1040 CLASSIC ROAD | APEX, NC 27539
P: 866.906.2709 | F: 919.882.1430
www.griffinmotion.com

GXY-320 Datasheet

High-Precision XY Stage

FEATURES

- 320mm XY Travel
- Crossed Roller Bearings for Smooth Motion
- Multiple Optical Encoder Options
- High-Rigidity Structure
- Internal Cable Management
- Brushless DC Servo Motors

The GXY-320 is a precision XY motion stage designed for demanding semiconductor processing and inspection applications. With 320 mm of travel in both axes, it is ideally sized for tools built for 300 mm wafers while providing ample travel for alignment, metrology, and wafer handling tasks. The stage features exceptional flatness and high structural rigidity, enabling stable motion and repeatable positioning even under demanding process conditions. While optimized for semiconductor wafer processing, the GXY's combination of precision, stiffness, and travel range also makes it well suited for other precision automation, inspection, and advanced manufacturing applications.

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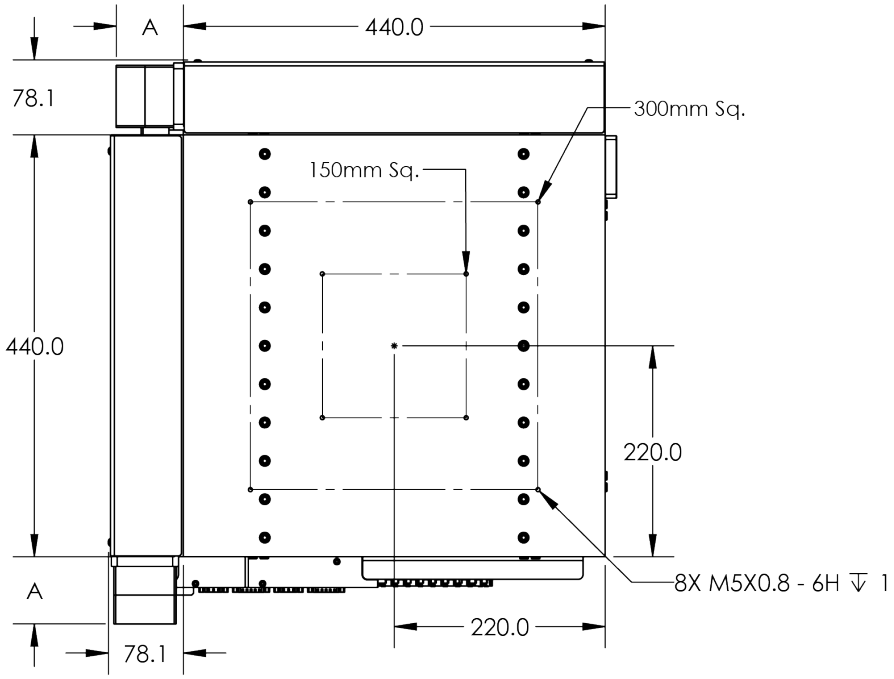
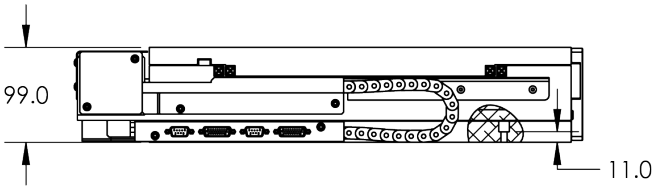
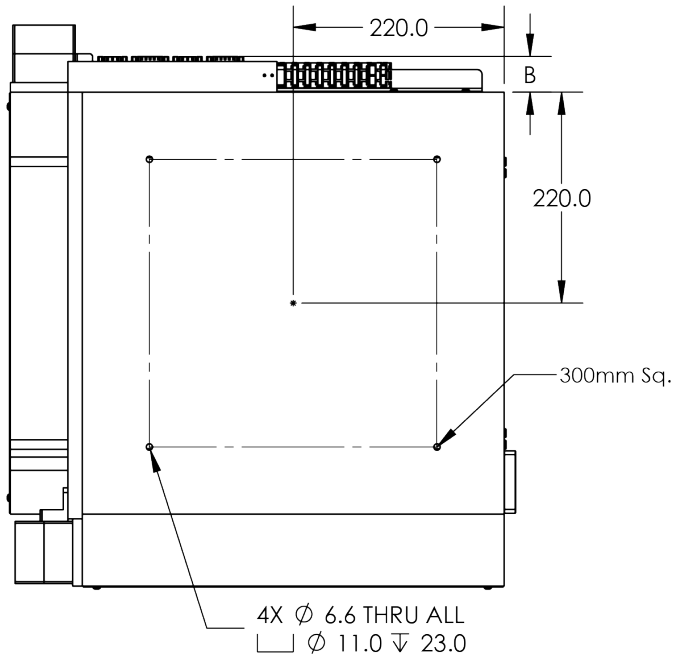
GXY-320 Dimensions







