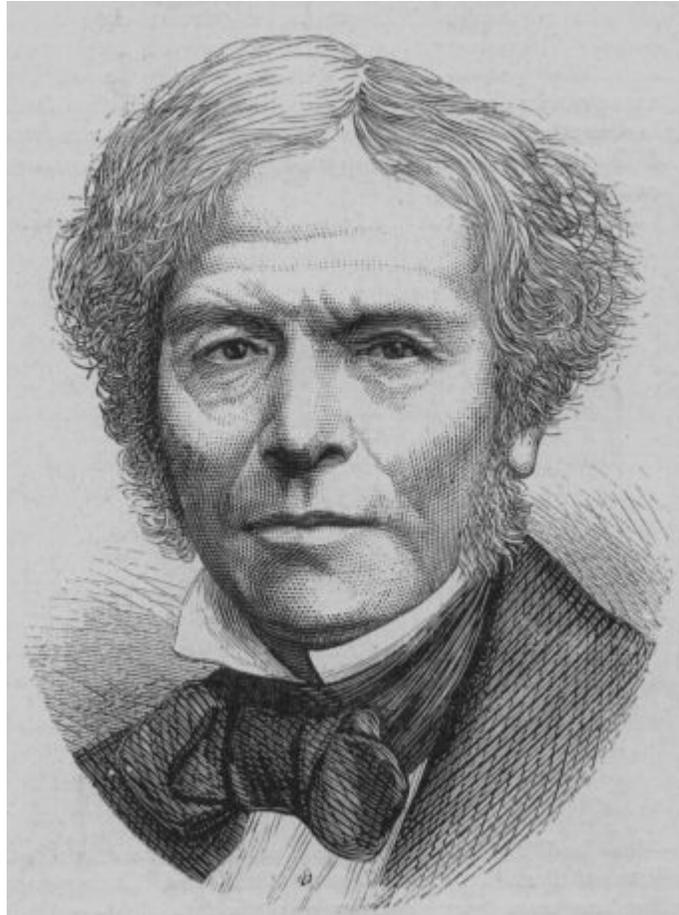


The World Market for Magnetic Flowmeters, 5th Edition

Updated to 2013!

Overview



Publication Date: January 2014

www.flowmags.com



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

The World Market for Magnetic Flowmeters, 5th Edition

Flow Research has announced a new market study on the worldwide magnetic flowmeter market. The name of the study is *The World Market for Magnetic Flowmeters, 5th Edition*. The study determines the size of the worldwide market in 2013, and the market shares of all major suppliers. Market forecasts through 2018 are included.

This study has several important objectives:

- To provide the 2013 market size in US dollars and unit volume for magnetic flowmeters worldwide
- To provide 2013 market shares of the leading suppliers of magnetic flowmeters worldwide
- To provide a forecast of the growth market for magnetic flowmeters in dollars and unit volumes through 2018
- To provide segmented data both on a worldwide basis and for each of seven global regions
- To provide a product analysis for all of the primary suppliers selling into the magnetic flowmeter market
- To identify the industries and applications where magnetic flowmeters are used, and to identify market growth sectors
- To provide market and product strategies for suppliers of magnetic flowmeters worldwide
- To provide company profiles of the significant suppliers of magnetic flowmeters worldwide



Photo of magnetic flowmeters from the Flow Research archive

Rationale for Study

Flow Research published the 4th edition of our worldwide magnetic flowmeter study in 2009. We have continued following the magnetic flowmeter market regularly, providing quarterly updates in our **Market Barometer** (www.worldflow.com). We have also conducted user interviews that show that interest in magnetic flowmeters remains at a very high level. We believe that this is an optimal time to accurately quantify the size and growth of this flowmeter technology, and to provide a comprehensive view of its expanding market.

Background of Study

Magnetic flowmeters are among the most widely used types of flowmeters for measuring the flow of water and other liquids. They have been around for more than fifty years. The Tobinmeter Company first introduced magnetic flowmeters for commercial use in Holland in 1952. Foxboro introduced them to the United States in 1954. More than 35 suppliers worldwide now offer magnetic flowmeters for sale.

