Application Description AG/PS106-EN

ABB Swirl flowmeters
Help University Recover Over $1.25 Million in Annual Billings

With swirl flowmeters, steam losses go from 16 to 5 percent

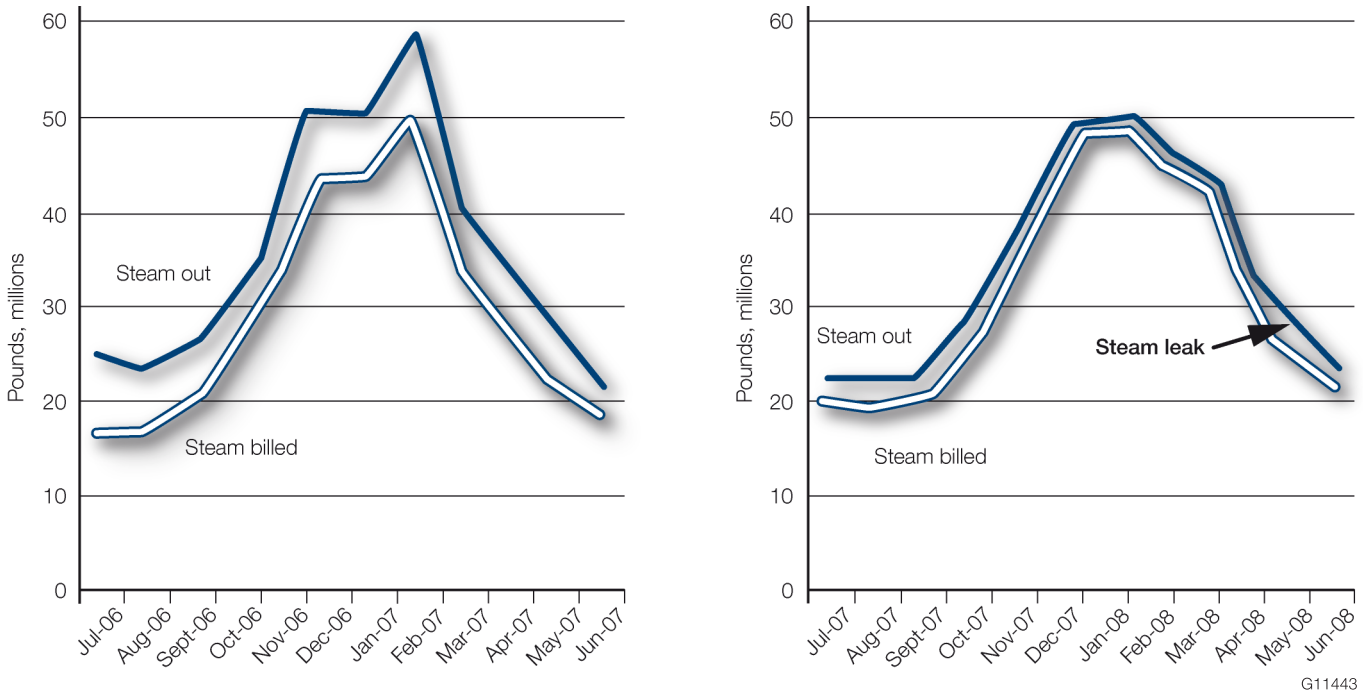
On Virginia Commonwealth University's campus in downtown Richmond, Va., the steam plant consists of three identical boilers, each capable of generating 125,000 lb of steam per hour (= appr. 1,360 tons per day) at 120 … 200 psi (8 … 14 bar).

The outlet lines for each boiler are 10-inch pipes, which lead to a 14-inch main. The main takes steam to a distribution network reaching nearly 60 buildings.
During the 2006-2007 fiscal year, the plant generated about 420 million lb (190,000 tons) of steam, but billed the buildings and departments it serves for only 353 million lb (160,000 tons), a discrepancy of 16 percent. The plant was using old steam and condensate meters to monitor usage.

In part because most buildings lacked the long steampipe runs required for many kinds of flowmeters, the university decided to install swirl flowmeters from ABB, which require less straight pipe before and after metering locations — just three pipe diameters upstream and one downstream. The swirl flowmeters have built-in temperature sensors and automatically compute readings to indicate steam usage in pounds (mass flow). An element at the inlet called a swirler conditions and imparts a sideways twist to steam flow. Acting somewhat like vortex flowmeters, swirl flowmeters are highly accurate, with comparatively good turndown ratios — up to 30:1.

In April 2007, the university began installing swirl flowmeters FS4000 in campus buildings for billing. So far, about 40 buildings have been outfitted with swirl flowmeters ranging in pipe size from 1 … 6 inch. The meters help to pinpoint system leaks and faulty steam traps. Moreover, they promote energy conservation, as departments move to minimize utility costs.

Most swirl flowmeter readings are taken manually twice a month. However, automated data collection is ongoing, with about 12 buildings online. As a result of the installation of the flowmeters, steam losses have dropped to about 5 percent, and the steam plant is recovering more than $1,275,000 in increased billings annually.



New ABB swirl flowmeters FS4000 have closed the gap between steam delivered and steam billed at Virginia Commonwealth University

AG/PS106-EN 03.2012

Contact us

ABB Limited
Process Automation
Oldends Lane, Stonehouse
Gloucestershire, GL10 3TA
UK
Tel: +44 (0)1453 826661
Fax: +44 (0)1453 829671

ABB Inc.
Process Automation
125 E. County Line Road
Warminster, PA 18974
USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183

ABB Automation Products GmbH
Process Automation
Dransfelder Str. 2
37079 Goettingen
Germany
Tel: +49 551 905-534
Fax: +49 551 905-555

www.abb.com

3KDE010049R3001

Power and productivity
for a better world™