

# The World Market for Magnetic Flowmeters, 7<sup>th</sup> Edition

— Overview —

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# The World Market for Magnetic Flowmeters, 7<sup>th</sup> Edition

Flow Research is excited to announce a new market study on the worldwide magnetic flowmeter market called *The World Market for Magnetic Flowmeters, 7<sup>th</sup> Edition*. The study determines the size of the worldwide market in 2019 and 2020, forecasts the market through 2024, covers a variety of market segments, and provides market shares of the major suppliers.



*Magnetic flowmeters*  
(Photo from Flow Research archive)

## **Rationale for Study**

Magnetic flowmeters, first commercially produced in the 1950s, now generate more revenues worldwide than any other type of flowmeter. More than 60 suppliers worldwide now offer magnetic flowmeters for sale. Magmeters, as they are also known, are among the most widely used types of flowmeters for measuring the flow of water and other liquids. Over 40 percent of their revenues are from the Water & Wastewater and Chemical industries. Magnetic flowmeters are used to measure the flow of conductive liquids and slurries, including paper pulp slurries and black liquor. Magnetic flowmeters are also widely used in the Food & Beverage and (Bio)Pharmaceutical industries where their hygienic liners help meet strict sanitary requirements.

We believe that this has been an optimal time to accurately quantify the size and growth of this flowmeter technology, and to provide a comprehensive view of its expanding market. Our user interviews show that interest in magnetic flowmeters remains at a very high level.

This study has achieved the following important objectives:

- Determines the regional and worldwide market size in US dollars and unit volumes for magnetic flowmeters in 2019 and 2020
- Forecasts market growth for magnetic flowmeters in dollars and unit volumes through 2024
- Determines worldwide and regional market shares of the leading suppliers of magnetic flowmeters
- Analyzes products from all of the significant suppliers selling into the magnetic flowmeter market
- Identifies the industries and applications where magnetic flowmeters are used
- Identifies market growth sectors
- Offers market and product strategies for magnetic flowmeter suppliers
- Profiles all of the significant suppliers of magnetic flowmeters worldwide

## Rationale for Study

*The World Market for Magnetic Flowmeters, 7th Edition* builds on two decades of research. Flow Research published our first magnetic flowmeter study in 2001 and the 6<sup>th</sup> edition in November 2017. We also follow the magnetic flowmeter market regularly when providing updates in our study covering all flowmeters, *Volume X: The World Market for Flowmeters*, and in our quarterly publication, *Market Barometer* ([www.worldflow.com](http://www.worldflow.com)).

In conducting this study, we first contacted all known manufacturers of magnetic flowmeters worldwide to assemble a picture of the total magnetic flowmeter market. We asked these suppliers to provide detailed information about geographic segmentation, industries sold into, types of magmeters sold, and many other product segments. As a result, this study identifies where growth is occurring in the market, and the underlying factors driving that growth.

When analyzing target markets, Flow Research uses the perspective of all four segments: manufacturer, distributor, representative, and end-user. We maintain regular communication with all three of these groups in order to be best positioned to note both subtle and significant shifts in technologies or buying patterns.

### Operating Principle

Magnetic flowmeters use Faraday's law of electromagnetic induction: A conductive medium passing through a magnetic field generates a voltage that is directly proportional to 1) the velocity of the conductive medium, 2) the density of the magnetic field, and 3) 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 applied to these coils generates a magnetic field. As the conductive liquid passes through the meter body, it generates a voltage that is detected by the electrodes mounted on either side of the meter body. The flowmeter computes the flowrate from this value.

Magmeters are highly accurate and do not create pressure drop. Their main limitation is that they cannot measure hydrocarbons (which are nonconductive), and thus are not widely used in the Oil & Gas or Refining industries.

