

WHS180

Work Holding Air Bearing Spindle

ABTech's air bearing spindles provide the ultimate performance utilizing a low air supply (standard filtered shop air). High stiffness, load capacities and very low error motion make these spindles ideal for precision machining, work holding or flycutter heads and grinders for single point diamond turning or glass optic applications requiring ultra-smooth motion, high accuracy and speeds up to 5,000 rpm.

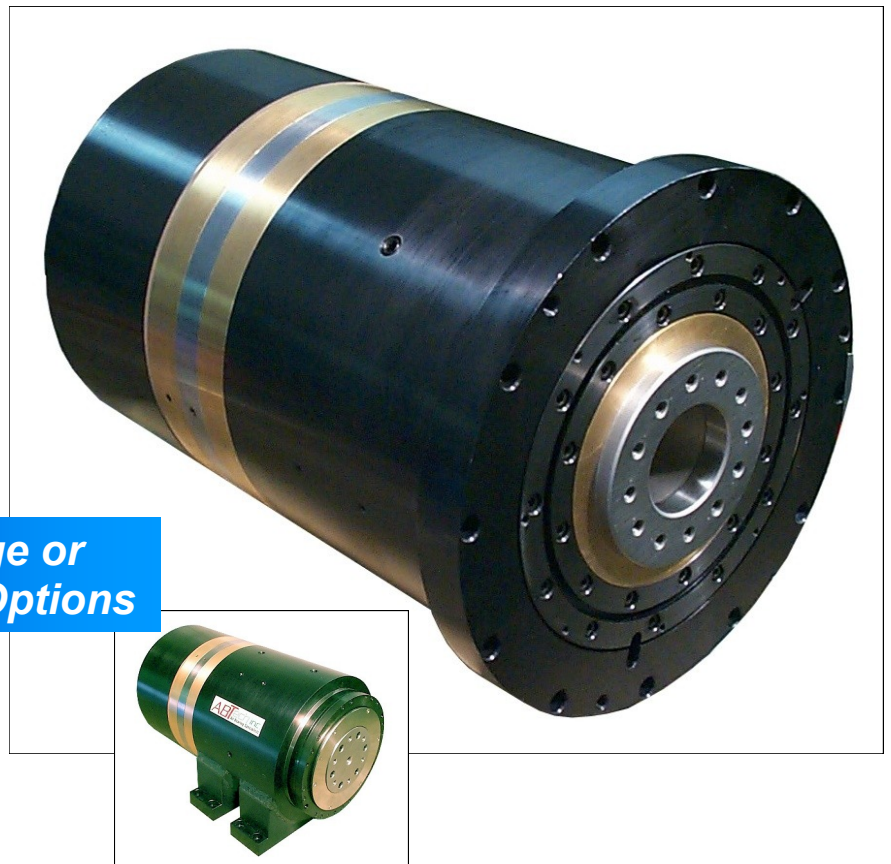
WHS180 spindles feature high torque DC brushless motors and rotary encoders. The motors are internally air cooled using the air bearings own exhaust air. Liquid cooling options are readily adapted to the existing ported housing.

Optional motion controller incorporates a digital amplifier with easy-to-use programmable controls and digital spindle speed readout.

ABTech's modular design approach and complete engineering support capabilities allow for customization of mounting, thrust plate location and drives as customer applications require.

