M-105 · M-106 Linear Slide

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

M-106.10 translation stage with differential micrometer drive

- **Travel Range to 18 mm**
- **All-Stainless-Steel Construction**
- **XY and XYZ Combinations**
- **Resolution up to 0.1 µm**
- **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 µm. The M-106 is equipped with a differential micrometer drive providing resolution of 0.1 µm.

PiezoMike Option

Versions with PiezoMike drive provide additional 30 µm 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 µm.

Ordering Information

M-105.10
Translation Stage, 18 mm

M-105.11
Translation Stage, 18 mm, with Lockable Micrometer Drive

M-105.20
XY-Translation Stage, 18 mm

M-105.30
XYZ-Translation Stage, 18 mm, (Includes M-009.10, Side Mount Z-Bracket)

M-105.1P
Translation Stage, 18 mm, PiezoMike Drive

M-105.2P
XY-Translation Stage, 18 mm, PiezoMike Drive

M-105.3P
XYZ-Translation Stage, 18 mm, PiezoMike- Drive (Includes M-009.10, Side Mount Z-Bracket)

M-106.10
Translation Stage, 5 mm, Differential Micrometer Drive

M-106.20
XY-Translation Stage, 5 mm, Differential Micrometer Drive

M-106.30
XYZ-Translation Stage, 5 mm, Differential Micrometer Drive (Includes M-009.10, Side Mount Z-Bracket)

M-105.1B
Translation Stage, Basic Unit, Order Drives Separately

M-105.2B
XY-Translation Stage, Basic Unit, Order Drives Separately

M-105.3BA
XYZ-Translation Stage, Basic Unit (Includes M-105.VB1, Top Mount Z-Bracket), Order Drives Separately

M-105.3BB
XYZ-Translation Stage, Basic Unit (Includes M-009.10, Side Mount Z-Bracket), Order Drives Separately

Accessories

M-232.17
DC-Mike, Linear Actuator

M-009.10
Z-axis Mounting Bracket for Vertical Mount of M-105/6 (Attaches to Side of M-105)

M-105.VB1
Z-axis Mounting Bracket for Vertical Mount of M-105/6 (Attaches to Top of M-105)

M-009.20
Mounting Bracket for Mounting P-280 PZT NanoPositioning Systems or F-010 Fiber Holders

M-009.30
Z-axis Mounting Bracket for Vertical Mount of M-105/6 Stages on PI Standard Hole Pattern

