



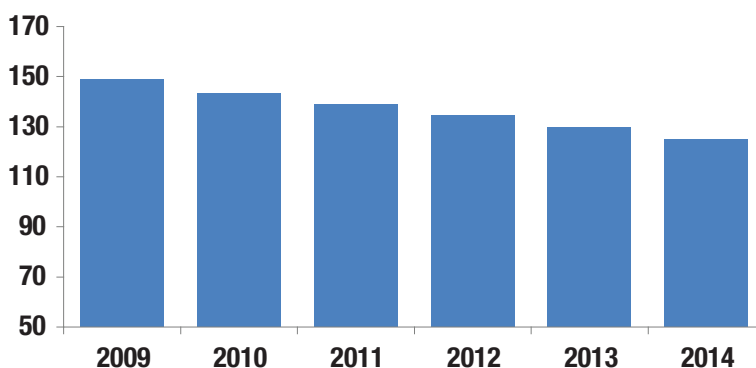
## Large Installed Base & Competitive Advantage for Certain Applications

**P**ositive-displacement (PD) flowmeters are a traditional-technology flowmeter that will be around for many years to come. Even though they face stiff competition from new-technology meters in some segments, they still remain the best solution for certain applications. This market is so large that, like differential-pressure flowmeters, PD meters benefit from the advantages of a large installed base.

Positive-displacement meters are very effective at making low-cost mechanical measurements for utility purposes. These include residential, commercial, and industrial utility applications. In these segments, the main competition for PD meters is from single jet, multi-jet, compound, and Woltman turbine meters rather than from new-technology meters. The reason is that industry approvals for new-technology meters, such as magnetic and Coriolis, are at least several years away.

Positive-displacement meters for gas applications also face

→ Shipments of Positive-Displacement Flowmeters in North America: 2009 - 2014 (Millions of Dollars)



Source: Volume X: The World Market for Flowmeters, 3rd Edition

some competition from turbine flowmeters. However, PD meters are mainly used for the smaller pipe sizes, and most PD meters for gas applications have sizes somewhere between 1.5 inches and 10 inches. Turbine meters, by contrast, perform best with steady, high-volume flows. For this reason, turbine meters are more likely to be used for pipe sizes above 10 inches. This is also the range where ultrasonic meters excel. While ultrasonic, turbine, and PD meters overlap in the four to 10-inch size range, PD meters still have an advantage in the lower sizes. Low flow-rates are not a barrier to PD meters. For this reason, PD meters will continue to be used in the smaller line sizes to measure gas flow.

Technology improvements are also occurring within the PD gas flow market. Rotary PD meters are replacing the older-style diaphragm meters. These newer rotary meters are smaller and lighter than the diaphragm meters. In some cases, when customers take a diaphragm PD meter out of service, they replace it with a rotary PD meter. Rotary meters represent a newer technology, and they allow end-users to upgrade their measurement capability while staying within the class of PD meters.

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