Revolutionary High Speed Technology

Precision, Productivity and Reliability at 25,000 - 90,000 rpm to 1.4 hp

air turbine spindles®

+1.561.994.0500 • www.airturbinetools.com • info@airturbinetools.com

Are Your Machine Spindle Speeds Too Low?

Detail work taking hours?
Breaking too many tools?
Cutting speeds required to optimize smaller tools cannot be achieved using standard machine spindles.
If high speeds are required many machines are pushed to the limit and your machine is tied up for days.

What is the answer?
Utilize the compressed air at your machine.
Air Turbine Spindles® are powerful governed direct drives that maintain speed when cutting, even corners and hard materials. That's a difference you will see immediately.

Want to save time and money?
Constant high speed on the tool path makes *Air Turbine Spindles®* ideal for precision micro machining, milling, slotting, drilling and profiling with small tools. You will dramatically increase cutting rates and reduce your cycle times.

Why are our spindles superior?
Air Turbine Spindles® generate low heat, low vibration and operate reliably with no duty cycle in 24/7 non stop operations. That's because there are only two moving parts in these patented precision spindles – air cooled ceramic bearings and the turbine. So you get no thermal expansion and great reliability while reducing wear on your main spindle and there are no gears, high frequency brushes or vanes to burn out like in speeders or electric spindles.

Just connect compressed air, enter an M Code and mill at 400"/min (10,000mm/min) with 2µ accuracy.

Patented Technology: Governed 25,000 - 90,000 rpm • Power to 1.40 hp (1.04 kW) • No Duty Cycle • No Thermal Expansion

COMPARISON OF CUTTING SPEED PER MINUTE WITH A 1.5mm END MILL:

Standard Machine Spindle at 12,000 rpm = **2.22"/min (56.5mm/min) advance**
Air Turbine Spindles® 625 Series at constant 50,000 rpm = **9.28"/min (235.6mm/min) advance**

Your Cutting Speed is increased 4.2x with *Air Turbine Spindles®!*
In addition to reducing cycle time the accuracy of the cutting tool is improved and its life extended

$$V_c = \frac{D \times \pi \times n}{1000}$$

V_c = Cutting Speed
D = Tool Size
n = Spindle Speed Rating

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Our Advantages at a Glance

Constant High Cutting Speed Reduces Cycle Times.

Longer Tool Life.
Faster Production.

Low Heat.
No Thermal Expansion.

Mill 24/7.
No Duty Cycle.

Direct Drive Reliability.
Only 2 Moving Parts.
No Maintenance.

Governor Control for Constant High Torque.
Maintains High Speed under Load.

Low Vibration.
Quiet - Under 67 dBA.

Environmentally Friendly (No Oil or Lubrication)

Improved Surface Quality.
No Secondary Finishing.

A SIMPLE EXAMPLE OF THE SAVINGS ACHIEVED WITH *AIR TURBINE SPINDLES®*:

Example: A standard machine spindle at 12,000 rpm produces 1 part in 75 minutes.

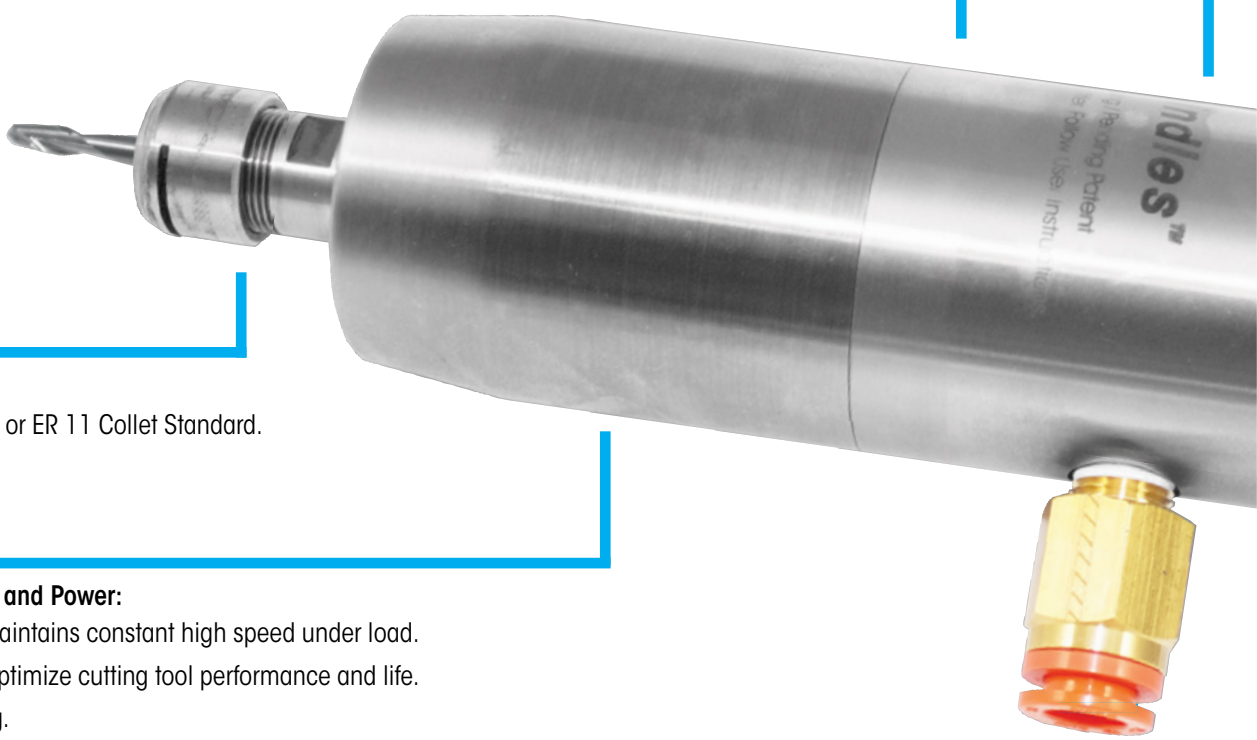
Production Run of 500 Pieces:
Machine Spindle: 500 pieces x 75 minutes = **625 hours**
Air Turbine Spindles® (50,000 rpm): 500 pieces x 10 minutes = **83.3 hours**

Result: Time saved = **541.7 hours**

The Air Turbine Differences

Low Vibration, Quiet:

- < 0.4 mm/s^{2,} < 67 dBA.



