

# ROTAMASS 3 Series

## Coriolis Mass Flowmeter

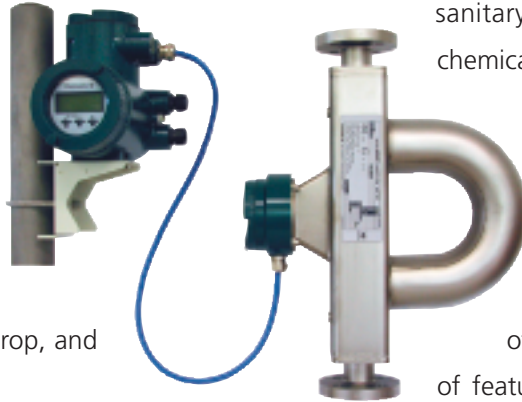


Bulletin 01R4B4-E-A

# The ROTAMASS 3 Series Coriolis Flowmeter

## The **NEW** standard in Coriolis flowmeter technology

The ROTAMASS 3 Series mass flowmeter features a heavy wall, seamless, dual tube design uniquely decoupled from any process vibration or pipeline stress guaranteeing reliability and output stability. Nine different detectors enable customization of the meter for the best combination of mass flow range, pressure drop, and accuracy at the lowest possible cost.



sanitary applications and aggressive chemicals.

With its multi-measurement and multi-parameter capability, the ROTAMASS is essentially a process control station. The state of the art converter provides a wealth of features including remote configuration via HART, multiple languages, advanced diagnostics, infrared programming and a four-line display for easy setup and operation.

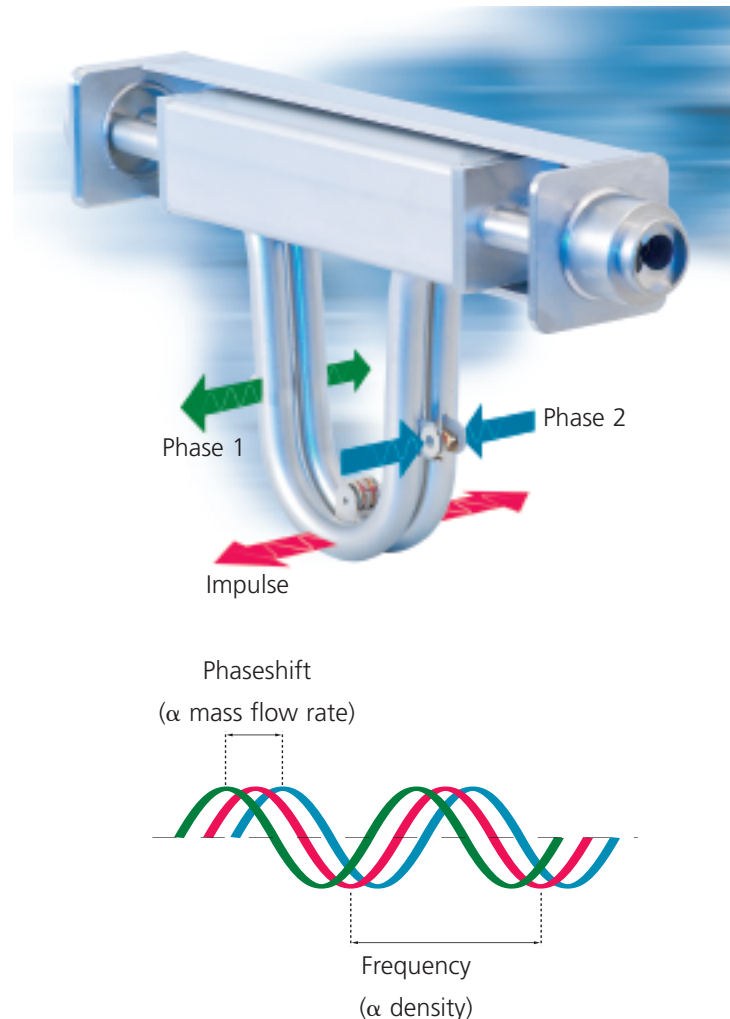
The versatile ROTAMASS can be used in the most difficult applications from cryogenics to molten liquids as well as

## The Coriolis principle

The measurement principle of the ROTAMASS is unaffected by changes in the physical properties of the medium (from clean liquids to sludge) or changes in environmental conditions. Even fluctuating pressures and variations in viscosity or temperature do not affect the measurement accuracy.

