

### Challenges

A large global automotive manufacturer needed assistance in machining 1028 Steel End Caps for a hydraulic stabilizer shaft. The customer was using a competitor's semi-synthetic, maintained at a 9% concentration, and was not having any issues with bio-stability or foaming, but could not achieve the desired tool life.

They had problems with achieving sufficient tool life to meet production change outs, with only obtaining 35 pieces per corner on a Kennametal carbide insert with four corners. In addition to this, Quaker found that their threaded insert with three edges was only getting 30 pieces per edge/corner.

Quaker first proposed using QUAKERCOOL® 7102 at a 7% concentration. The results were unchanged so the concentration was increased to 12% without any changes in results. The customer was still interested in working with Quaker to resolve the issue, and agreed to test a newly developed product based off of QUAKERCOOL® 7102 and containing a chlorinated EP lubrication additive.

Quaker wanted to show that by introducing QUAKERCOOL® 7105 the manufacturer could achieve:

- Reduction in annual tooling costs
- Reduction in total systems cost
- Reduction in product concentration



### Providing Solutions

Baseline vs. Trial Data		
	Competitive Fluid	QUAKERCOOL® 7105
Concentration	9%	7%
System Size	150 gals	150 gals
Water Quality (ppm hardness)	135	135
Fluid Cost	\$3,142	\$3,827
Annual Tooling Cost (per machine)	\$9,194	\$3,698
Annual Tooling Cost (10 machines)	\$91,940	\$36,980
Total System Cost	\$12,336/year	\$7,525/year

Results based off a 48 day trial.

By switching to QUAKERCOOL® 7105 the customer was able to achieve:

- Increased tool life resulting in a 60% reduction in cost per unit.
- Total annual system cost savings of \$4,810 per machine.
- Total annual savings of \$48,100.

Ten machines were used in this department.



### Product Information

QUAKERCOOL<sup>®</sup> 7105 is designed for heavy-duty Machining and Grinding operations requiring a high degree of cleanliness, lubrication, cooling, and corrosion protection. This product contains a chlorinated extreme-pressure additive for superior machining characteristics. It forms a micro-emulsion that maintains the desirable characteristics of a semi-synthetic. It is very low foaming when used with hard water (greater than 350 PPM). This product is designed to control microbiological growth, including mycobacterium.

### Process & Equipment

Hydraulic Stabilizer	
<b>Parts:</b>	1028 Steel End Caps
<b>System Size:</b>	150 gallons
<b>Part Alloy:</b>	1208 Steel End Caps
<b>Water Hardness:</b>	135 ppm
<b>Application Pressure:</b>	40-60 psi
<b>Filtration System:</b>	Bag filtration
<b>Specific Operation:</b>	Hydraulic Stabilizer Steel End Cap Machining

### Product & Process Expertise

Metalworking lubricants represent a very minor part of the costs in a metalworking process, typically less than 1%. This case illustrates the importance of correct fluid selection. The impact of the fluid can be a multiple of its costs making the price of a metalworking fluid insignificant. That's why Quaker focuses on developing fluids with the highest performance without compromise, fluids that sharpen your competitive edge.