

SOLID
POWER

Half the cost
Half the carbon



BlueGEN

the world's most efficient micro-CHP

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POWER

What is BlueGEN?

The most efficient small-scale electricity generator

BlueGEN uses natural gas from the grid to generate electricity within your own building and significantly reduce the amount you need to buy from conventional electricity suppliers. Heat created in the generation process will also provide up to 200 litres of hot water each day, reducing the energy required by your heating or hot water system.

BlueGEN is much more efficient at generating and delivering electricity than the grid. The gas it consumes to make electricity is significantly cheaper per unit than electricity purchased from the grid, which can reduce your bills and carbon emissions by up to 50%.

BlueGEN is a micro combined heat and power system (mCHP). It uses innovative fuel cell technology to separate natural gas into carbon and hydrogen using an electrochemical reaction that delivers clean, controllable, on-site electricity for residential as well as business use.

Producing up to 13,000 kWh of electricity per year, BlueGen is best used where annual electricity demand is greater than 10,000 kWh: whether in a single building or shared between multiple homes.



- > Half the cost, half the carbon emissions
- > Continuous 24/7 operation
- > Up to 13,000 kWh of electricity per year
- > Up to 60% electrical efficiency
- > Compact - the size of a washing machine
- > Easy install requires only gas, water & internet
- > Used alongside your existing heating system



Producing your own electricity

Higher efficiency means higher savings

With BlueGEN, you produce electricity right where it's needed. Because of its high efficiency, BlueGEN can generate more electricity from the same amount of natural gas than conventional generation technologies. Therefore, the electricity produced with BlueGEN can be up to 50% cheaper compared to traditional supply via the grid.

The high electrical efficiency also allows for BlueGEN to operate throughout the year - regardless of the weather or the season. It can produce up to 13,000 kWh that you can either use on-site or feed into the grid to receive compensation*.



Highest electrical efficiency means

- > Reduction of natural gas consumption
- > Significant reduction in energy costs
- > Lower carbon emissions



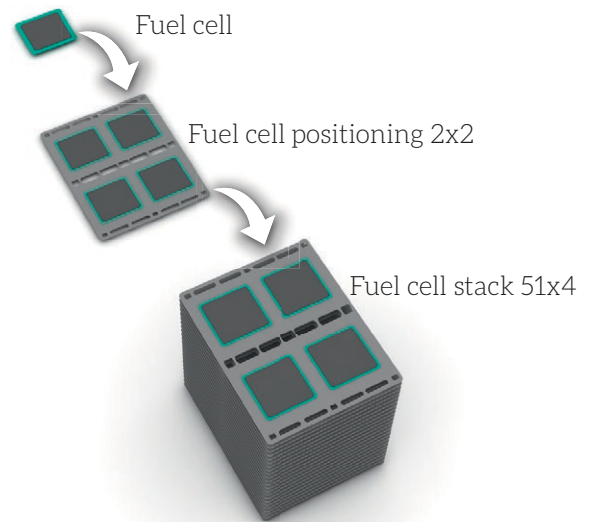
*Feed-In and compensation programmes differ by country. Contact your local distributor to receive additional information for your country.

The fuel cell module

The heart of BlueGEN

BlueGEN utilises the most modern ceramic fuel cell technology, which is uniquely distinct to other generation technologies: Conventional generators based on internal combustion engines literally 'burn' fuel and produce electricity by converting kinetic energy into electric energy. Fuel cells, however, use an electrochemical reaction to convert the energy stored in the fuel directly into electricity. This process is much more efficient and also quiet and without vibrations.

The integrated fuel cell module combines all required components in a single part - for the highest efficiency and easy maintenance.



- > Much more efficient than traditional combined heat and power systems
- > Quiet and no vibrations



High efficiency

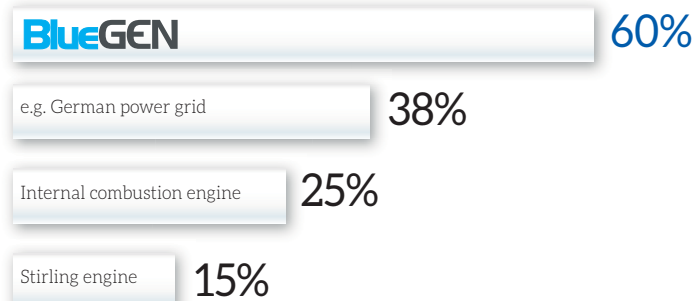
And significant CO₂ reductions

Creating electricity on site with BlueGEN avoids the inefficiencies of heat losses from conventional power stations and the transmission losses from the electricity distribution network. BlueGEN is the most efficient small-scale generator in the world, generating continuous power at 60% efficiency.

