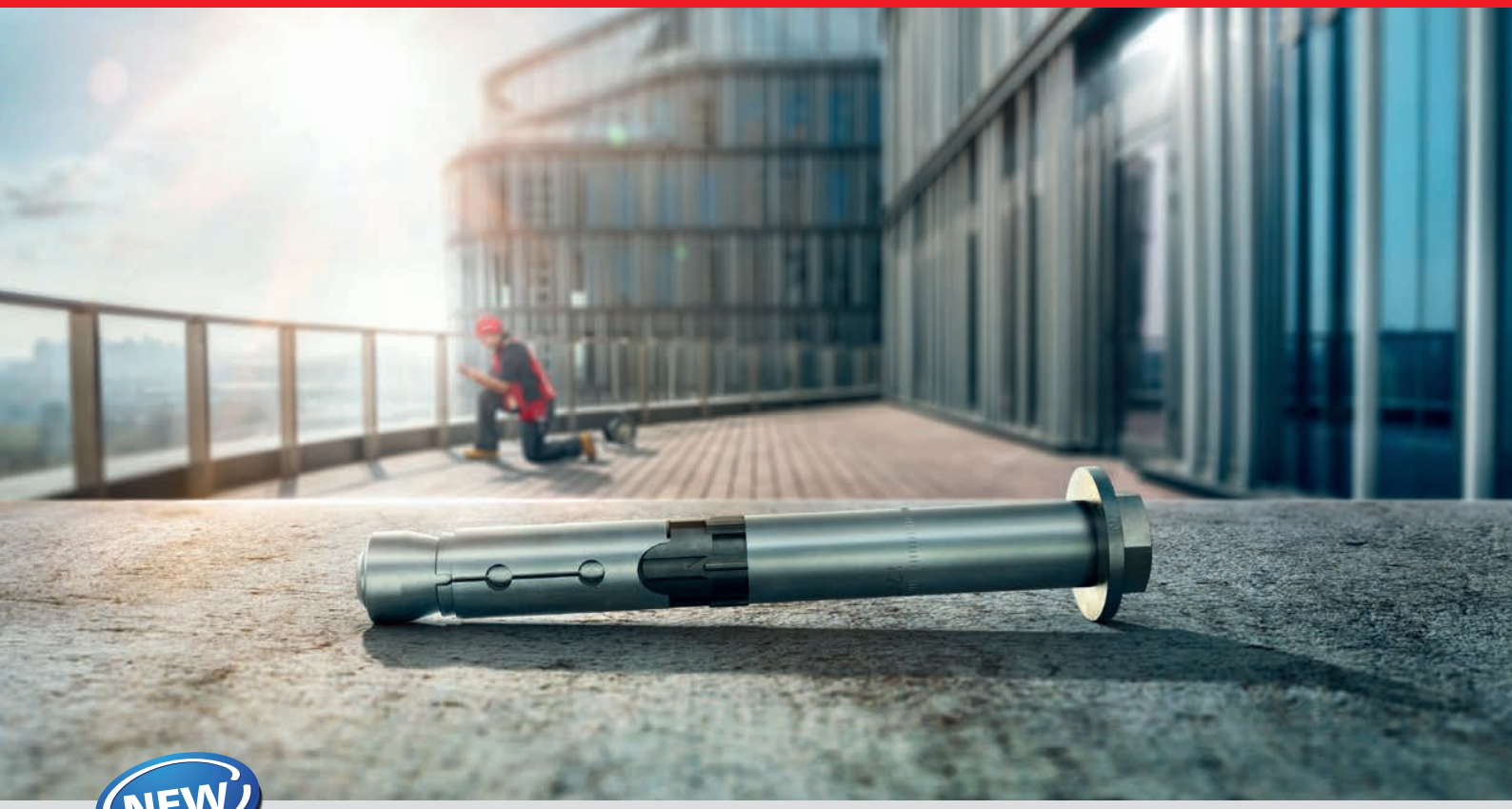


NEW

fischer High performance anchor FH II

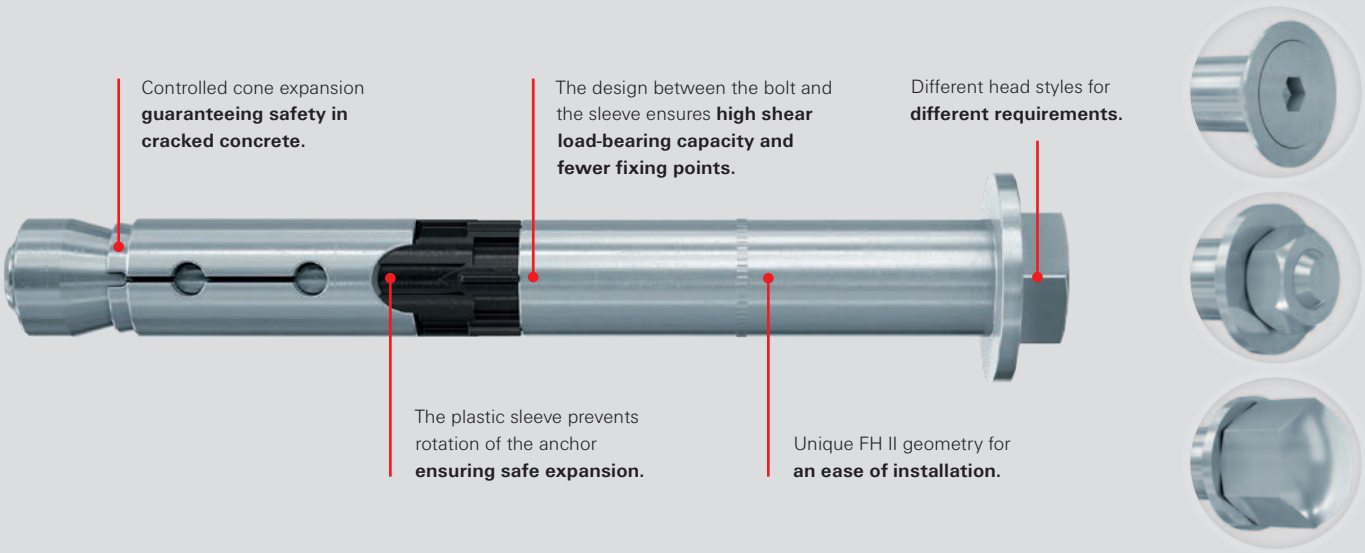
Strong, secure and aesthetic anchoring

fischer

innovative solutions

fischer High performance anchor FH II

Strong, secure and aesthetic anchoring



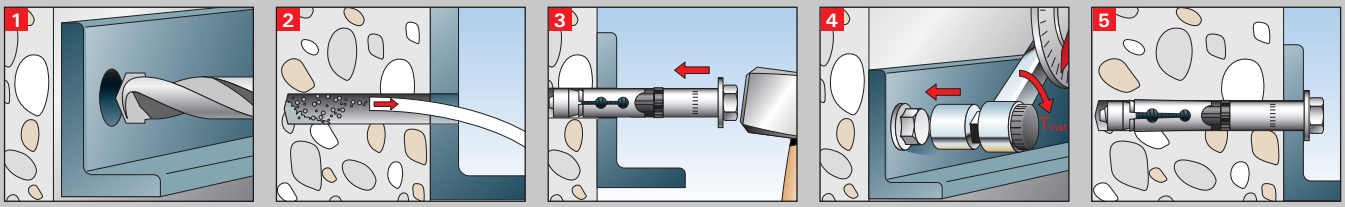
Functionality

- The FH II is suitable for push-through installation.
- When the torque is applied, the cone is pulled into the expansion sleeve which is forced 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 substrate.
- Alternative head designs for flexible design solutions: Hexagon head (type S), countersunk head (type SK), bolt version with nut and washer (type B) and cap nut (type H).

Your advantages at a glance

- The international approvals guarantee maximum safety and the best performance. The European Technical Assessment even cover use in earthquake zones (seismic C1 and C2).
- The anchor is designed with different head styles for fixing points with aesthetic design.
- The design between the bolt and the sleeve ensures high shear load-bearing capacity. Thus, fewer fixing points are required.
- The unique geometry minimises the energy required for installation and thus allows for fast installation.
