



FLOW MEASUREMENT & RESTRICTION

Our flow measurement equipment are based on the principle of differential pressure measurement. It consists in modifying the fluid flow section, generating a static pressure difference, which is measured to calculate the flow-rate.

Differential pressure flow meters are the oldest used devices for measuring flow-rate. They were introduced in Roman times to bill the water distributed by the aqueducts. The first scientific studies on the subject were carried out at the beginning of the 17th century by Castelli and Torricelli, then by Bernoulli in 1738, who established his famous equation of energy conservation. The first standardized devices such as orifice plates appeared at the beginning of the 20th century in the oil industry in the United States and the first nozzles in Germany around 1930.

Construction codes	NF EN 13480, RCC-M, ASME, CODETI
Regulations	DESP 2014/68/EU, ESPN

- ◆ Diaphragms / Orifice plates
- ◆ Venturi tubes
- ◆ Nozzles
- ◆ Flow restrictors



◆ Diaphragms / Orifice plates

Very good measuring accuracy for a wide range of flow regimes.

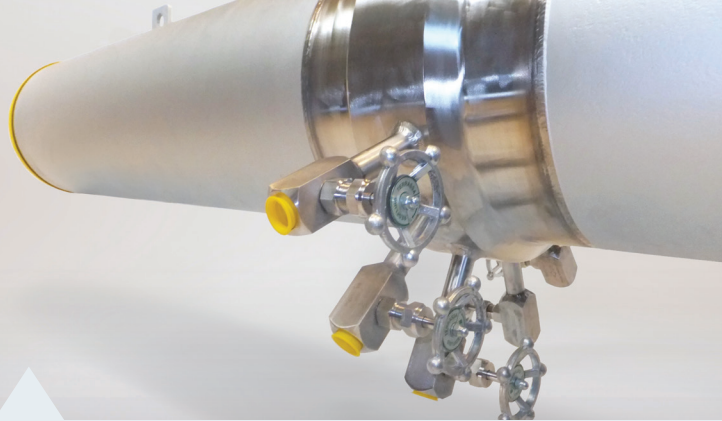
Delivery with calibrated upstream and downstream pipes to ensure the best flow measurement accuracy.

Different types of orifice plates depending on the application.

Requires the use of suitable straight pipe lengths, upstream and downstream.

Easy maintenance if installed between flanges.

Sizing standards	NF EN ISO 5167-1 and -2, ISO/TR 15377, ASME MFC-3M, ASME MFC-14M, ASME PTC 19.5
Dimensions	Pipe internal diameter: 6 mm to 1,000 mm or more depending on your requirements



◆ Nozzles

Good compromise between an orifice plate and a Venturi tube in terms of accuracy and pressure loss.

Longer service life than an orifice plate due to its inlet shape.

More suited to measuring fluid flow with a high Reynolds number.

Sizing standards	NF EN ISO 5167-1 and -3, ISO/TR 15377, ASME MFC-3M, ASME PTC 19.5, ASME PTC 6
Dimensions	Pipe internal diameter: 50 mm to 630 mm or more depending on your requirements



◆ Venturi tubes

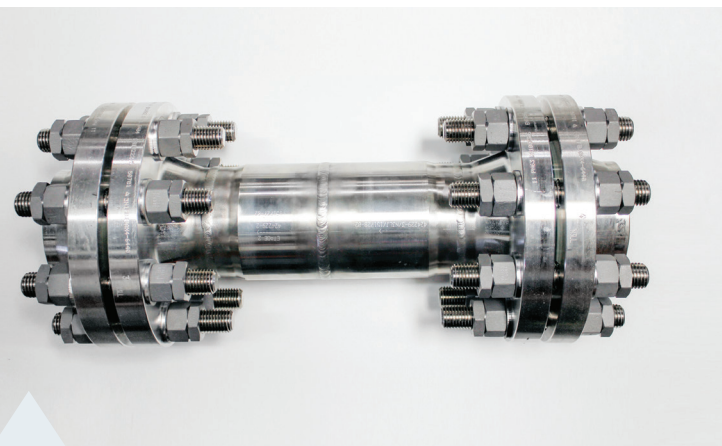
Low unrecoverable pressure loss.

Longer service life than other types of flow measurement elements.

Different types of Venturi tubes are available (machined or welded sheet).

Easy to install due to the shorter upstream/downstream straight lengths required.

Sizing standards	NF EN ISO 5167-1 and -4, ASME MFC-3M, ASME PTC 19.5
Dimensions	Pipe internal diameter: 50 mm to 1,200 mm or more depending on your requirements



◆ Flow restrictors

A flow restrictor (or restriction orifice) is a piece of equipment installed on a pipeline, which by modifying the fluid flow section creates a specific pressure drop and serves to regulate the flow. The pressure drop is caused by the singularities in the design of one or more of its stage(s) and by the assembly of plates with one or more bore hole(s).

Multi-stage flow restrictors achieve the required pressure drop while preventing cavitation risks. Each stage is sized to cause a pressure decrease lower than the critical pressure drop. In addition, multi-holes plates reduce noise and prevent cavitation.

Sizing standards	NF EN ISO 5167-2, Calculation methods specific to SPM
SPM capacity	DN15 to DN400 or more as required