McCROMETER

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Industry:
Chemical & Petrochemical Processing

Niche Market:
Petrochemical Processing & Refining

Process:
Crude Oil Refining, Petrochemical Production, Ethylene & Propylene Production.

Product(s):
Fuel Oils, Fuels, and Petrochemicals.

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McCrometer Process Industry Sales

V-Cone Application Guide

Industry: Chemical and Petrochemical Processing – V-Cone Flowmeters in Refining and Petrochemical Applications

Application: Crude Oil Refining to Salable Products, and the Production of Petrochemicals including Ethylene and Propylene.

Measurement Challenge/Difficulty: Most refineries have two measurement challenges: accuracy and cost. They must be able to accurately measure an increasing throughput with older facilities, as well as control costs associated with both utilities and process measurement. Most flowmeter applications are antiquated, or were part of a large-scale replacement program throughout a plant. The challenge is to correctly match the right flowmeter to the right application in order to achieve the best performance for the lowest cost. Some of the driving forces behind making effective flowmeter changes are heat and material balancing, the cost of maintenance or repair/replacement, reworking the flow through the plant for greater efficiencies and increased profits, or a change in environmental restrictions and/or regulations. All of these issues point to the need for better flow measurement to save money and increase efficiencies. Plant modernization is necessary to increase efficiency in operations and/or to meet new environmental regulations for clean fuels and emissions reductions.

Previous Method: Predominantly, earlier technology differential flowmeters (orifice plates, venturi tubes, and flow nozzles) were used because of certifications in the petroleum industry. All of these methods had some problems with large amounts of upstream and downstream pipe diameters or with excessive headloss. More recent technologies may have some problems because they are very expensive, difficult to maintain, or because of the environment where they are in use (near rotating equipment, sources of vibration, etc.). Another factor affecting flowmeter selection criteria has been the lack of physical space to install devices to retrofit the existing plants with new components.

Solution: V-Cone flowmeters can be used in refineries and petrochemical plants to save physical space, reduce upstream and downstream pipe runs, and increase accuracies when used in areas where traditional forms of flow measurement were not possible. Their use can assist in retrofitting older plants, particularly in the “light ends” process areas and in utility operations like cogeneration plants where the V-Cone is used for steam and fuel measurement. They can also be used where specialty chemicals are “bought out” to be used in unit operations, i.e. alkylation or desulphurization. Practically anywhere that space is limited, pressure drop needs to be controlled, or that accuracy is an issue, the V-Cone is a viable solution. The V-Cone system helps to reduce costs and increase throughput for new plants, in addition to increasing capacity in existing plants.

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