- The use of hollow drills is included in the approval.

Installation



Approvals

ETA-07/0025
ETAG 001-2
Option 1 for cracked concrete
Seismic performance category C1, C2

Fire resistance classification
R 120
Anchor types see test report

ICC ES ESR-2691
See ICC-ES Evaluation Report at www.ic-es.org
Inspection agency: AA-707

M8 – M12

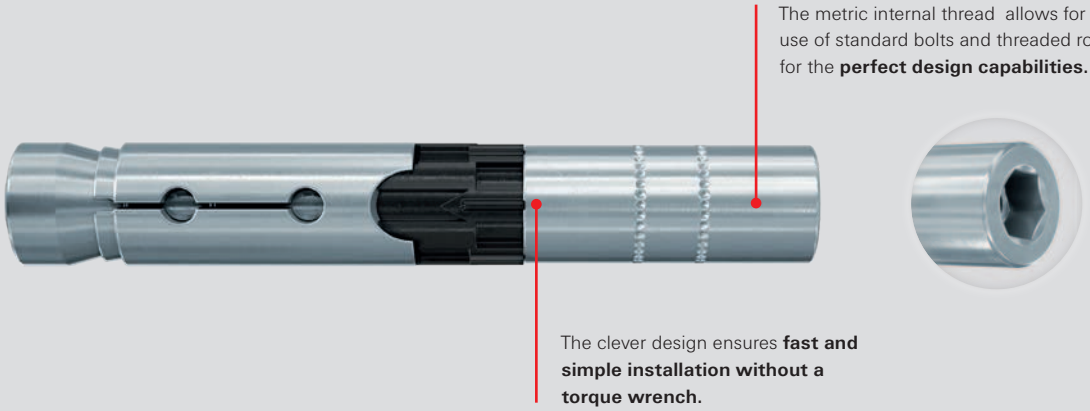
FM APPROVED from M10

EDELSTAHL Rostfrei

SEISMIC C2

fischer High performance anchor FH II-I

The intelligent internally threaded anchor for easy installation in cracked concrete



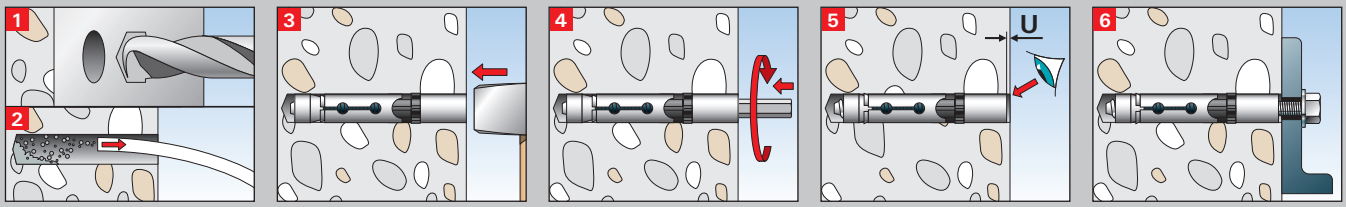
Functionality

- The FH II-I is suitable for pre-positioned installation.
- When a hexagon wrench is used for installation, the internal thread bolt starts to rotate. This pulls the cone into the expansion sleeve and expands it against the drill-hole wall. At the same time, the anchor is tightened through compression of the black plastic ring. A gap U to the concrete surface is created (see image 5).
- The anchor is set in accordance with the approval if the recess is U=3-5 mm.
- Alternatively, an installation torque T_{inst}, can also be used.

