

METHANE FROM FLARING TOOLKIT



Flow: Orifice Flow Meter

How do I measure flow? > Flow: Orifice Flow Meter

An orifice plate is a thin plate with a hole in it, which is inserted into a pipe.

Orifice plates are well proven devices and can be used to measure the flow of single phase fluids in steadily flowing streams.

When the orifice plate is constructed and installed according to appropriate standards, the flow rate can easily be determined using published formulae based on those standards.

How it Works

When a fluid (whether liquid or gaseous) passes through an orifice, its velocity increases and the fluid pressure decreases.

A little downstream of the orifice the flow reaches its point of maximum convergence, the vena contracta, where the velocity reaches its maximum and the pressure reaches its minimum.

By measuring the difference in fluid pressure across tappings upstream and downstream of the plate, the flow rate can be obtained using equations from the design standards.

AWAITING APPROVAL FOR IMAGE

Advantages

- ✓ Well proven, simple, and robust metering principle

Limitations

- ✗ Orifice plates are not be used in a typical flare due to high pressure loss, plate buckling and high risk of contamination of the orifice plate
- ✗ Present significant restriction to flare flow
- ✗ Not suited for low flow velocities
- ✗ Limited turndown ratio, typically 4:1

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