

BENEFITS

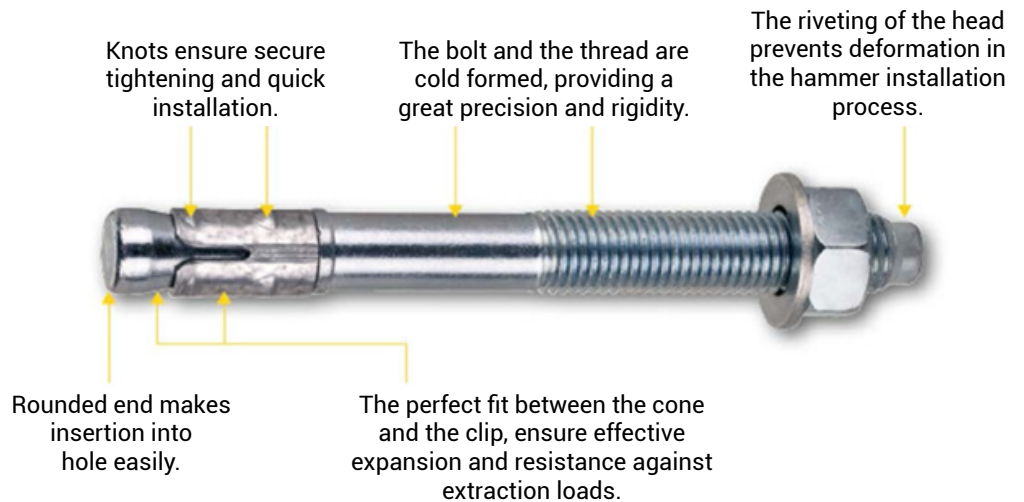
- Quick-fix anchor with Option 1 for a wide variety of applications.
- The BAZ is the right choice for manifold fastenings as it can be used in cracked and non-cracked concrete.
- Reduced force needed to set the anchor.
- Easy to install.
- Long thread.
- More flexibility especially for distance mounting.
- High load values as well as low edge and axial spacing.
- Safe and reliable also in difficult installation situations
- Extensive range
- One BAZ fits all thanks to a wide choice of materials and dimensions
- BAZ: Zinc plated
- BAZ A4: stainless steel A4.
- BAZ HD: hot dipped galvanized.
- BAZ HCR: high corrosion resistant stainless steel
- Fire resistance class R 120.
- For even more security in case of fire.
- For use under seismic action.

APPROVALS

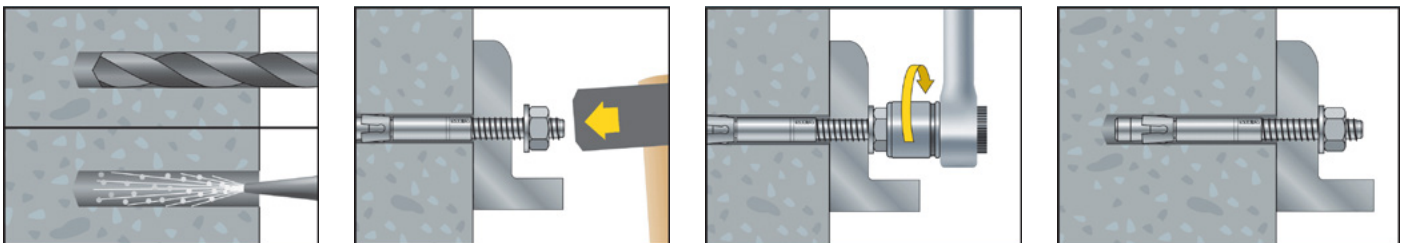


BASE MATERIALS

- Concrete
- Natural stone



INSTALLATION PROCEDURE



CHARACTERISTICS

Material

Table A1. Materials for BAZ y BAZ HD

Part	Designation	Diameter	Material 1) 2)
1	Bolt	M8 – M16	Cold forged steel, EN 10263-2
2	Sleeve	M8 – M16	Cold rolled galvanized steel strip, EN 10147
3	Washer	M8 – M16	Electroplated steel DIN 125(EN ISO 7089), DIN 440(EN ISO 7094), DIN 9021 (EN ISO 7093)
4	Hexagonal nut	M8 – M16	Steel, electroplated, property class 80 DIN 934 (EN ISO 4032)

1) BAZ: Parts 1,3 and 4 are zinc electroplated according to EN ISO 4042 $\geq 5\mu\text{m}$ and bright passivated.

