

## Success Story

Industry: Quarrying, Mining and Construction

Application: Autoclave Bogie Wheel Assembly

**Cost Savings: € 138 382**

### Introduction

A customer was experiencing constant bearing failure within an Autoclave bogie wheel assembly, using Deep Groove Ball Bearings. The failures resulted in damage of surrounding hardware ( housings and axles) and high labour and parts cost, as components needed regular replacement. NSK Engineers examined the application and determined that ingress of hard particulates and moisture, combined with excessive load was the root cause of premature bearing failure. NSK recommended changing to NSKHPS Spherical Roller Bearings, which gave better service life and greater reliability, as NSKHPS roller bearings carry greater loads and operate at higher temperatures. This resulted in eliminating continuous ongoing contractors maintenance and substantially reducing colateral damage to surrounding components.

### Key Facts

- Autoclave Bogie - wheel Assembly
- High loads and high temperature combined with contaminated environment causing standard deep groove ball bearings to fail prematurely
- Constant bearing failure resulted in damage to surrounding hardware and high labour costs
- Bearings within 10 axles replaced every 2 - 3 weeks
- NSK Solution: NSKHPS Spherical Roller Bearings
- Extended lifetime resulted in zero maintenance requirements and significant reduction in hardware colateral damage



↑ Autoclave Bogie Wheel Assembly

### Value Proposals

- The customer experienced constant failures in a Autoclave Bogie wheel assembly
- NSK engineers performed a Failed Bearing Analysis which showed ingress of contaminants from the production process, moisture and excessive load as the cause
- An Application Review showed that the existing Deep Groove Ball Bearings were inadequate
- NSK recommended NSKHPS Spherical Roller Bearings
- Since introduction, the bearing life has significantly improved, which has resulted in significant reduction of Hardware damage and eliminating maintenance, providing a large cost saving for the customer.

## Product Features

- Highest load rating SRB's which enables downsizing
- Optimum raceway design & surface finishing
- Brass cage design (CAM) or strengthened steel cage (EA)
- High cleanliness Z-steel
- Temperature stability: up to 200° C
- 40 mm to 260 mm bore size
- Up to twice the operating life
- Up to 20% higher limiting speed
- Dynamic load rating: 25% higher
- Lower maintenance cost and improved productivity



↑ NSK HPS Spherical Roller Bearing

## Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 Bearing Costs: Deep Groove Ball Bearings	€ 15.142	Bearing Costs: NSK HPS Spherical Roller Bearings	€ 3.120
 Annual Maintenance Costs: 2040 hours @ €26/hour	€ 53.040	Annual Maintenance Costs:	€ 0
 Annual Hardware Costs: Replacement of damaged bearing housings and axles	€ 77.220	Annual Hardware Costs: Bearing housings and axles	€ 3.900
<b>Total Costs</b>	<b>€ 145 402</b>		<b>€ 7 020</b>