METHANE FROM FLARING TOOLKIT

Pitot Tube Flow Meter

How do I measure flow? > Pitot Tube Flow Meter

A pitot tube or probe, is a device used to measure the velocity of a flowing fluid.

How it Works

The basic pitot tube consists of a tube inserted into a pipe and pointing directly into the fluid flow. In the tube the moving fluid is brought to rest (stagnates) as there is no outlet to allow flow to continue, and its stagnation pressure can be measured.

The pressure of the fluid flowing around the outside of the pitot tube can also be measured and is known as the static pressure.

The difference between the stagnation pressure and the static pressure can be used to determine the velocity of the fluid flowing inside the main pipe.

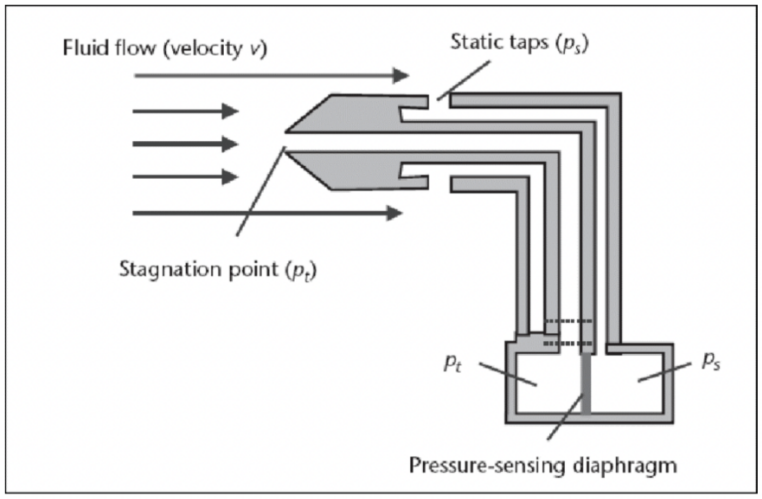

Figure 1: Principles of a pitot tube flow meter

(Image taken from researchgate.net)

Advantages

- Well proven, simple, and robust metering principle
- Low cost

Limitations

- Not suited for low flow velocities since the difference in measured pressures is very low
- High risk of contamination of flow element (pitot tube)
- Pitot tube projects out into flare line
- Entrained liquids can be problematic for pitot tubes
- Limited turndown ratio, typically 4:1

Can be damaged by wake induced vibration at high gas velocities

Go Deeper

- Emerson

Case study

No case study available at this time.

How do I measure flow?

Flow: Ultrasonic & Sonar Clamp-on Flow Meters

Vortex Flow Meter

Flow: Coriolis Flow Meter

Flow: Ultrasonic Flow Meter

L2F Optical Flow Meter