

# MTP

Denomination: **MTP ANCHOR**

Codes: **MTP, MTP-G, MTP-X**

Reference: **FT MTP-en**

Date: **28/04/16**

Revision: 3

Page: **1 de 13**



**FIRE**  
RESISTANCE



MTP

MTP-G

MTP-X



## CHARACTERISTICS

- Functioning by roughness; installation by controlled torque.
- Use for medium loads.
- Easy installation.
- Use in cracked and uncracked concrete.
- Use for static or cuasi-static loads.
- Approved for fire resistance R30 to R120.
- Versions in galvanized carbon steel and sherardized.

## APPLICATIONS

- Structural fixing in cracked concrete in indoor applications.
- Safety fences.
- Sprinklers installation.
- Fixings of steel beams, channels, machinery, boilers, signals, etc.
- Fixings of wood structures to concrete.

View web profile:



MTP

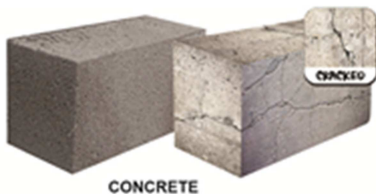


MTP-G



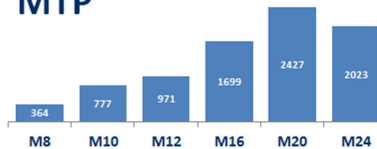
MTP-X

## BASE MATERIALS

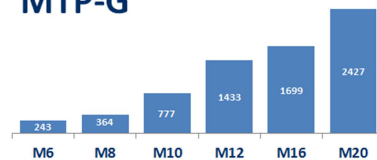


## RECOMMENDED TENSION RESISTANCES IN UNCRACKED CONCRETE [kg]

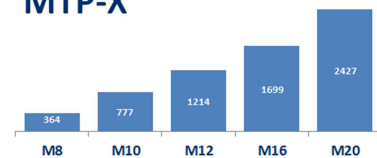
### MTP



### MTP-G



### MTP-X



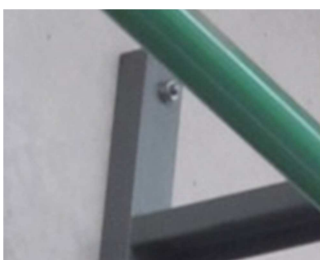
## SIZES

**M6 - M24**

## DRILL CONDITION



## APPLICATION EXAMPLES



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Reference: **FT MTP-en**

Date: **28/04/16**

Revision: 3

Page: **2 de 13**

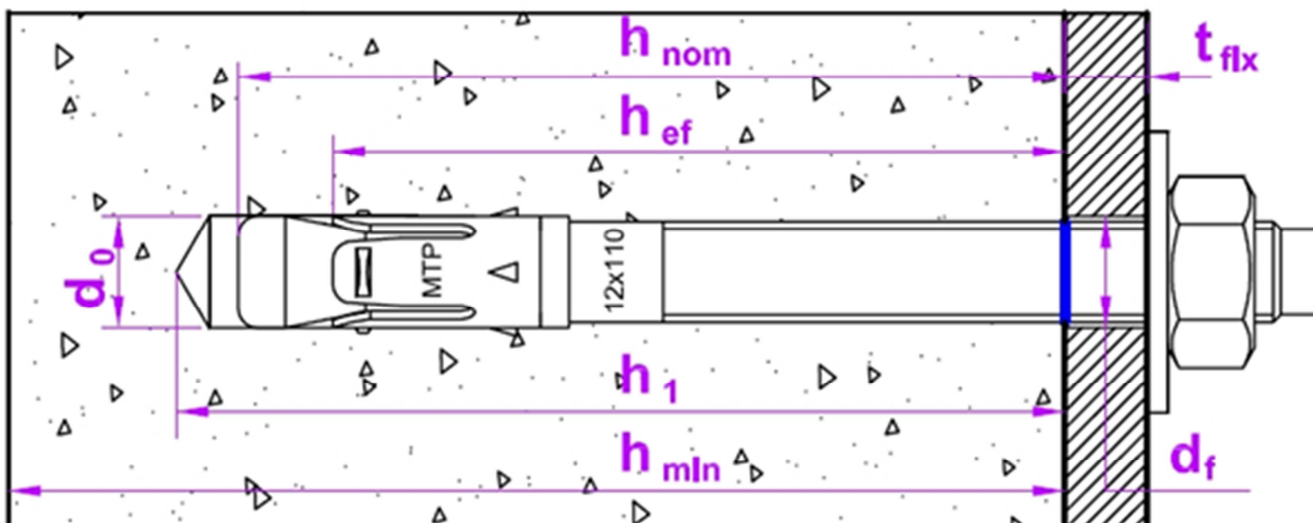
## 1. RANGE

ITEM	CÓDE	SIZES	PICTURES	COMPONENT	MATERIAL
1	<b>MTP</b>	M8 a M24		Wedgebolt Clip Nut Washer	Carbon steel, galvanized $\geq 5 \mu\text{m}$ A4 stainless steel DIN 934, galvanized $\geq 5 \mu\text{m}$ DIN 125 o DIN 9021, cincada $\geq 5 \mu\text{m}$
2	<b>MTP-G</b>	M6 a M20		Wedgebolt Clip Nut Washer	Carbon steel, sherardized $\geq 40 \mu\text{m}$ A4 stainless steel DIN 934, sherardized $\geq 40 \mu\text{m}$ DIN 125 o DIN 9021, sherardized $\geq 40 \mu\text{m}$
