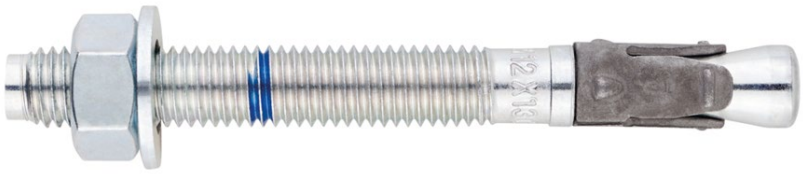
TBU Option 1 Through Bolt

MASONMATE EXTRA® ETA APPROVED FIXINGS

TECHNICAL **DATA SHEET**



Zinc Plated Shaft / Atlantis C3-L Clip

ETA-24/0932

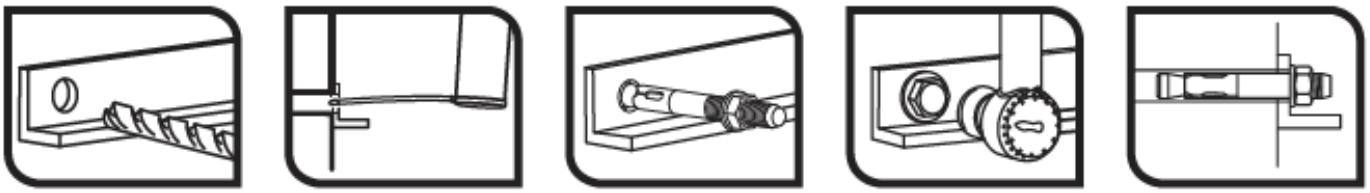
Characteristics

- Installation by controlled torque
- Use for medium loads
- Easy installation
- Use in cracked and uncracked concrete
- Use for seismic loads C1 & C2
- Use for static or quasi-static loads
- Approved for fire resistance R30 to R120
- Vds available for M8 to M20
- Certified Vds CEA 4001:2021-01 for sprinklers

