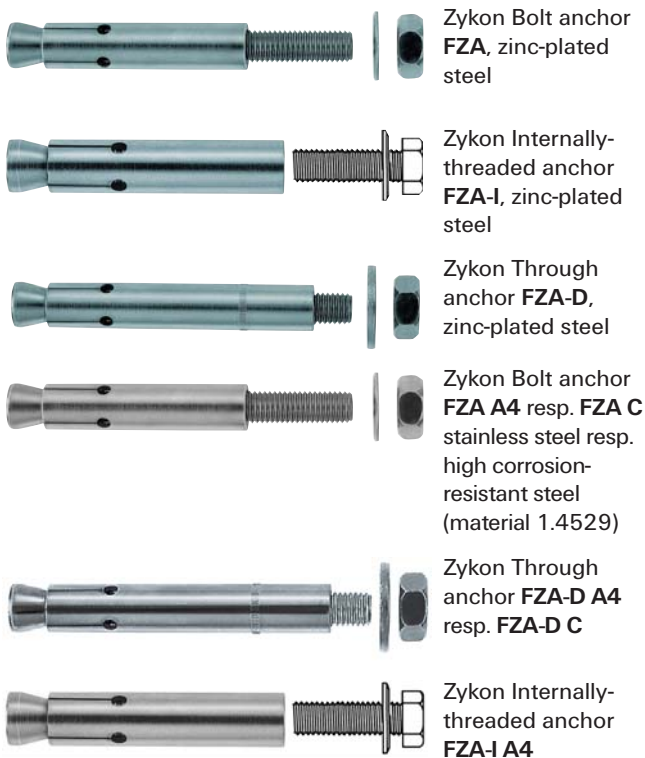


Zykon anchor FZA

The powerful and safe undercut anchor for cracked concrete.

High performance steel anchors

OVERVIEW



Approved for:

- Cracked and non-cracked concrete B25 to B55 resp. C20/25 to C50/60



Also suitable for:

- Concrete B 15 resp. C12/15
- Natural stone with dense structure
- Solid brick
- Solid sand-lime brick



Shock approval by the Federal Office for Civil Defense, Bonn.

For fixing of:

- Steel constructions
- Railings
- Consoles
- Ladders
- Cable trays
- Machines
- Staircases
- Gates
- Facades
- Window elements



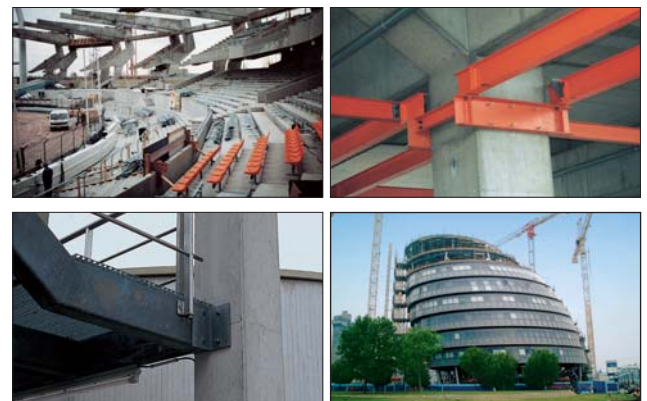
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DESCRIPTION

- Undercut anchor for pre-positioned (FZA bolt version and internally-threaded anchor FZA-I) and push-through installation (FZA-D bolt version).
- A cylindrical conical hole with an undercut is produced with the Drill bit FZUB in one work process.
- When setting the anchor, the anchor sleeve is driven over the cone with a hammer (or setting tool) and fills the undercut hole with a positive fit.
- Also available: special version FZA ST A4 for hot step irons according to DIN V 1211 GS / 1212 GS.
- A4 stainless steel version for outdoor use and in damp conditions. Highly corrosion-resistant steel C (material no. 1.4529) for applications in aggressive atmospheres.

Advantages/benefits

- Positive fit in the undercut gives additional safety.
- Virtually expansion-free operation allows cost-efficient fixing with very small edge distances and axial spacings.
- Single-step drilling process simultaneously produces the undercut, saving installation time.
- Simple visual control of the green ring mark ensures 100% function.

