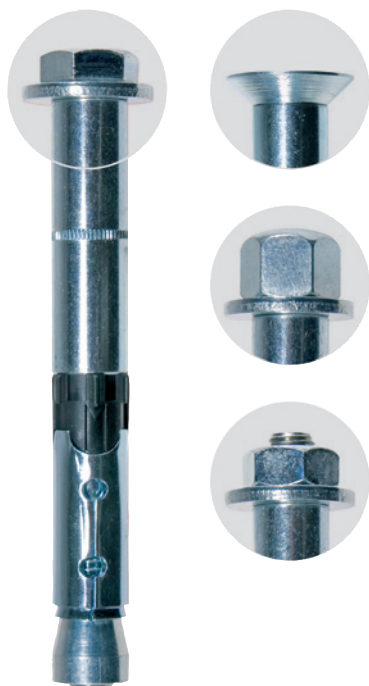


The push-through anchor for fixings with sophisticated design in cracked concrete



VERSIONS

- Zinc-plated steel
- Stainless steel

BUILDING MATERIALS

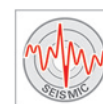
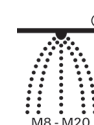
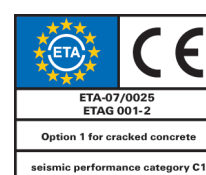
Approved for:

- 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

ASSESSMENT/APPROVAL



ADVANTAGES

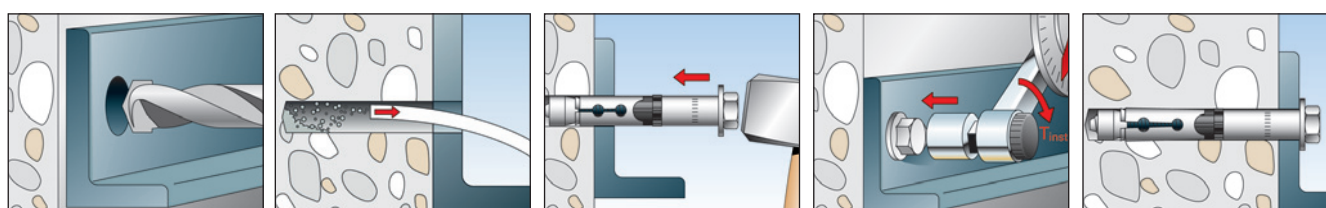
- The anchor construction allows for wide-ranging head shapes for fixing points with sophisticated design.
- The ideal interaction of screw shank and sleeve allows for a high shear load. Thus fewer fixing points are required.
- The international approvals guarantees maximum safety and the best performance. These approvals even cover use in earthquake zones (seismic).
- The optimised geometry reduces the energy required for installation.
- The assessment document also covers the use of hollow drills.

APPLICATIONS

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

FUNCTIONING

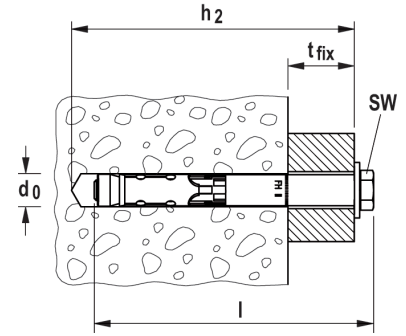
- The FH II is suitable for push-through installation.
- When applying the torque, the cone is pulled into the expansion sleeve and expands it against the drill hole wall.
- The black plastic ring prevents rotation when tightening the anchor, and acts as a crumple zone to take the torque slippage so that the fixture is pulled onto the anchor base.
- Available head shapes for flexible design solutions: Countersunk head (type SK), hexagon head (type S), bolt version with nut and washer (type B) and cap nut (type H).



