

Success Story

Industry: Automotive Production

Application: Machining Centre

Cost Savings: € 2 500

Introduction

A production plant, of a large Spanish Automotive Group, was having quality problems with products manufactured on a machining centre. This was found to be due to the spindle rear bearings which were wearing prematurely leading to regular failure. This manifested itself in poor product dimensional control and regular production down time resulting in large costs of poor or lost production. NSK examined the machine spindle and found that cutting fluid was entering the rear bearings resulting in lubrication failure and corrosion to the bearing components. A trial was started using NSK Sealed Angular Contact Bearings and this proved very successful and as a result spindle life was increased from 4 months to 1 year.

Key Facts

- High volume automotive component manufacture with continuous operation
- Product quality problems due to poor dimensional stability
- Spindle performance and machining accuracy were the main concern
- Regular problems with machine failure and large cost of lost production
- Bearing failure analysis showed lubrication problems and corrosion inside the rear bearings
- NSK proposed a trial using Sealed Super Precision Angular Contact bearings
- The trials were successful with increased product quality and spindle lifetime increasing from 4 months to over 1 year



↑ Machining Centre

Value Proposals

- Bearing Failure analysis showed that lubrication failure and bearing corrosion were the main causes of poor spindle performance
- NSK Engineers performed an on-site application review which revealed that cutting fluid entering the spindle was the main cause
- NSK proposed the use of sealed super precision angular contact bearings with grease lubrication
- A trial on 2 machines was started and the result was a dramatic increase in life from 4 months to over 1 year
- The customer benefited from improved machine reliability and greater product quality
- A cost saving based reduction of lost production was presented and signed by the customer for a value of €2.500

Product Features

- Non-contact seals provide valuable protection; reducing raceway and ball surface wear, noise and vibration, lubricant breakdown
- Time saving: Bearing mounting time 4 x faster & contamination through poor handling eliminated
- No speed reduction due to non-contact seals
- Improved spindle performance
- Operates in horizontal and vertical positions.
- Sealed bearings prevent grease migration in vertical spindles, promote temperature stability and provide higher accuracy machining
- Longer grease life: extended by 50% with sealed bearings



↑ Sealed Super Precision Bearing

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 Three unexpected breakdowns per year × 2,5 hour/stop × €500/h	€3.750	One planned stop per year × 2,5 hour/stop × €500/h	€1.250
Total Costs	€ 3 750		€ 1 250