

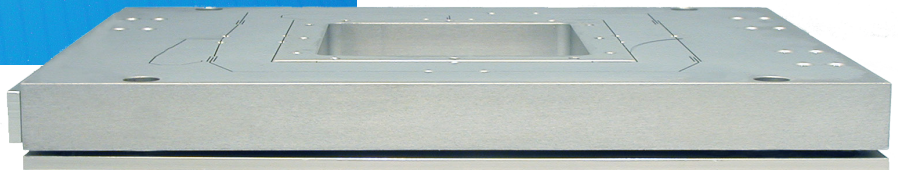
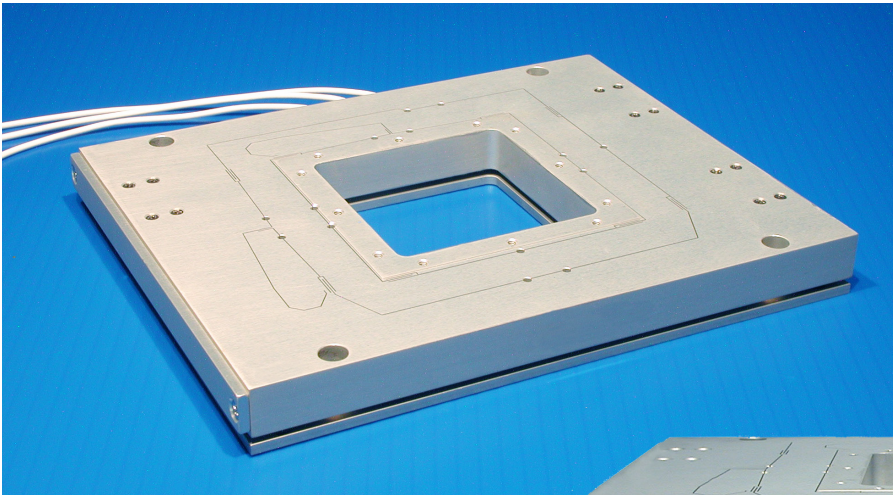
Nano-LP Series

Features

- ▶ *Lowest profile 3-axis nanopositioner available*
- ▶ *Large aperture*
- ▶ *100 μm , 200 μm , and 300 μm ranges of motion*
- ▶ ***pico** sensor technology*
- ▶ *Closed loop control*
- ▶ *High stability*

Typical Applications

- ▶ *Optical microscopy, easy to retrofit*
- ▶ *Optical trapping experiments*
- ▶ *Fluorescence imaging*
- ▶ *Alignment*
- ▶ *Single molecule spectroscopy*
- ▶ *Super resolution microscopy*



Compatible Software Packages

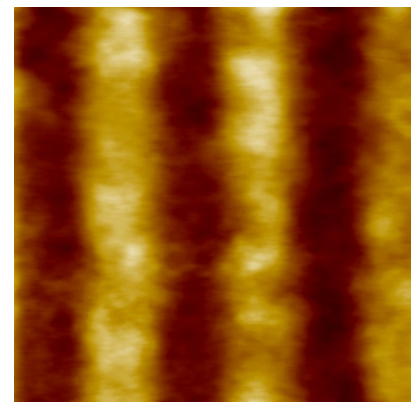


Examples, tutorial,
and Mad City Labs
Nano-Route 3D
motion control software



Product Description

The Nano-LP Series are the industry standard for ultra-low profile, three axis piezo nanopositioning systems. The low height of the Nano-LP Series allows it to be easily integrated into existing inverted optical microscopes. With its extended ranges of motion, up to 300 microns in XYZ, the Nano-LP Series is ideal for demanding microscopy applications. The Nano-LP Series' internal position sensors utilize proprietary PicoQ[®] technology to provide absolute, repeatable position measurement with picometer accuracy under closed loop control. The low noise capabilities of the PicoQ[®] sensors enable extremely high resolution performance as verified by AFM data (at right). A sister product is the Nano-LPS Series which accommodates 3" (75mm) slides with similar performance characteristics.



Low noise PicoQ[®] sensors enable 95 picometer steps. The Z-axis of the Nano-LP100 was commanded in 95 pm square wave moving the silicon substrate. Using Mad City Labs resonant probe AFM in constant force mode, the probe position was measured and recorded. The colors in the image represent the z-axis displacement of the probe.

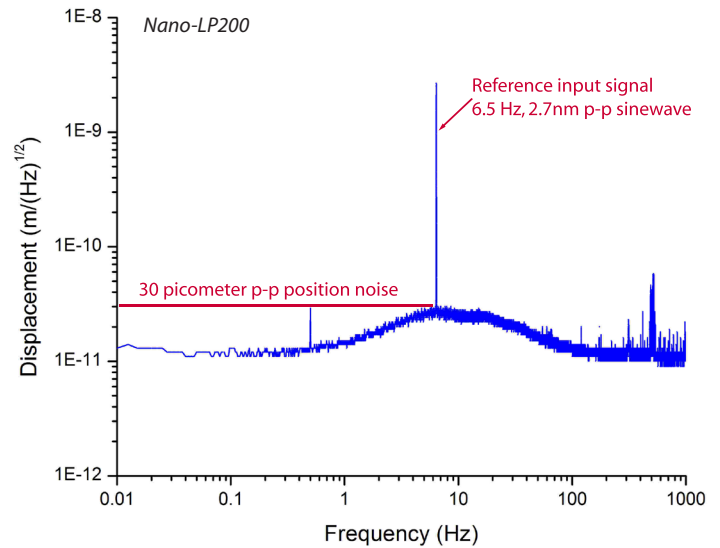
Technical Specifications

Range of motion (Nano-LP100)100 x 100 x 100 μm
 Range of motion (Nano-LP200)200 x 200 x 200 μm
 Range of motion (Nano-LP300)300 x 300 x 300 μm
 Resolution (100/200/300 μm) 0.2/0.4/0.6 nm
 Resonant Frequencies
 X axis (100/200/300 μm)355/270/265 Hz $\pm 20\%$
 Y axis (100/200/300 μm)205/185/140 Hz $\pm 20\%$
 Z axis (100/200/300 μm)195/110/110 Hz $\pm 20\%$
 Stiffness1.0 N/ μm
 $\theta_{\text{roll}}, \theta_{\text{pitch}}$ (typical) $\leq 1 \mu\text{rad}$
 θ_{yaw} (typical) $\leq 3 \mu\text{rad}$
 Recommended max. load (horizontal)*0.5 kg
 Recommended max. load (vertical)*0.2 kg
 Body Material**Al, Invar or Titanium
 Controller Nano-Drive®

* Larger load requirements should be discussed with our engineering staff.

** Nano-LP300 is available in Aluminum only.

Low Position Noise



Related products

- Nano-LPS Series
- Nano-Bio Series

