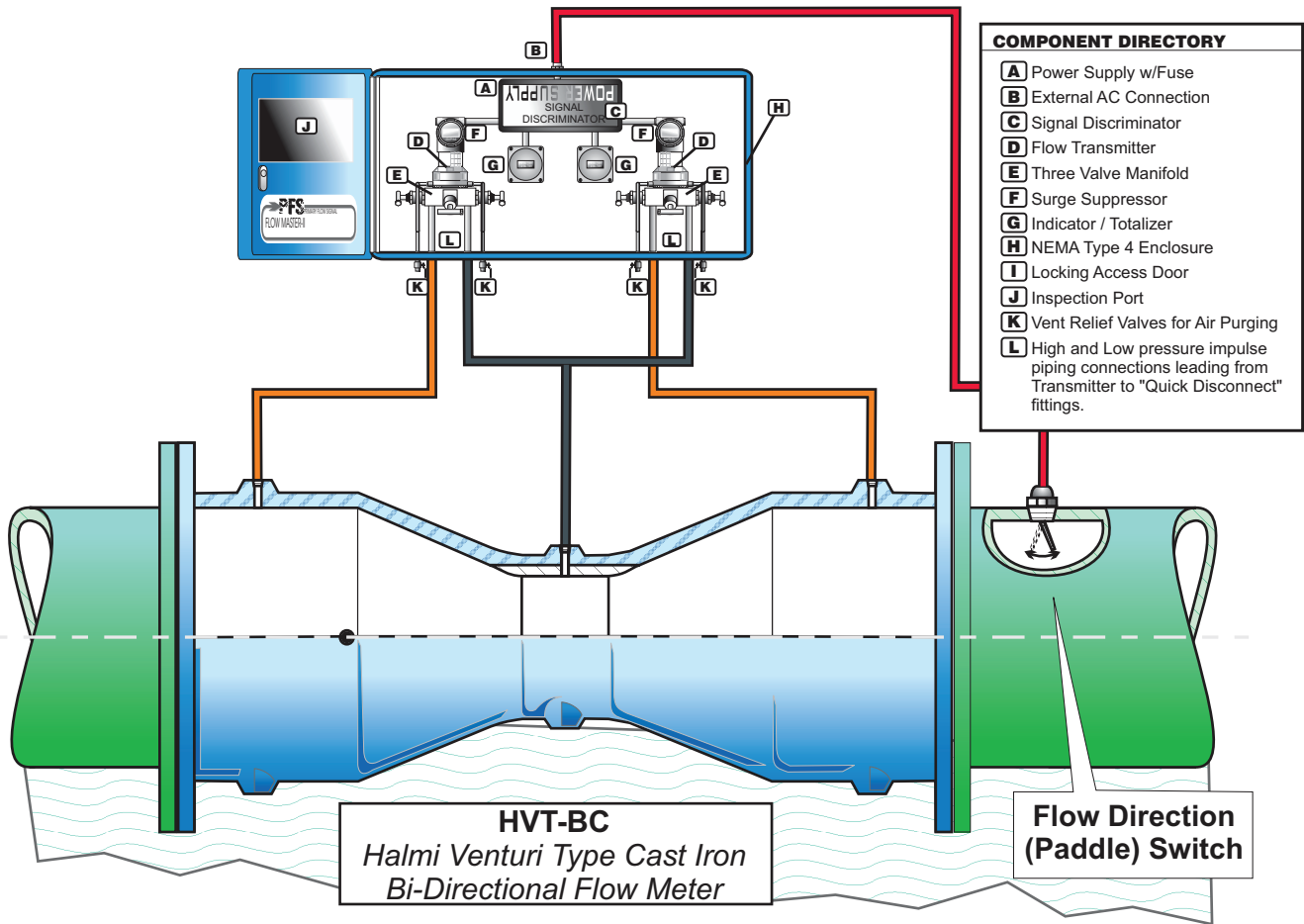


BI-DIRECTIONAL FLOW METERING SYSTEM

The HVT-Bi-Directional Halmi Venturi Type Flow Meter is Specially Designed to Provide High Accuracy with Low Headloss in applications where measurement and control is required in either direction!

BI-DIRECTIONAL FLOW METERING SYSTEM WITH PFS FLOWMASTER

This is a typical configuration for general reference purposes.
PFS, Inc. *CUSTOM DESIGNS* the correct system to meet your specific needs.



