

Smartbore

**Smartbore**  
Micron accurate cutting edge tool adjuster

**RIGIBORE**  
The most accurately adjustable boring tools in the world

## Success Story - Transfer Case

### Project Overview

Smartbore tooling was enlisted to improve machining efficiencies of an aluminium transfer case for an industry leading **4x4 automotive** end user. The component was previously machined using brazed PCD fixed pocketed tooling. Whilst this method provided superior wear-resistance while operating at high speeds and feeds, there were a number of concerns.

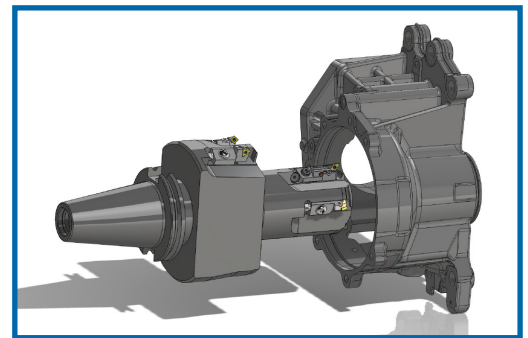
- 1. Reconditioning** - The PCD tools produce inconsistent finish as they become dull, meaning they must be returned to the manufacturer to be conditioned. Reconditioning times mirrored that of new tools (10-14 weeks), and led to issues meeting critical lead times.
- 2. Performance** - Reconditioned tools displayed numerous performance inconsistencies. Size, taper and run out differences caused issues with surface finish. Customers could not "plug and play" with confidence due to variability in performance of these tools.
- 3. Cost** - Not only was the process of reconditioning time consuming, but also extremely expensive (60-80% of the tools original cost).

### Smartbore Solution

**"One Shot" Tooling** - Development of a tool that performed the roughing and finishing operation simultaneously for exceptional tool efficiency, performing multiple critical operations in just "one shot".

**PCD inserts** - Rigibore provided PCD inserts for their own tooling package, these inserts still possessed the same durability and wear resistance as PCD tooling. However they also offered exceptional simplicity to replace in case of wear or damage.

**Ease In Adjustment** - Rigibore's Smartbore technology offers exceptional ease in adjustment. Simply inserting the handheld **Digital Adjuster** into the connection on the cartridge and turning the handle initiates a positive or negative micron accurate adjustments.



*CAT 50 Special Combination Boring Tool designed using sophisticated in house Rigibore design software*

### Results

- Size Control** - Introduction of Smartbore tooling allowed a superior size control on critical bore sizes than previous PCD tooling. Micron-Accurate changes were displayed on the handheld Smartbore Adjusters LCD display, ensuring speed and simplicity in adjustment.
- Insert Wear** - When inserts were wearing on the Smartbore tool, simply changing the cartridge and insert allowed the operation to continue, minimizing spindle downtime. This was opposed to the fixed pocket system which involved expensive and time consuming reconditioning.
- Simplicity In Adjustment** - The handheld Digital Smartbore Adjuster allows micron accurate adjustments to be made by operators of all skill and experience levels, removing manual errors in adjustment.
- Surface Finish** - Introduction of Smartbore technology reduced variability in performance, and ensured a consistent surface finish.