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.

**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.

EnerTwin has been proven its worthiness in various, power stations and industry since the 1950s and are very reliable. EnerTwin microturbine was developed based on turbocharger technology used in automotive industry. Therefore, the microturbine is very robust and requires little maintenance unique 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.

**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 intervals: 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, LNG, CNG, LPG
- Less dependent on your energy utility
- High savings in energy costs: energy bill reduced by up to 25%.
- CO₂ and NOₓ emissions reduced by 9,5 tons a year *

**MTT Micro Turbine Technology BV**

MTT Micro Turbine Technology BV developed and commercialized the EnerTwin. MTT is an innovative company that specializes in development and commercialization of microturbines for various applications. MTT collaborates extensively with leading research institutes, industry partners, energy utilities and qualified installation companies.
Microturbines offer great advantages thanks to their reliability. EnerTwin is the first micro-CHP system that uses a microturbine.

The microturbine delivers 3.2 kW electrical power and 15.6 kW thermal power for heating and the production of hot water. The microturbine is 100% green electricity and 100% green heating, all done in 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, as 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 single step.

The capacity of the Energie Twin 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 Energie Twin 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 installer can tailor the optimized configuration for specific use, assuring that an optimal solution is realized.

The EnerTwin is a small CHP system. CHP (cogeneration of heat and power) has not only yielded significant environmental benefits, but has enabled homeowners and businesses to generate both heat and power.

The generation of electricity as a by-product of heat production allows the user to achieve significant energy cost savings. These savings can amount to up to 25% of the annual energy bill. This is achieved by using the thermal power of the exhaust gases from the microturbine to heat your home. The produced heat is fully used in the building. Moreover, this device is extremely efficient. If maintenance costs are too high, the advantage of energy cost savings is largely counteracted by the higher maintenance costs, as can be seen in the graph below.

In the summer, while the EnerTwin can provide you with clean electricity, 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 and clean heat.

The EnerTwin is a modern and advanced micro-CHP system. CHP (cogeneration of heat and power) has not only yielded significant environmental benefits, but has enabled homeowners and businesses to generate both heat and power. The EnerTwin is a small CHP system. CHP (cogeneration of heat and power) has not only yielded significant environmental benefits, but has enabled homeowners and businesses to generate both heat and power.

The EnerTwin is the only micro CHP system that uses a microturbine.

The EnerTwin is the only micro-CHP system that is based on a very small turbine. It is made 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 3 times lower than those of competing micro-CHP systems, like internal combustion engines, fuel cell and gas engines.

This means that the energy cost savings of the EnerTwin are on a level higher than the savings that can be achieved by competing systems. This makes the EnerTwin not only more economical, but also less susceptible to future changes in electricity prices and carbon credits.

In addition, the EnerTwin has a fast ROI thanks to its attractive payback period. Availability of subsidies and because for decentralized generation will increase the cost advantage even further.

The EnerTwin is a small CHP system. CHP (cogeneration of heat and power) has not only yielded significant environmental benefits, but has enabled homeowners and businesses to generate both heat and power.
The EnerTwin is a micro-CHP system that uses a microturbine. It offers great advantages thanks to its reliability, environmental protection, and energy savings.

### 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. Usually, low-temperature heating – like floor heating – costs too much. In that case, the installation of a heat pump also implies a radical renovation of the building, pushing costs up to 50,000 euros or even higher.

In these situations, an EnerTwin running on biomethane is a great alternative: it can be installed at almost half of these costs. 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 single small 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 6 to 24 kW of 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 parallel. With an EnerTwin, heat is fully used in the building. However, there is a substantial void, in case of maintenance costs too low. The advantage of energy savings is largely cancelled by the higher maintenance costs, as can be seen in the graph below.

### Make your own green electricity with EnerTwin

The EnerTwin is a small CHP system. CO2 reduction 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 25% hydrogen added. This further reduces CO2 emissions. Tinters for bio-SPG and “low biogas” are expected to enter the market in 2021.

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 green electricity during the darker winter months.

