The World Market for Steam Flow Measurement
An Overview

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

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

The World Market for Steam Flow Measurement

Flow Research has completed a new market study on the worldwide steam flow measurement market. The primary goal of the study was to determine the size of the steam flowmeter market in 2007, and the major participants. In addition, forecasts through 2012 are included.

The study includes the following:

- Worldwide market size and market shares for flowmeters used to measure steam flow in 2007
- Forecasts of market growth for flowmeters used for steam flow measurement through 2012
- Identifying industries where flowmeters are used for steam flow measurement, and to identify growth areas
- Identifying applications for flowmeters used for steam flow measurement
- A product analysis for the main companies selling into the steam flow measurement market
- Strategies to manufacturers for selling into the steam flow measurement market
- Company profiles of the main suppliers of flowmeters used to measure steam flow

Rationale for study

In 2004, Flow Research published a study called **The World Market for Gas Flow Measurement**. This study looked at all the types of flowmeters used to measure gas flow, and quantified the gas flow measurement market for each type of flowmeter. This study takes a similar approach. It looks at each type of flowmeter used to measure steam flow, and provides market size and market share information for each type.

Flow measurement is often divided by fluid type into liquid, gas, and steam flow. Of these three, liquid is the predominant fluid measured, followed by gas, and then by steam. **While steam flow may be measured less often than liquid and gas flow, it is becoming increasingly important at a time when the world is becoming more energy conscious**. Steam flow measurement plays a major role in energy production, and the rising price of crude oil and natural gas has resulted in a major push for more efficiency in energy production. Steam is used for district heating, well injection, for heating process fluids, and for boiler outlet measurements. Many companies are taking a closer look at their steam flow measurement to see if they can increase efficiency, gain higher accuracy, or improve their measurement in some other way. **There has never been a better time to look at the steam flow measurement market**.

The following flowmeter types, including primary elements, are included in this study:

- Differential Pressure (DP)
- Primary Elements
- Vortex
- Coriolis
- Ultrasonic
- Turbine
- Variable Area
- Target

The following is a summary of the chapters that appear in this study:

Chapter One – Executive Summary

Chapter Two – Scope and Method

- Background of Study
- Geographic Regions Defined: North America, Europe, Japan, Asia without Japan, Rest of World
- Definitions of Key Terms
- Types of Steam: Wet Steam, Saturated Steam, Superheated Steam

Chapter Three – Product and Technology Analysis

- Paradigm Case Method of Flowmeter Selection
- Steam Flow Products by Supplier – Includes a product analysis for 22 steam flow suppliers

Chapter Four – World Market Size and Forecasts

- Shipments of Steam Flowmeters Worldwide and by Region
- Shipments of Steam Flowmeters Worldwide and by Region by Flowmeter Type

Chapter Five – Differential Pressure Steam Flow Market Size and Forecasts

- Types of Pressure Transmitters
- What is a Differential Pressure Flowmeter?
- Suppliers of DP Flow Transmitters for Steam Flow Measurement
- DP Flowmeters for Steam Flow Measurement – Advantages and Limitations
- Market Size and Growth Forecasts
- Growth Factors for DP Flow Transmitters Used for Steam Flow
- Shipments of DP Flow Transmitters by Region
- Average Selling Price by Region

Chapter Six – Primary Elements Steam Flow Market Size and Forecasts

- Types of Primary Elements
- Suppliers of Primary Elements for Steam Flow Measurement
- Primary Elements for Steam Flow Measurement – Advantages and Limitations
- Market Size and Growth Forecasts
- Growth Factors for Primary Elements Used for Steam Flow
- Shipments of Primary Elements for Steam Flow Measurement by Region
- Average Selling Price by Region

Chapter Seven – Vortex Steam Flow Market Size and Forecasts

- Types of Vortex Flowmeters
- Suppliers of Vortex Flowmeters for Steam Flow Measurement
- Vortex Flowmeters for Steam Flow Measurement – Advantages and Limitations
- Market Size and Growth Forecasts
- Growth Factors for Vortex Flowmeters Used for Steam Flow
- Shipments of Vortex Flowmeters for Steam Flow Measurement by Region

