

Schmack biogas uses Güntner



Line of Business:	EPC
Application:	Energy & Process Cooling
Country / City:	Germany and other countries
Fluid:	Water/glycol
Product:	Drycooler (V-shape) GFD

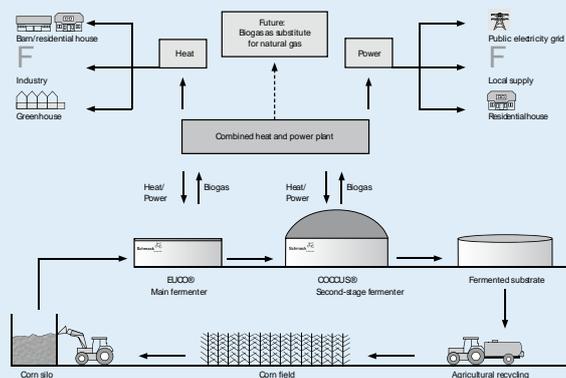
Bioenergy is booming. Renewable energies are not only the key for sustainable climate protection on our planet. They are also opening up new perspectives for farmers and the countryside.

More and more farmers and energy suppliers as well are recognising the opportunity which is developing from renewable energies. Phasing out of nuclear power, disputes about natural gas and climate protection: In all areas of the current energy debate it is becoming clear that renewable energies will play a much more significant role in the future than has been predicted to date. In 1995 the Schmack brothers constructed the first biogas plant on their parents' farm. It had an electrical output of 22 kW. And the idea for a business was born.

Today Schmack Biogas AG is among the pioneers of the German biogas industry. Schmack Biogas is a turnkey supplier of biogas plants. The company's business activity can be divided into three business segments "project development and construction" of biogas plants, "service and operations management" and "own operations" (www.schmack-biogas.com).

Biogas – a natural energy source

Biogas is a widely available form of renewable energy and can replace fossil fuels. Besides animal manure and liquid manure, it is primarily arable crops that are fermented into methane in agricultural biogas plants. The main work in a biogas plant is undertaken by special bacteria which break down the biomass in the absence of oxygen and thus produce energy. In the fermentation process the bacteria produce around two thirds methane, plus carbon dioxide, oxygen, nitrogen and a small amount of other gases. The methane is usable and is used as a fuel in communal block-type thermal power stations to produce power and heat. This “bio-methane” is easy to store and put into tanks and transport in gas cylinders or pipelines. As its properties are comparable to those of natural gas, it can use the existing infrastructures. Biogas can also be used as a vehicle fuel. In summary biogas can therefore be used for different purposes and is flexible to use with regard to time and location.



Flowchart for a biogas plant

Biogas – a sustainable economic factor

Even if it is the production of electricity that is still currently to the fore, it is only a question of time, in view of the rising prices of crude oil, until the use of heat becomes the second crucial economic factor for a biomass plant. For fossil heating oil alone the costs rose over 50 percent compared with last year. The harvest from the corn field or the disposal of the residues from the cattle shed lie at the start of the biogas process. These are first fermented in

the main fermenter and are turned over once again, are processed and fermented again in the second-stage fermenter. Biogas is made in both fermenters. The biogas is fed to a combined heat and power plant and burnt in gas combustion engines. Electricity is created by burning gas in the power plants and fed into the German electricity grids.

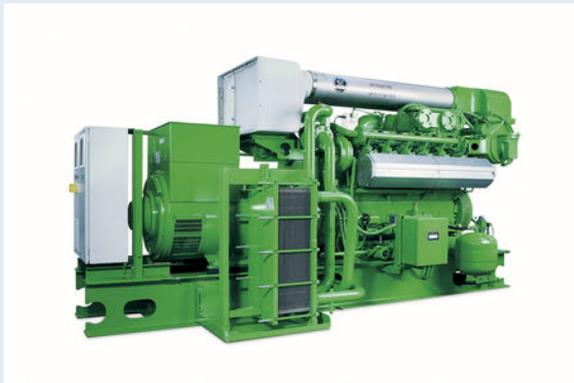
Of course combustion heat is produced as well during the combustion process and this has to be dissipated. It's here that the highly efficient GÜntner heat exchangers come into use, in order to dissipate the surplus heat. They take the combustion heat generated in the biogas engines into a closed cooling water circuit and discharge into the outside air. GÜntner has been working for many years in close collaboration with the leading manufacturer of biogas engines, Jenbacher AG, (www.gejenbacher.com), who installs GÜntner V-shape drycoolers from the GFD series in every project at home or abroad.



Highly efficient GÜntner drycooler from the GFD series

The combustion engines produced in Jenbach have a power range of 0.25 to 3 MW and can be operated both with natural gas and with a wide range of biogases and special gases from agriculture, mining, industry or waste management. In particular series 3 with its power range of 500 kW to 1,000 kW has proved popular in agriculture and carries conviction with an innovative combustion system and high electrical efficiency. From a certain size and with a centrally located combined heat and power plant, it has been acknowledged that it is definitely economic and above all very sensible to utilise the waste heat that is generated as remote heat for industry and residences, possi-

bly also for agricultural purposes. It is expected that in the future it will be possible to utilise this energy source even more intensively and more economically. Güntner has identified the future direction and is bringing in all their know-how to the research and development of renewable energy sources.



Jenbacher biogas combustion engine from series3, type 312-RZ