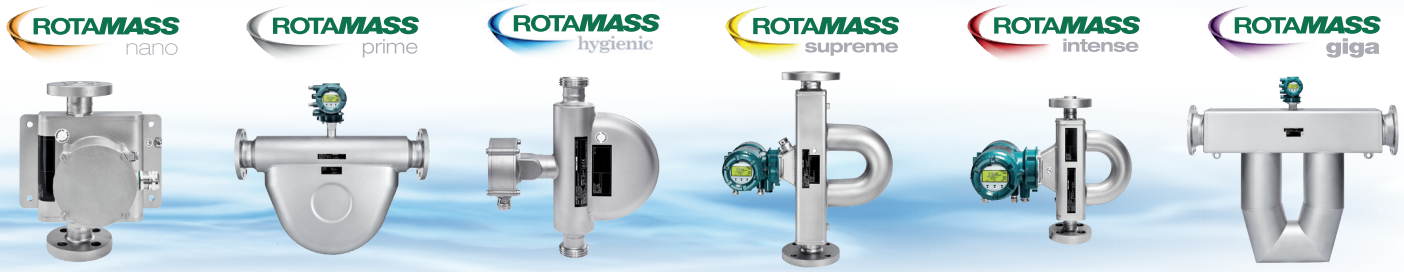
OpreX™ Field Instruments

Coriolis Mass Flowmeter

ROTA*MASS* Total Insight

ROTAMASS Total Insight

- Direct mass flow measurement
- No need for straight pipe length
  No electrical conductivity
- No moving parts
- Multi-sensing (mass/volumetric, flow rate, density, temperature, concentration, etc.)



Six-series lineup accommodates a broad variety of applications and flow rates.

What is a Coriolis mass flowmeter?

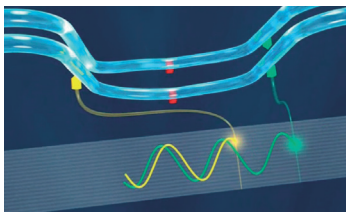
Flowmeter uses the Coriolis force for flow measurement.

Meter directly measures the mass flow rate with high accuracy while simultaneously measuring density, temperature, volumetric flow rate, and concentration.

Coriolis force: $F=2m\omega v$

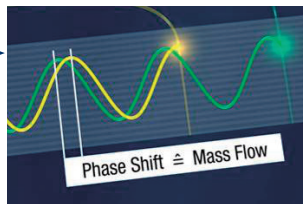
Mass flow rate, direct measured by Coriolis force!

(F: Coriolis force, m: mass, ω: angular velocity, v: velocity)

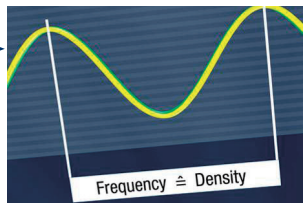


Vibrating dual-bent measuring tubes

The phase shift from the upstream and downstream pickup coils is proportional to the mass flow rate



Density is proportional to the vibration frequency



- Twist (phase difference) is proportional to the mass flow rate
- Coriolis force twists the measuring tube

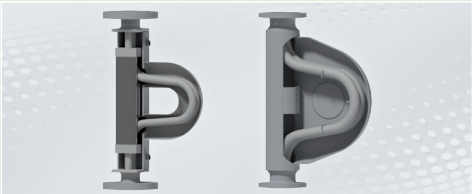
Comparison by flow rate measurement method

	Accuracy	Straight pipe length	Moving part	Measurement items	Density measurement	Low flow measurement	Liquid	Gas	Steam	Non-conductive	High viscosity
ROTAMASS Total Insight	±0.1%	Not required	None	Weight	O	O	O	O	×	O	O
Electromagnetic	±0.3%	5D	None	Volume	×	O	O	×	×	×	O
Vortex	±1%	10D	None	Volume	×	×	O	O	O	O	×
Orifice	±3%	20D	None	Volume	×	×	O	O	O	O	×
Positive Displacement Type	±0.2%	Not required	Y	Volume	×	O	O	△	×	O	×
Ultrasonic wave	±1%	15D	None	Volume	×	O	O	△	△	O	O

*For details, refer to the specifications of each device.

ROTA*MASS* meets demanding process requirements

ROTAMASS Total Insight



Dual-bent tubes and robust body

① Coriolis force through Dual-bent technology can easily detect any flow, while being resistant to noise. The Coriolis force is difficult to detect by straight/single tube systems due to design structure.

② Robust Box-in-Box design of ROTA*MASS* reduces effects of external vibrations and external forces from process installation.

Smart Power Management

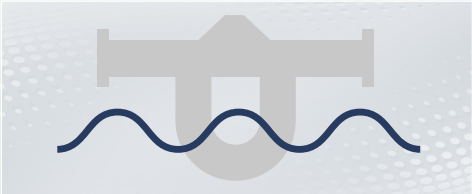
Accurately controls the tube drive gain.

Continues measurement under severe conditions, even with air bubbles.

Short tube length

ROTA*MASS* dual tube design reduces output attenuation due to bubble entrainment.

Cost reduction of nickel alloy specification and short surface dimension" to "Nickel alloy material and small surface area provide a cost reduction.



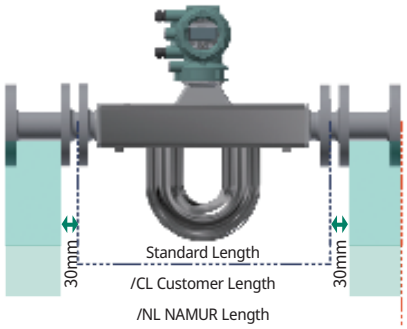
Low frequency vibration tube design

The effect of bubble entrainment depends on the vibration frequency of the tube.

ROTA*MASS* is resistant to bubbles because of its low frequency.

Replacing competitive models is no problem

- Shipping with specified lay length (optional code /CL)



Specially designed insulation box

- For processes requiring heat and cold insulation
- Reliable dedicated design

Options

- Proprietary tube diagnostic function to predict maintenance timing (optional code/TC)
- Batch-process controllable with ROTA*MASS* (optional code/BT)
- Viscosity calculation possible in combination with transmitter (optional code/VM)
- Many additional features are available

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