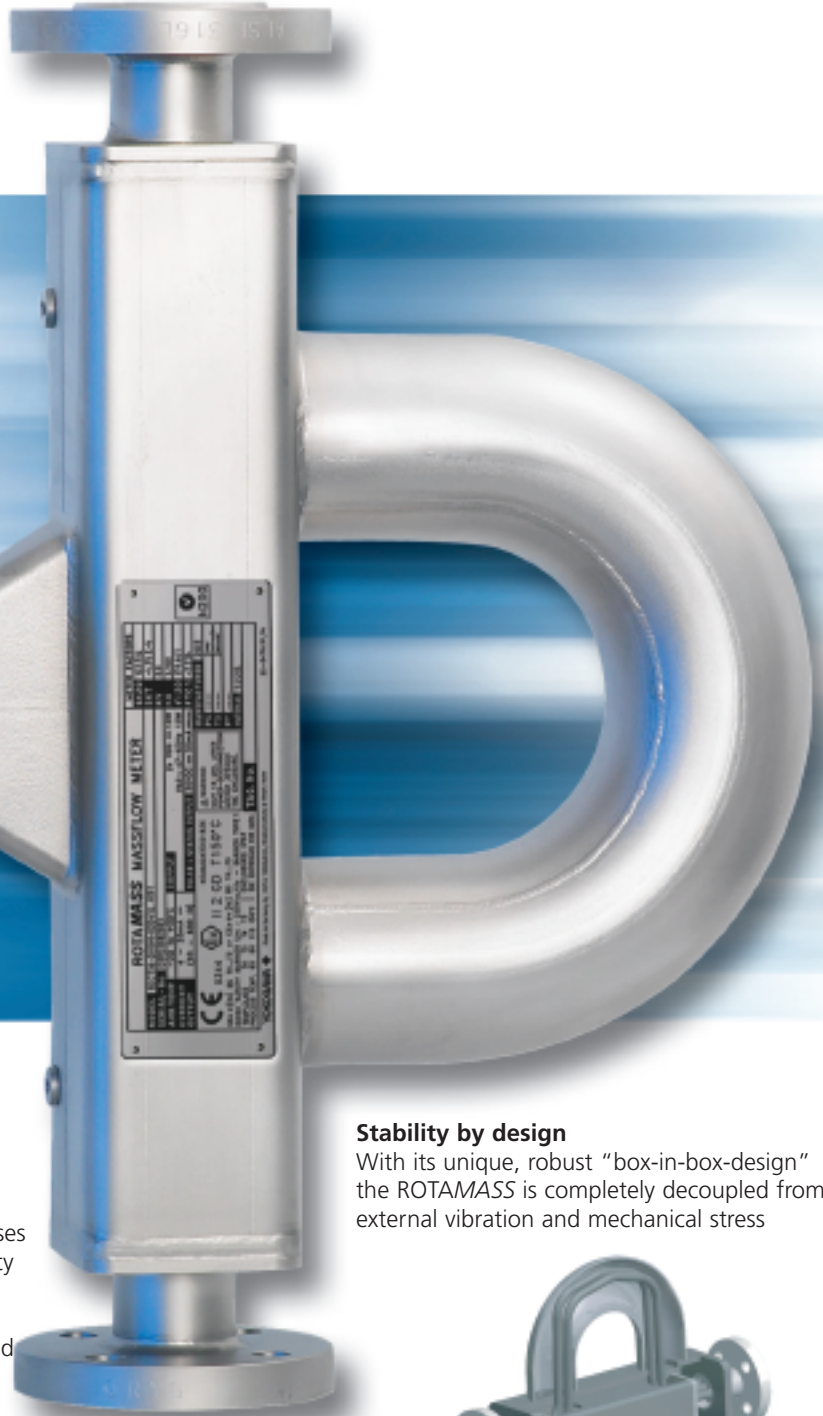
The Coriolis principle permits the accurate measurement of mass, density, temperature and volume. Electromagnetic forces cause resonant vibrations of the measurement tubes. Coriolis forces acting on the medium flowing through the tubes alter these vibrations by a small amount. The interaction between the resonance vibrations of the tubes and the small deviations caused by the Coriolis forces results in a small phase shift which is detected by two electromagnetic pickups. The small phase shift is a measure of mass flow while change in the resonant frequency is a measure of the fluid density. This value can also be used to provide a measurement of fluid concentration and net flow.

