

Success Story

Industry: Steel and Metals

Application: Rotary Coal Valve

Cost Savings: € 292 136

Introduction

A customer was experiencing regular catastrophic failures on a bearing fitted to a rotary coal valve in an Ore Preparation Plant. This occurred up to three times in one year resulting in significant lost production costs and damage to associated components. NSK Engineers carried out an application review identifying the current bearing design was inadequate for the high temperatures involved. NSK recommended a customised RHP HLT bearing insert within a Self-Lube® cast iron FC housing together with a special heat isolating spacer. A trial was conducted with NSK Applications Engineering overseeing the correct fitting of the bearing units within the application. The NSK bearings fitted ran for over 12 months with no bearing failure. In addition the need for compressed air cooling was removed. This resulted in a large overall cost saving for the customer.

Key Facts

- Rotary Coal Valve
- Overheating of bearings
- Incorrect Lubrication amounts and frequencies
- NSK Solution: RHP HLT bearing insert within a Self-Lube® cast iron FC housing, with NSK bespoke designed adaptor plate with additional heat resistant material ring
- Significant cost saving generated by prolonged bearing life and by removing the unnecessary compressed air cooling



↑ Rotary Coal Valve

Value Proposals

- NSK engineering conducted an Application Review including a Temperature Survey and a Bearing Condition Report
- NSK engineers recommended RHP HLT bearing insert within a Self-Lube® cast iron FC housing, with NSK bespoke designed adaptor plate and additional heat resistant material ring. Plus suggested changes in the lubrication amount and intervals
- Trial conducted, with NSK Engineering overseeing the installation and implementation of NSK recommendations
- The customer benefited from increased productivity, reduced maintenance costs and the removal of compressed air resulting in a significant cost saving

Product Features

- Special internal geometry; C5 internal clearance
- High performance Klueber grease
- Durable silicone rubber seals
- Steel cage material
- Interchangeable with standard Self-Lube® inserts
- High performance grease and effective lubrication at extreme temperatures, with upper and lower limits of -40°C and +180°C
- Efficient sealing and protection at extreme temperatures (-40°C and +180°C)
- Steel cage and special internal features designed to function at temperature extremes
- Increase radial clearance (C5) between balls and raceways to help prevent radial preload



↑ RHP HLT Self-Lube® Bearing Unit

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 €8.400/hour x 8 hours shift x 3 times per year	€ 201.600	No downtime	€ 0
 €42/hr x 8 hours shift x 2 engineers x 3 times per year	€ 2.016	€42/hr x 8 hours shift x 2 engineers	€ 672
 Cost of bearings x 3 times per year	€ 357	Cost of bearings once per year	€ 119
 Cost of compressed air per year	€ 88.954	No compressed air used	€ 0
Total Costs	€ 292 927		€ 791