TECHNICAL DATA



High performance anchor **FH II-S**
- with hexagonal head



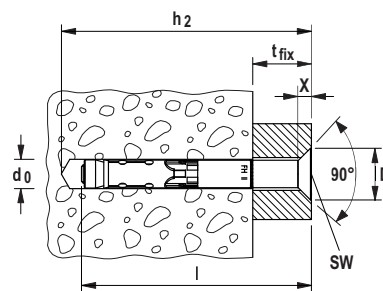
4 High performance steel anchors

Item	zinc-plated steel	stainless steel	Approval		Seismic-Approval	Drill hole diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Anchor length l [mm]	Max. fixture thickness t_{fix} [mm]	Thread M	Width across nut $\circ SW$ [mm]	Sales unit [pcs]
	Art.-No.	Art.-No.	ETA	ICC								
	gvz	A4										
FH II 10/10 S	503133	—	■	—	—	10	65	70	10	M 6	10	50
FH II 10/10 S	—	510923	■	—	—	10	65	69	10	M 6	10	50
FH II 10/25 S	503134	—	■	—	—	10	80	85	25	M 6	10	50
FH II 10/25 S	—	510924	■	—	—	10	80	84	25	M 6	10	50
FH II 10/50 S	503135	—	■	—	—	10	105	110	50	M 6	10	50
FH II 12/10 S	044884	—	■	▲	C1	12	90	90	10	M 8	13	50
FH II 12/10 S	—	510925	■	—	—	12	90	90	10	M 8	13	50
FH II 12/25 S	044885	—	■	▲	C1	12	105	105	25	M 8	13	50
FH II 12/25 S	—	510926	■	—	—	12	105	105	25	M 8	13	20
FH II 12/50 S	044886	—	■	▲	C1	12	130	130	50	M 8	13	25
FH II 15/10 S	044887	—	■	▲	C1	15	100	106	10	M 10	17	25
FH II 15/10 S	—	510927	■	—	—	15	100	107	10	M 10	17	50
FH II 15/25 S	044888	—	■	▲	C1	15	115	121	25	M 10	17	25
FH II 15/25 S	—	510928	■	—	—	15	115	122	25	M 10	17	20
FH II 15/50 S	044889	—	■	▲	C1	15	140	146	50	M 10	17	25
FH II 18/10 S	046847	—	■	▲	C1	18	115	118	10	M 12	19	20
FH II 18/25 S	044894	—	■	▲	C1	18	130	132	25	M 12	19	20
FH II 18/25 S	—	510929	■	—	—	18	130	133	25	M 12	19	10
FH II 18/50 S	044896	—	■	▲	C1	18	155	157	50	M 12	19	20
FH II 24/25 S	044898	—	■	▲	C1	24	150	160	25	M 16	24	10
FH II 24/25 S	—	502711	■	—	—	24	150	160	25	M 16	24	8
FH II 24/50 S	044900	—	■	▲	C1	24	175	185	50	M 16	24	10
FH II 28/30 S	044901	—	■	▲	C1	28	185	192	30	M 20	30	4
FH II 28/60 S	044902	—	■	▲	C1	28	215	222	60	M 20	30	4
FH II 32/30 S	044903	—	■	▲	C1	32	210	215	30	M 24	36	4
FH II 32/60 S	044904	—	■	▲	C1	32	240	245	60	M 24	36	4

TECHNICAL DATA



High performance anchor **FH II-SK** with countersunk head



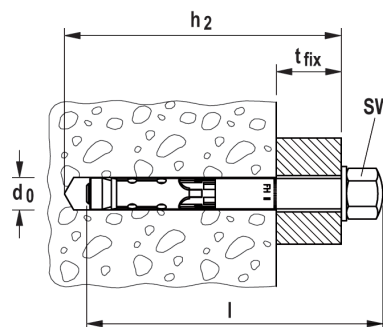
	X [mm]	ØD [mm]
FH II 10/... SK	5,0	19,5
FH II 12/... SK	5,8	22
FH II 15/... SK	5,8	25
FH II 18/... SK	8,0	32

