



# BIOGAS TECHNOLOGY

Flexible and superior



## PLANTS

Efficient. Innovative. Sustainable.



## COMPONENTS

Proven. Robust. Reliable.



## UTILISATION

CHP. Biomethane. Digestate.



## SERVICES

Support. Advice. Expertise.



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certified to  
ISO 9001



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# Biogas with confidence - energy as it is needed.

## IN-DEPTH COMPETENCE - FROM A SINGLE SOURCE

We develop and manufacture all the essential biogas plant components which guarantees reliability and quality. Why not profit from our long-standing experience!

### PLANTS

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Whether it be a plant with 100% slurry, with solid feeding system or a larger-scale project, we offer you a uniquely comprehensive portfolio – tried, tested and innovative!

### COMPONENTS

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Based on our experience, we have developed components to meet demands and matched them down to the last details in our biogas plants. Our emphasis in construction and manufacture is not only on solid and robust workmanship, but also on a high level of efficiency.

### UTILISATION

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Biogas can be utilised in many ways. We offer you a variety of utilisation options: efficient utilisation with a CHP unit or processing into biomethane. Both can be fed into the natural gas grid or used as fuel for the transport sector. We also have innovative solutions for you in the area of digestate processing and resource recovery.

### SERVICE

Page 22–25

It only takes a few months to build a biogas plant, our service partnership lasts for decades. We are continuously researching and developing so that you remain successful. Expect the best from us – in all areas!

## “GOOD ENERGY” IS IN ABUNDANCE!

The agricultural industry is a significant consumer of fossil fuels and chemical fertilizers. It is the objective of most countries through government policy to reduce this reliance from an environmental and sustainability perspective. Renewable energy sources are simply inexhaustible - we only have to use them!

## RENEWABLE ENERGY LAW - A SUCCESS STORY! MADE IN GERMANY.

In the early 1990's, the first framework conditions were created in Germany in order to promote the development of renewable energy systems. The introduction of the “Erneuerbaren Energien Gesetz” (EEG - Renewable Energies Act) in 2000 allowed the development of the highly progressive “Renewable Energy” Industry. Today, approx. 50% of the German electricity consumption is already being produced from renewable energy sources.

## PROFIT WITH OUR VALUES!

We at agriKomp have been developing ground-breaking biogas systems since the middle of the 1990's. Up to now we have implemented with our customers more than one thousand biogas plants with a total installed capacity of around 400 MW<sub>el</sub>. It was, and is still today our goal to make it possible for agricultural businesses to enter the energy market, quickly and with minimum outlay.

## GIVE YOUR BUSINESS THE BEST PROSPECTS - WITH “GOOD” ENERGY!

Energy generation from biogas – all in all the best result for you. You don't only profit from the regional incentive schemes. By exploiting your own farm liquid and solid manure you are improving your nutrient balance. By fulfilling statutory emission requirements, you are ensuring an improved CO<sub>2</sub>-balance. The use of valuable heat and the marketing of electricity or biomethane provides your business with further liquidity.



Robert Bugar,  
Founder and  
Managing Director



Michael Engelhardt,  
Founder



### INFORMS:

**agriKomp – biogas industry No.1**  
A current survey run by the Deutsche Landwirtschaftsgesellschaft (dlg - German Agricultural Society) results in agriKomp is among the top 5 companies in the renewable energy sector in Germany!  
Only considering the biogas industry agriKomp is the brand with the best image in 2020.

**A good network:**  
Always close by,  
always at your side!

**INTERNATIONALLY SUCCESSFUL**

Around 650 employees work for the internationally oriented agriKomp network. Alongside the main headquarters in Germany, we have our own branch offices and partners in Great Britain, Ireland, France, Switzerland, Italy, Sweden, The Czech Republic, Poland and Slovakia. In addition, there are also projects in Canada, Kenya, and China.

From the company headquarters in the Franconian town of Merkendorf, a wide network of competent and reliable sales and service partners is established.

