

Permutit® Flow Nozzles for Accurate Measurement of Fluid Flow

Permutit® Flow Nozzles offer accurate measurement and flow control through the use of differential pressure. While we offer all three of the differential pressure-producing devices used within the power industry (flow nozzles, Venturis and orifice plates), Permutit® Flow Nozzles are the most versatile devices. They measure the rate that fluids flow under pressure in closed piping systems. Their accuracy and pressure drop/recovery characteristics are far superior to orifice plates. While their characteristics do not equal that of Venturi tubes, their excellent performance in maintaining stable/accurate flow rates, overall system performance and affordable cost make them an effective alternative for many system control points.

Applications

Permutit® Flow Nozzles accurately measure liquid, gas or steam flows in all types of boiler piping systems. They are used in a wide range of boilers, from low pressure to supercritical, and in both fossil and nuclear-fueled power plants.

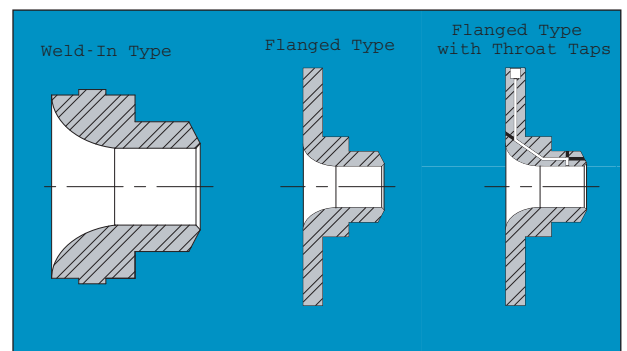
Construction

Depending upon size, Permutit® Flow Nozzles are machined from either forgings or centrifugal castings and surfaces are available to 4 RMS. Materials of construction include:

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

Advantages

- Flow coefficient accurate to ± 0.25 when calibrated
- Lower cost than Venturi tubes
- Less susceptible to wear than orifice plates
- Lower pressure differential and higher recoveries than orifice plates
- Meets wide variety of size, flow and application requirements
- Highest quality design and manufacturing available to ASME PTC-6 requirements and 10CFR50, Appendix B, ANSI B31.1



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Quality Control

We have been the trusted source for all grades of nuclear and commercial flow nozzles and other components 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, Siemens 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.

Design Features

- Permutit Flow Nozzles are offered in a wide range of standard sizes for either weld-in or flange mounting
- Nozzles can use either pipe line pressure connections or throat taps
- A wide variety of custom nozzles configurations are available to meet special requirements
- Standard nozzles provide accuracy of $\pm 0.5\%$ when uncalibrated and $\pm 0.25\%$ when calibrated

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