

LOW FLOW ROTAMETER

FDI-LFR-203



INTRODUCTION

A rotameter is a commonly used type of industrial flowmeter that is used to measure the flowrate of a liquid or gas. It consists of a tapered tube with a float inside. Rotameters work in a simplistic way: fluid raises the float when it passes through the tapered tube. When there is no flow, the float stays resting at the bottom. Rotameters are widely used because they are easy to install and maintain and they have a fairly wide measurement range, a low pressure drop, and linear scales.

FIDICON is a pioneer in the field of manufacturing Rotameter in India since 2002 years of designing, manufacturing, installation and service of the same. Low Flow 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.

WORKING PRINCIPLE

The operation of a rotameter is based on the variable area principle. That is, the flow of a liquid raises the float inside a tapered tube, increasing the area through which the liquid can pass. The larger the flow, the higher the float will be raised.

The level of the float is directly proportional to the flowrate of the liquid, and it moves up or down in proportion to the liquid's flowrate and the annular area around the float. The tapered tube allows the annular area between the ball and the tube to be proportionate to the flow, in a balanced condition.

OPERATION

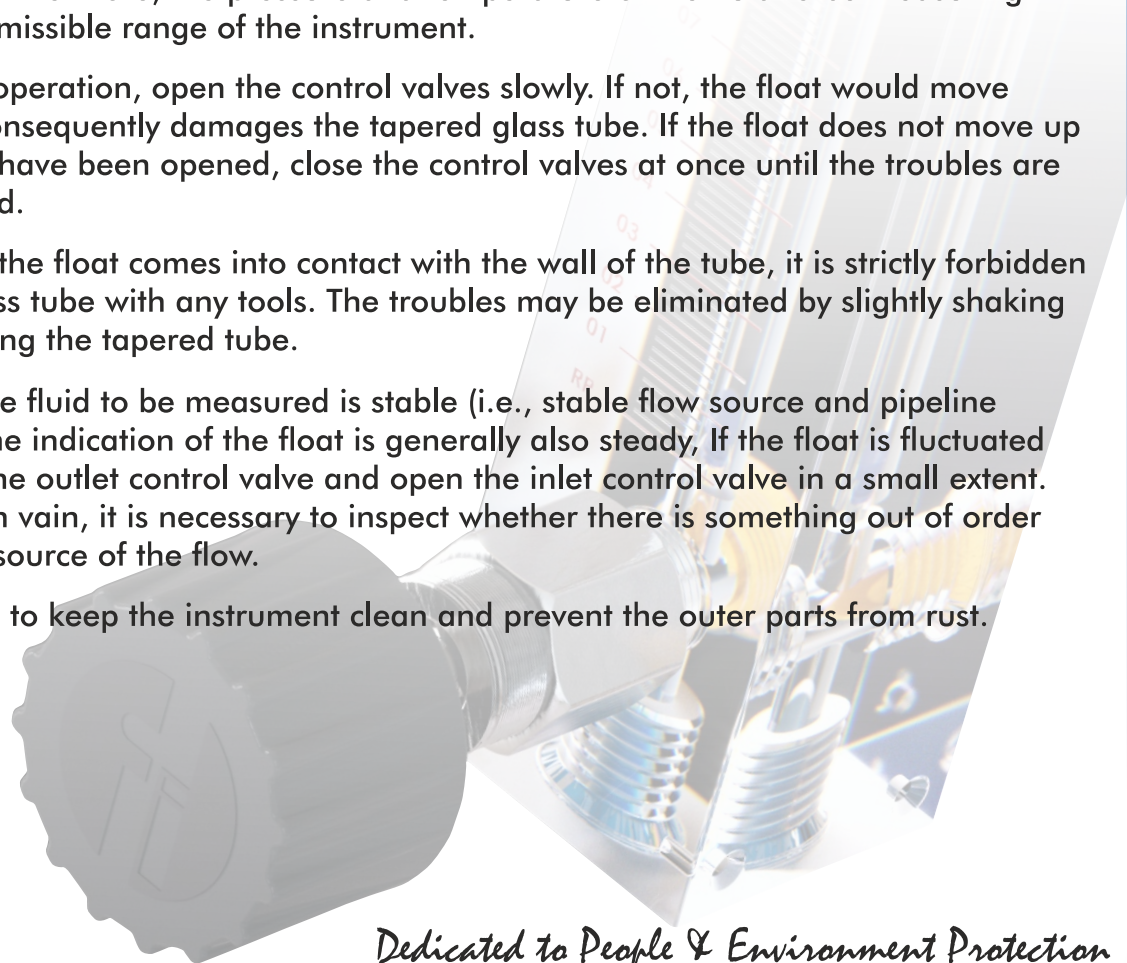
Before coming into operation, it is necessary to inspect whether the measuring range of the rotameter is in accordance with that to be measured. Generally, the rating flow rate of the meter is selected to 2/3 upper limit, and the maximum flow rate of the fluid should not exceed the upper limit of the rotameter. Furthermore, the pressure and temperature of the fluid to be measuring must not exceed the permissible range of the instrument.

