

Rosemount Annubar® Flowmeter Series



The Value of Innovation, Realized

ROSEMOUNT®

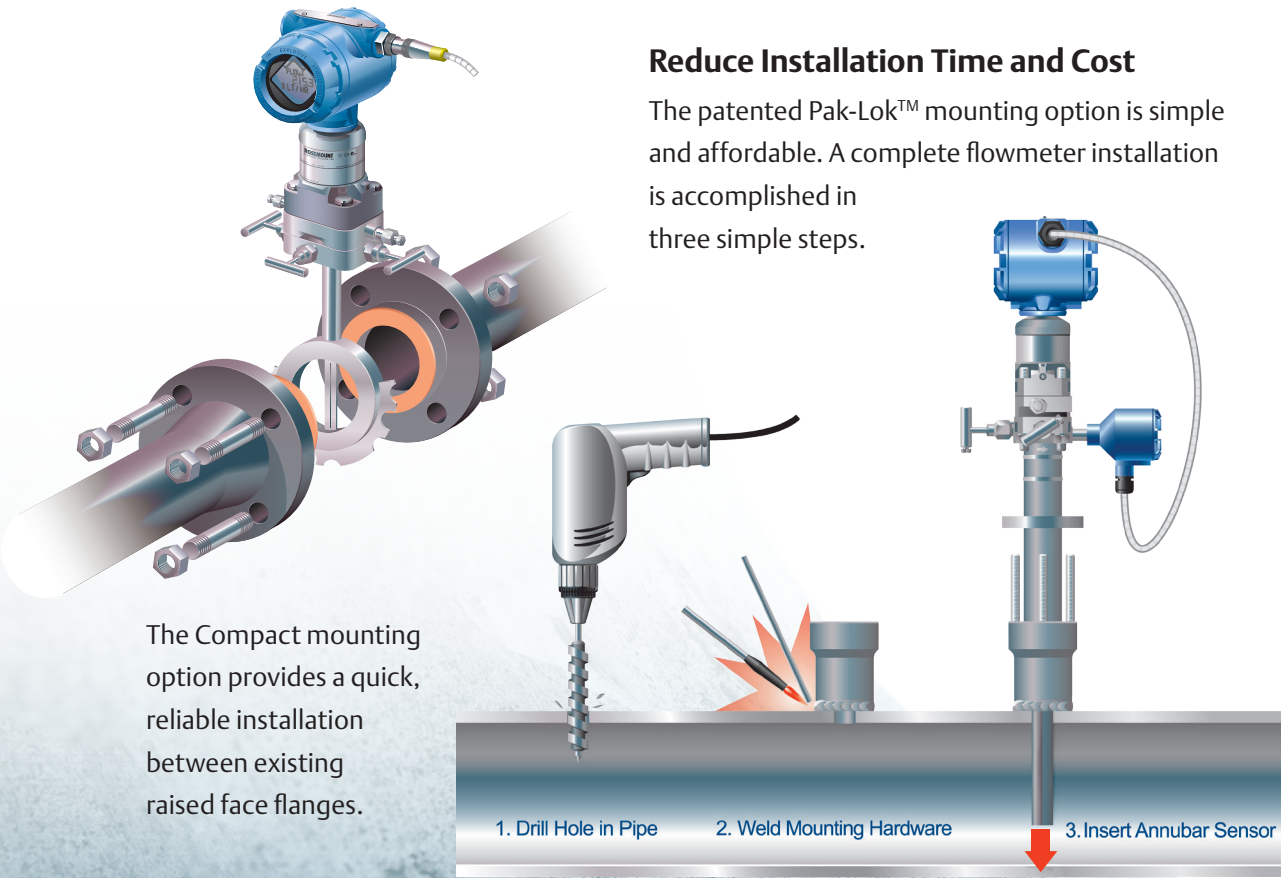
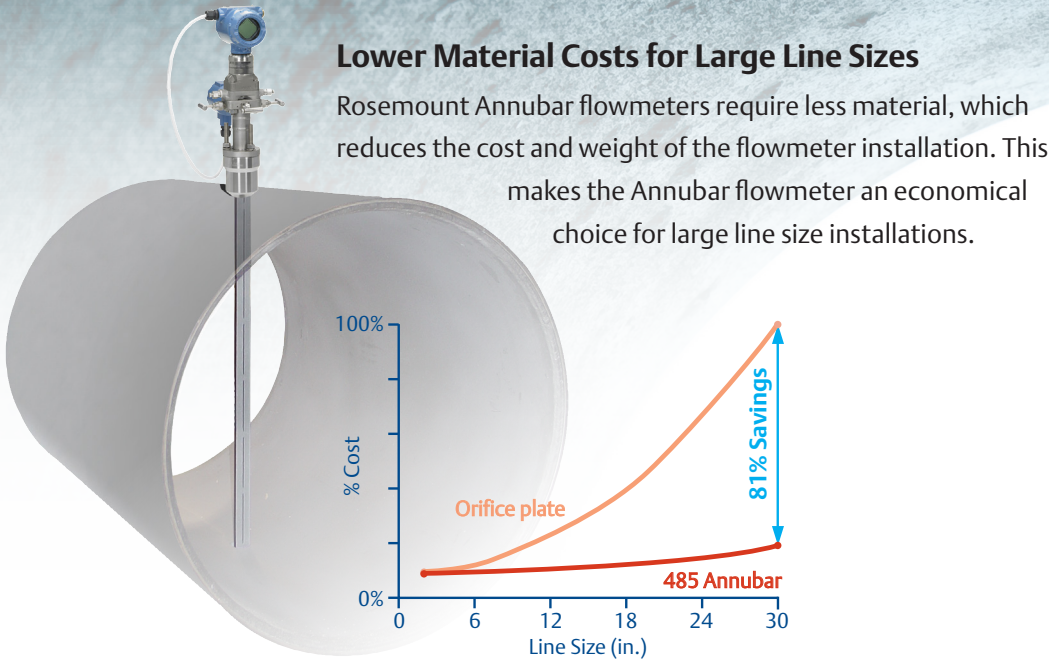
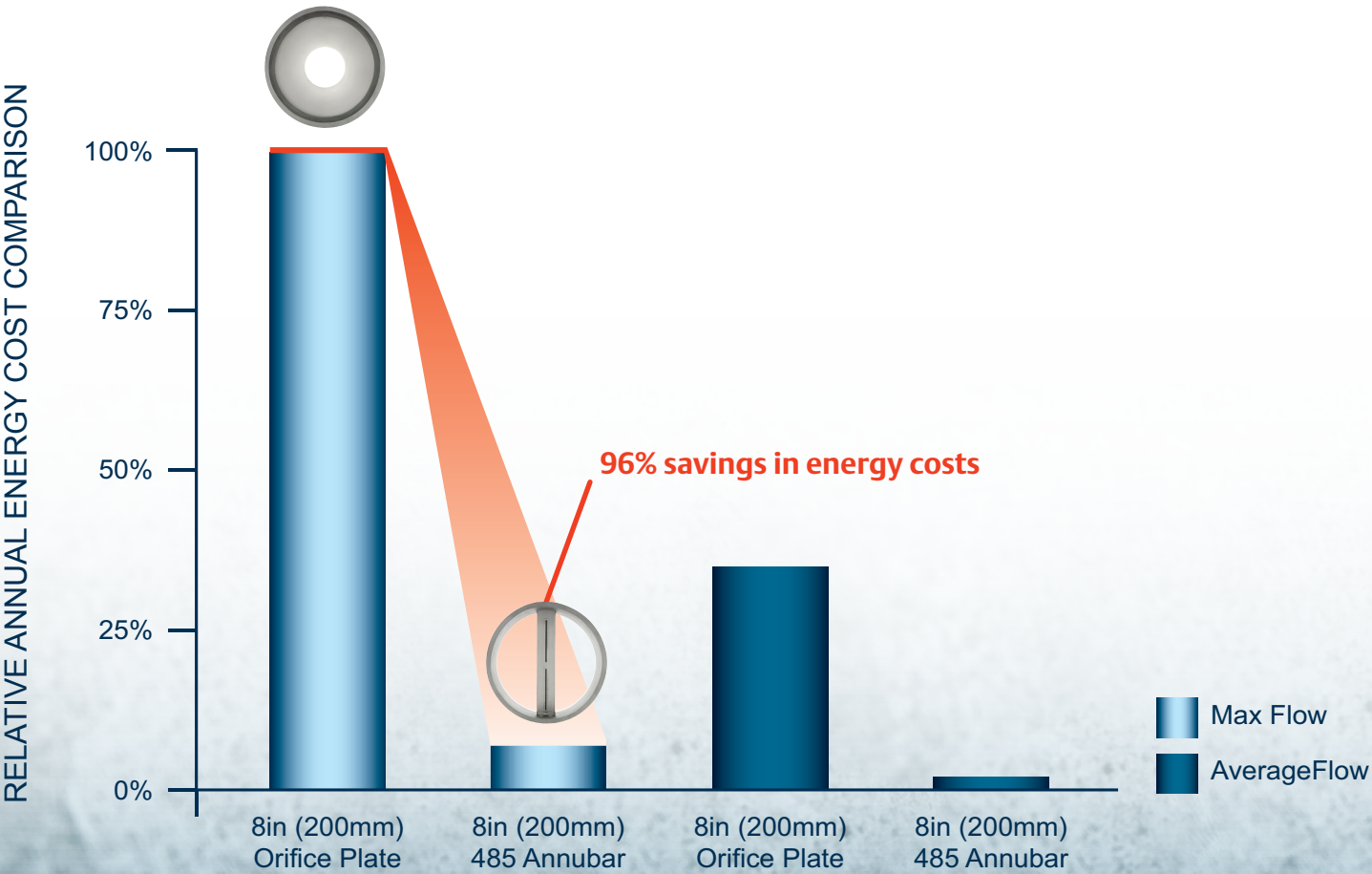

