

PAULMICHL

The Exponential Future of Biogas and Biomethane

PAULMICHL GMBH – KISSLEGER STR. 13 – 88299
LEUTKIRCH

COMPONENTS FOR BIOGAS PLANT

AGITATORS – PUMPS – SEPARATORS

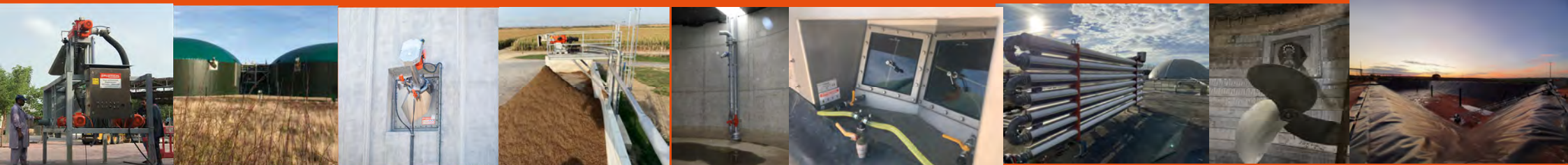


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Overview about a part of our products in the area of components for biogas plants

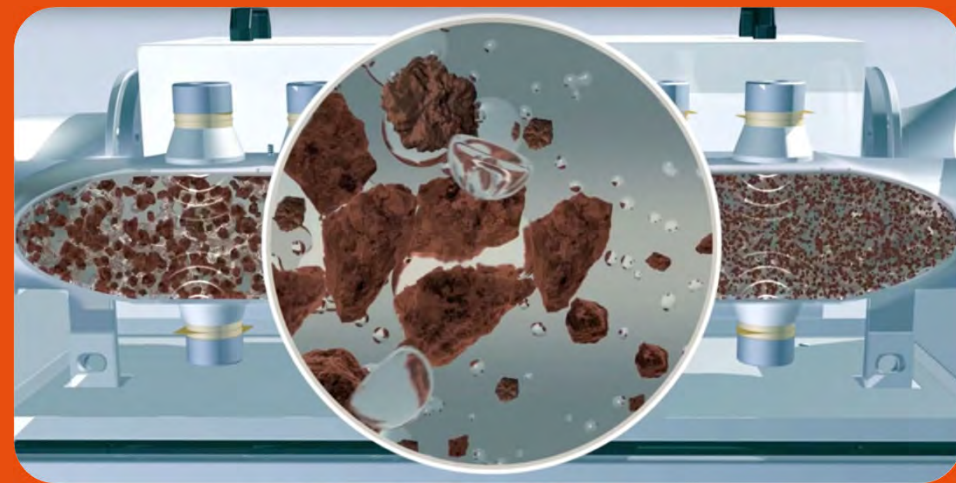
- Digester agitators for ceiling and wall installation, hydraulically adjustable laterally and in the height
- Storage agitators
- Visual control systems
- Submersible cutting pumps
- Submersible mixers
- Central pumping stations
- Pipeline construction for biogas plants
- BioHeat heat exchanger systems
- Separation technology
- Ultrasonic technology



ULTRASONIC TREATMENT of SUBSTRATES (Weber-Entec-Technology)

Advantages of the Ultrasonic treatment of substrates :

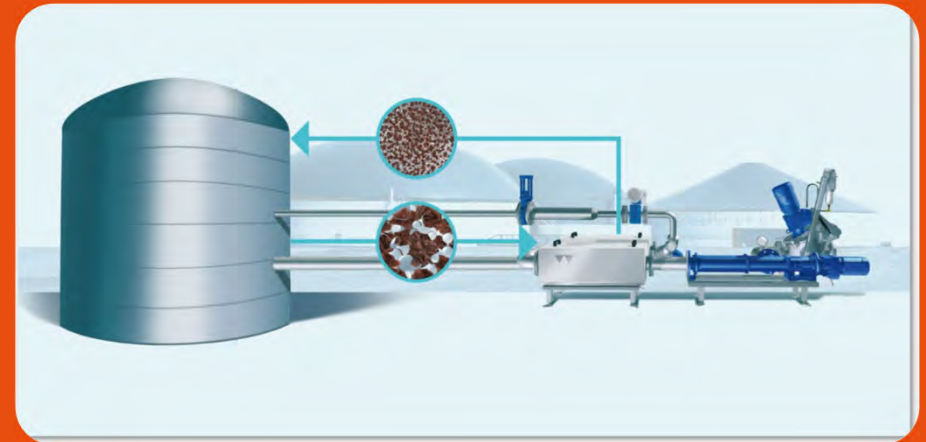
- Increased gas yield / substrate savings
- Significantly increased degree of degradation
- Stabilisation of biology
- Improved flow properties
- Avoidance of floating layers
- Reduced agitator wear



