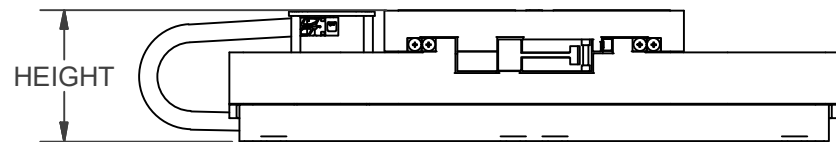
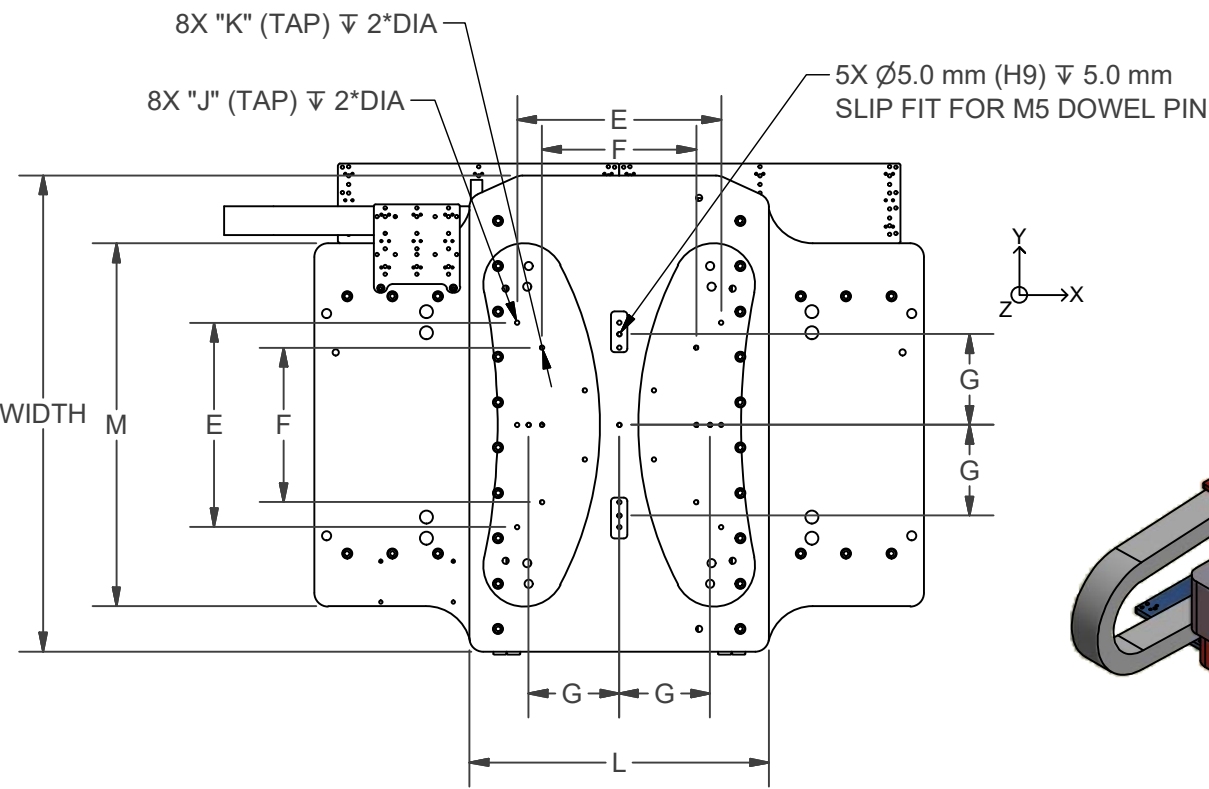
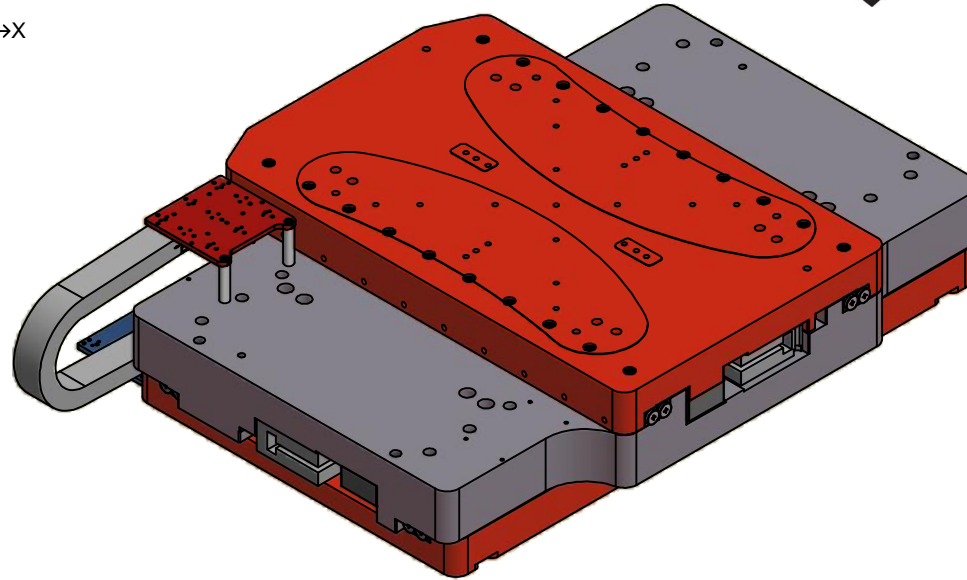


