



RTMB<sup>i</sup>

# T STANDALONE AXIS

## ASME-RTMBi140###3##S0000

Data sheet

Version 1.1



TESTING CONDITIONS		UNIT	
Position controller	-		AccurET modular 300 or 400
Rated inertia	kg.m <sup>2</sup>		0.025
Tool point position	mm		Centered on the table. 18.4 mm above the rotor's interface
Ambient temperature	°C		22 ±1

DIMENSIONAL DATA		UNIT	
<b>OD</b> Outside diameter	mm (in)		166 (6.53)
Table height	mm (in)		115 (4.52)
<b>ID</b> Inside diameter	mm (in)		Ø 25 (Ø 0.98)
Total mass (without payload)	kg (lbs)		10.5 (23.14)
<b>J</b> Rotor inertia (without payload)	kg.m <sup>2</sup>		2.07E-03

TORQUE CAPABILITIES		UNIT	
<b>Tp</b> Peak torque (1)	Nm		65.5
<b>Tc</b> Continuous torque (1) (2)	Nm		14.5
<b>Ts</b> Stall torque	Nm		11.1
<b>Td</b> Max. detent torque (average to peak)	Nm		0.48
<b>Tfrs</b> Static friction (maximal value)	Nm		0.45
<b>Tfrd</b> Dynamic friction (maximal value)	Nm/(rad/s)		0.012

LOAD CAPACITIES		UNIT	
Moment load (3)	Nm		12
Axial load	kg (lbs)		12 (26.45)
Upside down load	kg (lbs)		12 (26.45)

DYNAMIC PERFORMANCE		UNIT	
Maximum speed (1)	rad/s (rpm)		125.6 (1200)
Maximum acceleration	rad/s <sup>2</sup>		10'000
Typical position stability (4)	arcsec		± 1.5

STAGE ACCURACY		UNIT	
Positioning accuracy (w/o mapping)	arcsec		± 20
Positioning accuracy (w/ mapping)	arcsec		± 6
Unidirectional repeatability	arcsec		± 2
Bidirectional repeatability	arcsec		± 3
Radial runout	µm		20
Total axial error	µm		20 measured on Ø82mm

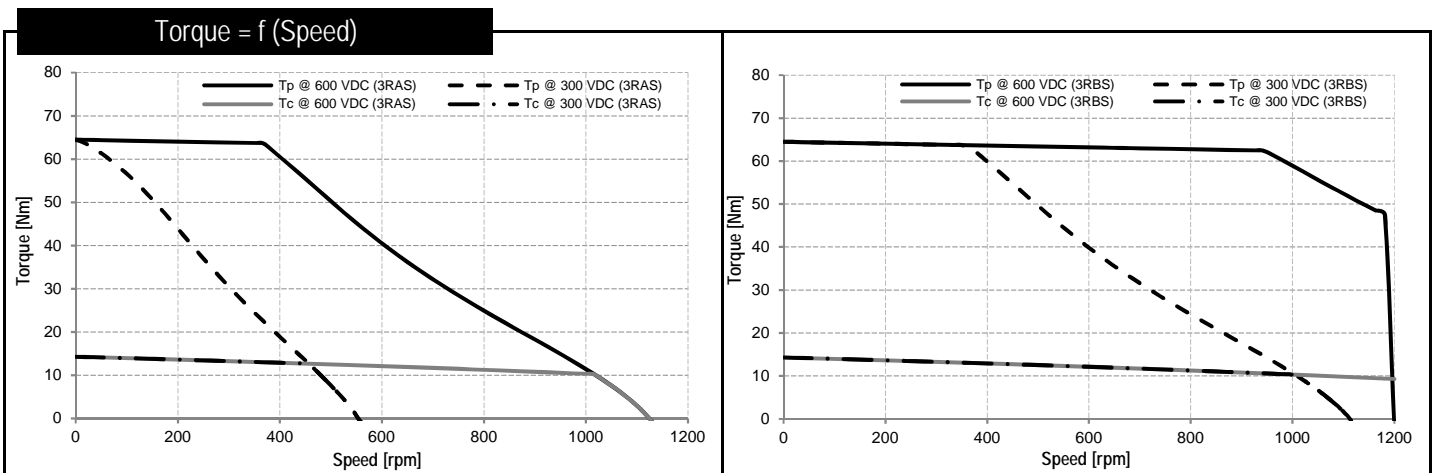
ENCODER CHARACTERISTICS		UNIT	
Encoder and signal type	-		Optical - incremental
Output signal	-		1 Vpp
Line count	Period/turn		5'000
Reference mark	-		1
Power supply	V		5 ±10%

WORKING ENVIRONMENT		
IP protection grade		IP40

ELECTRICAL SPECIFICATIONS		UNIT		
	Motor type	-	Ironcore	Ironcore
	Motor model	-	TMB0140-050-3RAS	TMB0140-050-3RBS
	Number of phases	-	3	3
<b>Kt</b>	Torque constant	Nm/Arms	6.01	3.00
<b>Ku</b>	Back EMF constant (5)	Vrms/(rad/s)	3.47	1.74
<b>R20</b>	Electrical resistance at 20°C (5)	Ohm	9.98	2.49
<b>L1</b>	Electrical inductance (5)	mH	55.9	14.0
<b>Ip</b>	Peak current	Arms	17.9	35.8
<b>Ic</b>	Continuous current (2)	Arms	2.55	5.10
<b>Is</b>	Stall current	Arms	1.93	3.86
<b>ns</b>	Stall speed	rpm	0.029	0.029
<b>Udc</b>	Nominal input voltage	VDC	600	600
<b>Pc</b>	Max. cont. power dissipation (2)	W	128	128
<b>2p</b>	Number of poles	-	22	22

GUIDING ELEMENTS	
Type	Ball bearing

MATERIALS AND FINISH	
Baseplate	Stainless steel
Shaft	Stainless steel



According to the Machinery Directive 2006/42/EC, the system presently described falls into the "partly completed machinery" category and fully complies with it as long as the system is operated according to the working conditions described in the corresponding manual. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the system is used in an improper way.

**Notes:** The specifications given may be mutually exclusive. Hypothesis, tolerances and definition are in ETEL systems documentation.

- (1) See torque vs speed curve to check if the specifications can be reached based on selected winding and DC bus voltage limitation.
- (2) Coils at 100°C with additional surface of 0.070m<sup>2</sup> fixed on the base and 0.015m<sup>2</sup> on the rotor made of black anodized aluminum.
- (3) At the fastening holes of the rotor.
- (4) Specification given at encoder level without any additional load fixed to the customer interface. This specification is reduced when an additional mass is fixed to the customer interface.
- (5) Terminal to terminal.