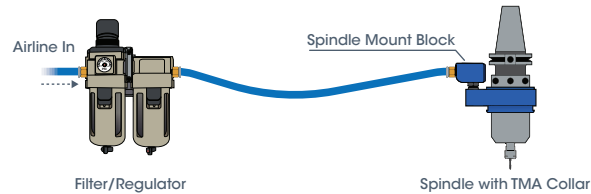


Toolchanger Mounting Assembly

Installation

Install the supplied Spindle Mount Block by connecting the dedicated clean air line from the included Filter/Regulator to your spindle as shown in the diagram below. We offer many pre-drilled Spindle Mount Blocks for different CNC machine models, and a universal block.

**Install action requires SHCS 10-32 x 0.75" on Haas CNC machines.*

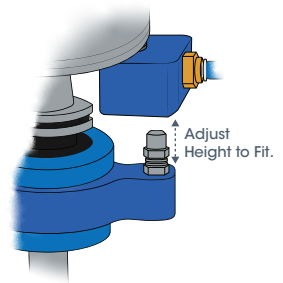


Prepare the CNC spindle by performing M19 or Spindle Orientation. **Ensure the TMA Nozzle will clear all portions for CNC Tool changer guard or machine columns** by consulting your CNC manufacturer drawings or verifying all clearances with a mock-up tool. For some Gantry machines, the Nozzle or O.D. of the TMA collar will not clear the column corner (i.e., All GR type machines require special tool rack on machine table or hand loading).

Note: Once the **Air Turbine Spindle®** is loaded into your CNC spindle, you adjust the height of the Nozzle screw more to engage the ball valve seal as shown in the figure to the right. The air flow will turn on the spindles upon coupling.

Some trial and error may be needed in adjusting the height of your nozzle screws. Do not let main spindle drawbar (tool release button) start unless Connector Nozzle goes up into block Inlet hole (Approximately 1/4" (6mm) up into inlet hole).

If the Nozzle Arm is misaligned from inlet, remove the **Air Turbine Spindle®** from CNC spindle taper area and adjust clocking of the TMA Nozzle to properly align with the inlet hole and re-try loading procedure. Once successfully loaded into the CNC main spindle, turn on air hose shut-off valve. If the spindle turns on and no air is escaping, then the Connector Nozzle can be presumed to be set at the correct height. If you hear air escaping, then further adjustment is required.



Adjusting the height of the nozzle screw.

G-Codes and Spindle Orientation

Ensure the installation was successful by performing a tool change with over-ride set to the lowest speed several times to observe the loading and unloading of the **Air Turbine Spindle®** to ensure it engages and operates correctly. Each CNC control has different codes to ensure the CNC main spindle does not turn on while the **Air Turbine Spindle®** is loaded. **It is critical for safety to ensure Set Up Personnel, Machine Operators, Programmers, etc. are all properly notified that the main spindle must remain stationary, except while the CNC machine is doing a Tool Change.** During a tool change, after loading the **Air Turbine Spindle®** a CNC spindle normally does a spindle orientation or rotation to ensure the drive dogs are aligned prior to loading into Tool changer drum or side mount magazine mechanism. The Toolchanger Mounting Assembly allows a spindle orientation due to its patented collar system.

Troubleshooting your TMA Installation

Air Turbine Spindle® Does Not Turn On

Turn a wrench on the connector nozzle screw counterclockwise to raise the height. Use caution with hands and any clothing that may be near the spindle as your spindle will turn on and rotate at rated rpm when air is supplied. Once the **Air Turbine Spindle®** turns on, raise the Nozzle screw another small amount and then lock the hex locknut to secure the Nozzle in place.

Nozzle is Too High

You will see the blue spindle collar tilt if the nozzle is too high. This may loosen the bottom lock in the spindle collar or allow excessive air to become released from the collar O-rings, which seal the TMA collar to the main flange portion of the TMA collar system. If too high, reverse procedure to lower the Nozzle re-tighten the locknut so the connector is an accurate fit.

TMA Collar Rotation

A factory set level of resistance (i.e. collar with plunger section to spindle body section) keeps the Plunger in place during a tool change, while still allowing the free rotation (i.e. spindle orient action). Over time this friction may change stiffness in the rotation due to coolant, dust, etc., ensure there is not too much friction or too little. Either will cause the spindle to misload. Tightness of collar may be adjusted using hex keys. If spindle collar does not rotate, loosen the collar by adjusting hex nuts in spindle collar so that the rotation is free at a light pressure while not being loose so your spindle remains free to rotate but is in securely place.