

# Permutit® Flow Limiting (Cavitating) Venturis, and Multi Orifice Assemblies for Limiting Flow or Pressure Drops

Permutit® offers flow limiting (cavitation) venturis for limiting flows in critical lines where a sudden decrease in downstream pressure (due to rupture etc) can occur. These are designed for choke flow conditions at a maximum predefined flow rate. Due to the unique inlet curve profile and a recovery cone, erosion under these conditions is limited to such an extent on the critical surfaces that the flow characteristics, and mechanical integrity is not affected. These units can be tested at actual site conditions where required to authenticate the design. Siemens Water Technologies has compiled a history of such designs, enabling us to test these at lower pressures in the testing lab, and accurately predict limiting flows from the test data. Low pressure test is less expensive. These devices are also used as flow control devices at lower normal operating flow rates.

Siemens also offers multi-orifice designs that will perform the same function as cavitating venturis. The predictability of the limiting flow, pressure drop is not as accurate as a cavitating venturi, but it can be used where there is flexibility in the design requirements. These assemblies are designed with a number of orifices in series such that cavitation does not occur at any stage. The number of the orifices needed is calculated for each design requirement. In the multi orifice design a removable orifice can be added so that the performance can be fine tuned at site or lab, for same accuracy as an cavitating venturi.

## Construction

The venturis and the Orifices are generally provided in various grades of stainless steel, but other materials can be provided as required. These can be welded in line or provided with flanged connections. The removable orifice is provided with flanged ends.

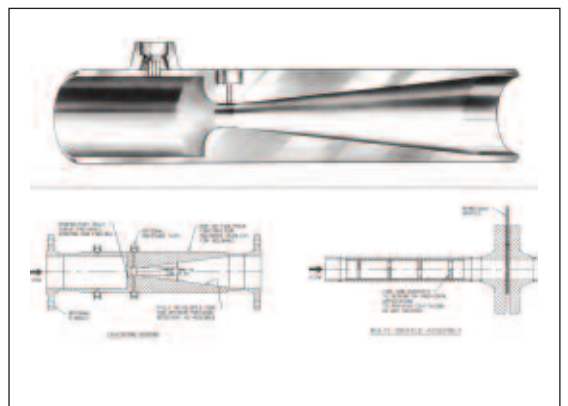
### Advantages

#### Cavitating design venturis:

- Uncalibrated accuracy up to +/- 5% of pressure or flow rate.
- Actual characteristics can be determined by full pressure test in lab.
- Less susceptible to wear and erosion.
- Erosion does not affect design or performance.
- No moving parts to wear or breakdown such as in pressure reducing valves etc.
- Shorter lengths, can be fit into existing pipelines.
- Meets wide variety of flow and application requirements due to custom design.

#### Multiorifice designs:

- Low cost.
- Removable orifice available to fine tune design.
- Highest quality design and manufacturing available for both designs to meet requirements of ASME, 10CFR50, Appendix B, ANSI B31.1, seismic and natural frequency requirements.



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### Quality Control

We have been the trusted source for all grades of nuclear and commercial demineralizers 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

- Cavitating venturis offered in sizes 2" through 6" for weld-in or flange mounting.
- Cavitating venturis are available with throat tap sets.
- Recovery cones designed for individual pressure recovery conditions.
- Accuracy of +/- 5 % to pressure or Flow conditions.
- Multi-orifice designs are available as weld in or flanged.
- Flanged Removable orifice, included in the multi-orifice design.

Siemens  
Water Technologies  
1140 Bridgewater, NJ 08807  
908.704.9027 ext. 104 phone  
908.704.0128 fax  
permutit.water@siemens.com  
www.siemens.com/permutit

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