

Success Story

Industry: Automotive Production

Application: Machining Centre

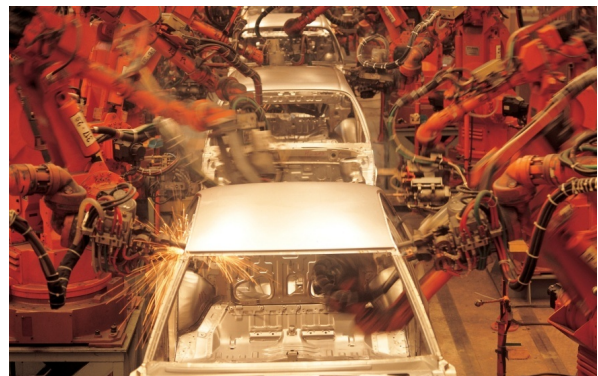
Cost Savings: € 190 992

Introduction

A large manufacturer of automotive engines was having increasing reliability issues with its machining centres. This had a severe effect on manufacturing output resulting in increased costs and reduced machine productivity. Following a failed bearing analysis it was revealed that the cutting fluid was entering the bearing which was severely affecting the lubrication. NSK proposed a sealed spindle bearing with significant improvements in bearing life.

Key Facts

- Machining Centre Vertical Spindle
- Malfunction of the machine due to coolant that entering the bearing
- NSK Solution: Sealed Super Precision Bearings
- Increased life-time
- Reduced down-time
- Cost saving for bearings and maintenance



↑ Machining Center Vertical Spindle

Value Proposals

- Realisation of an AIP Process Map
- NSK Failed Bearing Analysis showed damage to the lubrication due to coolant entering the bearing
- NSK proposed Sealed Super Precision Bearings
- Implementation of training for the Super Precision Bearing's mounting process
- Machine design consultancy for associated housing components





Product Features

- Non-contact seals
- Time saving: Bearing mounting time 4 × faster and contamination through poor handling eliminated
- Non-contact seals provide valuable protection; reducing raceway and ball surface wear, noise and vibration, lubricant breakdown
- No speed reduction due to non-contact seals
- Improved spindle performance
- Operates between 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. |
|---|------------------|---|------------------|
|  Old bearing costs | €21.816 | New bearing costs | €7.224 |
|  Bearing life | 4 months | Bearing life | More than 1 year |
|  54 replacements × 4 hours / replacement × € 50/h | €10.800 | 12 replacements × 4 hours / replacement × € 50/h | €2.400 |
|  Production costs: 54 replacements × 4 hours / replacement × € 1.000/h | €216.000 | Production costs: 12 replacements × 4 hours / replacement × € 1.000/h | €48.000 |
| Total Costs | € 248 816 | | € 57 624 |