

# The World Market for Gas Flow Measurement, 4<sup>th</sup> Edition

– OVERVIEW –



*Gas processing plant — Photo by Flow Research*



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# The World Market for Gas Flow Measurement, 4<sup>th</sup> Edition

*The World Market for Gas Flow Measurement* examines the gas flow measurement market on both a worldwide and regional basis. It covers each flow technology used for gas flow measurement.

This research is a continuation of our resolve to view flow measurement from many perspectives, whether it is by fluid type, by flow technology type, or by industry or application. And, in offering these different perspectives, market suppliers gain the benefit of best understanding the markets they serve and of acquiring the knowledge they need to successfully maneuver within them.

This study is designed to provide the most comprehensive picture of the worldwide gas flow measurement market available today. The research in *The World Market for Gas Flow Measurement* shows where growth is occurring and where it is not, and where to expect the highest returns. The companion *Module A* provides data on flowmeters sold into the oil & gas industry. It also discusses gas applications for each of the flowmeter types and includes strategies for competing in those markets.

Flow Research has been following the market for gas flow measurement regularly since the publication of the first edition of our worldwide gas flow measurement study in 2004. We have conducted user interviews that show that the interest in natural gas flow measurement is at a very high level. New opportunities have also emerged in the measurement of other gases as well. Our objective is to provide you the information you need to make informed decisions in pursuing new business and in gaining higher returns in this immense market.

## **This study will achieve multiple goals:**

- Determine worldwide market size for gas flow measurement in 2018 for each technology
- Forecast market growth through 2023 for each technology used in this market
- Analyze factors contributing to and limiting growth
- Identify market growth sectors
- Provide average selling prices in this market worldwide and by region
- Determine supplier market shares for the gas flow measurement market in 2018 worldwide and by technology type
- Provide company profiles of the main suppliers of flowmeters used for gas flow measurement
- Analyze the gas flow measurement products of the main suppliers in this market

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## Natural Gas Is a Major Portion of the Total Market for Gas Flow Measurement

The worldwide natural gas market has experienced extraordinary growth over the last decade, and with this growth has come exceptional interest in its future. The global search for new sources of energy has been spurred on by the emergence of major new demands placed on energy supplies by China, India, and other developing economies. Natural gas has become an important answer to the question, “How will these new energy demands be satisfied?”

Natural gas availability has been boosted by recent discoveries of new gas fields and new methods of production. While gas exploration has been an on-going process, gas production has been experiencing a revolution due to new extraction technologies having been brought on line. These technologies not only increase the volume of natural gas available to the market, but increase the complexity of its management as well.

The production of natural gas is still found primarily in traditional topside locations, but increasingly the growth in production has been at offshore and subsea locations. These latter fixed sites have required the evolution of line sharing and pooling technologies. And, most recently, gas production has begun to include the use of floating LNG ships. These many innovations have constantly stretched and tested the limits of gas flow measurement applications.

The seeming abundance of natural gas has been welcomed by the world community for several major reasons. First, of course, is that it can help to meet the energy needs of every country and is available now. Second, it is currently at a favorable price point due to its surging supply. Third, it can be delivered in a number of forms and through a variety of means, making it a highly versatile commodity and potentially lowering its cost of distribution. And, fourth, natural gas is considered a relatively clean alternative to crude oil and petroleum fuels – an important factor in a world becoming convinced of the need to implement environmental protections now.

Flow Research believes this is an optimal time to quantify the growth in the gas flow measurement market, and to take an in-depth look at its present and future prospects.

## Market Changes and Dynamics

This study's fourth edition continues our analysis of the worldwide gas flow measurement market we began in 2004. There has been an enormous amount of change since that time, both from the standpoint of technology as well as from corporate and even country perspectives.



**The World Market for  
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Natural gas – traditionally a major source of energy for the entire world – is now an even more valued commodity. It is largely considered a cleaner and more economical alternative to oil as an energy source, and an interim step toward renewable supplies. New technology is making recovery and delivery of natural gas more feasible than ever before, even from subsea wells. And newly developed natural gas reserves in North America and elsewhere are making it possible for Western countries to be less dependent on foreign suppliers.

