HART® and FOUNDATION™ Fieldbus Protocols

- All welded, non-clog design provides maximum performance, reliability and enhanced safety by eliminating ports and gaskets. No seals, just steel.
- CriticalProcess™ Vortex eliminates bypass piping and optimizes safety during maintenance.
- Available with optional multivariable output. Internal temperature compensation provides cost-effective saturated steam and liquid mass flow measurement.
- Adaptive Digital Signal Processing (ADSP) provides vibration immunity and flow range optimization.
- Reducer™ Vortex extends the measurable flow range, reduces installation costs, and minimizes project risk.
- Simplified troubleshooting through device diagnostics and meter verification.
- Available in wafer, flanged, dual, reducer and high pressure designs.
The Rosemount 8800D delivers reliability and maximum process availability

- Rosemount Reliability—The Rosemount 8800D Vortex eliminates impulse lines, ports, and gaskets to improve reliability.

- Non-clog Design—Unique all welded, gasket-free construction which has no ports or crevices that can clog.

- Vibration Immunity—Mass balancing of the sensor system, and Adaptive Digital Signal Processing (ADSP) provide vibration immunity.

- Replaceable Sensor—The sensor is isolated from the process and can be replaced without breaking the process seal. All line sizes use the same sensor design allowing a single spare to serve every meter.

- Simplified Troubleshooting—Device Diagnostics enable field verification of meter electronics and sensor without process shutdown.
The Rosemount 8800D CriticalProcess Vortex increases process availability and enhances overall safety

Eliminate bypass piping for critical process installations

Traditional vortex installations in critical applications include a bypass line to allow process fluid to be re-directed around the vortex flow meter during routine sensor maintenance. Rosemount’s unique non-wetted sensor can be installed without bypass piping, even in the most difficult process environments.

Improve process availability

Eliminate the need to shut down the process during routine maintenance and meter verification.

Enhances safety in hazardous process fluid applications

A needle valve enables access to the sensor cavity to verify that no process fluid is present.

Available in Flanged, Reducer, and Dual Vortex meter designs in 1- through 12-in. meter body sizes for ASME B16.5 flange connections.

Available in 40 mm through 300 mm meter body sizes for EN 1092-1 and JIS B2220 flange connections.
Reduce installed costs, simplify installation and improve performance in liquid and steam flow applications with the Rosemount 8800D MultiVariable™

Multivariable vortex design

Incorporates temperature sensor into the vortex meter using the shedder bar as a thermowell, which keeps the vortex and temperature sensors isolated from process for easy verification and replacement.

Temperature compensated liquids allows for precision measurement of high temperature liquids by correcting the liquid density as the process temperature changes.

- Select from water or enter up to five temperature and density pairs to accommodate any liquid type.
- New units of measure such as standard barrels, SBBL, are selectable in the corrected volumetric flow measurement mode.
- Water density calculations consistent with IAPWS IF-97.

Temperature compensated capability for saturated steam

Calculates density from measured process temperature and uses the calculated density to provide a temperature compensated mass flow. On-board ASME steam tables.

Reduces installed costs

MultiVariable Vortex eliminates the need for an external thermowell and temperature sensor.

Available with flanged and Reducer Vortex in 1/2- through 12-in. meter body sizes.

To order meter with temperature compensated liquids, include HR5 or HR7 and MTA in the model string.

Available with flow computer for additional functionality

Integrating the multivariable vortex with a pressure transmitter for full pressure and temperature compensation of superheated steam and various gases provides the following additional functionality:

- Remote Communications
- Heat Flow Calculations
- Remote Totalization
- Peak Demand Calculation
- Data Logging Capabilities

See Rosemount Flow Computer Product Data Sheet for more information.
Maximum reliability and reduced installation complexity with the armored remote cable

- Improved protection against abrasion, impact, and moisture.
- Available in 10, 20, 33, 50, and 75 foot lengths.
- Two cable glands are provided to securely connect the remote cable to transmitter and meter body.
- The cable gland material will match the material of construction of the mating parts at both the meter body end and transmitter end. The cable gland that connects to the meter body will utilize a stainless steel gland and the cable gland material at the electronics end will be either aluminum or stainless steel depending on the material of the electronics housing that is ordered.
Detect process fluid changes with SMART Fluid Diagnostics

Oil and gas separators
- Remotely detect when your separator dump valve allows gas to pass through your water dump leg.
- Selectable alert modes (digital, analog or pulse) signal when gas flow is detected.

Steam, nitrogen, or air blow down
- Control your clean in place (CIP) or blow down cycles with a single meter that measures the flow rate of your primary process fluid as well as the change from liquid to gas flow.
- Set your control system to control down cycle based on alert from in-line vortex meter.
- Selectable alert modes (digital, analog or pulse) signal when gas flow is detected.
Rosemount 8800D Vortex Flowmeter with FOUNDATION Fieldbus

The software for the Rosemount 8800D Flowmeter with FOUNDATION Fieldbus permits remote testing and configuration using any FOUNDATION Fieldbus-compliant host, such as the DeltaV™ system from Emerson™ Process Management.

**Transducer block**

The transducer block calculates flow from sensor frequency. The calculation includes information about damping, shedding frequency, K-factor, process fluid, pipe ID, and diagnostics.

**Resource block**

The resource block contains physical transmitter information, including available memory, manufacturer identification, device type, software tag, and unique identification.

**Backup Link Active Scheduler (LAS)**

The transmitter is classified as a device link master. A device link master can function as an LAS if the current link master device fails or is removed from the segment.

The host or other configuration tool is used to download the schedule for the application to the link master device. In the absence of a primary link master, the transmitter will claim the LAS and provide permanent control for the H1 segment.

**Diagnostics**

The transmitter automatically performs continuous self-diagnostics. The user can perform on-line testing of the transmitter digital signal. Advanced simulation diagnostics are available. This enables remote verification of the electronics via a flow signal generator built into the electronics. The sensor strength value can be used to view the process flow signal and provide information regarding filter settings.

**FOUNDATION Fieldbus function blocks**

**Analog input**

The AI function block processes the measurement and makes it available to other function blocks. The AI function block also allows filtering, alarming, and engineering unit changes.

The Rosemount 8800D Flowmeter with FOUNDATION Fieldbus comes with five AI function blocks. Two of the AI function blocks, flow and signal strength, come as standard. Three additional AI function blocks are available when the MTA option is selected: electronics temperature, process temperature, and process density. Note that process density is only available when the process fluid is configured as temperature compensated saturated steam, shown as TComp Sat Steam in the device.

**Proportional/Integral/Derivative**

The optional PID function block provides a sophisticated implementation of the universal PID algorithm. The PID function block features input for feed forward control, alarms on the process variable, and control deviation. The PID type (series or Instrument Society of America [ISA]) is user-selectable on the derivative filter.

**Integrator**

The standard integrator block is available for totalization of flow.

**Arithmetic**

The standard arithmetic block is available for various computations.

**Setup**

Basic setup requires connecting the transmitter to a fieldbus network or Field Communicator. The FOUNDATION Fieldbus-compliant host will automatically establish communication with the device.

The Rosemount 8800D Flowmeter can be easily configured using the DeltaV system. User-configurable parameters include:

- Tag
- Scaling and units
- Process fluid type
- Damping
- Fixed process density
- Pipe inside diameter (ID)
- Fixed process temperature

Tagging information can be entered into the transmitter to allow identification and a physical description. 32-character tags are provided for identification of the transmitter and each function block.

---

1. Process temperature and pipe ID have known effects on the K-factor. The Rosemount 8800D software automatically accounts for these effects by compensating the K-factor.
# Ordering Information

Table 1. Rosemount 8800D Vortex Flowmeter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

<table>
<thead>
<tr>
<th>Model</th>
<th>Product description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosemount 8800D</td>
<td>Vortex Flowmeter</td>
</tr>
</tbody>
</table>

**Meter style**

<table>
<thead>
<tr>
<th>Model</th>
<th>Product description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Flanged style</td>
</tr>
<tr>
<td>W</td>
<td>Wafer style</td>
</tr>
<tr>
<td>R</td>
<td>Reducer Style (Flanged style only)</td>
</tr>
<tr>
<td>D</td>
<td>Dual-sensor style (Flanged style only)</td>
</tr>
</tbody>
</table>

**Line size**

<table>
<thead>
<tr>
<th>Line size</th>
<th>Product description</th>
</tr>
</thead>
<tbody>
<tr>
<td>005</td>
<td>1/2-in. (15 mm) (Not available for Rosemount 8800DR)</td>
</tr>
<tr>
<td>010</td>
<td>1-in. (25 mm)</td>
</tr>
<tr>
<td>015</td>
<td>11/2-in. (40 mm)</td>
</tr>
<tr>
<td>020</td>
<td>2-in. (50 mm)</td>
</tr>
<tr>
<td>030</td>
<td>3-in. (80 mm)</td>
</tr>
<tr>
<td>040</td>
<td>4-in. (100 mm)</td>
</tr>
<tr>
<td>060</td>
<td>6-in. (150 mm)</td>
</tr>
<tr>
<td>080</td>
<td>8-in. (200 mm)</td>
</tr>
<tr>
<td>100</td>
<td>10-in. (250 mm)</td>
</tr>
<tr>
<td>120</td>
<td>12-in. (300 mm)</td>
</tr>
</tbody>
</table>

**Wetted materials**

<table>
<thead>
<tr>
<th>Wetted materials</th>
<th>Product description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>316 wrought stainless and CF-3M cast stainless</td>
</tr>
<tr>
<td></td>
<td>Note: Material of construction is 316/316L.</td>
</tr>
<tr>
<td>H</td>
<td>UNS N06022 wrought nickel alloy; CW2M cast nickel alloy</td>
</tr>
<tr>
<td></td>
<td>Note: See Table 2.</td>
</tr>
<tr>
<td>C</td>
<td>A105 forged carbon steel and WCB cast carbon steel</td>
</tr>
<tr>
<td>L</td>
<td>LF2 forged carbon steel and LCC cast carbon steel</td>
</tr>
<tr>
<td>D(1)</td>
<td>UNS S32760 wrought duplex stainless steel and 6A cast duplex stainless steel</td>
</tr>
</tbody>
</table>

**Flange or alignment ring size**

<table>
<thead>
<tr>
<th>Flange or alignment ring size</th>
<th>Product description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>ASME B16.5 (ANSI) RF Class 150</td>
</tr>
<tr>
<td>A3</td>
<td>ASME B16.5 RF Class 300</td>
</tr>
<tr>
<td>K1</td>
<td>EN 1092-1 PN 16 (PN 10/16 for wafer style) Type B1</td>
</tr>
<tr>
<td>K3</td>
<td>EN 1092-1 PN 40 (PN 25/40 for wafer style) Type B1</td>
</tr>
<tr>
<td>A6</td>
<td>ASME B16.5 RF Class 600</td>
</tr>
<tr>
<td>A7(2)</td>
<td>ASME B16.5 RF Class 900</td>
</tr>
</tbody>
</table>
Table 1. Rosemount 8800D Vortex Flowmeter Ordering Information (continued)

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A8(3)</td>
<td>ASME B16.5 RF Class 1500</td>
</tr>
<tr>
<td>B1(4)</td>
<td>ASME B16.5 RTJ Class 150 for flange-style only</td>
</tr>
<tr>
<td>B3</td>
<td>ASME B16.5 RTJ Class 300 for flange-style only</td>
</tr>
<tr>
<td>B6</td>
<td>ASME B16.5 RTJ Class 600 for flange-style only</td>
</tr>
<tr>
<td>B7(2)</td>
<td>ASME B16.5 RTJ Class 900 for flange-style only</td>
</tr>
<tr>
<td>B8(3)</td>
<td>ASME B16.5 RTJ Class 1500 for flange-style only</td>
</tr>
<tr>
<td>C1</td>
<td>ASME B16.5 RF Class 150, smooth finish</td>
</tr>
<tr>
<td>C3</td>
<td>ASME B16.5 RF Class 300, smooth finish</td>
</tr>
<tr>
<td>C6</td>
<td>ASME B16.5 RF Class 600, smooth finish</td>
</tr>
<tr>
<td>C7(2)</td>
<td>ASME B16.5 RF Class 900, smooth finish</td>
</tr>
<tr>
<td>C8(3)</td>
<td>ASME B16.5 RF Class 1500, smooth finish</td>
</tr>
<tr>
<td>K0</td>
<td>EN 1092-1 PN 10 Type B1</td>
</tr>
<tr>
<td>K2</td>
<td>EN 1092-1 PN 25 Type B1</td>
</tr>
<tr>
<td>K4</td>
<td>EN 1092-1 PN 63 Type B1</td>
</tr>
<tr>
<td>K6</td>
<td>EN 1092-1 PN 100 Type B1</td>
</tr>
<tr>
<td>K7(2)</td>
<td>EN 1092-1 PN 160 Type B1</td>
</tr>
<tr>
<td>L0</td>
<td>EN 1092-1 PN 10 Type B2</td>
</tr>
<tr>
<td>L1</td>
<td>EN 1092-1 PN 16 (PN 10/16 for wafer style) Type B2</td>
</tr>
<tr>
<td>L2</td>
<td>EN 1092-1 PN 25 Type B2</td>
</tr>
<tr>
<td>L3</td>
<td>EN 1092-1 PN 40 (PN 25/40 for wafer style) Type B2</td>
</tr>
<tr>
<td>L4</td>
<td>EN 1092-1 PN 63 Type B2</td>
</tr>
<tr>
<td>L6</td>
<td>EN 1092-1 PN 100 Type B2</td>
</tr>
<tr>
<td>L7(2)</td>
<td>EN 1092-1 PN 160 Type B2</td>
</tr>
<tr>
<td>M0</td>
<td>EN 1092-1 PN 10 Type D for flange style only</td>
</tr>
<tr>
<td>M1</td>
<td>EN 1092-1 PN 16 Type D for flange style only</td>
</tr>
<tr>
<td>M2</td>
<td>EN 1092-1 PN 25 Type D for flange style only</td>
</tr>
<tr>
<td>M3</td>
<td>EN 1092-1 PN 40 Type D for flange style only</td>
</tr>
<tr>
<td>M4</td>
<td>EN 1092-1 PN 63 Type D for flange style only</td>
</tr>
<tr>
<td>M6</td>
<td>EN 1092-1 PN 100 Type D for flange style only</td>
</tr>
<tr>
<td>M7(2)</td>
<td>EN 1092-1 PN 160 Type D for flange style only</td>
</tr>
<tr>
<td>N0</td>
<td>EN 1092-1 PN 10 Type F</td>
</tr>
<tr>
<td>N1</td>
<td>EN 1092-1 PN 16 Type F</td>
</tr>
<tr>
<td>N2</td>
<td>EN 1092-1 PN 25 Type F</td>
</tr>
<tr>
<td>N3</td>
<td>EN 1092-1 PN 40 Type F</td>
</tr>
<tr>
<td>N4</td>
<td>EN 1092-1 PN 63 Type F</td>
</tr>
</tbody>
</table>
**Table 1. Rosemount 8800D Vortex Flowmeter Ordering Information (continued)**