ULTRASONIC TREATMENT of SUBSTRATES (Weber-Entec-Technology)

Advantages of the Ultrasonic treatment of substrates :

- Reduced energy requirement for pumps and agitators
- Use of substrates that are difficult to process but often cheaper can be increased
- Operational reliability of the biogas plant is increased



Overview about a part of our most popular agitators



Fermenter agitator MAMMUT



Fermenter / Post Fermenter agitator
MULTIMIX



Lagoon agitator MULTIMIX

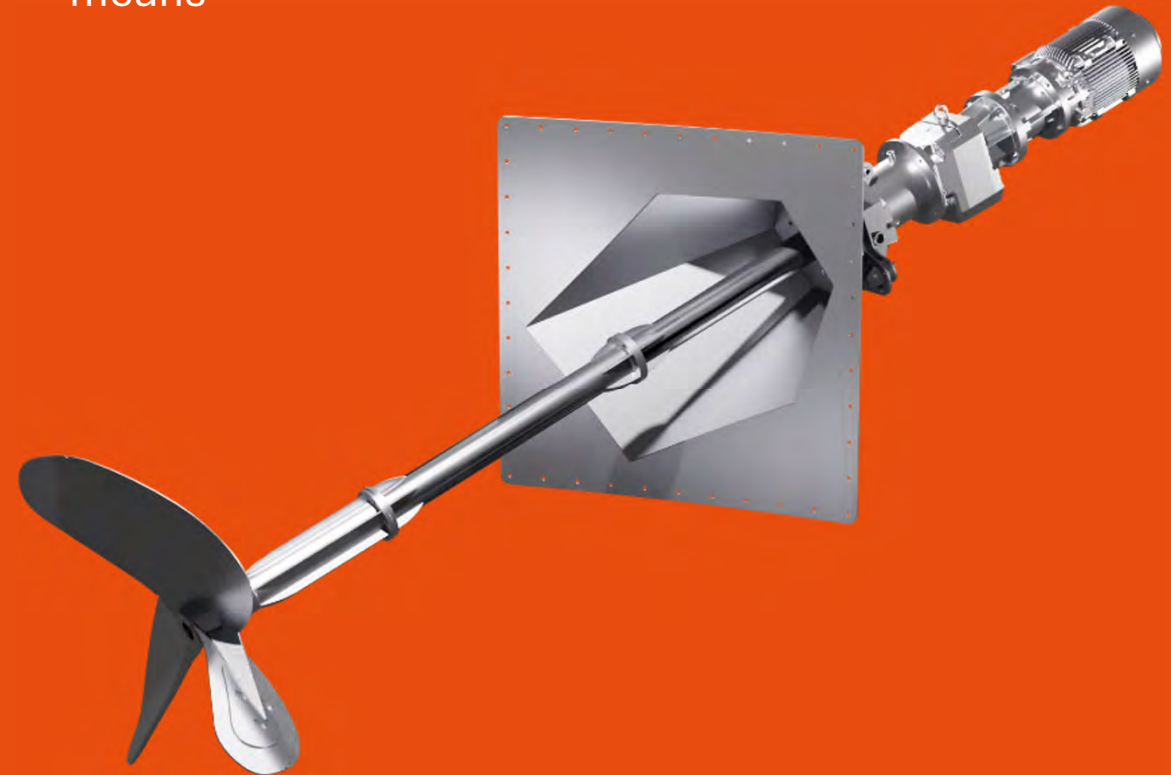


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EFFICIENT AGITATOR TECHNOLOGY FOR BIOGAS PLANTS

means

- Adapt agitator technology individually to the local conditions
- Electricity cost savings
- Quality and long lifetime of the agitators
- Frequency control using a frequency converter
- Avoid high gas loss in case of upcoming maintenance work



Features of our agitators

Simple technology with standard parts for example

1. Bearings, seals, flange connections
2. High quality bearings of known manufactures
3. High quality mechanical seal
4. Power reserve - operation with frequency converter
5. Regular operation only with 60 or 70% of the installed power range
6. High-quality and durable agitator seal for the tank with rubber compensator, approved for an operating pressure of 10 bar
7. Standard version with hydraulic agitator adjustment



Why to build up trust in PAULMICHL products?

