

INDUSTRY

PETROCHEMICAL

APPLICATION

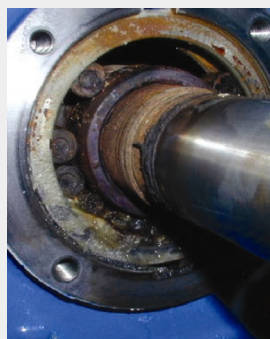
CENTRIFUGAL PUMP

COST SAVINGS: \$29,832

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, resulting in removal of the belt load and a consequential reduction of radial loading. NSK engineers proposed a High Load Capacity Deep Groove Ball Bearing set-up. A trial was conducted, revealing that bearing life was extended more than 3 times. And there were no breakdowns in a 1-year period with the pump remaining running, resulting in reduced maintenance costs and increased productivity.

KEY FACTS

- › Petrochemical refinery - critical centrifugal pump
- › Regular failures experienced following changes in motor set-up
- › Bearing failing due to roller skidding
- › NSK proposed High Load Capacity 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 Centrifugal Pump

VALUE PROPOSALS

- › Following increased pump failure, the customer requested that NSK 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 the motor set-up from belt to direct drive
- › NSK proposed a test using a High Load Capacity Deep Groove Ball Bearing set-up
- › The trial was successful with no bearing problems in a 12-month period
- › This resulted in a significant cost saving due to reduced maintenance costs and reduction of production loss.






PRODUCT FEATURES

- › Optimized internal design with advanced geometry and larger rolling elements for increased capacity
- › Open-type bearing, with some sizes available with closures (shields, seals) upon request
- › High load ratings (7% to 19% increase in dynamic load rating)
- › Longer life (22% to 68% increase in ISO L₁₀ life)
- › Interchangeable with the standard deep groove ball bearings
- › Downsizing possibilities



NSK High Capacity Deep Groove Ball Bearing

COST-SAVINGS 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

YOUR PARTNER FOR MACHINE OPTIMIZATION

Our AIP Added Value Program is based around a simple proposition: ‘improvement pays’. By working with you throughout the AIP Value Cycle, we will help you achieve improvements in machine reliability, productivity and performance, all of which carry a tangible and measurable cost benefit – and we have the tools to prove it! That’s what we mean by improvement pays.

