

V-TYPE FLOWMETER OPERATING INSTRUCTIONS

1. PRINCIPLE OF OPERATION

A tapered glass flowtube, and a metallic float inside it, constitute the heart of variable area type flowmeters.

Flowmeters are installed vertically in lines carrying gases or liquids to be monitored.

Fluids enter through the smaller opening at the bottom, and exit through the upper end. Upward pressure causes the float to rise. Flow takes place through the circular area between the float and the inside surface of the flowtube. As the float rises, the flow area increases, due to the tapered bore of the flowtube.

Dynamic equilibrium results when the buoyant force, due to the float and the upward force, due to fluid pressure, balance the weight of the float.

The vertical position of the float at equilibrium corresponds exclusively to one particular flowrate. This flowrate is obtained by determining the height of the float with the aid of the scale on the flowtube.

2. MATERIALS OF CONSTRUCTION

Tube Shields: polycarbonate
Flowtubes: heavy walled precision formed borosilicate glass
Floats: Type 316 stainless steel
Wetted Parts: brass or type 316 stainless steel
Seals: viton
Scales: direct reading

V-meters are designed with unique rotatable scales of dual air-water direct reading graduations showing SCFM and SLPM for AIR, as well as GPM and LPM for WATER. An accessible knurl, located on the lower back portion of the meter enables rotation of the scale.

3. METER SPECIFICATIONS

Standard Accuracy: $\pm 5\%$ FS
Repeatability: $\pm 0.25\%$
Max. Operating Pressure: 150 psig/10bars
Max. Operating Temperature: 250°F/121°C
Fittings: 3/8"-18" NPT Female

All meters are factory tested for leakage prior to shipping. For hazardous fluids the flowmeter must be re-tested at the time of installation in the system, prior to usage. It is also important that a

leak integrity test is performed periodically to maintain safe operating conditions.

Flowmeters must be protected from breakage due to external conditions such as objects bumping into or hitting the instrument, extreme vibrations, or attack by corrosive materials. It is the responsibility of the customer to acquaint the operator(s) of this flowmeter with all appropriate safety information.

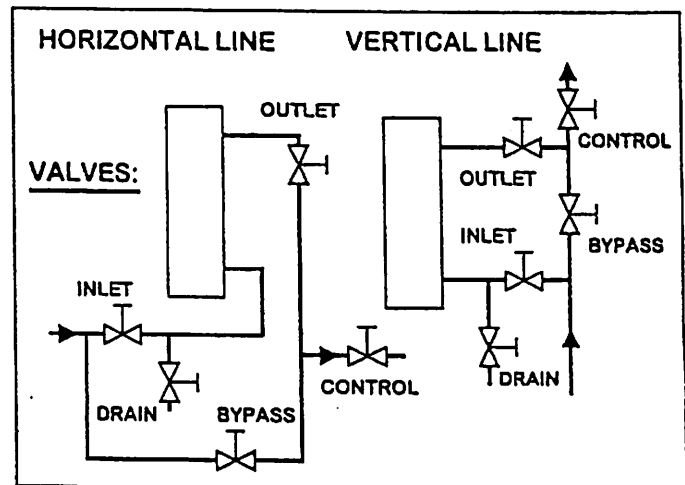
4. INSTALLATION AND OPERATION

4.1 Receipt of Equipment

Inspect instrument for possible visible damage resulting from shipping. Notify UPS or other carrier as well as the distributor where the flowmeter was purchased of any claims.

4.2 Installation

Flowmeters always must be installed in a vertical position, any significant deviation from vertical will effect the readings.



⚠ Valves should be closed before installation and opened gradually after all connections are carefully inspected. A leak test is highly recommended especially when hazardous fluids are involved.

CAUTION: Excessive tightening of valves may damage the orifice.

It is important that **all lines to be connected to the flowmeter are purged** of any dust or other residual contamination prior to installing the meter. In some applications a filter should be installed at the inlet of the flowmeter.

