

Success Story

Industry: Material Handling

Application: Crane Application in Distribution Centre

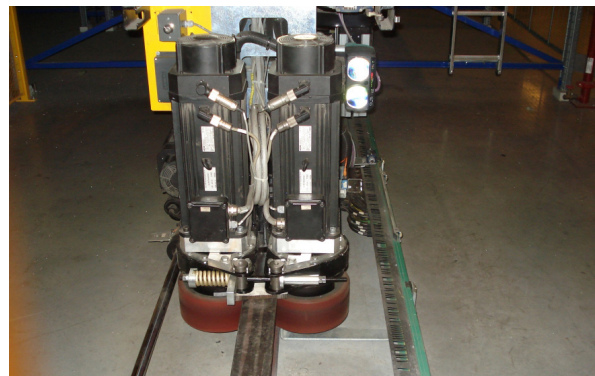
Cost Savings: € 58 176

Introduction

A customer was experiencing regular wheel bearing failure and loss of grease from the bearings in an automated crane application, within a product distribution centre. The customer had to change 40 wheel hub units over a 5 year period. NSK carried out a bearing failure analysis confirming that the wheel bearings were suffering from lubrication starvation and radial pre load. To overcome this, NSK recommended the use of pre-greased NSK Sealed Double Row Angular Contact Bearings with an increased radial internal clearance of C3. A trial of 8 wheels, using the modified crane wheel assemblies with NSK bearings, was carried out with no bearing failures reported over 12 months. The solution increased productivity and reduced maintenance costs resulting in a significant cost saving.

Key Facts

- Material handling and warehousing
- Frequent bearing failure resulting in customer changing 40 wheel hubs every 5 years
- Bearing failure causing significant production down time and high costs
- Lubrication starvation & particle ingress
- Radial pre load problems
- Expensive OEM parts
- NSK Solution: pre-greased Sealed Double Row Angular Contact Bearings with C3 clearance
- Productivity improvement & cost saving generated



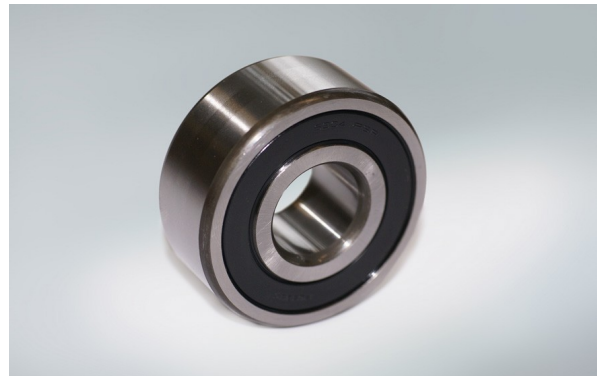
↑ Crane Wheel Hub

Value Proposals

- NSK engineering conducted an Application Review and a Bearing Failure Analysis showing lubrication starvation and radial pre load within the original bearings causing subsequent failure and lubrication fall out
- NSK engineering reviewed the original wheel design recommending the use of a pre-greased sealed NSK Angular Contact Bearing issuing modified wheel machining drawings and a fitting procedure for correct assembly
- A trial was agreed to modify 8 crane wheels with the use of pre loaded and sealed NSK Angular Contact Bearing
- The result of the trial was an increase of bearing life, reduction of maintenance costs and increase in productivity resulting in a large cost saving





Product Features

- Seals RSR: made of nitrile rubber reinforced with an embedded steel disc
- Contact seals providing excellent protection against the ingress of contamination, reducing wear on the raceways and ball surface, reduced noise, vibration and risk of lubricant failure
- Accommodate radial and axial forces in both directions



↑ NSK Sealed Double Row Angular Contact Bearing

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 OEM parts replacing 40 wheel hubs over 5 years	€26.880	Replacement of 8 crane wheel hubs over 5 years	€6.000
 Loss of production: Cost incurred when crane fails	€30.000	Loss in production: no failures	€0
 Labour costs: Maintenance time	€10.000	Labour costs: Maintenance time	€2.000
 NSK Engineering consultancy	€4.000	Wheel hub modification, NSK bearings & Cost of machining	€4.704
Total Costs	€ 70 880		€ 12 704