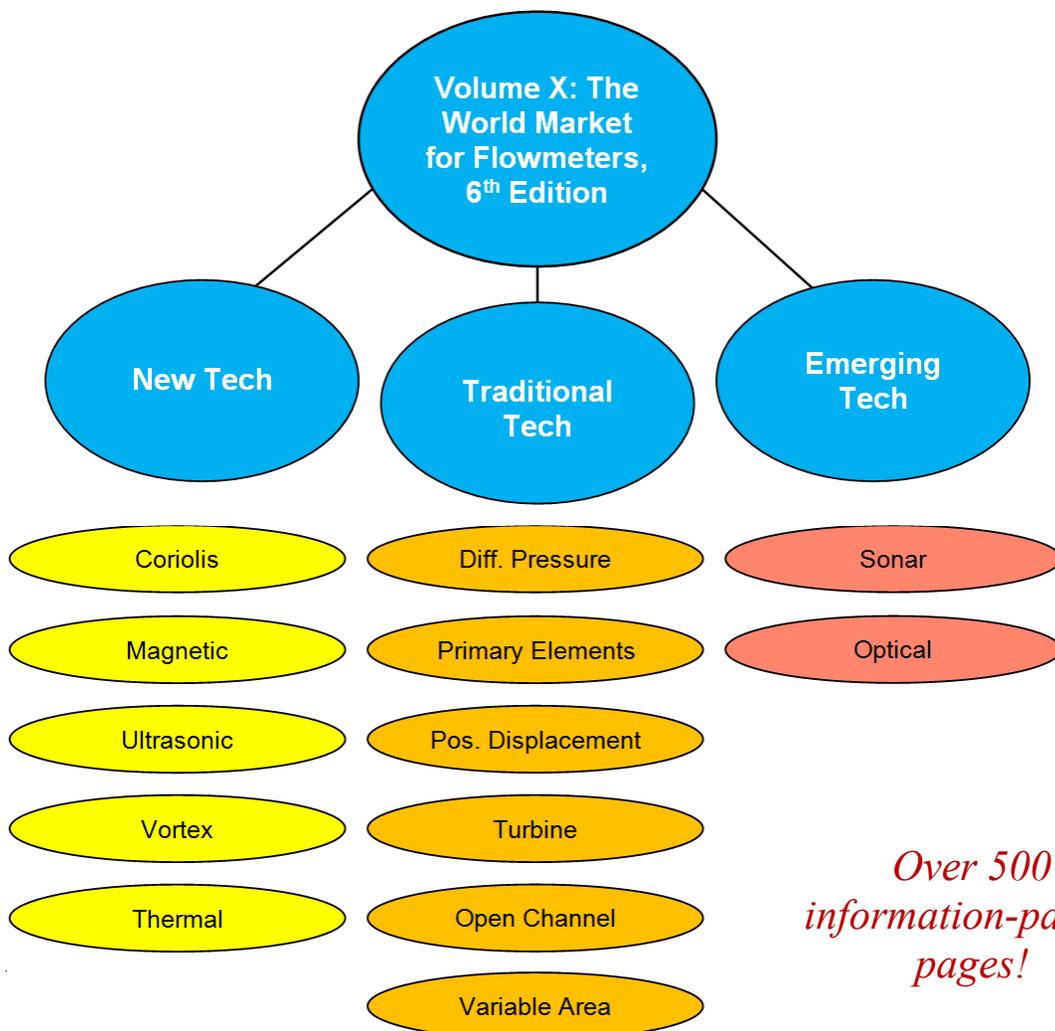




Flow Research, Inc.
27 Water Street
Wakefield, MA 01880 USA
+1 781-245-3200
+1 781-224-7552 (fax)
www.flowresearch.com

Volume X: The World Market for Flowmeters, 6th Edition

Overview



*Over 500
information-packed
pages!*

Date Published: January 2017

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 United States
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 +1 781 224-7552 (fax)
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Another 'instant classic' from Flow Research