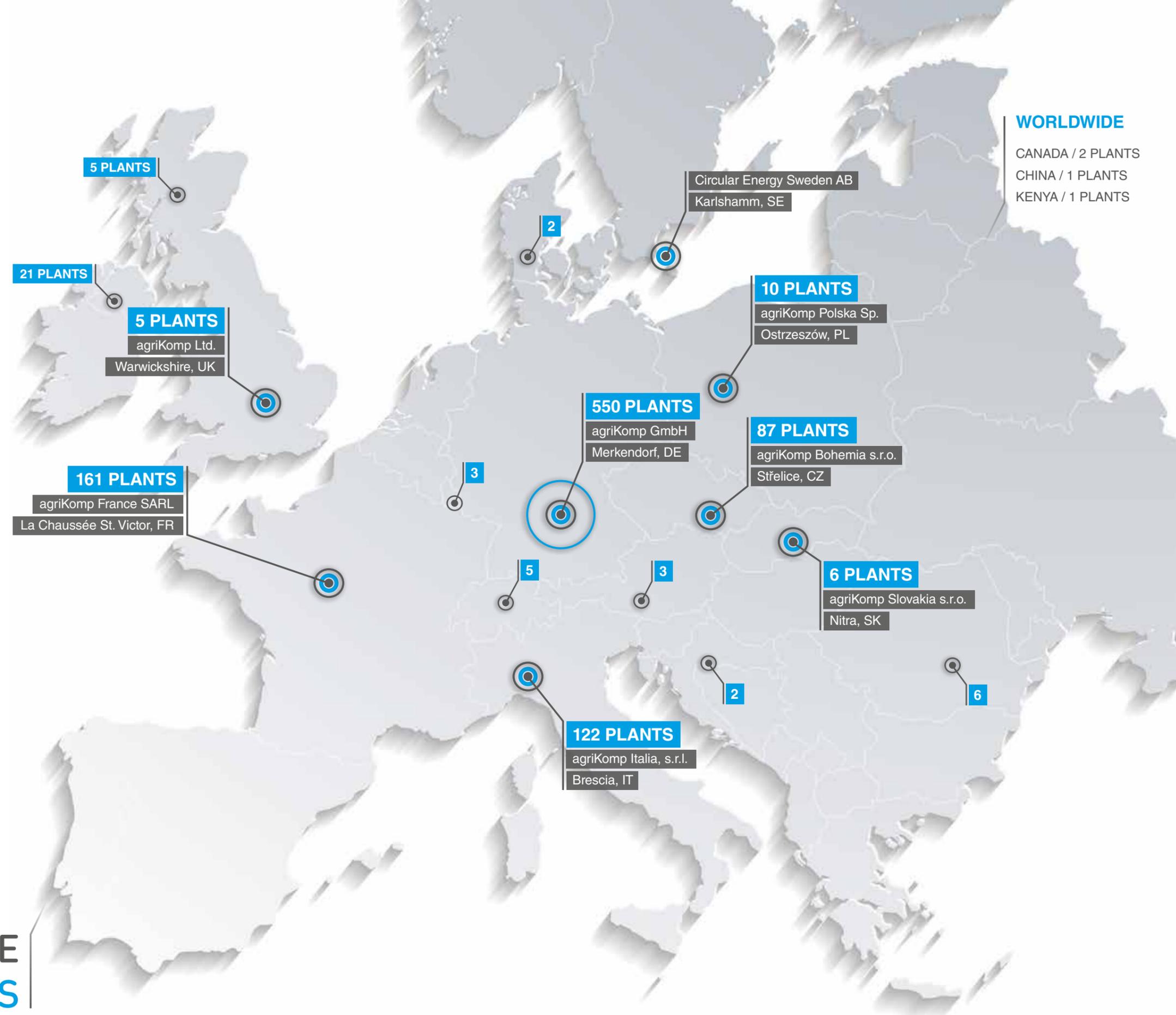
**BENEFIT FROM OUR WORLDWIDE EXPERIENCE FOR YOUR PROJECT**

Over the years, we have developed various biogas plants adapted to the characteristics and regulations of each country, each market and each operator. To date we have realised more than 1,000 biogas plants with a total capacity of almost 400 MW<sub>el</sub>.

With this, we supply around 950,000 households with electricity and 200,000 households with heat. In the process, we avoid an average of 1.5 million tonnes of CO<sub>2</sub> per year and replace 40,000 tonnes of mineral fertiliser.

Behind all these plants are successful agricultural entrepreneurs who have secured the future of their farms by producing green energy.

**WORLDWIDE MORE THAN 1,000 PLANTS**



# Convincing Biogas Technology: We know our business.



## HIGHLY INNOVATIVE – THROUGH DEDICATION

The holistic and visionary thinking of the company founders, Robert Bugar and Michael Engelhardt decisively characterise the development of the business to the present day. agriKomp's name stands not only for efficient technology and reliable service, but also for innovation, conviction and a great deal of entrepreneurial courage: ground-breaking systems, such as the first mobile biogas plant, the Güllewerk®, or the Paddelgigant® agitator are just a few examples of brilliant engineering from the agriKomp R&D department.

## CONTINUITY – THE BEST QUALITY

All the essential components of the biogas plant are developed and manufactured by agriKomp. This guarantees absolute reliability and continuous excellent quality. Key components, such as the flexible gas store (Biolene®), the paddle agitator (Paddelgigant®) and the robust feeding technology (Vielfraß®) have set international standards with respect to stability, reliability and energy efficiency.

## RELIABLE – SOURCE ENGINEERING

It only takes a few months to build a biogas plant, our service partnership lasts for decades. This is what a biogas plant manufacturer should be able to offer in all events. Essential parameters which decide the long-term profitability of your plant are stable technology, reliable service and, above all, continuous further development.

We are always researching and developing, so that you remain ahead in the future. Therefore, expect the best from us – in every sector!

„If you wish to stay ahead you must be innovative, have reliable and efficient products in your portfolio and also provide a secure service. This requires dedicated people and solid engineering“, says Robert Bugar.

## FULL COMPETENCE FROM ONE SOURCE

- ✓ **... Up front ...**  
Research, development and manufacturing of our own components and plant designs
- ✓ **... At the beginning ...**  
From planning to construction
- ✓ **... And also after construction ...**  
Comprehensive service (technical and biological)
  - Utilisation concepts
  - Combined heat and power
  - Biomethane
  - Digestate treatment
- Repowering / Extension
- Heat utilisation concepts  
District heating and microgas networks
- Added-value services
  - Electricity marketing
  - Power2Heat
- ... We are always at your side!**

## COMPANY HISTORY – OUR MILESTONES IN OVER 20 YEARS

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li><u>2000</u> Renewable Energy Sources Act<br/>Founding of the agriKomp Company Weidenbach (Bavaria)</li> <li><u>2001</u> 1<sup>st</sup> biogas plant in Germany</li> <li><u>2002</u> Paddelgigant® and Biolene® are introduced</li> <li><u>2003</u> Vielfraß® is introduced</li> <li><u>2004</u> Foundation of agriKomp West</li> <li><u>2005</u> 1<sup>st</sup> biogas plant in Kenya<br/>In-house biogas laboratory equipped</li> <li><u>2006</u> 100<sup>th</sup> biogas plant built<br/>Foundations of agriKomp Bohemia (Czech Republic); agriKomp France (France); agriKomp Süd (Germany)</li> <li><u>2007</u> Quetschprof® is introduced</li> <li><u>2008</u> Innovation: Güllewerk® is introduced</li> <li><u>2009</u> 1<sup>st</sup> Güllewerk® in operation<br/>agriKomp receives Innovation Award from Middle Franconia</li> <li><u>2010</u> Foundations of agriKomp Slovakia (Slovakia) agriKomp Polska (Poland) agriKomp UK (Great Britain)</li> <li><u>2011</u> Foundation of agriKomp CSS (Canada) Formprotect® is introduced</li> </ul> | <ul style="list-style-type: none"> <li><u>2012</u> Commissioning of the first compact slurry plant<br/>1<sup>st</sup> biogas plant in Canada</li> <li><u>2013</u> Shareholding in SCHNELL Motoren AG</li> <li><u>2014</u> agriSelect® is introduced<br/>Development and manufacturing of the BGA 086<br/>Certified acc. to DIN ISO 9001:2008</li> <li><u>2015</u> Introduction of the gas upgrading system agriPure®</li> <li><u>2016</u> agriFer® is introduced<br/>Development and manufacturing of the BGA 136<br/>Founding member of ServiceUnion GmbH (Service network)</li> <li><u>2017</u> Certified acc. to DIN ISO 9001:2015</li> <li><u>2018</u> Foundation of ServiceUnion SAS in France<br/>Investment / share in BIORESTEC<br/>agriFer® Plus (digestate upgrading system) is introduced</li> <li><u>2019</u> 300<sup>th</sup> small-scale (farm-based) biogas plant in operation<br/>100<sup>th</sup> biogas plant in France in operation</li> <li><u>2020</u> Partnership with Biemme Impianti (Italy)<br/>100<sup>th</sup> biogas plant in France in operation<br/>10<sup>th</sup> agriPure® in operation in France</li> <li><u>2021</u> 1<sup>st</sup> agriFer® Plus in operation in Germany<br/>Foundation of agriKomp Italia</li> </ul> |
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# Sophisticated biogas plants

Efficient. Innovative.  
Sustainable.

