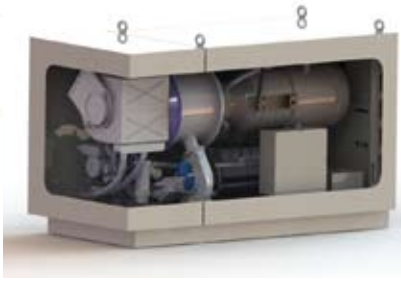
SIMONS
GREEN ENERGY



QCHP 7500 & QCHP 3.5 MICRO CHP
3.5 & 7.5 KILOWATTS

Qnergy

MICRO COMBINED HEAT & POWER

QCHP STIRLING ENGINE RANGE 3.5 kWe & 7.5 kWe

The Qnergy micro Combined Heat and Power (MICRO- CHP) unit is designed to provide both heat and power for light commercial or large residential applications. This innovative product uses advanced technology on-site to satisfy the energy requirements of the facility and do it quietly, efficiently, and with ultra low emissions. Its unique Stirling engine power source enables it to run on many fuel types which will provide the best value to the customer.

FEATURES

- **Sizes**
  3.5 kWe | 14 kWth
  7.5 kWe | 30 kWth
- **Combines a free - piston Stirling engine** with an extremely efficient combustion process.
- **Operates with** natural gas, oil, solar, wood and biogas.
- **Multiple systems can be "cascaded" together** to meet the demands of larger on- site applications.
- **Electrical efficiency**: 20% LHV
- **Thermal efficiency**: 83% LHV
- **Water Temp. Outlet** - Up to 80 C°.
- **Manufactured** in USA
- **Pre-mixed** Natural Gas Burner & Fuel Train
- **Lifetime of Stirling Engine** > 60,000 hours.
- **Emissions** – Ultra Low Nox.
- **Low Noise** – 50 dB(A) @ 1 metre.

BENEFITS

- Generates electric power and hot water on-site.
- Highly efficient operation > 95%.
- Low gas consumption.
- Maintenance-free.
- Short payback period.
- Widely used as a boiler replacement, especially in Aquatic Centres or facilities where there is a heat requirement.

APPLICATIONS

- Commercial Buildings
- Clubs & Aquatic Centres
- Pubs & Hotels
- Healthcare & Aged Care
- Light industrial
- Large residential

Powered by a Free Piston Stirling Engine

How It Works

Using a highly efficient thermodynamic process, Qnergy's free-piston Stirling engine (FPSE) can create electricity from virtually any heat source. The heat input creates a temperature diff erential across the engine causing the helium inside the engine to expand and contract, which in turn drives the reciprocating motion of the piston. The FPSE directly converts the reciprocating motion of the piston into electrical power via the linear alternator inside the engine.

The Qnergy engine has fewer moving parts than traditional kinematic Stirling engines, and no direct-contact points that cause wear and require lubrication. Thus, the Qnergy engine is truly a maintenance free technology that off ers long-life performance; two key features that make it an ideal power source for combined heat and power applications.

TECHNICAL SPECIFICATIONS

MICRO CHP SYSTEM	
Concept	Stirling cycle-based, combined heat and power
System Maximum Efficiency	103% LHV; 91% HHV
Electrical Power Output Capacity (kWe)	3.5 kWe / 7.5 kWe
Thermal Output Capacity (kWth)	14 kWth / 30 kWth
Water Temp Outlet (°C)	Up to 80
Noise Level (dBA @ 1m)	50
System Weight (kg)	200
Emissions	Targeted for ultra-low Nox
Features & Options	Smart-grid compliant, remote monitoring (Internet), black start, thermal dump

QNERGY ENGINES	QCHP-3500	QB-7500
Concept	In line linear FPSE	In line linear FPSE
Electric Power Output Capacity (kWe)	3.5	7.5
Burner	Multiple Choices	Multiple Choices
Output (Rectified) (V)	420	420
Output with Inverter (V) @ (Hz)	3ph 380VAC std. & optional 1ph 220/110VAC	3ph 380VAC std.
Fill Gas	Helium 99.999%	Helium 99.999%
Supply Electronics (V) (Hz)	220/110 @ 50/60	220/110 @ 50/60
Lifetime (hrs)	> 60,000	> 60,000
Gas Consumption at Full Power	0.13 (MMBTU/Hr)	0.13 (MMBTU/Hr)
Scheduled Service and Maintenance	None	None

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