

Flowmeter Market Watch

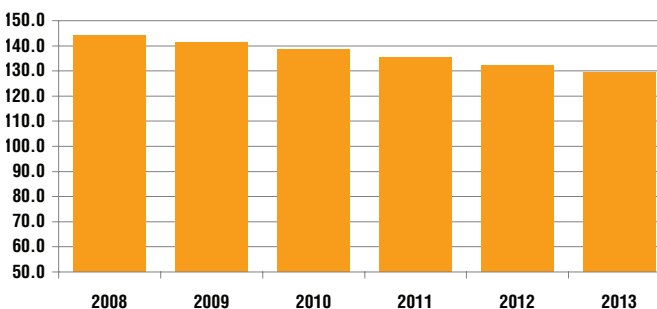
Mergers & Acquisitions in the Turbine & Positive-Displacement Segments

Positive-displacement and turbine flowmeters are being displaced for some applications by new-technology meters, particularly Coriolis and ultrasonic. Despite this trend, both technologies – two of the largest segments of the traditional-technology flowmeter market – remain viable choices for many types of liquid and gas applications. Positive-displacement flowmeters are well-suited to measure low flows, while turbine meters are better suited for medium to high-speed flows.

Positive-Displacement Flowmeters

Positive-displacement (PD) flowmeters are the workhorses of today's flowmeter world. They perform important flow measurements that many people take for granted. For example, positive-displacement meters are widely used for billing applications for both water and gas, including residential, commercial and industrial. PD flowmeters are also widely used for water flow measurement at houses, apartments and offices.

Shipments of Turbine Flowmeters in North America (\$ Millions)



Source: Volume X: The World Market for Flowmeters, 2nd Edition published by Flow Research

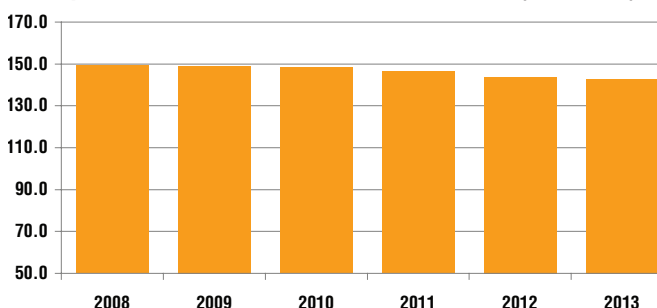
Positive-displacement flowmeters operate by separating the fluid to be measured into distinct compartments of known volume. As the liquid or gas passes through the flowmeter, the flowmeter repeatedly fills and empties these compartments. Flowrate is calculated based on how many times these compartments are filled and emptied. Different types of PD meters differ according to whether they are designed for liquid or gas and according to the shape and size of the compartments involved.

Turbine Flowmeters

Turbine flowmeters are used for liquid and gas flow measurement. One of their early uses was to measure fuel on military planes in World War II. Ten years later, the gas industry had come to accept them for gas flow measurement. In 1981, the American Gas Association (AGA, www.aga.org) issued its report "Measurement of Fuel Gas by Turbine Meters." Since that time, turbine meters have been used extensively for gas

flow measurement, including custody-transfer applications. They are also widely used to measure liquid flows, including both water flows and the flow of hydrocarbons. Turbine meters have a spinning rotor that is mounted on bearings in a housing. The rotor has propeller-like blades, and it spins as water or other fluid passes over it. The rotor

Shipments of PD Flowmeters in North America (\$ Millions)



Source: Volume X: The World Market for Flowmeters, 2nd Edition published by Flow Research

turns due to the force of the current. Flowrate is proportional to the rotational speed of the rotor. A variety of methods are used to detect the rotor speed, including a mechanical shaft and an electronic sensor.

Mergers & Acquisitions in the PD and Turbine Markets

Mergers and acquisitions can occur in any flow technology, and they regularly do. However, traditional-technology companies face significant market pressures because they are competing for what is in many cases a declining market. The following highlights some of the more significant changes that have occurred in the PD and turbine flowmeter space since 2002.

ABB Water Meters in Ocala, Fla., is now **Elster AMCO Water**, part of Elster, which claims to be the world's largest metering and smart metering system solution company. ABB Water Meters, which manufactured turbine and PD meters for measuring water and viscous chemicals, was bought by Elster-Amco (owned by Ruhrgas Industries) in December 2002, creating the world's largest utility metering company. The combined business is known as Elster Metering. Elster Amco Water manufactures PD and turbine flowmeters.

Actaris Metering Systems is now **Itron, Inc.** following an April 18, 2007 acquisition. The combined company became one of the largest electricity, gas and water metering companies in the world. The \$1.6 billion acquisition was unusual in part because a supplier of automatic meter reading (AMR) equipment



bought a metering company, rather than the other way around.

