



Stirling generator solutions

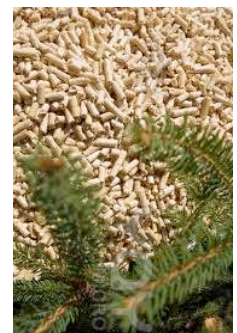
In Cooperation with Microgen



Sunnytek and partners offers solution where we make electrical power by Stirling engines. We have 2 models today with 1 KW and 2KW output.

In many applications where a mix of electricity and heat is needed this is a unique and reliable solution to get booth output.

Input is heat from a fire or gas burner or just heat from a process. It is cycled through the Stirling generator and we get electricity and hot water as output.

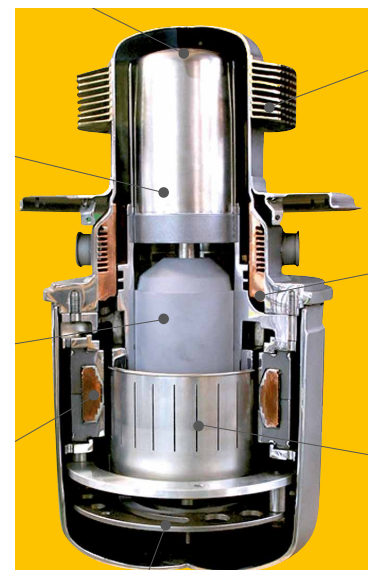


Features of a MicroGen Stirling systems.

Unique solution making electricity direct out of heat in 1 stage
Output is electricity / hot water so often this is close to 100% efficiency
Extremely reliable operation and no maintenance in many years
In combination with pellet burners we can make all power needed for houses
Silent operation and not much vibrations for best comfort in buildings
1-2 KW electrical output and 4-8 KW of hot water output from one generator
Energy from wood. pellets . brickets , gas or diesel etc. All that makes heat.
Low life cycle cost makes system profitable for many years.

Can we combined with solar panels and solar hot water systems to make a house independent of grid even in cold climate areas.

Sunnytek offers the complete package of energy integrated into a single solution and system



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Microgen Free piston stirling technology

A revolution in power generation and energy efficiency

Your personal power plant

Microgen envisions a world in which people independently generate and use energy in a more intelligent, efficient and sustainable way.



BENEFITS

- Quiet operation
- Multi fuel clean combustion
- Long maintenance free operation life
- Various environments: on grid, remote, mobile
- Multiple applications possible
- Multi unit - high power operation capability
- Load following, modulating in operation

To this purpose Microgen develops and supplies one of the key technologies needed to realize this vision. Microgen has not only built up more than 15 years experience in Stirling Engine Technology, it is also the only company in the world which can boast of an installed base of thousands of units in the field since 2011. Units, which together have clocked a total of more than 120 Million run hours.

Based on this track record Microgen is currently extending its portfolio of applications through selected partners in various parts of the worlds. These new applications mainly focus on remote power for Oil & Gas and Biomass fired Combined Heat Power for rural areas.

In the different operations in the Netherlands, the United Kingdom and China/Hong Kong highly skilled and specialized professionals actively support the integration of our technology in your application. In case you are interested in a specific application, we would be happy to connect you to our application integrators in the different fields.



Microgen

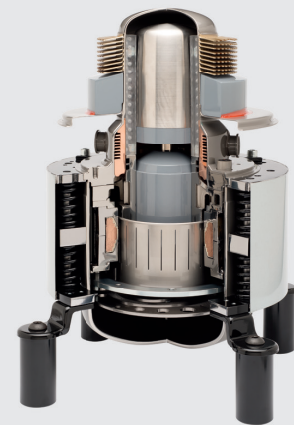
Free piston stirling technology

A revolution in power generation and energy efficiency

Technical Specifications Microgen Free Piston Stirling Technology

Maximum (modulating) electric output	1050 watt	
Electrical operation	Grid connected AC output	50/60 Hz Nominal 230 volt, min 186 - max 264 v
	Off grid AC-DC output	Inverter - Battery dependent
Electrical efficiency	Burner, grid connection, fuel and application dependent	15,5% - 23,0%
Weight	(without burner)	49 kg
Size	(without burner)	450 mm high, diameter 300 mm
Emissions	Burner, fuel dependent	Low Nox
Noise level	Without casing (mounting dependent)	52,5 dBA at 1 meter
	standard casing	45 dBA at 1 meter

How it works



Thermal energy in the form of heat is fed into the engine. This thermal energy makes the helium in the engine expand, subsequently driving the piston. By cooling the helium it shrinks which causes the piston to move back again. The oscillating mechanical movement is converted into electrical energy by a linear alternator in the engine.

The Microgen engine is a so-called Free Piston Stirling Engine. This type of engine has no seals and contains no bearings that can cause wear or would require lubrication. It is a truly maintenance-free technology.



Engineered for robustness

Microgen's Free Piston Stirling Engine is the result of the meticulous engineering and development of a high tech, game changing solid-base technology with a focus on carefree and lifelong use.



Manufactured with care

The delicate production process of the Microgen Free Piston Stirling Engine requires controlled production facilities and conditions. Skilled and experienced staff guarantee optimal quality.



Used with satisfaction

The Microgen Free Piston Stirling Engine provides you with carefree and highly efficient control over the local generation of electricity, by creating your personal power plant and thus promoting independence.



Microgen

2kW Free piston stirling technology

A revolution in power generation and energy efficiency

Your personal power plant

Microgen envisions a world in which people independently generate and use energy in a more intelligent, efficient and sustainable way.



BENEFITS

- Quiet operation
- Multi fuel clean combustion
- Long maintenance free operation life
- Various environments: on grid, remote, mobile
- Multiple applications possible
- Multi unit - high power operation capability
- Load following, modulating in operation

To this purpose Microgen develops and supplies one of the key technologies needed to realize this vision. Microgen has not only built up more than 15 years experience in Stirling Engine Technology, it is also the only company in the world which can boast of an installed base of thousands of units in the field since 2011. Units, which together have clocked a total of more than 120 Million run hours.

Based on this track record Microgen is currently extending its portfolio of applications through selected partners in various parts of the world. These new applications mainly focus on remote power for Oil & Gas and Biomass fired Combined Heat and Power for rural areas.

In different locations; the Netherlands, the United Kingdom and China/Hong Kong, highly skilled and specialized professionals actively support the integration of our technology in various applications. If you are interested in a specific application, we would be happy to connect you to our application integrators in different fields.



Microgen 2kW Free piston stirling technology

A revolution in power generation and energy efficiency

Technical Specifications Microgen Free Piston Stirling Technology		
Maximum (modulating) electric output	2000 W.	
Electrical operation	Grid connected AC output	50/60 Hz Nominal 230 V., min 186 - max 264 V.
	Off grid AC-DC output	Inverter - Battery dependent
Electrical efficiency	Burner, grid connection, fuel and application dependent	15,5% - 23,0%
Weight	(without burner)	50 kg
Size	(without burner)	450 mm high, diameter 300 mm
Emissions	Burner, fuel dependent	Low Nox
Noise level	Without casing (mounting dependent)	53 dBa at 1 meter
	standard casing	45 dBa at 1 meter

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