

Success Story

Industry: Steel and Metals

Application: Plate Rolling Mill

Cost Savings: € 46 904

Introduction

A major steel manufacturer was using open roll work bearings for their plate rolling mill. The maintenance team was investigating alternatives to the grease being used in this application. NSK was asked to provide a potential alternative for the bearing application with associated cost savings. By using an NSK Sealed Clean 4 row tapered roller bearing assembly the customer's need for daily re-greasing was removed. This had the added benefits of reduced grease disposal costs, continuous operation and protected the bearing from external contamination.

Key Facts

- Plate Rolling Mill
- Open roll bearings required daily maintenance
- Efficiency improvement
- NSK solution: Sealed Clean technology
- Improved grease retention
- Improved bearing protection
- Large cost savings made by reducing grease consumption and maintenance time



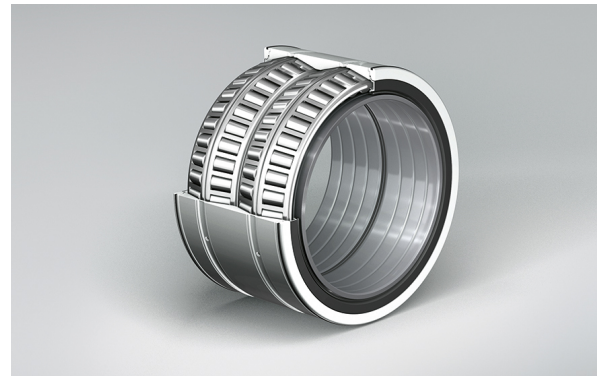
↑ Plate Rolling Mill

Value Proposals

- Analysis of the existing bearings showed that grease retention and maintenance were a major issue
- NSK Engineers were able to select Sealed Clean bearing options together with improved material technology
- Consideration of the existing bearing set up allowed NSK to make recommendations on best fit and appropriate bearing design
- Technical support was then provided to trial the proposed bearing arrangement
- Results showed a significant reduction in grease usage

Product Features

- Super-TF or WTF steel material
- Newly designed bearing internal geometry - wider cage diameter, increased number of rollers & larger rollers
- Higher load capacity due to newly designed bearing internal geometry and special seal
- Seals: New type of lateral seal, new bore seal
- Main seal and seal holder are of a more compact design
- Special helical groove to prevent creeping on the roll neck shaft
- New type of bore seal prevents the build-up of negative pressure that can cause the entry of water through the main seals
- Super-TF steel provides significantly longer service life under heavily contaminated operating conditions
- WTF steel provides significantly longer service life under water and metallic contamination
- Sealed-clean solution significantly reduces grease consumption



↑ Tapered Roller Bearings - 4 rows - Long Life

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 Cost of greasing current open bearings: 1.2 times per day bearings greased × 4kg of grease × €4/kg cost of grease × No. of bearings × 350 days	€26.987	Cost of NSK Sealed Clean design: bearings × 6kg of grease during re-grease × €13,36 cost of grease recommended by NSK	€642
 Cost of used grease disposal (per mill staff)	€ 20.625	Cost of grease disposal (per re-grease)	€66
Total Costs	€ 47 612		€ 708