Your advantages at a glance

- The FH II-I enables fast, controlled expansion with the hexagonal key provided.
- The visual setting check enables an approval-compliant setting process, without a torque wrench.
- The FH II-I enables the flush-mounted removal of the attachment and the reuse of any undamaged fixing points – it ensures flexibility.
- Furthermore, the FH II-I offers all the benefits of the FH II.

Installation



Approvals

ETA-07/0025
ETAG 001-2
Option 1 for cracked concrete

Fire resistance classification
R 120
Anchor types see test report

M8 – M12

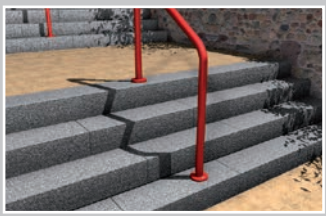
EDELSTAHL® Rostfrei

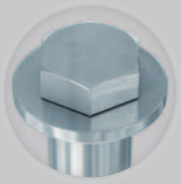
Applications and building materials

FH II: The through bolt for fixings with different requirements

Metal construction

Banister

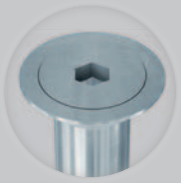




Hexagon head (Type S)

- The low profile of the screw head ensures for a discreet fixing.

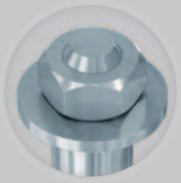
Steel consoles



Countersunk head (Type SK)

- The countersunk finished screw head allows for flush-mounted fixing.

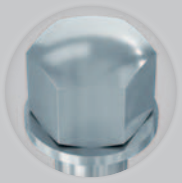
Railing



Bolt version with nut and washers (Type B)

- The practical fixing using washers and nuts allows for the ultimate removal of the attachment if required later.

Structural steelwork



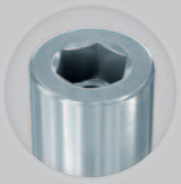
Cap nut (Type H)

- The protruding head for stable and robust fixings.

FH II-I: The internal threaded anchor for optimum flexibility

Sanitary / Radiator

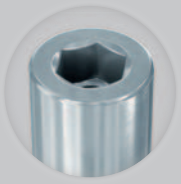
Ventilation duct



Internal thread (Type I)

- The internal threaded anchor allows the removal of the attachment and the fixing point can be reused.

Sprinkler systems

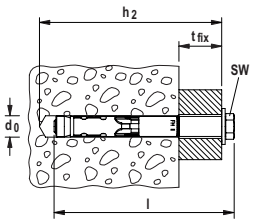


Internal thread (Type I)

- The internal threaded anchor allows the removal of the attachment and the fixing point can be reused.

Building materials

Product range

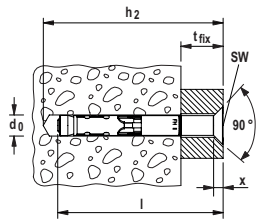


High performance anchor FH II-S (Hexagon head)

Item	Art.-No. Steel, zinc-plated gvz	Art.-No. Stainless steel A4	Approval ETA	Approval ICC	Seismic C1/C2	Drill diameter d_0 [mm]	Min. drill hole depth for push-through installation h_2 [mm]	Anchor length l [mm]	Maximum usable length t_{fix} [mm]	Thread [M]	Width across nut [SW]	Sales unit [pcs]
FH II 10/10 S	**503133**	**510923**	■	–	–	10	65	70	10	M6	10	50
FH II 10/25 S	**503134**	**510924**	■	–	–	10	80	85	25	M6	10	50
FH II 10/50 S	**503135**	**–**	■	–	–	10	105	110	50	M6	10	50
FH II 12/10 S	**044884**	**510925** [1)]	■	▲	C1/C2	12	90	90	10	M8	13	50
FH II 12/25 S	**044885**	**510926** [1)]	■	▲	C1/C2	12	105	105	25	M8	13	50
FH II 12/50 S	**044886**	**–**	■	▲	C1/C2	12	130	130	50	M8	13	25
FH II 15/10 S	**044887**	**510927** [1)]	■	▲	C1/C2	15	100	106	10	M10	17	25
FH II 15/25 S	**044888**	**510928** [1)]	■	▲	C1/C2	15	115	121	26	M10	17	25
FH II 15/50 S	**044889**	**–**	■	▲	C1/C2	15	140	146	50	M10	17	25
FH II 18/10 S	**046847**	**–**	■	▲	C1/C2	18	115	118	10	M12	19	20
FH II 18/25 S	**044894**	**510929** [1)]	■	▲	C1/C2	18	130	132	25	M12	19	20
FH II 18/50 S	**044896**	**–**	■	▲	C1/C2	18	155	157	50	M12	19	20
FH II 24/25 S	**044898**	**502711** [1)]	■	▲	C1/C2	24	150	160	25	M16	24	10
FH II 24/50 S	**044900**	**–**	■	▲	C1/C2	24	175	185	50	M16	24	10
FH II 28/30 S	**044901**	**–**	■	▲	C1/C2	28	185	192	30	M20	30	4
FH II 28/60 S	**044902**	**–**	■	▲	C1/C2	28	215	222	60	M20	30	4
FH II 32/30 S	**044903**	**–**	■	▲	C1/C2	32	210	215	30	M24	36	4
FH II 32/60 S	**044904**	**–**	■	▲	C1/C2	32	240	245	60	M24	36	4