Other gases are also changing in their availability, utility, and worth – and how and where they are measured. Modern assembly lines dependent on robotic equipment rely on compressed air. There is an emerging market in hydrogen gas as a vehicular fuel source, and requirements in the continuous emissions measurement and control arena are constantly being tightened.

The above changes are helping to create a world much different than just five years ago. Gas trade routes have substantially changed as the demand for natural gas is met by a rapid increase in new LNG supplies. What were once emerging regional economies in China and India are now leading centers of natural gas consumption. And the United States became a net exporter of natural gas in 2017, even as domestic demand steadily increased. Today, many wonder what forms the gas industry will take given gas prices and world market volatility.

This study will describe in detail the affects the above dynamics and other factors have had on the gas flowmeter market since our last full report on the subject in 2016. We believe that this report will be the most comprehensive and up-to-date review of the gas flowmeter market available today.

## Segmentation

This research of the worldwide gas flowmeter market is based on an examination of the individual market segments as described below:

### Geographic Regions

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



### Gas Flowmeter Technologies

#### *New-Technology Flowmeters*

- Coriolis
- Ultrasonic
- Vortex
- Thermal

#### *Traditional Technology Flowmeters*

- Differential Pressure Transmitters
- Primary Elements
- Positive Displacement
- Turbine
- Variable Area

### Seventeen Chapters of In-depth Market Analysis

Each of the included gas flowmeter technologies is comprehensively reviewed. The dedicated technology chapters each include discussions of **advantages and disadvantages** of the subject flowmeter type. Specific **products** offered by leading manufacturers are detailed, including technical reviews that describe material types, line sizes, accuracy levels and other distinguishing data.

The **Market Size** for each gas flowmeter type is provided in both revenue and unit terms, as are five year **Growth Forecasts** for each of these two categories. All of this data is presented both on a worldwide basis as well as broken down by each of the eight geographic regions.

In addition, **Average Selling Prices** for each gas flowmeter type are also provided on both a worldwide basis as well as by the eight geographic regions. Five year Price Projection forecasts are also provided on a worldwide basis as well as by each of the eight geographic regions.

## Chapter Descriptions

Care has been taken to ensure that a consistent research methodology was used in the collection of data and in its eventual presentation throughout the study itself. We believe this consistency facilitates the use of the study findings.

Below is a brief summary of the contents of each chapter in this study, including examples of individual chapter highlights:

### Chapter 1:     **Executive Summary**

- Introduction and summary capturing major themes, data, and conclusions

### Chapter 2:     **Scope and Method**

- Overviews of study objectives and methodology
- Definitions of flowmeter technologies
- Overview of Flow Research products, services, and capabilities

### Chapter 3:     **Paradigm Case Analysis**

- The ideal applications for each gas flowmeter technology are reviewed and discussed

### Chapter 4:     **The Worldwide Gas Flowmeter Market**

- Natural Gas is a cleaner alternative
- Natural Gas should continue to grow despite today's low prices
- Individual gas flowmeter technology overviews
- Market Size and Growth Forecasts for All Gas Flowmeters by Type Worldwide
  - In Dollars
  - In Units

### Chapter 5:     **New-Technology Gas Flowmeters**

- Growth factors and market circumstances are provided and discussed for each of the four New-Technology gas flowmeters
- Industry 4.0 and other factors will result in new products and methods of measuring gas flow
- Shipments of New-Technology Gas Flowmeters by Flowmeter Type Worldwide:
  - In Dollars
  - In Units

### Chapter 6:     **Coriolis Gas Flowmeters, Market Size, and Forecasts**

- Advantages: Accuracy/Reliability/and more
- Product analyses of leading companies such as Micro Motion and Endress+Hauser
- Sample comment: "Smaller installation envelope, no need of straight inlet and outlet runs"
- Growth Factors – 'Best-in-class' accuracy now available in large line sizes