The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Description</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>N6</td>
<td>EN 1092-1 PN 100 Type F</td>
<td></td>
</tr>
<tr>
<td>N7</td>
<td>EN 1092-1 PN 160 Type F</td>
<td></td>
</tr>
<tr>
<td>J1</td>
<td>JIS 10K</td>
<td></td>
</tr>
<tr>
<td>J2</td>
<td>JIS 20K</td>
<td></td>
</tr>
<tr>
<td>J4</td>
<td>JIS 40K</td>
<td></td>
</tr>
<tr>
<td>W1(5)</td>
<td>Weld End, Schedule 10S</td>
<td></td>
</tr>
<tr>
<td>W4(5)</td>
<td>Weld End, Schedule 40S</td>
<td></td>
</tr>
<tr>
<td>W8(5)</td>
<td>Weld End, Schedule 80S</td>
<td></td>
</tr>
<tr>
<td>W9(4)(5)</td>
<td>Weld End, Schedule 160S</td>
<td></td>
</tr>
</tbody>
</table>

**Sensor process temperature range**

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Temperature Range</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Standard: -40 to 450°F (-40 to 232°C)</td>
<td>★</td>
</tr>
<tr>
<td>E</td>
<td>Extended: -330 to 800°F (-200 to 427°C)</td>
<td>★</td>
</tr>
<tr>
<td>S</td>
<td>Severe Service: -330 to 800 °F (-200 to 427 °C)</td>
<td></td>
</tr>
</tbody>
</table>

**Conduit entry**

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Conduit Entry</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/2 - 14 NPT – Aluminum Housing</td>
<td>★</td>
</tr>
<tr>
<td>2</td>
<td>M20 x 1.5 – Aluminum Housing</td>
<td>★</td>
</tr>
<tr>
<td>3</td>
<td>PG 13.5 – Aluminum Housing</td>
<td>★</td>
</tr>
<tr>
<td>4</td>
<td>G1/2 (One Conduit Entry) – Aluminum Housing</td>
<td>★</td>
</tr>
<tr>
<td>5</td>
<td>G1/2 (Two Conduit Entries) – Aluminum Housing</td>
<td>★</td>
</tr>
<tr>
<td>6(6)</td>
<td>1/2 - 14 NPT - SST Housing</td>
<td>★</td>
</tr>
<tr>
<td>7(6)</td>
<td>M20 x 1.5 - SST Housing</td>
<td>★</td>
</tr>
</tbody>
</table>

**Outputs**

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Output Description</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>4-20 mA digital electronics (HART protocol)</td>
<td>★</td>
</tr>
<tr>
<td>P</td>
<td>4-20 mA digital electronics (HART protocol) with scaled pulse</td>
<td>★</td>
</tr>
<tr>
<td>F</td>
<td>FOUNDATION Fieldbus digital signal</td>
<td>★</td>
</tr>
</tbody>
</table>

**Calibration**

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Calibration Description</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flow calibration</td>
<td>★</td>
</tr>
</tbody>
</table>

**Options**

**Multivariable options**

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Description</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTA(7)</td>
<td>Multivariable output with Integral Temperature Sensor</td>
<td>★</td>
</tr>
</tbody>
</table>
### Hazardous locations certifications

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>★</th>
</tr>
</thead>
<tbody>
<tr>
<td>E5</td>
<td>FM Explosion-proof; Dust Ignition-proof</td>
<td>★</td>
</tr>
<tr>
<td>I5</td>
<td>FM Intrinsically Safe; Non-incendive</td>
<td>★</td>
</tr>
<tr>
<td>IE(8)</td>
<td>FM FISCO Intrinsically Safe</td>
<td>★</td>
</tr>
<tr>
<td>K5</td>
<td>FM Explosion-proof; Intrinsically Safe; Non-incendive; Dust Ignition-proof</td>
<td>★</td>
</tr>
<tr>
<td>E6</td>
<td>CSA Explosion-proof; Division 2 Dust Ignition-proof</td>
<td>★</td>
</tr>
<tr>
<td>I6</td>
<td>CSA Intrinsically Safe</td>
<td>★</td>
</tr>
<tr>
<td>IF(8)</td>
<td>CSA FISCO Intrinsically Safe</td>
<td>★</td>
</tr>
<tr>
<td>K6</td>
<td>CSA Explosion-proof; Intrinsically Safe; Division 2; Dust-Ignition-proof</td>
<td>★</td>
</tr>
<tr>
<td>KB</td>
<td>FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Non-incendive</td>
<td>★</td>
</tr>
<tr>
<td>E1</td>
<td>ATEX Flameproof</td>
<td>★</td>
</tr>
<tr>
<td>I1</td>
<td>ATEX Intrinsic Safety ia; Intrinsic Safety ic</td>
<td>★</td>
</tr>
<tr>
<td>IA(8)</td>
<td>ATEX FISCO Intrinsically Safe</td>
<td>★</td>
</tr>
<tr>
<td>N1</td>
<td>ATEX Type n</td>
<td>★</td>
</tr>
<tr>
<td>K1</td>
<td>ATEX Flameproof; Intrinsic Safety; Type n</td>
<td>★</td>
</tr>
<tr>
<td>E7</td>
<td>IECEx Flameproof</td>
<td>★</td>
</tr>
<tr>
<td>I7</td>
<td>IECEx Intrinsic Safety</td>
<td>★</td>
</tr>
<tr>
<td>IG(8)</td>
<td>IECEx FISCO Intrinsically Safety</td>
<td>★</td>
</tr>
<tr>
<td>N7</td>
<td>IECEx Type n</td>
<td>★</td>
</tr>
<tr>
<td>K7</td>
<td>IECEx Flameproof; Intrinsic Safety; Type n</td>
<td>★</td>
</tr>
<tr>
<td>E2</td>
<td>INMETRO Flameproof</td>
<td>★</td>
</tr>
<tr>
<td>I2</td>
<td>INMETRO Intrinsic Safety</td>
<td>★</td>
</tr>
<tr>
<td>E3</td>
<td>China Flameproof; Dust</td>
<td>★</td>
</tr>
<tr>
<td>I3</td>
<td>China Intrinsic Safety</td>
<td>★</td>
</tr>
<tr>
<td>N3</td>
<td>China Type n</td>
<td>★</td>
</tr>
<tr>
<td>IH(8)</td>
<td>China FISCO/FNICO Intrinsic Safety</td>
<td>★</td>
</tr>
<tr>
<td>K3</td>
<td>China Flameproof; Dust; Intrinsic Safety; Type n</td>
<td>★</td>
</tr>
<tr>
<td>E4(9)</td>
<td>TIIS Flameproof</td>
<td>★</td>
</tr>
<tr>
<td>IB(8)</td>
<td>INMETRO FISCO Intrinsic Safety</td>
<td>★</td>
</tr>
</tbody>
</table>

### PlantWeb™ control functionality

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>★</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01(10)</td>
<td>Basic Control: One Proportional/Integral/Derivative (PID) Function Block</td>
<td>★</td>
</tr>
</tbody>
</table>

### Conduit electrical connector

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>★</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE(11)</td>
<td>M12, 4-pin, Male Connector (eurofast®)</td>
<td></td>
</tr>
<tr>
<td>GM(11)</td>
<td>A size Mini, 4-pin, Male Connector (minifast®)</td>
<td></td>
</tr>
<tr>
<td>GN</td>
<td>ATEX Flameproof A size, Mini 4-pin male connector (minifast)</td>
<td></td>
</tr>
</tbody>
</table>
Table 1. Rosemount 8800D Vortex Flowmeter Ordering Information (continued)

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

<table>
<thead>
<tr>
<th>HART Communication</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HR5</td>
<td>HART 5★</td>
</tr>
<tr>
<td>HR7</td>
<td>HART 7★</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process diagnostics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DS3</td>
<td>SMART Fluid Diagnostic★</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other options</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C4(12)</td>
<td>NAMUR alarm and saturation values, high alarm★</td>
</tr>
<tr>
<td>CN(12)</td>
<td>NAMUR alarm and saturation values, low alarm★</td>
</tr>
<tr>
<td>V5</td>
<td>External ground screw assembly★</td>
</tr>
<tr>
<td>T1</td>
<td>Transient protection terminal block★</td>
</tr>
<tr>
<td>P2</td>
<td>Cleaning for special services★</td>
</tr>
<tr>
<td>PD</td>
<td>Pressure Equipment Directive (PED, per 97/23/EC)★</td>
</tr>
<tr>
<td>M5</td>
<td>LCD indicator★</td>
</tr>
<tr>
<td>R10</td>
<td>Remote electronics with 10 ft (3.0 m) cable★</td>
</tr>
<tr>
<td>R20</td>
<td>Remote electronics with 20 ft (6.1 m) cable★</td>
</tr>
<tr>
<td>R30</td>
<td>Remote electronics with 30 ft (9.1 m) cable★</td>
</tr>
<tr>
<td>R33</td>
<td>Remote electronics with 33 ft (10.1 m) cable★</td>
</tr>
<tr>
<td>R50</td>
<td>Remote electronics with 50 ft (15.2 m) cable★</td>
</tr>
<tr>
<td>RXX(13)</td>
<td>Remote electronics with customer-specified cable length (up to 75 ft (23 m) maximum)★</td>
</tr>
<tr>
<td>A10</td>
<td>Armored remote electronics with 10 ft (3.0 m) cable★</td>
</tr>
<tr>
<td>A20</td>
<td>Armored remote electronics with 20 ft (6.1 m) cable★</td>
</tr>
<tr>
<td>A33</td>
<td>Armored remote electronics with 33 ft (10.1 m) cable★</td>
</tr>
<tr>
<td>A50</td>
<td>Armored remote electronics with 50 ft (15.2 m) cable★</td>
</tr>
<tr>
<td>A75</td>
<td>Armored remote electronics with 75 ft (22.9 m) cable★</td>
</tr>
<tr>
<td>CPA(14)</td>
<td>Critical Process Online Sensor★</td>
</tr>
</tbody>
</table>
### Table 1. Rosemount 8800D Vortex Flowmeter Ordering Information (continued)

<table>
<thead>
<tr>
<th>Certification options</th>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4</td>
<td>Certificate of Calibration - Consistent with ISO 10474 3.1B or EN 10204 3.1</td>
<td>★</td>
</tr>
<tr>
<td>Q5</td>
<td>Hydrostatic Test Certificate</td>
<td>★</td>
</tr>
<tr>
<td>Q8</td>
<td>Material traceability certification per ISO 10474 3.1B and EN 10204 3.1</td>
<td>★</td>
</tr>
<tr>
<td>Q25</td>
<td>Certificate of Compliance to NACE MR0103- Includes MR0175</td>
<td>★</td>
</tr>
<tr>
<td>Q66</td>
<td>Welding Certificate Packages (PQR, WPQ, WPS)</td>
<td>★</td>
</tr>
<tr>
<td>Q70</td>
<td>Non-Destructive Testing X-ray, Helium or Dye Pen</td>
<td></td>
</tr>
<tr>
<td>Q71</td>
<td>Inspection certification weld examination (flanged) per ISO 10474 3.1B (includes x-rays) and EN 10204 3.1</td>
<td></td>
</tr>
<tr>
<td>Q72</td>
<td>Inspection certification weld examination (flanged) per ISO 10474 3.1B (includes x-rays on film) and EN 10204 3.1</td>
<td></td>
</tr>
<tr>
<td>Q76</td>
<td>Certification of Positive Material Identification</td>
<td>★</td>
</tr>
<tr>
<td>Q77</td>
<td>Certification for Positive Material Identification with Carbon Content</td>
<td></td>
</tr>
<tr>
<td>QC2</td>
<td>Visual and Dimensional, Quantity, Display and Configuration Inspection with Certificate</td>
<td></td>
</tr>
<tr>
<td>J2</td>
<td>ASME B31.1 General Compliance (carbon steel only)</td>
<td></td>
</tr>
<tr>
<td>J7</td>
<td>ASME B31.1 Boiler External Piping (BEP) Code Stamp (carbon steel only)</td>
<td></td>
</tr>
<tr>
<td>QKH</td>
<td>KHK Documentation Package</td>
<td></td>
</tr>
<tr>
<td>QP</td>
<td>Calibration certification and tamper evident seal</td>
<td>★</td>
</tr>
<tr>
<td>SBS</td>
<td>ABS (American Bureau of Shipping)</td>
<td></td>
</tr>
<tr>
<td>SBV</td>
<td>Bureau Veritas</td>
<td></td>
</tr>
<tr>
<td>SDN</td>
<td>Det Norske Veritas</td>
<td></td>
</tr>
<tr>
<td>SLL</td>
<td>Lloyd’s Register (LR) Type Approval</td>
<td></td>
</tr>
<tr>
<td>WG</td>
<td>Witness Inspection</td>
<td></td>
</tr>
</tbody>
</table>

*The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.*
Table 1. Rosemount 8800D Vortex Flowmeter Ordering Information (continued)

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

<table>
<thead>
<tr>
<th>Quick Start Guide (QSG) language options (default is English)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YA Danish</td>
<td>★</td>
</tr>
<tr>
<td>YB Hungarian</td>
<td>★</td>
</tr>
<tr>
<td>YC Czech</td>
<td>★</td>
</tr>
<tr>
<td>YD Dutch</td>
<td>★</td>
</tr>
<tr>
<td>YF French</td>
<td>★</td>
</tr>
<tr>
<td>YG German</td>
<td>★</td>
</tr>
<tr>
<td>YH Finnish</td>
<td>★</td>
</tr>
<tr>
<td>YI Italian</td>
<td>★</td>
</tr>
<tr>
<td>YJ Japanese</td>
<td>★</td>
</tr>
<tr>
<td>YM Chinese (Mandarin)</td>
<td>★</td>
</tr>
<tr>
<td>YN Norwegian</td>
<td>★</td>
</tr>
<tr>
<td>YL Polish</td>
<td>★</td>
</tr>
<tr>
<td>YP Portuguese</td>
<td>★</td>
</tr>
<tr>
<td>YR Russian</td>
<td>★</td>
</tr>
<tr>
<td>YS Spanish</td>
<td>★</td>
</tr>
<tr>
<td>YW Swedish</td>
<td>★</td>
</tr>
</tbody>
</table>

Typical model number: 8800D F 020 S A1 N 1 D 1 M5

1. Available in Flanged and Dual from 6- through 12-in. and Reducer from 8- through 12-in. Class 1500 in 6- and 8-in. meter body sizes and Class 900 in 10- through 12-in. meter body sizes.
2. Available on flanged and dual style meters from 1/2- through 8-in. (15–200 mm) and reducer style meters from 1- through 8-in. (25–200 mm). Also available in 10- through 12-in. (250–300 mm) flanged and dual meters along with 12-in. (300 mm) reducers when using Super Duplex material of construction.
3. Only available for flange and dual style meters from 1- through 8-in. (25–200 mm).
4. Not available with 1/2-in. line size.
5. W1, W4, W8, and W9 are only available with Meter Style F.
6. No TiIS approval.
7. Available with Rosemount 8800DF from 11/2- through 12-in. (40–300 mm). Available with 8800DR from 2- through 12-in. (50–300 mm). Not available with 8800DW or 8800DD.
8. Fieldbus Intrinsic Safe Concept (FISCO) available with output code F (FOUNDATION Fieldbus digital signal) only.
9. TiIS Flameproof Approval requires G1/2 conduit entry.
10. Requires output code F.
11. Not available with certain hazardous location certifications. Contact a Rosemount representative for details.
12. NAMUR compliant operation and the alarm latch options are pre-set at the factory and can be changed to standard operation in the field.
13. XX is a customer specified length in feet.
14. The CPA option is not available on wafer, 11/2-in. flange, or 1-in. reducer units. In addition it is not available on 1-in. flanged and 11/2-in. reducer JIS 10K, EN PN40, or EN PN16. Not available with Super Duplex or B31.1 line sizes greater than 6-in.
Table 2. Method of Construction for the Rosemount 8800DF/8800DD in Nickel Alloy

<table>
<thead>
<tr>
<th>Line size</th>
<th>A1</th>
<th>A3</th>
<th>A6</th>
<th>A7</th>
<th>K1</th>
<th>K3</th>
<th>K4</th>
<th>K6</th>
<th>K7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 (15)</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>NA</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>1 (25)</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>NA</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>1 1/2 (40)</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>NA</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>2 (50)</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>W</td>
<td>C</td>
<td>C</td>
<td>W</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>3 (80)</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>W</td>
<td>C</td>
<td>C</td>
<td>W</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>4 (100)</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>W</td>
<td>C</td>
<td>C</td>
<td>W</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>6 (150)</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>CF</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>CF</td>
</tr>
<tr>
<td>8 (200)</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>CF</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>CF</td>
</tr>
<tr>
<td>10 (250)</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>NA</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>NA</td>
</tr>
<tr>
<td>12 (300)</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>NA</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>NA</td>
</tr>
</tbody>
</table>

C = Nickel alloy collar and 316 SST lap flange. If weld neck flange is required, V0022 can be ordered.