3	<b>MTP-X</b>	M6 a M20		Wedgebolt Clip Nut Washer	Carbon steel, galvanized $\geq 5 \mu\text{m}$ Carbon steel, sherardized $\geq 40 \mu\text{m}$ DIN 934, galvanized $\geq 5 \mu\text{m}$ DIN 125 o DIN 9021, galvanized $\geq 5 \mu\text{m}$

## 2. ACCESORIES

ITEM	CODE	PICTURE	DESCRIPTION
1	<b>DOMTA</b>		Tool for anchor fixing using percussion drilling machine

## 3. INSTALLATION DATA



# TECHNICAL DATA SHEET

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Date: **28/04/16**

Revision: **3**

Page: **3 de 13**

INSTALLATION PARAMETERS			Assessed	Nominal drill bit	Installation torque	Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distances	Minimum spacing	Minimum edge distance
Family	Code	Size	ETA	d <sub>0</sub> [mm]	T <sub>inst</sub> [Nm]	h <sub>min</sub> [mm]	h <sub>1</sub> [mm]	h <sub>nom</sub> [mm]	h <sub>ef</sub> [mm]	t <sub>fix</sub> [mm]	S <sub>cr</sub> [mm]	C <sub>cr</sub> [mm]	S <sub>min</sub> [mm]	C <sub>min</sub> [mm]
MTP	AP08050	M8x50		8	20	100	40	37	30	2	144	72	50	50
	AP08075	M8x75	✓				9							
	AP08095	M8x95	✓				29							
	AP08115	M8x115	✓				49							
	AP10090	M10x90	✓	10	40	120	75	68	60	10	180	90	60	60
	AP10105	M10x105	✓							25				
	AP10115	M10x115	✓							35				
	AP10135	M10x135	✓							55				
	AP10165	M10x165	✓							85				
	AP10185	M10x185	✓							105				
	AP12080	M12x80		12	60	140	85	80	70	4	210	105	70	70
	AP12100	M12x100	✓							4				
	AP12110	M12x110	✓							14				
	AP12120	M12x120	✓							24				
	AP12130	M12x130	✓							34				
	AP12150	M12x150	✓							54				
	AP12180	M12x180	✓							84				
	AP12200	M12x200	✓							104				
AP16145	M16x145	✓	16	100	170	105	97	85	28	255	128	85	85	