Item	zinc-plated steel	stainless steel	Approval		Seismic-Approval	Drill hole diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Anchor length l [mm]	Max. fixture thickness t_{fix} [mm]	Thread M	Width across nut (hexagon socket) ○ SW [mm]	Sales unit [pcs]
	Art.-No.	Art.-No.	ETA	ICC								
	gvz	A4										
FH II 10/15 SK	503136	—	■	—	—	10	70	65	15	M 6	4	50
FH II 10/25 SK	503137	—	■	—	—	10	80	75	25	M 6	4	50
FH II 10/50 SK	503138	—	■	—	—	10	105	100	50	M 6	4	50
FH II 12/15 SK	044917	—	■	—	C1	12	95	90	15	M 8	5	25
FH II 12/15 SK	—	510931	■	—	—	12	95	90	15	M 8	5	25
FH II 12/25 SK	044918	—	■	—	C1	12	105	100	25	M 8	5	25
FH II 12/30 SK	—	510932	■	—	—	12	110	105	30	M 8	5	25
FH II 12/50 SK	044919	—	■	—	C1	12	130	125	50	M 8	5	25
FH II 12/50 SK	—	510933	■	—	—	12	130	125	50	M 8	6	25
FH II 15/15 SK	044920	—	■	▲	C1	15	105	100	15	M 10	6	25
FH II 15/15 SK	—	510934	■	—	—	15	105	100	15	M 10	6	25
FH II 15/25 SK	044921	—	■	▲	C1	15	115	110	25	M 10	6	25
FH II 15/50 SK	044922	—	■	▲	C1	15	140	135	50	M 10	6	25
FH II 18/15 SK	044923	—	■	▲	C1	18	120	115	15	M 12	8	20
FH II 18/25 SK	044924	—	■	▲	C1	18	130	125	25	M 12	8	20
FH II 18/30 SK	—	510935	■	—	—	18	135	130	30	M 12	8	20
FH II 18/50 SK	044925	—	■	▲	C1	18	155	150	50	M 12	8	20

TECHNICAL DATA



High performance anchor **FH II-H** with cap nut

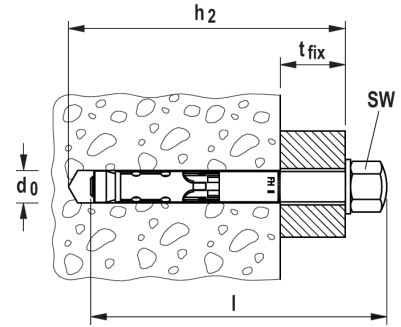


Item	zinc-plated steel	Approval		Seismic-Approval	Drill hole diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Anchor length l [mm]	Max. fixture thickness t_{fix} [mm]	Thread M	Width across nut ○ SW [mm]	Sales unit [pcs]
	Art.-No.	ETA	ICC								
	gvz										
FH II 10/10 H	503139	■	—	—	10	65	75	10	M 6	13	50
FH II 10/25 H	503140	■	—	—	10	80	90	25	M 6	13	50
FH II 10/50 H	503141	■	—	—	10	105	115	50	M 6	13	50
FH II 12/10 H	044905	■	—	C1	12	90	100	10	M 8	17	50
FH II 12/25 H	044906	■	—	C1	12	105	115	25	M 8	17	50

