

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
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
ONE-CM	Integrated XY stage cable track

Note: HA versions include XY mapping.

- 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

RECOMMENDED CONTROLLERS/DRIVERS

Model	Description
XPS-D	1- to 8-axis universal high-performance motion controller/driver
XPS-DRV11	Universal digital driver card for stepper, DC and direct motors
XPS-RL	1- to 4-axis universal high-performance motion controller/driver
XPS-DRV02	PWM drive module for brushless motors, 5 A/44 VPP max.

Note: E5820A to be purchased separately for use with XPS-DRV11/XPS-D combination.



SPECIFICATIONS

	ONE-XY60	ONE-XY60HA	ONE-XY100	ONE-XY100HA	ONE-XY200	ONE-XY200HA	ONE-XY300	ONE-XY300HA
Travel Range (mm)	50 x 50		90 x 90		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 ⁽¹⁾ (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.

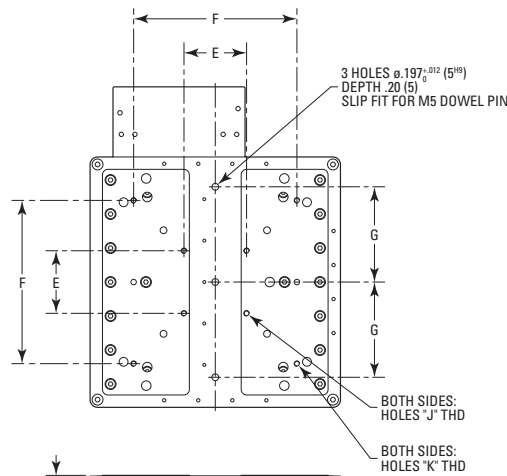
³⁾ Stage performance values at no load. Does not account for drive or resolution effects.

⁴⁾ To obtain arcsec units, divide mrad value by 4.8.

⁵⁾ Over 80% of travel range.

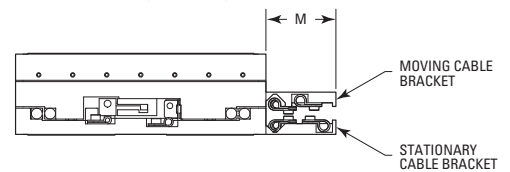
Notes: HA versions are error mapped in XY.

Speed and acceleration can be higher with other driver options.

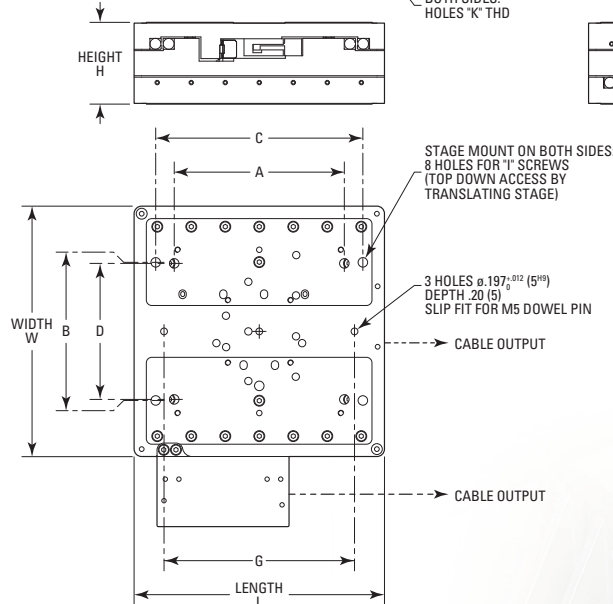


MODEL	TRAVEL	L	W	H	A
ONE-XY60	1.97 (50)	4.92 (125)	4.92 (125)	2.36 (60)	4.0 (101.6)
ONE-XY100	3.54 (90)	7.24 (184)	7.24 (184)	2.36 (60)	6.0 (152.4)
ONE-XY200	7.48 (190)	10.83 (275)	10.83 (275)	2.36 (60)	6.0 (152.4)
ONE-XY300	11.42 (290)	19.69 (500)	19.69 (500)	3.94 (100)	12.0 (304.8)

MODEL SHOWN: ONE-XY100
DIMENSIONS IN INCHES (AND MILLIMETERS)



DIMENSIONS



MODEL	B	C	D	E	F
ONE-XY60	3.0 (76.2)	3.94 (100)	2.95 (75)	1.81 (46)	2.36 (60)
ONE-XY100	4.0 (101.6)	4.92 (125)	3.94 (100)	1.81 (46)	4.72 (120)
ONE-XY200	6.0 (152.4)	6.89 (175)	4.92 (125)	4.72 (120)	6.69 (170)
ONE-XY300	8.0 (203.2)	13.78 (350)	9.84 (250)	6.69 & 8.86 (170 & 225)	10.83 (275)

MODEL	G	I	J	K	M
ONE-XY60	1.38 (35) or M6	1/4-20 or M6	4 HOLES M4	4 HOLES M5	-
ONE-XY100	2.76 (70) or M6	1/4-20 or M6	4 HOLES M4	6 HOLES M5	2.05 (52)
ONE-XY200	2.76 (70) or M6	1/4-20 or M6	8 HOLES M5	6 HOLES M6	2.56 (65)
ONE-XY300	3.94 (100) or M8	5/16-18 or M8	8 HOLES M6	6 HOLES M8	3.78 (96)



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