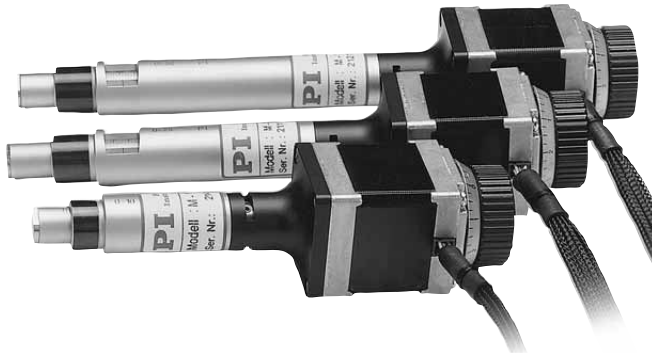


M-168 Stepper-Mike Precision Linear Actuator

Non-Rotating Tip, Strokes to 50 mm



M-168 Stepper-Mikes providing 10, 25 and 50 mm travel range (from front to back)

- 10, 25 and 50 mm Travel Range
- Resolution <math><0.1 \mu\text{m}</math>
- 2-Phase Stepper Motor
- Manual Positioning Knob
- Sub-nm-Resolution with Optional PZT Actuator
- >5,000 h MTBF

M-168 are compact, high-resolution linear actuators providing linear motion up to 50 mm with sub-micron resolution. They consist of a micrometer drive with non-rotating tip driven by a 6400 microstep/rev and 2-phase stepper motor.

Non-Rotating Tip

Compared to conventional rotating-tip micrometer drives, the non-rotating-tip design offers several advantages:

- Elimination of torque-induced positioning errors
- Elimination of sinusoidal motion errors
- Elimination of wear at the contact point
- Elimination of tip-angle-dependent wobble

M-168 Stepper-Mikes feature an extremely low-stiction, low-friction construction allowing for high resolution and repeatability. A manual positioning knob provides coarse resolution of $5 \mu\text{m}$. All models come with standard flat tips (see

p. 1-58 for spherical tips and other options).

High-Resolution Piezo Option

The optional piezo tip provides $20 \mu\text{m}$ travel with sub-nanometer resolution for dynamic scanning and tracking (see p. 1-73).

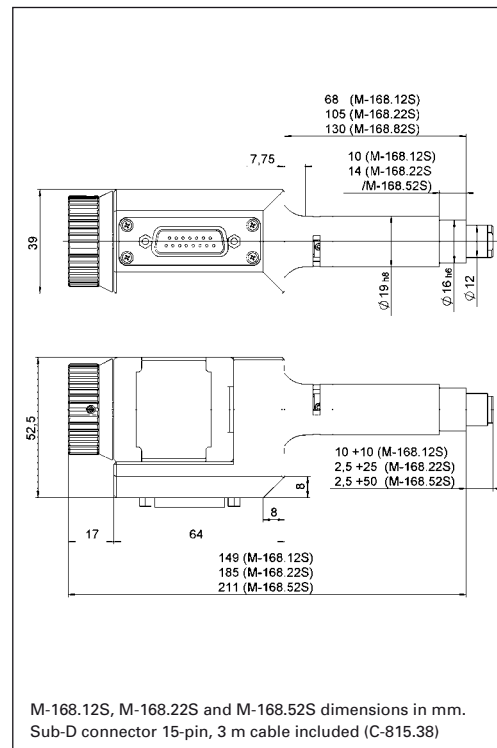
Ordering Information

M-168.12S
High-Resolution Stepper-Mike Linear Actuator, 10 mm

M-168.22S
High-Resolution Stepper-Mike Linear Actuator, 25 mm

M-168.52S
High-Resolution Stepper-Mike Linear Actuator, 50 mm

Ask about custom designs!



Technical Data

| Model | M-168.12S | M-168.22S | M-168.52S | Unit |
|-------------------------------|-------------------|-------------------|------------------------------|---------------|
| Travel range | 10 | 25 | 50 | mm |
| Design resolution | 0.078 | 0.078 | 0.078 | μm |
| Min. incremental motion | 0.3 | 0.3 | 0.3 | μm |
| Unidirectional repeatability | 0.1 | 0.1 | 0.1 | μm |
| Backlash | 2 | 2 | 2 | μm |
| Max. velocity | 5 | 5 | 5 | mm/s |
| Max. push/pull force | 50 | 50 | 50 | N |
| Max. lateral force | 0.02 | 0.02 | 0.02 | N (at tip) |
| Motor resolution* | 6400* | 6400* | 6400* | steps/rev. |
| Drive screw pitch | 0.5 | 0.5 | 0.5 | mm/rev. |
| Weight | 0.4 | 0.45 | 0.5 | kg |
| Recommended motor controllers | C-663 single-axis | C-663 single-axis | C-663 single-axis (p. 4-112) | |

*2-phase stepper motor, 24 V chopper voltage, max. 0.8 A/phase, 400 full steps/rev., motor resolution with C-663 stepper motor controller

Linear Actuators & Motors

PiezoWalk® Motors / Actuators

PILine® Ultrasonic Motors

DC-Servo & Stepper Actuators

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Patches/Benders/Tubes/Shear..

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Nanometrology

Micropositioning

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