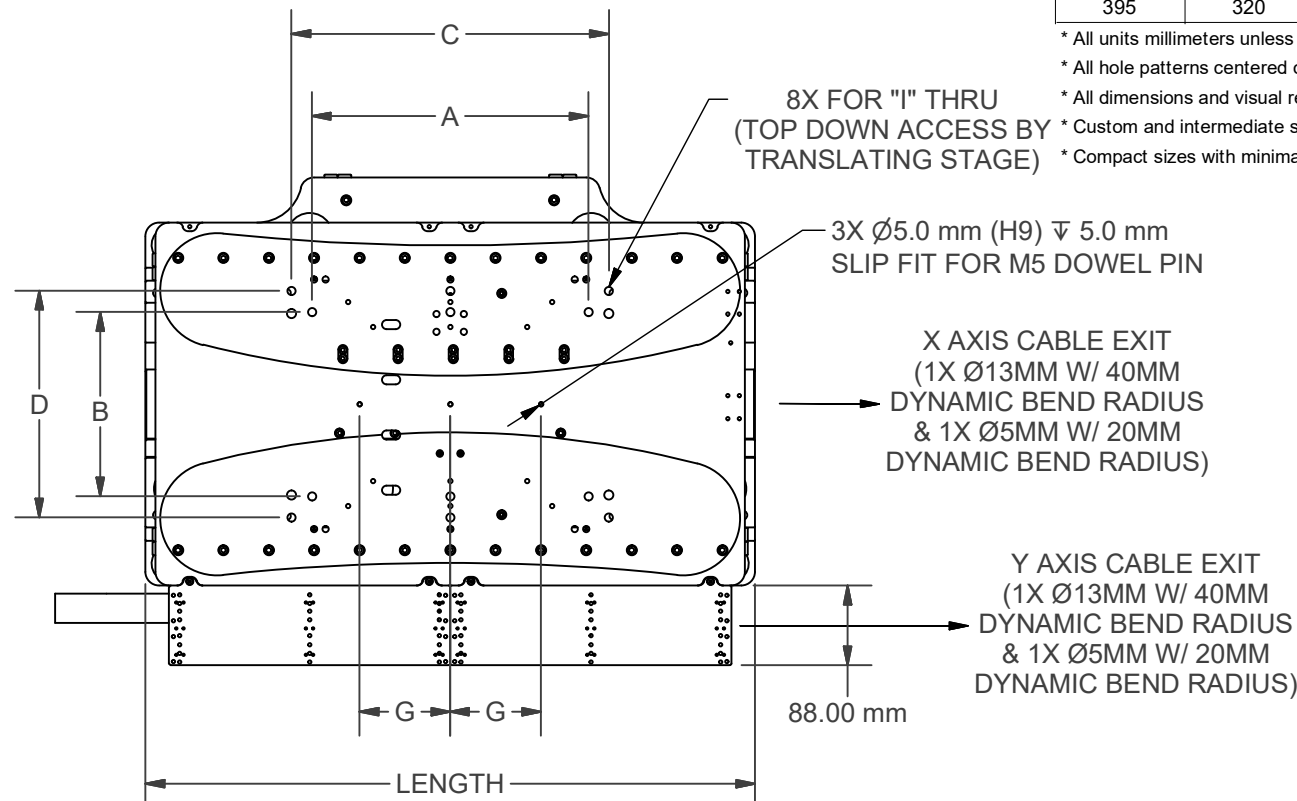


STANDARD FEATURES	
Stage	Monolithic XY Stage
XY Linear Travel	TRAVEL_X mm (BOTTOM) by TRAVEL_Y mm (TOP) Both X and Y Travels Range from 250mm to 400mm
Bearings	High Precision Crossed Roller Bearings
Motor	Direct Drive Ironless Core Linear Motor
Feedback	Non-Contact Incremental Optical Linear Encoder Optional: Non-Contact Absolute Optical Linear Encoder
Scale	20um Pitch Gold Tape Scale Optional: 20um Pitch Near Zero CTE ZeroMet Scale Optional: Absolute Stainless Steel or Near Zero CTE ZeroMet Scale
Resolution	1Vp-p Sin-Cos Analog Output (~4.88nm with 4096 Interpolation) Digital AQB options available from 1nm to 5um Absolute options available between 1nm and 100nm
Sensors	Integrated Optical Latching Home Index and End of Travel Magnetic NPN Limits
Hard Stops	Integrated Shock Absorbing Hard Stops
Orientation	Horizontal Only; Inverted OK
Cables	High Flex, 10M Cycle, 3m Length from Component (Standard) (some length consumed inside stage), ~5mm OD, 20mm Dynamic Bend Radius (Encoders), ~13mm OD, 40mm Dynamic Bend Radius (Motors)
Cable Routing	Integrated Top Axis Cable Routing Customer Cable Routing Integrated Upon Request
