Anchor bolt FAZ II

Millionfold proven anchor bolt and the strongest in its class.

OVERVIEW

Anchor bolt **FAZ II**, zinc-plated steel

Anchor bolt **FAZ II A4**, stainless steel of the corrosion resistance class III, e.g. A4

Anchor bolt **FAZ II C**, highly corrosion-resistant steel of the corrosion resistance class IV, e.g. 1.4529

Approved for:
- Cracked and non-cracked concrete C20/25 to C50/60

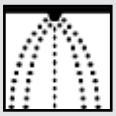
Also suitable for:
- Concrete C12/15
- Natural stone with dense structure

For fixing of:
- Steel constructions
- Railings
- Consoles
- Ladders
- Cable trays
- Machines
- Staircases
- Gates
- Facades
- Window elements
- Wood constructions

ETA CE
European Technical Approval-
Option 1 for cracked concrete

FM
APPROVED
from M10

Fire resistance classification
R 120



DEs CRIpt IOn

- Anchor bolt for push-through installation.
- When the hexagonal nut is tightened, the tapered bolt is pulled into the expansion clip and expands it against the drill hole wall.
- Version FAZ II A4 made of stainless steel of the corrosion-resistance class III e.g. A4 for outdoor applications and for damp rooms. FAZ II C for applications in aggressive atmospheres according to corrosion resistance class IV, e.g. 1.4529.
- FAZ-GS with large pre-assembled washer for fixings in oblong holes.

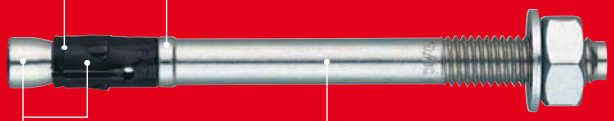
Advantages/benefits

- Optimised expansion clip ensures uniform load distribution for high permissible loads and small edge distances and axial spacings with structural elements, as well as secure expansion, even in cracked concrete.
- Installation-friendly, since only a few turns are necessary to apply the torque.

FAZ II - ADVAnt AGEs At A GLAn CE

The black expansion clip
is the identification sign: the FAZ II is only real if it has the black belt, so it's easy to distinguish from its predecessor.

The distinctive collar
ensures that the clip stays in its position even when reinforcements are hit or there are unfavourable holes when it is driven in.



The unit of cone and expansion clip
increases the tensile strength by up to 38 % in comparison to its predecessor and provides smallest edge distances and axial spacings, easy driving-in and a short tightening distance.

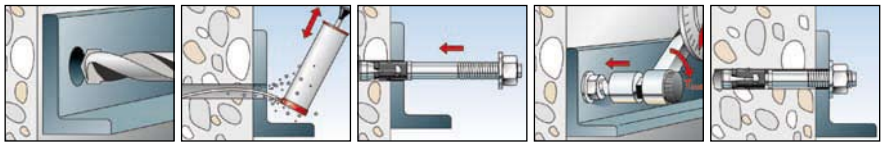
The optimised shaft
allows shear forces that are up to 96 % higher than those of the predecessor product. With its optimised diameter, it can be driven in easily and if necessary can also be aligned afterwards.

- Highest tensile and shear loads, that means: more safety with fewer total fixing points and thus lower costs
- Can be used in extremely thin concrete panels, starting at 8 cm thickness
- Smallest edge distances and axial spacings for more application options
- Low driving-in energy, small tightening distance and thus extremely handy for installation work
- High steel ductility enables subsequent alignment using a hammer

INSTALLATION

Type of installation

- Push-through and pre-positioned installation



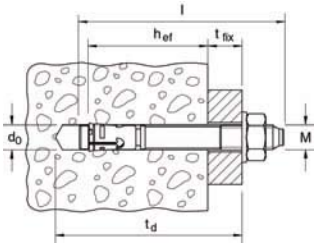
Installation tips

- For series installation we recommend the anchor bolt setting tool FABS (see page 123) to reduce installation time.
- Before driving in, the hexagon nut should be brought into the optimal installation position (the bolt projects by 2 to 3 mm).

