



Heat

EnerTwin & Power

Microturbine
makes micro-CHP
affordable



EnerTwin, heat and power

The EnerTwin is a micro-CHP system (Combined Heat and Power) where a boiler and a small power plant are combined in a single robust and sustainable device. The EnerTwin has been developed by MTT (Micro Turbine Technology BV) in collaboration with renowned research institutes and industry partners. Experts from energy utilities and installation companies were also consulted. This collaboration resulted in an optimal and innovative micro-CHP system that meets the latest requirements on safety, environmental protection and energy savings.

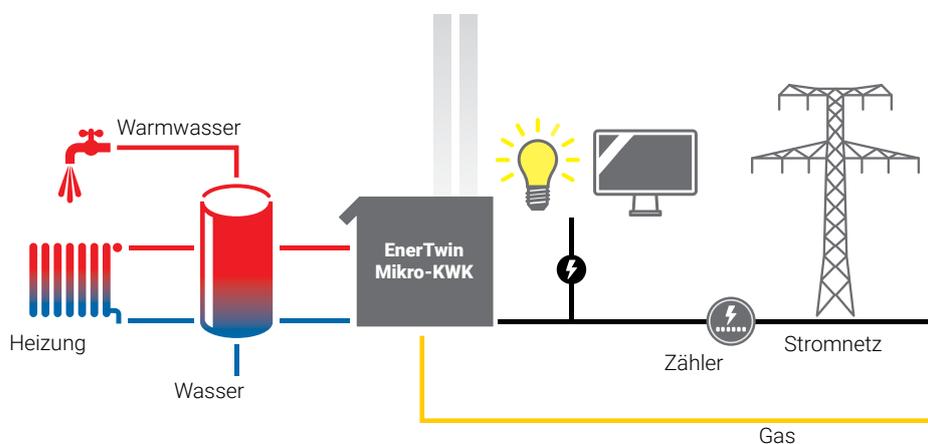
The core of the EnerTwin is a microturbine that drives a generator. The microturbine delivers 3,2 kW electrical power and 15,6 kW thermal power for heating and the production of hot water. The EnerTwin is the first micro-CHP system that uses a microturbine. Microturbines offer great advantages thanks to their reliability, long lifetime and very low maintenance costs.

Cost-effective alternative for heat pumps

Especially in older houses it is difficult to install a heat pump. Main reason is that houses built before the year 2000 are insufficiently insulated. Often low temperature heating – like floor heating – is not available. In that case the installation of a heat pump also implies a radical renovation of the building, pushing costs up to 50 000 euro or even higher.

In these situations an EnerTwin running on biomethane is a great alternative: it can be installed at almost half of these cost, it is eligible for subsidies or grants in many countries and installation takes only one day. At the same time, it will provide you with 100% green electricity and 100% green heating, all done in a simple single step!

The capacity of the EnerTwin makes it very suitable for buildings with annual heating demands between 30 000 kWh and 120 000 kWh (around 4 000 to 15 000 m³ natural gas). In addition to heat, the EnerTwin generates up to 25 000 kWh of electricity per year. For higher heat demands, several EnerTwins can be installed in cascade or combined with the current heating system. A certified dealer can tailor the optimised configuration for specific use, assuring that an optimal solution is realised.



Examples of applications:

- > Small and medium-sized businesses
- > Commercial properties
- > Apartment buildings
- > Large residential homes
- > Houses with a swimming pool and/or sauna
- > Listed or historical buildings
- > Municipal, government and sport facilities, libraries, schools
- > Petrol stations
- > Hotels and restaurants
- > Stores
- > Elderly homes, health care centres

“The EnerTwin can be perfectly integrated with my heating system.”

Make your own green electricity with EnerTwin

The EnerTwin is a small CHP system. CHP (cogeneration of heat and power) has not only yielded significant environmental benefits, the EnerTwin is improving it to a considerably higher level. The EnerTwin can be operated on green gas, biomethane or natural gas with up to 23% hydrogen added, thus further reducing CO2 emissions. Variants for bio-LPG and "raw biogas" are expected to enter the market in 2020.

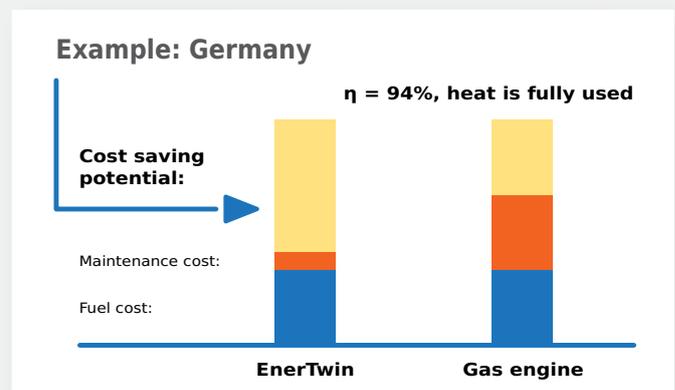
By using biomethane or green gas you will produce your own green electricity! This allows you to make your personal contribution to emission reductions, also if you live in a house where the installation of solar PV is not possible. In addition, a combination with solar PV is even better: Solar PV produces green electricity in the summer, while the EnerTwin can provide you with clean electricity during the darker winter months.



"I will have a short payback time on my investment."

Higher cost savings due to lower maintenance costs

The generation of electricity as a by-product of heat production allows the end-user to achieve significant energy cost savings. These savings can accrue up to 25% of the annual energy bill. This is achieved by low cost of self-produced electricity compared to the electricity bought from your energy company, while the produced heat is fully used in the building. However, there is a substantial risk. If maintenance costs are too high, the advantage of energy cost savings is largely consumed by the higher maintenance cost, as can be seen in the graph below.



