

# METAL TUBE ROTAMETER

**FDI - MTR - 201**



# INTRODUCTION

The flow rate is indicated on a scale with a needle that is coupled to the rotating float using a magnet. Using potentiometer circuitry, the meter can output 4-20mA signal for flow rate, which can in turn be used to display the instant flow rate and the totalized flow on a digital LCD and output pulse signal for the accumulated flow. It can also output alarm contact signal for low and/or high set points for flow controlling processes.

Various materials can be used for wetted parts. So, the meter can handle almost all liquids and gases that are highly corrosive. Also, the meter can be used for hazardous areas using Ex-Proof enclosure option.

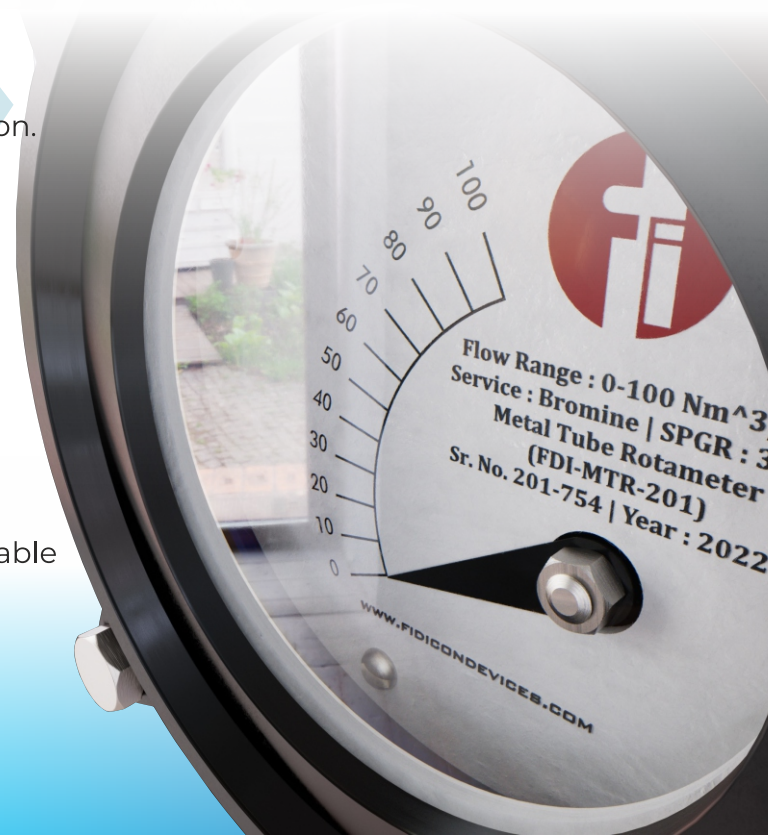
## Operation Principle

Variable-area flow meters, often called rotameters, consist essentially of a tapered tube, a float and scaled indicator as you see in the figure below. Although classified as differential pressure units, they are, in reality, constant differential pressure devices. Flanged-end or screwed-end fittings provide an easy means for installing them in pipes. When there is no flow, the float rests freely at the bottom of the tube. As the fluid enters the bottom of the tube, the float begins to rise. The float material is selected so as to have a density higher than that of the fluid and the position of the float varies directly with the flow rate. Its exact position is at the point where the differential pressure between the upper and the lower surfaces balance the weight of the float.

Because the flow rate can be read directly on a scale mounted next to the tube, no secondary flow-reading devices are necessary. However, if desired, automatic sensing devices can be used to sense the float's level and transmit a flow signal. Rotameter tubes are manufactured from glass, metal, or plastic. Tube diameters vary from 1/4 to greater than 6 in.

## Features

- ✱ Compact & long terms reliability.
- ✱ Rugged & corrosive environmental construction.
- ✱ Custom built construction, ranges & process connection.
- ✱ Individual calibration for high accuracy.
- ✱ Application for high pressure, temperature & opaque liquid.
- ✱ Simple mechanism & thus maintenance free.
- ✱ Easy to clean-no calibration disturb.
- ✱ 2 wire linear transmitting output.
- ✱ Digital flow indicator totalizer unit with adjustable alarm set point.



# INTRODUCTION



Metal Tube Rotameter is a Variable Area Flow Meter. It consists of a tapered tube, typically made of steel with a 'float', made of SS or PTFE. The differential pressure across the annulus area is constant. The float moves through the tapered tube up and down with respect to fluid flow. The vertical position of the float as indicated by scale is the measure of the instantaneous flow rate.

A Metal tube rotameter is a type of flowmeter used to measure the flow rate of a fluid in a pipeline. It consists of a vertically mounted metal tube, with a float inside that is free to move up and down. The float is often shaped like a cylinder or a cone and is made of a lightweight material such as aluminum or plastic.

As fluid flows through the metal tube, the buoyancy of the float causes it to rise or fall. The position of the float within the metal tube is directly proportional to the flow rate of the fluid. The metal tube is marked with graduated scales that allow the flow rate to be easily read.

Metal tube rotameters are commonly used in industrial applications where a simple, low-cost flow measurement solution is required. They are particularly useful in applications where the fluid is not very viscous and has a relatively low pressure drop. The metal tube construction provides a rugged, durable design, making them suitable for use in harsh industrial environments.