Volume X: The World Market for Flowmeters, 6th Edition

Now you can profit from comprehensive market research on the worldwide flowmeter market – all in one place. *The World Market for Flowmeters, 6th Edition*, was published in January 2017. It presents a complete picture of the worldwide flowmeter market. This study includes both new-technology and traditional technology flowmeters, as well as the emerging flow technologies of sonar and optical. This full-color, over-600-page study includes:



The view from 20,000 feet

- **Market size** of the worldwide market for 11 flowmeter technologies
- Market size **forecasts** for each flowmeter type through 2020
- **Market shares** for each flowmeter type in 2015
- Both **worldwide** and **regional** market size and market share data
- A **technology description and analysis** for each flowmeter type, including major competitive strengths and weaknesses
- A **product line analysis** for the major manufacturers of each technology type
- **Company profiles** with product information for easy comparison

Why we published this study

We completed our first *Volume X* study in 2003, and published subsequent editions in 2008, 2010, January 2013 and August 2014. We have closely followed the growth in the markets of all the flowmeter types during this time. The main goal of this study is to determine the size of the worldwide flowmeter market, including all technologies, and to see if the trend towards new-technology flowmeters continues. This study contains revenue, unit, and average selling price data for all flow technologies, segmented by region. It provides the tools you need to compare market size, market shares, and growth rates for all the flow technologies. It also provides product analysis and growth factors for each flowmeter type. *Volume X* enables you to assess your competitive position in the flowmeters you supply and the ones you compete against. Market forecasts through 2020 are included.

Segmentation covers what our clients want

When we published our first *Volume X* study, we found that the worldwide flowmeter market equaled US\$3.1 billion in 2002. Today, it exceeds \$6 billion. In order to make this market more understandable, we divide it into three flowmeter groups: New-Technology, Traditional Technology, and Emerging Technology. From there, we look at each of the flowmeter technologies individually. Then we build up the total market from the individual flowmeter types. This technique gives you a comprehensive view of the parts and the whole.



Taking a closer look

This study provides the following worldwide **geographic breakouts** for each flowmeter technology:

- North America (United States and Canada)
- Western Europe
- Eastern Europe/FSU (Former Soviet Union)
- Mideast/Africa
- Japan
- China
- Asia/Pacific
- Latin America (Mexico, Caribbean, Central and South America)

The following **market segments** are common to each flowmeter technology chapter:

- Market size and forecasts in dollars and units
- Manufacturer market shares
- Average selling prices by technology by region
- Technology analysis
- List of major suppliers

Individual flowmeter technologies included in this study

New-Technology

Coriolis Flowmeters
Magnetic Flowmeters
Ultrasonic Flowmeters
Vortex Flowmeters
Thermal Flowmeters

Traditional Technology

Differential Pressure Transmitters
Primary Elements
Positive Displacement Flowmeters
Turbine Flowmeters
Open Channel Flowmeters
Variable Area Flowmeters

Emerging Technology

Sonar
Optical

Overview chapters for each flowmeter group include valuable summary data

For example, the **New-Technology Flowmeters** overview chapter provides technology descriptions, compares new-technology flowmeters to the DP standard, describes the paradigm case method and its several criteria, and details new-technology flowmeter shipments on a worldwide and regional basis. Our paradigm case method of analysis determines the most suitable applications for each flowmeter type – and is backed up with our customer survey results, extensive supplier questionnaires, and other elements of our long-term involvement in the instrumentation field. The **Traditional Technology Flowmeters** and **Emerging Technology Flowmeters** overview chapters are equally as detailed.

We also include **individual chapters for each of the flowmeter types** in the new-technology and traditional technology groups.

Flow Research has conducted individual studies of each flowmeter type over the years, with periodic updates. *The World Market for Flowmeters, 6th Edition* brings our research on these individual flowmeter markets together into a comprehensive overview, with data updated to 2015. Our method has always been to use a bottom-up approach when analyzing any market. In this way, we are able to both confirm data accumulated and trends we have been tracking as well as discover important new trends. Our success is based upon identifying what is new and comparing this information with our long-term knowledge of the market under study. We report our findings to you.