2) BAZ HD: Parts 1, 3 and 4 are hot dip galvanized $> 40\mu\text{m}$ according to EN ISO 10684

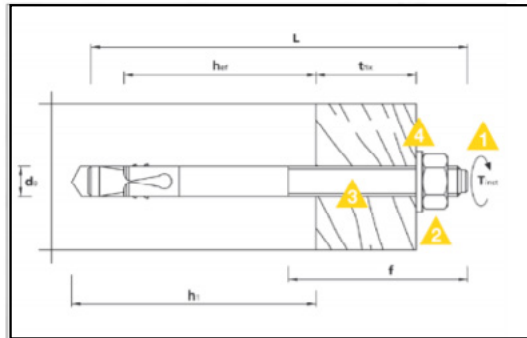
Table A2. Materials for BAZ A4

Part	Designation	Diameter	Material 1) 2)
1	Bolt	M8 – M16	Cold forged stainless steel, EN 10088-3
2	Sleeve	M8 – M16	Stainless steel strip, EN 10088-2
3	Washer	M8 – M16	Stainless steel, DIN 125(EN ISO 7089), DIN 440(EN ISO 7094), DIN 9021 (EN ISO 7093)
4	Hexagonal nut	M8 – M16	Stainless steel, property class 80 DIN 934 (EN ISO 4032)

Table A3. Available ranges

\emptyset -length/ t_{fix}	Range BAZ, BAZ HD	Range BAZ A4	Size	Length L [mm]	Thread length F [mm]	Thickness of fixture t_{fix} [mm]	Effective anchorage depth h_{ef} [mm]	Drill hole $\emptyset d_o$ [mm]	Min. hole depth h_1 [mm]
BAZ M6-40/2 *	x	A4	M6	40	18	2	25	6	35
BAZ M6-65/15 *	x	A4	M6	65	28	15	35	6	50
BAZ M8-52/2 *	x	A4	M8	52	23	2	30	8	45
BAZ M8-72/10	x	A4	M8	72	32	10	45	8	60
BAZ M8-92/30	x	A4	M8	92	52	30	45	8	60
BAZ M8-112/50	x	A4	M8	112	72	50	45	8	60
BAZ M8-147/85	x	–	M8	147	107	85	45	8	60
BAZ M10-92/10	x	A4	M10	92	47	10	60	10	75
BAZ M10-102/20	x	A4	M10	102	57	20	60	10	75
BAZ M10-112/30	x	A4	M10	112	67	30	60	10	75
BAZ M10-132/50	x	A4	M10	132	87	50	60	10	75
BAZ M10-162/80	x	–	M10	162	115	80	60	10	75
BAZ M12-103/5	x	A4	M12	103	53	5	70	12	90
BAZ M12-118/20	x	A4	M12	118	68	20	70	12	90
BAZ M12-128/30	x	A4	M12	128	78	30	70	12	90
BAZ M12-148/50	x	A4	M12	148	98	50	70	12	90
BAZ M12-163/65	x	A4	M12	163	113	65	70	12	90
BAZ M12-178/80	x	–	M12	178	115	80	70	12	90
BAZ M16-123/5	x	A4	M16	123	65	5	85	16	110
BAZ M16-138/20	x	A4	M16	138	80	20	85	16	110
BAZ M16-168/50	–	A4	M16	168	110	50	85	16	110
BAZ M16-178/60	x	–	M16	178	115	60	85	16	110

* not part of the approval



INSTALLATION PARAMETERS

Quick fix anchor BAZ			Anchor size			
			M8	M10	M12	M16
Characteristic spacing	s_{crN}	[mm]	135	180	210	255
Characteristic edge distance	c_{crN}	[mm]	68	90	105	128
Minimum spacing	s_{min} for $c \geq$	[mm]	50 50	55 80	60 90	70 120
Minimum edge distance	c_{min} for $s \geq$	[mm]	50 50	50 100	55 145	85 150
Minimum thickness of concrete member	h_{min}	[mm]	100	120	140	170

Interim values may be interpolated linearly

Anchor size	M6*	M8	M10	M12	M16
Required torque T_{inst} [Nm]	7	20	35	50/70**	120
Width across flats SW	10	13	17	19	24
Diameter of clearance hole in fixture $d_s \leq$ [mm]	7	9	12	14	18
Washer outer \varnothing x thickness [mm]	12 x 1.6	17 x 1.6	21 x 2.0	24 x 2.5	30 x 3.0