Bi-Directional flow metering is appropriate in instances where a piping scheme utilizes the same line to accomplish different delivery and/or control functions in opposite directions, depending upon changing system conditions and process objectives. Examples include: process control involving air or gas oxygenation and evacuation; Raw water feeding 2(or more) fresh water treatment plants; Redistribution of storm surge sewage influent to 2 (or more) treatment plants; and ASR (aquifer storage and recovery) systems.

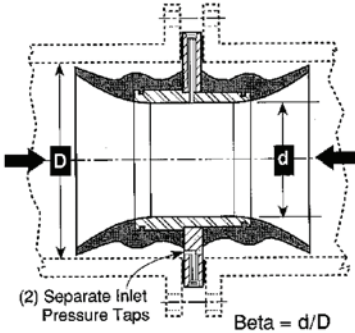
PRIMARY FLOW SIGNAL, INC., A World Class designer and manufacturer of highly accurate, reliable, and cost effective flow measurement equipment, offers the most complete selection of Bi-Directional flow meters with accompanying secondary instrumentation grouping available in the marketplace today. What makes our offering truly unique is the expert technical capability available and decades of experience and knowledge which is the foundation of every PFS product.

BASIC HVT-BI-DIRECTIONAL MODELS

MODEL HVT-BP

Bi-Directional Plastic Insert

Bi-Directional Plastic Insert HVT's are designed to accurately measure flow in both directions.

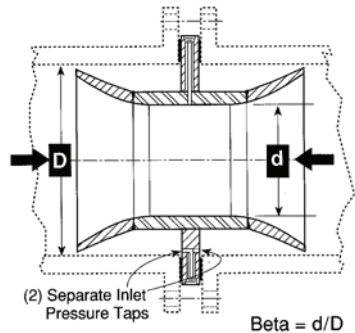


- Line Size:** 3" and larger
- Standard Beta Ratio:** A=0.5000(approximate); B=0.6000(approximate); C=0.7000;
- Cones:** Polyester resin reinforced with glass, 30% by weight.
- Throat:** 304 Stainless Steel, standard; Bronze and other materials available.
- Flange:** Carbon Steel, epoxy coated(standard); St. Steel and other materials available.
- Line Pressure:** Any as required by specification.
- Temperature:** To 150° F Standard; to 300° F special order.
- Accuracy:** Bench Calibrated: +/-0.50% (3" and larger); Flow Calibrated: +/-0.25% (line size limitation dependent upon lab capacity.)

MODEL HVT-BI

Bi-Directional Fabricated Insert

Bi-Directional Fabricated Insert HVT's are designed to accurately measure flow in both directions.

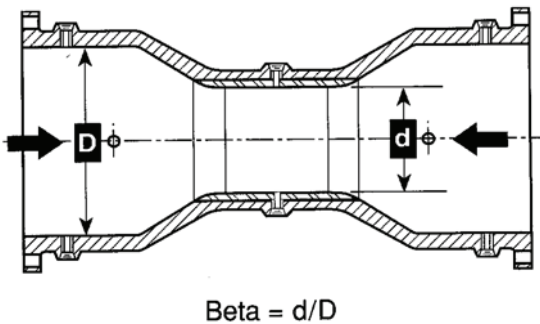


- Line Size:** Any
- Standard Beta Ratio:** Any as required by specification.
- Cones:** Any as required by specification.
- Throat:** Any as required by specification.
- Flange:** Any as required by specification.
- Line Pressure:** Any as required by specification.
- Temperature:** Any as required by specification.
- Accuracy:** Bench Calibrated: +/-0.50% (3" and larger); Flow Calibrated: +/-0.25% (line size limitation dependent upon lab capacity.)

MODEL HVT-BC

Bi-Directional Cast Iron Pressure Vessel

Bi-Directional Cast Iron HVT's are designed to accurately measure flow in both directions.

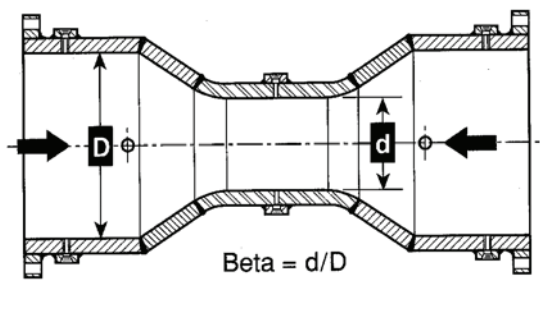


- Line Size:** Any
- Standard Beta Ratio:** Any as required by specification.
- Throat Liner:** 304 Stainless Steel standard, Bronze and other materials available.
- Flange:** Any as required by specification.
- Line Pressure:** Any as required by specification.
- Temperature:** Any as required by specification.
- Accuracy:** Bench Calibrated: +/-0.50% (3" and larger); Flow Calibrated: +/-0.25% (line size limitation dependent upon lab capacity.)

