Built-in Spindle Motor achieving high performance machine tool spindle

FANUC

BUILT-IN SPINDLE MOTOR

Bi’-B series
Built-in Spindle Motor achieving high performance machine tool spindle

**FANUC BUILT-IN SPINDLE MOTOR Bi-B series**

### Features

- **Bi-B** series offers high power up to high speed range and is suitable for every kind of machine tool spindle.
- Large torque at low speed and high power at high speed achieved by speed range control
- Suitable model available for every kind of machine tool spindle from a wide range of line-up
- High response, high precision, high efficiency and lower motor loss achieved by Spindle HRV Control
- Larger torque and higher power due to efficient heat radiation of stator resin mold (Option)
- Stator with or without cooling jacket selectable for stator resin mold
- Even larger torque and higher power with copper-bar rotor (Some models)
- Water cooling available in addition to conventional oil cooling
- S6 short-time rated output equal to S3 available due to FANUC original spindle control

**FANUC BUILT-IN SPINDLE MOTOR BiS-B series**

### Features

- **BiS-B** series has two types of motor: IPM type (interior magnet) is suitable for turning with large torque at low speed and SPM type (surface magnet) is suitable for milling with high speed rotation.
- Compact size and large torque achieved with strong neodymium magnets
- Low torque ripple achieved by optimizing magnetic circuit design
- High speed and high power achieved by using Sub Module SM
- Larger torque and higher power due to efficient heat radiation of stator resin mold
- Stator with or without cooling jacket selectable for stator resin mold
- Water cooling available in addition to conventional oil cooling
System configuration

**FANUC SERVO AMPLIFIER**

*A*-B series / *A*-B series

**FANUC BUILT-IN SPINDLE MOTOR**

*B*Ⅰ-*B* series / *B*S-*B* series

Sub Module SM (only *B*S-*B* series)

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- Larger torque, higher power or lower temperature rise due to efficient heat radiation of stator resin mold (Necessary to increase chiller capacity)

[Example]

<table>
<thead>
<tr>
<th>Without Resin Mold</th>
<th>With Resin Mold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous rated output</td>
<td>34%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Without Resin Mold</th>
<th>With Resin Mold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature rise at the same output</td>
<td></td>
</tr>
</tbody>
</table>

Output specification with water cooling

- Larger torque, higher power or lower temperature rise due to higher the heat removal with water cooling (Necessary to increase chiller capacity)

[Example]

<table>
<thead>
<tr>
<th>Oil cooling</th>
<th>Water cooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous rated output</td>
<td>20%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Oil cooling</th>
<th>Water cooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature rise at the same output</td>
<td>25%</td>
</tr>
</tbody>
</table>
Maintenance and Customer Support

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