TECHNICAL DATA



High performance anchor **FH II-H** with cap nut

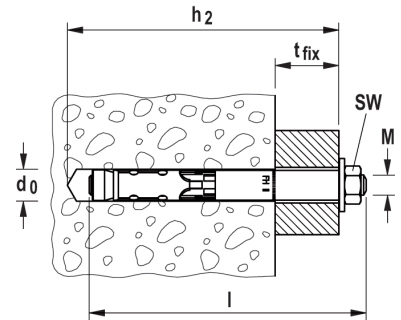


Item	zinc-plated steel	Approval		Seismic-Approval	Drill hole diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Anchor length l [mm]	Max. fixture thickness t_{fix} [mm]	Thread M	Width across nut \varnothing SW [mm]	Sales unit [pcs]
	Art.-No.	ETA	ICC								
	gvz										
FH II 12/50 H	044907	■	—	C1	12	130	140	50	M 8	17	25
FH II 15/10 H	044908	■	▲	C1	15	100	115	10	M 10	17	25
FH II 15/25 H	044909	■	▲	C1	15	115	130	25	M 10	17	25
FH II 15/50 H	044910	■	▲	C1	15	140	155	50	M 10	17	25
FH II 18/25 H	044915	■	▲	C1	18	130	145	25	M 12	19	20
FH II 18/50 H	044916	■	▲	C1	18	155	170	50	M 12	19	20

TECHNICAL DATA



High performance anchor **FH II-B** with hexagon nut and threaded bolt



Item	zinc-plated steel	Approval		Seismic-Approval	Drill hole diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Anchor length l [mm]	Max. fixture thickness t_{fix} [mm]	Thread M	Width across nut \varnothing SW [mm]	Sales unit [pcs]
	Art.-No.	ETA	ICC								
	gvz										
FH II 10/10 B	503142	■	—	—	10	65	70	10	M 6	10	50
FH II 10/25 B	503143	■	—	—	10	80	85	25	M 6	10	50
FH II 10/50 B	503144	■	—	—	10	105	110	50	M 6	10	50
FH II 12/10 B	048773	■	▲	C1	12	90	95	10	M 8	13	50
FH II 12/100 B	046832	■	▲	C1	12	180	185	100	M 8	13	25
FH II 12/25 B	048774	■	▲	C1	12	105	110	25	M 8	13	50
FH II 12/50 B	048775	■	▲	C1	12	130	135	50	M 8	13	25
FH II 15/10 B	048776	■	▲	C1	15	100	110	10	M 10	17	25
FH II 15/100 B	046835	■	▲	C1	15	190	200	100	M 10	17	20
FH II 15/25 B	048777	■	▲	C1	15	115	125	25	M 10	17	25
FH II 15/50 B	048778	■	▲	C1	15	140	150	50	M 10	17	25
FH II 18/100 B	046841	■	▲	C1	18	205	215	100	M 12	19	10
FH II 18/25 B	048779	■	▲	C1	18	130	140	25	M 12	19	20
FH II 18/50 B	048780	■	▲	C1	18	155	165	50	M 12	19	20
FH II 24/100 B	046842	■	▲	C1	24	225	242	100	M 16	24	5
FH II 24/25 B	048886	■	▲	C1	24	150	167	25	M 16	24	10
FH II 24/50 B	048887	■	▲	C1	24	175	192	50	M 16	24	10
FH II 28/30 B	047547	■	▲	C1	28	185	199	30	M 20	30	4
FH II 28/60 B	047548	■	▲	C1	28	215	229	60	M 20	30	4
FH II 32/30 B	047549	■	▲	C1	32	210	231	30	M 24	36	4
FH II 32/60 B	047550	■	▲	C1	32	240	261	60	M 24	36	4

LOADS

High performance anchor FH II - S

Highest permissible loads for a single anchor¹⁾ in concrete C20/25⁴⁾

For the design the complete approval ETA - 07/0025 has to be considered.

Type				Cracked concrete				Non-cracked concrete			
	Effective anchorage depth	Min. member thickness	Installation torque	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance
	h_{ef} [mm]	h_{min} [mm]	T_{inst} [Nm]	$N_{perm}^{3)}$ [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]
FH II 10 S	40	80	10,0	3,6	4,3	40	40	6,1	6,1	40	40
FH II 12 S	60	120	22,5	5,7	15,9	50	50	11,2	18,9	60	60
FH II 15 S	70	140	40,0	7,6	20,1	60	60	14,1	28,2	70	70
FH II 18 S	80	160	80,0	11,9	24,5	70	70	17,2	34,4	80	80
FH II 24 S	100	200	160,0	17,1	34,3	80	80	24,0	48,1	100	100
FH II 28 S	125	250	180,0	24,0	47,9	100	100	33,6	67,2	120	120
FH II 32 S	150	300	200,0	31,5	63,0	120	120	44,2	88,4	160	180

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 a 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.

