

Anchor bolt FAZ

Millionfold proven anchor bolt and the strongest in its class.

OVERVIEW



Anchor bolt FAZ II,
zinc-plated steel



Anchor bolt FAZ A4,
stainless steel A4



Anchor bolt FAZ C,
highly corrosion-
resistant steel
1.4529

Approved for:

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



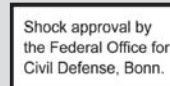
Also suitable for:

- 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



DESCRIPTION

- 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 made of stainless steel A4 for outdoor applications and for damp rooms. High corrosion-resistant steel (material number 1.4529) for applications in aggressive atmospheres.
- 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 revolutions are necessary to apply the torque.



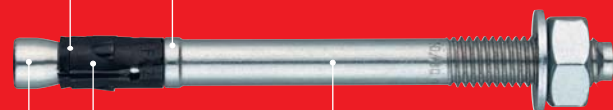
FAZ II - ADVANTAGES AT A GLANCE

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

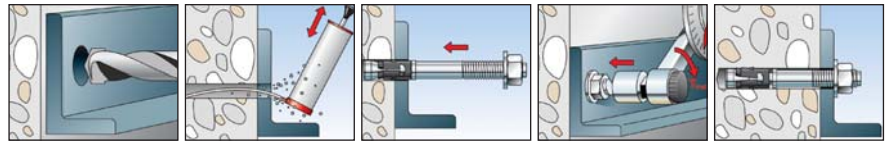
STANDARDS

You will find everything that has standards on page 34 under the keyword approvals.

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 119) 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).

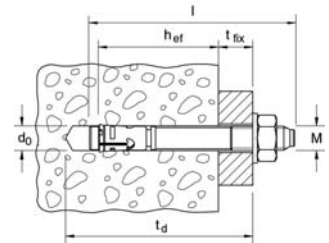
High performance
steel anchors

TECHNICAL DATA



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

Type	Art.No.	ID	approval	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}	M	SW	[mm]	pcs.
				[mm]	[mm]	[mm]	[mm]	[mm]				
FAZ II 8/10	94871	2	■	8	75	45	77	10	M 8	13	16 x 1,6	50
FAZ II 8/30	94877	4	■	8	95	45	97	30	M 8	13	16 x 1,6	50
FAZ II 8/50	94878	1	■	8	115	45	117	50	M 8	13	16 x 1,6	50
FAZ II 8/100	94879	8	■	8	165	45	167	100	M 8	13	16 x 1,6	25
FAZ II 8/150	94980	1	■	8	215	45	217	150	M 8	13	16 x 1,6	20
FAZ II 10/10	94981	8	■	10	90	60	95	10	M 10	17	20 x 2	50
FAZ II 10/20	94982	5	■	10	100	60	105	20	M 10	17	20 x 2	25
FAZ II 10/30	94983	2	■	10	110	60	115	30	M 10	17	20 x 2	25
FAZ II 10/50	94984	9	■	10	130	60	135	50	M 10	17	20 x 2	20
FAZ II 10/80	94985	6	■	10	160	60	165	80	M 10	17	20 x 2	20
FAZ II 10/100	94986	3	■	10	180	60	185	100	M 10	17	20 x 2	20
FAZ II 10/150	95141	5	■	10	230	60	235	150	M 10	17	20 x 2	20
FAZ II 12/10	95419	5	■	12	105	70	110	10	M 12	19	24 x 2,5	20
FAZ II 12/20	95420	1	■	12	115	70	120	20	M 12	19	24 x 2,5	20
FAZ II 12/30	95421	8	■	12	125	70	130	30	M 12	19	24 x 2,5	20
FAZ II 12/50	95446	1	■	12	145	70	150	50	M 12	19	24 x 2,5	20
FAZ II 12/80	95454	6	■	12	175	70	180	80	M 12	19	24 x 2,5	20
FAZ II 12/100	95470	6	■	12	195	70	200	100	M 12	19	24 x 2,5	20
FAZ II 12/150	95557	4	■	12	245	70	250	150	M 12	19	24 x 2,5	10
FAZ II 12/200	95605	2	■	12	295	70	300	200	M 12	19	24 x 2,5	10
FAZ II 16/25	95836	0	■	16	140	85	150	25	M 16	24	30 x 3	10
FAZ II 16/50	95864	3	■	16	165	85	175	50	M 16	24	30 x 3	10
FAZ II 16/100	95865	0	■	16	215	85	225	100	M 16	24	30 x 3	10
FAZ II 16/150	95875	9	■	16	265	85	275	150	M 16	24	30 x 3	10
FAZ II 16/200	95967	1	■	16	315	85	325	200	M 16	24	30 x 3	10
FAZ II 16/250	95968	8	■	16	365	85	375	250	M 16	24	30 x 3	10
FAZ II 16/300	96188	9	■	16	415	85	425	300	M 16	24	30 x 3	10
FAZ II 20/30	46632	2	■	20	155	100	170	30	M 20	30	37 x 3	5
FAZ II 20/60	46633	9	■	20	185	100	200	60	M 20	30	37 x 3	5
FAZ II 20/150	46634	6	■	20	275	100	290	150	M 20	30	37 x 3	5
FAZ II 24/30	46635	3	■	24	185	125	204	30	M 24	36	44 x 4	5
FAZ II 24/60	46636	0	■	24	215	125	234	60	M 24	36	44 x 4	5