Magnetic flowmeters generate more revenues worldwide than any other type of flowmeter. The story is different in terms of units, however. More DP and variable area flowmeters are sold annually than are magnetic flowmeters. The higher average selling price of magnetic flowmeters enables them to generate more revenues annually than variable area meters.

Magnetic flowmeters are most widely used in the water & wastewater and chemical industries. Over 40 percent of the revenues generated by magnetic flowmeters are sold into these industries. These meters are also widely used in the food & beverage and pharmaceutical industries, which often require flowmeters to conform to sanitary requirements. Flowmeter suppliers meet these requirements in part by placing hygienic liners inside the meters to make them suitable for use in sanitary applications.

Recent battery-operated entrants into the product market are enabling users to install magnetic flowmeters in remote locations. In this study, we'll shed light on these new products.

Key Issues Addressed

This study addresses the key issues in the magnetic flowmeters market, including:

- The growth outlook for magnetic flowmeters worldwide and by region
- The demand for 2-wire, 4-wire, and wireless/battery meters
- The displacement of AC magnetic meters with DC types
- The competitive price pressure on magnetic flowmeters
- The need for insertion magnetic flowmeters
- The line sizes where magnetic flowmeters are most frequently used
- The types of liners used in magnetic flowmeters and their proportions of the market
- The adoption rates of communication protocols in smart magnetic flowmeters
- Features that end-users are looking for in magnetic flowmeters

Operating Principle

Magnetic flowmeters use Faraday's Law of Electromagnetic Induction. According to this principle, when a conductive medium passes through a magnetic field, a voltage is generated. This voltage is directly proportional to the velocity of the conductive medium, the density of the magnetic field, and the length of the conductor. In Faraday's Law, these three values are multiplied together, along with a constant, to yield the magnitude of the voltage.

Magnetic flowmeters use wire coils mounted within or outside of the meter body. A current is then applied to these coils, generating a magnetic field. As the conductive liquid passes through

the body of the meter, a voltage is generated and detected by electrodes, which are mounted on either side of the meter body. The flowmeter uses this value to compute the flowrate.

Magnetic flowmeters are used to measure the flow of conductive liquids and slurries, including paper pulp slurries and black liquor. Their main limitation is that they cannot measure hydrocarbons (which are nonconductive), and hence are not widely used in the oil & gas and refining industries. Magmeters, as they are often called, are highly accurate and do not create pressure drop. Their initial purchase cost is in the medium range, and comparable to the cost of vortex flowmeters. Magnetic flowmeters typically cost more than positive displacement and turbine flowmeters, but they cost significantly less than Coriolis and ultrasonic flowmeters.

What's in this for my company?

- See the emerging applications and where the growth is
- Understand world and regional markets
- Get to know your real competition
- Learn what other suppliers manufacture, where, and for whom
- Having the best information helps you make the best decisions

Study Segments

This study's segmentation is the result of our own experience in previous research, combined with input from multiple companies who suggested important new categories for our 2014 study. We are grateful for the cooperation of all the firms who assisted in the final design of the study questionnaire. Flow Research believes that this cooperative approach to research ultimately yields the best data. (See the description of the *Founding Sponsor Program* enclosed in this overview.)

Below is a review of this study's most important data segments.

Geographic Segmentation

- North America
- Western Europe
- Eastern Europe/FSU
- Mideast/Africa
- Japan
- China
- Asia/Pacific
- Latin America



Mounting Type

While there are many large magnetic flowmeters, insertion is always an option, especially for the largest sizes:

- Wafer
- Flanged
- Insertion

Study Segments *(continued)*

Measurement Variable Type

- Single Variable
- Multivariable

Power Type

Battery-operated and wireless options are becoming more important in this market, with the release of several new 'go-anywhere' products in the last few years.

- 2-wire
- 4-wire
- Battery
- Wireless



Coil Power Type

AC is still an option in a market that has largely moved to DC.