Focus on key issues affecting the market

As always, we will take a look at the key issues affecting flowmeter markets. Here are some examples:

Key issues addressed in the 6th Edition of this study

- The effect of large line size meters on the Coriolis flowmeter market
- Continued expansion of magnetic and vortex flowmeter opportunities and markets
- Growth in the ultrasonic market, especially in custody transfer applications
- Comparison of DP flowmeters and primary elements to other flowmeter markets
- Impact of new-technology flowmeters on the turbine and positive displacement markets
- Mergers and acquisitions in the worldwide flowmeter market
- Impact of the expanding oil & gas industries on the flowmeter markets
- Effects of growth in China, India, and other developing countries on global markets
- Impact of new standards, such as the API standard for vortex in custody transfer
- A comparison of the new-technology and traditional technology flowmeter markets
- A list of suppliers for each flowmeter type along with the features carried by each supplier
- Growth rates for each flowmeter type in the rapidly expanding China and Asia-Pacific regions

Supplier information helps you compare manufacturer offerings

Detailed company profile information of all major suppliers into each of the individual flowmeter markets includes a product analysis – manufacturer by manufacturer – that will allow you to quickly compare the product lines of all major suppliers. There is no other report available today with this critical information combined into a single comprehensive view of the market.

The company profiles include important data such as contact information, revenues, product lines, company history, recent acquisition activity, and sales strategies. Each company's flowmeter product line is summarized in easy-to-read charts which include Series and Model names and designations.

Module A, the companion study to *Volume X*, includes sales strategies, descriptions of operating geographies, and the strengths and weaknesses of the firm's product offerings within the context of their market. *Module A* is described later in this overview.

Company profiles

The following are some of the leading companies profiled in this study:

- ABB
- Armstrong: Veris
- azbil (Yamatake)
- Badger Meter: Cox Flow Meas., Racine (RFI)
- Bopp & Reuther Messtechnik GmbH
- Brooks Instrument
- Danaher: Anderson Instrument, Hach, McCrometer, Venture Meas. Co.
- Emerson Process Management: Daniel, Micro Motion, Rosemount
- Endress+Hauser
- Fluid Components International (FCI)
- FMC Technologies
- Fuji Electric
- GE Oil & Gas
- Honeywell / Elster including Elster-Instromet
- IDEX: Accusonic, Faure Herman, Liquid Controls Group (LCG)
- KROHNE
- OVAL Corporation
- Roper Industries: Neptune Technology Group, FTI (Flow Technology Inc.)
- Schlumberger/Cameron
- Schneider Electric/Foxboro
- SICK AG
- Siemens
- Sierra Instruments
- TASI Group
- Tokyo Keiki
- Tokyo Keiso Co., Ltd.
- Toshiba
- Xylem - Sensus
- Yokogawa

Make great decisions with our data

As you know, having the best information available on a subject helps you make the best decisions. Flow Research has always been a source of reliable, accurate data that companies can trust. This study will quickly bring you up-to-speed on the global flowmeter market and its many components.



Dr. Jesse Yoder

A few of the ways businesses tell us they use our studies to succeed:

- Compare growth rates and market sizes of different flow technologies
- Gain a worldwide perspective of competing suppliers in an industry, market, or technology
- Make an informed choice when considering a product purchase
- Use as a training or educational document
- Quickly survey and assess merger and/or acquisition opportunities
- Accurately forecast market demand for the many flowmeter technologies
- Understand the technical differences between new, traditional, and emerging technologies
- Have a reference standard of competitive technologies and models

Table of Contents: The World Market for Flowmeters, 6th Edition

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Why you must have this study

- Stay current with data on flowmeter shipments
- Understand how the 13 flow technologies stack up against each other
- Benefit from knowledge gleaned from 20+ years of data and 200+ studies
- Be among the first to own an ‘instant classic’ – at a price you can afford
- Capitalize on insights from our onsite visits to suppliers and end-users in the Middle East, Europe, the United States, and Australia
- Learn strategies to help you build your product line
- Assess your competitive positions with detailed company profiles

