

FlowTimes – March 2019

*Your Strategic Update on Flow, Temperature, and Pressure Measurement
from Flow Research*

Executive Editor: Dr. Jesse Yoder; Volume 20, Number 1 – ISSN 1350-7204

1. Letter from the president — How to compete in today’s market

In the December 2018 issue of Flowtimes, I distinguished among strategies for larger, medium-size, and smaller companies and focused on smaller companies. In this issue, we focus on some strategies for larger companies, which typically have different and more tools with which to compete. For example, larger companies have more resources for R&D, are able to more easily broaden their product lines through acquisition, and typically can offer a more diverse product line. Larger companies also typically have a broader geographic reach than their smaller counterparts. Here are some key strategies for larger companies:



1. *Acquire new product lines that complement existing lines.* Many companies are looking to acquire Coriolis, ultrasonic, and magnetic flowmeter product lines because these are the largest and the fastest growing markets.
2. *When acquiring a company, do not bury the brand.* Some companies, when absorbing another company, want to brand all the acquired products with the parent company name. This has the advantage of uniformity and can make for a more consistent offering, but it may make it difficult for existing or potential customers to find products with the old brand name.
3. *Work with engineering companies and OEMs to bid on upcoming projects.*
4. *Find projects that require multiple product lines* such as multiple types of flowmeters, or pressure, temperature, or level products. Because they often have a broader product line than smaller, more niche-oriented companies, large companies often have the advantage of being a single-source supplier for some customers and projects.
5. *Develop and/or maintain a clear path to market* with a combination of a direct sales force, reps, and distributors.
6. *Remember that you are not just selling a product; you are selling a company.* No matter how technically superior your product is, customers will be turned off if they can’t get quotes, have to wait longer than expected for delivery, or are unable to get prompt service. Leading companies are likely to be service-oriented and customer-centric.

For more strategies for large, medium, and small companies, see our Worldflow Market Barometer Q2/Q3 2018 (www.worldflow.com).

2. New all-in-one *Volume X* captures the excitement of unprecedented growth in the flowmeter market

Flow Research is about to ship one of the most comprehensive studies ever published of the worldwide flowmeter market. The all-in-one *Volume X: The World Market for Flowmeters, 7th Edition* determines 2018 market size and market shares, and forecasts growth through 2023 for all flowmeter types used in process environments.



Volume X and Module A give you handy, all-in-one sets of information tools for the world flowmeter market.

We published our first *Volume X* study in 2003, when the worldwide flowmeter market was \$3.1 billion. The market has grown substantially since then, and we've been there to document its growth every step of the way. Our *Volume X, 7th Edition* captures this growth and makes it easy to determine which flowmeter types benefited most from the recovering market.

The year 2018 was very exciting in the flowmeter market, and *Volume X* is the only product on the market that examines the growth in all flow technologies: Coriolis, magnetic, ultrasonic, vortex, thermal, multivariable and differential pressure transmitters, primary elements, positive displacement, turbine, open channel, and variable area. Over the past nine months, we have sent out over 500 questionnaires to all known suppliers of every flow technology asking for geographic distribution and revenue information, along with industries, applications, fluid types, and projected growth from the base year of 2018. We have analyzed the results and written a complete study of the worldwide flowmeter market. Some technologies, especially magnetic flowmeters, appear to have experienced unprecedented growth.

The all-in-one *Volume X* makes it easy to compare market size, market shares, and growth rates for all types of flowmeters. We use a bottom-up method to determine market size for each flowmeter type, and then put these numbers together for the worldwide picture. We believe this is the only way to get a reliable picture of the world flowmeter market and to find out how the different flowmeter types compare with each other.

In addition to *Volume X*, we are again publishing the companion volume called *Module A: Strategies, Industries, and Applications*. This popular study gives segmentation by industry and application for each flow technology. It also discusses the underlying growth factors and driving forces behind the different industries and applications. The strategies section shows you how to gain an edge in a competitive market. More details about *Module A* are included in the *Volume X/Module A* overview which you can find at www.FlowVolumeX.com.

Both *Volume X* and *Module A* are must-haves for anyone who needs to get quickly up-to-speed on the global flowmeter market and its many components, and are high among our all-time most popular studies.