- AC
- Standard DC
- High Strength DC
- Dual Frequency DC



Configuration

- Compact
- Remote

Accuracy

- <0.5% (higher accuracies such as 0.25% or 0.15%)
- = 0.5%
- >0.5% (lower accuracies such as 1.0% or 1.25%)

Liner Material

- | | |
|---|-----------------|
| • PFA (perfluoroalkoxy) | • Polypropylene |
| • PTFE (polytetrafluoroethylene) | • Polyurethane |
| • EPDM (ethylene propylene diene monomer) | • Hard Rubber |
| • ETFE (ethylene tetrafluoroethylene) | • Soft Rubber |
| • Ceramic | • Other |

Line Sizes

- | | |
|---------------------|--------------------|
| • ½ inch or less | • >20 to 24 inches |
| • >½ inch to 1 inch | • >24 to 30 inches |
| • >1 to 2 inches | • >30 to 36 inches |
| • >2 to 4 inches | • >36 to 48 inches |
| • >4 to 8 inches | • >48 to 78 inches |
| • >8 to 12 inches | • >78 inches |
| • >12 to 20 inches | |

Diagnostics

- Advanced Diagnostics
- No Advanced Diagnostics



Dr. Yoder walking inside an 86 inch magnetic flowmeter

Study Segments (*continued*)

Average Selling Prices

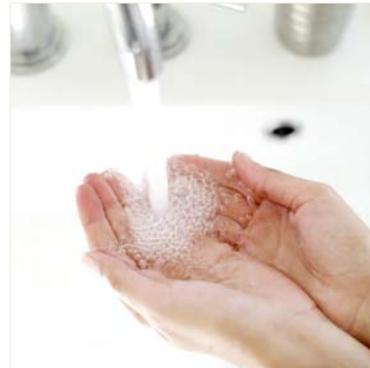
Average selling prices are provided on both a geographic and mounting type basis.

- Worldwide average selling prices
- Regional average selling prices (for all seven regions in the study)
- Average selling prices by mounting type
 - Wafer
 - Flanged
 - Insertion

Water and Wastewater Applications

The water and wastewater industry is quantified by water and wastewater applications.

- Worldwide water applications
- Regional water applications
- Worldwide wastewater applications
- Regional wastewater applications



Sanitary/Hygienic Models

- Not Hygienic
- Sanitary/Hygienic

Magnetic Flowmeters by Type: • Conventional • Smart And Communication Protocols in Smart Flowmeters:

- | | |
|------------------------|-------------|
| • Foundation Fieldbus™ | • Modbus |
| • HART | • DeviceNet |
| • Ethernet | • Serial |
| • Profibus DP | • Other |
| • Profibus PA | |

Industries

- Oil & Gas
(Production, Transportation, Distribution)
- Refining
- Chemical
- Food & Beverage
- Pharmaceutical
- Pulp & Paper
- Metals & Mining
- Electrical Power
- Water & Wastewater
- District Energy
- Other



Study Segments (*continued*)

Applications

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



Magnetic Flowmeter Sales by Distribution Channel

- Direct Sales
- Independent Representatives
- Distributors
- E-Business

Magnetic Flowmeter Sales by Customer Type

- End-Users
- Systems Integrators
- OEMs
- Engineering and Consulting Firms

Market Shares of Major Suppliers

This study provides company market share data in multiple categories. Included in these categories is the company market share segmentations listed below:

- Market Shares Worldwide and by Region
- Market Shares by Mounting Type
 - Wafer / Flanged / Insertion
- Market Shares by Coil Power Type
 - AC / DC

Strategies for Success

- Discussion of market forces at work
- Strategic action perspectives
- Real world success stories



Company Profiles

We provide complete company profiles on all of the major magnetic flowmeter suppliers. The following is a partial list of the 22 companies that are included:

- ABB
- azbil (Yamatake)
- Badger Meter (inc. Racine Federated Inc.)
- Burkert
- Danaher (McCrometer)
- Emerson Process Management:
Rosemount Division
- Endress+Hauser
- Foxboro (Invensys)
- GEA Diessel
- Georg Fischer Signet
- KROHNE
- Siemens
- Sparling Instruments
- Toshiba
- Yokogawa

Flow Research studies contribute to an ongoing view of the flowmeter market

Listed below is a summary of Flow Research studies in process and studies completed during the last few years in the area of process control instrumentation. Conducting these studies has contributed to our understanding of the flowmeter market as a whole, and the magnetic flowmeter market in *The World Market for Magnetic Flowmeters, 5th Edition*. These studies are further described at www.flowstudies.com.