1) ICC approval not for A4

Product range

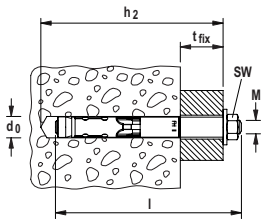


High performance anchor FH II-SK (Countersunk head)

Item	Art.-No. Steel, zinc-plated gvz	Art.-No. Stainless steel A4	Approval ETA	Approval ICC	Approval Seismic C1/C2	Drill diameter d_0 [mm]	Min. drill hole depth for push-through installation h_2 [mm]	Anchor length l [mm]	Maximum usable length t_{fix} [mm]	Thread [M]	Width across nut (hexagon socket) [SW]	Diameter Countersunk head D [mm]	Depth of counter-sink x [mm]	Sales unit [pcs]
FH II 10/15 SK	**503136**	–	■	–	–	10	70	65	15	M6	4	18	5	50
FH II 10/25 SK	**503137**	–	■	–	–	10	80	75	25	M6	4	18	5	50
FH II 10/50 SK	**503138**	–	■	–	–	10	105	100	50	M6	4	18	5	50
FH II 12/15 SK	**044917**	**510931** [1)]	■	–	C1/C2	12	95	90	15	M8	5	22	5,8	25
FH II 12/25 SK	**044918**	–	■	–	C1/C2	12	105	100	25	M8	5	22	5,8	25
FH II 12/30 SK	–	**510932** [1)]	■	–	C1/C2	12	110	105	30	M8	5	22	5,8	25
FH II 12/50 SK	**044919**	**510933** [1)]	■	–	C1/C2	12	130	125	50	M8	5	22	5,8	25
FH II 15/15 SK	**044920**	**510934** [1)]	■	▲	C1/C2	15	105	100	15	M10	6	25	5,8	25
FH II 15/25 SK	**044921**	–	■	▲	C1/C2	15	115	110	25	M10	6	25	5,8	25
FH II 15/50 SK	**044922**	–	■	▲	C1/C2	15	140	135	50	M10	6	25	5,8	25
FH II 18/15 SK	**044923**	–	■	▲	C1/C2	18	120	115	15	M12	8	32	8	20
FH II 18/25 SK	**044924**	–	■	▲	C1/C2	18	130	125	25	M12	8	32	8	20
FH II 18/30 SK	–	**510935** [1)]	■	–	C1/C2	18	135	130	30	M12	8	25	8	20
FH II 18/50 SK	**044925**	–	■	▲	C1/C2	18	155	150	50	M12	8	32	8	20

1) ICC approval not for A4

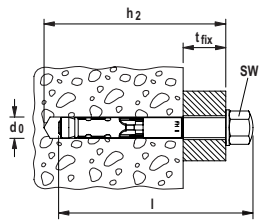
Product range



High performance anchor FH II-B (Bolt version with nut and washers)

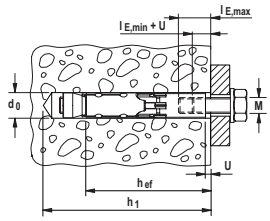
Item	Art.-No. Steel, zinc-plated gvz	Approval ETA	Approval ICC	Approval Seismic C1/C2	Drill diameter d_0 [mm]	Min. drill hole depth for push-through installation h_2 [mm]	Anchor length l [mm]	Maximum usable length t_{fix} [mm]	Thread [M]	Width across nut [SW]	Sales unit [pcs]
FH II 10/10 B	**503142**	■	–	–	10	65	70	10	M6	10	50
FH II 10/25 B	**503143**	■	–	–	10	80	85	25	M6	10	50
FH II 10/50 B	**503144**	■	–	–	10	105	110	50	M6	10	50
FH II 12/10 B	**048773**	■	▲	C1/C2	12	90	95	10	M8	13	50
FH II 12/25 B	**048774**	■	▲	C1/C2	12	105	110	25	M8	13	50
FH II 12/50 B	**048775**	■	▲	C1/C2	12	130	135	50	M8	13	25
FH II 12/100 B	**046832**	■	▲	C1/C2	12	180	185	100	M8	13	25
FH II 15/10 B	**048776**	■	▲	C1/C2	15	100	110	10	M10	17	25
FH II 15/25 B	**048777**	■	▲	C1/C2	15	115	125	25	M10	17	25
FH II 15/50 B	**048778**	■	▲	C1/C2	15	140	150	50	M10	17	25
FH II 15/100 B	**046835**	■	▲	C1/C2	15	190	200	100	M10	17	20
FH II 18/25 B	**048779**	■	▲	C1/C2	18	130	140	25	M12	19	20
FH II 18/50 B	**048780**	■	▲	C1/C2	18	155	165	50	M12	19	20
FH II 18/100 B	**046841**	■	▲	C1/C2	18	205	215	100	M12	19	10
FH II 24/25 B	**048886**	■	▲	C1/C2	24	150	167	25	M16	24	10
FH II 24/50 B	**048887**	■	▲	C1/C2	24	175	192	50	M16	24	10
FH II 24/100 B	**046842**	■	▲	C1/C2	24	225	242	100	M16	24	5
FH II 28/30 B	**047547**	■	▲	C1/C2	28	185	198	30	M20	30	4
FH II 28/60 B	**047548**	■	▲	C1/C2	28	215	228	60	M20	30	4
FH II 28/100 B	**506630**	■	▲	C1/C2	28	255	268	100	M20	30	4
FH II 32/30 B	**047549**	■	▲	C1/C2	32	210	231	30	M24	36	4
FH II 32/60 B	**047550**	■	▲	C1/C2	32	240	261	60	M24	36	4

