

MTH

Denomination: **MTH ANCHOR**

Codes: **MTH, MTH-A4**

Reference: **FT MTH-en**

Date: **13/04/16**

Revision: 3

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CHARACTERISTICS

- Functioning by roughness; installation by controlled torque.
- Using for medium loads.
- Easy installation.
- Use on non-cracked concrete
- Use for static or quasi-static loads.
- Versions in galvanized carbon steel and sherardized.

APPLICATIONS

- Structural fixings in uncracked concrete in indoor applications (MTH) and outdoor applications (MTH-A4).
- Safety fences.
- Fixings of steel beams, channels, machinery, boilers, signals, etc.
- Fixings of wood structures to concrete.

View web profile:



MTH



MTH-A4

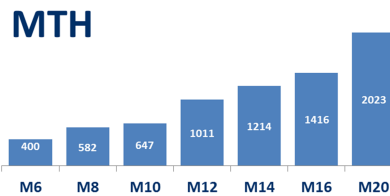


BASE MATERIALS



HORMIGÓN

RECOMENDED TENSION RESISTANCES IN UNCRACKED CONCRETE [kg]



SIZES

M6 - M20

DRILL CONDITION



APPLICATION EXAMPLES



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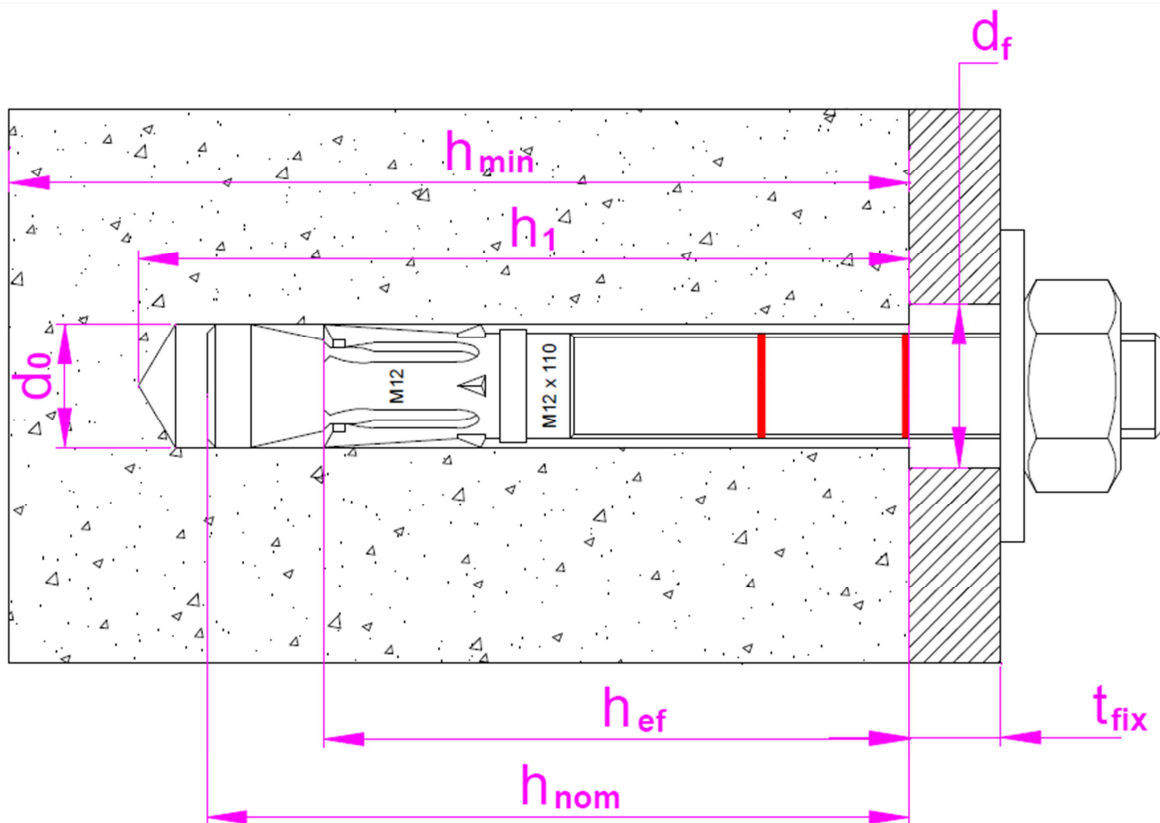
1. RANGE