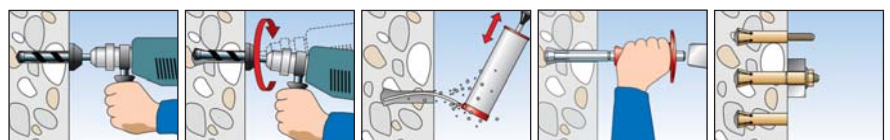


- Immediate load-bearing capability avoids installation interruptions (no interruption for resin curing times, unlike chemical anchors).
- Anchor version with internal thread for high flexibility by using threaded rods or screws of different lengths and type.

INSTALLATION

Type of installation

- Pre-positioned installation (FZA and FZA-I)
- Push-through installation (FZA-D), please note: drill through the fixture




STANDARDS

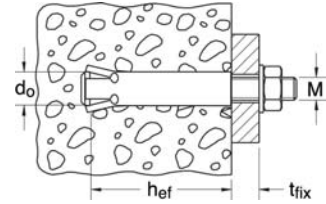
You will find everything that has standards on page 34 under the keyword approvals.

Zykon anchor FZA

TECHNICAL DATA


 Zykon Bolt anchor **FZA**, zinc-plated steel

Type	Art.-No.	ID	approval	drill-Ø		anchorage depth		max. usable length	Thread		Washer (outer diameter x thickness)	Qty. per box
				d_0 [mm]	h_{ef} [mm]	t_{fix} [mm]	A		SW			
FZA 10 x 40 M 6/10	60712	1	ETA	10	40	10	M 6	10	12 x 1,6	25		
FZA 12 x 40 M 8/15	60715	2	ETA	12	40	15	M 8	13	16 x 1,6	25		
FZA 12 x 50 M 8/15	60716	9	ETA	12	50	15	M 8	13	16 x 1,6	20		
FZA 14 x 40 M10/25	60718	3	ETA	14	40	25	M 10	17	20 x 2	25		
FZA 14 x 60 M10/25	60719	0	ETA	14	60	25	M 10	17	20 x 2	10		
FZA 18 x 80 M12/25	60721	3	ETA	18	80	25	M 12	19	24 x 2,5	10		
FZA 22 x 100 M16/60	60724	4	ETA	22	100	60	M 16	24	30 x 3	10		
FZA 22 x 125 M16/60	60725	1	ETA	22	125	60	M 16	24	30 x 3	6		



 Zykon Bolt anchor **FZA A4**, stainless steel A4

Type	Art.-No.	ID	approval	drill-Ø		anchorage depth		max. usable length	Thread		Washer (outer diameter x thickness)	Qty. per box
				d_0 [mm]	h_{ef} [mm]	t_{fix} [mm]	A		SW			
FZA 10 x 40 M 6/10 A4	60772	5	ETA	10	40	10	M 6	10	12 x 1,6	25		
FZA 10 x 40 M 6/35 A4	60771	8	ETA	10	40	35	M 6	10	12 x 1,6	25		
FZA 12 x 40 M 8/15 A4	60775	6	ETA	12	40	15	M 8	13	16 x 1,6	25		
FZA 12 x 50 M 8/15 A4	60776	3	ETA	12	50	15	M 8	13	16 x 1,6	20		
FZA 12 x 50 M 8/50 A4	60774	9	ETA	12	50	50	M 8	13	16 x 1,6	20		
FZA 14 x 40 M10/25 A4	60778	7	ETA	14	40	25	M 10	17	20 x 2	20		
FZA 14 x 60 M10/25 A4	60779	4	ETA	14	60	25	M 10	17	20 x 2	10		
FZA 14 x 60 M10/50 A4	60766	4	ETA	14	60	50	M 10	17	20 x 2	10		
FZA 18 x 80 M12/25 A4	60781	7	ETA	18	80	25	M 12	19	24 x 2,5	10		
FZA 18 x 80 M12/55 A4	60767	1	ETA	18	80	55	M 12	19	24 x 2,5	10		
FZA 22 x 100 M16/60 A4	60782	4	ETA	22	100	60	M 16	24	30 x 3	10		
FZA 22 x 125 M16/60 A4	60768	8	ETA	22	125	60	M 16	24	30 x 3	6		

