

Precision Linear Stage

COST- EFFECTIVE WITH HIGH GUIDING ACCURACY



M-406

- + Travel ranges to 150 mm
- + Crossed roller bearings
- + DC servo and stepper motor drive
- + Direction- sensing reference point switch
- + Design resolution to 3.5 μm
- + Min. incremental motion to 100 nm
- + Noncontact limit switches

Precision- class linear drive

Crossed roller bearings for high travel accuracy and load capacity. Precision leadscrew with 0.5 mm thread pitch, backlash- compensated, self- locking (50 N holding force). Stress- relieved aluminum base for highest stability

Drive types and position measurement

PD variant: Direct drive. DC motor with integrated ActiveDrive amplifiers for higher velocity

DG variant: DC servo motor with gearhead in combination with precision rotary encoder for high resolution and repeatability

2S variant: 2- phase stepper motor

Noncontact limit switches. Noncontact direction- sensing reference point switches in the middle of the travel range

Fields of application

Precision positioning for science and industry, low duty cycles

Specifications

Preliminary data	M-406.2DG / M-406.4DG / M-406.6DG	M-406.2PD / M-406.4PD / M-406.6PD	M-406.22S / M-406.42S / M-406.62S	Unit
Motion and positioning				
Travel range	50 / 100 / 150	50 / 100 / 150	50 / 100 / 150	mm
Integrated sensor	Rotary encoder	Rotary encoder	-	
Sensor resolution	2000	4000	-	cts./ rev.
Design resolution	0.0085	0.125	0.0781	μm
Min. incremental motion	0.1	0.25	0.1	μm
Unidirectional repeatability	0.2	0.2	0.2	μm
Backlash	2	2	2	μm
Crosstalk, angular error	$\pm 25 / \pm 50 / \pm 75$	$\pm 25 / \pm 50 / \pm 75$	$\pm 25 / \pm 50 / \pm 75$	μrad
Max. velocity	1	15	3.5	mm/ s
Mechanical properties				
Thread pitch	0.5	0.5	0.5	mm
Gear ratio	29.6:1	-	-	
Max. load	200	200	200	N
Max. push / pull force	50 / 50	50 / 50	50 / 50	N
Max. lateral force	150	150	150	N
Drive properties				
Motor type	DC gear motor	DC motor with PWM control	2- phase stepper motor*	
Operating voltage	0 to ± 12	24 (PWM)	24	V
Motor power	3	30	-	W
Motor resolution	-	-	6.400*	steps/ rev.

Reference point and limit switches	Hall effect	Hall effect	Hall effect
Miscellaneous			
Operating temperature range	-20 to 65	-20 to 65	-20 to 65 °C
Material	Aluminum, steel	Aluminum, steel	Aluminum, steel
Mass	2.1 / 2.4 / 2.8	2.1 / 2.4 / 2.8	2.1 / 2.4 / 2.8 kg
Connector	Sub- D 15- pin, 3 m cable incl.	Sub- D 15- pin, 3 m cable incl.	Sub- D 15- pin, 3 m cable incl.
Recommended controller / driver	C-863 (single- axis), C-884 (up to 4 axes)	C-863 (single- axis), C-884 (up to 4 axes)	C-663 (single- axis)

* Max. 0.85 A/ phase; 400 full steps/ rev., motor resolution with C-663 stepper motor controller
Ask about custom designs!

Order Information

M-406.2DG

Precision Translation Stage, 50 mm, DC Gear Motor

M-406.4DG

Precision Translation Stage, 100 mm, DC Gear Motor

M-406.6DG

Precision Translation Stage, 150 mm, DC Gear Motor

M-406.2PD

Precision Translation Stage, 50 mm, ActiveDrive DC Motor, includes 24 V Power Supply

M-406.4PD

Precision Translation Stage, 100 mm, ActiveDrive DC Motor, includes 24 V Power Supply

M-406.6PD

Precision Translation Stage, 150 mm, ActiveDrive DC Motor, includes 24 V Power Supply

M-406.22S

Precision Translation Stage, 50 mm, 2- Phase Stepper Motor

M-406.42S

Precision Translation Stage, 100 mm, 2- Phase Stepper Motor

M-406.62S

Precision Translation Stage, 150 mm, 2- Phase Stepper Motor

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

[C-863 Mercury Servo Controller](#)

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

[M-403 Precision Translation Stage](#)

[M-404 Precision Translation Stage](#)

[M-413 High- Load Precision Stage](#)

[M-414 High- Load Precision Stage](#)

[M-511 • M-521 • M-531 High- Precision Linear Translation Stage](#)

