Valve Body Machining Success

AUTOMOTIVE (USA)
TRANSMISSIONS
Castrol Alusol® AU 68
ANNUAL SAVINGS: $67,241

THE SITUATION

A major automotive manufacturer was seeking a high performance coolant for their valve body machining area. The fluid needed maximum machining performance in order to meet the critical finish on their valve body bores. In addition, the fluid needed to have excellent bio-resistance, good foam control, and low total operating costs.

BEFORE

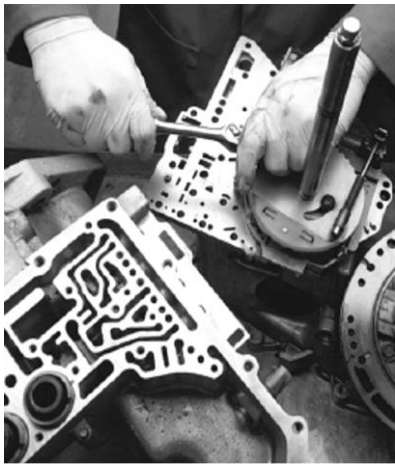
- Vegetable-based coolant with excellent lubricity
- Coolant usage – 286 gallons per week
- Water usage – 1,337 gallons per day
- Scheduled tool changes – 67% average

AFTER

- Castrol Alusol AU 68 semi-synthetic fluid in use
- Coolant usage –annual reduction of 2,929 gallons (**21% reduction**)
- Water usage reduction over 30%
- Scheduled tool changes – **21% improvement**

THE SOLUTION

- The customer had good success with the previous vegetable-based coolant, but asked Castrol for any fluid options that could improve their process further.
- Alusol AU 68 was recommended as our newest and highest performing fluid for aluminum machining.
- The reaming operation was the most critical area monitored during the trial. The customer was looking for a mirror-like finish in the valve body bores.
- The result with Alusol AU 68 was excellent machining performance and part finish, with greatly reduced fluid carry-off leading to significantly lower coolant and water usage.



- **Reduced coolant usage**
- **Reduced water usage**
- **Reduced CPU by 9%**
- **Improvement in scheduled tool changes**

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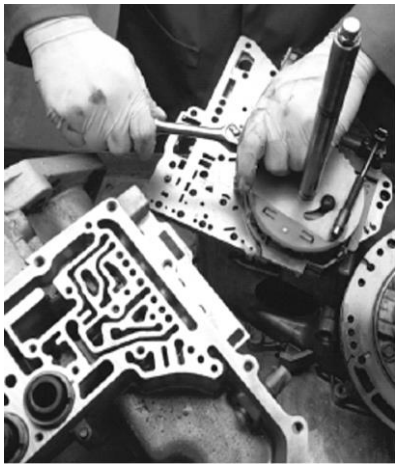
RECOMMENDATIONS

Castrol Engineers had high expectations that Alusol AU 68 would work well in this operation, based on our internal machine center testing and external field trials conducted at other plants. This application utilizes a 13,000-gal central system with a target coolant concentration of 10%. The parts are 380 aluminum and are tapped, milled, and reamed. Carbide tooling is used for rough reaming and PCD diamond is used for finish reaming of the valve body bores.

CONCLUSION

With Alusol AU 68, the customer was able to reduce their coolant usage by 21%, their water usage by over 30%, and improve scheduled tool changes by 21%.

The result was $19,241 in annual savings for coolant costs and tooling savings of over $48,000 per year.



	2011 Previous Fluid	2012 Alusol AU 68
Total Usage (gal) - Concentrate	11,766	10,785
Total Usage (gal) - Additive 1	1,619	0
Total Usage (gal) - Additive 2	329	0
Weeks in use	48	48
Avg Weekly Usage - Concentrate	245	225
Avg Weekly Usage - Additive 1	34	0
Avg Weekly Usage - Additive 2	7	0
Total Weekly Usage (gal)	286	225
% Reduction		**21%**

OTHER POTENTIAL APPLICATIONS

Alusol AU 68 is a high performance machining fluid for aluminum. It is designed for maximum lubricity while providing excellent bio-resistance and meeting the latest, most stringent health and safety requirements of our customers.