TECHNICAL DATA

Anchor bolt **FAZ II**, zinc-plated steel

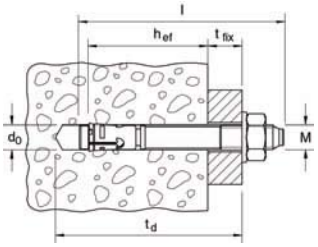
Type	Art.-No.	approval	Imprint on head	drill	min. drill-hole depth for through fixings	effect. anchoring depth	anchor length	max. usable length	thread	width across nut	Washer (outer diameter x thickness)	Qty. per box
		■ ETA		d_0	t_d	h_{ef}	l	t_{fix}		○ SW		
				[mm]	[mm]	[mm]	[mm]	[mm]	[Ø x length]		[mm]	pcs.
FAZ II 8/10	**094871**	■	(B)	8	65	45	75	10	M 8 x 21	13	16 x 1,6	50
FAZ II 8/30	**094877**	■	(F)	8	85	45	95	30	M 8 x 41	13	16 x 1,6	50
FAZ II 8/50	**094878**	■	(K)	8	105	45	115	50	M 8 x 61	13	16 x 1,6	50
FAZ II 8/100	**094879**	■	(P)	8	155	45	165	100	M 8 x 100	13	16 x 1,6	25
FAZ II 8/160	**503251**	■	(T)	8	215	45	225	160	M 8 x 100	13	16 x 1,6	20
FAZ II 10/10	**094981**	■	(B)	10	85	60	95	10	M 10 x 24	17	20 x 2	50
FAZ II 10/20	**094982**	■	(D)	10	95	60	105	20	M 10 x 34	17	20 x 2	25
FAZ II 10/30	**094983**	■	(F)	10	105	60	115	30	M 10 x 44	17	20 x 2	25
FAZ II 10/50	**094984**	■	(K)	10	125	60	135	50	M 10 x 64	17	20 x 2	20
FAZ II 10/80	**094985**	■	(N)	10	155	60	165	80	M 10 x 94	17	20 x 2	20
FAZ II 10/100	**094986**	■	(P)	10	175	60	185	100	M 10 x 100	17	20 x 2	20
FAZ II 10/160	**503252**	■	(T)	10	235	60	245	160	M 10 x 100	17	20 x 2	20
FAZ II 12/10	**095419**	■	(B)	12	100	70	110	10	M 12 x 27	19	24 x 2,5	20
FAZ II 12/20	**095420**	■	(D)	12	110	70	120	20	M 12 x 37	19	24 x 2,5	20
FAZ II 12/30	**095421**	■	(F)	12	120	70	130	30	M 12 x 47	19	24 x 2,5	20
FAZ II 12/50	**095446**	■	(K)	12	140	70	150	50	M 12 x 67	19	24 x 2,5	20
FAZ II 12/80	**095454**	■	(N)	12	170	70	180	80	M 12 x 97	19	24 x 2,5	20
FAZ II 12/100	**095470**	■	(P)	12	190	70	200	100	M 12 x 100	19	24 x 2,5	20
FAZ II 12/160	**503253**	■	(T)	12	250	70	260	160	M 12 x 100	19	24 x 2,5	10
FAZ II 12/200	**095605**	■	(V)	12	290	70	300	200	M 12 x 100	19	24 x 2,5	10
FAZ II 16/25	**095836**	■	(E)	16	135	85	148	25	M 16 x 47	24	30 x 3	10
FAZ II 16/50	**095864**	■	(K)	16	160	85	173	50	M 16 x 72	24	30 x 3	10
FAZ II 16/100	**095865**	■	(P)	16	210	85	223	100	M 16 x 100	24	30 x 3	10
FAZ II 16/160	**503254**	■	(T)	16	270	85	283	160	M 16 x 100	24	30 x 3	10
FAZ II 16/200	**095967**	■	(V)	16	315	85	323	200	M 16 x 100	24	30 x 3	10
FAZ II 16/250	**095968**	■	(W)	16	365	85	373	250	M 16 x 100	24	30 x 3	10
FAZ II 16/300	**096188**	■	(X)	16	410	85	423	300	M 16 x 100	24	30 x 3	10
FAZ II 20/30	**046632**	■	(F)	20	155	100	172	30	M 20 x 54	30	37 x 3	5
FAZ II 20/60	**046633**	■	(L)	20	185	100	202	60	M 20 x 84	30	37 x 3	5
FAZ II 20/160	**503255**	■	(T)	20	285	100	302	160	M 20 x 100	30	37 x 3	5
FAZ II 24/30	**046635**	■	(F)	24	185	125	205	30	M 24 x 58	36	44 x 4	5
FAZ II 24/60	**046636**	■	(L)	24	215	125	235	60	M 24 x 88	36	44 x 4	5