High Precision:

- 2 Micron Ultra Precision ER 8 or ER 11 Collet Standard.
- No thermal expansion.

Powerful Constant High Speed and Power:

- Patented governed turbine maintains constant high speed under load.
- Accelerate cycle times and optimize cutting tool performance and life.
- Eliminate secondary finishing.

Flexibility:

- Center rear air feed, patented stop block + collar (TMA), or manual side connection.

AUTOLOADING OPTIONS

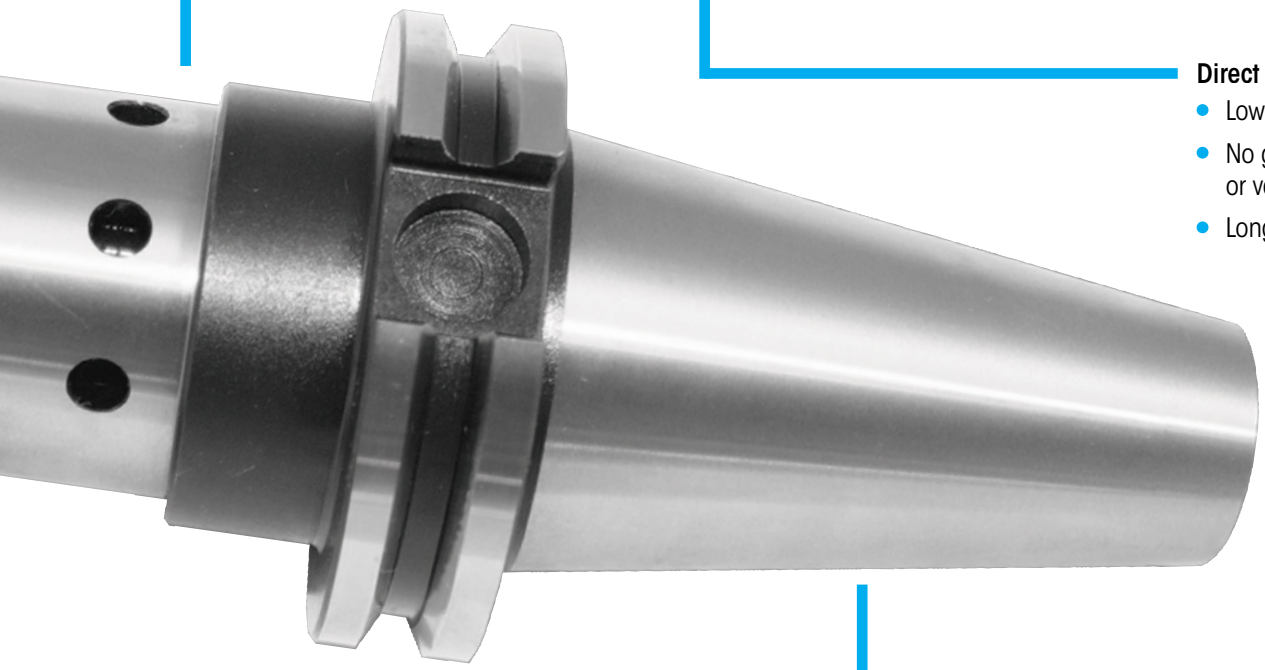
Fully automate your spindle change with our Tool Changer Mounting Assembly (TMA)
Or connect rear air inlet to compressed airfeed in your CNC spindle.

Auto loading reduces setup time and increases productivity.

Dry, clean 90 psi / 6.2 bar air only. Filter Extractor included as standard equipment.

Reliable:

- Only two moving parts (Turbine and Bearings).
- Air cooled ceramic bearings.
- No Duty Cycle.

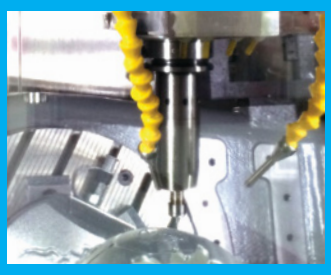


Direct Drive Motor:

- Low friction and heat.
- No gears, high frequency brushes, or vanes to heat up or burn out.
- Long Service Life.

Customize Your Spindle:

- Available in all popular tool holder designs.
- Retrofit any CNC.



CENTER AIR FEED

(TMA) TOOLCHANGER MOUNTING ASSEMBLY

Automatically Tool Change on Demand!

Application Examples

STEEL ROW MILLING ON DMG HSC 55

Linear Milling Depth: Row depth 2.0-0.13 RA
Material: 1.2344 Steel – HSC 30/70
Tool: Ball Nose End Mill R 2, 0.03mm/z

Standard DMG HSC 55 Spindle - **25,000 rpm**
Advance: 1,500 mm/min = Cycle Time: **60 minutes**

Air Turbine Spindles® 625HSK Spindle - **50,000 rpm**
Advance: 3,000 mm/min = Cycle Time: **30 minutes**

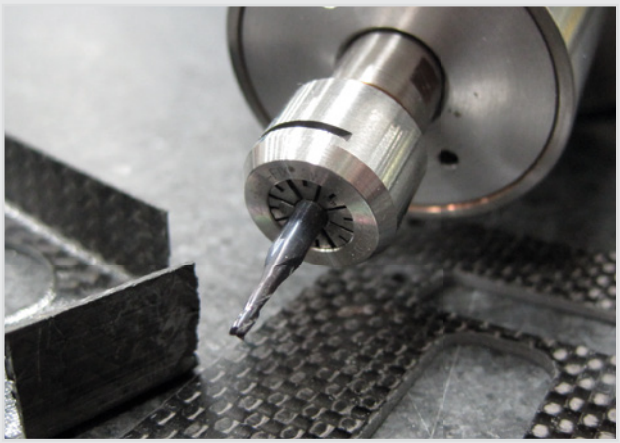
Cycle time halved with surface quality Ra 0.13.

