



// BITZER SEMI-HERMETIC EXPANDER/GENERATOR

POWER MODULE75

ElectraTherm's POWER MODULE75 produces fuel-free, emission-free power from various low-grade waste heat sources using the Organic Rankine Cycle (ORC) along with the company's patented technology and BITZER semi-hermetic twin screw expander/generator combination. ElectraTherm's patented ORC design represents a dramatic change from radial or axial turbine technologies, providing a more cost efficient, robust design with no shaft seal between the expander/generator combination, greatly enhancing reliability. The POWER MODULE75 is an evolution of ElectraTherm's POWER+ GENERATOR series and the BITZER expander offers enhanced performance across the operating range with a maximum output of 75kW.

POWER MODULE75 CONFIGURATIONS - Up to 75kW



POWER MODULE75 Stand Alone

- // Dimensions**:
Width: 72" [1829mm], Depth: 95" [2413mm], Height: 85" [2159mm]
- // Weight: 5,700lbs. [2591kg]
- // Customizable balance of plant
- // Indoor or outdoor installation



POWER MODULE75 with Cooling Package

- // Cooling package includes dry cooler and associated piping/pumps**

* Renderings may not be exact representations of final product.
** Shown with optional skins package.

HEAT TO POWER APPLICATIONS

ElectraTherm generates electricity from various heat sources, including:



Stationary Engines



Biomass/Biogas



Boilers & Process Heat



Oil & Gas, Geothermal

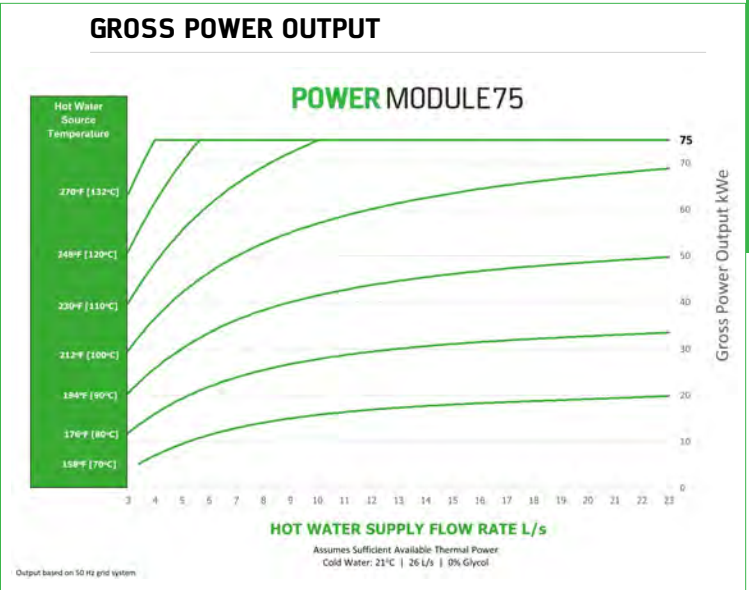


Flare Elimination

POWER MODULE75 PERFORMANCE PARAMETERS - Up to 75kW_e

ElectraTherm's Water Cooled Condensing System Performance

HOT WATER INPUT PARAMETERS	Hot water input temp range*	°F	150 - 270
		[°C]	65 - 132
	Thermal input range	MMBTU/hr	1.024 - 4.268
		[kWth]	300 - 1,250
Flow rate range	gpm	47 - 365	
	[l/s]	3 - 23	
WATER COOLED CONDENSING PARAMETERS	Cooling water input temp range	°F	50 - 150
		[°C]	[10 - 65]
	Heat rejected to cooling water range	MMBTU/hr	1.024 - 4.095
		[kWth]	[300 - 1,200]
Cooling water flow rate	gpm	95 - 412	
	[l/s]	[6 - 26]	
DRY COOLER	Dry Cooler approach to ambient air temp	°F	20
		[°C]	[11]
	Heat rejected to Dry Cooler	MMBTU/hr	2.730
[kWth]		[800]	



* Currently tested up to 248°F [120°C]

PERFORMANCE CHARACTERISTICS

Nominal Rating	Up to 75kW _e * @ 380 - 500V / 3 phase / 50 & 60 Hz
Ambient Operation	32°F - 113°F [0°C - 45°C]
Power Factor Correction	Load and Site Dependent - from 0.9 to 1
Total Harmonic Distortion	<3%
Emissions	Zero [Closed Binary Cycle]
Net Minimum Operating kW Output	5kW _e Net

DESIGN ATTRIBUTES

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

SYSTEM DESCRIPTION

Working Fluid	R245fa [Pentafluoropropane]**,***
Heat Source	Hot Water 150°F - 270°F [65°C - 132°C]
Cooling Requirement	Water 50°F - 150°F [10°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 optional 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	80db at 1 meter. Sound Attenuated Option: <72db 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:

- // EASE OF INSTALLATION
- // LOW MAINTENANCE
- // ROBUST, TWIN SCREW EXPANDER POWER BLOCK
- // CE CERTIFIED
- // AUTOMATED CONTROL SYSTEM
- // MODULAR AND SCALABLE
- // ZERO EMISSIONS
- // ZERO TOXIC BY-PRODUCTS
- // ZERO FOSSIL FUEL REQUIREMENTS

OPTIONS & UPGRADES:

- // HMI TOUCHSCREEN
- // POWER FACTOR CORRECTION
- // VPN UPGRADE
- // RUGGEDIZED SLED
- // SKINS PACKAGE