Anchor bolt FAZ II

TECHNICAL DATA

Anchor bolt **FAZ II-GS**
(with large washer), zinc-plated steel



Type		Art.-No.	approval	Imprint on head	drill	min. drill-hole depth for through fixings	effect. anchoring depth	anchor length	max. usable length	thread	width across nut	Washer (outer diameter x thickness)	Qty. per box
			■ ETA		d_0 [mm]	t_d [mm]	h_{ef} [mm]	l [mm]	t_{fix} [mm]	M	SW	[mm]	pcs.
FAZ II 8/10 GS	1)	**094872**	■	(B)	8	65	45	75	10	M 8 x 21	13	22 x 2,5	50
FAZ II 8/30 GS	1)	**096189**	■	(F)	8	85	45	95	30	M 8 x 41	13	22 x 2,5	50
FAZ II 10/10 GS	1)	**096291**	■	(B)	10	85	60	95	10	M 10 x 24	17	25 x 3	50
FAZ II 10/30 GS	1)	**096297**	■	(F)	10	105	60	115	30	M 10 x 44	17	25 x 3	25
FAZ II 12/10 GS	1)	**096303**	■	(B)	12	100	70	110	10	M 12 x 27	19	30 x 3	20
FAZ II 12/30 GS	1)	**096340**	■	(F)	12	120	70	130	30	M 12 x 47	19	30 x 3	20
FAZ II 12/120 GS	1)	**096367**	■	(R)	12	210	70	220	120	M 12 x 100	19	30 x 3	20
FAZ II 16/160 GS	1)	**503261**	■	(T)	16	270	85	283	160	M 16 x 100	24	56 x 5	10
FAZ II 16/200 GS	1)	**096370**	■	(V)	16	310	85	323	200	M 16 x 100	24	56 x 5	10

1) GS = large washer.

Anchor bolt **FAZ II A4**
- stainless steel of the corrosion resistance class III, e.g. A4

