ABTech Inc.
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Accurate, Repeatable, Smooth Motion
Manufactured with tight geometric tolerances, our standard air bearings deliver radial and axial error motion of <2.0µ" (50.0 nanometers) and angular errors (coning) 1.0µ" (25.0 nanometers/25mm). Custom configurations can deliver the ultimate in accuracy with radial and axial error motion of as little as 1.0µ" (25.0 nanometers) and angular errors (coning) of 0.5µ" (12.5 nanometers/25mm). Air bearings provide significant advantages over mechanical bearings or other approaches to precision worktables. With no mechanical contacting parts to wear, or create drag, air bearings are close to frictionless, providing ultra-smooth, repeatable and maintenance-free motion.

Superior Durability
Metrology is no longer relegated to QC labs. To maximize productivity, we know many applications require integrating measurement devices within the production and assembly processes. This means being exposed to harsher environments. ABTech uses hardened 440C stainless-steel in our air bearings. This affords forgiveness from minor accidental touch downs that may result from low air pressure, excessive loading, or operator error.

Benefits
Our “Pride in Precision” philosophy means providing you with the precise solution needed. We don’t believe selling our customers more, or less, than what their application calls for. Each air bearing is uniquely adapted to our customer, therefore expectations are always met and exceeded. For over two decades working with our customers we’ve developed a broad range of options and accessories to address the majority of ultra-precision motion applications.

Options: AT Series
- Motor drives and controls.
- Encoders and digital readouts (DRO).
- Vacuum feed through the center and vacuum controller to hold sensitive lightweight parts safely and securely.
- Custom bolt patterns.
- Standard and custom sized clear apertures.

HDRT Series
- Adjustable tilt and center worktables.
- Motor drive options.
- encoders and digital readouts (DRO).
- Fixed center mount gage stand.

Accessories
- ABTech Precision Centering Fixtures (AT Series Only).
- Custom fixtures and work holder tooling.
- Gage stands.
- MicroTIR electronic gage packages.
- Granite surface plates.
- Certified 2µ” round master test ball and cover.
- Structural steel frames with passive vibration isolation leveling feet.

Turnkey systems
With over 20 years of experience and a wide range of Air Bearing Spindles, Linear Slides, Rotary tables and machine tool controllers, let ABTech design and build your complete turnkey system.
Motor Drive Options

With proper selection and integration of high-performance brushless DC servo motors ABTech’s air bearing rotary tables provide ultra-smooth and precise rotary motion. With high torque, high performance motor drives, our motion experts will gather your specific requirements and work closely with our motor suppliers to create/select a motor drive that suits your specific application. Whether you need sub-micron position accuracy with minimal settle time and stringent following error specifications, high-speed constant motion, or a combination of both there is an ABTech rotary table that will meet your needs.

The motor drives are designed to accommodate a wide range of precision motion applications such as optical metrology; circular geometry gages; and micro machining with ultra-precision scanning, velocity control, speed regulation and precision indexing.

ABTech’s modular design approach facilitates multiple system configurations to optimize the price-for-performance required in your application. This approach allows the user to define the level of control desired for the most cost-effective solution. Our complete engineering services allow us to respond quickly to provide a solution to your O.E.M. requirements for ultra-precision rotary motion.

Air Bearing Rotary Table Specifications

<table>
<thead>
<tr>
<th></th>
<th>AT150</th>
<th>AT200</th>
<th>AT300</th>
<th>AT400</th>
<th>HDRT500</th>
<th>HDRT600</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Certified Accuracy</strong></td>
<td></td>
<td></td>
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<tr>
<td>Radial &amp; Axial</td>
<td>&lt;2.0 µ&quot; (0.05 µm)</td>
<td>&lt;2.0 µ&quot; (0.05 µm)</td>
<td>&lt;10.0 µ&quot; (0.25 µm)</td>
<td>&lt;10.0 µ&quot; (0.25 µm)</td>
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<tr>
<td>Tilt (coning)</td>
<td>&lt;0.206 arc sec or 1.0 µ°/in (0.025 µm/25mm)</td>
<td>&lt;0.206 arc sec or 1.0 µ°/in (0.025 µm/25mm)</td>
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<tr>
<td><strong>Working Envelope</strong></td>
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<td></td>
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<tr>
<td>Maximum Part Diameter (swing)</td>
<td>12&quot; 305 mm</td>
<td>16&quot; 406 mm</td>
<td>24&quot; 610 mm</td>
<td>32&quot; 813 mm</td>
<td>40&quot; 1.0 m</td>
<td>48&quot; 1.2 m</td>
</tr>
<tr>
<td>Axial Load Capacity</td>
<td>* 60 lbs</td>
<td>* 27 Kg</td>
<td>500 lbs</td>
<td>1,200 lbs</td>
<td>2,000 lbs</td>
<td>3,000 lbs</td>
</tr>
<tr>
<td>Worktable &amp; Air Bearing Diameter</td>
<td>6&quot; 152 mm</td>
<td>8&quot; 203 mm</td>
<td>12&quot; 305 mm</td>
<td>16&quot; 406 mm</td>
<td>22&quot; 559 mm</td>
<td>26&quot; 660 mm</td>
</tr>
<tr>
<td>Tapped Holes</td>
<td>1/4 - 28 UNF</td>
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<tr>
<td><strong>Worktable Configuration</strong></td>
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<tr>
<td>Tilt &amp; Center</td>
<td>4-knob spherical seat</td>
<td>8-knob spherical seat</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td>Knob Configuration</td>
<td>2 centering, 2 leveling at 90°</td>
<td>4 centering, 4 leveling at 90°</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td>Air Consumption</td>
<td>2.0 cfm @ 60 psi with dual stage filter/regulator</td>
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<tr>
<td>Product Dimensions</td>
<td>9.25° OD x 5.50° T 235 x 140 mm</td>
<td>12.63° OD x 7.25° T 321 x 184 mm</td>
<td>17.25° OD x 8.50° T 438 x 216 mm</td>
<td>19.00° OD x 8.00° T 483 x 203 mm</td>
<td>22.00° OD x 3.40° T 560 x 86 mm</td>
<td>26.00° OD x 3.50° T 660 x 89 mm</td>
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<tr>
<td>Product Weight</td>
<td>50 lbs</td>
<td>100 lbs</td>
<td>240 lbs</td>
<td>450 lbs</td>
<td>220 lbs</td>
<td>300 lbs</td>
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</table>

* Limited by 4-knob tilt and center. Higher load capacities available upon request.

Grind table: ABTech’s motorized wet grind tables are ideal for use in light grinding applications giving our customers the flexibility to turn their conventional surface grinding machine into a radial face grinder.

Portable rotary table: ABTech’s AT-400 portable rotary air bearing table with 8 Knob 600mm tilt and center worktable is ideal for inspection of large diameter parts up to 32" diameter and 2,000 lbs.

HDRT 42" Table: ABTech’s heavy duty rotary table, model HDRT800/1070 being tested for radial accuracy with precision master test ball and ABTech’s MicroForm roundness gage software. Radial & axial accuracies less than 10 microinches on HDRT’s.