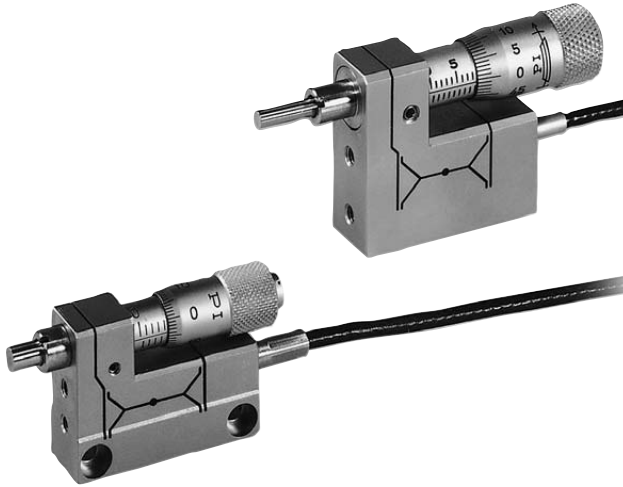


# P-853 · P-854

## PiezoMike: Piezoelectric Micrometer Drive



P-853 (left), P-854 (right)

- Alternative for Standard Micrometer Drives
- Manual Travel to 18 mm
- Piezoelectric High-Resolution Travel to 25  $\mu\text{m}$
- Sub-Nanometer Resolution
- Dynamic Operation to 10 Hz

P-853/P-854 PiezoMikes are micrometer drives with integrated high-resolution piezo linear drives. They can be operated manually, like standard micrometer drives. Sensitivity of the micrometer is 1  $\mu\text{m}$ . By controlling the piezo voltage, the micrometer tip is automatically moved in and out (up to 25  $\mu\text{m}$ ) relative to the manually set position. Resolution of the piezoelectric motion is in the sub-nanometer range. The PiezoMike can therefore be used as a remotely controlled fine positioning element.

### Working Principle

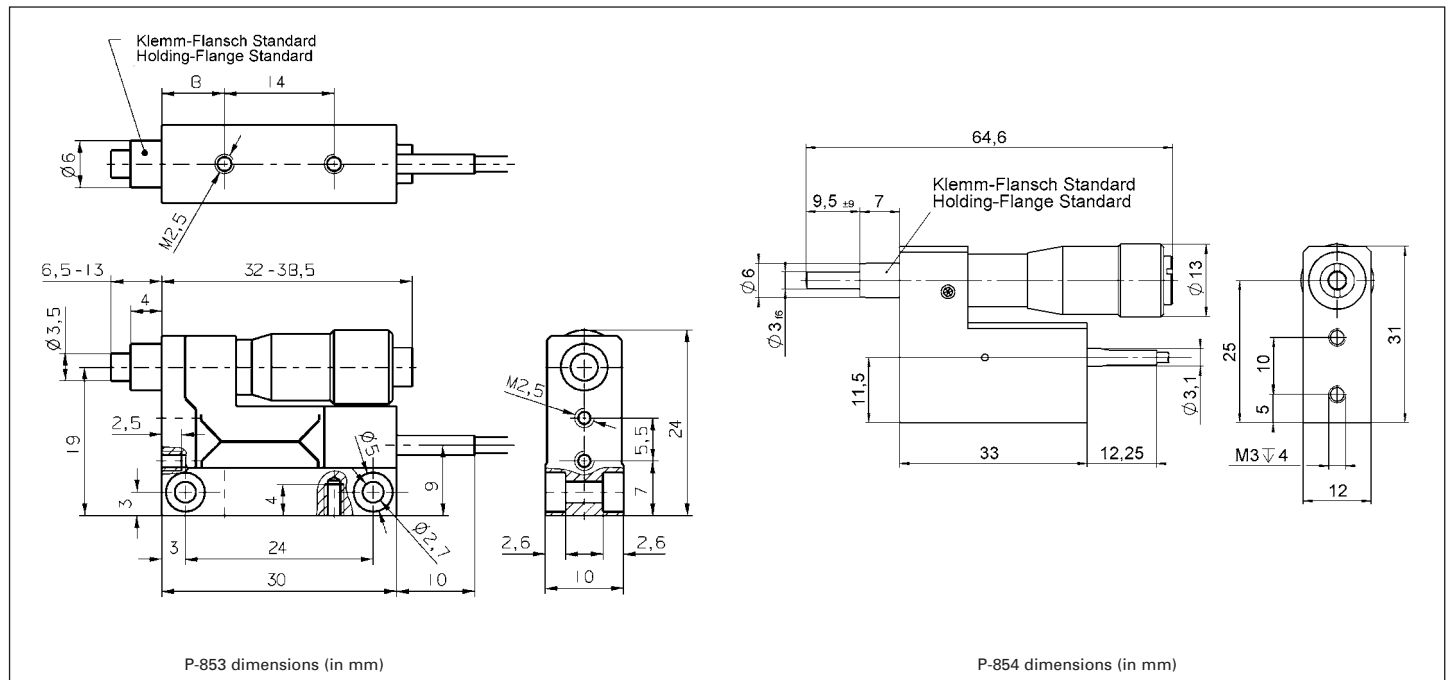
A sophisticated wire EDM (electric discharge machining) flexure motion amplifier doubles the displacement of a piezo linear actuator. It also serves as a linear guide to the micrometer drive, which is moved back and forth when the piezo drive voltage is changed. This design is compact and mechanically stable.

