

[www.mwm.net](http://www.mwm.net)

# Thinking ahead about biogas.

Efficient ecotech.





## MWM system solutions – the specialist in making energy out of biomass.

MWM is one of the world's leading specialists in the generation of energy from biogas. Because fossil resources are becoming ever more scarce, and because the world's energy demands are growing, biogas is one of the industries of the future.

Our systems are being used successfully all over the world, many of them to turn biological fermentation gases economically into electricity. A key to the financial efficiency of this process is that the bioenergy should be used on location as part of a combined heat and power plant (CHP).

In a CHP plant, the gas produced by the fermentation process is used to generate electricity and heat, economically and reliably. The electricity generated can be used to cover the operator's own needs, or it can be fed into the public power grid.

Efficiency can be optimized greatly by configuring these plants to the situation in hand. MWM uses not only the latest technological expertise, but also its experience from more than 135 years of generating electricity. Our biogas portfolio has an answer to every challenge, from re-engineering all the way to fully customized complete system solutions.

### The benefits at a glance:

- Attractive depreciation rates
- High unit efficiency rates
- Long, fault-free lifespans
- Top-quality materials and workmanship
- Comprehensive service

## Our technology stays ahead so you can succeed financially.

### Engine components tailored specially to biogas.

As an example, we have developed pistons with a higher compression ratio specially to meet the demands of biogas. They utilize resources more efficiently and are therefore more economical. Longer component lives also improve long-term efficiency; to this end we use sputter bearings and incorporate mixture coolers with galvanized fins.



### Avoid "energy eaters": use biogas without pre-compression.

By doing without energy-eating compressors, an MWM biogas plant delivers greater efficiency. Not only that, but setting up the plant is also made easier as a result, which reduces the investment cost.

### Complete solution for complying with emissions limits.

Our upstream gas processing technology and downstream exhaust treatment systems are perfectly tuned to the way an MWM generator is engineered. This means you can comply easily with emissions limits and profit from technology bonuses.

### Containers from MWM. Ready-to-go technology.

All of the components in MWM containers are tailored perfectly to one another. We have optimized the construction of our roofs so as to make them quicker and cheaper to erect. Our complete package also includes MWM Services within our worldwide network.



MWM is a world-leading specialist in the energy source of the future: biogas.



## Our energy for our clients. From the first day on.

### Inventory and advice.

The process usually begins with a request for an offer, which we follow up within just a few working days. This is followed by an initial meeting and an exhaustive technical inventory. On the basis of this inventory, we present an extensive and substantiated plan of approach for your CHP installation – naturally taking optimum account of your requirements, wishes and specific situation.

### Commissioning.

Once your CHP installation has been fully positioned and assembled, a commissioning phase follows. If this is completed successfully, your CHP can finally be put into operation. Normally, it takes no longer than six months between the date of the order and the point at which your installation becomes operational.

### Positioning and assembly.

When all licenses are in order and the installation has been designed to everyone's satisfaction, the positioning and assembly of your CHP installation is scheduled. Together with a team of carefully selected suppliers, we direct the whole process. In advance, we make it perfectly clear what our responsibilities are and what you need to take care of. This means clarity for all concerned!



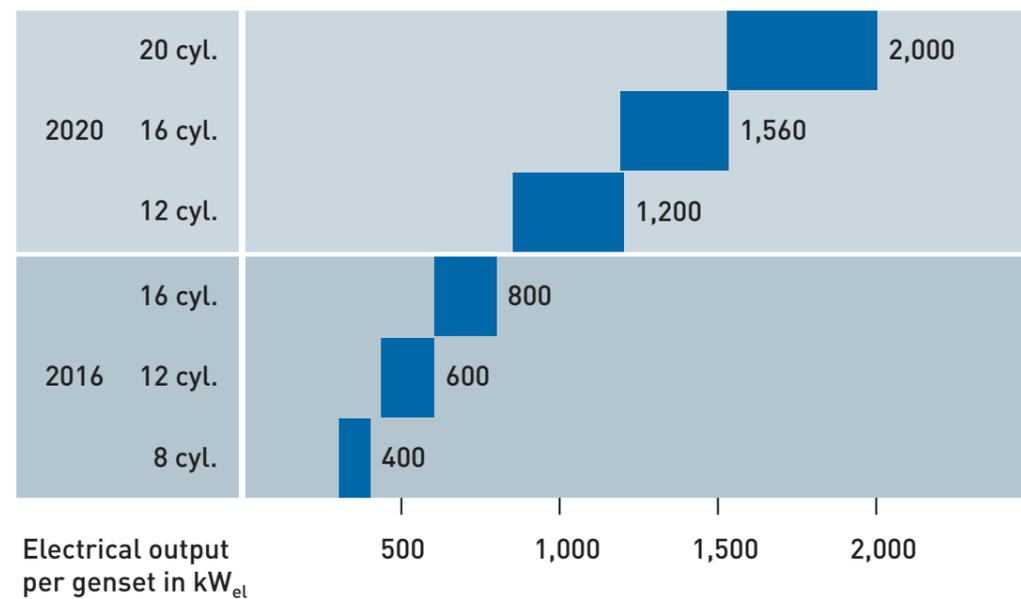
## Turnkey, trouble-free. MWM turnkey systems from a single source.