BONDED CARBON FIBER ON HAAS VF6

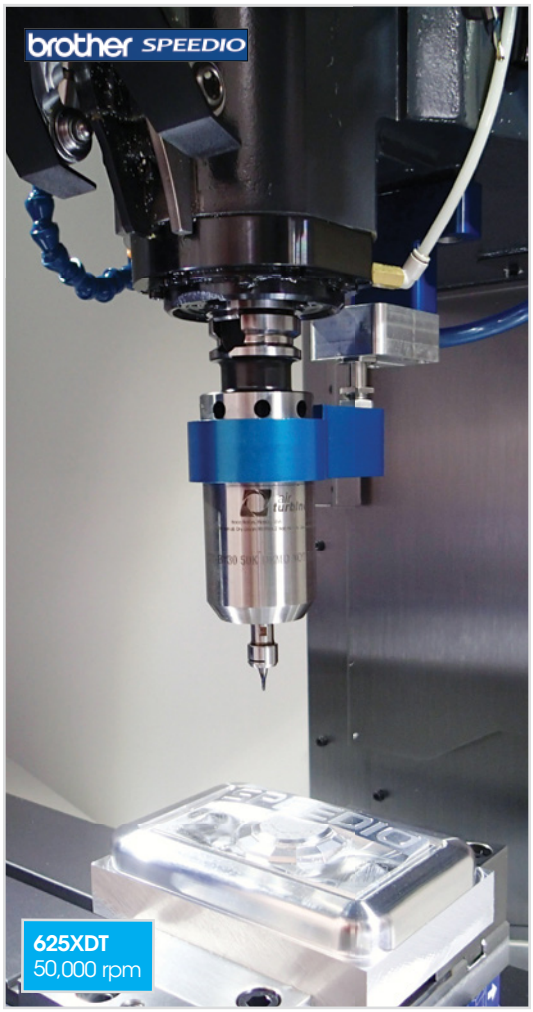
Flying S, a successful manufacturer of aerospace components in Illinois, needed to cut carbon fiber bonded to hardened material at production speeds with an 1/16th or 0.625 end mill in a way that did not destroy the material.

Unable to make the part at the 7,500 rpm speed of the Haas VF6 machine spindle, Flying S installed the autoloading **650XCATTMA**.

Flying S transformed its CNC into a high speed machine, milling in composites and hardened steel parts. Bur free surface quality and extended tool life combine with oil free operation, eliminating part contamination.



Drill Tap Series - *Robodrill, Brother, Haas and other Drill Tap Machines*



Increase production on your Drill Tap machine. The 602XDT Series for governed constant high speeds at **40,000, 50,000 or 65,000 rpm** up to 0.47 hp (0.35 kW). The 625XDT Series at 30,000, 40,000, or 50,000 rpm up to **0.90 hp (0.67 kW)** is suitable for all applications. Optimize milling, drilling, engraving, slotting and finishing with small tools.

Please see Cutting Tool Guides on pages 10 and 12 for 602X and **625X** respectively, for suitable cutting tool information.

With just 2 moving parts and low heat, the direct drive **602XDT** Series and **625XDT** Series are powerful, precise and reliable solutions to reduce cycle times and increase tool life in 24/7 operation with No Duty Cycle and No Thermal Expansion. Eliminate Secondary Finishing.

Please refer to the Installation Guide and Videos at **www.airturbinetools.com** during installation.

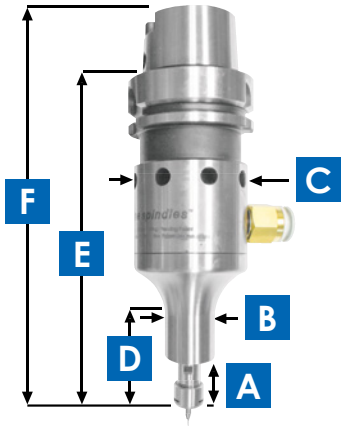
General Specifications	602XDT	625XDT
Governed Speed rpm	40,000 / 50,000 / 65,000	30,000 / 40,000 / 50,000
Power Rating hp (kW)	0.30 (0.22) / 0.40 (0.30) / 0.45 (0.34)	0.8 (0.60) / 0.9 (0.67) / 0.9 (0.67)
Inlet Air Pressure (clean dry air only)	90 PSI (6.2 Bar)	90 PSI (6.2 Bar)
Air Consumption Idle cfm (l/s)	4 (1.9) / 5 (2.4) / 6 (2.8)	19 (8.97) / 20 (9.44) / 20 (9.44)
Air Consumption Working Flow cfm (l/s)	5 (2.36) - 12 (5.66)	22 (10.38) - 30 (14.16)
Sound Level	Less Than 67 dBA	Less Than 67 dBA
Max Shank Capacity	**ER 11** - 1/8" (3mm)	**ER 11** - 1/4" (6mm)
Spindle Weight	**JS:** 26.4 oz (0.75 kg) **CAT/DIN/BT/HSK:** 63.2 oz (1.79 kg)	**JS:** 64 oz (1.81 kg) **CAT/DIN/BT/HSK:** 96 oz (2.72 kg)

Standard Equipment: 0.3 micron Combo Filter / Extractor, Spindle, 2 micron Ultra Precision ER 11 Collet System, Wrenches, Hose and Detachable Side NPT Fitting. - Optional Collets 0.5 mm - 7.5 mm available.

625L Series - *"The Super Model"*

The **625L (50mm) Series** delivers governed constant high speeds under load - **30,000 to 50,000 rpm, < 0.50 hp (0.37 kW)**. This reliable multipurpose spindle, with its 50mm length body, is ideal for mold making, milling and finishing with small cutter capacities in deep pockets.

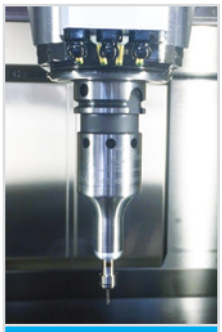
BT, CAT, DIN, HSK and JS Straight Shank (3/4" / 20mm).
Selectable rear or side airfeed. Double front bearings standard.