The electrochemical reaction generates very high temperatures that are converted into 'free' hot water by a waste heat recovery circuit, which takes the overall efficiency as high as 85%.

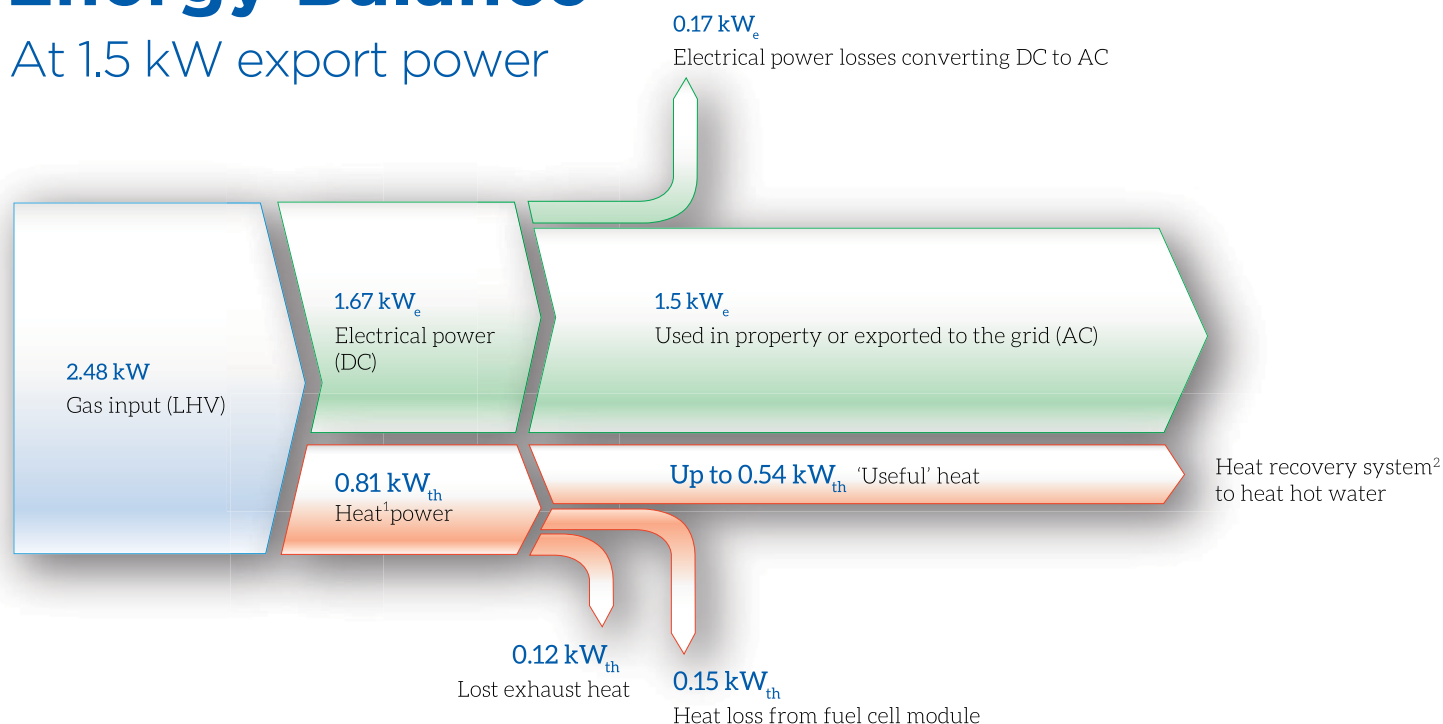
The amount of CO₂ released in BlueGEN's power production process is on average 50% less than the carbon released by conventional power stations. This can save you up to 4 tonnes of CO₂ emissions per year.

Electrical efficiency in comparison:



Energy Balance

At 1.5 kW export power



1. Including some HHV (latent heat) recovered from the fuel input
2. Based on exhaust gas cooled to 30°C

Easy to install

Easy to maintain

BlueGEN is easy to install, requiring only standard connections to the gas network, mains electricity and water, and broadband internet. BlueGEN is compact and occupies minimal floor space in either a plant room or utility area.