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Reference: **FT MTP-en**

Date: **28/04/16**

Revision: **3**

Page: **4 de 13**

INSTALLATION PARAMETERS			Assessed	Nominal drill bit	Installation torque	Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distances	Minimum spacing	Minimum edge distance										
Family	Code	Size	ETA	$d_0$	$T_{inst}$	$h_{min}$	$h_1$	$h_{nom}$	$h_{ef}$	$t_{fix}$	$S_{cr}$	$C_{cr}$	$S_{min}$	$C_{min}$										
				[mm]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]									
MTP	AP16175	M16x175	✓	16	100	170	105	97	85	58	255	128	85	85										
	AP16220	M16x220	✓							103														
	AP16250	M16x250	✓							133														
	AP20170	M20x170	✓	20	200	200	125	114	100	32	300	150	100	100										
	AP20200	M20x200	✓							62														
	AP24205	M24x205	✓							24					250	250	155	143	125	35	375	188	125	125
	AP24235	M24x235	✓																	65				
MTP-G	APG06060	M6x60		6	7	100	50	46	40	10	120	60	40	40										
	APG06070	M6x70								20														
	APG06100	M6x100								50														
	APG08050	M8x50		8	15	100	40	55	48	2	144	72	50	50										
	APG08060	M8x60					12																	
	APG08075	M8x75	✓				9																	
	APG08095	M8x95	✓				29																	
	APG08115	M8x115	✓				60			49														
	APG10070	M10x70		10	40	100	60	53	45	5	180	90	60	60										
	APG10090	M10x90	✓												10									
	APG10105	M10x105	✓			120	75	68	60	25														
APG10115	M10x115	✓							35															

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Reference: **FT MTP-en**

Date: **28/04/16**

Revision: **3**

Page: **5 de 13**

INSTALLATION PARAMETERS			Assessed	Nominal drill bit	Installation torque	Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distances	Minimum spacing	Minimum edge distance
Family	Code	Size	ETA	$d_0$	$T_{inst}$	$h_{min}$	$h_1$	$h_{nom}$	$h_{ef}$	$t_{fix}$	$S_{cr}$	$C_{cr}$	$S_{min}$	$C_{min}$
				[mm]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
MTP-G	APG10135	M10x135	✓	10	40	120	75	68	60	55	180	90	60	60
	APG10165	M10x165	✓							85				
	APG10185	M10x185	✓							105				
	APG12080	M12x80		12	60	100	85	80	70	4	210	105	70	70
	APG12110	M12x110	✓			14								
	APG12130	M12x130	✓			34								
	APG12150	M12x150	✓			54								
	APG12180	M12x180	✓			84								
	APG12200	M12x200	✓			104								
	APG16125	M16x125	✓	16	100	170	105	97	85	8	255	128	128	128
	APG16145	M16x145	✓							28				
	APG16175	M16x175	✓							58				
	APG16220	M16x220	✓							103				
	APG20170	M20x170	✓	20	200	200	125	114	100	32	300	150	150	150
	APG20200	M20x200	✓							62				
MTP-X	APX08050	M8x50		8	15	100	40	55	48	2	144	72	50	50
	APX08075	M8x75	✓				9							
	APX08095	M8x95	✓				29							
	APX08115	M8x115	✓				49							

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Denomination: **ANCLAJE MTP**

