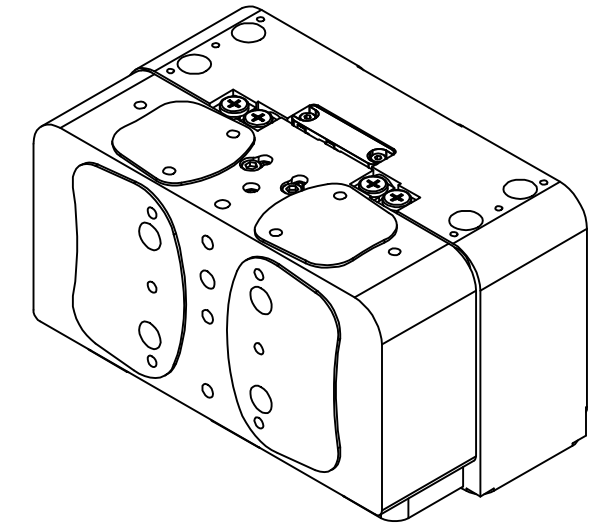
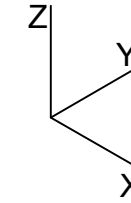




ALIO STAGE AND MOTOR SPECIFICATIONS



MODEL	UNITS	AI-VC-600-24N-Z-CB	AI-VC-2400-11N-Z-CB	AI-LM-3000-47N-Z-CB	AI-LM-5000-15N-Z-CB
NOMINAL TRAVEL FROM HOME INDEX	mm	+/- 3	+/- 12	+/- 15	+/- 25
MAGNETIC LIMIT LOCATIONS (+1/-3mm)	mm	+/- 3	+/- 11.75	+/- 12.75	+/- 24
HARD STOP LOCATIONS (+/- 1mm)	mm	+/- 3.5	+12.25/-12.75	+/- 15.75	+25.25/-26.25
PERFORMANCE SPECIFICATIONS [1]		(STD) ULTRA NANO	(STD) ULTRA NANO	(STD) ULTRA NANO	(STD) ULTRA NANO
LINEAR DISPLACEMENT ACCURACY	um	+/- 3 +/- 0.5 +/- 0.2	+/- 5 +/- 0.7 +/- 0.3	+/- 6 +/- 0.8 +/- 0.5	+/- 8 +/- 1.0 +/- 0.5
BIDIRECTIONAL LINEAR REPEATABILITY	nanometers	+/- 75 +/- 45	+/- 75 +/- 45	+/- 75 +/- 45	+/- 75 +/- 45
HOME INDEX BIDIRECTIONAL REPEATABILITY	-	< +/- 1 encoder count			
RESOLUTION	-	Standard: ~4.88nm with 4096 Interpolation (Digital AQB options available between 1nm and 5um)			
STRAIGHTNESS IN X	um	+/- 1.5 +/- 1.0 +/- 3.0	+/- 2.0 +/- 2.0 +/- 4.0	+/- 2.0 +/- 2.0 +/- 4.0	+/- 5.0 +/- 2.5
STRAIGHTNESS IN Y [2]	um	+/- 1.5 +/- 1.0 +/- 3.0	+/- 2.0 +/- 2.0 +/- 4.0	+/- 2.0 +/- 2.0 +/- 4.0	+/- 5.0 +/- 2.5
PITCH ABOUT X [2]	arc-sec	+/- 10.0	+/- 10.0	+/- 10.0	+/- 12.0
PITCH ABOUT Y	arc-sec	+/- 10.0	+/- 10.0	+/- 10.0	+/- 12.0
PITCH ABOUT Z	arc-sec	+/- 10.0	+/- 10.0	+/- 10.0	+/- 12.0
MOTION PROFILE SPECIFICATIONS					
MAX VELOCITY [3]	m/s	0.1	0.1	0.2	0.2
MAX PEAK ACCELERATION [3]	G	2.5	1.0	3.0	1.5
MAX PAYLOAD CAPABILITY	kg	10	10	10	10
ASSEMBLY MASS	kg	3.6	3.6	4.4	4.4
MOVING MASS	kg	1.3	1.3	2.2	2.2
COUNTERBALANCE SPECIFICATIONS					
MAXIMUM ALLOWED PRESSURE	Mpa			0.7	
COUNTERBALANCE CONSTANT [10]	N/Mpa			400	
COUNTERBALANCE SUPPLY HOSE	-			4mm	
MAXIMUM LEAK RATE @ 0.2MPa [10]	SL/min			1.5	
MOTOR INFORMATION					
MOTOR TYPE	-	VOICE COIL		LINEAR BRUSHLESS SERVO MOTOR	
MOTOR MODEL	-	AI-VC-225ACA	AI-VC-225BAA	AI-LM-256ASN-D	AI-LM-256ZSN-D
MAGNETIC PITCH (N-N)	mm	-	-	30.48	30.48
MAX VOLTAGE (LINE TO LINE) [4]	V	33.0	46.0	500	500
ELECTRICAL TIME CONSTANT (@ 25°C)	msec	0.270	0.462	0.20	0.20
MAX MOTOR TEMP	°C	155	155	130	130
MOTOR THERMISTOR (options available)		NONE	NONE	NEGATIVE COEFFICIENT THERMISTOR: GE TYPE AL03006-5818-97-K, MATERIAL: GE9.7A	
MOTOR CONNECTION	-	-	-	DELTA	DELTA
MOTOR CONSTANT		5.83	2.94	3.52	4.98
FORCE CONSTANT	N/Apk	12.68	8.81	14.3	7.2
PHASE RESISTANCE (@ 25°C) [5]	Ohm	4.7	9.1	5.87	2.93
PHASE RESISTANCE (@ MAX°C) [5]	Ohm	-	-	8.30	4.15
INDUCTANCE @ 1kHz	mH	1.25	4.2	1.2	0.6
CONTINUOUS FORCE [6] [8]	N	24.47	11.57	47	15
CONTINUOUS CURRENT [6]	Apk	1.93	1.31	3.2	2.1
PEAK FORCE [7] [8]	N	89.0	44.48	148	74
PEAK CURRENT [7]	Apk	7.02	5.05	10.3	10.3
BACK EMF CONSTANT	V/m/s	12.68	8.79	14.3	7.2

