MTP

MTP-X

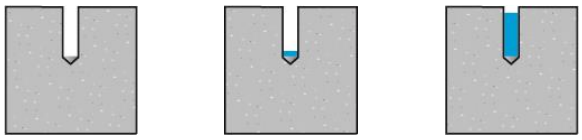
MTP-G

CHARACTERISTICS

- Functioning by roughness; 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 cuasi-static loads.
- Approved for fire resistance R30 to R120
- Versions in galvanized steel and Atlantis coating.
- Vds available for sized from M8 to M20.
- Certificate VdS CEA 4001:2021-01 for sprinklers
- Available in INDEXcal.

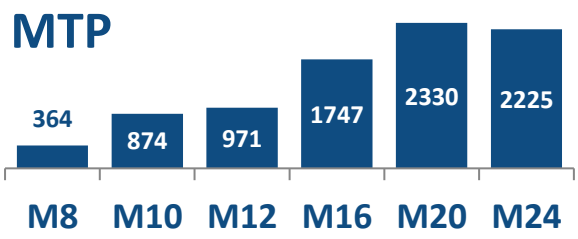
BASE MATERIALS

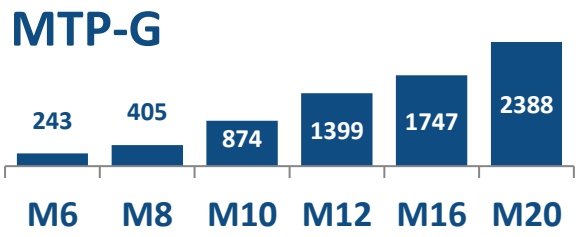
DRILL CONDITIONS

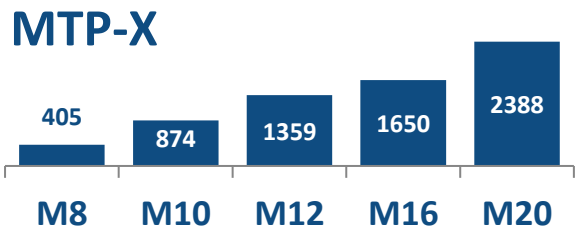


DRY WET FLOODED

RECOMMENDED TENSION RESISTANCES IN UNCRACKED CONCRETE [kg]







APPLICATION EXAMPLES

1. RANGE

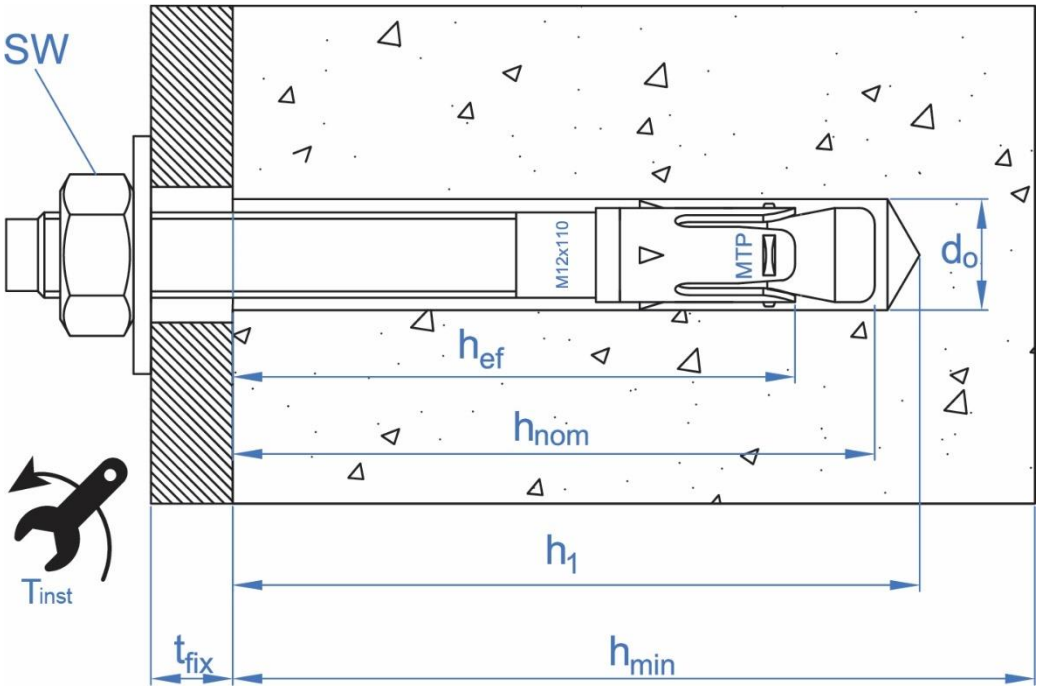
ITEM	CODE	SIZES	PHOTO	COMPONENT	MATERIAL
1	**MTP**	M8 to M24		Wedgebolt Clip Nut Washer	Carbon steel, galvanized ≥ 5 µm A4 stainless steel DIN 934, galvanized ≥ 5 µm DIN 125 o DIN 9021, galvanized ≥ 5 µm
2	**MTP-G**	M6 to M20		Wedgebolt Clip Nut Washer	Carbon steel, Atlantis ≥ 40 µm A4 stainless steel DIN 934, Atlantis ≥ 40 µm DIN 125 o DIN 9021, Atlantis ≥ 40 µm
3	**MTP-X**	M6 to M20		Wedgebolt Clip Nut Washer	Carbon steel, galvanized ≥ 5 µm Carbon steel, Atlantis ≥ 15 µm DIN 934, galvanized ≥ 5 µm DIN 125 o DIN 9021, galvanized ≥ 5 µm

