

25,000 – 40,000 rpm – power to 0.88 hp (0.66 kW)  
**Constant Governed High Speed and Torque**

*Now your Doosan CNC delivers faster production 24/7*



**650CAT40**  
0.76 - 0.88 hp  
0.57 - 0.66 kW

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

*No Duty Cycle*

*Call for a Demonstration*

*Fully automated loading:  
With our patent pending  
Toolchanger Mounting  
Assembly (TMA)*

*Manual Connection also Possible*

**Manual or Automatic Loading to Save Time and Money**



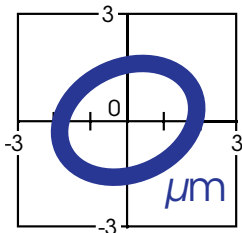
*Dramatically reduce your cycle times, optimize cutting tool performance and life.*

*Keep continuous tool path engagement on your existing CNC at high speed even in angles and hard material. Ideal for micro machining. 25,000 - 40,000 rpm < 0.88 hp (0.66 kW)*

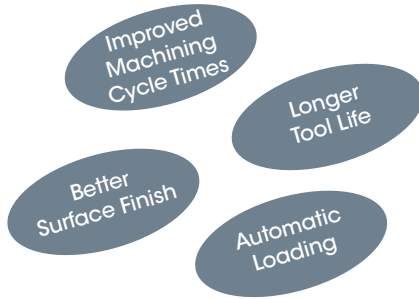
## Accuracy

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)**

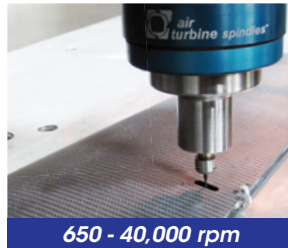


**600 SERIES**



## 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 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):**

**650(X):** 14 - 35 cfm (6.60 - 16.50 L/s)

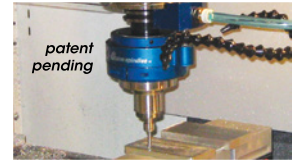
**Low Noise Design:** Under 67 dBA (cutting noise of endmills can be heard).

**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.



## 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

		<b>650</b>
Drill	Ø 0.1 - 0.3mm	√
	Ø 0.3 - 0.5mm	√
	Ø 0.5 - 1.0mm	√
	Ø 1.0 - 1.5mm	√
	Ø 1.5 - 2.0mm	√
Endmill	Ø 0.1 - 1.0mm	√
	Ø 1.0 - 2.0mm	√
	Ø 2.0 - 3.5mm	√
	Ø 3.5 - 5.0mm	√
	Ø 5.0 - 6.0mm	∞
Jig Grinding		√
Specifications	<b>650</b>	
Speed (rpm)	25,000 30,000 40,000	
Power (hp)	0.76 - 0.88	
T.I.R. at Nose	Less than 2µm	
Collet Range	0.5mm - 7.5mm	
Air Pressure	Less than 6.2 Bar (0.62 MPa)	
Air Flow	14 - 35 cfm (6.60 - 16.50 L/s) [ANR]	