Actaris supplied PD, turbine, ultrasonic, Coriolis and magnetic meters. Itron was the leading supplier of AMR systems and electricity meters in North America. Itron acquired Actaris in part to strengthen its presence outside North America. The acquisition also meant that Itron acquired the metering business interests — except for electricity and water meters in North America — of Schlumberger Resource Management Services, which Actaris had acquired in November 2001.

AW Company, a small PD and turbine flowmeter manufacturer, is now **AW-Lake Company**, a TASI Group company and a growing North American manufacturer and distributor of flow control products. Total Automated Solutions Inc. (TASI) bought AW on December 21, 2005. Before that, AW had purchased a controlling interest in Kueppers Elektromechanik GmbH (KEM) of Germany in March 2004. KEM manufactured PD, turbine, Coriolis, thermal mass, and vortex meters. At the time of the AW purchase, one of TASI's divisions was Lake Monitors, which manufactured variable-area flowmeters and other flow products. AW Flow Meters is now a brand of AW-Lake Company and KEM is AW-Lake's German sister company. Together with KEM, AW Lake distributes throughout North America, South America, Europe, and Asia. The AW Flow Meters brand includes PD, turbine, differential pressure (DP), Coriolis, and variable area flowmeters.

Barton Instruments (PD and turbine) is now part of the Measurement Systems division of **Cameron**. Cameron entered the flowmeter business when it acquired NuFlo Technologies in May 2005. NuFlo Technologies, a unit of SCF Partners, acquired Halliburton Measurement Systems, Barton Instruments, and PMC Global Industries in 2003. At the time, the rest of Barton became Prime Measurement. In March 2007, Prime Measurement sold its intellectual assets and a range of products to the Measurement Systems Division of Cameron (until that same year known as NuFlo Measurement Systems). Cameron's NuFlo brand today includes turbine and DP flowmeters. Its PD meters are marketed under the Barton Measurement brand.

The **Brooks Instrument Division** of Emerson Process Management became a separate entity again, **Brooks Instrument LLC**, on December 31, 2007. It was formed by the American Industrial Partners Capital Fund in a purchase of approximately \$100 million. Emerson Electric had acquired Brooks in 1964, and in April 2001 Brooks became part of Emerson Process Management's group of flowmeter companies with Rosemount, Daniel Industries, and Micro Motion. Brooks supplies PD flowmeters, as well as mass flow controllers, Coriolis, variable area, thermal, and purgemeters. In December 2007 Brooks acquired certain assets of the Mobrey level product line. In 2009 Brooks acquired Key Instruments, which manufactures variable-area flowmeters, and Celerity's Instrumentation Division, including its mass flow controller product line.

Cox Instruments, is now **Cox Flow Measurement Inc.**, a wholly owned subsidiary of **Badger Meter Inc.** Cox has high-end turbine meters for industrial and precision flow applications. Badger Meter, which also supplies magnetic and PD flowmeters, announced the purchase on April 5, 2010. Four years earlier, in September 2006, private investors with many years of experience in the turbine flowmeter industry had purchased Cox Instruments.

Diessel is now **GEA Diessel**, part of the GEA Process Engineering Division. GEA purchased the PD and magnetic flowmeter manufacturer in early 2004.

Elster Amco Group (turbine and PD) is now **Elster-Instromet**, a company of the Germany-based **Elster Group**. Elster, a manufacturer of turbine and PD meters, and Instromet (Instromet International and Instromet Inc.), a manufacturer of turbine meters, merged in 2005. Both were part of CVC Capital Partners, which had acquired Ruhrgas Industries in 2005 from the German company E.On and renamed it the Elster Group. Ruhrgas had acquired Elster in 1985 and Instromet in 2001. The Elster Group firms include the American Meter Company group of companies, which includes Elster-Instromet. Elster-Instromet manufactures energy measuring systems, ultrasonic, turbine, rotary, and diaphragm meters, as well as gas pressure regulators for low, medium, and high pressure.

EMCO is now the EMCO Flow Systems Division of **Spirax Sarco Inc.** EMCO incorporated in 1967, was acquired by Advanced Energy Industries Inc. in January 2001, and sold to Spirax Sarco in June 2005. Spirax Sarco is the U.S. business unit of the world's leading provider of steam system solutions, and EMCO became one of its divisions. EMCO is now the trademark brand for Spirax Sarco's turbine, ultrasonic, vortex, and magnetic flowmeters.

Faure Herman, the French-based turbine and ultrasonic supplier, was acquired by **IDEX Corporation** in February 2007 and became a central part of IDEX's Liquid Controls Group. Faure manufactures an 18-path ultrasonic flowmeter for liquid hydrocarbon applications.

