



APPLICATION NOTE: Electromagnetic Flow Meters Reduce Failure Rates for Automotive Manufacturer Prototype Parts

Automotive manufacturers require accurate and reliable flow measurement for cooling system design and development for all types of conventional and electrified vehicles, such as passenger cars and trucks, large over-the-road semi-trucks, off-highway mining equipment, and agricultural equipment. Turbine flow meters have been used in automotive design and development for years, and Flow Technology has been a top supplier to OEMs for decades. Flow Technology has continued to innovate in this area and has introduced an electromagnetic flowmeter specifically designed for coolant flow applications. The EL 4000 Series augments FTI's turbine flow meters, offering different features and benefits allowing the optimum technology to be applied to solve a wide range of measurement challenges.

A customer had excessive sand in a prototype casting that may have caused damage to bearings and rotors. The customer still required a high accuracy, compact, and low-pressure drop flow meter, and the EL 4000 Series electromagnetic flow meter was the obvious choice in this particular coolant application.



The EL 4000 Series electromagnetic flow meter represents an alternative for accurate measurement for water-glycol blends. The meters offer a measurement turndown up to 100:1 across the range. The MC 608 A/B magnetic flow transmitter is capable of displaying flow rate and total information as well as providing multiple digital and analog outputs. The mating cables are supplied with Lemo connectors installed to facilitate easy plumbing through firewalls or into vehicle harnesses. The 0.5% of reading accuracy is suitable for even the most critical applications.

The mag meter's open bore design avoids damage from debris because it passes right through the tube. The meter has the lowest possible pressure drop since the flow tube and mating hose have the same ID. With a meter weight of about one pound, the smaller meters require no external support when used directly on heater cores or similar small lines.

HIGHLIGHTS

Industry: Automotive
Service: Flow Rate/Total
Fluid: Water-glycol blends

Application

Cooling system flow measurement during engine testing

Problem

- Sand in the prototype castings that could cause premature turbine failure
- Pressure drop can be critical in component development
- Industrial mag meters can collapse small hoses without additional support

Solution

- EL 4000 Series in-line electromagnetic flow meter
- Lemo connectors supplied on cables for easy integration on vehicle
- MC 608 A/B Magnetic Flow Transmitter for advanced reporting of flow rate and total