

NC Lite Improves Tool Life & Eliminates Varnish

MACHINERY MANUFACTURE (USA)

FIREARM COMPONENTS

Castrol Performance Bio[®] NC Lite*



THE SITUATION

This firearm components manufacturer was using a plant-based cutting oil in their Swiss-type automatics, precision bar machines, and CNC machine tools. Performance was reasonable, but they began to experience varnish in their machines. They wanted to maintain the high flash point and good performance, avoiding the smoke and mist experienced with previous mineral oils.

BEFORE

- Competitor B (22 cSt grade) plant-based cutting oil
- Varnish and residues in the machines
- Good tool life

AFTER

- Castrol Performance Bio NC Lite plant-based cutting oil
- Varnish residues eliminated
- Tool life improved from 10-15% on average and 50% on specific tools

THE SOLUTION

- Performance Bio NC series eliminates the typical problems associated with plant-based lubricants.
- The NC series retains the high lubricity of plant-based lubricants but eliminates commonly experienced poor oxidation resistance and tacky varnish-like residues.
- NC Lite was recommended here to eliminate the varnish (it actually cleaned up the existing varnish deposits) and maintain the high flash safety margin desired by the customer.
- The improvement in tool life was an added bonus gained through the conversion.

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RECOMMENDATIONS

This customer is using manual and CNC Swiss automatics (Tornos, New Britain, Citizen), precision bar fed screw machines, and CNC milling centers (Robodrill) to produce small parts made of 8620, 4130, & 4340 steel and 400 series stainless steel. The operations consist of turning, shaping, threading & cut-off operations, as well as milling, drilling and tapping.

NC Lite is well suited for these operations, giving excellent tool life and peace of mind, since many machine tools run unattended for extended periods. The varnish-free environment helps ease tool changes and other maintenance activities.

CONCLUSION

The NC Lite has allowed this customer to meet their goals of improved cleanliness of operations, while maintaining a margin of safety through the use of a high flash point fluid. They did not want to go back to their previous experience of mist and smoke when using mineral oil based fluids.

The customer gained a win by using a more economical fluid with better overall performance, including tool life improvements.



OTHER POTENTIAL APPLICATIONS

Castrol Performance Bio NC series fluids are part of Castrol's "environmentally responsible" offer. They are based on renewable plant-based lubricants with very high flash points, low VOCs, high lubricity, and high viscosity index. With multiple viscosities available, they can cover a wide range of neat cutting oil operations

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