Product range



High performance anchor FH II-H (Cap nut)

Item	Art.-No. Steel, zinc-plated gvz	Approval ETA	Approval ICC	Seismic C1/C2	Drill diameter d_0 [mm]	Min. drill hole depth for push-through installation h_2 [mm]	Anchor length l [mm]	Maximum usable length t_{fix} [mm]	Thread [M]	Width across nut [SW]	Sales unit [pcs]
FH II 10/10 H	**503139**	■	–	–	10	65	75	10	M6	13	50
FH II 10/25 H	**503140**	■	–	–	10	80	90	25	M6	13	50
FH II 10/50 H	**503141**	■	–	–	10	105	115	50	M6	13	50
FH II 12/10 H	**044905**	■	–	C1/C2	12	90	100	10	M8	17	50
FH II 12/25 H	**044906**	■	–	C1/C2	12	105	115	25	M8	17	50
FH II 12/50 H	**044907**	■	–	C1/C2	12	130	140	50	M8	17	25
FH II 15/10 H	**044908**	■	▲	C1/C2	15	100	115	10	M10	17	25
FH II 15/25 H	**044909**	■	▲	C1/C2	15	115	130	25	M10	17	25
FH II 15/50 H	**044910**	■	▲	C1/C2	15	140	155	50	M10	17	25
FH II 18/25 H	**044915**	■	▲	C1/C2	18	130	145	25	M12	19	20
FH II 18/50 H	**044916**	■	▲	C1/C2	18	155	170	50	M12	19	20



High performance anchor FH II-I (Internal thread) Incl. hexagon key in every packaging

Item	Art.-No. Steel, zinc-plated gvz	Art.-No. Stainless steel A4	Approval ETA	Approval ICC	Drill diameter d_0 [mm]	Min. drill hole depth for pre-positioned installation h_1 [mm]	Anchor length l [mm]	Gap u [mm]	Min. bolt penetration $l_{E,min}$ [mm]	Max. bolt penetration $l_{E,min}$ [mm]	Thread [M]	Torquemo-ment T_{inst} [NM]	Drive [SW]	Sales unit [pcs]
FH II 12/M6 I	**520358**	**520360**	■	–	12	85	77,5	3-5	11 + U	25	M6	15	6	25
FH II 12/M8 I	**520359**	**520361**	■	–	12	85	77,5	3-5	13 + U	25	M8	15	8	25
FH II 15/M10 I	**519014**	**519018**	■	–	15	95	90	3-5	10 + U	25	M10	25	6	25
FH II 15/M12 I	**519015**	**519019**	■	–	15	95	90	3-5	12 + U	25	M12	25	8	20

Loads

High performance anchor FH II-S
zinc plated steel / stainless steel A4

Permissible loads of a single anchor in cracked normal concrete (concrete tension zone) of strength class C20/25 (~B25) [1) 2) 3) 8)]										Minimum spacings while reducing the load	
Item	Material fixing element	Minimum member thickness h_{min} [mm]	Effective anchorage depth h_{ef} [mm]	Installation torque T_{inst} [Nm]	Permissible tensile load N_{perm} [5)] [kN]	Permissible shear load V_{perm} [5)] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for Max. Last s_{cr} [mm]	Min. spacing s_{min} [6)] [mm]	Min. edge distance c_{min} [6)] [mm]
FH II 10 S	gvz	80	40	10	3,6	4,3	50	105	120	40	40
	A4			15							
FH II 12 S	gvz	120	60	22,5	5,7	15,9	60	320	180	50	50
	A4			25							
FH II 15 S	gvz	140	70	40	7,6	20,1	75	365	210	60	60
	A4										
FH II 18 S	gvz	160	80	80	11,9	24,5	120	410	240	70	70
	A4			100							
FH II 24 S	gvz	200	100	160	17,1	34,3	150	495	300	80	80
	A4										
FH II 28 S [4)]	gvz	250	125	180	24,0	47,9	190	610	375	100	100
FH II 32 S [4)]	gvz	300	150	200	31,5	63,0	225	720	450	120	120

For the design the complete assessment ETA-07/0025 has to be considered. [7)]

1) The partial safety factors for material resistance as regulated in the ETA-07/0025 as well as a partial safety factor for load actions of γL = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing s ≥ 3·hef and an edge distance c ≥ 1,5·hef. Accurate data see ETA-07/0025.
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) Drill method hollow drilling is not permitted for this size.
5) For combinations of tensile loads and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.
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-07/0025.
7) The given loads refer to the European Technical Assessment ETA-07/0025, issue date 28.08.2018. Design of the loads according to FprEN 1992-4:2016 and EOTA Technical Report TR 055 (for static resp. quasi-static loads).
8) A reinforcement in the concrete to prevent splitting is required. The width of the cracks has to be limited under consideration of the splitting forces at wk ~ 0.3mm.

