RePowering: Increased Performance

Improve your Biogas Plant with PlanET!

www.PlanET-Biogas.com
PlanET Biogas Group: one-stop shopping

PlanET Biogas is a subsidiary of the PlanET Group, one of the world’s leading biogas plant suppliers. Founded in 1998, the company’s service portfolio covers all fields of biogas technology and component distribution: from planning and plant construction, to service and biological support.

PlanET’s RePowering division enables customers to increase the performance of their existing plants in a targeted fashion. The modular design allows biogas plant operators and investors to react to new developments in the feedstock and energy market at any time. PlanET already has successfully commissioned more than 400 biogas plants worldwide on a scale from 40 kW to several megawatts.

RePowering

PlanET Biogas has extensive experience assisting clients in upgrading or improving biogas plants built by others as well. Whether it’s adding a digester tank to improve retention time, adding a roof system for increased biogas storage, a dry feeder to improve input menu flexibility, or replacing mixing systems to improve the digestion process, PlanET can help improve the profitability of your biogas plant.

Many biogas plants are not operating at their maximum capacity which has an enormous impact on the feasibility of the plant. The RePowering concept provides customers focused technical and biological advice and solutions to optimize the plant performance.
PlanET Vario: most flexible feeding system available

The PlanET Vario can convey solid food waste, solid manure, and solid industrial by-products directly into the digester. The modular system allows for future expansion of the unit, as required.

Thanks to PlanET’s Vario conveyor technology, the plant saves energy and keeps wear to a minimum. The robust conveyor lines are made entirely of stainless steel, propelled individually and fit with side flaps so that the substrates can be transported effectively. The feeding side is fitted with an auger system which transports the substrate into the digester.

Coupling pieces make it easy to connect the PlanET Vario to conventional auger systems.

PlanET offers a five-year warranty for many of the Vario’s components, including the conveying strings.

Vario Benefits at a Glance

- conveyor system entirely made of stainless steel and other corrosion resistant materials
- bottom of the feeder is made of stainless steel; complete stainless steel tub is available
- future-proof investment; expandability with modular construction
- low susceptibility to failure; simple, robust and reliable components
- extremely maintenance friendly; individual elements can be shut down separately
- low energy consumption of approximately 0.9 kWh/t of material fed
PlanET Pasteurizer Container: know-how for optimum co-digestion

Pasteurization is necessary for plants digesting slaughterhouse waste, by-products and food waste. These are usually high-energy substrates with a relatively high proportion of fats, proteins and sugars.

Before being fed into the biogas plants, the materials are heated up to 70°C (158°F) and kept at this temperature for a duration of at least 60 minutes in a batch process.

Once this batch time has elapsed, the input materials are automatically pumped into the digester tank. This technology allows for the digestate to be spread onto agricultural land after it has been further treated in an anaerobic digester.

The PlanET pasteurization container can supply several digesters with processed substrate at the same time while a slow rotating mixer guarantees optimum in-tank mixing.

We offer you added safety with integrated overspill and overfill protection devices. The whole process is logged in the PlanET control system for compliance and recordkeeping purposes.

The PlanET pasteurization unit is available in two performance sizes, each of which fits into a 20’ container, which is preassembled at the PlanET workshop.

Additional pasteurization components include a heated pre-tank and grinders. The substrate is heated to up to 25°C (77°F) in the pre-tank, which keeps it fluid and increases pasteurization performance. Grinders can be used for substrates depending on the type of material being fed.

Pasteurizer Benefits at a Glance

- Pasteurization is conducted intermittently in a batch process
- Slow-running mixers prevents caking and keeps sediments suspended
- The substrate flow can be divided up amongst several different digester tanks
- An intelligent control unit logs the individual cycles
- Protection against overflowing and overfilling
PlanET eco® Mixing Technology: well-mixed is half-digested

The right selection of mixing technology makes an important contribution to achieving the best possible gas yields. Satisfactory plant efficiency cannot be achieved without ideally configured mixer technology. For optimum production, the digester contents must be blended homogenously – and this is only possible when the mixers are configured to the tank size and substrates.

The adjustment system designed by PlanET ensures proper lateral and vertical mixer orientation. Thus, floating and sinking layers are well mixed and the substrates are always incorporated evenly.

The PlanET eco® mixing series offers time-tested mixer technologies, from submersible motors to large-wing and paddle mixers – all of which feature economical power consumption. As always, PlanET technology is durable and wear-resistant.

