



# Venturi Style Manual Balancing Valves

## GENERAL INFORMATION, INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

### GENERAL INFORMATION

1. The Hays Venturi Style Manual Balance Valves are manual balancing devices.
2. Clean the lines of all foreign material, (solder flux, pipe scale, dirt, thread chips etc.).
3. Air should be eliminated from the system prior to startup to assure quiet operation and freedom from water hammer.
4. The Manual Balancing Valves may be installed in the line horizontally, vertically or any angle in between. DO NOT install valve with ports facing down, as debris from the line can clog the port, and may cause leakage. Straight sections of line upstream or downstream of the Hays valve are necessary for proper operation. Standard reducing bushings may be directly connected to the Hays valve if required.
5. All Hays Manual Balancing Valves are marked with direction of flow and venturi Cv.  
**THE FLOW ARROW MUST POINT IN THE DIRECTION OF FLOW FOR PROPER OPERATION.**
6. Hays valves are factory assembled, individually calibrated and are warranted to be accurate within 2% of predicted flow as shown on the "Venturi Chart".

### INSTALLATION

1. Forged brass, Manual Balancing Valves have their end connections formed to ANSI Std B16.22, or B1.20.1 requirements, and are intended for use in Building Services Piping meeting the requirements of ASME B 31.9. The Temperature/Pressure Rating of the Solder Joint is dependent upon the type of solder used. Solders with melting temperatures in excess of 465 deg F. are not to be used as internal seal damage may result. ANSI Std B16.22 Pressure Ratings should be reviewed prior to sweating.
2. The outside of the tubing, and the inside of the fitting are to be mechanically cleaned and then lightly coated with solder flux. The tube is then inserted one diameter into the fitting, and the **CENTRAL PORTION OF THE VALVE BODY WRAPPED WITH A WET RAG OR A HEAT SINK.** The union on the Hays Manual Balance Valve is to be disconnected and its O'Ring removed to prevent heat damage. The ball valve must be in the fully open position during soldering, and never in a partially open position.
3. Heat may be applied, either to the tubing or to the end of the fitting so as to achieve solder flow. When the parts have achieved the necessary temperature, solder is to be added to the joint and the joint allowed to cool. Both ends may be sweated at the same time. The heat is to be applied for the shortest time possible. The internal parts of the are capable of continuous use at 225 deg. F. but will be quickly damaged at higher temperatures. Care should also be taken on vertical assemblies to prevent solder from dripping into the valve.
4. Heat discoloration from the sweating operation should not extend to the major diameter of the valve body and should not cause damage to the label.
5. If chlorinated flux has been used, all parts are to be flushed thoroughly to avoid premature corrosion failure.
6. Valves with pipe threads are to have thread sealant applied to the male threads, starting with the second or third thread from the end, and torque the connection to 75 in pounds per inch of pipe size, minimum.

## **OPERATION**

1. For optimum operation, air entrainment in the system must be eliminated. The flow control valve must remain filled with fluid. The system must be clean and free of foreign materials.
2. The Hays Manual Balancing Valves must only be used with fluids that are compatible with, Copper, Brass, and EPDM materials. The temperature during operation must be limited to the range of 32 ° F to 225 ° F.
3. Valves specified for fluids other than water will be so marked and a special factory calibrated flow chart supplied for their use, taking the specific fluid's properties into consideration. See Hays Glycol Tech Tip.
4. Attach ¼" test probes to the two pressure/temperature ports to obtain differential pressure and temperature for flow readings and balancing. A pressure sensor with a wet, differential pressure transducer providing readouts in inches of water is essential if the accuracy of the manual valve is to be realized. Compare this reading with the Venturi Chart for the Venturi Cv installed in the valve.
5. Determine the required differential pressure from the Venturi Chart for the desired flow rate. Mark this pressure on the balancing sheet. Throttle the ball valve until this value is achieved.
6. Loosen the memory stop on the ball valve handle, and rotate the stop, counterclockwise until it rests on the valve body stop. Tighten the memory stop nut, being careful not to move the ball valve handle. If the valve has a calibrated dial, record the indicated reading so that the valve may be reset without gauges, in the event the memory stop reading is lost.

## **MAINTENANCE**

1. General maintenance is not required for Hays Manual Balancing Valves, however if the system experiences large amounts of pipe scale due to poor water conditions, as sometimes is found in older or retrofit systems, some maintenance may be required. Provisions should be made to keep the system clean. Proper water treatment is also recommended.

## **LIMITED WARRANTY**

See Hays Fluid Controls current Terms & Conditions.