EMERSON™
Process Management

Insertion Technology, Simplified.

Averaging Pitot Tube (APT) technology reduces the total cost of ownership of the flow measurement by lowering installation and energy costs. The savings become even greater as the line size increases. Rosemount Annubar flowmeters lower installed costs and simplify installation.

Lower Operating Costs. Maximize Energy Savings.

During use, Rosemount Annubar flowmeters reduce operational expenditures. The less constricting design creates less permanent pressure loss than virtually any other DP flow technology. This translates into substantial energy savings by allowing lower pumping costs in liquids, lower compression costs in gas, and lower fuel costs in generating steam. The return on investment in energy savings from Rosemount Annubar technology can be achieved within six months.



Annubar Technology, Optimized.

As the inventors of averaging pitot tube technology, Emerson understands that the shape of the sensor is fundamental to flow measurement performance. As a result, Annubar technology is the most innovative and rugged. These patented primary elements are designed to be resistant to wear, warp and plugging while achieving the highest accuracy and reliability.

Reduce Process Variability

LOW SIGNAL NOISE

Stagnation zones on the back side of the T-shaped Annubar sensor are positioned to reduce the noise and measurement inaccuracies that lead to process variability.

Lower Energy Costs

MINIMIZED PERMANENT PRESSURE LOSS

Annubar sensors create less blockage in the pipe, leading to a reduction in pumping, compression and fuel costs.

Save Installation Time and Cost

INTEGRAL THERMOWELL DESIGN

Add a temperature measurement without additional pipe penetrations or installation time and expense. The integrated thermowell of the 485 sensor allows maintenance of the temperature sensor without process shutdown.

Enhance Measurement at Lower Flows

HIGHER SIGNAL STRENGTH

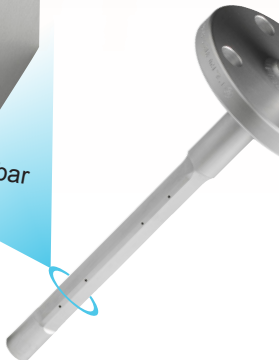
The flat upstream surface of the T-shaped Annubar sensor creates a fixed separation point that improves performance over a wider flow range.

Decrease Measurement Error

+/-0.75% OF FLOW ACCURACY

The frontal slot design of the sensor measures 70% more of the velocity flow profile, increasing the accuracy of the measurement.

Severe Service Applications



Reliability in Challenging Applications

SOLID SENSOR CONSTRUCTION

The solid machined sensor design of the 585 eliminates structural welds in the process flow enabling maximum strength. The sensor is available in a variety of materials for the greatest flexibility.

