Success Story

Industry: Petrochemical

Application: Centrifugal Pump

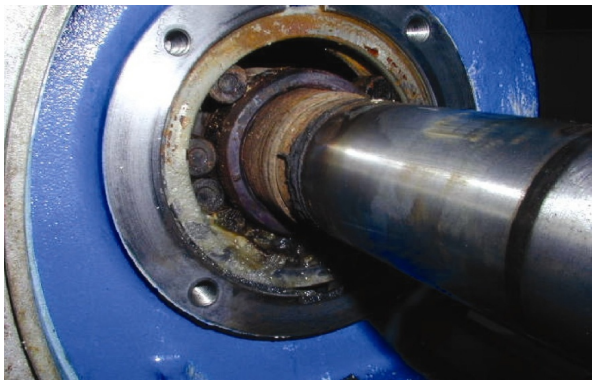
Cost Savings: $29,832

Introduction

A petrochemical refinery was experiencing increased failures on centrifugal pump bearings. NSK was consulted and performed a bearing failure investigation which showed roller skidding due to insufficient radial load. It was also revealed that the customer had recently changed the motor drive from belt to direct drive. This resulted in removal of the belt load and a consequential reduction of radial loading. Taking this into consideration NSK engineers proposed an alternative Deep Groove Ball Bearing set-up. A trial was investigated, which demonstrated that the bearing life was extended to over 3 times that of before. In fact, there were no breakdowns in a 1 year period with pump remaining running. This resulted in a significant reduction in maintenance costs and productivity improvements.

Key Facts

- Petrochemical refinery - critical centrifugal pump
- Regular failures experienced following changes in motor set-up
- Bearing failing due to roller skidding
- NSK proposed an alternative bearing arrangement using Deep Groove Ball Bearings
- Testing showed the bearings lasted over 3 times longer
- No unplanned failures in a 12 month period
- Consequent cost saving by reduced maintenance cost and no lost production
- Petrochemical Centrafugal Pump NSK Deep Groove Ball Bearings



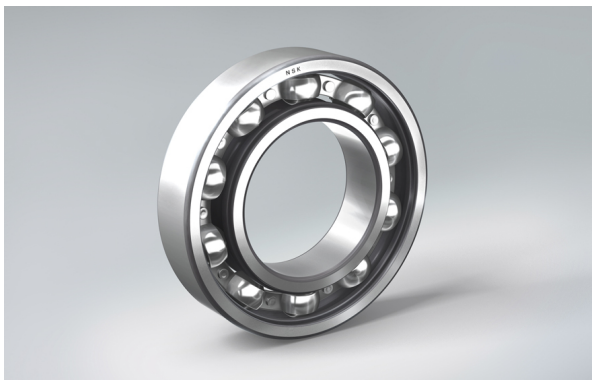
↑ Petrochemical Centrafugal Pump

Value Proposals

- Following increased pump failure, the customer requested to have NSK to review their application
- A Failed Bearing Analysis was performed and showed that the existing roller bearings were experiencing skidding and resultant failure. This was caused by insufficient radial load and low roller traction
- An Application Review was conducted, which identified that the customer had changed his motor set-up from belt to direct drive
- NSK proposed a test using an alternative Deep Groove Ball Bearing set-up
- The trial was successful with no bearing problems in a 12 months period
- This resulted in a significant cost saving due to reduced maintenance costs and reduction of production loss.

Product Features

- Steel cage
- High load ratings (7% to 19% increase in dynamic load rating)
- Optimized internal design
- Larger rolling elements
- Some sizes available with closures (shields, seals)
- Longer life (22% to 68% increase in ISO L₁₀ life)
- Interchangeable with the standard Deep Groove Ball Bearings
- Downsizing possibilities



↑ NSK Deep Groove Ball Bearings

Cost Saving Breakdown

Before		Cost p.a.	NSK Solution	Cost p.a.
	Old Bearings Costs	$161	Replacement Bearing Costs	$27
	3 Breakdowns / 6 hour change over for 2 people / Labor cost $21 / hour	$772	No Breakdowns	$0
	3 breakdowns / 6 hours / Loss production cost $1,607/hour	$28,926	No Breakdowns	$0
Total Costs		**$29,859**		**$27**