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climate control  
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**filtration**  
fluid & gas handling  
hydraulics  
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# Biogas-Solutions

Gas Treatment



ENGINEERING YOUR SUCCESS.

# Biogas, the energy for future generations

Biogas, originating from bio-mass is gaining increasing worldwide importance as a recognised renewable energy source. Biogas production can and will contribute in a significant way to future energy supplies, replacing more and more existing fossil-fuel sources such as coal, oil and natural gas. Extensive promotion schemes throughout many countries in Europe, spearheaded by Germany, will lead to the production of biogas being perfected.

Building on over 30 years of experience in the field of compressed air and gas treatment, Parker Hiross Zander exhibit extensive know-how when it comes to filtration, moisture removal, cooling and the drying of bio-, sewage- and landfill gases.

## Unwanted, damaging substances contained in biogas are:

- Hydrogen Sulphide
- Ammonia (NH<sub>3</sub>)
- Siloxane
- Aromatic Hydrocarbons
- Halogens (Chlorine, Fluorine)
- Particulate



## What does Parker have to offer for the treatment of Biogas?

### Areas of Application:

#### Filtration, Cooling, Moisture removal, and fine-desulphurisation of raw biogas

Before the gas can be used for the production of electricity and heat in a “Combined Heat & Power Unit (CHP)”, biogas treatment in the form of filtration via a biogas filter, preceded by a heat-exchanger must take place. Together with a cooler, pressure dew points of 3°C are achieved. The moisture separated from the gas stream by a condensate separator, equipped with zero-gas-loss drain is effectively removed from the system. This drain is constructed in such a way that it reliably prevents gas- and pressure-loss when draining condensate liquid.

#### Stainless Steel Filter Housings

- For capacities up to 50,000 Nm<sup>3</sup>/h (pressure-dependent)
- Operating pressures from 100 mbar to 100 bar

#### All Filters are available with:

- ATEX Approval
- Pressure vessel approvals – PED, GOST, ASME, SQL etc.



Parker Hannifin filter, cooler and condensate drain

# Biogas Solutions



## Bio-methane Treatment

The treatment of biogas to produce bio-methane is opening new markets. The injection of biogas into existing municipal gas-networks is starting to establish itself as an essential constituent to a future “energy-mix”.

Before being used for gas-injection or fuel production (CNG) the biogas, produced in a fermenter must be enriched. In addition to an “upgrading” process, designed to increase the calorific value of the

gas, it is also necessary to reliably remove particulate and moisture from the gas-stream.

As a manufacturer and supplier of systems, Parker Hiross Zander represents the ideal partner, possessing extensive knowledge of gas-treatment systems and the stipulations governing gas-network injection.

## Siloxane Removal from Bio- and landfill gases

During the combustion process in a burner, a gas-motor or a turbine, silicon dioxide ( $\text{SiO}_2$ ) is formed. This quartz-like substance coats the hot-surfaces which come into contact with the gas, it precipitates out and lead to tremendous problems. Significantly increased maintenance costs and engine-downtime reduce the capacity and efficiency of the energy yield. Damage to the

downstream catalysts, installed in the exhaust system make it difficult to maintain the levels of  $\text{CO}_2$  demanded by legislation.

The answer to this problem comes in the form of a highly effective adsorption system, containing different types of adsorption material designed to reliably remove siloxanes from the gas-stream.



## CNG Production

CNG (Compressed Natural Gas) is an alternative to other traditional vehicle fuels. The use of CNG as a fuel contributes to the reduction of  $\text{CO}_2$ , nitrous-oxide and particulate emissions. This fuel can be produced from natural gas or alternatively from biogas, treated to meet the standards and quality of natural gas. Effective gas drying and filtration prevents the build-up of liquid deposits in gas-tanks, compressor-fouling, unscheduled replacement of the gas-dispenser and repairs to vehicle fuel systems.

Trust in the expertise of the Parker Hannifin Group and profit from their many years of practical experience.

### CNG Filters

- For pressures up to 350 bar
- Approved for fluid-group 1 gases in accordance with PED
- Suitable for containerised installation
- Optional ATEX-Approval for zone 2 or zone 1 applications
- Efficient gas-drying using molecular-sieve adsorbents

