Real-Life Stories

Case Study: Injection Mold Manufacturer Improves Productivity and Tool Life With TRIM® E923

Brought To You by Master Fluid Solutions | Jul 19, 2022

One of North America's leading mold builders creates high-quality, precision plastic injection molds for automotive original equipment manufacturers (OEMs). Globally recognized for their high-tech tool production capabilities, the company has maintained a strong reputation of quality and precision for more than 30 years.

THE CHALLENGE

The injection mold manufacturer machines various steels, including AISI 4140, P20, and H13 tool steel. They use 11 machines to gun drill workpieces, each averaging a hole depth of 45 inches. Their previous cutting fluid had poor lubricity and created tacky residues, causing chips to become stuck and drag on the workpieces. This resulted in poor-quality finishes that frequently required reworking.

The existing fluid also accumulated dirt and contaminants, making parts difficult to clean and resulting in frequent coolant replacement and high coolant consumption. Clogged filters, proxy switches, and lasers also caused machine downtime, forcing workers to clean and address the issues, leading to lost productivity.

THE SOLUTION

The company switched to TRIM® E923, a proprietary blend of extreme pressure additives and new vegetable-based technology that requires minimal management for optimal performance and trouble-free machining. The high-quality emulsion extends tool life and optimizes lubricity — even in the most difficult cutting operations.

Formulated for extreme pressure and difficult materials, E923 can even replace traditional heavy-duty neat cutting oils in some applications.

THE RESULTS

Over a three-month trial, the customer significantly improved drill life and surface finishes on completed molds without additional rework. TRIM E923 eliminated clogged filters, sticking proxy switches, and fouled lasers, greatly decreasing production time. Since filters lasted longer, their usage and associated costs were also reduced.

E923 also evaporates less than the previous coolant, lowering makeup rates and overall coolant usage while improving air quality. There has also been a significant increase in tool life, providing additional cost savings and productivity improvements. Additional savings have come from no longer needing to use special competitor test strips to monitor coolant concentration, as E923 is more compatible with refractometers.

The vegetable ester enhanced formulation improved the sustainability profile of the customer's operation. Plus, the customer reported that service and support has been noticeably better with Master Fluid Solutions than their previous supplier.

THE NUMBERS

- 11 machines run with increased production efficiency and reduced machine maintenance and cleaning.
- Operating costs reduced by lower fluid consumption, longer tool life, less filter use, and replacing special testing strips with refractometer usage.

Previously Featured on Master Fluid Solutions' website.