 Zykon Bolt Anchor **FZA C**, high corrosion-resistant steel 1.4529

Type	Art.-No.	ID	approval	drill-Ø		anchorage depth		max. usable length	Thread		Washer (outer diameter x thickness)	Qty. per box
				d_0 [mm]	h_{ef} [mm]	t_{fix} [mm]	A		SW			
FZA 10 x 40 M 6/10 C	96214	5	ETA	10	40	10	M 6	10	12 x 1,6	25		
FZA 10 x 40 M 6/35 C	96361	6	ETA	10	40	35	M 6	10	12 x 1,6	25		
FZA 12 x 40 M 8/15 C	96215	2	ETA	12	40	15	M 8	13	16 x 1,6	25		
FZA 12 x 50 M 8/15 C	96227	5	ETA	12	50	15	M 8	13	16 x 1,6	20		
FZA 12 x 50 M 8/50 C	96362	3	ETA	12	50	50	M 8	13	16 x 1,6	20		
FZA 14 x 40 M10/25 C	96228	2	ETA	14	40	25	M 10	17	20 x 2	20		
FZA 14 x 60 M10/25 C	96216	9	ETA	14	60	25	M 10	17	20 x 2	10		
FZA 14 x 60 M10/50 C	96358	6	ETA	14	60	50	M 10	17	20 x 2	10		
FZA 18 x 80 M12/25 C	96315	9	ETA	18	80	25	M 12	19	24 x 2,5	10		
FZA 18 x 80 M12/55 C	96359	3	ETA	18	80	55	M 12	19	24 x 2,5	10		
FZA 22 x 100 M16/25 C	33800	1	ETA	22	100	25	M 16	24	30 x 3	10		
FZA 22 x 100 M16/30 C	24523	1	ETA	22	100	30	M 16	24	30 x 3	10		
FZA 22 x 100 M16/60 C	96364	7	ETA	22	100	60	M 16	24	30 x 3	10		
FZA 22 x 125 M16/60 C	96360	9	ETA	22	125	60	M 16	24	30 x 3	6		

Other usable lengths available on request.

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.

TECHNICAL DATA

 Zykon Through anchor **FZA-D**, zinc-plated steel

Type	Art.-No.	ID	approval	drill-Ø	anchorage depth	max. usable length	Thread	width across nut	Washer (outer diameter x thickness)	Qty. per box
			ETA	d_0 [mm]	h_{ef} [mm]	l_{fix} [mm]	A	SW	[mm]	pcs.
FZA 12 x 50 M 8 D/10	60652	0	■	12	40	10	M 8	13	22 x 2,5	25
FZA 12 x 60 M 8 D/10	60653	7	■	12	50	10	M 8	13	22 x 2,5	25
FZA 12 x 80 M 8 D/30	60654	4	■	12	50	30	M 8	13	22 x 2,5	25
FZA 14 x 80 M10 D/20	60657	5	■	14	60	20	M 10	17	25 x 3	10
FZA 14 x 100 M10 D/40	60658	2	■	14	60	40	M 10	17	25 x 3	10
FZA 18 x 100 M12 D/20	60684	1	■	18	80	20	M 12	19	30 x 3	10
FZA 18 x 130 M12 D/50	60685	8	■	18	80	50	M 12	19	30 x 3	10
FZA 22 x 125 M16 D/25	60663	6	■	22	100	25	M 16	24	40 x 4	10

Other usable lengths available on request.

 Zykon Through anchor **FZA-D A4**, stainless steel A4

Type	Art.-No.	ID	approval	drill-Ø	anchorage depth	max. usable length	Thread	width across nut	Washer (outer diameter x thickness)	Qty. per box
			ETA	d_0 [mm]	h_{ef} [mm]	l_{fix} [mm]	A	SW	[mm]	pcs.
FZA 12 x 50 M 8 D/10 A4	60664	3	■	12	40	10	M 8	13	22 x 2,5	25
FZA 12 x 60 M 8 D/10 A4	60665	0	■	12	50	10	M 8	13	22 x 2,5	25
FZA 12 x 80 M 8 D/30 A4	60666	7	■	12	50	30	M 8	13	22 x 2,5	25
FZA 14 x 80 M10 D/20 A4	60669	8	■	14	60	20	M 10	17	25 x 3	10
FZA 14 x 100 M10 D/40 A4	60670	4	■	14	60	40	M 10	17	25 x 3	10
FZA 18 x 100 M12 D/20 A4	60672	8	■	18	80	20	M 12	19	30 x 3	10
FZA 18 x 130 M12 D/50 A4	60673	5	■	18	80	50	M 12	19	30 x 3	10
FZA 22 x 125 M16 D/25 A4	60675	9	■	22	100	25	M 16	24	40 x 4	10


Other usable lengths available on request.

