

## Strong, secure and aesthetic with internal thread for the removal option of the attachment



Stadium seating



Air conditioning units

### VERSIONS

- Zinc-plated steel
- Stainless steel

### BUILDING MATERIALS

#### Approved for:

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

#### Also suitable for:

- Concrete C12/15
- Natural stone with dense structure

### CERTIFICATES



### ADVANTAGES

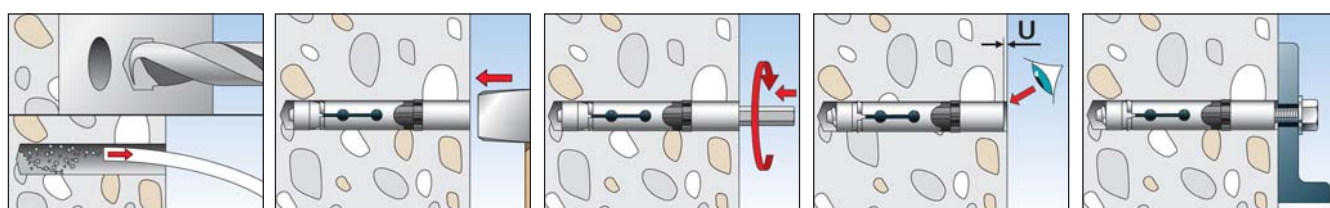
- The international approvals guarantee maximum safety and the best performance. The European Technical Assessment even cover use in earthquake zones (seismic C1 and C2).
- The internal threaded anchor allows the removal of the attachment and the fixing point can be reused.
- The design between the bolt and the sleeve ensures high shear load-bearing capacity. Thus, fewer fixing points are required.
- The optimised geometry intelligently reduces the energy required for assembly.
- The approval regulates the use of hollow drills.

### APPLICATIONS

- Steel constructions
- Guard rails
- Consoles
- Ladders
- Cable trays
- Machines
- Staircases
- Pipeline routes
- Ventilation systems
- Sprinkler systems

### FUNCTIONING

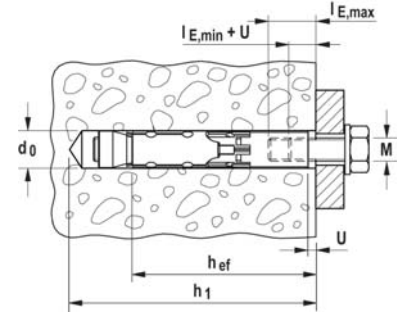
- The FH II-I is suitable for pre-positioned installation.
- When a hexagon wrench is used for installation, the internal thread bolt starts to rotate. This pulls the cone into the expansion sleeve and expands it against the drill-hole wall. At the same time, the anchor is tightened through compression of the black plastic ring. A gap U to the concrete surface is created (see image 4).
- The anchor is set according to the approval when the gap U is 3-5 mm. Alternatively, an installation torque of  $T_{inst}$  can also be applied.



## TECHNICAL DATA



High performance anchor **FH II-I**



	Zinc plated, steel grade 8.8	Stainless steel	Approval	Drill hole diameter $d_0$ [mm]	Min. drill hole depth for pre-positioned installation $h_1$ [mm]	Anchor length $l$ [mm]	Thread $M$	Min. bolt penetration $l_{E,min}$ [mm]	Max. bolt penetration $l_{E,max}$ [mm]	Sales unit [pcs]
Item	Art.-No.	Art.-No.	ETA							
	gvz	A4								
<b>FH II 12/M6 I</b>	<b>520358</b>	<b>520360</b>	■	12	85	77.5	M 6	11 + U	25	25
<b>FH II 12/M8 I</b>	<b>520359</b>	<b>520361</b>	■	12	85	77.5	M 8	13 + U	25	25
<b>FH II 15/M10 I</b>	<b>519014</b>	<b>519018</b>	■	15	95	90	M 10	10 + U	25	25
<b>FH II 15/M12 I</b>	<b>519015</b>	<b>519019</b>	■	15	95	90	M 12	12 + U	25	20

## ACCESSORIES



Setting tool **FH II-I**

Item	Art.-No.	Matching anchor type	Sales unit [pcs]
<b>Setting tool FH II-I M6-M10</b>	<b>532780</b>	FH II 12/M6 I, FH II 15/M 10 I	10
<b>Setting tool FH II-I M8-M12</b>	<b>532781</b>	FH II 12/M8 I, FH II 15/M 12 I	10

## LOADS

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

Permissible loads of a single anchor in cracked normal concrete (concrete tension zone) of strength class C20/25 (~B25) <sup>1) 2) 3) 6)</sup>										Minimum spacings while reducing the load	
Type	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		Required spacing for $s$ [mm]	Min. spacing $s_{min}$ [mm]	Min. edge distance $c_{min}$ [mm]
							Max. tension load $c$ [mm]	Max. shear load $c$ [mm]			
<b>FH II 12/M 6 I</b>	5.8	130	60	15	4,3	2,9	55	55	180	50	50
	8.8							80			
	A4-70							60			
<b>FH II 12/M 8 I</b>	5.8	130	60	15	4,3	5,1	55	90	180	50	50
	8.8							145			
	A4-70							105			
<b>FH II 15/M 10 I</b>	5.8	150	70	25	5,7	8,6	65	135	210	60	60
	8.8							220			
	A4-70							145			
<b>FH II 15/M 12 I</b>	5.8	150	70	25	5,7	12,0	65	200	210	60	60
	8.8							230			
	A4-70							230			

For the design the complete assessment ETA-07/0025 has to be considered.<sup>5)</sup>

<sup>1)</sup> 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  $\gamma_F = 1,4$  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-07/0025.

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

<sup>3)</sup> Drill method Hammer drilling resp. hollow drilling.

<sup>4)</sup> For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see ETA-07/0025.

<sup>5)</sup> 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).

<sup>6)</sup> 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  $w_k \sim 0,3mm$  begrenzt.

## LOADS

### High performance anchor with internal thread FH II-I

zinc plated steel / stainless steel

Permissible loads of a single anchor in non-cracked normal concrete (concrete compression zone) of strength class C20/25 (~B25) <sup>1)2)3)</sup>										Minimum spacings while reducing the load		
Type	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		Required spacing for  Max. Load s [mm]	Min. spacing  $s_{min}$ [mm]	Min. edge distance  $c_{min}$ [mm]	
							Max. tension load c [mm]	Max. shear load c [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				9,5	8,0	125					100
	A4-70				6,0	75						
FH II 15/M 10 I	5.8	150	70	25	13,8	8,6	160	95	210	70	70	
	8.8				14,1	13,1		150				
	A4-70				9,2	100						
FH II 15/M 12 I	5.8	150	70	25	14,1	12,0	160	135	210	70	70	
	8.8				13,7	155						
	A4-70											

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