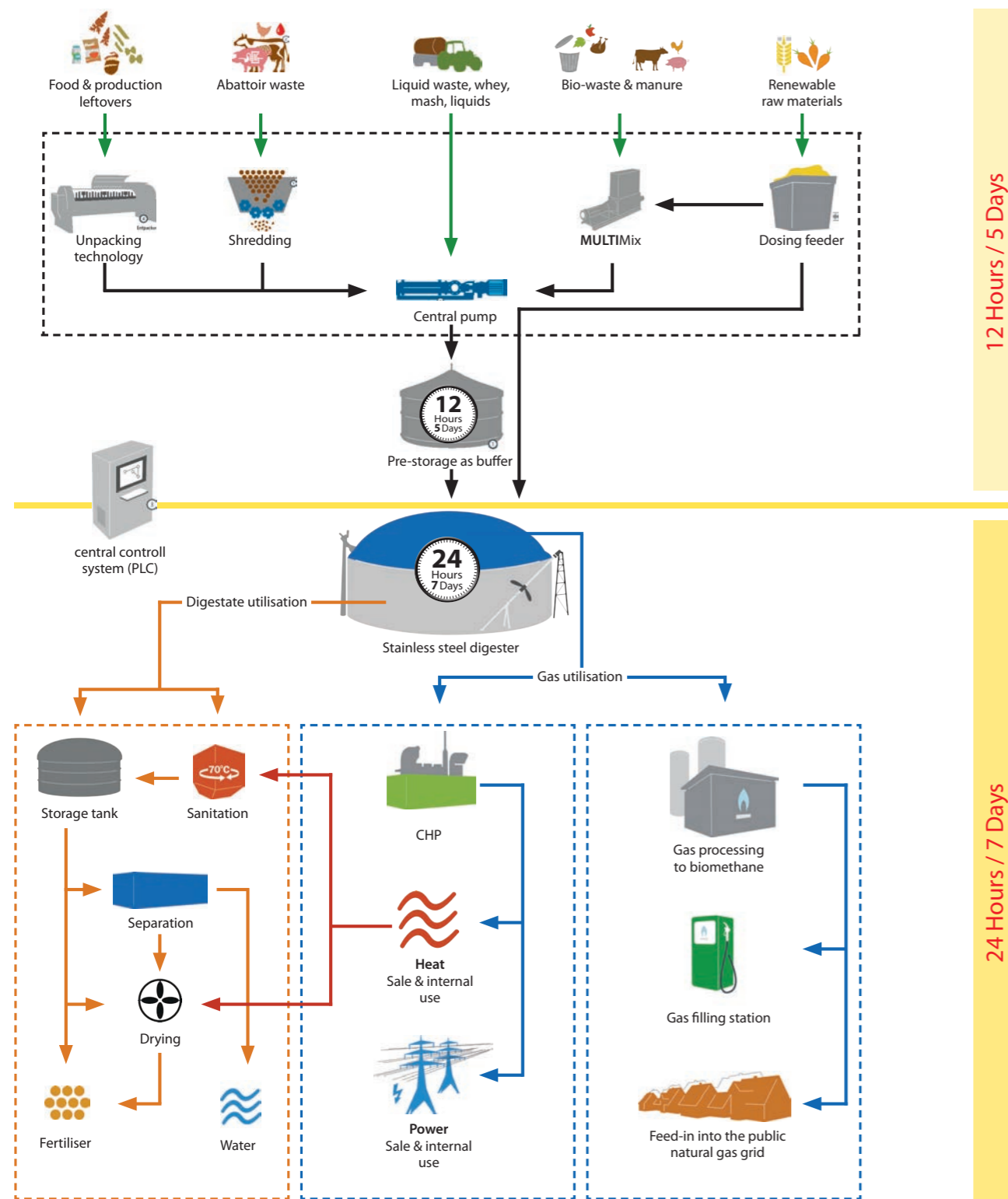




Biogas production and utilisation process



Energy plants for waste management

PHOTOSTORY



Organic energy worldwide

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References from the waste industry

Since 2001, WELTEC BIOPOWER has designed and implemented more than 300 biogas plants. In more than 25 countries, WELTEC plants deliver energy from organic substances.

Excerpt from the reference list of organic waste projects:

Piddlehinton | England | 1.3 MW

Food leftovers, expired and packaged food

Cypra | Cyprus | 1.8 MW

Abattoir waste, food leftovers, fish leftovers, pig slurry

Niittylahti | Finland | 400 kW

Rumen contents, animal blood, abattoir waste, bio-waste, kitchen waste, fats, sludge, slurry

Loughgall | Northern Ireland | 500 kW

Vegetable waste and vegetable washing water from the operator's own factory, cattle slurry

Domecy sur Cure | France | 255 kW

Fats, abattoir waste, potato/vegetable/grain leftovers, solid manure

Kettering | England | 1.5 MW

Food leftovers, wholesale food leftovers, bio-waste

Darżyno | Poland | 1.2 MW

Potato waste from a French fries factory, maize, slurry

Peer | Belgium | 2.4 MW

Ready-to-use mix of fats, vegetable leftovers, grease separator, soap water, cereal debris, maize silage

Cypra, Cyprus
Output 1.8 MW



Niittylahti, Finland
Output 400 kW



▶ Long plant life

▶ Permanently high yield

▶ Individual planning

▶ Flexible, modular structure

▶ Cutting edge technology

▶ Variable raw material input

▶ 24/7 service

Flexible stainless-steel energy plants: As individual as you!