2. ACCESORIES

ITEM	CODE	PHOTO	DESCRIPTION
1	**DOMTA**		Tool for anchor fixing using percussion drilling machine.

3. INSTALLATION DATA

3.1 INSTALLATION DRAWING



3.2 INSTALLATION PARAMETERS

Family	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 ≤
[--]	[--]	[--]	ETE	d_0	d_r	T_{inst}	h_{min}	h_1	h_{nom}	h_{ef}	t_{fix}
				[mm]	[mm]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]
MTP	AP08050	M8x50		8	9	20	100	40	37	30	2
	AP08075	M8x75	✓					60	55	48	9
	AP08095	M8x95	✓								29
	AP08115	M8x115	✓								49
	AP10090	M10x90	✓	10	12	40	120	75	68	60	10
	AP10105	M10x105	✓								25
	AP10115	M10x115	✓								35
	AP10135	M10x135	✓								55
	AP10165	M10x165	✓								85
	AP10185	M10x185	✓								105
	AP12080	M12x80		12	14	60	100	65	60	50	4
	AP12100	M12x100	✓				140	85	80	70	4
	AP12110	M12x110	✓								14
	AP12120	M12x120	✓								24
	AP12130	M12x130	✓								34
	AP12150	M12x150	✓								54
	AP12180	M12x180	✓								84
	AP12200	M12x200	✓								104
	AP16145	M16x145	✓	16	18	100	170	105	97	85	28
	AP16175	M16x175	✓								58
	AP16220	M16x220	✓								103
	AP16250	M16x250	✓								133
	AP20170	M20x170	✓	20	22	200	200	125	114	100	32
	AP20200	M20x200	✓								62
	AP24205	M24x205	✓	24	26	250	250	155	143	125	35
	AP24235	M24x235	✓								65
MTP-G	APG06060	M6x60		6	7	7	100	50	46	40	10
	APG06070	M6x70									20
	APG06100	M6x100									50
	APG08050	M8x50		8	9	15	100	40	37	30	2
	APG08060	M8x60									12
	APG08075	M8x75	✓					60	55	48	9
	APG08095	M8x95	✓								29
	APG08115	M8x115	✓								49

