

Ultra-Precision Motion Products

ABTech designs and manufactures rotary and linear ultra-precision motion products for aircraft, aerospace, precision industrial, metrology, optical, semi-conductor, and high tech research applications. Specializing in air bearing technologies with accuracy levels measured in millionths of an inch (μ "), fractions of a micron and arc seconds (1/3600th of a degree), our air bearings are often the baseline to which other ultra-precision components are compared or manufactured. ABTech air bearings are the ideal reference axis for highly accurate geometry measurements, precise diamond machining, semi-conductor wafer scanning and inspection or optical lens alignment and grinding applications.

If one or more of our extensive offering of "standard" designs doesn't readily suit your application a custom modification can be proposed. At ABTech, you are not limited by the products you see in our catalog, we are glad to accommodate unique requirements.

Air Bearing Rotary Tables

ABTech's AT series friction free rotary air bearing tables are ideal for applications requiring sub-micron, ultra-high precision reference axis such as TIR, out of roundness, squareness, concentricity and parallelism measurements, precision rotary grinding, optical lens alignment and turbine engine component assembly. Available in manual spin or with direct drive motor options, fine adjust tilt and center worktables, clear apertures and vacuum part holding features.

High Speed Air Bearing Spindles

The ultimate in high speed performance for precision machine tool applications up to 20,000 rpm. Applications include single point diamond turning, work holding and fly cutter heads and glass optic grinding. Several sizes and mounting options available.

Oil Hydrostatic & Mechanical Ball Bearing Tables

Designed for the most demanding ultra-precision machining applications, oil hydrostatic rotary tables offer the highest stiffness and accuracy available and are ideal for tool normal diamond turning, low speed work holding and high precision indexing applications. For applications where the highest accuracies are not required we offer precision mechanical bearing tables with high stiffness and load capacity and radial and axial accuracies of 1.0 μ m. Combine with encoders and display packages for precision index tables.

Air Bearing Linear Stages

ABTech offers a full line of ultra-precision air bearing linear stages for applications requiring linear straightness and flatness, linear positioning, high velocity, constant velocity and systems that require friction free motion. Offered in dovetail, rectangular and box way configurations manufactured from aluminum, steel, granite or ceramic depending on the application requirements. Linear motor and encoder direct drive servo systems and precision ball screw drives are available for all linear stages.

Oil Hydrostatic & Mechanical Bearing Stages

ABTech oil hydrostatic slides offer the highest stiffness and accuracy available, designed for the most demanding precision machining applications such as diamond turning, grinding and high precision positioning. Single and stacked stage mechanical designs include high precision X-Y cross roller slides for semi-conductor mask repair or etching and Mini X-Y linear motor stages for pick-and-place or point-to-point positioning applications such as biomedical sample handling or inspection.

Gage Systems

Rotary air bearing based TIR gages with tilt and center worktables, electronic indicators, amplifier and granite bases for high accuracy total indicated run out (TIR) measurements. Linear air bearings combined with granite bases, linear encoders and special tooling provide high accuracy setting master gages, stable and straight guide ways for demanding optical radius inspection, and precise single or dual plane thickness measurements.



ABTech products can be combined and configured with amplifier and motion controllers for a turnkey multi-axis solution