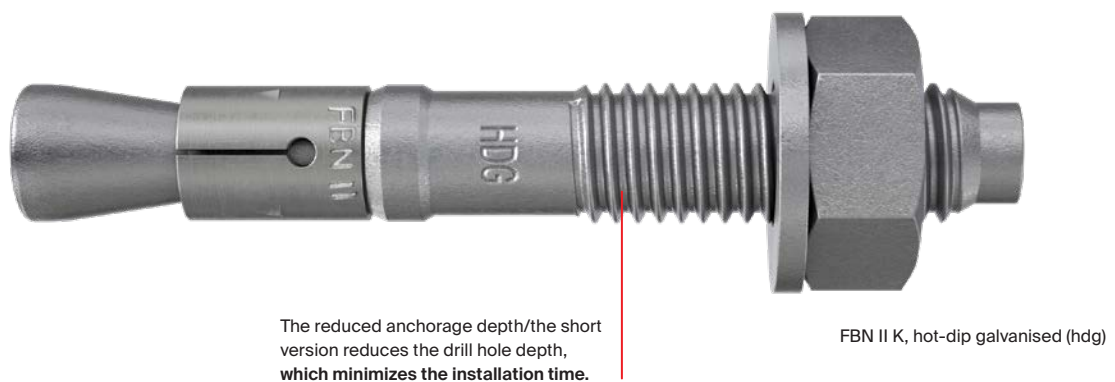
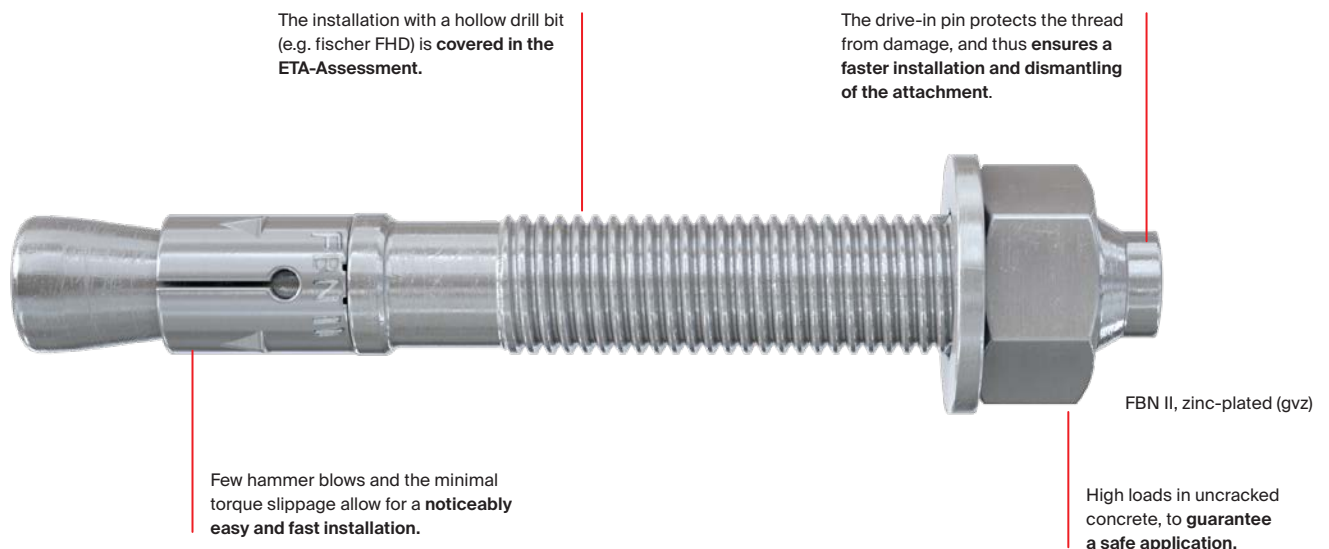


Bolt anchor FBN II.
The cost-efficient fixing
for flexible use in
non-cracked concrete.



Bolt anchor FBN II.

The cost-efficient fixing for flexible use in non-cracked concrete.



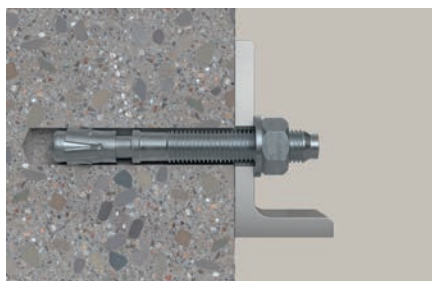
Advantages, functioning and certificates.