W = Nickel alloy weld neck flange.

CF = Consult Factory.

NA = Not Available.

All Rosemount 8800DR Reducer Vortex Meters with nickel alloy materials of construction use weld neck flanges.

Flange codes other than those listed in Table 2 all use weld neck flanges.
Specifications

Functional specifications

Process fluids
Liquid, gas, and steam applications. Fluids must be homogeneous and single-phase.

Line sizes
Wafer
\(
\frac{1}{2}, 1, 1\frac{1}{2}, 2, 3, 4, 6, \text{ and } 8 \text{ inches} \\
\text{(DN 15, 25, 40, 50, 80, 100, 150, and 200)}
\)

Flanged and dual-sensor style
\(
\frac{1}{2}, 1, 1\frac{1}{2}, 2, 3, 4, 6, 8, 10, \text{ and } 12 \text{ inches} \\
\text{(DN 15, 25, 40, 50, 80, 100, 150, 200, 250, and 300)}
\)

Reducer
1, 1\(\frac{1}{2}\), 2, 3, 4, 6, 8, 10, and 12 inches
\(\text{(DN 25, 40, 50, 80, 100, 150, 200, 250, and 300)}\)

Pipe schedules
Process piping Schedules 10, 40, 80, and 160.

Note
The appropriate bore diameter of the process piping must be entered using the Field Communicator or AMS Device Manager. Meters will be shipped from the factory at the Schedule 40 default value unless otherwise specified.

Measurable flow rates
Capable of processing signals from flow applications which meet the sizing requirements below. To determine the appropriate flowmeter size for an application, process conditions must be within the Reynolds number and velocity limitations for the desired line size provided in Table 3, Table 4, and Table 5.

Table 3. Minimum Measurable Meter Reynolds Numbers

<table>
<thead>
<tr>
<th>Meter sizes (Inches/DN)</th>
<th>Reynolds number limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\frac{1}{2}) through 4/15 through 100</td>
<td></td>
</tr>
<tr>
<td>6 through 12/15 through 300</td>
<td></td>
</tr>
</tbody>
</table>

| Table 4. Minimum Measurable Meter Velocities\(^{(1)}\) |
|-------------------|-----------------|
| **Feet per second** | **Meters per second** |
| Liquids\(^{(2)}\) | \(\frac{\rho}{36}\) | \(\frac{\rho}{54}\) |
| Gases\(^{(2)}\) | \(\frac{\rho}{45}p\) | \(\frac{\rho}{54}p\) |

The \(\rho\) is the process fluid density at flowing conditions in lb/ft\(^3\) for ft/s and kg/m\(^3\) for m/s.

1. Velocities are referenced to schedule 40 pipe.
2. This minimum measurable meter velocity is based on default filter settings.

Table 5. Maximum Measurable Meter Velocities\(^{(1)}\) (use the smaller of the two values)

<table>
<thead>
<tr>
<th><strong>Feet per second</strong></th>
<th><strong>Meters per second</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquids</td>
<td>(\frac{\rho}{40,000}) or 25</td>
</tr>
<tr>
<td>Gases(^{(2)})</td>
<td>(\frac{\rho}{134,000}) or 7.6</td>
</tr>
</tbody>
</table>

The \(\rho\) is the process fluid density at flowing conditions in lb/ft\(^3\) for ft/s and kg/m\(^3\) for m/s.

1. Velocities are referenced to schedule 40 pipe.
2. Accuracy limitations for gas and steam for dual-style meters (\(\frac{1}{2}\)-in. to 4-in.): max velocity of 100 ft/s (30.5 m/s).

Note
Consult your local sales representative to obtain a computer sizing program that describes in greater detail how to specify the correct flowmeter size for an application.

The Reynolds number equation shown below combines the effects of density \(\rho\), viscosity \(\mu_{cp}\), pipe inside diameter \(D\), and flow velocity \(V\).

\[
R_D = \frac{VD\rho}{\mu_{cp}}
\]
Process temperature limits

Standard
-40 to 450 °F (−40 to 232 °C)

Extended
-330 to 800 °F (−200 to 427 °C)

Severe
-330 to 800 °F (−200 to 427 °C)

- The meter body and sensor, in remote mount configurations, is functionally rated to 842 °F process temperature. Process temperature may be further restricted depending on hazardous area options and PED certificates. Consult applicable certificates for particular installation limits.
- 157 °F to 800 °F (-105 to 427 °C) for European Pressure Equipment Directive (PED), consult factory for lower temperature requirements.
- The Super Duplex material of construction is limited to use in applications with process temperatures from –40 to 450 °F (–40 to 232 °C).

Multivariable (MTA option)
-40 to 800 °F (−40 to 427 °C)

- Use above 450 °F (232 °C) requires Extended Sensor

Output signals
4–20 mA Digital HART signal
Superimposed on 4–20 mA signal

Optional scalable pulse output
0 to 10000 Hz; transistor switch closure with adjustable scaling via HART communications; capable of switching up to 30 Vdc, 120 mA maximum

Digital FOUNDATION Fieldbus signal
Completely digital output with FOUNDATION Fieldbus communication (ITK 6.0 compliant).

Analog output adjustment
Engineering units and lower and upper range values are user-selected. Output is automatically scaled to provide 4 mA at the selected lower range value, 20 mA at the selected upper range value. No frequency input is required to adjust the range values.

Scalable frequency adjustment
The scalable pulse output can be set to a specific velocity, volume, or mass (i.e. 1 pulse = 1 lb). The scalable pulse output can also be scaled to a specific rate of volume, mass, or velocity (i.e. 100 Hz = 500 lb/hr).

Ambient temperature limits
Operating
-58 to 185 °F (−50 to 85 °C)
-4 to 185 °F (−20 to 85 °C) for flowmeters with local indicator

Storage
-58 to 185 °F (−50 to 85 °C)
-50 to 185 °F (−46 to 85 °C) for flowmeters with local indicator

Pressure limits

Flange style meter
Rated for ASME B16.5 Class 150, 300, 600, 900, and 1500, EN 1092-1 PN 10, 16, 25, 40, 63, 100, and 160, and JIS 10K, 20K, and 40K

Reducer style meter
Rated for ASME B16.5 Class 150, 300, 600, and 900, EN 1092-1 PN 10, 16, 25, 40, 63, 100, and 160.

Dual sensor style meter
Rated for ASME B16.5 Class 150, 300, 600, 900, and 1500, EN 1092-1 PN 10, 16, 25, 40, 63, 100, and 160, and JIS 10K, 20K, and 40K

Wafer style meter
Rated for ASME B16.5 Class 150, 300, and 600, EN 1092-1 PN 10, 16, 25, 40, 63, and 100, and JIS 10K, 20K, and 40K

Note
All wafer style meters are pressure rated and labeled at 1500 PSI/10.34 MPa at 100 °F/38 °C regardless of alignment ring size code ordered.

Weld-end style meter
W1 Welds to Schedule 10 mating pipe
- 1-4 inch line size 720 psig (4.96 Mpa-g)

W4 Welds to Schedule 40 mating pipe
- 1-4 inch line size 1440 psig (9.93 Mpa-g)
- 6-12 inch line size 720 psig (4.96 Mpa-g)

W8 Welds to Schedule 80 mating pipe
- 1-4 inch line size 2160 psig (14.9 Mpa-g)
- 6-12 inch line size 1440 psig (9.93 Mpa-g)

W9 Welds to Schedule 160 mating pipe
- 1-4 inch line size 3600 psig (24.8 Mpa-g)
- 6-12 inch line size 2160 psig (14.9 Mpa-g)

Note
1-in. (25 mm), and 1.5-in. (40 mm) weld to Schedule 80 mating pipe.

Power supply

HART analog
External power supply required. Flowmeter operates on 10.8 to 42 Vdc terminal voltage (with 250-ohm minimum load required for HART communications, 16.8 Vdc power supply is required)

FOUNDATION Fieldbus
External power supply required. Flowmeter operates on 9 to 32 Vdc, 18 mA maximum.

Power consumption
One watt maximum
Load limitations (HART analog)
Maximum loop resistance is determined by the voltage level of the external power supply, as described by:

\[ R_{\text{max}} = 41.7(V_{ps} - 10.8) \]

\[ V_{ps} = \text{Power Supply Voltage (Volts)} \]

\[ R_{\text{max}} = \text{Maximum Loop Resistance (Ohms)} \]

**Note**
HART Communication requires a minimum loop resistance of 250 ohms.

Optional LCD indicator
The optional LCD indicator is capable of displaying:

<table>
<thead>
<tr>
<th>HART</th>
<th>FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Variable</td>
<td>Primary Variable</td>
</tr>
<tr>
<td>Velocity Flow</td>
<td>Percent of Range</td>
</tr>
<tr>
<td>Volumetric Flow</td>
<td>Shedding Frequency</td>
</tr>
<tr>
<td>Corrected Volumetric Flow (HR5 or HR7 only)</td>
<td>Electronics Temperature (MTA only)</td>
</tr>
<tr>
<td>Mass Flow</td>
<td>Process Temperature (MTA only)</td>
</tr>
<tr>
<td>Signal Strength (HR5 or HR7 only)</td>
<td>Calculated Process Density (MTA only)</td>
</tr>
<tr>
<td>Percent of Range</td>
<td>Integrator Output</td>
</tr>
<tr>
<td>Analog Output</td>
<td>Totalizer</td>
</tr>
<tr>
<td>Totalizer</td>
<td></td>
</tr>
<tr>
<td>Shedding Frequency</td>
<td></td>
</tr>
<tr>
<td>Pulse Output Frequency</td>
<td></td>
</tr>
<tr>
<td>Electronics Temperature</td>
<td></td>
</tr>
<tr>
<td>Process Temperature (MTA only)</td>
<td></td>
</tr>
<tr>
<td>Calculated Process Density (MTA only)</td>
<td></td>
</tr>
</tbody>
</table>

If more than one item is selected, the display will scroll through all items selected.

Enclosure rating
FM Type 4X; CSA Type 4X; IP66

Permanent pressure loss
The approximate permanent pressure loss (PPL) from the Rosemount 8800D Flowmeter is calculated for each application in the Vortex sizing software available from your local Rosemount representative.

The PPL is determined using the equation:

\[ PPL = \frac{A \times \rho_f \times Q^2}{D^4} \]

where:

- \( PPL \) = Permanent Pressure loss (psi or kPa)
- \( \rho_f \) = Density at operating conditions (lb/ft\(^3\) or kg/m\(^3\))
- \( Q \) = Actual volumetric flow rate (Gas = ft\(^3\)/min or m\(^3\)/hr; Liquid = gal/min or l/min)
- \( D \) = Flowmeter bore diameter (in. or mm)
- \( A \) = Constant depending on meter style, fluid type and flow units. Determined per following table:

**Table 6. Determining the PPL**

<table>
<thead>
<tr>
<th>Meter style</th>
<th>English units</th>
<th>SI units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( A_{\text{Liquid}} )</td>
<td>( A_{\text{Gas}} )</td>
</tr>
<tr>
<td>8800DF/ W</td>
<td>3.4 \times 10^{-5}</td>
<td>1.97 \times 10^{-3}</td>
</tr>
<tr>
<td>8800DR</td>
<td>3.91 \times 10^{-5}</td>
<td>2.19 \times 10^{-3}</td>
</tr>
<tr>
<td>8800DD(1)</td>
<td>6.12 \times 10^{-5}</td>
<td>3.42 \times 10^{-3}</td>
</tr>
</tbody>
</table>

1. For all 6- through 12-in. line sizes \( A \) is the same for 8800DD and 8800DF

Minimum downstream pressure (liquids)
Flow metering conditions that would allow cavitation, the release of vapor from a liquid, should be avoided. This flow condition can be avoided by remaining within the proper flow range of the meter and by following appropriate system design.

For some liquid applications, incorporation of a back pressure valve should be considered. To prevent cavitation, the minimum downstream pressure should be:

\[ P = 2.9 \times \Delta P + 1.3 \times p_v \text{ or } P = 2.9 \times \Delta P + p_v + 0.5 \text{ psia (3.45 kPa) (use the smaller of the two results)} \]

\[ P = \text{Line pressure five pipe diameters downstream of the meter (psia or kPa abs)} \]

\[ \Delta P = \text{Pressure loss across the meter (psi or kPa)} \]

\[ p_v = \text{Liquid vapor pressure at operating conditions (psia or kPa abs)} \]
Failure mode alarm

HART analog
If self-diagnostics detect a gross flowmeter failure, the analog signal will be driven to the values below:

<table>
<thead>
<tr>
<th>Alarm</th>
<th>mA output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>3.75</td>
</tr>
<tr>
<td>High</td>
<td>21.75</td>
</tr>
<tr>
<td>NAMUR Low</td>
<td>3.60</td>
</tr>
<tr>
<td>NAMUR High</td>
<td>22.6</td>
</tr>
</tbody>
</table>

High or low alarm signal is user-selectable through the fail mode alarm jumper on the electronics. NAMUR-compliant alarm limits are available through the C4 or CN Option. Alarm type is field configurable also.

FOUNDATION Fieldbus
The AI block allows the user to configure the alarm to HI-HI, HI, LO, or LO-LO with a variety of priority levels.

Saturation output values
When the operating flow is outside the range points, the analog output continues to track the operating flow until reaching the saturation value listed below; the output does not exceed the listed saturation value regardless of the operating flow. The NAMUR-Compliant Saturation Values are available through the C4 or CN option. Saturation type is field configurable.

<table>
<thead>
<tr>
<th>Alarm</th>
<th>mA output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>3.9</td>
</tr>
<tr>
<td>High</td>
<td>20.8</td>
</tr>
<tr>
<td>NAMUR Low</td>
<td>3.8</td>
</tr>
<tr>
<td>NAMUR High</td>
<td>20.5</td>
</tr>
</tbody>
</table>

Damping
Flow damping adjustable between 0.2 and 255 seconds.

Process temperature damping adjustable between 0.4 and 32.0 seconds (MTA Option only).

Response time
Three vortex shedding cycles or 300 ms, whichever is greater, maximum required to reach 63.2% of actual input with the minimum damping (0.2 seconds).

Turn-on time
HART analog
Less than six seconds plus the response time to rated accuracy from power up (less than eight seconds with the MTA Option).

FOUNDATION Fieldbus
Performance within specifications no greater than 10.0 seconds after power is applied.

