VAREC Biogas 237 Series
GAS CHILLER DRYING SYSTEM

The 237 Gas Chilling and Drying System is designed for use in biogas conditioning systems to protect downstream equipment from the harmful effects of moisture.


Filter


Glycol Chiller


Heat Exchanger

Introduction

Moisture is one of the most damaging components of biogas as it leads to excessive corrosion. It can also build up in piping systems causing excessive pressure drops and unnecessary venting of digester gas. The 237 Gas Chilling and Drying System is designed for use in biogas conditioning systems to protect downstream equipment from the harmful effects of moisture.

237 Series Benefits

- Lowers gas dew point to remove moisture
- Removes particulates
- Reduces corrosion and extends the life of equipment
- For use in gas conditioning for engine generators, compressors boilers and other fired or rotating equipment
- Low operating pressure
- Can be skid mounted

Design Features

— Automatic Controls
Turn key system control panel provided.

— Automatic Drainage
Liquid is automatically drained from the system using either drip traps or condensate accumulators, providing a safe operating environment.

— Low Maintenance
All components are designed to resist the effects of biogas, reducing maintenance and operating costs.

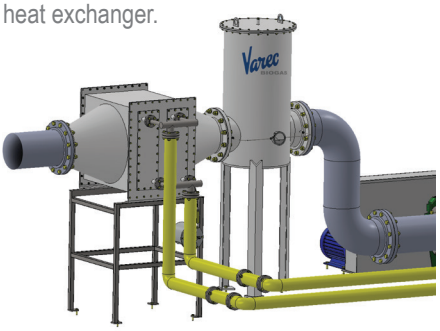
— Skid Mounted
The gas drying system can be skid mounted at the factory, lowering installation costs and ensuring all components work together.

— Wide Operating Range
Each system is designed to best fit the operating needs of our clients.

The 237 Gas Chilling and Drying System is a cost effective solution to meet your needs. The design makes for easy maintenance and reliable operation.

Operating Principle

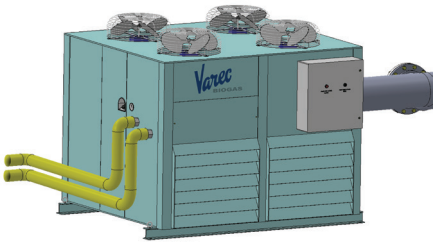
The gas first passes through a coalescing filter where particulates are removed. This prevents impingement on the heat exchanger fins and extends the life of the heat exchanger.



A glycol mixture is chilled using an air-cooled refrigeration unit. The glycol is then circulated through a heat exchanger where it cools the gas to the desired temperature. Any entrained liquid, as well as water in the saturated gas then drops out, where it is removed automatically by either Drip Traps (Model 245 or 246AT) or via a Condensate Accumulator (Model 248).

The gas leaving the heat exchanger is then run through the compressor to reheat the gas creating a dew point barrier and lowering its relative humidity.

Normally, the gas will heat back up to ambient temperature which will ensure that the gas temperature is well above the dew point of the gas. If required, a second heat exchanger can be supplied using the heat generated from gas compressors to reheat the gas. For systems with siloxane removal a third heat exchanger is added to cool the gas after the compressor so that the heat does not damage the siloxane removal media.



Compressor

For a complete gas conditioning system, Varec Biogas can include a compressor as part of the gas chiller/drying system. Varec Biogas will incorporate controls to manage the gas conditioning system and come with a safety scheme.

