



RTMC180195 Rotary table

Data Sheet

AXIS DESIGNATION			
Number of controlled axes			1
Axes name			Theta
Thrust transmitter: DD (direct drive) or ID (indirect drive)			DD

TESTING CONDITIONS		UNIT		
Position controller	-		AccurET Modular 300 07/15A	ACCURET+ 300 10/20A
Motion controller	-		none	
Rated payload	kg		2.3	
Rated inertia	kg.m ²		0.025	
Tool point position	mm		Centered on the table. 18.4 mm above rotor's interface	
Ambient temperature	°C		22 ±1	

DIMENSIONAL DATA		UNIT		
Outside diameter	mm		180	
Inside diameter	mm		58.5	
Height	mm		195	
Total stroke	°		Unlimited	
Total mass (without payload)	kg		14.88	
Rotor inertia (without payload)	kg.m ²		5.03E-03	

TORQUE CAPABILITIES (1)		UNIT		
Peak torque (2)	Nm		110	140
Continuous torque (3)	Nm		36.3	
Standstill torque	Nm		27.3	
Max. detent torque (average to peak)	Nm		1.4	
Static friction (maximal value)	Nm		0.5	
Dynamic friction (maximal value)	Nm/(rad/s)		0.037	

LOAD CAPACITIES		UNIT		
Maximum moment load (4)	Nm		20	
Maximum axial load	N		200	
Maximum axial load in upside down configuration	N		200	

DYNAMIC PERFORMANCE		UNIT		
Maximum speed (5)	rad/s		48.1	
Maximum acceleration	rad/s ²		10000	
Typical position stability at 2 kHz (6)	arcsec		± 1.5	

ACCURACY		UNIT		
Positioning accuracy (without mapping)	arcsec		± 20	
Positioning accuracy (with mapping)	arcsec		± 5	
Unidirectional repeatability	arcsec		± 2	
Bidirectional repeatability	arcsec		± 3	
Radial runout	µm		20	
Total axial error at 41 [mm] radius	µm		20	

ENCODER CHARACTERISTICS		UNIT		
Encoder and signal type	-		Optical - Incremental	
Output signal	-		1 Vpp	
Signal period or line count	period/turn		8192	
Reference mark	-		1	
Power supply	V		5 ± 10 %	

WORKING ENVIRONMENT			
IP protection grade	-		IP 40

ELECTRICAL SPECIFICATIONS (1)		UNIT	AccurET Modular 300 07/15A	ACCURET+ 300 10/20A
Motor type	-		Ironcore	
Motor model	-		RTMC0180-195-FA	
Number of phases	-		3	3
Kt Torque constant	Nm/Arms		7.66	7.66
Ku Back EMF constant (7)	Vrms/(rad/s)		4.46	4.46
Km Motor constant	Nm/ \sqrt{W}		2.95	2.95
R20 Electrical resistance at 20 °C (7)	Ohm		4.51	4.51
Ld/Lq Electrical inductance (7)	mH		35.3 / 34.6	35.3 / 34.6
Ip Peak current (2)	Arms		15	20
Ic Continuous current (3)	Arms		5.2	5.2
Is Standstill current	Arms		3.94	3.94
ns Standstill speed	rad/s		0.032	0.032
Um Max. input voltage (8)	VDC		326	326
Pc Max. cont. power dissipation (3)	W		240	240
2p Number of poles	-		16	16

GUIDING ELEMENTS		
Type	-	Ball bearing

MATERIAL 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. Unless stated otherwise, all measurements are made within the testing conditions.

- (1) Tolerances on electrical parameters are available on request.
- (2) Peak duty cycle of 2 % is considered.
- (3) Coils at 100 °C with additional surface of 0.17 m² fixed on the base and 0.022 m² on the rotor made of black anodized aluminum. Air injection on encoder head.
- (4) At the fastening holes of the rotor.
- (5) See torque vs speed curve to check if the specification can be reached based on selected DC bus voltage limitation.
- (6) 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.
- (7) Terminal to terminal.
- (8) Maximum permissible voltage.

TORQUE VERSUS SPEED CURVES FOR RTMC0180-195-FA

