

# Experts in Gas Separation

Profit from experience of over 800 references

Carbotech

VISSMANN Group

## Turnkey Solutions for Gas Purification, Nitrogen Generation and Process Gas Plants



### Schmack Carbotech

- Established: 1989
- Since 2010: Part of the Viessmann Group
- Registered Office: Essen, Germany
- Products:
  - Turnkey-delivery of:
    - Biogas upgrading plants
    - Nitrogen plants
    - Process gas plants
    - Hydrogen plants
- Employees: 60, mostly engineers



### Viessmann Group

- One of the leading international manufacturers of heating, cooling and climate control technology
- Established: 1917
- Employees: 11,400
- Group turnover: \$ 2.7 billion
- Export share: 55 percent
- 27 production companies in 11 countries
- 74 countries with subsidiaries and representations
- 120 sales offices worldwide



Carbotech

VISSMANN Group

More information:

[www.carbotech.info](http://www.carbotech.info)  
[www.viessmann.com](http://www.viessmann.com)

# Schmack Carbotech - Product Portfolio

## Gas separation by Pressure Swing Adsorption (PSA)



BUP1200 Muehlacker, Germany

### Nitrogen Generation

Nitrogen is used as inert or purge gas to prevent oxygen from reducing the shelf-life of products, impairing their quality or resulting in critical or undesirable reactions. Carbotech plants are used around the world in diverse applications in food processing, in metal and chemical industries, as well as in marine & off-shore systems, where system reliability is essential. Oxygen is removed from compressed air by means of highly robust and long living PSA. Carbotech has installed over 700 on-site nitrogen generators around the world.

### Biogas Upgrading Plants

Biomethane can be injected into the gas grid or directly used as Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) for transportation. Carbotech specializes in the upgrading of biogas from landfills, waste water treatment plants, organic waste and agricultural sources. With more than 60 industrial plants installed, Carbotech is one of the market leaders in the field of biogas upgrading technology. Carbotech's engagement in a continuous development of the PSA process, provides a highly efficient system with the lowest utilities consumption of its kind.

"With more than 60 industrial plants installed, Carbotech is one of the market leaders in the field of Biogas Upgrading technology."



CT750 on Gas Carrier

"Carbotech plants are used around the world in diverse applications where system reliability is essential."

### Process Gas Plants

Process gas plants for the generation of fuel gases and hydrogen from various process raw gases are state of the art and world-wide under operation. These raw gases may be reformer gases, coke oven gas, process offgases from chemical and petrochemical plants and others. Carbotech has been designing and optimising process gas and hydrogen purification plants for more than 40 years and has played a significant part in the ongoing development of this technology by installing over 50 plants around the world. Carbotech offers specifically tailored solutions with particular focus on minimizing investment and operating costs.

"Carbotech has been designing and optimising process gas and hydrogen purification plants for more than 40 years."



Process Gas Plant, 10.000 m³/h, India

# Technical Details

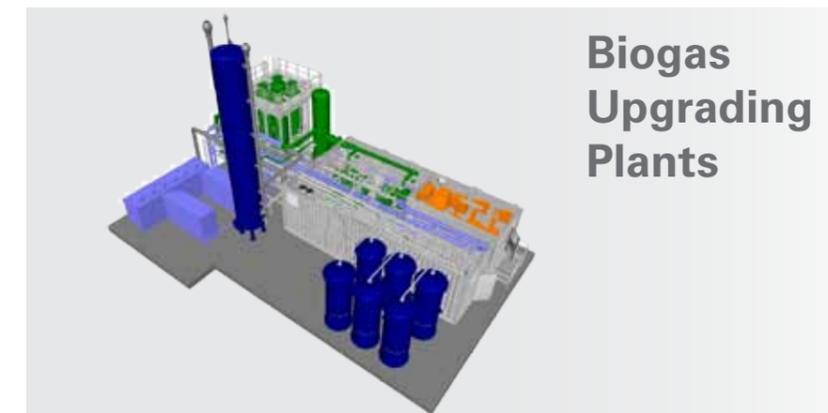
## The Carbotech systems at a glance

### Technical details:

- Methane Recovery > 99%
- Power Consumption 0.14–0.24 kWh/Nm³ Biogas
- Product Gas Quality 90–99% CH<sub>4</sub>
- Pressure 1–10 bar(g)
- Capacity 200–5,000 Nm³/h

### Your benefits:

- Highly reliable and robust system
- Prefabricated containerized solutions
- Lowest power consumption in the market



### Technical details:

- Purity 95–99.999%
- Pressure 1–12bar(g)
- Capacity 50–5,000 Nm³/h
- Dew Point -40 – -80°C
- Fully automatic operation

### Your benefits:

- Long living and easy to operate
- Stand alone or base load possible
- N<sub>2</sub> production on demand



### Technical details:

- Individually designed for various feedgas sources
- Multiple step process combination
- Constructed to exactly meet customer demands
- Capacity 500-30,000 Nm³/h

### Your benefits:

- Lowest utility consumption
- Cost saving and high recovery rates
- Tailor made solutions & experience from 40 years

