



APPLIED SCIENTIFIC
INSTRUMENTATION

MA-12 Motorized Actuator



The ASI MA-12 motorized actuators offer high resolution in a lightweight, compact package, and have been designed to replace manual micrometers that have 1/4"-80 threads. The MA-12-B is for use with 3/8" barrel clamps. The units come complete with built in limit switches to provide overdrive protection and home positioning. Current limiting within the ASI control electronics also provides additional overdrive protection. The built in encoder provides 512 counts per revolution, giving a theoretical minimum resolution of 30 nm, and when used with the ASI controller provides bidirectional repeatability of better than +/- 0.75 μm .

Applications include the automation of TIRF injectors as shown in the images below, as well as automation of manual translation stages that utilize manual micrometers.

Features

- Compact servo actuator
- Submicron resolution
- 3 mm/s maximum velocity
- Replacement for most 12 mm or 1/2" manual actuators
- Compatible with 1/4"-80 Thread or 3/8" Barrel-Fitted stages and mounts
- Built-in limit switches
- Current limiting with ASI controller

Specifications

Bidirectional Repeatability	1.5 μm
Backlash	<8 μm
Maximum Acceleration	4 mm/sec ²
Maximum Velocity	3 mm/sec
Velocity Stability	± 0.125 mm/sec
Maximum Vertical Load Capacity	4.5 kg
Maximum Horizontal Load Capacity	9 kg
Recommended Horizontal Load Capacity	<7.5 kg
Recommended Vertical Load Capacity	<4.0 kg
Minimum Achievable Incremental Movement	0.05 μm
Minimum Repeatable Incremental Movement	0.2 μm
Maximum Percentage Accuracy	0.82%
Homing Repeatability	± 1.0 μm
Operating Temperature Range	-20 to 65 °C
Max Motor Coil Temperature	85 °C
Limit Switch Life Time	>100,000 Cycles
Weight	0.134 kg
Travel Range	12.0 mm