



## **VENTURI ELEMENTS AND FEEDWATER FLOW METERS FOR ACCURATE MEASUREMENT OF FLUID FLOW WITH LOW PRESSURE LOSS**

Permutit™ Venturi Elements offer unsurpassed accuracy combined with the lowest pressure drop of all differential pressure-producing devices. Used for measuring fluid flows under pressure in closed piping systems, our Venturi Elements offer an inherent accuracy of 0.5% when uncalibrated and 0.25% when calibrated. At beta ratios of 0.5 and above, pressure loss is approximately 10% for reduced operating costs and head requirements. This combination makes Permutit Venturi Elements the preferred choice for measure and control points in all power generation systems.

### **Advantages**

- Low Permanent Pressure Loss – approximately 10% at beta ratio 0.5 and above
- Low Pumping Costs – resulting from low-pressure loss
- Highly Flexible – meets a wide variety of size, flow and application requirements
- Rugged Design – limited only by the pressure limitations of the pipe in which they are installed
- Highest Quality – can be designed and manufactured to ASME codes, ASME PTC-6 requirements and 10CFR50, Appendix B and ANSI B31.1

### **Design Features**

- Permutit Flow Venturis are offered in a wide range of standard sizes for either weld-in or flange mounting
- A wide variety of custom sizes and styles are available to meet special requirements
- Low permanent loss – approximately 10%
- Special proprietary inlet profile available for low fouling
- Standard nozzles provide accuracy of  $\pm 0.5\%$  when uncalibrated and  $\pm 0.25\%$  when calibrated
- Feedwater Flow Meters are provided complete with Flow Straighteners, factory installed in pipe and calibrated

## APPLICATIONS

Permutit™ Series Venturi Elements precisely measure gas, steam or liquid flows in virtually all closed pressure piping systems. Utilized in both fossil fuel and nuclear powered steam/electric generating plants, they are ideal for highpressure and supercritical boiler systems, including feedwater and recirculation loops.

## CONSTRUCTION

Permutit Venturi Elements are machined from either forgings or centrifugal castings and surface finishes are available up to 4 RMS. Depending upon your application, materials of construction can include:

- Carbon steel
- Series 300 stainless steel
- Monel
- Copper-Nickel
- Titanium

## FEATURES

Permutit Venturi Elements are offered in a wide range of beta ratios to meet your specific performance requirements. They can be manufactured in a wide variety of materials and supplied with an averaging annulus for use in all types of fluid measurement systems. Pressure connections can be either single high-low or multiple high-low sets. Elements can be either factory installed in a pipe length or supplied separately for on-site installation by others.

## QUALITY CONTROL

Permutit Power Products have been the trusted source for all grades of nuclear and commercial Venturi Elements for many years. Our capabilities include dissimilar metal welding and fabrication to ANSI and RDT specifications. We meet the requirements of the ASME Codes and 10CFR50, Appendix B through our stringent quality assurance program.

## THE ADVANTAGE

As the leader in the water treatment industry, Evoqua Water Technologies has the greatest depth of personnel and technological resources to overcome any challenge. We offer the widest variety of specialty products for the power generating industry, including many custom components. Please contact us for additional information about your specific requirements.



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