

# University Power Plant Improves Performance in Steam Application with Innovative Flow Meter

## RESULTS

- Consistent and correct billing for steam use
- Reduced installation time
- Reduced welding and installation costs



## APPLICATION

Steam supply for various university campus facilities

## CUSTOMER

A prestigious university in the Northeast U.S.

## CHALLENGE

A prestigious university in the Northeast U.S. has a steam distribution system consisting of approximately 150 locations. The University's power plant upgraded its Supervisory Control and Data Acquisition (SCADA) system for better control of their utilities and to determine steam usage at various locations. Existing flow measurement installations were evaluated and upgraded to improve plant performance and efficiency of steam distribution.

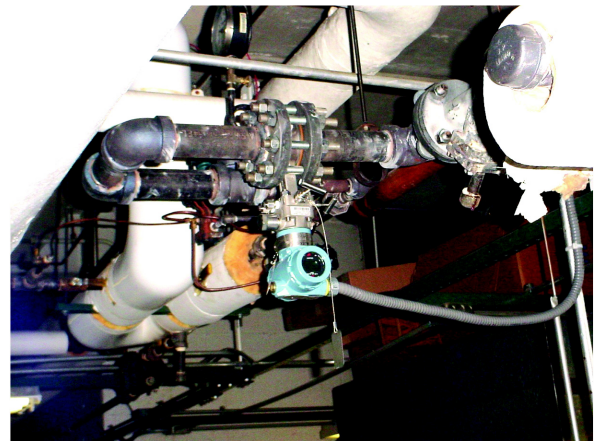
In one location, the campus power plant was billing a nationally known fast food restaurant for their steam usage. An existing flow meter monitored the steam usage for the food service contractor, but was unable to provide accurate measurement due to the low flow rates and multiple upstream disturbances.

## SOLUTION

This tough application required a unique solution. A Rosemount Compact Conditioning Mass Flow Meter was installed two pipe diameters downstream of six 90-degree elbows. This technology measured mass flow with an accuracy of  $\pm 0.7$  percent in this difficult straight pipe-run application.

The excellent results of the Rosemount Compact Orifice Mass Flow Meter gave the University confidence in their flow measurement and SCADA system. Even though the power plants system was operating below the minimum accurate flow of approximately 133 lbs/hr., the Rosemount Compact Mass Flow Meter was able to provide the University's SCADA system with a low flow output signal that now

*The Rosemount™ Compact Mass Flow Meter was able to provide the University's SCADA system with a low flow output signal that now measures steam usage accurately.*



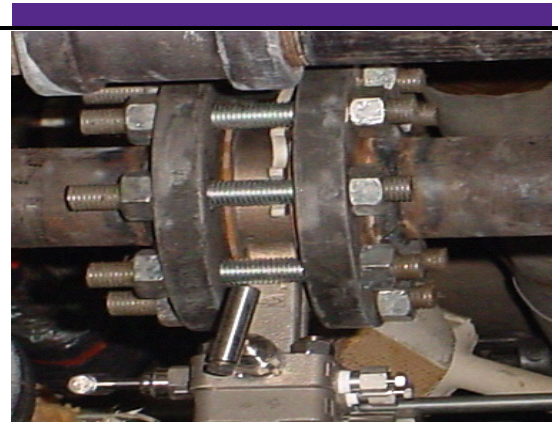
*Rosemount Compact Orifice Mass Flow Meter installed two-pipe diameters downstream from several 90-degree elbows.*

measures steam usage accurately. The restaurant now receives a consistent and correct billing for steam usage.

The Rosemount Compact Orifice Mass Flow Meter simultaneously measures differential pressure, static pressure and temperature, and uses an internal flow computer to automatically compensate for changing process conditions in one fully integrated package. The integration of MultiVariable™ measurements, advanced flow calculations, and advanced configuration flexibility made this the ideal choice for measuring the campus power plant's steam application.

The Rosemount Compact Orifice Mass Flow Meter not only facilitated short straight-run piping, but the fully integrated package eliminated the need for manifolds, connecting hardware, and orifice plate primary. The unique one-in. thick wafer body design of the primary element allowed for installation between existing pipe flanges, reducing welding requirements and installation time and costs.

The Rosemount Compact Orifice Mass Flow Meter provided a flexible, accurate, and reliable process measurement solution, as well as an economical remedy to this installation problem. With the excellent performance of the Rosemount Compact Orifice Mass Flow Meter in a unique installation, the University is looking toward future upgrades of other existing flow meter installations where limited upstream piping is causing measurement inaccuracy.



*Rosemount Compact Orifice Mass Flow Meter installed between standard pipe flanges.*

## RESOURCES

### Emerson™ Power Generation Industry

[Emerson.com/Industries/Power-Generation](https://www.emerson.com/Industries/Power-Generation)

### Rosemount Compact Orifice Flow Meter Series

[Emerson.com/Rosemount/Rosemount-405-Orifice-Plate-Primary-Element](https://www.emerson.com/Rosemount/Rosemount-405-Orifice-Plate-Primary-Element)

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