



air turbine spindles®

for



**25,000 – 90,000 rpm – power to 1.4 hp (1.04 kW)
Constant Governed High Speed and Torque - No Duty Cycle**

Speeds that don't drop when you start cutting – saving you time and money



602(X)
0.15 - 0.45 hp
0.11 - 0.34 kW

625(X)
0.40 - 0.90 hp
0.30 - 0.67 kW

650(X)
0.76 - 1.40 hp
0.57 - 1.04 kW

With patented governed high speed and torque Air Turbine Spindles®, your Haas Machine is a high speed machine!

Fully Automated Loading:

1. With our patented Toolchanger Mounting Assembly (TMA) or
2. Through Spindle Air Option

Manual Connection also Possible

CAT, BT, DIN and HSK available

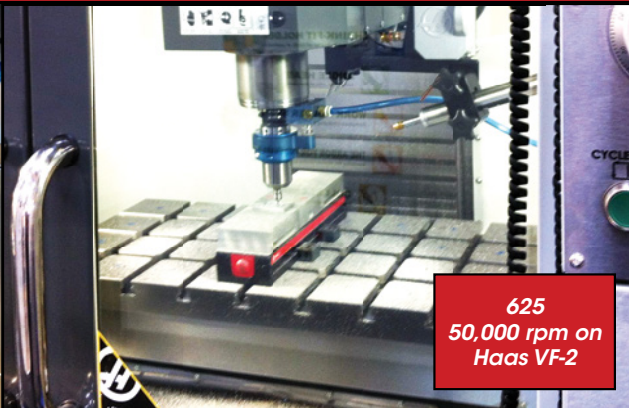
X Version for Extra Power

Call for a Demonstration!

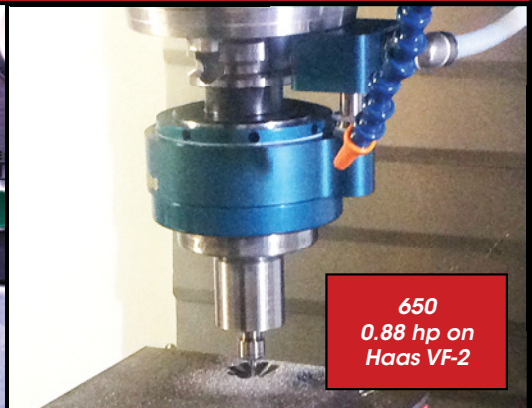
Join 1,000's of Haas Users Who Have Increased Productivity from Their Haas VMC's



602
65,000 rpm on
Haas UMC-750



625
50,000 rpm on
Haas VF-2



650
0.88 hp on
Haas VF-2



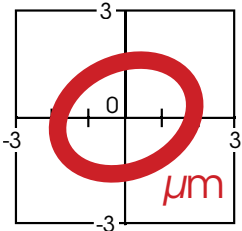
Dramatically reduce your cycle times, optimize cutting tool performance and life.

Keep continuous tool path engagement on your existing CNC at high speed even in angles and hard material. Ideal for micro machining. 25,000 - 90,000 rpm < 1.40 hp (1.04 kW)

Accuracy - 2µ Certified

Most of the problems that occur in micro machining come from a lack of RPM and poor dynamic runout. *Air Turbine Spindles*® use the highest quality runout and balancing systems on the market today. This creates the best dynamic runout accuracy and governed high speed precision.

Runout measured at the nose of spindle. (reference value)

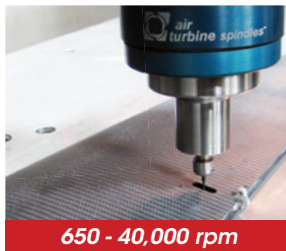


600 SERIES

- Improved Machining Cycle Times
- Longer Tool Life
- Better Surface Finish
- Automatic Loading

Super Low Vibration Design

Powerful, totally oil-free low friction motor produces extremely low vibration and heat in continuous 24/7 operation. No thermal expansion, great reliability.



650 - 40,000 rpm

Ultra Precision 2µ ER 8 or ER 11 collets standard.

Environmentally Clean

No oil required, and maintenance free.

Air Pressure: Dry, Clean Air @ 90 psi / 6.2 bar

Air Consumption (Working) • (X) = Double Turbine Version

602(X): 5 - 10 cfm (2.36 - 4.27 L/s)

625(X): 11 - 30 cfm (5.20 - 14.16 L/s)

650(X): 14 - 40 cfm (6.60 - 18.99 L/s)

Low Noise Design: Under 67 dBA (cutting noise of endmills can be heard).

Standard Equipment: 0.3µm High Flow Filter/Extractor

Automatic Toolchanger

No need for operator downtime.

Automatically load *Air Turbine Spindles*® with our wrap around Toolchanger Mounting Assembly.



625 - 50,000 rpm

Superior Technology

- Unique patented direct drive with no vanes, gears or brushes to wear, burn or break.
- Cooled by turbine air for 24/7 operation. No oil or control system required. No Duty Cycle.
- Governor keeps Constant High Speed + Torque on tool path in angles and corners.

Spindle Selection

√ = Optimum

∞ = Acceptable

! = Dependent upon cutting conditions

x = Not recommended for use

| | | 602(X) | 625(X) | 650(X) |
|----------------|-------------------------------------|-------------|-------------|--------|
| Drill | Ø 0.1 - 0.3mm | √ | √ | √ |
| | Ø 0.3 - 0.5mm | ∞ | √ | √ |
| | Ø 0.5 - 1.0mm | ! | √ | √ |
| | Ø 1.0 - 1.5mm | x | ∞ | √ |
| | Ø 1.5 - 2.0mm | x | ! | √ |
| Endmill | Ø 0.1 - 1.0mm | √ | √ | √ |
| | Ø 1.0 - 2.0mm | √ | √ | √ |
| | Ø 2.0 - 3.5mm | ! | √ | √ |
| | Ø 3.5 - 5.0mm | x | ∞ | √ |
| | Ø 5.0 - 6.0mm | x | ! | ∞ |
| Jig Grinding | | x | ! | √ |
| Specifications | 602(X) | 625(X) | 650(X) | |
| Speed (rpm) | 40,000 | 30,000 | 25,000 | |
| | 50,000 | 40,000 | 30,000 | |
| | 65,000 | 50,000 | 40,000 | |
| | 90,000* | | | |
| Power (hp) | 0.15 - 0.45 | 0.40 - 0.90 | 0.76 - 1.40 | |
| T.I.R. at Nose | Less than 2µm | | | |
| Collet Range | 0.5mm - 6mm | | | |
| Air Pressure | Less than 6.2 Bar (0.62 MPa) | | | |
| Air Flow | 5 - 40 CFM (2.36 - 18.89 L/s) [ANR] | | | |



*Due to its governed high speed and power the 602 90,000 rpm is for use only with micro end mills in special applications.