



Installation, Operation and Maintenance

FlowSet - Manual Balancing Valves

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Manual Balancing Valves

Installation

FDI manual balancing valves & venturis are unidirectional, observe flow arrows. Models can be installed in horizontal or vertical lines.

Straight Run Requirements

1. Models UA, ET and EF, EG, and ER have the necessary straight-run length built in and can be installed directly downstream of a 90 degree elbow or a control valve. If the control valve is smaller than the UA, then the expansion must be done with an FDI tailpiece or reducing couplings to ensure a proper reading.
2. Models AF, AG, AW, VF, VG, and VW can be installed with no additional pipe diameters upstream or downstream for line-sized connections.

Tap Locations (Pressure Taps or P/T Ports)

1. For portable D.P. metering, the taps 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 taps 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 taps 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 (Green) taps 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*

F234

F193

F239

Models

Brass models - current models

Steel models - current models

(AF, AG, AW, EF, EG, ER, VF, VG, VW)

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 tap (Red) and the low pressure hose to the other (Green) tap. The use of FDI-DM 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.

* Call FDI for more information.

Troubleshooting Guide

Possible Cause

Possible Solution

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

- 1) Valves closed on hoses or gauge
- 2) Zeroing manifold valve is open
- 3) High & low impulse hoses reversed
- 4) Impulse ports clogged
- 5) No water flow
- 6) Defective D.P. meter
- 7) Beta ratio too high or wrong model used

- 1) Open all high & low impulse line valves
- 2) Close by-pass or zero valve.
- 3) Switch hoses.
- 4) Clean out P/T port or pressure ports.
- 5) Make sure pipeline valves are open.
- 6) Use another meter or verify with the difference in gaug pressure readings on each port.
- 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
- 2) Valve is closed on the low-pressure impulse line
- 3) Low (downstream) pressure or P/T port clogged
- 4) Wrong product placed in circuit

- 1) Reduce flow by slowly closing ball or butterfly valve in the circuit.
- 2) Open all impulse lines.
- 3) Clean ports.
- 4) Check model, tag and location number.