



V-Cone Flowmeter Solves Test Separator Problems for the Oil & Gas Industry.

Test separator applications

Test separators are normally used when more than one well and field deliver fluid to the platform at the same time. It is important to continuously monitor the oil, condensate, water and gas being delivered to the platform from each well.

However, in the gas metering section of a test separator, liquid “carry over” is a well-known problem, especially when new wells are put on stream. Occasionally, when the well stream flow exceeds the capacity of the test separator, water, oil, agitated solids and other debris are carried over into the metering devices. As a result of this harsh treatment, orifice and conventional turbine meters have sometimes been found buckled or damaged—even when relocated somewhere downstream of the process.

Other common problems with conventional meters include wax/asphaltene build-up, sand/cavitation erosion and grease ingress/deposition from upstream valve lubrication. They contribute to inaccurate measurement, which in turn leads to an increase in total cost of ownership of the system.

Also, when a well-test is being performed, there is usually higher than normal flow regimes/velocities and the separator performance is reduced due to the meters’ over-ranging. Generally, plate changes are needed on orifice-designed measurement systems to cope with the turndown. But this can be time-consuming, risky and costly when removing plates under system pressure.



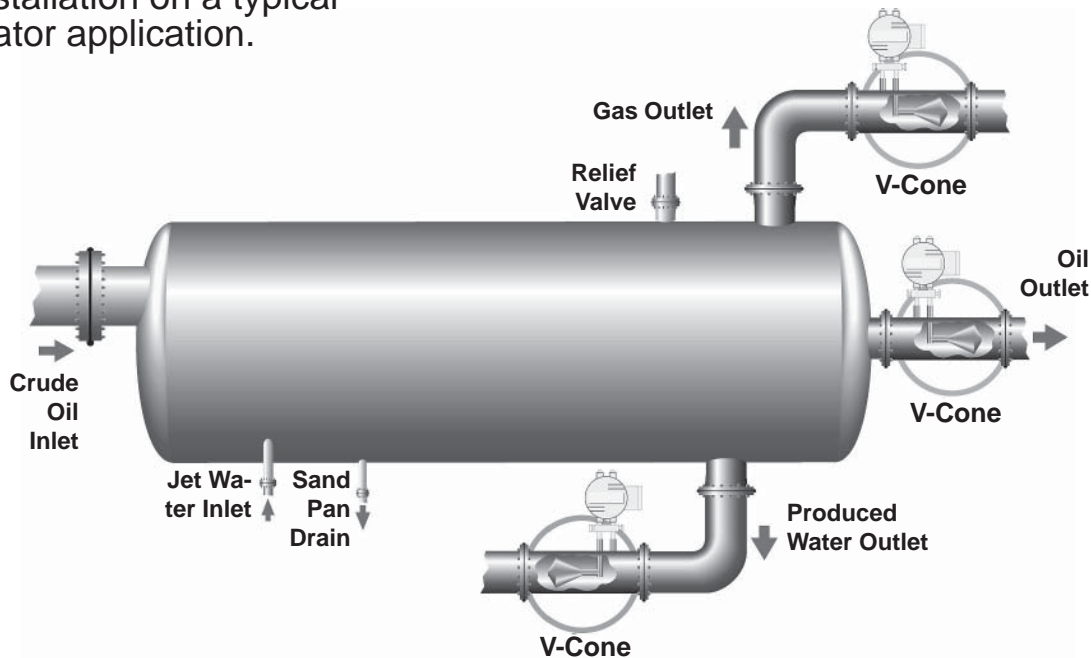
- Little or no upstream straight pipe run requirements
- Accuracy from $\pm 0.5\%$ and $\pm 0.1\%$ of repeatability
- Low headloss
- Easy installation - ideal retrofit
- Little to no maintenance

Measures:

- Gas which can be wet, abrasive and has a disturbed flow
- Flow for anti-surge control in compressor stations
- Output from separators (single phase gas, oil and water)
- Flow in gas injection systems
- Contaminated water (sand, oil, paraffins, and other hydrocarbon fluids)



V-Cone installation on a typical test separator application.



These heavy and bulky installations can incur weight and space penalties, a major consideration for today's offshore platforms.

Why the V-Cone Flowmeter is ideal for Test Separator Applications

McCrometer's patented V-Cone flowmeter offers an advanced differential pressure flow technology that acts as its own flow conditioner.

This unique design enables the V-Cone flowmeter to provide outstanding performance without the long lengths of upstream or downstream pipe runs usually required by other types of flowmeters. This requirement for reduced straight pipe run results in significant space savings, especially on offshore platforms. For retrofit

purposes, the V-Cone is simple to install.

The V-Cone flowmeter measures wet gas efficiently and provides a more stable, accurate result than other meters. There are no build-up problems with the V-Cone, unlike the orifice plate and some other flowmeters.

When two V-Cone flowmeters are placed in parallel on a test separator gas run, the flowmeters can cover the range that would require at least 10 orifice plates.

The V-Cone provides an accuracy from $\pm 0.5\%$ and repeatability of $\pm 0.1\%$. It comes in sizes from 1/2 inch to over 120 inches. It handles flow turndowns in excess of 10:1. High pressure meters are available. Corrosion resistant models in most materials are also available.