Groth Corporation has the products and services to meet your needs from cover and gas control equipment to burners and flares.

Groth Corporation is a global provider of high quality Biogas safety and recovery products. Biogas products protect property, the environment and life from fire and explosion and reduce emissions into the atmosphere safely. Groth Corporation offers a wide range of Biogas safety and control equipment.

Biogas is produced during the biological breakdown of organic solids through anaerobic digestion. The gas resulting from this process is an energy source that can be collected and utilized or safely burned.

Recovered Biogas can be used in many ways:
- Run generators to produce electricity
- Run boilers to heat the anaerobic digester or the treatment facility
- Eliminate natural gas and propane usage for cost savings and profit

Anaerobic digestion is a very safe and effective way of treating biosolids from municipal and industrial wastewater. It is ideal for meeting strict environmental regulations, especially with emission standards becoming more stringent in urban areas.

The anaerobic process takes place in digesters (closed tanks), covered ponds or lagoons by the use of a thermophilic or mesophilic process. Landfills also generate Biogas naturally as buried organic refuse biodegrades.

ANAEROBIC DIGESTION
Historically, anaerobic digestion had been used at only municipal sewage treatment facilities. Today, anaerobic digestion is heavily used to treat wastes from distilleries, agriculture (e.g. dairy, swine, and poultry farms) breweries, food processing, and other industrial sites. We have the equipment and expertise to meet the needs of these as well as other industries. Whether you have an anaerobic digester, lagoon, covered pond or landfill, Groth Corporation has the products and services to meet your needs from cover and gas control equipment to burners and flares.

THE BIOGAS SYSTEM
Biogas collection and utilization are important to the anaerobic digestion process. The gas is saturated and contains elements harmful to people as well as corrosive to piping and equipment. It is important for the Biogas handling equipment to be of high quality and operate as a system.
**Moisture and Sediment**
Biogas is saturated when it leaves the digester, covered pond or lagoon. In order to avoid damage to downstream equipment, moisture and sediment should be removed. A Condensate and Sediment Trap with drip trap should be located immediately downstream of the digester, covered pond or lagoon. A condensate accumulator should be considered when an accumulation of condensate is expected. This will help lower operating and maintenance costs.

**Foam**
Foam in the digester can clog gas handling equipment. The following is recommended to address this problem:
- Pressure and vacuum relief valves with flame arresters are installed on digester covers. When foam clogs the flame arresters, it may prevent the pressure and vacuum relief valves from properly relieving pressure or vacuum accumulation which could cause damage to digesters and the digester roof. Emergency pressure or vacuum relief can be accomplished by installing emergency relief valves.
- Installing a foam separator immediately downstream of the digester will prevent foam from entering downstream of the digesters.

**Flames**
Flame arresters should be installed between ignition sources and vital equipment. In addition, thermal shut-off valves should be used along with all in-line arresters. Flame arresters should be installed along with all pressure and vacuum relief valves on the digester roof to prevent external flames from igniting gas inside the tank.

**Gas**
Regulators will direct the gas to utilization equipment such as boilers and engine generators and may be located upstream or downstream depending on specifications. Check valves should be located where a reversal of flow would damage rotating equipment or disrupt the system's pressure balance. Biogas can become explosive within flammable concentrations of gas and air.

**EMERGENCY RELIEF**
A Biogas system should have two methods of relieving excess to the atmosphere:
- **Flares**
  A waste gas burner is used to safely combust Biogas and reduce odors.
- **Pressure/Vacuum Relief Valves**
  Pressure and vacuum relief valves should be installed on the digester cover or Biogas holder. A minimum of two pressure/vacuum relief valves with flame arresters are recommended along with a Safety Selector Valve. The Safety Selector Valve enables isolating one set of equipment while performing maintenance on the other set.

**FIELD SERVICE**
Due to the safety hazards inherent with Biogas, Groth Corporation provides field services to help ensure the safe and efficient operation of your Biogas system.