LOADS

High performance anchor FH II - SK

Highest permissible loads for a single anchor¹⁾ in concrete C20/25⁴⁾

For the design the complete approval ETA - 07/0025 has to be considered.

Type				Cracked concrete				Non-cracked concrete			
	Effective anchorage depth	Min. member thickness	Installation torque	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance
	h_{ef} [mm]	h_{min} [mm]	T_{inst} [Nm]	$N_{perm}^{3)}$ [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]
FH II 10 SK	40	80	10,0	3,6	4,3	40	40	6,1	6,1	40	40
FH II 12 SK	60	120	22,5	5,7	15,9	50	50	11,2	18,9	60	60
FH II 15 SK	70	140	40,0	7,6	20,1	60	60	14,1	28,2	70	70
FH II 18 SK	80	160	80,0	11,9	24,5	70	70	17,2	34,4	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 $\gamma_L = 1,4$ are considered. As a 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.

LOADS

High performance anchor FH II - H

Highest permissible loads for a single anchor¹⁾ in concrete C20/25⁴⁾

For the design the complete approval ETA - 07/0025 has to be considered.

Type				Cracked concrete				Non-cracked concrete			
	Effective anchorage depth	Min. member thickness	Installation torque	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance
	h_{ef} [mm]	h_{min} [mm]	T_{inst} [Nm]	$N_{perm}^{3)}$ [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]
FH II 10 H	40	80	10,0	3,6	4,3	40	40	6,1	6,1	40	40
FH II 12 H	60	120	22,5	5,7	15,4	50	50	11,2	15,4	60	60
FH II 15 H	70	140	40,0	7,6	20,1	60	60	14,1	23,4	70	70
FH II 18 H	80	160	80,0	11,9	24,5	70	70	17,2	34,4	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 $\gamma_L = 1,4$ are considered. As a 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.

LOADS

High performance anchor FH II - B

Highest permissible loads for a single anchor¹⁾ in concrete C20/25⁴⁾

For the design the complete approval ETA - 07/0025 has to be considered.

Type				Cracked concrete				Non-cracked concrete			
	Effective anchorage depth	Min. member thickness	Installation torque	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance
	h_{ef} [mm]	h_{min} [mm]	T_{inst} [Nm]	$N_{perm}^{3)}$ [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]
FH II 10 B	40	80	10,0	3,6	4,3	40	40	6,1	6,1	40	40
FH II 12 B	60	120	17,5	5,7	15,4	50	50	11,2	15,4	60	60
FH II 15 B	70	140	38,0	7,6	20,1	60	60	14,1	23,4	70	70
FH II 18 B	80	160	80,0	11,9	24,5	70	70	17,2	34,4	80	80
FH II 24 B	100	200	120,0	17,1	34,3	80	80	24,0	48,1	100	100
FH II 28 B	125	250	180,0	24,0	47,9	100	100	33,6	67,2	120	120
FH II 32 B	150	300	200,0	31,5	63,0	120	120	44,2	88,4	160	180

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 a 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.

LOADS

High performance anchor FH II - S A4

Highest permissible loads for a single anchor¹⁾ in concrete C20/25⁴⁾

For the design the complete approval ETA - 07/0025 has to be considered.

Type				Cracked concrete				Non-cracked concrete			
	Effective anchorage depth	Min. member thickness	Installation torque	permissible tensile load	permissible shear load	min. spacing	min. edge distance	permissible tensile load	permissible shear load	min. spacing	min. edge distance
	h_{ef} [mm]	h_{min} [mm]	T_{inst} [Nm]	$N_{perm}^{3)}$ [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]
FH II 10 S A4	40	80	15,0	3,6	4,3	40	40	6,1	6,1	40	40
FH II 12 S A4	60	120	25,0	5,7	15,9	50	50	9,5	16,0	60	60
FH II 15 S A4	70	140	40,0	7,6	20,1	60	60	14,1	24,6	70	70
FH II 18 S A4	80	160	100,0	11,9	24,5	70	70	17,2	34,4	80	80
FH II 24 S A4	100	200	160,0	17,1	34,3	80	80	24,0	48,1	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 $\gamma_L = 1,4$ are considered. As a 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.