CUSTOMER SUPPLIED AIR QUALITY	
AIR SUPPLY MUST BE FREE OF CONTAMINANTS AND MOISTURE (<85% RELATIVE HUMIDITY). FILTERED AIR SUPPLY TO ISO 8573.1 QUALITY CLASS 3 OR BETTER	
CLASS 2 (RECOMMENDED)	
DIRT	1um PARTICAL SIZE OR SMALLER
WATER	-40°C. PRESSURE DEWPOINT (16 PPM VOL.) AT 0.7MPa
OIL	1.0 mg/m ³ (INCLUDING VAPOR)
CLASS 3 (MINIMUM)	
DIRT	5um PARTICAL SIZE OR SMALLER
WATER	-20°C. PRESSURE DEWPOINT (128 PPM VOL.) AT 0.7MPa
OIL	1.0 mg/m ³ (INCLUDING VAPOR)

- Notes:
- Specifications measured on stage centerline at nominal 20°C, 50mm above mounting surface with no payload. For up to 150mm cantilever payloads. Standard describes typical values. Ultra and Nano are guaranteed. Contact ALIO for greater distances. ALIO provides NIST traceable proof for all options/specs per quote.
 - Flatness and Pitch specifications dependent on system base. Contact ALIO for more information.
 - Stage limitation at no load. Based on 100% S-curve. Does not account for limitations due to amplifier, resolution, position error, or duty cycle.
 - Back EMF plus IR drop must not exceed maximum line to line bus voltage.
 - Resistance values do not include cable resistance. Cable resistance adds 0.117 ohm/m for voice coil motors (VC) and 0.146 ohm/m for linear motors (LM).
 - 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.
 - Voice Coil (VC only) forces are reduced by 25% at ends of travel.
 - All electrical specifications may vary by 12% from listed values.
 - For estimation only. Fine tuning needs to be performed on every unit individually.
 - Additional motor and travel options are available for each stage for optimized performance as necessary per customer requirements.

DRAWN	QWOLF	2020-11-13		
CHECKED				
			TITLE	
Tolerances: x.x ± 0.5 mm x.xx ± 0.13 mm x.xxx ± 0.05 mm ANGLES ± 0.5° MATERIAL			AI-(MOTOR)-(TRAVEL)00-(FORCE)-Z-CB	
FINISH		SEE NOTES	SIZE	B
DWG NO		0010-08004	REV	006
SCALE		0090-07999-016 ALIO STD TEMPLATE	SHEET	2 OF 2

ALIO INDUSTRIES PROPRIETARY DOCUMENT
 5335 XENON ST, ARVADA, CO 80002 USA
 (Tel) 303.339.7500 - WWW.ALIOINDUSTRIES.COM