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# **The World Market for Turbine Flowmeters, 3<sup>rd</sup> Edition**

## **Overview**



**Publication Date: Q1 2021**

**[www.FlowTurbine.com](http://www.FlowTurbine.com)**

# The World Market for Turbine Flowmeters, 3rd Edition

Flow Research is developing a new study on the worldwide turbine flowmeter market called

**The World Market for Turbine Flowmeters, 3rd Edition.** The primary finding of the research is to determine the actual size of the turbine flowmeter market in 2019. Forecasts based on this finding and other important data points through 2024 will be included.

The last edition of this study, published in 2012, found that the market is alive and well. Although Coriolis, ultrasonic, and magnetic meters had expanded substantially - decreasing turbine meter's total market share - the turbine meter market remained essentially flat for a decade. It was *not* declining, as some experts predicted. At the same time, the installed base remained large enough to encourage substantial development, and suppliers' technology improvements made turbine meters more reliable and effective.

## Reasons for Growth

Despite intense competition from ultrasonic, multiphase, and other New-Technology flowmeters, turbine flowmeters have remained and will continue to be a viable and popular choice for a variety of applications. In particular, they excel at measuring clean, steady, medium to high-speed flows of low-viscosity fluids. They offer simplicity, effective turndown ratios, and the capability of customized solutions for various applications.

Turbine flowmeters have a significant cost advantage over ultrasonic and Coriolis meters, especially in larger pipe sizes, although suppliers report increasing difficulty competing with ultrasonic and magnetic flowmeters in large line sizes. The price of turbine meters may also compare favorably to differential pressure (DP) flowmeters, especially in cases where one turbine flowmeter can replace several DP flowmeters. Users who are already familiar with turbine technology and don't want to spend the extra money required to invest in a new technology are likely to stay with turbine flowmeters.

### History of Turbine Flowmeters

Turbine flowmeters have been around for many years. The ancient Greeks ground their flour using horizontal turbine wheels, and the word "turbine" is derived from a Latin word that means "spinning thing."

In more modern times, the generally accepted view places the invention of the first turbine meter to 1790 by Reinhard Woltman, a German engineer who studied the loss of energy in open canals and published several works on hydraulic engineering. Today's bulk meters, used to measure water flow in large quantities, are still called Woltman flowmeters.

It wasn't until World War II and later, however, that turbine meters began being used in industrial environments. Today, there are at least eight distinct types of turbine flowmeters, but they all use a rotor that spins in proportion to flowrate.

Suppliers report that some customers are choosing electronic multipath ultrasonic meters over mechanically-based turbine meters as these are viewed as needing less maintenance and having non-intrusive designs. However, the higher costs of these meters and the high costs to calibrate them, combined with some uncertainty of the in-service accuracy and performance, is helping turbine meters hold their own in a competitive environment. Product improvements such as dual rotor designs offer improved accuracy and flow range, less pressure drop, and reduced flow swirl effects.

Other technology improvements, especially to the moving parts, are making turbine meters more reliable. By making the ball bearings out of more durable material, such as ceramic and sapphire, turbine suppliers have been able to add significantly to the life of the bearings. Other recently introduced improvements include bi-directional flow, self-lubrication, significantly reduced pressure drop, and redundant meters.

**Comprehensive company profiles and product analyses of major manufacturers worldwide, including:**

- Aichi Tokei Denki
- Badger Meter – Cox
- Bopp & Reuther
- Bürkert
- Emerson Daniel
- Faure Herman
- Flow Technology (Roper)
- Hoffer Flow Controls
- Honeywell/Elster
- Liquid Controls (IDEX Corp)
- McCrometer (Danaher)
- Neptune Technology Group (Roper)
- RMG
- Satam
- Sensia – Cameron
- Sensus
- TechnipFMC

### **Rationale for Study**

Turbine flowmeters are undergoing immense competitive pressure from more recently invented flowmeter technologies, yet remain a solid choice for many applications in today's modern process control environment.

With significant growth returning to the oil and gas and other energy markets since the 2<sup>nd</sup> Edition, we believe it is an optimal time to see what happened to the turbine flowmeter market after the downturn that many companies experienced in 2015, 2016, and beyond. We are pleased to have the opportunity to update the information on this important market.

