

# Nano-Align6 Series

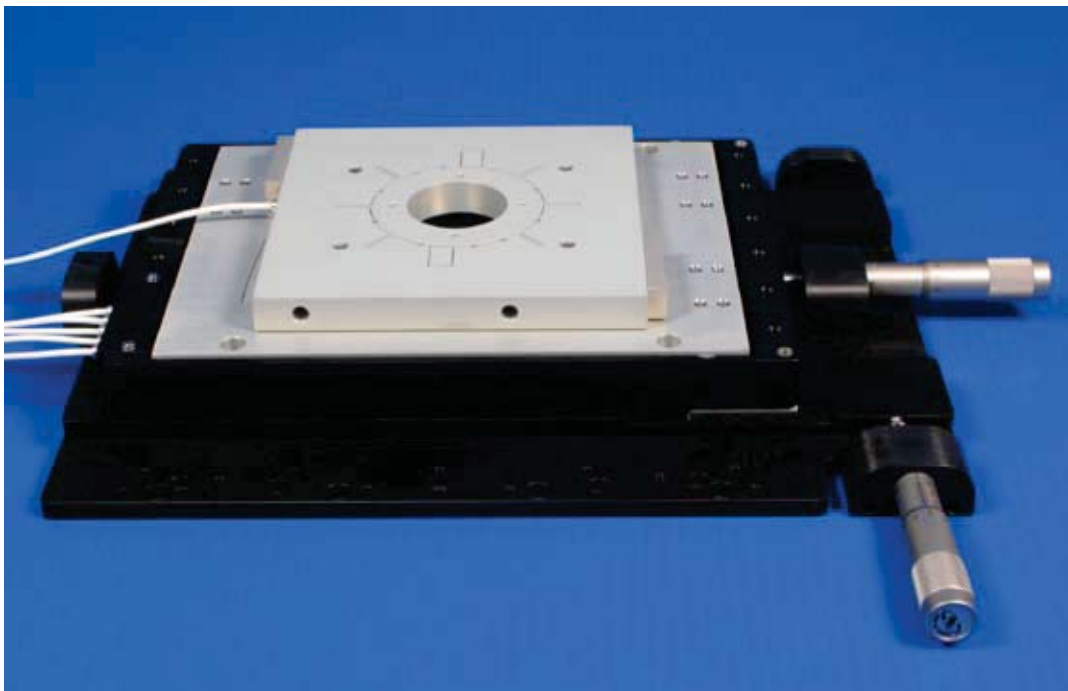
## Features

- ▶ Low profile
- ▶ Six axis motion (XYZ  $\theta_x$   $\theta_y$   $\theta_z$ )
- ▶  $100\ \mu\text{m} \times 100\ \mu\text{m} \times 100\ \mu\text{m} \times 1.1\ \text{mrad} \times 1.5\ \text{mrad} \times 5\ \text{mrad}$  ranges of motion
- ▶  $200\ \mu\text{m} \times 200\ \mu\text{m} \times 200\ \mu\text{m} \times 2.3\ \text{mrad} \times 3.0\ \text{mrad} \times 5\ \text{mrad}$  ranges of motion
- ▶ Center aperture: 35mm diameter
- ▶ Closed loop control
- ▶ **pico**™ sensor technology

## Typical Applications

- ▶ Alignment
- ▶ MEMS
- ▶ Nanolithography
- ▶ Metrology

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*Nano-Align6 combined with a Manual MicroStage for microscopy work.*

## LabVIEW Compatible USB Interfaces



Examples, tutorial, and  
Nano-Route™ 3D supplied  
with Nano-Drive™ USB  
interfaces.

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## Product Description

The Nano-Align6 is a six axis (X, Y, Z,  $\theta_x$ ,  $\theta_y$ ,  $\theta_z$ ) nano-positioning system with a large center aperture. The Nano-Align6 is ideal for alignment applications which require three linear axes of motion (X, Y, Z) combined with rotational motion about each axis. The large aperture provides excellent access for microscopy optics,

sample holders, and probe placement. The Nano-Align6 includes internal sensors on every axis using Mad City Labs' proprietary **pico**™ technology for absolute position measurement and picometer/nanoradian accuracy under closed loop control.

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## Technical Specifications

Ranges of motion (Nano-Align6-100).....	100 x 100 x 100 $\mu\text{m}$ x 1.1 mrad ( $\theta_x$ ) x 1.5 mrad ( $\theta_y$ ) x 5 mrad ( $\theta_z$ )
Ranges of motion (Nano-Align6-200).....	200 x 200 x 200 $\mu\text{m}$ x 2.3 mrad ( $\theta_x$ ) x 3.0 mrad ( $\theta_y$ ) x 5 mrad ( $\theta_z$ )
Resolution (Nano-Align6-100).....	0.2 nm (XYZ), 2.2 nrad ( $\theta_x$ ), 3.0 nrad ( $\theta_y$ ), 10 nrad ( $\theta_z$ )
Resolution (Nano-Align6-200).....	0.4 nm (XYZ), 4.6 nrad ( $\theta_x$ ), 6.0 nrad ( $\theta_y$ ), 10 nrad ( $\theta_z$ )
Resonant Frequencies	
X axis (Nano-Align6-100/Nano-Align6-200) .....	450/400 Hz $\pm 20\%$
Y axis (Nano-Align6-100/Nano-Align6-200) .....	350/300 Hz $\pm 20\%$
Z axis (Nano-Align6-100/Nano-Align6-200) .....	450/350 Hz $\pm 20\%$
Recommended max. load (horizontal)* .....	0.5 kg
Recommended max. load (vertical)* .....	0.2 kg
Body Material .....	Aluminum, Titanium, or Invar
Controller .....	Nano-Drive™

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