Codes: **MTP, MTP-G, MTP-X**

Reference: **FT MTP-en**

Date: **28/04/16**

Revision: **3**

Page: **6 de 13**

INSTALLATION PARAMETERS			Assessed	Nominal drill bit	Installation torque	Minimum concrete thickness	Drill hole depth	Embedment depth	Effective depth	Maximum fixture thickness	Critical spacing	Critical edge distances	Minimum spacing	Minimum edge distance
Family	Code	Size	ETA	$d_0$ [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]	$S_{min}$ [mm]	$C_{min}$ [mm]
MTP-X	APX10090	M10x90		10	40	100	60	53	45	5	180	90	60	60
	APX10105	M10x105	✓			25								
	APX10115	M10x115	✓			35								
	APX10135	M10x135	✓			55								
	APX10165	M10x165	✓			85								
	APX10185	M10x185	✓			105								
	APX12080	M12x80		12	60	100	65	60	50	4	210	105	70	70
	APX12100	M12x100	✓			4								
	APX12110	M12x110	✓			14								
	APX12120	M12x120	✓			24								
	APX12130	M12x130	✓			34								
	APX12150	M12x150	✓			54								
	APX12180	M12x180	✓			84								
	APX12200	M12x200	✓			104								
	APX16145	M16x145	✓	16	100	170	105	97	85	28	255	128	128	128
	APX16175	M16x175	✓							58				
	APX16220	M16x220	✓							103				
	APX16250	M16x250	✓							133				
APX20170	M20x170	✓	20	200	200	125	114	100	32	300	150	150	150	
APX20200	M20x200	✓							62					

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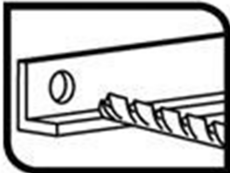
Date: **28/04/16**

Revision: 3

Page: **7 de 13**

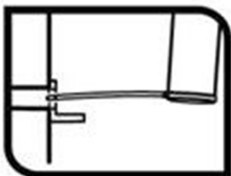
Critical distances are those where anchors in an anchor group are not influenced by one another with regard to tension load effects. For smaller distances, down to minimum distances, corresponding reduction coefficients must be applied.

## 4. PRODUCT INSTALLATION



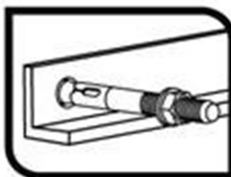
### 1. DRILLING

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.



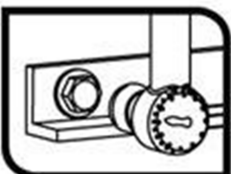
### 2. BLOW AND CLEAN

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 concrete for an isolated anchor (without considering anchor-to-anchor or anchor-to-edge distance effects).



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Reference: **FT MTP-en**

Date: **28/04/16**

Revision: **3**

Page: **9 de 13**

Family	Code	Size	ETA assessed	Letter on head tip	Tension resistance in C20/25 concrete		Coefficient for higher concrete resistances			Tension partial safety coefficient	Shear resistance		Shear partial safety coefficient	
					Uncracked	Cracked	C30/37	C40/45	C50/60		Uncracked	Cracked	Uncracked	Cracked
					N <sub>Rk</sub> [kN]	N <sub>Rk</sub> [kN]	Ψ [-]	Ψ [-]	Ψ [-]	γ <sub>M</sub> [-]	V <sub>Rk</sub> [kN]	V <sub>Rk</sub> [kN]	γ <sub>M</sub> [-]	γ <sub>M</sub> [-]
MTP	AP20170	M20x170	✓	K	50,0	30,0	1,16	1,31	1,41	1,5	73,1	72,0	1,25	1,5
	AP20200	M20x200	✓	M										
	AP24205	M24x205	✓	N	50,0	30,0				1,8	84,7	100,6	1,25	1,5
	AP24235	M24x235	✓	P										
MTP-G	APG06060	M6X60		B	6,0	--	1,22	1,41	1,55	1,8	6,0	--	1,25	--
	APG06070	M6X70		C										
	APG06100	M6X100		E										
	APG08050	M8x50		A	4,5	3,2				1,8	8,3	5,9	1,5	1,5
	APG08060	M8X60		B										
	APG08075	M8x75	✓	C	9,0	6,0	1,22	1,41	1,55	1,8	11,0	12,0	1,25	1,5
	APG08095	M8x95	✓	E										
	APG08115	M8x115	✓	G										
	APG10070	M10x70		C										
	APG10090	M10x90	✓	E	16,0	9,0	1,16	1,31	1,41	1,5	17,4	17,4	1,25	1,25
	APG10105	M10x105	✓	F										
	APG10115	M10x115	✓	G										
	APG10135	M10x135	✓	H										
	APG10165	M10x165	✓	K										
	APG10185	M10x185	✓	L										
	APG12080	M12x80		D	12,0	8,0	1,22	1,41	1,55	1,5	25,3	25,4	1,25	1,5
APG12100	M12x100	✓	E	30,0	16,0									
APG12110	M12x110	✓	F			25,3						25,3	1,25	1,25
APG12130	M12x130	✓	H											

