For over two decades, the oil and gas industry has turned to the V-Cone for flow measurement solutions. Consistently, this advanced flowmeter has provided a level of performance thought unachievable in real-world environments.

McCrrometer’s innovative V-Cone Flowmeter is designed for high performance in mild to harsh environments. This proven flowmeter measures the widest range of fluids from liquids to gases, including wet gas, condensate, and dirty or abrasive flows, as well as other typical flow measurement conditions. The V-Cone offers easy installation, superior accuracy and repeatability, and long-term, low-cost operation for refinery and onshore/offshore production and delivery applications.

Advanced Differential Pressure Flowmeter Technology

Piper flow profiles are rarely ideal. Practically any change to the piping can disturb the flow. The contoured shape of the centrally located cone in the V-Cone Flowmeter counteracts this by reshaping the velocity profile.

The V-Cone forms very short vortices as the flow passes the cone. These short vortices create a low amplitude, high frequency signal for excellent signal stability. The clean signal enables a wide measurement range and quick response time for control.

As the flow approaches the cone, the flow profile “flattens” toward the shape of a well developed profile—even in extreme flow conditions.

Whether your application is straightforward or challenged by limited installation space, disturbed flow, high turndowns, wet gas, or dirty or abrasive fluids, McCrometer’s knowledgeable staff can accurately evaluate your application and specify the best meter to meet your needs.

www.mccrometer.com
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U.S. Patents 4812049, 5363699 and 5,814,738; Including Patents Applicable Outside The U.S. and Foreign/Patents Pending.

Proven Flow Measurement Solutions for the Oil and Gas Industry
The V-Cone is an advanced flowmeter that takes differential pressure flow measurement to a new level. The V-Cone has proven its performance in the harshest operating conditions and for the widest variety of fluid types. In these applications, the V-Cone provides accurate measurement of these challenging flow regimes.

Superior Performance

The V-Cone delivers an accuracy of ±0.5% of rate and ±0.1% repeatability (depending on fluid type) under a variety of conditions. It also handles Reynolds number applications may require specific calibrations to achieve this value).

Flow Ranges: 10:1 and greater.

Standard Beta Ratios: 0.45 through 0.80, custom betas available.

Head Loss: Varies with beta ratio and dP

Installation piping requirements:

Typically 0.3 diameters upstream and 0.1 diameter downstream of the cone are required, depending on fittings or valves in the adjacent pipelines.

Materials of Construction Include:

Duplex 2205, 304, or 316 stainless steel, Hastelloy C-276, 254, 800, carbon steels. Special materials and testing available on request.

Line Sizes: 0.5 to 120" or larger.

End Fittings: Flanged, threaded, hub and weld-end standard. Others on request.

Configurations:

Precision flow tube and water-type.

Calibrated for customer application.

ASME B31.3 construction available.

Approvals for the V-Cone:

Canadian custody transfer approved.

ISO 9001/2008 certified quality management system.

Conforms to API 22.2 testing protocol.

So Innovative...

It Created An Entirely New Category

After more than twenty years, McCrometer's V-Cone remains the most innovative dP meter available today. The self-conditioning cone is a simple, yet powerful way to provide accurate measurement of these challenging flow regimes.

Low Total Cost of Ownership

With no moving parts to replace or maintain, the V-Cone assures long-term performance without the operating costs of other flowmeters. The contoured aerodynamic shape of the cone profiles the flow in the pipe without impacting it against a sharp beta edge. Instead, it directs fluid away from the beta edge. The V-Cone beta edge does not change dimensionally, thus allowing extremely long usage without physical re-calibration.

Design Flexibility

The V-Cone is available in line sizes from 0.5" to greater than 120" on an extensive variety of construction materials. The V-Cone can be jacketed, painted, coated, or treated like any other piece of piping. The V-Cone is regularly calibrated, tested, and certified to the most demanding specifications.

Meeting the Needs of the Oil & Gas Industry

Ideal for Wet Gas and Steam

The V-Cone is able to measure wet gas, steam, or combined flow unique in the industry. In side-by-side tests with other dP technologies, only the V-Cone provided accurate measurement of these challenging flow regimes.

Range: Wet Gas and Steam

Accuracy: ±0.5% of rate and ±0.1% repeatability

Flow Ranges: 10:1 and greater.

Repeatability: ±0.1% or better.

Flow Total Cost of Ownership

The V-Cone is an advanced meter that offers exceptional flexibility for natural gas, coalbed methane, and shale gas wellheads, and also ideal for small process lines, and many other process applications.

The Wafer-Cone is the ideal flow cost solution, offering exceptional flexibility for natural gas, coalbed methane, and shale gas wellheads. Also ideal for small process lines, and many other process applications.
V-Cone consistently outperforms flow technologies. In these applications, the conditions and for the widest variety of fluid types. In some of the harshest operating straight pipe runs or flow conditioning devices, the V-Cone can fit into tight spaces.

Low Installed Cost

Because it does not require long straight runs in oil and gas applications or in retrofitting existing applications, devices, the V-Cone can fit into tight spaces. When retrofitting existing applications, the V-Cone typically fits right in place without having to re-engineer the piping layout.

Ideal for Wet Gas and Steam

The V-Cone's ability to measure wet gas, steam, or condensate has been unparalleled in the industry. In side-by-side tests with other dP technologies, only the V-Cone provided accurate measurement of these challenging flow regimes.