When combined with modern digital technology this measurement principle provides unsurpassed accuracy for flows between 0 – 300 tons/hour.



# More than just a flowmeter . . .

## The answer to your most difficult and demanding flow measurement problems



- **Unique “Box within a box” design**

The measuring tubes are decoupled from pipeline stresses and vibration guaranteeing reliability and output stability

- **Heavy wall dual tube design**

Provides increased safety, higher operating pressures and excellent performance under all operating conditions

- **Extended flow range capability**

Nine detector sizes cover mass flow ranges from 0 – 3.6 lb/min to 0 – 11,000 lb/min.

- **Wide temperature range**

Process temperatures from –328°F to +662°F. Insulated enclosures and steam jackets are available

- **True sanitary design**

The measuring tubes are self-draining with no flat sections or 90 degree angles to trap process liquid

- **Tolerates high levels of gas entrainment**

ROTAMASS can be configured to avoid drop-outs and maintain normal operation when gas is present in the liquid

### Stability by design

With its unique, robust “box-in-box-design” the ROTAMASS is completely decoupled from external vibration and mechanical stress



- **Multiple outputs**

Two analog and two pulse outputs can be configured to provide information simultaneously on mass flow rate, total flow, density and temperature

- **Four line LCD display with infrared switches**

Up to four display lines can be programmed to indicate a wide variety of information. Infrared switches permit programming “through the glass” without the need to open the enclosure

# Specifications

| Detector                       |  | Converter            |  |
|--------------------------------|--|----------------------|--|
| Service:                       | Liquids, gases, slurries, high viscosity media   | Functions:           | Flow (mass and volume), density, temperature, concentration, net flow  |
| Nominal Sizes:                 | 1/10" – 6"   | Power Supply:        | 90-264 VAC; 20.5-28.8 VDC  |
| Flow Capacity:                 | 0 – 11,000 lb/min (0 – 5000 kg/min)  | Ambient Temperature: | (-20°C to +50°C)   |
| Process Connections:           | ANSI flanged, NPT, Tri-clamp   | Standard I/O:        | 2 isolated current outputs<br>2 pulse/frequency outputs (20-10,000 Hz)<br>1 status input (voltage free contact)  |
| Process Pressure Limits:       | According to ANSI flange rating<br>Tube pressure to 3600 psi (250 bar)   | Communication:       | HART; FOUNDATIONfieldbus™  |
| Process Temperature:           | -328°F to +662°F (-200°C to +350°C)  | Display:             | 4-line, backlit LCD  |
| Material of Measuring Tubes:   | 316L stainless, Hastelloy C22, Titanium  | Accuracy:            | Liquid: +/-0.1% of reading<br>+/- zero point stability<br>Gas: +/-0.5% of reading<br>+/- zero point stability<br>Temperature: +/-1°C +/- 0.5% of reading<br>Density: to 1 g/l with special calibration |
| Secondary Containment:         | Rupture pressure (RCCS34-39) to 1885 psi (130 bar)<br>Available with rupture proof test  |                      |  |
| Approvals:                     |  |                      |  |
| Hazardous Area Classification: | Factory Mutual (FM)<br><br>Remote detector: Intrinsically Safe for Class I, Division I, Groups A, B, C, D.<br>Integral type and remote converter:<br>Explosion proof for Class I, Division 1, Groups A, B, C, D.<br><br>FM <sub>c</sub> (Canada) pending |                      |  |
| Sanitary:                      | 3-A Sanitary Standards, Inc.   |                      |  |

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