### Key Issues Addressed in This Study

- Growth outlook for magnetic flowmeters worldwide and by region
- Demand for 2-wire, 4-wire, and battery-powered meters
- How DC magnetic meters are displacing AC magnetic meters
- Competitive price pressures on magnetic flowmeters
- Need for insertion magnetic flowmeters
- Line sizes where magnetic flowmeters are most frequently used
- Types of liners used in magnetic flowmeters and their proportions of the market
- Adoption rates of communication protocols in smart magnetic flowmeters
- Features that end-users are looking for in magnetic flowmeters

## Segmentation

Our comprehensive segmentation provides valuable insights into the use of this technology. All study information – including market size – is provided worldwide *and* by region.

### Geographic Segmentation

- North America (U.S. and Canada)
- Western Europe
- Eastern Europe (including Central Europe)/Former Soviet Union
- Mideast/Africa
- Japan
- China
- Asia/Pacific
- Latin America (including Mexico and Caribbean)



### Magnetic Flowmeters by Mounting Type

- Wafer
- Flanged
- Insertion

### Magnetic Flowmeters by Configuration Type

- Compact/Integral
- Remote



### Magnetic Flowmeters by 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
- Battery
- 4-wire

### Magnetic Flowmeters by Coil Power Type

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

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



### Wafer and Flanged Magnetic Flowmeters by Liner Type

- PFA (perfluoroalkoxy)
- PTFE (polytetrafluoroethylene)
- EPDM (ethylenepropylenediene monomer)
- ETFE (ethylene tetrafluoroethylene)
- Ceramic
- Polypropylene
- Polyurethane
- Hard Rubber
- Soft Rubber
- Other



## Magnetic Flowmeters by Line Sizes

- ½ inch or less
- >½ inch to 1 inch
- >1 to 2 inches
- >2 to 4 inches
- >4 to 8 inches
- >8 to 12 inches
- >12 to 20 inches
- >20 to 24 inches
- >24 inches

## Magnetic Flowmeters by Intelligence Level

- Smart
- Conventional

## Smart Magnetic Flowmeters by Communication Protocol

- FOUNDATION™ Fieldbus
- HART
- Ethernet I/P
- Profibus® DP
- Profibus® PA
- Modbus®
- DeviceNet™
- Other

## Magnetic Flowmeters by Industry

- Oil & Gas (Up-, Mid-, and Downstream)
- Refining
- Chemical
- Food & Beverage
- Pharmaceutical
- Pulp & Paper
- Metals & Mining
- Electrical Power
- Municipal Water & Wastewater
- District Energy
- Other

## Shipments of Magnetic Flowmeters by Municipal Water & Wastewater Industry

- Water (clean, potable, and all other non-wastewater applications)
- Wastewater

## Magnetic Flowmeters by Application

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

## Magnetic Flowmeter by Distribution Channel

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



*Dr. Yoder inside an 86-inch magnetic flowmeter*



## Magnetic Flowmeter by Customer Type

- End-users
- Systems Integrators
- Original Equipment Manufacturers (OEMs)
- Engineering and Consulting Firms

### Average Selling Prices

Magnetic flowmeters typically cost more than positive displacement and turbine flowmeters, but are significantly less than Coriolis and ultrasonic flowmeters. Their initial purchase cost is in the medium range, and comparable to the cost of vortex flowmeters.

*We provide average selling prices based on both geography and mounting type:*

- Worldwide average selling prices
- Regional average selling prices (for all eight regions in the study)
- Average selling prices by mounting type: wafer, flanged, insertion

## Market Shares of Major Suppliers

- Market Shares Worldwide and by Region

## 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, including:*

- ABB
- azbil
- Badger Meter
- Bürkert
- Danaher: McCrometer
- Emerson Automation Solutions:  
Rosemount Division
- Endress+Hauser
- GEA Group
- Georg Fischer Signet
- KROHNE
- Schneider Electric: Foxboro
- Siemens
- Sparling Instruments
- Toshiba
- Yokogawa
- And more

## **Flow Research, Inc.**

**Flow Research** is the only market research company whose primary mission is to research process control instrumentation markets. We create these studies through interviews with suppliers, distributors, and end-users. Topics include all of the flowmeter technologies – both new and conventional – as well as pressure transmitters, temperature sensors, level devices, and studies specifically focused on certain major markets such as the oil and gas markets. Flow Research leads a working group focusing on flowmeter calibration, and has completed two studies on flowmeter calibration facilities. Further information on studies, links for articles and more can be found by visiting the Flow Research website at [www.flowresearch.com](http://www.flowresearch.com) or by calling us at +1 781-245-3200.