Transient protection
The optional transient terminal block prevents damage to the flowmeter from transients induced by lightning, welding, heavy electrical equipment, or switch gears. The transient protection electronics are located in the terminal block.

The transient terminal block meets the following specifications:
IEEE C62.41 - 2002 Category B
3 kA crest (8 x 20 µs)
6 kV crest (1.2 x 50 µs)
6 kV/0.5 kA (0.5 µs, 100 kHz, ring wave)

Security lockout
When the security lockout jumper is enabled, the electronics will not allow you to modify parameters that affect flowmeter output.

Output testing
Current source
Flowmeter may be commanded to set the current to a specified value between 4 and 20 mA.

Frequency source
Flowmeter may be commanded to set the frequency to a specified value between 0 and 10000 Hz.

Low flow cutoff
Adjustable over entire flow range. Below selected value, output is driven to 4 mA and zero pulse output frequency.

Humidity limits
Operates in 0–95% relative humidity under noncondensing conditions (tested to IEC 60770, Section 6.2.11).

Overrange capability
HART analog
Analog signal output continues to 105 percent of span, then remains constant with increasing flow. The digital and pulse outputs will continue to indicate flow up to the upper sensor limit of the flowmeter and a maximum pulse output frequency of 10400 Hz.

FOUNDATION Fieldbus
For liquid process fluid type, the transducer block digital output will continue to a nominal value of 25 ft/s. After that, the status associated with the transducer block output will go to UNCERTAIN. Above a nominal value of 30 ft/s, the status will go to BAD.

For gas/steam service, the transducer block digital output will continue to a nominal value of 220 ft/s for 0.5 and 1.0-in. line sizes and a nominal value of 250 ft/s for 1.5–12-in. line sizes. After that, the status associated with the transducer block output will go to UNCERTAIN. Above a nominal value of 300 ft/s for all line sizes, the status will go to BAD.
Flow calibration
Meter bodies are flow-calibrated and assigned a unique calibration factor (K-factor) at the factory. The calibration factor is entered into the electronics, enabling interchangeability of electronics and/or sensors without calculations or compromise in accuracy of the calibrated meter body.

Status (FOUNDATION Fieldbus only)
If self-diagnostics detect a transmitter failure, the status of the measurement will inform the control system. Status may also set the PID output to a safe value.

Schedule entries (FOUNDATION Fieldbus only)
Six (6)

Links (FOUNDATION Fieldbus only)
Twelve (12)

Virtual communications relationships (VCRs) (FOUNDATION Fieldbus only)
Maximum VCRs: 20
Number of Permanent Entries: 1

Table 7. Block Information

<table>
<thead>
<tr>
<th>Block</th>
<th>Base index</th>
<th>Execution time (milliseconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource (RB)</td>
<td>1000</td>
<td>N/A</td>
</tr>
<tr>
<td>Transducer (TB)</td>
<td>1200</td>
<td>N/A</td>
</tr>
<tr>
<td>Analog Input 1 (AI 1)</td>
<td>1400</td>
<td>15</td>
</tr>
<tr>
<td>Analog Input 2 (AI 2)</td>
<td>1600</td>
<td>15</td>
</tr>
<tr>
<td>Proportional/Integral/Derivative (PID)</td>
<td>1800</td>
<td>20</td>
</tr>
<tr>
<td>Integrator (INTEG)</td>
<td>2000</td>
<td>25</td>
</tr>
<tr>
<td>Arithmetic (ARITH)</td>
<td>2200</td>
<td>20</td>
</tr>
<tr>
<td>Analog Input 3 (AI 3)</td>
<td>2400</td>
<td>15</td>
</tr>
<tr>
<td>Analog Input 4 (AI 4)</td>
<td>2600</td>
<td>15</td>
</tr>
<tr>
<td>Analog Input 5 (AI 5)</td>
<td>2800</td>
<td>15</td>
</tr>
</tbody>
</table>
Typical Flow Ranges

Table 8 - Table 19 show typical flow ranges for some common process fluids with default filter settings. Consult your local sales representative to obtain a computer sizing program that describes in greater detail the flow range for an application.

Table 8. Typical Pipe Velocity Ranges for Rosemount 8800D and 8800DR

<table>
<thead>
<tr>
<th>Process line size (inches/ DN)</th>
<th>Vortex meter (2)</th>
<th>Liquid velocity ranges</th>
<th>Gas velocity ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(ft/s)</td>
<td>(m/s)</td>
</tr>
<tr>
<td>0.5/ 15</td>
<td>8800DF005</td>
<td>0.70 to 25.0</td>
<td>0.21 to 7.6</td>
</tr>
<tr>
<td>1/ 25</td>
<td>8800DF010</td>
<td>0.70 to 25.0</td>
<td>0.21 to 7.6</td>
</tr>
<tr>
<td></td>
<td>8800DR010</td>
<td>0.25 to 8.8</td>
<td>0.08 to 2.7</td>
</tr>
<tr>
<td>1.5/ 40</td>
<td>8800DF015</td>
<td>0.70 to 25.0</td>
<td>0.21 to 7.6</td>
</tr>
<tr>
<td></td>
<td>8800DR015</td>
<td>0.30 to 10.6</td>
<td>0.09 to 3.2</td>
</tr>
<tr>
<td>2/ 50</td>
<td>8800DF020</td>
<td>0.70 to 25.0</td>
<td>0.21 to 7.6</td>
</tr>
<tr>
<td></td>
<td>8800DR020</td>
<td>0.42 to 15.2</td>
<td>0.13 to 4.6</td>
</tr>
<tr>
<td>3/ 80</td>
<td>8800DF030</td>
<td>0.70 to 25.0</td>
<td>0.21 to 7.6</td>
</tr>
<tr>
<td></td>
<td>8800DR030</td>
<td>0.32 to 11.3</td>
<td>0.10 to 3.5</td>
</tr>
<tr>
<td>4/ 100</td>
<td>8800DF040</td>
<td>0.70 to 25.0</td>
<td>0.21 to 7.6</td>
</tr>
<tr>
<td></td>
<td>8800DR040</td>
<td>0.41 to 14.5</td>
<td>0.12 to 4.4</td>
</tr>
<tr>
<td>6/ 150</td>
<td>8800DF060</td>
<td>0.70 to 25.0</td>
<td>0.21 to 7.6</td>
</tr>
<tr>
<td></td>
<td>8800DR060</td>
<td>0.31 to 11.0</td>
<td>0.09 to 3.4</td>
</tr>
<tr>
<td>8/ 200</td>
<td>8800DF080</td>
<td>0.70 to 25.0</td>
<td>0.21 to 7.6</td>
</tr>
<tr>
<td></td>
<td>8800DR080</td>
<td>0.40 to 14.4</td>
<td>0.12 to 4.4</td>
</tr>
<tr>
<td>10/ 250</td>
<td>8800DF100</td>
<td>0.90 to 25.0</td>
<td>0.27 to 7.6</td>
</tr>
<tr>
<td></td>
<td>8800DR100</td>
<td>0.44 to 15.9</td>
<td>0.13 to 4.8</td>
</tr>
<tr>
<td>12/ 300</td>
<td>8800DF120</td>
<td>1.10 to 25.0</td>
<td>0.34 to 7.6</td>
</tr>
<tr>
<td></td>
<td>8800DR120</td>
<td>0.63 to 17.6</td>
<td>0.19 to 5.4</td>
</tr>
</tbody>
</table>

1. Table 8 is a reference of pipe velocities that can be measured for the standard Rosemount 8800D and the reducer Rosemount 8800DR Vortex Meters. It does not consider density limitations, as described in tables 2 and 3. Velocities are referenced in schedule 40 pipe.
2. Velocity range of the Rosemount 8800DW is the same as Rosemount 8800DF.
Table 9. Water Flow Rate Limits for the Rosemount 8800D and 8800DR\(^{(1)}\)

<table>
<thead>
<tr>
<th>Process line size (inches/DN)</th>
<th>Vortex meter(^{(2)})</th>
<th>Minimum and maximum measurable water flow rates(^{(3)})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Gallons/minute</td>
</tr>
<tr>
<td>0.5/15</td>
<td>8800DF005</td>
<td>1.76 to 23.7</td>
</tr>
<tr>
<td>1/25</td>
<td>8800DF010</td>
<td>2.96 to 67.3</td>
</tr>
<tr>
<td></td>
<td>8800DR010</td>
<td>1.76 to 23.7</td>
</tr>
<tr>
<td>1.5/40</td>
<td>8800DF015</td>
<td>4.83 to 158</td>
</tr>
<tr>
<td></td>
<td>8800DR015</td>
<td>2.96 to 67.3</td>
</tr>
<tr>
<td>2/50</td>
<td>8800DF020</td>
<td>7.96 to 261</td>
</tr>
<tr>
<td></td>
<td>8800DR020</td>
<td>4.83 to 158.0</td>
</tr>
<tr>
<td>3/80</td>
<td>8800DF030</td>
<td>17.5 to 576</td>
</tr>
<tr>
<td></td>
<td>8800DR030</td>
<td>7.96 to 261.0</td>
</tr>
<tr>
<td>4/100</td>
<td>8800DF040</td>
<td>30.2 to 992</td>
</tr>
<tr>
<td></td>
<td>8800DR040</td>
<td>17.5 to 576</td>
</tr>
<tr>
<td>6/150</td>
<td>8800DF060</td>
<td>68.5 to 2251</td>
</tr>
<tr>
<td></td>
<td>8800DR060</td>
<td>30.2 to 992</td>
</tr>
<tr>
<td>8/200</td>
<td>8800DF080</td>
<td>119 to 3898</td>
</tr>
<tr>
<td></td>
<td>8800DR080</td>
<td>68.5 to 2251</td>
</tr>
<tr>
<td>10/250</td>
<td>8800DF100</td>
<td>231 to 6144</td>
</tr>
<tr>
<td></td>
<td>8800DR100</td>
<td>119 to 3898</td>
</tr>
<tr>
<td>12/300</td>
<td>8800DF120</td>
<td>391 to 8813</td>
</tr>
<tr>
<td></td>
<td>8800DR120</td>
<td>231 to 6144</td>
</tr>
</tbody>
</table>

1. Table 9 is a reference of flow rates that can be measured for the standard Rosemount 8800D and the reducer 8800DR Vortex Meters. It does not consider density limitations, as described in tables 2 and 3.
2. Velocity range of the 8800DW is the same as 8800DF.
3. Conditions: 77 °F (25 °C) and 14.7 psia (1.01 bar absolute)

Table 10. Air Flow Rate Limits at 59 °F (15 °C)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>Minimum and maximum air flow rates for line sizes 1/2-in./DN 15 through 1-in./DN 25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/2-in./DN 15</td>
<td>1-in./DN 25</td>
</tr>
<tr>
<td></td>
<td>Rosemount 8800D</td>
<td>Rosemount 8800DR</td>
</tr>
<tr>
<td></td>
<td>ACFM</td>
<td>ACMH</td>
</tr>
<tr>
<td>0 psig (0 bar G)</td>
<td>max  min</td>
<td>27.9 4.62</td>
</tr>
<tr>
<td>50 psig (3.45 bar G)</td>
<td>max  min</td>
<td>27.9 1.31</td>
</tr>
<tr>
<td>100 psig (6.89 bar G)</td>
<td>max  min</td>
<td>27.9 0.98</td>
</tr>
<tr>
<td>150 psig (10.3 bar G)</td>
<td>max  min</td>
<td>27.9 0.82</td>
</tr>
<tr>
<td>200 psig (13.8 bar G)</td>
<td>max  min</td>
<td>27.9 0.82</td>
</tr>
</tbody>
</table>
Table 10. Air Flow Rate Limits at 59 °F (15 °C)(continued)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>Minimum and maximum air flow rates for line sizes ½-in./DN 15 through 1-in./DN 25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>½-in./DN 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rosemount 8800D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACFM</td>
</tr>
<tr>
<td>300 psig (20.7 bar G)</td>
<td>max min</td>
<td>27.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>360</td>
</tr>
<tr>
<td>400 psig (27.6 bar G)</td>
<td>max min</td>
<td>25.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>360</td>
</tr>
<tr>
<td>500 psig (34.5 bar G)</td>
<td>max min</td>
<td>23.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>360</td>
</tr>
</tbody>
</table>

Table 11. Air Flow Rate Limits at 59 °F (15 °C)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>Minimum and maximum air Flow rates for line sizes 1½-in./DN 15 through 2-in./DN 50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1½-in./DN 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rosemount 8800D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACFM</td>
</tr>
<tr>
<td>0 psig (0 bar G)</td>
<td>max min</td>
<td>212</td>
</tr>
<tr>
<td>50 psig (3.45 bar G)</td>
<td>max min</td>
<td>212</td>
</tr>
<tr>
<td>100 psig (6.89 bar G)</td>
<td>max min</td>
<td>212</td>
</tr>
<tr>
<td>150 psig (10.3 bar G)</td>
<td>max min</td>
<td>212</td>
</tr>
<tr>
<td>200 psig (13.8 bar G)</td>
<td>max min</td>
<td>212</td>
</tr>
<tr>
<td>300 psig (20.7 bar G)</td>
<td>max min</td>
<td>198</td>
</tr>
<tr>
<td>400 psig (27.6 bar G)</td>
<td>max min</td>
<td>172</td>
</tr>
<tr>
<td>500 psig (34.5 bar G)</td>
<td>max min</td>
<td>154</td>
</tr>
</tbody>
</table>
### Table 12. Air Flow Rate Limits at 59 °F (15 °C)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>Minimum and maximum air flow rates for line sizes 3-in./DN 80 through 4-in./DN 100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3-in./DN 80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACFM</td>
</tr>
<tr>
<td>0 psig (0 bar G)</td>
<td>max</td>
<td>770</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>66.8</td>
</tr>
<tr>
<td>50 psig (3.45 bar G)</td>
<td>max</td>
<td>770</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>31.8</td>
</tr>
<tr>
<td>100 psig (6.89 bar G)</td>
<td>max</td>
<td>770</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>23.9</td>
</tr>
<tr>
<td>150 psig (10.3 bar G)</td>
<td>max</td>
<td>770</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>20.0</td>
</tr>
<tr>
<td>200 psig (13.8 bar G)</td>
<td>max</td>
<td>770</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>20.0</td>
</tr>
<tr>
<td>300 psig (20.7 bar G)</td>
<td>max</td>
<td>718</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>20.0</td>
</tr>
<tr>
<td>400 psig (27.6 bar G)</td>
<td>max</td>
<td>625</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>20.0</td>
</tr>
<tr>
<td>500 psig (34.5 bar G)</td>
<td>max</td>
<td>560</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>20.0</td>
</tr>
</tbody>
</table>

