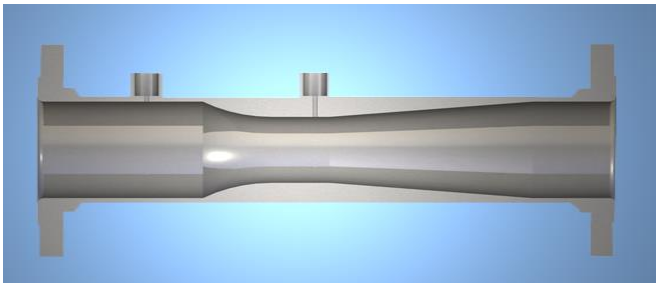
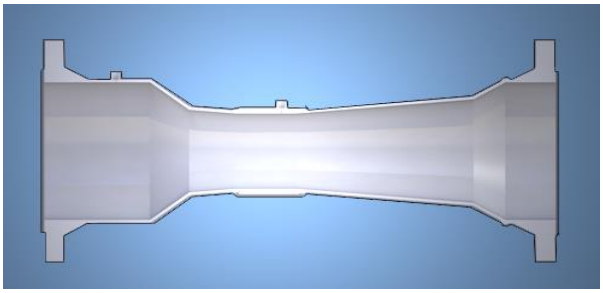
MODEL AVM-S and AVM-T

MODIFIED VENTURI TECHNICAL BRIEF

Amity Flow Models AVM-S and AVM-T are highly accurate modified Venturi meters. The Model AVM-S-F and AVM-T-F are flanged end designs and AVM-S-W and AVM-T-W are butt weld end design. The Model "S" is a highly accurate modified Venturi and is a joint collaboration between Amity and Dr. Richard W. Miller. It is designed to have the Venturi meter achieve to perform to the ASME PTC throat tap nozzle design which is used for the highest accuracy. At Amity Flow we have the unique ability to control the entire fabrication process start to finish which allows for repeatability: our flow meter designs match our products. Amity Flow has manufactured and sold Venturi tubes for over 43 years under other labels, and we are in the unique position of supplying our Venturi flow meters to our competitors.



Model AVM-S-F is a Flanged Machined Venturi 1" to 12" Sizes



Model AVM-T-F is a Flanged Fabricated Venturi 12" and Larger

MATERIAL OF CONSTRUCTION:

The flow element can be constructed using any weldable and machinable materials. A list of suitable materials includes but is not limited to: Carbon Steel, Chrome Moly, Inconel, 304 Stainless Steel, 316 Stainless Steel, Aluminum, Hastelloy B & C, Duplex S/S, Monel and Tantalum.

APPLICATIONS:

The AVM-S-F and AVM-T-W are designed to measure full pipe, clean gasses or liquids over various temperature and/or pressure ranges. Typical applications include potable water, high pressure steam, combustion air, compressor surge control, oxygen & nitrogen, alcohol, ethylene, chlorine and many other gasses and liquids.

DESIGN:

All applicable codes and standards are considered such as section 8 of the Boiler and Pressure Vessel Code as well as ASME B31.1 and 31.3 ASME fluid meters, MFC-3M-1985, ISO 5167, BS-7045, compliant. The meter can be designed for use with Raised Face, Flat Face, Weld End or Ring Joint Flanges of any flange rating of either U.S. or foreign standards.

AMITY FLOW
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www.amityflow.com | sales@amityflow.com | 866-558-Flow

ASME SETTING THE STANDARD

General Specifications

ACCURACY:

- +/-0.25% of actual flow (Flow Calibrated)
- +/-0.50% of actual flow. (Uncalibrated)

RANGE ABILITY:

- 10:1 or better depending upon the secondary equipment selected.

OPERATING CONDITIONS:

- Line Fluid Capability: Gas or liquid full pipe flow.
- Clean with minimal particulate contamination.
- Temperature Range: Cryogenic to Superheated Steam
- Line Pressure Capacity: From full vacuum to the limits of materials.

LINE SIZE CAPABILITY:

- Between 1 inch to 144 inches and Larger

BETA RATIO CAPABILITY:

- Custom sized and designed for Beta ratio range between 0.30 through 0.75.

PIPE REYNOLDS NUMBER RD CAPABILITY:

- Discharge coefficient is constant above 75,000 RD
- Discharge coefficient bias and random error between 12,000 RD and 75,000 RD is empirically established and highly repeatable.

PERMANENT PRESSURE LOSS:

- Varies from 7-15% of differential and up depending on application conditions, beta ratio, and exit cone truncation ratio and can be engineered to meet your requirements.

