

WORKING THE PROBLEM, OPTIMIZING UPTIME

EXTRA-CAPACITY SUPER-TF FOUR ROW WORK ROLL BEARINGS

THE PROBLEM

A major steel producer approached NSK experts with the challenge to extend replacement intervals for the four row tapered roller bearings supporting the work rolls of their hot strip mill. Under relentlessly severe mechanical and environmental operating conditions, bearings were achieving a maximum of 1,400 hours before requiring replacement at significant machine downtime, bearing replacement and maintenance costs to the mill.

THE SOLUTION

With Extra-Capacity Super-TF Four Row Tapered Roller Bearings, NSK experts were able to meet the customer challenge with outstanding durability derived from advanced material and heat treatment technologies as well as an optimized internal design that delivers considerably higher load capacity. Upon installation, bearing life was extended to 2,200 hours.

REDUCED PRODUCTION LOSS:

\$154,400

by reducing incidents of
machine downtime

REDUCED MAINTENANCE:

\$10,700

with longer bearing life extending
maintenance intervals

TOTAL COST SAVINGS:

\$165,100

with reduced production loss
and maintenance costs



BREAKING THE BEARING FAILURE CYCLE WITH NSK EXPERTS

As hot strip steel passes through rolling stands to reduce and alter its shape and length, the supporting work roll bearings must endure relentless punishment in the form of high heat, heavy radial and impact loads, high speeds with frequent and rapid acceleration and deceleration, and the constant exposure to water, mill scale and metal particle contamination.

Withstanding these manifold mechanical and environmental stresses proved to be an overwhelming challenge for the bearings previously installed in this case.

After conducting an application review and bearing failure analysis, NSK experts determined that conversion to Extra-Capacity Super-TF work roll bearings would deliver longer wear resistance with advanced material integrity as well as higher load capacity with the modified contact angles of its optimized internal design.

Once installed, the bearings increased the reliability of the stands and the MTBF by nearly 60% at significant savings to the mill.

A SUPER-TOUGH, LONG-LIFE SOLUTION WITH NSK TECHNOLOGY

NSK Extra-Capacity Tapered Roller Bearings are engineered with long-life Super-TF steel to deliver significantly higher durability and wear resistance in contaminated lubrication conditions. And for utmost reliability and operating life amid aggressive environments, NSK's Sealed-Clean design offers improved heat- and water-resistant sealing protection, promoting reduced grease consumption and reduced maintenance costs.



Long-life alloy composition and carbonitriding technology delivers higher hardness and compressive stress to resist progressive debris damage / crack initiation



Higher load capacity derived from optimized internal design, as much as 35% greater than conventional bearings



Sealed-clean option with advanced heat- and water-resistant seals extends bearing life, significantly reducing grease consumption and corresponding maintenance downtime costs

YOUR PARTNER FOR MACHINE OPTIMIZATION

With our Asset Improvement Program and collaboration with NSK experts, customers embark on a critical path to achieving optimal performance and service life from their bearing assets. And to realizing lasting improvements to people, processes and machinery that equate to measurable gains in reliability and productivity.