## MANY VARIANTS TO MEET YOUR REQUIREMENTS!

The result of our more than 20 years of experience and development in biogas plant and component engineering: a large and versatile portfolio of components and plants. Whether slurry, manure, agricultural residues, grass or silage - powerful technology and a wide range of specially developed components and plants give you a free hand.

## BENEFIT FROM UNTAPPED POTENTIAL

Biogas production from manure and slurry, organic residues and renewable raw materials has become increasingly popular worldwide in recent years. Especially the use of manure, slurry and organic residues makes the operation of a biogas plant profitable for you.

If, for example, livestock housing construction measures become necessary, it is advisable to include biogas in the concept. Often, a significantly more economical and sustainable solution can be found with little additional effort.

## CUSTOMISED FOR YOUR BUSINESS

Our consultants are practitioners and know their business. Together with you, they will determine the optimal system configuration for your farm. The various operational conditions and parameters such as crop area, input materials, operational planning and the time you want to invest in the operation of the plant are taken into account in the concept for your biogas plant.

## HIGHEST STANDARD

A high degree of standardisation, ISO 9001 certification and CE conformity are quality and safety benchmarks for us. It is not only a matter of fulfilling important safety guidelines and legal requirements. Identical systems and components enable the highest quality in material use and processing. This ensures a long-term reliable supply of the right spare parts and competent service.

## OUR INDI PLANT – INDIVIDUAL, LIKE YOU!

Our comprehensive component portfolio enables a wide range of different system configurations. The exclusive use of our proven components ensures model consistency. This gives you a high degree of security and the necessary flexibility. This is how individual biogas plants are created, tailored to the respective operational requirements.

Plant capacities from 55 kW<sub>el</sub> to 2.5 MW<sub>el</sub> and more are possible - whether with a CHP or an upgrading to biomethane.

We develop and manufacture an individual and highly economical solution for you that meets your vision and needs; the result is what we call an „Indi“ plant“

## YOUR BENEFITS AT A GLANCE!

- ✔ Individual plant design
- ✔ Standardised technology
- ✔ Highest safety standards
- ✔ Powerful and proven agriKomp components
- ✔ Perfectly coordinated interfaces
- ✔ Broad CHP portfolio (agriKomp BGA series) and biogas upgrading (agri-Pure®) for efficient biogas utilisation
- ✔ Competent service and best spare parts supply
- ✔ Continuous updates



# agriSelect®

– our multi-talented system.



## AGRISELECT® – SELECTED QUALITY

“Select” in the name of our plant system stands for carefully selected components paired with a wide range of options. Branded components intelligently arranged and flexibly combinable. If you wish, also with your own contribution.

The compact biogas plant can be built in just a few weeks. Pre-assembled modules, turnkey technology and CHP container, unique Formprotect® tank construction system and the deployment of an experienced on-site supervisor ensure that the installation of the plant progresses quickly.

### SELECT - SOLID PLATFORM AND A WIDE RANGE OF CHOICES

Standardised system configurations equipped with proven agriKomp brand technology are the foundation. You can configure your agriSelect® individually according to your needs with our proven agriKomp brand components and a wide range of additional packages and options:

Digester construction in Formprotect® design or conventional, Biolene® single-layer membrane or double membrane roof, CHP containers with various agriKomp CHP units of the BGA series, technical and intermediate space containers as well as submersible or paddle agitator. The visually appealing containers are of concrete construction and prefabricated and are therefore quickly ready for operation.

### FREE CHOICE OF FEEDSTOCK

The agriSelect® can be operated with 100% liquid manure. By upgrading the agriSelect with Vielfrass® solid feeder and Paddlegigant® paddle agitator, it can also be operated with solids (e.g. energy crops, agricultural residues, etc.) and even with 100% manure.

### HEAT UTILISATION

The efficient use of energy and a sophisticated heat utilisation system create enough valuable heat to heat buildings free of charge and regeneratively.

## CAPACITY

The agriSelect® plant system is available from 55 to 265 kW<sub>el</sub>.

### Model 55 - 80 kW<sub>el</sub>

The classic farm biogas plant, of which more than 150 plants are currently in operation. The plant is equipped with the agriKomp BGA086 as standard.

### Model 75 - 150 kW<sub>el</sub>

For our medium agriSelect® model we use our BGA 095 with the latest SCANIA 5-cylinder in-line engine DC09.

### Model 150 - 265 kW<sub>el</sub>

Our very successful model, the BGA 136, utilises the biogas produced reliably and efficiently in our largest agriSelect® model. More than 50 plants are already in operation. An agriClean 150 is used for gas pre-treatment.

## YOUR BENEFITS AT A GLANCE!

- ✓ 3 basic models cover a plant capacity of 55 - 265 kW<sub>el</sub>
- ✓ Equipped with proven agriKomp components
- ✓ Wide range of input materials possible
- ✓ Individually configurable
- ✓ Modular design
- ✓ Many additional packages and options
- ✓ High degree of standardisation
- ✓ Short construction time
- ✓ Pre-fabricated containers
- ✓ Ready-assembled modules
- ✓ Appealing design

