

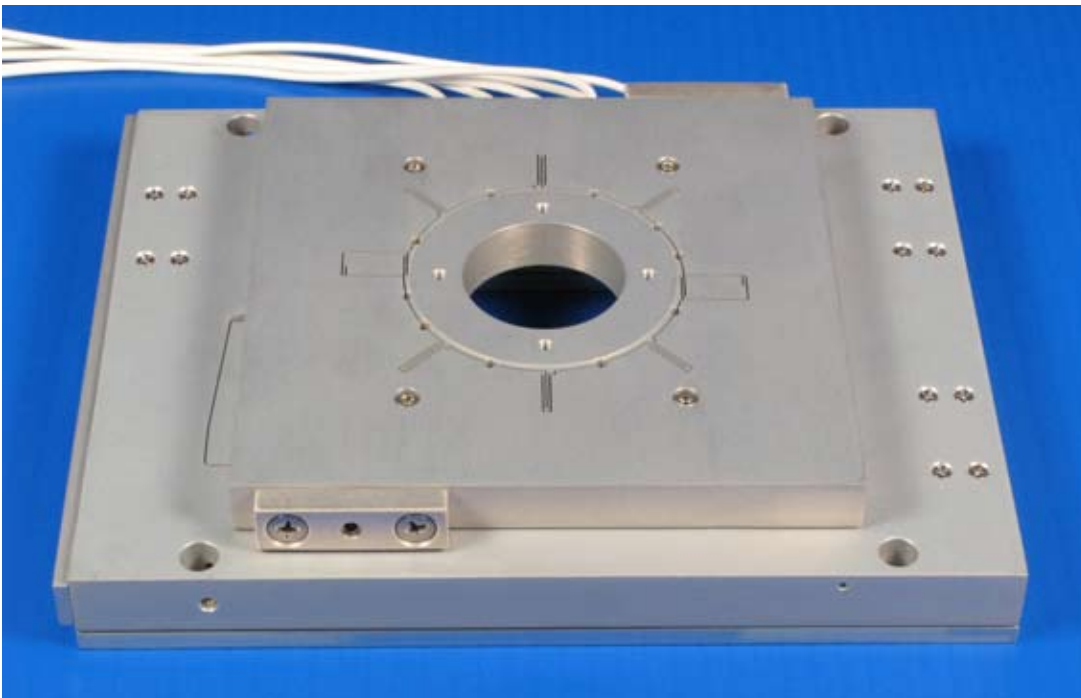
# Nano-Align6 Series

## 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



*Nano-Align6 constructed from aluminum.*

## LabVIEW Compatible USB Interfaces



Examples, tutorial, and Nano-Route 3D supplied with Nano-Drive<sup>®</sup> USB interfaces.

## 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.

## 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.