**Chapter 7: Ultrasonic Gas Flowmeters, Market Size, and Forecasts**

- Advantages: Approved for custody transfer/Versatile configurations/and more
- Product analyses of leading companies such as Elster and SICK
- Sample comment: “New generations of product deciders are appearing”
- Growth Factors – “More calibration facilities have been built”

**Chapter 8: Vortex Gas Flowmeters, Market Size, and Forecasts**

- Advantages: Multivariable types provide mass flow measurement/and more
- Product analyses of leading companies such as azbil and Sierra Instruments
- Sample comment: “The ability to handle high pressure and high velocity gas flows.”
- Growth Factors – Provides accurate and reliable flow measurement at a competitive price

**Chapter 9: Thermal Gas Flowmeters, Market Size, and Forecasts**

- Advantages: Medium cost/Well-suited for stack flow measurement/and more
- Product analyses of leading companies such as ABB and Fluid Components International
- Sample comment: “Flare gas regulations are now being enforced”
- Growth Factors – Continuous Emissions Monitoring requirements

**Chapter 10: Traditional Technology Gas Flowmeters**

- Growth factors and market circumstances are provided and discussed for each of the five traditional technology gas flowmeter types
- Discussion of factors applying to all traditional technologies
  - Large installed bases
  - Industrial approvals
- Shipments of Traditional Technology Gas Flowmeters by Flowmeter Type Worldwide
  - In Dollars
  - In Units

**Chapter 11: Differential Pressure Transmitters for Gas Flow, Market Size, and Forecasts**

- Advantages: Lower cost/Technology is well understood/and more
- Product analyses of leading companies such as Emerson-Rosemount and Siemens
- Sample comment: “New markets are opening to pressure measurement, e.g., thermo solar”
- Growth Factors – Advanced design features in differential pressure flow transmitters

**Chapter 12: Primary Elements for Gas Flow, Market Size, and Forecasts**

- Advantages: Inexpensive material replacement/Variety of types/and more
- Product analyses of leading companies such as Emerson-Daniel and Cameron
- Sample comment: “Proven system / simple system / low pressure loss with better transmitters”
- Growth Factors – Growth in the use of multivariable DP flowmeters

**Chapter 13: Positive Displacement Gas Flowmeters, Market Size, and Forecasts**

- Advantages: Good for low flow rates/Accommodate high viscosities/and more
- Product analyses of leading companies such as Badger Meter and OVAL Corporation
- Sample comment: “Distribution network has built up in countries like China, India, etc.”
- Growth Factors – New applications and improved PD components

**Chapter 14: Turbine Gas Flowmeters, Market Size, and Forecasts**

- Advantages: Low to medium cost/Good turndown ratios/and more
- Product analyses of leading companies such as Emerson-Daniel and Hoffer Flow Controls
- Sample comment: “Dual rotor offers improved performance and a very small footprint”
- Growth Factors – Turbine flowmeters are widely accepted

**Chapter 15: Variable Area Gas Flowmeters, Market Size, and Forecasts**

- Advantages: Very low cost/Don’t require electricity/and more
- Product analyses of leading companies such as KROHNE and Yokogawa
- Sample comment: “Simple mechanical flow indicator, best fit solution for low flows”
- Growth Factors – Variable area flowmeters are a low cost solution

**Chapter 16: Gas Flowmeter Supplier Market Shares**

- Provides market shares of the major suppliers of flowmeters for gas flow measurement
- Market shares are provided for the total worldwide market for each flow technology

**Chapter 17: Supplier Profiles**

- Provides information on all major gas flowmeter suppliers worldwide, including
  - Company Overview
  - Product Lines
  - Company History and Organization
  - Strategies

**Company Profiles**

Below is a partial list of companies profiled in this study:

- |   |                                      |
|---|--------------------------------------|
| • ABB   | • Honeywell (including Elster Group) |
| • Aichi Tokei Denki                                   | • KROHNE                             |
| • AMETEK (Solartron)                                  | • Schlumberger (including Cameron)   |
| • azbil   | • Schneider Electric (Foxboro)       |
| • Baker Hughes  | • Sensus                             |
| • Canalta Controls                                    | • Sierra Instruments (TASI Group)    |
| • Emerson (including Daniel, Micro Motion, Rosemount) | • SICK AG                            |
| • Endress+Hauser                                      | • Siemens                            |
| • Fluid Components International                      | • SMAR Equipamentos                  |
| • Hoffer Flow Controls                                | • TMCo (The Measurement Company)     |
|   | • Yokogawa                           |

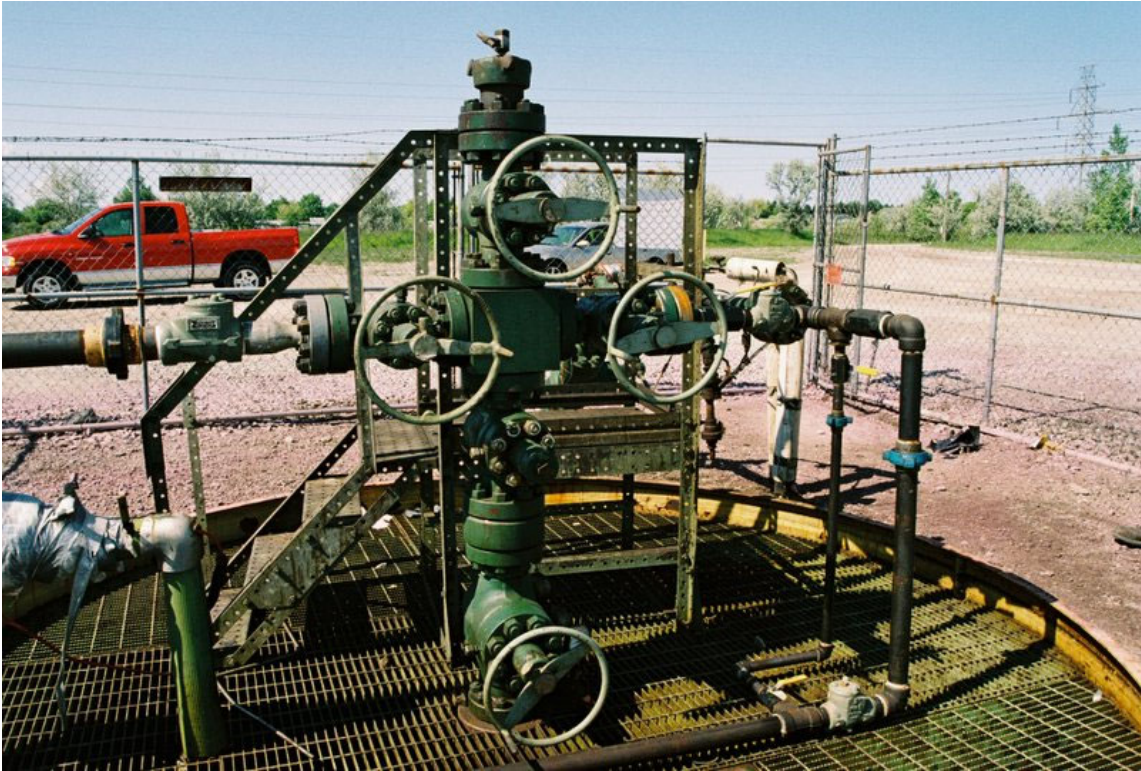
*and more*



**The World Market for Gas Flow Measurement,  
4<sup>th</sup> Edition**

**Module A: Oil & Gas Industry Flowmeters,  
Gas Applications, and Strategies**

**– OVERVIEW –**



*A Christmas tree on an oil & gas platform — Photo by Flow Research*



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# Module A

## Oil & Gas Industry Flowmeters, Gas Applications, and Strategies

Flow Research is proud to present a new edition of our study on gas flow measurement worldwide, *The World Market for Gas Flow Measurement, 4<sup>th</sup> Edition*, and its companion *Module A: Oil & Gas Industry Flowmeters, Gas Applications, and Strategies*. Together as a pair, they examine the gas flowmeter market, gas flowmeter types, suppliers, regional market influences, the oil & gas industry, and gas applications as well as providing strategies for companies. The Core and Module A each present different sets of data and views of the market. They are designed to be a complementary pair for the best understanding of the whole market, but can also be purchased separately.

