

## Challenges

A major automotive manufacturer was looking to utilize a new product to produce its cast aluminium cylinder heads and reduce costs without compromising quality. Quaker proposed QUAKERCOOL® 7101 LF, a high performance coolant with a unique mineral oil and ester package.

QUAKERCOOL® 7101 LF was developed for multi-purpose machining applications of aluminium alloys, with a low to high level of silicon, as well as cast iron and steel. Its excellent lubricating performance is due to a careful choice of ester and anti-wear additives. Additionally, it contains a premium biostatic package that provides long sump life with consistent results.

## Providing Solutions

Extensive independent trials were conducted at a precision engineering company. The trials were specifically tailored to match the exact customer requirements.

Results from the trial showed:

- **Excellent surface finish (0.2-0.5 Ra, depending on alloy type) and well within limits of the process**
- **Consistent process data and power consumption**
- **Excellent tool life protection**
- **Excellent power monitoring results**

As a result of these trials and successful OEM demonstrations, the customer switched to QUAKERCOOL® 7101 LF.

The introduction of QUAKERCOOL® 7101 LF resulted in a minimum:

- **Savings equal to 40% of the annual cost per part**
- **Savings equal to 21% of the annual coolant usage per part**

## Customer Reference

- **Nissan**
- **Cummins**
- **Triumph Motorcycles**
- **Toyota**

## OEM Reference

- **Mapal**
- **Heller**

## Product Description

QUAKERCOOL® 7101 LF is well suited for traditional machining operations as well as applications with a high finish requirement such as:

- **Mapal Reaming**
- **Valve Guide Machining**

QUAKERCOOL® 7101 LF can be used on all general purpose metalworking applications such as:

- **Gun Drilling**
- **Tapping**
- **Milling**
- **Turning**
- **Grinding**
- **Broaching**

## Process & Equipment

### Multi-station Transfer Line and Single-cell Machines (Heller)

<b>Part:</b>	Cylinder Head
<b>Part Alloy:</b>	LM4 Aluminium
<b>Tooling:</b>	Various Carbide and PCD
<b>Concentration:</b>	8%
<b>Pressure:</b>	80 bars
<b>Specific Operation:</b>	Mapal Reaming, Gun Drilling, Drilling, Reaming, Tapping & Milling

## 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 is why Quaker focuses on developing fluids with the highest performance without compromise, fluids that sharpen your competitive edge.