* not part of the approval

** 50 for: BAZ, BAZ HD / 70 for: BAZ A4

LOADS

Quick anchor BAZ		Permissible tension load: N_{allow} [1], 2]	
		Cracked concrete C20/25 N_{allow} [kN]	non-cracked concrete C20/25 N_{allow} [kN]
M8	BAZ/ BAZ HD	2.0	3.6
	BAZ A4	2.0	3.6
M10	BAZ/ BAZ HD	3.6	6.3
	BAZ A4	3.6	6.3
M12	BAZ/ BAZ HD	4.8	7.9
	BAZ A4	4.8	7.9
M16	BAZ/ BAZ HD	9.5	16.7
	BAZ A4	9.5	16.7

Quick anchor BAZ		Permissible shear loads V_{allow}	
		Cracked and non-cracked concrete C20/25 V_{allow} [kN]	Permissible bending moment M_{allow} [Nm]
M8	BAZ/ BAZ HD	4.8	10.0
	BAZ A4	5.2	10.5
M10	BAZ/ BAZ HD	8.6	22.9
	BAZ A4	8.1	21.4
M12	BAZ/ BAZ HD	11.0	34.3
	BAZ A4	11.9	37.6
M16	BAZ/ BAZ HD	21.0	88.6
	BAZ A4	22.4	95.2

Recommended loads for the non-approved anchor sizes in non-cracked concrete C20/25

BAZ M6-40/2 (gvz, A4, HD)	N_{rec} [kN]: 1.4, V_{rec} [kN]: 1.4
BAZ M6-65/15 (gvz, A4, HD)	N_{rec} [kN]: 1.8, V_{rec} [kN]: 1.8
BAZ M8-52/2 (gvz, A4, HD)	N_{rec} [kN]: 1.9, V_{rec} [kN]: 3.3

1) For further information please refer to the approval ETA-10/0280.

2) Load figures include the resistances partial safety factors as per approvals and partial safety factor on the action of $\gamma F = 1.4$. Load figures apply for rebar spacing $s = 15$ cm or alternatively for rebar spacing $s = 10$ cm in combination with rebar diameter of $d_s \leq 10$ mm.

3) For higher concrete strengths the values increase up to 28%.

CHARACTERISTIC RESISTANCES UNDER TENSION LOADS IN CASE OF SEISMIC ACTION

Design acc. EOTA TR 045: Performance Category C1.

ApoIo MEA quick fix anchor			Anchor size			
			M8	M10	M12	M16
Steel failure						
Characteristic resistance BAZ	$N_{Rk,s,seis}$	[kN]	13	26	38	68
Characteristic resistance BAZ A4	$N_{Rk,s,seis}$	[kN]	15	24	35	75
Partial safety factor	$\gamma_{Ms,seis}$ 1)	[-]	1.4			
Pull out failure						
Characteristic resistance in cracked concrete C20/25	$N_{Rk,s,seis}$	[kN]	5	9	12	20
Partial safety factor	$\gamma_{Ms,seis}$ 1)	[-]	1.8 2)		1.5 3)	
Concrete cone and splitting failure 4)						
Effective anchorage depth	h_{ef}	[mm]	45	60	70	85
Partial safety factor	$\gamma_{Ms,seis}$ 1)	[-]	1.8 2)		1.5 3)	

1) In absence of other national regulations.

2) The installation safety factor $\gamma_2 = 1.2$ is included.

3) The installation safety factor of $\gamma_2 = 1.0$ is included.

4) For concrete cone and splitting failure, see TR045.

CHARACTERISTIC RESISTANCE UNDER SHEAR LOADS IN CASE OF SEISMIC ACTION

Design acc. EOTA TR 045: Performance Category C1.

Anchor BAZ			Anchor size			
			M8	M10	M12	M16
Steel failure without lever arm						
Characteristic resistance BAZ	$V_{Rk,s,seis}$	[kN]	5.6	11.9	15.4	31.2
Characteristic resistance BAZ A4	$V_{Rk,s,seis}$	[kN]	8.7	11.2	18.3	31.5
Partial safety factor	$\gamma_{Ms,seis}$ 1)	[-]	1.25			
Lateral detachment failure and concrete edge failure						
Effective anchorage depth	h_{ef}	[mm]	45	60	70	85
Partial safety factor	$\gamma_{Ms,seis}$ 1)	[-]	1.5			

1) In absence of other national regulations.

2) Lateral detachment failure and concrete edge failure, see EOTA TR 045.

APPLICATIONS

- BAZ for indoor use.
- BAZ A4 for outdoor use.
- BAZ HD for indoor use and partly outdoor use.
- Baz HCR for very aggressive conditions like road tunnels and indoor swimming pools.



- Support fixings
- Guard rail fixings
- Ceiling fixings