### 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 amount up to 25% of the annual energy bill. This is achieved by low cost of renewable energy compared to the electricity bought from your energy company, while the produced heat is fully used in the building. However, there is a substantial void, if maintenance costs are too low. The advantage of energy savings is largely cancelled by the higher maintenance costs, as can be seen in the graph below.

### Example: Germany

<table>
<thead>
<tr>
<th>Cost-saving potential</th>
<th>EnerTwin</th>
<th>Gas engine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost saving potential</td>
<td>≥ 50%</td>
<td>≤ 50%</td>
</tr>
<tr>
<td>Break-even time</td>
<td>≤ 7 years</td>
<td>≥ 7 years</td>
</tr>
</tbody>
</table>

### Sale, installation and maintenance

The EnerTwin is available through professional installation companies and energy utility companies. Select technicians are specially trained and certified to install and service the EnerTwin. They are networked 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 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 installed by service 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 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 solid in all European Union member states as well as in Norway, Turkey and Switzerland.
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 Ltd) 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.

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 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 costs, it is eligible for rebates 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 in a single system.

The capacity of the EnerTwin makes it very suitable for buildings with annual heating demands between 30,000 kWh and 120,000 kWh and 450 m³ to 1,500 m³ natural gas. In addition to heat, the EnerTwin generates up to 25,000 kWh of electricity per year. For higher heat demands, several EnerTwin can be installed in cascade or combined with the current heating system. A certified dealer can tailor the optimum configuration for specific use, ensuring that an optimal solution is realised.

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 3 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 natural gas prices.

In addition, the EnerTwin has a heat R90 thanks to its attractive retrofit possibilities. Availability of rebates and bonuses for decentralized generation will increase the cost advantage even further.

The EnerTwin is a small CHP system. CHP (Cogeneration of heat and power) has not only yielded significant environmental savings, but it is also known for its energy efficiency. This allows the EnerTwin to perform much better compared to those conventional central heating boilers. In most cases, there is no need to break even with or to this, which means that 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 service engineers. 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 conventional central heating boiler. The 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 even with or to this, which means that installation costs are low (plug-and-play). The connection to the electricity grid is similar to that for photovoltaic solar panels. The EnerTwin can be operated on green gas, biomethane or natural gas.

Examples of applications:
- Small and medium-sized businesses
- Commercial properties
- Apartment buildings
- Large residential homes
- Houses with a swimming pool and/or spa
- Listed or historical buildings
- Municipal, government and sport facilities, libraries, schools
- Retail stations
- Hotels and restaurants
- Offices
- Stores
- Nursery homes, health care centres

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 savings. These savings can accumulate to 25% of the annual energy bill. This is achieved by low cost of renewable energy 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 generation of electricity as a by-product of heat production allows the owner to achieve significant energy cost savings. These savings can accumulate to 25% of the annual energy bill. This is achieved by low cost of renewable energy 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.

An example of applications includes:
- Elderly homes
- Health care centres
- Stores
- Small and medium-sized businesses
- Large residential homes
- Apartment buildings
- Small and medium-sized businesses
- Knowledge centres
- Hotels and restaurants
- Offices
- Nursery homes
- Health care centres

Sale, installation and maintenance

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

Due date
Issue date
Contract number
Regulation (EU) 2016/426 relating to appliances burning gaseous fuels.

Example: Germany

Cost saving potential
Cost of self-produced electricity
Cost of grid supplied electricity
Gas engine

I will have a short payback time on my investment.

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

**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 NOₓ emissions reduced by 8.5 tons a year**
- **Standalone installation, in cascade or combined with the existing heating boiler**

**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.

EnerTwin’s microturbine was developed based on turbocharger technology used in automotive industry. Turbochargers have been proven 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 microturbine is very robust and requires little maintenance. Unique 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.
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.

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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.

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The benefits of the EnerTwin

- Affordable: less expensive than other micro-CHP systems
- Easy installation: achieved in three to six years; nearer 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-out reduced
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- Multi-fuel: natural gas, green gas, biomethane, hydrogen mix, LNG, CNG
- Less dependent on your energy utility
- High savings in energy costs: energy bill reduced by up to 25% •
- CO₂ and NOₓ emissions reduced by 8.5 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.