

# NTN's LLU Seals Expected to Triple Uptime at Cold Rolling Mill

A major US-based steel mill was experiencing bearing failures on the anti-crimping and anti-flutter rolls in its cold rolling mill. These failures would force the mill to stop running in order to change out the roll. It is estimated that it cost the mill about \$33,000 per roll failure.

The mill previously had another bearing company evaluate its operation. This bearing company changed the design of the bearing from an open type deep groove ball bearing to a spherical roller bearing and while this did provide a slight increase in bearing life, constant failure still occurred.

NTN's Engineering and Sales support team reviewed the anti-crimping and anti-flutter roll operation and assessed the failed bearings. The bearings were only lasting 4 months but should have been seeing significantly longer life.

## The NTN Solution

NTN's team of experts determined that the competitor's spherical roller bearing would never achieve its expected life for this application due to light loads and water ingression. After analyzing various sealing options and considering added torsional stress on upstream drives, NTN's metal mill experts selected our LLU seal in an effort to maintain smooth operation while minimizing water ingression and optimizing added friction.

## The Result

The NTN solution is still running with no end in sight! Our full contact LLU sealed deep groove ball bearing has successfully run longer than the conventional open-type solution, as well as the competitor's spherical roller bearing, and is estimated to triple the uptime!

The increased bearing life, decreased downtime and reduced acquisition cost have all added to over \$477,000 in annual cost savings. The mill has maintained its satisfaction with NTN products and service and continue to break production records with NTN products supporting the load.



## VALUE ADDED BREAKDOWN

UPTIME IMPROVEMENT

**\$396,000**

REDUCED ACQUISITION COST

**\$81,214**

DOCUMENTED COST SAVINGS

**\$477,214**

CS0322



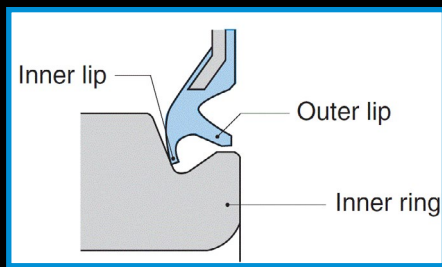
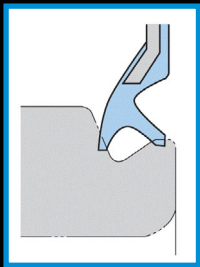
# NTN LLU SEALED DEEP GROOVE BALL BEARINGS

## Grooved Type Sealing Figure for Excellent Performance (All Models)

A v-shaped groove is cut around the inner ring. Under centrifugal force, the outer surface of the 'v' acts to keep out dirt; the inner surface of the 'v' acts to seal in the grease.

## Double-Lip Seal Adjusts to Wear (LLU Spec)

The inner lip of a double-lip seal is pressed against the inside surface of the V-groove; the outer lip is spread open by the elastic force of rubber to create a small gap between the outer lip and the inner ring. Should the inner lip wear, the contact pressure will decrease; however, the outer lip will get closer to the inner ring. In effect, a constant degree of sealing will be maintained; and, as a result, bearing service life will be noticeably lengthened.



## 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



### eKnowledge

WEB-BASED TRAINING PROGRAM

Six online product training modules covering different bearing types and nomenclature



### NTN Bearing Finder

Customizable search tool featuring exhaustive data sets, comprehensive part interchanges and interactive CAD drawings

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