

ABB Vortex flowmeter Metering gas in biogas plants

Metering gas in biogas plants with the FV4000 Vortex flowmeter

The challenge

Gas flows have to be recorded at various points in CHP plants and boiler systems for the purposes of efficiency rating, quantification and control as well as to track subscription to additional sources of supply in the context of compensation for energy fed into the grid.

Biogas is generated continuously in primary and secondary fermenters. Quality and quantity varies. The composition of the gas varies based on the raw mass (substrate) used.

The levels of concentration of sulfur, moisture and dirt in biogas vary. Although the pressure in the plant is virtually constant, only a few mbar of operating pressure are available. The temperature varies dependent upon the weather. The vibrations caused by the biogas motors also have to be reckoned with.



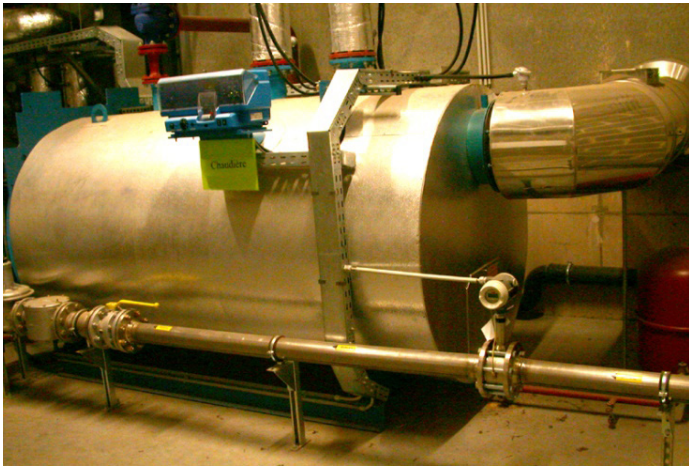
The solution

Volume metering with Vortex flowmeters featuring integrated temperature compensation

Vortex flowmeters measure the operating volume of a flow independently of its composition. Only pressure and temperature are relevant where conversion to a standard volume is concerned. As pressure is relatively constant, a constant value can be recorded in the transmitter.

Temperature is recorded and compensated in the flowmeter sensor. This avoids additional installation costs while also minimizing the risk of erroneous measurements.

As biogas motors / power plants can usually only support two operating states (ON / OFF), measurement dynamics are not important. As a result, the flowmeters can be set up to ensure not only that measured values are recorded reliably and accurately but also that pressure loss is virtually eliminated. ABB Vortex flowmeters have already proved their worth many times over in the field of biogas metering. Digital signal capture and processing and integrated temperature compensation makes them ideal for this challenging area of application.



Flare station with boiler incl. 3" (DN 80) Vortex flowmeter



Metering wet gas directly at the secondary fermenter.

Flow metering from top to bottom: no problem when metering gas thanks to homogeneous gas distribution in the meter tube.

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