- ❖ The company is a family-owned company in the 5th generation and can therefore rely on a great deal of experience (founded in year 1907)
- ❖ Our origins come from the field of agricultural slurry technology with the development of the first liquid manure tank vehicle and slurry steel tank construction as well as manure storage lagoons
- ❖ Our strength today are innovative, powerful and durable agitators and further components in the field of biogas technology
- ❖ Our focus is not only on the construction and equipping of new plants in the owner-builder model, but also on the repowering of existing plants

Why to build up trust in PAULMICHL products?

- ❖ Our flexibility enables us to adapt the mounting plates of our agitators to existing openings, if technically possible. This enables us to offer our customers many options for existing plants as well
- ❖ The mixing performance of our agitators has proven to be unsurpassed in operational practice, even at high dry substance contents
- ❖ Together with the company Baur Folies, we have built our lagoon test plant in year 2013 near our company location in Germany
- ❖ There we have been developed and tested the lagoon agitator technology together with our customer on side
- ❖ **Paulmichl is not just a manufacturer, we can provide you on behalf of our experience the best solution for a long-term satisfaction**

DIGESTATE TREATMENT AFTER BIOGAS PROCESS

Simple technology

1. Separator units are available in different sizes (from 18 until 90 cbm throughput an hour)
2. High quality and simple operation
3. Operation through control cabinet in your biogas plant
4. Reduction in substrate storage after the fermentation process
5. More environmentally friendly carbon return
6. Possibly used for bedding (caution: store requirements)
7. Liquid manure is more free-flowing and flows off the foliage more quickly
8. Separation ensures better performance of the agitators



Some reference projects

BIOGAS PLANT GEO ELECTRICA Brazil



Technical Data:

- ❖ Repowering 6 MW plant
- ❖ Upgraded to 10 MW

Equipment Paulmichl:

Planning in the builder-owned model

- ❖ 2 x Fermenter 25/10 m with each 3 Paulmichl MAMMUT agitators
- ❖ 2 x Lagoons with 18000m³ with each 4 Paulmichl MULTIMIX agitators

Some reference projects

YANQUETRUZ ARGENTINA

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Some reference projects

BIOGAS PLANT GILGER WEINSTEIN / FRANCE



Technical Data:

- ❖ Dairy organic farm
- ❖ 500 KW plant upgradable to 1 MW

Equipment Paulmichl:

Planning in the builder-owned model

- ❖ Fermenter 26/6 m with 2 Paulmichl MAMMUT agitator
- ❖ Post Fermenter 26/6 m with 1 MAMMUT agitator

Some reference projects

PAULMICHL TEST BIOGAS PLANT KERLER/ GERMANY



Technical Data:

- ❖ Dairy organic farm with 1200 milking cows
- ❖ Started with 250 KW
- ❖ Upgrade upgradable to 1,2 MW

Equipment Paulmichl:

Planning in the builder-owned model

- ❖ Fermenter 24/6 m with 1 Paulmichl MAMMUT agitator
- ❖ Post Fermenter 27/6 m with 1 MAMMUT agitator
- ❖ Final storage 1 with submersible mixers
- ❖ Final storage 2 with 2 MULTIMIX agitators

Some reference projects

BIOGAS PLANT SAS KIRCH SCHMITTVILLER/ FRANCE



Technical Data:

- ❖ Dairy organic farm with 500 milking cows
- ❖ 500 KW plant upgradable to 1 MW

Equipment Paulmichl:

Planning in the builder-owned model

- ❖ Fermenter 26/6 m with 2 Paulmichl MAMMUT agitator
- ❖ Post Fermenter 26/6 m with 1 MAMMUT agitator
- ❖ Separation technology

German Biogas Bringing together shared knowledge worldwide

PAULMICHL



Fermenters
Tanks
Automatic control system
Engineering



Gas storage with
accessories
Protection foils
Leak detection
Engineering

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Pump system
Mixing technology
Separation technology
Engineering



Feeding technolog components
Biogas treatmant system
Engineering

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Our goal worldwide

Sharing our knowledge and many years of experience in the field of biogas and anaerobic digestion of residual and waste materials together with our sales partners all over the world

To achieve effective solutions in the field of recycling of residual and waste materials for our customers

We can ensure long-term relief for our customers and partners, by using highly efficient and durable products as well as through reliable and competent support

Paulmichl
... innovative technology from the
Allgäu used successfully
worldwide...

Quality out of responsibility



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