### Table 13. Air Flow Rate Limits at 59 °F (15 °C)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>Minimum and maximum air flow rates for line sizes 6-in./DN 150 through 8-in./DN 200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>6-in./DN 150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACFM</td>
</tr>
<tr>
<td>0 psig (0 bar G)</td>
<td>max</td>
<td>3009</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>261</td>
</tr>
<tr>
<td>50 psig (3.45 bar G)</td>
<td>max</td>
<td>3009</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>124</td>
</tr>
<tr>
<td>100 psig (6.89 bar G)</td>
<td>max</td>
<td>3009</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>78.2</td>
</tr>
<tr>
<td>150 psig (10.3 bar G)</td>
<td>max</td>
<td>3009</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>78.2</td>
</tr>
<tr>
<td>200 psig (13.8 bar G)</td>
<td>max</td>
<td>3009</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>78.2</td>
</tr>
<tr>
<td>300 psig (20.7 bar G)</td>
<td>max</td>
<td>2807</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>78.2</td>
</tr>
<tr>
<td>400 psig (27.6 bar G)</td>
<td>max</td>
<td>2442</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>78.2</td>
</tr>
<tr>
<td>500 psig (34.5 bar G)</td>
<td>max</td>
<td>2188</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>78.2</td>
</tr>
</tbody>
</table>
### Table 14. Saturated Steam Flow Rate Limits (assumes steam quality is 100%)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>1/2-in./DN 15</th>
<th>1-in./DN 25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rosemount 8800D</td>
<td>Rosemount 8800DR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>lb/hr</td>
<td>kg/hr</td>
</tr>
<tr>
<td>15 psig (1.03 bar G)</td>
<td>max</td>
<td>120</td>
<td>54.6</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>12.8</td>
<td>5.81</td>
</tr>
<tr>
<td>25 psig (1.72 bar G)</td>
<td>max</td>
<td>158</td>
<td>71.7</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>14.0</td>
<td>6.35</td>
</tr>
<tr>
<td>50 psig (3.45 bar G)</td>
<td>max</td>
<td>250</td>
<td>113</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>17.6</td>
<td>8.00</td>
</tr>
<tr>
<td>100 psig (6.89 bar G)</td>
<td>max</td>
<td>429</td>
<td>194</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>23.1</td>
<td>10.5</td>
</tr>
<tr>
<td>150 psig (10.3 bar G)</td>
<td>max</td>
<td>606</td>
<td>275</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>27.4</td>
<td>12.5</td>
</tr>
<tr>
<td>200 psig (13.8 bar G)</td>
<td>max</td>
<td>782</td>
<td>354</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>31.2</td>
<td>14.1</td>
</tr>
<tr>
<td>300 psig (20.7 bar G)</td>
<td>max</td>
<td>1135</td>
<td>515</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>37.6</td>
<td>17.0</td>
</tr>
<tr>
<td>400 psig (27.6 bar G)</td>
<td>max</td>
<td>1492</td>
<td>676</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>44.1</td>
<td>20.0</td>
</tr>
<tr>
<td>500 psig (34.5 bar G)</td>
<td>max</td>
<td>1855</td>
<td>841</td>
</tr>
<tr>
<td></td>
<td>min</td>
<td>54.8</td>
<td>24.9</td>
</tr>
</tbody>
</table>

**Note**

The Rosemount 8800D measures the volumetric flow under operating conditions (i.e. the actual volume at the operating pressure and temperature – acfm or acmh), as shown above. However, gas volumes are strongly dependent on pressure and temperature. Therefore, gas quantities are typically stated in standard or normal conditions (e.g. SCFM or NCMH). (Standard conditions are typically 59 °F and 14.7 psia. Normal conditions are typically 0 °C and 1.01 bar abs.) The flow rate limits in standard conditions are found using the equations below:

Standard Flow Rate = Actual Flow Rate * Density Ratio
Density Ratio = Density at Actual (Operating) Conditions / Density at Standard Conditions
### Table 15. Saturated Steam Flow Rate Limits (assumes steam quality is 100%)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>Minimum and maximum saturated steam flow rates for line sizes 1/2-in./DN 15 through 1-in./DN 25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/2-in./DN 15</td>
<td>1-in./DN 25</td>
</tr>
<tr>
<td></td>
<td>Rosemount 8800D</td>
<td>Rosemount 8800DR</td>
</tr>
<tr>
<td>15 psig (1,03 bar G)</td>
<td>max: 120 lb/hr</td>
<td>min: 12.8 kg/hr</td>
</tr>
<tr>
<td>25 psig (1,72 bar G)</td>
<td>max: 158 lb/hr</td>
<td>min: 14.0 lb/hr</td>
</tr>
<tr>
<td>50 psig (3,45 bar G)</td>
<td>max: 250 lb/hr</td>
<td>min: 17.6 lb/hr</td>
</tr>
<tr>
<td>100 psig (6,89 bar G)</td>
<td>max: 429 lb/hr</td>
<td>min: 23.1 lb/hr</td>
</tr>
<tr>
<td>150 psig (10,3 bar G)</td>
<td>max: 606 lb/hr</td>
<td>min: 27.4 lb/hr</td>
</tr>
<tr>
<td>200 psig (13,8 bar G)</td>
<td>max: 782 lb/hr</td>
<td>min: 31.2 lb/hr</td>
</tr>
<tr>
<td>300 psig (20,7 bar G)</td>
<td>max: 1135 lb/hr</td>
<td>min: 37.6 lb/hr</td>
</tr>
<tr>
<td>400 psig (27,6 bar G)</td>
<td>max: 1492 lb/hr</td>
<td>min: 44.1 lb/hr</td>
</tr>
<tr>
<td>500 psig (34,5 bar G)</td>
<td>max: 1855 lb/hr</td>
<td>min: 54.8 lb/hr</td>
</tr>
</tbody>
</table>

### Table 16. Saturated Steam Flow Rate Limits (assumes steam quality is 100%)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>Minimum and maximum saturated steam flow rates for line sizes 1 1/2-in./DN 40 through 2-in./DN 50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 1/2-in./DN 40</td>
<td>2-in./DN 50</td>
</tr>
<tr>
<td></td>
<td>Rosemount 8800D</td>
<td>Rosemount 8800DR</td>
</tr>
<tr>
<td>15 psig (1,03 bar G)</td>
<td>max: 917 lb/hr</td>
<td>min: 82.0 lb/hr</td>
</tr>
<tr>
<td>25 psig (1,72 bar G)</td>
<td>max: 1204 lb/hr</td>
<td>min: 93.9 lb/hr</td>
</tr>
<tr>
<td>50 psig (3,45 bar G)</td>
<td>max: 1904 lb/hr</td>
<td>min: 118 lb/hr</td>
</tr>
<tr>
<td>100 psig (6,89 bar G)</td>
<td>max: 3270 lb/hr</td>
<td>min: 155 lb/hr</td>
</tr>
<tr>
<td>150 psig (10,3 bar G)</td>
<td>max: 4616 lb/hr</td>
<td>min: 184 lb/hr</td>
</tr>
</tbody>
</table>
Table 16. Saturated Steam Flow Rate Limits (assumes steam quality is 100%)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>Minimum and maximum saturated steam flow rates for line sizes 1½-in./DN 40 through 2-in./DN 50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb/hr</td>
<td>kg/hr</td>
</tr>
<tr>
<td>200 psig (13.8 bar G)</td>
<td>max 5956 2225 918</td>
<td>min 209 40.2 344</td>
</tr>
<tr>
<td>300 psig (20.7 bar G)</td>
<td>max 8644 3229 164</td>
<td>min 252 48.5 415</td>
</tr>
<tr>
<td>400 psig (27.6 bar G)</td>
<td>max 11362 4244 1925</td>
<td>min 295 56.7 487</td>
</tr>
<tr>
<td>500 psig (34.5 bar G)</td>
<td>max 14126 5277 2393</td>
<td>min 367 70.7 605</td>
</tr>
</tbody>
</table>

Table 17. Saturated Steam Flow Rate Limits (assumes steam quality is 100%)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>Minimum and maximum saturated steam flow rates for line sizes 3-in./DN 40 through 4-in./DN 50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb/hr</td>
<td>kg/hr</td>
</tr>
<tr>
<td>15 psig (1.03 bar G)</td>
<td>max 3330 3138 685</td>
<td>min 298 135 151</td>
</tr>
<tr>
<td>25 psig (1.72 bar G)</td>
<td>max 4370 3138 899</td>
<td>min 341 155 198</td>
</tr>
<tr>
<td>50 psig (3.45 bar G)</td>
<td>max 6914 3138 1423</td>
<td>min 429 195 313</td>
</tr>
<tr>
<td>100 psig (6.89 bar G)</td>
<td>max 11874 5389 2444</td>
<td>min 562 255 538</td>
</tr>
<tr>
<td>150 psig (10.3 bar G)</td>
<td>max 16763 7609 28866</td>
<td>min 668 303 760</td>
</tr>
<tr>
<td>200 psig (13.8 bar G)</td>
<td>max 21630 9811 37247</td>
<td>min 759 344 981</td>
</tr>
<tr>
<td>300 psig (20.7 bar G)</td>
<td>max 31389 14237 54052</td>
<td>min 914 415 1423</td>
</tr>
<tr>
<td>400 psig (27.6 bar G)</td>
<td>max 41258 18727 71047</td>
<td>min 1073 487 1847</td>
</tr>
<tr>
<td>500 psig (34.5 bar G)</td>
<td>max 51297 23284 88334</td>
<td>min 1334 605 2297</td>
</tr>
</tbody>
</table>
# Table 18. Saturated Steam Flow Rate Limits (assumes steam quality is 100%)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6-in./DN 150</td>
</tr>
<tr>
<td></td>
<td>Rosemount 8800D</td>
</tr>
<tr>
<td></td>
<td>lb/hr</td>
</tr>
<tr>
<td></td>
<td>lb/hr</td>
</tr>
<tr>
<td></td>
<td>lb/hr</td>
</tr>
<tr>
<td></td>
<td>lb/hr</td>
</tr>
<tr>
<td>15 psig (1,03 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>25 psig (1,72 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>50 psig (3,45 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>100 psig (6,89 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>150 psig (10,3 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>200 psig (13,8 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>300 psig (20,7 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>400 psig (27,6 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>500 psig (34,5 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
</tbody>
</table>

# Table 19. Saturated Steam Flow Rate Limits (assumes steam quality is 100%)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10-in./DN 250</td>
</tr>
<tr>
<td></td>
<td>Rosemount 8800D</td>
</tr>
<tr>
<td></td>
<td>lb/hr</td>
</tr>
<tr>
<td></td>
<td>lb/hr</td>
</tr>
<tr>
<td></td>
<td>lb/hr</td>
</tr>
<tr>
<td></td>
<td>lb/hr</td>
</tr>
<tr>
<td>15 psig (1,03 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>25 psig (1,72 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>50 psig (3,45 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>100 psig (6,89 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
<tr>
<td>150 psig (10,3 bar G)</td>
<td>max</td>
</tr>
<tr>
<td></td>
<td>min</td>
</tr>
</tbody>
</table>
Table 19. Saturated Steam Flow Rate Limits (assumes steam quality is 100%)

<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Flow rate limits</th>
<th>Minimum and maximum saturated steam flow rates for line sizes 10-in./DN 250 through 12-in./DN 300</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10-in./DN 250</td>
<td>12-in./DN 300</td>
</tr>
<tr>
<td></td>
<td>Rosemount 8800D</td>
<td>Rosemount 8800DR</td>
</tr>
<tr>
<td>lb/hr</td>
<td>kg/hr</td>
<td>lb/hr</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>200 psig (13.8 bar G)</td>
<td>max 230722</td>
<td>104654</td>
</tr>
<tr>
<td>(13.8 bar G)</td>
<td>min 8092</td>
<td>3670</td>
</tr>
<tr>
<td>300 psig (20.7 bar G)</td>
<td>max 334810</td>
<td>151867</td>
</tr>
<tr>
<td>(20.7 bar G)</td>
<td>min 9749</td>
<td>4422</td>
</tr>
<tr>
<td>400 psig (27.6 bar G)</td>
<td>max 440085</td>
<td>199619</td>
</tr>
<tr>
<td>(27.6 bar G)</td>
<td>min 11442</td>
<td>5190</td>
</tr>
<tr>
<td>500 psig (34.5 bar G)</td>
<td>max 547165</td>
<td>248190</td>
</tr>
<tr>
<td>(34.5 bar G)</td>
<td>min 14226</td>
<td>6453</td>
</tr>
</tbody>
</table>
Performance specifications

The following performance specifications are for all Rosemount models except where noted. Digital performance specifications applicable to both Digital HART and FOUNDATION Fieldbus output.

Flow accuracy
Includes linearity, hysteresis, and repeatability.

Liquids - for Reynolds numbers over 20000

Digital and pulse output
±0.65% of rate

Note
The accuracy for the 8800DR, line sizes 6- to 12-in. (150 to 300 mm), is ±1.0% of rate.

Analog output
Same as pulse output plus an additional 0.025% of span

Gas and steam - for Reynolds numbers over 15,000

Digital and pulse output
±1.0% of rate

Note: The accuracy for the Rosemount 8800DR, line sizes 6 to 12-in. (150 mm to 300 mm), is ±1.35% of rate.

Analog output
Same as pulse output plus an additional 0.025% of span

Accuracy limitations for gas and steam:
For 1/2- and 1-in. (DN 15 and DN 25): max velocity of 220 ft/s (67.06 m/s)
For 1/2- to 4-in. (DN 15 to DN 200) Dual-style meters: max velocity of 100 ft/s (30.5 m/s)

Note
As the meter Reynolds Numbers decreases below the stated limit to 10,000, the accuracy error band will increase linearly to +/-2.0%. For Reynolds Numbers down to 5,000 the accuracy error band will increase linearly from +/-2.0% to +/-6.0%.

Process temperature accuracy
2.2 °F (1.2 °C) or 0.4% of reading (in °C), whichever is greater.

Note
For remote mount installations, add ±0.018 °F/ft. (±0.03 °C/m) of uncertainty to the temperature measurement.

Mass flow accuracy for temperature compensated steam mass flow
±2.0% of rate (Typical)

Repeatability
±0.1% of actual flow rate

Mass flow accuracy for temperature compensated liquid mass flow (water)
±0.70% of rate up to 500 °F (260 °C)
±0.85% of rate between 500 and 600 °F (260 and 316 °C)

Repeatability
±0.1% of actual flow rate

Mass flow accuracy for temperature compensated liquid mass flow (user-defined)
Dependent on user inputs

Repeatability
±0.1% of actual flow rate

Stability
±0.1% of rate over one year

Process temperature effect
Automatic K-factor correction with user-entered process temperature.
Table 20 indicates the percent change in K-factor per 100 °F (55.6 °C) in process temperature from reference temperature of 77 °F (25 °C).

<table>
<thead>
<tr>
<th>Material</th>
<th>Percent change in K-factor per 100 °F (55.6 °C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>316L @ &lt; 77 °F (25 °C)</td>
<td>+ 0.23</td>
</tr>
<tr>
<td>316L @ &gt; 77 °F (25 °C)</td>
<td>- 0.27</td>
</tr>
<tr>
<td>Nickel alloy C &lt; 77 °F (25 °C)</td>
<td>+ 0.22</td>
</tr>
<tr>
<td>Nickel alloy C &gt; 77 °F (25 °C)</td>
<td>- 0.22</td>
</tr>
</tbody>
</table>

Ambient temperature effect

Digital and pulse outputs
No effect

Analog output
±0.1% of span from −58 to 185 °F (−50 to 85 °C)

Vibration effect
An output with no process flow may be detected if sufficiently high vibration is present. The meter design will minimize this effect, and the factory settings for signal processing are selected to eliminate these errors for most applications. If an output error at zero flow is still detected, it can be eliminated by adjusting the low flow cutoff, trigger level, or low-pass filter. As the process begins to flow through the meter, most vibration effects are quickly overcome by the flow signal.
Vibration specifications

Integral aluminum housings, remote aluminum housings, and remote SST housings
At or near the minimum liquid flow rate in a normal pipe mounted installation, the maximum vibration should be 0.087-in. (2.21 mm) double amplitude displacement or 1 g acceleration, whichever is smaller. At or near the minimum gas flow rate in a normal pipe mounted installation, the maximum vibration should be 0.043-in. (1.09 mm) double amplitude displacement or $\frac{1}{2}$ g acceleration, whichever is smaller.

