

# **Dwyer® Instruments, Inc.**

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## **FLOWMETER INSTRUCTIONS**

### **GENERAL**

DWYER INSTRUMENTS' FLOWMETERS COMBINE CONSTRUCTION AND PERFORMANCE FEATURES ESSENTIAL TO ACCURATE LOW FLOW MEASUREMENT. THIS INFORMATION IS INTENDED AS A GUIDE TO EFFICIENT USE; CAREFUL COMPLIANCE SHOULD RESULT IN LONG AND USEFUL SERVICE.

### **INSTALLATION**

1. Immediately after unpacking, inspect unit for any damage incurred during shipment. Return warranty card enclosed with meter.
2. Before installation, remove dust caps from connection fittings; if unit is supplied with an integral valve, be sure valve is open.
3. CHECK FOR FREE MOVEMENT OF FLOAT. Place meter horizontally on a flat surface with ball float(s) at maximum flow end of tube (outlet). Incline this end of meter approximately 10 degrees. The float(s) should descend at a constant rate. As the float(s) approach the zero reference mark, they may slow down or hesitate. This is due to the close fit between the float and the tube. Occasionally foreign particles prevent the continuous motion of the float. Repeat the above operation several times.
4. A 25-micron filter is recommended immediately upstream of meters where dirt can interfere with operation.

### **MOUNTING**

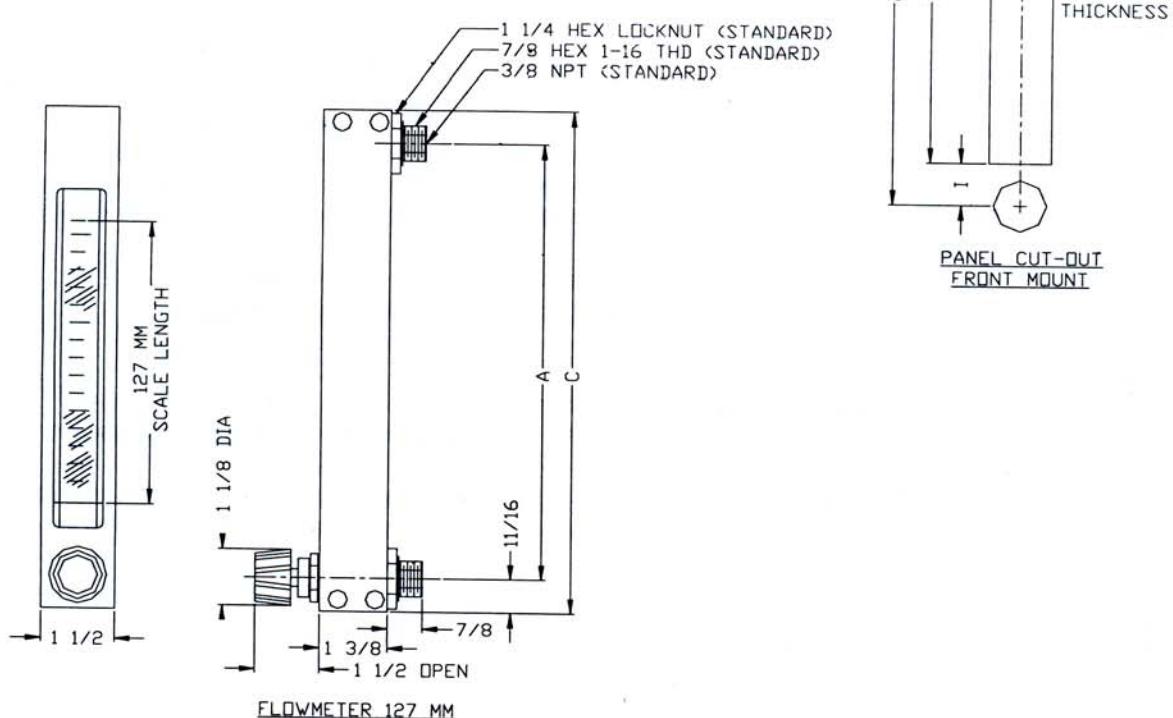
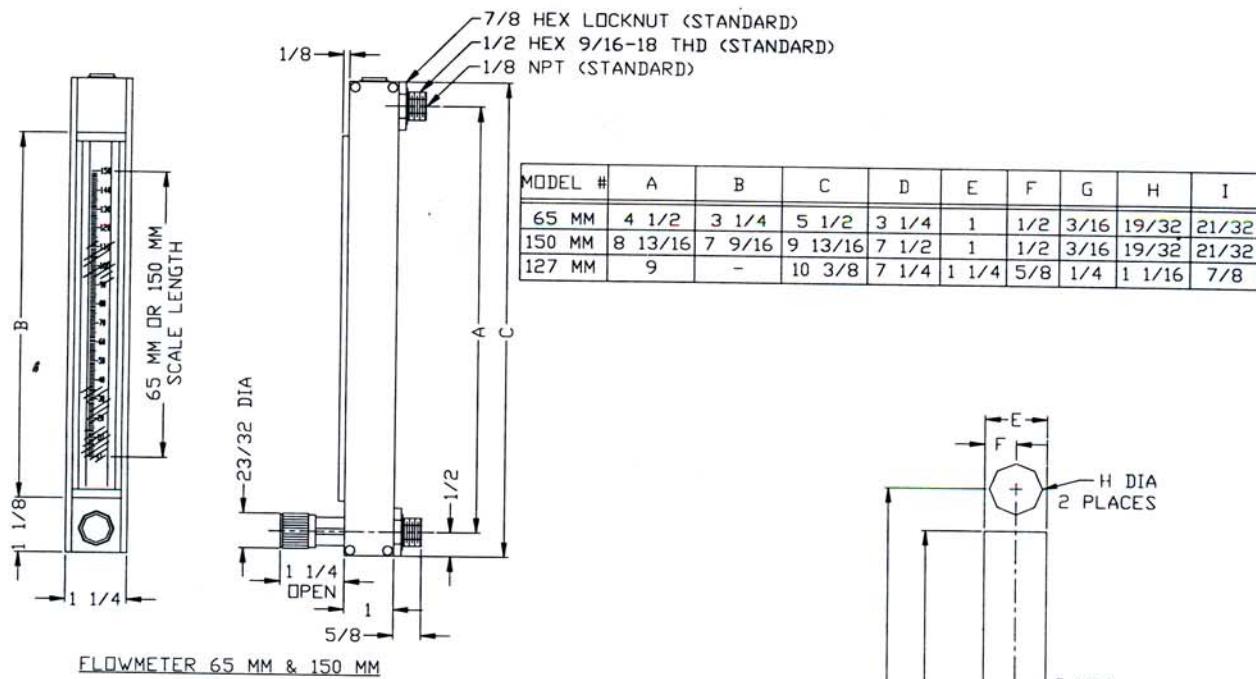
1. The meter is mounted in a vertical position, the inlet (lowest end of scale reading) at the bottom. Attitude of more than 5 degrees from vertical will affect the accuracy of the meter. Panel mounted meters should be installed in position prior to connection to process piping. General good piping practice should be observed to prevent trapped fluid up or downstream of the meters. Connectors (referred to herein as adapters) on the meter are supplied with wrench flats which must be held firmly when threading mating connections. Paste sealants are generally preferred. However, for applications which are sensitive to contamination and require inert sealants, Teflon tape is recommended.
- NOTE: Care must be taken to avoid shredding of Teflon tape which can foul meter operation.
2. Leak test final joints prior to operation. Leaks are often the cause of misleading flow indication.

