More than just a Flowmeter...

ROTA*MASS* 3 series.

Whenever the task is to measure mass,

density, temperature and volume, the

ROTAMASS cannot be overlooked.



- ... the ROTAMASS 3 series
- Unique «box-in-box» design
- Paired balanced metering tubes
- Excellent zero and long term stability
- Self-diagnostic capability like slug detection and compensation
- Bidirectional measurement
- Self-draining design
- Gas and solid content up to 20 %
- 0.1 % accuracy on measured state
- Temperature range from -200°C (-328°F) to +350°C (+662°F)
- Concentration measurement
- Net flow measurement

vigilance

Pressure Magnetic

Vortex

VA-Meter

0

Jltrasonic Valve Position

Stability by design.

With its unique, robust "box-in-box-design"

the ROTAMASS is completely decoupled from

external oscillations and mechanical tensions.

Technical data:

Detector Applications: Liquids, gases, slurries, high viscose medias Nominal diameters: DN 15-150 $(\frac{1}{10} - 6'')$ 0- 300 000 kg/h Flow range: Process connections: Flanges DIN, ANSI, JIS, Tri-clamp , DIN 11851, DIN 11864, SMS 1145, ISO 2853, NPT, VCO Process pressure: Up to 250 bar Process temp.: -200°C to +350°C -328°F to +662°F Secondary containment Rupture pressure (RCCS34-39) up to 130 bar Available with rupture prove test Material of measuring tubes: HC 22, 316L, on request: 304 and HB, Titanium Degree of protec .: IP 67 Type of cleaning: SIP/ CIP Fully drainable Gas content limits: RCCS30-33 no limit. (0-100%) RCCS34-39 up to 20% Ex approvals: EEx ib IIB/IIC T1....T6, KEMA 01 ATEX 1075 X; Group II, Category 2 G Heat tracing possibility: Heating with heat carrier, insulation and protection housing Converter for compact and remote Display/Operation: Free defineable up to 4-line backlit display Functions: Flow measurement (mass and volume), Density measurement, Temperature measurement, Concentration measurement, Netflow measurement 90-264 V AC (47-63 Hz) Power supply: 20.5 -28.8 V DV Ambient temperature: -20° C to +50° C (for standard and ex-versions) Ambient humity limits: 5-95 % R.H. non condensing Compact or remote (Max. con-Version: verter/detector distance 300m)

I/O signal standard:

2 current outputs galvanic separated from other signals 2 pulse/frequency (0-10 000 Hz), status outputs or passive transistor contact output, active or passive status input as option intrinsic safe outputs: 1 current output passive/1 pulse/status output Communication: HART, Foundation Fieldbus* Accuracy: liquid ± 0.1% of measured value ± zero point stability ± 0,5% of measured value gas ± zero point stability temperature \pm 1°C / \pm 0,5% of reading up to 1 g/l with special density density calibration protocol Ex approvals:

EEx d (e) [ib] IIC T6...T3 (RCCT3) EEx d (e) [ib] IIC T6 (RCCF31) EEx d (e) [ia] [ib] IIC T6...T3 (RCCT3) EEx d (e) [ib] [ib] IIC T6 (RCCF31)

Data security during power failure: Data storage by EEPROM Advanced diagnostic features: Slug flow detection and compensation Empty pipe detection Corrosion and erosion detection Batching possibility *available soon

Coriolis

RCCT 34-39 IR



ROTA*MASS* 3 series. The new standard in coriolis.

The ROTAMASS 3 series is by definition the best-in-class in-situ perfomance mass flowmeter featuring discrete, parallel, thick walled, seamless tubes that

RCCF 31

are uniquely decoupled form process vibration and pipeline stress.



NCC3 50-3

The state-of-the-art converter for either remote or integral mounting, features menu-driven 4 line configuration and display in multiple languages. With its multi-measurement-parameter, and diagnostic capability the ROTAMASS 3 series is essentially a process control station.

The solution for all gases and liquids, which can be pumped: Regardless of whether liquid gas is to be measured – stationary or on trucks – or e.g. milk in sanitary applications or oil or even liquid tar, the ROTAMASS always measures with the same high precision. Anybody with demanding and complex measurement tasks should leave these to ROTAMASS: no other instrument offers so many features. Precise and robust: The Coriolis principle.

This highly precise measurement principle is not affected by anything: neither through the physical properties of the medium (from pastes to sludges), nor through environmental conditions. Even fluctuating pressures and changes in viscosity or temperature do not change the accuracy of the measurement results.

> The Coriolis principle enables the precise measurement of mass, density, temperature and volume: Electromagnetic forces set up resonant vibrations of the measurement tubes. Coriolis forces acting on the medium flowing through the tubes alter

these vibrations by small amounts. 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. It is this small phase shift, which is a measure for mass flow. At the same time the resonance frequency serves to measure the density of the medium. This value can also be used to measure concentrations and net flow.

Combined with modern digital technology this measurement principle is unsurpassed in its accuracy for flows between 0 kg and 300 t/hour. At the same time it impressively stable.

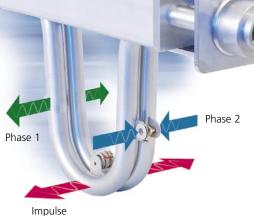
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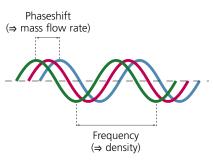
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What does **vigilance™** mean to Yokogawa? For starters, always, always making sure the products and solutions that leave our research & developement labs are the best the world has seen – from day one throughout your business live cycle. Our innovative technologies and committed experts help design, install and manage your production systems efficiently and dynamically. In an ever-changing business environment, we help plan for the future to ensure continuity and flexibility in your automation strategies. Yokogawa goes the extra mile to do things right. Let us be vigilant about your business.





