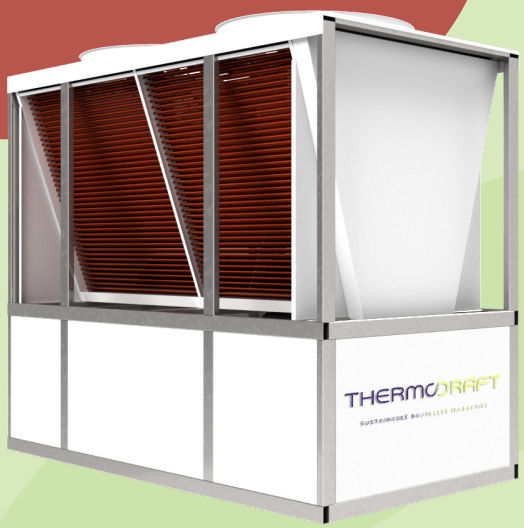
THERMODRAFT

SUSTAINABLE BOUNDLESS INNOVATION

www.thermodraft.gr

THERMODRAFT IKE offers energy efficiency solutions in the fields of waste heat conversion to electricity with **Organic Rankine Cycle (ORC) technology**, as well as heat upgrading with **High Temperature Heat Pumps technology (HTHP).**

Cutting-edge and **eco-friendly** technology.



THERMODRAFT'S
ORC SOLUTION

The growing concern over the future depletion of fossil fuels and the effect on our environment has brought to light the **ORC Technology for Low-Grade Heat Recovery.** In Thermodraft we provide commercial and custom designed ORCs for industrial and marine applications.

Under the stressing of fossil fuel prices and the need for clean energy generation, ORC technology emerges as the ideal alternative, since it reliably saves costs.

Thermodraft's ORC products range from 30 to 200 kWel while exploiting heat sources from 70 to 180 °C. Higher capacities can be achieved with multiple ORC units in parallel.

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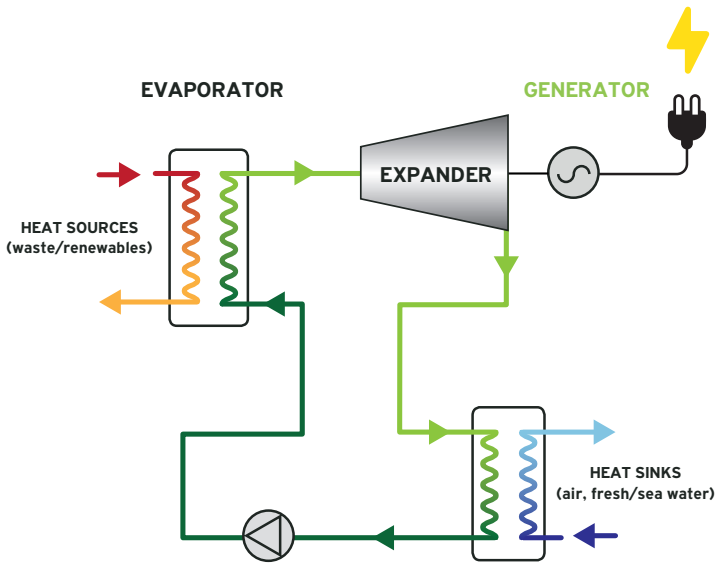
HOW IT WORKS

Thermodraft's ORC consists of a pump which transfers and pressurizes the liquid working fluid to the evaporator.

In the evaporator, the working fluid is heated to superheated vapour. Then, the superheated vapour expands through a volumetric expander and produces mechanical work, which is converted to electricity by the generator. The superheated working fluid is then condensed to saturated liquid in the condenser. The pump pressurises the liquid working fluid, closing the cycle.



BENEFITS FOR THE END-USER

Depending on the conditions, a nominal efficiency of 5 to 10% is possible.

The PBP ranges from 2 to 5 years, depending on the waste heat.

Operation and maintenance costs are very low.

Can exploit up to 180°C heat sources from various industries and applications, including paper, chemicals, food and beverage, metal-plastic-wood (e.g. drying), CO_2 capture, biogas plants and ships.

Minimal intervention by the use (Plug & play product)

Eco-friendly Hydrofluoroolefins (HFO) refrigerants of ultralow GWP (<10).

MODELS

	ORC MODEL				
	ORC-230	ORC-470	ORC-830	ORC-1130	ORC-1530
Nominal electric capacity (kW)	30	60	100	150	200
Expander	Twin-screw rotary semi-hermetic expander				
Evaporator	Brazed plate heat exchanger				
Condenser (3 options depending on the heat sink)	Brazed plate heat exchanger for fresh water-cooled units Shell and tube heat exchanger with copper-nickel tubes for sea/salt water-cooled units Finned tube heat exchanger for air-cooled units				
Refrigerant	R1234ze(E) or R1233zd(E) (depending on the waste heat temperature)				