

Application News

Ultrasonic Meter Checks Cooling Water Flow During Injection Molding

Industry: Industrial

Service: Flow Rate/Total

Fluid: Water

Overview

Injection molding processes are used for producing parts from both thermoplastic and thermosetting plastic materials. Material is fed into a heated barrel, mixed, and forced into a mold cavity where it cools and hardens to the configuration of the mold cavity.

The plastic injection molding industry has evolved over the years to producing a vast array of products for many industries, including automotive, medical, aerospace, consumer products, toys, plumbing, packaging, and construction.

Some advantages of injection molding are high production rates, repeatable high tolerances, the ability to use a wide range of materials, low labor cost, minimal scrap losses, and little need to finish parts after molding.

Situation

A leading injection molding company required an accurate and reliable solution for checking cooling water flow and temperature at different points along the route to the production floor. In addition, it needed an effective method of measuring water flow in and out of each molding tool. This would enable plant engineers to log and statistically analyze flow data in order to award a performance rating for each tool—and subsequently improve the facility's production rate.

Solution

Flow Technology worked with its local representative to identify the optimal flow measurement technology for the customer's injection molding application. The project team ultimately selected FTI's SLF200 clamp-on ultrasonic flow meter to serve as a portable flow checker to find low- no-flow areas within the plant's cooling water system.

The SLF200 is an accurate, reliable and cost-effective clamp-on ultrasonic flow meter capable of measuring flow through metal, plastic and various other pipe materials without altering the piping. It is ideally suited for applications where it is preferable not to have an instrument exposed to the process fluid.

System Description

Using the versatile SLF200 ultrasonic meter, the customer's maintenance and engineering team was able to collect enough negative data to warrant a further study evaluating the in- and out-bound water flow for each of the plant's molding tools. The SLF200 also provided the data needed to justify installation of an improved water system for the injection molding operation.

The new, upgraded water system utilizes two 14-inch EL2200 Series electromagnetic flow meters, paired with MC 308 mag meter transmitters capable of displaying rate and total flow information as well as providing multiple digital and analog outputs. The EL Series represents the state-of-the-art for accurate measurement for water cycle and process control applications. The meters offer a measurement range up to 1000:1 without the aid of linearization software. Additionally, two temperature and flow units were installed on each injection-molding machine to monitor cooling action.

Technical Information

Flow Meters: SLF200, EL2200-350-A15-FE5CA

Electronics: MC308-CVM-2D3C21N

Flow Rate: 3.3-33 FPS and 280-14200 GPM

Fluid: Water



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