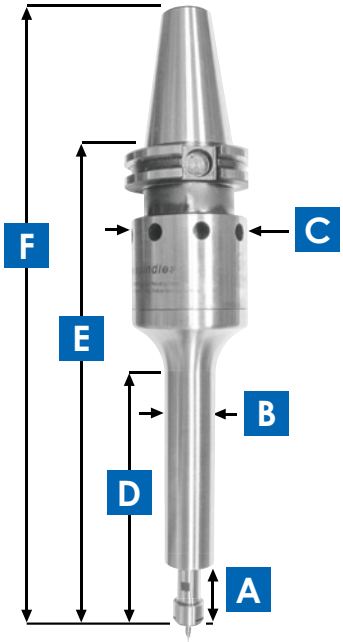
625LHSK-A63 (50mm) Shown

Dimensions
Many integrated shank dimensions
(BT, CAT, DIN, ISO, HSK) available at www.airturbinetools.com

	JS	HSK-A63	CAT40
A	1.00" (25mm)	1.00" (25mm)	1.00" (25mm)
B	1.00" (25mm)	1.00" (25mm)	1.00" (25mm)
C	2.25" (57mm)	2.25" (57mm)	2.25" (57mm)
D	2.16" (55mm)	2.16" (55mm)	2.16" (55mm)
E	5.22" (133mm)	6.97" (177mm)	6.65" (169mm)
F	7.22" (183mm)	8.13" (204mm)	9.26" (238mm)



625LHSK (50mm)



625LCAT40 (100mm) Shown

The long body **625L (100mm) Series** delivers governed constant high speeds under load - **30,000 to 50,000 rpm, < 0.50 hp (0.37 kW)**. Speed up your cycle times with this compact and powerful spindle. Ideal for contouring, mold making, milling, finishing and drilling with small tools in deep pockets. Governor control maintains constant high speed and power under load.

BT, CAT, DIN, HSK and JS Straight Shank (3/4" / 20mm).
Selectable rear or side airfeed. Double front bearings standard.

Dimensions
Many integrated shank dimensions
(BT, CAT, DIN, ISO, HSK) available at www.airturbinetools.com

	JS	HSK-A63	CAT40
A	1.00" (25mm)	1.00" (25mm)	1.00" (25mm)
B	1.00" (25mm)	1.00" (25mm)	1.00" (25mm)
C	2.25" (57mm)	2.25" (57mm)	2.25" (57mm)
D	4.80" (122mm)	4.80" (122mm)	4.80" (122mm)
E	7.86" (200mm)	9.61" (244mm)	9.29" (236mm)
F	9.86" (250mm)	10.67" (271mm)	12" (305mm)

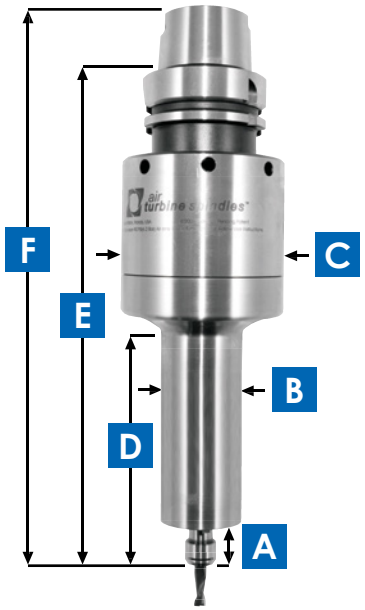
625LCAT (100mm)

Standard Equipment: 0.3 micron Combo Filter / Extractor, Spindle, 2 micron Ultra Precision ER 11 Collet System, Wrenches, Hose and Detachable Side NPT Fitting. - Optional Collets 0.5 mm - 7.5 mm available.

650L Series - *"The Body Builder"*

The robust, long body **650L (100mm) Series** delivers governed constant high speed and power under load - **25,000 to 40,000 rpm, < 0.88 hp (0.66 kW)** with double front ceramic bearings. The **650L (100mm) Series** is ideal for heavier duty applications and milling hard materials in corners in deep pockets.

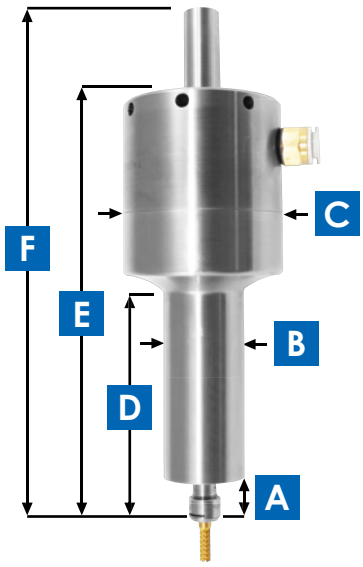
BT, CAT, DIN, HSK and JS Straight Shank (3/4" / 20mm).
Selectable rear or side airfeed.



650LHSK-A63 (100mm) Shown

Dimensions
Many integrated shank dimensions (BT, CAT, DIN, ISO, HSK) available at www.airturbinetools.com

	JS	HSK-A63	CAT40
A	0.99" (25mm)	0.99" (25mm)	0.99" (25mm)
B	1.62" (41mm)	1.62" (41mm)	1.62" (41mm)
C	3.23" (82mm)	3.23" (82mm)	3.23" (82mm)
D	5.59" (142mm)	5.59" (142mm)	5.59" (142mm)
E	8.70" (221mm)	10.45" (265mm)	10.13" (257mm)
F	10.70" (272mm)	11.51" (292mm)	12.81" (328mm)



650XLJS (100mm) Shown

The robust, long body **650XL (100mm) Series** delivers governed constant high speed and power under load - **25,000 to 40,000 rpm, < 1.40 hp (1.04 kW)** with double front ceramic bearings for heavier duty applications. The governor controlled high power **650XL (100mm) Series** maintains constant high speed for trochoidal milling in hard materials in deep pockets.

BT, CAT, DIN, HSK and JS Straight Shank (3/4" / 20mm).
Selectable rear or side airfeed.