High performance anchor FH II-SK
zinc plated steel / stainless steel A4

Permissible loads of a single anchor in cracked normal concrete (concrete tension zone) of strength class C20/25 (~B25) [1) 2) 3) 8)]										Minimum spacings while reducing the load	
Item	Material fixing element	Minimum member thickness h_{min} [mm]	Effective anchorage depth h_{ef} [mm]	Installation torque T_{inst} [Nm]	Permissible tensile load N_{perm} [5)] [kN]	Permissible shear load V_{perm} [5)] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for Max. Last s_{cr} [mm]	Min. spacing s_{min} [6)] [mm]	Min. edge distance c_{min} [6)] [mm]
FH II 10 SK [4)]	gvz	80	40	10	3,6	4,3	50	105	120	40	40
FH II 12 SK	gvz	120	60	22,5	5,7	15,9	60	320	180	50	50
	A4										
FH II 15 SK	gvz	140	70	40	7,6	20,1	75	365	210	60	60
	A4										
FH II 18 SK	gvz	160	80	80	11,9	24,5	120	410	240	70	70
	A4			100							

For the design the complete assessment ETA-07/0025 has to be considered. [7)]

1) The partial safety factors for material resistance as regulated in the ETA-07/0025 as well as a partial safety factor for load actions of γL = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing s ≥ 3·hef and an edge distance c ≥ 1,5·hef. Accurate data see ETA-07/0025.
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) Drill method hollow drilling is not permitted for this size.
5) For combinations of tensile loads and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.
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-07/0025.
7) The given loads refer to the European Technical Assessment ETA-07/0025, issue date 28.08.2018. Design of the loads according to FprEN 1992-4:2016 and EOTA Technical Report TR 055 (for static resp. quasi-static loads).
8) A reinforcement in the concrete to prevent splitting is required. The width of the cracks has to be limited under consideration of the splitting forces at wk ~ 0.3mm.

Loads

High performance anchor FH II-H
zinc plated steel

Permissible loads of a single anchor in cracked normal concrete (concrete tension zone) of strength class C20/25 (~B25) [1) 2) 3) 7)]										Minimum spacings while reducing the load	
Item	Material fixing element	Minimum 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	Max. shear load	Max. Last		
		h_{min}	h_{ef}	T_{inst}	N_{perm} [4)]	V_{perm} [4)]	c	c	s_{cr}	s_{min} [5)]	c_{min} [5)]
		[mm]	[mm]	[Nm]	[kN]	[kN]	[mm]	[mm]	[mm]	[mm]	[mm]
FH II 10 H	gvz	80	40	10	3,6	4,3	50	105	120	40	40
FH II 12 H	gvz	120	60	22,5	5,7	15,5	60	315	180	50	50
FH II 15 H	gvz	140	70	40	7,6	20,1	75	365	210	60	60
FH II 18 H	gvz	160	80	80	11,9	24,5	120	410	240	70	70

For the design the complete assessment ETA-07/0025 has to be considered. [6)]

1) The partial safety factors for material resistance as regulated in the ETA-07/0025 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 ≥ 3·hef and an edge distance c ≥ 1,5·hef. Accurate data see ETA-07/0025.
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 and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.
5) 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-07/0025.
6) The given loads refer to the European Technical Assessment ETA-07/0025, issue date 28.08.2018. Design of the loads according to FprEN 1992-4:2016 and EOTA Technical Report TR 055 (for static resp. quasi-static loads).
7) A reinforcement in the concrete to prevent splitting is required. The width of the cracks has to be limited under consideration of the splitting forces at wk ~ 0.3mm.

High performance anchor FH II-B
zinc plated steel

Permissible loads of a single anchor in cracked normal concrete (concrete tension zone) of strength class C20/25 (~B25) [1) 2) 3) 8)]										Minimum spacings while reducing the load	
Item	Material fixing element	Minimum 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	Max. shear load	Max. Last		
		h_{min}	h_{ef}	T_{inst}	N_{perm} [5)]	V_{perm} [5)]	c	c	s_{cr}	s_{min} [6)]	c_{min} [6)]
		[mm]	[mm]	[Nm]	[kN]	[kN]	[mm]	[mm]	[mm]	[mm]	[mm]
FH II 10 B	gvz	80	40	10	3,6	4,3	50	105	120	40	40
FH II 12 B	gvz	120	60	17,5	5,7	15,5	60	315	180	50	50
FH II 15 B	gvz	140	70	38	7,6	20,1	75	365	210	60	60
FH II 18 B	gvz	160	80	80	11,9	24,5	120	410	240	70	70
FH II 24 B	gvz	200	100	120	17,1	34,3	150	495	300	80	80
FH II 28 B [4)]	gvz	250	125	180	24,0	47,9	190	610	375	100	100
FH II 32 B [4)]	gvz	300	150	200	31,5	63,0	225	720	450	120	120

For the design the complete assessment ETA-07/0025 has to be considered. [7)]

1) The partial safety factors for material resistance as regulated in the ETA-07/0025 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 ≥ 3·hef and an edge distance c ≥ 1,5·hef. Accurate data see ETA-07/0025.
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) Drill method hollow drilling is not permitted for this size.
5) For combinations of tensile loads and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.
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-07/0025.
7) The given loads refer to the European Technical Assessment ETA-07/0025, issue date 28.08.2018. Design of the loads according to FprEN 1992-4:2016 and EOTA Technical Report TR 055 (for static resp. quasi-static loads).
8) A reinforcement in the concrete to prevent splitting is required. The width of the cracks has to be limited under consideration of the splitting forces at wk ~ 0.3mm.

