AIR TURBINE SPINDLE

**HTS Series**

- **Max.** 150,000 min⁻¹ (0.5MPa)

- **Max. Power** 25W

**High Speed 150,000min⁻¹**

**Suitable for Small Diameter Milling**

- **Air Turbine**
  - Air Turbine mechanism has extremely low heat generation. Only a minimal warm up time is required ex.1-2min.

- **Collet Chuck**
  - Max. ø4.0mm

- **Large Variety of Tapers Available**
  - SHANK: M2040 (Straight), BT30 / 40 / 50
  - HSK E25 / 30 / 40 / 50
  - HSK A63 / F63

**Air Turbine**

4.4

**SMS Series**

- **Max.** 40,000 min⁻¹ (0.4MPa)

- **Max. Power** 60W (0.5MPa)

**High Cost Performance for MC High Speed Main Spindle Solution**

- **Air Motor**
  - The SMS Series use an advanced air motor system allowing for long continuous operation and no heat generation.

- **Collet Chuck**
  - Max. ø4.0mm

- **Large Variety of Tapers Available**
  - SHANK: Straight, BT30 / 40, NT30 / 40 (M)
HTS Series

Max. 150,000 min⁻¹ (0.5MPa)

Max. Power 25 W

Negligible spindle expansion
- Air Turbine mechanism has extremely low heat generation.
- Only a minimal warm-up time is required
- Up to cutting tool R x 0.1 depth of cut is possible

Highly stable milling conditions are possible even with very small diameter cutting tools
- Usable max. cutting tool diameters:
  - Ball End Mill R0.5
  - Square End Mill ø1

Dramatically shorten mold cavity machining time

Spindle Runout: Within 1 µm

Collet Chuck: Max. ø4.0mm

HTS Series Connection Drawing

Clean, lubricated, and regulated air is required for HTS Series spindles. Please refer to the diagram to the right for proper connections. AL-0304 incorporates a filter, regulator and lubricator to provide the appropriate air.

Air Turbine mechanism has extremely low heat generation. Only a minimal warm-up time is required. Up to cutting tool R x 0.1 depth of cut is possible.

Caution
- Do not rotate the machining center's main spindle with the HTS1501 spindle installed.
### "HTS SERIES" TURBINE SPINDLE

#### Air Turbine Spindle

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. Power</th>
<th>Speed</th>
<th>Spindle Runout</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTS1501S-BT30</td>
<td>25W</td>
<td>150,000</td>
<td>Within 1 µm</td>
<td>1,030g</td>
</tr>
<tr>
<td>HTS1501S-BT40</td>
<td>25W</td>
<td>150,000</td>
<td>Within 1 µm</td>
<td>1,700g</td>
</tr>
<tr>
<td>HTS1501S-BT50</td>
<td>25W</td>
<td>150,000</td>
<td>Within 1 µm</td>
<td>4,500g</td>
</tr>
</tbody>
</table>

**HTS1501S-BT30**

- Collet Chuck ø4.0 mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6 mm x 4m

**HTS1501S-BT40**

- Collet Chuck ø4.0 mm (CHA-4.0)
- Chuck Nut (CHN-AA) • Spanner (8 x 5), (9 x 11) : 1pc. each
- Filter Joint (FJ-01) • Hose (K-247) : ø6 mm x 4m

**HTS1501S-BT50**

- Collet Chuck (CHA Group) : ø0.5~ø4.0 mm See Page 13 for details

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**HTS1501S-HSK E25**

- Collet Chuck (CHA Group) : ø0.5~ø4.0 mm See Page 13 for details

**HTS1501S-HSK E32**

- Collet Chuck (CHA Group) : ø0.5~ø4.0 mm See Page 13 for details

**HTS1501S-HSK E40**

- Collet Chuck (CHA Group) : ø0.5~ø4.0 mm See Page 13 for details

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**CAUTION:**

Do not rotate the machining center’s main spindle with the HTS1501 spindle installed.
“HTS SERIES” TURBINE SPINDLE

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HTS SERIES TURBINE SPINDLE

UPGRADE MACHINING CENTERS TO HIGH SPEED MACHINES SOLUTION

Order by catalogue number.

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. Power</th>
<th>Speed (min⁻¹)</th>
<th>Spindle Runout (µm)</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTS1501S-HSK E50</td>
<td>25W</td>
<td>150,000</td>
<td>Within 1</td>
<td>1,070</td>
</tr>
<tr>
<td>HTS1501S-HSK A63</td>
<td>25W</td>
<td>150,000</td>
<td>Within 1</td>
<td>1,400</td>
</tr>
<tr>
<td>HTS1501S-HSK F63</td>
<td>25W</td>
<td>150,000</td>
<td>Within 1</td>
<td>1,380</td>
</tr>
<tr>
<td>HTS1501S-M2040 (Straight Type)</td>
<td>25W</td>
<td>150,000</td>
<td>Within 1</td>
<td>710</td>
</tr>
</tbody>
</table>

Collet Chuck (CHA Group) : ø0.5~ø4.0 mm
See Page 13 for details

Caution : Do not rotate the machining center’s main spindle with the HTS1501 spindle installed.
**AIR LINE KIT, PARTS**

**AL-0304** (For ø6mm, ø8mm Hose)

- The AL-0304 provides simple, automatic conditioning of the air supplied to NAKANISHI air motors. The filter removes water and other contaminants. The regulator maintains to proper air pressure and the lubricator ensures proper oil flow to the motor and spindle. In high humidity areas it is recommended to use an air dryer between the compressor and AL-0304.

- Filter Mesh 0.3 µm

<table>
<thead>
<tr>
<th>Part</th>
<th>Cat. No.</th>
<th>Model</th>
<th>Inside Diameter : ød</th>
<th>Fit to</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHA-2.0</td>
<td>91542</td>
<td>ø11.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHA-3.5</td>
<td>91430</td>
<td>ø3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHA-4.0</td>
<td>91440</td>
<td>ø4.0</td>
<td>HTS series · SMS series · High precision type</td>
<td></td>
</tr>
<tr>
<td>CHA-5.0</td>
<td>91495</td>
<td>ø5.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHA-6.0</td>
<td>91494</td>
<td>ø6.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHA-7.0</td>
<td>91493</td>
<td>ø7.0</td>
<td></td>
<td></td>
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<tr>
<td>CHA-8.0</td>
<td>91492</td>
<td>ø8.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Chuck Nut (CHA Group)

<table>
<thead>
<tr>
<th>Chuck Nut</th>
<th>Cat. No.</th>
<th>Model</th>
<th>Inside Diameter : ød</th>
<th>Fit to</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHN-A</td>
<td>2102</td>
<td>CHA-3.175 AA</td>
<td>ø3.175</td>
<td>SMS series</td>
</tr>
<tr>
<td>CHN-AA</td>
<td>2159</td>
<td>CHA-4.0 AA</td>
<td>ø4.0</td>
<td>HTS series</td>
</tr>
<tr>
<td>AGM-01A</td>
<td>2137</td>
<td>CHA-3.0 AA</td>
<td>ø3.0</td>
<td>SMS series</td>
</tr>
</tbody>
</table>

- Grindstone Axis

- Run-Out Accuracy : Within 0.02 mm

- For Grindstone with ø5.0 mm I.D.

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*Order by catalogue number.*