

# 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\***

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**ANNUALIZED COST SAVINGS**  
**\$165,480\***

\* All monetary amounts listed in Canadian dollars

# ULTAGE<sup>®</sup>

## SPHERICAL ROLLER BEARINGS

Combining premium-grade materials, optimized design and precision manufacturing, ULTAGE is the new generation of high-performance bearings from NTN that delivers unmatched service life, the highest limiting speeds and the best load capacities on the market to maximize the productivity of your equipment.

ULTAGE spherical roller bearings combine cutting-edge product research, premium-grade materials, and an optimized internal and external design to greatly extend bearing life. The result is greater profitability for our customers thanks to improved uptime and productivity.

- **Made from premium-grade steel and larger rollers**, ULTAGE SRBs provide a 65% increase in capacity compared to a conventional bearing, resulting in up to 5 times longer service life. In addition, ULTAGE SRBs provide up to 35% greater basic static load rating compared to conventional bearings.
- **ULTAGE SRBs contain an optimized surface finish** and incorporate high-performance, window-type pressed steel cage without the center guide ring for higher rigidity, stability, and better lubrication flow through the bearing. All these design features allows for a 20% higher limiting speeds when compared to conventional designs, reducing operating temperatures that extend lubrication intervals and keep production lines running longer.
- **Our special heat treatment process** allows for dimensional stability of the bearing up to 200°C (392°F) all while maintaining high hardness. The combination of high temperature stability and high hardness allows the bearing to achieve a longer life, thus reducing down time and increasing production.
- **Manufactured in our state-of-the-art facilities** which maintain consistently tighter tolerances through production, ULTAGE spherical roller bearings feature an optimized design that enables higher loads and faster rotational speeds. Besides allowing machines to run at maximum productivity, the improved design reduces heat generation for extended grease life and improved uptime, compared to conventional bearing designs.

## 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 **1-888-412-4122**. For technical questions, email [techsupport@ntn.ca](mailto:techsupport@ntn.ca).

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## Beyond Bearings

Training. Installation Support.  
Trouble-shooting. And more.

When you choose NTN, your team is equipped with all the necessary tools and resources to get the job done right. From installation to problem-solving, we'll be there with the hands-on support you need to take on your toughest challenges. This includes extra services such as:



### Technical Training Unit

On-site, mobile training unit offering specialized, hands-on instruction from NTN engineers



### Product Training School

Three days of in-depth instruction from NTN engineers at headquarters  
([go.ntnamerica.com/trainingschool](http://go.ntnamerica.com/trainingschool))



### eKnowledge

WEB-BASED TRAINING PROGRAM

Six online product training modules covering different bearing types and nomenclature  
([www.ntnamerica.com/eknowledge](http://www.ntnamerica.com/eknowledge))



### NTN Bearing Finder

Customizable search tool featuring exhaustive data sets, comprehensive part interchanges and interactive CAD drawings  
([bearingfinder.ntnamerica.com](http://bearingfinder.ntnamerica.com))