RHEOTHERM®
FLOW INSTRUMENTS

Duct Flow Meters for Air and Process Gas

- Accurate mass flow
- No moving parts
- Wide rangeability
- Maintenance-free
- Easy installation

Rheotherm mass flow sensing insertion probes for air and most other non-condensing gases, including corrosive and explosive gases, are easy to install and provide long-term service with little or no maintenance.

Common uses include vent air, stack gas, and digester gas. The output units can be in mass flow, standard volumetric flow, or velocity. Options for hazardous (classified) locations are available. The stainless steel construction and lack of moving parts make it ideal for rugged industrial environments.

Thermal Mass Method
Our insertion flow sensors have two stainless steel flow sensing tips welded to the probe shaft. One tip has a heated RTD in it and the other an unheated RTD. The temperature differential between the two RTDs provides the primary flow signal: at high flow rates the differential is lower as flow removes more heat, and at low flow rates the differential is higher, as flow removes less heat. Nothing touches the gas but the metal probe and tips.

Process Connection
Installed through the pipe or duct wall, connections can be made with NPT, flange, bore-through compression, or sanitary fittings. The probes can be installed in horizontal or vertical pipes. Electronics with optional display may be integral to the sensor or remotely mounted up to 200 feet from the sensor.

Turndown Ratio
Typical calibration ranges are 10:1 (options up to 200:1). Over-ranging cannot damage the sensors.
### General Specifications

**Applications**  
Air ducts and process gas pipes

**Line Size**  
1” to 36” diameter

**Calibration Units**  
Mass, standard volume or standard velocity

**Flow Rate Range**  
50 to 25,000 ft/min

**Temperature Limits**  
(Specify requirements)  
Sensor: Standard: 0 to 212°F (-18 to 100°C)  
Optional: -40 to 500°F (-40 to 260°C)  
Electronics: 0 to 120°F (-18 to 49°C)

**Pressure Limits**  
Varies with process connection rating

**Repeatability**  
± 0.5% of reading

**Calibration Accuracy**  
± 2% of reading typical

**FM Options for Hazardous Locations**  
See Product Summary # FM for approved classes, divisions and groups

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**What if there is little or no straight run available?**

### Rheovec™ Sensor Heads

The turbulence and swirling of air and gas in short-run and curved ducts create accuracy problems for ordinary flow sensors due to fluctuating velocities. The Rheovec™ sensor head, with its unique honeycomb structure around the probe tips, eliminates off-axis error, enabling highly repeatable true mass flow rate measurement. See Product Summary #VEC-1 for further information.

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