Volume X includes:

- New-technology flowmeter markets: Coriolis, magnetic, ultrasonic, vortex, and thermal
- Traditional technology flowmeter markets: differential pressure, primary elements, positive displacement, turbine, open channel, and variable area
- Emerging technologies: sonar and optical
- Market size in 2018 of the worldwide market by flowmeter type in dollars and units
- Market size forecasts by flowmeter type through 2023 in dollars and units
- Market shares for each flowmeter type in 2018
- Worldwide and regional market size and forecast data for the following geographic segmentation: North America, Western Europe, Eastern Europe/FSU, Mideast/Africa, Japan, China, Asia Pacific, and Latin America
- Growth factors and market trends for all flowmeter technologies
- A technology description and analysis for each flowmeter type, including major competitive strengths and weaknesses
- Company profiles with product information for easy comparison

If you need more detailed segmentation on any flowmeter type, we also have individual studies on most flowmeter markets. Flow Research is the only company worldwide whose primary mission is researching the flowmeter and instrumentation markets. Find out how you can benefit from knowledge gleaned from 20+ years of data and 250+ studies. Capitalize on insights from our onsite visits to suppliers and end-users in the Middle East, Europe, the United States, and Australia. Make us your one-stop shop for data on flowmeters and instrumentation.

For complete details, go to www.flowvolumex.com. To get your copy, click the Order link or contact Flow Research by email or phone. Call 781-245-3200 or email us at jesse@flowresearch.com for special pricing on orders placed by March 30, 2019.

3. Coming up: CEESI Conference, and FRWG meeting

On June 18–20 in Austin, Texas, the North American Custody Transfer Measurement Conference (NACTMC) 2019 will bring together meter manufacturers, end-users, standards and testing representatives, and others to share and discuss hydrocarbon measurement knowledge, problems, solutions, and issues on topics including metering technologies, flow measurement research, industry standards, government regulations, and diagnostic tools. www.ceesi.com/CustodyTransfer2019.

The Flow Recalibration Working Group (FRWG) will be holding its fourth meeting immediately following the conclusion of CEESI's conference. Formed in 2015, through the efforts of Flow Research, Inc., FRWG is a volunteer group of key industry personnel focused on flowmeter recalibration. Many end-users have questions about when to recalibrate their meters. FRWG's main goal is to formulate criteria for determining when flowmeters need recalibration, and eventually get these approved. The group is also working on a database of papers and articles from industry experts, and plans to write some Whitepapers about flowmeter recalibration. At the website, www.frwg.org, you will find more information and a survey designed to find out

what people are doing now, including how often and why they have their flowmeters recalibrated. The results-to-date will be discussed at the meeting, but the survey is on-going.

We need your help! If you would like to participate in our research, please go to www.frwg.org. If you have experience with recalibration issues, please download our Flowmeter Recalibration Survey and return it to us. There is still time to provide input for our 4th Annual Meeting at the CEESI Conference in June 2019. Thank you in advance for your help!

4. Now shipping: *The World Market for Vortex Flowmeters, 6th Edition*

Vortex flowmeters' versatility, reliability and accuracy in measuring liquids, gases, and steam at a competitive price continue to drive steady market growth, according to Flow Research's new market study, *The World Market for Vortex Flowmeters, 6th Edition*. Since our last vortex study in 2014, much has happened in economies and industries, especially in those affected by fluctuations in oil prices. (Previous editions of this study were also published in 2001, 2003, 2006, and 2010.) User interviews show that interest in vortex flowmeters remains very high.

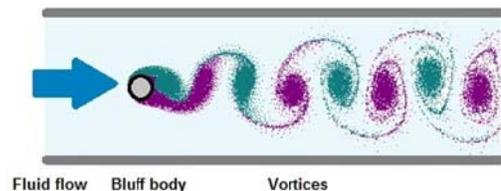
Vortex meters are well suited technically for measuring the flow of both gas and steam, and their use is keeping pace with industry growth. Investments in oil & gas operations are increasing again, and vortex flowmeters are approved for use in gas custody transfer applications by the American Petroleum Institute, so the vortex market is increasing steadily.