The EnerTwin is the only micro CHP system that is based on a very small turbine. This is done for a reason: gas turbines are known for their proven reliability and very low maintenance costs. The maintenance costs of the EnerTwin can be up to 5 times lower than those of competing micro CHP systems, like internal combustion engines, fuel cells and gas engines.

This means that the energy cost savings of the EnerTwin are a lot higher than the savings that can be achieved by competing systems. This makes the EnerTwin not only more economical, but also less vulnerable to future changes in electricity prices and/or subsidies.

In addition, the EnerTwin has a fast ROI thanks to its attractive price/performance ratio. Availability of subsidies and bonuses for decentralized generation will increase the cost advantage even further.

Sale, installation and maintenance

The EnerTwin is available through professional installation companies and energy utility companies. Selected technicians are specially trained and certified to install and service the EnerTwin. They are well-versed in both heating and electrical installations.

The installation of the EnerTwin is very similar to that of a conventional central heating boiler. In most cases, there is no need to break open walls or floors, which means that the installation costs are low (plug-and-play). The connection to the electricity grid is similar to that for photovoltaic solar panels.

The EnerTwin may only be serviced by selected technicians. Since this system is largely built up of parts that are commonly used in the heating sector, service costs are only slightly higher than those for a common central heating boiler. The technicians can remotely monitor the system. This offers a more efficient service and unnecessary call-out charges are avoided.

Certification and safety

The EnerTwin is a modern and advanced micro-CHP system. The system is fully made of components that meet demanding specifications. It is also equipped with state-of-the-art safety technology to meet the latest safety standards. The development of the EnerTwin was carried out in close collaboration with certification institutes such as KIWA in The Netherlands.

Following extensive safety testing, KIWA has awarded the EnerTwin with the CE certificate. During these safety tests, the EnerTwin was subjected to harsh gas and electricity safety tests. KIWA's CE certificate is valid in all European Union member states as well as in Norway, Turkey and Switzerland.



*“With the EnerTwin,
I can offer my customers
added value.”*



The benefits of the EnerTwin

- Affordable: less expensive than other micro-CHP systems
- Fast ROI: achieved in three to six years; sooner if grants are applicable
- Low maintenance costs: little wear and tear, only one moving part
- Maintenance interval: once a year or after 7500 running hours
- Remote monitoring: more efficient servicing, unnecessary call-outs reduced
- Silent and vibration-free
- Low weight: no structural changes to the building
- Multi-fuel: natural gas, green gas, biomethane, hydrogen mix, CNG, LNG
- Less dependent on your energy utility
- High savings in energy costs: energy bill reduced by up to 25%
- CO₂ and NO_x emissions reduced by 9,5 tons a year *
- Standalone installation, in cascade or combined with the existing heating boilers

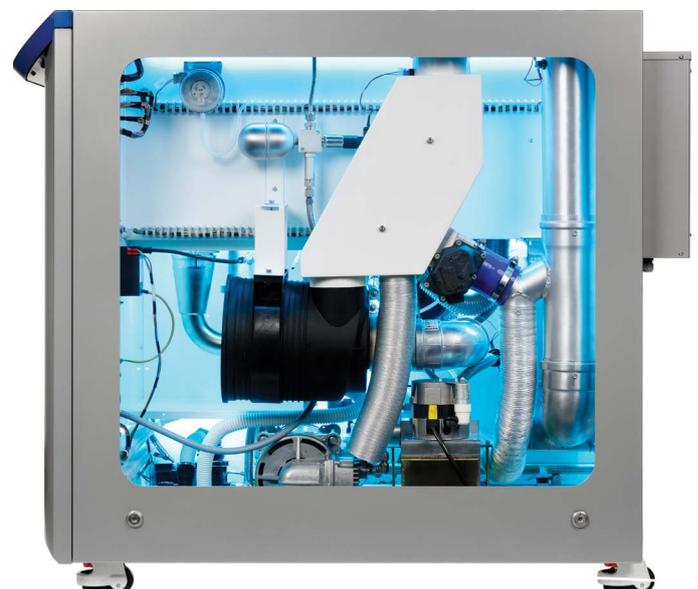
* At 16.000 kWh electricity per year (5.000 running hours), compared to electricity generated by coal fired power plants

Suitable for green gas and biomethane

The EnerTwin is suitable for a number of clean fuels such as green gas, biomethane and natural gas mixed with up to 23% hydrogen. Further options are: 100% hydrogen, biogas, LPG, LNG and CNG. Using these clean fuels, your carbon footprint will further decrease. Just like green electricity, green gas or biomethane is normally available from most energy suppliers.



Biomethane
Green Gas
Hydrogen





Proven technology

CHP is designed to generate heat and power where both are needed. A micro-CHP system is a small-scale combined heat and power generator. The EnerTwin has a unique way of generating heat and power. The core of the EnerTwin is a recuperated microturbine.

Turbines have been proving their worthiness in aviation, power stations and industry since the 1950s and are very reliable. EnerTwin's microturbine was developed based on turbocharger technology used in automotive industry. Therefore, the micro turbine is very robust and requires little maintenance. Unique



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Please contact us through our website
to find your nearest dealer at EnerTwin.com



to the EnerTwin's microturbine is MTT's integrated generator and turbine design. The microturbine does not vibrate, it is silent and has a long lifetime. MTT's microturbine technology is protected by several patents.

MTT

Micro Turbine Technology BV developed and commercialised the EnerTwin. MTT is an innovative company that specialises in development and commercialisation of microturbines for various applications. MTT collaborates extensively with leading research institutes, industry partners, energy utilities and qualified installation companies.

