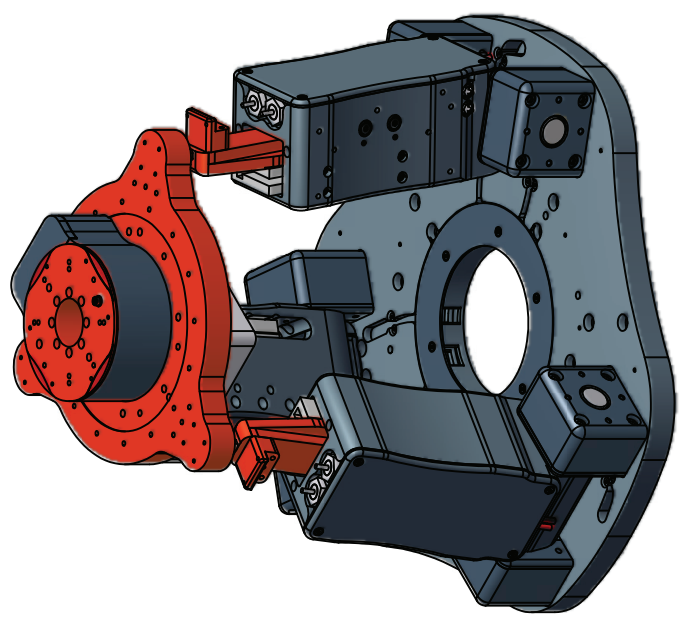




ALIO STAGE AND MOTOR SPECIFICATIONS



ALIO INDUSTRIES PROPRIETARY INFORMATION
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**AI-TRI-LM-(Z TRAVEL)00
-(R DIAMETER)R-(OPTION)**

REV	002
DWG NO	0010-08009
SCALE	1 OF 1
FINISH	SEE NOTES
SIZE	B
SHEET	1

MODEL	UNITS	AI-TRI-LM-600-56R	AI-TRI-LM-2400-56R	AI-TRI-LM-2400-56R-MS	AI-6D-150XY-40Z-56R	AI-6D-200XY-40Z-104R	AI-TRI-LM-5500-104R	AI-TRI-LM-10600-104R
OPTION ADDER	--	--	--	"MS"=MAGNETIC SPRING	--	--	--	--
Z TRAVEL	mm	6.0	24	24	40	40	55	106
PITCH AND ROLL RANGE [9]	deg	+/- 3	+/- 12	+/- 12	+/- 16	+/- 12	+/- 16	+/- 18
YAW TRAVEL	deg				360 degrees continuous			
MAX LINEAR VELOCITY [10]	m/s	0.08	0.1	0.1	0.1	0.1	0.2	0.2
MAX ANGULAR VELOCITY (PITCH & ROLL) [10]	deg/s	90	90	90	90	90	90	90
MAX ANGULAR VELOCITY (YAW) [10]	deg/s	720	720	720	720	720	720	720
ASSEMBLY MASS	kg	4.2	5.4	6.9	14.6	18.0	20.1	30
Z MOVING MASS	kg	1.40	2.3	2.6	3.9	5.7	6.6	10.5
YAW MOVING MASS	kg	0.25	0.25	0.25	0.25	0.25	0.9	0.9
YAW MASS MOMENT OF INERTIA	kg*mm ²	85	85	85	85	900	900	900
MAX PAYLOAD [11]	kg	2.0	2.5	2.5	2.5	5	5	7
MAX CENTER OF GRAVITY HEIGHT [11,12]	mm	40	40	40	40	50	50	50
COUNTERBALANCE PRESSURE [13]	psi	30	40	40	40	50	50	70
LINEAR RESOLUTION	nm	~5	~5	~5	~5	~5	~5	~5
PITCH AND ROLL RESOLUTION	arc-sec	~0.03	~0.02	~0.02	~0.02	~0.01	~0.01	~0.01
YAW RESOLUTION	arc-sec	0.04	0.04	0.04	0.04	0.02	0.02	0.02
YAW ROTARY STAGE	Model	AI-TM-56R	AI-TM-56R	AI-TM-56R	AI-TM-56R	AI-TM-104R	AI-TM-104R	AI-TM-104R