Superior Performance

The V-Cone delivers an accuracy to ±0.5% of rate and ±0.1% repeatability (depending on fluid type) under a variety of conditions. It also handles laminar flows of 10:1 and greater, without loss of accuracy. The V-Cone has an unprecedented long life of twenty-five years or more.

Low Total Cost of Ownership

With no moving parts to replace or maintain, the V-Cone assumes long-term performance without the operating costs of other flowmeters. The contiguous streamlined shape of the cone-profiled flow in the pipe without impacting it against a sharp beta edge. Instead, a boundary layer forms along the cone, directing fluid away from the beta edge. The V-Cone beta edge does not change dimensionally, thus allowing extremely long usage without physical re-calibration.

Superior Performance

Ideal for Wet Gas and Steam

The V-Cone is available in line sizes from 0.5" to greater than 120" and has an extensive range of construction materials. The V-Cone can be jacketed, painted, coated, or treated like any other piece of piping. The V-Cone is regularly calibrated, tested and certified to the most demanding specifications.

Design Flexibility

The V-Cone beta edge does not change dimensionally, thus allowing extremely long usage without physical re-calibration.

V-Cone Specifications

| Standard Accuracy: | ± 0.5% of rate (contain fluids and Reynolds number applications may require specific calibrations to achieve this value). |
| Repeatability: | ± 0.1% or better. |
| Flow Ranges: | 10:1 and greater. |
| Standard Beta Ratios: | 0.45 through 0.80, custom beta available. |
| Head Loss: | Varies with beta ratio and dP. |
| Installation Piping Requirements: | Typically 0-3 diameters upstream and 0-1 diameter downstream of the cone are required, depending on fittings or valves in the adjacent pipelines. |
| Materials of Construction Include: | Duplex 2205, 304, or 316 stainless steel, Hastelloy C-276, 254, 690, carbon steels. Special materials and testing available on request. |
| Line Sizes: | 0.5" to 120" or larger. |
| End Fittings: | Flanged, threaded, hub and weld-end standard. Others on request. |
| Configurations: | Precision flow tube and water-type. | Calibrated for customer application. | ASME B31.3 construction available. |

Approvals for the V-Cone:

- Canadian custody transfer approved.
- ANSI B31.3 construction available.
- Canadian custody transfer approved.
- Meters in compliance with PED/97/23/EC are available upon request.
- Conforms to API 22.2 testing protocol.

The Wafer-Cone is the ideal low cost solution, offering exceptional flexibility for natural gas, coal bed methane, and shale gas environments. Also ideal for small process lines, many other plates. Information applications.

The Wafer-Cone is a steady flow cost solution, offering exceptional flexibility for natural gas, coal bed methane, and shale gas environments. Also ideal for small process lines, many other plates. Information applications.

To place an order or learn more about the V-Cone, contact our experts at 951-652-6811 or visit our website at www.mccrometer.com
T he V-Cone is an advanced flowmeter that takes differential pressure flow measurement to a new level. The V-Cone has proven its performance in the harshest operating conditions and for the widest variety of fluid technologies. In these applications, the V-Cone consistently outperforms traditional dP devices and other major flow technologies.

Ideal for Wet Gas and Steam
The V-Cone’s ability to measure steam, gas, or a combination of these two in the industry. In side-by-side tests with other dP technologies, only the V-Cone provided accurate measurement of these challenging flow regimes. This installation flexibility saves cost, space and maximizes weight penalty problems without compromising the accuracy of the measurements. Future changes to upstream or downstream conditions will not affect the performance of the V-Cone.

Superior Performance
The V-Cone delivers an accuracy to ±0.5% of rate and ±0.1% repeatability (depending on fluid type) under a variety of conditions. It also handles laminar, transitional, and fully turbulent flows without significant loss of accuracy. The V-Cone has an unprecedented long life of twenty-five years or more. The unique geometry of the V-Cone allows it to maintain the V-Cone assures long-term performance without the operating costs and maintenance associated with other flow meters. The contoured aerodynamic shape of the cone profiles the flow in the pipe without impacting it against a sharp beta edge. In addition, the low head loss assures efficient operation without re-engineering the existing piping system.

Low Total Cost of Ownership
Without any moving parts to replace or maintain, the V-Cone assumes long-term performance without the operating costs of other flowmeters. The V-Cone handles wet gas, steam, or condensate without compromising the accuracy of the measurements. The V-Cone provides accurate measurement of these challenging flow regimes. This installation flexibility saves cost, space and maximizes weight penalty problems without compromising the accuracy of the measurements.

Low Installed Cost
Because it does not require long straight pipe runs or flow conditioning devices, the V-Cone can fit into tight spaces. When retrofitting existing applications, the V-Cone typically fits right in place without having to re-engineer the piping system.

Meet the Needs of the Oil & Gas Industry

The Wafer-Cone is the ideal low cost solution, offering exceptional flexibility for natural gas, coal bed methane, and shale gas environments. This ideal for small process lines, and for many other process applications.

Design Flexibility
The V-Cone is available in line sizes from 0.5” to greater than 120” in an extensive variety of construction materials. The V-Cone can be jacketed, painted, coated, or treated like any other piece of piping. The V-Cone is fully calibrated, tested and certified to meet the most demanding specifications.

Meeting the Needs of the Oil & Gas Industry

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The V-Cone’s contour-shaped cone directs the flow towards the outside wall of the pipe, away from the cone. As a result, the beta edge is not subject to wear by particle laden fluids and remains unchanged. Therefore, V-Cone rarely, if ever, require recalibration or replacement.

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