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Codes: **MTP, MTP-G, MTP-X**

Reference: **FT MTP-en**

Date: **28/04/16**

Revision: **3**

Page: **10 de 13**

Family	Code	Size	ETA assessed	Letter on head tip	Tension resistance in C20/25 concrete		Coefficient for higher concrete resistances			Tension partial safety coefficient	Shear resistance		Shear partial safety coefficient	
					Uncracked	Cracked	C30/37	C40/45	C50/60		Uncracked	Cracked	Uncracked	Cracked
					N <sub>Rk</sub> [kN]	N <sub>Rk</sub> [kN]	Ψ [-]	Ψ [-]	Ψ [-]	γ <sub>M</sub> [-]	V <sub>Rk</sub> [kN]	V <sub>Rk</sub> [kN]	γ <sub>M</sub> [-]	γ <sub>M</sub> [-]
MTP-G	APG12150	M12x150	✓	I	30,0	16,0	1,22	1,41	1,55	1,5	25,3	25,3	1,25	1,25
	APG12180	M12x180	✓	L										
	APG12200	M12x200	✓	M										
	APG16125	M16x125	✓	G	35,0	25,0	1,22	1,41	1,55	1,5	47,1	56,4	1,25	1,5
	APG16145	M16x145	✓	I										
	APG16175	M16x175	✓	K										
	APG16220	M16x220	✓	O										
	APG20170	M20x170	✓	K	50,0	30,0	1,16	1,31	1,41	1,5	73,1	72,0	1,25	1,5
	APG20200	M20x200	✓	M										
MTP-X	APX08050	M8x50		A	4,5	3,2	1,22	1,41	1,55	1,8	8,3	5,9	1,5	1,5
	APX08075	M8x75	✓	C	9,0	6,0								
	APX08095	M8x95	✓	E							11,0	12,0	1,25	
	APX08115	M8x115	✓	G										
	APX10090	M10x90	✓	E	16,0	9,0	1,16	1,31	1,41	1,5	17,4	17,4	1,25	1,25
	APX10105	M10x105	✓	F										
	APX10115	M10x115	✓	G										
	APX10135	M10x135	✓	H										
	APX10165	M10x165	✓	K										
	APX10185	M10x185	✓	L										

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Reference: **FT MTP-en**

Date: **28/04/16**

Revision: 3

Page: **11 de 13**

Family	Code	Size	ETA assessed	Letter on head tip	Tension resistance in C20/25 concrete		Coefficient for higher concrete resistances			Tension partial safety coefficient	Shear resistance		Shear partial safety coefficient	
					Uncracked	Cracked	C30/37	C40/45	C50/60		Uncracked	Cracked	Uncracked	Cracked
					N <sub>Rk</sub> [kN]	N <sub>Rk</sub> [kN]	Ψ [-]	Ψ [-]	Ψ [-]	γ <sub>M</sub> [-]	V <sub>Rk</sub> [kN]	V <sub>Rk</sub> [kN]	γ <sub>M</sub> [-]	γ <sub>M</sub> [-]
MTP-X	APX12080	M12x80		D	12,0	8,0						25,4		1,5
	APX12100	M12x100	✓	E	25,0	16	1,22	1,41	1,55	1,5	25,3	25,3	1,25	1,25
	APX12110	M12x110	✓	F										
	APX12120	M12x120	✓	G										
	APX12130	M12x130	✓	H										
	APX12150	M12x150	✓	I										
	APX12180	M12x180	✓	L										
	APX12200	M12x200	✓	M										
	APX16145	M16x145	✓	I	35,0	25,0	1,22	1,41	1,55	1,5	47,1	56,4	1,25	1,5
	APX16175	M16x175	✓	K										
	APX16220	M16x220	✓	O										
	APX16250	M16x250	✓	Q										
	APX20170	M20x170	✓	K	50,0	30,0	1,16	1,31	1,41	1,5	73,1	72,0	1,25	1,5
	APX20200	M20x200	✓	M										