### Module A has multiple purposes:

- Provide a world view of the market from multiple perspectives and identify growth areas
- Examine the Oil & Gas industry flow measurement market by regions
- Report on 2018 shipments for flowmeters in the Oil & Gas industry for each region by flowmeter type:
  - Coriolis, magnetic, ultrasonic, vortex, thermal, differential pressure transmitters, primary elements, positive displacement, and turbine flowmeters
- Provide forecasted growth rates to 2023 for flowmeters in the oil & gas industry
- Provide 2013–2017 data on each region’s natural gas production and consumption
- Provide forecasts for each region’s natural gas production and consumption
- Discuss regional factors and political developments and how they may affect market forces in the near future
- Provide growth factors for flowmeters in the Oil & Gas industry
- Define and explain gas types and gas applications
- For each gas flowmeter type, examine strengths, weaknesses and specific applications:
  - Coriolis, ultrasonic, vortex, thermal, differential pressure transmitters, primary elements, positive displacement, and turbine flowmeters
- Report on 2018 shipments worldwide for each of the gas flowmeter types by application
- Provide forecasted growth rates to 2023 for gas flowmeters
- Provide strategies for competing in these markets

### Module A presents multiple perspectives:

Because oil and gas nearly always occur together to some degree, it is difficult to accurately separate just the gas flow measurement part out of the Oil & Gas industry. The Oil & Gas industry accounts for a huge portion of the gas flowmeter market. To create a comprehensive, multi-perspective view of the gas market, meters and applications, Module A is presented in parts to cover flowmeters both in the Oil & Gas industry and all gas applications more generally.

**Part One.** This part presents information such as scope and methodology, study structure, explanations of terms and definitions, and also discusses gas types and gas applications.

**Part Two.** This part focuses on flowmeters in the Oil & Gas industry from a regional perspective. It includes data and forecasts for natural gas production and consumption, discusses factors affecting the market, and provides data and forecasts for flowmeters in the Oil & Gas industry.

**Part Three.** This part focuses on gas applications for each of the flowmeter types, discusses factors affecting its market, and provides market data and forecasts by application for each type.

**Part Four.** This part provides many strategies for success for companies small to large, new to or already in the market. It includes both general and flowmeter-specific strategies.

### Rationale for Study

Gas flow measurement applications and their associated revenues have grown significantly during the last few years. A major driver of this growth worldwide has been the expansion in demand for natural gas and related energy products. There has also been significant new growth in capital projects in large regional economies such as North America, India, China, and the Mideast during this time as well. Given the recent volatility of the major oil and gas countries in the Mideast and Latin America, we believe that this is an optimal time to quantify the growth in this market, and to take another in-depth look at an expanding market.

#### Key topics addressed in Module A

- The main drivers of growth for flowmeters in Oil & Gas
- Natural gas production and consumption by region
- Discussions of market forces at work worldwide and by region
- Gas measurement applications by flow measurement technology
- Best areas for future growth
- Tactical and strategic recommendations for suppliers

## Segmentation

This research of the worldwide gas flowmeter market is based on an examination of the individual market segments as described below. The geographic regions are common throughout. The flow measurement technology types are also common throughout except that magnetic figures into data for the Oil & Gas industry only.

