

TTMZ SS – MECHANICAL ANCHOR FOR MEDIUM LOADS

Usage:

- anchor for fastening elements of building structures, installations, facades and devices in the scope of medium loads, etc.
- fixing barriers, handrails and infrastructure exposed to corrosive agents
- basic anchor for fixing all types of constructions and installations to concrete base in cracked and non-cracked concrete

Advantages:

- high parameters ensuring safe fastening in cracked and non-cracked concrete
- hi pull-out and shear parameters among mechanical anchors
- fastening in seismic zones of category C1 and C2 (M8-M20 at standard anchoring depth)
- fixing of sprinkler systems in accordance with FM and VdS
- simple assembly without special tools
- fastening possible at a reduced anchorage depth
- fire resistance R30-R120



Method of determining TTMZ anchors			
Anchor mark	Anchor Size – Hole Size d_o [mm]	Anchor length L [mm]	Anchor material A4 Stainless Steel
TTMZ	10	100	SS

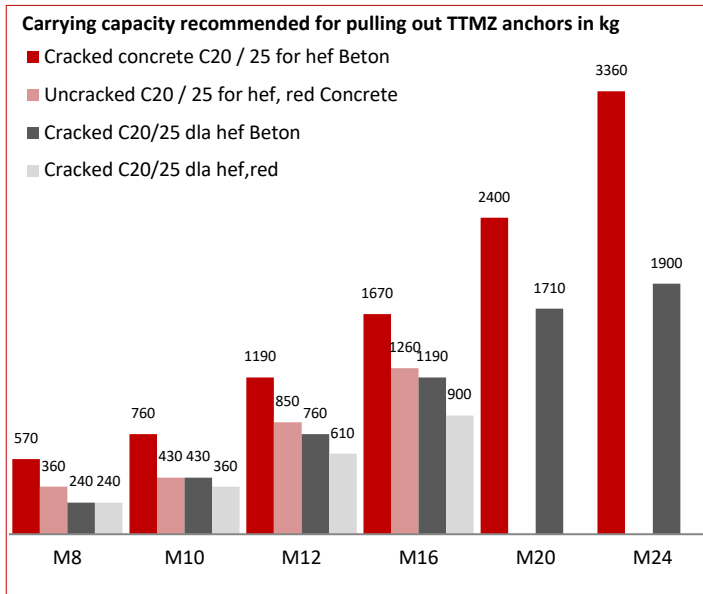


Anchor material:

The TTMZ SS anchor rod in the size from M8 to M20 is made of A4 1.4401, 1.4404, 1.4578, 1.4571 stainless steel. EN 10088: 2014, plastic coated expansion cone. The TTMZ SS anchor rod in size M24 is made of A4 1.4401, 1.4404 stainless steel. EN 10088: 2014. The expansion ring is made of stainless acid-resistant steel A4 1.4401, 1.4404, 1.4571 according to EN 10088: 2014 and the washer and nut are made of A4 1.4401 stainless steel, 1.4571 acc. EN 10088: 2014.

Sunstrate material:

Cracked and non-cracked concrete class $\geq C20 / 25$ to C50 / 60.