ITEM	CÓDE	SIZES	PICTURES	COMPONENT	MATERIAL
1	AH	M6 a M20		Wedgebolt Clip Nut Washer	Carbon steel, estampado, galvanized $\geq 5\mu\text{m}$ Carbon steel, galvanized $\geq 5\mu\text{m}$ DIN 934 clase 6 ISO 898-1 galvanized $\geq 5\mu\text{m}$ DIN 125 o DIN 9021 galvanized $\geq 5\mu\text{m}$
2	MIA4	M6 a M20		Wedgebolt Clip Nut Washer	Stainless steel, grade A4 Stainless steel, grade A4 DIN 934 stainless steel, grade A4 DIN 125 o DIN 9021 stainless steel, grade A4

2. ACCESORIES

ITEM	CÓDE	PICTURE	DESCRIPTION
1	DOMTA		Tool for anchor fixing using percussion drilling machine

3. INSTALLATION DATA



TECHINICAL DATA SHEET



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INSTALLATION PARAMETERS			Approved	Nominal drill bit	Installation torque	Standard embedment depth						Reduced embedment depth						Minimum spacing	Minimum edge distance		
						Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distance	Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness			Critical spacing	Critical edge distance
Family	Code	Size	ETE	d ₀ [mm]	T _{inst} [Nm]	h _{min} [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr} [mm]	C _{cr} [mm]	h _{min} [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr} [mm]	C _{cr} [mm]	S _{min} [mm]	C _{min} [mm]
MTH	AH06060	M6 X 60	✓	6	7	100	55	49,5	40	2	120	60	-	-	-	-	-	-	-	50	50
	AH06070	M6 x 70	✓							12											
	AH06080	M6 x 80	✓							22											
	AH06090	M6 x 90	✓							32											
	AH06100	M6 x 100	✓							42											
	AH06110	M6 x 110	✓							52											
	AH06120	M6 x 120	✓							62											
	AH08060	M8 x 60	✓	8	20	100	65	59,5	48	-	144	72	100	50	46,5	35	3	105	53	65	65
	AH08075	M8 x 75	✓							5											
	AH08090	M8 x 90	✓							20											
	AH08100	M8 x 100	✓							30											
	AH08115	M8 x 115	✓							45											
	AH08120	M8 x 120	✓							50											
	AH08130	M8 x 130	✓							60											
	AH08155	M8 x 155	✓	85																	
AH10070	M10 x 70	✓	10	35	-	-	-	-	-	-	-	100	60	53,5	42	3	126	63	70	70	
AH10080	M10 x 80	✓														13					

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						Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distance	Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness			Critical spacing	Critical edge distance
Family	Code	Size	ETE	d ₀ [mm]	T _{inst} [Nm]	h _{min} [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr} [mm]	C _{cr} [mm]	h _{min} [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr} [mm]	C _{cr} [mm]	S _{min} [mm]	C _{min} [mm]
MTH	AH10090	M10 x 90	✓	10	35	110	75	66,5	55	10	165	83	100	60	53,5	42	23	126	63	70	70
	AH10100	M10 x 100	✓							20							33				
	AH10120	M10 x 120	✓							40							53				
	AH10140	M10 x 140	✓							60							73				
	AH10150	M10 x 150	✓							70							83				
	AH10160	M10 x 160	✓							80							93				
	AH10170	M10 x 170	✓							90							103				
	AH10210	M10 x 210	✓							130							143				
	AH10230	M10 x 230	✓							150							163				
	AH12090	M12 x 90	✓	12	60	-	-	-	-	-	-	-	100	70	62	50	13	150	75	85	85
	AH12100	M12 x 100	✓			8	23														
	AH12110	M12 x 110	✓			18	33														
	AH12120	M12 x 120	✓			28	43														
	AH12130	M12 x 130	✓			38	53														
	AH12140	M12 x 140	✓			48	63														
	AH12160	M12 x 160	✓			68	83														
AH12180	M12 x 180	✓	88			103															

