**Success Story**

Industry: Automotive Production  
Application: Machining Centre  
**Cost Savings:** 190,992 euros

**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

**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

Cost Saving Breakdown

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<tr>
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<tbody>
<tr>
<td>Old bearing costs</td>
<td>€21.816</td>
<td>New bearing costs</td>
<td>€7.224</td>
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<tr>
<td>Bearing life</td>
<td>4 months</td>
<td>Bearing life</td>
<td>More than 1 year</td>
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<tr>
<td>54 replacements × 4 hours / replacement × € 50/h</td>
<td>€10.800</td>
<td>12 replacements × 4 hours / replacement × € 50/h</td>
<td>€2.400</td>
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<tr>
<td>Production costs: 54 replacements × 4 hours / replacement × € 1.000/h</td>
<td>€216.000</td>
<td>Production costs: 12 replacements × 4 hours / replacement × € 1.000/h</td>
<td>€48.000</td>
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<tr>
<td>Total Costs</td>
<td>€248.816</td>
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<td>€57.624</td>
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