**Dr. Jesse Yoder**, President of Flow Research and the lead analyst for this study, has over 32 years of experience writing about and analyzing process control and instrumentation markets, beginning as president and founder of Idea Network. In addition to the years he has spent writing market studies, Dr. Yoder spent 10 years as a technical writer. Almost four years of this were spent writing technical manuals and training guides for the process control division of Siemens. He also taught technical writing at the graduate level at Northeastern University and the University of Massachusetts Lowell. Dr. Yoder spent 10 years as an adjunct philosophy professor at the University of Massachusetts Lowell and Lafayette College.

Dr. Yoder has received two patents for new flowmeter designs. This meter has two prototypes built and is under test at CEESI in Nunn, Colorado. He has led the research of over 280 market studies, published over 300 articles on flow and instrumentation in industry journals, and written two books, with another in progress. His last book, *The Tao of Measurement: A Philosophical View of Flow and Sensors*, with Richard E. Morley as co-contributor, was published in 2015 by the International Society of Automation (ISA). Topics covered include temperature, pressure, flow, time, length, and area. Dr. Yoder is currently writing a two-book set called *Advances in Flowmeter Technology* that will be published in 2022 by CRC Press. The first volume is called *New-Technology Flowmeters* and the second volume is called *Conventional Flowmeters*.

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

**Norm Weeks**, Senior Market Analyst, joined Flow Research in November 2004 after 24 years with Verizon specializing in innovative solutions for major enterprises, the introduction of new products and lifecycle management strategies, and regional sales and marketing management. He also served as Director of the Urban Fellows Institute in New York. At Flow Research, his involvement and contributions in project development, research, analysis and writing are significant. In addition to working on studies, custom projects are a specialty. He also contributes to White Papers, Worldflow and other publications.

**Leslie Buchanan**, Publication Production Associate, and Research Assistant, joined Flow Research in March 2010, with skills from a variety of work and life experiences both here and abroad. Early on, she worked with the contacts database, assisted with customer liaison, and took on our publication formats. She has since become increasingly involved in many capacities with Flow Research studies, projects, Worldflow and other publications.

**Victoria Tuck**, Administrative Assistant, joined Flow Research in June, 2012. She has experience in both the fast-paced law firms of Boston, and in various nonprofit organizations. She handles a variety of office functions – essential to keep any business running – as well as assisting in other ways, including the contacts database and news for the Worldflow publications.

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

Listed below is a summary of recent and upcoming Flow Research studies in the area of process control instrumentation. These studies are further described at [www.FlowStudies.com](http://www.FlowStudies.com).

