NSK CASE STUDY

INDUSTRY

PAPERMAKING

APPLICATION

CALENDER ROLL

COST SAVINGS: $377,225 (5 YEARS)

A major paper mill was experiencing problems with its calender rolls, where multiple cracks were developing on the inner rings of the roll bearings. Frustrated by experiencing up to 10 failures annually, which led to excessive downtime and maintenance, the mill invited NSK's team of experts to investigate and resolve the issue. As part of NSK's Added Value Program AIP, a comprehensive application review revealed that a competitor's standard spherical roller bearings being used in the calender roll did not feature carburized inner rings, leaving them vulnerable to the high heat and thermal stress in the application.

KEY FACTS

- Application: Calender roll (Country: USA)
- End-product: paper
- Number of machines: 1
- Status: still in operation after 5 years
- Problem: High bearing failure rate
- Objective: Decrease change outs and downtime

VALUE PROPOSALS

- NSK investigated the application and inspected the competitor's failed bearings
- NSK collaborated with the mill engineer toward the goal of replicating NSK successes earned at mills experiencing similar, related issues
- The use of NSK's TL (Tough and Long Life) design spherical roller bearings, with innovative material and heat treatment technology, was recommended
- Bearings were installed and have run 5 years without failure

PRODUCT FEATURES

NSK's TL series spherical roller bearings are ideally designed for paper machine dryer roll applications - and wherever elevated temperatures prevail - optimizing machine uptime and efficiency with superior resistance to inner ring fracture and exceptional dimensional stability at high temperatures.

- Optimized, high capacity internal design
- Inner rings manufactured with proprietary TL steel composition and heat-treatment process
- Superior dimensional stability for operating temperatures as high as 200°C
- Service life is more than twice that of conventional bearings operating under contaminated conditions
- High strength resistance to hoop stress and inner ring cracking
- High raceway surface hardness promotes a wear resistant, long service life
- Dramatically reduced incidents of bearing failure translate into extended uptime, reduced maintenance costs and increased machine throughput

NSK TL-Series Spherical Roller Bearing

COST-SAVINGS BREAKDOWN

		SAVINGS
› Downtime	4 hours @$1,500/hr x 5/yr x 5 years	$150,000
› Bearing life	Reduced bearing usage from 10 to 5 annually	$227,225
TOTAL SAVINGS (5 YEARS)		**$377,225**

YOUR PARTNER FOR MACHINE OPTIMIZATION

Our AIP Added Value Program is based around a simple proposition: 'improvement pays'.
By working with you throughout the AIP Value Cycle, we will help you achieve improvements in machine reliability, productivity and performance, all of which carry a tangible and measurable cost benefit – and we have the tools to prove it! That's what we mean by **improvement pays**.

aip NSK experts