### Geographic Regions

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



## The Major Parts of the Study

### Introduction, Definitions, Gases, and Applications

Chapter One: Executive Summary

Chapter Two: Scope and Method

Chapter Three: Introductory discussions, Definitions, Types of Gases, and Gas Applications

### The Oil & Gas Industry and Flowmeters Sold into It

This study includes as a main focus the major role of the Oil&Gas industry in the total gas flow measurement market. It looks at natural gas production and consumption and at shipments of flowmeters sold into the Oil&Gas industry. An individual chapter is devoted to each geographic region. This allows for regionally oriented discussions of market influences and growth factors.

#### Each regional chapter includes:

- Data on natural gas production and consumption in the region from 2013 to 2017 and forecast data from 2018 to 2023
- Growth factors for natural gas production and consumption in the region
- Discussion of major companies in the region
- Growth factors for flowmeters in the Oil & Gas industry for the region
- Market size and forecast discussion
- 2018 shipments of flowmeters sold into the Oil & Gas industry for that region, by flowmeter type, in dollars and units, with forecasts to 2023

#### Oil & Gas Industry Flowmeter Types

##### New-Technology Flowmeters

- Coriolis
- Magnetic
- Ultrasonic
- Vortex
- Thermal

##### Traditional Technology Flowmeters

- Differential Pressure Transmitters
- Primary Elements
- Positive Displacement
- Turbine

#### Oil & Gas Industry Chapters

Chapter Four: Worldwide

Chapter Five: North America

Chapter Six: Western Europe

Chapter Seven: Eastern Europe/FSU

Chapter Eight: Mideast/Africa

Chapter Nine: Japan

Chapter Ten: China

Chapter Eleven: Asia/Pacific

Chapter Twelve: Latin America

## Gas Flowmeters by Gas Applications

This part examines the gas flow measurement market from the perspective of the gas flowmeters and their gas applications. There is an individual chapter devoted to each gas flowmeter type.

### Each gas flowmeter type's chapter includes:

- Advantages and disadvantages of that gas flowmeter type
- Gas flow measurement applications that gas flowmeter type is used for
- Growth factors for that gas flowmeter
- Market size and forecast discussion
- 2018 shipments for that gas flowmeter type by gas application worldwide and for each region
- Forecasts to 2023 for that gas flowmeter type by gas application worldwide and for each region

### Gas Flowmeter Types

#### New-technology Flowmeters

- Coriolis
- Ultrasonic
- Vortex
- Thermal

#### Traditional Technology Flowmeters

- Differential Pressure Transmitters
- Primary Elements
- Positive Displacement
- Turbine

### Gas Flowmeter Application Chapters

Chapter Thirteen: All Gas Flowmeters  
 Chapter Fourteen: New-technology Gas Flowmeters  
 Chapter Fifteen: Coriolis Gas Flowmeters  
 Chapter Sixteen: Ultrasonic Gas Flowmeters  
 Chapter Seventeen: Vortex Gas Flowmeters  
 Chapter Eighteen: Thermal Gas Flowmeters  
 Chapter Nineteen: Traditional Technology Gas Flowmeters  
 Chapter Twenty: Differential Pressure Gas Flow Transmitters  
 Chapter Twenty-one: Gas Flow Primary Elements  
 Chapter Twenty-two: Positive Displacement Gas Flowmeters  
 Chapter Twenty-three: Turbine Gas Flowmeters  
 Chapter Twenty-four: Strategies for Success

Please see the lists that follow for the applications included for each type of flowmeter.

## Strategies for Success

This chapter discusses how to compete in today's flow measurement market, covers strategies for company sizes from market leaders to the competitive middle to smaller companies, and discusses strategic issues to consider. It also discusses strategies specific to individual flowmeter technologies and applications. While these strategies are written with the flowmeter market in mind, many of them are more broadly applicable and address issues also faced by suppliers of other process measurement instrumentation.