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						Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distance	Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness			Critical spacing	Critical edge distance		
Family	Code	Size	ETE	d ₀ [mm]	T _{inst} [Nm]	h _{min} [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr} [mm]	C _{cr} [mm]	h _{min} [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr} [mm]	C _{cr} [mm]	S _{min} [mm]	C _{min} [mm]		
MTH	AH12200	M12 x 200	✓	12	60	130	85	77	65	108	195	98	100	70	62	50	123	150	75	85	85		
	AH12220	M12 x 220	✓							122							143						
	AH12250	M12 x 250	✓							152							173						
	AH14120	M14 x 120	✓	14	90	150	100	91	75	12	225	113	-	-	-	-	-	-	-	-	100	100	
	AH14145	M14 x 145	✓							37													
	AH14170	M14 x 170	✓							62													112
	AH14220	M14 x 220	✓							142													
	AH16125	M16 x 125	✓	16	120	168	110	103,5	84	3	252	126	-	-	-	-	-	-	-	-	110	110	
	AH16145	M16 x 145	✓							23													
	AH16170	M16 x 170	✓							48													
	AH16220	M16 x 220	✓							98													
	AH16250	M16 x 250	✓							128													
	AH16280	M16 x 280	✓	158																			
	AH20170	M20 x 170	✓	20	240	206	135	125	103	23	309	155	-	-	-	-	-	-	-	-	135	135	
	AH20220	M20 x 220	✓							73													
AH20270	M20 x 270	✓	123																				

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						Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distance	Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distance	Minimum spacing	Minimum edge distance							
Family	Code	Size	ETE	d ₀ [mm]	T _{inst} [Nm]	h _{min} [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr} [mm]	C _{cr} [mm]	h _{min} [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr} [mm]	C _{cr} [mm]	S _{min} [mm]	C _{min} [mm]							
MTH-A4	MIA406045	M6 x 45		6	7	100	40	35	25	1	75	40	-	-	-	-	-	-	-	-	50	50						
	MIA406060	M6 x 60	✓				55	49,5	40	2	120	60																
	MIA406080	M6 x 80	✓				22																					
	MIA408050	M8 x 50		8	20	100	40	35	23	4	75	40	-	-	-	-	-	-	-	-	65	65						
	MIA408075	M8 x 75	✓				5	144	72	100	50	46,5											35	18	105	53		
	MIA408090	M8 x 90	✓				20																				33	
	MIA408115	M8 x 115	✓				45																				58	
	MIA410070	M10 x 70	✓	10	35	-	-	-	-	-	-	-	100	60	53,5	42	-	-	-	-	70	70						
	MIA410090	M10 x 90	✓			10	165	83	-	-	-	-											3	126	63			
	MIA410120	M10 x 120	✓			40																				23		
	MIA410150	M10 x 150	✓			70																				53		
	MIA412075	M12 x 75		12	60	100	60	55	43	5	130	65	-	-	-	-	-	-	-	-	85	85						
	MIA412090	M12 x 90	✓			-	-	-	-	-	-	100											70	62	50	13	150	75
	MIA412110	M12 x 110	✓			18	195	98	33																			
	MIA412140	M12 x 140	✓			48				63																		
MIA416090	M16 x 90		16	120	100	75	69	49	4	150	75	-	-	-	-	-	-	-	-	110	110							
MIA416145	M16 x 145	✓			23	252	126	-	-	-	-											-	-					
MIA416170	M16 x 170	✓			48																							

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						Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distance	Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distance	Minimum spacing	Minimum edge distance	
Family	Code	Size	ETE	d_0 [mm]	T_{inst} [Nm]	h_{min} [mm]	h_1 [mm]	h_{nom} [mm]	h_{ef} [mm]	t_{fix} [mm]	S_{cr} [mm]	C_{cr} [mm]	h_{min} [mm]	h_1 [mm]	h_{nom} [mm]	h_{ef} [mm]	t_{fix} [mm]	S_{cr} [mm]	C_{cr} [mm]	S_{min} [mm]	C_{min} [mm]	
MTH-A4	MIA420120	M20 x 120		20	240	145	105	93	71	5	225	110	-	-	-	-	-	-	-	-	135	135
	MIA420170	M20 x 170	✓			206	135	125	103	23	309	155										
	MIA420220	M20 x 220	✓			206	135	125	103	73	309	155										

Critical distances are those where anchors in a group are not influenced by one another with regard to tension load effects. For smaller distances, down to minimum distances, corresponding reduction coefficients must be applied.

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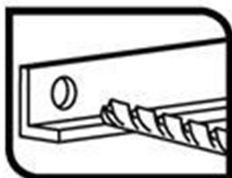
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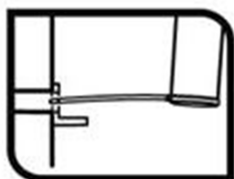
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4. PRODUCT INSTALLATION



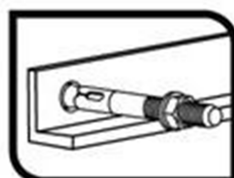
1. DRILLING

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



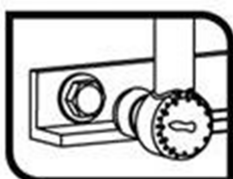
2. BLOW AND CLEAN

Clear the drill holes completely of dust and fragments
Use air pump and brush.



