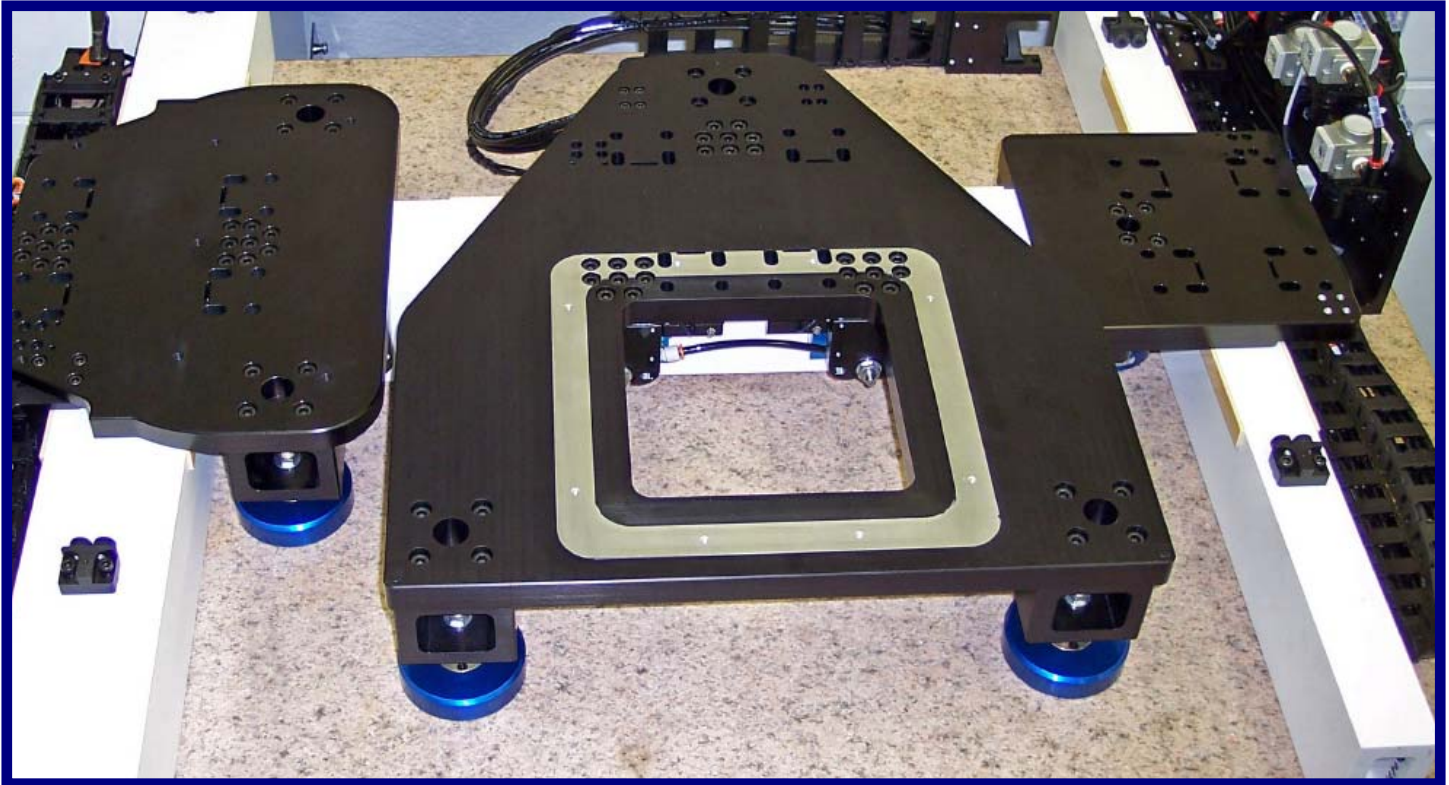


AI-ABL Series

Patent Pending



Ultra Precision Linear Air Bearing System

The ALIO Advantage:

- Planar Air Bearing for Superior Flatness (No Beam Sag)
- Advance Ceramic Servo Motors or High Force Linear Motors
- Decoupled Thermal Influences
- Travel Options Over a Meter
- Dual Y Axis Motion Control for Sub Arc Second Yaw Control
- Willing to Customize for OEM Applications
- Resolution: 5nm Standard, 38 picometer with Laser Interferometer
- No Servo Dither (no oscillation)
- No Hysteresis
- No Backlash
- Fast settling time



AI-ABL Series Specifications

| | | | |
|---|---|-------------------------|------------------------|
| System Travel | 300 mm x 300 mm | 500 mm x 500 mm | 1 meter x 1 meter |
| Drive System | Advanced Ceramic Servo Motor or Ironless Core Linear Motor | | |
| Feedback System | Non Contact Optical Encoder or Laser Interferometer Feedback | | |
| Resolution – Linear Encoder | 5 nanometers with 4096x Interpolation | | |
| Resolution – Laser Interferometer | 38 picometers with 4096x Interpolation | | |
| Load | Load Capacity is Sized for the Application (Please Consult the Factory) | | |
| Accuracy – Linear Encoder (XY) | Better Than +/- 0.5 um | Better Than +/- 0.75 um | Better Than +/- 1.0 um |
| Accuracy – Laser Interferometer (XY) | +/- 10 ppm Standard, +/- 1.5 ppm Compensated | | |
| Repeatability – Linear Encoder (XY) | +/- 50 nm | +/- 60 nm | +/- 80 nm |
| Repeatability – Laser Interferometer (XY) | +/- 10 nm | +/- 20 nm | +/- 30 nm |
| Straightness | +/- 0.5 um | +/- 1.0 um | +/- 1.5 um |
| Flatness (XY, Dependant on the Granite) | < +/- 0.5 um | < +/- 0.5 um | < +/- 1.0 um |
| Pitch/Roll | < 1 arc-second | | |
| Yaw | 1 arc-second | | |
| Orthogonality | 1 arc-second | | |

Performance specifications are dependant on the controller, motor, mapping, loads and require stringent environmental controls over short time periods.

The ALIO Industries Nano Precision Planar Air Bearing System has raised the bar to a new level of performance for air bearing motion. This engineered system was designed to exceed today's demanding requirements in semiconductor wafer, flat panel display, nano-manufacturing and optical inspection.

Air Bearing Design

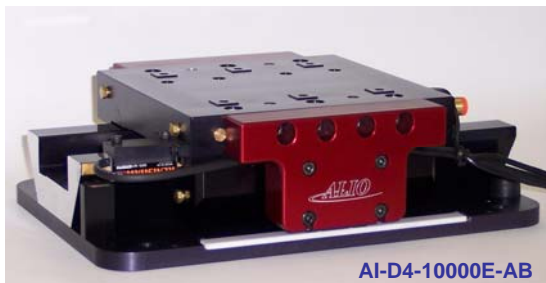
ALIO Industries incorporates simple engineering principals with our planar air bearing system. The three point vacuum preloaded air bearings of the platen ride directly on the granite surface for superior flatness of travel. There is no opportunity for the load to cause sag. This design also decouples any thermal propagation generated by the motors from the platen.

Motor Drive

ALIO Industries offers both advanced ceramic servo motors or ironless core linear motors on our air bearing systems. The ceramic servo motors offer nanometer level motion control while the linear motors offer high force and high speed.

Position Feedback

High resolution linear optical encoders come standard with resolutions down to 5nm. Laser interferometer closed loop motion control feedback is also available for 38 picometer resolution.



AI-D4-10000E-AB

Other Nano-Precision
Air Bearing Solutions
Offered By
ALIO Industries



CUSTOM Glass Dovetail
Patent Pending

Scaling new heights in photonics



Made in the U.S.A.

07/07/06

