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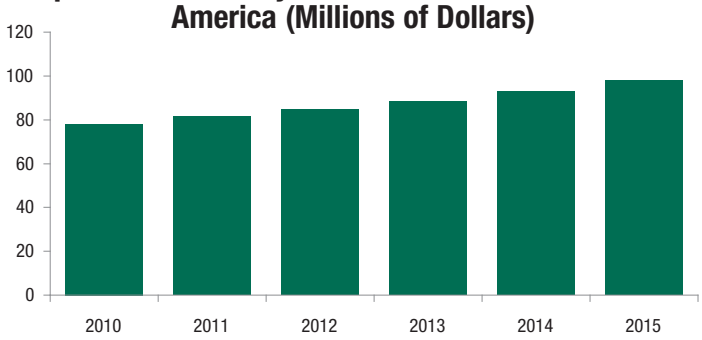
Seizing Opportunity from a Rise in Oil & Gas Exploration

Shipments of Primary Elements for Gas Flow in North America (Millions of Dollars)



Source: The World Market for Gas Flow Measurement, 2nd Edition, Published by Flow Research in June 2011

Differential-pressure (DP) flowmeters have been around for more than 100 years. DP flowmeters are made up of a DP transmitter and a primary element, often an orifice plate, Venturi tube, or flow nozzle. The primary elements constrict the flow, creating a pressure drop, and the DP transmitter computes the flowrate based on the difference between the upstream and downstream pressure in the flowstream.

DP flowmeters are widely used in the oil & gas industry. There has been a great deal of expansion in oil & gas exploration and production activity in the past two years. The price of a barrel of crude oil has increased from $40 in January 2009 to more than $90 today. The increase in the price of crude oil, together with a rise in the price of natural gas, has made it economically feasible to drill in deeper waters, and in locations where costs previously prohibited production.

Flow measurement occurs at many points in the oil & gas exploration and production process. DP flowmeters are among the most widely used in this industry and their use is increasing. One reason is that they are displacing turbine meters. In some cases, DP flowmeters are the only type that is suited to handle the pressures associated with subsea operations. The surge in oil & gas exploration and production has brought a corresponding increase in the sales of DP flowmeters, and has also enhanced the sale of primary elements.

In the past five years, primary elements suppliers have made a number of technological improvements in their products. Veris (*veris-inc.com*) has introduced the Accelabar that combines a flow nozzle with an averaging Pitot tube. Emerson Rosemount (*rosemount.com*) has brought out a conditioning orifice plate that reduces the upstream requirements for a DP flow measurement. Emerson Daniel (*daniel.com*) has upgraded its Senior Orifice Fitting with the release of the Senior Model 2000 Orifice Fitting, designed for lower cost of ownership and longer life. It has o-rings and check valves that are designed to prevent the leaking of any harmful content from the valve. Both Emerson's Junior and Senior Orifice Fittings are widely used in custody transfer gas flow measurement.

The use of multivariable DP flowmeters has been growing substantially over the past several years. A number of companies have entered this market, including Foxboro (*foxboro.com*), Yokogawa (*yokogawa.com*) and ABB (*abb.com*). Multivariable DP flowmeters measure more than one process variable, usually differential pressure and/or pressure and temperature. They are mainly used to measure mass flow and are primarily used for steam and gas flow measurement. Many of them incorporate a pressure and a temperature transmitter into a single device.

Some companies offer integrated products that incorporate a primary element with a DP flow transmitter to create an integrated DP flowmeter. These integrated flowmeters are likely to become more popular as end-users seek to simplify the installation process and cut costs. The result will be an increase in demand for primary elements.

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