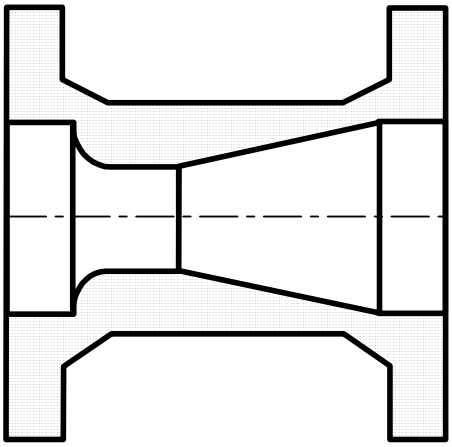
Venturi Nozzle DV 700

Application

For flow-rate measurement in aggressive and non-aggressive gaseous and liquid media and steam.



Construction

A venturi-nozzle is a device composed of a tapered inlet with a rounded profile, a cylindrical throat and a diffusor (outlet cone). The positive measurement is performed through a single bores, the negative measurement is usually carried out through 4 bores that access a ring chamber. The venturi-nozzle is a welded construction consisting either of medium carbon steel or high-quality steel with flanges on both sides. A coating of plastic for the media-contacted surface and a complete construction out of plastic are possible.
The calculation is accorded to ISO 5167-3.

Advantages

Venturi-nozzles find their application wherever pressure –and therefore energy loss- have to be avoided. Comparing orifice plates with venturi-nozzles the remaining pressure loss for venturi is about 80% less and the rounded profile is less sensitive than the feather edge of an orifice.

Technical Details

Nominal pressure:	PN 6 up to PN 500 (ANSI 150 lbs up to 2500 lbs)
Nominal diameter:	DN 50 up to DN 800 (ANSI DN 2” up to DN 32”)
Restriction-Ø:	The Ø is carefully calculated by us from the data supplied considering the relevant standards and regulations and is part of the scope of delivery.
Pressure Loss:	The remaining pressure loss depends on the opening ratio $d^2:D^2$ and is approx. 10-15% of dP; you will find this information in the data-sheet.
Pressure Taps:	The form and arrangement of pressure taps are described on sheet A6 and A7. On special requirements more than 2 pressure taps or flushing connections are possible.
Installation:	Between flanges on horizontal, vertical or diagonal pipelines. Pipe-flanges, bolts and seals are not standard components of the scope of delivery for the venturi-nozzle.
Quality Assurance:	Production and check go along with the relevant guidelines such as TRD, “AD-Merkblatt” and customer-specifications. Material certificates according to EN 10204 3.1 A and B.

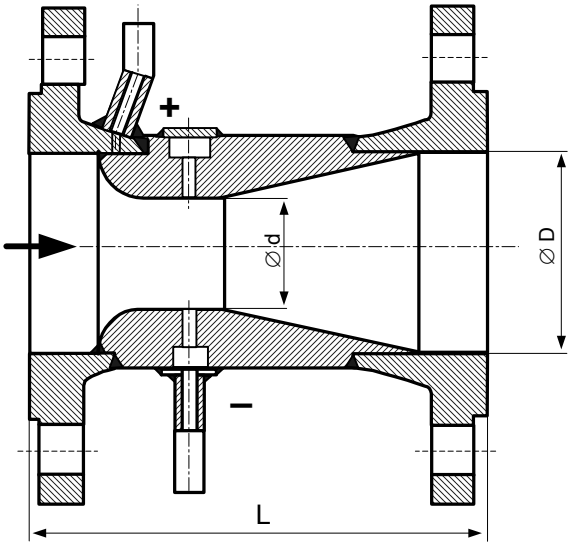
Dimensional Sketches

Design A

Pushed-on end-flanges and seal-welded. Application up to max. 300°C. Negative pressure-tapping through a ring-chamber.