Dimensions
Many integrated shank dimensions (BT, CAT, DIN, ISO, HSK) available at www.airturbinetools.com

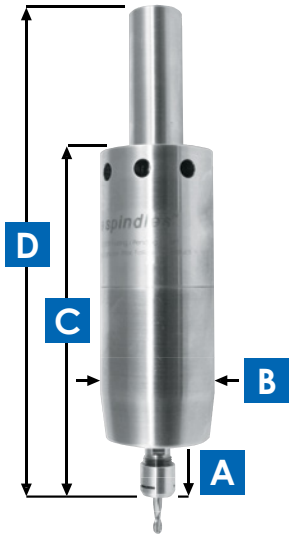
	JS	HSK-A63	CAT40
A	0.99" (25mm)	0.99" (25mm)	0.99" (25mm)
B	1.62" (41mm)	1.62" (41mm)	1.62" (41mm)
C	3.23" (82mm)	3.23" (82mm)	3.23" (82mm)
D	5.59" (142mm)	5.59" (142mm)	5.59" (142mm)
E	9.16" (233mm)	10.91" (277mm)	10.59" (269mm)
F	11.16" (283mm)	11.98" (304mm)	13.27" (337mm)

Standard Equipment: 0.3 micron Combo Filter / Extractor, Spindle, 2 micron Ultra Precision ER 11 Collet System, Wrenches, Hose and Detachable Side NPT Fitting. - Optional Collets 0.5 mm - 7.5 mm available.

602 Series - *"The Sprinter"*

The **602 Series** maintains governed constant high speeds under load - **40,000 to 90,000 rpm, < 0.20 hp (0.15 kW)**. This compact, direct drive spindle is engineered for high speed micro machining, ideal for engraving, milling, drilling and finishing with micro tools. Only 2 moving parts and air circulation over the bearings result in low heat and great reliability.

BT, CAT, DIN, HSK and JS Straight Shank (3/4" / 20mm). Selectable rear or side airfeed.



602JS Shown

Dimensions

Many integrated shank dimensions (BT, CAT, DIN, ISO, HSK) available at www.airturbinetools.com

	JS	HSK-A63	CAT40
A	0.75" (19mm)	0.75" (19mm)	0.75" (19mm)
B	1.57" (40mm)	1.57" (40mm)	1.57" (40mm)
C	4.69" (119mm)	5.55" (141mm)	6.06" (154mm)
D	6.65" (169mm)	6.69" (170mm)	8.74" (222mm)

General Specifications

Governed Speed rpm	40,000 / 50,000 / 65,000 / *90,0000
Power Rating hp (kW)	0.15 (0.11) / 0.2 (0.15) / 0.2 (0.15) / 0.2 (0.15)
Inlet Air Pressure (clean dry air only)	90 PSI (6.2 Bar)
Air Consumption Idle cfm (l/s)	4.5 (2.1) / 4.5 (2.1) / 4.5 (2.1) / 5 (2.4)
Air Consumption Working Flow cfm (l/s)	5 (2.36) - 6 (3.30)
Sound Level	Less Than 67 dBA
Max Shank Capacity	**ER 8** - 1/8" (3mm)
Spindle Weight	**JS:** 23.2 oz (0.66 kg) **CAT/DIN/BT/HSK:** 46.4 oz (1.32 kg)

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

√ = Optimum

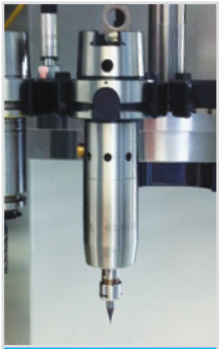
∞ = Acceptable

× = Not recommended for use

! = Dependent upon cutting conditions

Cutting Tool Guide

Drill					
Diameter	0.1 - 0.3 mm	0.3 - 0.5 mm	0.5 - 1.0 mm	1.0 - 1.5 mm	1.5 - 2.0 mm
Rating	√	∞	!	×	×
End Mill					
Diameter	0.1 - 1.0 mm	1.0 - 2.0 mm	2.0 - 3.5 mm	3.5 - 5.0 mm	5.0 - 6.0 mm
Rating	√	√	!	×	×
Jig Grinding					
Rating	×				



602HSK

Standard Equipment: 0.3 micron Combo Filter / Extractor, Spindle, 2 micron Ultra Precision ER 8 Collet System, Wrenches, Hose and Detachable Side NPT Fitting. - Optional Collets 0.5 mm - 7.5 mm available.

602X Series - *"The Sprinter - with Extra Power"*

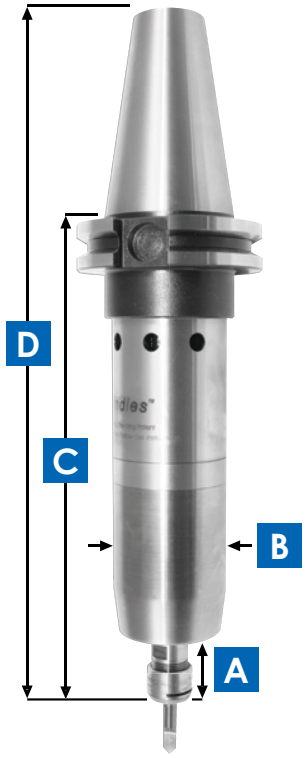
The higher power **602X Series** features our patented double turbine - **40,000 to 65,000 rpm, < 0.45 hp (0.34 kW)**. The governor in the turbine keeps the speed high as the tool engages the tool path. Ideal for engraving, milling, drilling and finishing in harder materials with micro tools. Faster cycle times and optimized tool life and performance, increase the productivity of your CNC. Reduces tool breakage and eliminates secondary finishing.

BT, CAT, DIN, HSK and JS Straight Shank (3/4" / 20mm). Selectable rear or side airfeed.

