

Integrated XY Linear Motor Stages

ONE-XY Series



Newport's ultra-low profile ONE-XY Series offers linear motor dynamic performance in a simple, three-plate, integrated XY stage design. The monolithic construction and crossed roller bearings all machined to tight tolerances enable excellent planarity with micron scale straightness, flatness and nanometer-level repeatability. Non-contact linear motor and encoder feedback enable high, stage reliability.

Design Details

Base Material	Anodized aluminum
Bearings	High precision crossed roller bearings
Motor	Ironless core linear motor (non-cogging)
Feedback	Non-contact Sin/Cos optical encoder
Sensors	Integrated end of travel limits
B Cables	3 m length

Ordering Information

Model	Description
ONE-XY60	50 x 50 mm travel XY stage
ONE-XY60HA	50 x 50 mm travel high-accuracy XY stage
ONE-XY100	90 x 90 mm travel XY stage
ONE-XY100HA	90 x 90 mm travel high-accuracy XY stage
ONE-XY200	190 x 190 mm travel XY stage
ONE-XY200HA	190 x 190 mm travel high-accuracy XY stage
ONE-XY300	290 x 290 mm travel XY stage
ONE-XY300HA	290 x 290 mm travel high-accuracy XY stage

Note: HA versions include XY mapping.

Recommended Controllers/Drivers

Model	Description
XPS-D	1- to 8-axis universal high-performance motion controller/driver
XPS-RLD	1- to 4-axis universal high-performance motion controller/driver
XPS-DRV02	PWM drive module for brushless motors, 5 A/44 VPP max.



Features

- Integrated and stiff design
- Lower profile than stacked stages
- Excellent straightness and flatness motion
- 50 to 290 mm travel options
- 100 to 350 N load capacity range
- Speed up to 500 mm/s



	ONE-XY60	ONE-XY60HA	ONE-XY100	ONE-XY100HA	ONE-XY200	ONE-XY200HA	ONE-XY300	ONE-XY300HA
Travel Range (mm)	50x50		90x90		190 x 190		290 x 290	
Minimum Incremental Motion (μm)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Accuracy, Typical (Guaranteed) (μm)	±0.4 (±1.5)	n/a (±0.3)	±0.5 (±2.0)	n/a (±0.3)	n/a (±2.5)	n/a (±0.4)	n/a (±3.0)	n/a (±0.5)
Bi-directional Repeatability, Typical (Guaranteed) (μm)	±0.040 (±0.070)		±0.040 (±0.080)		n/a (±0.090)		n/a (±0.100)	
Straightness, Typical ⁽³⁾ (μm)	±0.5		±1.0		±2.0		±3.0	
Flatness, Typical ⁽²⁾ (μm)	±0.5		±1.0		±2.0		±3.0	
Pitch, Typical (Guaranteed) ⁽³⁾⁽⁵⁾ (μrad)	±20 (±65)	n/a (±65)	n/a (±75)	n/a (±75)	n/a (±90)	n/a (±90)	±15 (±55)	n/a (±55)
Yaw, Typical (Guaranteed) ⁽³⁾⁽⁵⁾ (μrad)	±20 (±65)	n/a (±65)	n/a (±75)	n/a (±75)	n/a (±90)	n/a (±90)	±15 (±55)	n/a (±55)
Roll ⁽³⁾ (μrad)	58		58		72		48	
Orthogonality ⁽³⁾ (μrad)	96		96		96		96	
Max. Speed ⁽³⁾ (m/s)	0.3		0.4		0.5		0.3	
Max. Acceleration ⁽³⁾ (G)	0.3		0.3		0.2		0.2	
Max. Load Capacity (N)	100		120		150		350	
Weight [lb (kg)]	6.4 (2.9)		12.8 (5.8)		26.4 (12)		165 (75)	

- 1) Specifications measured on stage centerline, 50 mm above mounting surface. Newport provides NIST traceable, test results.
- 2) Flatness specifications dependent on system base. Contact Newport for more information.
- 3) Stage performance values at no load. Does not account for drive or resolution effects.
- 4) To obtain arcsec units, divide mrad value by 4.8.
- 5) Over 80% of travel range.
- Notes: HA versions are error mapped in XY. Speed and acceleration can be higher with other driver options.

