

High- Resolution Linear Actuator with DC and Stepper Motor

NONROTATING END PIECE, LIMIT SWITCHES



M-230

- + Min. incremental motion 0.05 μm
- + Travel ranges 10 and 25 mm
- + Nonrotating end piece
- + Velocity to 1.2 mm/ s
- + MTBF >20,000 h
- + Closed- loop DC servo and stepper motor versions
- + Noncontact limit switches
- + Clamping or frontal mounting

Precision- class linear drive

Precision linear actuator. Vacuum- compatible versions to 10^{-6} hPa are available

High- quality components

Extremely low- friction and backlash- free construction. Nonrotating end piece for uniform motion prevents wobble, torque, and wear at the point of contact. Includes flat and spherical end piece for decoupling of lateral and tilt forces. Noncontact limit switches protect the mechanical system. Closed- loop variants with differential encoder driver for a safe position signal transmission at distances up to 10 mm

Motor variants

- Position- controlled DC motors with a gearhead and high- resolution rotary encoders allow for incremental motion and repeatability of just 100 nm
- Low- vibration 2- phase stepper motors with gearhead allow for smooth and accurate open- loop positioning

Specifications

	M-230.10 / M-230.25	M-230.10S / M-230.25S	Unit	Tolerance
	High- precision, with DC gear motor	With stepper motor		
Motion and positioning				
Travel range	10 / 25	10 / 25	mm	
Integrated sensor	Rotary encoder	–		
Sensor resolution	2048	–	cts./ rev.	
Design resolution	0.0046	0.037	μm	typ.
Min. incremental motion	0.05	0.1	μm	typ.
Backlash	2	2	μm	typ.
Unidirectional repeatability	0.1	0.1	μm	typ.
Velocity	0.8	1.2	mm/ s	max.
Reference point switch repeatability	1	1	μm	typ.
Mechanical properties				
Drive screw	Leadscrew	Leadscrew		
Thread pitch	0.4	0.4	mm	
Gear ratio	42.92063:1	28.44444:1		
Motor resolution	–	384*	steps/ rev.	
Push / pull force	70	45**	N	max.
Permissible lateral force	30 / 20	30 / 20	N	max.
Drive properties				
Motor type	DC motor, gearhead	2- phase stepper motor*		
Operating voltage	0 to ± 12	24	V	

Electrical power	2	–	W	nominal
Limit and reference point switches	Hall- effect	Hall- effect		
Miscellaneous				
Operating temperature range	-20 to 65	-20 to 65	°C	
Material	Aluminum anodized, chrome steel, brass	Aluminum anodized, chrome steel, brass		
Mass	0.3 / 0.35	0.3 / 0.35	kg	±5 %
Cable length	0.5 m + 3 m extension cable (included)			±10 mm
Connector	15- pin sub- D, incl. encoder driver	Sub- D, 15- pin		
Recommended controller / driver	C-863 single- axis C-843 PCI board, for up to 4 axes	C-663 single- axis		

Specifications for vacuum versions can differ.
Ask about custom designs!

* Max. 0.25 A/ phase; 24 full steps/ rev., motor resolution with C-663 stepper motor controller.

** At a velocity of up to 1 mm/ s.

Order Information

M-230.10

High- Resolution Linear Actuator with DC Motor, 10 mm, Limit Switches

M-230.10S

High- Resolution Linear Actuator with Stepper Motor, 10 mm, Limit Switches

M-230.10V

High- Resolution Linear Actuator with DC Motor, 10 mm, Limit Switches, Vacuum Compatible to 10^{-6} hPa

M-230.25

High- Resolution Linear Actuator with DC Motor, 25 mm, Limit Switches

M-230.25S

High- Resolution Linear Actuator with Stepper Motor, 25 mm, Limit Switches

M-230.25V

High- Resolution Linear Actuator with DC Motor, 25 mm, Limit Switches, Vacuum Compatible to 10^{-6} hPa

Ask about custom designs!

Controllers / Drivers / Amplifiers

[C-863 Mercury Servo Controller](#)

[C-884 Four Axis Motion Controller](#)

[C-663 Mercury Step Controller](#)

Related Products

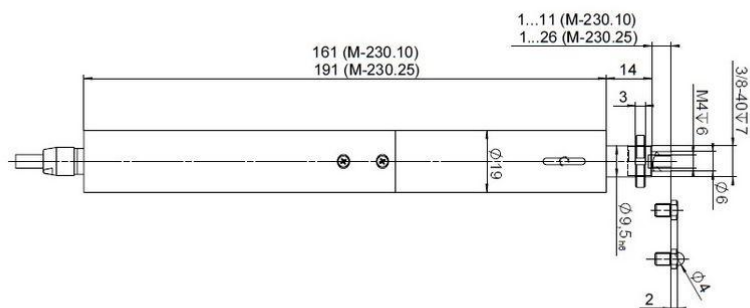
[M-228 • M-229 High- Resolution Linear Actuator with Stepper Motor](#)

[M-232 High- Resolution Linear Actuator with DC and Stepper Motor](#)

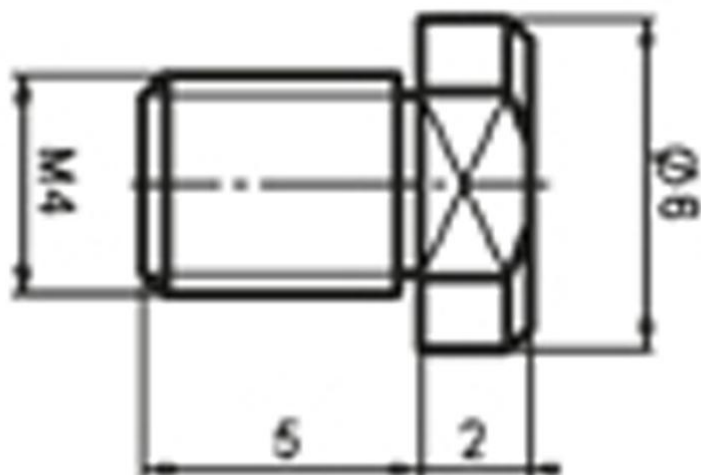
[M-235 High- Resolution Linear Actuator with DC Motor](#)

Drawings / Images

M-230, dimensions in mm



Flat end piece
(included)



Spherical end piece
(included)