Transport	Reusable Shipping Stop and Lift Eye Bolts Supplied
Structure	Black Anodized Aluminum 6061-T6
Maintenance	Stages are Greased for Life in Normal Environment; No Maintenance
Environment	Standard
Temperature	Operating: 0°C to 50°C (performance not guaranteed throughout entire range) Storage/Transport: -20°C to 70°C
Humidity	10% to 80% Non-Condensing
Precision	6-D Nano Precision™ Test Methods



TRAVEL_X	TRAVEL_Y	LENGTH	WIDTH	HEIGHT	A (inch)	B (inch)	C	D	E	F	G	I	J	K	L	M
395	320	672	525	145	12	8	350	250	225	170	100	M8 or 5/16	M6	M6	330	400

- * All units millimeters unless otherwise noted.
- * All hole patterns centered on M5 dowel pin hole at center of stage.
- * All dimensions and visual representations reflect stage at mid-stroke or home position.
- * Custom and intermediate sizes available.
- * Compact sizes with minimal performance impact available.



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



DRAWN	QWOLF	2021-03-31
CHECKED		
Tolerances: Surface Roughness: x.x ± 0.5 mm x.xx ± 0.13 mm x.xxx ± 0.05 mm ANGLES ± 0.5° MATERIAL		
FINISH SEE NOTES		