3.2 INSTALLATION PARAMETERS

Family	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 ≤
[--]	[--]	[--]	ETE	d_0	d_r	T_{inst}	h_{min}	h_1	h_{nom}	h_{ef}	t_{fix}
				[mm]	[mm]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]
MTP-G	APG10070	M10x70		10	12	40	100	60	53	45	5
	APG10090	M10x90	✓				120	75	68	60	10
	APG10105	M10x105	✓								25
	APG10115	M10x115	✓								35
	APG10135	M10x135	✓								55
	APG10150	M10x150	✓								70
	APG10165	M10x165	✓								85
	APG10185	M10x185	✓								105
	APG12080	M12x80		12	14	60	100	65	60	50	4
	APG12090	M12X90									14
	APG12110	M12x110	✓				140	85	80	70	14
	APG12130	M12x130	✓								34
	APG12150	M12x150	✓								54
	APG12160	M12x160	✓								64
	APG12180	M12x180	✓								84
	APG12200	M12x200	✓								104
	APG16125	M16x125	✓	16	18	100	170	105	97	85	8
	APG16145	M16x145	✓								28
	APG16175	M16x175	✓								58
	APG16220	M16x220	✓								103
	APG16250	M16x250	✓								133
	APG20170	M20x170	✓	20	22	200	200	125	114	100	32
	APG20200	M20x200	✓								62
MTP-X	APX08050	M8x50		8	9	15	100	40	37	30	2
	APX08075	M8x75	✓					60	55	48	9
	APX08080	M8x80	✓								14
	APX08095	M8x95	✓								29
	APX08115	M8x115	✓								49
	APX10090	M10x90	✓	10	12	40	100	60	53	45	5
	APX10105	M10x105	✓				120	75	68	60	25
	APX10115	M10x115	✓								35
	APX10135	M10x135	✓								55
	APX10165	M10x165	✓								85
	APX10185	M10x185	✓								100

3.2 INSTALLATION PARAMETERS

Family	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 ≤
[--]	[--]	[--]	ETE	d_0	d_r	T_{inst}	h_{min}	h_1	h_{nom}	h_{ef}	t_{fix}
				[mm]	[mm]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]
MTP-X	APX12080	M12x80		12	14	60	100	65	60	50	4
	APX12100	M12x100	✓				140	85	80	70	4
	APX12110	M12x110	✓								14
	APX12120	M12x120	✓								24
	APX12130	M12x130	✓								34
	APX12150	M12x150	✓								54
	APX12180	M12x180	✓								84
	APX12200	M12x200	✓								104
	APX12220	M12x220	✓								124
	APX12255	M12x255	✓								159
	APX16145	M16x145	✓	16	18	100	170	105	97	85	28
	APX16175	M16x175	✓								58
	APX16220	M16x220	✓								103
	APX16250	M16x250	✓								133
	APX20170	M20x170	✓	20	22	200	200	125	114	100	32
	APX20200	M20x200	✓								62

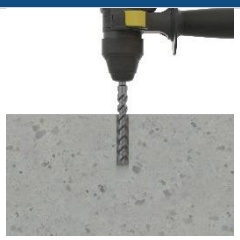
3.3 INSTALLATION DISTANCES

Family	Code	Size	Assessed	Minimum allowable spacing		Minimum allowable edge distance		Critical spacing (concrete cone)	Critical edge distance (concrete cone)	Critical spacing (splitting)	Critical edge distance (splitting)
			ETA	S_{min} (c ≥)		C_{min} (s ≥)		$S_{cr,N}$	$C_{cr,N}$	$S_{cr,sp}$	$C_{cr,sp}$
MTP	AP08050	M8x50		40	55	45	55	90	45	288	144
	AP08075	M8x75	✓					144	72	288	144
	AP08095	M8x95	✓								
	AP08115	M8x115	✓								
	AP10090	M10x90	✓	40	70	45	90	180	90	300	150
	AP10105	M10x105	✓								
	AP10115	M10x115	✓								
	AP10135	M10x135	✓								
	AP10165	M10x165	✓								
	AP10185	M10x185	✓								
	AP12080	M12x80		60	75	55	110	150	75	350	175
	AP12100	M12x100	✓					210	105	350	175
	AP12110	M12x110	✓								
	AP12120	M12x120	✓								
	AP12130	M12x130	✓								
	AP12150	M12x150	✓								
	AP12180	M12x180	✓								
	AP12200	M12x200	✓								
	AP16145	M16x145	✓	65	95	70	115	255	128	425	213
	AP16175	M16x175	✓								
	AP16220	M16x220	✓								
	AP16250	M16x250	✓								
	AP20170	M20x170	✓	95	105	95	105	300	150	500	250
	AP20200	M20x200	✓								
	AP24205	M24x205	✓	125	125	125	125	375	188	560	280
	AP24235	M24x235	✓								
MTP-G	APG06060	M6x60		40	55	45	55	120	60	200	100
	APG06070	M6x70									
	APG06100	M6x100									
	APG08050	M8x50		40	55	45	55	90	45	288	144
	APG08060	M8x60									
	APG08075	M8x75	✓					144	72	288	144
	APG08095	M8x95	✓								
	APG08115	M8x115	✓								
	APG10070	M10x70		40	70	45	90	135	68	300	150
	APG10090	M10x90	✓					180	90	300	150
	APG10105	M10x105	✓								
	APG10115	M10x115	✓								
	APG10135	M10x135	✓								
	APG10150	M10x150	✓								
	APG10165	M10x165	✓								
	APG10185	M10x185	✓								