Simplified Bi-directional Measurement

SYMMETRICAL SENSOR DESIGN

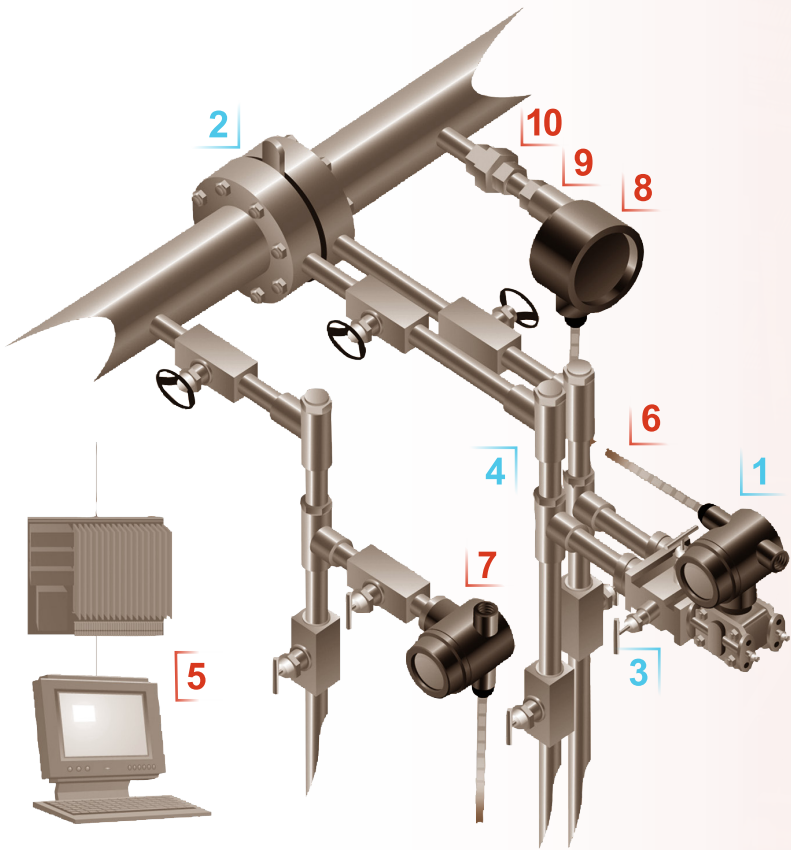
Rosemount 585 Annubar flowmeters can be used to measure bi-directional flow eliminating the need for two flowmeter assemblies. Options for dual direct mounted transmitters make installation simple and cost effective.

Best Practices, Redefined.

Rosemount Annubar flowmeters arrive fully assembled, configured and leak tested. It is the only flowmeter that delivers real-time mass flow with a single pipe penetration, reducing engineering, hardware and installation expenses.