Dimensions

Many integrated shank dimensions (BT, CAT, DIN, ISO, HSK) available at www.airturbinetools.com

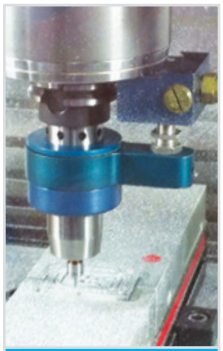
	JS	HSK-A63	CAT40
A	0.98" (25mm)	0.98" (25mm)	0.98" (25mm)
B	1.57" (40mm)	1.57" (40mm)	1.57" (40mm)
C	5.31" (135mm)	6.22" (158mm)	6.65" (169mm)
D	7.28" (185mm)	7.36" (187mm)	9.37" (238mm)



602XCAT40 Shown

General Specifications

Governed Speed rpm	40,000 / 50,000 / 65,000
Power Rating hp (kW)	0.30 (0.22) / 0.40 (0.30) / 0.45 (0.34)
Inlet Air Pressure (clean dry air only)	90 PSI (6.2 Bar)
Air Consumption Idle cfm (l/s)	4 (1.9) / 5 (2.4) / 6 (2.8)
Air Consumption Working Flow cfm (l/s)	5 (2.36) - 12 (5.66)
Sound Level	Less Than 67 dBA
Max Shank Capacity	**ER 11** - 1/8" (3mm)
Spindle Weight	**JS:** 26.4 oz (0.75 kg) **CAT/DIN/BT/HSK:** 63.2 oz (1.79 kg)



602XCAT TMA

Cutting Tool Guide

Drill					
Diameter	0.1 - 0.3 mm	0.3 - 0.5 mm	0.5 - 1.0 mm	1.0 - 1.5 mm	1.5 - 2.0 mm
Rating	√	∞	!	×	×
End Mill					
Diameter	0.1 - 1.0 mm	1.0 - 2.0 mm	2.0 - 3.5 mm	3.5 - 5.0 mm	5.0 - 6.0 mm
Rating	√	√	!	×	×
Jig Grinding					
Rating	×				

√ = Optimum

∞ = Acceptable

× = Not recommended for use

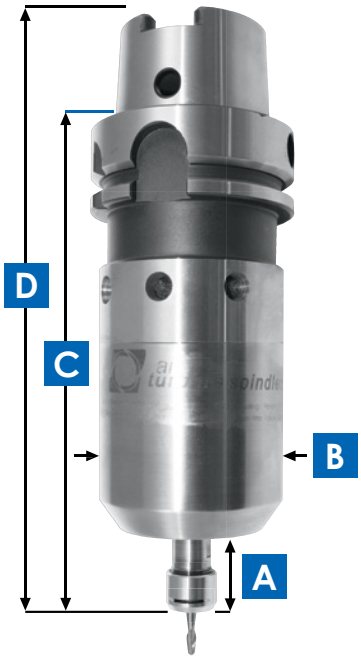
! = Dependent upon cutting conditions

Standard Equipment: 0.3 micron Combo Filter / Extractor, Spindle, 2 micron Ultra Precision ER 11 Collet System, Wrenches, Hose and Detachable Side NPT Fitting. - Optional Collets 0.5 mm - 7.5 mm available.

625 Series - *"The All-Rounder"*

The versatile and reliable **625 Series** delivers governed constant high speeds under load - **30,000 to 50,000 rpm, < 0.50 hp (0.37 kW)**. Speed up your cycle times and reduce tool breakage with the compact **625 Series**. Ideal for mold making, milling and finishing with small tools up to 1/4" / 6mm capacity. Only 2 moving parts and air circulation over the bearings, result in low heat. Get the reliability of direct drive milling with no duty cycle and no thermal expansion.

BT, CAT, DIN, HSK and JS Straight Shank (3/4" / 20mm). Selectable rear or side airfeed.



625HSK-A63 Shown

Dimensions

Many integrated shank dimensions (BT, CAT, DIN, ISO, HSK) available at www.airturbinetools.com

	JS	HSK-A63	CAT40
A	0.87" (22mm)	0.87" (22mm)	0.87" (22mm)
B	2.24" (57mm)	2.24" (57mm)	2.24" (57mm)
C	5.12" (130mm)	6.06" (154mm)	6.42" (163mm)
D	7.09" (180mm)	7.13" (181mm)	9.13" (232mm)

General Specifications

Governed Speed rpm	30,000 / 40,000 / 50,000
Power Rating hp (kW)	0.40 (0.30) / 0.45 (0.34) / 0.50 (0.37)
Inlet Air Pressure (clean dry air only)	90 PSI (6.2 Bar)
Air Consumption Idle cfm (l/s)	10.5 (4.9) / 11 (5.2) / 11 (5.2)
Air Consumption Working Flow cfm (l/s)	11 (5.2) - 20 (9.4)
Sound Level	Less Than 67 dBA
Max Shank Capacity	**ER 11** - 1/4" (6mm)
Spindle Weight	**JS:** 49.6 oz (1.41 kg) **CAT/DIN/BT/HSK:** 81.6 oz (2.31 kg)

√ = Optimum

∞ = Acceptable

× = Not recommended for use

! = Dependent upon cutting conditions

Cutting Tool Guide

Drill					
Diameter	0.1 - 0.3 mm	0.3 - 0.5 mm	0.5 - 1.0 mm	1.0 - 1.5 mm	1.5 - 2.0 mm
Rating	√	√	√	∞	!
End Mill					
Diameter	0.1 - 1.0 mm	1.0 - 2.0 mm	2.0 - 3.5 mm	3.5 - 5.0 mm	5.0 - 6.0 mm
Rating	√	√	√	∞	!
Jig Grinding					
Rating	!				

625CAT TMA

Standard Equipment: 0.3 micron Combo Filter / Extractor, Spindle, 2 micron Ultra Precision ER 11 Collet System, Wrenches, Hose and Detachable Side NPT Fitting. - Optional Collets 0.5 mm - 7.5 mm available.

