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The World Market for Variable Area Flowmeters

— Overview —



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www.FlowVA.com

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Flow Research is pleased to present a new market study called *The World Market for Variable Area Flowmeters*.

The Variable Area (VA) market **has received little in-depth coverage** for many years despite the fact that this technology remains a popular choice for many end-users in a wide variety of industries. VA meters, sometimes still called rotameters, have always been a good choice whenever users are looking for a relatively simple, low-cost solution in liquid, gas, or steam flow measurements. **Today, innovative designs offer new materials, more installation options, transmitters and new communication protocols for better device management, and other features for solving an increasing range of difficult applications challenges for potential buyers.**



A variable area flowmeter with flanges

Rationale for Study

Variable area meters are in demand because they are low cost, many do not require power, and they're widely used in the oil & gas and chemical industries, both of which are growing worldwide. While VA flowmeter market has been somewhat neglected by other research companies, Flow Research believes it is important to cover every flowmeter type, so we are pleased to present this study to you.

This Study Achieves Multiple Objectives:

- Determines worldwide market size and market shares for VA flowmeters in 2019 and 2020
- Forecasts market growth for all types of VA flowmeters through 2024
- Identifies industries where VA flowmeters are used today
- Identifies and discusses growth factors for the VA flowmeter market
- Provides 2019 market shares
- Provides VA product analyses of primary manufacturers in the VA flowmeter market
- Provides company profiles of the primary manufacturers of VA flowmeters
- Provides strategies to manufacturers for selling into the worldwide flowmeter market

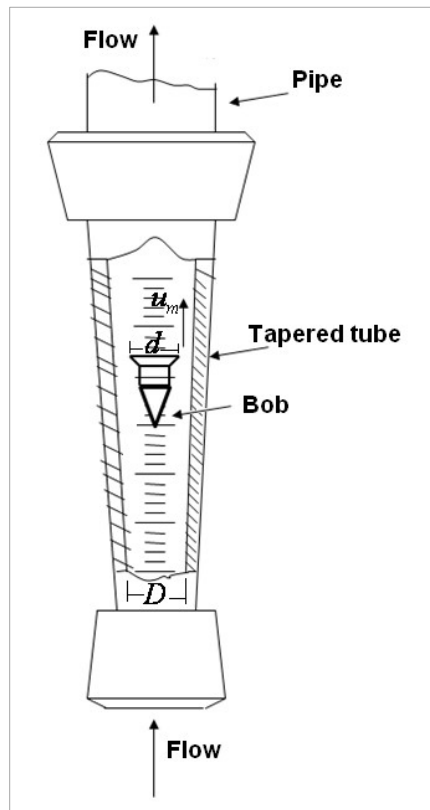
We have used 2019 as the starting year in this study. This is important as 2019 was the last relatively normal year before the COVID-19 pandemic hit globally, and there is great interest in knowing what effects the pandemic has had on worldwide and regional markets, and where and how quickly these markets are recovering. **To show those effects on the flowmeter market and the recovery thus far, this study includes both 2019 and 2020 data, plus takes into account any available later data and other on-going supplier input.**

Study Methodology

Flow Research has more than two decades worth of experience in the analysis of process control instrumentation markets, industries, technologies, and customer behaviors. We keep our clientele updated on these interest areas through our regular development of new research on these subjects, as well as our two quarterly publications, *Market Barometer* and *Energy Monitor*.

In conducting this study, we first contacted all known manufacturers of Variable Area flowmeters worldwide to begin assembling a profile of the entire market. We asked these suppliers for information about geographic segmentation, industries sold into, types of VA flowmeters sold, and other product segments. As a result, the 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 three 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

German engineer Karl Kueppers invented the first variable area meter in 1908 in Aachen, Germany. At that time, they were called “rotameters” and are sometimes still referred to by this name.

The Variable Area flowmeter is an instrument for measuring the flow of liquids and gases in pipes. It typically includes a vertical tube through which the fluid flows whose diameter increases from the bottom to the top and a float that moves vertically within the tube, and a measurement scale. (See schematic at left) In metal VA meters, the position of the float is magnetically transmitted to an analog indicator.

More recent designs now permit some VA meters to be positioned at any angle, and the option of adding transmitters that allow the data to be sent to remote measuring, recording or controlling devices. A control valve may be added if flow control is also desired.

Key Issues Addressed in This Study

- How did the COVID-19 pandemic affect the market?
- Growth outlook for Variable Area (VA) flowmeters worldwide and by region
- Usage of VA flowmeters by industries
- Market size for the basic types of VA flowmeters by fluid type and material type
- Features that end-users are looking for in VA flowmeters
- Competitive price pressures on VA flowmeters
- Understanding why and where VA flowmeter usage is growing or declining

Segmentation

Comprehensive segmentation provides valuable insights into the use of this technology. All study information is provided worldwide *and* by eight geographic regions.

Geographic Segmentation

- North America (U.S. and Canada)
- Western Europe
- Eastern Europe/FSU
- Mideast/Africa
- Japan
- China
- Asia/Pacific (including India)
- Latin America (Mexico, Central and South America)



Variable Area Flowmeters by Fluid Type

Worldwide and for each region by fluid type
PLUS Worldwide by region for each fluid type

- Liquid
- Steam
- Gas

Average Selling Prices

- Worldwide by Region
- By Fluid Type worldwide and for each region

Variable Area Flowmeters by Tube Material

- Plastic
- Glass
- Metal

Variable Area Flowmeters by Industry

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



Variable Area Flowmeters by Distribution Channel

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

Variable Area Flowmeters by Customer Type

- End-users
- Original Equipment Manufacturers (OEM's)
- Systems Integrators
- Engineering and Consulting Firms



Market Shares of Major Suppliers

- Worldwide and for each region

Strategies for Success

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



One of the unique qualities of VA flowmeters is the degree of customization that suppliers routinely provide to their customers. Examples include items such as scales specific to the intended application, inlet/outlet orientation, non-standard threads, and even customer name and logo being applied to the instrument using custom ink colors.