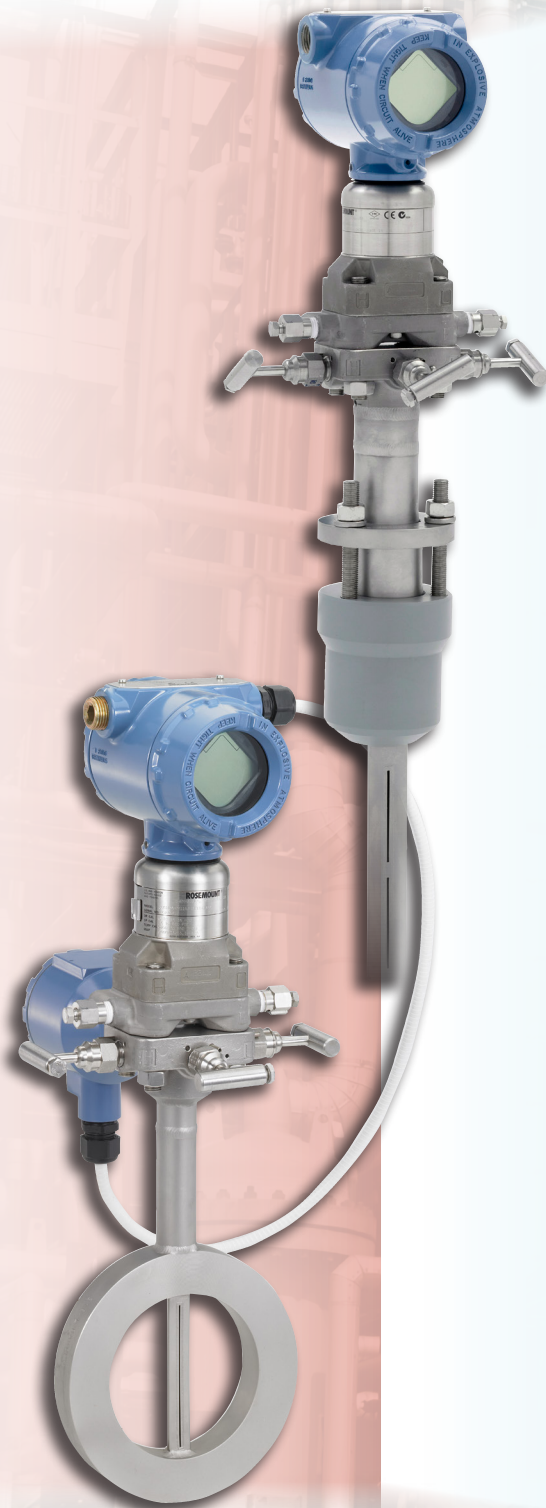
Traditional Practice

Traditional DP flow installations can require up to 10 individual components and multiple pipe penetrations to measure flow. Installing multiple components makes the measurement point susceptible to leaking, plugging, freezing and measurement inaccuracies.



- TRADITIONAL**
- 1. DP Transmitter
 - 2. Primary Element
 - 3. Manifold
 - 4. Connection Hardware

- FULLY COMPENSATED**
- 5. Flow Computer
 - 6. Sensor Wiring
 - 7. Pressure Transmitter
 - 8. Temperature Transmitter
 - 9. Thermowell
 - 10. Temperature Sensor



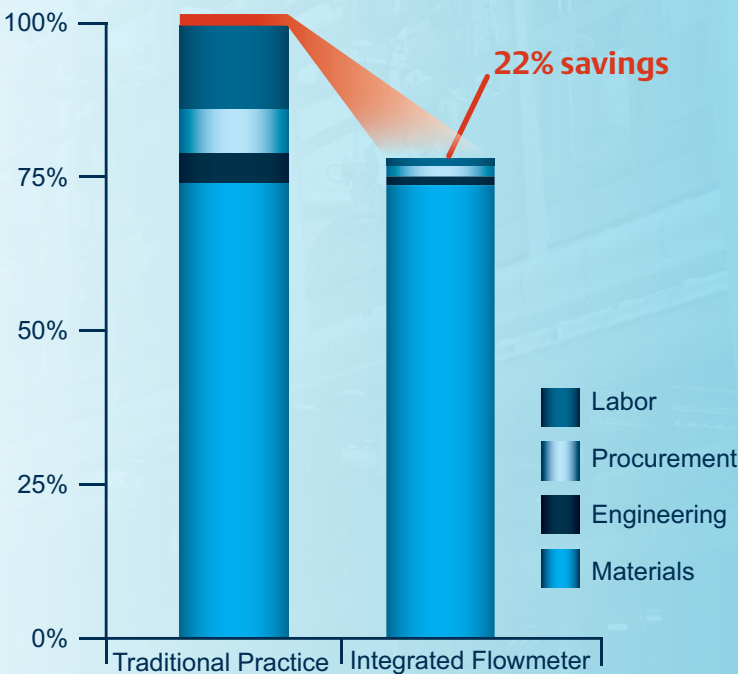
Rosemount Integrated Flowmeter Best Practice

Rosemount Annubar flowmeters combine the industries best differential pressure and MultiVariable transmitters with the leading averaging pitot tube technology to create the most accurate and reliable solution available.

Elimination of Impulse Lines Reduces Maintenance Costs

Impulse lines are a major source of flow measurement errors and process leaks. By eliminating impulse lines, Rosemount flowmeters have 70% fewer leak points, and reduce the susceptibility of freezing and plugging.

Reduce Installation Costs



Fully Configured Flowmeters Reduce Labor Time

Rosemount Annubar flowmeters arrive fully configured, leak tested, and ready to install. Configuration and calibration are completed at the factory to ensure a quick start-up.

Simplify Procurement with Rosemount Flowmeters

The ability to order a complete flowmeter with a single model number simplifies the procurement process. The time and coordination of ordering components from multiple vendors for each flow measurement point is eliminated.

Flowmeter Technology, Advanced.

Rosemount Annubar flowmeters are engineered with advanced capabilities to maximize your success through faster start-ups, reduced operating costs, and higher productivity.

Simplify and Improve Mass Flow Measurement

MULTIVARIABLE™ TECHNOLOGY

Rosemount 3051S MultiVariable transmitters deliver unprecedented performance and capabilities by integrating MultiVariable technology into the industry leading, scalable 3051S platform. The result is effortless flow measurement for tighter control and improved productivity.