Our installation partners are fully trained and qualified to connect your BlueGEN to the mains utilities.

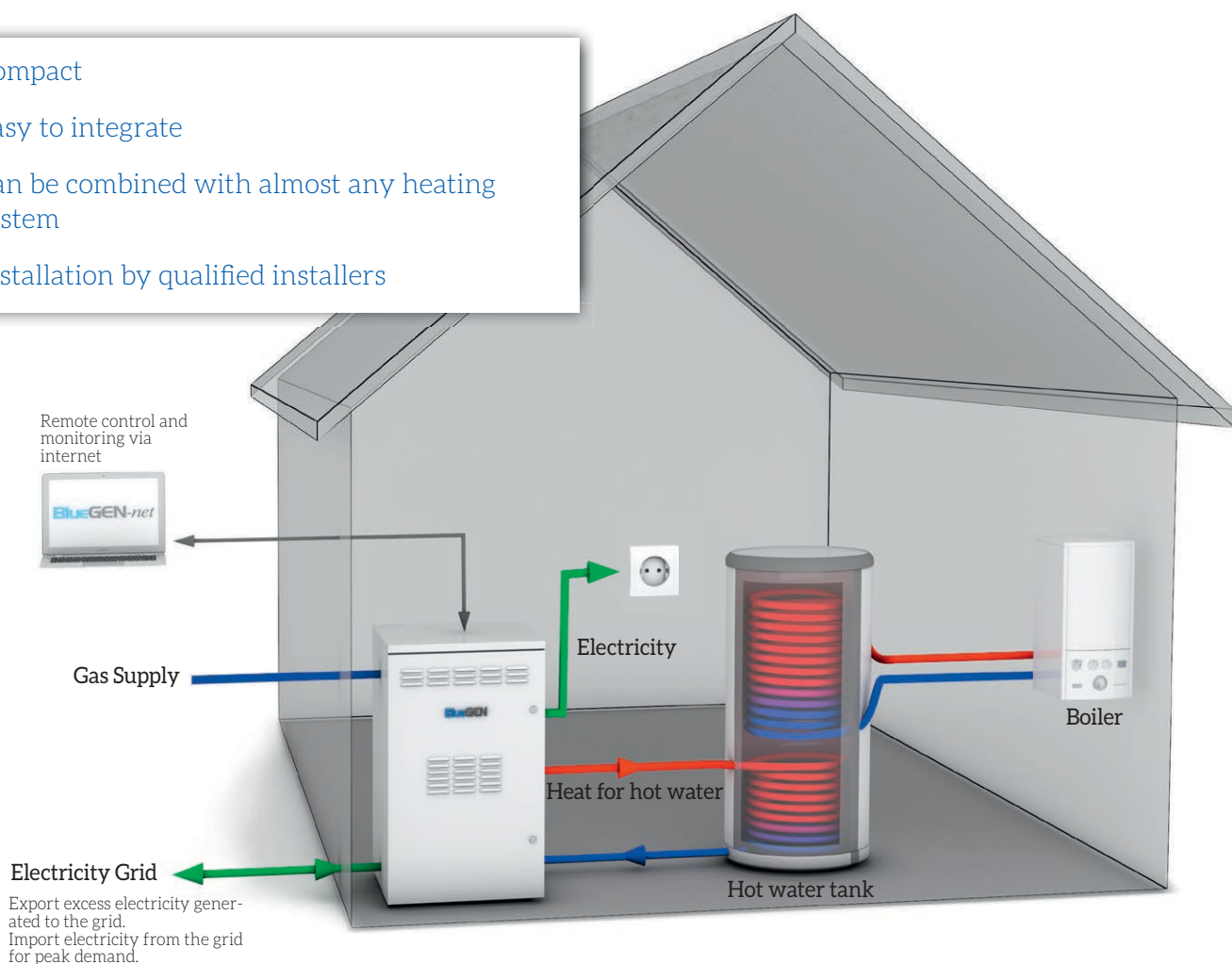
The BlueGEN will be monitored and controlled remotely over the internet by our BlueGEN-net system. This enables us to monitor power generation on a 24/7 basis and lets you see how the system is performing.

