



# HAYS

## Mesurmeter® Venturi Flow Meters for Flow Verification

### INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

#### GENERAL INFORMATION

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1. The Hays VFM series devices are flow meters that operate based on the venturi principle. The pressure reading across the venturi is actually higher than the pressure impact on the system.
2. To prevent clogging of the venturi and ports the lines should be cleaned 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. Hays VFM Venturi Flow Meters are omnipoise, they will operate correctly in any orientation (in the line horizontally, vertically or any angle in between). Installation with ports facing down is not recommended, as debris from the line can clog the port, and may cause leakage. Standard reducing bushings may be directly connected to the Hays valve if required. Five pipe diameters upstream and two pipe diameters downstream are recommended for manual balancing valves. All Hays Manual Balancing Valves are marked with direction of flow and CV. **THE FLOW ARROW MUST POINT IN THE DIRECTION OF FLOW FOR PROPER OPERATION.**

#### INSTALLATION

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1. All VFM series valves are brass, with 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.
2. 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 foot pounds per inch of pipesize, minimum.  
Example: (1W, 1% X 75 = 113 ft lb. Min.) (W, X 75 = 19 ft lb. Min)

#### OPERATION

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1. For optimum operation entrainment of air in the system must be eliminated. The flow control valve must be fully filled with fluid. The system must be clean and free of foreign materials.

2. The Hays VFM must only be used with fluids that are compatible with Brass and EPDM materials. The temperature during operation must be limited to the range of 32°F to 225°F.
3. The use of fluids having a viscosity or specific gravity different from that of water will require calibration.
4. Attach 1/4" test probes to the two pressure / temperature ports to obtain differential pressure and temperature readings for flow calculation balancing. A pressure sensor capable of providing readouts in inches of water is essential if the accuracy of the VFM is to be realized. To measure the flow rate, find the Y axis line corresponding to the pressure on the pressure sensor on the Venturi Chart, for the Cv installed in the valve. The flow rate will be the Value on the X axis where the pressure crosses the Cv line for that valve. As an optional method, refer to the Hays Fluid Controls Application of Manual Valves & Venturi Flow Meter Tech Tip for a simple calculation that will provide the volumetric flow rate of fluid.

## **MAINTENANCE**

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1. General maintenance is not required for Hays Venturi Style Manual Balancing Valves or VFM, however if the system experiences large amounts of pipe scale due to poor water conditions, some maintenance may be required. This occurs most often in older or retrofit systems. Cleaning fluids and methods used for typical Brass valves are appropriate for the VFM. The diameter and shape of the venturi are key to its operation. Any changes to these characteristics will alter the flow readings. Provisions should be made to keep the system clean. Proper water treatment is also recommended.

## **LIMITED WARRANTY**

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See Hays Fluid Controls Terms & Conditions for warranty information.