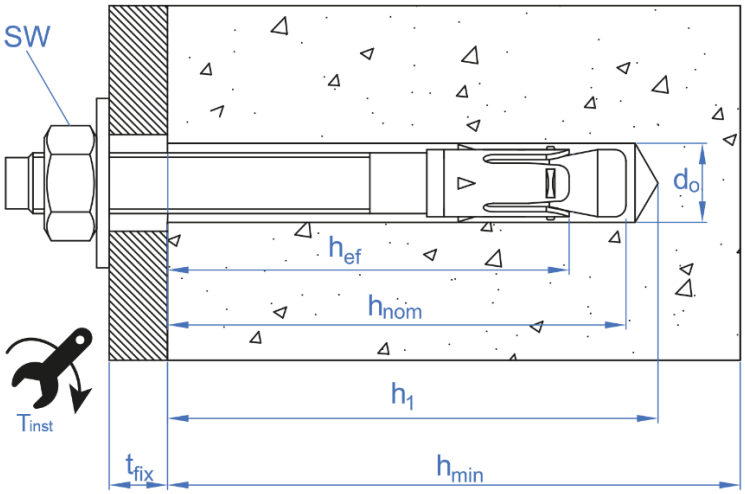
Suitable Materials

- Reinforced Concrete
- Cracked Concrete
- Concrete
- Stone

Installation



Installation Data



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Installation Parameters

Code	Size	Assessed	Drill Bit Diameter	Fixture Clearance Hole	Torque	Minimum Concrete Thickness	Depth of Drill Hole	Installation Depth	Effective Anchorage Depth	Thickness of Fixture
		ETA	D_o	D_f	T_{inst}	h_{min}	H_1	h_{nom}	h_{ef}	t_{fix}
			mm	mm	Nm	mm	mm	mm	mm	mm
MAMTBU08050	M8 x 50		8	9	15	80	40	37	30	2
MAMTBU08075	M8 x 75	✓					60	55	48	9
MAMTBU08080	M8 x 80	✓								14
MAMTBU08095	M8 x 95	✓								29
MAMTBU08115	M8 x 115	✓								49
MAMTBU10090	M10 x 90	✓	10	12	40	90	75	68	60	10
MAMTBU10105	M10 x 105	✓								25
MAMTBU10115	M10 x 115	✓								35
MAMTBU10135	M10 x 135	✓								55
MAMTBU10165	M10 x 165	✓								85
MAMTBU10185	M10 x 185	✓								100
MAMTBU12080	M12 x 80		12	14	60	100	65	60	50	4
MAMTBU12100	M12 x 100	✓				105	85	80	70	4
MAMTBU12110	M12 x 110	✓								14
MAMTBU12120	M12 x 120	✓								24
MAMTBU12130	M12 x 130	✓								34
MAMTBU12150	M12 x 150	✓								54
MAMTBU12180	M12 x 180	✓								84
MAMTBU12200	M2 x 200	✓								104
MAMTBU12220	M12 x 220	✓								124
MAMTBU12255	M12 x 255	✓								159
MAMTBU16105	M16 x 105		16	18	100	130	85	77	65	3
MAMTBU16115	M16 x 115									13
MAMTBU16125	M16 x 125	✓					105	97	85	8
MAMTBU16145	M16 x 145	✓								28
MAMTBU16175	M16 x 175	✓								58
MAMTBU16220	M16 x 220	✓								103
MAMTBU1625	M16 x 250	✓								133
MAMTBU20170	M20 x 170	✓	20	22	200	150	125	114	100	32
MAMTBU20200	M20 x 200	✓								62

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Installation Distances

Code	Size	Assessed	Minimum Allowable Spacing		Minimum Allowable Edge Distance		Critical Spacing (concrete)	Critical Edge Distance (concrete cone)	Critical Spacing (splitting)	Critical Edge Distance (splitting)
		ETA	S_{min} (C ≥)		C_{min} (S ≥)		$S_{cr,N}$	$C_{cr,N}$	$S_{cr,sp}$	$C_{cr,sp}$
MAMTBU08050	M8 x 50		40	55	45	55	90	45	288	144
MAMTBU08075	M8 x 75	✓					144	72	288	144
MAMTBU08080	M8 x 80	✓								
MAMTBU08095	M8 x 95	✓								
MAMTBU08115	M8 x 115	✓								
MAMTBU10090	M10 x 90	✓	40	70	45	90	135	68	300	150
MAMTBU10105	M10 x 105	✓					180	90	300	150
MAMTBU10115	M10 x 115	✓								
MAMTBU10135	M10 x 135	✓								
MAMTBU10165	M10 x 165	✓								
MAMTBU10185	M10 x 185	✓								
MAMTBU12080	M12 x 80		60	75	55	110	150	75	350	175
MAMTBU12100	M12 x 100	✓					210	105	350	175
MAMTBU12110	M12 x 110	✓								
MAMTBU12120	M12 x 120	✓								
MAMTBU12130	M12 x 130	✓								
MAMTBU12150	M12 x 150	✓								
MAMTBU12180	M12 x 180	✓								
MAMTBU12200	M2 x 200	✓								
MAMTBU12220	M12 x 220	✓								
MAMTBU12255	M12 x 255	✓								
MAMTBU16105	M16 x 105		65	95	70	115	255	128	510	255
MAMTBU16115	M16 x 115									
MAMTBU16125	M16 x 125	✓								
MAMTBU16145	M16 x 145	✓								
MAMTBU16175	M16 x 175	✓								
MAMTBU16220	M16 x 220	✓								
MAMTBU1625	M16 x 250	✓								
MAMTBU20170	M20 x 170	✓	95	105	95	105	300	150	600	300
MAMTBU20200	M20 x 200	✓								

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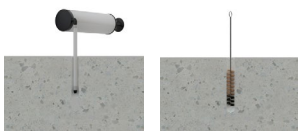
Seismic Load Assessment