3. INSTALL

Insert the anchor in the hole until the red ring mark is flat with concrete surface.
Use hammer in case of need; DOMTA tool could be used alternatively.
The installation could be done through the fixture baseplate.



4. APPLY TORQUE

Apply nominal installation torque using a torque wrench.

Once installed it can be verified the total length of the anchor through the letter on bolt tip.

5. RESISTANCES

Characteristic resistances for C20/25 uncracked concrete for an isolated anchor (without considering anchor-to-anchor or anchor-to-edge distance effects).

Resistances values			Standard embedment depth				Reduced embedment depth			
			Tension	Shear	Safety factor		Tension	Shear	Safety factor	
Family	Code	Size	NR,k [kN]	VR,k [kN]	Tension	Shear	NR,k [kN]	VR,k [kN]	Tension	Shear
MTH	AH06060	M6 X 60	7,7	5,1	1,40	1,25	-	-	-	-
	AH06070	M6 x 70								
	AH06080	M6 x 80								
	AH06090	M6 x 90								
	AH06100	M6 x 100								
	AH06110	M6 x 110								
	AH06120	M6 x 120								
	AH08060	M8 x 60	-	-	-	-	9	10,4	1,50	1,50
	AH08075	M8 x 75								
	AH08090	M8 x 90								
AH08100	M8 x 100									

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Resistances values			Standard embedment depth				Reduced embedment depth			
			Tension NR,k [kN]	Shear VR,k [kN]	Safety factor		Tension NR,k [kN]	Shear VR,k [kN]	Safety factor	
Family	Code	Size			Tension	Shear			Tension	Shear
MTH-A4	MIA406045	M6 x 45	6,3	6,0	1,50	1,52	-	-	-	-
	MIA406060	M6 x 60	10,1	6,0	1,68	1,52	-	-	-	-
	MIA406080	M6 x 80								
	MIA408050	M8 x 50	5,6	5,6	1,50	1,52-	-	-	-	-
	MIA408075	M8 x 75	12,0	10,9	1,50	1,52	9	10,4	1,50	1,50
	MIA408090	M8 x 90								
	MIA408115	M8 x 115								
	MIA410070	M10 x 70	12,8	12,8	1,80	1,50	12	13,7	1,50	1,50
	MIA410090	M10 x 90								
	MIA410120	M10 x 120	16,0	17,4	1,80	1,52				
	MIA410150	M10 x 150								
	MIA412075	M12 x 75	14,2	14,2	1,80	1,50	-	-	-	-
	MIA412090	M12 x 90	-	-	-	-	16	17,8	1,50	1,50
	MIA412110	M12 x 110	25,0	25,2	1,80	1,52				
	MIA412140	M12 x 140								
	MIA416090	M16 x 90	17,3	17,3	1,80	1,50	-	-	-	-
	MIA416145	M16 x 145	35,0	47,1	1,80	1,52	-	-	-	-
	MIA416170	M16 x 170								
MIA420120	M20 x 120	30,2	60,3	1,80	1,50	-	-	-	-	
MIA420170	M20 x 170	50,0	73,5	1,80	1,52					
MIA420220	M20 x 220									

1 KN ≈ 100 kg

A load safety factor of $\gamma_F = 1,4$ is recommended

Concrete increasing coefficient:

Concrete class	Coefficient
C30/37	1.22
C40/50	1.41
C50/60	1.55

Design example:

Fixing a tension load of 1.500 kg (= 14.71 kN) in C30/37 uncracked concrete using a M16 AH16145 anchor.

Check to be done: Design load < Design resistance

Design load = service load * load safety factor = 14.71 * 1,4 = 20.60 kN

Design resistance = characteristic resistance * concrete coefficient / tension partial safety coefficient = 35.0 * 1.22 / 1,8 = 23.73 kN

Check: 20.60 kN < 23.73 kN: anchorage is safe.

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For complex anchor designs we recommended our anchor design software INDEXcal.

6. OFFICIAL DOCUMENTATION

The following documents are available through our Sales Department or on our official website: www.indexfix.com

- European Technical ETA-11/0103 for use in non-cracked concrete, according to ETAG 001 guideline, option 7 , from M6 to M20.
- Certificate of constancy of performances 1219-CPR-0006
- Declaration of Performances DoP MTH-en.
- INDEXcal Anchor Calculation Software.