### **OPERATION**

1. START-UP CAUTION: Avoid sudden pressure surges. The impact of the float at the top of the tube can damage the meter if exposed directly to full line pressure. Avoid shock by closing inlet valve before start-up. Introduce pressure by slowly opening valve.
2. FLOW READING: Flow indication is read at the center of ball floats. Units of flow (SCCM, SLPM, et cetera) are noted on the side of the tube. Tubes with millimeter scales require a corresponding calibration curve to apply to the fluid metered.

### **MAINTENANCE**

1. Loosen screw on top block by turning CCW with a 5/32" hex wrench.
2. Remove modular flowtube enclosure from front of flowmeter.
3. Change flowtube, float, or proceed with cleaning. To clean, use mild detergent & water, rinse with clean water and dry.
4. Reinstall modular tube enclosure into front of flowmeter until flush with vinyl tabs located in rear of flowmeter.
5. Tighten screw on top block by turning CW to approximately 18 in-lb.  
(18 in-lb for Viton & Buna seals; 12 in-lb for EPR seals; 26 in-lb for Teflon seals)
6. Leak test meter prior to operation.



**TORQUE INSTRUCTIONS  
SERIES DR**



**Instruments, Inc.**

**RECOMMENDED TORQUE SCREWDRIVER**

Utica Model TS-35 with a 5/32" shallow groove hex bit. Range of 0-36 in-lb.

**HOW TO OPERATE (APPLIES TO TS-35 MODEL ONLY)**

To set any torque, pull the lock collar toward the handle and turn the adjusting knob to the desired setting. Torque setting is the sum of readings of the major scale and the minor scale. Release the lock collar.

The 5/32" hex bit fits the compression screw located at one end of the meter. Turn torque screwdriver clockwise until it clicks. This will indicate that the desired torque setting has been attained.

**NOTE:**

Do not overtighten compression screw. Damage to seals and glass tube could occur. Leaks could develop due to undertightening the compression screw. If this occurs, follow correct procedure and use the proper setting given in torque specification table.

**TORQUE SPECIFICATION TABLE**

<b><u>SEAL TYPE</u></b>	<b><u>TUBE TYPE</u></b>	<b><u>TORQUE (IN-LB)</u></b>	<b><u>MAXIMUM (IN-LB)</u></b>	<b><u>MINIMUM (IN-LB)</u></b>
Viton	ALL	18	20	16
Buna	ALL	16	18	14
EPR	ALL	10	12	8
Teflon	ALL	24	26	22

After flowmeter has been set to proper torque specifications, follow Dwyer Instruments installation and start up instructions for series DR.

**WARNING:**

Failure to follow these instructions will void the warranty.