Code	Size	Assessed	C1	C2
		ETA		
MAMTBU08050	M8 x 50	-	-	-
MAMTBU08075	M8 x 75	✓	✓	-
MAMTBU08080	M8 x 80	✓	✓	-
MAMTBU08095	M8 x 95	✓	✓	-
MAMTBU08115	M8 x 115	✓	✓	-
MAMTBU10090	M10 x 90	✓	✓	✓
MAMTBU10105	M10 x 105	✓	✓	✓
MAMTBU10115	M10 x 115	✓	✓	✓
MAMTBU10135	M10 x 135	✓	✓	✓
MAMTBU10165	M10 x 165	✓	✓	✓
MAMTBU10185	M10 x 185	✓	✓	✓
MAMTBU12080	M12 x 80	-	-	-
MAMTBU12100	M12 x 100	✓	✓	✓
MAMTBU12110	M12 x 110	✓	✓	✓
MAMTBU12120	M12 x 120	✓	✓	✓
MAMTBU12130	M12 x 130	✓	✓	✓
MAMTBU12150	M12 x 150	✓	✓	✓
MAMTBU12180	M12 x 180	✓	✓	✓
MAMTBU12200	M2 x 200	✓	✓	✓
MAMTBU12220	M12 x 220	✓	✓	✓
MAMTBU12255	M12 x 255	✓	✓	✓
MAMTBU16105	M16 x 105			
MAMTBU16115	M16 x 115			
MAMTBU16125	M16 x 125	✓	✓	-
MAMTBU16145	M16 x 145	✓	✓	-
MAMTBU16175	M16 x 175	✓	✓	-
MAMTBU16220	M16 x 220	✓	✓	-
MAMTBU1625	M16 x 250	✓	✓	-
MAMTBU20170	M20 x 170	✓	✓	✓
MAMTBU20200	M20 x 200	✓	✓	✓

Installation Procedure

1. Drilling
Check the concrete base is compacted and porosity is insignificant. Suitable for dry, wet and flooded drill holes. Use drill in hammer mode. Drill to the specified diameter and depth values.



2. Blow and Clean
Clean the drill holes completely of dust and fragments. Use air pump and brush.

3. Install
Insert the anchor in the hole until the blue ring mark is flat with concrete surface. Use hammer if needed. The installation could be done through the fixture baseplate.

4. Apply the Torque
Apply nominal installation torque wrench. Once installed it can be verified the total length of the anchor through the letter on bolt tip.

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Resistances

Resistances in concrete class C20/C25 for an isolated anchor, without spacing or edge distance effects, for static or quasi-static loads are indicated in the following table:

Code	Size	Assessed	Letter on the head tip	Characteristic Resistance (kN)				Design Resistance (kN)			
				Uncracked Concrete		Cracked Concrete		Uncracked Concrete		Cracked Concrete	
				Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear
		ETA		N_{Rk}	V_{Rk}	N_{Rk}	V_{Rk}	N_{Rd}	V_{Rd}	N_{Rd}	V_{Rd}
MAMTBU08050	M8 x 50		A	4,51	**8,08**	3,22	**5,66**	2,51	**5,39**	1,79	**3,77**
MAMTBU08075	M8 x 75	✓	C	10,00	*11,00*	7,00	**11,45**	5,56	*8,80*	3,89	**7,63**
MAMTBU08080	M8 x 80	✓	D								
MAMTBU08095	M8 x 95	✓	E								
MAMTBU08115	M8 x 115	✓	G								
MAMTBU10090	M10 x 90	✓	E	18,00	*17,40*	11,00	*17,40*	12,00	*13,92*	7,33	*13,92*
MAMTBU10105	M10 x 105	✓	F								
MAMTBU10115	M10 x 115	✓	G								
MAMTBU10135	M10 x 135	✓	H								
MAMTBU10165	M10 x 165	✓	K								
MAMTBU10185	M10 x 185	✓	L								
MAMTBU12080	M12 x 80		D	10,05	*25,30*	7,16	**24,35**	6,70	*20,24*	4,78	**16,23**
MAMTBU12100	M12 x 100	✓	E	28,00	*25,30*	15,00	*25,30*	18,67	*20,24*	10,00	*20,24*
MAMTBU12110	M12 x 110	✓	F								
MAMTBU12120	M12 x 120	✓	G								
MAMTBU12130	M12 x 130	✓	H								
MAMTBU12150	M12 x 150	✓	I								
MAMTBU12180	M12 x 180	✓	L								
MAMTBU12200	M2 x 200	✓	M								
MAMTBU12220	M12 x 220	✓	O								
MAMTBU12255	M12 x 255	✓	R								
MAMTBU16105	M16 x 105		F	**25,78**	**51,56**	**18,05**	**36,09**	**17,19**	**34,37**	**12,03**	**24,06**
MAMTBU16115	M16 x 115		G								
MAMTBU16125	M16 x 125	✓	I	34,00	*47,10*	**26,99**	**53,97**	22,67	*37,68*	**17,99**	**35,98**
MAMTBU16145	M16 x 145	✓	I								
MAMTBU16175	M16 x 175	✓	K								
MAMTBU16220	M16 x 220	✓	O								
MAMTBU1625	M16 x 250	✓	Q								
MAMTBU20170	M20 x 170	✓	K	**49,19**	*73,10*	**34,44**	**68,87**	**32,80**	*58,48*	**22,96**	**45,91**
MAMTBU20200	M20 x 200	✓	M								