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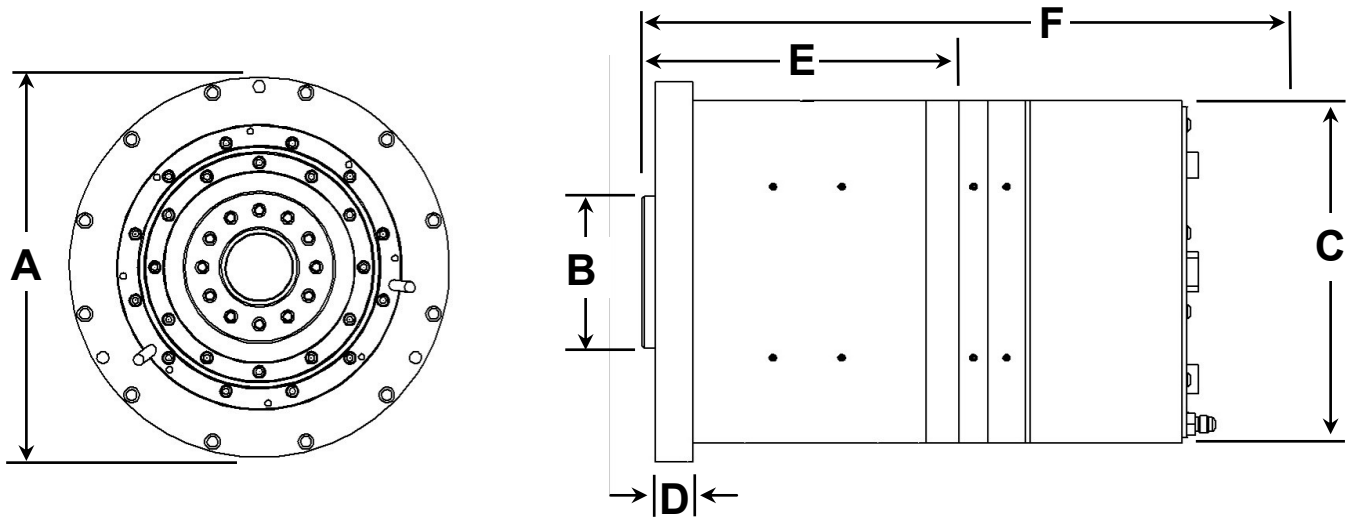


**Face Flange or
Foot Mount Options**

Features:

- Ultra-smooth motion with “zero” static friction
- High load capacity and stiffness with low air consumption
- Dual plane balanced to G0.4 specifications
- Minimal radial asynchronous error motion
- Durable 440C stainless steel shaft with bronze journal design
- High resolution rotary encoder
- Non-contact, high torque brushless DC motor drives
- Integral air cooling with liquid cool option
- Operator control console with digital amplifier and speed readout
- Modular design – custom systems can be provided for O.E.M.
- Made in USA

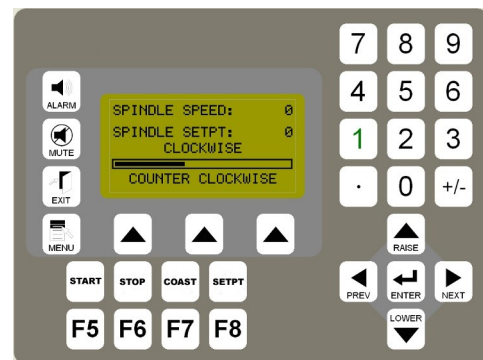
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| Specifications | WHS180 |
|--|----------------------------------|
| Flange Diameter (A) | 10.0" (254 mm) |
| Spindle Nose Diameter (B) | 4.00" (101.6 mm) |
| Shaft Diameter (C) | 9.0" (228.6 mm) |
| Mounting Flange Depth (D) | 1.0" (25.4 mm) |
| Shaft Length (E) | 8.3" (210.82 mm) |
| Overall Length (F) (includes 2.5" for minimum cable and air supply line clearance) | 16.84" (427.74 mm) |
| Radial Load Capacity* | 200 lbs (90.72 Kg) |
| Axial Load Capacity* | 200 lbs (90.72 Kg) |
| Air Usage | 1.5 scfm (2.6 m ³ /h) |
| Operating Speed Range | 0-5,000 RPM |
| Radial Stiffness (at spindle nose) | 0.8 lbs/μ" (140 N/μm) |
| Axial Stiffness | 1.0 lbs/μ" (190 N/μm) |
| Radial Error Motion | +/-1.0 μ" (+/-0.025 μm) |
| Radial Asynchronous Error Motion | 0.5 μ" (0.016μm) |
| Axial Error Motion | +/-1.0 μ" (+/-0.025 μm) |

Options & Accessories:

- Motion controller with programmable operator touch pad
- Foot mounting option
- Vacuum chucks
- Precision collet tooling
- Liquid cooling
- Dual element filter/regulator
- Linear stage assemblies
- Granite surface plate bases



Typical motion controller touch pad layout

*Maximum load capacities - consult ABTech for recommendations on practical loads
 ~Load capacities are estimated at the front (nose)
 ~Performance can be affected by method of mounting the spindle and loading
 ~Radial test data is measured at 1" from spindle nose
 ~Error motion accuracies were tested at 5,000 rpm
 ~Special accuracies can be supplied
 ~Consult ABTech's engineers for moment loading and stiffness considerations
 ~Specifications are at 80 psi (5.63 kgf/cm²)
 ~Specifications are subject to change without notification

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ABTech inc.
 Pride In Precision