

NTN's Engineering Triples Uptime of Paper Machine Couch Roll

A major Canadian producer of containerboard was experiencing catastrophic failures of the spherical roller bearings on the large suction couch roll in the wet end of their paper machine. Failures were occurring every *two months* resulting in the mill shutting down its sole paper machine for over six hours each time it needed repair.

NTN's applications engineering team conducted a detailed bearing failure analysis of the couch roll and discovered multiple reasons for the failures. First, loose housing fits allowed the bearing's rotating outer rings to move relative to the housings during operation. This resulted in heavy outside diameter wear, fretting corrosion and cracking. Additionally, evidence of thrust load was observed and could be linked to a tight inner ring fit that did not allow for proper shaft expansion. Finally, moisture from the wet operating environment was getting into the bearings past the brass spacer rings and significantly degraded the lubricant and bearing performance.

The NTN Solution

NTN's team recommended the correct press fit for the bearing's rotating outer ring and loose inner ring fit for the stationary shaft. NTN engineering also recommended a new design for the brass spacer rings being used to remove a keyway slot that was an open channel for water to get into the bearing. Lastly, NTN advised the mill to use a higher viscosity grease with water inhibiting characteristics to better withstand the wet conditions.

The Result

The NTN solution lasted *three times longer*, operating for six months between roll rebuilds. The mill has been completely satisfied and specifies NTN ULTAGE® spherical roller bearings for this demanding application.



VALUE ADDED BREAKDOWN

INCREASED PRODUCTIVITY

\$150,000*

INCREASED BEARING LIFE

\$15,480*

DOCUMENTED COST SAVINGS

\$165,480*

Cost001749



NTN ULTAGE® SPHERICAL ROLLER BEARINGS

Heavy-duty, misaligned rotating equipment require uniquely designed products.



- **18% higher load capacity** than standard spherical roller bearings due to the maximum quantity of longer rollers
- **Up to ±2° misalignment capability** because of spherical raceways in outer ring
- **20% increase in speed rating & 30% reduction in friction torque** as a result of superior surface finish on rollers and raceways
- **75% increase in bearing life** due to high-quality bearing steel and a distinctive quenching & tempering heat treat process that reduces fatigue, wear and shock
- **Wide range of sizes** from a 25 mm/0.984" bore up to a 2180 mm/85.826" OD available

Don't let downtime cut into your profits.

We're here to help you achieve your productivity and performance goals. For more information, contact your NTN Sales Representative or **call 1.800.323.2358**. For technical questions, **email eng@ntnamerica.com**.

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