Technical parameters of TTMZ SS anchors

Product Code	Product description	Standard anchorage depth			Reduced anchorage depth			Anchor length L [mm]
		Hole Diameter and depth	Effective anchorage depth	Max. thickness of the fixed element	Hole Diameter and depth	Effective anchorage depth	Max. thickness of the fixed element	
		$d_o \times h_1$ [mm]	h_{ef} [mm]	t_{fix} [mm]	$d_o \times h_1$ [mm]	$h_{ef,red}$ [mm]	$t_{fix,red}$ [mm]	
TTMZ08060SS	BZ 8-6/60 s A4	-	-	-	8x49	35	6	60
TTMZ08065SS*	BZ 8-6/65 s A4	-	-	-	8x49	35	11	65
TTMZ08075SS	BZ 8-10-21/75 A4	8x60	46	10	8x49	35	21	75
TTMZ08080SS	BZ 8-15-26/80 A4	8x60	46	15	8x49	35	26	80
TTMZ08095SS	BZ 8-30-41/95 A4	8x60	46	30	8x49	35	41	95
TTMZ08115SS	BZ 8-50-61/115 A4	8x60	46	50	8x49	35	61	115
TTMZ08165SS*	BZ 8-100-111 A4	8x60	46	100	8x49	35	111	165
TTMZ10070SS*	BZ 10-1-/70 s A4	-	-	-	10x55	40	10	70
TTMZ10080SS	BZ 10-20/80 s A4	-	-	-	10x55	40	20	80
TTMZ10090SS	BZ 10-10-30/90 A4	10x75	60	10	10x55	40	30	90
TTMZ10095SS	BZ 10-15-35/95 A4	10x75	60	15	10x55	40	35	95
TTMZ10100SS	BZ 10-20-40/100 A4	10x75	60	20	10x55	40	40	100
TTMZ10110SS	BZ 10-30-50/110 A4	10x75	60	30	10x55	40	50	110
TTMZ10130SS	BZ 10-50-70/130 A4	10x75	60	50	10x55	40	70	130
TTMZ10155SS	BZ 10-75-95/155 A4	10x75	60	75	10x55	40	95	155
TTMZ10180SS	BZ 10-100-120/180 A4	10x75	60	100	10x55	40	120	180
TTMZ10230SS*	BZ 10-150-230 A4	10x75	60	150	-	-	-	230

* Anchors available only on request

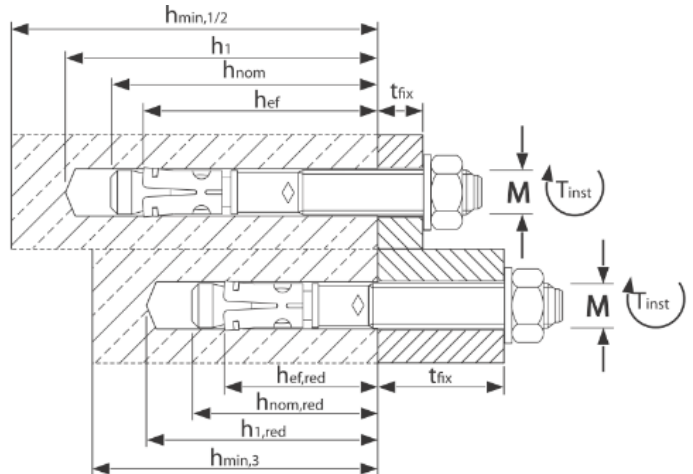
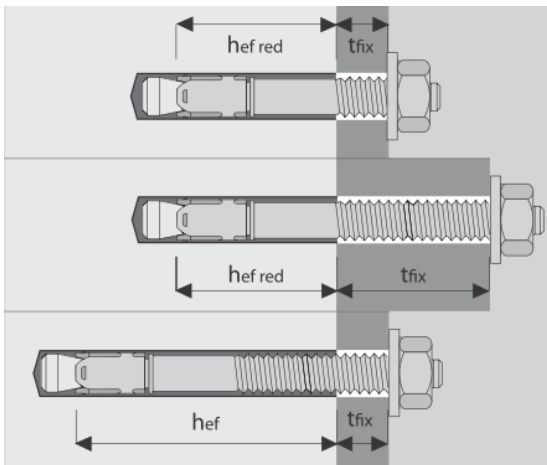
Technical parameters of TTMZ SS anchors

