



NRG GLOBAL

Manufacturer of :
Flow, Level, Pressure and
Temperature Instruments

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METALTUBE(MAGNETIC) ROTAMETER



1. Product Description

Metal Variable Area Type Flow Meter are designed to measure flow rate of liquids and gases under critical conditions. It consists of a tapered metal tube, an indicating assembly and float. A magnet encapsulated in float couples with rotating magnets are connected to an indicating pointer. Henceforth, the movement of the float is accurately indicated in terms of flowrate.

They are intended for application where high pressure, temperature or corrosive conditions preclude the use of conventional glass tube. These are all Metal Variable Area Type Flow meter design to measure flow rate of Liquids & Gases under critical conditions. It consists of a tapered metal tube, an indicating assembly and a float. A magnet encapsulates in float couples with rotating magnets connected to an indicating pointer, thus the movement of the float, is accurately indicated in terms of flow rate.

2. Working Principle

When fluid or gas flows through a taper tube containing a float, a pressure difference of P1 and P2 is created between upper and lower side of the float. The float moves upwards by a force obtained by multiplying the pressure differential by the maximum cross-sectional area of the float.

Based on Bernoulli's theorem, the principle mentioned above can be theoretically expressed as follows. Due to taper tube, as the float moves upwards, the fluid passing area increases as a result of which the differential pressure decreases. Upward movement of float stops when the dead load is dynamically balanced by the differential pressure. Tapering of metering tube is so designed that the vertical movement of the float becomes linearly proportional to the rate of flow and the scale is provided to read the position of the float, thus giving birth to flow rate indication.

3. Specifications

Accuracy : $\pm 2\%$ of FSD

Rangeability : 10:1

Repeatability : $\pm 0.5\%$

Temperature Rating : -200 to 250°C

Pressure Rating : 40 Bar

Flow Direction : Bottom to Top

Connections : Flanged, TC End and Screwed

Enclosure : IP 65 Weatherproof

4. Design features

1. Simplified piping and reduced space requirements
2. Permanent magnetic link between metering float and motion position transmitter
3. Precision swaged metering tube
4. Guide cartridges easily removable for cleaning
5. Provide with Electrical transmitter, flow indicator or alarm
6. Available F/F Height in 350, 450, 500 mm
7. Available Flange size 15 NB to 150 NB & Flow 200 LPH to 50,000 LPH

5. Material of Construction

Tube : SS.316, SS.316L, SS.304, SS with PTFE lined, Poly Propylene

Float : SS.316, SS.316L, SS.304, PTFE, Poly Propylene

Indicator Box : Cast Aluminium, SS

End Fitting : SS.316, SS.316L, SS.304, SS with PTFE lined, Poly Propylene

6. Applications

1. Basic liquid, gas or oil flow measurement
2. Rotating equipment flow measurement
3. High-pressure flow meters for offshore oil platforms
4. Chemical injection
5. Purge liquid or gas metering

Metal Tube Rotameter

Digital Meter

The Digital Metal Tube Rotameter is used for flow measurement where current output with totaliser is required. Metal Tube Rotameters are rugged, versatile and accurate variable area (VA) flow meter offering 2.0% full scale accuracy.

The inner float magnetic field is detected by the highly sensitive magnetic field detection sensor, enable us to show the digital readout. As such this flow meter does not require any electrical connection, since it operates on battery. It has an inbuilt two wire transmitter provide 24 V DC and take 4 - 20 mA output signal.