The World Market for Coriolis Flowmeters, 6 <sup>th</sup> Edition	<a href="http://www.flowcoriolis.com">www.flowcoriolis.com</a>
The World Market for Magnetic Flowmeters, 7 <sup>th</sup> Edition	<a href="http://www.flowmags.com">www.flowmags.com</a>
The World Market for Ultrasonic Flowmeters, 6 <sup>th</sup> Edition	<a href="http://www.flowultrasonic.com">www.flowultrasonic.com</a>
The World Market for Vortex Flowmeters, 6 <sup>th</sup> Edition	<a href="http://www.flowvortex.com">www.flowvortex.com</a>
The World Market for Thermal Flowmeters, 2 <sup>nd</sup> Edition	<a href="http://www.flowthermal.com">www.flowthermal.com</a>
The World Market for Mass Flow Controllers, 3 <sup>rd</sup> Edition	<a href="http://www.flowmfc.com">www.flowmfc.com</a>
The World Market Update for Mass Flow Controllers	<a href="http://www.flowmfc.com">www.flowmfc.com</a>
The World Market for Multiphase Flowmeters, 2 <sup>nd</sup> Edition	<a href="http://www.flowmultiphase.com">www.flowmultiphase.com</a>
Multiphase: Module A: The World Market for Watercut Meters	<a href="http://www.watercutmeters.com">www.watercutmeters.com</a>
The World Market for Pressure Transmitters, 5 <sup>th</sup> Edition	<a href="http://www.pressureresearch.com">www.pressureresearch.com</a>
The World Market for Primary Elements, 2 <sup>nd</sup> Edition	<a href="http://www.flowplate.com">www.flowplate.com</a>
The World Market for Positive Displacement Flowmeters, 3 <sup>rd</sup> Edition	<a href="http://www.flowpd.com">www.flowpd.com</a>
The World Market for Turbine Flowmeters, 3 <sup>rd</sup> Edition	<a href="http://www.flowturbine.com">www.flowturbine.com</a>
Volume X: The World Market for Flowmeters, 8 <sup>th</sup> Edition	<a href="http://www.flowvolumex.com">www.flowvolumex.com</a>
Volume X: Module A: Strategies, Industries, and Applications	<a href="http://www.flowvolumex.com">www.flowvolumex.com</a>
The World Market for Gas Flow Measurement, 4 <sup>th</sup> Edition	<a href="http://www.gasflows.com">www.gasflows.com</a>
Gas Module A: Applications and Strategies for Gas Flow Measurement	<a href="http://www.gasflows.com">www.gasflows.com</a>
Gas Module B: Natural Gas Production, Consumption, and Flow Measurement in the Oil & Gas Industry	<a href="http://www.gasflows.com">www.gasflows.com</a>
The World Market for Oil and Oil Flow Measurement	<a href="http://www.oilflows.com">www.oilflows.com</a>
Core Study: Worldwide Gas Flow Calibration Facilities and Markets	<a href="http://www.flowcalibration.org">www.flowcalibration.org</a>
Module A: Worldwide Liquid Flow Calibration Facilities and Markets	<a href="http://www.flowcalibration.org">www.flowcalibration.org</a>
Market for Temperature Sensors in the Americas, 3 <sup>rd</sup> Edition	<a href="http://www.tempresearch.com">www.tempresearch.com</a>

### **Worldflow Monitoring Service**

In addition, Flow Research provides quarterly updates on the flow and energy industries in the *Market Barometer* and *Energy Monitor*. *Market Barometer* provides current information on process control instrumentation and the companies within the industry. *Energy Monitor* analyzes the current state of the Oil & Gas, Refining, Power, and Renewable industries, and the implications for instrumentation suppliers. Both reports are part of the Worldflow Monitoring Service. More details are available at [www.worldflow.com](http://www.worldflow.com).



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*Blaise Pascal*

## ***The Flow Research Gold Partner Program***

To produce studies that most closely match our clients' needs, Flow Research instituted the Gold Partner Program. 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, Gold Partners 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, Gold Partners receive a proposal that includes the proposed segmentation. Gold Partners 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 will issue regular reports that provide updates on the progress of the research. These reports will be sent to Gold Partners who are then invited to provide any additional input or comments into the study.

Being a Gold Partner requires making an early commitment to purchase the study. However, in return, Gold Partners 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 Gold Partner Program applies to any particular study, please contact Flow Research. We look forward to working with you!

For answers to any questions about the above, please contact Norm Weeks at +1 781 245-3200, or [norm@flowresearch.com](mailto:norm@flowresearch.com).

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## — Overview —



*A set of three large diameter magnetic flowmeters await delivery.*



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### Why Flow Research?

- We specialize in flowmeter markets and technologies.
- We research 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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