## Applications by Gas Flowmeter Type

### **New-Technology Flowmeter Applications**

#### **Coriolis**

- Custody Transfer of Natural Gas (CTNG)
- Compressed Natural Gas (CNG)
- Liquefied Natural Gas (LNG)
- Other

#### **Ultrasonic**

- Custody Transfer of Natural Gas (CTNG)
- Check Metering
- Process Gas Measurement
- CNG
- Flare/Stack Gas
- Other

#### **Vortex**

- Custody Transfer of Natural Gas (CTNG)
- Non-Custody Transfer of Natural Gas (CTNG)
- Industrial Gases
- Other

#### **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
- Air/Compressed Air
- Natural Gas Submetering
- Other

### **Traditional Technology Flowmeter Applications**

#### **Differential Pressure (DP) Transmitters and Primary Elements**

- Custody Transfer of Gas
- Non-Custody Transfer of Gas
- Wet Gas Metering
- Allocation Metering of Gas
- LNG
- CNG
- Gas Gathering Stations
- In-plant Measurement
- HVAC
- Other

#### **Positive Displacement**

- Custody Transfer – Gas
- Utility Billing
- In-plant Processing
- Fuel Metering
- Other

#### **Turbine**

- Custody Transfer of Natural Gas
- Gas Utility/Gas
- In-Plant Processing
- LNG
- Other

## Flow Research, Inc.

**Flow Research** is the only market research company whose primary mission is to research process control instrumentation markets. Flow Research market research studies 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 – both new and traditional – as well as pressure transmitters; temperature sensors and transmitters, infrared thermometers and thermal imagers; level devices; analytical instrumentation; selected API-certified valves; and studies specifically focused on certain major markets for flowmeters such as the oil and gas markets. Flow Research also started 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.

### Research Team Background



**Dr. Jesse Yoder** is President of Flow Research Inc., a company he founded in 1998. Dr. Yoder has 33 years of experience as a writer and as an analyst in process control and instrumentation beginning as president and founder of Idea Network. He is the lead analyst for this study. Since 1990, he has written over 250 market research studies, most of them regarding flow and instrumentation. Dr. Yoder has also written over 300 articles on flow and instrumentation for trade journals. Over 250 can be found at [www.flowarticles.com](http://www.flowarticles.com).

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 US patents for the flowtube meter, a new dual tube/dual sensor method of measuring flow, in 2015 and 2017. This meter has two prototypes built and is under test at CEESI in Nunn, Colorado.

His latest book, [\*The Tao of Measurement\*](#), with Richard E. Morley as co-contributor, was published in 2015 by the ISA. Topics covered include temperature, pressure, flow, time, length, and area. He is currently working on another book, *Advances in Flowmeter Technology*, to be published in 2020 by CRC Press.

**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 been involved with many Flow Research projects and publications since.

**Norm Weeks**, Senior Market Analyst, joined Flow Research in 2004 after a 24-year stint with Verizon. At Verizon, Norm specialized in creating innovative solutions for national and international enterprises, introducing new products and lifecycle management. At Flow Research, his contributions in development, research, and writing are appreciably significant to studies, White Papers, and other publications. Custom projects are a specialty.

**Leslie Buchanan**, Research and Publication Production Associate, joined Flow Research in 2010 with skills from a variety of work and life experiences here and abroad. She assists with research and writing, and handles many aspects of Flow Research studies and publications production.

**Vicki Tuck**, Administrative Assistant, joined Flow Research in 2012 with experience in both the fast-paced law firms of Boston, and in various nonprofit organizations. She assists with administrative tasks, including database and collecting 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,

## **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 standard retail 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 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 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 Partner 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!

If you have any questions about the Gold Partner Program, please contact Norm Weeks at +1 781 245-3200, or [norm@flowresearch.com](mailto:norm@flowresearch.com).