### MWM gensets.

The pulsing heart of every CHP installation consists of an extremely durable MWM genset. The MWM genset is characterized by high performance, high efficiency (and thereby low gas consumption), high quality and maximum reliability. We offer a wide array of different services – supplying the most efficient solution for your specific needs.



TCG 2020



### Aftersales and service.

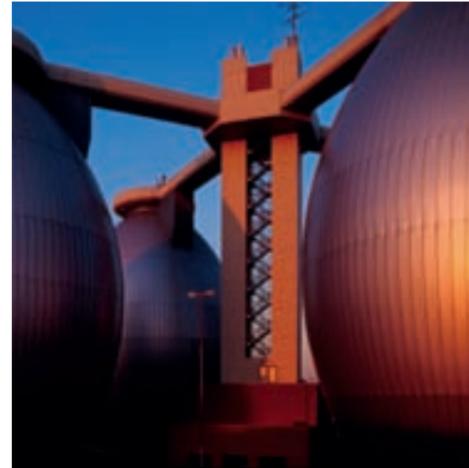
Even after your CHP installation has been delivered and is operating, you can count on us. Often, a CHP installation supplied by MWM comes with an all-in service agreement. All minor and major servicing is included, as well as remote inspection of the service monitoring system. Our service engineers are located all over the world, so they're never far away.



# More than 1,300 MWM biogas plants operate successfully throughout the world.

## For example: Emschermündung sewage gas plant.

Emschermündung sewage treatment works, one of Germany's biggest and one of the first with a biological processing stage, features MWM gas engine technology. Four type TBG 620 V16K gas engine generators convert sewage gas into 4,976 kW of electricity and more than 5 MW of heat energy. The heat energy is used to heat up the buildings of the plant, in particular the gas-producing digester towers.



## For example: Gut Kletkamp biogas plant.

Nawaro Kletkamp GmbH & Co KG runs a biogas combined heat and power plant incorporating a TCG 2016 B V12 with an electrically output of 568 kW<sub>e</sub>. Around 20 tons of corn silage are used as an input fuel each day. The heat produced by the engine is used to dry grain and to heat the storage building and parts of the neighboring town of Lütjenburg. After the fermentation process is finished, the substrate remnants – approximately 7,000 tons per year – are used as a fertilizer. The plant saves the equivalent of 4,000 tons of CO<sub>2</sub> per year.



## For example: Nong Bua biogas farm, Thailand.

Nong Bua livestock farm in Thailand takes its liquid pig manure, which would otherwise be left unused as a waste product, and uses it to generate electricity. It is sufficient to supply an MWM biogas plant incorporating two type TCG 2016 V16 gas engines, each producing 700 kW<sub>e</sub> of electricity.



## We have been building partnerships for more than 135 years.

### Our experience means your success.

With MWM you will benefit from more than 135 years of experience in the field of generators and power generation. That constitutes a unique fund of expertise which you will find especially valuable when developing complete solutions to meet your needs.

### You can count on us.

If you want maximum returns from your investment in a CHP installation and as few worries as possible, then MWM is the logical choice. We have a wealth of experience and always take care of the whole process from advising right up to after-sales and service. Turnkey and trouble-free.

### Agreed is agreed.

At MWM the following always holds true: we say what we do and we do what we say. We have streamlined all of the processes very tightly. After all, growth for our clients continues unabated. We therefore modify our service to take full account of this.

### Tried-and-true technology.

With MWM, you therefore have the security of specialists who have successfully delivered hundreds of CHP installations in biogas plants in Europe and beyond wherever efficiency and reliability are crucial.

### Good partnership.

With MWM, you are also choosing the security of doing business in a pleasant and reliable way. We attach a great deal of importance to good cooperation with our clients. We record all our promises in a clear offer and finally in a written order confirmation and schedule. This means that you know exactly where you are in advance. And you can hold us to this at any time, of course!

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**MWM**  
Energy. Efficiency. Environment.