Loads

High performance anchor FH II-S
zinc plated steel / stainless steel A4

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	
Item	Material fixing element	Minimum member thickness h_{min} [mm]	Effective anchorage depth h_{ef} [mm]	Installation torque T_{inst} [Nm]	Permissible tensile load N_{perm} [5)] [kN]	Permissible shear load V_{perm} [5)] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for Max. Last s_{cr} [mm]	Min. spacing s_{min} [6)] [mm]	Min. edge distance c_{min} [6)] [mm]
FH II 10 S	gvz	80	40	10	6,1	6,1	95	100	120	40	40
	A4			15							
FH II 12 S	gvz	120	60	22,5	11,2	18,9	150	265	180	60	60
	A4			25	9,5	17,7	125	245			
FH II 15 S	gvz	140	70	40	14,1	28,2	160	365	210	70	70
	A4										
FH II 18 S	gvz	160	80	80	17,2	34,4	170	405	240	80	80
	A4			100							
FH II 24 S	gvz	200	100	160	24,0	48,1	190	495	300	100	100
	A4										
FH II 28 S [4)]	gvz	250	125	180	33,6	67,2	240	605	375	120	120
FH II 32 S [4)]	gvz	300	150	200	44,2	88,4	285	715	450	160	160

For the design the complete assessment ETA-07/0025 has to be considered. [7)]

1) The partial safety factors for material resistance as regulated in the ETA-07/0025 as well as a partial safety factor for load actions of γL = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing s ≥ 3·hef and an edge distance c ≥ 1,5·hef. Accurate data see ETA-07/0025.
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) Drill method hollow drilling is not permitted for this size.
5) For combinations of tensile loads and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.
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-07/0025.
7) The given loads refer to the European Technical Assessment ETA-07/0025, issue date 28.08.2018. Design of the loads according to FprEN 1992-4:2016 and EOTA Technical Report TR 055 (for static resp. quasi-static loads).

High performance anchor FH II-SK
zinc plated steel / stainless steel A4

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	
Item	Material fixing element	Minimum member thickness h_{min} [mm]	Effective anchorage depth h_{ef} [mm]	Installation torque T_{inst} [Nm]	Permissible tensile load N_{perm} [5)] [kN]	Permissible shear load V_{perm} [5)] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for Max. Last s_{cr} [mm]	Min. spacing s_{min} [6)] [mm]	Min. edge distance c_{min} [6)] [mm]
FH II 10 SK [4)]	gvz	80	40	10	6,1	6,1	95	100	120	40	40
FH II 12 SK	gvz	120	60	22,5	11,2	18,9	150	265	180	60	60
	A4										
FH II 15 SK	gvz	140	70	40	14,1	28,2	160	365	210	70	70
	A4										
FH II 18 SK	gvz	160	80	80	17,2	34,4	170	405	240	80	80
	A4			100							

For the design the complete assessment ETA-07/0025 has to be considered. [7)]

1) The partial safety factors for material resistance as regulated in the ETA-07/0025 as well as a partial safety factor for load actions of γL = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing s ≥ 3·hef and an edge distance c ≥ 1,5·hef. Accurate data see ETA-07/0025.
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) Drill method hollow drilling is not permitted for this size.
5) For combinations of tensile loads and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.
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-07/0025.
7) The given loads refer to the European Technical Assessment ETA-07/0025, issue date 28.08.2018. Design of the loads according to FprEN 1992-4:2016 and EOTA Technical Report TR 055 (for static resp. quasi-static loads).

Loads

High performance anchor FH II-H
zinc plated 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	
Item	Material fixing element	Minimum member thickness h_{min} [mm]	Effective anchorage depth h_{ef} [mm]	Installation torque T_{inst} [Nm]	Permissible tensile load N_{perm} [4)] [kN]	Permissible shear load V_{perm} [4)] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for: Max. Last s_{cr} [mm]	Min. spacing s_{min} [5)] [mm]	Min. edge distance c_{min} [5)] [mm]
FH II 10 H	gvz	80	40	10	6,1	6,1	95	100	120	40	40
FH II 12 H	gvz	120	60	22,5	11,2	15,5	150	215	180	60	60
FH II 15 H	gvz	140	70	40	14,1	24,5	160	310	210	70	70
FH II 18 H	gvz	160	80	80	17,2	34,4	170	405	240	80	80

For the design the complete assessment ETA-07/0025 has to be considered. 6)

1) The partial safety factors for material resistance as regulated in the ETA-07/0025 as well as a partial safety factor for load actions of γL = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing s ≥ 3·hef and an edge distance c ≥ 1,5·hef. Accurate data see ETA-07/0025.
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 and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.
5) 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-07/0025.
6) The given loads refer to the European Technical Assessment ETA-07/0025, issue date 28.08.2018. Design of the loads according to FprEN 1992-4:2016 and EOTA Technical Report TR 055 (for static resp. quasi-static loads).