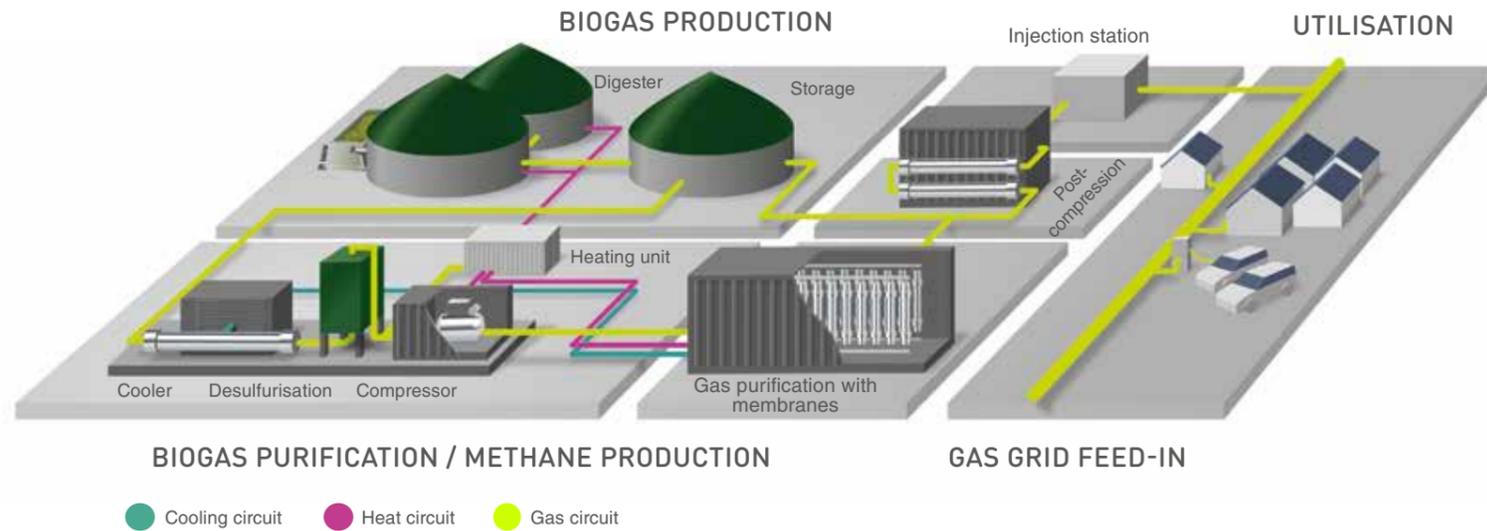


### akCockpit® – Webapplication

Our all-in-one solution for monitoring and controlling biogas plants, CHPs or biogas upgrading plants.

The application summarises all important information about your plant at a glance. This allows you to carry out extensive analyses and monitoring and save a lot of time.

# agriPure® – The system for biogas upgrading.



## FROM BIOGAS TO BIOMETHANE

The innovative and sustainable agriPure® biogas upgrading plant was originally developed by agriKomp in 2015.

The biogas upgrading process converts biogas produced by anaerobic digestion into biomethane using special membranes. There are several pre-treatment steps to clean and condition the biogas. The biogas is then compressed before entering the membranes which are used to separate the methane (CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>) gases at a molecular level. After this upgrading process, the product biomethane can be sent to the gas grid or further compressed or liquefied for use as transport fuel.

In general, biomethane can be used after biogas upgrading wherever natural gas is also used. Both variants are chemically equivalent and differ only in their either fossil or biogenic origin. This opens up a wide range of possible applications.

## AGRIPURE® – COMPLETE CUTTING EDGE SOLUTION

With agriPure®, we offer a complete solution for anaerobic digestion and biogas upgrading: from biogas plants to biogas pre-treatment to biogas upgrading systems. agriKomp is the right choice for your project!

The result is a first-class, coordinated installation of different components. With a wide-ranging service network, experienced service technicians and good spare parts availability, your agriPure® plant will receive a well-coordinated and reliable service support, providing the best opportunity for a long and trouble-free plant lifespan.

### Flexibility

With the agriPure® upgrading process, we can realise a broad spectrum from small to large biogas upgrading plants. Due to the high flexibility of the process, the membrane technology can be easily adapted to changing volume flows and gas compositions. The standard output range of our agriPure® extends from 150 Nm<sub>3</sub>/h - 2,000 Nm<sub>3</sub>/h raw gas.

## MEMBRANE MODULES FOR OPTIMAL RESULTS

In order to purify the biogas, specially developed membrane modules are used. We equip our agriPure® upgrading system with SEPURAN® Green membranes from EVONIK. The separation membranes operate according to the principle of selective permeation. The membranes are made of several thousand fine hollow fibers, which guarantee very good selectivity. They separate the gases in the raw biogas and produce a methane concentration of up to 99 % in the product gas. The innovative technology consists of three stages and enables optimum treatment efficiency with minimal biogas losses (methane slip), thus achieving maximum biomethane yield.

## HEAT RECOVERY SYSTEM

The extraction of excessive heat from the heat system of the upgrading plant ensures high efficiency of the whole plant. The biogas compressor uses oil to lubricate the compressor. This oil heats up during operation and needs to be cooled. This can be done via emergency coolers or, as in our agriPure®, via integration into a sophisticated heat recovery system.

We also have integrated more components (p. ex. the gas cooling) into the heat recovery system to gain even higher efficiency. The heat recovery system is located in the heating system container.

## YOUR BENEFITS AT A GLANCE

- ✓ Fully automated system, easy to operate
- ✓ ≥ 99.4% methane recovery
- ✓ Selected high quality components
- ✓ Good energy efficiency / low operating costs
- ✓ Sophisticated heat recovery
- ✓ Modular system: suitable for expansion
- ✓ Fast system re-start to grid-quality gas
- ✓ Industry leading membrane performance
- ✓ No process heat required
- ✓ Comprehensive service support
- ✓ Critical spare parts stock availability
- ✓ On-line control functionality

# agriFer® Plus

## The next generation of digestate treatment.

### OUR INNOVATIVE PROCESS FOR DIGESTATE TREATMENT

The storage and use of slurry and digestate is leading to an increasing financial burden for biogas plant operators. Most of the processes currently available on the market work on volume reduction and concentration of nutrients. So far, however, no process has been able to remove excess nitrogen from agriculture.

The high nitrate levels in the soil and groundwater are due, among other things, to over fertilisation with ammonium-containing slurry, digestate and solid manure. A large part of the ammonium used becomes nitrate in the soil.

### EVAPORATION, RECOVERY AND DISCHARGE

The innovative agriKomp complete treatment process offers an economical solution to the nitrate problem with simultaneous volume reduction. In this process, nitrogen-containing digestate is treated by an evaporation process in combination with reverse osmosis.

The nitrogen is converted into marketable ammonia solution that is used in the chemical industry (e.g. in flue gas cleaning).

In the agriFer® Plus process, the input material is separated into approx. 3% ammonia water (which contains up to 50% of the total nitrogen from the input), approx. 49% water, 21% solid phase from separation and approx. 27% NPK (nitrogen, phosphate and potassium) concentrate, which can be used as fertiliser.

