

# Optimizing Carbide Grinding Process

## Machinery Manufacturing (USA)

### Saw Blade Grinding

### Castrol Variocut® G 500

**ANNUAL SAVINGS: Over \$189,000**



#### THE SITUATION

A 100+ year old global cutting tool manufacturer had dozens of machines grinding carbide band saw blades using a competitor synthetic coolant. These are Vollmer grinding machines with diamond abrasives. Equipment is arranged in U-shaped, 3-machine cells with continuously-fed reels of material. Castrol and our distributor partner approached the customer to suggest process improvement projects such as tool life, downtime, machine cleanliness, sump life and operator acceptance.

#### BEFORE

- Water based fluid from “Company B”
- Alpex diamond grinding wheel life was rather short
- Changing tools caused lost productivity of several hours per week, at a cost of \$150.00 per hour
- Machines had residues & heavy corrosion

#### AFTER

- **Castrol Variocut G 500** showed improved machine cleanliness
- **Tool life increased by about 10X!**
- Machine setup time reduced by about 80 hours per year per cell
- Parts finish is excellent, and the operators love the clean machine appearance
- New filtration was added and fluid life is extended to nearly indefinite

#### THE SOLUTION

- **Castrol Variocut G 500** was implemented in Vollmer test grinders with diamond abrasives and baselined against Company B cutting fluid.
- Tool life with the diamond abrasives improved by 10X, for each of the 7 cells, saving **\$105K annually**.
- Productivity improvement resulted in an additional \$12K for each of the 7 cells for a total of **\$84K yearly** cost savings.
- Additional savings of lower coolant waste disposal will be realized as well.
- The Castrol team is implementing the **LabCheck** oil monitoring program to ensure the integrity of the fluid over the long term.

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## RECOMMENDATIONS

The customer realized that conversions to Variocut G 500 quickly generated cost savings through increased productivity and reduced perishable tooling spend, so additional machine conversions were swift. This helped justify resources to support the project and additional capital for other related equipment, such as parts washers and material handling automation.

## CONCLUSION

The Castrol team partnered with the customer to analyze the overall manufacturing process, then measured the fluid Total Cost of Ownership (TCO) against the previous coolant. The Variocut G 500 was a drastic departure from the incumbent fluid and a welcomed change in the grinding department.



## OTHER POTENTIAL APPLICATIONS

Variocut G 500 is well suited for form grinding of tool steels and carbide. It also performs well as a multi-purpose fluid for other types of machining and grinding where a clear, light viscosity oil is required.

**“Look at these Castrol machines compared to the ‘Fluid B’ machines! We never go down, and blades never looked better.”**

**– (Grinding Dept. Tech)**

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