Mass flowmeter for high performance ships fuel applications

- Temperature range -200°C to +400°C
- High accuracy: 0.1% of actual flow
- Measured values: massflow, density, temperature
- Twin V-tube design with optimised flow divider for minimum pressure loss
- Fully welded maintenance free measuring tubes in stainless steel
- No requirement for straight inlet/outlet sections
Technical data

Measuring system

- Measuring principle: Coriolis mass flow
- Application range: Mass flow and density measurement of liquid
- Measured values: Mass, density, temperature

Measuring accuracy

- Measuring accuracy: ±0.1% of actual measured flow rate
- Repeatability: Better than 0.05% plus zero stability
- Accuracy of density: ±1 kg/m³
- Accuracy of temp.: ±0.5°C

Design / construction

- Features: Fully welded maintenance free sensor in stainless steel with twin V-shaped measuring tubes
- Options: Available as remote version with optional I/O

Operating conditions

- Ambient temp.: Standard temperature range: -40...+65°C
- Medium temp.: -70°C...+230°C (Cryogenic -200°C...+40°C)
- Maximum flow rates (All instruments offered will be sized based on flow/process calculations):
  - S8: 400 kg/h
  - S15: 2600 kg/h
  - S25: 14000 kg/h
  - S50: 25000 kg/h
  - S80: 60000 kg/h

Dimensions and weight

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Weight</th>
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<tbody>
<tr>
<td>S8</td>
<td>156</td>
</tr>
<tr>
<td>S15</td>
<td>186</td>
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<tr>
<td>S25</td>
<td>282</td>
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<tr>
<td>S50</td>
<td>326</td>
</tr>
<tr>
<td>S80</td>
<td>411</td>
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</tbody>
</table>

System / converter combinations

The EcoMATE® software takes care of data acquisition, logging, calculations, monitoring and reporting.

Remote converter with display for indication of flow data and counter:

Flowmeter from the side, showing tube layout:

Coriolis measuring principle

Static meter not energised and with no flow

A Coriolis twin tube mass flowmeter consists of two measuring tubes ① a drive coil ② and two sensors (③ and ④) that are positioned either side of the drive coil.

Energised meter

When the meter is energised, the drive coil vibrates the measuring tubes ① causing them to oscillate ② and produce a sine wave ③. The sine wave is monitored by the two sensors.

Energised meter with process flow

When a fluid or gas passes through the tubes ①, the coriolis effect causes a phase shift ② in the sine wave ③ that is detected by the two sensors. This phase shift is directly proportional to the mass flow. Density measurement is made by evaluation of the frequency of vibration and temperature measurement is made using a Pt500 sensor.

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