Product Code	Product description	Standard anchorage depth			Reduced anchorage depth			Anchor length L [mm]
		Hole Diameter and depth	Effective anchorage depth	Max. thickness of the fixed element	Hole Diameter and depth	Effective anchorage depth	Max. thickness of the fixed element	
		$d_o \times h_1$ [mm]	h_{ef} [mm]	t_{fix} [mm]	$d_o \times h_1$ [mm]	$h_{ef,red}$ [mm]	$t_{fix,red}$ [mm]	
TTMZ1208SS	BZ 12-10/85 s A4	-	-	-	12x70	50	10	85
TTMZ1209SS	BZ 12-20/95 s A4	-	-	-	12x70	50	20	95
TTMZ1210SS	BZ 12-10-30/105 A4	12x90	70	10	12x70	50	30	105
TTMZ12110SS	BZ 12-15-35/110 A4	12x90	70	15	12x70	50	35	110
TTMZ12115SS	BZ 12-20-40/115 A4	12x90	70	20	12x70	50	40	115
TTMZ12125SS	BZ 12-30-50/125 A4	12x90	70	30	12x70	50	50	125
TTMZ12145SS	BZ 12-50-70/145 A4	12x90	70	50	12x70	50	70	145
TTMZ12160SS	BZ 12-65-85/160 A4	12x90	70	65	12x70	50	85	160
TTMZ12180SS	BZ 12-85-105/180 A4	12x90	70	85	12x70	50	105	180
TTMZ12200SS	BZ 12-105-125/200 A4	12x90	70	105	12x70	50	125	200
TTMZ12220SS	BZ 12-125/220 A4	12x90	70	125	-	-	-	220
TTMZ12255SS*	BZ 12-160/255 A4	12x90	70	160	-	-	-	255
TTMZ12285SS*	BZ 12-190/285 A4	12x90	70	190	-	-	-	285
TTMZ12325SS*	BZ 12-230/325 A4	12x90	70	230	-	-	-	325
TTMZ16115SS	BZ 16-15/115 s A4	-	-	-	16x90	65	15	115
TTMZ16125SS	BZ 16-5-25/125 A4	16x110	85	5	16x90	65	25	125
TTMZ16135SS	BZ 16-15-35/135 A4	16x110	85	15	16x90	65	35	135
TTMZ16145SS	BZ 16-25-45/145 A4	16x110	85	25	16x90	65	45	145
TTMZ16170SS	BZ 16-50-70/170 A4	16x110	85	50	16x90	65	70	170
TTMZ16200SS	BZ 16-80-100/200 A4	16x110	85	80	16x90	65	100	200
TTMZ16220SS	BZ 16-100/220 A4	16x110	85	100	-	-	-	220
TTMZ16280SS*	BZ 16-160/280 A4	16x110	85	160	-	-	-	280
TTMZ20165SS	BZ 20-30/165 A4	20x125	100	30	-	-	-	165
TTMZ20195SS	BZ 20-60/195 A4	20x125	100	60	-	-	-	195
TTMZ20235SS	BZ 20-100/235 A4	20x125	100	100	-	-	-	235
TTMZ20265SS	BZ 20-130/265 A4	20x125	100	130	-	-	-	265
TTMZ20285SS*	BZ 20-150/286 A4	20x125	100	150	-	-	-	285
TTMZ24200SS	BZ 24-30/200 A4	24x155	125	30	-	-	-	200
TTMZ24230SS	BZ 24-60/230 A4	24x155	125	60	-	-	-	230
TTMZ24245SS	BZ 24-75/245 A4	24x155	125	75	-	-	-	245