Modern waste plants from WELTEC BIOPOWER produce green energy from diverse types of organic waste. Customised solutions are the strength of WELTEC BIOPOWER: The engineering expertise is reflected both in the technical plant design and in the substrate mix. In this way, flexible concepts can be developed for every customer.

The digesters of WELTEC BIOPOWER are made of stainless steel. This high-quality material ensures a long plant life. At the same time, the building costs are minimised by means of the smart modular setting. This quality standard also applies to the production. Most of the plant and control modules are self-developed and tuned to each other.

Upon completion of the plant, the biological and mechanical service team of WELTEC BIOPOWER continues to provide the customer with competent support. This is a key factor that ensures the profitability of the energy plant.

Every WELTEC plant is as individual as the operator. But in one area, all plants are equal: Day by day, they deliver top performance!

Structure of a WELTEC energy plant

Input technology

Waste-to-energy plants from WELTEC BIOPOWER can run on numerous feedstocks. The team has gained experience with more than 120 organic substrates of all waste categories, such as food leftovers, packaged food (expired products, faulty batches, etc.), abattoir waste, bio-waste, oils and fats from the food and cosmetics industry as well as production leftovers from the beverage industry.

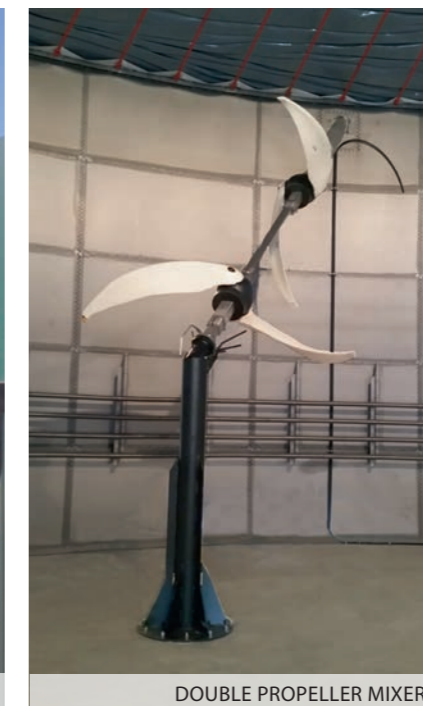
The various substrates necessitate individual, workable processing solutions. Therefore, WELTEC offers different reception, unpacking, shredding and storage systems, such as the **MULTIMix**, which ensures optimum shredding and mixing of fibrous and sticky material.



Tank technology

Special attention is paid to the material from which the tanks are made. The biogas that develops in the digester contains aggressive hydrogen sulphide and ammonia compounds. Therefore, WELTEC BIOPOWER uses high-quality stainless steel for the digester and other components.

As every plant and every customer has different needs, WELTEC biogas plants are characterised by a modular structure. This enables individual and flexible solutions and short building time.



Process flows

In WELTEC plants, the transport of the substrates takes place via a central pump. Moreover, a bundled, custom-developed control system ensures smooth communication between the individual components. Especially designed for industrial clients, the custom-developed Scada process control system monitors all operations.

The biogas can be converted to heat and power in a combined heat and power (CHP) unit or be refined to the natural gas equivalent biomethane with the help of various processing methods.



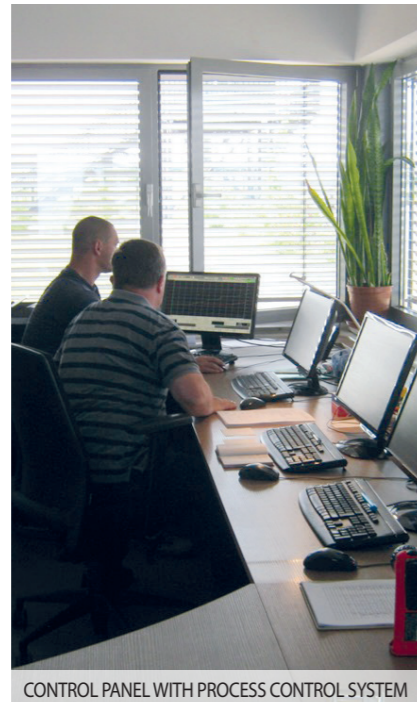
COMBINED HEAT AND POWER (CHP) UNIT AND EMERGENCY FLARE



EXTERNAL GAS DESULPHURISATION



CENTRAL PUMP BLOCK



CONTROL PANEL WITH PROCESS CONTROL SYSTEM



PROCESSING TO BIOMETHANE

Digestate processing

WELTEC BIOPOWER offers various solutions for the utilisation of the digestate. If organic waste is used, the sanitation must usually take place before the digestate is used for other purposes. For this, WELTEC offers reliable custom-developed technology. Thermophilic operation of the stainless-steel digesters is also possible.

Depending on the particular needs, WELTEC can install suitable technology for the further processing: a separation unit, a digestate dryer or a solution for using the liquid stage. Thanks to its high nutrient content, the digestate can be used as high-quality agricultural fertiliser.



SANITATION



SEPARATION



DRYER



AERIAL PHOTOGRAPH OF A 1.5-MW WASTE-TO-ENERGY PLANT IN ENGLAND