The primary goal of this new edition is to determine the size of the turbine flowmeter market in 2019 for all of the significant technology types and to forecast market size through 2024. This study will:

- Determine the worldwide and regional market shares in 2019 by turbine flowmeter type
- Forecast market growth through 2024 for all of the significant technology types used in this market

- Provide product shipment data by distribution channel and customer type
- Determine market shares for the leading suppliers of the turbine flowmeter market
- Determine average selling prices for turbine flowmeters by region and meter type
- Identify the process industries and core applications where turbine flowmeters are used, focusing especially on high growth areas
- Identify market growth sectors
- Analyze products from the main companies selling into the turbine flowmeter market
- Offer strategies to manufacturers who sell into the turbine flowmeter market
- Profile the main turbine flowmeter suppliers

## Background

Flow Research has been following the turbine flowmeter market since we published the first edition of our worldwide turbine flowmeter study in 2002. We published a second edition in 2012 and provide quarterly updates on the market in the *Market Barometer* ([www.worldflow.com](http://www.worldflow.com)).

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

Flow Research uses the perspective of all three segments – manufacturer, distributor/representative, and end-user – when analyzing target markets. 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. We also use this steady flow of new information in support of our two quarterly publications, *Market Barometer* and *Energy Monitor*. (See [www.worldflow.com](http://www.worldflow.com))

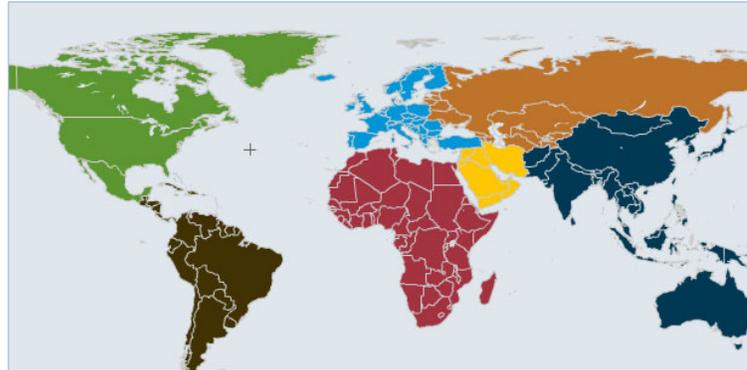
### Key turbine flowmeter market issues addressed in this study:

- Where growth is and is not occurring in terms of application, industry, and geography – and why
- Factors causing the market to grow
- Features end users are looking for in turbine flowmeters
- Impact of new-technology flowmeters on turbine flowmeter sales
- Role of installed base in maintaining turbine flowmeter growth
- Acceptance rate of communication protocols such as Foundation Fieldbus in the market
- New product and technology developments
- New measurement standards
- Growth strategies for turbine flowmeter suppliers

## Segmentation

### Geographic Segmentation

- North America (U.S. and Canada)
- Western Europe
- Eastern Europe/FSU (inc. Central Europe and Former Soviet Union)
- Mideast and Africa
- Japan
- China
- Rest of Asia/Pacific
- Latin America (Mexico, Central and South America)



### Technology Types

- Axial
- Single Jet
- Multi-Jet
- Paddlewheel
- Pelton Wheel
- Propeller
- Woltman
- Compound
- Fire Service
- Other

### Bearing Type

- Stainless Steel
- Tungsten Carbide
- Hard Carbon
- Ceramic
- Teflon
- Other

### Mounting Type

- Inline
- Insertion

### Rotor Type

- Single Rotor
- Dual Rotor

### Accuracy Levels

- $\leq 0.25\%$
- $>0.25\%$  to  $\leq 0.50\%$
- $>0.50\%$  to  $\leq 1.00\%$
- $>1.00\%$  to  $\leq 2.00\%$
- $>2.00\%$

### Rotor Types

- Single Rotor
- Dual Rotor

### Fluid Types

- Municipal Water
- Municipal and Industrial Gases
- Petroleum Liquids
- Non-petroleum Liquids (other than water)

### Line Sizes

- 0 – 4 inches
- $>4$  – 8 inches
- $>8$  – 12 inches
- $>12$  – 20 inches
- $>20$  inches

**Industries**

- Oil & Gas (upstream & midstream)
- Refining
- Downstream Gas Utility Distribution
- Downstream Refined Fuels Distribution
- Chemical
- Food & Beverage
- Pharmaceutical / Biopharmaceutical / Life Sciences
- Pulp & Paper
- Metals & Mining
- Power
- Water & Wastewater
- District Energy
- Aerospace
- Other

