

FLOW METERS • VARIABLE AREA

Metal Tube Float (Rotor) Flowmeter

II-FM-001

Variable area



Variable-area flow measurement for almost any liquid or gas, including low flow and high-temperature media.

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ISSUED

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Metal Tube Float (Rotor) Flowmeter

Indiana catalogue ID **II-FM-001** Flow Meters

Variable-area flow measurement for almost any liquid or gas, including low flow and high-temperature media.

SIZES	WATER RANGE	ACCURACY CLASS
DN10 – DN200	1 – 200,000 L/h	1.5 (1.0 special)

01 Overview

A variable-area flowmeter built from a sensor and an indicator. The sensor carries the flange, measuring tube, cone tube or orifice plate, float and guides; the indicator carries the magnetic coupling system, remote transmission system, display panel, pointer and housing. Small in size with a wide measuring range, it suits low flow rates and high temperature or high pressure media.

WHAT IDENTIFIES IT

- Remote-transmission type with upper and lower limit alarms that can be set and changed freely
- LCD shows instantaneous flow, cumulative flow and a percentage bar at the same time, with an always-on backlight
- Supports standard HART protocol software and hand-held communicators
- Data storage, backup and recovery, with restore to factory state at any time
- Multiple installation forms and connection modes for different working conditions

02 Views



PRIMARY VIEW Metal tube float flowmeters in vertical and horizontal flanged configurations with local indicators
Product photograph



ALTERNATE VIEW Metal tube float flowmeter with flanged connections and local indicator
Product photograph



APPLICATION Gate valves and flanged pipework in a pumping station
— illustrative environment, not an installation of this product
Illustrative scene

03 Principal data

RANGE AND SIZING

Standard diameters	DN15, DN25, DN50, DN80, DN100, DN150
Non-standard diameters	DN10, DN20, DN32, DN40, DN65, DN125, DN200
Measurement range — water	1 to 200,000 L/h
Measurement range — air	0.03 to 3,000 m ³ /h at 20 °C, 0.1013 MPa
Turndown ratio	10:1; 20:1 for the special type
Accuracy class	1.5; 1.0 for the special type

The full set of stated values, variants and open points is in the specification document for this product.

04 Operating principle

1. 01 As fluid flows through the measuring tube the thrust on the float rises. When the float's own weight balances the buoyancy and thrust of the fluid, the float hovers at a position in the tube.
2. 02 Greater flow means greater thrust, so the float moves further and the gap between the float and the cone tube or orifice plate widens, allowing more flow to pass — which is what makes this a variable-area flowmeter.
3. 03 A magnet embedded in the float couples to the magnetic system in the indicator, so float movement drives the pointer. A magnetic sensor detects the displacement and converts it to an electrical signal; the circuit board then displays instantaneous and cumulative flow.

05 Applications and industries

APPLICATIONS

- Low flow rate and small flow measurement
- High temperature and high pressure media
- Liquid and gas flow across process lines
- Hygienic service with tri-clamp or SMS connections

INDUSTRIES

- Petroleum
- Chemical
- Steel and metallurgy
- Pharmaceutical water production
- Environmental protection

TO QUOTE THIS WE NEED

- Line size and connection standard
- Medium — liquid or gas — with density and viscosity
- Flow range required, minimum and maximum
- Operating pressure and temperature
- Structural style — bottom-in top-out, side-in side-out, and so on
- Measuring tube material
- Indicator type and hazardous-area requirement
- Alarm contacts required
- Supply voltage — 24 V DC, 220 V AC or lithium battery

CONFIRM BEFORE ORDERING

- Pressure loss values and float selection should be confirmed against the actual medium, density and viscosity before ordering.

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QUOTATION

List the product, ID and quantity; add process conditions. We reply with a quotation.

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