### SUSTAINABLE RESOURCE MANAGEMENT

Compared to existing processes, valuable nutrients are obtained in the form of marketable products. The concept is also characterised by high environmental compatibility, as the addition of chemical additives have been reduced by 90%.

Our treatment process significantly improves profitability, protects groundwater and offers sustainable resource management.

### THE BIG PICTURE CONSISTS OF FOUR SUB-PROCESSES

#### 1. Separation of digestates

The digestate is first mechanically separated into a liquid phase and a solid phase. While the liquid phase, filtered through a sieve, is fed to the evaporators, the separated solid phase can be temporarily stored on a suitable storage area.

#### 2. Fractional evaporation

The agriFer® Plus design is based on a newly developed fractional evaporation process. Fractional evaporation uses the different vapour pressures of ammonia and water to separate them in several stages by evaporation.

#### 3. Rectification

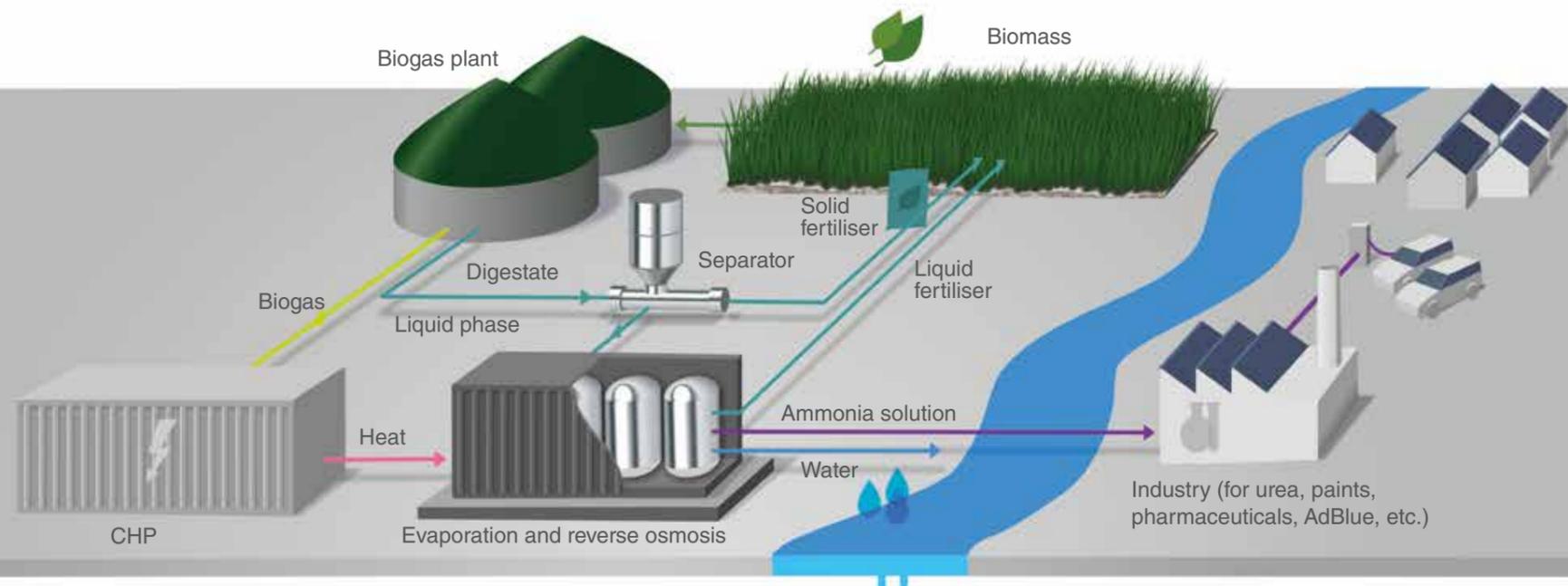
The task of rectification within the agriFer® Plus plant is to increase the concentration of the ammonia water as required. This reduces storage and transport costs and generates income from the sale of ammonia water.

#### 4. Reverse osmosis

The condensate produced in evaporators is pressed against the semi-permeable reverse osmosis membranes. The resulting permeate (water) can be used for operational purposes or discharged into receiving waters without further treatment. The retentate (concentrate) is either returned to fractional evaporation or can be applied as a high-quality mineral NPK fertiliser as required.

### YOUR BENEFITS AT A GLANCE

- ✓ The digestate volume is significantly reduced
- ✓ Upgrading of the digestate to concentrated, high-quality liquid fertiliser and ammonia water (basic chemical for industry)
- ✓ Minimisation of emissions (ammonia)
- ✓ Increasing the economic profitability of your plant
- ✓ agriFer® Plus is the only process to date that removes nitrogen from agriculture
- ✓ Lower treatment costs
- ✓ Stable market demand for process products
- ✓ The plant operator changes from a producer of problematic substances to a producer of important basic chemicals



Built to last. Since 2002.  
**Components. Solid & Reliable.**  
 Rely on the Originals!



**SPECIALISTS ARE NEEDED HERE!**

In practice, it has been shown that the processing of manure, grass, agricultural residues and silage sets special engineering demands. We have therefore developed components on the basis of our experience to meet these demands and matched them together. Solid, robust, efficient and reliable - they guarantee maximum availability.

**GOOD, TRIED AND TESTED – CONTINUOUSLY INNOVATIVE!**

We develop and manufacture all the essential components ourselves. They are all of the same high quality and conform to the relevant international CE and safety standards. Due to our continuous development and innovation, you and your plant are always at the cutting edge!

**PADDELGIGANT® – THE STRONG AGITATOR**

The energy-efficient agitator technology was designed especially for structured substrates with high dry matter contents. This operational capability opens up a wider range of feedstock for biogas plant operators. The four angled, low-speed paddles cause optimal and biologically friendly mixing in the shortest possible time. This is important for an optimum gas yield and for the avoidance of sink-and-float layering.

**VIELFRAß® – THE RELIABLE SOLID MATERIAL FEEDER**

The feeding of digesters plays a key role in the economic and efficient operation of a biogas plant. A reliable and effective solid feeding system will ensure optimal introduction of biomass to the digester with increased gas yield, lower energy consumption and reduced wear on the agitators and pumps.

To maximise plant performance, it is becoming increasingly important to choose a feeding technique that can also process more difficult to handle materials. With our Vielfraß® portfolio, you have a wide range of feed-stock options.