625X Series - *"The All-Rounder - with Extra Power"*

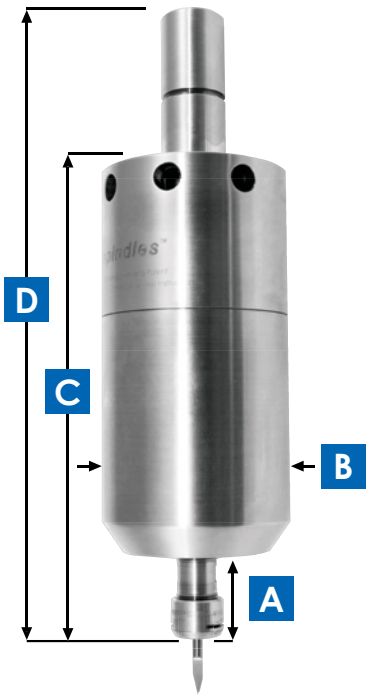
The patented double turbine **625X Series** delivers constant high speeds under load - **30,000 to 50,000 rpm, < 0.90 hp (0.67 kW)**. Speed up your cycle times with this compact and powerful spindle. Ideal for contouring, mold making, milling, finishing and drilling with small tools. Governor control maintains constant high speed and power under load. Direct drive means low heat, no duty cycle and super reliability. For heavier applications consider the **650 Series**.

BT, CAT, DIN, HSK and JS Straight Shank (3/4" / 20mm). Selectable rear or side airfeed.

Dimensions

Many integrated shank dimensions (BT, CAT, DIN, ISO, HSK) available at www.airturbinetools.com

	JS	HSK-A63	CAT40
A	0.87" (22mm)	0.87" (22mm)	0.87" (22mm)
B	2.24" (57mm)	2.24" (57mm)	2.24" (57mm)
C	5.55" (141mm)	6.50" (165mm)	6.85" (174mm)
D	7.52" (191mm)	7.56" (192mm)	9.57" (243mm)



625XJS Shown

General Specifications

Governed Speed rpm	30,000 / 40,000 / 50,000
Power Rating hp (kW)	0.8 (0.60) / 0.9 (0.67) / 0.9 (0.67)
Inlet Air Pressure (clean dry air only)	90 PSI (6.2 Bar)
Air Consumption Idle cfm (l/s)	19 (8.97) / 20 (9.44) / 20 (9.44)
Air Consumption Working Flow cfm (l/s)	22 (10.38) - 30 (14.16)
Sound Level	Less Than 67 dBA
Max Shank Capacity	**ER 11** - 1/4" (6mm)
Spindle Weight	**JS:** 64 oz (1.81 kg) **CAT/DIN/BT/HSK:** 96 oz (2.72 kg)

No Shank - 625XNS

Air feed from rear position. Sealed at front for wet environments. 57mm O.D.

Cutting Tool Guide

Drill					
Diameter	0.1 - 0.3 mm	0.3 - 0.5 mm	0.5 - 1.0 mm	1.0 - 1.5 mm	1.5 - 2.0 mm
Rating	√	√	√	∞	!
End Mill					
Diameter	0.1 - 1.0 mm	1.0 - 2.0 mm	2.0 - 3.5 mm	3.5 - 5.0 mm	5.0 - 6.0 mm
Rating	√	√	√	∞	!
Jig Grinding					
Rating	!				

√ = Optimum

∞ = Acceptable

× = Not recommended for use

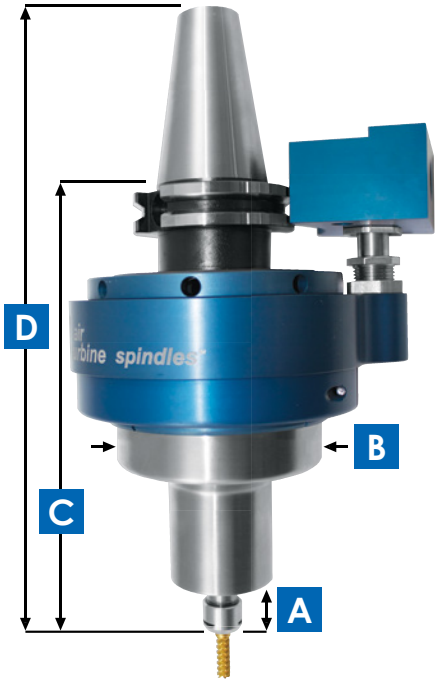
! = Dependent upon cutting conditions

Standard Equipment: 0.3 micron Combo Filter / Extractor, Spindle, 2 micron Ultra Precision ER 11 Collet System, Wrenches, Hose and Detachable Side NPT Fitting. - Optional Collets 0.5 mm - 7.5 mm available.

650 Series - *"The Workhorse"*

The **650 Series** delivers governed constant high speeds under load - **25,000 to 40,000 rpm, < 0.88 hp (0.66 kW)**. Robust and reliable, with double front ceramic bearings, the **650 Series** is ideal for heavier duty applications and milling hard materials in corners. The governor controlled turbine maintains rated high speed, optimizing tool performance and life. Effective in all materials, including tool steel, titanium and ceramic. Ultra low vibration and no heat in 24/7 operation.

BT, CAT, DIN, HSK and JS Straight Shank (3/4" / 20mm). Selectable rear or side airfeed.



650CAT40 Shown

Dimensions

Many integrated shank dimensions (BT, CAT, DIN, ISO, HSK) available at www.airturbinetools.com

	JS	HSK-A63	CAT40
A	0.87" (22mm)	0.87" (22mm)	0.87" (22mm)
B	3.23"(82mm)	3.23" (82mm)	3.23" (82mm)
C	5.79" (147mm)	7.76" (197mm)	7.20" (183mm)
D	7.76" (197mm)	8.66" (220mm)	9.88" (251mm)

General Specifications

Governed Speed rpm	25,000 / 30,000 / 40,000
Power Rating hp (kW)	0.76 (0.57) / 0.83 (0.62) / 0.88 (0.66)
Inlet Air Pressure (clean dry air only)	90 PSI (6.2 Bar)
Air Consumption Idle cfm (l/s)	13 (6.1) / 14 (6.6) / 14 (6.6)
Air Consumption Working Flow cfm (l/s)	14 (6.60) - 35 (16.5)
Sound Level	Less Than 67 dBA
Max Shank Capacity	**ER 11** - 1/4" (6mm)
Spindle Weight	**JS:** 65.8 oz (1.95 kg) **CAT/DIN/BT/HSK:** 112.8 oz (3.20 kg)