It's based on simple and easy-to-understand flow measuring principle but is versatile in the types of fluid it can measure and site conditions, under which it can be installed. The meter is manufactured to the user's application specifications. So, there's no configuration or calculation required at the time of installation or operation. So, it's simple to install and operate.

FIDICON is a pioneer in the field of manufacturing Rotameter in India since 2002 years of designing, manufacturing, installation and service of the same. Metal Tube Rotameter manufactured by FIDICON are user friendly and easy to install. It comes in many ranges and can be tailor made as per the requirements of customers.

# METAL TUBE ROTAMETER

## Application

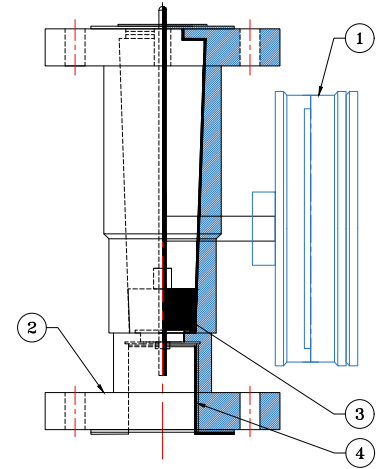
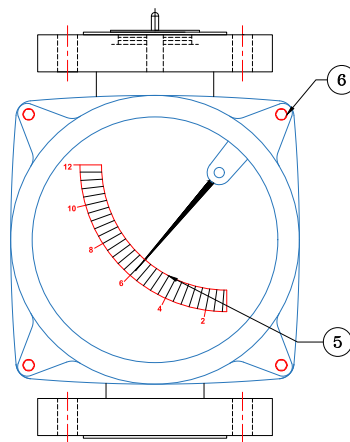
- ✦ Hot and cold water as well as air flow measurement in air conditioning
- ✦ Medium and large line measurement in general process industry
- ✦ Cooling water lines
- ✦ Water treatment process
- ✦ Pure and ultra-pure water production facilities
- ✦ Testing of fire fighting pumps
- ✦ Testing of blowers
- ✦ many application where accurate flow measurement required in process & engineering industries.

## Accessories

- ✦ Flow Switch (Proximity Single Point)
- ✦ Flow Switch (Proximity Double Point)
- ✦ Flow Setting Valves
- ✦ Transmitter
- ✦ Transmitter Ex-Proof For IIA, IIB, IIC

## Specification

Size	15NB TO 150NB
Connection	THREADED, FLANGED (ANSI/ASA/ASME B16.5/PN/NPT)
Materials	SS 316, SS 304, PTFE, SS BUFFED, MS POWDER COATED, LM6 WEATHERPROOF IP-65, SS 316TI, HASTELLOY C, ALUMINIUM, RUBBER, NEOPRENE RUBBER, METALLIC SPIRAL WOUND, CAF, FEP and other as per customer requirement.
Flow Range	100 to 100,000 LPH of water at ambient temp. 30 to 7000 NM/Hr off air at NPT
Metal Tube Rotameter Accessories	Steam jacketing
	High & low flow alarms
	Digital Indicator,
Totaliser	



1. BODY/ENCLOSURE
2. FLANGE
3. FLOAT
4. LINING
5. SCALE
6. FASTENERS

NB	Class Size	With PTFE Float LPH	With SS 316 Float LPH	Max. Pressure Drop MMWC	Test Press. Kg/cm <sup>2</sup>
15	PM 1	-	2.5-25	1000	20
	PM 2	2.5-25	4-40		
	PM 3	4-40	6.5-65		
	PM 4	6.5-65	10-100		
	PM 5	10-100	16-160		
	PM 6	16-160	25-250		
	PM 7	25-250	40-400		
	PM 8	40-400	63-630		
25	PM 9	63-630	100-1000	1000	20
	PM 10	100-1000	160-1600		
	PM 11	160-1600	250-2500		
	PM 12	250-2500	400-4000		
50	PM 13	400-4000	630-6300	1200	20
	PM 14	630-6300	1000-10000		
	PM 15	1000-10000	1600-16000		
80	PM 16	1600-16000	2500-25000	1500	20
	PM 17	2500-25000	4000-40000		
100	PM 18	4000-40000	6300-63000	1500	20

## Recommended Disposal

- ✦ Give it back to us & we will take care of recycling & possible disposal.
- ✦ User can dis-assemble the product in multiple stage
- ✦ The above may be handed over (state pollution board), authorized re-cycler item-wise.



## ENQUIRY SPECIFICATIONS:

- [1] Service Media Details.
- [2] Size/Connection
- [3] System Operating and Design Pressure.
- [4] System Operating and Design Temperature.
- [5] Material Specifications ( Body, Internal )

## RECOMMENDED SPARES

- [1] Glass Tube
- [2] Float
- [3] Bush U-Seal

## OTHER RANGE OF PRODUCTS

- [1] Flame Arrester
- [2] Breather Valve
- [3] Level Indicators
- [4] Rotameters
- [5] Emergency Relief Valve
- [6] Gauge Hatch
- [7] Strainers
- [8] Pressure Reducing Valve
- [9] Safety Relief Valve
- [10] Flowmeters
- [11] Level Switches
- [12] Pressure Reducing Station
- [13] Level Gauge, etc.



### Any Query?

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