

High-Resolution Linear Actuator, DC or Stepper Motor

Nonrotating Tip, Limit Switches

M-230



- Minimum incremental motion 0.05 μm
- Travel ranges 10 and 25 mm
- Nonrotating tip
- Velocity up to 1.2 mm/s
- MTBF >20000 h

Precision-class linear drive

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

High-quality components

Extremely low-friction and backlash-free construction. Nonrotating tip for uniform motion prevents wobble, torque, and wear at the point of contact. Incl. flat and spherical tip for decoupling forces. Noncontact limit switches protect the mechanics. Position-controlled variants with differential encoder driver in the connector for safe signal transfer over distances up to 10 m.

Application fields

Precision alignment, motorized alternative for micrometer screws.

Motion	Unit		M-230.10	M-230.25	M-230.10S	M-230.25S
Active axes			X	X	X	X
Travel range in X	mm		10	25	10	25
Maximum velocity in X, unloaded	mm/s		0.8	0.8	1.2	1.2

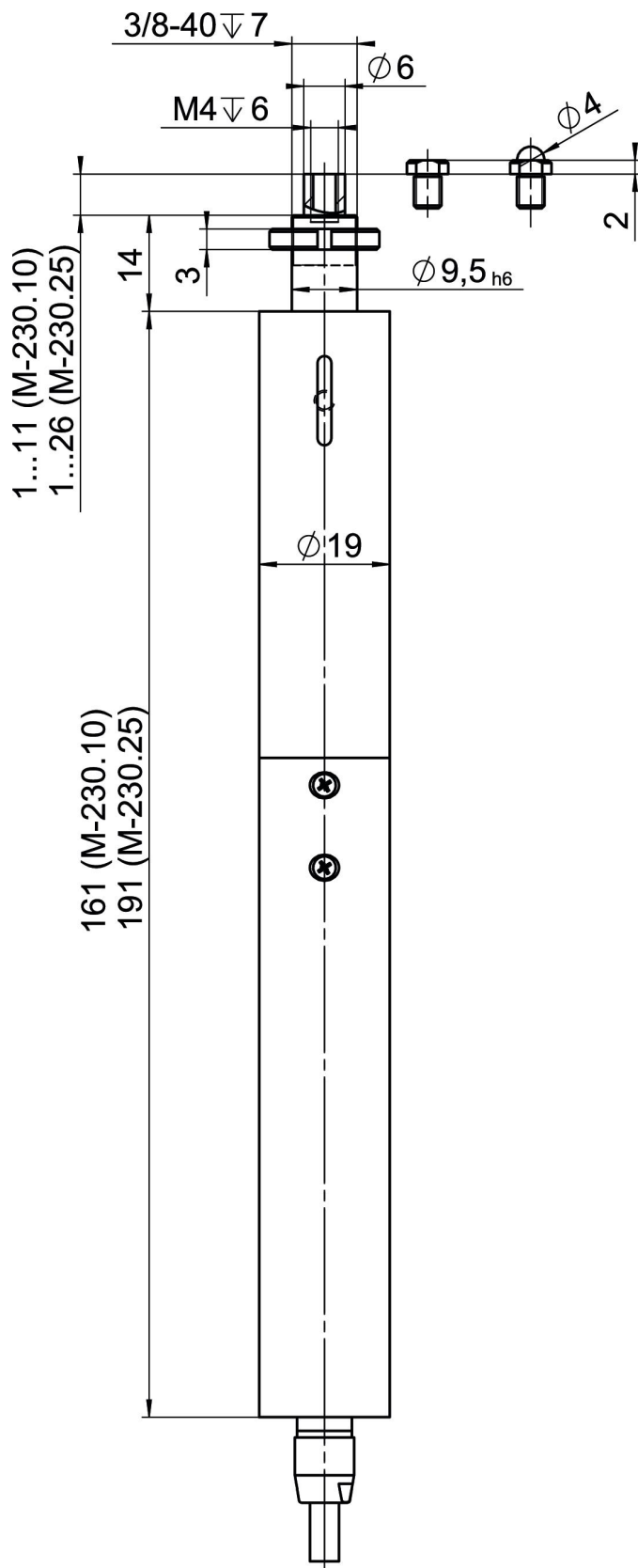
Positioning	Unit	Tolerance	M-230.10	M-230.25	M-230.10S	M-230.25S
Minimum incremental motion in X	μm	Typ.	0.05	0.05	0.1	0.1
Unidirectional repeatability in X	μm	Typ.	± 0.1	± 0.1	± 0.1	± 0.1
Backlash in X	μm	Typ.	2	2	2	2
Reference switch			Hall effect	Hall effect	Hall effect	Hall effect
Reference switch repeatability	μm		1	1	1	1
Limit switches			Hall effect	Hall effect	Hall effect	Hall effect
Integrated sensor			Incremental rotary encoder	Incremental rotary encoder		
Sensor resolution	Cts./rev.		2048	2048		