FIRE PROTECTION

Red hot: see page 31 for information about fire protection..

CORROSION

All about corrosion and how you can avoid it is written on page 32.

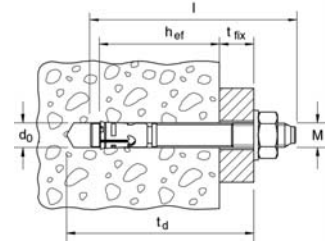
Anchor bolt FAZ

TECHNICAL DATA



Type	Art.-No.	ID	approval	drill	min. drill-hole	effect.	anchor length	max. usable	thread	width across	Washer	Qty. per box
				d_0	depth for	anchoring	length	length	nut	(outer diameter	thickness)	
				ETA	through	depth	l	l_{fix}	M	SW	[mm]	pcs.
				d_0	t_d	h_{ef}	l	l_{fix}	M	SW	[mm]	pcs.
FAZ II 8/10 GS	1) 94872	9	ETA	8	75	45	77	10	M 8	13	24 x 2	50
FAZ II 8/30 GS	1) 96189	6	ETA	8	95	45	97	30	M 8	13	24 x 2	50
FAZ II 10/10 GS	1) 96291	6	ETA	10	90	60	95	10	M 10	17	25 x 3	50
FAZ II 10/30 GS	1) 96297	8	ETA	10	110	60	115	30	M 10	17	25 x 3	25
FAZ II 12/10 GS	1) 96303	6	ETA	12	105	70	110	10	M 12	19	30 x 3	20
FAZ II 12/20 GS	1) 502530	-	ETA	12	115	70	120	20	M 12	19	30 x 3	20
FAZ II 12/30 GS	1) 96340	1	ETA	12	125	70	130	30	M 12	19	30 x 3	20
FAZ II 12/50 GS	1) 502531	-	ETA	12	145	70	150	50	M 12	19	30 x 3	20
FAZ II 12/100 GS	1) 502532	-	ETA	12	195	70	200	100	M 12	19	30 x 3	20
FAZ II 12/120 GS	1) 96367	8	ETA	12	215	70	220	120	M 12	19	30 x 3	20
FAZ II 16/150 GS	1) 96368	5	ETA	16	265	85	275	150	M 16	24	56 x 5	10
FAZ II 16/200 GS	1) 96370	8	ETA	16	315	85	325	200	M 16	24	56 x 5	10

1) GS = large washer.