TRIPOD MOTOR INFORMATION		LINEAR BRUSHLESS		DELTA CONNECTED	
MOTOR TYPE		P16-1	P16-1	P16-1	P16-2
MOTOR MODEL	--	C12-1	P16-1	P16-1	P16-2
MAGNETIC PITCH (N-N)	mm	30.48	30.48	30.48	30.48
MAX VOLTAGE (LINE TO LINE) [1]	V	500	500	500	500
ELECTRICAL TIME CONSTANT	ms	0.14	0.20	0.20	0.20
MAX MOTOR TEMP	°C	130	130	130	130
MOTOR CONNECTION	--				
FORCE CONSTANT	N/Apk	3.5	7.2	14.3	14.3
PHASE RESISTANCE (@25° C) [2,3]	Ohm	2.9	2.9	5.9	5.9
PHASE RESISTANCE (@130° C) [2,3]	Ohm	4.2	4.2	8.3	8.3
INDUCTANCE	mH	0.6	0.6	1.2	1.2
CONTINUOUS FORCE [4]	N	10	15	47	47
CONTINUOUS CURRENT [4]	Apk	2.8	2.1	3.2	3.2
PEAK FORCE [5]	N	21	74	148	148
PEAK CURRENT [5]	Apk	6.0	10.3	10.3	10.3
BACK EMF CONSTANT	V/m/s	3.5	7.2	14.3	14.3

YAW MOTOR INFORMATION		FRAMELESS TORQUE MOTOR	
MOTOR TYPE		044050-EY	089100-9Y
MOTOR MODEL	--	044050-EY	089100-9Y
MAGNETIC PITCH (N-N)	deg	120	60
MAX VOLTAGE (LINE TO LINE) [1]	VDC	340	340
MAX MOTOR TEMP	°C	155	155
TORQUE CONSTANT	Nm/Arms	0.091	0.68
PHASE RESISTANCE (@25° C) [14]	Ohm	4.5	3.9
INDUCTANCE	mH	3.2	8.9
CONTINUOUS TORQUE [15]	Nm	0.21	2.6
CONTINUOUS CURRENT [15]	Ams	2.3	3.8
PEAK TORQUE	Nm	0.66	8.2
PEAK CURRENT	Ams	7.3	12.0
BACK EMF CONSTANT	Vrms/krpm	5.5	41

Notes:

- Back EMF plus IR drop must not exceed maximum line to line voltage.
- Resistance values do not include cable resistance. For P16 motors cable resistance adds 0.146 ohm/m for Delta connection and 0.44 ohm/m for Wye Connection.
- Resistance values do not include cable resistance. For C12 motors cable resistance adds 0.251 ohm/m for Delta connection.
- Continuous operating limits are based on continuous operation at maximum temperature with aluminum heat sink (300mm x 12.5mm x motor length).
- Maximum on time at peak operating limits is 10 seconds.
- Motor Connection type is internal to motor. All stages provided with default Delta connection unless otherwise specified.
- All electrical specifications may vary by 12% from listed values.
- Additional motor options are available for each stage for optimized performance as necessary per customer requirements.
- Angular travel is measured when the Z axis is at mid-stroke and the other angle is zero degrees. Deviation from this specified off axis position reduces angular travel.
- Maximum velocity specified is for motor in unloaded state. Stage velocity limitations vary greatly depending on stage load and motion profile.
- Higher payload options available upon special request.
- Contact ALIO technical sales for questions concerning high or offset centers of gravity.
- Pneumatic counterbalance supply pressure listed is the estimated pressure required at the max payload.
- Resistance values do not include cable resistance. Cable resistance adds 0.3 ohm/m.
- Continuous operating limits are based on continuous operation at maximum temperature with aluminum heat sink (300mm x 300mm x 25mm).

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