

# Nano-Man5

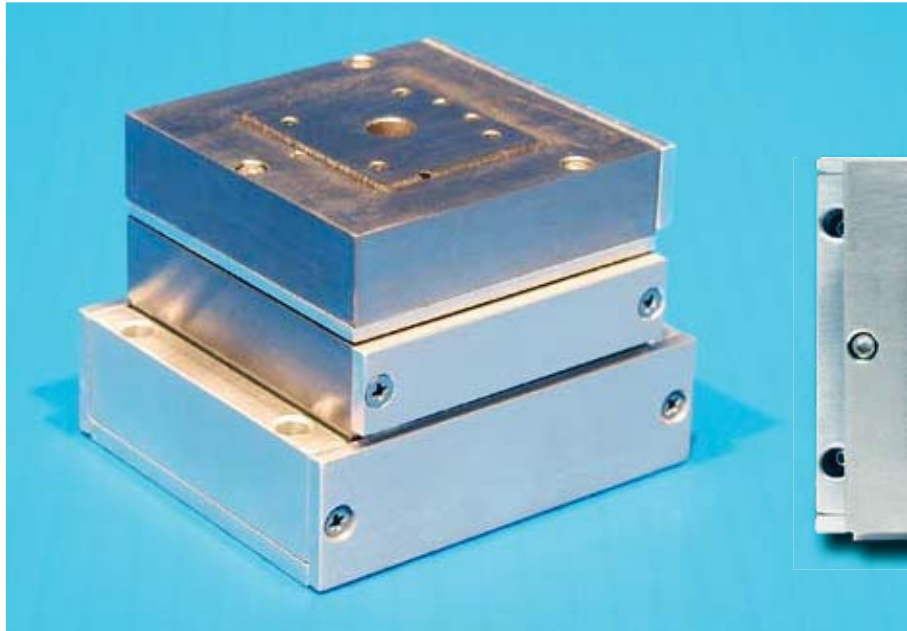
## Features

- ▶ Compact size
- ▶ Five axis motion (XYZ  $\theta_x$   $\theta_y$ )
- ▶  $50 \mu\text{m} \times 50 \mu\text{m} \times 25 \mu\text{m} \times 1 \text{mrad} \times 1 \text{mrad}$  ranges of motion
- ▶ Center aperture: 0.25"
- ▶ Closed loop control
- ▶ **pico**™ sensor technology

## Typical Applications

- ▶ Alignment
- ▶ MEMS
- ▶ Nanolithography
- ▶ SEM

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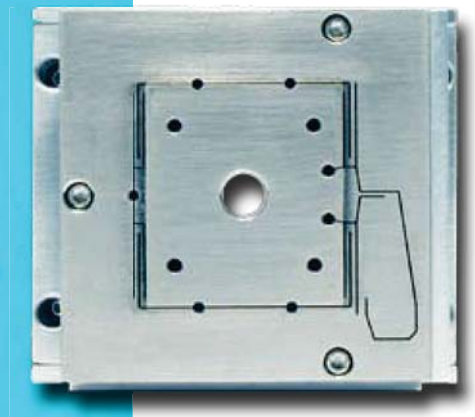


Nano-Man5 (actual size) constructed from aluminum and titanium.

## LabVIEW Compatible USB Interfaces



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



## Product Description

The Nano-Man5 is a five axis (X, Y, Z,  $\theta_x$ ,  $\theta_y$ ) nanopositioning system with a 0.25" diameter center aperture. The compact design of the Nano-Man5 allows it to be easily integrated into existing instrumentation for applications such as nanolithography, SEM. The Nano-Man5 is ideal for alignment applications which require three linear axes of motion combined with "tip" and "tilt" ( $\theta_x$ ,  $\theta_y$ ). Internal position sensors utilizing proprietary

**pico**™ technology provide absolute, repeatable position measurement with picometer and nanoradian accuracy under closed loop control. The Nano-Man5 is also available in high vacuum (non-bakeable) compatible models. Similar to the Nano-Man5, the Nano-M350 shares the same physical dimensions but has only three axes (XYZ) of motion.