Installation requirements

- > Connection to gas network
- > Permanent connection to the power grid
- > Mains water connection
- > Broadband internet

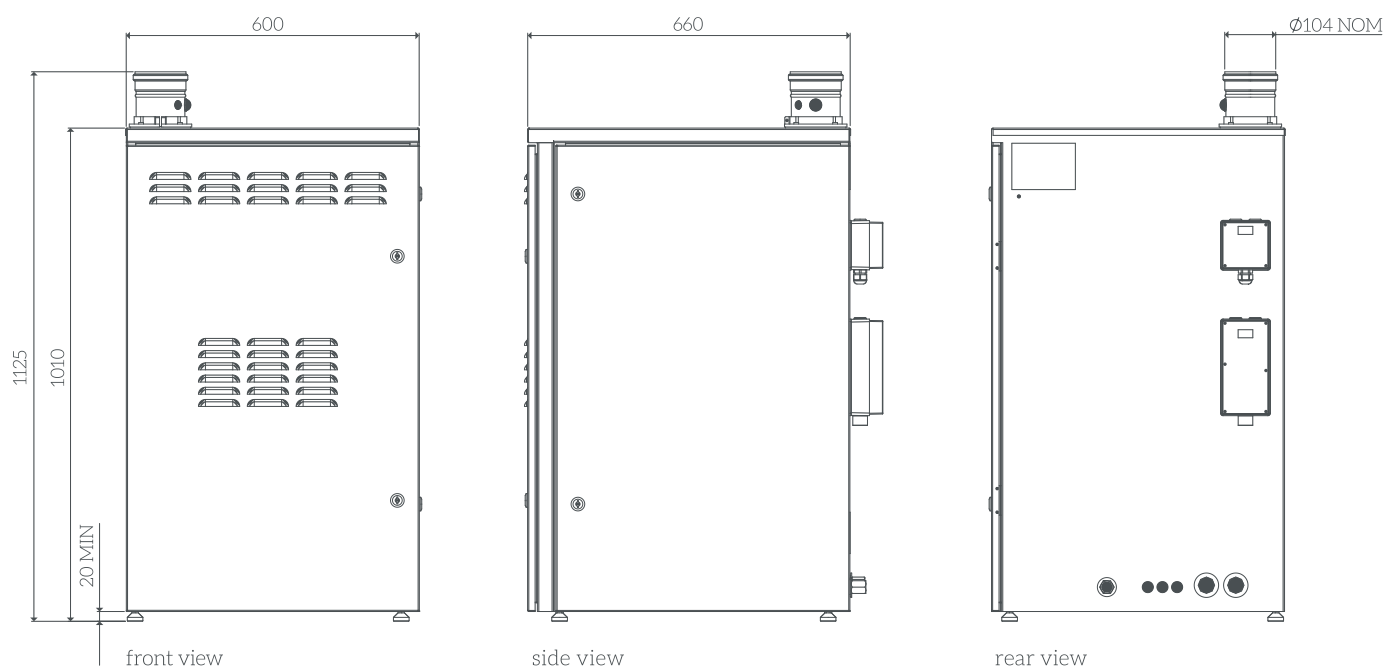


- > Compact
- > Easy to integrate
- > Can be combined with almost any heating system
- > Installation by qualified installers



Technical specifications

Operation mode	Power-led, continuous (approx. 8,700 h per year)
Fuel type	Natural gas, bio-methane
Fuel cell technology	SOFC (Solid Oxide Fuel Cell)
Fuel consumption ¹⁾	2.51 kW
Electrical efficiency ¹⁾ (output)	Up to 60 % (1.5 kW)
Thermal efficiency ¹⁾ (output)	Up to 25 % (0.6 kW)
Overall efficiency ¹⁾	Up to 85 %
Electrical energy generated per year ¹⁾	~ 13,000 kWh _{el}
Thermal energy generated per year ¹⁾	~ 5,220 kWh _{th}
Control	Remote monitoring and control via Internet
Weight, Dimensions (H x W x D)	195 kg, 1,010 x 600 x 660 mm
Noise level	< 47 db (A)
Service interval ²⁾	12 months
Full maintenance service	Yes (120 months)
Subsidies	Subsidy programmes differ by country. Please contact your local distributor to find out more.



1) At maximum electrical efficiency, nominal output of 1.5 kW

2) Replacement of filters depending on local water, air and gas quality



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