- Average Selling Price by Region

Chapter Eight – Variable Area Flow Market Size and Forecasts

- Types of Variable Area Flowmeters
- Suppliers of Variable Area Flowmeters for Steam Flow Measurement
- Variable Area Flowmeters for Steam Flow Measurement – Advantages and Limitations
- Market Size and Growth Forecasts
- Growth Factors for Variable Area Used for Steam Flow
- Shipments of Variable Area Flowmeters for Steam Flow Measurement by Region
- Average Selling Price by Region

Chapter Nine – Target Flow Market Size and Forecasts

- Description of Target Flowmeter Technology
- Suppliers of Target Flowmeters for Steam Flow Measurement
- Target Flowmeters for Steam Flow Measurement – Advantages and Limitations
- Market Size and Growth Forecasts
- Growth Factors for Target Meters Used for Steam Flow
- Shipments of Target Flowmeters for Steam Flow Measurement by Region
- Average Selling Price by Region

Chapter Ten – Turbine Flow Market Size and Forecasts

- Types and Design of Turbine Flowmeters
- Suppliers of Turbine Flowmeters for Steam Flow Measurement
- Turbine Flowmeters for Steam Flow Measurement – Advantages and Limitations
- Market Size and Growth Forecasts
- Growth Factors for Turbine Meters Used for Steam Flow
- Shipments of Turbine Flowmeters for Steam Flow Measurement by Region
- Average Selling Price by Region

Chapter Eleven – Coriolis Flow Market Size and Forecasts

- Measuring Mass Flow with Coriolis Flowmeters
- Suppliers of Coriolis Flowmeters for Steam Flow Measurement
- Coriolis Flowmeters for Steam Flow Measurement – Advantages and Limitations
- Market Size and Growth Forecasts
- Growth Factors for Coriolis Meters Used for Steam Flow
- Shipments of Coriolis Flowmeters for Steam Flow Measurement by Region
- Average Selling Price by Region

Chapter Twelve – Ultrasonic Flow Market Size and Forecasts

- History and Advantages of Ultrasonic Flowmeters
- Suppliers of Ultrasonic Flowmeters for Steam Flow Measurement
- Ultrasonic Flowmeters for Steam Flow Measurement – Advantages and Limitations
- Market Size and Growth Forecasts
- Growth Factors for Ultrasonic Meters Used for Steam Flow
- Shipments of Ultrasonic Flowmeters for Steam Flow Measurement by Region
- Average Selling Price by Region

Chapter Thirteen – Market Shares by Flow Technology

- Market Shares for the Leading Suppliers of Differential Pressure Flow Transmitters
- Market Shares for the Leading Suppliers of Primary Elements
- Market Shares for the Leading Suppliers of Vortex Flowmeters
- Market Shares for the Leading Suppliers of Variable Area Flowmeters
- Market Shares for the Leading Suppliers of Target Flowmeters
- Market Shares for the Leading Suppliers of Turbine Flowmeters
- Market Shares for the Leading Suppliers of Coriolis Flowmeters
- Market Shares for the Leading Suppliers of Ultrasonic

Chapter Fourteen – User Perspective Survey on Steam Flow Measurement

Part One: Executive Summary
Part Two: Scope and Methodology
Part Three: Steam Flow End-User Survey

- Line Sizes
- Applications
- Types of Steam and Steam Measurement
- Accuracy
- Drivers of Accuracy
- Primary Elements
- Repair/Maintenance Issues
- Change in Primary Elements
- Change to Another Flowmeter Type
- Figures 14-1 to 14-35

Chapter Fifteen – Strategies for Success

Chapter Sixteen – Supplier Company Profiles

The following is a partial list of the 30 companies profiled in this study:

ABB
Central Station Steam Company
Emerson Process Management – Micro Motion Division
Emerson Process Management – Rosemount Division
Endress+Hauser
Foxboro (part of Invensys Process Systems group)
Fuji Electric
GE Sensing
Honeywell
McCrometer
Oval Corp.
Samil Industry
Siemens
Sierra Instruments
Smar Equipamentos Industrials
Solartron ISA
Spirax Sarco
Spirax Sarco, EMCO Division
Venture Measurement
Yamatake
Yokogawa

End-User Survey

Flow Research has completed a comprehensive survey of end-users of steam flowmeters. The survey was designed to provide a customer perspective on the steam flow market. It reveals what types of flowmeters end-users measure steam flow with, what their applications are, whether they are looking to change flow technologies, what type of steam they are measuring, and many other vital facts about how customers are measuring steam flow. Because it is the end-users who actually buy steam flowmeters, their perspective is essential to providing a balanced view of the steam flowmeter market.

