

P-853 · P-854 Piezoelectric Micrometer Drive Hybrid PiezoMike Provides Sub-Nanometer Resolution



- Alternative for Standard Micrometer Drives
- Manual Travel to 18 mm
- Piezoelectric High-Resolution Travel to 25 μm
- Sub-Nanometer Resolution
- Dynamic Operation to 10 Hz

P-853/P-854 PiezoMikes are linear drives. They can be operated manually, like standard micrometer drives. Sensitivity

of the micrometer is 1 μm . By controlling the piezo voltage, the micrometer tip is automatically moved in and out (up to 25 μm) 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 μm

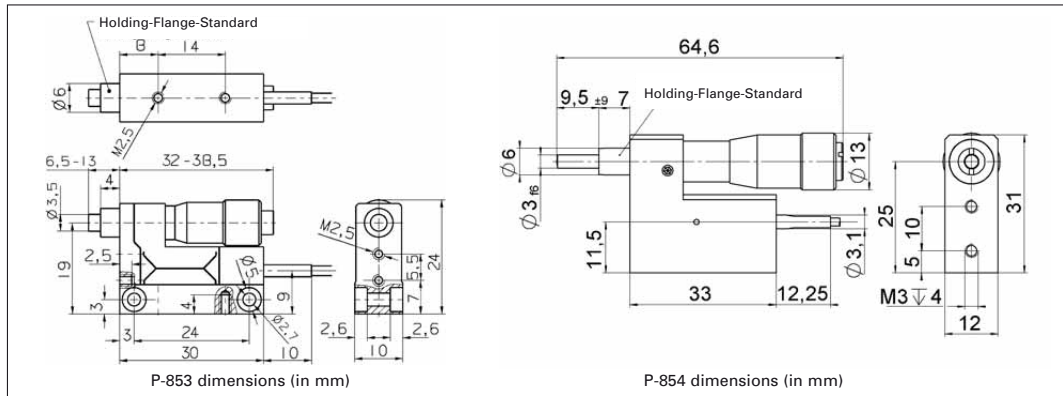
P-854.00
PiezoMike, Piezoelectric Micrometer Drive, 18 mm, 25 μm

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 www.pi.ws). The P-854 can be attached to the M-105 linear positioners (see p. 4-50).



Technical Data

Model	P-853.00	P-854.00	Units
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
Micrometer sensitivity	1	1	μm
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/ μm
Electrical capacitance (piezo)	0.45	1.5	μF
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	
Mass	0.05	0.1	kg
Body material	N -S	N -S	
Recommended piezo driver	E-660, E-610, E-500 System	E-660 (p. 2-116), E-610 (p. 2-110), E-500 (p. 2-142) System	



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