Integral SST housing
At or near the minimum liquid flow rate in a normal pipe mounted installation, the maximum vibration should be 0.044-in. (1.11 mm) double amplitude displacement or $\frac{1}{3}$ g acceleration, whichever is smaller. At or near the minimum gas flow rate in a normal pipe mounted installation, the maximum vibration should be 0.022-in. (0.55 mm) double amplitude displacement or $\frac{1}{6}$ g acceleration, whichever is smaller.

Mounting position effect
Meter will meet accuracy specifications when mounted in horizontal, vertical, or inclined pipelines. Best practice for mounting in a horizontal pipe is to orient the shedder bar in the horizontal plane. This will prevent solids in liquid applications and liquid in gas/steam applications from disrupting the shedding frequency.

EMI/RFI effect
Meets EMC requirements to EU Directive 2004/108/EC.

HART analog
Output error less than ±0.025% of span with twisted pair from 80-1000 MHz for radiated field strength of 10 V/m; 1.4 - 2.0 GHz for radiated field strength of 3 V/m; 2.0 - 2.7 GHz for radiated field strength of 1 V/m. Tested per EN61326.

FOUNDATION Fieldbus and digital HART
No affect on the values that are being given if using HART digital signal or FOUNDATION Fieldbus. Tested per EN 61326.

Magnetic-field interference
HART analog
Output error less than ±0.025% of span at 30 A/m (rms). Tested per EN 61326.

FOUNDATION Fieldbus
No affect on digital output accuracy at 30 A/m (rms). Tested per EN 61326.

Series mode noise rejection
HART analog
Output error less than ±0.025% of span at 1 V rms, 60 Hz.

FOUNDATION Fieldbus
No effect on digital output accuracy at 1 V rms, 60 Hz.

Common mode noise rejection
HART analog
Output error less than ±0.025% of span at 30 V rms, 60 Hz.

FOUNDATION Fieldbus
No effect on digital output accuracy at 250 V rms, 60 Hz.

Power supply effect
HART analog
Less than 0.005% of span per volt

FOUNDATION Fieldbus
No effect on accuracy.

Physical specifications

NACE compliance

Note
Certificate of compliance for MR0175/ISO15156 requires Q15 as a separate line item.

Electrical connections
$\frac{1}{2}$-14 or M20 3 1.5 conduit threads; screw terminals provided for 4–20 mA, FOUNDATION Fieldbus, and pulse output connections; communicator connections permanently fixed to terminal block.

Non-wetted materials
Housing
Low-copper aluminum (FM Type 4X, CSA Type 4X, IP66)
Optional SST housing

Paint
Polyurethane

Cover O-rings
Buna-N

Flanges
316/316L lap joint

Temperature sensor (MTA option)
Type-N Thermocouple
Process-wetted materials

Meter body
CF-3M cast stainless, N06022 wrought nickel alloy and CW2M cast nickel alloy. Also available in WCB and LCC cast carbon steel and 6A duplex stainless steel.

Flanges
316/316L stainless steel
Nickel alloy N06022 Weld Neck
A105 forged carbon steel
LF2 forged carbon steel
UNS S32760 wrought duplex stainless steel

Collars
Nickel alloy N06022
316/316L Stainless Steel

Surface finish of flanges and collars
Standard: To the requirements of the applicable flange standard.
Smooth: 63 to 125 μ inches
(1.6 to 3.1 μ meters) Ra roughness

Process connections
Mounts between the following flange configurations:
ASME B16.5: Class 150, 300, 600, 900, 1500
EN 1092-1: PN 10, 16, 25, 40, 64, 100, 160
JIS B2220: 10K, 20K, and 40K
Weld-end: Schedule 10, Schedule 40, Schedule 80, Schedule 160

Mounting
Integral (standard)
Electronics are mounted on meter body.

Remote (optional)
Electronics may be mounted remote from the meter body. Interconnecting coaxial cable available in nonadjustable 10, 20, 30, 33, and 50 ft (3.0, 6.1, 9.1, 10, and 15.2 m) lengths. Consult factory for non-standard lengths up to 75 ft (22.9 m). Remote mounting hardware includes a pipe mount bracket with one u-bolt. Armored remote cables are also available in lengths of 10, 20, 33, 50 and 75 feet. The armored remote option comes standard with glands/adapters to connect cable to meter body and transmitter housing. Remote cable is flame resistant in accordance with IEC 60332-3.

Temperature limitations for integral mounting
The maximum process temperature for integral mount electronics is dependent on the ambient temperature where the meter is installed. The electronics must not exceed 185 °F (85 °C). The following is for reference, please note that the pipe was insulated with 3 inches of ceramic fiber insulator.

Pipe length requirements
The vortex meter may be installed with a minimum of 10 diameters (D) of straight pipe length upstream and five diameters (D) of straight pipe length downstream.

Rated Accuracy is based on the number of pipe diameter from an upstream disturbance. No K-factor correction is required if the meter is installed with 35 D upstream and 5 D downstream. The value of the K-factor may shift up to 0.5% when the upstream straight pipe length is between 10D and 35D. Refer to the Rosemount 8800 Vortex Installation Effects Technical Data Sheet for information about Installation Effects for optional K-factor corrections. This effect can be corrected in the electronics.

Tagging
The flowmeter will be tagged at no charge. All tags are stainless steel. The standard tag is permanently attached to the flowmeter. Character height is 1/16-in. (1.6 mm). A wired-on tag is available on request. Character height on the wire-on tag is 0.236-in. (6 mm). Wire on tags can contain five lines with an average of 19 characters per line at standard character height.

Flow calibration information
Flowmeter calibration and configuration information is provided with every flowmeter. For a certified copy of flow calibration data, Option Q4 must be ordered in the model number.
Product Certifications

Approved Manufacturing Locations
Emerson Process Management – Eden Prairie, Minnesota, USA
Emerson Process Management BV - Ede, The Netherlands
Emerson Process Management Flow Technologies Co., Ltd - Nanjing, Jiangsu Province, P.R. China
SC Emerson SRL - Cluj, Romania

Flameproof enclosure Ex d protection type in accordance with IEC 60079-1, EN 60079-1

⚠️ Transmitters with Flameproof enclosure type protection shall only be opened when power is removed.

⚠️ Closing of entries in the device must be carried out using the appropriate Ex d cable gland or blanking plug. Unless otherwise marked on housing, the standard conduit entry thread forms are 1/2-14 NPT.

Type n protection type in accordance with IEC 60079-15, EN60079-15

⚠️ Closing of entries in the device must be carried out using the appropriate Ex e or Ex n cable gland and metal blanking plug or any appropriate ATEX or IECEx approved cable gland and blanking plug with IP66 rating certified by an EU approved certification body.

European Directive Information
The CE Declaration of Conformity for all applicable European directives for this product can be found on our website at EmersonProcess/Rosemount. A hard copy may be obtained by contacting our local sales office.

ATEX Directive
Emerson Process Management complies with the ATEX Directive.

European Pressure Equipment Directive (PED)

Rosemount 8800D Vortex Flowmeter Line Size 40 mm to 300 mm
Certificate Number 4741-2014-CE-HOU-DNV
CE 0575 or 2460
Module H Conformity Assessment
Mandatory CE-marking for flowmeters in accordance with Article 15 of the PED can be found on the flowtube body.
Flowmeter categories I – III use module H for conformity assessment procedures.

Rosemount 8800D Vortex Flowmeter Line Size 15 mm and 25 mm

Sound Engineering Practice (SEP)
Flowmeters that are SEP are outside the scope of PED and cannot be marked for compliance with PED.

Hazardous Location Certifications

North American Certifications

Factory Mutual (FM)

E5 Explosion proof-Intrinsically Safe for Class I, Division 1, Groups B, C, and D;
Dust-Ignition proof for Class II/III, Division 1, Groups E, F, and G;
Temperature Code T6 (-50 °C ≤ Ta ≤ 70 °C)
Factory Sealed
Enclosure Type 4X, IP66

I5 Intrinsically safe for use in Class I, II, III Division 1, Groups A, B, C, D, E, F, and G;
Non-incendive for Class I, Division 2, Groups A, B, C, and D
NIFW (Non-incendive Field Wiring) when installed per Rosemount Drawing 08800-0116
Temperature Code T4 (-50 °C ≤ Ta ≤ 70 °C) 4-20 mA HART®
Temperature Code T4 (-50 °C ≤ Ta ≤ 60 °C) Fieldbus
Enclosure Type 4X, IP66

www.emerson.com/rosemount
**European Certifications**

**ATEX Intrinsic Safety**
EN 60079-0: 2012
EN 60079-11: 2012

**I1** Certification No. Baseefa05ATEX0084X
ATEX Marking
\( \text{II 1 G Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ 70 °C) 4-20 mA HART} \)
\( \text{II 1 G Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ 60 °C) Fieldbus} \)
\( \text{cc 0575 or 2460} \)

<table>
<thead>
<tr>
<th>4-20 mA HART entity parameters</th>
<th>Fieldbus entity parameters</th>
<th>FISCO input parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>( U_i = 30 \text{ VDC} )</td>
<td>( U_i = 30 \text{ VDC} )</td>
<td>( U_i = 17.5 \text{ VDC} )</td>
</tr>
<tr>
<td>( I_i^{(1)} = 185 \text{ mA} )</td>
<td>( I_i^{(1)} = 300 \text{ mA} )</td>
<td>( I_i^{(1)} = 380 \text{ mA} )</td>
</tr>
<tr>
<td>( P_i^{(1)} = 1.0 \text{ W} )</td>
<td>( P_i^{(1)} = 1.3 \text{ W} )</td>
<td>( P_i^{(1)} = 5.32 \text{ W} )</td>
</tr>
<tr>
<td>( C_i = 0 \text{ µF} )</td>
<td>( C_i = 0 \text{ µF} )</td>
<td>( C_i = 0 \text{ µF} )</td>
</tr>
<tr>
<td>( L_i = 0.97 \text{mH} )</td>
<td>( L_i &lt; 10 \text{ µH} )</td>
<td>( L_i &lt; 10 \text{ µH} )</td>
</tr>
</tbody>
</table>

1. Total for transmitter.

**ATEX FISCO**

**IA** Certification No. Baseefa05ATEX0084X
ATEX Marking
\( \text{II 1 G Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ 60 °C)} \)
\( \text{cc 0575 or 2460} \)

**Special Conditions for Safe Use (X):**

1. When fitted with 90V transient suppressors (T1 option), the equipment is not capable of passing the 500V insulation test. This must be taken into account upon installation.
2. The Rosemount Model 8800D Vortex Flowmeter when ordered with aluminum electronics housing is considered to constitute a potential risk of ignition by impact or friction. Care should be taken into account during installation and use to prevent impact or friction.

**Canadian Standards Association (CSA)**

**E6** Explosion-Proof for Class I, Division 1, Groups B, C, and D; Dust-ignition proof for Class II and Class III, Division 1, Groups E, F, and G; Class I, Zone 1, Ex d[ia] IIC; Temperature Code T6 (-50 °C ≤ Ta ≤ 70 °C); Factory Sealed; Single Seal; Enclosure Type 4X

**I6** Intrinsically safe for use in Class I, II, III Division 1, Groups A, B, C, E, F, G; Non-incendive for Class I, Division 2, Groups A, B, C and D; Temperature Code T4 (-50 °C ≤ Ta ≤ 70 °C); 4-20 mA HART; Temperature Code T4 (-50 °C ≤ Ta ≤ 60 °C); Fieldbus; Single Seal; Enclosure Type 4X

**IF** FISCO for Class I, Division 1, Groups A, B, C, and D; FNICO for Class I Division 2, Groups A, B, C, and D; Temperature Code T4 (-50 °C ≤ Ta ≤ 60 °C); When installed per Rosemount drawing 08800-0112; Single Seal; Enclosure Type 4X

**Combined Canadian Certifications (CSA)**

**K6** Combination of E6 and I6.

**Combined North America Certifications (FM and CSA)**

**KB** E5, I5, E6, and I6 Combination
N1 Certification No. Baseefa05ATEX0085X
ATEX Marking
- II 3 G Ex nA ic IIC T5 Gc (-50 °C ≤ Ta ≤ 70 °C) 4-20 mA HART
- II 3 G Ex nA ic IIC T5 Gc (-50 °C ≤ Ta ≤ 60 °C) Fieldbus
Maximum Working Voltage = 42 VDC 4-20 mA HART
Maximum Working Voltage = 32 VDC Fieldbus

Special Conditions for Safe Use (X):
1. When fitted with 90V transient suppressors (T1 Option), the equipment is not capable of passing the 500V isolation test. This must be taken into account upon installation.
2. The enclosure may be made from aluminum alloy with a protective polyurethane paint finish. The polyurethane paint finish may constitute an electrostatic hazard and must only be cleaned with a damp cloth.
3. When the equipment is installed, particular precautions must be taken to ensure, taking into account the effect of process fluid temperature, that the ambient temperature of the electrical housing of the equipment meets the marked protection type temperature range.

ATEX Flameproof Certification
EN 60079-0: 2009
EN 60079-1: 2007
EN 60079-11: 2012
EN 60079-26: 2007

E1 Certificate: KEMA99ATEX3852X
Integral Flowmeter marked:
- II 1/2 G Ex d [ia] IIC T6 Ga/Gb (-50 °C ≤ Ta ≤ 70 °C)
Remote Transmitter marked:
- II 2(1) G Ex d [ia Ga] IIC T6 Gb (-50 °C ≤ Ta ≤ 70 °C)
with meter body marked:
- II 1 G Ex ia IIC T6 Ga (-50 °C ≤ Ta ≤ 70 °C)
42 VDC Max 4-20 mA HART
32 VDC Max Fieldbus
U_m = 250V
€ 0575 or 2460

Installation instructions:
1. The cable and conduit entry devices shall be of a certified flameproof type Ex d, suitable for the conditions of use and correctly installed.
2. Unused apertures shall be closed with suitable blanking elements.
3. When the ambient temperature at the cable or conduit entries exceed 60 °C, cables suitable for at least 90 °C shall be used.
4. Remote mounted sensor; in type of protection Ex ia IIC, only to be connected to the associated Rosemount Model 88000D Vortex Flowmeter electronics. The maximum allowable length of the interconnecting cable is 152 m (500 ft).

Special Conditions for Safe Use (X):
1. For information regarding the dimensions of the flameproof joints, the manufacturer shall be contacted.
2. The Flowmeter shall be provided with special fasteners of property class A2-70 or A4-70.
3. Units marked with “Warning: Electrostatic Charging Hazard” may use non-conductive paint thicker that 0.2 mm. Precaution shall be taken to avoid ignition due to electrostatic charge on the enclosure.

Combined ATEX Certifications
K1 Combination of E1, I1, and N1.