**Applications**

- Custody Transfer of Petroleum Liquids
- Custody Transfer of Natural Gas
- Allocation Metering
- Liquefied Natural Gas (LNG)/Cryogenic Liquids
- LNG - Gas
- In-Plant Processing (liquids)
- In-Plant Processing (gas)
- Gas Utility Billing
- Liquid Utility Billing (petroleum and non-petroleum liquids)
- Other

**Sales by Customer Type**

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

**Sales by Distribution Channel**

- Direct Sales
- Independent Reps
- Distributors
- E-Business

**This study also includes:****Supplier Market Shares**

- Worldwide
- Eight Geographic Regions

**Growth Factors and Strategies for Success**

- Discussion of market forces at work
- Factors contributing to growth
- Factors limiting growth
- Strategic action perspectives
- Real-world success stories

**Company Profiles**

*(See box on Page 3)*

**Publication Date**

The target date for publication of this study is Q1 2021.

**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 Traditional – 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 30 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. Several prototypes of these designs have been built and are currently being tested. He has led the research of over 250 market studies, published nearly 300 articles on flow and instrumentation in industry journals, and two books. His latest 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 third book called *Advances in Flow Measurement* that will be published in 2020 by CRC Press.

**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, introducing new products and lifecycle management strategies, and product market 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. 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.

**Gabriella DeCologero**, Director of Marketing, joined Flow Research in June 2019. She is in charge of our social media outreach, and has brought her graphic design talents to our marketing efforts. Gabriella is also assisting in our customer contacts and outreach.

## 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, 6 <sup>th</sup> Edition	<a href="http://www.FlowMags.com">www.FlowMags.com</a>
The World Market for Ultrasonic Flowmeters, 5 <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 Primary Elements, 2 <sup>nd</sup> Edition	<a href="http://www.FlowPlate.com">www.FlowPlate.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 Thermal Flowmeters, 2 <sup>nd</sup> Edition	<a href="http://www.FlowThermal.com">www.FlowThermal.com</a>
The World Market for Positive Displacement Flowmeters, 2 <sup>nd</sup> Ed.	<a href="http://www.FlowPD.com">www.FlowPD.com</a>
The World Market for Turbine Flowmeters, 2 <sup>nd</sup> Edition	<a href="http://www.FlowTurbine.com">www.FlowTurbine.com</a>
The World Market Mass for Flow Controllers, 3 <sup>rd</sup> Edition	<a href="http://www.FlowMFC.com">www.FlowMFC.com</a>
The World Market for Multiphase Flowmeters, 2 <sup>nd</sup> Edition, and Module A: The World Market for Watercut Meters	<a href="http://www.FlowMultiphase.com">www.FlowMultiphase.com</a> <a href="http://www.WatercutMeters.com">www.WatercutMeters.com</a>
The World Market for Flowmeters, 7 <sup>th</sup> Edition, and, Module A: Strategies, Industries, and Applications	<a href="http://www.FlowVolumeX.com">www.FlowVolumeX.com</a>
The World Market for Gas Flow Calibration Facilities	
The World Market for Liquid Flow Calibration Facilities	<a href="http://www.FlowCalibartion.org">www.FlowCalibartion.org</a>
The World Market for Natural Gas and Gas Flow Measurement, 2 <sup>nd</sup> Edition (six volumes)	<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>
The World Market for Steam Flow Measurement	<a href="http://www.SteamFlows.com">www.SteamFlows.com</a>
Worldwide Survey of Flowmeter Users, 2 <sup>nd</sup> Edition	<a href="http://www.FlowResearch.com">www.FlowResearch.com</a>
The World Market for Level Devices: Radar, Magnetic Level Indicators, and Ultrasonic	<a href="http://www.LevelResearch.com">www.LevelResearch.com</a>
The World Market for Liquid Analytical Instruments	<a href="http://www.FlowAnalytical.com">www.FlowAnalytical.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 has 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 question you may have regarding the above, please contact Norm Weeks at +1 781 245-3200, or [norm@flowresearch.com](mailto:norm@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.

[www.FlowTurbine.com](http://www.FlowTurbine.com)