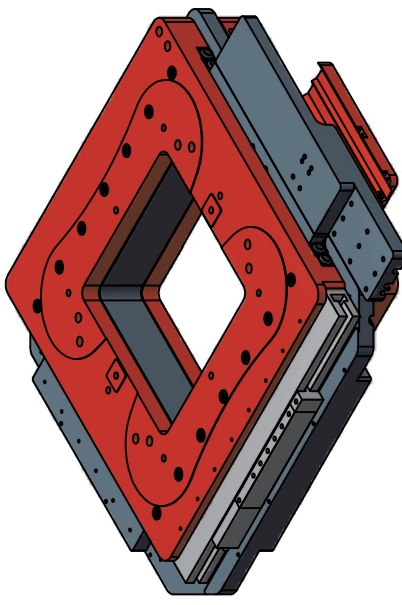




# ALIO STAGE AND MOTOR SPECIFICATIONS

MODEL	UNITS	AI-LM-10000-100-XY	AI-LM-15000-150-XY	AI-LM-20000-200-XY	AI-LM-25000-250-XY	AI-LM-30000-300-XY	AI-LM-35000-350-XY	AI-LM-40000-400-XY
XY TRAVEL	mm	100	150	200	250	300	350	400
PERFORMANCE SPECIFICATIONS [1]		(STD) ULTRA NANO	(STD) ULTRA NANO	(STD) ULTRA NANO	(STD) ULTRA NANO	(STD) ULTRA NANO	(STD) ULTRA NANO	(STD) ULTRA NANO
LINEAR DISPLACEMENT ACCURACY	um	+/- 4 +/- 1.0 +/- 0.5 +/- 50	+/- 4 +/- 1.2 +/- 0.6 +/- 50	+/- 6 +/- 1.5 +/- 0.8 +/- 50	+/- 6 +/- 1.5 +/- 1.0 +/- 50	+/- 8 +/- 1.5 +/- 1.0 +/- 50	+/- 10 +/- 2.0 +/- 1.5 +/- 50	+/- 16 +/- 2.5 +/- 1.5 +/- 50
BIDIRECTIONAL LINEAR REPEATABILITY	nanometers	+/- 50	+/- 50	+/- 50	+/- 50	+/- 50	+/- 50	+/- 50
RESOLUTION	nanometers	5 nm (standard) (options available)						
STRAIGHTNESS	um	+/- 2 +/- 1.0 +/- 0.5 +/- 2.0	+/- 3 +/- 1.2 +/- 0.6 +/- 3.0	+/- 3 +/- 1.5 +/- 0.8 +/- 4	+/- 4 +/- 1.5 +/- 1.0 +/- 5	+/- 5 +/- 1.5 +/- 1.0 +/- 6	+/- 6 +/- 2.0 +/- 1.5 +/- 10	+/- 10 +/- 2.5 +/- 1.5 +/- 15
FLATNESS [2]	um	+/- 1.0	+/- 1.5	+/- 2	+/- 3	+/- 4	+/- 6	+/- 10
PITCH	arc-sec	10	15	15	18	18	20	20
YAW	arc-sec	10	15	15	18	18	20	20
ROLL	arc-sec	10	15	15	18	18	20	20
ORTHOGONALITY	arc-sec	20	20	20	20	20	20	20
MOTION PROFILE SPECIFICATIONS								
MAX VELOCITY [3]	m/s	0.7	0.9	1.0	1.0	1.0	1.0	1.0
MAX ACCELERATION [3]	G	0.6	0.6	0.6	0.6	0.6	0.6	0.5
MAX PAYLOAD CAPABILITY	kg	25	30	30	40	50	50	50
ASSEMBLY MASS	kg	6.5	14	23	37	58	64	104
X MOVING MASS	kg	5.0	11	18	29	40	46	72
Y MOVING MASS	kg	1.8	3.7	6.5	11	17	20	30
MOTOR INFORMATION								
MOTOR TYPE	--	LINEAR BRUSHLESS SERVO MOTOR						
MOTOR MODEL	--	P12-1	P12-2	P16-2	P16-3	P16-3	P16-3	P16-4
MAGNETIC PITCH (N-N)	mm	30.48	30.48	30.48	30.48	30.48	30.48	30.48
MAX VOLTAGE (LINE TO LINE) [4]	V	500	500	500	500	500	500	500
ELECTRICAL TIME CONSTANT	msec	0.19	0.19	0.20	0.20	0.20	0.20	0.20
MAX MOTOR TEMP	°C	130	130	130	130	130	130	130
MOTOR CONNECTION	--	DELTA	DELTA	DELTA	DELTA	DELTA	DELTA	DELTA
FORCE CONSTANT	N/Apk	8.1	16.3	28.7	43.0	43.0	43.0	57.0
PHASE RESISTANCE (@25° C) [5]	Ohm	5.8	11.6	11.7	17.6	17.6	17.6	23.4
PHASE RESISTANCE (@130° C) [5]	Ohm	8.2	16.4	16.6	24.9	24.9	24.9	33.1
INDUCTANCE	mH	1.1	2.1	2.3	3.5	3.5	3.5	4.7
CONTINUOUS FORCE [6]	N	23	47	93	140	140	140	186
CONTINUOUS CURRENT [6]	Apk	2.9	2.9	3.2	3.2	3.2	3.2	3.2
PEAK FORCE [7]	N	75	151	295	442	442	442	589
PEAK CURRENT [7]	Apk	9.2	9.2	10.3	10.3	10.3	10.3	10.3
BACK EMF CONSTANT	V/m/s	8.1	16.3	28.7	43.0	43.0	43.0	57.0



ALIO INDUSTRIES PROPRIETARY INFORMATION  
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DRAWN	5/12/2012	
NBROWN		
CHECKED		
TITLE		
AI-LM-(TRAVEL)00E-(THRU)-XY		
SIZE	DWG NO	REV
B	0010-08001	003
FINISH	SEE NOTES	SCALE
		ALIO STD TEMPLATE - REV 006   SHEET 1 OF 1

- Notes:
- Specifications measured on stage centerline, 50mm above mounting surface. ALIO provides NIST traceable proof for all options/specs per quote.
  - Flatness specifications dependent on system base. Contact ALIO for more information.
  - Stage limitation at no load. Does not account for drive or resolution limitations.
  - Back EMF plus IR drop must not exceed maximum line to line bus voltage.
  - Resistance values do not include cable resistance. Cable resistance adds 0.146 ohm/m for Delta connection and 0.44 ohm/m for Wye 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.
  - All electrical specifications may vary by 12% from listed values.
  - Additional motor and travel options are available for optimized performance as necessary per customer requirements.

Tolerances: Surface Roughness:  
 x.x ± .05 in [1.3 mm]  
 x.xx ± .01 in [0.25 mm]  
 x.xxx ± .005 in [0.13 mm]  
 Angles ± 0.5°  
 MATERIAL  
 FINISH SEE NOTES