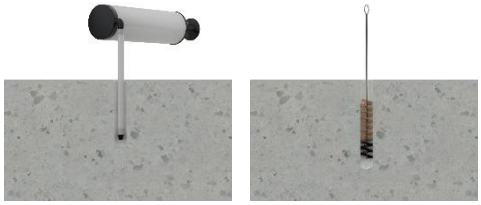
3.3 INSTALLATION DISTANCES

Family	Code	Size	Assessed	Minimum allowable spacing		Minimum allowable edge distance		Critical spacing (concrete cone)	Critical edge distance (concrete cone)	Critical spacing (splitting)	Critical edge distance (splitting)
			ETA	S_{min} (c ≥)		C_{min} (s ≥)		$S_{cr,N}$	$C_{cr,N}$	$S_{cr,sp}$	$C_{cr,sp}$
MTP-G	APG12080	M12x80		60	75	55	110	150	75	350	175
	APG12090	M12x90									
	APG12110	M12x110	✓					210	105	350	175
	APG12120	M12x120	✓								
	APG12130	M12x130	✓								
	APG12150	M12x150	✓								
	APG12160	M12x160	✓								
	APG12180	M12x180	✓								
	APG12200	M12x200	✓								
	APG16125	M16x125	✓	65	95	70	115	255	128	510	255
	APG16145	M16x145	✓								
	APG16175	M16x175	✓								
	APG16220	M16x220	✓								
	APG16250	M16x250	✓								
	APG20170	M20x170	✓	95	105	95	105	300	150	600	300
	APG20200	M20x200	✓								
MTP-X	APX08050	M8x50		40	55	45	55	90	45	288	144
	APX08075	M8x75	✓					144	72	288	144
	APX08080	M8x80									
	APX08095	M8x95	✓								
	APX08115	M8x115	✓								
	APX10090	M10x90	✓	40	70	45	90	135	68	300	150
	APX10105	M10x105	✓					180	90	300	150
	APX10115	M10x115	✓								
	APX10135	M10x135	✓								
	APX10165	M10x165	✓								
	APX10185	M10x185	✓								
	APX12080	M12x80		60	75	55	110	150	75	350	175
	APX12100	M12x100	✓					210	105	350	175
	APX12110	M12x110	✓								
	APX12120	M12x120	✓								
	APX12130	M12x130	✓								
	APX12150	M12x150	✓								
	APX12180	M12x180	✓								
	APX12200	M12x200	✓								
	APX12220	M12x220	✓								
	APX12255	M12x250	✓								
	APX16145	M16x145	✓	65	95	70	115	255	128	510	255
	APX16175	M16x175	✓								
	APX16220	M16x220	✓								
	APX16250	M16x250	✓								
	APX20170	M20x170	✓	95	105	95	105	300	150	600	300
	APX20200	M20x200	✓								

4. 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 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 THE TORQUE
Apply nominal installation torque using a torque wrench.
Once installed it can be verified the total length of the anchor though the letter on bolt tip.