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Denomination: **ANCLAJE MTP**

Codes: **MTP, MTP-G, MTP-X**

Reference: **FT MTP-en**

Date: **28/04/16**

Revision: 3

Page: **12 de 13**

Characteristic resistances for seismic performance C1 and C2 for C20/25 concrete for an isolated anchor (without considering anchor-to-anchor or anchor-to-edge distance effects), assuming there is no gap between anchor and baseplate.

Family	Code	Size	Letter on head tip	Tension resistance in C20/25 concrete		Coefficient for higher concrete resistances			Tension partial safety coefficient		Shear resistance		Shear partial safety coefficient
				C1	C2	C30/37	C40/45	C50/60	C1	C2	C1	C2	C1 / C2
				$N_{Rk,P,seis}$ [kN]	$N_{Rk}$ [kN]	$\Psi$ [-]	$\Psi$ [-]	$\Psi$ [-]	$\gamma_M$ [-]	$\gamma_M$ [-]	$V_{Rk}$ [kN]	$V_{Rk}$ [kN]	$\gamma_M$ [-]
MTP	AP10090	M10x90	E	5,3	-	1,16	1,31	1,41	1,5	-	12,2	-	1,25
	AP10105	M10x105	F										
	AP10115	M10x115	G										
	AP10135	M10x135	H										
	AP10165	M10x165	K										
	AP10185	M10x185	L										
	AP12100	M12x100	E	8,4	5,2	1,22	1,41	1,55	1,5	1,5	17,8	17,8	1,25
	AP12110	M12x110	F										
	AP12120	M12x120	G										
	AP12130	M12x130	H										
	AP12150	M12x150	I										
	AP12180	M12x180	L										
	AP12200	M12x200	M										
	AP16145	M16x145	I	17,5	8,9	1,22	1,41	1,55	1,5	1,5	33,0	33,0	1,25
	AP16175	M16x175	K										
AP16220	M16x220	O											
AP16250	M16x250	Q											

# MTP

Denomination: **ANCLAJE MTP**Codes: **MTP, MTP-G, MTP-X**Reference: **FT MTP-en**Date: **28/04/16**

Revision: 3

Page: **13 de 13**1 KN  $\approx$  100 kgA load safety factor of  $\gamma_F = 1,4$  is recommended

Design example:

Fixing a tension load of 500 kg (= 4,91 kN) in C30/37 cracked concrete using a M10 MTP-G anchor.

Check to be done: Design load &lt; Design resistance

Design load = service load \* load safety factor = 4,91 \* 1,4 = 6,87 kN

Design resistance = characteristic resistance \* concrete coefficient / tension partial safety coefficient = 9 \* 1,16 / 1,5 = 6,96 kN

Check: 6,87 &lt; 6,96 kN: anchorage is safe

For complex anchor designs we recommend 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](http://www.indexfix.com)

- European Technical Assessment ETA-12/0397 for use in concrete, according to ETAG 001 guideline, option 1, from M8 to M24.
- Certificate of constancy of performances 1219-CPR-0053.
- Declaration of Performances DoP MTP-en.
- Declaration of Performances DoP MTP-G-en.
- Declaration of Performances DoP MTP-X-en.
- INDEXcal Anchor Calculation Software.