

A Micro Motion® Coriolis Flowmeter Accurately Tracks Fuel Gas Usage at a Refinery

RESULTS

- Tracked fuel gas usage without the need for additional equipment
- Controlled measurements with wide downturn and varying gas compositions
- Required little to no maintenance



APPLICATION

A refinery uses production fuel gas for two purposes: as a feed for a hydrogen plant and as an energy source for its refinery heaters. Differential pressure (dP) meters were used to monitor the incoming fuel gas.

CHALLENGE

The company wanted to monitor its fuel usage to improve the energy balance in the plant. One challenge that the company faced was the wide flow range (100-1800 kg/hr) of the fuel gas. dP meters of the type often used in high volume gas applications cannot measure accurately over such wide turndown. To continue using the dP meters, two or more parallel orifice runs would be needed, resulting in a costly installation.

Another challenge was that the composition of the fuel gas varied widely, with molecular weights ranging from 14 to 38. Volumetric metering systems in such applications would require a separate in-line densitometer and flow computer to detect and compensate for variations in composition, resulting in another costly installation.

In addition, dP meters require frequent maintenance and calibration, especially when measuring "dirty" gases, such as fuel gas.

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A Micro Motion flowmeter accurately measures fuel gas despite widely varying compositions.



For more information:
www.EmersonProcess.com/solutions/refining
www.micromotion.com/refining



SOLUTION

Instead of continuing to use the dP meters and installing additional equipment, the refinery opted to install a Micro Motion® Coriolis flowmeter in the production fuel line. The Micro Motion flowmeter maintains a "flat" accuracy of $\pm 0.35\%$ over the entire 1700 kg/hr flow range, eliminating the need for parallel meter runs. The flowmeter also measures mass flow directly, so it's immune to changes in molecular composition. It provides accurate, continuous registration of totalized mass flow without the need for additional equipment.

Field calibration at commissioning is not necessary. Coriolis flowmeters are non-intrusive and have no moving parts, so there is no tendency for calibration to drift. As a result, there is little to no maintenance.

By installing the Micro Motion flowmeter, the refinery achieved accurate flow measurement almost immediately after going on line, and it can now monitor fuel gas usage. Since the flowmeter helped the refinery meet its goals, the refinery is considering installing additional Micro Motion flowmeters to provide separate monitoring of other areas in the plant.