Type	Art.-No.	ID	approval	drill	min. drill-hole	effect.	anchor length	max. usable	thread	width across	Washer	Qty. per box
				d_0	depth for	anchoring	length	length	nut	(outer diameter	thickness)	
				ETA	through	depth	l	l_{fix}	M	SW	[mm]	pcs.
				d_0	t_d	h_{ef}	l	l_{fix}	M	SW	[mm]	pcs.
FAZ 8/10 A4	68550	1	ETA	8	75	45	74	10	M 8	13	16 x 1,6	50
FAZ 8/30 A4	68552	5	ETA	8	95	45	94	30	M 8	13	16 x 1,6	50
FAZ 8/50 A4	68553	2	ETA	8	115	45	114	50	M 8	13	16 x 1,6	50
FAZ 10/10 A4	68555	6	ETA	10	90	60	93	10	M 10	17	20 x 2	50
FAZ 10/20 A4	93030	4	ETA	10	100	60	103	20	M 10	17	20 x 2	25
FAZ 10/30 A4	68556	3	ETA	10	110	60	113	30	M 10	17	20 x 2	25
FAZ 10/50 A4	68557	0	ETA	10	130	60	133	50	M 10	17	20 x 2	20
FAZ 10/70 A4	96796	6	ETA	10	150	60	153	70	M 10	17	20 x 2	20
FAZ 10/100 A4	68558	7	ETA	10	180	60	183	100	M 10	17	20 x 2	20
FAZ 10/150 A4	78245	3	ETA	10	220	60	233	150	M 10	17	20 x 2	20
FAZ 12/10 A4	68560	0	ETA	12	115	70	108	10	M 12	19	24 x 2,5	20
FAZ 12/20 A4	93031	1	ETA	12	115	70	118	20	M 12	19	24 x 2,5	20
FAZ 12/30 A4	68561	7	ETA	12	125	70	128	30	M 12	19	24 x 2,5	20
FAZ 12/50 A4	68562	4	ETA	12	145	70	148	50	M 12	19	24 x 2,5	20
FAZ 12/100 A4	68564	8	ETA	12	195	70	198	100	M 12	19	24 x 2,5	20
FAZ 16/25 A4	68565	5	ETA	16	140	85	146	25	M 16	24	30 x 3	10
FAZ 16/50 A4	68567	9	ETA	16	165	85	171	50	M 16	24	30 x 3	10
FAZ 16/100 A4	68568	6	ETA	16	215	85	221	100	M 16	24	30 x 3	10
FAZ 20/30 A4	90678	1		20	160	100	172	30	M 20	30	37 x 3	5
FAZ 24/30 A4	90679	8		24	185	125	204	30	M 24	36	44 x 4	5
FAZ 8/10 GS A4	1) 79854	6	ETA	8	75	45	74	10	M 8	13	22 x 2,5	50
FAZ 8/30 GS A4	1) 93034	2	ETA	8	95	45	94	30	M 8	13	22 x 2,5	50
FAZ 10/10 GS A4	1) 70450	9	ETA	10	90	60	93	10	M 10	17	25 x 3	50
FAZ 10/30 GS A4	1) 93035	9	ETA	10	110	60	113	30	M 10	17	25 x 3	25
FAZ 12/10 GS A4	1) 70456	1	ETA	12	105	70	108	10	M 12	19	30 x 3	20
FAZ 12/30 GS A4	1) 93036	6	ETA	12	125	70	128	30	M 12	19	30 x 3	20

1) GS = large washer.