LOADS

High performance anchor FH II - SK A4

Highest permissible loads for a single anchor¹⁾ in concrete C20/25⁴⁾

For the design the complete approval ETA - 07/0025 has to be considered.

Type				Cracked concrete				Non-cracked concrete			
	Effective anchorage depth	Min. member thickness	Installation torque	permissible tensile load	permissible shear load	min. spacing	min. edge distance	permissible tensile load	permissible shear load	min. spacing	min. edge distance
	h_{ef} [mm]	h_{min} [mm]	T_{inst} [Nm]	$N_{perm}^{3)}$ [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]
FH II 12 SK A4	60	120	25,0	5,7	15,9	50	50	9,5	16,0	60	60
FH II 15 SK A4	70	140	40,0	7,6	20,1	60	60	14,1	24,6	70	70
FH II 18 SK A4	80	160	100,0	11,9	24,5	70	70	17,2	34,4	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 $\gamma_L = 1,4$ are considered. As a 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.

English translation prepared by DIBt

Table 2: Material FH II and FH II A4

Nb.	Designation	FH II	FH II A4
1	Hexagon screw	Steel class 8.8; DIN EN ISO 898-1 ¹⁾	Strength class 70 DIN EN ISO 3506
2	Countersunk screw	Steel class 8.8; DIN EN ISO 898-1 ¹⁾	
3	Cap nut	Steel class 8 ¹⁾	
4	Hexagon nut	Steel class 8 ¹⁾	
5	Threaded rod	Steel $f_{uk} \geq 800 \text{ N/mm}^2$; $f_{yk} \geq 640 \text{ N/mm}^2$ ¹⁾	
6	Cone nut	Steel EN 10277 ¹⁾	
7	Distance sleeve	Steel EN 10305 ¹⁾	EN 10088
8	Expansion sleeve	Steel EN 10139 / EN 10277 ¹⁾	EN 10088
9	Plastic sleeve	ABS (plastic)	
10	Washer	Steel EN 10139 ¹⁾	EN 10088
11	Conical washer	Steel EN 10277 ¹⁾	EN 10088

¹⁾ Galvanised according to EN ISO 4042, $\geq 5 \mu\text{m}$

Table 3: Installation parameters FH II and FH II A4

Anchor type FH II S, SK, B, H and FH II S, SK, B, H A4		FH II 10	FH II 12	FH II 15	FH II 18	FH II 24	FH II 28	FH II 32
Nominal drill hole Diameter	$d_o = [\text{mm}]$	10	12	15	18	24	28	32
Maximum diameter of drill bit	$d_{out} \leq [\text{mm}]$	10,45	12,50	15,50	18,50	24,55	28,55	32,70
Depth of drill hole	$h_1 \geq [\text{mm}]$	55	80	90	105	125	155	180
Diameter of clearance hole	$d_f \leq [\text{mm}]$	12	14	17	20	26	31	35
Diameter of counter sunk	FH II SK	18	22	25	32	-	-	-
Depth of counter sunk, 90°	FH II SK A4	5,0	5,8	5,8	8,0	-	-	-
Required installation torque	FH II S	10	22,5	40	80	160	180	200
	FH II B	10	17,5	38	80	120	180	200
	FH II H	10	22,5	40	80	90	-	-
	FH II SK	10	22,5	40	80	-	-	-
	FH II S, B, H A4	15	25	40	100	160	-	-
	FH II SK A4	10	25	40	100	-	-	-

fischer High-Performance Anchor FH II, FH II-I

Materials / Installation instruction FH II and FH II A4

Annex 4