### Ordering Information

**P-853.00**  
PiezoMike, Piezoelectric Micrometer Drive, 6 mm, 25  $\mu\text{m}$

**P-854.00**  
PiezoMike, Piezoelectric Micrometer Drive, 18 mm, 25  $\mu\text{m}$

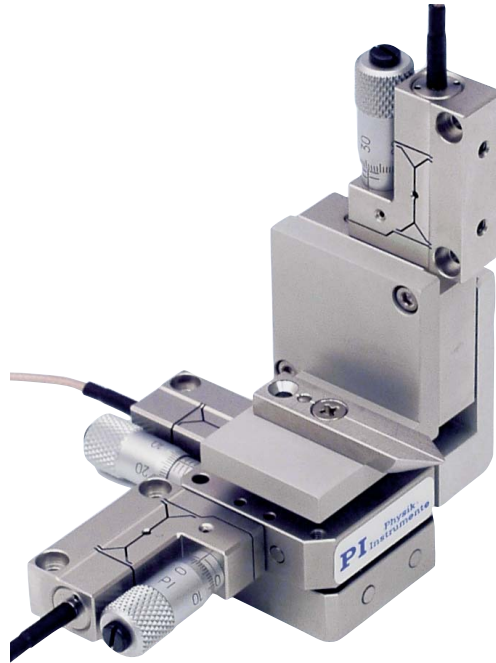
**Ask about custom designs!**



## PiezoMike Applications

The PiezoMike can be mounted like a micrometer drive by clamping around the sleeve.

The P-853.00 is equipped with a 6 mm holding flange and can be directly attached to M-311 miniature translation stages (see page 7-28). The P-854 can be attached to the M-105 linear positioners (see page 7-30).



M-313.80 XYZ miniature stage with P-853 PiezoMikes and optional fiber holder

Piezo Actuators

Nanopositioning &amp; Scanning Systems

Active Optics / Steering Mirrors

Tutorial: Piezo-electrics in Positioning

Capacitive Position Sensors

Piezo Drivers &amp; Nanopositioning Controllers

**Hexapods / Micropositioning**

Photonics Alignment Solutions

Motion Controllers

Ceramic Linear Motors &amp; Stages

Index

### Technical Data

Models	P-853.00	P-854.00	Units	Notes see page 7-106
Travel range (micrometer drive)	6	18	mm	
Piezo fine travel range (@ 0 to 100 V)	25	25	$\mu\text{m} \pm 20\%$	
Min. incremental motion (piezo drive)	<1	<1	nm	A4
Micrometer sensitivity	1	1	$\mu\text{m}$	
Max. axial push/pull force	10 / 5	20 / 5	N	
Micrometer drive	M-619.10	M-626.10		
Micrometer pitch	0.5	0.5	mm/rev.	
Stiffness	1	1.5	N/ $\mu\text{m}$	
Electrical capacitance (piezo)	0.45	1.5	$\mu\text{F}$	
Electrical connection	LEMO Cable: coaxial FFA.00.250, male. RG 178, Teflon coated, 1 m	LEMO Cable: coaxial, FFA.00.250, male. RG 178, Teflon coated, 1 m		
Weight	0.05	0.1	kg	
Body material	N -S	N -S		L
Recommended piezo driver (codes explained see page 6-11)	A, C, G	A, C, G		