



Panametrics gas clamp-on ultrasonic flowmeter

helps Lianyungang Petrochemical Co enhance process availability

Summary

Lianyungang Petrochemical Co. Ltd wanted to introduce a reliable and accurate flowmeter solution to measure the flow of ethylene gas within its ethane production unit derived from ethylene oxidation.

Challenges

The customer currently uses a Coriolis mass flowmeter.

However, the flowrate on this process point is key to the customer's overall operations. Therefore, if the current mass flowmeter failed, the entire line would have to be stopped to fix the flowmeter issue. This is a risk that Lianyungang Petrochemical could not tolerate as the production loss would be significant. As a result, the customer wanted a back up flow measurement solution to prevent the risk of any downtime.

Specifications

Fluid:	Ethylene gas
Pipe Size:	200mm (8")
Pipe Material:	C.S
Wall Thickness:	10mm (0.4")
Process Temperature:	23 °C (73°F)
Process Pressure:	3.4Mpa (493 psig)

Benefits:

- Easy to install
- No process interruption
- No Pressure drop
- Low maintenance
- Long term stability and drift characteristics
- Wide turndown ratio



Fig. 1: Flowmeter installed on the line

Solution

Following a meeting with the customer to identify its needs, Panametrics recommended the implementation of a gas clamp-on ultrasonic flowmeter. However, as the ethylene gas used in this process can contain a small amount of water, there was a concern that if the water content was higher than 5% in volume, it may affect the measurement. In order to ensure the measurement was suitable for this application, the Panametrics Team performed a field test.

Using Panametrics' portable PT878GC with C-RV 310 transducers for testing on the pipe, it was installed 10D downstream of the Coriolis flowmeter.

The Team logged the data of both flowmeters every 10 seconds, as shown in figure 2. Although the PT878GC flow readings were fluctuating by 3-4% relative to the inline Coriolis flowmeter, the measurement was overall consistent.

The Panametrics Team advised that the accuracy could be further improved using pressure and temperature compensation to get a normalized flow. The customer agreed and placed an order for the flowmeter solution.

As a result, the customer is now benefiting from accurate and reliable back up flow measurements, providing confidence that the flow solutions in place will prevent process interruptions.

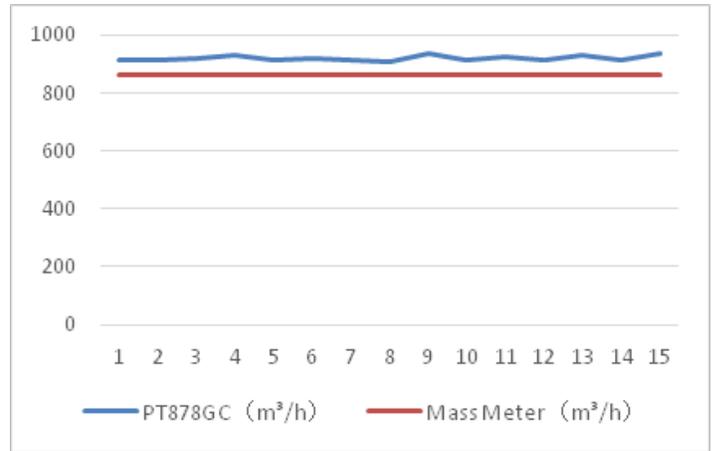


Fig. 2: Measurement comparison with Coriolis meter

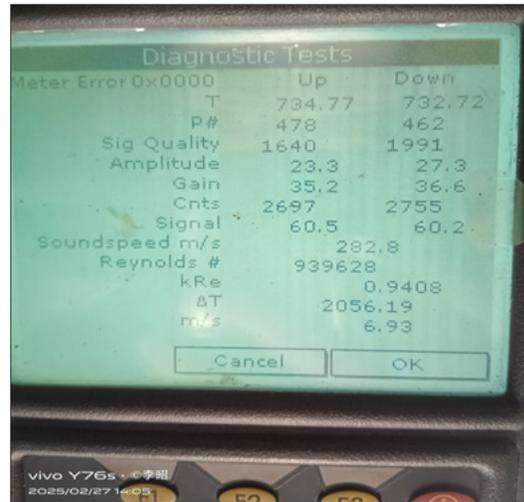


Fig. 3: PT878GC good diagnostics