning according approval.

LOADS

Highbond anchor FHB II A4

Highest permissible loads for a single anchor^{1) 5) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA - 05/0164 has to be considered.

Type	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Installation torque T_{inst} [Nm]	Cracked concrete				Non-cracked concrete			
				Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance
				$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{2)}$ [mm]	$c_{min}^{2)}$ [mm]	$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{2)}$ [mm]	$c_{min}^{2)}$ [mm]
FHB II-A L M8x60 A4	60	100	15,0	8,0	8,7	40	40	11,2	8,7	40	40
FHB II-A L M10x95 A4	95	140	20,0	15,9	13,3	40	40	16,4	13,3	40	40
FHB II-A L M12x100 A4	100	140	40,0	17,1	19,3	50	50	23,7	19,3	50	50
FHB II-A L M12x120 A4	120	170	40,0	22,5	19,3	50	50	23,7	19,3	50	50
FHB II-A L M16x125 A4	125	170	60,0	24,0	35,8	55	55	33,6	35,8	55	55
FHB II-A L M16x145 A4	145	190	60,0	29,9	35,8	60	60	42,0	35,8	60	60
FHB II-A L M16x160 A4	160	220	60,0	34,7	35,8	70	70	46,0	35,8	70	70
FHB II-A L M20x210 A4	210	280	100,0	52,2	55,9	90	90	65,5	55,9	90	90
FHB II-A L M24x210 A4	210	280	100,0	52,2	80,6	90	90	65,5	80,6	90	90

¹⁾ 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.

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.

⁵⁾ Valid for injection mortar FIS HB. For using the glass capsule FHP II-P or FHP II-PF see approval.

⁶⁾ The given loads are valid for fixations in dry and humid concrete for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and best possible drillhole cleaning according approval.

LOADS

Highbond anchor FHB II C

Highest permissible loads for a single anchor^{1) 5) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA - 05/0164 has to be considered.

Type	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Installation torque T_{inst} [Nm]	Cracked concrete				Non-cracked concrete			
				Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance
				$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{2)}$ [mm]	$c_{min}^{2)}$ [mm]	$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{2)}$ [mm]	$c_{min}^{2)}$ [mm]
FHB II-A L M8x60 C	60	100	15,0	8,0	8,7	40	40	11,2	8,7	40	40
FHB II-A L M10x95 C	95	140	20,0	15,9	13,3	40	40	16,4	13,3	40	40
FHB II-A L M12x100 C	100	140	40,0	17,1	19,3	50	50	23,7	19,3	50	50
FHB II-A L M12x120 C	120	170	40,0	22,5	19,3	50	50	23,7	19,3	50	50
FHB II-A L M16x125 C	125	170	60,0	24,0	35,8	55	55	33,6	35,8	55	55
FHB II-A L M16x145 C	145	190	60,0	29,9	35,8	60	60	42,0	35,8	60	60
FHB II-A L M16x160 C	160	220	60,0	34,7	35,8	70	70	46,0	35,8	70	70
FHB II-A L M20x210 C	210	280	100,0	52,2	55,9	90	90	65,5	55,9	90	90
FHB II-A L M24x210 C	210	280	100,0	52,2	80,6	90	90	65,5	80,6	90	90

¹⁾ 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.

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.

⁵⁾ Valid for injection mortar FIS HB. For using the glass capsule FHP II-P or FHP II-PF see approval.

⁶⁾ The given loads are valid for fixations in dry and humid concrete for temperatures in the substrate up to +50°C (resp. short term up to 80°C) and best possible drillhole cleaning according approval.