

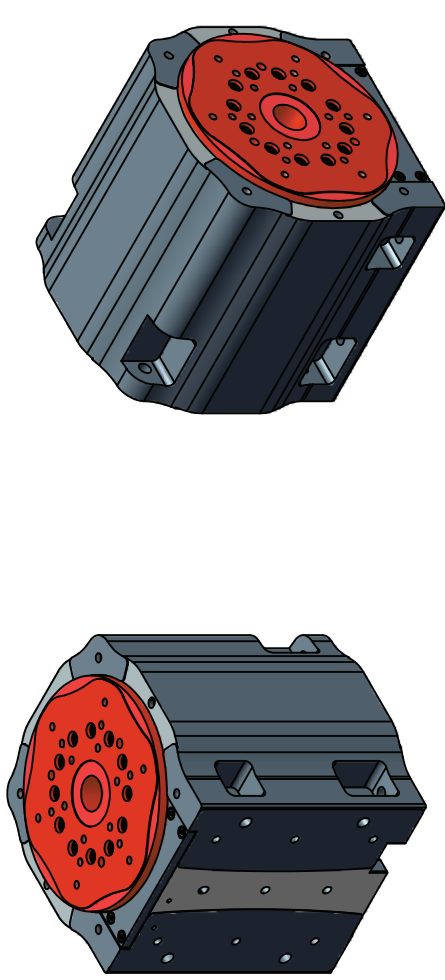


# ALIO STAGE AND MOTOR SPECIFICATIONS

MODEL	UNITS	AI-TM-125R-AB
TRAVEL	deg	360 degrees continuous
DIAMETER	mm	125
MAX VELOCITY [7]	RPM	300
ASSEMBLY MASS	kg	9.6
MOVING MASS	kg	2.8
MASS MOMENT OF INERTIA	kg*mm <sup>2</sup>	3200
RESOLUTION (STANDARD) [8]	arc-sec	0.020
(OPTIONAL - 5um) [9]	arc-sec	21
(OPTIONAL - 1um) [9]	arc-sec	4.1
(OPTIONAL - 0.5um) [9]	arc-sec	2.1
(OPTIONAL - 0.2um) [9]	arc-sec	0.8
(OPTIONAL - 0.1um) [9]	arc-sec	0.41
(OPTIONAL - 50nm) [9]	arc-sec	0.21
(OPTIONAL - 20nm) [9]	arc-sec	0.08
(OPTIONAL - 10nm) [9]	arc-sec	0.041
(OPTIONAL - 5nm) [9]	arc-sec	0.021
AXIAL RUNOUT (STANDARD)	um	< 0.5
RADIAL RUNOUT (STANDARD)	um	< 0.5
MAX AXIAL LOAD [7]	N	378
MAX RADIAL LOAD [7]	N	142
MAX TILT TORQUE [7]	N-m	7.9
AXIAL STIFFNESS [7]	N/um	263
RADIAL STIFFNESS [7]	N/um	87
TILT STIFFNESS [7]	N-m/urad	0.18
AIR SUPPLY REQUIRED	psi	75-150
AIR CONSUMPTION	NLPM	<55
MOTOR INFORMATION		
MOTOR TYPE	--	FRAMELESS TORQUE MOTOR
MOTOR MODEL	--	089100-9Y
MAGNETIC PITCH (N-N)	deg	60
MAX VOLTAGE (LINE TO LINE) [1]	VDC	340
MAX MOTOR TEMP	°C	155
TORQUE CONSTANT	Nm/Arms	0.68
PHASE RESISTANCE (@25° C) [2]	Ohm	3.9
INDUCTANCE	mH	8.9
CONTINUOUS TORQUE [3]	Nm	2.6
CONTINUOUS CURRENT [3]	Arms	3.8
PEAK TORQUE	Nm	8.2
PEAK CURRENT	Arms	12.0
BACKEMF CONSTANT	Vrms/krpm	41

Notes:

1. Back EMF plus IR drop must not exceed maximum line to line voltage.
2. Resistance values do not include cable resistance. Cable resistance adds 0.3 ohm/m.
3. Continuous operating limits are based on continuous operation at maximum temperature with aluminum heat sink (300mm x 300mm x 25mm).
4. All specifications may vary by 12% from listed values.
5. Additional motor winding options are available for each stage for optimized performance as necessary per customer requirements.
6. Maximum velocity capability is dependent on payload, acceleration, encoder resolution, amplifier, and bus voltage. Greater rotational speeds than specified are available.
7. Load and stiffness specs specified for a 150psi operating pressure. Lower operating pressures result in reduced capabilities.
8. Default resolution is an analog 1Vp-p sin/cos encoder output signal with 4096 interpolation in the controller.
9. Optional resolutions are digital quadrature output to the controller with angular resolutions corresponding to 5um - 0.005um linear resolution.



DRAWN	5/12/2012
NBROWN	
CHECKED	
Tolerances: Surface Roughness: x.x ± .05 in [1.3 mm] ✓ RMS MAX. x.xx ± .01 in [0.25 mm] x.xxx ± .005 in [0.13 mm] Angles ± 0.5°	
MATERIAL	
FINISH	SEE NOTES

TITLE	
AI-TM-(DIAMETER)R-AB	
SIZE	DWG NO
B	0010-08012
SCALE	ALIO STD TEMPLATE - REV 006
1	1 OF 1

ALIO INDUSTRIES PROPRIETARY INFORMATION  
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