

CASE STUDY

THINK LIKE THE MACHINE



AUTOMOTIVE UnLock™

OPTIS helps bearing manufacturer unlock
the value of poor performing tool

A JOINT VENTURE WITH TechSolve



CASE STUDY – UnLock™

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BACKGROUND TO THE BUSINESS

For over a year, an international manufacturer of bearings for the automotive industry was in conversation with a tool manufacturer to address problems with a cutting tool that was not achieving promised tool life or meeting production goals.

ISSUES FACED

At the final station of the transfer line, finish boring operations, tool life promised by the cutting tool manufacturer was not being met. Tool life rates were random and between four and 450 parts. Due to premature tool failure every part, surface finish and final tolerance had to be inspected and the many failed parts had to be scrapped as they could not be reworked or recycled. The company wanted to reduce scrapped parts and increase the tool life of the cutting tools to over 800 parts.

SOLUTIONS PROPOSED

When a machine or a machining process becomes a bottleneck, it can impact the entire production process. While it may quickly get attention, it draws on resources and the solution can often be elusive and difficult to resolve.

This is when expert help from OPTIS' machining specialists – scientists, physicists and engineers – is invaluable. They help with the OPTIS UnLock™ program to diagnose and provide practical, implementable solutions to get companies up and running in no time.

With more than two centuries of machining experience, OPTIS experts think like the machine. This helped the bearing manufacturer unlock the value of a poor performing tool by solving a variety of issues such as an unacceptable part finish, inconsistent material quality and high scrap rates, to name a few.

IMPLEMENTATION

OPTIS carried out a detailed analysis of the current (as-is) process, followed by testing and evaluation of the resonant frequencies of the machine tool. New and 'worn out' tool cutters and samples of failed bearing faces were microscopically analyzed to determine specific failure modes.

OPTIS pursued an adjustment to the tools geometry. A honed edge on the cutter would reduce wear and part failure. While a honed radius on the tool would give the cutter more stability when engaging material and increase the structural stability of the cutter, without sacrificing surface finish requirements. The geometry of the radius of the cutters was determined and implemented by OPTIS experts.

As a result, parts no longer needed to be individually inspected, vastly reducing operational costs and freeing up operator time to focus on other priorities.

BENEFITS

- 4:1 increase in tool life and a dramatic decrease in scrapped parts to less than 1%
- Previously high – and expensive – scrap rates plummeted from 68% to under 1%
- The part no longer had to be inspected manually, reducing operational cost