

Castrol Alusol AU 68 Extends Tool Life

AUTOMOTIVE (USA)

Piston Manufacturing
Castrol Alusol® AU 68

ANNUAL SAVINGS: \$360,000 potential



THE SITUATION

A large piston manufacturer wanted to improve the cost of manufacturing their pistons. The facility manager was primarily interested in better tool life. They were open to any suggestions on how to make this happen.

The customer contacted Castrol and one of our competitors for recommendations.

BEFORE

- A bio-resistant coolant was used with very good success.
- Tool life was very good, but the customer felt it could be improved further.

AFTER

- Alusol AU 68 increased tool life by 30%. There was no staining or foaming, and the surface finish was improved.
- The competitor fluid failed quickly due to staining, poor surface finish, high foam, and high fluid usage.

THE SOLUTION

- Based on our internal machine center testing, we selected our newest, high performance aluminum machining fluid, Alusol AU 68, for trial.
- A competitor's fluid was also trialed on a similar production line.
- The competitor's fluid had numerous problems that could not be fixed, even with adequate time given for correction.
- The customer's engineers monitored usage, tool life, surface finish, and tolerances of the parts.
- They concluded that Alusol AU 68 improved tool life by 30-35% and delivered a more consistent part in terms of surface finish and tolerance.
- Operator acceptance was higher and the machines & chips were noticeably brighter and cleaner than the previous coolant.

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RECOMMENDATIONS

Alusol AU 68 is used in a system that cannot have high foam, because the fluid level needs to be kept at high levels in the sump. The fluid pressure is 450 psi with a 8 minute turnover rate. The aluminum machined is a high silicon version similar to 356 cast aluminum. The piston is taken from rough cast to finished part by milling, drilling, turning, grooving, and honing. The filtration is by rotary basket screen.

"I'm really impressed with how well the finish tolerance has held compared to other coolants we have used."
– Quality Inspector

Chips are noticeably brighter and cleaner



CONCLUSION

The customer was happy with their previous coolant, which was an improvement over the one before that. Even so, they continually look for process improvements and approached Castrol about the latest in aluminum machining performance.

Castrol introduced Alusol AU 68 resulting in \$360,000 in potential annual tool savings upon full plant implementation.



OTHER POTENTIAL APPLICATIONS

Alusol AU 68 was designed for use on difficult aluminum machining applications, allowing for maximum tool life and part finish to be achieved. It also performs well on ferrous machining applications.