5. RESISTANCES

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

5.1 CHARACTERISTIC RESISTANCE [kN]

General parameters					Uncracked concrete		Cracked concrete	
					Tension	Shear	Tension	Shear
Family	Code	Size	Assessed	Letter on the head tip	N_{Rk}	V_{Rk}	N_{Rk}	V_{Rk}
MTP	AP08050	M8x50		A	4,51	**8,08**	3,22	**5,66**
	AP08075	M8x75	✓	C	9,00	*11,00*	5,00	**11,45**
	AP08095	M8x95	✓	E				
	AP08115	M8x115	✓	G				
	AP10090	M10x90	✓	E	18,00	*17,40*	9,50	*17,40*
	AP10105	M10x105	✓	F				
	AP10115	M10x115	✓	G				
	AP10135	M10x135	✓	H				
	AP10165	M10x165	✓	K				
	AP10185	M10x185	✓	L				
	AP12080	M12x80		D	12,06	*25,30*	8,60	**24,35**
	AP12100	M12x100	✓	E	20,00	*25,30*	12,00	*25,30*
	AP12110	M12x110	✓	F				
	AP12120	M12x120	✓	G				
	AP12130	M12x130	✓	H				
	AP12150	M12x150	✓	I				
	AP12180	M12x180	✓	L				
	AP12200	M12x200	✓	M				
	AP16145	M16x145	✓	I	36,00	*47,10*	25,00	**53,97**
	AP16175	M16x175	✓	K				
	AP16220	M16x220	✓	O				
	AP16250	M16x250	✓	Q				
	AP20170	M20x170	✓	K	48, 00	*73,10*	32,00	**68,87**
	AP20200	M20x200	✓	M				
	AP24205	M24x205	✓	N	55,00	*84,70*	35,00	**96,25**
	AP24235	M24x235	✓	P				
MTP-G	APG06060	M6x60		B	6,00	*6,04*	--	--
	APG06070	M6x70		C				
	APG06100	M6x100		E				
	APG08050	M8x50		A	4,51	**8,08**	3,22	**5,66**
	APG08060	M8x60		B				
	APG08075	M8x75	✓	C	10,00	*11,00*	6,00	**11,45**
	APG08095	M8x95	✓	E				
	APG08115	M8x115	✓	G				
	APG10070	M10x70		C	6,70	*17,40*	4,78	**20,79**
	APG10090	M10x90	✓	E	18,00	*17,40*	10,00	*17,40*
	APG10105	M10x105	✓	F				
	APG10115	M10x115	✓	G				
	APG10135	M10x135	✓	H				
	APG10150	M10x150	✓	I				
	APG10165	M10x165	✓	K				
	APG10185	M10x185	✓	L				

General parameters					Uncracked concrete		Cracked concrete	
					Tension	Shear	Tension	Shear
Family	Code	Size	Assessed	Letter on the head tip	N_{Rk}	V_{Rk}	N_{Rk}	V_{Rk}
MTP-G	APG12080	M12x80		D	12,06	*25,30*	8,60	**24,35**
	APG12090	M12x90		E				
	APG12110	M12x110	✓	E	**28,81**	*25,30*	16,00	*25,30*
	APG12130	M12x130	✓	H				
	APG12150	M12x150	✓	I				
	APG12160	M12x160	✓	J				
	APG12180	M12x180	✓	L				
	APG12200	M12x200	✓	M				
	APG16125	M16X125	✓	G	36,00	*47,10*	**27,00**	**53,97**
	APG16145	M16x145	✓	I				
	APG16175	M16x175	✓	K				
	APG16220	M16x220	✓	O				
	APG16250	M16x250	✓	Q				
	APG20170	M20x170	✓	K	**49,19**	*73,10*	30,00	**68,87**
	APG20200	M20x200	✓	M				
MTP-X	APX08050	M8x50		A	4,51	**8,08**	3,22	**5,66**
	APX08075	M8x75	✓	C	10,00	*11,00*	7,00	**11,45**
	APX08080	M8x80	✓	D				
	APX08095	M8x95	✓	E				
	APX08115	M8x115	✓	G				
	APX10090	M10x90	✓	E	18,00	*17,40*	11,00	*17,40*
	APX10105	M10x105	✓	F				
	APX10115	M10x115	✓	G				
	APX10135	M10x135	✓	H				
	APX10165	M10x165	✓	K				
	APX10185	M10x185	✓	L				
	APX12080	M12x80		D	10,05	*25,30*	7,16	**24,35**
	APX12100	M12x100	✓	E	28,00	*25,30*	15,00	*25,30*
	APX12110	M12x110	✓	F				
	APX12120	M12X120	✓	G				
	APX12130	M12x130	✓	H				
	APX12150	M12x150	✓	I				
	APX12180	M12x180	✓	L				
	APX12200	M12x200	✓	M				
	APX12220	M12x220	✓	O				
	APX12255	M12x255	✓	R				
	APX16145	M16x145	✓	I	34,00	*47,10*	**26,99**	**53,97**
	APX16175	M16x175	✓	K				
	APX16220	M16x220	✓	O				
	APX16250	M16x250	✓	Q				
	APX20170	M20x170	✓	K	**49,19**	*73,10*	**34,44**	**68,87**
	APX20200	M20x200	✓	M				

1 KN ≈ 100 kg

Values *underlined and in italics* show Steel failure, **bold** values concrete failure and other indicate pull out failure.

