



ROSEMOUNT™ X-WELL™ TECHNOLOGY OPTIMIZES HEAT EXCHANGER EFFICIENCY— SAVES SIGNIFICANT DOWNTIME AND MAINTENANCE COSTS

Customer

A major European chemical manufacturer.

Results

- Improved operation efficiency by balancing parallel heat exchanger cooling loads
- Reduce heat exchanger down time by providing real time information on heat exchanger performance
- Predictive maintenance capability to avoid future damage, saving more than \$100,000 annually

Application

A chemical plant using river water to provide cooling to ethylene oxide production. The flow rate of cooling water must be kept between a specific range to prevent future damage to heat exchangers. At velocities above the range, erosion occurs. At velocities below the range, Microbial Induced Corrosion (MIC) is introduced.

Challenge

LA major chemical manufacturer was lacking data to monitor the incoming and outgoing temperature of cooling water and process streams to better balance the flow rates through the heat exchangers. Each system of heat exchangers have five units, with three running the process and two off line for cleaning and maintenance. Flow rates of cooling water through the heat exchangers needed to be monitored to prevent erosion or MIC.

“Rosemount X-well Technology saves us an estimated \$100,000 in annual operational costs”



The Rosemount 3144P and Rosemount 648 transmitters are available in durable enamel or stainless steel finish for extreme applications.

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Without temperature data it wasn't possible for the customer to monitor heat exchanger conditions. Without temperature information MIC and erosion were requiring heat exchangers to be taken off line more often for cleaning. Each cleaning cost tens of thousands of dollars in man hours and lost production. Yearly, this loss was estimated to be over \$100,000 in unnecessary expenses. Installing traditional thermowell temperature points was considered too costly and the risk of creating new leak points in the process was considered too high.

Solution

With Emerson's support, the customer identified 65 temperature points that would allow them to determine flow rates based on the energy balance of the heat exchanger. Emerson's Rosemount X-well Technology with the Rosemount 648 Wireless Temperature Transmitter was commissioned to provide the new temperature data. These non-intrusive temperature measurements were placed on each of the incoming and outgoing flows to monitor process and cooling water temperatures. Using this process temperature data, the customer was able to determine the flow rate of cooling water through the exchanger. This knowledge provided the information needed to adjust valve positions to better balance the flow of cooling water through the heat exchangers and ensure they are not running flow rates that would lead to erosion or MIC. In addition, using Emerson's Smart Gateway and AMS software the customer was able to easily bring the new temperature data into their PI data historian.

Resources

White Paper

[Achieve Accurate Process Temperature Measurement Without A Thermowell Or Pipe Penetration](#)

Flyer

[Temperature Measurement Assembly with Rosemount X-well Technology](#)

For more information, visit
[Emerson.com/Rosemount-X-well](https://www.emerson.com/Rosemount-X-well)

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Rosemount X-well Technology with the Rosemount 648 Wireless Temperature Transmitter was commissioned in under an hour and seamlessly connected to the existing wireless infrastructure without process shut down or production loss.

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