THERMODRAFT

SUSTAINABLE BOUNDLESS INNOVATION

www.thermodraft.gr

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

THERMODRAFT'S HIGH TEMPERATURE HEAT PUMPS

Several industrial processes require high grade heat that is currently covered by fossil fuel utilization. **High Temperature Heat Pumps (HTHP)** is a green technology capable of delivering process heat of desirable characteristics in a very efficient way by replacing the conventional fuels utilisation.

ThermoDraft promotes the transition into the next generation, **clean and efficient heat processes**, providing commercial and custom designs HTHP for industrial applications, including paper, chemicals, food and beverage, metal-plastic-wood (e.g. drying), CO_2 capture.

Under the stressing fossil fuel prices and the need for clean energy generation, ThermoDraft's HTHP technology emerges as the ideal alternative, since:

THE COEFFICIENT OF PERFORMANCE (COP) as the measure of HTHP efficiency that can reach even 4 is of profound value towards mitigation of climate change and energy efficiency challenges.

THE PAYBACK PERIOD (PBP) is shrunk to even less than 2 years in many cases.

Designs that incorporate newly developed Hydrofluoroolefins (HFOs) refrigerants of ultralow GWP (<10) are also available.

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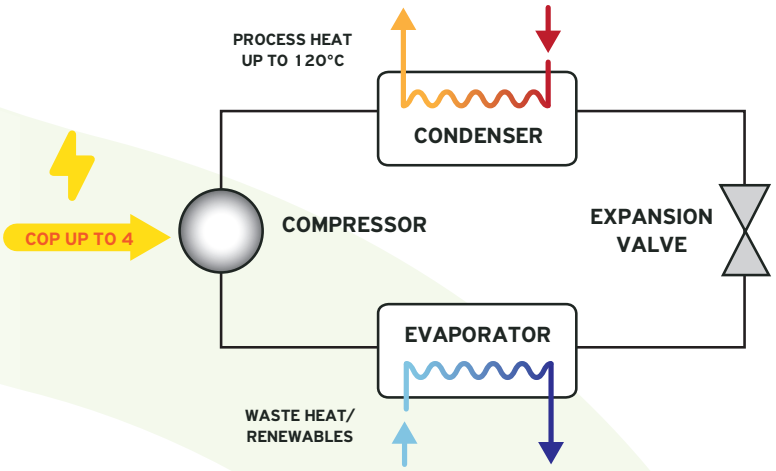
HOW IT WORKS

The heat pump operates in a closed loop, based on the state changes of the working fluid, from liquid to vapor and the opposite, absorbing and releasing heat.



BENEFITS FOR THE END-USER

Depending on the source/sink conditions a COP of 2.5 to 4 is feasible. This is 3 to 5 times higher than that of a conventional industrial boiler.

Saving of the respective amount of heat from fossil fuel and GHG saving.

The PBP is in the range of 2 to 4 years, depending on the temperature lift.

In comparison with the oil boiler, Operation & Maintenance needs and costs are very low.

High sink temperature (up to 120°C steam or pressurized hot water).

Cutting edge and eco-friendly technology.

Operating security/no risk.

Minimal intervention by the use (Plug & play product).

MEDIUM TEMPERATURE FOR UP TO 90°C HOT WATER

	1 COMPRESSOR MODEL						2 COMPRESSORS MODEL					
	100G	230G	410G	470G	710G	790G	2.100G	2.230G	2.410G	2.470G	2.710G	2.790G
Nominal Heating Capacity (kW) *	104	258.7	433.7	492.9	744.7	820.7	208	517.4	867.4	985.8	1489.4	1641.4
Power Consumption *	36.3	84.3	136.4	154.1	229.9	249.4	72.6	168.6	272.8	308.2	459.8	498.8
Refrigerant	R1234ze(E)											

* For 35°C cooling water from renewables (e.g. solar) or waste heat recovery (e.g. from waste water, refrigeration unit condenser). Hot supply: 70/80°C hot water in/out. Limits: 90°C maximum hot water supply / 25°C minimum cooling water temperature.

HIGH TEMPERATURE FOR UP TO 120°C PRESSURIZED HOT WATER OR LOW-PRESSURE STEAM

	1 COMPRESSOR MODEL								2 COMPRESSORS MODEL							
	200T	300T	410T	550T	620T	710T	830T	930T	2.200T	2.300T	2.410T	2.550T	2.620T	2.710T	2.830T	2.930T
Nominal Heating Capacity (kW) *	113.6	176.5	248.9	335.4	378.8	439.6	521.1	582.4	227.2	353	497.8	670.8	757.6	879.2	1042.2	1164.8
Power Consumption *	42.9	66.5	94.3	124.1	140	162.5	192.1	214.4	85.8	133	188.6	248.2	280	325	384.2	428.8
Refrigerant	R245fa or R1233zd(E)															

* For 60°C cooling water from renewables (e.g. solar) or waste heat recovery (e.g. from waste water, refrigeration unit condenser). Hot supply: 100/110°C in/out. Limits: 120°C maximum hot water supply / 45°C minimum cooling water temperature.