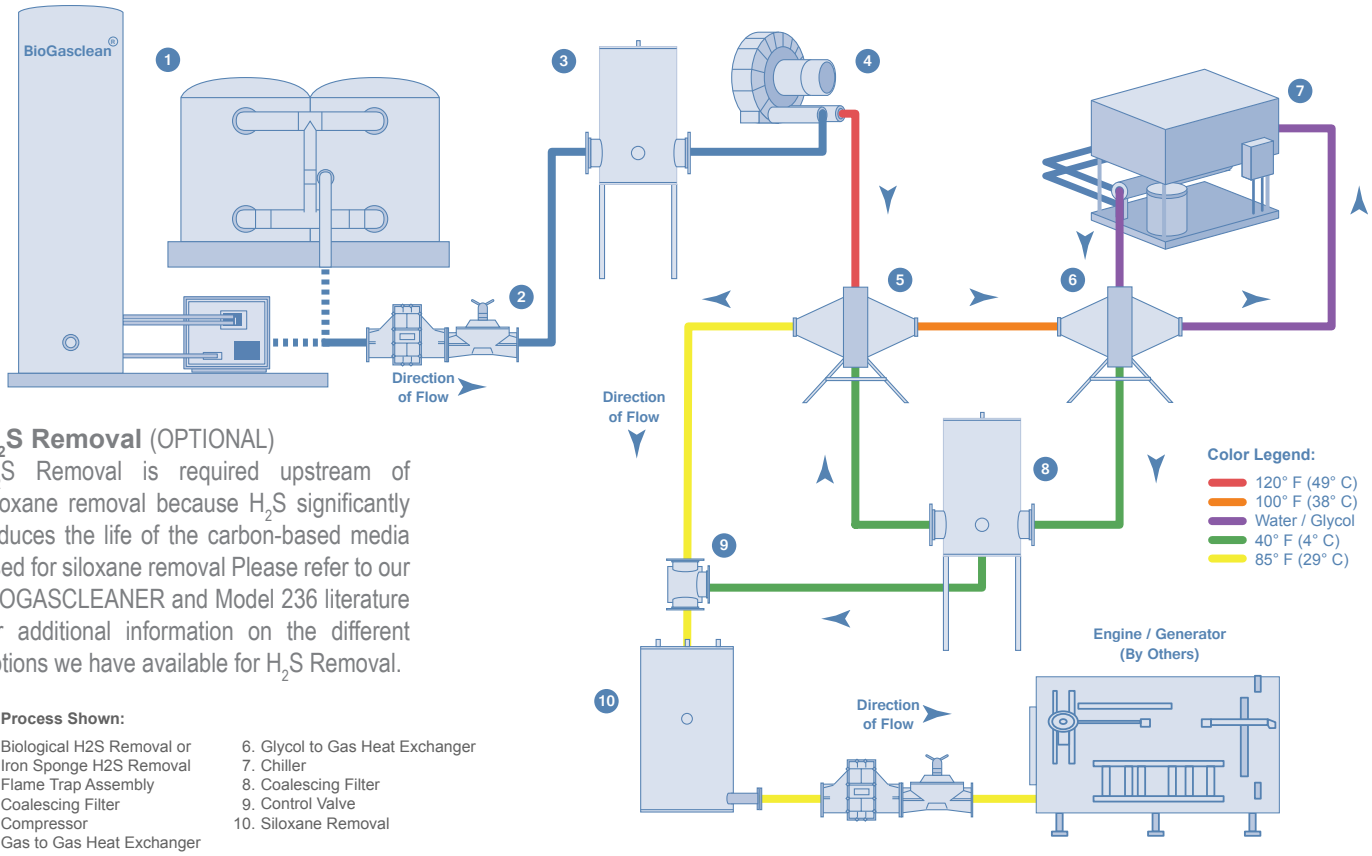
Automatic Controls

Automatic controls and instrumentation are provided to ensure that the glycol is circulated at the correct rate to maintain the dew point of the gas. The system is provided with outputs and alarms so operators are aware of the operating status of the system.

Siloxane Removal (OPTIONAL)

When high levels of siloxane are detected in digester gas sampling, a vessel using carbon-based media can be supplied to remove the siloxane. Siloxane is a common additive to everyday household items. When biogas is used as an alternate fuel source, siloxanes in the biogas are converted to silicon dioxide, or sand which overtime will reduce the efficiency, increase operating cost and cause failure for high capital equipment such as engine generators.

NOTE: This schematic diagram is for general guidance only and does not represent a specific design.



H_2S Removal (OPTIONAL)

H_2S Removal is required upstream of siloxane removal because H_2S significantly reduces the life of the carbon-based media used for siloxane removal Please refer to our BIOGASCLEANER and Model 236 literature for additional information on the different options we have available for H_2S Removal.

Process Shown:

1. Biological H2S Removal or Iron Sponge H2S Removal
2. Flame Trap Assembly
3. Coalescing Filter
4. Compressor
5. Gas to Gas Heat Exchanger
6. Glycol to Gas Heat Exchanger
7. Chiller
8. Coalescing Filter
9. Control Valve
10. Siloxane Removal