International IECEx Certifications
Intrinsic Safety
IEC 60079-0: 2011
IEC 60079-11: 2011

I7 Certificate No. IECEx BAS 05.0028X
Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ 70 °C) 4-20 mA HART
Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ 60 °C) Fieldbus

<table>
<thead>
<tr>
<th>4-20 mA HART entity parameters</th>
<th>Fieldbus entity parameters</th>
<th>FISCO input parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>U_i = 30 VDC</td>
<td>U_i = 30 VDC</td>
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</tr>
<tr>
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<td>I_i(1) = 300 mA</td>
<td>I_i(1) = 380 mA</td>
</tr>
<tr>
<td>P_i(1) = 1.0 W</td>
<td>P_i(1) = 1.3 W</td>
<td>P_i(1) = 5.32 W</td>
</tr>
<tr>
<td>C_i = 0 μF</td>
<td>C_i = 0 μF</td>
<td>C_i = 0 μF</td>
</tr>
<tr>
<td>L_i = 0.97 mH</td>
<td>L_i &lt; 10 μH</td>
<td>L_i &lt; 10 μH</td>
</tr>
</tbody>
</table>

1. Total for transmitter.

FISCO

IG Certificate: IECEx BAS 05.0028X
Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ 60 °C)

Special Conditions for Safe Use (X):
1. When fitted with 90V transient suppressors (T1 Option), the equipment is not capable of passing the 500V isolation test. This must be taken into account upon installation.
2. The enclosure may be made from aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion when located in Zone 0 environment. The polyurethane paint finish may constitute an electrostatic hazard and must only be cleaned with a damp cloth.
3. When the equipment is installed, particular precautions must be taken to ensure, taking into account the effect of process fluid temperature, that the ambient temperature of the electrical housing of the equipment meets the marked protection type temperature range.
Type n Certification

IEC 60079-0: 2011
IEC 60079-11: 2011
IEC 60079-15: 2010

N7 Certificate No. IECEx BAS05.0029X
Ex nA ic IIC T5 Gc (-50 °C ≤ Ta ≤ 70 °C) 4-20 mA HART
Ex nA ic IIC T5 Gc (-50 °C ≤ Ta ≤ 60 °C) Fieldbus
Maximum Working Voltage = 42 VDC 4-20 mA HART
Maximum Working Voltage = 32 VDC Fieldbus

Special Conditions for Safe Use (X):
1. When fitted with 90V transient suppressors (T1 Option), the equipment is not capable of passing the 500V isolation test. This must be taken into account upon installation.
2. The enclosure may be made from aluminum alloy with a protective polyurethane paint finish. The polyurethane paint finish may constitute an electrostatic hazard and must only be cleaned with a damp cloth.
3. When the equipment is installed, particular precautions must be taken to ensure, taking into account the effect of process fluid temperature, that the ambient temperature of the electrical housing of the equipment meets the marked protection type temperature range.

Flameproof Certification

IEC 60079-0: 2007-10
IEC 60079-1: 2007-04
IEC 60079-11: 2011
IEC 60079-26: 2006

E7 Certificate: IECEx KEM 05.0017X
Integral Flowmeter marked:
Ex d [ia] IIC T6 Ga/Gb (-50 °C ≤ Ta ≤ 70 °C)
Remote Transmitter marked:
Ex d [ia Ga] IIC T6 Gb (-50 °C ≤ Ta ≤ 70 °C)
with meter body marked:
Ex ia IIC T6 Ga (-50 °C ≤ Ta ≤ 70 °C)
42 VDC Max 4-20 mA HART
32 VDC Max Fieldbus
U_m = 250V

Installation instructions:
1. The cable and conduit entry devices shall be of a certified flameproof type Ex d, suitable for the conditions of use and correctly installed.
2. Unused apertures shall be closed with suitable blanking elements.
3. When the ambient temperature at the cable or conduit entries exceed 60 °C, cables suitable for at least 90 °C shall be used.
4. The remote mounted sensor may only be connected to the transmitter with the associated cable, supplied by the manufacturer.

Special Conditions for Safe Use (X):
1. For information regarding the dimensions of the flameproof joints, the manufacturer shall be contacted.
2. The Flowmeter shall be provided with special fasteners of property class A2-70 or A4-70.
3. Units marked with “Warning: Electrostatic Charging Hazard” may use non-conductive paint thicker that 0.2 mm. Precaution shall be taken to avoid ignition due to electrostatic charge on the enclosure.

Combined IECEx Certifications

K7 Combination of E7, I7, and N7.

Chinese Certifications (NEPSI)

Flameproof Certification

GB3836.1 – 2010
GB3836.2 – 2010
GB3836.4 – 2010
GB3836.20 – 2010

E3 Certification No. GYJ12.1493X
Ex ia / d IIC T6 Ga/Gb (Integral Transmitter)
Ex d [ia Ga] IIC T6 Gb (Remote Transmitter)
Ex ia IIC T6 Ga (Remote Sensor)
Ambient temperature range: -50 °C ≤ Ta ≤ +70 °C
Process temperature range: -202 °C to +427 °C
Power Supply: 42 Vdc Max 4-20 mA HART
Power Supply: 32 Vdc Max Fieldbus
U_m = 250V

Special Conditions for Safe Use (X):
1. The maximum allowable length of the interconnecting cable between transmitter and sensor is 152 m. The cable shall also be provided by Rosemount Inc., or by Emerson Process Management Flow Technologies Co., Ltd.
2. Suitable heat-resisting cables rated at least +80 °C shall be used when the temperature around the cable entry exceeds +60 °C.
3. Dimensions of flameproof joints are other than the relevant minimum or maximum specified in Table 3 of GB3836.2-2010. Contact manufacturer for details.
4. The Flowmeter is provided with special fasteners of property class A2-70 or A4-70.
5. Any friction should be prevented in order to avoid the risk of electrostatic charge on the enclosure due to non-conductive paint.
6. The earthing terminal should be connected to the ground reliably at site.
7. Do not open when energized.
8. The cable entry holes have to be connected by means of suitable entry device or stopping plugs with type of protection of Ex d IIC Gb the cable entry device and stopping plugs are approved in accordance with GB3836.1-2010 and GB3836.2-2010, and which are covered by a separate examination certificate, any unused entry hole is to be fitted with type of protection of Ex d IIC Gb flameproof stopping plug.

9. Users are forbidden to change the configuration to ensure the explosion protection performance of the equipment. Any faults shall be settled with experts from the manufacturer.

10. Precautions shall be taken to ensure that the electronic parts are within permissible ambient temperature considering the effect of the allowed fluid temperature.


### I. S. Certification

| GB3836.1 – 2010 |
| GB3836.4 – 2010 |
| GB3836.20 – 2010 |
| GB12476.1 – 2000 |

### III

Certification No. GYJ12.1106X
Ex ia IIC T4 Ga (-60 °C ≤ T ≤ +70 °C) 4-20 mA HART
Ex ia IIC T4 Ga (-60 °C ≤ T ≤ +60 °C) Fieldbus

#### Table 21.

<table>
<thead>
<tr>
<th>20 mA HART entity parameters</th>
<th>Fieldbus entity parameters</th>
<th>FISCO input parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>U₁ = 30 VDC</td>
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<td>C₁ = 0 µF</td>
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<td>C₁ = 0 µF</td>
</tr>
<tr>
<td>L₁ = 0.97 mH</td>
<td>L₁ &lt; 10 µH</td>
<td>L₁ &lt; 10 µH</td>
</tr>
</tbody>
</table>

1. Total for transmitter.

**FISCO**

<table>
<thead>
<tr>
<th>IH</th>
<th>Certification No. GYJ12.1106X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex ia IIC T4 Ga (-60 °C ≤ T ≤ +60 °C)</td>
<td></td>
</tr>
</tbody>
</table>

### Special Conditions for Safe Use (X):

1. The maximum allowable length of the interconnecting cable between transmitter and sensor is 152 m. The cable shall also be provided by manufacturer.

2. When transient protection terminal block applied to this product, during installation, users shall comply with Clause 12.2.4 in GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous areas (other than mines)."

3. Suitable heat-resisting cables rated at least +80 °C shall be used when the temperature around the cable entry exceeds +60 °C.

4. Only be connected to the certified associated apparatus, the Vortex Flowmeter could be used in the explosive atmosphere. The connection should be complied with the requirements of the manual of the associated apparatus and the Vortex Flowmeter.

5. The enclosure should be taken to protect it from impact.

6. Any friction should be prevented in order to avoid the risk of electrostatic charge on the enclosure due to non-conductive paint.

7. The cable with shield is suitable for connection, and the shield should be connected to earth.

8. The enclosure shall be kept from the dust, but the dust shall not be blown by compressed air.

9. The cable entry holes have to be connected by means of suitable cable entry, the way of being installed shall be ensure that the equipment satisfies degree of protection IP66 according to GB4208-2008.

10. Users are forbidden to change the configuration to ensure the explosion protection performance of the equipment. Any faults shall be settled with experts from the manufacturer.

11. Precautions shall be taken to ensure that the electronic parts are within permissible ambient temperature considering the effect of the allowed fluid temperature.


### Type n Certification

GB3836.1 – 2010
GB3836.4 – 2010
GB3836.8 – 2003
N3  Certification No. GYJ12.1107X  
Ex nA ic IIC T5 Gc (-50 °C ≤ Ta ≤ +70 °C) 4-20 mA HART  
Ex nA ic IIC T5 Gc (-50 °C ≤ Ta ≤ +60 °C) Fieldbus

Special Conditions for Safe Use (X):

1. The maximum allowable length of the interconnecting cable between transmitter and sensor is 152 m. The cable shall also be provided by the manufacturer.
2. Suitable heat-resisting cables rated at least +80 °C shall be used when the temperature around the cable entry exceeds +60 °C.
3. When transient protection terminal block (The Other Option is T1) applied to this product, during installation, users shall comply with Clause 12.2.4 in GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous areas (other than mines)."
4. Any friction should be prevented in order to avoid the risk of electrostatic charge on the enclosure due to non-conductive paint.
5. Do not open when energized.
6. The cable entry holes have to be connected by means of suitable cable entry, the way of being installed shall ensure that the equipment satisfies degree of protection IP54 according to GB4208-2008.
7. Users are forbidden to change the configuration to ensure the explosion protection performance of the equipment. Any faults shall be settled with experts from the manufacturer.
8. Precautions shall be taken to ensure that the electronic parts are within permissible ambient temperature considering the effect of the allowed fluid temperature.

Combined Chinese Certifications (NEPSI)

K3  Combination of E3, I3, and N3.

Brazilian Certifications (INMETRO)

I. S. Certification

ABNT NBR IEC 60079-0: 2013  
ABNT NBR IEC 60079-11: 2009  
ABNT NBR IEC 60079-26: 2008 and 2009 correction  
ABNT NBR IEC 60079-27: 2010

I2  Certification Number: NCC 11.0699 X  
Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ + 70 °C) 4-20 mA HART  
Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ + 60 °C) Fieldbus

IB  Certification Number: NCC 11.0699 X  
Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ + 60 °C)

Special Conditions for Safe Use (X):

1. When fitted with 90V transient suppressors, the equipment is not capable of passing the 500V insulation test. This must be taken into account upon installation.
2. The enclosure may be made from aluminum alloy with a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion when located in Zone 0. The polyurethane paint finish may constitute an electrostatic hazard and must only be cleaned with a damp cloth.
3. When the equipment is installed, particular precautions must be taken to ensure, taking into account the effect of process fluid temperature, that the ambient temperature of the electrical housing of the equipment meets the marked protection type temperature range.

Flameproof Certification

ABNT NBR IEC 60079-0: 2013  
ABNT NBR IEC 60079-1: 2009 and 2011 correction  
ABNT NBR IEC 60079-11: 2009  
ABNT NBR IEC 60079-26: 2008 and 2009 correction

E2  Certification Number: NCC 11.0622 X  
Ex d [ia] IIC T6 Ga/Gb (Integral Transmitter)  
Ex d [ia Ga] IIC T6 Gb (Remote Transmitter)  
Ex ia IIC T6 Gb (Remote Sensor)  
Ambient temperature range: -50 °C ≤ Ta ≤ +70 °C  
Process temperature range: -202 °C to +427 °C  
Power Supply: 42 Vdc Max 4-20 mA HART  
Power Supply: 32 Vdc Max Fieldbus  
Transmitter Um = 250 V

Remote mounted sensor

In type of protection Ex ia IIC, only to be connected to the associated Rosemount Model 8800D Vortex Flowmeter electronics. The maximum length of the interconnecting cable is 152 m (500 ft).
Special Conditions for Safe Use (X):

1. For information regarding the dimensions of the flameproof joints, the manufacturer shall be contacted.
2. The Flowmeter is provided with special fasteners of property class A2-70 of A4-70.
3. Units marked with “Warning: Electrostatic Charging Hazard” may use non-conductive paint thicker than 0.2 mm. Precautions shall be taken to avoid ignition due to electrostatic charge of the enclosure.

Combined Brazilian Certifications (INMETRO)

K2 Combination of E2 and I2.

EurAsian Conformity (EAC)

This section addresses compliance with the requirements of technical regulations of the Customs Union.

- TR CU 020/2011—Electromagnetic compatibility of technical means
- TR CU 032/2013—On the safety of equipment operating under excessive pressure
- TR CU 012/2011—About the safety of equipment for use in potentially explosive atmospheres


E8 Type of protection flameproof enclosure «d» with intrinsically safe flow sensor

Ex marking of the integral installation:
Ga/Gb Ex d [ia] IIC T6 X (-50°C ≤ Ta ≤ 70°C)

Ex marking of the remote installation:
Electronics module:
1Ex d [ia Ga] IIC T6 Gb X (-50°C ≤ Ta ≤ 70°C)

Flow sensor:
0Ex ia IIC T6 Ga X (-50°C ≤ Ta ≤ 70°C)

Electrical parameters:
Maximum DC supply voltage (with output signal 4-20 mA HART/pulse) 42 V;
Maximum DC supply voltage (with output signal Foundation Fieldbus and FISCO) 32 V

Special conditions for safe use (X):

1. For flowmeters with Ex marking 0Ex ia IIC T6 Ga X, Ga / Gb Ex d [ia] IIC T6 X and transmitter with Ex marking 1Ex d [ia Ga] IIC T6 Gb X cabling in explosive area must be conducted according to requirements of IEC 60079-14-2011. Sheath cables must be designed for a maximum ambient temperature.
2. Remote installation should be made only with special coaxial cable provided by the manufacturer of flowmeters.
3. When the equipment is installed, particular precautions must be taken to ensure, taking into account the effect of process fluid temperature, that the ambient temperature of the electrical housing of the equipment meets the marked protection type temperature range.
4. Precautions shall be taken to avoid ignition due to electrostatic charge on the enclosure.

I8, G8 Type of protection "intrinsically safe circuit" level «ia»

Ex marking:
0Ex ia IIC T4 Ga X

Ambient temperature range:
(I8) Flowmeters with pulse output signals, 4-20 mA /HART (-60°C ≤ Ta ≤ 70°C)
Flowmeters with output Fieldbus (I8) and FISCO (G8) (-60°C ≤ Ta ≤ 60°C)

Individual intrinsically safe parameters:

<table>
<thead>
<tr>
<th>Intrinsically safe parameters</th>
<th>Output signal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-20mA/HART</td>
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<tr>
<td></td>
<td>Pulse</td>
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<td>Foundation</td>
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<td>Fieldbus</td>
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<td>FISCO</td>
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<td>Li, uH</td>
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<tr>
<td>Ci, nF</td>
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</tbody>
</table>

1. Applicable values Ui, li are limited by the maximum input power Pi. It is not allowed to apply max values of Ui, li at the same time.

Special conditions for safe use (X):

1. Power supply of flowmeters with Ex marking 0Ex ia IIC T4 Ga X must be implemented through intrinsically safe barriers having certificate of conformity for appropriate subgroups of electrical equipment.
2. Inductance and capacitance of intrinsically safe circuits of flowmeters with Ex marking 0Ex ia IIC T4 Ga X, with given parameters connecting cables must not exceed maximum values shown on the intrinsically safe barrier from the side of explosive zone.
3. When the equipment is installed, particular precautions must be taken to ensure, taking into account the effect of process fluid temperature, that the ambient temperature of the electrical housing of the equipment meets the marked protection type temperature range.