TECHNICAL DATA



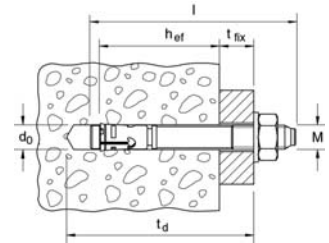
Anchor bolt **FAZ A4**,
stainless steel A4



Anchor bolt **FAZ GS**
(with large washer),
high corrosion-resistant steel 1.4529

Type	Art.No.	ID	approval	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 8/10 C	90198	4	ETA	8	75	45	74	10	M 8	13	16 x 1,6	10
FAZ 8/30 C	90200	4	ETA	8	95	45	94	30	M 8	13	16 x 1,6	10
FAZ 8/50 C	91069	6	ETA	8	115	45	115	50	M 8	13	16 x 1,6	10
FAZ 10/10 C	90201	1	ETA	10	90	60	93	10	M 10	17	20 x 2	10
FAZ 10/30 C	90203	5	ETA	10	110	60	113	30	M 10	17	20 x 2	10
FAZ 12/10 C	90204	2	ETA	12	105	70	108	10	M 12	19	24 x 2,5	10
FAZ 12/30 C	90206	6	ETA	12	125	70	128	30	M 12	19	24 x 2,5	10
FAZ 16/25 C	90207	3	ETA	16	140	85	146	25	M 16	24	30 x 3	10
FAZ 16/50 C	90208	0	ETA	16	165	85	171	50	M 16	24	30 x 3	10
FAZ 8/10 GS C	1) 90199	1	ETA	8	75	45	74	10	M 8	13	22 x 3	10
FAZ 10/10 GS C	1) 90202	8	ETA	10	90	60	93	10	M 10	17	25 x 3	10
FAZ 12/10 GS C	1) 90205	9	ETA	12	105	70	108	10	M 12	19	30 x 3	10

1) GS = large washer.



