

# SD 60124

**speed range: 500 to 20 000 rpm**  
**torque: 10 N-m [89 in-lb]**  
**power: 17 kW [22.7 hp]**  
**tool interface: HSK 40-E toolholder**

***Synchronous motor***  
***in Ø 120 mm Spindle for***  
***Ultimate Torque Output***

- High-torque, permanent-magnet synchronous motor
- Constant torque down to 200 rpm
- HSK 40-E taper toolholder system
- Grease lubrication
- Tool-in-position sensors standard



Synchronous Motor Technology

### SD 60124 Standard Equipment:

#### SD 60124 spindle



#### Documentation:

- 1 operating instruction
- 1 safety instruction
- 1 warranty registration card

#### Wrenches:

- 1 32 mm vise wrench #412576
- 1 tube wrench #412640

#### Cleaning Kit:

- 1 HSK 40 taper wiper #018009
- 1 SRP 25 taper wiper #412664
- 1 round brush #477450
- 1 straight brush #477451

### SD 60124 System Components (ordered separately):

#### Type PSS Frequency Converter:



#### Type RCS 3506 Refrigerated Cooling System:

Cat. #332689  
(230V, 1-phase, 60 Hz)



#### Type PPU Pneumatic Preparation Unit:

Cat. #333004



### SD 60124 Accessories (ordered separately):

#### Type SRP 25 Collets:



- |                     |                     |
|---------------------|---------------------|
| Cat. #412723, 3 mm  | Cat. #412762, 1/8"  |
| Cat. #412726, 6 mm  | Cat. #412763, 3/16" |
| Cat. #412728, 8 mm  | Cat. #412764, 1/4"  |
| Cat. #412730, 10 mm | Cat. #412766, 3/8"  |
| Cat. #412732, 12 mm | Cat. #412768, 1/2"  |
| Cat. #412736, 16 mm | Cat. #412770, 5/8"  |

#### Type ATC 4-40-25 Toolholder Assembly (HSK 40E):

Cat. #412638



#### Type 9120 Plane Mount:

Cat. #412705



#### Base Tubing Kit:

Cat. #411681 (for liquid cooling, and labyrinth air-seal connections)

- 5m Ø6mm tubing (#328853)
- 10m Ø8mm tubing (#328856)
- 1 tubing cutter (#329378)
- 2 adapter fittings (#330629)

#### ATC Tubing Kit:

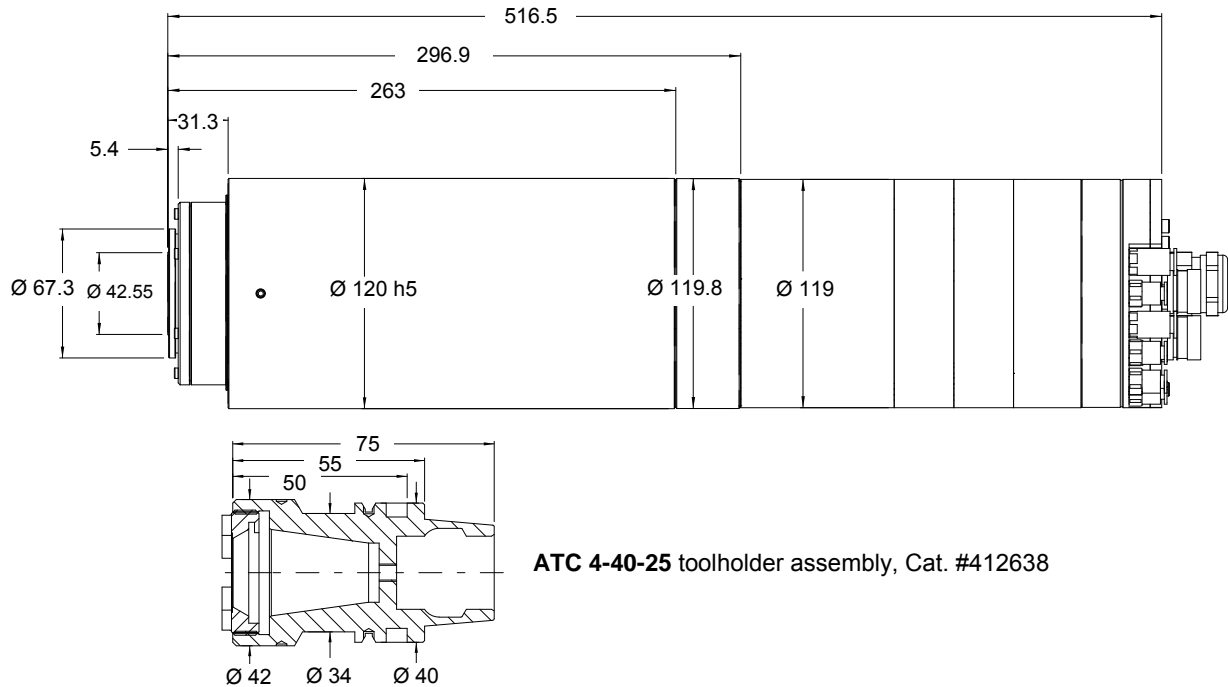
Cat. #411682 (for ATC connections)