TITLE
AI-SLM-(TRAVEL_X)x(TRAVEL_Y)-XY

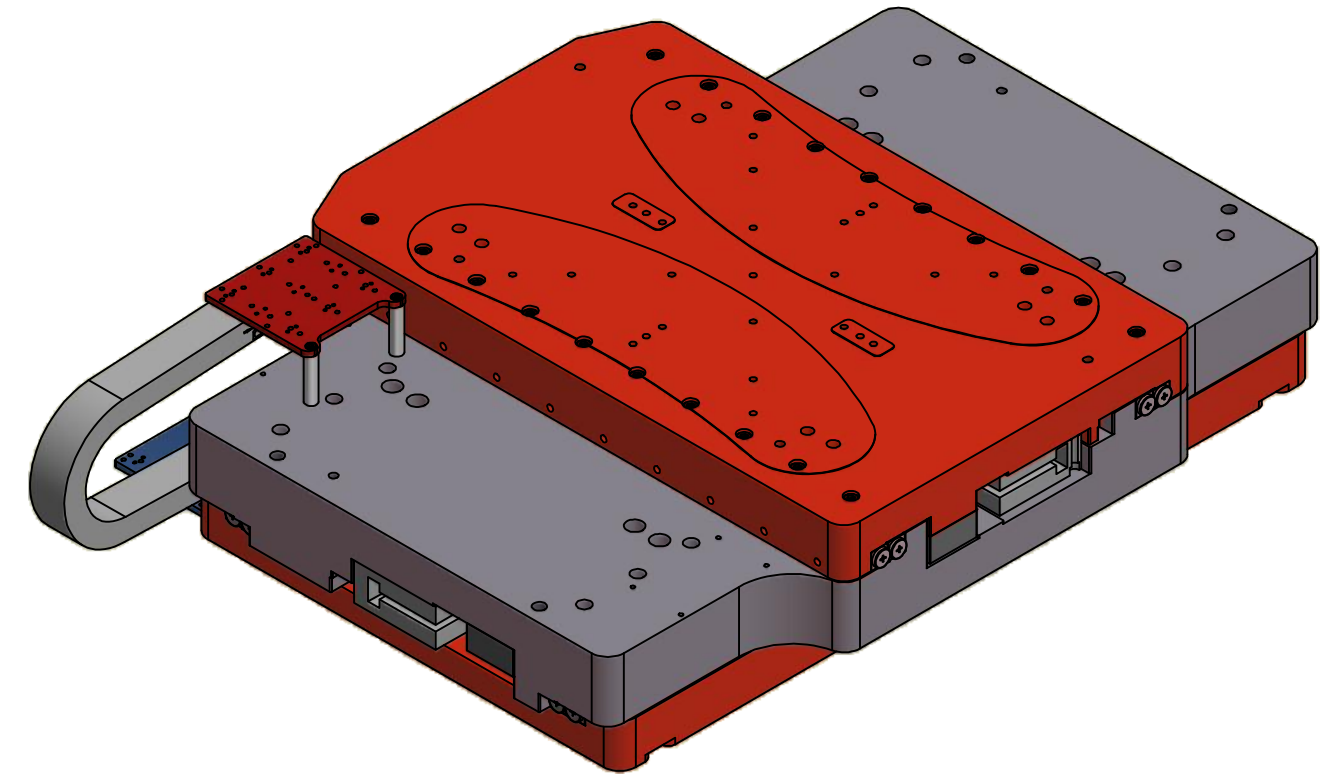
SIZE	DWG NO	REV
B	0010-08065	003
SCALE	0090-07999-016 ALIO STD TEMPLATE	SHEET 1 OF 2

NOTE: AI-SLM-395x320-XY SHOWN.


