



INDUSTRY Higher Education

CUSTOMER Western Michigan University

LOCATION Kalamazoo, Michigan, USA

BACKGROUND Western Michigan University (WMU) is a national research university enrolling nearly 24,000 students from across the United States and 100 other countries.

WMU has:

- | 8 million square feet of university space on 1,200 acres
- | 49 miles of utilities
- | Annual dispatch of 72 million KWh of electricity and 510 million pounds of steam

Energy is provided to the East and West campuses, as well as to the Kalamazoo Psychiatric Hospital, by WMU's Robert M. Beam Power Plant. The combined cycle power plant uses both a gas turbine and a heat recovery steam generator to generate electricity. The Beam Power Plant has burned natural gas solely since 1999. It currently uses five boilers to generate steam and four turbines to generate electricity.

PROBLEMS TO SOLVE Allocating energy consumption according to actual usage, rather than facility square footage, was crucial to WMU's goal of more accurate budgeting.

The university needed a flow meter that would accurately and reliably measure steam consumption for billing and energy management analysis, from season to season in facilities throughout the campus. Finding a reliable solution had proven difficult for them due to the university's use of steam for humidification, and condensate lost to dumping. Options were limited further by requirements for installation in areas without any straight run of pipe. Solutions would be required to perform with equal efficiency in existing facilities as well as future construction, so the capacity to utilize all necessary communication protocols was essential.

SOLUTION WMU turned to Armstrong for a single, flow measurement solution that could live up to many demands.

VERIS Accelebar®, Armstrong's patented, state-of-the-art flow measurement technology, was engineered to deliver the exceptional accuracy, versatility, reliability and simple installation WMU demanded from their new flow meter solution.

SCOPE OF WORK Armstrong's VERIS Accelebar® resolved all of WMU's problems and more.

WMU selected 18 buildings for installation of the new flow measurement technology. Armstrong provided VERIS Accelebar®, as well as transmitters and KEP mass flow computers. WMU handled the simple installation process, with no special training required. Installation varied according to the individual meter, ranging from a few hours for 2" meters in threaded pipe, to an average work day for larger meters that required welding flanges. Depending on the available infrastructure, connecting the flow computer to the BAS network was typically completed in one or two days, including programming. Armstrong experts provided technical support for installation, meter sizing and troubleshooting.

SIGNIFICANT ADVANTAGES WMU's savings began with installation, but they didn't stop there.

VERIS Accelebar® comes preassembled and pre-programmed, complete with all the necessary components, so it was ready to install easily with two cuts, two welds and minimal wiring for a turnkey solution. Armstrong's patented, in-line flow meter doesn't require any straight run of pipe to ensure accuracy, so it could be used in WMU's extremely limited piping configurations without costly modifications to piping to make it fit. All of which dramatically reduced WMU's total cost of installation.

Not only that, VERIS Accelebar® has no moving parts and needs no calibration, so costs for maintenance were virtually eliminated.

A reliably efficient solution for today's facilities, and tomorrow's.

The university now has accurate steam flow data for areas where reliable metering of condensate flow had been impossible. Armstrong's VERIS Accelebar® provides actual steam usage, including steam for direct steam humidification, flash, leaks and dumped condensate.

Armstrong's flow measurement solution enables WMU to remotely monitor steam flow meters through existing building automation systems. It has the capacity to utilize several common communication protocols, so it can be expected to perform with equal efficiency in future construction as well.

Armstrong's superior flow measurement technology enables WMU to meter accurately from season to season, year-round.

With Armstrong's VERIS Accelebar®, WMU has been able to standardize on a single metering solution for facilities throughout the campus, even with a high turndown of steam flow between seasons. Whether in hectic winter months or challenging summer, Armstrong's VERIS Accelebar® meters delivers reliable accuracy, all year long.