

Volume VII: The World Market for Positive Displacement Flowmeters

Positive displacement flowmeters are still the best solution for many applications that have low flowrates or high viscosity fluids. Positive displacement meters are widely used in utility applications to measure the amount of water or gas used in commercial and industrial buildings. This study reveals the major suppliers worldwide, how large the market is, and which segments are either growing or declining.

Operating Principle

Positive displacement flowmeters operate by repeatedly filling and emptying compartments of known volume with the liquid or gas from the flowstream. Flowrate is calculated based on the number of times these compartments are filled and emptied. The types of positive displacement flowmeters included in this study are oval gear, rotary, helical gear, nutating disc, oscillating piston, and diaphragm.

Paradigm Case Applications

Positive displacement (PD) flowmeters are used to measure both liquids and gases. Like turbine meters, **PD flowmeters work best with clean, non-corrosive, and non-erosive liquids and gases, although some models will tolerate some impurities. PD meters also are very good for measuring medium to highly viscous liquids, and for measuring fluids at a very low flowrate.** Because their high accuracy, PD meters are widely used at residences to measure the amount of gas or water used. They are also used commercially to measure gas and water flow at many businesses.

Study Highlights

Positive displacement 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.

Municipal Water. Positive displacement meters are very effective at making low-cost mechanical measurements for utility purposes. These include residential, commercial, and industrial utility applications. Meters that are one inch or less in size are used for residential applications, while 1 ½ and 2 inch PD meters are used for commercial and industrial utility measurements. In these segments, the main competition for PD meters is from single jet, multi-jet, compound, and Woltmann 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. This is a growing segment of the PD market.

Municipal and Industrial Gas. Positive displacement meters for gas applications also face 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 ½ inches and 10 inches. Turbine meters, by contrast, perform best with steady, high-volume flows. While ultrasonic, turbine, and PD meters overlap in the 4 to 10 inch size range, PD meters still have an advantage in the lower sizes. Low flowrates 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.

Oil. In the area of oil flow measurement, PD meters face a stiff challenge from new-technology meters. 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. PD meters are widely used to measure the flow of hydrocarbon products both upstream and downstream of refineries at custody transfer points.

Industrial liquids. PD meters also face a challenge from new-technology flowmeters in measurement for industrial applications. Industrial applications include liquid measurements made in the process and other manufacturing industries. Both Coriolis and magnetic flowmeters are making inroads into measurements for these applications. Some users are seeking the high accuracy of Coriolis meters, while others are looking for meters that have no moving parts.

As part of this study, Flow Research has contacted and interviewed nearly every supplier of positive displacement flowmeters worldwide. We have gathered detailed information about the suppliers and created a detailed description of the positive displacement (PD) flowmeter market worldwide. Highlights of the study include:

- Market size by geographic region
- Market shares by geographic region
- Average selling price by geographic region
- Shipments of PD meters for water applications by geographic region
- Shipments of PD meters for gas applications by geographic region
- Shipments of PD meters for oil applications by geographic region
- Shipments of PD meters for industrial liquid applications by geographic region
- Shipments of PD meters by type (diaphragm, helical, nutating disc, oval gear, piston, rotary) by geographic region
- Shipments of PD Meters by liquid vs. gas by geographic region
- Detailed product specifications for many PD meters
- Strategies for success
- 90 profiles of PD suppliers

Some of the companies profiled in this study include:

ABB, Actaris Metering Systems, Aquametro, Arad, Badger Meter, Barton Instrument Systems, Blancett, Bopp & Reuther, Burkert, Butler Meter, Dandong Gas Meter Co., American Meter Company, EMCO, Emerson Brooks, Emerson Daniel, Flow Technology, FMC Energy Systems, Great Plains Industries, Halliburton Company, Dresser DMD, Hedland Flowmeters, Hefei Instrument General Factory, Hoffer Flow Controls, Instromet International, Invensys Metering Systems, Meinecke, Isoil, Kracht, Kral, Liquid Controls, Litre Meter, MacNaught Pty Ltd., Neptune Technology Group, Nitto Seiko Co., Oval Corporation, Pierburg Instruments, RMG, S.A.M.P.I., Sappel, Solartron Mobrey, Titan Enterprises, Tokheim-Satam, Tuthill Transfer Systems, VAF Instruments B. V., Venture Measurement

For more information on this study, send an email to jesse@flowresearch.com. Or call us at (781) 245-3200. This study is available for immediate shipment via Federal Express.

This is the definitive study on positive displacement flowmeters. Order it today!