 Zykon Through anchor **FZA-D C**, high corrosion-resistant steel 1.4529

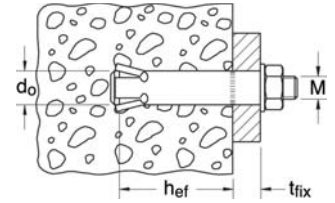
Type	Art.-No.	ID	approval	drill-Ø	anchorage depth	max. usable length	Thread	width across nut	Washer (outer diameter x thickness)	Qty. per box
			ETA	d_0 [mm]	h_{ef} [mm]	l_{fix} [mm]	A	SW	[mm]	pcs.
FZA 12 x 50 M 8 D/10 C	96319	7	■	12	40	10	M 8	13	22 x 3	20
FZA 12 x 60 M 8 D/10 C	96353	1	■	12	50	10	M 8	13	22 x 3	20
FZA 12 x 80 M 8 D/30 C	96354	8	■	12	50	30	M 8	13	22 x 3	20
FZA 14 x 80 M10 D/20 C	96355	5	■	14	60	20	M 10	17	25 x 3	10
FZA 18 x 100 M12 D/20 C	96356	2	■	18	80	20	M 12	19	30 x 3	10
FZA 18 x 130 M12 D/50 C	96357	9	■	18	80	50	M 12	19	30 x 3	10

Other usable lengths available on request.

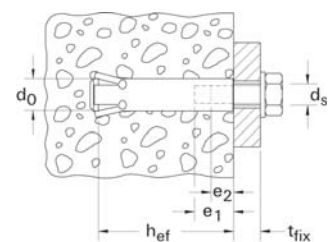
TECHNICAL DATA ZYKON INTERNALLY-THREADED ANCHOR

 Zykon Internally-threaded anchor **FZA-I**, zinc-plated steel

Type	Art.-No.	ID	approval	drill-Ø	anchorage depth	internal thread	min. bolt penetration	max. bolt penetration	qty. per box
			ETA	d_0 [mm]	h_{ef} [mm]	d_s	e_2 [mm]	e_1 [mm]	pcs.
FZA 12 x 40 M 6 I	60758	9	■	12	40	M 6	8	13	25
FZA 14 x 60 M 8 I	60760	2	■	14	60	M 8	11	17	20
FZA 18 x 80 M10 I	60761	9	■	18	80	M 10	13	21	10
FZA 22 x 100 M12 I	60763	3	■	22	100	M 12	15	25	10
FZA 22 x 125 M12 I	60769	5	■	22	125	M 12	15	25	10



High performance steel anchors

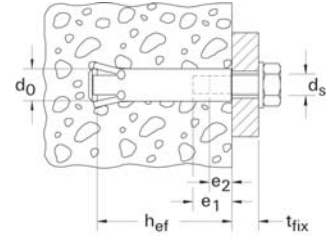


Zykon anchor FZA

TECHNICAL DATA ZYKON INTERNALLY-THREADED ANCHOR

Zykon internally-threaded anchor
FZA-I A4, stainless steel A4

Type	Art.-No.	ID	approval	drill-Ø	anchorage depth	internal thread	min. bolt penetration	max. bolt penetration	qty. per box
			ETA	d_0 [mm]	h_{ef} [mm]	d_s	e_2 [mm]	e_1 [mm]	pcs.
FZA 12 x 40 M 6 I A4	60783	1	■	12	40	M 6	8	13	25
FZA 12 x 50 M 6 I A4	60784	8	■	12	50	M 6	8	13	25
FZA 14 x 60 M 8 I A4	60786	2	■	14	60	M 8	11	17	20
FZA 18 x 80 M10 I A4	60787	9	■	18	80	M 10	13	21	10
FZA 22 x 100 M12 I A4	60788	6	■	22	100	M 12	15	25	10
FZA 22 x 125 M12 I A4	60770	1	■	22	125	M 12	15	25	10



TECHNICAL DATA ZYKON ANCHOR FOR FIXING STEP IRONS

Zykon anchor for fixing step irons
FZA ST A4

Type	Art.-No.	ID	drill-Ø	anchorage depth	max. usable length	thread	width across nut	qty. per box
			d_0 [mm]	h_{ef} [mm]	t_{fix} [mm]	M	SW	pcs.
FZA 14 x 40 ST A4	1) 60686	5	14	40	30	M 10	16	20
FZA 14 x 60 ST A4	1) 60687	2	14	60	30	M 10	16	20

1) According to DIN V 1211GS/1212GS.

