



Ultra-Precision Motion Solutions...

ABTech inc specializes in the design and manufacture of ultra-precision rotary, linear and multi-axis motion solutions in accuracy levels measured in millionths of an inch (μ "), fractions of a micron and arc seconds (1/3600th of a degree). With over 20 years of experience in engineering air bearings, oil hydrostatic bearings and high precision mechanical bearings as well as multi-axis systems we can provide a component or a complete turn-key solutions for your most challenging production, inspection and measurement applications.

Our air bearings are often the baseline to which other ultra-precision components are compared or manufactured and 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.

ABTech's mission is to apply our specialized skills, experience and technical capabilities to any application requiring the highest precision motion. With a successful track record for high quality custom design and engineered bearing solutions we have developed a series of standard product offerings that may solve your problem, and we welcome the opportunity to work with you on your ultra-precision challenges demanding a unique solution. We believe that our collective experience, commitment, ethics, pride in precision and accountability, in combination with exceptional support to our customers is a recipe for success for all involved.

Rotary Motion Products:



Air Bearing Tables

ABTech's standard line of friction free rotary air bearing stages 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.

High Speed Air Bearing Spindles

The ultimate in performance for precision machine tool applications up to 20,000 rpm. Applications include single point diamond turning, work holding and flycutter heads and glass optic grinding.



Mechanical Ball Bearing Tables

For applications where air bearing accuracies are not required we offer ball bearing spin tables. Precision mechanical bearing tables offer high stiffness and load capacity with radial and axial accuracies of 1.0 μ m. Combine with encoders and display packages for precision index tables.

Oil Hydrostatic Bearing Tables

Designed for the most demanding ultra-precision machining applications, these 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.



Rotary tables offered in accuracy classes as precise as 1.0 μ " , with optional tilt and center worktables, various size clear apertures, vacuum feed through center for parts fixturing, direct drive servo motor systems and motion control systems.

Linear Motion Products:

Air Bearing Stages

ABTech offers a full line of ultra-precision air bearing stages for applications requiring linear straightness linear positioning, high velocity, constant velocity and systems that require friction free motion.



Oil Hydrostatic Bearing Stages

Designed for the most demanding precision machining applications such as diamond turning, grinding and high precision positioning, **ABTech** oil hydrostatic slides offer the highest stiffness and accuracy available.



Mechanical Bearing Stages

Single and stacked stage 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.



*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 air bearings. **ABTech** systems can be configured with amplifier and motion controller for a turnkey solution.*

Gage Products:



T.I.R. Gages - Combining AT series air bearings with tilt and center worktables, electronic gages, amplifier and granite bases for high accuracy total indicated run out measurements.

Distance and Thickness Measurement Gages - Linear air bearings combined with granite bases, linear encoders and special tooling provide a high accuracy setting master gage while precise single or dual plane thickness measurements are achieved using our thickness gage with Heidenhain probes.



Optical Radius Gage - Fully captured precision air bearing carriages offer friction free motion while the natural granite rail provides a stable and straight guide way for a high accuracy solution to the most demanding optical radius inspection applications

Accessories:



Tilt and Center Worktables - Various styles for fine adjustment of parts under test to be accurately centered and leveled to the axis of rotation of the air bearing table.

Granite Base and Stands - Supported by passive vibration isolators and welded steel frames, granite provides a flat and stable platform to achieve high position accuracy and motion system performance.



Combine **ABTech's Motors, Motion Controllers** (servo amplifiers, operator interfaces and application software), **Gage Stands, Electronic Gage Heads** and **Air Filter/Regulator Units** for application specific complete turn-key systems.



Application Specials:



X-Y mechanical stage w/ linear drive & multi-axis controller for pick-n-place precision



Low profile motorized air bearing slides for wafer scanning and vision system positioning



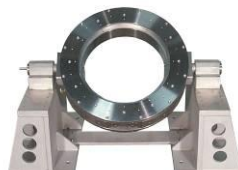
Synchronized air bearing spindles with clear apertures for high speed 3-D image scanning



Miniature air bearing stages w/ dual magnetically loaded carriages for micro placement



Z-Theta air bearing stage w/DC motor for flip chip bonding and other positioning applications



26" air bearing rotary table with 17" diameter clear aperture for alignment of optical lens



Air bearing drum roller system for thin film processing in suspension drive assemblies



Multi axis air bearing stages with DC servo motor drives for measuring cylindricity



5,000 rpm air bearing spindle, granite and controller for diamond tool relapping



Motor driven air bearing rotary tables, granite bases and 6-10' towers for turbine engine assembly



5-axis air bearing work station and controller for target positioning and assembly



5-axis air bearing optical metrology station with sub-micron accuracy and passive vibration isolation

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ABTech inc.
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