Plus over 120 informative charts and tables like this one:

**Shipments of All Flowmeters Worldwide by Technology
(Millions of Dollars)**

Technology	2015	2016	2017	2018	2019	2020	CAGR
Coriolis	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	x.x%
Magnetic	xxx.x	xxx.x	xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x.x%
Ultrasonic	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	x.x%
Vortex	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	x.x%
Thermal	xx.x	xx.x	xx.x	xx.x	xx.x	xxx.x	x.x%
Diff. Pressure	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	x.x%
Primary Elements	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	x.x%
Pos. Displacement	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	x.x%
Turbine	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	x.x%
Open Channel	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	x.x%
Variable Area	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	xxx.x	x.x%
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x.x%

Volume X: The World Market for Flowmeters 6th Edition



Bergen, Norway – photo by Flow Research



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27 Water Street
Wakefield, MA 01880
United States
+1 781-245-3200
+1 781-224-7552 (fax)
www.flowresearch.com
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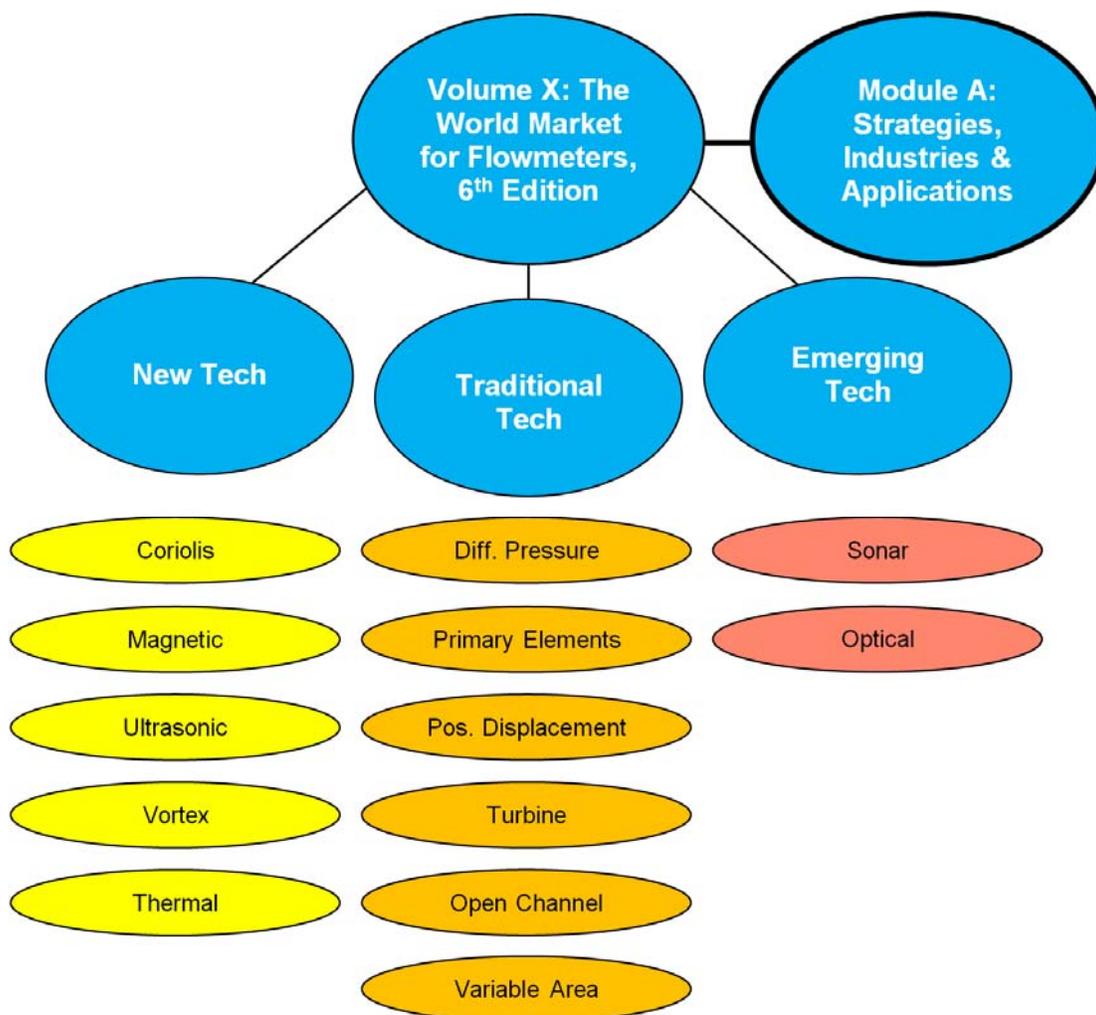
Why Flow Research?

