

I PVC INJECTOR

Venturi principle



Description

The best way to describe a venturi tube is: a section of pipe whose diameter first decreases (inflow) and then remains constant for a short length (throat), before gradually increasing again (outflow) to the original diameter. The flow rate can be determined from the pressure difference between the inflow and the throat, and the ratio of the diameters of the pipe and the throat.

Bernoulli's equation (see below) is used to calculate the velocity. It follows from this equation that the pressure is lower when the fluid velocity is higher, because the total energy at the inflow is equal to the total energy in the throat (conservation of energy). If a third opening is made in the centre of the venturi tube, in the throat, allowing a second gas or liquid flow to be added, this is known as an 'injector'. The second inflow takes place because underpressure is created in the section of the venturi tube where the diameter starts to increase, causing gas or liquid to be drawn in.

The most well-known application of this principle can be found in the carburettor, where the air flow in the venturi tube causes the gasoline to be drawn in and mixed to a combustible ratio. It is naturally also possible to mix a liquid/liquid flow.

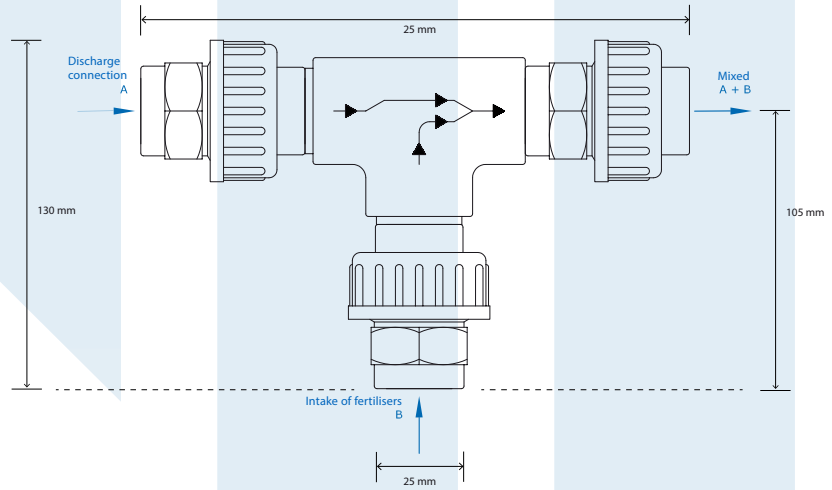
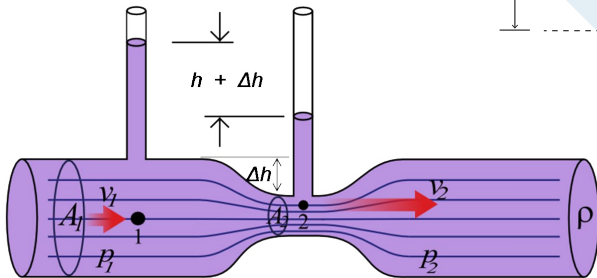
The application in horticulture is an injection system for fertilizers from the A and B tanks. A shunt pipe is fitted from the pump's discharge pipe to the intake pipe. The venturi tube is placed in this pipe with a control valve behind it, operated via an EC measurement. Two venturi injectors are used in a normal unit. Van der Ende Groep's injector is made of PVC. The adhesive bonds are 25 mm and are attached to the venturi tube using screw connections. On request, the connectors can be provided with adaptor rings. The maximum operating pressure of this venturi injector is 10 bar.

$$p_1 - p_2 = \frac{\rho}{2}(v_2^2 - v_1^2)$$

p = pressure

ρ = density

v = velocity



DIFFERENTIAL PRESSURE ACROSS A / A+B mwc	CAPACITY INLET A L/min	CAPACITY INLET B L/min	VACUUM INLET B mwc
5	6,6	6,6	0,7
10	8,4	9,6	0,7
15	10,2	12,0	0,7
20	11,4	14,4	0,7
25	13,2	16,2	0,7
28	14,4	17,4	0,8



VAN DER ENDE GROEP

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