Guiding Value for Installation Lengths

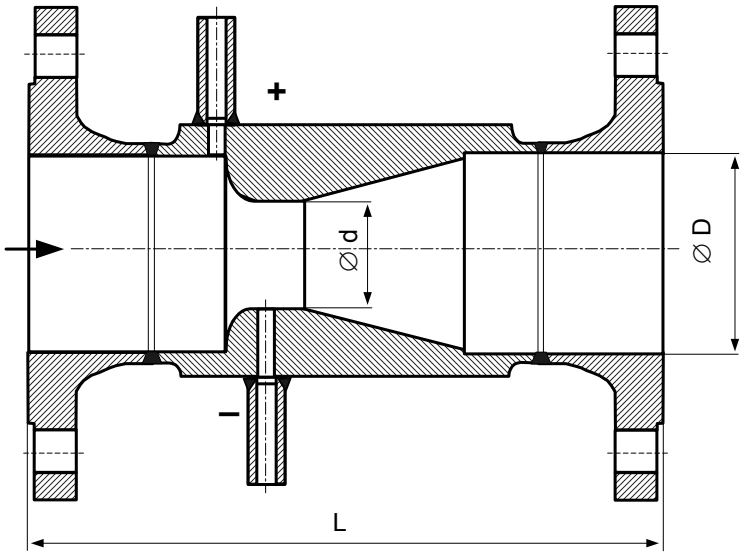
DN	Installation Length L	
	Design A	Design B
50 (2”)	120	170
65 (2,5”)	140	200
80 (3”)	160	220
100 (4”)	200	270
125 (5”)	230	300
150 (6”)	260	350
200 (8”)	320	400
250 (10”)	400	500
300 (12”)	450	600



D = Pipe inner diameter
d = Constriction diameter
L = Installation length

Design B

End-flanges pre-welded, transmission test inspection of circumferential weld is possible.
Application up to max. 450°C. Negative pressure-tapping through single bore.



Materials

Subsequently you find the most customary materials:

Mild steel	RSt37-2	(1.0114)	Heat resistant steels	16Mo3	(1.5415)
Stainless steels	X6CrNiTi1810	(1.4541)		13CrMo45	(1,7335)
	X6CrNiMoTi17122	(1.4571)		10CrMo910	(1.7380)
Carbon steel	C22.8	(1.4060)	Plastics	PP, PVC	

Choice of materials depends on the material of the existing pipeline, as well as on the medium, temperature and pressure. Other materials may be used according to customer’s specification.

Identification

According to DIN 19205 or ANSI on the outer Ø of the tube, additionally with the charge no. and inspector’s stamp.

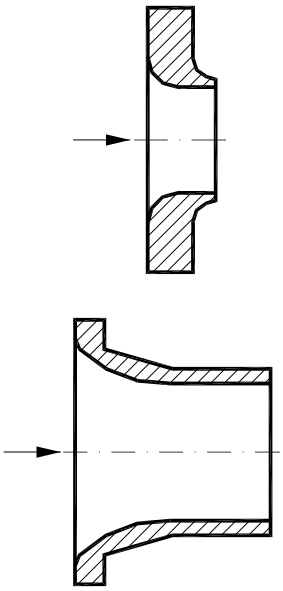
Accessories

Condensate vessels and shut-off valves welded-on or separately.

Standard flow nozzle DU 600 (ISA 1932)
Long radius nozzle DU 600 LR

Application

for measuring the flow of aggressive and non-aggressive gases, vapours and liquids
As a welded construction, the nozzles are used especially for power stations and energy applications.



Construction

Standard flow nozzles are restrictor devices which consist of a narrowed inlet part with a circular profile, and a cylindrical cervical part. With long radius nozzles the profile is a quarter ellipse. The plus pressure withdrawal occurs via a single boring or ring chambers; with long radius nozzles the withdrawals 1 x D are arranged in front of the nozzle and 0.5 x after the nozzle. Nozzles are mostly weldments of steel or stainless steel. The calculation corresponds to ISO 5167-3

Preferences

Everywhere where a low pressure loss is needed, and therefore energy losses have to be maintained at low levels, preference is given to nozzles above apertures. Compared with apertures, the remaining pressure loss approx. 80% is lower and the circular finish profile is more insensitive than the sharp edge of an aperture. As a result, higher durability is achieved.

Technical characteristics

Nominal pressure:	PN 6 to PN 400
Nominal bore:	DN 50 to DN 500 (ISA 1932) / DN 50 to DN 630 (long radius nozzles)
Constriction- Ø:	We carefully calculate the constriction from the given data, taking into account the corresponding standards and regulations. Calculation and construction are included within the scope of supply.
Pressure loss:	The amounts of remaining pressure loss depending on the opening ratio $d^2 : D^2$ is about 40-50% of the active pressure and is shown in the data sheet
Withdrawal connecting pieces:	the shape and arrangement of the withdrawal connecting pieces are listed in the model sheets A6 and A7. If requested more than 2 withdrawal connecting pieces or flushing connectors are also possible.
Material:	see sheet 95.2.
Installation:	nozzles with socket rings between flanges or as a weld construction (special long radius nozzles)
Quality assurance:	Manufacture and testing according to the appropriate guidelines for example TRD, to AD leaflets as well as customer specification Certificate of Conformity according to EN 10204 3.1 or 3.2.