SPHERICAL ROLLER BEARINGS

NSK Tough and Long Life (TL) Series of Spherical Roller Bearings are ideally designed for the high temperature and high speed conditions of paper machine dryer and calender applications. With an innovative steel composition and special heat-treatment that offers superior dimensional stability and resistance to inner ring fractures, TL Spherical Roller Bearings provide utmost performance reliability, bearing life, and critically important machine up-time.

PROVEN BENEFITS

› More than twice the service life of conventional bearings in contaminated operating conditions
› High resistance to hoop stress from rising shaft temperatures
› Greater dimensional stability at temperatures as high as 200°C
› Reduced fracturing of inner rings
› Reduced downtime and maintenance costs

CONDITIONS:

- **HT** HIGH TEMPERATURE
- **CO** CONTAMINATION
- **SE** SHAFT EXPANSION
**DESIGN FEATURES**

- Manufactured with an innovative steel composition
- Special heat-treatment process
- High strength inner and outer rings
- Available in a wide range of sizes with high strength machined brass cage; pressed steel cage options can also be produced
- Increased hardness of raceway surface promotes longer service life
- Dimensionally stabilized for operating temperatures up to 200°C
- Available from 65 to 530 mm bore diameter

**DRYER ROLL APPLICATION**

- Steam is passed through the roll to heat it
- The journal expands faster than the bearing, making the fit tighter
- Severe hoop stress on the inner ring is repeated every time the machine is started
- Inner ring fracture is a common problem

**APPLICATIONS**

- Paper Machinery
  - Dryer section
  - Calender rolls

**DESIGN SPECIFICATIONS**

<table>
<thead>
<tr>
<th>TL*</th>
<th>231</th>
<th>52</th>
<th>CA</th>
<th>G3</th>
<th>M</th>
<th>K</th>
<th>C4</th>
<th>W507</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUGH AND LONG LIFE MATERIAL</td>
<td>DIMENSIONAL SERIES</td>
<td>BORE REFERENCE NO.</td>
<td>INTERNAL CAGE DESIGN</td>
<td>CARBURIZED STEEL</td>
<td>CAGE</td>
<td>BORE TYPE</td>
<td>INTERNAL CLEARANCE</td>
<td>SPECIFICATION</td>
</tr>
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<td>TL: tough and long life</td>
<td>222, 223, 230, 231, 232, 239, 240, 241</td>
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<tr>
<td>BORE DIAMETER</td>
<td>From 65 to 380 mm</td>
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<td></td>
<td></td>
<td>Blank: Cylindrical</td>
<td>Blank: normal</td>
<td>M: heavy-duty machined brass</td>
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<tr>
<td>INTERNAL CAGE DESIGN</td>
<td>CA, EA, C, CD</td>
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<td></td>
<td></td>
<td>Blank: normal</td>
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<td>Blank: high-strength pressed steel</td>
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</tr>
<tr>
<td>CARBURIZATION</td>
<td>g: complete bearing</td>
<td>g3: inner ring</td>
<td></td>
<td></td>
<td></td>
<td>g3: inner ring</td>
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</tr>
</tbody>
</table>

* TL is etched on bearing and displayed on box label. TL is not listed as a part of the distributor part number or abbreviated part number (APN).