

# NSK



## TL 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 uptime.

### 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 TEMPERATURES

**CO** CONTAMINATION

**SE** SHAFT EXPANSION

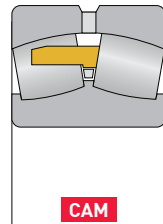
### APPLICATIONS

- › Paper Machinery
  - › Dryer section
  - › Calender rolls

STAY IN MOTION. STAY IN CONTROL.

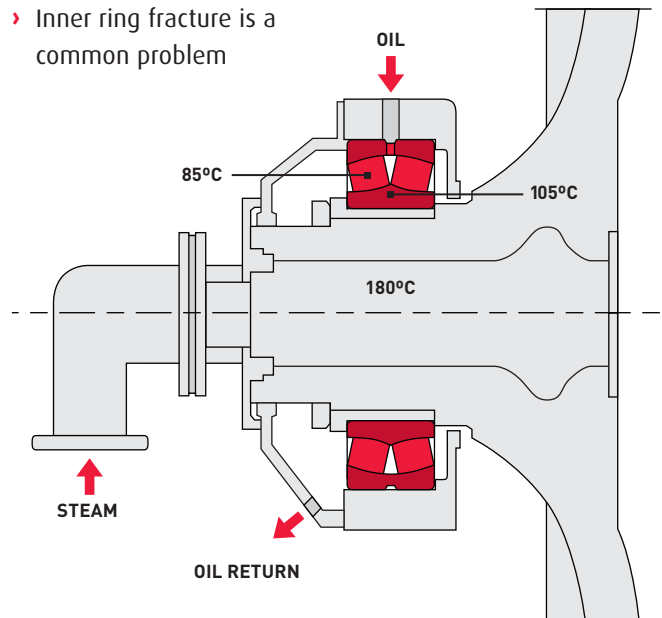
## DESIGN FEATURES

- › 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 500 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



## DESIGN SPECIFICATIONS

Tough and Long Life Material	Bore Reference No.	Carburized Steel	Bore Type	Specification				
TL*	231	52	CA	G3	M	K	C4	W507
Dimensional Series	Internal Cage Design	Cage	Internal Clearance					

\* 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).

<b>Material</b>	TL: tough and long life
<b>Dimensional Series</b>	222, 223, 230, 231, 232, 239, 240, 241
<b>Bore Diameter</b>	From 65 to 500 mm
<b>Internal Cage Design</b>	CA, EA, C, CD
<b>Carburization</b>	g: complete bearing g5: inner and outer ring g3: inner ring

<b>Cage</b>	M: heavy-duty machined brass Blank: high-strength pressed steel
<b>Bore Type</b>	Blank: cylindrical    K: 1:12 tapered    K30: 1:30 tapered
<b>Internal Clearance</b>	Blank: normal    C3: > normal    C4: > C3    C5: > C4
<b>Special Features</b>	S11: Both rings heat stabilized to 200°C P55: Both rings ABEC5 running accuracy W507: S11, lubrication groove and holes - outer ring (E4), special packaging (W31) W509: S11, lubrication groove and holes - inner and outer ring (E7), special packaging (W31)