

Success Story

Industry: Machine Tools

Application: Horizontal Machining Centre

Cost Savings: \$25,709

Introduction

A specialized metals machining company was experiencing continuous performance problems with their horizontal machining centre. Bearings were prematurely failing causing unplanned down time and significant production problems. NSK performed a detailed analysis of the machine spindle, including a failed bearing investigation and grease condition review, and found that both cutting fluid and machining debris were entering the bearings. Contamination caused the lubricant to fail and resulted in premature bearing failure.

Key Facts

- High axial loading
- Machining center performance issues
- Contamination from debris and cutting fluid
- Analysis found grease condition the root cause of failures
- Proposed use of NSK Sealed Super Precision Bearings
- Increased contact angle for maximum axial load capacity
- Lifetime increase from 15 days to 6 months



↑ Heat Exchanger End Plate

Value Proposals

- Bearings failure analysis and grease condition inspection showed that cutting fluid and debris were causing bearing failure
- NSK suggested the use of Sealed Super Precision Angular Contact Bearings
- Application review also revealed that a larger bearing contact angle would maximize axial load capacity
- Trials were run on 3 machines. After testing, bearing life increased from 15 days to 6 months
- With these results a subsequent cost saving was presented and signed by the customer
- Increased productivity and reduced maintenance costs were realized on his machining center

Product Features

- Non-contact seals provide valuable protection. They reduced raceway and ball surface wear, reduced noise and vibration as well as 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
- Prevent grease migration in vertical spindles, promote temperature stability while providing higher accuracy
- Extended grease life by 50%



↑ Sealed Super Precision Bearing

Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 Bearing life – 15 days		Bearing life – 6 months	
 Original bearing × replacements / year × brgs. / spindle	\$29,037	Sealed bearing × replacements / year × brgs / spindle	\$3,328
Total Costs	\$29,037		\$3,328