

# University Successfully Reduces Utility Costs with Rosemount™ Conditioning Orifice and MultiVariable™ Technology

## RESULTS

- Improved steam management
- Reduced energy/utility costs
- Reduced operations and maintenance costs



## APPLICATION

Steam flow metering at 12 university buildings

## CUSTOMER

University in Northeast USA

## CHALLENGE

A university in northeast USA experiences a high steam output during the winter months while heating 12 of the campus buildings, and low output during the summer months when heating is not necessary. Because of the varying flow rates throughout the year, the university was not monitoring their steam flow usage due to the problems associated with traditional technology.

Traditional differential pressure transmitter technology did not allow for accurate readings during the low flow periods of the summer months. Instead, orifice plates would need to be switched with smaller beta orifice plates during these low flowing periods in order to increase the DP measurement signal so that the transmitter can accurately read the flow. Another option the project engineer faced was “stacking” transmitters at each measurement point, using the high range transmitter during the high flow months and the low range transmitter for the low flow months. This, however, would lead to the added cost of purchasing and installing two transmitters for every measurement point. Finally, there was limited straight pipe run available that did not allow for conventional orifice plates to be installed without the increased cost of flow straighteners.

Due to the cost and inaccuracies associated with all of the traditional measurement approaches, the university had no instrumentation installed and was not monitoring their steam usage. The inability to manage this steam usage led to unknown energy and utility costs for the university. Additionally, they were not able to determine if they were insufficiently heating the campus buildings and creating an uncomfortable climate, or excessively heating the buildings and potentially costing them more in energy than necessary. Finally, swapping orifice plates seasonally would greatly increase their operations and maintenance costs.

*The high turndown capability of the Rosemount MultiVariable eliminated the need to seasonally swap orifice plates or stack transmitters.*



Rosemount MultiVariable Transmitter

## SOLUTION

The university installed Rosemount Conditioning Orifice Plates to eliminate the need for extended amounts of straight pipe or flow straighteners. They also installed Rosemount MultiVariable Transmitters, with Ultra for Flow capabilities, mounted on top of the steam application. The high turndown capability of the multivariable transmitter along with the top mount configuration allowed the university to maintain accurate readings during the low flow conditions, eliminating the need to seasonally swap orifice plates or stack transmitters.

The ability of the Rosemount MultiVariable Technology to maintain a high level of accuracy during low flow conditions has allowed the university to successfully measure and manage their steam usage, making it possible to reduce their energy/utility costs. It has also eliminated the need to switch orifice plates seasonally or stack multiple transmitters, thereby reducing operations and maintenance costs while increasing uptime. Additionally, the use of Rosemount Conditioning Orifice Plates has allowed the university to install measurement points in areas with little straight pipe run without the use of flow straighteners. By using both technologies, the university achieved an accurate differential pressure measurement while decreasing the overall cost at each of the 12 campus buildings.

## RESOURCES

### Rosemount 3051S MultiVariable Transmitter

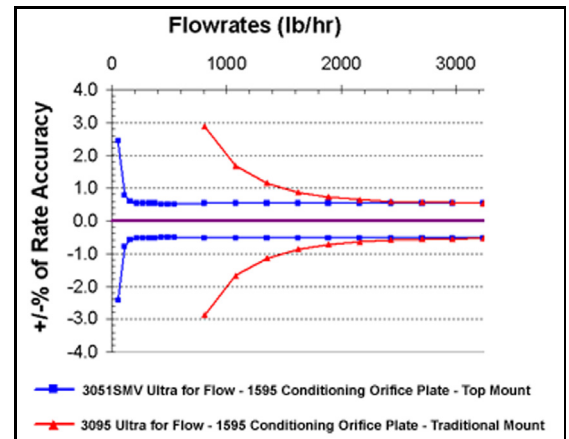
[Emerson.com/Rosemount/Rosemount-3051SMV](http://Emerson.com/Rosemount/Rosemount-3051SMV)

### Rosemount 1595 Conditioning Orifice Plate

[Emerson.com/Rosemount/Rosemount-1595](http://Emerson.com/Rosemount/Rosemount-1595)



Rosemount Conditioning Orifice Plate



Total system performance comparison

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