The end-user survey is included in the study as Chapter Fourteen.

Publication Date

This study was published in March 2008.

Background

Dr. Jesse Yoder is President of Flow Research Inc., a company he founded in 1998. Dr. Yoder has 20 years' experience as a writer and analyst in process control and instrumentation. Since 1990, he has written over 100 market research studies, most of them in flow and instrumentation. Some of the recent and currently scheduled Flow Research studies are as follows:

Volume I: The World Market for Coriolis Flowmeters, 3rd Edition (May 2008)
Volume II: The Global Market for Magnetic Flowmeters, 3rd Edition (September 2005)

Volume III: The World Market for Ultrasonic Flowmeters, 3rd Edition (January 2008)
Volume IV: The World Market for Vortex Flowmeters, 3rd Edition (March 2006)
Volume V: The World Market for Differential Pressure (DP) Flowmeters and Primary Elements (January 2007)
Volume VI: Worldwide Survey of Flowmeter Users (January 2006)
Volume VII: The World Market for Positive Displacement Flowmeters (2002)
Volume VIII: The World Market for Turbine Flowmeters (2002)
Volume IX: The World Market for Pressure Transmitters, 2nd Edition (October 2007)
Volume X: The World Market for Flowmeters 2nd Edition (includes all flow technologies) (March 2008)
Volume XI: The World Market for Gas Flow Measurement (September 2004)
Volume XII: The World Market for Steam Flow Measurement (March 2008)
The Market for Temperature Sensors in the Americas, 2nd Edition (May 2006)
The Market for Temperature Transmitters in the Americas, 2nd Edition (November 2006)

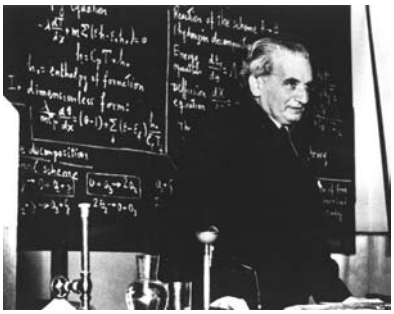
These studies are described at http://www.flowresearch.com/flow.htm. Dr. Yoder has also written more than 70 articles on flow and instrumentation for trade journals. Links to many of these can be found at http://www.flowresearch.com/articles.htm.

Norm Weeks, 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, and has already completed several studies.

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 then worked on many projects. She is a very talented writer, and has a strong customer focus. In addition to her work on market studies, Belinda is serving as associate editor of the **Market Barometer** and the **Energy Monitor**.

Besides writing and publishing studies of this type, Flow Research specializes in 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**. The **Energy Monitor** analyzes the current state of the oil & gas, refining, power, and renewables industries, and the implications for instrumentation supplier. 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
(781) 245-3200
(781) 224-7552 (fax)
Wakefield, MA 01880
www.flowresearch.com



Theodore Von Karman

The Flow Research Founding Sponsor Program

To produce studies that most closely match our clients' needs, Flow Research instituted the **Founding Sponsor 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, Founding Sponsors 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, Founding Sponsors receive a proposal that includes the proposed segmentation. Founding Sponsors can propose additional segmentation, and 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 Founding Sponsors, who are then invited to provide any additional input or comments into 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 regular price of the study. Payment can either be made 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 Founding Sponsor program applies to any particular study, please contact Flow Research. *We look forward to working with you!*

If you have any questions about the Founding Sponsor program, please contact Norm Weeks at (781) 245-3200, or norm@flowresearch.com.

The World Market for Steam Flow Measurement

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