- We specialize in flowmeter markets and technologies
- We have researched all flowmeter types
- We study suppliers, distributors, *and* end-users
- Our worldwide network of contacts provides a unique perspective
- Our mission is to supply the data to help your business succeed



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+1 781-224-7552 (fax)
www.flowresearch.com

Volume X: Module A: Strategies, Industries, & Applications, 6th Edition Overview



Date Published: January 2017

www.flowvolumex.com



Module A: Strategies, Industries, & Applications, 6th Edition

The in-depth research in *Module A: Strategies, Industries, & Applications* complements and builds on the results of *Volume X: The World Market for Flowmeters, 6th Edition*. The module can be ordered as a standalone report or as an add-on to the main study.



This content-rich module provides strategies for companies already in the flowmeter market as well as for companies considering joining the market.

Company strategies apply to the entire flowmeter market, as well as to individual product lines.



Included in the module are tactical and strategic recommendations for suppliers in each market segment. A world view of the market forecasts the best areas for future growth.

Module A provides focused insights into industry trends, explaining product improvements, and advantages and disadvantages inherent to each flowmeter type. Also provided are shipments by application and industry in dollars and percentages

for the following new-technology and traditional technology flowmeters: **Coriolis, magnetic, ultrasonic, vortex, thermal, differential pressure, primary elements, positive displacement, and turbine flowmeters.**

For each technology, the module provides worldwide **shipments by industry and application** for the following geographic breakouts:

- North America (United States and Canada)
- Western Europe
- Eastern Europe/FSU (Former Soviet Union)
- Mideast/Africa
- Japan
- China
- Asia/Pacific
- Latin America (Mexico, Caribbean, Central and South America)



In Module A you will find:

- Shipments by industry and application in dollars and percentages, broken out by flowmeter type
- Forecasted growth rates by both application and industry through 2020
- Essential information on market outlook and industry trends by flowmeter type
- Realistic strategies for success for those entering or already in the flowmeter market.

Data includes **dollars and percentages of shipments by flowmeter type** in 2015 and forecasted for 2020 in the following **industries**:

- Oil and Gas
- Refining Industry
- Chemical Manufacturing
- Pharmaceutical Manufacturing
- Semiconductor Production
- Food and Beverage
- Pulp and Paper
- Metals and Mining
- Water and Wastewater
- Power and Energy



Applications are specific to flowmeter type, but include:

- Oil and Gas
- Custody Transfer
- Process Measurement
- Compressed Natural Gas
- Slurries
- Sanitary/Hygienic
- Water Flow
- Water-based Chemicals
- Other

Key topics addressed in Module A

- Tactical and strategic recommendations for suppliers in each market segment
- Discussion of market forces at work
- Best areas for future growth
- Strategic action perspectives
- Real world success stories

Applications by Flowmeter Type

New-Technology Flowmeter Applications

Coriolis

- Custody Transfer of Natural Gas (CTNG)
- Custody Transfer of Petroleum Liquids
- Allocation Metering
- Liquefied Natural Gas (LNG)
- Compressed Natural Gas (CNG)
- Process Measurement
- Other

