Features of Hydrostatic Lathe Spindles

- Very low friction will heat the spindle only slightly. Nearly all motor power gets to the workpiece.
- Heat that is generated is moved immediately out of the spindle area with the oil and cooled in the chiller.
- No vibration from roller bearings for extremely smooth operation.
- Excellent damping of vibration during grinding process, resulting in superior surface finish and workpiece accuracy. In addition, grinding wheels will stay sharp longer.
- Very high axial and radial stiffness, allowing required dimensions to be reached faster and more precisely. Excellent roundness of grinding diameters.
- High load capacity.
- Speed and stiffness are independent and full load turning from 0 to maximum speed is possible.
- Wear-free because there is no contact between moving parts when in operation.
- No loss of accuracy, even under full load at maximum speed.
- Less sensitive to chips and other debris because the bearings are cleaned continuously with hydrostatic oil.
- Gap is sealed with a compressor air lock which keeps the oil in the spindle and keeps machining coolant and chips out.
- The spindle is supplied with a properly sized hydraulic power unit with chiller. The system is designed to protect the internal bearings should electrical power fail.
- The spindle can be driven by belt, direct drive, or as a motor spindle.
- Static and dynamic bearing forces from the cutting force or unbalance of the workpiece can be detected by measuring the pocket pressure.
- The hydrostatic lathe spindle is especially well suited to horizontal or vertical turning machines or for mill/turning machines.
- The hydrostatic spindle can be adapted to specific machining force and torque requirements.

Technical Data of the Main Spindle, Size A8

<table>
<thead>
<tr>
<th>Features</th>
<th>radial front</th>
<th>radial rear</th>
<th>axial front</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearing diameter</td>
<td>120 mm</td>
<td>110 mm</td>
<td>125/160 mm</td>
</tr>
<tr>
<td>Number of pockets</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Loadability</td>
<td>Fr = 10000 N</td>
<td>Fr = 8000 N</td>
<td>Fa = -3750/-2400 N</td>
</tr>
<tr>
<td>Load reserve</td>
<td>&gt;100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Stiffness</td>
<td>Cr &gt; 900 N/µm</td>
<td>Cr &gt; 800 N/µm</td>
<td>Ca &gt; 800 N/µm</td>
</tr>
</tbody>
</table>

Higher speed, load, and other sizes are available.