

Success Story

Industry: Quarrying, Mining and Construction

Application: Concrete Floor Manufacturing Unit

Cost Savings: € 68 607

Introduction

The customer was experiencing regular bearing failure on a concrete floor manufacturing machine. This caused extensive downtime with associated lost production and high maintenance costs. This was of serious concern to management and a solution was needed urgently. NSK investigated the machine and found that the main problem was with the cassettes due to poor wheel design, incorrect bearing selection and ingress of contamination. NSK produced a complete redesigned wheel hub and stub axle assembly including a sealed roller bearing assembly which was specifically selected for the loads in the machine. As a consequence failure rates reduced from 20 a year to zero.

Key Facts

- High value manufacturing process with arduous conditions
- Regular failure of the machine causing high maintenance and lost production costs
- Current bearing incorrectly selected allowing ingress of contaminants
- NSK designed a complete new hub assembly including a sealed roller bearing unit
- The customer re-designed the machine to accept the new assembly
- Failures reduced from 20 a year to zero



↑ Concrete Floor Manufacturing Unit

Value Proposals

- Investigation of failed bearings showed that the cause of failure was incorrect selection and ingress of contamination
- NSK conducted a machine design review and produced a new hub assembly proposal
- By incorporating NSK Full Compliment sealed bearing units, secured by circlips in the outer ring, the load rating was increased and the integral seals provided increased protection for the bearings
- The customer followed NSK design proposals and produced a new shaft and housing
- NSK also provided on site consultation detailing lubrication and assembly best practice
- Machine failures were reduced from 20 per year to zero.

Product Features

- Improved contact seals
- High load rating
- Highly corrosion resistant phosphate coating
- Easier grease re-lubrication due to inner and outer ring re-lubrication holes
- Bearings pre-greased with Lithium grease
- Can be fitted with DIN 471 snap rings
- Contact seals prevent ingress of foreign particles or water
- Increased radial and axial capability
- Re-lubrication holes for easy maintenance and grease replenishment
- Can be used in external environments due to phosphate coating
- Snap ring (DIN 471) can be applied to the outer ring



↑ Full complement Cylindrical Roller Bearing Unit with seals

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 Lost production: 20 hrs / year @ €3.083	€61.650	No lost production costs	€0
 Parts cost, old bearings + 16 hub & stub axle units	€5.732	Parts cost, new bearings	€296
 Maintenance costs: (€ 41,10/h @ 20 hrs) + technical support & engineering time	€1.850	Maintenance costs: (€ 41,10/hr @ 8 man hrs) Technical support & engineering time no longer required	€329
Total Costs	€ 69 232		€ 625