

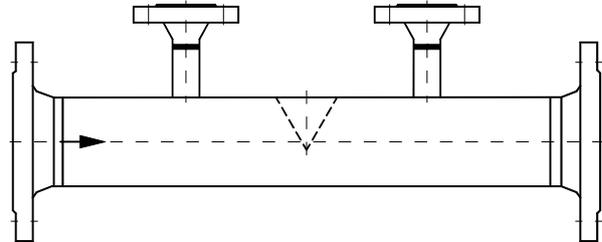
Wedge Meters

Application

Wedge meters are used for flow measurement of aggressive and non-aggressive gases, steam and liquids, especially for low Reynolds numbers and liquids containing particles.

Design

The Wedge meter consists of a pipe section and a V-shaped wedge as a throttle element. This wedge generates a differential pressure which is proportional to the volume flow. Due to the shape of the restriction (wedge) the wear is much lower than, e.g. for a ISO 5167 square edged orifice plate. The tapping of the differential pressure is done in front of and behind the wedge, usually via flanges DN 50 (2") or DN 80 (3") so that differential pressure transmitters with diaphragm seals can be used.



Advantages

This flow element is well suited for applications where solid particles in the liquid flow medium are present. Additionally, the wedge type combines several advantages:

- bidirectional use possible
- only short inlet and outlet straight lengths are required
- easy to clean because of large tapping sizes

Measuring Uncertainty

ca. 5% of the discharge coefficient C (a calibration can reduce the uncertainty)

Pressure Loss

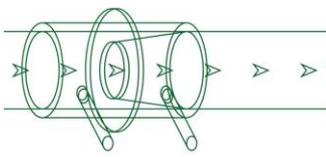
The pressure loss depends on the diameter ratio β (d/D) and amounts to ca. 40 - 60% of the differential pressure.

Nominal Diameter

DN 25 to DN 600 / DN 1" to DN 24" (if requested other sizes are possible)

Pressure Rating

PN 10 to PN 400 / 150# to 2500# (ASME)



Installation Length

In general, Wedge meters are manufactured with end flanges for easy mounting. The total length then amounts to the following values:

DN	25 (1")	40 (1,5")	50 (2")	80 (3")	100 (4")	150 (6")	200 (8")	250 (10")	300 (12")	350 (14")	400 (16")	450 (18")	500 (20")	600 (24")
length (mm)	700	700	700	850	900	100	1050	1150	1200	1250	1250	1300	1400	1600

Customer requirement can be considered, of course.

Height of Wedge „h“

The calculation of the wedge height is based on the supplied process data. All relevant standards and regulations will be considered. The calculation is part of the scope of supply.

Pressure Taps

Generally, pressure tappings have end flanges DN 50 (2") or DN 80 (3"). For gases, they face upwards and for liquids, they face downwards.

Marking

Tag no. of flow element

Pressure rating "PN"

Pipe inner diameter "D"

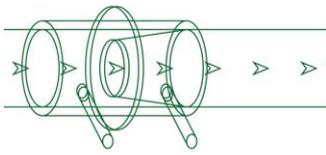
Height of wedge "h"

Material, direction of flow and tagging
of pressure tappings with "+" and "-"

Materials

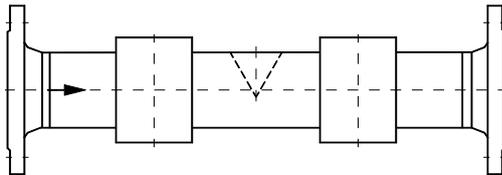
The following table shows a selection of typical materials. The material is chosen based on process medium, pressure and temperature.

Material	short name	DIN material no.	ASTM / UNS
non-alloy steels	P250 GH (C22.8)	1.0460	~ A105
	P265 GH	1.0425	-
	A105	~1.0432	A105
	A516 Gr.60	~1.0426	A516 Gr.60
	A516 Gr.70	~1.0473	A516 Gr.70
stainless steels	X2CrNiMo17-12-2	1.4404	A182 Gr. 316L
	X6CrNiMoTi 17 12 2	1.4571	A182 Gr. 316Ti
high corrosion-resistant alloys	Hastelloy C276	2.4819	N 10276
	Monel 400	2.4360	N 04400

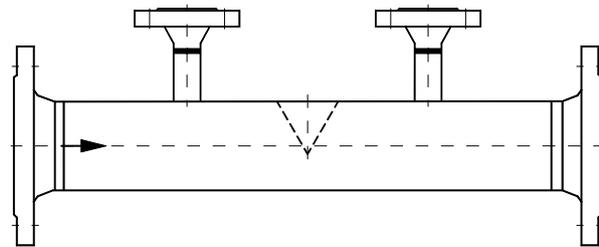


Example Designs

design for DN 25 (1") to DN 50 (2")



design for DN 80 (3") to DN 600 (24")



Installation

For mounting between flanges according to EN 1092-1 / ASME B 16.5 or other standard such as DIN, JIS or BS. The pipe may be positioned horizontally, vertically or sloped.

Quality Control

Manufacture and Test work is done according to the relevant codes and standards such as AD 2000, EN 13480, ASME Codes (without stamp) or customer specifications.

Inspection certificates according to EN 10204 3.1 and 3.2. may be furnished. Special inspections are also possible.

Accessories

Pipe flanges, bolts/nuts, gaskets for installation, tap valves, condensate pots, manifolds, mounting accessories may be offered for additional charges.