

Air Bearing Rotary Tables – Accuracies to 2.0μ”

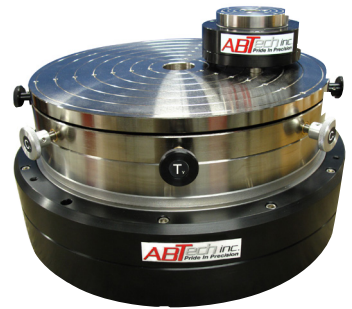
ABTech’s precision air bearing rotary tables address the metrology needs for different weights and part sizes. Built for the most demanding applications, every table provides ultra-smooth motion, sub-micron accuracy and absolute repeatability. Designed and manufactured in-house to extremely tight geometric tolerances, air bearings have no mechanical contacting parts to wear or create drag. This allows for decades of reliable maintenance-free motion.

ABTech’s AT models come standard with dual element filter/regulators and are commonly used as the core axis in equipment checking total indicator reading (TIR), roundness, flatness, squareness, perpendicularity, concentricity and parallelism measurements. They are ideal as stand-alone units for checking runout of turned parts, optical lens alignment, assembly applications, precision indexing, and light machining or grinding.

The heavy-duty HDRT tables complete the product family. They are a perfect solution for large part applications.

To speed part setup and increase productivity, the AT model tables come standard with our industry-best adjustable tilt and center (tip/tilt) work-tables. The tilt and center tables are optionally available on the HDRT models.

We understand metrology needs often require operating in harsher environments. We use the most durable 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.



Accurate, Repeatable, Smooth Motion

Manufactured with tight geometric tolerances, our standard air bearings deliver radial and axial error motion of $<2.0\mu$ ” (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 components – you’ll experience many years of service and investment longevity.

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 fixturing 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

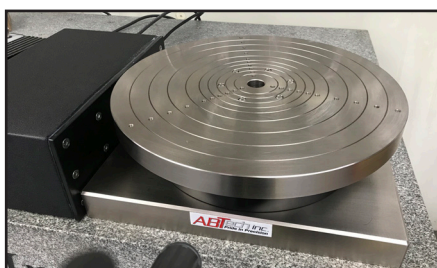
With proper selection and integration of high-performance brushless DC servo motors ABTech's air bearing rotary tables provide ultra-smooth and precise rotary motion. With high torque, high performance motor drives, our motion experts will gather your specific requirements and work closely with our motor 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

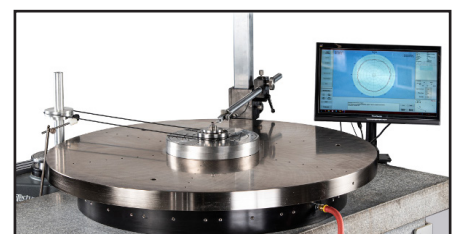
	AT150	AT200	AT300	AT400	HDRT500	HDRT600	
Certified Accuracy							
Radial & Axial	<2.0 μ" (0.05 μm)				<10.0 μ" (0.250 μm)		
Tilt (coning)	<0.206 arc sec or 1.0μ"/in (0.025 μm/25mm)						
Working Envelope							
Maximum Part Diameter (swing)	12" 305 mm	16" 406 mm	24" 610 mm	32" 813 mm	40" 1.0 m	48" 1.2 m	
Axial Load Capacity	* 60 lbs * 27 Kg	500 lbs 226 Kg	1,200 lbs 544 Kg	2,000 lbs 907 Kg	3,000 lbs 1,361 Kg	5,000 lbs 2,268 Kg	
Worktable & Air Bearing Diameter	6" 152 mm	8" 203 mm	12" 305 mm	16" 406 mm	22" 559 mm	26" 660 mm	
Tapped Holes	1/4 -28 UNF						
Worktable Configuration							
Tilt & Center	4-knob spherical seat	8-knob spherical seat				n/a	
Knob Configuration	2 centering, 2 leveling at 90°	4 centering, 4 leveling at 90°				n/a	
Air Consumption	2.0 cfm @ 60 psi with dual stage filter/regulator				4.0 cfm @ 60 psi with dual stage filter/regulator		
Product Dimensions	9.25" OD x 5.50" T 235 x 140 mm	12.63" OD x 7.25" T 321 x 184 mm	17.25" OD x 8.50" T 438 x 216 mm	19.00" OD x 8.00" T 483 x 203 mm	22.00" OD x 3.40" T 560 x 86 mm	26.00" OD x 3.50" T 660 x 89 mm	
Product Weight	50 lbs 23 kg	100 lbs 45 kg	240 lbs 110 kg	450 lbs 200 kg	220 lbs 100 kg	300 lbs 140 kg	
* 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.