



## FLOWSTREAM Venturi Nozzles

### For Topside Flow Measurement

#### Flow Measurement Excellence

Widely recognized by the Oil, Gas & Petrochemical industries worldwide, Solartron ISA offers more than 45 years experience in the design and manufacture of primary Differential Pressure flow meter devices.

Solartron ISA: Engineering a solution for the metering community.

#### Venturi Nozzles

Venturi Nozzles combine the best features of a Venturi Tube and Flow Nozzle into one single unit. These accurate devices are ideal for measuring the flow of high velocity, non-viscous fluids (e.g. Steam and other high velocity gases). Venturi Nozzles are particularly suitable for erosive fluids where the sharp edge of an orifice plate could quickly deteriorate, with an outlet cone to improve pressure recovery.

Solartron ISA offer a wide range of Venturi Nozzle designs with a solid nozzle and either solid or fabricated outlet cone including flanged or butt-weld connections. All Venturi Nozzle types are designed in accordance with ISO 5167-3. Lines sizes are offered within a range of 50mm up to 1000mm.

Venturi Nozzle designs can provide substantial cost savings as the profile is virtually immune to any wear or erosion. These devices are often regarded as "fit and forget", where very little maintenance and inspection is required.

Solartron ISA offer Venturi Nozzle designs to suit the needs of any pipe-work configuration for various lengths, orientations and end connections. We provide complete Engineering support from initial design and sizing concepts to manufactured final products.

#### Benefits

- Proven flow metering technology and robust design, supported by ISO 5167
- Accurate flow metering of high velocity steam and gas
- No maintenance and inspection is required



#### Applications

- ✓ Hydrocarbon, Liquids & Gas Process
- ✓ Steam Process
- ✓ Erosive Fluids
- ✓ High Velocity Process
- ✓ Process Measurement

#### Key Parameters

- ✓ Proven Technology
- ✓ Robust Design
- ✓ 'Fit and Forget' Flow Metering
- ✓ Low Pressure Loss
- ✓ Suitable for Most Process Conditions

#### Standards

- ✓ ISO 5167-3
- ✓ ISA 1932
- ✓ ASME
- ✓ AGA3
- ✓ ISO 9001
- ✓ PED-97/23/EC

## FLOWSTREAM Venturi Nozzles

### Specifications

#### Functional Specifications

##### Line Size

DN50 (1") to DN1000 (40")

Larger Sizes Available on request

##### Pressure Ratings

Ranging from ANSI 150# to API 15K PSI

##### Types of Venturi Flow Nozzles

Solid, Machined (and Fabricated)

##### End Connections

Flanged, Butt-Weld, Hub

Further connections are available on request

##### Types of Tappings

Flanged, NPT, Socket Weld, Thread O'let, Socket O'let

Further types are available on request

##### Beta Ratio

0.32 to 0.77 (Nozzle type dependent)

##### Reynolds Number

Ranging From  $1.5 \times 10^5$  up to  $2 \times 10^6$

##### Accuracy

Typically  $\pm 3\%$  un-calibrated,  $\pm 1\%$  calibrated

##### NDT Testing

Hydro-testing, Dye Penetrant, Radiography

Additional options:

Magnetic Particle, PMI, Gas and Water Calibrations

Further testing is available on request

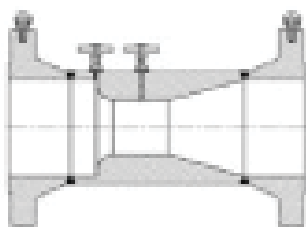
##### Flow Turndown

Typically  $>10:1$ , depending on Transmitter configuration

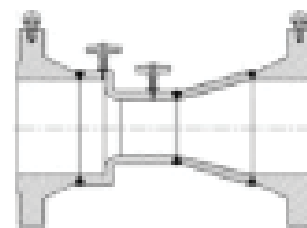
##### Flow Nozzle Material

Carbon Steel, Low Temperature Carbon Steel, Stainless Steel, Chrome Moly Steel, Duplex, Super Duplex, 6 Mo, Aluminum

Others available on request



Integral Venturi Nozzle



Fabricated Venturi Nozzle



SOLARTRON ISA

Hackworth Industrial Park, Shildon, County Durham, DL4 1LH, UK

Tel: +44 (0)1388 773065 • Fax: +44 (0)1388 774888

e-mail: sales.solartronisa@ametek.com • www.solartronisa.com

Houston Sales and Services

4903 W. Sam Houston Parkway, N., Suite A-400, Houston, TX 77041

Tel: +1 713-466-4900 • Fax: +1 713-849-1924