

Heat Exchanger Breakthrough Detection



Success in this application can be applied to variety of other applications with similar challenges

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Facts about Heat Exchangers:

- Heat Exchangers are used to transfer or “exchange” heat from one process fluid to another. These fluids are separated by plates, coils, or walls to prevent any sort of contamination.
- Wear and corrosion over time can lead to small breakthrough leaks. This allows an unwanted mixture of the process to be mixed with the cooling water. Oftentimes the cooling water is discharged into a local water source which can lead to pollution and fines if breakthrough is not detected immediately.



Fast and Reliable Detection with Memosens Conductivity

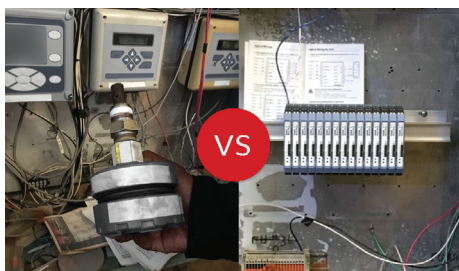
Heat exchangers are used throughout many industrial plants to cool and convert steam into condensate. Once the steam has turned to condensate, it's purity is high and conductivity value is low. Condensate contamination is very costly and affects efficient operation of the plant, or even worse, the contamination can cause environmental pollution. Monitoring the conductivity of the condensate leaving the heat exchanger is a reliable method to ensure the heat exchanger is functioning properly and no “breakthrough” of the process water has occurred during the cooling process.

Typical installations usually include multiple conductivity sensors tied into several large panel-mount conductivity transmitters in a cabinet. This requires an inordinate amount of space in the cabinet and wiring.

Memosens’ smart digital technology provides a maintenance free solution for the operators. When using a SE 615 Memosens conductivity sensor, any contamination within the condensate water will be detected due to the sensor’s large measuring range of 10 μ S/cm ... 20 mS/cm. The SE 615 sensor is installed downstream from the heat exchanger where the process

is much cooler. Based on operating pressure and temperature parameters, the SE 604 and SE 630 are also viable options for detecting breakthrough. Utilizing a CSS 120 static holder allows simple integration of the SE 615 sensor directly in-line with the process and is available in multiple insertion depths.

With the M4 Knick Memosens solution, fast and reliable conductivity measurement is tied into the compact (0.5” wide) DIN rail mounted MemoRail transmitter. The MemoRail transmitter frees up a significant amount of space within the control cabinet and eliminates the excessive amount of wiring used in the past. In addition, two 4...20 mA outputs from the MemoRail provide the measured values of both the conductivity and the temperature of the process to the operator.



What was this Customer’s Return on Investment?

- **Time and Cost Savings:**
Efficient use of the customer’s makeup water, ensuring new batches do not have to be made due to contamination.
- **Reliable Digital Measurement:**
Reliable detection ensures that leaks are detected immediately without negative effects on the customer’s equipment or the environment.
- **Space Savings with Compact Digital Transmitter:**
The compact, DIN rail mounted transmitter, MemoRail, saves space within the control cabinet and precisely transmits both the measured conductivity and temperature values via two 4...20mA outputs.