

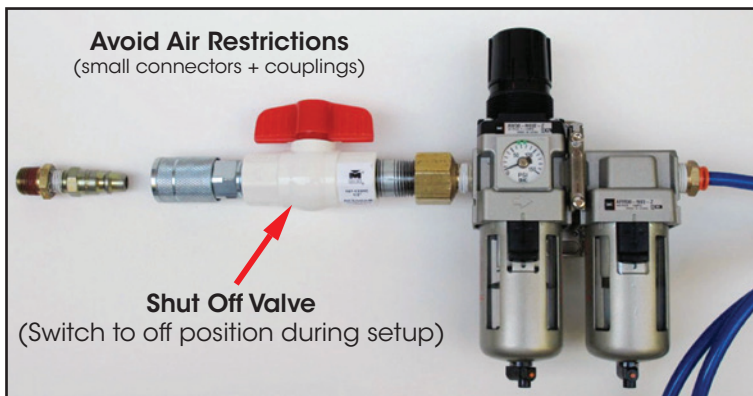
Spindle Quick Setup Guide

1. Caution: Air Turbine Spindles® will rotate at designated speed when 90 psi / 6.2 Bar compressed air is introduced.

A Shut-off valve is recommended for set up.

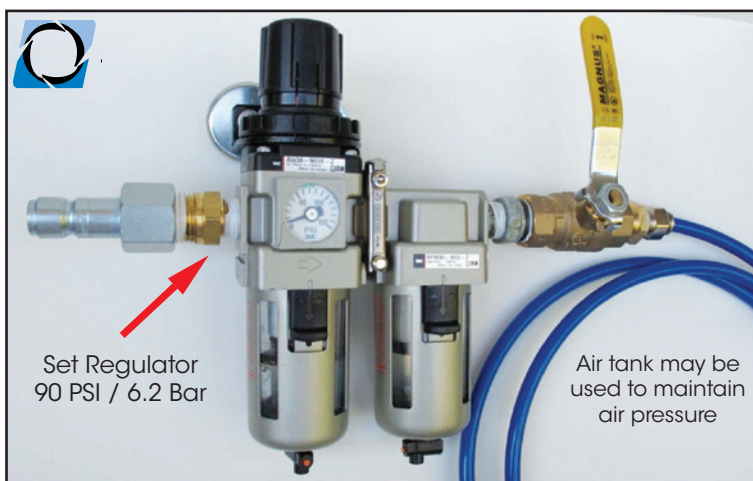
- **Caution:** Ensure main spindle does not rotate with Air Turbine Spindle in place.
- Always use filter extractor - use only clean dry compressed air at rated CFM/ L/S in catalog.
- Install Air Turbine Spindle in CNC's main Spindle. If using TMA autochanger, see the next page for instructions.

Do not induce air to spindle until your program is ready and CNC door is closed.



2. Ensure a plug is in place on air inlet when it is not being used.

All hoses and connectors must be clean and greater than 1/4" / 6 mm Internal Diameter.



3. 650 units use higher airflow.

- Ensure there are no restrictions in the airline to Air Filter/Regulator and to spindle, i.e. avoid fittings, valves, etc. with internal diameters smaller than 3/8" / 9mm. For flow requirements visit www.airturbine tools.com.
- Air restriction will result in under power performance. Verify air pressure gage (on filter, etc.) maintains 90-100 PSI / 6.2 Bar while cutting. Check compressor capacity.

4. Program your CNC to perform milling, drilling, etc., without any M03 or M04 commands. **Use M05. Verify via dry run** of your program in graphics or without Air Turbine spindle in CNC spindle, before running actual program with spindle in place.

5. Start with a lighter (axial) depth of cuts, gradually stepping down to the optimum depth of cut or increasing feed rates for your material, application, and spindle hp / kW rating. Refer to tooling manufacturer for appropriate tool for your application and radial depth of cut for best performance.