The advantages at a glance

- The standard anchorage depth achieves the maximum load-bearing capacities.
- The reduced anchorage depth reduces the drill hole depth. This minimises the amount of time needed for installation whilst increasing flexibility.
- The long thread balances component tolerances and allows for stand-off installations, thus increasing flexibility.
- The larger washer included with the FBN II GS creates a larger supporting surface and, as such, allows for the fixing of wood constructions.
- New ETA assessment for hot-dip galvanised version for variable working life in outdoor areas.

Functioning

- The FBN II is suitable for pre-positioned and push-through installation; also suitable for stand-off installation under certain conditions.
- Prior to installation, place the hexagon nut in the optimal position (the drive-in pin projects by approx. 3 mm out of the hexagon nut).
- When applying the torque, the cone bolt is pulled into the expansion clip and expands it against the drill hole wall.
- The head embossing offers a simple control of the anchoring.
- In the case of series installation, we recommend using the FABS bolt anchor setting tool.



Certificates



ETA-07/0211, for non-cracked concrete
 ETA-18/0101, for non-cracked concrete and
 variable working life for outdoor areas

Substrates, installation and applications.

Substrates

Approved for:

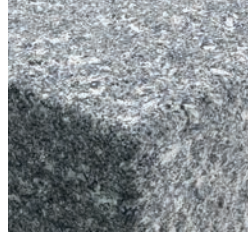


Concrete C20/25 to C50/60, non-cracked

Also suitable for:

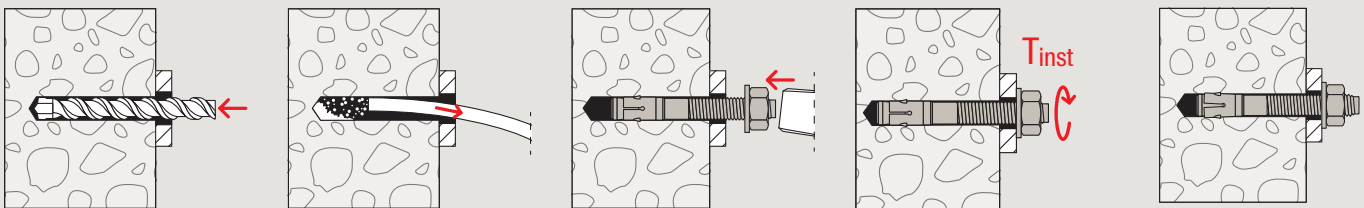


Concrete C12/15



Natural stone with dense structure

Installation



Applications



Steel constructions



Ladders

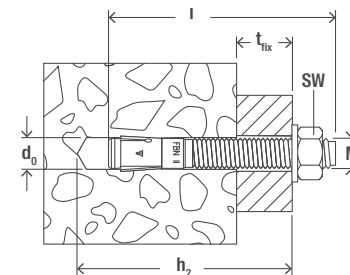


Cable trays



Guard rails

Assortment



Technical data

Bolt anchor FBN II



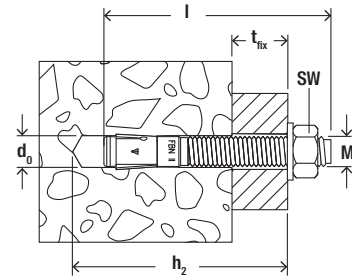
FBN II

Item	Zinc-plated steel	Stainless steel	Hot-dip galvanised steel	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Anchor length	Max. usable length $h_{ef,max.}/h_{ef,min.}$	Thread	Width across nut	Sales unit
	Item No. gvz	Item No. R	Item No. hdg	ETA	d_0 [mm]	h_2 [mm]	l [mm]	t_{fix} [mm]	$\emptyset \times$ length [mm]	SW [mm]	[pcs]
FBN II 6/5	505526 ¹⁾²⁾	—	—	●	6	45	50	5/-	M 6 x 12	10	100
FBN II 6/10	505527 ¹⁾²⁾	505532 ¹⁾²⁾	—	●	6	50	55	10/-	M 6 x 17	10	100
FBN II 6/30	505528 ¹⁾²⁾	505535 ¹⁾²⁾	—	●	6	70	75	30/-	M 6 x 35	10	100
FBN II 8/5	040662	—	—	●	8	61	65	5/15	M 8 x 34	13	50
FBN II 8/10	040664	507555	—	●	8	66	70	10/20	M 8 x 39	13	50
FBN II 8/10	—	—	507575	●	8	66	71	10/20	M 8 x 39	13	50
FBN II 8/20	040669	—	—	●	8	76	80	20/30	M 8 x 49	13	50
FBN II 8/30	040700	507556	—	●	8	86	90	30/40	M 8 x 59	13	50
FBN II 8/30	—	—	507576	●	8	86	91	30/40	M 8 x 59	13	50
FBN II 8/50	040771	507557	—	●	8	106	110	50/60	M 8 x 79	13	50
FBN II 8/50	—	—	507577	●	8	106	111	50/60	M 8 x 79	13	50
FBN II 8/70	040777	—	—	●	8	126	130	70/80	M 8 x 99	13	20
FBN II 8/70	—	—	507578	●	8	126	131	70/80	M 8 x 99	13	20
FBN II 8/100	040783	—	—	●	8	156	160	100/110	M 8 x 129	13	20
FBN II 10/10	040827	507558	—	●	10	78	85	10/20	M 10 x 46	17	50
FBN II 10/10	—	—	507579	●	10	78	86	10/20	M 10 x 46	17	50
FBN II 10/20	040851	507559	—	●	10	88	95	20/30	M 10 x 56	17	50
FBN II 10/30	040854	507560	—	●	10	98	105	30/40	M 10 x 66	17	50
FBN II 10/30	—	—	507580	●	10	98	106	30/40	M 10 x 66	17	50
FBN II 10/50	040855	507561	—	●	10	118	125	50/60	M 10 x 86	17	20
FBN II 10/50	—	—	507582	●	10	118	126	50/60	M 10 x 86	17	20
FBN II 10/70	040931	—	—	●	10	138	145	70/80	M 10 x 106	17	20
FBN II 10/100	040943	507562	—	●	10	168	175	100/110	M 10 x 136	17	20
FBN II 10/100	—	—	507583	●	10	168	176	100/110	M 10 x 136	17	20
FBN II 10/140	040944	—	—	●	10	208	215	140/150	M 10 x 176	17	20

1) Use restricted to anchoring of structural components which are statically indeterminate.

2) Nut and washer not pre-assembled/supplied loose.