At the beginning of the operation, open the control valves slowly. If not, the float would move rapidly to the top and consequently damages the tapered glass tube. If the float does not move up when the control valves have been opened, close the control valves at once until the troubles are found out and eliminated.

During the operation, if the float comes into contact with the wall of the tube, it is strictly forbidden to strike the tapered glass tube with any tools. The troubles may be eliminated by slightly shaking the pipeline or dismantling the tapered tube.

When the flow rate of the fluid to be measured is stable (i.e., stable flow source and pipeline resistance are existed) the indication of the float is generally also steady, If the float is fluctuated seriously, close slightly the outlet control valve and open the inlet control valve in a small extent. If these processing are in vain, it is necessary to inspect whether there is something out of order with the pipeline or the source of the flow.

Caution should be taken to keep the instrument clean and prevent the outer parts from rust.



Dedicated to People & Environment Protection

ADVANTAGES

- Rotameters are uncomplicated devices made with inexpensive materials, which makes them cost-effective.
- Rotameters can be installed into areas that don't have power because they operate only on the properties of the liquid and gravity itself.
- Rotameters can easily be installed to existing piping systems with standard fittings or via a panel.
- A rotameter's scale for measuring is linear because the flowrate is based on area variation. That means that you can count on accurate readings throughout the complete range.
- With a properly maintained rotameter you can expect sustained high repeatability.
- Smaller rotameters typically only have a few inches of water column pressure drop. That means that rotameters can be installed nearly anywhere in the process. Smaller pressure drops mean smaller pumps, which can mean lower pumping costs.

DISADVANTAGES

- Rotameters have to be installed vertically because they use gravity to measure flowrate.
- When opaque fluid is used, the float may not be visible through the rotameters transparent tube.
- The glass tube is tough to handle.
- The scale on the rotameter is only valid for a specific fluid and the conditions where it was calibrated, which means the device will have to be recalibrated if the fluid or the conditions are changed.
- It can be challenging to adapt rotameters for machine reading. A magnetic float is sometimes used for that purpose.
- It becomes expensive in case of high pressure and high temperature applications.
- When opaque fluid is used, float may not be visible.
- Not suitable for liquids carrying suspended solid particles.

CHARACTERISTICS OF ROTAMETER

- Simplicity of construction and low cost
- Possibility of remote indication & record
- Essentially a linear scale with most of the meters
- Easy to install
- Accuracy within 2% of the maximum reading



INSTALLATION

UNPACKING

Care should be exercised when unpacking the instrument. The instrument should be carefully inspected to determine that no damage has occurred during the shipment. Protective coating or tape on metering edge should not be removed until just prior to installation. Inspection for damage should be made immediately.

The end fittings and metering tube should be inspected to make sure that they are free of any foreign matter and if necessary, should be cleaned with a tube brush or a soft swab. Remove tape and/or protective coating from metering float, and inspect its surface for burrs or scratches. All parts of the meter should be inspected visually for assurance meter will function properly.

INSTALLATION

- The rotameter should be vertically mounted on the pipeline which is free from vibration. The installation should be eliminated from any visible inclination of the rotameter, otherwise, it will result in measurement error. And the pipeline should be strong enough for supporting the rotameter.
- The mounting height of the rotameter should be on the level of the eyes for convenient reading. Around the instrument, a free space should be provided for facilitation of installation.
- Before installation, check whether there is any damage upon the Rotameter.
- During installation, care should be taken not to damage the instrument by strong twisting.

APPLICATION

- Chemical Industries
- Oil industries
- Used for gas and Liquid
- Oxygen flow rate measurement in medical areas
- Laboratories
- Testing & Production Line
- Process Industries
- For metering purge flows

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] Gasket / as per customer need
- [2] Valve

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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