1 kN = 100 kg
Values *underlined and in italics* show Steel failure, **bold** values concrete failure and other indicate pull out failure.

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Resistances

Resistances in concrete class C20/C25 for an isolated anchor, without spacing or edge distance effects, for static or quasi-static loads are indicated in the following table:

Code	Size	Assessed	Letter on the head tip	Maximum Recommended Loads (kN) (con γ_F=1.4)							
				Uncracked Concrete		Cracked Concrete					
				Tension	Shear	Tension	Shear				
		ETA		N_{rec}	V_{rec}	N_{rec}	V_{rec}				
MAMTBU08050	M8 x 50		A	1,79	**3,85**	1,28	**2,69**				
MAMTBU08075	M8 x 75	✓	C	3,97	*6,29*	2,78	**5,45**				
MAMTBU08080	M8 x 80	✓	D								
MAMTBU08095	M8 x 95	✓	E								
MAMTBU08115	M8 x 115	✓	G								
MAMTBU10090	M10 x 90	✓	E	8,57	*9,94*	5,24	*9,94*				
MAMTBU10105	M10 x 105	✓	F								
MAMTBU10115	M10 x 115	✓	G								
MAMTBU10135	M10 x 135	✓	H								
MAMTBU10165	M10 x 165	✓	K								
MAMTBU10185	M10 x 185	✓	L								
MAMTBU12080	M12 x 80		D	4,79	*14,46*	3,41	**11,60**				
MAMTBU12100	M12 x 100	✓	E	13,33	*14,46*	7,14	*14,46*				
MAMTBU12110	M12 x 110	✓	F								
MAMTBU12120	M12 x 120	✓	G								
MAMTBU12130	M12 x 130	✓	H								
MAMTBU12150	M12 x 150	✓	I								
MAMTBU12180	M12 x 180	✓	L								
MAMTBU12200	M2 x 200	✓	M								
MAMTBU12220	M12 x 220	✓	O								
MAMTBU12255	M12 x 255	✓	R								
MAMTBU16105	M16 x 105		F	**12,27**	**24,55**	**8,60**	**17,19**				
MAMTBU16115	M16 x 115		G								
MAMTBU16125	M16 x 125	✓	I	16,19	*26,91*	**12,85**	**25,70**				
MAMTBU16145	M16 x 145	✓	I								
MAMTBU16175	M16 x 175	✓	K								
MAMTBU16220	M16 x 220	✓	O								
MAMTBU1625	M16 x 250	✓	Q								
MAMTBU20170	M20 x 170	✓	K	**23,43**	*41,77*	**16,40**	**32,80**				
MAMTBU20200	M20 x 200	✓	M								

1 kN = 100 kg
Values *underlined and in italics* show Steel failure, **bold** values concrete failure and other indicate pull out failure.

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Increasing Factors for Tension Loads In High Resistance Concrete									
Size				**M8**	**M10**	**M12**	**M16**	**M20**	**M24**
ψ_c	$N^0_{Rk,p}$	C30/37		1,22	1,17	1,22	1,22	1,17	1,22
		C40/50		1,41	1,31	1,41	1,41	1,31	1,41
		C50/60		1,58	1,43	1,58	1,58	1,43	1,58

Intended Use						
Size	**M8**	**M10**	**M12**	**M16**	**M20**	**M24**
Static or quasi-static loads	✓	✓	✓	✓	✓	✓
Seismic loads, category C1	✓	✓	✓	✓	✓	✓
Seismic loads, category C2		✓	✓		✓	
Fire exposure resistance	✓	✓	✓	✓	✓	✓

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