

FOX APPLICATION GUIDE

Thermal Flow Meters Improve Wastewater Gas Monitoring

TYPICAL APPLICATIONS INCLUDE:

- Wastewater Treatment Plants
- Wastewater Aeration for Aerobic Processes
- Air Flow Meters for Sludge Incinerators
- Fuel Flow Meters for Sludge Incinerators

Analyze Demand, Improve Efficiency, and Reduce Waste

Digesters in Wastewater Treatment

Wastewater Treatment Plants (WWTPs) use large, heated digester tanks to remove and dispose of solid waste material. Here, bacteria break down the material, producing digester gas in the process. Methane is a primary component of anaerobic digester gas (ADG) and a large wastewater treatment plant can produce roughly one million cubic feet of this gas each day.

Most WWTPs utilize recovered gas to fuel boilers and flare off the excess. Other biogas uses include fuel for combustion engines to generate electricity, fuel for natural gas vehicles, and sale and distribution to neighbouring industries and communities.

ADG is a wet, dirty gas, often containing trace levels of contaminants such as hydrogen sulfides and volatile siloxanes, which may condense and accumulate on pipe walls or equipment inside of the pipe. Selecting a flow meter with no moving parts can dramatically reduce costs associated with maintenance and repair.

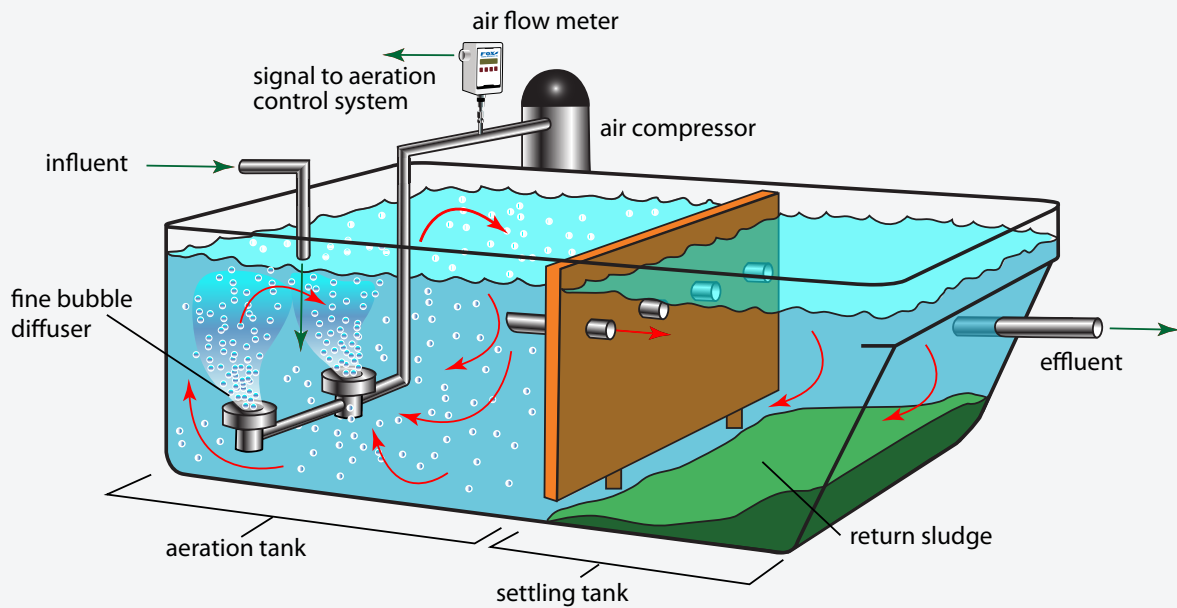
Most digester gas applications operate at relatively low pressure. Fox Flow Meters create virtually no pressure drop and can be used to accurately measure these flow rates. They are widely used in WWTPs to optimize digester processes, comply with environmental regulations (40 CFR Part 98 Subpart II) and control fuel and air flow ratios in combustion processes.

Aeration Systems in Wastewater Treatment

In wastewater aeration, one of the most important factors for proper treatment is the determination of how much air volume in standard cubic feet per minute (SCFM) will be needed to deliver the mass of air required for optimal bacterial biodegradation of organic matter.



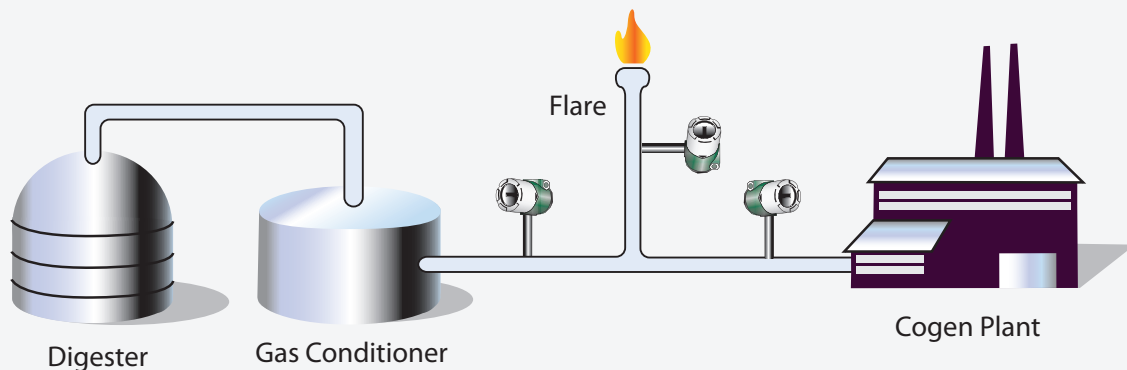
Wastewater Treatment Plants (WWTPs) use air, fuel, and biogas flow meters in their processes.



Aerobic Process: An air flow meter used to monitor the flow of air in a wastewater aeration process.

The oxygen transfer efficiency of aeration systems in wastewater treatment is the ratio of dissolved oxygen to the total amount of air fed into the system. Oxygen that is not dissolved in the wastewater is lost and the biodegradation process is compromised. In order to avoid this, the flow of oxygen fed into the system must be monitored and then compared to water sample data to find oxygen transfer inefficiencies.

Sludge disposal regulations, EPA values for oxygen transfer, and growing disposal site scarcity are all motivating factors for improving aeration systems by locating and eliminating inefficiencies. Fox Meters can accurately measure air or oxygen flow rates in aeration systems to help solve inefficiency problems.



Anaerobic Process: Digester and flare flow meters used to accurately measure the flow of biogas and flare gas.



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