Assortment



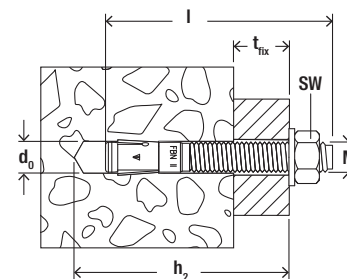
Technical data

Bolt anchor FBN II



FBN II

Item	Zinc-plated steel	Stainless steel	Hot-dip galvanised steel	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Anchor length	Max. usable length $h_{ef,max.}/h_{ef,min.}$	Thread	Width across nut	Sales unit
	Item No. gvz	Item No. R	Item No. hdg	ETA	d_0 [mm]	h_2 [mm]	l [mm]	t_{fix} [mm]	$\emptyset \times$ length [mm]	SW [mm]	[pcs]
FBN II 10/160	040945	—	—	●	10	228	235	160/170	M 10 x 196	17	20
FBN II 12/10	040950	507563	—	●	12	95	104	10/25	M 12 x 59	19	20
FBN II 12/10	—	—	507589	●	12	95	106	10/25	M 12 x 59	19	20
FBN II 12/20	044558	507564	—	●	12	105	114	20/35	M 12 x 69	19	20
FBN II 12/30	045263	507565	—	●	12	115	124	30/45	M 12 x 79	19	20
FBN II 12/30	—	—	507591	●	12	115	126	30/45	M 12 x 79	19	20
FBN II 12/50	045264	507566	—	●	12	135	144	50/65	M 12 x 99	19	20
FBN II 12/50	—	—	507592	●	12	135	146	50/65	M 12 x 99	19	20
FBN II 12/80	045265	—	—	●	12	165	174	80/95	M 12 x 129	19	20
FBN II 12/100	045266	507567	—	●	12	185	194	100/115	M 12 x 149	19	20
FBN II 12/100	—	—	507596	●	12	185	196	100/115	M 12 x 149	19	20
FBN II 12/120	045267	—	—	●	12	205	214	120/135	M 12 x 169	19	20
FBN II 12/140	045268	—	—	●	12	225	234	140/155	M 12 x 189	19	20
FBN II 12/160	045269	—	—	●	12	245	254	160/175	M 12 x 189	19	20
FBN II 16/10	—	507568	—	●	16	114	128	10/25	M 16 x 74	24	10
FBN II 16/25	—	—	507598	●	16	129	145	25/40	M 16 x 89	24	10
FBN II 16/25	045564	507569	—	●	16	129	143	25/40	M 16 x 89	24	10
FBN II 16/50	—	—	507553	●	16	154	170	50/65	M 16 x 105	24	10
FBN II 16/50	045565	507570	—	●	16	154	168	50/65	M 16 x 105	24	10
FBN II 16/80	045566	—	—	●	16	184	198	80/95	M 16 x 144	24	10
FBN II 16/100	045567	—	—	●	16	204	218	100/115	M 16 x 164	24	10
FBN II 16/100	—	—	507554	●	16	204	220	100/115	M 16 x 164	24	10
FBN II 16/140	045568	—	—	●	16	244	258	140/155	M 16 x 184	24	10
FBN II 16/160	045569	—	—	●	16	264	278	160/175	M 16 x 184	24	10
FBN II 16/200	045570	—	—	●	16	304	318	200/215	M 16 x 184	24	10
FBN II 20/30	045573	507571	508015	●	20	165	187	30/55	M 20 x 90	30	10
FBN II 20/60	045574	507572	—	●	20	195	217	60/85	M 20 x 90	30	10
FBN II 20/80	045575	547590	—	●	20	215	237	80/105	M 20 x 90	30	10
FBN II 20/120	045576	—	—	●	20	255	277	120/145	M 20 x 90	30	10



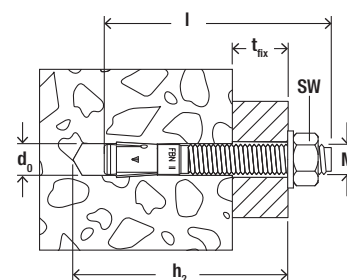
Technical data

Bolt anchor FBN II K



FBN II K

Item	Zinc-plated steel, short version	Stainless steel, short version	Hot-dip galvanised steel, short version	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Anchor length	Max. usable length $h_{ef,max.}/h_{ef,min.}$	Thread	Width across nut	Sales unit
	Item No.	Item No.	Item No.	ETA	d_0 [mm]	h_2 [mm]	l [mm]	t_{fix} [mm]	\emptyset x length [mm]	SW [mm]	[pcs]
FBN II 8/5 K	040806	508007	—	●	8	51	55	—/5	M 8 x 24	13	50
FBN II 8/5 K	—	—	508012	●	8	51	56	—/5	M 8 x 24	13	50
FBN II 8/10 K	040807	—	—	●	8	56	60	—/10	M 8 x 29	13	50
FBN II 10/5 K	040946	508010	—	●	10	63	70	—/5	M 10 x 31	17	50
FBN II 10/5 K	—	—	508013	●	10	63	71	—/5	M 10 x 31	17	50
FBN II 10/10 K	040947	—	—	●	10	68	75	—/10	M 10 x 36	17	50
FBN II 12/5 K	045272	508011	—	●	12	75	84	—/5	M 12 x 39	19	20
FBN II 12/5 K	—	—	508014	●	12	75	86	—/5	M 12 x 39	19	20
FBN II 12/10 K	045273	—	—	●	12	80	89	—/10	M 12 x 44	19	20
FBN II 12/30 K	045274	—	—	●	12	100	109	—/30	M 12 x 64	19	20
FBN II 16/15 K	045571	508745	—	●	16	104	118	—/15	M 16 x 64	24	10
FBN II 16/15 K	—	—	507597	●	16	104	120	—/15	M 16 x 64	24	10
FBN II 16/25 K	045572	—	—	●	16	114	128	—/25	M 16 x 74	24	10
FBN II 20/10 K	045577	—	543973	●	20	120	142	—/10	M 20 x 50	30	10



