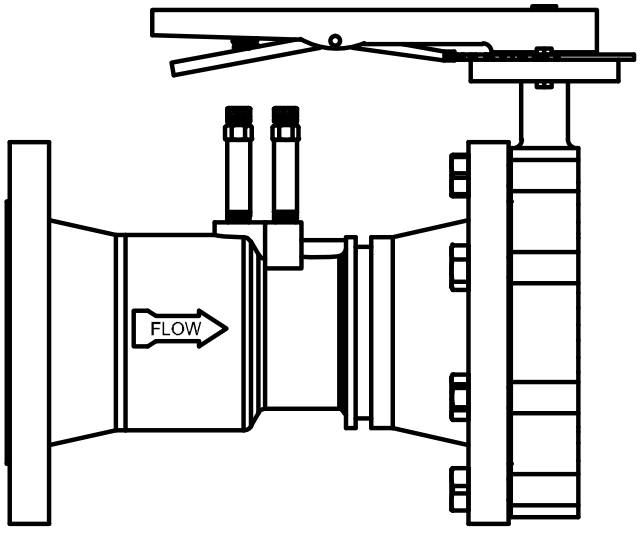
HAYS

Steel Venturi Series Installation and Operations Manual

CBVF



CAUTION

CAREFULLY FOLLOW THESE INSTRUCTIONS. FAILURE TO DO SO MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR PROPERTY DAMAGE.

DO NOT adjust factory installed and tested fittings.

ALWAYS ensure that flange surfaces are clean.

ALWAYS ensure that piping products are properly aligned before operating.

ALWAYS use properly engineered pipe supports and avoid placing excessive loads on the product.

ALWAYS perform no less than annual inspections on components. These products are dynamic in nature and due to varying system conditions there are no representations as to the duration of useful life for these products in excess of the warranty.

ALWAYS pressure test the components once installed to assure no leaks exist. If a leak or defect is found, immediately isolate from pressure and contact the factory for repair or replacement under warranty.

ALWAYS isolate the product from pressure when leaks or damage are detected to avoid property damage and contact the factory immediately to determine appropriate actions. The factory is not responsible for damages as the result of any repairs performed on the products while under pressure.

Failure to follow these cautions, not following standard industry practices, and/or using non-trained/unqualified installers could result in catastrophic failure.

Product Descriptions:

Model SWV: (2½" - 12") - Steel Venturi with weld ends. High and low flow ranges are available in the 2½", 3", and 4" sizes. Comes standard with two pressure/temperature ports.

Model SGV: (2½" - 12") - Steel Venturi with grooved ends. High and low flow ranges are available in the 2½", 3", and 4" sizes. Comes standard with two pressure/temperature ports.

Model SWVF: (2½" - 12") - Steel Venturi with weld x flange ends. Connects to standard ANSI Class 150# flanges. High and low flow ranges are available in the 2½", 3", and 4" sizes. Comes standard with two pressure/temperature ports.

Model SGVF: (2½" - 12") - Steel Venturi with groove x flange ends. Connects to standard ANSI Class 150# flanges. High and low flow ranges are available in the 2½", 3", and 4" sizes. Comes standard with two pressure/temperature ports.

Model SFV: (2½" - 12") - Steel Venturi with flange x flange ends. Connects to standard ANSI Class 150# flanges. High and low flow ranges are available in the 2½", 3", and 4" sizes. Comes standard with two pressure/temperature ports.

Model CBVW: (2½" - 12") - Combination lug type butterfly valve and weld end style Venturi. Connects to standard ANSI Class 150# flanges. High and low flow ranges are available in the 2½", 3", and 4" sizes. Comes standard with two pressure/temperature ports.

Model CBVF: (2½" - 14") - Combination lug type butterfly valve and flanged style Venturi. Connects to standard ANSI Class 150# flanges. High and low flow ranges are available in the 2½", 3", and 4" sizes. Comes standard with two pressure/temperature ports.

Model CBVG: (2½" - 12") - Combination lug type butterfly valve and grooved style Venturi. Connects to standard ANSI Class 150# flanges. High and low flow ranges are available in the 2½", 3", and 4" sizes. Comes standard with two pressure/temperature ports.

Installation Procedures

General:

- USIS manual balancing valves operate correctly in one direction only.
- All steel venturi models shall have identifiable markings that indicate the venturi size and flow direction arrow. If these markings are not visible, please contact the factory before installation for proper orientation during install.

Installation:

- Steel balancing valves should be installed on the return lines of the coils.
- Five pipe diameters of straight pipe are required from a control valve or elbow for 2½" through 14" venturis.
- Two pipe diameters are required downstream of the balancing valve.
- Flanges meet ANSI Class 150# specifications.
- Tighten the flange bolts in a progressive "star" pattern to avoid localized stress on the gaskets.
- Once installed, pressurize system and inspect for leaks.

Setting a Steel Venturi Model:

- Determine the desired flow rate for the coil.
- Identify the Venturi size. Note that 2½", 3", and 4" models have both high and low flow ranges identifiable with an "H" or "L".
- Using either the flow equation or table, determine the inches of water column that matches the desired flow rate for the proper Venturi size. If the GPM is specified at the time of order, the identification tag will include inches of water column and GPM.
- Remove the caps from the pressure/temperature ports and properly attach the differential meter/gauge. By default, the high pressure port is located upstream of the flow arrow.
- Throttle the butterfly valve until the inches of water column matches the desired result.
- NOTE: In the absence of a preexisting throttling device, to properly balance flow, order or install an additional throttling device, such as a butterfly valve or similar.
- Once the flow has been set, tighten the wing nut on the locking lever of the butterfly valve, remove the differential gauge and replace the PT port caps.

Troubleshooting:

Symptom	Possible Cause	Solution
No Differential reading	Hi/Lo pressure lines switched on gauge	Make sure high pressure is obtained upstream and low pressure taken downstream.
	Air entrapment in pressure lines or gauge	Make sure lines and/or gauge are bled of air.
	No water flow	Make sure system valves (supply, return, control) are open.
	Insufficient flow	Very low flow conditions may not create sufficient differential pressure across the venturi.
Estimated flow does not match measured flow	Balancing Valve is backwards	Verify that the flow arrow matches flow direction.