- 15m Ø6mm tubing (#328853)

## SD 60124 Technical Data:

<b>MOTOR</b>	
Speed Range	200 – 20,000 rpm
Max. Torque (S1 – 100%)	10.1 N-m [89.4 in-lbs] at 200 - 16,000 rpm
Max. Power (S1 – 100%)	17 kW [22.8 hp] 16,000 - 20,000 rpm
Frequency	533 Hz at 16,000 rpm 667 Hz at 20,000 rpm
Voltage	320 V at 533 Hz (16,000 rpm) 350 V at 667 Hz (20,000 rpm)
Maximum Amperage (S1 - 100%)	36 A at 533 Hz (16,000 rpm) 30 A at 667 Hz (20,000 rpm)
Motor Type	AC synchronous, 3-phase, 4-pole
<b>BEARINGS</b>	
Bearings	Four (4) angular-contact, hybrid-ceramic bearings, ABEC 7/9 precision
Mounting	Front and rear duplex sets, mounted in "O" arrangement with shaft length compensation to provide constant spring pre-load ("X" arrangement mounting also available)
Lubrication	Permanent grease lubrication
Bearing labyrinth air seal	0.5 bar [7 psi] positive air pressure at bearing seal to prevent bearing contamination
<b>SHAFT DATA</b>	
Runout Accuracy	≤ 2 µm [0.00008"] radial runout in spindle taper.
Balance Quality	≤ 1 mm/sec radial vibration velocity at maximum rpm
<b>SPINDLE COOLING</b>	
Cooling	Liquid (1 part Dowtherm® SR1 to 2 parts distilled water) circulation at 24°C +/- 1°C [75 °F] through spindle housing using <b>Type 3506</b> Refrigerated Cooling System.
<b>TOOL CLAMPING</b>	
Toolholder interface	HSK 40-E clamping system with spring-loaded drawbar
HSK Clamping Force	8,000 N [1800 lb]
Toolchange (ATC)	Built-in pneumatic release cylinder, 5.5 bar [80 psi] minimum air pressure required
Toolholder Type	<b>Type ATC 4-40-25</b> toolholder (HSK 40-E)
Collets	<b>Type SRP 25</b> collets (16mm, 5/8" maximum collet capacity)
Taper Air Purge	0.3 – 0.5 bar [4 – 7 psi] air blast through taper
<b>SENSORS</b>	
Motor Protection	PTC thermistor in stator (also available with KTY or PT100)
Speed Sensing	Available with 1V sine-wave encoder or 5V TTL encoder
Tool-In-Position	Four (4) PNP proximity sensors to detect toolholder position and release-cylinder position
<b>CONNECTIONS</b>	
	<ul style="list-style-type: none"> <li>• liquid cooling (2 x Ø8mm tubes)</li> <li>• labyrinth air seal (1 x Ø6mm tube)</li> <li>• taper purge (1 x Ø6mm tube)</li> <li>• ATC (2 x Ø6mm tubes)</li> <li>• power cable</li> <li>• tool-in-position sensor cable</li> <li>• encoder cable</li> </ul>
<b>MOUNTING / WEIGHT</b>	
Mounting Diameter	Ø 120 mm h5 [4.7244" +0, -0.0006"]
Mount Type	<b>Type 9120</b> plane mount (spindles can also be special ordered for flange-mounting)
Net Weight	26.5 kg [58.3 lb]

### SD 60124 Outline Drawing



### SD 60124 Power / Torque Diagram