Technical data

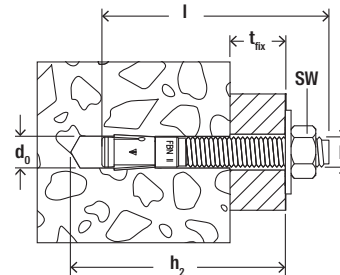
Bolt anchor FBN II K GS



FBN II K GS

Item	Item No.	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Anchor length	Max. usable length $h_{ef,max.}/h_{ef,min.}$	Thread	Width across nut	Sales unit
		ETA	d_0 [mm]	h_2 [mm]	l [mm]	t_{fix} [mm]	\emptyset x length [mm]	SW [mm]	[pcs]
FBN II 8/5 K GS	558204	●	8	51	55	—/5	M 8 x 24	13	50
FBN II 10/10 K GS	558205	●	10	68	75	—/10	M 10 x 36	17	50
FBN II 12/10 K GS	558206	●	12	80	89	—/10	M 12 x 44	19	20

Assortment and Accessories.



Technical data

Bolt anchor FBN II GS



FBN II-GS with large washer

Item	Steel, zinc-plated, with large washer	Stainless steel, with large washer	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Anchor length	Max. usable length $h_{ef,max.}/h_{ef,min.}$	Thread	Width across nut	Washer (outer diameter x thickness)	Sales unit
	Item No.	Item No.		d_0 [mm]	h_2 [mm]	l [mm]	t_{fix} [mm]	$\emptyset \times$ length [mm]	SW [mm]	[mm]	[pcs]
FBN II 8/10 GS	—	513305	●	8	66	70	10/20	M 8 x 39	13	44 x 4	50
FBN II 12/80 GS	045578	—	●	12	165	174	80/95	M 12 x 129	19	44 x 4	20
FBN II 12/100 GS	045579	—	●	12	185	194	100/115	M 12 x 149	19	44 x 4	20
FBN II 12/120 GS	045580	—	●	12	205	214	120/135	M 12 x 169	19	44 x 4	20
FBN II 12/140 GS	045581	—	●	12	225	234	140/155	M 12 x 189	19	44 x 4	10
FBN II 12/160 GS	045583	—	●	12	245	254	160/175	M 12 x 189	19	44 x 4	10
FBN II 12/180 GS	045584	—	●	12	265	274	180/195	M 12 x 189	19	44 x 4	10
FBN II 12/200 GS	045585	—	●	12	285	294	200/215	M 12 x 189	19	44 x 4	10
FBN II 12/250 GS	045586	—	●	12	335	344	250/265	M 12 x 100	19	44 x 4	10
FBN II 16/100 GS	045588	—	●	16	204	218	100/115	M 16 x 164	24	56 x 5	10
FBN II 16/140 GS	045590	—	●	16	244	258	140/155	M 16 x 184	24	56 x 5	10
FBN II 16/160 GS	045591	—	●	16	264	278	160/175	M 16 x 184	24	56 x 5	10
FBN II 16/200 GS	045593	—	●	16	304	318	200/215	M 16 x 100	24	56 x 5	10

Accessories

Bolt anchor setting tool



Item	Item No.	Contents	Matching anchor type	Sales unit [pcs]
FABS	077937	—	FAZ II, FBZ, FBN II for diameter from M6 – M12	1
FA-ST II Set	558789	SDS adapter; socket SW17, SW19, SW24	FAZ II M10/M12/M16, FBZ M10/M12/M16, FBN II M10/M12/M16, EXA M10/M12/M16	1
FA-ST II M10	558790	SDS adapter; socket SW17	FAZ II M10, FBZ M10, FBN II M10, EXA M10	1
FA-ST II M12	558791	SDS adapter; socket SW19	FAZ II M12, FBZ M12, FBN II M12, EXA M12	1
FA-ST II M16	558792	SDS adapter; socket SW24	FAZ II M16, FBZ M16, FBN II M16, EXA M16	1
FA-ST II spring	558793	Replacement spring	FA-ST II M10/M12/M16	5

Loads.

Loads

Bolt anchor FBN II

Permissible loads of a single anchor¹⁾ in normal concrete of strength class C20/25.
For the design the complete assessment ETA-07/0211 of 13.07.202 has to be considered.