√ = Optimum

∞ = Acceptable

× = Not recommended for use

! = Dependent upon cutting conditions

Cutting Tool Guide

Drill					
Diameter	0.1 - 0.3 mm	0.3 - 0.5 mm	0.5 - 1.0 mm	1.0 - 1.5 mm	1.5 - 2.0 mm
Rating	√	√	√	√	√
End Mill					
Diameter	0.1 - 1.0 mm	1.0 - 2.0 mm	2.0 - 3.5 mm	3.5 - 5.0 mm	5.0 - 6.0 mm
Rating	√	√	√	√	∞
Jig Grinding					
Rating	√				

650CATTMA

Standard Equipment: 0.3 micron Combo Filter / Extractor, Spindle, 2 micron Ultra Precision ER 11 Collet System, Wrenches, Hose and Detachable Side NPT Fitting. - Optional Collets 0.5 mm - 7.5 mm available.

650X Series - *"The Workhorse - with Extra Power"*

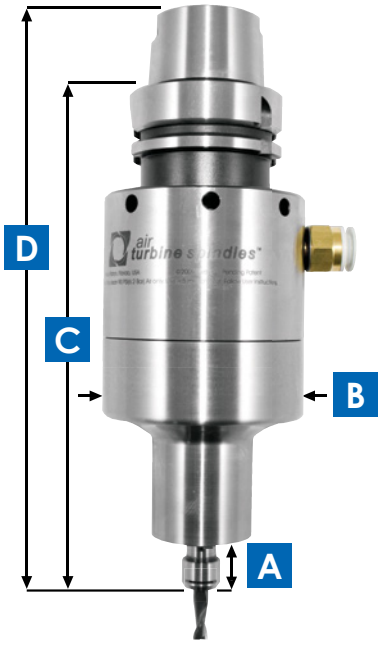
Get nonstop power and precision with the double turbine **650X Series - 25,000 to 40,000 rpm, < 1.40 hp (1.04 kW)**. The patented governor controlled high power **650X Series** maintains constant high speed for trochoidal milling in hard materials and cuts your cycle times dramatically. Double front ceramic bearings, cooled by turbine air, make this spindle robust and reliable. Mill 24/7 with No Duty Cycle and No Thermal Expansion. Eliminates secondary finishing.

BT, CAT, DIN, HSK and JS Straight Shank (3/4" / 20mm). Selectable rear or side airfeed. .

Dimensions

Many integrated shank dimensions (BT, CAT, DIN, ISO, HSK) available at www.airturbinetools.com

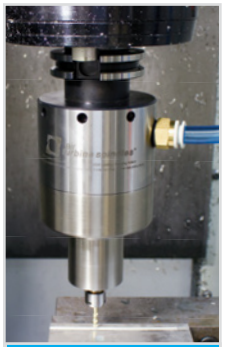
	JS	HSK-A63	CAT40
A	0.87" (22mm)	0.87" (22mm)	0.87" (22mm)
B	3.23" (82mm)	3.23" (82mm)	3.23" (82mm)
C	6.26" (159mm)	8.23" (209mm)	7.68" (195mm)
D	8.23" (209mm)	9.13" (232mm)	10.40" (263mm)



650XHSK-A63 Shown

General Specifications

Governed Speed rpm	25,000 / 30,000 / 40,000
Power Rating hp (kW)	1.2 (0.90) / 1.3 (0.98) / 1.4 (1.04)
Inlet Air Pressure (clean dry air only)	90 PSI (6.2 Bar)
Air Consumption Idle cfm (l/s)	16 (7.56) / 17 (8.02) / 18 (8.49)
Air Consumption Working Flow cfm (l/s)	19 (8.97) - 40 (18.89)
Sound Level	Less Than 67 dBA
Max Shank Capacity	**ER 11** - 1/4" (6mm)
Spindle Weight	**JS:** 75.2 oz (2.13 kg) **CAT/DIN/BT/HSK:** 118.4 oz (3.34 kg)



650XCAT

Cutting Tool Guide

Drill					
Diameter	0.1 - 0.3 mm	0.3 - 0.5 mm	0.5 - 1.0 mm	1.0 - 1.5 mm	1.5 - 2.0 mm
Rating	√	√	√	√	√
End Mill					
Diameter	0.1 - 1.0 mm	1.0 - 2.0 mm	2.0 - 3.5 mm	3.5 - 5.0 mm	5.0 - 6.0 mm
Rating	√	√	√	√	∞
Jig Grinding					
Rating	√				

√ = Optimum

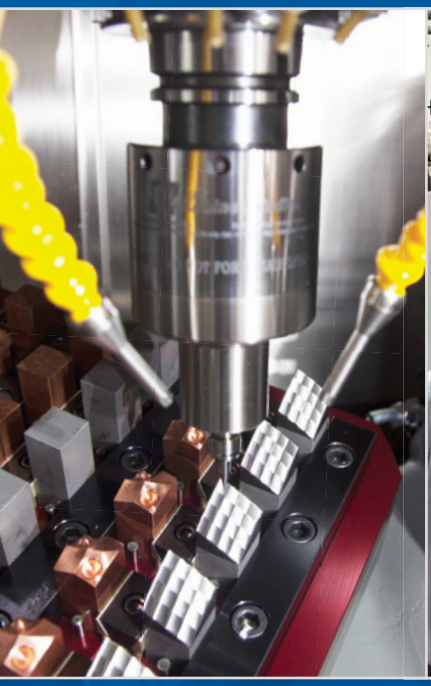
∞ = Acceptable

× = Not recommended for use

! = Dependent upon cutting conditions

Standard Equipment: 0.3 micron Combo Filter / Extractor, Spindle, 2 micron Ultra Precision ER 11 Collet System, Wrenches, Hose and Detachable Side NPT Fitting. - Optional Collets 0.5 mm - 7.5 mm available.

air turbine spindles®



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