5.2 DESIGN RESISTANCE [kN]

General parameters					Uncracked concrete		Cracked concrete	
					Tension	Shear	Tension	Shear
Family	Code	Size	Assessed	Letter on the head tip	N_{Rd}	V_{Rd}	N_{Rd}	V_{Rd}
MTP	AP08050	M8x50		A	2,51	**5,39**	1,79	**3,77**
	AP08075	M8x75	✓	C	5,00	*8,80*	2,78	**7,63**
	AP08095	M8x95	✓	E				
	AP08115	M8x115	✓	G				
	AP10090	M10x90	✓	E	12,00	*13,92*	6,33	*13,92*
	AP10105	M10x105	✓	F				
	AP10115	M10x115	✓	G				
	AP10135	M10x135	✓	H				
	AP10165	M10x165	✓	K				
	AP10185	M10x185	✓	L				
	AP12080	M12x80		D	8,04	*20,24*	5,73	**16,23**
	AP12100	M12x100	✓	E	13,33	*20,24*	8,00	*20,24*
	AP12110	M12x110	✓	F				
	AP12120	M12x120	✓	G				
	AP12130	M12x130	✓	H				
	AP12150	M12x150	✓	I				
	AP12180	M12x180	✓	L				
	AP12200	M12x200	✓	M				
	AP16145	M16x145	✓	I	24,00	*37,68*	16,67	**35,98**
	AP16175	M16x175	✓	K				
	AP16220	M16x220	✓	O				
	AP16250	M16x250	✓	Q				
	AP20170	M20x170	✓	K	32,00	*58,48*	21,33	**45,91**
	AP20200	M20x200	✓	M				
	AP24205	M24x205	✓	N	30,56	*67,76*	19,44	**64,17**
	AP24235	M24x235	✓	P				
MTP-G	APG06060	M6X60		B	3,33	*4,83*	--	--
	APG06070	M6X70		C				
	APG06100	M6X100		E				
	APG08050	M8x50		A	2,51	**5,39**	1,79	**3,77**
	APG08060	M8X60		B				
	APG08075	M8x75	✓	C	5,56	*8,80*	3,33	**7,63**
	APG08095	M8x95	✓	E				
	APG08115	M8x115	✓	G				
	APG10070	M10x70		C	4,47	*13,92*	3,18	**13,86**
	APG10090	M10x90	✓	E	12,00	*13,92*	6,67	*13,92*
	APG10105	M10x105	✓	F				
	APG10115	M10x115	✓	G				
	APG10135	M10x135	✓	H				
	APG10150	M10X150	✓	I				
	APG10165	M10x165	✓	K				
	APG10185	M10x185	✓	L				

