

# Variocut B 46 TC Replaces Chlorinated Fluid

## MACHINERY MANUFACTURING (USA)

Firearms Manufacturing

Castrol Variocut® B 46 TC

**SAVINGS: 10% Tool Life & 15% Lower Usage**



### THE SITUATION

A major North American competition gun manufacturer was using a chlorinated straight oil for machining titanium shotgun parts. This oil was dark in color and had a bad odor. The operations performed could not be seen and the operators did not like the heavy viscosity of the oil. The shotguns are high value and aesthetics are critical to the end product.

### BEFORE

- Chlorinated oil from Company H
- Dark color and difficult to see the operation
- Strong odor from the oil
- High carry-off on parts from high viscosity (225 SUS)

### AFTER

- No chlorinated paraffin
- Light color fluid and operation is now visible
- No odor for the operator standing over the operation
- Tool life improvement and lower usage were observed

### THE SOLUTION

- Variocut B 46 TC was implemented into the machining operation.
- The machine operator commented that you could see the work piece with the light color of the Variocut B 46 TC.
- Light viscosity (77 SUS) allowed chips and fines to settle out of the fluid fast so as to not be pumped back into the machining operation.
- The machine operator was very happy that the strong odor from the previous oil had been eliminated.
- Tool life improvement of 10% was seen in the operation.
- Additional cost savings were generated through 15% reduced oil usage from the lower viscosity.

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## RECOMMENDATIONS

Variocut B 46 TC is a straight oil that has excellent performance in machining operations. The metal in use is titanium (Ti6Al4V) with the operations of turning, drilling, boring, and single point threading being performed. The machine is a Haas machine center with oil being fed at 45 psi and 12 gallons per minute. Canister filtration at 50-micron is used to clean the oil.

**“We did not believe a non-chlorinated oil could perform this well”**  
– Plant Manager

## CONCLUSION

The Variocut B 46 TC out-performed the chlorinated competitor fluid on a difficult titanium metal. The high quality of the part exceeded expectations. The Variocut B 46 TC provides true advantages over conventional chlorinated oils: light color, low odor, and high performance machining without the use of hazardous additives.



## OTHER POTENTIAL APPLICATIONS

Variocut B 46 TC is a high performance machining and broaching oil for heavy duty applications. It will perform well on a variety of difficult-to-machine metals.

*Titanium  
magazine  
extensions*



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