



BITZER SEMI-HERMETIC EXPANDER/GENERATOR



## POWER+ GENERATOR

ElectraTherm's POWER+ GENERATOR produces fuel-free, emission-free power from low grade waste heat using the Organic Rankine Cycle (ORC) and proprietary technology. The POWER+ GENERATOR 6500B+ enables the unit to have beneficial higher temperature condensing water -- creating an efficient CHP (Combined Heat and Power) power system from engine waste heat, biomass, industrial processes, and more. Hot water enters the POWER+ and is transferred to the heating circuit at temperatures up to 85°C, generating up to 125kW of power for the site. Each POWER+ 6500B+ model is capable of transferring up to 2MW of heat.

### 6500B+ CONFIGURATIONS - UP TO 125kWe



#### 6500B+ STAND ALONE

- // Dimensions\*: 3.3 x 2.0 x 2.5 m
- // Weight: 4,853 kg / 10,699 lbs
- // Customizable balance of plant
- // Indoor or outdoor installation
- // Global Price: Estimated 3 to 5 year payback depending on project details, contact us for a current review\*\*



#### 6500B+ SYSTEM PACKAGE

- // Dimensions\*: 15 x 2.3 x 2.5 m
- // Weight: 8,553 kg / 19,518 lbs
- // Includes: liquid loop radiator, cold water pump, integrated controls, requires minimal engineering
- // Contact ElectraTherm for current pricing\*\*

\* Renderings may not be exact representations of final POWER+ product.  
 \*\* Certification fees for certain countries may apply.

### HEAT TO POWER APPLICATIONS

ElectraTherm generates electricity from various heat sources, including:



Stationary Engines



Biomass/Biogas



Boilers & Process Heat



Oil & Gas, Geothermal



Flare Elimination

# 6500B+ PERFORMANCE PARAMETERS - UP TO 125kWe

ElectraTherm's Water Cooled Condensing System Performance

				6500B+ OPTIMIZATION ALTERNATIVES					
HOT WATER INPUT PARAMETERS	Hot water input temp range	°F	170 - 302	INPUT VALUES				OUTPUT	
		[°C]	[ 77 - 150 ]	Condition	Cold Water Temp °F [°C]	Hot Water Temp °F [°C]	Hot Water Flow GPM [L/s]	Minimum Required MMBTU/hr [kWth]	Gross kWe
	Thermal input range	MMBTU/hr	1.35 - 7.5						
	Flow rate range	[ kWth ]	[ 400 - 2200 ]						
WATER COOLED CONDENSING PARAMETERS		Cooling water input temp range	°F	40 - 150	High Temp / Low Flow	77 [25]	302 [150]	110 [7]	4.3 [1250]
	[°C]		[ 4 - 65 ]						
	Heat rejected to cooling water range	MMBTU/hr	1.35 - 6.8	Low Temp / High Flow	77 [25]	277 [136]	365 [23]	4.3 [1250]	125
		[ kWth ]	[ 400 - 2000 ]						
Cooling water flow rate	gpm	143 - 412	High Temp / High Flow CHP*	144 [62]	302 [150]	365 [23]	7.3 [2150]	125	
	[ l/s ]	[ 9 - 26 ]							
LIQUID LOOP RADIATOR (LLR)	LLR approach to ambient air temp	°F	25	Cold water flow rate: 325 GPM [20.5 L/s] *CHP provides up to 185°F [85°C] condensing for beneficial uses					
		[°C]	[ 13 ]						
	Heat rejected to LLR (non CHP)	MMBTU/hr	1.35 - 5.4						
[ kWth ]		[ 400 - 1600 ]							

## PERFORMANCE CHARACTERISTICS

Nominal Rating	Up to 125kWe* @ 380 - 500V / 3 phase / 50 & 60 Hz
Ambient Operation	32°F - 120°F (0°C - 48°C)**
Power Factor Correction	Load and Site Dependent - from 0.9 to 1
Total Harmonic Distortion	<3%
Emissions	Zero (Closed Binary Cycle)
Minimum Operating kW Output	5 kWe

## DESIGN ATTRIBUTES

Refrigerant Plumbing	Built to ASME and CE Standards
Power Block	Twin Screw Expander
Generator	Grid-Tied Induction (Brushless Construction, Asynchronous)
Heat Exchangers	Compact, Brazed Plate Construction
Design Life	20 Years
Lubrication	Patented Process Lubrication
Grid Protective Relay (GPR)	External Additional GPR Interface Included

## SYSTEM DESCRIPTION

Working Fluid	R245fa (Pentafluoropropane)***
Heat Source	Hot Water 170°F - 302°F (77°C - 150°C)
Cooling Requirement	Water 40°F - 150°F (4°C - 65°C)
Minimum Temp Differential	Between Hot Water Input and Cooling Water Input = 80°F / 27°C
Controls	Programmable Logic Controller Based Custom Controls
Remote Monitoring	Machine accessible with included VPN router
Operation	Designed for Unattended Operation
Cabinet	NEMA 3R Outdoor Rated /IP 54 Compliant
Shipping	Ships from Flowery Branch, GA, USA
Dimensions & Weight	Various Configurations Available (see first page)
Sound Pressure	78dBA at 1 meter

\*Output depends on hot and cold resources

\*\*Extreme environments require optional equipment

\*\*\*R245fa is a non-flammable and non-ozone depleting working fluid

**FEATURES INCLUDE:**

- // Automated Control System
- // Remote Monitoring
- // Low Maintenance
- // Modular and Scalable
- // Robust, Twin Screw Expander Power Block
- // CE Certified
- // Zero Emissions
- // Zero Toxic By-products
- // Zero Fossil Fuel Requirements
- // Dual-Heat Stream Input + Radiator Option Available



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