

CASE STUDY

Automotive: Savings of \$1.25M in Die Casting Production with QH FLUID INTELLIGENCE™ Solution

QH FLUIDMONITOR™ RM

The Challenge

A US automotive OEM specializing in die casting components such as cylinder blocks, transmission cases, structural components, and EV drive unit housings has been using DIE SLICK® release lubricants. However, the customer faced significant challenges, including inconsistent concentration levels in the feeding tank, which resulted in lower production rates, increased scrap parts, and increased unit costs. The QH FLUIDCARE™ Team recommended implementing 24/7 process fluid monitoring to optimize the total cost of ownership.

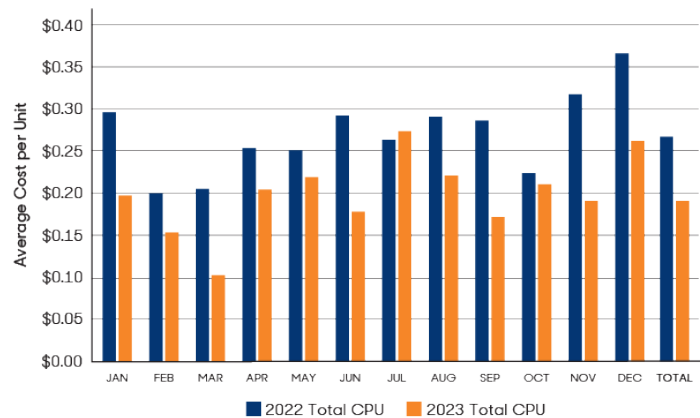
The die casting process necessitates precise mixing of the DIE SLICK® release lubricant within a specific ratio range to maintain optimal production and part quality. However, the customer's existing feeding tank failed to dilute the water and DIE SLICK® mix to the correct levels, resulting in excessive use of die lubricant or inadequate concentration levels. Additionally, the circulation of the mixing tank led to unplanned downtime of 8-16 hours per month, impacting the entire process line, including eight die casting machines. The QH FLUIDCARE™ team on site recognized that to mitigate unplanned downtime on the process line and increase production rates, the customer needed to implement several proactive process improvement measures:

1. Monitor the dilution ratio of DIE SLICK®
2. Track the usage of DIE SLICK® concentrate
3. Monitor water usage for DIE SLICK® makeup, ensuring the correct ratio of water to DIE SLICK®
4. Implement automated 24/7 alerts to prevent unnecessary downtime

The Benefits

- **Cost Savings:** \$1.16M from eliminating downtime, improving production rates, and reducing waste*
- **Reduced Lubricant Cost:** of \$87K annually and consumption by 27% per unit
- **Improved Health and Safety:** Reduced hazards and housekeeping on shop floor.
- **Preventative Maintenance:** Real time notifications with QH FLUIDTREND™ on flow, volume or tank level, allowing timely maintenance and avoiding a catastrophic pipe failure
- **Sustainability and Health and Safety Improvements:**
 - Enhanced housekeeping in the tunnels, reducing fluid on the ground and mitigating slip-trip fall hazards
 - Reduced die lubricant and water waste on-site contributing to improved environmental sustainability

*Calculating cost of production per unit, output per hour on the process line, taking the minimum recorded unplanned downtime. Not taking into consideration the production rate of other 'fed' process and assembly lines





Process and Equipment

PRODUCT TITLE	PRODUCT INFORMATION
Parts	High pressure aluminum die casting - automotive
Materials	Aluminum
Machine	High pressure die casting
System Size	Die lubricant central system - 1000 G 3785 L
Concentration or ratio (of both the previous and new product)	55:1
Operations	High pressure die casting

The Solution

After comprehensively analyzing the process line situation, the QH FLUID INTELLIGENCE™ team proposed implementing QH FLUIDMONITOR™ RM. This solution enables automated and proactive monitoring of the feed tank's die release lubricant, effectively addressing the identified challenges. In addition to its 7" touchscreen display, the QH FLUIDMONITOR™ RM features an online interface accessible from any desktop or mobile device. Linked QH FLUIDTREND™ software enables proactive observation and analysis of real-time and historical data, generating comprehensive reports. It offers unique hybrid modes for tracking and viewing trends, facilitating optimized die casting processes. The system also sends email and SMS text alerts for out-of-specification ratio conditions, empowering the team to identify potential issues early and prevent die lubrication related malfunctions on the process line.

Equipment Selection and Implementation

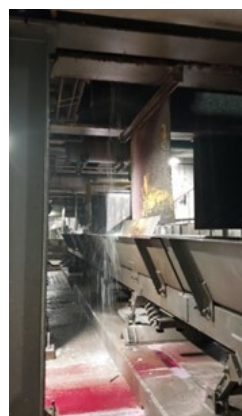
Quaker Houghton aims to provide QH FLUID INTELLIGENCE™ equipment that is both straightforward to implement and highly effective. The QH FLUIDMONITOR™ RM seamlessly integrates into existing die lubricant application systems via a National Pipe Tapered connection. Upon arrival at the plant, the QH FLUIDMONITOR™ RM was installed under the guidance of the QH FLUID INTELLIGENCE™ team, with implementation completed within a single 8-hour shift.

In conclusion, the successful implementation of the QH FLUIDMONITOR™ RM, facilitated by the QH FLUID INTELLIGENCE™ solution, has significantly enhanced the efficiency and cost-effectiveness of the customer's production process. By confirming the cost per unit savings and expressing a desire to expand its usage to additional process lines, the customer clearly understands the value provided by QH FLUID INTELLIGENCE™, this collaborative partnership highlights the commitment to continuous improvement and sustainable growth in the manufacturing industry.

QH FLUID INTELLIGENCE™

Digitally optimizing fluids and processes.

A fully digital and automated solution, QH FLUID INTELLIGENCE™ provides real-time monitoring and control of fluid performance and cost, giving you quick, accurate, and actionable insights. Customizable, scaleable, and easily integrated into your manufacturing, it enhances production and sustainability by driving down waste, risk, and total cost of ownership. This is the intelligent future of fluids.



The 2-inch link that was found in the tunnels in July 2023

