

# Thermapower™ Organic Rankine Cycle (ORC) Module 125XLT

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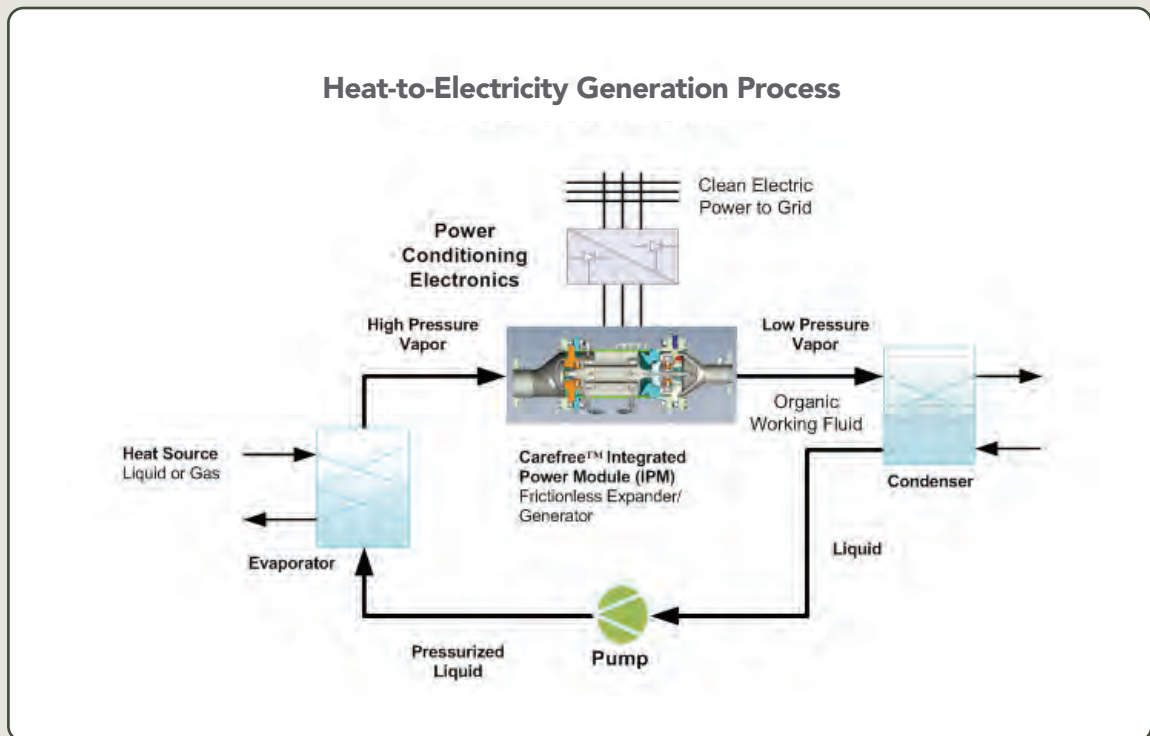
## With the greatest number of installations around the world, Thermapower™ has proven to be the most compact, efficient and reliable ORC system available.

Access Energy develops, manufactures, sells and services heat recovery and pressure recovery systems for a wide range of small-scale applications. With the highest number of installations around the world and over 20MW<sub>e</sub> of capacity sold worldwide, the Thermapower™ product line has proven to be highly reliable.

### How Thermapower™ Products Work

The Organic Rankine Cycle (ORC) is a heat recovery process that converts thermal energy into mechanical power:

- » Organic working fluid is pumped through an evaporator, exposing it to the heat source.
- » Heat converts the fluid into a superheated vapor due to its low boiling point.
- » Hot vapor is expanded across the Carefree™ IPM to produce electric power.
- » Warm vapor exits the IPM, enters the condenser and is cooled back to a liquid.
- » Cold liquid goes through the evaporator to repeat the closed loop cycle.



### What Makes Thermapower™ Products Superior

- » **Turbine Expander** – More efficient than positive displacement (screw or scroll expander)
- » **High-speed Permanent Magnet Generator** – High efficiency
- » **Magnetic Bearings** – No friction and no lubrication for increased reliability
- » **Program Logic Controller (PLC)** – Real time optimization for all conditions
- » **Flexibility per Application** – Compatible with a variety of heat sources, gas or liquid
- » **Power Electronics** – Real time grid connectivity with clean power

The **Thermapower™ Organic Rankine Cycle (ORC) 125XLT** is the latest module in Access Energy's Thermapower™ product line. The system can recover waste heat with temperatures around 95°C and produce up to 125kW<sub>e</sub> of clean power from extra low temperature heat generated by small-scale commercial and industrial applications.