**Site Surveys**
Groth Corporation experts will conduct a survey of your Biogas system and report results regarding:
- System design
- Identify causes for existing operation problems
- Recommended solutions

**Start-up and Training Services**
Groth Corporation experts will assist with equipment start-up and conduct training on the proper care, operation and required preventive maintenance. This training is conducted in both the classroom and in the field and includes guidelines for future preventative maintenance to keep your Biogas system operating smoothly and efficiently.
This schematic is for general presentation purposes only and is not intended to represent a specific design. Please consult the Groth Corporation Biogas catalog or visit www.grothcorp.com for complete product information.
• optional high and low level alarm switches
• drip trap and sight glass attach quickly
• available with flanged connections as standard
• Quick and easy cleaning is facilitated by removing top cover
• removes excess water and sediment

GAS SAFETY AND CONTROL EQUIPMENT

Model 8800SDV
Safety Diverter Valve
- Provides a quick and easy way for valve changeover
- Allows a no-interruption process
- Easy and safe maintenance with no down time

Model 7618 // Vertical
Model 7628 // Horizontal
Flame Arresters
- Units designed for quick and easy cleaning and maintenance
- Protects the system from externally caused sources of heat and ignition for increased fire protection and safety

Model 8200
Roof Hatch Cover
- Non-sparking and gas-tight
- Provides quick and easy access
- Uniform surface seating
- Limited maintenance required

Model 6100
Sample and Gauge Hatch
- Assures uniform seating
- Incorporates a positive cover locking device to assure a tight seal

Model 8800A & 8820A
Pressure Relief & Vacuum Breaker Valve with Flame Arrester
- Protects tank from damage caused by overpressure or excessive vacuum
- Provides protection from externally caused sources of heat and ignition
- Proven spiral wound, crimped ribbon flame element

Model 8490 / / Electrically Actuated
Model 8450 / / Automatic
Model 8460 / / Manual
Model 8470 / / Pressure Relief & Vacuum Breaker Valve with Flame Arrester
- Provides safe removal of liquids from the low point in gas control line
- Designed for quick opening and maintenance
- Provides safe removal of liquids from the low point in gas control line
- Element may be replaced without disassembly of valve

Model 8550A
Pressure Relief & Vacuum Breaker Valve with Flame Arrester
- Unit protects against flame propagation into upstream piping
- Unit composed of horizontal flame arrester and thermal operated shut-off valve
- Valve has low temperature fusible type element to shut off flow in event of a flashback
- Element may be replaced without disassembly of valve

Model 8391B / / Waste Gas Burner
Model 8392B / / Flame Front Generated Ignition
Model 8393B / / Fully Enclosed
- Includes an automatic ignition system
- Reliable downstream prevention for wind protection
- Provides proper air/fuel mixture to ensure efficient burn
- Wind shield controls outside winds up to 150 mph and operates efficiently in heavy rain
- Flame retention vortex vastly improves burning efficiency
- Quick, easy maintenance

Model 8460 / / Manual
Flame Trap Assembly
- Unit protects against flame propagation into upstream piping
- Unit comprised of horizontal flame arrester and thermal operated shut-off valve
- Valve has low temperature fusible type element to shut off flow in event of a flashback
- Element may be replaced without disassembly of valve

Model 8500A
Flame Trap Assembly
- Unit protects against flame propagation into upstream piping
- Unit composed of horizontal flame arrester and thermal operated shut-off valve
- Valve has low temperature fusible type element to shut off flow in event of a flashback
- Element may be replaced without disassembly of valve

Model 2300A
Pressure Relief Vent
- Corrosion resistant construction
- Self-closing air cushion pallet with center stabilizing stem and peripheral guidance
- Provides uniform seating and alignment

Model 8330 // Sediment Trap
Model 8331 // Condensate Accumulator
- Removes excess water and sediment
- Quick and easy cleaning is facilitated by removing top cover
- Available with flanged connections as standard
- Drip trap and sight glass attach quickly
- Optional high and low level alarm switches

Model 8600
Foam Separator
- Eliminates foam
- Removes particles
- Continuous water spray systems
- High and low level alarms

Model 8400A
Pressure Relief & Vacuum Breaker Valve with Flame Arrester
- Maintains upstream pressure, allowing only surplus gas to flow downstream
- Field adjustable set pressure
- Integral thermal valve stops gas flow when flashback is sensed at the flame arrester
- Easy to maintain

For specific performance characteristics of these products, please see the Groth Wastewater Biogas Catalog.
All Groth manufacturing facilities are ISO 9001 approved.

The products in this catalog may qualify for some, none or all of these certifications:

**CE**

**Ex**

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