4. When fitted with the 90V transient suppressors, the equipment is not capable of passing the 500V insulation test. This must be taken into account upon installation.

5. The enclosure may be made from aluminium alloy with a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion when located in Zone 0.

N8  Type of protection «n» and "intrinsically safe" level «ic»

Ex marking:

2Ex nA ic IIC T5 Gc X (-50°C ≤ T_a ≤ 70°C)

Electrical parameters:

The maximum DC voltage (with output 4-20 mA HART/pulse) 42V;

Maximum supply DC voltage (with output signal Foundation Fieldbus and FISCO) 32V

Special conditions for safe use (X):

- When the equipment is installed, particular precautions must be taken to ensure, taking into account the effect of process fluid temperature, that the ambient temperature of the electrical housing of the equipment meets the marked protection type temperature range;

- When fitted with the 90V transient suppressors, the equipment is not capable of passing the 500V insulation test. This must be taken into account upon installation;

- Precautions shall be taken to avoid ignition due to electrostatic charge on the enclosure.

K8  Combination of E8, I8, N8
Dimensional Drawings

Figure 2. Flanged-Style Flowmeter (1/2- through 12-in./15 mm through 300 mm Line Sizes)

Dimensions are in inches (millimeters).

A. Display option
B. Terminal cover

Diagram illustrated without MTA option

Diagram illustrated with MTA option

Dimensions are in inches (millimeters).
Table 22. Flanged-Style Flowmeter (1/2- through 2-in./15 mm through 50 mm Line Sizes)

<table>
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<th>Nominal size inch (mm)</th>
<th>Flange rating</th>
<th>Face-to-face A inch (mm)</th>
<th>A-ANSI RTJ inch (mm)</th>
<th>Diameter B inch (mm)</th>
<th>Dimension C inch (mm)</th>
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Table 24. Flanged-Style Flowmeter (8- through 12-in./200 mm through 300 mm Line Sizes) (Refer to **Figure 2.**)

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<th>Flange rating</th>
<th>Face-to-face A inch (mm)</th>
<th>A ANSI RTJ inch (mm)</th>
<th>Diameter B inch (mm)</th>
<th>Dimension C inch (mm)</th>
<th>Weight lb (kg)</th>
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Figure 3. Rosemount 8800DR Reducer Flowmeter (1- through 12-in./25 mm through 300 mm Line Sizes)

Dimensions are in inches (millimeters).

A. Display option
B. Terminal cover

Diagram illustrated without MTA option

Diagram illustrated with MTA option

Dimensions are in inches (millimeters).
Table 25. Reducer Flowmeter (1- through 3-in./25 mm through 80 mm Line Sizes)

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<th>Flange rating</th>
<th>Face-to-face A inch (mm)</th>
<th>A-ANSI RTJ inch (mm)</th>
<th>Diameter B inch (mm)</th>
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<td>11.7 (297)</td>
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<td></td>
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<td>211.79 (96.07)</td>
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<td>262.45 (119.05)</td>
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<td>9.56 (242,8)</td>
<td>12.8 (325)</td>
<td>349.92 (158.72)</td>
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Table 26. Reducer Flowmeter (4- through 12-in./100 mm –300 mm Line Sizes) (Refer to Figure 3.)

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<th>Nominal size inch (mm)</th>
<th>Flange rating</th>
<th>Face-to-face A inch (mm)</th>
<th>A ANSI RTJ inch (mm)</th>
<th>Diameter B inch (mm)</th>
<th>Dimension C inch (mm)</th>
<th>Weight lb (kg)</th>
</tr>
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<td>9.56 (242.8)</td>
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<td>672.07 (304,85)</td>
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</table>

Figure 4. Wafer-Style (1/2- through 8-in./15 mm through 200 mm Line Sizes)

Dimensions are in inches (millimeters).
Electronics housing may be rotated in 90 degree increments.

Table 27. Rosemount 8800D Wafer-Style Meter

<table>
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<tr>
<th>Nominal size inch (mm)</th>
<th>Face-to-face A inch (mm)</th>
<th>Diameter B inch (mm)</th>
<th>Dimension C inch (mm)</th>
<th>Dimension E inch (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 (15)</td>
<td>2.56 (65)</td>
<td>0.52 (13,2)</td>
<td>7.63 (194)</td>
<td>0.17 (4,3)</td>
<td>6.8 (3,1)</td>
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<tr>
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<td>2.56 (65)</td>
<td>0.95 (24,1)</td>
<td>7.74 (197)</td>
<td>0.23 (5,9)</td>
<td>7.4 (3,4)</td>
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<tr>
<td>11/2 (40)</td>
<td>2.56 (65)</td>
<td>1.49 (37,8)</td>
<td>8.14 (207)</td>
<td>0.18 (4,6)</td>
<td>10.0 (4,5)</td>
</tr>
<tr>
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<td>2.56 (65)</td>
<td>1.92 (49)</td>
<td>8.85 (225)</td>
<td>0.12 (3)</td>
<td>10.6 (4,8)</td>
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<tr>
<td>3 (80)</td>
<td>2.56 (65)</td>
<td>2.87 (73)</td>
<td>9.62 (244)</td>
<td>0.25 (6)</td>
<td>13.6 (6,2)</td>
</tr>
<tr>
<td>4 (100)</td>
<td>3.42 (87)</td>
<td>3.79 (96)</td>
<td>10.48 (266)</td>
<td>0.44 (11)</td>
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<tr>
<td>6 (150)</td>
<td>5.00 (127)</td>
<td>5.70 (145)</td>
<td>10.29 (261)</td>
<td>0.30 (7,6)</td>
<td>36 (16)</td>
</tr>
<tr>
<td>8 (200)</td>
<td>6.60 (168)</td>
<td>7.55 (192)</td>
<td>11.22 (285)</td>
<td>0.70 (17,8)</td>
<td>62 (28)</td>
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</tbody>
</table>

1. Add 0.2 lb (0.1 kg) for display option.
Figure 5. Vortex Dual-Sensor Style Flowmeter (1/2- through 4-in. /15 mm through 100 mm Line Sizes)

A. Display option
B. Terminal cover
C. Electrical connection

Dimensions are in inches (millimeters).

Figure 6. Vortex Dual-Sensor Style Flowmeter (6- through 12-in./150 mm through 300 mm Line Sizes)

Dimensions are in inches (millimeters).
<table>
<thead>
<tr>
<th>Nominal size inch (mm)</th>
<th>Flange rating</th>
<th>Face-to-face A ANSI RTJ inch (mm)</th>
<th>A ANSI RTJ inch (mm)</th>
<th>Diameter B inch (mm)</th>
<th>Dimension C inch (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
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<td>1/2 (15)</td>
<td>Class 150</td>
<td>11.9 (302)</td>
<td>N/A</td>
<td>0.54 (13.7)</td>
<td>7.6 (193)</td>
<td>16.2 (7.4)</td>
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<tr>
<td></td>
<td>Class 300</td>
<td>12.3 (312)</td>
<td>12.7 (323)</td>
<td>0.54 (13.7)</td>
<td>7.6 (193)</td>
<td>17.4 (7.9)</td>
</tr>
<tr>
<td></td>
<td>Class 600</td>
<td>12.8 (325)</td>
<td>13.4 (340)</td>
<td>0.54 (13.7)</td>
<td>7.6 (193)</td>
<td>17.9 (8.1)</td>
</tr>
<tr>
<td></td>
<td>Class 900</td>
<td>13.4 (340)</td>
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<td>7.6 (193)</td>
<td>22.7 (10.3)</td>
</tr>
<tr>
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<td>7.6 (193)</td>
<td>17.4 (7.9)</td>
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<td>7.6 (193)</td>
<td>19.4 (8.8)</td>
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<td>7.6 (193)</td>
<td>17.3 (7.8)</td>
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<td>7.6 (193)</td>
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<td>15.6 (396)</td>
<td>0.95 (24.1)</td>
<td>7.7 (196)</td>
<td>20.7 (9.4)</td>
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<td>16.1 (409)</td>
<td>0.95 (24.1)</td>
<td>7.7 (196)</td>
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<td>16.1 (409)</td>
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<td>16.9 (429)</td>
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<td>9.1 (231)</td>
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<table>
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<th>Face-to-face A (inch)</th>
<th>A ANSI RTJ (inch)</th>
<th>Diameter B (inch)</th>
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<th>Weight (lb)</th>
</tr>
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<td>9.6 (244)</td>
<td>58.7 (26.6)</td>
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<td>97.2 (44.1)</td>
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<td>9.6 (244)</td>
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<td>N/A</td>
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<td>10.8 (274)</td>
<td>85 (39)</td>
</tr>
<tr>
<td></td>
<td>Class 300</td>
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<td>13.0 (330)</td>
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<td>10.8 (274)</td>
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<td>14.4 (366)</td>
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<td>16.1 (409)</td>
<td>16.2 (411)</td>
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<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
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<td>10.8 (274)</td>
<td>170 (77)</td>
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### Table 29. Vortex Dual-Sensor Style Flowmeter (4- through 12-in./100 mm through 300 mm Line Sizes)

<table>
<thead>
<tr>
<th>Nominal size inch (mm)</th>
<th>Flange rating</th>
<th>Face-to-face A inch (mm)</th>
<th>A ANSI RTJ inch (mm)</th>
<th>Diameter B inch (mm)</th>
<th>Dimension C inch (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 (200)</td>
<td>Class 150</td>
<td>13.5 (343)</td>
<td>14.0 (356)</td>
<td>7.55 (191,8)</td>
<td>11.7 (297)</td>
<td>146 (66)</td>
</tr>
<tr>
<td></td>
<td>Class 300</td>
<td>14.3 (363)</td>
<td>14.9 (378)</td>
<td>7.55 (191,8)</td>
<td>11.7 (297)</td>
<td>203 (92)</td>
</tr>
<tr>
<td></td>
<td>Class 600</td>
<td>16.5 (419)</td>
<td>16.7 (424)</td>
<td>7.55 (191,8)</td>
<td>11.7 (297)</td>
<td>303 (138)</td>
</tr>
<tr>
<td></td>
<td>Class 900</td>
<td>18.8 (478)</td>
<td>18.9 (480)</td>
<td>6.62 (168,1)</td>
<td>11.7 (297)</td>
<td>483 (220)</td>
</tr>
<tr>
<td></td>
<td>Class 1500</td>
<td>22.8 (580)</td>
<td>23.2 (589)</td>
<td>6.62 (168,1)</td>
<td>11.7 (297)</td>
<td>657 (299)</td>
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<tr>
<td></td>
<td>PN 10</td>
<td>10.4 (264)</td>
<td>N/A</td>
<td>7.55 (191,8)</td>
<td>11.7 (297)</td>
<td>115 (52)</td>
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<td>11.7 (297)</td>
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<td>7.55 (191,8)</td>
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<tr>
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<td>15.0 (381)</td>
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<td>18.7 (475)</td>
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<td>N/A</td>
<td>11.38 (289)</td>
<td>13.7 (348)</td>
<td>498 (226)</td>
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</table>
Figure 7. Vortex Weld-End Style Flowmeter (1/2- through 4-in. [15 mm – 100 mm] Line Sizes)

A. Display option
B. Terminal cover
C. Electrical connection

Table 30. Vortex Weld-End Style Flowmeter (1/2- through 4-in. [15 mm - 100 mm] Line Sizes)

<table>
<thead>
<tr>
<th>Nominal size in. (mm)</th>
<th>Dimension A in. (mm)</th>
<th>Dimension B in. (mm)</th>
<th>Dimension C ± 0.20 in. (5.1 mm)</th>
<th>Diameter D ± 0.031 in. (0.79 mm)</th>
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</thead>
<tbody>
<tr>
<td>0.5</td>
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<td>8.0 (203)</td>
<td>7.63 (194)</td>
<td>.840 (21.34)</td>
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<td>8.0 (203)</td>
<td>7.74 (197)</td>
<td>1.315 (33.40)</td>
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<td>16.0 (406)</td>
<td>8.0 (203)</td>
<td>8.14 (207)</td>
<td>1.900 (48.26)</td>
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<tr>
<td>2</td>
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<td>8.0 (203)</td>
<td>8.49 (216)</td>
<td>2.375 (60.33)</td>
</tr>
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<td>8.0 (203)</td>
<td>9.05 (230)</td>
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<td>16.0 (406)</td>
<td>8.0 (203)</td>
<td>9.60 (244)</td>
<td>4.500 (114.30)</td>
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</table>
Figure 8. Remote Mount Transmitters

A. Display option
B. Terminal cover

C. 1/2-14 NPT (for remote cable conduit)

Note:
Consult factory for SST installation.
Dimensions are in inches (millimeters).

Figure 9. Remote Mount Wafer-Style Flowmeters (1/2- through 8-in./15 mm through 200 mm Line Sizes)

Table 31. Rosemount 8800D Wafer-Style Meter

<table>
<thead>
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<th>Nominal size inch (mm)</th>
<th>E Wafer style inch (mm)</th>
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<tbody>
<tr>
<td>1/2 (15)</td>
<td>6.3 (160)</td>
</tr>
<tr>
<td>1 (25)</td>
<td>6.5 (165)</td>
</tr>
<tr>
<td>1 1/2 (40)</td>
<td>6.7 (191)</td>
</tr>
<tr>
<td>2 (50)</td>
<td>7.5 (191)</td>
</tr>
<tr>
<td>3 (80)</td>
<td>8.3 (211)</td>
</tr>
<tr>
<td>4 (100)</td>
<td>9.2 (234)</td>
</tr>
<tr>
<td>6 (150)</td>
<td>9.5 (241)</td>
</tr>
<tr>
<td>8 (200)</td>
<td>10.4 (264)</td>
</tr>
</tbody>
</table>

A. 1/2-14 NPT (for Remote Cable Conduit)
Figure 10. Flanged-and Dual Sensor Flanged-Style Remote Mount Flowmeters (1/2- through 12-inch/15 mm through 300 mm Line Sizes)

Flanged flowmeter

Dual-sensor style flowmeter

A. 1/2-14 NPT (for Remote Cable Conduit)

Table 32. Remote Mount, Flanged-and Dual Sensor Flowmeter Dimensions

<table>
<thead>
<tr>
<th>Nominal size inch (mm)</th>
<th>E Flange style inch (mm)</th>
</tr>
</thead>
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<tr>
<td>1/2 (15)</td>
<td>6.4 (162)</td>
</tr>
<tr>
<td>1 (25)</td>
<td>6.5 (165)</td>
</tr>
<tr>
<td>11/2 (40)</td>
<td>6.8 (173)</td>
</tr>
<tr>
<td>2 (50)</td>
<td>7.2 (183)</td>
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<tr>
<td>3 (80)</td>
<td>7.8 (198)</td>
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<tr>
<td>4 (100)</td>
<td>8.3 (211)</td>
</tr>
<tr>
<td>6 (150)</td>
<td>9.5 (241)</td>
</tr>
<tr>
<td>8 (200)</td>
<td>10.4 (264)</td>
</tr>
<tr>
<td>10 (250)</td>
<td>11.4 (290)</td>
</tr>
<tr>
<td>12 (300)</td>
<td>12.3 (313)</td>
</tr>
</tbody>
</table>
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