YOU ENTER

- 1 PROCESS FLUID
- 2 PRIMARY ELEMENT
- 3 LINE SIZE

YOU RECEIVE

- MASS FLOW
- VOLUMETRIC FLOW
- TOTALIZED FLOW
- ENERGY FLOW
- PROCESS TEMPERATURE
- DIFFERENTIAL PRESSURE
- STATIC PRESSURE
- MODULE TEMPERATURE

SCALABLE COMPENSATION

FLUID MEASURED

COMPENSATED DISCHARGE COEFFICIENT

TEMPERATURE COMPENSATED

PRESSURE COMPENSATED

FULLY COMPENSATED MASS, ENERGY, AND VOLUMETRIC FLOW

LIQUIDS

LIQUIDS AND SATURATED STEAM

SATURATED STEAM

GAS, NATURAL GAS, AND STEAM



Predict and Prevent Abnormal Flow Conditions

ADVANCED DIAGNOSTICS

Enhance quality and improve productivity with Advanced Diagnostics. Measure and log statistical process characteristics to proactively monitor, detect and alert you to abnormal flow conditions.

Extend Process Insight and Improve Operations

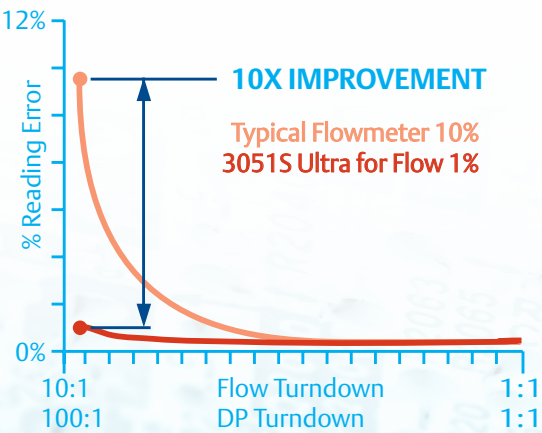
WIRELESS FLOWMETER TECHNOLOGY

Emerson Smart Wireless flowmeters offer unparalleled ease of use. Installing and commissioning a fully integrated and configured wireless Annubar flowmeter is fast and easy.

Increase Turndown and Reduce Maintenance Costs

ULTRA FOR FLOW

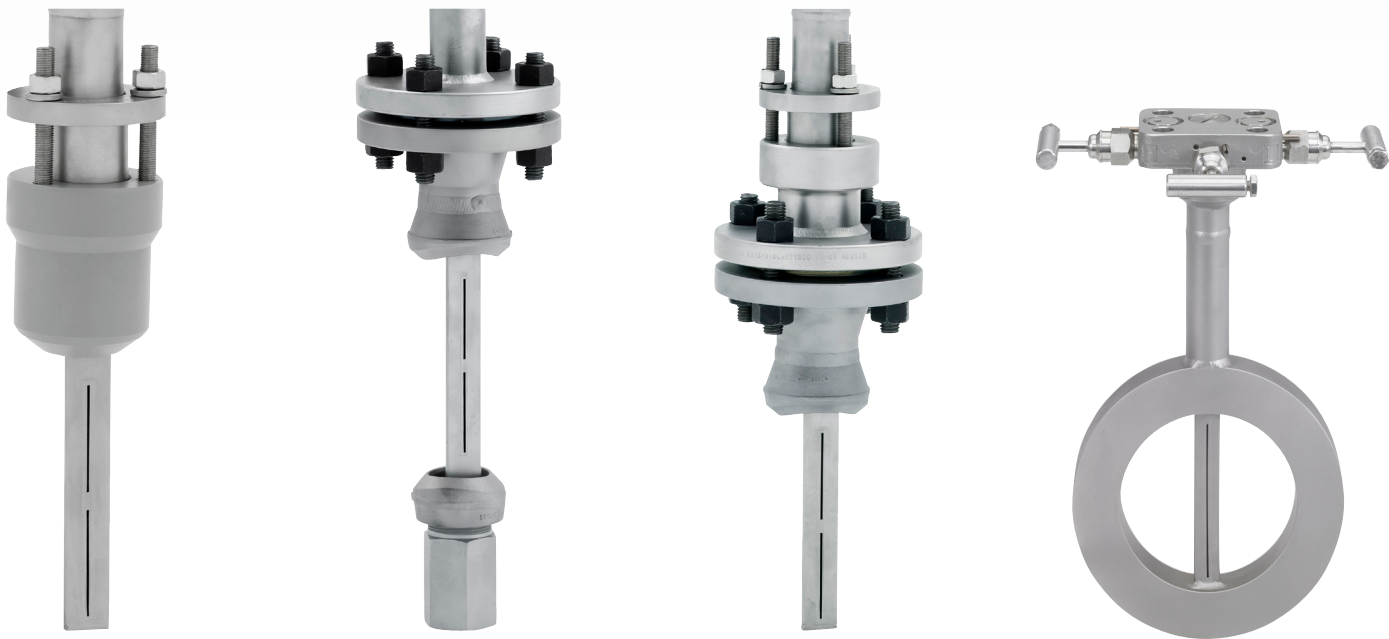
Eliminate transmitter stacking and improve performance over a wider turndown with a more accurate transmitter. The 3051S Ultra for Flow option includes industry leading 10-year stability that provides an 80% reduction in calibration requirements.