Volume I: The World Market for Coriolis Flowmeters, 4th Edition (January 2013)
Volume II: The Global Market for Magnetic Flowmeters, 5th Edition (January 2014)
Volume III: The World Market for Ultrasonic Flowmeters, 4th Edition (March 2013)
Volume IV: The World Market for Vortex Flowmeters, 5th Edition (Q2 2014)
Volume V: The World Market for DP Flowmeters and Primary Elements (January 2007)
Volume VI: Worldwide Survey of Flowmeter Users 2nd Edition (January 2006)
Volume VII: The World Market for Positive Displacement Flowmeters, 2nd Edit. (March 2012)
Volume VIII: The World Market for Turbine Flowmeters, 2nd Edition (January 2012)
Volume IX: The World Market for Pressure Transmitters, 4th Edition (Q2 2014)
Volume X: The World Market for Flowmeters, 5th Edit. (all flow technologies) (June 2014)
Volume XI: The World Market for Natural Gas and Gas Flow Measurement (7 vol series) (2014)
Volume XII: The World Market for Steam Flow Measurement (March 2008)
Volume XIII: The World Market for Mass Flow Controllers, 2nd Edition (May 2012)
Volume IV: The World Market for Thermal Flowmeters (October 2009)
Volume XV: The World Market for Liquid Analytical Instruments (February 2011)
Volume XVI: The World Market for Oil and Oil Flow Measurement (6 vol. series) (Q1/Q3 2013)

Dr. Yoder has also written more than 200 articles on flow and instrumentation for trade journals. Links to many of these can be found at www.flowarticles.com.

Norman Weeks, Senior Market Analyst, joined Flow Research in November 2004 after a 24-year stint with Verizon. At Verizon, Norm specialized in creating innovative customer solutions, product management, and product marketing. He is now a fulltime market analyst for Flow Research, has completed several studies, and regularly contributes articles and editorial assistance to our *Market Barometer* and *Energy Monitor* publications.

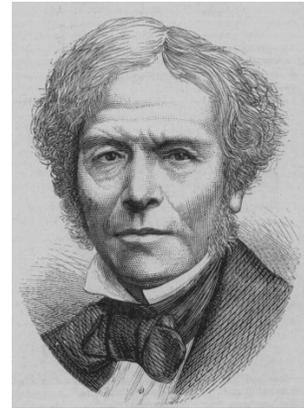
Belinda Burum, Vice President and Editor, has worked in high tech for 16 years as a technical writer and marketing communications manager. She joined the company in 2002, and has since worked on many projects. In addition to her work on market studies, Belinda also serves as an associate editor of *Market Barometer* and *Energy Monitor*.

Besides writing and publishing studies of this type, Flow Research conducts user surveys that include detailed analyses of customer perceptions. In addition, Flow Research provides quarterly updates on the flow and energy industries in the *Market Barometer* and *Energy Monitor* publications. The *Energy Monitor* analyzes the current state of the oil & gas, refining, power, and renewables industries, and the implications for instrumentation suppliers. Both reports are part of the Worldflow Monitoring Service. More details are available at www.worldflow.com.

For more information on Flow Research, please visit our website at www.flowresearch.com.



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



Michael Faraday, 1791-1867

The Flow Research *Founding Sponsor Program*

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 purchase of the study upon its completion.

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 do our best to accommodate the specific needs of each of our clients.

During the research phase of a study, Flow Research issues interim reports to program sponsors that provide updates on the progress of the research. These reports are sent to the Founding Sponsors, who are then invited to provide any additional input or comments to 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 usual retail 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 completed study.

For additional details, or to learn how the Founding Sponsor Program might benefit you, please contact Norm Weeks at [1] 781-245-3200, or at norm@flowresearch.com.

We look forward to working with you!

The World Market for Magnetic Flowmeters, 5th Edition

Updated to 2013!



Flow Research, Inc.

27 Water Street
Wakefield, MA 01880
United States
[1] 781-245-3200
[1] 781 224-7552 (fax)
www.flowresearch.com

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

www.flowmags.com