General parameters					Uncracked concrete		Cracked concrete	
					Tension	Shear	Tension	Shear
Family	Code	Size	Assessed	Letter on the head tip	N_{Rk}	V_{Rk}	N_{Rk}	V_{Rk}
MTP-G	APG12080	M12x80		D	8,04	*20,24*	5,73	**16,23**
	APG12090	M12x90		E				
	APG12110	M12x110	✓	F	**19,21**	*20,24*	10,67	*20,24*
	APG12130	M12x130	✓	H				
	APG12150	M12x150	✓	I				
	APG12160	M12x160	✓	J				
	APG12180	M12x180	✓	L				
	APG12200	M12x200	✓	M				
	APG16125	M16X125	✓	G	24,00	*37,68*	**17,99**	**35,98**
	APG16145	M16x145	✓	I				
	APG16175	M16x175	✓	K				
	APG16220	M16x220	✓	O				
	APG16250	M16x250	✓	Q				
	APG20170	M20x170	✓	K	**32,00**	*58,48*	20,00	**45,91**
	APG20200	M20x200	✓	M				
MTP-X	APX08050	M8x50		A	2,51	**5,39**	1,79	**3,77**
	APX08075	M8x75	✓	C	5,56	*8,80*	3,89	**7,63**
	APX08080	M8x80	✓	D				
	APX08095	M8x95	✓	E				
	APX08115	M8x115	✓	G				
	APX10090	M10x90	✓	E	12,00	*13,92*	7,33	*13,92*
	APX10105	M10x105	✓	F				
	APX10115	M10x115	✓	G				
	APX10135	M10x135	✓	H				
	APX10165	M10x165	✓	K				
	APX10185	M10x185	✓	L				
	APX12080	M12x80		D	6,70	*20,24*	4,78	**16,23**
	APX12100	M12x100	✓	E	18,67	*20,24*	10,00	*20,24*
	APX12110	M12x110	✓	F				
	APX12120	M12X120	✓	G				
	APX12130	M12x130	✓	H				
	APX12150	M12x150	✓	I				
	APX12180	M12x180	✓	L				
	APX12200	M12x200	✓	M				
	APX12220	M12x220	✓	O				
	APX12255	M12x255	✓	R				
	APX16145	M16x145	✓	I	22,67	*37,68*	**17,99**	**35,98**
	APX16175	M16x175	✓	K				
	APX16220	M16x220	✓	O				
	APX16250	M16x250	✓	Q				
	APX20170	M20x170	✓	K	**32,80**	*58,48*	**22,96**	**45,91**
	APX20200	M20x200	✓	M				

1 KN ≈ 100 kg

Values *underlined and in italics* show Steel failure, **bold** values concrete failure and other indicate pull out failure.

5.3 MAXIMUM RECOMMENDED LOADS [kN] (con γ_F= 1.4)

General parameters					Uncracked concrete		Cracked concrete	
					Tension	Shear	Tension	Shear
Family	Code	Size	Assessed	Letter on the head tip	N_{rec}	V_{rec}	N_{rec}	V_{rec}
MTP	AP08050	M8x50		A	1,79	**3,85**	1,28	**2,69**
	AP08075	M8x75	✓	C	3,57	*6,29*	1,98	**5,45**
	AP08095	M8x95	✓	E				
	AP08115	M8x115	✓	G				
	AP10090	M10x90	✓	E	8,57	*9,94*	4,52	*9,94*
	AP10105	M10x105	✓	F				
	AP10115	M10x115	✓	G				
	AP10135	M10x135	✓	H				
	AP10165	M10x165	✓	K				
	AP10185	M10x185	✓	L				
	AP12080	M12x80		D	5,74	*14,46*	4,09	**11,60**
	AP12100	M12x100	✓	E	9,52	*14,46*	5,71	*14,46*
	AP12110	M12x110	✓	F				
	AP12120	M12x120	✓	G				
	AP12130	M12x130	✓	H				
	AP12150	M12x150	✓	I				
	AP12180	M12x180	✓	L				
	AP12200	M12x200	✓	M				
	AP16145	M16x145	✓	I	17,14	*26,91*	11,90	**25,70**
	AP16175	M16x175	✓	K				
	AP16220	M16x220	✓	O				
	AP16250	M16x250	✓	Q				
	AP20170	M20x170	✓	K	22,86	*41,77*	15,24	**32,80**
	AP20200	M20x200	✓	M				
	AP24205	M24x205	✓	N	21,83	*48,40*	13,89	**48,83**
	AP24235	M24x235	✓	P				
MTP-G	APG06060	M6X60		B	2,38	*3,45*	--	--
	APG06070	M6X70		C				
	APG06100	M6X100		E				
	APG08050	M8x50		A	1,79	**3,85**	1,28	**2,69**
	APG08060	M8X60		B				
	APG08075	M8x75	✓	C	3,97	*6,29*	2,38	**5,45**
	APG08095	M8x95	✓	E				
	APG08115	M8x115	✓	G				
	APG10070	M10x70		C	3,19	*9,94*	2,27	**9,90**
	APG10090	M10x90	✓	E	8,57	*9,94*	4,76	9,94
	APG10105	M10x105	✓	F				
	APG10115	M10x115	✓	G				
	APG10135	M10x135	✓	H				
	APG10150	M10X150	✓	I				
	APG10165	M10x165	✓	K				
	APG10185	M10x185	✓	L				

