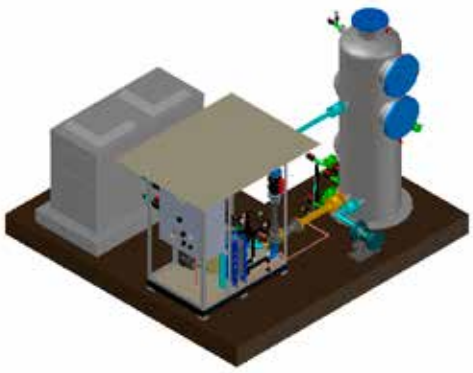
The Biogasclean **Chiller extend** lifetime of your biogasplant

Plant: *Industrias del Espino Peru*

Capacity: *850 m^3/h*



Why it is necessary to dry the gas

After H_2S removal the gas is fully saturated with water; the relative humidity is 100%. If water droplets should reach the cylinder heads and combustion chambers the water will destroy the oil film. This will lead to increased wear of moving parts as well as substantial reduction of the lifetime of the engine oil. Therefore, it is necessary to dry the gas to avoid condensation in the pipe system and the engine's gas train and intercooler.

How it works

The cleaned gas is cooled from typically 400°C or 550°C - depending on whether the anaerobic digester is mesophilic or thermophilic - down to 150°C. After cooling the relative humidity is still 100% but the gas contains 10g water/kg gas only at 150°C compared to 50 g at 400°C and 115g at 550°C. When the gas is compressed in the gas booster the temperature is raised to 30°-350°C and the relative humidity reduced to 30-40% before the gas train.

Simple and robust design

The system comprises two circuits; i.e. the Gas Chiller cooling the gas by scrubbing it with chilled gas condensate and the Water Chiller that supplies cold water for the process. Each system is designed for the project specific flow and temperature conditions.

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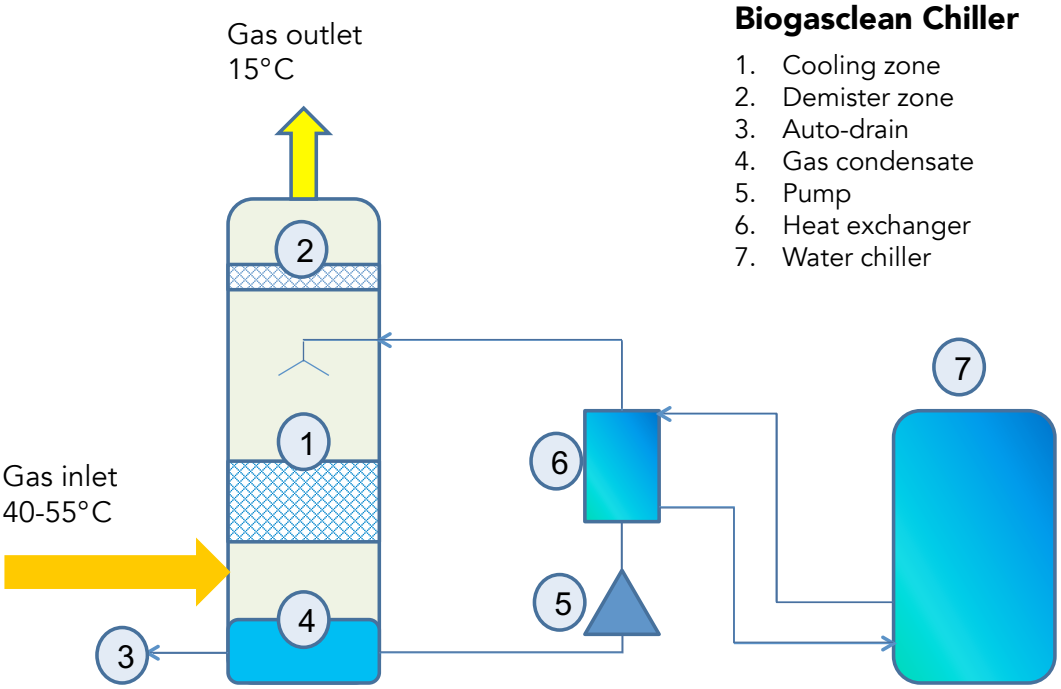
Biogasclean Chiller

1. Cooling zone
2. Demister zone
3. Auto-drain
4. Gas condensate
5. Pump
6. Heat exchanger
7. Water chiller



Process description

- The hot and moist biogas enters the Gas Chiller in the bottom.
- In the cooling zone, the gas is in direct contact with chilled gas condensate and the temperature and dew point drops.
- In the demister zone droplets are removed before the gas leaves from the top of the Gas Chiller to protect downstream equipment.
- In the heat exchanger the gas condensate is chilled with water from the Water Chiller.
- The auto-drain ensures that excess gas condensate is automatically drained from the Gas Chiller.

Biogasclean A/S

Biogasclean is specialized in biological desulfurization and methanation of biogas without the use, of chemicals. We develop, manufacture and supply fully automated gas cleaning systems for H_2S removal combining low operating costs with high availability. Our track record comprises more than 300 plants in operation or under construction in 40 countries. Biogasclean supplies clean gas to more than 650 MW gas engines and boilers and removes sulfur from more than 25 biogas upgrading plants for RNG production.

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