Panametrics
a Baker Hughes business

Application note

XGS868 Steam application

Benefits

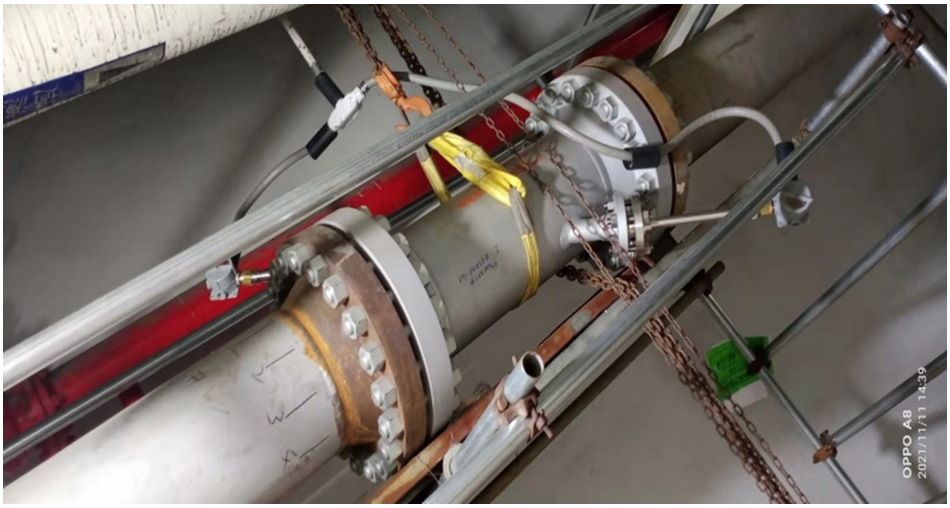
- High reliability
- Low Maintenance with no moving parts
- Negligible pressure drop
- Wide rangeability with 150:1 turndown ratio
- Tolerance to dirty streams
- Bi-directional measurement
- Suitable for high temperatures

Summary

A petrochemical company in Taiwan was looking for a flowmeter solution for its saturated steam lines. One of its requirements was to accurately measure the flow of steam in both directions. Depending on production and demand needs, with two distinct steam heating networks, the customer had to be able to accurately measure forward and reverse flow.

Application

- •Medium: Saturated steam
- •Pipe size and rating: 24" (2), 16" (2), 12" (2) 300# RF
- •Pipe material: 316SS
- •Process Temperature: 230~240°C (446-464°F)
- •Process Pressure: 2.4~2.6MPa (350-380 psig)



Challenge

The steam measurements are used by the customer for energy metering between steam heating networks requiring bi-directional flow. This ruled out all the differential pressure solutions (orifice, venturi, V-cone, etc.) as well as vortex meters. In addition, the company wanted to minimize permanent pressure loss given today's energy costs, and needed a large turndown ratio to cope with the various steam demand throughout the plant.

Solution

Panametrics came up with the perfect solution to meet the requirements. All Panametrics' ultrasonic flow meters are designed to capture flow moving in any direction. Panametrics recommended using the DigitalFlow XGS868i steam flow transmitter together with the T5 HT transducers ensuring the solution would withstand the temperature range.

The team selected two isolated current outputs feeding the customer's DCS, one for the forward flow, the other for the reverse flow to give better resolution on the current output.

Results

The customer ordered and installed one Panametrics steam flowmeter in Q1 2022, and after several months of good performance, it ordered an additional five steam flowmeters in Q4 2022. They are now all installed and are delivering accurate and reliable steam energy metering.

The customer is pleased with the solution and has reported a 5% steam usage reduction since the flow meters were deployed translating into dozens of thousand US dollars saved every year.

Panametrics, a Baker Hughes business, provides solutions in the toughest applications and environments for moisture, oxygen, liquid and gas flow measurement.

Experts in flare management, Panametrics technology also reduces flare emissions and optimizes performance.

With a reach that extends across the globe, Panametrics' critical measurement solutions and flare emissions management are enabling customers to drive efficiency and achieve carbon reduction targets across critical industries including: Oil & Gas; Energy; Healthcare; Water and Wastewater; Chemical Processing; Food & Beverage and many others.

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