Vortex Flowmeter Reduces Maintenance Costs and Increases Throughput in Polyester Fiber Production Facility

RESULTS

- Reduced maintenance by 63 man hours/month
- Eliminated 2 days of production shutdowns per month
- Increased measurement reliability

The all-welded, non-clogging design and superior immunity to vibration reduced maintenance time and increased production availability.

APPLICATION

Polyester Fiber Production – Mother liquor flow measurement

Application Characteristics: Flow rate: 212 ft3/h (6 m3/h), Temperature: 284 °F (140 °C), Pressure: 116 psig (8 bar) Viscosity: 2cp, Density: 69 lb/ft3 (1,100 kg/m3), Meter size: 3-inch wafer (80 mm)

CUSTOMER

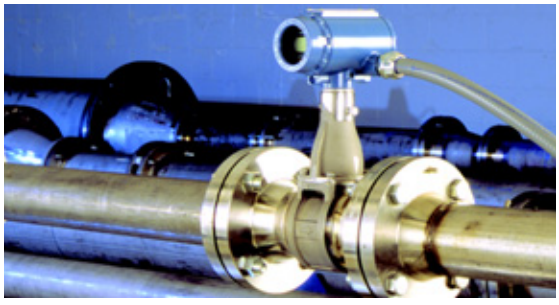
A plastics processing plant in North America

CHALLENGE

Purified Terephthalic acid (PTA) is used to produce polyester fibers, film, and Polyethylene Terephthalate (PET) bottle resins. PTA is produced by passing slurries of terephthalic acid through a catalyst at elevated temperatures to remove undesired impurities. The PTA is then crystallized and filtered out, which results in a separate “mother liquor” flow. The mother liquor is a low-viscosity fluid with light solids. The production of PTA requires precise measurement of mother liquor flows at wide-ranging flowrates.

The customer initially installed another manufacturer’s vortex flowmeter to measure mother liquor flow. They encountered two problems: 1) an unstable output signal due to the effects of vibration, and 2) clogging around the sensing mechanism. These problems resulted in unreliable measurements and significant process shutdowns to remove and clean the flowmeters every week.

The customer subsequently switched to a different manufacturer’s vortex flowmeter, however, the second flowmeter still had to be removed and cleaned every two weeks. Each of the 21 flowmeters took 1 1/2 hours to clean, which resulted in more than a full day of lost production time. Total maintenance time per month was 63 man-hours to remove, clean, and reinstall the flowmeters.



The Rosemount 8800 Vortex Flowmeter Installed

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www.rosemount.com

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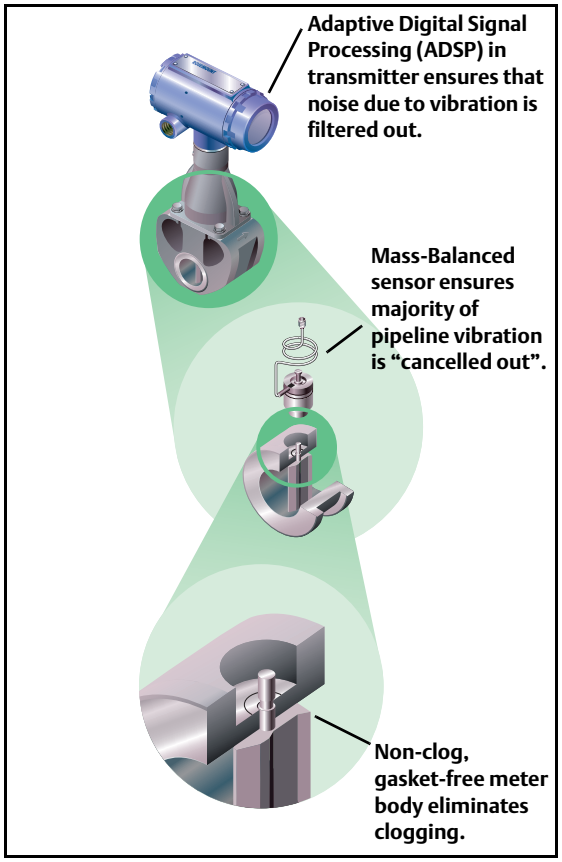
SOLUTION

The customer found that not all flowmeters are created equal. The next step taken was to specify a flowmeter that had a port and crevice - free design, and adaptive digital signal processing.

The plant selected a Rosemount 8800 Vortex Flowmeter, which utilizes an all-welded, non-clogging design with superior immunity to vibration.

Since installation, all 21 Rosemount 8800 Vortex Flowmeters have performed flawlessly. No maintenance or cleaning has been required. There are no more day-long downtimes in the process, profits have increased, and the maintenance headaches have disappeared.

The port and crevice-free design, combined with mass-balancing and adaptive digital signal processing makes the Rosemount 8800 Vortex Flowmeter the clear choice for continued value.



The Rosemount 8800 Vortex Flowmeter Delivers Reliability by Design

RESOURCES

http://www.emersonprocess.com/rosemount/document/datasheets.html
http://www.emersonprocess.com/rosemount/products/flow/m8800c.html

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