The study has multiple purposes:

- Determine worldwide market size and market shares for all vortex flowmeters in 2018
- Forecast market growth for all types of vortex flowmeters through 2023
- Identify the industries and applications where vortex flowmeters are used, as well as market growth sectors
- Provide a product analysis for the main vortex flowmeter suppliers
- Provide strategies to manufacturers for selling into the vortex flowmeter market
- Provide company profiles of the main suppliers of vortex flowmeters

Key issues addressed in this study:

- The factors causing the market to grow
- Growth in the use of multivariable flowmeters
- The effects of the API's adoption of a custody transfer standard on vortex sales
- The use of vortex flowmeters in district heating and steam applications
- Line sizes for vortex flowmeter applications
- The importance of reducer vortex flowmeters
- New product and technology developments
- Growth strategies for vortex flowmeter suppliers



To read the overview, please visit www.flowvortex.com. To order this study, contact Flow Research by email at jesse@flowresearch.com, or call Flow Research at 781-245-3200.

5. Dolphin Energy – 20 years since inception and still vital to the Middle East

Dolphin Energy Limited, a gas company established in March 1999 by the Government of Abu Dhabi, has been supplying up to 2 billion standard cubic feet a per day (scf/day) of natural gas since its Dolphin Gas Project went into full production 11 years ago. The project features the largest and longest gas pipeline in the Middle East and the only international gas network in the region.

The founding hope was to bring together the resources and vision from Qatar, the United Arab Emirates, and Oman.

Despite tensions in the region – including UAE and other countries severing diplomatic relations with Qatar in 2017 – the gas has continued to flow. The 364km subsea pipeline runs from Qatar’s giant offshore North Field – the largest gas field in the world – to the UAE and Oman.



The Dolphin Gas Project includes the three key stages of the production chain – upstream, midstream and downstream. Dolphin Energy produces raw natural gas from 27 deep wells drilled in the North Field. Two 36-inch sealines connect two production platforms to a gas processing and compression plant at Ras Laffan Industrial City. The lean gas is then transported via a 48-inch subsea pipeline to the Taweelah receiving station in Abu Dhabi. The gas is then delivered through Dolphin’s wide on-shore gas network to UAE utilities and distribution customers such as Abu Dhabi Water and Electricity Company (ADWEC), Dubai Supply Authority (DUSUP) and the Union Water and Electricity Company (UWEC), as well as the Oman Oil Company (OOC).



The Dolphin Gas Project, which cost USD\$6.2 billion to construct, is one of the largest energy-related ventures undertaken in the Middle East. Production started in 2007 and facilities became fully operational in February 2008 with a base average throughput rate of 2 billion scf/day. A gas compression facility upgrade in 2016 increased the pipeline capacity to 3.2 billion scf/day, with usage of this additional capacity subject to a future agreement between Dolphin Energy and Qatari authorities. The cumulative gas production currently stands at over 7 trillion cubic feet of export gas.

Mubadala Development Company holds a 51 percent interest in Dolphin Energy that is actively managed by Mubadala Petroleum. Occidental Petroleum and Total equally share the remaining 49 percent. The contract to provide the UAE with Qatari gas extends to 2032. The Dolphin Gas Project currently meets 30 percent of the UAE’s electricity needs.

6. Hot off the press: *The World Market for Primary Elements, 2nd Ed.*

Flow Research's new market study – now shipping – finds that the primary elements market is riding a wave of growth in the oil and gas industry. *The World Market for Primary Elements, 2nd Edition* determines that increased oil & gas exploration and production are generating demand for both multivariable and single variable differential pressure (DP) transmitters, which in turn are driving growth in the primary elements market. This upward trend, combined with technological improvements, environmental standards, and a strong installed base of DP flow transmitters, is continuing to fuel the primary elements market. The study establishes the size of the worldwide market in 2018, and the market shares of all major suppliers and forecasts market growth through 2023.

