



# **BIO-ENERGY SYSTEMS**

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# SPECIALIST I

Microfe

## ANAEROBIC DIGESTERS AGRICULTURAL

ANAEROBIC DIGESTERS INDUSTRIAL

### WOOD-FIRED COMBINED HEAT AND POWER SYSTEMS

120

## **FLUIDISED-BED GASIFIERS**



# **BIOMASS** ENERGY SYSTEMS

HoSt is the largest supplier of bio-energy systems in the Netherlands and delivers complete systems, from anaerobic digesters for agriculture and industry, wood-fired boilers and combined heat and power plants to fluidised-bed gasifiers.

HoSt came into existence as the result of a joint-venture between Holec Projects and Stork, two well-established suppliers of energy systems. From 1999 onwards HoSt has been a fully independent business whose activities focus 100% on the technological development of systems for the processing of biomass flows and the supply of systems for the sustainable generation of energy from biomass.

HoSt has built up extensive experience in the processing of diverse waste flows from the food-processing industry and agricultural by-products such as straw, chaff and grass cuttings.

HoSt has designed and constructed more than 40% of Dutch biogas plants. Four out of every five HoSt projects are currently being realised outside the Netherlands. For example, systems have been installed in countries such as Belgium, Poland, Romania, the UK, Latvia and Portugal.

HoSt operates as a turnkey supplier. In addition to the design, construction and assembly of installations, HoSt also provides a wide range of other services, such as feasibility studies, planning applications, financial support, start-up, supervision of process operations, process monitoring and optimisation of systems supplied.











#### **ANAEROBIC DIGESTERS – AGRICULTURAL**

#### Microferm: compact system of 62 - 75 kWe in two designs

with a combined heat and power (CHP) unit for the production of power and heat, or a system where the biogas is refined to natural gas quality. The system processes fresh slurry and is suitable for slurry volumes of between 3500 m<sup>3</sup> and 7000 m<sup>3</sup> per year.

#### Farm-type digesters from 250 kWe to 2500 kWe

These anaerobic digesters are designed with a flexible supply system suitable for a wide range of solid biomass flows. The concrete digester tanks, fitted with special mixers enable extremely dense biomass flows to be mixed. With its sophisticated design, which almost doubles the capacity in comparison to the traditional concept, the large volumes of gas production per digester enable quick returns on initial investment.

#### **ANAEROBIC DIGESTERS – INDUSTRIAL**

In industrial anaerobic digesters organic waste flows are processed without the addition of slurry. For example, HoSt has constructed numerous systems for the digestion of slaughterhouse waste. To this end, for the processing of category 2 material, various thermal pressure hydrolysis (THP) systems have been supplied, as a result of which the conversion of biomass is improved significantly.

#### **WOOD-FIRED BOILERS AND CHP INSTALLATIONS**

#### Wood-fired grate boilers of 2 MWt to 20 MWt

For low emissions and additional flexibility when it comes to wood quality, the robust furnace is designed with a hydraulic input, a stepped grate and stepped incineration. Flue gases are re-circulated under the grate and in the furnace so that manageable incineration and minimum emissions result.

#### High-yield wood-fired CHP plants

HoSt supplies wood-fired combined heat and power plants between 1 MWe and 6 MWe. These relatively small plants are high-yield as a result of combining a self-cleaning high-pressure boiler and a high-efficieny steam turbine.

#### **FLUIDISED-BED GASIFIERS**

HoSt supplies circulating fluidised-bed gasifiers, a technology which is used to convert problem fuels into a flammable gas. The dry and reduced biomass is fed into the gasifier by means of an auger. With a small quality of air, the material is converted at a temperature of around 800°C into a flammable gas and then cooled to 500°C. At this point most of the ash is separated out. The gas is then burned in a boiler. The removal of the ash for incineration at high temperature (1300-1500°C) prevents problems of the ash melting down and ensures extremely low emissions. HoSt has extensive experience with chicken slurry, straw, chaff and other high-calorific waste ('Refuse-Derived Fuels').

#### **HOST SERVICES**

#### **PROCESS ANALYSIS**

In order to optimise management and control of the digestion process, HoSt provides a process analysis:

- no process failure as a result of acidification, salification, etc.;
- increase in gas production;
- reduction in feeding costs;
- defining of fertilisation value of the digestate.

#### PROCESS IMPROVEMENT WITH ENZYMES

Enzymes for digesters are produced with the aid of fungi. With the aid of enzymes the mixing process and the mass transfer are improved and the breakdown of long chains of scum formation avoided.

#### LABORATORY

HoSt has its own laboratory with four small-scale digesters. By simulating actual digesters the digestion process can be optimised and biogas yields can likewise be defined for each specific product per customer.

#### PROCESS SUPPORT AND MAINTENANCE

Because of the sophisticated operating controls on the systems, HoSt is able to monitor and optimise processes remotely. In combination with our maintenance programmes, this ensures high-efficiency installations.



#### FURTHER INFORMATION

For more information, please contact us directly or visit the HoSt website: www.host-bioenergy.com.

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In addition to our head office in Enschede, the Netherlands, HoSt has an extensive network of offices and representatives in: • Germany • Estonia • France • UK • Republic of Ireland • Italy • Latvia • Poland • Romania • Russia

- Slovakia
- Ukraine
- Czech Republic