

GE Energy



Generating power and heat, wherever you need it.

On-site power supply
with Jenbacher gas engines.

ecomaginationSM
a GE commitment



GE imagination at work

cogeneration of heat and power

Cogeneration systems – also called combined heat and power or CHP systems – generate both heat and power. Jenbacher CHP systems economically utilize the waste heat incurred during engine operation to generate overall plant efficiencies of more than 90%. This efficient form of energy conversion achieves primary energy savings of roughly 40% by using a gas engine cogeneration system instead of separate power and heat generation equipment. Transportation and distribution losses are also reduced or eliminated as the decentralized energy supply is set up where it is needed.

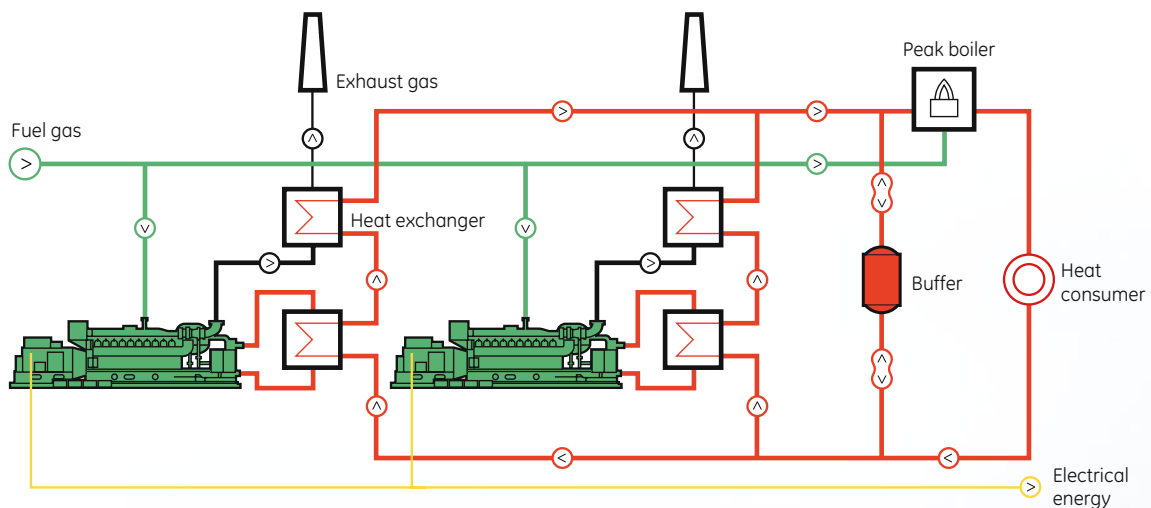
the Jenbacher concept

The basic structure of a Jenbacher CHP system consists of an engine/generator unit and heat exchangers for the utilization of waste heat. The incorporation of a wide range of heat sources – from engine cooling water, oil and air/fuel gas mixture to exhaust gas – is configured to maximize the benefit to each individual customer.

Cogeneration systems can be supplemented with a boiler system for bridging peak heat demand periods. An additional increase in the operating time and efficiency of the system is made possible

by the connection of a heat storage medium. Power plant electrical switch and control systems distribute the electricity and manage the engine, while hydraulic equipment ensures the heat distribution.

The generated power is utilized by the individual facilities (e.g., hospitals) or fed into the public power grid. The thermal energy can be used for both generating heating water and steam production as well as for various types of process heat. Gas engine cogeneration systems are also used for CO₂ fertilization in greenhouses and trigeneration systems (combined generation of heat, cooling, and power).



advantages of Jenbacher cogeneration systems

- High electrical efficiencies of up to 44%
- Overall efficiencies (electrical and thermal) of over 90%
- Wide range of power and heat outputs
- Minimum emissions through the patented LEANOX® lean mixture combustion
- Compact design requires a comparatively small footprint
- Specially designed engines for utilization of alternative energy sources (e.g., biogas, landfill gas, coal mine gas, or coke gas)
- Maximum operational safety and availability
- Low investment costs

key figures

A cogeneration plant with 1,000 kW_{el} and 1,250 kW_{th} can meet the following heat demands:

Short-distance heating network	approximately 12,500 m ² of residential area
Hospital	approximately 150 beds
Building supply	approximately 10,000 m ² of useful area (floor space)

our competence

The first Jenbacher gas engine was built in 1957. Today, more than 3,500 natural gas-fueled Jenbacher cogeneration plants with a total electrical output of about 4,700 MW have been delivered worldwide. Increases in energy costs, environmental concerns and energy demands will continue to promote the future growth of CHP systems, with Jenbacher innovative cogeneration systems leading the way.

These plants generate more than 28 million MW-hours of electricity a year - enough to supply over 7 million EU homes - and more than 26 million MW-hours of heat - enough to supply 2.6 millions EU homes. Compared to the separate generation of the same amount of heat and power, the avoided primary energy input is equivalent to the energy contained in almost 29 million barrels of oil. In addition, by using a gas engine cogeneration system instead of separate power and heat generation equipment, 1.7 million tons of CO₂ savings can be achieved. This amount of greenhouse gas emission savings equals to the annual CO₂ emissions emitted by 860.000 EU passenger cars.

Jenbacher natural gas-fueled cogeneration gas engines are ecomagination certified. Ecomagination is GE's corporate-wide initiative to aggressively bring to market technologies that help customers meet pressing environmental challenges. GE Jenbacher's natural gas-fired cogeneration gas engines received ecomagination certification for their ability to provide customers with a cost-effective, high output means of generating power while substantially and measurably reducing their operating emissions. For more information on ecomagination please visit our website at www.ecomagination.ge.com



GE's Jenbacher gas engine division is one of the world's leading manufacturers of gas-fueled reciprocating engines, packaged generator sets and cogeneration units for power generation. It is one of the only companies in the world focusing exclusively on gas engine technology.

GE's Jenbacher gas engines range in power from 0.25 to 4 MW and run on either natural gas or a variety of other gases (e.g., biogas, landfill gas, coal mine gas, sewage gas, combustible industrial waste gases).

A broad range of commercial, industrial, and municipal customers use Jenbacher products for on-site generation of power, heat, and cooling. Patented combustion systems, engine controls, and monitoring enable its power generation plants to meet stringent emission standards, while offering high levels of efficiency, durability, and reliability.

GE's Jenbacher product team has its headquarters, production facilities, and 1,300 of its about 1,700 worldwide employees in Jenbach, Austria.



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for more information on Jenbacher gas engines

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