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4.3 Operation

V style flowmeters are designed to be operated at pressures not exceeding 150psig (10 bars), or temperatures not exceeding 250° F (121°C).

Close valve (if applicable) before initial use, then pressurize the system.

Slowly open the valve until the float is at the desired flow rate. Each scale indicates where on the float the flow rate should be read.

5. FLOWTUBE INSTALLATION/REMOVAL

! Do not remove the flowtube from the flowmeter.

Please contact Customer Service.

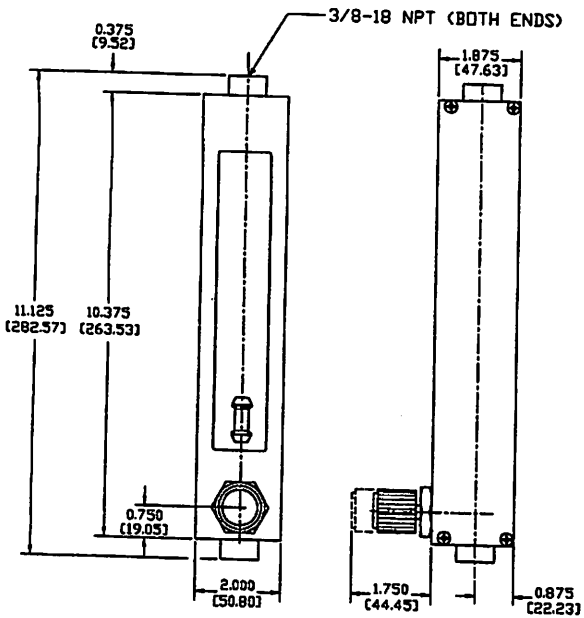
6. MAINTENANCE

Under normal operating conditions no special maintenance is required. Dirt or contamination may create problems within the flowtube by causing a restriction in the flow passage. Such conditions can be diagnosed by examining the flowtube.

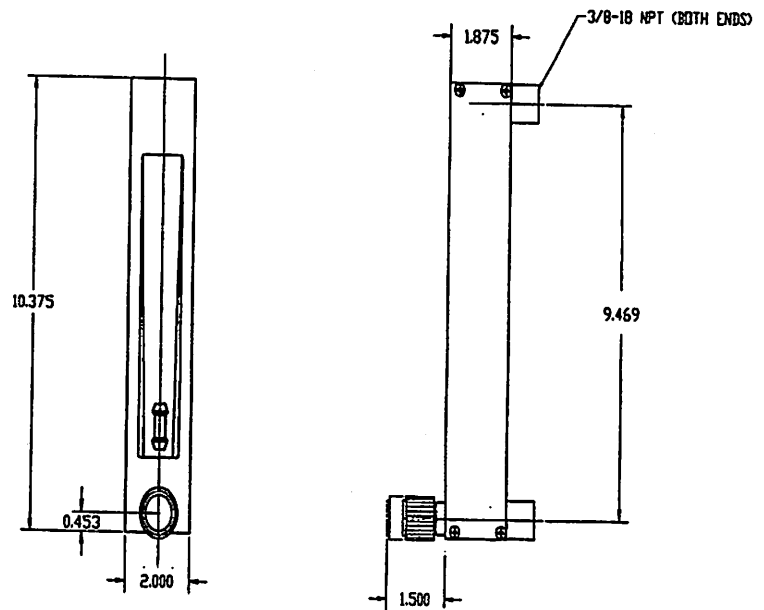
The most obvious indication of obstructions is the float being stuck in the flowtube. If the existence of contamination is determined the condition may be rectified in a number of ways. The easiest being (if possible), to disconnect the inlet and the outlet of the flowmeter and purge the instrument by using a clean and dry stream of gas.

The action of the float within the bore of the flowtube very often causes particles or impediments to be dislodged through the outlet of the flowmeter.

7. DIMENSIONAL DIAGRAMS



Vertical In-line meter



Panel mount meter