

## Flow Measurement's Unsung Hero

**P**ositive-displacement (PD) flowmeters are the workhorses of today's flowmeter world. They perform many important flow measurements that many people take for granted. For example, PD meters are widely used for billing applications for both water and gas. This includes residential, commercial, and industrial applications. Chances are good that the flowmeter that measures how much water you use at your house is a PD or turbine meter.

Even though they face stiff competition from new-technology meters in some segments, PD meters still remain the best solution for certain applications. In particular, they excel where many other flowmeters have difficulties—low flowrates and high viscosity liquids.

PD meters are very effective at making low-cost mechanical measurements for

utility purposes. They provide a very cost-effective solution for utility applications that require low-cost meters that last for many years in 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 for this is that industry approvals for new-technology meters, such as magnetic and Coriolis, have been slow to develop.

PD meters are often used as a billing meter to measure the amount of gas used at houses, commercial buildings, and industrial plants. Industrial plants such as chemical, food processing, and pharmaceutical plants also use PD meters for billing purposes. These meters are different from the meters used to measure gas as

part of the manufacturing process.

Technological improvements are also occurring within the PD gas flow market. Rotary PD meters, which are smaller and lighter, are replacing the older-style 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 PD class of meters. Rotary meters are also used for non-utility gas flow measurements in industrial environments.

Some relatively new developments focus on improved methods to increase the precision with which components are manufactured. For example, improved coordinate measuring machines make it possible to create more perfectly round pistons and other components. And as is the case with turbine flowmeters, improved bearing technology is making ball bearings more reliable and less prone to fail.

PD meters for gas applications also face some competition from turbine flowmeters. However, PD meters are mainly used for the smaller line sizes, and most PD meters have line sizes somewhere between 1½ 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 line sizes above 10 inches.

The main competition for PD meters for oil measurement comes from Coriolis meters. Because oil is a high-value product, end-users are more willing to pay the higher prices of Coriolis meters to measure its flow. **FC**

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*Flow Research recently published the latest update of its "Volume X: The World Market for Flowmeters" study, highlighting application and technology trends in flow measurement worldwide. For more details on this study, visit **FlowEverything.com**.*

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