Type	Material/ surface ²⁾	Effective anchorage depth h_{ef} [mm]	Minimum member thick- ness h_{min} [mm]	Installation torque T_{inst} [Nm]	Non-cracked concrete			
					Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads			
					$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{3)}$ [mm]	$c_{min}^{3)}$ [mm]
FBN II 6	gvz	30	100	4	2.9	3.4	40	40
	R	30	100	4	2.9	3.0	40	40
FBN II 8	gvz	30	100	15	2.9	6.9	40	40
	gvz	40	100	15	5.9	7.6	40	40
	R	30	100	10	2.9	6.9	50	45
	R	40	100	10	5.9	7.3	40	45
FBN II 10	gvz	40	100	30	5.9	12.0	50	80
	gvz	50	100	30	8.3	12.0	50	50
	R	40	100	20	5.9	11.6	50	80
	R	50	100	20	8.3	11.6	70	55
FBN II 12	gvz	50	100	50	8.3	17.9	70	100
	gvz	65	120	50	12.3	17.9	70	70
	R	50	100	35	8.3	15.7	70	100
	R	65	120	35	12.3	15.7	70	70
FBN II 16	gvz	65	120	100	12.3	28.2	90	120
	gvz	80	160	100	16.8	31.5	90	90
	R	65	120	80	12.3	28.2	90	120
	R	80	160	80	16.8	29.1	120	80
FBN II 20	gvz	80	160	200	16.8	38.3	120	120
	gvz	105	200	200	25.2	38.3	120	120
	R	80	160	150	16.8	38.6	140	120
	R	105	200	150	25.2	49.1	120	120

¹⁾ Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance as regulated in the ETA 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 ETA. For anchorage depths below 40 mm, the use of a single anchor is only permitted as part of multiple fastening of non-structural redundant system.

²⁾ Further steel grades, versions and technical data see ETA, e.g. for dry internal conditions, galvanised steel (gvz); for damp interiors and for outdoor use, stainless steel (R).

³⁾ In the case of combinations of tension and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete ETA and the provisions of the EN 1992-4:2018. We recommend using our anchor design software C-FIX.

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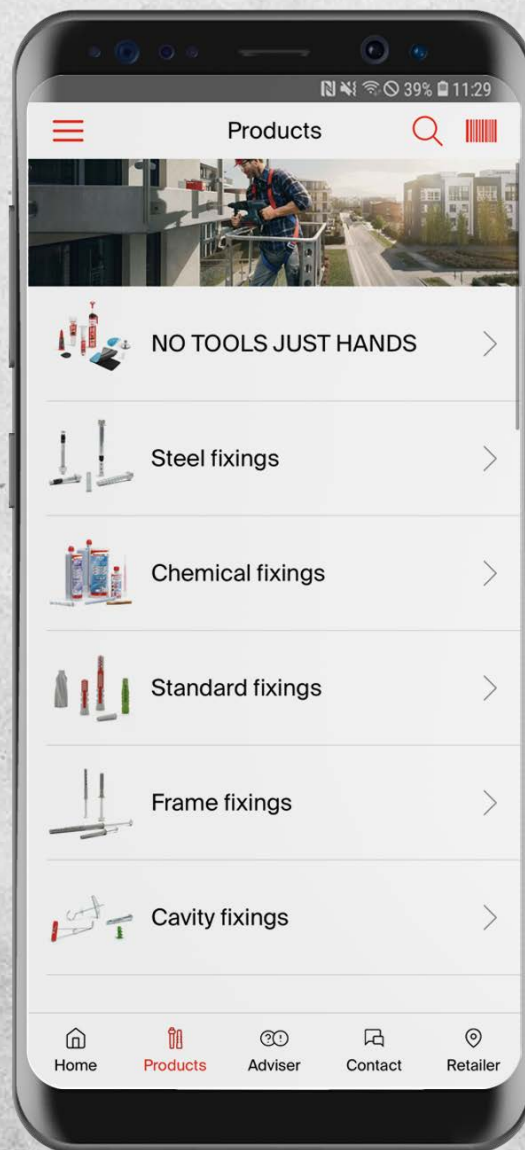


Software and modules for your daily work.

- The modular design program includes engineering software and application modules.
- The software is based on international design standards (ETAG 001, EC1, EC2, EC3 and EC5), including the national application documents. All common force and measurement units are available.
- Incorrect input will be recognized and the software gives tips to get a correct result. This ensures a safe and reliable design every time.
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