High performance
steel anchors

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Anchor bolt FAZ

LOADS

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

Anchor size			Non-cracked concrete						Cracked concrete							
			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	130 (125) ³⁾	155	55	75	90	110	130 (125) ³⁾	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	15.9	26.4	38.6	52.9	67.5	94.3	13.8	22.0	27.7	37.0	47.3	66.0
				A4	16.8	26.8	35.3	48.4	65.7	93.3	10.3*	18.1	24.6	37.0	47.3	66.0
				C	16.0*	25.4*	35.3	48.4	—	—	12.0	21.0	27.8	37.0	—	—
Shear	90°	V_u	[kN]	gvz	20.7	29.5*	43.0*	78.5*	91.1*	110.0*	20.7*	29.5*	43.0*	78.5*	91.1*	110.0*
				A4	19.8*	31.2*	40.5*	54.2*	92.6*	148.3*	19.8*	31.2*	40.5*	54.2*	92.6*	148.3*
				C	15.4*	24.4*	35.4*	65.9*	—	—	15.4*	24.4*	35.4*	65.9*	—	—
Design resistant loads N_{Rd} and V_{Rd} [kN]																
Tensile	0°	N_{Rd}	[kN]	gvz	7.2	11.8	17.7	26.3	37.0	51.7	6.0	9.3	13.3	18.8	24.0	33.5
				A4	8.3	14.7	18.7	26.7	34.0	47.3	5.8	9.5	13.9	18.8	24.0	33.3
				C	8.3	14.7	18.7	26.7	—	—	5.8	9.5	14.1	18.8	—	—
Shear	90°	V_{Rd}	[kN]	gvz	(14.0) ²⁾	(22.4) ²⁾	(32.8) ²⁾	(57.2) ³⁾	56.0	68.8	(14.0) ²⁾	(22.4) ²⁾	(32.8) ²⁾	(57.2) ³⁾	56.0	68.8
				A4	9.6	16.0	23.6	44.0	—	—	9.6	16.0	23.6	44.0	—	—
				C	8.8	14.4	20.8	36.0	61.1	78.8	8.8	14.4	20.8	36.0	48.0	67.1
Recommended loads N_{rec} and V_{rec} [kN]																
Tensile	0°	N_{rec}	[kN]	gvz	5.1	8.4	12.7	18.8	26.4	36.9	4.3	6.7	9.5	13.4	17.1	24.0
				A4	6.0	10.5	13.3	19.0	24.3	33.8	4.1	6.8	10.0	13.4	17.1	23.8
				C	6.0	10.5	13.3	19.0	—	—	4.1	6.8	10.0	13.4	—	—
Shear	90°	V_{rec}	[kN]	gvz	(10.0) ²⁾	(16.0) ²⁾	(23.4) ²⁾	(40.9) ²⁾	40.0	49.1	(10.0) ²⁾	(16.0) ²⁾	(23.4) ²⁾	(37.6) ³⁾	40.0	49.1
				A4	6.9	11.4	16.9	31.4	—	—	6.9	11.4	16.9	31.4	—	—
				C	6.3	10.3	14.9	25.7	43.7	56.3	6.3	10.3	14.9	25.7	34.3	47.9
Recommended bending moment M_{rec} [Nm]																
		M_{rec}	[Nm]	gvz	14.9	33.1	52.6	133.1	222.3	288.6	14.9	33.1	52.6	133.1	278.3	439.4
				A4	13.1	26.8	46.8	109.0	232.0	360.0	13.1	26.8	46.8	109.0	232.0	360.0
				C	12.4	24.8	43.8	111.0	—	—	12.4	24.8	43.8	111.0	—	—
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	40	40	50	60	95	100	35	40	45	60	95	100	
	for $c \geq$	[mm]	gvz	50	60	70	95	180	200	50	55	70	95	140	170	
	s_{min}	[mm]	A4 / C	50	55	65	75	100	125	40	55	65	75	100	125	
	for $c \geq$	[mm]	A4 / C	50	70	100	120	200	250	50	70	75	100	200	250	
Minimum edge distance ¹⁾	c_{min}	[mm]	gvz	40	45	55	65	95	135	40	45	55	65	85	100	
	for $s \geq$	[mm]	gvz	100	80	110	150	190	235	70	80	110	150	190	220	
	c_{min}	[mm]	A4 / C	50	55	65	85	200	250	45	55	65	65	200	250	
	for $s \geq$	[mm]	A4 / C	50	120	150	165	100	125	60	90	100	175	100	125	
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	35	40	50	80	125	150	35	40	50	80	125	150	
	for $c \geq$	[mm]	gvz	70	100	90	130	220	230	70	100	90	130	220	230	
	s_{min}	[mm]	A4 / C	—	—	—	—	—	—	—	—	—	—	—	—	
	for $c \geq$	[mm]	A4 / C	—	—	—	—	—	—	—	—	—	—	—	—	
Minimum edge distance ¹⁾	c_{min}	[mm]	gvz	40	60	60	65	125	135	40	60	60	65	125	135	
	for $s \geq$	[mm]	gvz	100	90	120	180	230	235	100	90	120	180	230	235	
	c_{min}	[mm]	A4 / C	—	—	—	—	—	—	—	—	—	—	—	—	
	for $s \geq$	[mm]	A4 / C	—	—	—	—	—	—	—	—	—	—	—	—	
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⁾ In general the relevant shear load bearing capacity has to be defined by the designing engineer because depending on the thickness of the anchor plate it has to be defined if the thread or the shaft of the anchor is located in the joint between concrete surface and anchorplate. Simplifying for a thickness of the fixture ≥ 15 mm (size M8), ≥ 20 mm (sizes M10 and M12) and respectively ≥ 25 mm (size M16) as well as a nominal useful length ($t_{fix,nom}$) of the used anchor type not exceeding 50 mm the values in brackets can be used.

³⁾ Values in brackets are valid for FAZ II M 20

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

Design resistant loads: material safety factor γ_M is included. Material safety factor γ_M depends on type of anchor.

Recommended loads: material safety factor γ_M and safety factor for load $\gamma_L = 1.4$ 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

High performance steel anchors

OVERVIEW



Anchor bolt setting tool **FABS**

Suitable for:

- The installation of all fischer anchor bolts (FAZ, 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.

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fischer Anchor bolt setting tool **FABS**

Type	Art.No.	ID	fits anchor	qty. per box pcs.
FABS	77937	8	FAZ, FBN, EXA with diameter M6, M8, M10 and M12	1