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DRILLING AND SETTING TOOLS

Drill bit **FZUB**
approved only for Zykon anchors
and Zykon hammer anchors

Type	Art.-No.	ID	fits anchor			qty. per box [Stück]
			Bolt anchor	Through anchor	Internally-threaded anchor	
FZUB 10 x 40	60622	3	FZA 10 x 40 M6	-	-	1
FZUB 12 x 40	60623	0	FZA 12 x 40 M8	-	FZA 12 x 40 M6 I	1
FZUB 12 x 50	60627	8	FZA 12 x 50 M8	FZA 12 x 50 M8 D/10	FZA 12 x 50 M6 I	1
FZUB 12 x 60	60625	4	-	FZA 12 x 60 M8 D/10	-	1
FZUB 12 x 80	60626	1	-	FZA 12 x 80 M8 D/30	-	1
FZUB 14 x 40	60624	7	FZA 14 x 40 M10	-	-	1
FZUB 14 x 60	60628	5	FZA 14 x 60 M10	-	FZA 14 x 60 M8 I	1
FZUB 14 x 80	60629	2	-	FZA 14 x 80 M10 D/20	-	1
FZUB 14 x 100	60630	8	-	FZA 14 x 100 M10 D/40	-	1
FZUB 18 x 80	60634	6	FZA 18 x 80 M12	-	FZA 18 x 80 M10 I	1
FZUB 18 x 100	60632	2	-	FZA 18 x 100 M12 D/20	-	1
FZUB 18 x 130	60633	9	-	FZA 18 x 130 M12 D/50	-	1
FZUB 22 x 100	60636	0	FZA 22 x 100 M16	-	FZA 22 x 100 M12 I	1
FZUB 22 x 125	60638	4	FZA 22 x 125 M16	FZA 22 x 125 M16 D/25	FZA 22 x 125 M12 I	1
FZE 10 Plus	44637	9	FZA 10 x ... M6	-	-	1
FZE 12 Plus	44638	6	FZA 12 x ... M8	FZA 12 x ... M8 D	FZA 12 x ... M6 I	1
FZE 14 Plus	44639	3	FZA 14 x ... M10	FZA 14 x ... M10 D	FZA 14 x ... M8 I	1
FZE 18 Plus	44640	9	FZA 18 x ... M12	FZA 18 x ... M12 D	FZA 18 x ... M10 I	1
FZE 22 Plus	44641	6	FZA 22 x ... M16	FZA 22 x ... M16 D	FZA 22 x ... M12 I	1

Setting tool **FZE Plus** Including
centring pin for internally-threaded
anchors for assembly with hand
hammer

LOADS - ZYKON BOLT ANCHOR

Mean ultimate loads, design resistant and recommended loads for single anchors of fischer Zykron bolt anchor FZA with large axial spacing and edge distance