Magnetic

- Water Flow
- Water-Based Chemicals
- Hydrofracking
- Slurries
- Sanitary/Hygienic
- Process Control
- Custody Transfer
- Dosing/Filling Machines
- Other

Ultrasonic

- Custody Transfer of Natural Gas (CTNG)
- Custody Transfer-Petroleum Liquids
- Check Metering
- Liquefied Natural Gas (LNG)
- Process Measurement
- District Heating
- Other

Vortex

- Gas
- Liquid
- Saturated Steam
- Superheated Steam

Thermal

- Continuous Emissions Monitoring (CEM)
- Flare Gas/Flue Gas
- Landfill Gas Recovery
- Biogas Recovery
- Biomass Fermentation and Recovery
- Coal Mine Methane Recovery
- Boiler Inlet
- Wastewater Treatment
- Compressed Air
- Submetering
- Other

Traditional Tech Flowmeter Applications

Differential Pressure (DP) Transmitters and Primary Elements

- Petroleum Liquids
- Non-Petroleum Liquids
- Gas
- Steam
- Air

Positive Displacement (by Fluid Type)

- Municipal Water
- Municipal/Industrial Gas
- Oil
- Industrial Liquids

Turbine (by Fluid Type)

- Municipal Water
- Municipal/Industrial Gas
- Oil
- Industrial Liquids



Flow Research, Inc.

Volume X: Module A: The World Market for Flowmeters, 6th Edition is a publication of Flow Research, Inc. of Wakefield, Massachusetts.

Flow Research is the only market research company whose primary mission is to research flowmeter and instrumentation markets.

The lead analyst for this study, **Dr. Jesse Yoder**, President of Flow Research, has 30 years of experience writing about and analyzing process control and instrumentation markets, beginning as president and founder of Idea Network before founding Flow Research. He has written over 200 market research studies and published more than 260 articles on instrumentation in industry journals, as well as two books, and holds a patent for a flowmeter design. Many of the articles written by Dr. Yoder can be read by visiting the Flow Research article website at www.flowarticles.com.

Flow Research specializes in instrumentation, and conducts **market research studies** in a wide variety of instrumentation areas that can be purchased by anyone interested in the topics. We create these studies through interviews with suppliers, distributors, and end-users. Topics include all of the flowmeter technologies as well as oil & gas flow measurement and custody transfer markets, flow calibration facilities, temperature sensors, temperature transmitters, pressure transmitters, liquid analytical instruments, some level measurement devices, and selected API-certified valves. Some of the recent and currently scheduled Flow Research studies are listed on the next page.

Belinda Burum, Vice President, worked in journalism and advertising before entering high tech 18 years ago as a writer, marketing communications manager, and customer references consultant. She joined Flow Research in 2002 and has worked on many projects.

Norm Weeks, Senior Market Analyst, joined Flow Research in 2004, after 24 years with Verizon. At Verizon, Norm specialized in creating innovative customer solutions, product introduction and lifecycle management, and product marketing. At Flow Research, he is a fulltime market analyst, contributing research, analysis and writing to our studies, White Papers, the *Market Barometer* and the *Energy Monitor*, and is a specialist in custom projects.

Leslie Buchanan, Research Assistant and Publication Production, joined Flow Research in 2010. Early on, she took on management of the contacts database, assistance with customer liaison, and developing and implementing standards for our publication formats. She has since become increasingly involved with research, writing and production for studies, Worldflow and other publications. **Harry Lund** now works with the contacts database and assists with customer liaison. **Dave Goldstein** is a Business Analyst who specializes in company and product analysis. **Vicki Tuck** serves as administrative assistant, does news research for the Worldflow publications, and also assists with outreach and the database. **Christina Glaser** redesigned and maintains our many websites.

Our recent studies are listed on the next page. For more details, go to www.flowstudies.com.

