

Innovative electronics combined with digital signal processing ensures accurate measurement and less sensitivity to flow profile

Integrated, smart MeterLink™ diagnostics extend calibration cycles and cut operation and maintenance costs

No moving or intruding parts results in no wear, drift, or pressure loss, generating significant energy savings



The unobstructed flow tube with smooth surface finish inhibits material build-up

Backed by over 25 years of ultrasonic flow metering experience

Flow Measurement

Accurate flow measurement of liquids, slurries or solids, with different chemical and physical properties plays an important role in process automation. Inaccurate flow measurements can potentially cause serious results and can lead to significant losses in productivity.

Green Industry offers a comprehensive range of Electromagnetic, Ultrasonic, Coriolis, Positive Displacement, RF Capacitance and Solid Flow Meters to meet the needs of different applications. Our wide portfolio ensures that you have the right flow meter for every application, medium and industry.

All of these products are designed to give you maximum accuracy, stability, safety and reliability,

FLOW MEASUREMENT

Manufacturers

MANUFACTURES

Endress+Hauser 
People for Process Automation

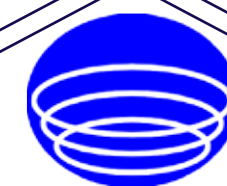
Bopp & Reuther 

KROHNE

 M&T
METERING & TECHNOLOGY

RHEONIK

Micro Motion 


OVAL

 Rototherm
instrumentation and control

 SIERRA
EXPERIENCE OUR PASSION FOR FLOW

Flow Measurement

Orifice Plate



- Most common and widely used differential pressure producer
- Suitable for a wide range of flow measurement applications in line sizes of 50mm and above
- Wide range of materials including exotics such as monel, hastelloy, as well as ceramic
- Orifice sizing on request
- Proven technology
- Range of Orifice Types

- Concentric Square Edge
- Conical Entrance
- Quarter Circle
- Segmental

Orifice / Flange Union



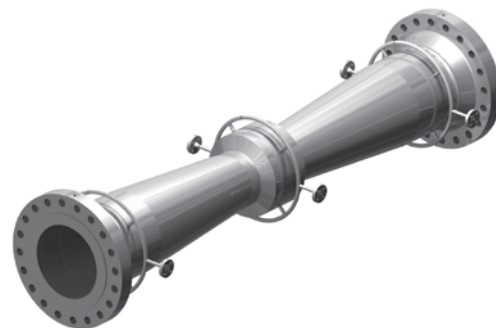
- Orifice flange assemblies consist of a pair of flanges, studs, nuts, gaskets, jacking screws and plugs (where requested)
- Orifice flanges ensure best flow measurement accuracy with an economic solution
- Wide range of materials, including ASTM A105N Carbon Steel, ASTM A350 LF2 Carbon Steel, ASTM A182 F316L Stainless Steel as standards
- Exotic materials used depending on application
- Ratings from 300 lb to 2500 lb
- Sizes from 1" Nominal Bore
- Corner Tapping Versions Available

Flow Nozzle



- If high temperatures and velocities are present, the flow nozzle may provide a better solution than an orifice plate.
- Its construction makes it substantially more rigid and flow coefficient data at high Reynolds number is better documented
- The inlet is contoured, and may be either radius entrance (ISA1932) or elliptical entrance (ASME long radius)
- The flow nozzle has about 65% greater flow capacity than an orifice with the same diameter

Classical Venturi Tubes



- Classical Venturi Tubes - used on applications where a low permanent pressure loss is required.
- Can be used on clean and dirty fluid in line sizes from 1" to 60"
- Calculation, design and manufacture to BS EN ISO 5167:1
- Fabricated from plate or machined from bar/forgings
- Flanged or weld-in construction
- Wide range of material grades
- Calibration service on request

Magnetic



- The measuring principle is virtually independent of pressure, density, temperature and viscosity
- Even fluids with entrained solids can be metered, e.g. ore slurry or cellulose pulp
- Wide range of nominal diameters (DN 2 to 12/1 ; 2400 to 90")
- Free pipe cross-section: CIP/SIP cleanable, piggable
- No moving parts, maintenance-free

Ultrasonic flowmeters



- Measurement independent of pressure, density, temperature, conductivity and viscosity (for homogeneous fluids)
- Free pipe cross-section, no pressure loss
- No moving parts, minimum maintenance and upkeep
- Long service life, no abrasion or corrosion from the fluid
- In-line or clamp-on design for stationary or temporary flow measurements

Vortex



- Universally suitable for measuring liquids, gases and steam
- Largely unaffected by changes in pressure, density, temperature and viscosity
- High long-term stability: no zero-point drift and lifetime K-factor
- Large turndown of typically 10:1 to 30:1 for gas/steam, or up to 40:1 for liquids
- Wide temperature range: -200 to 400+ °C (450+ °C on demand)

Coriolis mass



- Universal measuring principle for liquids and gases
- Multivariable measurement – simultaneous - measuring of mass flow, density, temperature and viscosity
- High measuring accuracy: typically 0.1% o.r., optionally: 0.05% o.r. (PremiumCal)
- Measuring principle independent of the physical fluid properties and the flow profile
- No inlet/outlet runs necessary

Flow Measurement

Differential Pressure



- With silicon cell for process pressures up to 700bar (10,500psi)
- Small flush-mount process connections and guaranteed overload resistance silicon cell
- With diaphragm seal process temperatures from 70- up to °400+C (94- to °752+F)
- The electronic differential pressure system eliminates traditional mechanical issues resulting in greater process availability and reliability. Also safety risks are minimized with the electronic dp system architecture and design

Variable Area



- Simple, low-cost installation: Measurement and indication without auxiliary power supply
- Universal Ex concept: Ex i and Ex d
- Modular scalability – from mechanical to fieldbus
- Any installation position: vertical upward, horizontal, vertical downward
- Robust measuring tube construction for high process temperatures and extreme operating pressures
- Extended measuring span: up to 1 : 100
- High application safety, even with extremely low flows

Turbine Flow Meter



- proven, reliable measurement system
- approved by local bureau of standards
- high measuring accuracy
- high reproducibility
- large flows
- inductive pulse pick up

Pitot-Tube



- Threaded and Flanged process connection
- PN-16/PN150-40lbs/300-lbs
- DN40 - DN800
- Sensor Sizes: 35/25/20
- T max.: 450C° / 842F
- End support as an option
- condensation pots
- Sensor material: AISI 316Ti

PD Flowmeter



- High accuracy: %0.5± RD (Option: %0.2± RD)
- Metering chamber is of a pocketless configuration and is applicable to a wide range of liquids including chemical liquids.
- Low pressure loss, high durability

Thermal mass



- Compressed air (consumption, distribution)
- Carbon dioxide (for beverage production and chilling)
- Argon (in steel production)
- Nitrogen and oxygen (production)
- Natural gas (for burners and boiler feed control)
- Air and biogas measurement (e.g. in wastewater plants)