General parameters					Uncracked concrete		Cracked concrete	
					Tension	Shear	Tension	Shear
Family	Code	Size	Assessed	Letter on the head tip	N_{rec}	V_{rec}	N_{rec}	V_{rec}
MTP-G	APG12080	M12x80		D	5,74	*14,46*	4,09	**11,60**
	APG12090	M12x90		E				
	APG12110	M12x110	✓	F	**13,72**	*14,46*	7,62	*14,46*
	APG12130	M12x130	✓	H				
	APG12150	M12x150	✓	I				
	APG12160	M12x160	✓	J				
	APG12180	M12x180	✓	L				
	APG12200	M12x200	✓	M				
	APG16125	M16X125	✓	G	17,14	*26,91*	**12,85**	**25,70**
	APG16145	M16x145	✓	I				
	APG16175	M16x175	✓	K				
	APG16220	M16x220	✓	O				
	APG16250	M16x250	✓	Q				
	APG20170	M20x170	✓	K	**23,43**	*41,77*	14,29	**32,80**
	APG20200	M20x200	✓	M				
MTP-X	APX08050	M8x50		A	1,79	**3,85**	1,28	**2,69**
	APX08075	M8x75	✓	C	3,97	*6,29*	2,78	**5,45**
	APX08080	M8x80	✓	D				
	APX08095	M8x95	✓	E				
	APX08115	M8x115	✓	G				
	APX10090	M10x90	✓	E	8,57	*9,94*	5,24	*9,94*
	APX10105	M10x105	✓	F				
	APX10115	M10x115	✓	G				
	APX10135	M10x135	✓	H				
	APX10165	M10x165	✓	K				
	APX10185	M10x185	✓	L				
	APX12080	M12x80		D	4,79	*14,46*	3,41	**11,60**
	APX12100	M12x100	✓	E	13,33	*14,46*	7,14	*14,46*
	APX12110	M12x110	✓	F				
	APX12120	M12X120	✓	G				
	APX12130	M12x130	✓	H				
	APX12150	M12x150	✓	I				
	APX12180	M12x180	✓	L				
	APX12200	M12x200	✓	M				
	APX12220	M12x220	✓	O				
	APX12255	M12x255	✓	R				
	APX16145	M16x145	✓	I	16,19	*26,91*	**12,85**	**25,70**
	APX16175	M16x175	✓	K				
	APX16220	M16x220	✓	O				
	APX16250	M16x250	✓	Q				
	APX20170	M20x170	✓	K	**23,43**	*41,77*	**16,40**	**32,80**
	APX20200	M20x200	✓	M				

1 KN ≈ 100 kg

Values *underlined and in italics* show Steel failure, **bold** values concrete failure and other indicate pull out failure.

5.4 INCREASING FACTORS FOR TENSION LOADS IN HIGH RESISTANCE CONCRETE

SIZE			M6	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

5.5 INTENDED USE

SIZE		M8	M10	M12	M16	M20	M24
MTP	Static or quasi-static loads	✓	✓	✓	✓	✓	✓
	Seismic loads, category C1		✓	✓	✓		
	Seismic loads, category C2			✓	✓		
	Fire exposure resistance	✓	✓	✓	✓	✓	✓
MTP-G	Static or quasi-static loads	✓	✓	✓	✓	✓	✓
	Seismic loads, category C1	✓	✓	✓	✓	✓	✓
	Seismic loads, category C2			✓	✓	✓	
	Fire exposure resistance	✓	✓	✓	✓	✓	✓
MTP-X	Static or quasi-static loads	✓	✓	✓	✓	✓	✓
	Seismic loads, category C1	✓	✓	✓	✓	✓	✓
	Seismic loads, category C2		✓	✓		✓	
	Fire exposure resistance	✓	✓	✓	✓	✓	✓

6. OFFICIAL DOCUMENTATION

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

- European Technical Assesment ETA-12/0397 for use in concrete, according to EAD 330232-01-0601, option 1, from M8 to M24.
- Declaration of Performances DoP MTP-en
- Certificate VdS CEA 4001:2021-01(07) *Guidelines for sprinklers systems. Planning and installation for applications of water extinguising systems on concrete elements* from M8 to M20.
- Available for anchor calculation program INDEXcal.
- INDEXcal Anchor Calculation Software.