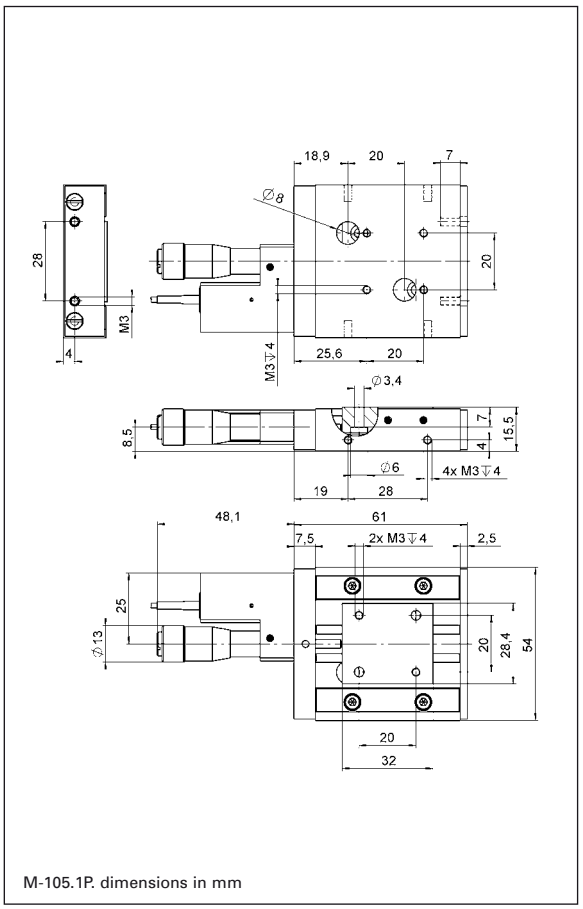
Technical Data

Model	M-105.10*	M-105.1P*	M-106.10*	Unit
Travel range	18	18	5	mm
Piezo fine travel range	–	30	–	µm
Min. incremental motion (piezo drive)	–	0.01	–	µm
Min. incremental motion (micrometer drive)**	1	1	0.1	µm
Backlash	2	2	2	µm
Straightness	2	2	2	µm
Flatness	2	2	2	µm
Max. normal load capacity	100	100	100	kg
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)	–	

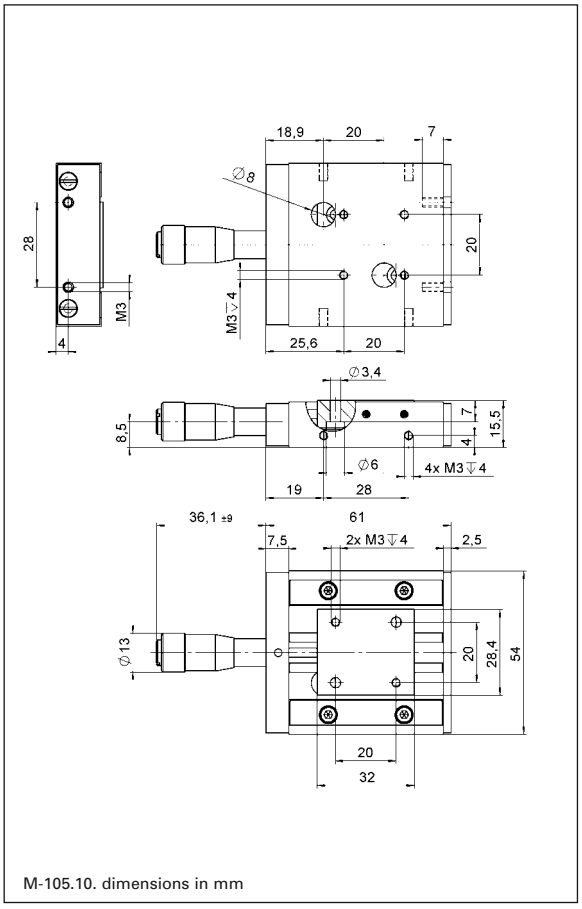
*Versions M-105.2x, M-106.2x and M-105.3x M-106.x0 are combinations of basic .1x. versions
**Motorized versions achieve up to 100 nm.

Notes

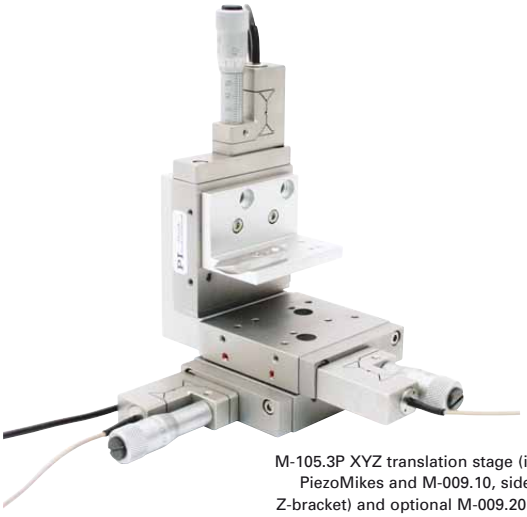
See “Accessories” for adapters, bracket, etc. see p. 4-89 ff.



M-105.1P. dimensions in mm



M-105.10. dimensions in mm



M-105.3P XYZ translation stage (includes PiezoMikes and M-009.10, side mount Z-bracket) and optional M-009.20 bracket with F-010.00 V-groove fiber holder

Combination of M-105.1B basic unit and M-232.17 high-resolution DC-Mike actuator