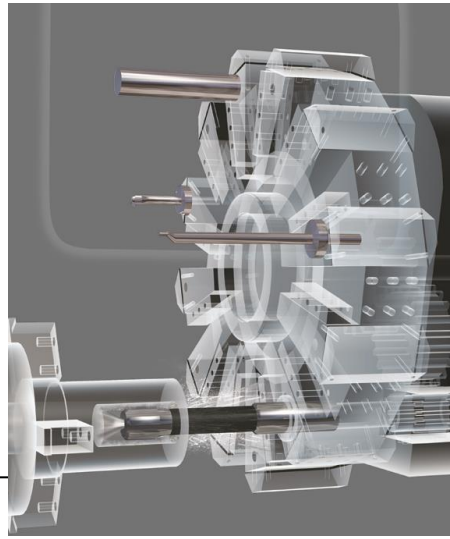
Variocut D 249 Deep Hole Drilling of Difficult Alloys

AEROSPACE (USA)

Components Manufacturer

Castrol Variocut® D 249

Tool Life Improved by 20%, Finish Improved by 10%



THE SITUATION

An aerospace manufacturer needed to improve tool life and had formerly used Castrol gundrilling oils, but switched in the past to try to use a lower priced fluid. Castrol offered our new technology Variocut D 249 as appropriate for the broad range of aerospace alloys used in their production.

This facility machines Titanium, Inconel, Monel, 300 series stainless, and aluminum in BTA style deep hole drilling/boring machines (Mollart) along with conventional gundrills, using a variety of tooling.

BEFORE

- A **chlorinated** and sulfurized mineral oil from a local blender
- **Frequent re-sharpenings** were required to finish difficult jobs, losing production time and adding to overall costs.

AFTER

- Variocut D 249 **chlorine-free**, multi-metal cutting oil
- Less frequent re-sharpening required per job
- Production cycle time per unit was reduced
- **Workpiece bore finish improved by 10%**
- **Tool life improved by 20%**

THE SOLUTION

- Castrol Variocut D 249 gave them the performance improvements they needed to stay competitive in their market.
- They appreciated the lighter color and lower odor of Variocut D 249, compared to the dark and strong sulfur odor of their previous oils.
- The improved productivity gave them the confidence to choose Variocut D 249 to charge more machines to increase the capacity of their shop.

• Higher performance allows customer to drill more inches of production per drill.

• Customer likes the opportunity to eliminate the use of a chlorine containing oil from their shop.

Variocut D 249 Deep Hole Drilling of Difficult Alloys

RECOMMENDATIONS

Variocut D 249 is capable of performing deep hole drilling/boring and traditional gundrilling operations on tough alloys without using chlorinated paraffin additives. Its light color and low odor are pleasant to work with, making **operator acceptance high**.

Variocut D 249 performs successfully with solid carbide, carbide tipped, and BTA style deep hole drilling tools.

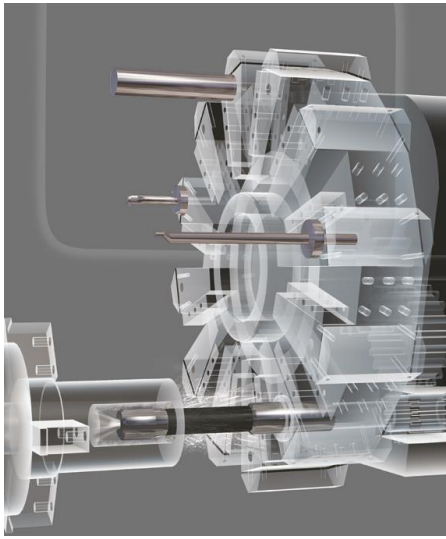
Process optimization is always recommended to achieve maximum benefit, including:

- Appropriate pressures and flow rates for the hole diameter being created
- Appropriate feed rates and spindle speed to create a manageable chip
- Appropriate drill tip geometry for good chip profile and tool clearance.

CONCLUSION

Variocut D 249 gave this aerospace customer all that they were looking to achieve to help their shop become more **productive and profitable**!

A significant factor to producing the **20% improvement in tool life** was that the condition of the worn drill tips required less correction per re-sharpening than the previous oil. As a result, they get more re-sharpenings per drill, extending useful life beyond what was previously achieved.



OTHER POTENTIAL APPLICATIONS

Variocut D 249 is a high performance chlorine-free cutting oil. Besides gundrilling applications, it is suited for grinding & broaching applications, as well as precision honing of hardened workpiece applications.