DV700

Technical Datasheet



Short Description

Venturi nozzle for flow rate measurement of aggressive and non-aggressive gases and vapours. The DV700 is used wherever low pressure loss – and therefore low energy loss – is required: depending on the diameter ratio $\beta = d/D$, the permanent pressure loss is about 10 to 15 % of the differential pressure, roughly 80 % less than with an orifice plate. The rounded inlet profile is less sensitive than the sharp edge of an orifice plate. Two versions cover applications up to 300 °C and up to 450 °C.

Identification

Product name	DV700
Type	Venturi nozzle
Design basis	DIN EN ISO 5167-3
Versions	A and B
Document status	12.11.2026

Design Data and Measuring Range

Nominal pressure	PN 6 to PN 100
Nominal diameter	DN 50 to DN 800
Diameter ratio	$\beta = d/D$
Flow range	approx. 0.1 L/min up to approx. 10,000 m^3/h, individual design possible
Differential pressure range	standard approx. 1 to 20 mbar, individual design possible
Permanent pressure loss	10 to 15 % of the differential pressure, depending on the diameter ratio. About 80 % less than with an orifice plate
Accuracy (deviation from the characteristic curve)	max. 0.35 % of reading from 1 mbar differential pressure, individual design possible

The throat diameter d is calculated from the specified operating data in accordance with the applicable standards and regulations; calculation and design are part of the scope of delivery. The pressure loss of the individual design and the required straight inlet and outlet lengths are given in the calculation data sheet. The accuracy of an individual measuring point follows from design and calibration – we state it in the factory or DAkkS calibration certificate.

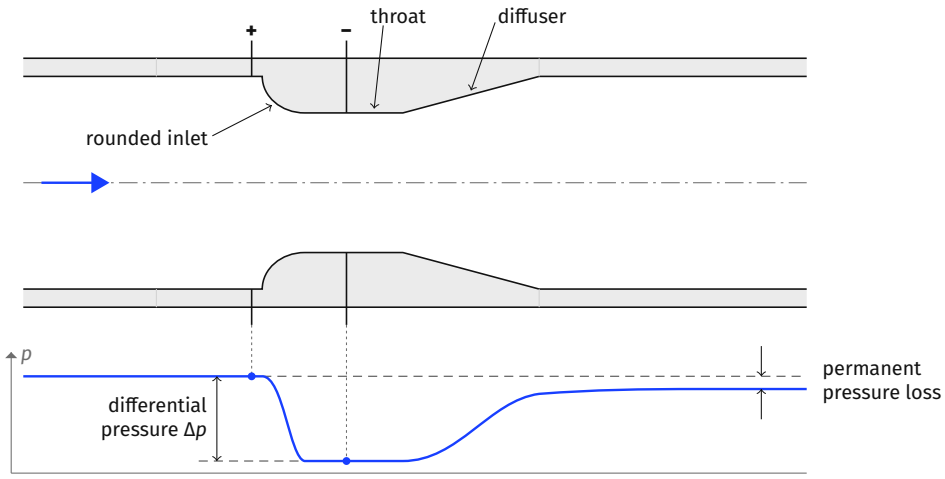
Construction and Design

Structure	convergent inlet with a rounded profile, cylindrical throat, diffuser (outlet cone)
Construction	welded construction of steel or stainless steel, flanged on both sides
High-pressure tap (DP+)	via single tapping holes at the inlet
Low-pressure tap (DP–)	normally via 4 holes opening into a ring chamber – at the narrowest cross-section
Tapping sockets	one at the inlet and one at the narrowest cross-section. On request more than two tapping sockets or flushing connections
Identification	on the outside diameter of the nozzle according to DIN 19205 or ANSI, additionally with batch number and inspection stamp

The Two Versions

FEATURE	VERSION A	VERSION B
End flanges	slip-on, seal-welded	weld-neck
Application up to	max. 300 °C	max. 450 °C
Low-pressure tap	via a ring chamber	as a single tapping hole
Circumferential welds	–	radiographic testing possible

Structure and Pressure Profile



Schematic sketch, not to scale. The static pressure falls in the inlet to the pressure in the throat and rises again in the diffuser without reaching the pressure upstream of the nozzle. The differential pressure Δp is measured between the high-pressure and the low-pressure tap; the difference between the pressures upstream and downstream of the nozzle is the permanent pressure loss.

Materials

MATERIAL GROUP	DESIGNATIONS
General structural steels	RSt37-2
Unalloyed quality steels	C22.8
Heat-resistant structural steels	15Mo3, 16Mo3, 13CrMo44
Stainless steels	X6CrNiTi1810
Plastics	PP, PVC

A plastic coating of the wetted surfaces and a construction made entirely of plastic are possible. Other common materials and special materials on request; the application must be assessed individually, in particular for high temperatures and aggressive media.

Standards and Regulations

Design basis	DIN EN ISO 5167-3
Calculation rules	VDI/VDE 2041
Identification	DIN 19205 or ANSI
Manufacturing and testing	according to the relevant regulations such as TRD and AD 2000-Merkblatt as well as customer specifications
Material certificates	EN 10204 3.1 and 3.2, on request

Options, Variants and Accessories

- Version A (up to 300 °C) or Version B (up to 450 °C)
- Plastic coating of the wetted surfaces
- Construction made entirely of plastic
- More than two tapping sockets or flushing connections
- Condensate pots and shut-off valves, welded on or supplied loose
- Factory or DAkkS calibration certificate

Ordering Information

Every Venturi nozzle is calculated for the individual measuring task. For design and quotation we require:

- Flow range(s)
- Gas type(s)
- Nominal diameter(s) of the nozzle
- Installation length
- Sealing face type
- Material
- Operating conditions (pressure and temperature)
- Permissible pressure drop
- Measurement accuracy
- Ambient conditions

DESIGN AND ADVICE

For the design of your measuring point please contact us at **+49 7157 5387-0** or **info@tetratec.de**.