Halliburton Measurement Systems is now part of the Measurement Systems division of **Cameron**. Cameron entered the flowmeter business when it acquired NuFlo Technologies in May 2005. NuFlo Technologies, a unit of SCF Partners, acquired Halliburton Measurement Systems in May 2003. Cameron entered the flowmeter business when it acquired NuFlo Technologies in May 2005. (*See Barton Instruments*)

Hydrometer Group is now **Diehl Metering Corporate Division**, as of June 1, 2010. The company said the change indicates "the favorable development" of the group and its increasing



importance for the Diehl Group as a whole. The Hydrometer Group was first integrated into the Diehl Group in 2003. In 2004, the company transferred and integrated electronic production as Hydrometer Electronic, Nuremberg. In 2008 Hydrometer Group was renamed Diehl Metering.

Instromet Inc. and Instromet International, a turbine manufacturer, became **Elster-Instromet** in 2005. (See *Elster-Amco*)

The metering division of **Invensys PLC**, based in Raleigh, North Carolina, became Sensus Metering Systems on November 5, 2004. It was formed by two investment firms that bought the metering division of Invensys PLC for \$650 million. It shortened its name to **Sensus** on January 22, 2009. The company manufactures turbine and PD flowmeters. It is a privately held company that issues publicly traded, SEC-registered bonds. Sensus has both gas and water metering divisions.

Liquid Controls LLC is now the Liquid Controls brand of the **Liquid Controls Group**, one of the IDEX Fluid & Metering Technologies segment businesses. IDEX purchased Liquid Controls in January 2001 and in June of that year combined Liquid Controls with the Corken business unit. The Liquid Controls group now includes Corken, Faure Herman, Liquid Controls, SAMPI, Sponsler, and Toptech Systems. Liquid Controls supplies PD, turbine, Coriolis, and magnetic flowmeters.

Mueller Co., Hersey Meters Division is now **Mueller Systems**, a Mueller Water Products Inc. company. Mueller announced on January 12, 2010 that it is integrating its Hersey Meters business with its Mueller Systems division, reflecting the company's breadth of system solutions for advanced meter infrastructure. The combined entity will be known as Mueller Systems, while Hersey will remain the company's brand for water meters. Hersey Meters has been part of Mueller Co., one of Mueller Water Products' three operating units, since 1988 and has been in existence since 1859.

Neptune Technology Group is one of **Roper Industries business units**. Roper, a diversified industrial growth company, acquired Neptune Technology Group from Investcorp, a global investment group, in a \$475 million deal that closed in early 2004. NTG supplies both PD and turbine meters. Earlier, in 2001, the Neptune Measurement Division side of the Neptune Meter Company, owned at the time by Schlumberger, became part of a newly formed Actaris.

OVAL is now its own company again after repurchasing its shares from Emerson in 2002. Emerson Japan, a subsidiary of Emerson Electric, became a major shareholder in PD manufacturer OVAL in 1985. The same year, Oval formed an agreement with Micro Motion (now part of Emerson Process Management) for a joint flowmeter technology transfer between the two companies. This technology agreement expired in 2000, and OVAL repurchased its shares from Emerson in 2002. The two companies are now direct com-

petitors in the Coriolis mass flowmeter market.

PMC Global Industries Incorporated, a turbine manufacturer, is now part of the Measurement Systems division of **Cameron**. Nuflo Technologies, a unit of SCF Partners, acquired PMC Global Industries in September 2003. Cameron entered the flowmeter business when it acquired NuFlo Technologies in May 2005. Cameron's NuFlo brand includes turbine and DP flowmeters.

In 2004 **Racine Federated Inc. (RFI)** consolidated its local and out-of-state plant operations in the Racine area of Wisconsin, including its Blancett Division (turbine and PD flowmeters previously located in Fort Worth, TX) and Preso Division (primary elements, primary element flowmeters, and HVAC balancing valves previously located in Plattsburgh, NY). The move puts RFI's construction equipment division and all flowmeter divisions into one facility. RFI's other flowmeter divisions are Dynasonics (ultrasonic and magnetic flowmeters), Hedland (turbine, variable area), and Racine (vortex).

SAMPI is now a unit of **IDEX Corp**, purchased in January 2005. The Italian PD manufacturer opened new offices and a factory in Altopascio in the heart of Tuscany. SAMPI is in The Liquid Controls group, one of the IDEX Fluid & Metering Technologies segment businesses.

Senior Flexonics Ketema Division is now **Senior Aerospace Ketema**. The California-based company, which manufactures turbine flowmeters for the aerospace industry, is owned by Senior plc, an international manufacturing group. In 2001 Ketema opened a manufacturing plant in Saltillo, Mexico, for small part fabrication and power generation opportunities. In 2002 the company was re-structured to reduce overhead costs, improve its factories, and increase efficiencies.

