

GEAR HOUSING CASE STUDY

Project Overview

Component: Gear Housing

Industry: 2nd Tier Automotive **Location:** USA

Material: Die Cast Aluminium with 12% silicon

This 2nd tier automotive company, manufacturing gear housings asked Rigibore to devise a solution to overcome increasingly high rates of scrap. They were using a boring bar with carbide support pads to stabilise the bar and counteract deflection.



The challenge was to reduce scrap rates, increase feed rate but maintain surface finish quality

Feeds & Speeds: The existing padded tooling was only running at a feed rate of S1800 @ 600mm/min. The Rigibore Smartbore tooling runs at a vastly increased rate of S6000 @ 1000mm/min.

Surface Finish Quality: Rigibore drilled three hydrostatic coolant holes into the bar. This through-coolant formed a reservoir between the bar and the component.

Running at a higher speed with a lower feed rate helped maintain stability in the cut. This, combined with the special insert geometry produced an improved quality of finish with rounder and more accurate bores.



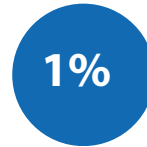


RESULTS: Smartbore delivered the results that the customer was looking for.

Smartbore Cartridge: The tool was fitted with a Smartbore cartridge allowing easy micron-accurate adjustment. The handheld Smartbore Adjuster contributed to speeding up the operation.

Hydrostatic Tooling: Rigibore's hydrostatic tooling means that through-coolant effectively evacuated chips between the bar and the component.

Special Insert Geometry: Rigibore's special insert geometry smooths the surface whilst machining. While the cutting tool is in operation, wiper inserts burnish the component to provide a smooth surface finish. This method contributes to greater quality and accuracy of finish.



Scrap rate reduced from 7% to 1%



Parts produced within Cpk requirements



Increased feed rate and improved surface finish quality



Increased Productivity



Micron-accurate



Digital display



Return on Investment

Micron accurate cutting edge adjustment with digital display