The variety of the Vielfraß® family is unique on the market: basic units from 3 to 12 m³, discharge container of 20, 30 and 40 m³ allow a multitude of possible combinations up to a discharge capacity of 90 m³.

The portfolio is rounded off by the Vielfraß® LEF with a capacity of up to 139 m³. The Vielfraß® LEF is equipped with moving floor /walking floor technology and PreMix unit allowing homogeneous liquid feed delivery to the digesters.

**QUETSCHPROFI® – THE MODERN SEPARATION TECHNOLOGY**

When separating digestate with a high content of solid manure and grass, conventional separation engineering reaches its limits. We have therefore developed an economical and robust separator for digestate and slurry. Fine sieve-drums and a continuously controlled pneumatic cylinder which can react flexibly to fluctuating dry matter content, provides high separation levels and a reliable, continuous separation result.

**BIOLENE® – THE FLEXIBLE GAS STORE**

Our single-shell Biolene® biogas storage membrane, proven thousands of times in practice, is an economical solution for your biogas plant. Biolene® is a gas storage tank and tank cover in one and thus offers a highly efficient solution for small agricultural and industrial biogas plants.

**DOUBLE MEMBRANE GAS STORAGE**

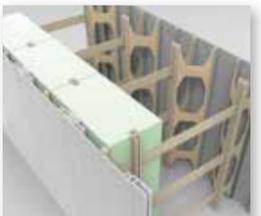
Flexible and efficient biogas plant operation is closely linked to the storage of biogas. Our high-quality and durable double membrane roof is the ideal solution for the flexible storage of biogas. The outer cover is a weather protection cover that protects the inner gas membrane from external influences.

Our weather protection membranes made of PVC-coated polyester fabric are specially designed to withstand high temperatures and thus guarantee the longest possible service life. The gas storage membrane underneath also has a high temperature stability, is highly elastic and also extremely durable. Several supporting air blowers keep the outer membrane tight and stable. This makes the weather protection membrane resistant to both high winds and large temperature fluctuations.

**FORMPROTECT® – THE CLEVER TANK CONSTRUCTION SYSTEM**

Exclusively we can offer a unique digester construction system from easy-to-handle PVC-modules, in which the formwork remains in place and becomes part of the vessel. An additional coating, insulation and impregnation is not necessary as concrete and weather protection are already integrated. The system is absolutely gas- and water-proof as well as being resistant to hydrogen sulfide and acid corrosion. The exterior wall does not need to be insulated, painted or receive any cladding.

Formprotect® is also available as a remedial repair system, e.g. for the renovation of existing tanks.



Formprotect® Structure: Interior and exterior panels



agriMix – the small, fine agitator for slurry plants

BUILT TO LAST  
**ORIGINALS**  
 – SINCE 2002 –

# CHP. Made by agriKomp. Efficient. Reliable. Flexible.

## POWERFUL PERFORMANCE – HIGHEST RELIABILITY

Combined heat and power units (CHP), with their versatile applications, currently represent an economical and efficient climate protection technology. All CHP units work according to the principle of combined heat and power (CHP), a decentralised generation of electricity and heat available directly on site where it is consumed.

agriKomp offers you customised energy concepts for CHP applications. We develop optimised CHP units with modern engine technology from renowned manufacturers, such as SCANIA, in the small and medium power range.

Our CHP units are characterised by their robustness and reliability. This results in low maintenance costs that are unparalleled in the industry.

You can obtain all our CHP units as completely pre-installed container solutions (concrete or steel containers) or as an individual CHP solution, e.g. for integration into an existing housing.

## BGA 086 55 kW<sub>el</sub> – 80 kW<sub>el</sub>

The robust and reliable biogas unit series 086 (BGA 086) for the small power range has been a proven and popular agriKomp development since 2014. In the capacity class from 55 kW<sub>el</sub> up to 80 kW<sub>el</sub>, the combined heat and power unit is an ideal solution for small-scale farm-based biogas plants. Small farms benefit from a long CHP operating period, a stable running performance and a high availability of spare parts. The BGA 086 has a modified 6-cylinder in-line engine and is optimised for the best possible performance and availability. The well-engineered in-line engine impresses with its low maintenance requirements. Thanks to its 8 litre capacity, the engine is a real endurance runner with good performance values.

### YOUR BENEFITS AT A GLANCE

- ✓ Refined, technically mature 6-cylinder in-line engine
- ✓ 8-litre capacity in robust design
- ✓ Low maintenance requirements with outstanding availability of spare parts
- ✓ Very compact, space-saving design: All components are mounted on one rack, including the device for remote maintenance and monitoring

## BGA 095 75 kW<sub>EL</sub> – 150 kW<sub>EL</sub>

Our CHP series BGA095 is optimized for best possible performance and availability. The BGA095 is a frequently chosen CHP unit in the smaller power range and a good addition for the expansion of a biogas plant.

The BGA 095 is equipped with the latest SCANIA 5-cylinder in-line engine DC09. The CHP impresses with low maintenance requirements and very high availability of spare parts. All components, including the device for remote maintenance and monitoring, are mounted on a frame with minimized vibration.

### YOUR BENEFITS AT A GLANCE

- ✓ Latest, technically mature SCANIA 5-cylinder in-line engine (DC09)
- ✓ 9 liter unit in solid construction
- ✓ Low maintenance requirements with very good availability of spare parts
- ✓ All components mounted on one frame. Including the device for remote maintenance and monitoring.

## BGA 136 150 kW<sub>el</sub> – 265 kW<sub>el</sub>

With the CHP series 136, first manufactured in 2016, we serve an essential and popular power range. CHP units of the BGA 136 type are suitable for medium-sized farms and are ideal for flexible operation in double or even multiple units.

The BGA 136 series is particularly impressive due to its robust design, excellent starting behavior and reliable, field-proven technology, which ensures excellent availability. The well-engineered in-line motor impresses with its low maintenance requirements and high availability.