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## Technical Specifications

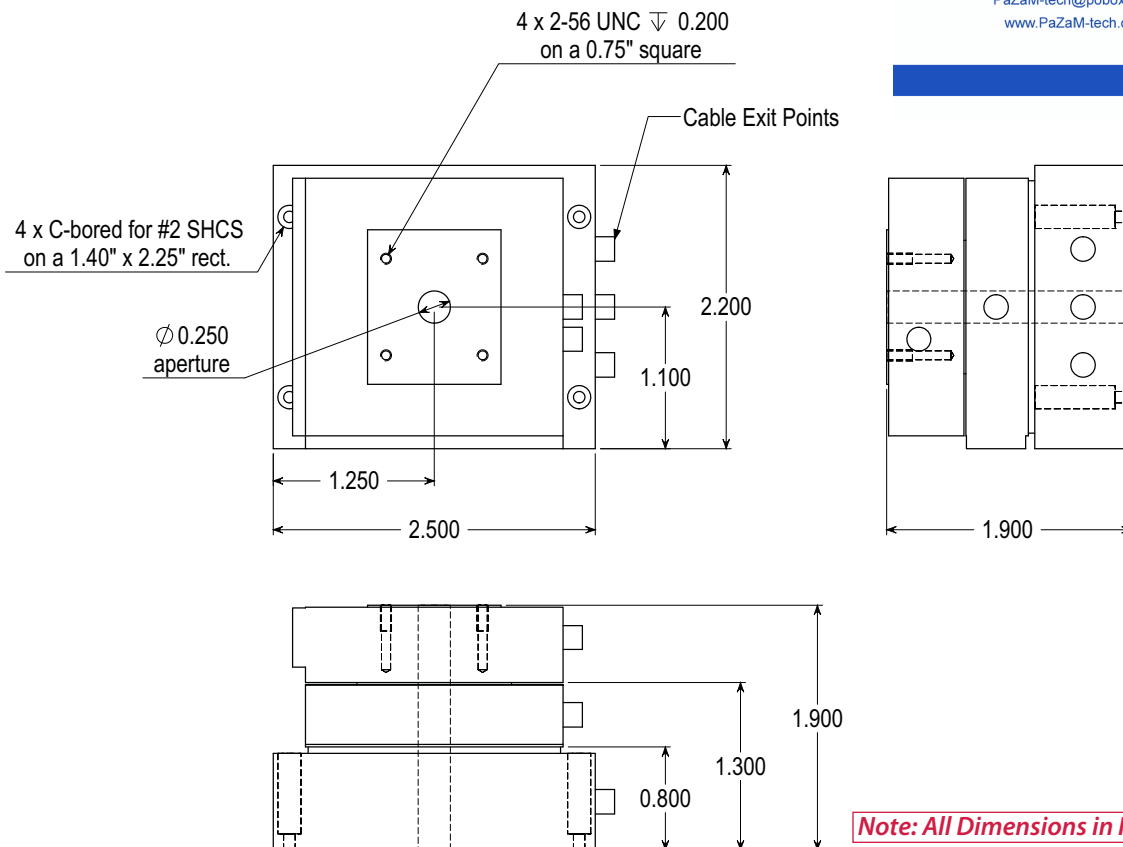
Range of motion (X) .....	50 $\mu$ m	Resonant Frequency (X) .....	1 kHz $\pm$ 20%
Range of motion (Y) .....	50 $\mu$ m	Resonant Frequency (Y) .....	700 Hz $\pm$ 20%
Range of motion (Z) .....	25 $\mu$ m	Resonant Frequency (Z) .....	700 Hz $\pm$ 20%
Range of motion ( $\theta_x$ ) .....	1 mradian	Stiffness .....	1.0 N/ $\mu$ m
Range of motion ( $\theta_y$ ) .....	1 mradian	Recommended max. load (horizontal)* .....	0.2 kg
Resolution (X) .....	0.1 nm	Recommended max. load (vertical)* .....	0.2 kg
Resolution (Y) .....	0.1 nm	Body Material .....	Al and Titanium, or Invar
Resolution (Z) .....	0.05 nm	Controller .....	Nano-Drive™
Resolution ( $\theta_x$ ) .....	2 mradian	* Larger load requirements should be discussed with our engineering staff.	
Resolution ( $\theta_y$ ) .....	2 mradian		

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**Note: All Dimensions in Inches**