Drive Properties	Unit	Tolerance	M-230.10	M-230.25	M-230.10S	M-230.25S
Drive type			DC gear motor	DC gear motor	2-phase stepper motor with gearhead	2-phase stepper motor with gearhead
Operating voltage	V		0 to ± 12	0 to ± 12	24	24
Motor resolution	Full steps/rev.				24	24
Drive force in X	N	Typ.	70	70	45	45

Mechanical Properties	Unit	Tolerance	M-230.10	M-230.25	M-230.10S	M-230.25S
Permissible push force in Y	N	Max.	30	20	30	20
Drive screw type			Trapezoidal drive screw	Trapezoidal drive screw	Trapezoidal drive screw	Trapezoidal drive screw
Drive screw pitch	mm		0.4	0.4	0.4	0.4
Gear ratio i			42,92063 : 1	42,92063 : 1	28,44444 : 1	28,44444 : 1
Overall mass	g		300	350	300	350
Material			Anodized aluminum, chrome steel, brass	Anodized aluminum, chrome steel, brass	Anodized aluminum, chrome steel, brass	Anodized aluminum, chrome steel, brass

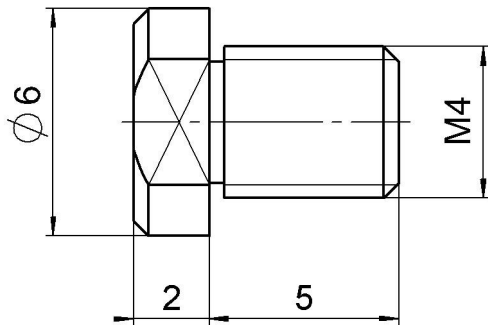
Miscellaneous	Unit		M-230.10	M-230.25	M-230.10S	M-230.25S
Operating temperature range	°C		-20 to 65	-20 to 65	-20 to 65	-20 to 65
Connector			D-sub 15-pin (m)	D-sub 15-pin (m)	D-sub 15-pin (m)	D-sub 15-pin (m)
Cable length	m		0.5	0.5	0.5	0.5
Recommended controllers / drivers			C-863.12 C-885 with C-863.20C885 C-884	C-863.12 C-885 with C-863.20C885 C-884	C-663.12 C-885 with C-663.12C885	C-663.12 C-885 with C-663.12C885

Drawings / Images

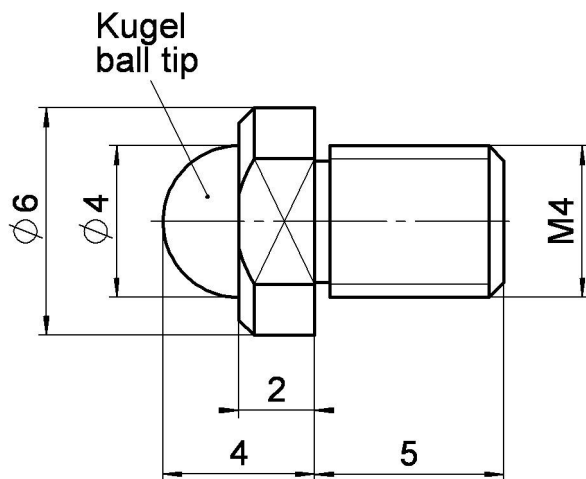


M-230, dimensions in mm. Note that a comma is used in the drawing instead of a decimal point.

Drawings / Images



Dimensions of the flat tip M23010116 (included)



Dimensions of the spherical tip M23010117 (included)

Order Information

M-230.10

High-resolution linear actuator with DC or stepper motor; DC gear motor; 10 mm travel range; 70 N feed force; 0.8 mm/s maximum velocity; trapezoidal-threaded spindle; incremental rotary encoder, 2048 counts/rev. sensor resolution; limit switches: Hall effect; 0.5 m cable length

M-230.25

High-resolution linear actuator with DC or stepper motor; DC gear motor; 25 mm travel range; 70 N feed force; 0.8 mm/s maximum velocity; trapezoidal-threaded spindle; incremental rotary encoder, 2048 counts/rev. sensor resolution; limit switches: Hall effect; 0.5 m cable length

Order Information

M-230.10S

High-resolution linear actuator with DC or stepper motor; 2-phase stepper motor with gearhead; 10 mm travel range; 45 N feed force; 1.2 mm/s maximum velocity; trapezoidal-threaded spindle; limit switches: Hall effect; 0.5 m cable length

M-230.25S

High-resolution linear actuator with DC or stepper motor; 2-phase stepper motor with gearhead; 25 mm travel range; 45 N feed force; 1.2 mm/s maximum velocity; trapezoidal-threaded spindle; limit switches: Hall effect; 0.5 m cable length