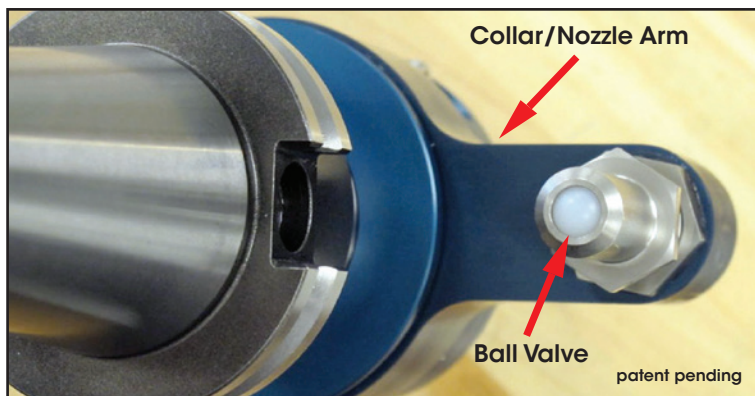
6. Use an appropriate size tool rated for the speed of your Air Turbine Spindles®, and start with a light pass.

Check with program supplier if update for increased feed rates is required.

TMA Auto-Changer Assembly Units

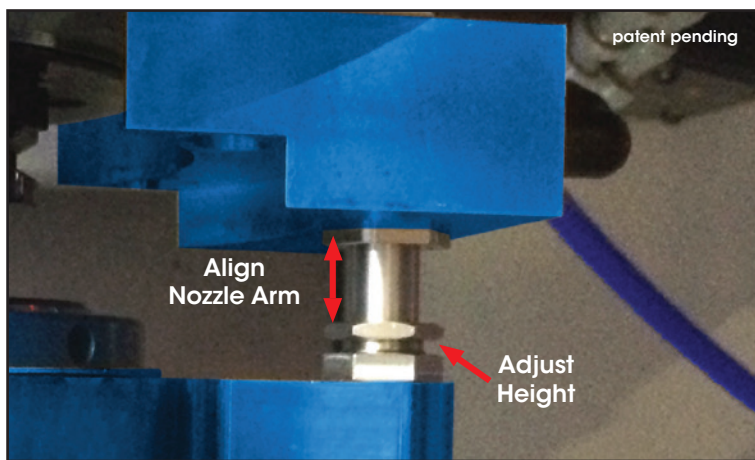
1. Install block on side of main spindle for clean airline air connection using predrilled screw holes for your Doosan Machine.

2. Connect a hose with clean dry 90 psi / 6.2 Bar air to the Block. Use a shut-off valve (make sure its in the off position) or solenoid to control airflow to Block. Please refer to notes and image on both front and back of this document. Installation kits are available from Air Turbine.



3. Align TMA Spindle Collar bayonet nozzle position with block inlet before loading spindle (i.e. command M19) Observe machine spindle dogs and rotate Air Turbine spindle drive slots to align with drive dogs while nozzle is aligned with TMA block, then release drawbar and load Air Turbine spindle into CNC spindle.

4. Screw in nozzle all the way down in block initially and raise up as needed to connect. Adjust height of screw bayonet nozzle on spindle collar to plug in to block without excessive deflection of nozzle arm.



5. Check that nothing obstructs auto loading process. Please note that on **Haas 2010** and newer **VF machines** with a SMTC, there is a sheet of metal in place on top of enclosure adjacent to Tool change drum. Remove this sheet metal as the TMA nozzle will hit it and get twisted out of position.

Please consult full user notes, and technical information at www.airturbinetools.com.

This Quick Guide is not intended to replace user notes, cutting tool manufacturers' recommendations or CNC manufacturers' instructions. Follow ANSI standards, all applicable regulations and user instructions, and use eye protection.

ER Collets - Cutting tool insertion and removal

Two wrenches are supplied with your spindle including a special High Speed Collet Nut Wrench. Insert one wrench onto spindle shaft flat, and insert special collet nut wrench into collet nut.

Tighten Collet: Insert tool, and turn collet nut wrench clockwise while holding other wrench in place until tightened. Avoid long stick-out.

Untighten Collet: Turn collet nut wrench counter-clockwise while holding other wrench in place until the tool loosens. Continue turning collet nut, with special collet nut wrench inserted in groove, until collet pops. Wrench acts to pull collet out of spindle taper and allow for collet removal and/or cleaning. Always take special care to clean collet, collet nut and spindle taper during each tool change.