These marketing ideas and more are described in this study.

Company Profiles

Company profiles of the major VA flowmeter suppliers are provided, including:

- | | |
|--|--------------------------------------|
| • Aalborg Instruments & Controls, Inc. | • ABB Automation Products |
| • Dwyer Instruments | • Illinois Tool Works – Brooks Inst. |
| • King Instrument Company | • KOBOLD |
| • KROHNE | • Kytola Instruments |
| • Parker/Porter | • TASI Group – Vögtlin Instruments |
| • Tecfluid | • Tokyo Keiso |
| • Yokogawa Electric Corporation | |

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 FlowResearch website at 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 has also written a two-book set called *Advances in Flowmeter Technology*, 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, 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. At Flow Research, he has been involved in project development, research, analysis, and writing for studies, White Papers, and other publications. Custom projects have been a specialty.

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.

Kaleigh Flaherty, Marketing Manager, joined Flow Research in May 2021. She graduated from Coastal Carolina University in December 2021 with a major in marketing. She has brought her marketing talents and skills to Flow Research. Kaleigh manages our social media platforms and data filing. She brings a positive attitude to our work atmosphere, and initiates her graphic design and creative content to our team. She also assists with our customer contacts and client outreach.

The World Market for Coriolis Flowmeters, 8 th Edition	flowresearch.com/coriolis
The World Market for Magnetic Flowmeters, 8 th Edition	flowresearch.com/mag
The World Market for Ultrasonic Flowmeters, 8 th Edition	flowresearch.com/ultrasonic
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The World Market for Mass Flow Controllers, 4 th Edition	flowresearch.com/mfc
The World Market for Multiphase Flowmeters, 2 nd Edition	flowresearch.com/multiphase
Multiphase: Module A: The World Market for Watercut Meters	flowresearch.com/watercut

Conventional Flowmeter Studies

The World Market for Pressure Transmitters, 5 th Edition	flowresearch.com/pressure
The World Market for Primary Elements, 2 nd Edition	flowresearch.com/flowplate
The World Market for Positive Displacement Flowmeters, 3 rd Edition	flowresearch.com/pd
The World Market for Turbine Flowmeters, 3 rd Edition	flowresearch.com/turbine
The World Market for Variable Area Flowmeters	flowresearch.com/va

Cross-Technology Flowmeter Studies

Volume X: The World Market for Flowmeters, 10 th Edition	flowresearch.com/volumex
Volume X: Module A: Strategies, Industries, and Applications	flowresearch.com/volumex
The World Market for Gas Flow Measurement, 5 th Edition	flowresearch.com/gasflow
Gas Module A: Hydrogen, Natural Gas, and Other Applications	flowresearch.com/gasflow
Flowmeters in the Oil & Gas Industry	flowresearch.com/oilflow

Flow Calibration Studies

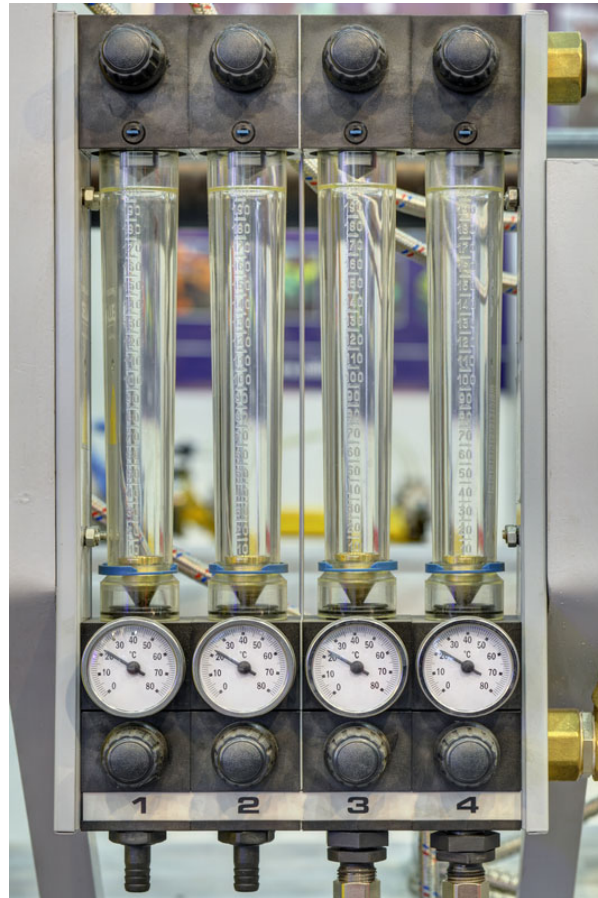
Core Study: Worldwide Gas Flow Calibration Facilities and Markets	flowresearch.com/calibration
Module A: Worldwide Liquid Flow Calibration Facilities and Markets	flowresearch.com/calibration

Temperature

Market for Temperature Sensors in the Americas, 3 rd Edition

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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.

www.flowresearch.com/va