Anchor size		Non-cracked concrete									Cracked concrete								
		10 x 40 M6	12 x 40 M8	14 x 40 M10	12 x 50 M8	14 x 60 M10	18 x 80 M12	22 x 100 M16	22 x 125 M16	10 x 40 M6	12 x 40 M8	14 x 40 M10	12 x 50 M8	14 x 60 M10	18 x 80 M12	22 x 100 M16	22 x 125 M16		
Effective anchorage depth	h_{ef} [mm]	40	40	40	50	60	80	100	125	40	40	40	50	60	80	100	125		
Drill hole depth	h_D [mm]	43	44	45	54	65	85	105	130	43	44	45	54	65	85	105	130		
Drill hole diameter	d_D [mm]	10	12	14	12	14	18	22	22	10	12	14	12	14	18	22	22		
Mean ultimate loads N_U and V_U [kN]																			
Tensile	0°	N_U [kN]	gvz	16.1*	17.1	17.1	23.9	31.4	48.3	67.5	94.3	12.0	12.0	12.0	16.7	22.0	33.8	47.2	66.0
			A4/C	14.1*	17.1	17.1	23.9	31.4	48.3	67.5	94.3	12.0	12.0	12.0	16.7	22.0	33.8	47.2	66.0
Shear	90°	V_U [kN]	gvz	9.6*	17.6*	27.8*	17.6*	27.8*	40.5*	75.4*	75.4*	9.6*	15.5	15.5	17.6*	27.8*	40.5*	75.4*	75.4*
			A4/C	8.4*	15.4*	24.4*	15.4*	24.4*	35.4*	65.9*	65.9*	8.4*	15.4*	15.5	15.4*	24.4*	35.4*	65.9*	65.9*
Design resistant loads N_{Rd} and V_{Rd} [kN]																			
Tensile	0°	N_{Rd} [kN]	gvz	9.4	9.4	9.4	13.1	17.2	26.4	37.0	51.7	6.1	6.1	6.1	8.5	11.2	17.2	24.0	33.5
			A4	7.5	9.4	9.4	13.1	17.2	26.4	37.0	51.7	6.1	6.1	6.1	8.5	11.2	17.2	24.0	33.5
			C	9.4	9.4	9.4	13.1	17.2	26.4	37.0	51.7	6.1	6.1	6.1	8.5	11.2	17.2	24.0	33.5
Shear	90°	V_{Rd} [kN]	gvz	6.4	11.8	12.2	11.8	18.6	27.0	50.2	50.2	6.4	7.9	7.9	11.0	18.6	27.0	48.0	50.2
			A4	4.5	8.2	12.2	8.2	13.0	18.9	35.3	35.3	4.5	7.9	7.9	8.2	13.0	18.9	35.3	35.3
			C	5.6	10.2	12.2	10.2	16.2	23.6	44.0	44.0	5.6	7.9	7.9	10.2	16.2	23.6	44.0	44.0
Recommended loads N_{rec} and V_{rec} [kN]																			
Tensile	0°	N_{rec} [kN]	gvz	6.7	6.7	6.7	9.3	12.3	18.9	26.4	36.9	4.3	4.3	4.3	6.1	8.0	12.3	17.1	24.0
			A4	5.4	6.7	6.7	9.3	12.3	18.9	26.4	36.9	4.3	4.3	4.3	6.1	8.0	12.3	17.1	24.0
			C	6.7	6.7	6.7	9.3	12.3	18.9	26.4	36.9	4.3	4.3	4.3	6.1	8.0	12.3	17.1	24.0
Shear	90°	V_{rec} [kN]	gvz	4.6	7.2	7.2	8.4	13.3	19.3	35.9	35.9	4.6	5.6	5.6	7.9	13.3	19.3	34.3	35.9
			A4	3.2	5.9	7.2	5.9	9.3	13.5	25.2	25.2	3.2	5.6	5.6	5.9	9.3	13.5	25.2	25.2
			C	4.0	7.2	7.2	7.3	11.6	16.9	31.4	31.4	4.0	5.6	5.6	7.3	11.6	16.9	31.4	31.4
Recommended bending moment M_{rec} [Nm]																			
		M_{rec} [Nm]	gvz	7.0	17.1	34.1	17.1	34.1	60.0	152.1	152.1	7.0	17.1	34.1	17.1	34.1	60.0	152.1	152.1
			A4	4.9	12.0	23.9	12.0	23.9	41.9	106.4	106.4	4.9	12.0	23.9	12.0	23.9	41.9	106.4	106.4
			C	6.1	15.0	29.9	15.0	29.9	52.4	132.9	132.9	6.1	15.0	29.9	15.0	29.9	52.4	132.9	132.9
Component dimensions, minimum axial spacings and edge distances																			
Min. axial spacing ¹⁾	s_{min} [mm]	40	40	70	50	60	80	100	125	40	40	70	50	60	80	100	125		
Min. edge distance ¹⁾	c_{min} [mm]	35	40	70	45	55	70	100	125	35	40	70	45	55	70	100	125		
Min. structural component thickness	h_{min} [mm]	100	100	100	100	120	160	200	250	100	100	100	100	120	160	200	250		
Required torque	T_{inst} [Nm]	8.5	20	20	20	40	60	100	100	8.5	20	20	20	40	60	100	100		

* Steel failure decisive

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

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

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 ETA please contact the representation in your country.

Zykon anchor FZA

LOADS - ZYKON THROUGH ANCHOR

Mean ultimate loads, design resistant and recommended loads for single anchors of fischer Zykon Through-anchor FZA-D with large axial spacing and edge distance