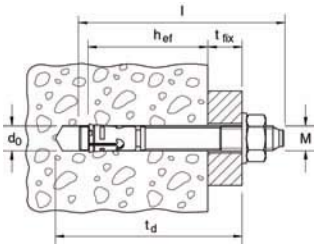
Type	Art.-No.	approval	Imprint on head	drill	min. drill-hole depth for through fixings	effect. anchoring depth	anchor length	max. usable length	thread	width across nut	Washer (outer diameter x thickness)	Qty. per box
		■ ETA		d_0 [mm]	t_d [mm]	h_{ef} [mm]	l [mm]	t_{fix} [mm]	[Ø x length]	SW	[mm]	pcs.
FAZ II 8/10 A4	**501396**	■	(B)	8	65	45	75	10	M 8 x 21	13	16 x 1,6	50
FZA II 8/10 A4 (1.4571)	**501397**	■	(B)	8	65	45	75	10	M 8 x 21	13	16 x 1,6	50
FAZ II 8/30 A4	**501399**	■	(F)	8	85	45	95	30	M 8 x 41	13	16 x 1,6	50
FAZ II 8/50 A4	**501401**	■	(K)	8	105	45	115	50	M 8 x 61	13	16 x 1,6	50
FAZ II 10/10 A4	**501403**	■	(B)	10	85	60	95	10	M 10 x 24	17	20 x 2	50
FZA II 10/10 A4 (1.4571)	**501404**	■	(B)	10	85	60	95	10	M 10 x 24	17	20 x 2	50
FAZ II 10/20 A4	**501406**	■	(D)	10	95	60	105	20	M 10 x 34	17	20 x 2	50
FAZ II 10/30 A4	**501407**	■	(F)	10	105	60	115	30	M 10 x 44	17	20 x 2	50
FAZ II 10/50 A4	**501409**	■	(K)	10	125	60	135	50	M 10 x 64	17	20 x 2	20
FAZ II 10/70 A4	**501410**	■	(M)	10	145	60	155	70	M 10 x 84	17	20 x 2	20
FAZ II 10/100 A4	**501411**	■	(P)	10	175	60	185	100	M 10 x 100	17	20 x 2	20
FAZ II 10/160 A4	**501412**	■	(T)	10	235	60	245	160	M 10 x 100	17	20 x 2	20
FAZ II 12/10 A4	**501413**	■	(B)	12	100	70	110	10	M 12 x 27	19	24 x 2,5	20
FAZ II 12/20 A4	**501415**	■	(D)	12	110	70	120	20	M 12 x 37	19	24 x 2,5	20
FAZ II 12/30 A4	**501416**	■	(F)	12	120	70	130	30	M 12 x 47	19	24 x 2,5	20
FAZ II 12/50 A4	**501419**	■	(K)	12	140	70	150	50	M 12 x 67	19	24 x 2,5	20
FAZ II 12/60 A4	**501420**	■	(L)	12	150	70	160	60	M 12 x 77	19	24 x 2,5	20
FAZ II 12/100 A4	**501421**	■	(P)	12	190	70	200	100	M 12 x 100	19	24 x 2,5	20
FAZ II 12/160 A4	**503180**	■	(T)	12	250	70	260	160	M 12 x 100	19	24 x 2,5	20
FAZ II 16/25 A4	**501423**	■	(E)	16	135	85	148	25	M 16 x 47	24	30 x 3	20
FAZ II 16/50 A4	**501424**	■	(K)	16	160	85	173	50	M 16 x 72	24	30 x 3	20
FAZ II 16/100 A4	**501425**	■	(P)	16	210	85	223	100	M 16 x 100	24	30 x 3	10
FAZ II 20/30 A4	**501426**	■	(F)	20	155	100	172	30	M 20 x 54	30	37 x 3	4
FAZ II 20/60 A4	**503183**	■	(L)	20	185	100	202	60	M 20 x 84	30	37 x 3	4
FAZ II 24/30 A4	**501427**	■	(F)	24	185	125	205	30	M 24 x 58	36	44 x 4	4
FAZ II 24/60 A4	**503184**	■	(L)	24	215	125	235	60	M 24 x 88	36	44 x 4	4

TECHNICAL DATA

Anker bolt **FAZ II-GS A4**
(with large washer)
- stainless steel of the corrosion resistance class III, e.g. A4

Type	Art.-No.	approval	Imprint on head	drill	min. drill-hole depth for through fixings	effect. anchoring depth	anchor length	max. usable length	thread	width across nut	Washer (outer diameter x thickness)	Qty. per box
		■ ETA		d_0	t_d	h_{ef}	l	t_{fix}		SW		
				[mm]	[mm]	[mm]	[mm]	[mm]	[Ø x length]		[mm]	pcs.
FAZ II 8/10 GS A4	1) **501398**	■	(B)	8	65	45	75	10	M 8 x 21	13	22 x 2,5	50
FAZ II 8/30 GS A4	1) **501400**	■	(F)	8	85	45	95	30	M 8 x 41	13	22 x 2,5	50
FAZ II 10/10 GS A4	1) **501405**	■	(B)	10	85	60	95	10	M 10 x 24	17	25 x 3	50
FAZ II 10/30 GS A4	1) **501408**	■	(F)	10	105	60	115	30	M 10 x 44	17	25 x 3	50
FAZ II 12/10 GS A4	1) **501414**	■	(B)	12	100	70	110	10	M 12 x 27	19	30 x 3	20
FAZ II 12/30 GS A4	1) **501418**	■	(F)	12	120	70	130	30	M 12 x 47	19	30 x 3	20
FAZ II 12/160 GS A4	1) **503181**	■	(T)	12	250	70	260	160	M 12 x 100	19	44 x 4	20
FAZ II 16/160 GS A4	1) **503182**	■	(T)	16	270	85	283	160	M 16 x 100	24	56 x 5	4

