

# TM Series Iron Core



TM3 on 144mm magnet plate shown

## FLEX Cable

The TM series comes standard with a 3m long FLEX power cable.

## Magnet plate dimensions

Le (mm)	96	144	384
M5 bolts	4	6	16
Mass (kg/m)	2.1		

Magnet plates can be butted together.

Approvals



Parameter	Remarks	Symbol	Unit	TM3		TM6		TM12	TM18	
				S	Z	S	Z	S	N	S
Winding type				S	Z	S	Z	S	N	S
Motor type, max voltage ph-ph				3-phase synchronous Iron core, 400V <sub>ac rms</sub> (565 V <sub>d</sub> )						
Ultimate force @ 10°C/s increase	magnet @ 25°C	F <sub>u</sub>	N	120		240		480		720
Peak force @ 6°C/s increase	magnet @ 25°C	F <sub>p</sub>	N	105		210		420		630
Continuous force*	coils @ 100°C	F <sub>c</sub>	N	60		120		240		360
Maximum speed**	@ 600 V	v <sub>max</sub>	m/s	12	36.6	12	36.5	12	4.5	10.0
Motor force constant	mount. sfc. @ 20°C	K	N/A <sub>rms</sub>	39	12.9	39	12.9	39	79	39
Motor constant	coils @ 25°C	S	N <sup>2</sup> /W	95		190		380		570
Ultimate current	magnet @ 25°C	I <sub>u</sub>	A <sub>rms</sub>	4.1	12.6	8.2	25.1	16.4	12.3	25.1
Peak current	magnet @ 25°C	I <sub>p</sub>	A <sub>rms</sub>	3.1	9.5	6.2	18.9	12.4	9.2	18.9
Maximum continuous current*	coils @ 100°C	I <sub>c</sub>	A <sub>rms</sub>	1.5	4.7	3	9.3	6	4.5	9.3
Back EMF phase-phase <sup>peak</sup>		B <sub>emf</sub>	V/m/s	32	11	32	11	32	65	32
Resistance per phase*	coils @ 25°C ex. cable	R <sub>ph</sub>	Ω	5.4	0.56	2.7	0.28	1.35	3.6	0.85
Induction per phase	I < 0.6 Ip	L <sub>ph</sub>	mH	35	3.65	17	1.83	9	23	5.5
Electrical time constant*	coils @ 25°C	τ <sub>e</sub>	ms	6.5						
Maximum continuous power loss	all coils	P <sub>c</sub>	W	49		99		197		296
Thermal resistance	coils to mount. sfc.	R <sub>th</sub>	°C/W	1.5	1.5	0.75		0.38		0.25
Thermal time constant*	up to 63% max. coiltemp.	τ <sub>th</sub>	s	75						
Temperature cut-off / sensor				PTC 1kΩ / KTY 83-122						
Coil unit weight	ex. cables	W	kg	0.6		0.9		1.6		2.3
Coil unit length	ex. cables	L	mm	93		143		241		336
Motor attraction force	rms @ 0 A	F <sub>a</sub>	N	300		500		900		1300
Magnet pitch NN		τ	mm	24						
Cable mass		m	kg/m	0.18						
Cable Type (power FLEX)	length 3 m	d	mm (AWG)	8.3 (≥18)						
Cable type (sensor)	length 3 m	d	mm (AWG)	4.3 (26)						
Cable Life (power FLEX)***	minimum			5,000,000 cycles						
Bending Radius Static	minimum			4x cable diameter						
Bending Radius Dynamic (power FLEX)	minimum			10x cable diameter						