### YOUR BENEFITS AT A GLANCE

- ✓ The BGA 136 product range is based on the latest Scania DC13 engine generation
- ✓ Electrical efficiency up to 40,9%
- ✓ Optimized hydraulic system, especially for flexible operation
  - thereby high and stable flow temperature
  - prevents condensation of the exhaust gas in the exhaust gas heat exchanger
  - Cooling water preheating, charge air cooling in two stages



**CHP. Made by agriKomp.**  
Efficient. Reliable.  
Flexible.



**BGA 222**  
300 kW<sub>el</sub> – 350 kW<sub>el</sub>

We introduced the large, stable and reliable 222 biogas genset series to the market in 2008. Since then, the strong and powerful series has been appreciated by our customers and is often installed in the power class up to 350 kW<sub>el</sub>. The CHP units have established and proven themselves not only in Germany, but also internationally with large agricultural businesses. They are efficient and also extremely easy to maintain.

The BGA222 series consists of a robust 12-cylinder V-engine, which guarantees a long service life. Through ongoing development, the genset has been optimised for performance and high availability.

**YOUR BENEFITS AT A GLANCE!**

- ✔ Enhanced 12-cylinder V-engine
- ✔ Robust and solid construction
- ✔ Low maintenance
- ✔ Very good availability of spare parts
- ✔ Control of individual cylinder temperatures

**BGA 252**  
– UP TO 530 kW<sub>el</sub>

The powerful unit from our portfolio impresses with its stable and robust design. Due to its space-saving MAN 12-cylinder V-engine and high availability, it is a frequently chosen CHP unit in the medium output range.

With the use of an optimised hydraulic system, which was specially designed for flexible operation, a high and stable flow temperature is achieved. This prevents condensation of the exhaust gas in the exhaust gas heat exchanger. Instead of batteries, a standardised mains starter is used in the BGA252. This guarantees safe starting behaviour at constant speed, which is indispensable especially in flexible operation.

**YOUR BENEFITS AT A GLANCE!**

- ✔ 12-cylinder MAN engine (E3262 LE212)
- ✔ Robust and reliable construction
- ✔ Low maintenance, very good spare parts availability
- ✔ Optimised hydraulic system, especially for flex operation
- ✔ Mains starter for increasing the starting speed

**AGRICLEAN – HIGHEST EFFICIENCY AND MAXIMUM CLEANING**

The agriClean product range has the function of treating the gas produced in a biogas plant for utilisation in a CHP unit. The gas treatment can be used for the combustion gases biogas, sewage gas and landfill gas. It is designed for outdoor operation, for continuous operation and, with constant flow, also frost-proof.

agriClean 150, 300, 600:  
Complete system in modular design for outdoor installation, consists of:

**Cooling module**

- ✔ Cooling of the biogas by separation of condensate
- ✔ Cooling by cold water generator incl. cooler, storage tank and safety group.
- ✔ With droplet separator (demister)

**Pressure boosting and control module**

- ✔ Pressure boosting to the required operating pressure for CHP, control and regulating system
- ✔ Side channel compressor energy-saving controlled by frequency converter (explosion-proof)
- ✔ Temperature and pressure displays
- ✔ Pressure switch for over- and underpressure safety shutdown
- ✔ Switch cabinet for control of the system

**Desulphurisation module**

Removal of sulphur compounds and dust particles

- ✔ Activated carbon container made of stainless steel
- ✔ Including heating register for gas preheating
- ✔ Insulated with diffusion-proof, UV-resistant thermal insulation

**AGRICLEAN**

Biogas throughput with cooling from/to in Nm <sup>3</sup> /h	35 / 20 °C:	45 / 20 °C:
AC 120	120	80
AC 150	150	104
AC 300	330	199
AC 600	670	458

\*Manufacturer information

# Repowering & Extensions Investments providing good return!



## FIT FOR THE FUTURE

Technical progress is enormous, especially in the field of renewable energies. It is often a wise investment to retrofit or expand an existing plant during its lifetime and to replace individual components - both economically and ecologically. With every measure and the associated use of modern technology, you increase the efficiency, ease of operation and safety of your biogas plant and meet legal requirements. The aim is to consistently increase efficiency and reliability for economical operation far beyond the period of the feed-in tariff.

Modernisation is an investment in the present and above all in the future. Regardless of whether you are looking for a feeding system, a double membrane roof, agitators, substrate treatment or separation technology - with us you can be sure that everything will fit in the end. Even with a new and modern tank, we can serve you in the context of the modernisation or renovation of the biogas plant and offer it a long and enduring future.

At the beginning of an assessment, a technical and biological inventory of your plant is carried out by our consultants. From the analysis of your data, you create a suitable catalogue of measures for expansion or repowering. You will receive comprehensive advice, recommendations for action and their implementation from a single source.

Ensure the best possible output - with our complete solutions, through retrofitting and upgrading of biogas plants and CHP units. An investment that pays for itself quickly!

## CHP

Even just a one-percent increase in efficiency results in a saving of around 20,000m<sup>3</sup> of biogas annually\*. An investment that quickly pays for itself!

\*assuming constant amounts of electricity produced. Calculation for a 250 kW<sub>el</sub> aggregate.

## RETROFIT KIT

We have developed a conversion kit for all 6 cylinder SCANIA engines of the DC12 series and Doosan V8 engines to the modern SCANIA DC13. The conversion package is available for old dual fuel and BlueRail engines. With the conversion package developed by us, you receive well-known and reliable "Gas-Otto" combustion technology with high efficiency and trouble-free operation with high ease of operation and maintenance.

For example, the efficiency of a BGA158 increases from 39.5% to 40.9%. Your additional revenue per year: up to 12,000 EUR!\*

\*Calculation for a 250 kW<sub>el</sub> aggregate. German feed-in tariff.

## EFFICIENCY INCREASE THROUGH AGITATOR MODIFICATION

The retrofitting of the agitator technology promises particularly high increases in efficiency. Especially if you change from a submersible motor agitator to a paddle agitator.

Many plants have been designed for the use of maize, whole crop silage and slurry. Submersible agitators were often chosen. If one wants to use a wider range of feedstock, the technology often reaches its limits. With a paddle agitator, our Paddelgigant®, even difficult materials such as grass and manure can be optimally mixed for the process.

The four sloping paddles, which operate slowly and at low speed, ensure optimum and biologically careful mixing in the shortest possible time. This means that the renewable raw materials and slurry or manure are mixed in the digester in an ideal and energy-saving manner. Sinking or floating layers are largely avoided and the gases are stirred out.