Recent and Currently Scheduled Flow Research Studies Websites

New-Technology Flowmeter Studies

The World Market for Coriolis Flowmeters, 5 th Edition	www.flowcoriolis.com
The World Market for Magnetic Flowmeters, 6 th Edition	www.flowmags.com
The World Market for Ultrasonic Flowmeters, 5 th Edition	www.flowultrasonic.com
The World Market for Vortex Flowmeters, 5 th Edition	www.flowvortex.com
The World Market for Thermal Flowmeters	www.flowthermal.com
The World Market for Mass Flow Controllers, 2 nd Edition	www.flowmfc.com

Traditional Technology Flowmeter Studies

The World Market for Pressure Transmitters, 4 th Edition	www.worldpressure.com
The World Market for Positive Displacement Flowmeters, 2 nd Edition	www.flowpd.com
The World Market for Turbine Flowmeters, 2 nd Edition	www.flowturbine.com

Emerging Technology

The World Market for Multiphase Flowmeters, 2 nd Edition	www.flowmultiphase.com
Multiphase Module A: The World Market for Watercut Meters	www.flowmultiphase.com

Mass Flow Controllers

The World Market for Mass Flow Controllers, 2 nd Edition	www.flowmfc.com
The World Market Update for Mass Flow Controllers	www.flowmfc.com

Cross-Technology Flowmeter Studies

Volume X: The World Market for Flowmeters, 6 th Edition	www.flowvolumex.com
Volume X: Module A: Strategies, Industries, and Applications	www.flowvolumex.com
The World Market for Natural Gas and Gas Flow Measurement, 3 rd Edition	www.gasflows.com
The World Market for Liquefied Natural Gas (LNG)	www.flowlng.com
The World Market for Oil and Oil Flow Measurement	www.oilflows.com

Calibration

Core Study: Worldwide Gas Flow Calibration Facilities and Markets	www.flowcalibration.org
Module A: Worldwide Liquid Flow Calibration Facilities and Markets	www.flowcalibration.org

What are New-Technology Flowmeters?

New-Technology flowmeters include Coriolis, magnetic, ultrasonic, vortex, and thermal technologies. They share four features:

1. They have been introduced since 1950.
2. They incorporate technological advances that avoid some of the problems inherent in earlier flowmeters.
3. They are the focus of more of the product development efforts undertaken by the major manufacturers.
4. Their measured performance, especially accuracy, is superior to that of Traditional Technology meters on a standard basis.

Traditional Technology flowmeters include differential pressure, open channel, positive displacement, target, turbine, and variable area technologies.

Emerging Technology flowmeters include sonar, optical, and multiphase.

The Flow Research *Founding Sponsor* Program



*Blaise Pascal – philosopher,
inventor, mathematician, writer*

Flow Research instituted the Founding Sponsor Program to produce studies that most closely match our clients' needs. This program enables companies who wish to participate at a high level in a study's research to influence its scope and segmentation. In addition, Founding Sponsors receive regular updates from Flow Research on study progress, and receive a significant discount on the regular price of the study.

Procedure: Early in the planning phase of a study, Founding Sponsors receive a proposal that includes the proposed segmentation. Founding Sponsors can propose additional segmentation, and can also suggest changes to the proposed segmentation. While the decision to adopt particular segmentation ultimately lies with Flow Research, and is based on input from all contributors, we will do our best to accommodate the specific needs of each of our clients.

During the research phase of a study, Flow Research will issue regular reports that provide updates on the progress of the research. These reports will be sent to Founding Sponsors, who are then invited to provide any additional input or comments into the study.

Being a Founding Sponsor requires making an early commitment to purchase the study. However, in return, Founding Sponsors receive a significant discount off the regular price of the study. Payment can be made either in one amount at the beginning of the study, or split into two, with the second payment due upon delivery of the study.

For additional details, or to find out how the Founding Sponsor program applies to any particular study, please contact Flow Research. We look forward to working with you!

If you have any questions about the Founding Sponsor program, please contact Norm Weeks at (781) 245-3200, or norm@flowresearch.com.

Volume X: Module A: Strategies, Industries, & Applications, 6th Edition



Burj Khalifa, Dubai, United Arab Emirates – Photo by Flow Research



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Wakefield, MA 01880
United States
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