Anchor size	Non-cracked concrete									Cracked concrete									
	12 x 50 M8 D	12 x 60 M8 D	12 x 80 M8 D	14 x 80 M8 D	14 x 100 M10 D	18 x 100 M12 D	18 x 130 M12 D	22 x 125 M16 D	12 x 50 M8 D	12 x 60 M8 D	12 x 80 M8 D	14 x 80 M8 D	14 x 100 M10 D	18 x 100 M12 D	18 x 130 M12 D	22 x 125 M16 D			
Effective anchorage depth	h_{ef} [mm]	40	50	50	60	60	80	80	100	40	50	50	60	60	80	80	100		
Drill hole depth	h_0 [mm]	44	54	55	65	65	85	85	105	44	54	55	65	65	85	85	105		
Drill hole diameter	d_0 [mm]	12	12	14	14	14	18	18	22	12	12	14	14	14	18	18	22		
Mean ultimate loads N_U and V_U [kN]																			
Tensile	0°	N_U [kN]	gvz	17.1	23.9	23.9	31.4	31.4	48.3	48.3	67.5	12.0	16.7	16.7	22.0	22.0	33.8	33.8	47.2
			A4/C	17.1	23.9	23.9	31.4	31.4	48.3	48.3	67.5	12.0	16.7	16.7	22.0	22.0	33.8	33.8	47.2
Shear	90°	V_U [kN]	gvz	23.8*	23.8*	23.8*	33.6*	33.6*	53.1*	53.1*	85.3*	15.5	21.7	21.7	33.6*	33.6*	53.1*	53.1*	85.3*
			A4/C	25.4*	25.4*	25.4*	34.5*	34.5*	56.2*	56.2*	85.5*	15.5	21.7	21.7	34.5*	34.5*	56.2*	56.2*	85.5*
Design resistant loads N_{Rd} and V_{Rd} [kN]																			
Tensile	0°	N_{Rd} [kN]	gvz	9.4	13.1	13.1	17.2	17.2	26.4	26.4	37.0	6.1	8.5	8.5	11.2	11.2	17.2	17.2	24.0
			A4	9.4	13.1	13.1	17.2	17.2	26.4	26.4	37.0	6.1	8.5	8.5	11.2	11.2	17.2	17.2	24.0
			C	9.4	13.1	13.1	17.2	–	26.4	26.4	–	6.1	8.5	8.5	11.2	–	17.2	17.2	–
Shear	90°	V_{Rd} [kN]	gvz	12.2	17.0	17.0	23.8	23.8	37.0	37.0	60.2	7.9	11.0	11.0	22.3	22.3	34.3	34.3	60.2
			A4	11.4	11.4	11.4	16.3	16.3	24.8	24.8	41.1	7.9	11.0	11.0	16.3	16.3	24.8	24.8	41.1
			C	12.2	14.2	14.2	20.3	–	31.0	31.0	–	7.9	11.0	11.0	20.3	–	31.0	31.0	–
Recommended loads N_{rec} and V_{rec} [kN]																			
Tensile	0°	N_{rec} [kN]	gvz	6.7	9.3	9.3	12.3	12.3	18.9	18.9	26.4	4.3	6.1	6.1	8.0	8.0	12.3	12.3	17.1
			A4	6.7	9.3	9.3	12.3	12.3	18.9	18.9	26.4	4.3	6.1	6.1	8.0	8.0	12.3	12.3	17.1
			C	6.7	9.3	9.3	12.3	–	18.9	18.9	–	4.3	6.1	6.1	8.0	–	12.3	12.3	–
Shear	90°	V_{rec} [kN]	gvz	8.7	12.1	12.1	17.0	17.0	26.5	26.5	43.0	5.6	7.9	7.9	15.9	15.9	24.5	24.5	34.3
			A4	8.2	8.2	8.2	11.6	11.6	17.7	17.7	29.3	5.6	7.9	7.9	11.6	11.6	17.7	17.7	29.3
			C	8.7	10.2	10.2	14.5	–	22.1	22.1	–	5.6	7.9	7.9	14.5	–	22.1	22.1	–
Recommended bending moment M_{rec} [Nm]																			
	M_{rec} [Nm]	gvz	52.8	52.8	52.8	85.7	85.7	174.3	174.3	332.1	52.8	52.8	52.8	85.7	85.7	174.3	174.3	332.1	
		A4	28.1	28.1	28.1	45.9	45.9	92.9	92.9	178.6	28.1	28.1	28.1	45.9	45.9	92.9	92.9	178.6	
		C	35.1	35.1	35.1	57.2	–	116.4	116.4	–	35.1	35.1	35.1	57.2	–	116.4	116.4	–	
Component dimensions, minimum axial spacings and edge distances																			
Min. axial spacing ¹⁾	s_{min} [mm]	40	50	50	60	60	80	80	100	40	50	50	60	60	80	80	100		
Min. edge distance ¹⁾	c_{min} [mm]	40	45	45	55	55	70	70	100	40	45	45	55	55	70	70	100		
Min. structural component thickness	h_{min} [mm]	100	100	100	120	120	160	160	200	100	100	100	120	120	160	160	200		
Required torque	T_{inst} [Nm]	20	20	20	40	40	60	60	100	20	20	20	40	40	60	60	100		

* Steel failure decisive

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

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

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 ETA please contact the representation in your country.