This study focuses on a number of important objectives:

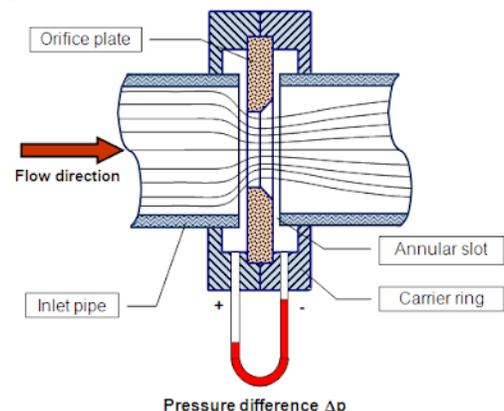
- 2018 market size in US dollars and unit volume for primary elements worldwide
- 2018 market shares of the leading suppliers of primary elements worldwide
- Forecast market growth for primary elements in dollars and unit volumes through 2023
- Segmentation both on a worldwide basis and for each of eight global regions
- Segmentation by fluid types, industries, applications, distribution and customer types
- Product analysis for the significant suppliers of primary elements
- Identification of industries and applications where primary elements are used, as well as market growth sectors
- Market and product strategies for suppliers of primary elements worldwide
- Company profiles for the significant suppliers of primary elements worldwide

Key issues addressed in this study:

- Growth outlook for primary elements worldwide and by region
- Chief types of primary elements manufactured
- New product developments
- Integration of different types of primary elements into a single unit
- Encroachment of new-technology flowmeters into the primary elements market
- Large number of primary elements suppliers in the market
- Mergers and acquisitions of primary elements suppliers

Primary elements included in this study:

- Orifice measuring points
(singly or with assembly/flange)
- Pitot tubes (single port, multiport/averaging)
- Venturi tubes
- Cone elements
- Flow nozzles
- Wedge elements
- Other (e.g., Dall tubes, laminar flow elements)



To learn more about exciting new study, please visit www.FlowPlate.com

7. Studies from Flow Research

Coming soon:

- Covering all the main flowmeter types: www.FlowVolumeX.com
Volume X: The World Market for Flowmeters, 7th Edition, and
Volume X: Module A: Strategies, Industries, and Applications
- *The World Market for Mass Flow Controllers, 3rd Edition* www.FlowMFC.com

Upcoming studies:

- *The World Market for Magnetic Flowmeters, 7th Edition* (2019) www.FlowMags.com
- *The World Market for Coriolis Flowmeters, 6th Edition* (2019) www.FlowCoriolis.com
- Ultrasonic flowmeters series (2019), www.FlowUltrasonic.com
Core Study: The World Market for Ultrasonic Flowmeters, 6th Edition
Module A: The World Market for Inline Ultrasonic Flowmeters
Module B: The World Market for Clamp-on and Insertion Ultrasonic Flowmeters
- *The World Market for Pressure Transmitters, 5th Edition* (2019),
www.pressureresearch.com

Recently published studies:

- *The World Market for Vortex Flowmeters, 6th Edition*, published January 2019 –
www.FlowVortex.com
- *The World Market for Primary Elements, 2nd Edition*, published January 2019 –
www.FlowPlate.com
- *The World Market for Thermal Flowmeters, 2nd Edition*,
published January 2018 – www.TempResearch.com
- *The World Market for Magnetic Flowmeters, 6th Edition*,
published October 2017 – www.FlowMags.com
- **Ultrasonic Flowmeters Series** – www.FlowUltrasonic.com
 - *Core Study*: published September 2017
 - *Module A: Inline*, published July 2017
 - *Module B: Clamp-on and Insertion* (separate data sections), published August 2017
- *Module A (to Multiphase): The World Market for Watercut Meters*,
published April 2017 – www.WatercutMeters.com
(for the multiphase study: www.FlowMultiphase.com)
- *The Market for Temperature Sensors in the Americas, 3rd Edition*,
published February 2017 – www.TempResearch.com

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Energy Monitor features news, trends and projects in the oil & gas, LNG & fracking, and power & renewables industries and related topics. It also includes "Issues and Perspectives" market analysis by Jesse Yoder, and a highlight of a region, organization, or company.

Market Barometer reports on industry news and trends, acquisitions, mergers and other company changes, industry-related topics and new product developments in categories covering each major flowmeter types plus several other process instrumentation types and flow calibration. It also includes "State of the Industry" summaries of current market research by Jesse Yoder, and a "Company Korner" profile.

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