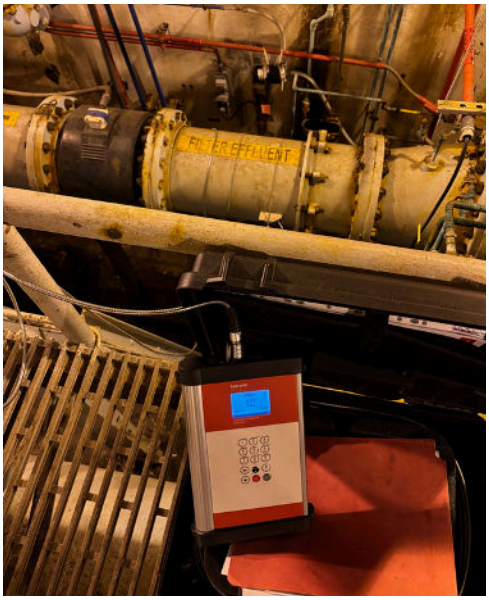
Cross Company

Optimizing Utility Efficiency with Non-Invasive Flow Measurement

The Challenge:



A leading manufacturer of aviation tires faced a significant challenge in managing their plant utilities. Tire manufacturing is a water-intensive process, requiring massive quantities of municipal water for cooling machinery, generating high-pressure steam for vulcanization (curing) processes, and maintaining boiler operations. The plant's engineering team needed to verify the accuracy of their incoming municipal water billing and monitor internal loops to identify potential steam leaks and condensate inefficiencies. However, traditional flow meters (like magnetic meters) require "spooling"—cutting into the pipe and shutting down the process for installation. In a facility where the boiler and cooling systems must run continuously, system downtime was not an option.

The Solution:

Cross Process Solutions identified the KATflow 150, from partner Katronic, as the ideal solution to provide the plant with the data they needed without interrupting production. The KATflow 150 is a clamp-on ultrasonic flow meter that measures liquid velocity through the pipe wall using high-precision transit-time technology.

A critical component of this project's success was the technical survey conducted by Cross engineers to identify optimal installation points. Placing a meter incorrectly in a complex utility environment can lead to "signal noise" and inaccurate data.

- Determining Sensor Placement: The Cross team performed a comprehensive site audit to identify "straight-run" sections of pipe. To ensure laminar flow (smooth, non-turbulent movement), meters were placed away from pumps and elbows that could introduce bubbles or erratic flow patterns.

Beyond Flow Rate: While the primary goal was measuring gallons per minute (GPM), the meters were configured to account for critical process parameters. Cross utilized ultrasonic thickness gauges to verify pipe wall dimensions and programmed the units to compensate for media temperature and line pressure. This ensured that the data was contextually accurate, even as the density of the water shifted in high-heat boiler feed and condensate return lines.

Optimizing Utility Efficiency with Non-Invasive Flow Measurement

KATflow 150 Key Features:

The KATflow 150 was selected because it is designed for demanding industrial environments where reliability is non-negotiable:

- Non-Intrusive "Clamp-On" Technology: Sensors measure through the pipe wall, eliminating pressure drops and new potential leak points.
- Extreme Temperature Tolerance: Stainless steel transducers handle temperatures from -30°C to +250°C, making them suited for both chilled water and high-heat boiler systems.
- Dual-Channel Measurement: Capable of monitoring two pipes simultaneously or utilizing a dual-path configuration to increase accuracy in restricted spaces.
- Advanced Data Integration: Direct communication with the plant's DCS and PLCs via 4-20 mA or Modbus RTU for real-time monitoring.

Working with Cross Process Solutions provided the manufacturer with a true system integrator rather than just a product vendor. This partnership offered several distinct advantages:

- Eliminating Third-Party Contractors: Because the Katronic meters are non-invasive, the Cross team handled the installation and commissioning themselves. This eliminated the need to hire third-party welders or pipefitters, simplified the project timeline, and removed the risk associated with cutting into high-pressure lines.
- Expert Startup and Training: Cross provided full post-sale support, including loop checks to verify communication with the plant's control system and parameter programming.
- Technical Empowerment: Cross engineers trained the facility's technicians on how to adjust meter settings if upstream processes (like pump capacities) change, ensuring the equipment remains accurate for the long term.

The Results:

By partnering with Cross, the manufacturer gained a clear window into their most expensive utility processes with zero downtime. The plant can now verify municipal water billing, pinpoint steam leaks in the condensate system, and troubleshoot pump health using real-time pressure and flow data. This collaborative approach ensured the utility team was left with a fully calibrated tool and the expertise to drive long-term energy efficiency.

Talk to a Cross Process Solutions expert to discuss your facility's flow management and discover how a non-invasive, fully integrated measurement strategy can optimize your utility spend without interrupting your production.