



# APPLICATION REPORT

Chemical

## Establishing energy efficiency

- Accurate flow measurement of superheated steam
- Reduction in energy consumption
- Long-term stable and reliable measurement due to integrated meter verification



### 1. Background

The Pont-de-Claix (Isère) chemical plant used to be operated by Rhône-Poulenc but the activities were then divided and sold to different companies in the chemical sector. Today, Solvay is the provider of utilities including electricity, compressed air and superheated steam. The company operates 3 gas turbines with cogeneration. The energy sources are natural gas and hydrogen, a by-product of production. The distribution of these utility fluids supplies each operator in the Pont-de-Claix plant.



Start of the utilities towards the chemical plant

### 2. Measurement requirements

The customer would like to measure superheated steam at a temperature of 275°C, a pressure of 31 barg and a flow rate of 60 T/h. This will serve to establish energy efficiency in the cogeneration facilities. The customer had previously been using a competitor's vortex flowmeter. Customers of the chemical plant were consuming 900,000 tonnes of steam per year. Since making the new investments, this consumption has been reduced to 350,000 tonnes per year as a result of new, more energy efficient process units being constructed to replace the old ones.

This leads to many requirements for the measuring point:

- it must be able to cover a much larger flow range, particularly at low flows;
- it must measure in both directions because in the event of a stoppage of the steam production facilities, an external source for help must use the same pipelines but in the opposite direction;
- the generated pressure loss must be as low as possible to avoid wasting energy.

**KROHNE**

## 3. KROHNE solution

KROHNE supplied an OPTISONIC 8300 ultrasonic flowmeter with a 10" diameter and a 10" ASA 300 lbs connection.

The device was installed at the production outlet towards the units on a horizontal pipeline made of carbon steel. The required straight inlet/outlet runs were observed to ensure optimal accuracy. The customer insulated the entire installation.

Featuring an integrated mass flow calculation and a direct input for pressure and temperature measurement, the OPTISONIC 8300 is able to provide measurements in t/h (mass flow).



OPTISONIC 8300 ultrasonic flowmeter

Start-up was planned in conjunction with KROHNE customer service. For production reasons, steam supply started one week early, the device was operational immediately.

## 4. Customer benefits

The OPTISONIC 8300 flowmeter meets the customer's requirements, namely a large span, bidirectional measurement and no pressure loss. No regular maintenance is required and the self-diagnostics of the meter guarantees smooth continuous functioning of the device.

The OPTISONIC 8300 has become the reference meter for all the other measurements done by vortex flowmeters and orifice plates.

Solvay has reduced its energy consumption linked to the pressure loss of the previous measuring devices, the possible measuring zone has been extended, measuring accuracy has been improved and process safety has been enhanced thanks to the self-diagnostics. KROHNE Customer Service must perform an annual equipment verification with a verification tool in order to submit a report to the service quality department.

## 5. Product used

### OPTISONIC 8300

- Ultrasonic flowmeter for high temperature gas and steam
- Accurate measurement without pressure loss
- No recalibration, no maintenance



### Contact

Would you like further information about these or other applications?  
Do you require technical advice for your application?  
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