

Metal Forming Fluids: Elimination of Splitting While Forming EV and ICE Automotive Body Components

HOUGHTO-DRAW® 140-15

The Challenge

A global OEM manufacturing automotive steel and aluminum body components for both EV and ICE vehicles in North America was experiencing problems with their forming operation. The manufacturer was encountering a high split rate with the competitive petroleum-based neat oil. The customer turned to Quaker Houghton for a neat oil that would provide:

- Improved lubrication
- Compatibility with their existing application equipment
- Adhesive, weld, and paint compatibility

The Solution

Quaker Houghton reviewed the customer's issues and process requirements and developed HOUGHTO-DRAW® 140-15. HOUGHTO-DRAW® 140-15 is a low viscosity neat lubricant designed especially for automotive and component blanking, deep drawing, and forming of most ferrous and non-ferrous metals. This lubricant was chosen because of its superior lubrication relative to the incumbent product and compatibility with the customer's application equipment and critical downstream processes.

One of the major challenges the customer faced was the forming of a galvanized steel EV battery floor pan. This panel required a moderately deep draw and the competitive product produced splitting and other defects causing production to be halted frequently. HOUGHTO-DRAW® 140-15 was tested and ran from startup through the entire run without interruption or issue. Subsequent part testing confirmed the improved operation that was evident during the trial. The customer communicated to Quaker Houghton that this was the first time they could remember a clean run for this part.

The competitive product also produced a large scrap rate while forming aluminum and galvanized steel battery pans which forced the customer to use excessive amounts of lubricant in order to make parts and avoid downtime and scrap. By switching to HOUGHTO-DRAW® 140-15, the need for excessive lubricant was eliminated while maintaining their planned production schedule.

The outcome of the trial was excellent with a 0% scrap/reject rate. HOUGHTO-DRAW® 140-15 has been running for over 12 months successfully and has been expanded into additional lines in the plant with another expansion planned. HOUGHTO-DRAW® 140-15 is being used for hoods, body sides, door panels, and all additional automotive body parts made on these lines.

The Benefits


By switching to HOUGHTO-DRAW® 140-15, the customer realized the following improvements:

- Enhanced lubrication
- Elimination of splitting parts during forming, improving productivity
- Decreased chemical consumption and scrap rate
- Improved filtration and fewer filter changes
- Excellent technical service and support

Process and Equipment

Parts	EV battery floor pan, battery pan, door inners, door outers, hoods, various stamped automotive parts
Material	6100 Aluminum and several grades of Galvanized Steel
Operation	Stamping

Customer Testimonial

 "Sump life has been extended far better than the [competitive] product. The filtration characteristics of the fluid is much easier to filter than the incumbent fluid. We have noted that the filter change frequency has been extended by 7 to 10 days. We note that our filtering equipment is far less to foul out using the Quaker Houghton product. The [competitive] product always leaves a film and sludge in the sump and equipment."

- MAINTENANCE ENGINEER





Creating Sustainable Value

Quaker Houghton focuses on providing customer solutions that reduce waste, energy, water usage and chemical consumption, while improving operational processes, tool life and the health and safety of workers. We are committed to creating a positive social, environmental and economic impact on our world. By converting to HOUGHTO-DRAW® 140-15 the customer was able to decrease scrap, reduce energy use and disposal costs while improving production. The customer was also able to lower chemical consumption and improve their environmental footprint.

The Product

HOUGHTO-DRAW® 140-15 can be used for most automotive and component blanking, drawing, and forming of most ferrous and nonferrous metals where downstream weld, paint, and adhesive compatibility are demanded. HOUGHTO-DRAW® 140-15 gives improved results in automotive stamping and component forming applications. It's low viscosity allows good compatibility with most application systems including roll coater, blankwashers, and spray systems.