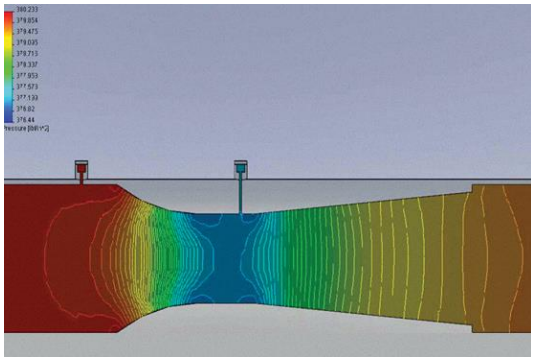
MODEL AVM-S and AVM-T

MODIFIED VENTURI TECHNICAL BRIEF

The AVM-S or "S" design is the most accurate meter providing the highest discharge coefficient

Manufactured for line sizes ranging from 1" to 12"

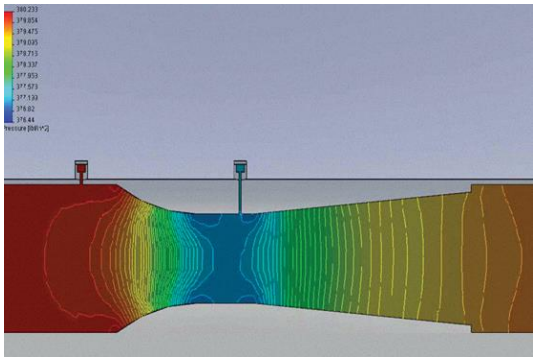
A cylindrical radius is the inlet geometry. The entrance to the PTC-6 throat section is critical to ensure boundary layer development length is in accordance with the PTC-6 theoretical extrapolation requirement (Keyser and Murdock, 1990). AMITY S-Design uses an inlet geometry of the Standardized Torodial Throat Nozzle (ASME/ANSI MFC-7M, 1990), extensive data and CFD studies.



The AVM-T "T" design is an accurate meter providing a slightly lower discharge coefficient than the S Design

Manufactured for line sizes 12" and larger.

The "T" design is a Halmi double cone entrance with a unique cone angles and a throat entrance developed based on test results in Holland (Miller 1989), with confirming CFD studies. Recovery cone geometry for both S and T is designed in accordance with the analysis developed by Gibson (1960) and results confirmed using CFD studies.



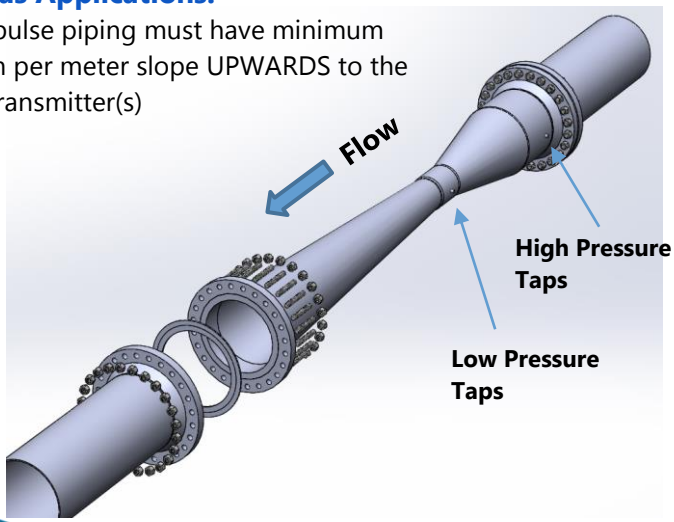
DP Cell Placement

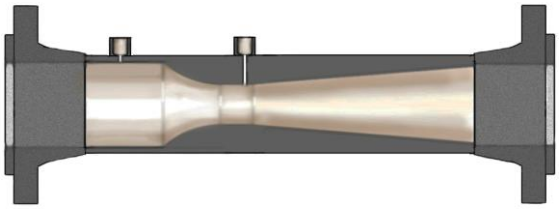
*For Liquid Applications:

All Impulse piping must have minimum 80 mm per meter slope DOWN to the flow Transmitter(s).

For Gas Applications:

All Impulse piping must have minimum 80 mm per meter slope UPWARDS to the flow Transmitter(s)





AVM-S-F Flanged Venturi 1" to 12"

AVM-T-F Flanged Venturi 12" and Larger

Straight Upstream requirement as a general guideline are 10 pipe diameters
Straight Downstream requirements as a general guideline are 2 pipe diameters

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ASME SETTING THE STANDARD

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MODIFIED VENTURI TECHNICAL BRIEF

Both Amity Flow Models AVM-S and AVM-T are constructed to the latest codes, materials and maximum design criteria for the application. The calculation data and the beta ratio will be based upon the customers operating conditions to assure the best possible accuracy through the specified flow range.

Amity has manufactured Venturi tubes for over 43 years under other labels; today we service our clients directly. From customer-specific design through fabrication and testing, we control the entire process for unsurpassed quality, accuracy and repeatability. All models and installation designs can accurately be used on almost any fluid as well as liquid, gas, and vapor flows.
Amity Flow has official certification and authorization in the following categories:

- ASME U Stamp, 2014 Section VIII Div.1 for the manufacturing of Pressure Vessels
- National Board Certified R Stamp for the repairing and alteration of Pressure Vessels
- ASME PP Stamp for the fabrication and assembly of Pressure Piping
- PED (European Pressure Equipment Directive) certified welders and weld procedures
- 87 certified weld procedures and welders for ASME, AWS and PED
- Weld processes include SMAW, GTAW, FCAW, SAW and GMAW