


FlowSet
**Installation, Operation
and Maintenance**


*Engineering
GREAT Solutions*

Installation

IMI Flow Design's manual balancing valves & venturis are unidirectional, observe flow arrows. Models can be installed in horizontal or vertical lines.

Straight Run Requirements

1. For systems, where the elbow or the control valve is line sized, no additional pipe diameter straight run length shall be required upstream or down stream of all IMI Flow Design's manual balancing valves.
2. For systems, where the elbow or the control valve is not line sized, five pipe diameters of straight pipe shall be required upstream of the manual balancing valve to achieve 3% F.S. accuracy. No pipe diameter shall be required downstream of the manual balancing valve. IMI Flow Design's manual balancing valves UA, ET, EF and ER have the necessary straight run length built-in (for model UA with IMI Flow Design's end connections) and can be installed directly down stream of a 90° elbow or a control valve. All other IMI Flow Design's manual balancing valves shall require three (elbow) or five (control valve) pipe diameter of straight run upstream where the elbow or the control valve is not line sized.

Tap Locations (Pressure Taps or P/T Ports)

1. For portable D.P. metering, the P/T ports can be pointing at any clock position.
2. Options such as air vents should be up and drains down, otherwise the valve can be rotated so the handle and memory stop are convenient.
3. Insulation: On 1/2" to 2" models, the standard handle and P/T ports will clear 1" thick insulation. For thicker insulation, an extended handle (model EH) and port extension is available. Do not use model EH on hot water systems with glycol. On 2 1/2" and larger steel products, a butterfly valve handle and pressure ports will clear 2 1/2" insulation.

Products With Butterfly Valves

1. Assemble and tighten the flanges to the valve.
2. Align and place the assembly to the mating piping.
3. Tack weld the flange to the pipe.
Warning: Do not finish welding the flanges to the pipe with the valve bolted between the flanges. This will result in serious heat damage to the valve seat.
4. Remove the flange bolting and valve from between the flanges.
5. Finish welding the flanges to the pipe and allow the flanges to cool completely before proceeding.
6. Install valve. Do not use flange gaskets. The molded valve gasket will seal against standard ANSI flanges.
7. Turn disk to full open position. Center valve and hand tighten bolts.
8. Slowly close to check for adequate disk clearance.
9. Return disk to full open position and cross-tighten all bolts.

Operation

1. The flow is determined by measuring the differential pressure (D.P.) across the high (Red) and low (Blue) P/T ports of the venturi. Convert the measured D.P. to inches W.C. and use the appropriate chart to read the flow. Request the proper chart from the selection below:

Chart Form*	Models
F234	Brass models - current models
F193	Steel models - current models (AF, AG, AW, EF, ER, VF, VG, VW)
F239	F239 Steel models - current models (ET only)

2. These models are equipped with a downstream throttling valve to adjust the flow. Slowly close the valve while reading the D.P. gauge until the desired flow is reached. Set the memory stop so the handle position is maintained even if the valve is temporarily closed.
3. The meter used to measure the D.P. must be used in accordance with the specific instructions for that meter. All meters require purging of the air from the hoses. Also, care should be taken to attach the high pressure hose to the upstream P/T port (Red) and the low pressure hose to the other (Blue) P/Tport. The use of IMI Flow Design model 300.4 is highly recommended. Please refer to the included instructions if using this instrument.

Maintenance

1. There is no periodic maintenance required on any of these models.
2. Products with ball valves may have a stem packing gland to prevent leaking at the stem. Tighten the stem packing nut in 1/4 turn increments until the leak stops.

Troubleshooting Guide

Possible Cause

Possible Solution

PROBLEM: D.P. Gauge Reading Zero or Very Low

1. Valves closed on hoses or gauge	1. Open all high & low impulse line valves.
2. Zeroing manifold valve is open	2. Close by-pass or zero valve.
3. High & low impulse hoses reversed	3. Switch hoses.
4. Impulse ports clogged	4. Clean out P/T port or pressure ports.
5. No water flow	5. Make sure pipeline valves are open.
6. Defective D.P. meter	6. Use another meter or verify with the difference in gauge pressure readings on each port.
7. Beta ratio too high or wrong model used	7. Verify flow using D.P. across the wide-open ATC valve. Also check tag & location numbers.

PROBLEM: D.P. Gauge Reading Too High

1. Circuit unbalanced	1. Reduce flow by slowly closing ball or butterfly valve in the circuit.
2. Valve is closed on the low-pressure impulse line	2. Open all impulse lines.
3. Low (downstream) pressure or P/T port clogged	3. Clean ports.
4. Wrong product placed in circuit	4. Check model, tag and location number.