1) GS = with large washer



Anchor bolt **FAZ II C**
- highly corrosion-resistant steel of the corrosion resistance class IV, e.g. 1.4529

Type	Art.-No.	approval	Imprint on head	drill diameter	min. drill-hole depth for through fixings	effect. anchoring depth	anchor length	max. usable length	thread	width across nut	Washer (outer diameter x thickness)	Qty. per box
		■ ETA		d_0	t_d	h_{ef}	l	t_{fix}		SW		
				[mm]	[mm]	[mm]	[mm]	[mm]	[Ø x length]		[mm]	pcs.
FAZ II 8/10 C	**501428**	■	(B)	8	65	45	75	10	M 8 x 21	13	16 x 1,6	10
FAZ II 8/30 C	**501429**	■	(F)	8	85	45	95	30	M 8 x 41	13	16 x 1,6	10
FAZ II 10/10 C	**501430**	■	(B)	10	85	60	95	10	M 10 x 24	17	20 x 2	10
FAZ II 10/30 C	**503185**	■	(F)	10	105	60	115	30	M 10 x 44	17	20 x 2	10
FAZ II 12/10 C	**503186**	■	(B)	12	100	70	110	10	M 12 x 27	19	24 x 2,5	10
FAZ II 12/30 C	**501431**	■	(F)	12	120	70	130	30	M 12 x 47	19	24 x 2,5	10
FAZ II 16/25 C	**501432**	■	(E)	16	135	85	148	25	M 16 x 47	24	30 x 3	10
FAZ II 16/50 C	**503187**	■	(K)	16	160	85	173	50	M 16 x 72	24	30 x 3	10

Anchor bolt FAZ II

LOADS

Mean ultimate loads, design resistant and recommended loads for single anchors of fischer Anchor bolt FAZ II with large spacing and edge distance[2].

