

# M-105 · M-106 Linear Slide

## Precision Crossed Roller Guides, PiezoMike Option, XY(Z) Combinations



- Travel Range to 18 mm
- All-Stainless-Steel Construction
- XY and XYZ Combinations
- Resolution up to 0.1  $\mu\text{m}$
- Optional PiezoMike with 10 nm Resolution
- Optional Motor Drives

M-105 and M-106 are micrometer-driven translation stages with travel ranges of 18 mm and 5 mm, respectively. The carriage is spring preloaded against the micrometer tip for excellent repeatability and elimination of backlash. M-105 and M-106 stages are available in one-, two- or three-axis configurations. Precision crossed roller bearings guarantee straightness of travel of better than 2  $\mu\text{m}$ . The M-106 is equipped with a differential micrometer drive providing resolution of 0.1  $\mu\text{m}$ .

### PiezoMike Option

Versions with PiezoMike drive provide additional 30  $\mu\text{m}$  fine range for remotely controlled ultra-high-resolution (e.g. scanning or tracking, (see p. 1-54) for further details and recommended controllers).

The vertical stage in the XYZ assembly supports the load through the micrometer spindle

(not the preload springs) providing excellent stability.

### Motor Drive Upgrades

Two motor drives are available, the M-231.17 and the M 232.17 actuators (see p. 1-48 and p. 1-49). Both provide resolution a resolution of 0.1  $\mu\text{m}$ .

### Technical Data

Model	M-105.10*	M-105.1P*	M-106.10*	Unit
Travel range	18	18	5	mm
Piezo fine travel range	–	30	–	$\mu\text{m}$
Min. incremental motion (piezo drive)	–	0.01	–	$\mu\text{m}$
Min. incremental motion (micrometer drive)**	1	1	0.1	$\mu\text{m}$
Backlash	2	2	2	$\mu\text{m}$
Straightness	2	2	2	$\mu\text{m}$
Flatness	2	2	2	$\mu\text{m}$
Max. normal load capacity	100	100	100	N
Max. push/pull force	20 / 4	20 / 4	20 / 4	N
Max. lateral force	4	4	4	N
Drive	M-626.00	P-854.00	M-653.00	
Micrometer pitch	0.5 / –	0.5 / –	0.4 / 0.02	mm/rev.
Mass	0.32	0.38	0.33	kg
Body material	St	St	St	
Recommended piezo driver	–	E-660 (p. 2-119), E-610 (p. 2-110) E-500 System (p. 2-142)	–	

\*Versions M-105.2x, M-106.2x and M-105.3x M-106.x0 are combinations of basic .1x. versions

\*\*Motorized versions achieve up to 100 nm.

### Ordering Information

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| <p><b>M-105.10</b><br/>Translation Stage, 18 mm</p> <p><b>M-105.11</b><br/>Translation Stage, 18 mm, with Lockable Micrometer Drive</p> <p><b>M-105.20</b><br/>XY-Translation Stage, 18 mm</p> <p><b>M-105.30</b><br/>XYZ-Translation Stage, 18 mm, (Includes M-009.10, Side Mount Z-Bracket)</p> <p><b>M-105.1P</b><br/>Translation Stage, 18 mm, PiezoMike Drive</p> <p><b>M-105.2P</b><br/>XY-Translation Stage, 18 mm, PiezoMike Drive</p> <p><b>M-105.3P</b><br/>XYZ-Translation Stage, 18 mm, PiezoMike- Drive (Includes M-009.10, Side Mount Z-Bracket)</p> <p><b>M-106.10</b><br/>Translation Stage, 5 mm, Differential Micrometer Drive</p> <p><b>M-106.20</b><br/>XY-Translation Stage, 5 mm, Differential Micrometer Drive</p> <p><b>M-106.30</b><br/>XYZ-Translation Stage, 5 mm, Differential Micrometer Drive (Includes M-009.10, Side Mount Z-Bracket)</p> <p><b>M-105.1B</b><br/>Translation Stage, Basic Unit, Order Drives Separately</p> | <p><b>M-105.2B</b><br/>XY-Translation Stage, Basic Unit, Order Drives Separately</p> <p><b>M-105.3BA</b><br/>XYZ-Translation Stage, Basic Unit (Includes M-105.VB1, Top Mount Z-Bracket), Order Drives Separately</p> <p><b>M-105.3BB</b><br/>XYZ-Translation Stage, Basic Unit (Includes M-009.10, Side Mount Z-Bracket), Order Drives Separately</p> <p><b>Accessories</b></p> <p><b>M-232.17</b><br/>DC-Mike, Linear Actuator</p> <p><b>M-009.10</b><br/>Z-axis Mounting Bracket for Vertical Mount of M-105/6 (Attaches to Side of M-105)</p> <p><b>M-105.VB1</b><br/>Z-axis Mounting Bracket for Vertical Mount of M-105/6 (Attaches to Top of M-105)</p> <p><b>M-009.20</b><br/>Mounting Bracket for Mounting P-280 PZT NanoPositioning Systems or F-010 Fiber Holders</p> <p><b>M-009.30</b><br/>Z-axis Mounting Bracket for Vertical Mount of M-105/6 Stages on PI Standard Hole Pattern</p> |
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**Notes**

See "Accessories" for adapters, bracket, etc. see p. 4-89 ff.

Linear Actuators & Motors

Nanopositioning/Piezoelectrics

Nanometrology

**Micropositioning**

Hexapod 6-Axis Systems / Parallel Kinematics

**Linear Stages**

**Translation (X)**

Vertical (Y)

Multi-Axis

Rotary & Tilt Stages

Accessories

Servo & Stepper Motor Controllers

Single-Channel

Hybrid

Multi-Channel

Micropositioning Fundamentals

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