* Anchors available only on request

Examples of TTMZ SS anchor installation

Installation diagram of the TTMZ SS anchor



Recommended load-bearing capacity TTMZ SS anchors in C 20/25 concrete

Anchor size	M8	M10	M12	M16	M20	M24				
Standard anchorage depth h_{ef} [mm]	46	-	60	-	70	-	85	-	100	125
Reduced anchorage depth $h_{ef,red}$ [mm]	-	35	-	40	-	50	-	65	-	-
uncracked concrete C20 / 25										
Pull-out capacity N_{rec} [kN]	5,7	3,6	7,6	4,3	11,9	8,5	16,7	12,6	24,0	33,6
Shear load capacity V_{rec} [kN]	7,4	7,4	11,4	11,4	17,1	17,1	31,4	30,2	43,9	70,6
cracked concrete C20/25										
Pull-out capacity N_{rec} [kN]	2,4	2,4	4,3	3,6	7,6	6,1	11,9	9,0	17,1	19,0
Shear load capacity V_{rec} [kN]	7,4	7,4	11,4	10,4	17,1	14,5	31,4	21,6	43,9	67,1
spacing and edge distance										
Effective anchorage depth h_{ef} [mm]	46	35	60	40	70	50	85	65	100	125
Characteristic anchor spacing $S_{cr,N}$ [mm]	138	105	180	120	210	150	255	195	300	375
Characteristic distance from the edge $C_{cr,N}$ [mm]	69	52,5	90	60	105	75	127,5	97,5	150	187,5
minimum spacings and edge distances for standard concrete thickness - non-cracked concrete										
Standard concrete thickness $h_{min,1}$	100	-	120	-	140	-	160	-	200	250
Min. Spacing / for distance from the edges s_{min}/c	40/80	-	50/57	-	60/120	-	65/120	-	90/180	125/125
Min. Edge distance / for spacing c_{min}/s	50/100	-	60/120	-	75/150	-	80/150	-	130/240	125/125
minimum spacing and edge distance for standard concrete thickness - cracked concrete										
Min. Spacing / for distance from the edge s_{min}/c	40/70	-	50/75	-	60/100	-	60/100	-	95/150	125/125
Min. Edge distance / for spacing c_{min}/s	40/80	-	55/90	-	60/140	-	60/180	-	95/200	125/125
minimum spacing and edge distance for minimum concrete thickness - non-cracked concrete										
Minimal concrete thickness $h_{min,1}/h_{min,2}$ [mm]	80	80	100	80	120	100	140	140	-	-
Min. Spacing / for distance from the edge s_{min}/c	40/80	50/60	60/140	50/100	60/120	50/160	80/180	65/170	-	-
Min. Edge distance / for spacing c_{min}/s	50/100	40/185	90/140	65/180	75/150	100/185	90/200	170/65	-	-
minimum spacing and distance from the edges for a minimum thickness of concrete - cracked concrete										
Min. Spacing / for distance from the edges s_{min}/c	40/70	50/60	45/90	50/100	60/100	50/160	70/160	65/170	-	-
Min. Edge distance / for spacing c_{min}/s	40/80	40/185	50/115	65/180	60/140	65/250	80/180	100/250	-	-
installation parameters										
Hole diameter in the ground d_0 [mm]	8	8	10	10	12	12	16	16	20	24
Dia. hole in the fixture d_f [mm]	9	9	12	12	14	14	18	18	22	26
Hole depth h_1 [mm]	60	49	75	55	90	70	110	90	125	155
Tightening torque [Nm]	20	20	35	35	50	50	110	110	200	290
Key size [mm]	13	13	17	17	19	19	24	24	30	36

The entire technical assessment of ETA-99/0010 should be taken into account when designing



Fire resistance of HD anchors in cracked and non-cracked concrete of class C20 / 25

Anchor size	M8	M10	M12	M16	M20	M24				
Standard anchorage depth h_{ef} [mm]	46	-	60	-	70	-	85	-	100	125
Reduced anchorage depth $h_{ef,red}$ [mm]	-	35	-	40	-	50	-	65	-	-
Fire resistance for class R30 $F_{Rk,fi}$ [kN]	1,25	1,25	2,25	1,82	4,00	3,18	6,25	4,72	9,00	10,00
Fire resistance for class R60 $F_{Rk,fi}$ [kN]	1,25	1,25	2,25	1,82	4,00	3,18	6,25	4,72	9,00	10,00
Fire resistance for class R90 $F_{Rk,fi}$ [kN]	1,25	1,25	2,25	1,82	4,00	3,18	6,25	4,72	9,00	10,00
Fire resistance for class R120 $F_{Rk,fi}$ [kN]	1,00	1,00	1,80	1,46	3,20	2,55	5,00	3,77	7,20	8,00

The entire technical assessment of ETA-99/0010 should be taken into account when designing

Installation diagram of the TTMZ SS anchor