LOADS - ZYKON INTERNALLY-THREADED ANCHOR

Mean ultimate loads, design resistant and recommended loads for single anchors of fischer Zykon internally-threaded anchor FZA-I with large axial spacing and edge distance

Anchor size	Non-cracked concrete							Cracked concrete								
	12 x 40 M6 I	12 x 50 M6 I	14 x 60 M8 I	18 x 80 M10 I	22 x 100 M12 I	22 x 125 M12 I	12 x 40 M6 I	12 x 50 M6 I	14 x 60 M8 I	18 x 80 M10 I	22 x 100 M12 I	22 x 125 M12 I				
Effective anchorage depth	h_{ef}	[mm]	40	50	60	80	100	125	40	50	60	80	100	125		
Drill hole depth	h_0	[mm]	44	54	65	85	105	130	44	54	65	85	105	130		
Drill hole diameter	d_0	[mm]	12	12	14	18	22	22	12	12	14	18	22	22		
Mean ultimate loads N_u and V_u [kN]																
Tensile	0°	N_u	[kN]	gvz	17.2*	–	23.0*	26.9*	63.0*	63.0*	12.0	–	23.0*	26.9*	47.2	63.0*
				A4	13.4*	13.4*	18.0*	22.7*	53.2*	53.2*	12.0	12.0	18.0*	22.7*	47.2	53.2*
Shear	90°	V_u	[kN]	gvz	9.6*	–	17.6*	27.8*	40.5*	40.5*	9.6*	–	17.6*	27.8*	40.5*	40.5*
				A4	8.4*	8.4*	15.4*	24.4*	35.4*	35.4*	8.4*	8.4*	15.4*	24.4*	35.4*	35.4*
Design resistant loads N_{Rd} and V_{Rd} [kN]																
Tensile	0°	N_{Rd}	[kN]	gvz	9.4	–	13.1	13.5	31.5	31.5	6.1	–	11.2	13.5	24.0	31.5
				A4	7.5	7.5	9.9	12.6	29.5	29.5	6.1	7.5	9.9	12.6	24.0	29.5
Shear	90°	V_{Rd}	[kN]	gvz	5.7	–	7.6	7.9	18.5	18.5	5.7	–	7.6	7.9	18.5	18.5
				A4	4.5	4.5	6.0	7.5	17.7	17.7	4.5	4.5	6.0	7.5	17.7	17.7
Recommended loads N_{rec} and V_{rec} [kN]																
Tensile	0°	N_{rec}	[kN]	gvz	6.7	–	9.3	9.6	22.5	22.5	4.3	–	8.0	9.6	17.1	22.5
				A4	5.4	5.4	7.1	9.0	21.1	21.1	4.3	5.4	7.1	9.0	17.1	21.1
Shear	90°	V_{rec}	[kN]	gvz	4.1	–	5.4	5.6	13.2	13.2	4.1	–	5.4	5.6	13.2	13.2
				A4	3.2	3.2	4.3	5.4	12.7	12.7	3.2	3.2	4.3	5.4	12.7	12.7
Recommended bending moment M_{rec} [Nm]																
		M_{rec}	[Nm]	gvz	5.8	–	14.3	25.1	44.1	44.1	5.8	–	14.3	25.1	44.1	44.1
				A4	5.1	5.1	12.5	24.9	43.6	43.6	5.1	5.1	12.5	24.9	43.6	43.6
Component dimensions, minimum axial spacings and edge distances																
Min. axial spacing ¹⁾	s_{min}	[mm]	40	50	60	80	100	125	40	50	60	80	100	125		
Min. edge distance ¹⁾	c_{min}	[mm]	35	45	55	70	100	125	35	45	55	70	100	125		
Min. structural component thickness	h_{min}	[mm]	100	100	120	160	200	250	100	100	120	160	200	250		
Required torque	T_{inst}	[Nm]	8.5	8.5	15	30	60	60	8.5	8.5	15	30	60	60		

* Steel failure, values apply to screws with a strength classification 8.8 and A4-70 respectively.

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

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

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.

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