



## The Vortex Meter Difference

Foxboro vortex flowmeters are the ideal answer for demanding measurements in your gas fields. They outlast, outperform, and out-economize popular turbine meters in every regard. With no moving parts, our sensors stay functional practically forever, measuring liquid, gas, and steam with unchanging accuracy for years.

- Replace turbine meters
- Use for separators on water, oil, and gas legs
- Apply for measurement of produced water on coal seam gas
- Supply accurate measurement of liquid/gas/steam
- Resistant to solids, grit, and coal fines
- Contain no moving parts
- Operate with low power/loop power
- Lifetime sensor warranty
- Deliver best-in-class cost of ownership



### THE FOXBORO DIFFERENCE

New instrumentation ideas — applied at the point where the control system meets your process — can make all the difference. They allow you to greatly improve your operation's economic, safety, and environmental performance.

Others may imitate our successful designs of the past.

Today, Foxboro instrumentation furnishes further innovations instead. We offer a broad range of pressure transmitters, flowmeters, analytical instruments, and other measurement product lines ideal for your applications.



Foxboro  
Foxboro, MA 02035-2099  
1-508-549-2424  
1-888-FOXBORO  
Fax: 1-508-549-4999

[www.foxboro.com/instrumentation](http://www.foxboro.com/instrumentation)

Invensys, Foxboro, and FoxCom are trademarks of Invensys plc or its subsidiaries and affiliated companies. All other marks may be trademarks of their respective owners.

© 2006 Invensys plc. All rights reserved. Printed in U.S.A.  
Bulletin E38-6 5/06 0609022

Vortex Flowmeter  
for Gas Production

## Durable Measurement of Gas Flow Rates with Versatility and Value



# Flow Measurements for the Long Term

The versatile Foxboro 83F flanged-body and 83W wafer-body intelligent vortex flowmeters are affordable, durable solutions for flow rate measurement in gas production.

These flowmeters measure liquid, gas, or steam at process temperatures up to 800° F (430° C), with accuracy to ±0.5% for liquids and ±1.0% for gas and steam.

Unlike turbine meters, they're not troubled by the grit and sand often found in gas flows. They have no moving parts to wear, causing inaccuracies, and often requiring maintenance or replacement. Instead, their epoxy-coated housing and toughened sensor — featuring a unique stationary shedder — provide years of trouble-free service in the gas field.

These products also feature excellent low flow characteristics, wide rangeability, online diagnostics, and local/remote configuration.

They supply measurements in separators on water, oil, and gas legs with ease. Apply them with equal confidence to produced water at the wellhead — including water on coal seam gas. They handle solids, grit, coal fines, and other gas production difficulties that turbine meters find difficult or impossible.

Foxboro vortex meters are also an unbeatable value. They exhibit prices that are usually competitive with turbine meters, plus much longer lifetimes — and lower lifetime costs of ownership.



## SPECIFICATIONS

### Line sizes

83F flanged body: 3/4 to 12 in. (15 to 300 mm)  
83W wafer body: 3/4 to 8 in. (15 to 200 mm)

### Process temperature limits

Standard temperatures: 0° to 400° F (–20° to 200° C)  
Extended temperatures: 400° to 800° F (200° to 430° C)

### Ambient temperature limits

–40° and 185° F (–40° and 85° C)

### Process pressure rating

Vacuum to pressure rating of end connection with a maximum limit of 1500 psi at 100° F  
83W meters clamp between ANSI 150 to 600 or metric PN 10 to 100 class flanges  
83F meters are provided with ANSI 150 to 600 metric PN 10 to 100 class flanges as options in the model code  
Versions available to Class 1500

### Accuracy

Liquids: ±0.5% of rate over calibrated Reynolds number range  
±1.0% of rate outside calibrated Reynolds number range  
Gases/steam: ±1.0% of rate for Reynolds numbers = 20,000

Liquids and gases: ±2.0% of rate for > 5000 Reynolds number < 20,000 (using corrections for density and viscosity in software)

### Operating flow rates (for smallest and largest line sizes)

83F flanged body:  
3/4 in. (15 mm) size: 1.2 U.S. gpm (0.07 L/s) minimum, 34 U.S. gpm (2.1 L/s) maximum  
12 in. (300 mm) size: 85.6 U.S. gpm (9.99 L/s) minimum, 8560 U.S. gpm (540 L/s) maximum  
83FW wafer body:  
3/4 in. (15 mm) size: 1.2 U.S. gpm (0.07 L/s) minimum, 34 U.S. gpm (2.1 L/s) maximum  
8 in. (200 mm) size: 36.1 U.S. gpm (3.64 L/s) minimum, 3610 U.S. gpm (228 L/s) maximum

### Outputs

Digital: FoxCom, HART, FOUNDATION fieldbus  
Analog: Continuous 4–20 mA signal proportional to flow rate  
Scaled pulse: Volume/mass flow rate provided via a contact closure output. The contact closure rate (0 to 100 Hz) is linearly proportional to the flow rate, the upper range value being automatically set at 100 Hz.

### Remote interrogation/configuration

The flowmeter can be remotely interrogated or reconfigured using:

FoxCom — I/A Series configurator, release 4.2.3 or later; Model PC intelligent transmitter configurator, version 4.0 or later; Model HHT handheld terminal, version D or later  
HART — HART M375 configurator  
FOUNDATION fieldbus

### Supply voltage

12.5 to 42 V dc

### High-voltage protection

Up to 2500 V

### Materials of construction

83F meter body:  
3/4 to 4 in.: 316 ss cast body, flange, and shedder  
6 to 12 in.: 304 ss body, shedder, and flanges or 304 ss body and shedder and carbon steel flanges  
83W meter body:  
3/4 to 8 in.: 316 ss cast body and shedder  
3/4 to 4 in.: Hastelloy C cast body and shedder

### Sensor

Stainless steel (CF3M) or Hastelloy (CW2M) options  
Fluorolube, silicon, or unfilled options

### Isolation manifold

316 ss body, and valve ball with glass-filled ptfе or graphite valve seats

### Electronics housing

Low-copper aluminum with epoxy powdercoated finish and Buna-N O-rings. Meets requirements of IEC AP66 and provides environmental protection of NEMA Type 4X.

**Move to an intelligent long-term measurement solution today. Visit [www.foxboro.com/instrumentation](http://www.foxboro.com/instrumentation) or just call 1-888-FOXBORO.**