The right combination of augers allows an even and efficient mixing of your substrates with higher dry matter content.

### PlanET eco® Turbo
- max. 13 kW output, 365 rpm
- effective for breaking up floating layers
- high-speed mixer with only 34.25” blade diameter
- flexible use, laterally and vertically adjustable

### PlanET eco® Mix
- low energy consumption of max. 7.5 kW
- high torque of 3,000 N, 70 rpm
- 1.4 m blade diameter
- laterally and vertically adjustable
- mixing process which preserves bacteria and prevents crusting

### PlanET eco® Paddle
- max. 15 kW output, 11 rpm
- suitable for long-fibred materials
- slow-speed mixer with 4 m blade diameter
- diagonally positioned paddles ensure optimal mixing and break up of crusting

### PlanET eco® Power Mix
- max. 22 kW output; up to 10,000 N torque breaking up of crusting
- slow mixer with 1.5 m blade diameter
- external-mounted motors
- installation through the tank wall allows a stageless inclination adjustment
PlanET eco® Cover: in-tank biological desulphurization

PlanET eco® Cover polyethylene (PE) fabric combines various properties for achieving optimal biogas plant operation. This is not a conventional net, but a very close-meshed fabric.

The biogas is naturally desulphurized in the digester by means of a biocatalytic procedure using air injection. The fabric’s great surface area (much greater than that of the previous wooden ceiling) offers an ideal habitat for the bacteria which desulphurize the gas. In addition, the PlanET eco® Cover serves as a thermal barrier and support for the gas holder membrane.

The desulphurization fabric is optimally stretched over the digester tank with tension belts which were specifically developed for this application. The stainless steel column in the centre of the tank provides an additional point of support and simultaneously serves to deflect the belts. The belts are fastened to the exterior wall of the digester tank by patented anchor elements made of stainless steel.

This system is operations and maintenance free as the bacteria grown on the fabric will continuously remove contaminants in the gas.

PlanET eco® Cover Benefits

- greater desulphurization area than with the wooden ceiling
- very resilient materials: PE or V4A (stainless steel)
- flexible and resistant to chemicals – no wood in the digester tank
- good thermal barrier; no additional insulation necessary
- maintenance work in the tank can be conducted using the PlanET eco® Cover as a working platform
- structurally configured up to snow load zone 3 (≥ 1.10 kN/m²)
PlanET Flexstore XL: increased storage volume

With their round shape, the air-supported roof PlanET Flexstore XL possess a much greater gas storage volume than conical roofs do. But the shape isn’t the only benefit – the film material is designed for durability and is reliably fastened to the plant by an innovative new sealing system – which is easy to maintain at the same time.

The air-supported roof is mounted to your biogas plant in time-tested PlanET quality. In conjunction with the PlanET eco® Cover or PlanET eco® Cover Plus, the roof is an absolute innovation in the world of biogas components. The shape and colour of the PlanET Flexstore XL also blends harmoniously into the landscape. The roofs are available in dust grey or moss green upon request; the dust grey roofs offer even greater advantages in terms of solar radiation and heating.

Dome Roof Design

The dome roof design increases gas storage capacity by 20% and it increases the roof’s aerodynamic profile which improves the membrane’s performance in extreme wind conditions.

PlanET eco® Twinfix Roof Mounting System

The eco® Twinfix roof mounting rail system was awarded the Silver Medal of the German Agricultural Society for product innovation. This advanced roof anchor rail system provides larger biogas digester tanks and covered storage tanks with a solid and versatile roof anchoring system that secures larger roof membrane under very high wind conditions.

Grey Foil

The grey roof cover reduces foil surface temperatures during the summer which results in reduced biogas expansion within the storage membrane, and thus a higher gas storage capacity.

Reinforced Materials

In contrast to conventional air-supported roofs, the redesigned PlanET Flexstore roof uses a particularly durable PVC weather protection outer foil that is 33% thicker than many competitor’s roof foils. This means that the PlanET roof design can withstand very high winds and severe weather conditions. In addition, the inner PE gas storage foil is durable and impermeable to odors.

PlanET Flexstore XXL

For applications where additional gas storage is required, PlanET offers the Flexstore XXL which offers an average of up to 16 hours of gas storage!

Additional PlanET technology is available to enhance the performance of your plant.
Improve Your Plant’s Performance!

Ask us how.

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