MODEL HVT-BF

Bi-Directional Fabricated Pressure Vessel

Bi-Directional Fabricated HVT's are designed to accurately measure flow in both directions.



- Line Size:** Any
- Standard Beta Ratio:** Any as required by specification.
- Throat Liner:** 304 Stainless Steel standard, Bronze and other materials available.
- Flange:** Any as required by specification, plain ends available.
- Line Pressure:** Any as required by specification.
- Temperature:** Any as required by specification.
- Accuracy:** Bench Calibrated: +/-0.50% (3" and larger); Flow Calibrated: +/-0.25% (line size limitation dependent upon lab capacity.)



A Typical Application Example:

The Challenge:

The primary goal for any water utility is to provide a reliable supply of high quality water efficiently and cost-effectively. The growth of the population coupled with environmental concerns and municipal budgets can prove to be a significant challenge.

Specifically, increasing water demand given limited available water resources, declining groundwater levels, escalating water quality constraints, and seasonally varying availability and demand are further complicated by capital cost restrictions.

The Solution:

ASR (Aquifer Storage and Recovery) is the injection of treated water into an aquifer, which acts as an underground storage tank. As needed, water is recovered from natural storage in the aquifer. The same well is used for both recharge and recovery.

The injection of water occurs principally during "wet" months at which time, available water generally exceeds current demand. Recovery, in turn, is actuated during "dry" periods in order to satisfy peak or emergency demands which cannot be accommodated by available treatment plant capacity.

The recovery function typically requires disinfection as the only supplementary treatment and all of the stored water is recovered through this process.

The Advantage with the HVT-Bi-Directional Flow Meter:

Primary Flow Signal, Inc. provides the preeminent design and engineering support for any and all flow measurement application requirements, without exception. Although most applications will probably fall within standard parameters developed through PFS experience and expertise, it is reassuring to know that each and every engagement receives the top priority attention of a seasoned PFS engineering expert to assure that your specific application is properly addressed, and fully satisfied.

No other vendor resource can match the track record and the know-how of the PFS flow metering team, and no other manufacturer can substantiate its product line with the unquestioned assurance of PFS, backed up by hard data and research continuously gathered over decades of dedication to the field.

-Reliability and Accuracy: *+/- 0.50% Uncalibrated, +/- 0.25 % Calibrated.*

-Cost Considerations: *Low acquisition cost because a single meter measures flow in both directions, into and out of the aquifer.*

-Operation and Maintenance: *Simplifies field calibration of secondary group since all work can be performed at a single meter location, rather than at separate influent and effluent meters.*

There are no exceptional maintenance requirements for the HVT-BP. PFS offers an extensive warranty.

Exclusive 20 year PFS Warranty

**FOR SOLIDS BEARING OR HIGH VISCOSITY FLUIDS(LIKE SEWAGE)
WE OFFER BI-DIRECTIONAL HVT'S WITH THE PATENTED
PFS SEALED METERING SYSTEM!**



PRIMARY FLOW SIGNAL, INC. - - - THE LEADER IN RELIABLE FLOW MEASUREMENT

Please Rely on PFS, Inc. for any of the following:

- A full review and analysis of your flow metering application requirements together with flow calculations and recommendations for the optimal solution.
- A complete line of **HVT-Halmi Venturi Type Flow** measurement products to address virtually **EVERY** need in the Municipal and/or the Industrial fields.
- Equipment with the **HIGHEST ACCURACY** and **RELIABILITY** substantiated by decades of Experience, Technical Expertise and Research.
- Over 75 years of Manufacturing Quality Equipment at competitive pricing.
- The patented **HVT-SM Sealed Metering System** for trouble free measurement of solids bearing or high viscosity line fluids.
- A complete line of **PFS-FLOWMASTER** secondary instrumentation groupings, providing total responsibility for the Primary Flow Element through Secondary system, including **PFS-HP** Transmitters.
- The longest legitimate Warranties offered by credible vendors, in the business.
- Worldwide Representation.

PLEASE CONTACT YOUR LOCAL PRIMARY FLOW SIGNAL, INC. REPRESENTATIVE FOR IMMEDIATE SERVICE.

ASK US ABOUT ANY OF YOUR FLOW MEASUREMENT REQUIREMENTS TO OBTAIN PROMPT RECOMMENDATIONS HOW PFS KNOWLEDGE, RELIABILITY AND PRODUCTS CAN OFFER THE OPTIMAL SOLUTIONS.