Qnergy
Renewable. Reliable. Resilient.

SmartBoiler Micro-CHP Series

Benefits

- Environmentally Robust
- Multi-fuel source
- Frictionless Engine
- Zero Generator Maintenance
- Small Footprint
- Long Life
- Efficient

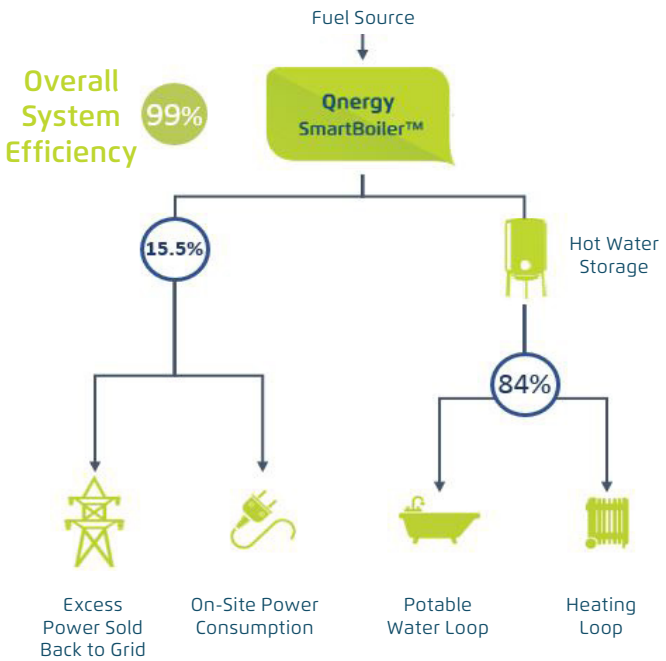
SmartBoiler Series

Qnergy's Micro-CHP system combines a state-of-the-art Stirling Engine, an extremely efficient combustion process, and the industry's leading water-heating technology. Multiple Micro-CHP systems can be "cascaded" together to meet the demands of larger on-site applications.

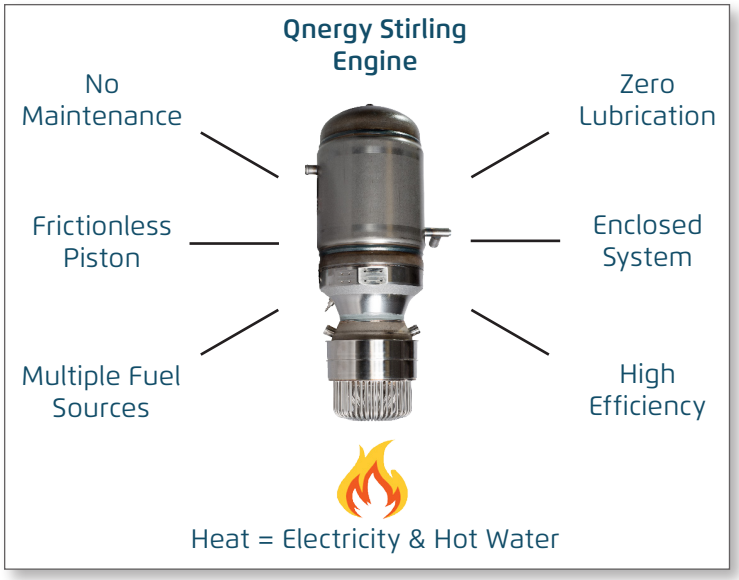
Using the Stirling technology from Qnergy, multi-unit residential buildings, hotels, and any facility with an indoor pool can generate electric power and hot water on-site - with total system efficiencis of 99%.

Manufactured using proven automotive-style lean processes, the SmartBoiler is built to meet strict quality standards. The integrated components and controls are all designed to maximize the customer's ability to reduce waste and meet the hot water and power needs.

Qnergy SmartBoiler Integration

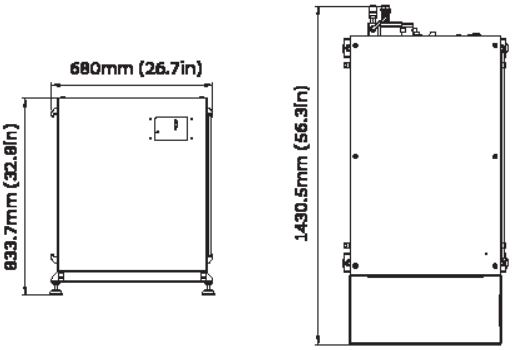


What Makes Qnergy SmartGen Your Micro-CHP Solution?

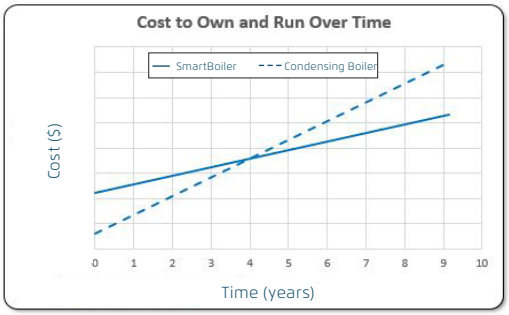


Each SmartGen Remote Power Systems utilizes Qnergy's unique PCK80 Generator Stirling Engine System

SmartBoiler Dimensions



Example Payback*



*Based upon output load, coolant in/out temperatures, heat/fuel used, fuel cost, electricity cost

SmartBoiler Specifications	
Electrical Power Output	2.8 - 7.2 kW
System Efficiency	99%*
Fuel Input and Pressure	NG (G20, G25) 4-12 in WC (17-30 mbar) LPG (G30, G31) 8-20 in WC (30-50 mbar)
Max Thermal Output	43 kW (147 kBTU/hr)
Voltage Output	±263 to ±335 VDC Bipolar
Overall Efficiency*	99%
Electrical Efficiency*	15.3%
Exhaust Heat Recovery Ratio*	85%
Weight	650 lbs (295 kg)
Max Sound Emission	72 dBA
Certifications	Conforms to UL STD 2200 & ANSI STD Z21.10.3 Certified to CSA STD 4.3, CSA STD C22.2 NOS. 14 & 100 CE: 2009/142/EC
Heating Loop	
Hydronic Pressure	147 psi max
Hydronic Pressure Loss	5.3 gpm flow 0.15 psi drop 8.0 gpm flow 0.36 psi drop 10.5 gpm flow 0.58 psi drop
Return Termperature	2°C (35°F) min 65°C (149°F) max
Flow Temperature	176°F
Flue System	
Flue System	Twin DN80 Adaptor for Coaxial 80/125 available
Max Temperature	120°C (248°F)
Peak Condensate Flowrate	6.4 LPH (1.7 GPH)
Certifications	ETL: Cat. IV CE: B23, C13, C33, C63, C53

*Efficiency values are per LHV and measured at an average output of 6kW and 68°F return flow
*Measured as per EN50465:2015 (third party)

Qnergy is a company focused on providing energy to a world market looking for innovative, cost effective, and efficient ways to energize the future. With more than 40 years of expertise and proven reliability, Qnergy brings proprietary, high-performance Stirling engine technology to the marketplace for commercial, industrial, and residential applications.

How It Works

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

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 offers long-life performance, two key features that make it an ideal power source.

7045-102093-000AV1

T. +1-801-752-0100 **A.** 300 West 12th Street, Ogden, Utah 84404 USA www.qnergy.com