

FEATURES

- Suitable for liquid, gas and steam flow measurement
- Design to ISO 5167-3
- Fabricated from plate or machined from Bar/Forgings
- Lowest pressure loss in the family of primary flow elements
- Pipe Sizes from 50mm to 1200mm



PRODUCT OVERVIEW

Venturi and venturi nozzle are both differential pressure flow elements. Flow of the fluid to be metered is directed through a convergent section to a constant diameter throat. Flow rate is dependent on the pressure difference between these two sections, which is measured by a differential pressure-measuring device. Both feature a convergent inlet section and a divergent outlet section. The classical Venturi convergent section is a simple truncated cone, whereas for the Venturi nozzle, the inlet contour matches that of the ISA 1932 flow nozzle. The major advantage of the Venturi over orifice plates and flow nozzles is in the area of pressure recovery. Typically, unrecovered pressure is in the region of 10 - 30% of measured DP as opposed to 40 - 90% for an orifice plate (depending on beta ratio). Although the cost of a Venturi can be comparatively high, where pumping costs are important the initial outlay can be warranted. Another advantage of the Classical Venturi over the other differential pressure producers is that the requirements for upstream and downstream straight pipe lengths are somewhat less onerous.

DIMENSIONS

The total length of a venturi is the sum of inlet frustum, inlet convergent section, throat section and outlet divergent section. To limit the total pressure loss, there is a limitation on inlet and outlet angles. This makes the total length of the venturi tube to be longer than other common flow measurement devices. Detailed drawing will be given with each order by Sangan Sanat Co. Our venturi tubes and venturi nozzles are manufactured from DN50 up to DN1200.

MATERIALS

Venturi tubes and venturi nozzles can be supplied in a wide range of material grades. Machined devices can be manufactured from barstock, or forgings. Standard materials include ASTM A182 F316 & F304 Stainless Steel, ASTM A182 F11 & F22 Chromium Steel and ASTM A105 Carbon Steel.

SIZING

Calculations for flow measurement are performed to the latest revision of ISO 5167-1, ISO5167-3 and ISO5167-4 standards. The Sangan Sanat Co uses standard sizing programs such as R.W.Miller, Conval and proprietary developed softwares for special conditions not covered in standards.

LIMITATIONS OF USE

Pipe size and Reynolds number limitations are shown in the table below, in accordance with ISO 5167-1, ISO5167-3 and ISO5167-4.

Device	Pipe ID (mm)		Reynolds Number	
	Min	Max	Min	Max
Fabricated Venturi	200	1200	2×10^5	2×10^6
Machined Venturi	50	250	2×10^5	1×10^6
Venturi Nozzle	65	500	1.5×10^5	2×10^6