					Non-cracked concrete						Cracked concrete					
Anchor size					**M 8**	**M 10**	**M 12**	**M 16**	**M 20**	**M 24**	**M 8**	**M 10**	**M 12**	**M 16**	**M 20**	**M 24**
Effective anchorage depth		h_{ef}	[mm]		**45**	**60**	**70**	**85**	**100**	**125**	**45**	**60**	**70**	**85**	**100**	**125**
Drill hole depth		$h_1 \geq$	[mm]		55	75	90	110	125	155	55	75	90	110	125	155
Drill hole diameter		d_0	[mm]		8	10	12	16	20	24	8	10	12	16	20	24
Mean ultimate loads N_u and V_u [kN]																
Tensile	0°	N_u	[kN]	gvz/A4/C	15.9	26.4	38.6	52.9	67.5	94.3	13.8	22.0	27.7	37.0	47.3	66.0
Shear	90°	V_u	[kN]	gvz/A4/C	20.7	29.5*	43.0*	78.5*	91.1*	110.0*	20.7*	29.5*	43.0*	78.5*	91.1*	110.0*
Design resistant loads N_{Rd} and V_{Rd} [kN][3]																
Tensile	0°	N_{Rd}	[kN]	gvz/A4/C	7.2	11.8	17.7	29.0	37.0	51.7	6.0	9.3	12.3	18.8	24.0	33.5
Shear	90°	V_{Rd}		gvz/A4/C	9.6*	16.0*	23.6*	44.0*	56.0*	68.8*	9.6*	16.0*	23.6*	44.0*	56.0*	68.8*
Recommended loads N_{rec} and V_{rec} [kN][4]																
Tensile	0°	N_{rec}	[kN]	gvz/A4/C	5.1	8.4	12.7	20.7	26.4	36.9	4.3	6.7	9.5	13.4	17.1	24.0
Shear	90°	V_{rec}	[kN]	gvz/A4/C	6.9*	11.4*	16.9*	31.4*	40.0*	49.1*	6.9*	11.4*	16.9*	31.4*	40.0*	49.1*
Recommended bending moment M_{rec} [Nm]																
		M_{rec}	[Nm]	gvz/A4/C	14.9	33.1	52.6	133.1	278,3	439,4	14.9	33.1	52.6	133.1	278.3	439.4
Component dimensions, minimum axial spacings and edge distances																
Standard structural component thickness ($\geq 2 \times h_{ef}$)		$h_{min,1}$	[mm]		100	120	140	170	200	250	100	120	140	170	200	250
Minimum spacing[1]		s_{min}	[mm]	gvz/A4/C	40	40	50	60	95	100	35	40	45	60	95	100
	for c ≧		[mm]	gvz/A4/C	50	60	70	95	180	200	50	55	70	95	140	170
Minimum edge distance[1]		c_{min}	[mm]	gvz/A4/C	40	45	55	65	95	135	40	45	55	65	85	100
	for s ≧		[mm]	gvz/A4/C	100	80	110	150	190	235	70	80	110	150	190	220
Reduced structural component thickness ($< 2 \times h_{ef}$)		$h_{min,2}$	[mm]		80	100	120	140	160	200	80	100	120	140	160	200
Minimum spacing[1]		s_{min}	[mm]	gvz/A4/C	35	40	50	80	125	150	35	40	50	80	125	150
	for c ≧		[mm]	gvz/A4/C	70	100	90	130	220	230	70	100	90	130	220	230
Minimum edge distance[1]		c_{min}	[mm]	gvz/A4/C	40	60	60	65	125	135	40	60	60	65	125	135
	for s ≧		[mm]	gvz/A4/C	100	90	120	180	230	235	100	90	120	180	230	235
Required torque		T_{inst}	[Nm]		20	45	60	110	200	270	20	45	60	110	200	270

* Steel failure decisive

[1] For min. spacing and min. edge distance the above described loads have to be reduced! (See "Technical Handbook" or design software "CC-Compufix")

[2] All load values apply for concrete C20/25 without edge or spacing influences.

[3] Design resistant loads: material safety factor γ_M is included.

[4] Recommended loads: material safety factor γ_M and safety factor for load γ_L = 1.4 are included.

The conditions of application may differ from those given in the European Technical Approval.
For further detailed information about European Technical Approvals please contact the responsible fischer representation in your country.

Anchor bolt setting tool FABS

o Ver VieW

Anchor bolt setting tool **FABS**

Suitable for:
- The installation of all fischer anchor bolts (FAZ II, FBN and EXA), diameter M 6 to M 12.

Areas of application
- Ceiling suspension
- Installation in series
- Painted railings
- Attachment points where access is difficult

DeScription

- Especially suitable for the efficient installation in series of larger numbers of fischer and Upat anchor bolts.
- The tool is simply clamped into a standard SDS Plus hammer drill and is perfect for hammering the anchor into the hole. This greatly simplifies the installation process when working overhead.
- FABS can also be used for fixing previously painted objects, (e.g. railings) because the recess at its tip prevents it from slipping and causing damage to the surface.

Advantages

- Efficient installation of all fischer and Upat anchor bolts.
- Ergonomic design, saves time and energy.
- Universally usable for M 6 to M 12.

fischer Anchor bolt setting tool
FABS

Type	Art.-No.	fits anchor	qty. per box pcs.
FABS	**077937**	FAZ II, FBN II, EXA with diameter M6, M8, M10 and M12	1