All specifications ±10%

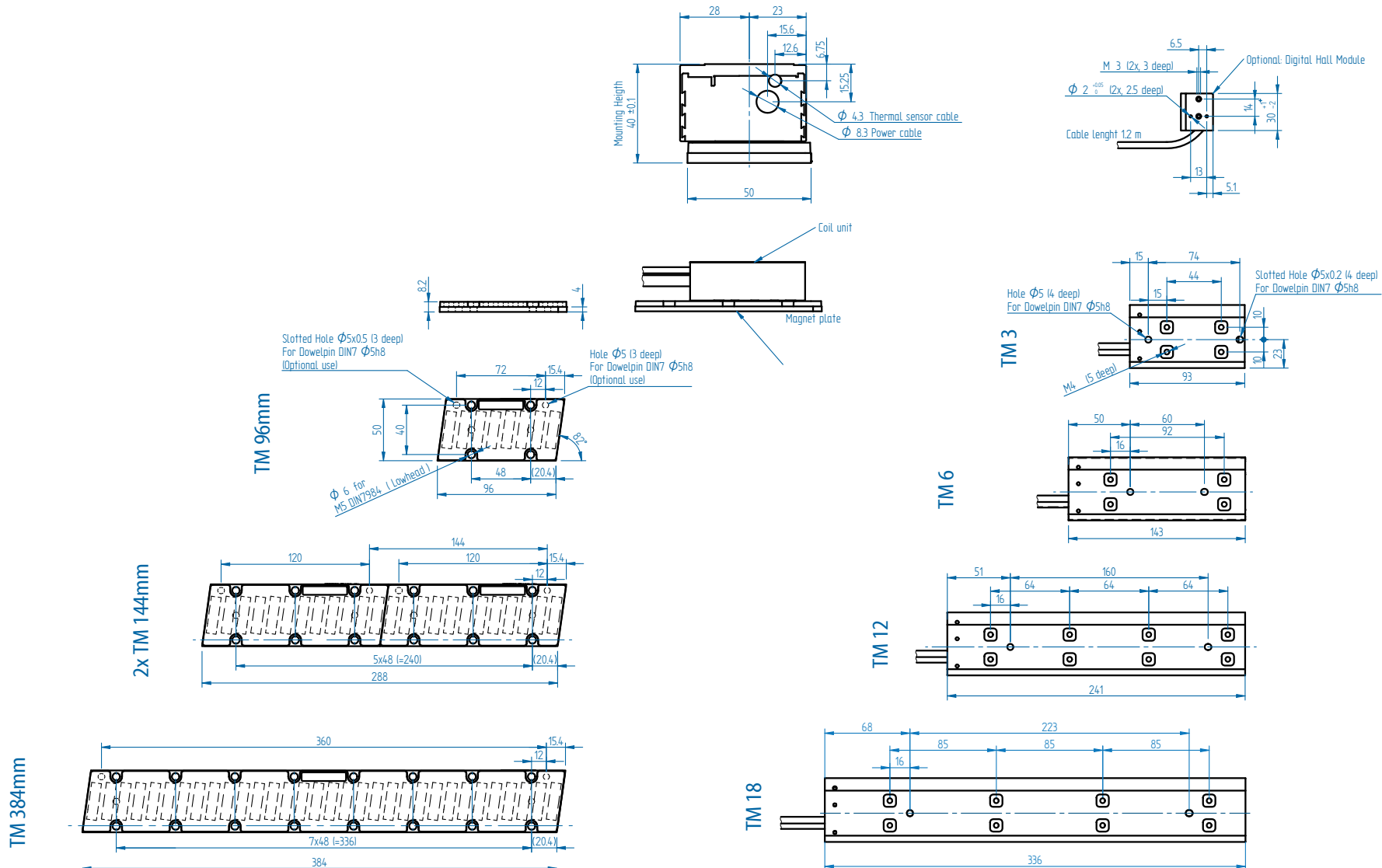
\* These values are only applicable when the mounting surface is at 20°C and the motor is driven at maximum continuous current. If these values differ in your application, please check our simulation tool.

\*\* Actual values depend on bus voltage. Please check the F/v diagram in our simulation tool.

\*\*\* Depending on bending radius, velocity and acceleration.

**Magnet plates**

**Coil units**



Mounting instructions and flatness or parallelism requirements can be found in the iron core installation manual. CAD files, 3D models and the manual can be downloaded from our website.

\* All sizes are in mm