

## Volume IV: The World Market for Vortex Flowmeters

Vortex flowmeters were first introduced into industrial markets in the early 1970s. Since that time, they have undergone significant growth. Vortex meters are considered an alternative to differential pressure flowmeters, since they offer reduced pressure drop at a reasonable price. Steam flow measurement has emerged as the best-known application for vortex meters.

### Study Highlights

As part of our effort to define the worldwide flowmeter market, Flow Research has contacted every known supplier of vortex flowmeters worldwide. We have gathered detailed information about these suppliers and compiled the result into a complete description of the worldwide vortex flowmeter market. Highlights of the study include:

- Market size by geographic region
- Growth forecasts through 2007
- Market shares by geographic region
- Multivariable vs. smart vs. conventional vortex meters
- Liquid vs. steam vs. gas flow measurement
- Market size by industry
- Market strategies for vortex suppliers
- Shipments by distribution channel
- Company profiles of vortex meter suppliers



While vortex flowmeters have shown significant growth in the past four years, they have not experienced the same type of dynamic growth as have Coriolis and ultrasonic meters. One factor limiting growth is their limited ability to handle low flowrates. Rosemount's entrance into the vortex flowmeter market in 1994 has had a substantial impact. Much of the

growth in the vortex flowmeter market comes from their use in steam flow measurement.

One exciting development for vortex meters is the recent introduction of multivariable vortex meters. Sierra Instruments introduced this product in 1997. Multivariable vortex meters are discussed in this study, and their prospect for growth is compared to growth

prospects for other multivariable meters. These other meters include multivariable differential pressure flowmeters and multivariable magnetic flowmeters.

### **Operating Principle: The Mini-Tornado**

Vortex flowmeters make use of a principle called the von Karman effect. This principle states that flow around a bluff body will generate vortices on alternate sides of the bluff body. Vortex meters contain a bluff body in the form of a piece of material that has a broad, flat front. This piece of material extends vertically into the flowstream. Flow velocity is proportional to the number of vortices generated. Flowrate is calculated by multiplying flow velocity times the area of the pipe.



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Versatility is a hallmark of vortex flowmeters. Vortex meters can be used to measure liquid, steam, and

gas. Steam has become the area in which vortex meters have come to excel. They can easily handle the high temperature and high flowrates associated with steam. Steam flow measurement is prevalent in the process industries, and also in district heating. Vortex meters are also widely used to measure the flow of liquids and gases.

### **Paradigm Case Applications**

The paradigm case applications for vortex flowmeters are applications involving clean, low-viscosity, swirl-free, medium to high-speed fluids. Fluid speed is highly important for vortex meters, since their proper operation required the generation of vortices. Handling low flows is the most important limitation on vortex meters.

### **Companies Included**

The following companies are profiled in this study:

ABB  
Asahi America  
Eastech Flow Controls  
EMCO  
Emerson Rosemount  
Endress+Hauser  
Hangzhu Zhenhua Meter Factory  
Invensys/Foxboro  
J-Tec Associates

Krohne  
Oval  
Sierra Instruments  
Tokyo Keiso  
Yokogawa

Contact Flow Research for more details about this exciting new study. **Volume IV: The World Market for Vortex Flowmeters** is available for immediate shipment!