**The Heat-to-Power Solution for Small-Scale Applications**

Access Energy's Thermapower™ ORC 125XLT (Extra Low Temperature) module generates 125kW<sub>e</sub> of clean, utility grade power from heat sources around 95°C (200°F). The Thermapower™ ORC 125MT (Medium Temperature) module produces the same amount of power from heat sources around 135°C (275°F). Authorized distributors can assist with optimizing the right module for your application.

**Thermapower™ ORC 125XLT**



Variable Speed Fluid Pump

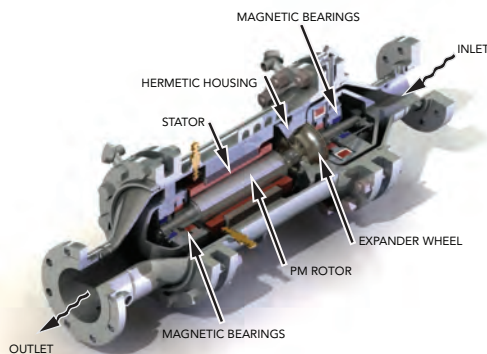


Receiver

Programable Logic Controller (PLC) and Magnetic Bearing Controller (MBC)

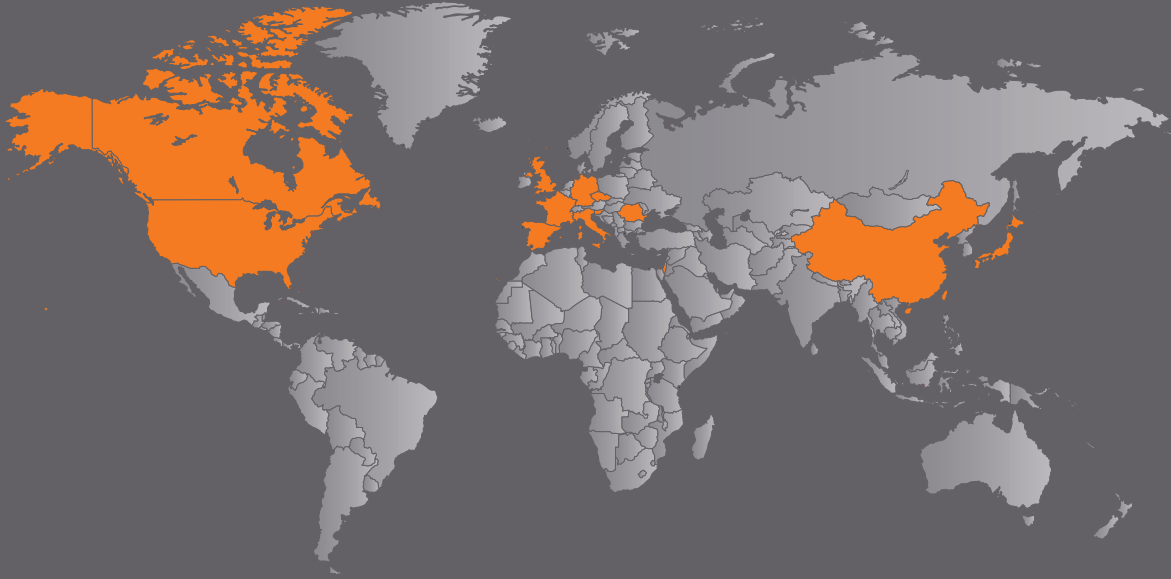
Power Electronics

**Carefree™ Integrated Power Module (IPM)**



The heart of both systems is Access Energy's patented Carefree™ Integrated Power Module (IPM), which consists of a high-speed turbine expander and high-efficiency generator in a single, hermetically sealed housing.

## Proven Project Implementation Expertise



### Small-Scale Commercial and Industrial Applications

Incineration · Marine · Geothermal · Solar Thermal · Coproduction · Air & Hydrocarbon Processing ·  
Compression · Gas Flaring · Boilers · Regenerative Thermal Oxidizers · Amine Treatment ·  
Turbo Compounding · Glass Production · Iron & Steel Production · Water Treatment · Food Processing ·  
Cement Manufacturing · Pulp & Paper Manufacturing · Biomass Processing · Aluminum Manufacturing ·  
Fuel Cells · Petroleum Refining · Natural Gas Distribution · Desalination · Structural Clay Production



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