## THERE ARE GOOD REASONS FOR AN AGITATOR EXCHANGE:

- ✔ High efficiency - reduced power consumption
- ✔ Good and slow mixing, therefore gentle on bacteria
- ✔ Extended substrate options
- ✔ Particularly suitable for challenging, structured substrates and high dry matter contents
- ✔ Robust, durable, low-maintenance

## TANK REVISION

Safe, flexible and efficient biogas plant operation is closely linked to the condition of the tanks and the storage of the biogas. After a few years in operation, the tanks and gas storage tanks have to be refurbished. This is an ideal moment to modernize the tanks holistically and thus to adjust a substantial part of the biogas plant to „the future“.

We have a wide range of repowering and revision measures in our portfolio for you:

- ✔ Container leaking or coating renewal necessary? With the FormProtect® revision system, your container becomes gas-tight and acid-resistant again.
- ✔ Need more storage capacity? Replacement of the gas storage tank due? Are you planning to switch from a single shell storage tank to a double membrane or an air bearing roof? Our high-quality and durable air bearing cover is the ideal solution for flexible storage of biogas.
- ✔ Submersible agitator susceptible? Mixing not optimal? High power consumption during stirring? Demanding substrates planned? Switch to a paddle agitator!

# Excellent service Comprehensive and thorough.

## ONE-STOP SERVICE – YOU CAN RELY UPON!

Assuming a biogas plant-life of 20 years minimum, it becomes clear how significant a reliable service partner is for the operating results. In the long term, high-quality engineering, reliable service and continuous updates are decisive for the profitability of your biogas plant. As far as updates are concerned, we at agriKomp consider them to be not only technical and biological innovations and improvements, but also a permanent further development and consolidation of our employees' know-how.

## THOROUGHLY TRAINED SPECIALISTS – HIGHLY MOTIVATED!

Many of our staff are from the agricultural community, or are closely tied to it. They are fully supportive of renewable energy and the chances that these forms of energy bring for rural regions. Our teams participate in seminars and training programs on a regular basis. Here, we place special emphasis on the fact that our specialists understand all the processes of the operation of a biogas plant, not only within their area of expertise. Furthermore, our model consistency ensures that every component has its place.

## STANDARDISED TECHNOLOGY – SECURE SUPPLIES!

Our engineering places its emphasis on solid quality and long life. The high level of standardisation of our plants and components ensures a long-term and reliable spare parts supply. A comprehensive and centrally located material depot provides a reliable spare parts supply – from the smallest screw up to a complete CHP station!

## CLOSE BY YOU – SHORT REACTION TIMES

In an emergency, time is of the essence! Regardless of how many kilometres apart we may be. Our service staff at their terminals can analyse quickly by remote maintenance and remedy the fault. Furthermore, mobile teams are ready to go from our close-meshed regional service points.

Our in-house staff consist of CHP, plant, service and spare parts teams, working two-shift systems, seven days a week! The technical stand-by service on weekends and Bank Holidays is a matter of course for us.

## OUR SPECIALISTS – ALWAYS AT YOUR SIDE

Mechatronics, construction, electrical, mechanical and heating engineers, farmers, process engineers, agricultural engineers, biologists, agricultural machine technicians, are all at your disposal:

- ✓ **CHP service**  
Service and emergencies, via remote maintenance or on location
- ✓ **Plant service**  
Biological and technical advice and commissioning
- ✓ **Electrical service**  
Advice and service associated with electrotechnology and plant control
- ✓ **Laboratory service**  
Anaerobic digestion testing laboratory to determine residual gas and substrate potential, analysis laboratory for controlling digester biology

## QUALITY CONTROL – CERTIFIED TECHNOLOGY AND PERSONNEL

A high standard - ISO 9001 certification and CE-conformity are strict framework conditions which we undergo voluntarily in order to ensure and continuously improve the high quality of our engineering as well as the skills of our employees.

Currently:  
ISO Certification: DIN ISO 9001  
Laboratory round robin test: annually



Our references  
speak for  
themselves.



<b>A</b>	<b>Schloßberg Energie</b> Prichsenstadt, Germany
<b>Type:</b>	agriSelect®
<b>Commissioning:</b>	2015
<b>Installed capacity:</b>	75 kW <sub>el</sub>
<b>Components:</b>	1x Vielfraß® 10 m³, 1x Paddelgigant®, 2x Biolene®, 2x Formprotect®
<b>Specialities:</b>	Supply of three residential buildings and a workshop hall with heat.

<b>D</b>	<b>AVENA spol. s r.o.</b> Knapovec, Czech Republic
<b>Type:</b>	Indi plant
<b>Commissioning:</b>	2011
<b>Installed capacity:</b>	1.500 kW <sub>el</sub>
<b>Components:</b>	1x Vielfraß® 50 m³, 1x Paddelgigant®, 1x Biolene®



<b>B</b>	<b>Métha Treil SAS</b> Le Treil, France
<b>Type:</b>	agriPure®
<b>Commissioning:</b>	2019
<b>Installed capacity:</b>	265 Nm³/h biogas
<b>Components:</b>	1x Vielfraß® LEF, 2x Digester, 1x Post-digester, 4x Paddelgigant®, 3x Double membrane roof, 1x Quetschprofi®
<b>Specialities:</b>	Recovery and commercialisation of CO <sub>2</sub> . Processing of residues from vegetable cultivation.

<b>E</b>	<b>GTG Biogas Ltd.</b> Toomebridge, Northern Ireland
<b>Type:</b>	Indi plant
<b>Commissioning:</b>	2011
<b>Installed capacity:</b>	500 kW <sub>el</sub>
<b>Components:</b>	1x Vielfraß® 40m³, 4x Paddelgigant®, 2x Biolene®, 1x Quetschprofi®
<b>Specialities:</b>	1 <sup>st</sup> agriKomp plant in Northern Ireland. It is located on an old military airbase.



<b>C</b>	<b>Raimiluc</b> Beauvoir, France
<b>Type:</b>	agriSelect®
<b>Commissioning:</b>	2018
<b>Installed capacity:</b>	195 kW <sub>el</sub>
<b>Components:</b>	1x Vielfraß® BT 40 m³, 2x Paddelgigant®, 2x Biolene®
<b>Specialities:</b>	Valorization of the intermediate crops of the farm and cover red storage with gas recovery

<b>F</b>	<b>Chirico Benedetto</b> Ascea, Italy
<b>Type:</b>	Indi plant
<b>Commissioning:</b>	2012
<b>Installed capacity:</b>	250 kW <sub>el</sub>
<b>Components:</b>	1x Vielfraß® FA 40m³, 2x Paddelgigant®, 2x Biolene®