## 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).

### Recent and Currently Scheduled Flow Research Studies

### Websites

#### New-Technology Flowmeter Studies

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, 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>

#### Traditional Technology Flowmeter Studies

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 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>

#### Emerging Technology

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>

#### Mass Flow Controllers

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>

#### Cross-Technology Flowmeter Studies

Volume X: The World Market for Flowmeters, 7 <sup>th</sup> Edition	<a href="http://www.flowvolumex.com">www.flowvolumex.com</a>
Volume X Module A: Strategies, Industries, and Applications, 7 <sup>th</sup> Edition	<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: Oil & Gas Industry Flowmeters, Gas Applications, and Strategies	<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>

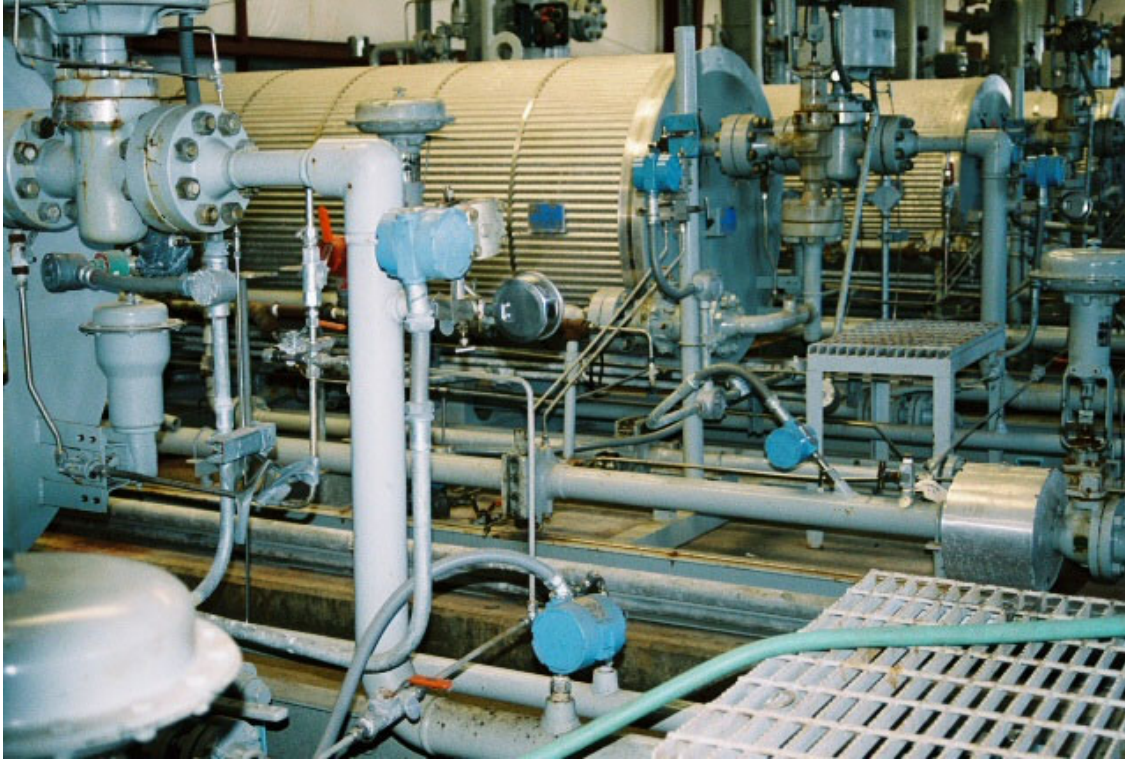
#### Calibration

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>

Besides writing and publishing studies of this type, Flow Research specializes in custom projects and also conducts user surveys that include a detailed analysis of customer perceptions. In addition, Flow Research provides quarterly updates on the flow and energy industries in the **Market Barometer** and the **Energy Monitor**. Both publications are part of the Worldflow Monitoring Service. **Market Barometer** analyzes the current state of the flowmeter markets, and covers related topics such as other instrumentation and flow calibration. **Energy Monitor** analyzes the current state of the oil & gas, refining, power, and renewables industries, and the implications for instrumentation suppliers. More details are available at [www.worldflow.com](http://www.worldflow.com).

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# The World Market for Gas Flow Measurement 4<sup>th</sup> Edition



*Gas processing plant — Photo by Flow Research*



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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