Biogas plants
Energy from biomass

Generating energy from manure, industrial by-products and energy-yielding crops is a worthwhile, environmentally beneficial investment for many farmers, waste management companies and municipal authorities. Given increasingly higher levels of government support for clean “Renewable Energy” the Return On Investment (ROI) from your biogas plant is now better than ever.

Biogas plants made by EISENMANN

With more than 50 years of experience in plant engineering and as an international systems supplier for process, thermoprocess and environmental engineering, EISENMANN is your partner for complete turnkey biogas plants.

Standard biogas plants from EISENMANN comprise a horizontal main fermenter, a thermal disintegration stage and a vertical secondary fermenter. The plants operate automatically and are equipped with process control systems, which manage the measurement and control processes. The biogas plant is monitored remotely and you are constantly kept up-to-date using modern communication channels.

In addition to standard biogas plants, EISENMANN also builds plants which are individually tailored to your specific needs. We build biogas plants for energy-yielding crops and liquid manure, as well as for by-products from food production or waste disposal.

We can provide a system that is optimized for the highest level of efficiency for your particular application.
Main fermenter

The first fermentation stage in the EISENMANN process is a heat-insulated steel pipe reactor with horizontal mixer shaft, sand and suspended layer discharge.

Solid substrates are introduced into the fermenter via a separate inlet, while the liquid substrates are delivered by a pump. In the main fermenter, these substrates are fermented at a constant temperature of between 30 and 55 °C (86 and 131 °F). Between 60% and 70% of the usual gas yield is already liberated at this stage.

The main fermenter is pre-assembled prior to delivery. Its compact design ensures short construction periods. The steel fermenter can also be dismantled and recommissioned elsewhere.

Advantages of the horizontal steel fermenter
- Continuous mixing prevents the substrates from settling or floating on the surface
- Sand and gravel collect at the bottom and are discharged from the fermenter without difficulty
- Wall heating maximizes the area available for heat transfer and ensures a uniform temperature distribution

Thermal disintegration

Following fermentation in the main fermenter, the substrate proceeds to the thermal disintegration process which has been patented. The performance advantages of this patented process have been validated through scientific testing.

Thermal disintegration increases the plant’s gas yield. The substrate is heated to a temperature of at least 70 °C in the thermal disintegration unit. Substances which do not degrade easily can continue to ferment with shorter residence times.

The process developed by EISENMANN makes operation of the biogas plant more economical and efficient, resulting in very low operating costs.

Secondary fermenter

From the thermal disintegration stage, the substrate passes to a additional fermenter for additional fermentation. The methane gas produced in the process is buffer-stored under the gas-tight cover of the secondary fermenter and withdrawn by the consumer as required.

An upright mixing tank is used as the secondary fermenter.
Advantages of a biogas plant made by EISENMANN

Our biogas plants are made from standardized equipment which significantly reduces the time required from engineering design to installation and commissioning.

The high quality of our design fabrication, partner relationship with our suppliers and decades of experience in plant engineering guarantee a high level of operational reliability - for the entire life of the plant.

Due to the design of the standard biogas plants from EISENMANN, installation is greatly simplified. Our efficient plant design and layout minimizes the footprint required for the foundation. Our international presence allows us to build and deliver plants to EISENMANN’s high quality standards anywhere in the world.

Custom engineered biogas plants from EISENMANN

Particularly plants with higher capacities must be planned individually.

Regardless of whether you need a plant with large horizontal fermenters of reinforced concrete or a conventional plant with upright fermenters, we can adapt the EISENMANN biogas plant to your individual wishes and requirements.

Biological process support

As the plant’s owner, you need to know that your EISENMANN biogas plant operates optimally and maximizes your payback. A stable fermentation process guarantees maximum gas yield along with full potential profit for your plant. Our experts analyze the process and the substrates in our own laboratory before the project starts and during the start-up phase. We supply you with specific analyses and recommendations for optimum operation of your biogas plant based on the evaluation of the gas composition. In addition, we also monitor the biological start-up and technical commissioning stages. We also offer inspections, maintenance and service plans to keep your system running optimally long after your plant has been commissioned.

Turnkey from a single source

Due to the modular design developed by EISENMANN, all units are delivered to the site in pre-assembled form. This eliminates long construction periods and guarantees top quality.
EISENMANN is one of the leading international system suppliers of general finishing, conveyor systems, process & environmental technology.

A staff of more than 2,400 employees are in the plants Boeblingen and Holzgerlingen in the engineering center in Illinois, Brasil, China and another European states.