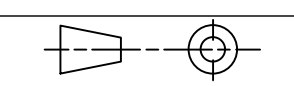
XY SPECIFICATIONS

MODEL	UNITS	AI-SLM-395x320-XY					
AXIS	--	X (BOTTOM AXIS)			Y (TOP AXIS)		
NOMINAL TRAVEL FROM HOME INDEX	mm	+/-197.5			+/-160		
MAGNETIC LIMIT LOCATIONS (+1mm/-3mm)	mm	+/- 192			+/- 155		
SHOCK ABSORBING HARD STOP LOCATIONS (+/- 1mm)	mm	ENGAGE @ +/- 197.5mm BOTTOM OUT @ +/- 210.0mm			ENGAGE @ +/- 160.5mm BOTTOM OUT @ +/- 173.0mm		
PERFORMANCE SPECIFICATIONS [1]		STD	ULTRA	NANO	STD	ULTRA	NANO
LINEAR DISPLACEMENT ACCURACY	um	+/- 5.0	+/- 2.0	+/- 1.0	+/- 5.0	+/- 2.0	+/- 1.0
BIDIRECTIONAL LINEAR REPEATABILITY	nanometers	+/- 30					
HOME INDEX BIDIRECTIONAL REPEATABILITY		< +/- 1 encoder count					
RESOLUTION	nanometers	~4.88 nm (standard) (options available)					
STRAIGHTNESS	um	+/- 5.0	+/- 2.0	+/- 1.0	+/- 5.0	+/- 2.0	+/- 1.0
FLATNESS [2]	um	+/- 10.0	+/- 5.0	+/- 2.0	+/- 10.0	+/- 5.0	+/- 2.0
PITCH [2]	arc-sec	+/- 18.0	+/- 18.0	+/- 10.0	+/- 18.0	+/- 18.0	+/- 10.0
YAW	arc-sec	+/- 18.0	+/- 18.0	+/- 10.0	+/- 18.0	+/- 18.0	+/- 10.0
ROLL	arc-sec	+/- 10.0	+/- 10.0	+/- 10.0	+/- 10.0	+/- 10.0	+/- 10.0
ORTHOGONALITY	arc-sec	+/- 20.0	+/- 5.0	+/- 2.0	+/- 20.0	+/- 5.0	+/- 2.0
MOTION PROFILE SPECIFICATIONS							
MAX VELOCITY [3]	m/s	1.5			2.4		
MAX PEAK ACCELERATION [3]	G	0.6			1.8		
MAX PAYLOAD CAPABILITY	kg	1.0 - 200 kg (DEPENDING ON CONFIGURATION)					
XY STAGE ASSEMBLY MASS	kg	98					
AXIS MOVING MASS	kg	76			19		
MOTOR INFORMATION							
MOTOR TYPE	--	LINEAR BRUSHLESS SERVO MOTOR					
MOTOR MODEL	--	AI--LM-400DSN-D			AI--LM-400CSN-D		
MAGNETIC PITCH (N-N)	mm	60.96			60.96		
MAX VOLTAGE (LINE TO LINE) [4]	V	500			500		
ELECTRICAL TIME CONSTANT	msec	0.36			0.36		
MAX MOTOR TEMP	°C	125			125		
THERMAL SENSOR	--	NEGATIVE COEFFICIENT THERMISTOR					
MOTOR CONNECTION	--	DELTA			DELTA		
MOTOR CONSTANT	N/sqrt(W)	18.9			16.4		
FORCE CONSTANT	N/Apk	69.3			52.0		
PHASE RESISTANCE (@ 25°C) [5]	Ohm	13.37			10.03		
PHASE RESISTANCE (@ 125°C) [5]	Ohm	18.52			13.89		
INDUCTANCE @ 1kHz	mH	4.9			3.7		
CONTINUOUS FORCE [6]	N	290.9			218.1		
CONTINUOUS CURRENT [6]	Apk	4.20			4.20		
PEAK FORCE [7]	N	920			690		
PEAK CURRENT [7]	Apk	13.28			13.28		
BACK EMF CONSTANT	V/m/s	69.3			52.0		

- Notes:
- Specifications measured on stage centerline at nominal 20°C, ~50mm above mounting surface with no payload. ALIO provides NIST traceable proof for all options/specs per quote.
 - Flatness and Pitch specifications dependent on system base. Contact ALIO for more information.
 - Axis limitation at no payload. 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 0.013 ohm/m.
 - 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 each stage for optimized performance as necessary per customer requirements.



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DRAWN	QWOLF	2021-03-31			
CHECKED					
			TITLE		
Tolerances: Surface Roughness: x.x ± 0.5 mm x.xx ± 0.13 mm x.xxx ± 0.05 mm ANGLES ± 0.5° MATERIAL			AI-SLM-(TRAVEL_X)x(TRAVEL_Y)-XY		
FINISH			SIZE	DWG NO	REV
SEE NOTES			B	0010-08065	003
SCALE			0090-07999-016 ALIO STD TEMPLATE		SHEET 2 OF 2