Solartron Mobrey, which supplied ultrasonic, differential pressure, variable area, turbine, and PD flowmeters, is now **Mobrey Measurement**, a division of **Emerson Process Management**. Emerson acquired Solartron Mobrey July 15, 2005 from The Roxboro Group PLC, UK. The Mobrey brand includes an ultrasonic open channel flowmeter and a complete line of level instruments. Emerson discontinued Mobrey's variable area flowmeter and its Sparling A500 ultrasonic flowmeter.

Sponsler Co. Inc. is now **Liquid Controls Sponsler**, a unit of **IDEX**. IDEX purchased the precision turbine flowmeter manufacturer on June 2, 2003. The Liquid Controls group is one of the IDEX Fluid & Metering Technologies segment businesses.

Thermo Electron is now **Thermo Fisher Scientific**. Thermo Fisher Scientific, a conglomerate of many related instrumentation companies, formally came into existence in November 2006 with the merger of Thermo Electron and Fisher Scientific. **Thermo Polysonics Inc.**, formerly a Thermo Electron company, was also subsumed in the deal.



Company	New name/ownership	Date	Website
ABB Water Meters	Elster AMCO Water	Dec 2002	www.elsteramcowater.com
Actaris Metering Systems	Itron Inc	Apr 2007	www.itron.com
AW Company	AW-Lake Company, TASI Group	Dec 2005	www.awlake.com
Barton Instruments	Cameron	May 2005	www.c-a-m.com
Brooks Instrument Division, Emerson Process Management	Brooks Instrument, LLC	Dec 2007	www.brooksinstrument.com
Diessel	GEA Diessel, GEA Group	Early 2004	www.geadiessel.com
Cox Instruments	Cox Flow Measurement Inc., a wholly owned subsidiary of Badger Meter, Inc., Purchased by private investors	Apr 2010 Sept 2006	www.cox-instruments.com
Elster Amco Group	Elster-Instromet, Elster Group	2005	www.elster-instromet.com
EMCO	EMCO Flow Systems Division, Spirax Sarco, Inc. Acquired by Advanced Energy Industries, Inc.	June 2005 Jan 2001	www.emcoflow.com
Faure Herman	Faure Herman, Liquid Controls Group, Fluid & Metering Technologies, IDEX	Feb 2007	www.faureherman.com
Halliburton Measurement Systems	Cameron, Measurement Systems division	May 2005	www.c-a-m.com
Hydrometer Group	Diehl Metering Corporate Division	June 2010	www.diehl-metering.com
Instromet Inc.	Elster-Instromet	June 2005	www.elster-instromet.com
Invensys PLC, metering division	Sensus Sensus Metering Systems	Jan 2009 Nov 2004	www.sensus.com
Liquid Controls LLC	Liquid Controls, Liquid Controls Group, Fluid & Metering Technologies, IDEX	Jan 2001	www.liquidcontrols.com
Mueller Co., Hersey Meters Division	Mueller Systems, Mueller Water Products, Inc.	Jan 2010	www.muellerwaterproducts.com
Neptune Technology Group	Neptune Technology Group, Roper Industries	Early 2004	www.neptunetg.com
OVAL, Emerson Electric	OVAL	2002	www.oval.com
PMC Global Industries Inc.	Cameron, Measurement Systems division	May 2005	www.c-a-m.com
Racine Federated Inc.	Consolidated its plant operations in Racine, WI	2004	www.racinefed.com
SAMPI	SAMPI, Liquid Controls Group, Fluid & Metering Technologies, IDEX	Jan 2005	www.sampi.it
Senior Flexonics Ketema Division, Senior plc	Senior Aerospace Katema, Senior plc	2002	www.sfketema.com
Solartron Mobrey	Mobrey Measurement, Emerson Process Management	July 2005	www.mobrey.com
Sponsler Co., Inc.	Liquid Controls Sponsler, Liquid Controls Group, Fluid & Metering Technologies, IDEX	June 2003	www.sponsler.com
Thermo Electron, including Thermo Polysonics	Thermo Fisher Scientific	2006	www.thermoscientific.com www.thermofisher.com

Polysonics' impeller meter, called Flow Research, has been discontinued, although its ultrasonic meters are still manufactured. Thermo Fisher Scientific offers two brands, Thermo Scientific and Fisher Scientific. Thermo Scientific, the new name for the Thermo Electron brand, represents high-end analytical equipment and instruments, including ultrasonic, turbine, and open-channel flowmeters. Fisher Scientific provides laboratory equipment, chemicals, supplies, and services. **FC**

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