High performance anchor FH II-B
zinc plated 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	
Item	Material fixing element	Minimum member thickness h_{min} [mm]	Effective anchorage depth h_{ef} [mm]	Installation torque T_{inst} [Nm]	Permissible tensile load N_{perm} [5)] [kN]	Permissible shear load V_{perm} [5)] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for: Max. Last s_{cr} [mm]	Min. spacing s_{min} [6)] [mm]	Min. edge distance c_{min} [6)] [mm]
FH II 10 B	gvz	80	40	10	6,1	6,1	95	100	120	40	40
FH II 12 B	gvz	120	60	17,5	11,2	15,5	150	215	180	60	60
FH II 15 B	gvz	140	70	38	14,1	24,5	160	310	210	70	70
FH II 18 B	gvz	160	80	80	17,2	34,4	170	405	240	80	80
FH II 24 B	gvz	200	100	120	24,0	48,1	190	495	300	100	100
FH II 28 B [4)]	gvz	250	125	180	33,6	67,2	240	605	375	120	120
FH II 32 B [4)]	gvz	300	150	200	44,2	88,4	285	715	450	160	180

For the design the complete assessment ETA-07/0025 has to be considered. 7)

1) The partial safety factors for material resistance as regulated in the ETA-07/0025 as well as a partial safety factor for load actions of γL = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing s ≥ 3·hef and an edge distance c ≥ 1,5·hef. Accurate data see ETA-07/0025.
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) Drill method hollow drilling is not permitted for this size.
5) For combinations of tensile loads and shear loads or for shear loads with lever arm (bending moments) as well as reduced edge distances or spacings (anchor groups) we recommend to use our anchor design software C-FIX.
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-07/0025.
7) The given loads refer to the European Technical Assessment ETA-07/0025, issue date 28.08.2018. Design of the loads according to FprEN 1992-4:2016 and EOTA Technical Report TR 055 (for static resp. quasi-static loads).

* FOLDOUT *

Loads

* FOLDOUT *

High performance anchor with internal thread FH II-I
zinc plated steel / stainless steel A4

Permissible loads of a single anchor in cracked normal concrete (concrete tension zone) of strength class C20/25 (~B25) [1) 2) 3) 6)]										Minimum spacings while reducing the load	
Item	Screw material resp. screw surface	Minimum member thickness h_{min} [mm]	Effective anchorage depth h_{ef} [mm]	Installation torque T_{inst} [Nm]	Permissible tensile load N_{perm} [4)] [kN]	Permissible shear load V_{perm} [4)] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for Max. Last s_{cr} [mm]	Min. spacing s_{min} [mm]	Min. edge distance c_{min} [mm]
FH II 12/M 6 I	5.8	130	60	15	4,3	2,9	55	55	180	50	50
	8.8					4,6		80			
	A4-70					3,2		60			
FH II 12/M 8 I	5.8	130	60	15	4,3	5,1	55	90	180	50	50
	8.8					8,0		145			
	A4-70					6,0		105			
FH II 12/M 10 I	5.8	150	70	25	5,7	8,6	65	135	210	60	60
	8.8					13,1		220			
	A4-70					9,2		145			
FH II 12/M 12 I	5.8	150	70	25	5,7	12,0	65	200	210	60	60
	8.8										
	A4-70					13,7		230			

For the design the complete assessment ETA-07/0025 has to be considered. [5)]

1) The partial safety factors for material resistance as regulated in the ETA-07/0025 as well as a partial safety factor for load actions of γL = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing s ≥ 3·hef and an edge distance c ≥ 1,5·hef. Accurate data see ETA-07/0025.
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-07/0025.
5) The given loads refer to the European Technical Assessment ETA-07/0025, issue date 09/12/2016. Design of the loads according ETAG 001, Annex C, Method A (for static resp. quasi-static loads).
6) A reinforcement in the concrete to prevent splitting is required. The width of the cracks has to be limited under consideration of the splitting forces at wk ~ 0.3mm begrenzt.

High performance anchor with internal thread FH II-I
zinc plated steel / stainless steel A4

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	
Item	Screw material resp. screw surface	Minimum member thickness h_{min} [mm]	Effective anchorage depth h_{ef} [mm]	Installation torque T_{inst} [Nm]	Permissible tensile load N_{perm} [4)] [kN]	Permissible shear load V_{perm} [4)] [kN]	Required edge distance (with one edge) for: Max. tension load c [mm]	Required edge distance (with one edge) for: Max. shear load c [mm]	Required spacing for Max. Last s_{cr} [mm]	Min. spacing s_{min} [mm]	Min. edge distance c_{min} [mm]
FH II 12/M 6 I	5.8	130	60	15	4,8	2,9	60	60	180	60	60
	8.8				7,6	4,6	85				
	A4-70				5,3	3,2	60				
FH II 12/M 8 I	5.8	130	60	15	9,0	5,1	115	65	180	60	60
	8.8					8,0	125	100			
	A4-70				9,5	6,0		75			
FH II 12/M 10 I	5.8	150	70	25	13,8	8,6	160	95	210	70	70
	8.8					13,1		150			
	A4-70				14,1	9,2		100			
FH II 12/M 12 I	5.8	150	70	25	14,1	12,0	160	135	210	70	70
	8.8										
	A4-70					13,7		155			

For the design the complete assessment ETA-07/0025 has to be considered. [5)]

1) The partial safety factors for material resistance as regulated in the ETA-07/0025 as well as a partial safety factor for load actions of γL = 1,4 are considered. As an single anchor counts e.g. an anchor with a spacing s ≥ 3·hef and an edge distance c ≥ 1,5·hef. Accurate data see ETA-07/0025.
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-07/0025.
5) The given loads refer to the European Technical Assessment ETA-07/0025, issue date 09/12/2016. Design of the loads according ETAG 001, Annex C, Method A (for static resp. quasi-static loads).

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