

M-230

High-Resolution Closed-Loop DC-Mike & Stepper Actuators



M-230.10, M-230.25, high-resolution DC-Mike actuators, 10 and 25 mm travel range

Application Examples

- Photonics packaging
- Fiber alignment
- Quality control
- Test equipment
- Metrology

- 10 & 25 mm Travel Range
- 0.05 μm Minimum Incremental Motion
- Non-Rotating Tip
- Velocity to 1.5 mm/sec.
- Closed-Loop DC Motors and Stepper Motors
- Compatible with Leading Industrial Motion Controllers
- Integrated Hall-Effect Origin and Limit Switches
- Front Mount or Clamp Mount
- >5,000 Hours MTBF

M-230 are ultra-high-resolution linear actuators providing linear motion up to 25 mm with sub-micron resolution in a compact package. They consist of a micrometer with non-rotating tip driven by a 2-phase stepper motor or a closed-loop DC motor/gearhead combination with motor-shaft-mounted, high-resolution encoder (2048 counts/rev.).

Ordering Information

- M-230.10**
DC-Mike Actuator, 10 mm, Limit Switches
- M-230.25**
DC-Mike Actuator, 25 mm, Limit Switches
- M-230.10S**
Stepper-Mike Actuator, 10 mm, Limit Switches
- M-230.25S**
Stepper-Actuator, 25 mm, Limit Switches
- Custom Designs for Volume Buyers**

Non-Rotating Tip

Compared to conventional rotating-tip micrometer drives, the non-rotating-tip design offers several advantages:

- Elimination of torque-induced positioning errors
- Elimination of sinusoidal motion errors
- Elimination of wear at the contact point
- Elimination of tip-angle-dependent wobble

M-230 actuators provide a cost-effective solution for heavier-duty industrial and OEM environments. They feature extremely low-stiction, low-friction construction, allowing for minimum incremental motion as low as 50 nanometers and speeds up to 1.5 mm/sec.

Non-Contact Limit and Origin Switches

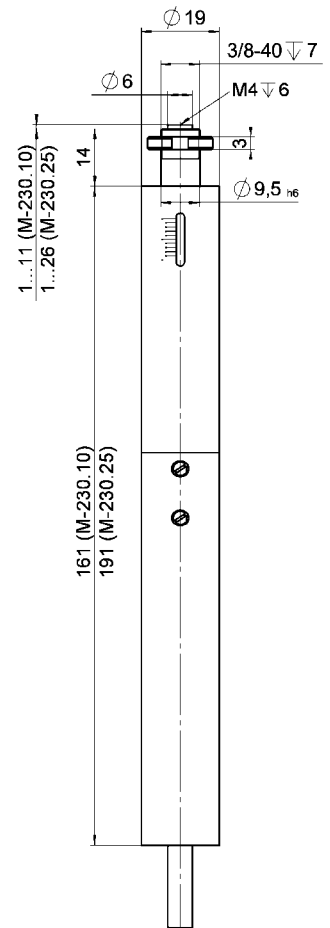
Integrated, non-contact, high-precision Hall-effect origin and limit switches protect your equipment and increase versatility in automation applications.

Integrated Line Drivers

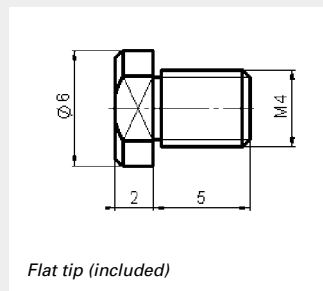
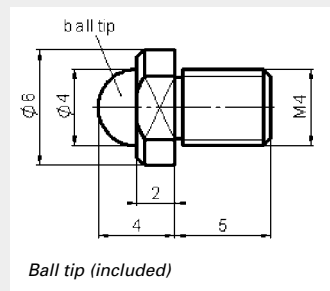
M-230 actuators include an integral 0.5 m cable with 15-pin sub-D connector and a 3 m extension cable. On the DC-servo versions, the connector features integrated line drivers for cable lengths up to 10 meters between actuator and controller.

A screw-in ball tip and a flat tip are included.

For higher loads and travel ranges refer to the M-235 on page 7-72.



M-230. Cable length: 500 mm, 15-pin sub-D connector with integrated line drivers (DC motor models). Dimensions in mm.



Technical Data

Models	M-230.10	M-230.25	M-230.10S	M-230.25S	Units	Notes see p. 7-96
Travel range	10	25	10	25	mm	
Design resolution	0.0046	0.0046	0.0058	0.0058	µm	A3
Min. incremental motion	0.05	0.05	0.05	0.05	µm	A4
Unidirectional repeatability	0.1	0.1	0.1	0.1	µm	
Backlash	2	2	2	2	µm	
Max. velocity	1.5	1.5	2	2	mm/sec	
Max. push/pull force	70	70	45**	45**	N	
Max. lateral force	30	20	30	20	N (at tip)	
Encoder resolution	2048	2048	-	-	counts/rev.	
Motor resolution	-	-	2400*	2400*	steps/rev	
Drivescrew pitch	0.4	0.4	0.4	0.4	mm/rev.	
Gear ratio	42.92:1	42.92:1	28.44444:1	28.44444:1		
Nominal motor power	2	2	*	*	W	
Motor voltage range	0 to ±12	0 to ±12	24*	24*	V	
Origin and limit switches	Hall-Effect	Hall-Effect	Hall-Effect	Hall-Effect		
Weight	0.30	0.35	0.30	0.35	kg	
Recommended motor controllers	C-842, C-844, C-860	C-842, C-844, C-860	C-600, C-630	C-600, C-630		D2

* 2-phase stepper, 24 V chopper voltage, 2,400 microsteps with C-600, C-630 controllers

** at up to 1 mm/sec.