Flowmeter Offering, Unrivaled.

The Rosemount Annubar flowmeter series meets the needs of diverse process applications, whether it is high accuracy for precision control or high strength for severe flow applications.

Flexible mounting styles



Pak-Lok

Utilizes the latest patented compression design to firmly secure the Annubar sensor to the opposite wall of the pipe.

Flanged

The rugged structural requirements of high-pressure applications are met with the flanged assembly.

Flange-Lok

Combines a Pak-Lok compression sealing mechanism with a mounting flange for convenient installation with a single pipe penetration.

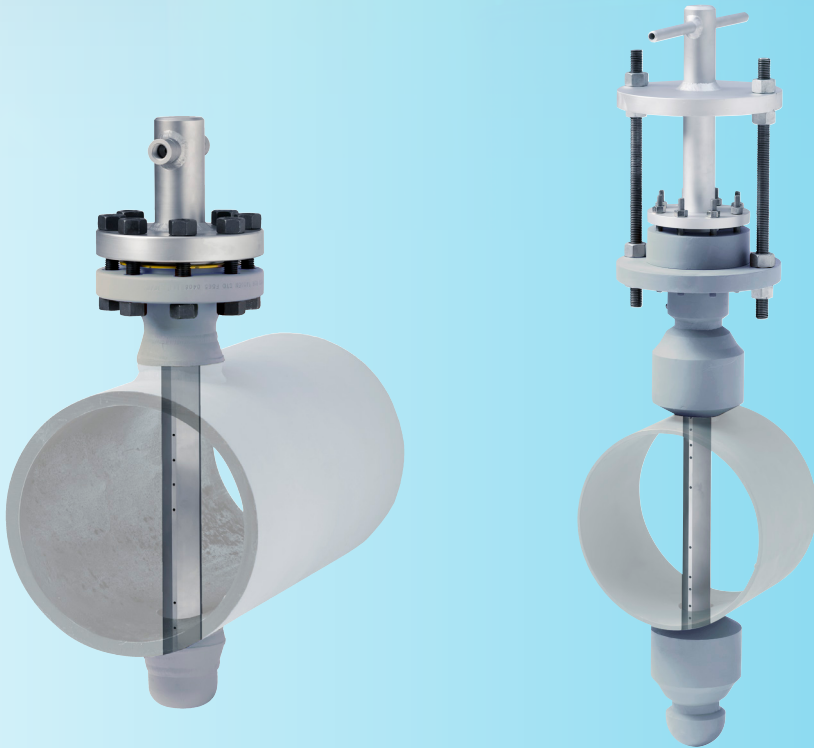
Compact

Easily installs between any existing raised face flange without creating additional pipe penetrations.

Flo-Tap

The Flo-Tap Annubar assembly can be hot-tapped without interrupting process flow. There is no need to shut down your process to install a flowmeter.

Severe service flow applications



585S Severe Service Annubar Primary Element

Reliable solution for severe service applications including high velocity, high temperature, high pressure and extreme flowing conditions. Offered in a variety of materials for optimal compatibility with the process.

585M Main Steam Line Annubar Primary Element

Designed exclusively for critical steam service in power plants or cogeneration systems, offering maximum resistance to the harmful effects of high temperature steam. Easy-to-maintain design allows for simple removal for steam blow and other maintenance procedures.

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