

# Performing Arts Center Decreases Energy Consumption and Billing System Errors with E-Series Magmeter

## RESULTS

- Decreased energy consumption
- Increased billing accuracy
- Reduced maintenance costs

## APPLICATION

Chilled and condenser water flow in commercial building cooling system

## CUSTOMER

Commercial performing arts center in the United States

## CHALLENGE

This performing arts center was having trouble controlling the primary and secondary chilled water loops within its cooling system. The cooling system was operating inefficiently due to large fluctuations in the chilled water flow rate.

The cooling system previously used clamp on ultrasonic flowmeters to measure the chilled and condenser water flow. These flowmeters didn't cover the full measurement range for seasonal flows and didn't provide the accuracy or responsiveness needed to optimize the cooling systems. Also, the ultrasonic meters did not have a verifiable way to ensure that the device was reading appropriately.

The poor responsiveness of the clamp on ultrasonic meter measuring the de-coupler line led to the large fluctuations in the chilled water flow rate. This led to excessive energy consumption not only at the chilled water pumps, but also at the chillers due to continuous loading and unloading. The ultrasonic flowmeter also led to inaccurate billing because of its low turn down ratio. This resulted in the inability to control system variability and measure the full range of flow from season to season. This flowmeter also caused higher maintenance costs because of the high level of attention needed from maintenance personnel during setup and commissioning.



*The Rosemount E-Series magmeters with high accuracy option helped the customer optimize chiller water flows and reduce energy usage.*



*The Rosemount 8732E Magnetic Transmitter with a Rosemount 8705 Sensor*

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### SOLUTION

The Rosemount E-Series magmeters with the high accuracy D1 option helped the customer optimize chiller water flows with a set point of 450 GPM versus the previous set point of 1000 GPM with ultrasonic flowmeters. The high accuracy measurement reduced cooling system variability and enabled the cooling system to operate more efficiently. The meter verification diagnostic within the Rosemount E-Series magmeter also saved time during the start up and commissioning by simplifying meter validation.

Using best core technology, implementation and field intelligence in the Rosemount E-Series magmeters, this commercial building accurately captured the energy use fluctuations and reduced billing system errors by reducing the cooling system variability. Finally, maintenance costs were also lowered because maintenance personnel could quickly set up, commission, and validate the measurement.

### RESOURCES

#### Rosemount E-Series

<http://www.emersonprocess.com/rosemount/products/flow/m8732e.html>

#### Rosemount E-Series Product Data Sheet

<http://www.emersonprocess.com/rosemount/document/pds/8700.pdf>

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