Feedback Dependent Dimensions		
Feedback Type	A (mm)	B (mm)
Linear Encoder Only	70	37.2
Rotary Encoder	94	
Linear and Rotary Encoder		50.2

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GXY Ordering Options

GXY Ordering Options	
Product Series	GXY-C: Large Format XY Stage
XY Travel (mm)	240, 280[1], 320, 360
Ballscrew Lead	BF: 5mm/rev BS: 2mm/rev
Motor Code	D: NEMA 23 BLDC, Low Voltage (100V Max) P: NEMA 23 BLDC, High Voltage (325V Max)
Encoder Feedback	H: RS422 Rotary Encoder, 16,000 Counts/Rev[2] M: RS422 Linear Encoder, 10,000 Counts/mm L: 1Vpp Linear Encoder, 40µm Signal Period[3]
Precision Grade	S: Standard P: High-Precision[4]
Additional Options	0: No Additional Options
Customizations	00: Standard Product 0-99: Customer Specific Modifications[5]
Example Part Number	GXY-C-320-BF-D-M-P-0-09
Notes	1: Travel does not yet exist as a standard ordering option, but can be made upon request. NRE may apply. 2: May be combined with "M" or "L" encoder feedback to create a dual-loop feedback system. 3: Final encoder resolution determined by the servo drive. Resolution down to 25nm may be possible. 4: May include improvements to any or all of the precision specifications shown on the table on page 4. 5: Common customizations include: custom holes, custom travel, cleanroom preparation, vacuum preparation and dual-loop feedback.

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GXY-320 Performance Specifications

GXY-320 Specifications, Standard Precision		
Encoder Feeback	H	M/L
Accuracy (±µm)[1,4]	30.0	15.0
Calibrated Accuracy (±µm)[3,4]	4.0	2.0
Bi-Directional Repeatability (µm)[1,4]	2.0	1.0
Straightness (µm)[5]	10.0	
Flatness (µm)[5]		
Pitch (±arc-sec)[1,4]	10.0	
Yaw (±arc-sec)[1,4]		
XY Orthogonality (arc-sec)	10.0	
X Load Capacity (Fx) (N)	200	
Y Load Capacity (Fy) (N)		
Z Load Capacity (Fz) (N)	800	
Moment Load Capacity (Mx) (Nm)	300	
Moment Load Capacity (My) (Nm)	300	
Moment Load Capacity (Mz) (Nm)	100	
Moving Mass (X) (kg)	39	
Moving Mass (Y) (kg)	14	
Stage Mass (kg)	60	

Notes:
1. Specification is verified via laser interferometer on every stage
2. Slope correction may be required to compensate for linear scaling errors in the screws. Correction factor will be provided to the customer
3. In order to have a stage calibrated and verified, Griffin Motion must perform the controls configuration
4. Improved specifications are available by ordering the "P" precision grade
5. Specification may be verified by laser interferometer upon request