

# Rank® LT4

## Product description

In the case there are heat sources with very low temperatures, above 90 °C, the Rank® LT4 machine allow their use through electric generation, with an electric generation of up to 175 kWe.

The electrical generation is complemented with the possibility of using the heat produced in the condenser at temperatures up to 50 °C.



## A Rank® machine for every need

Whatever your need is, we have a Rank® machine that can be adapted to it, through a variety of products that cover a wide range of thermal and power applications.

LT1	MT1	HT1	HTC1
LT2	MT2	HT2	HTC2
LT3	MT3	HT3	HTC3
<b>LT4</b>	MT4	HT4	

90°C      120°C      150°C      180°C      210°C

## What is Rank®?

The Rank® equipment allows electrical energy and useful heat production using a low-temperature heat source, with economic and environmental benefits.



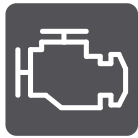
## Applications

Among the main applications of the Rank® ORC machines, we highlight the waste heat recovery and the use of renewable heat sources, with a special interest in cogeneration and trigeneration systems.

### Heat sources



Industrial Waste Heat



Engines



Biomass



Solar CHP



Waste



Geothermal

### Heat sinks



Cold Production



Heating

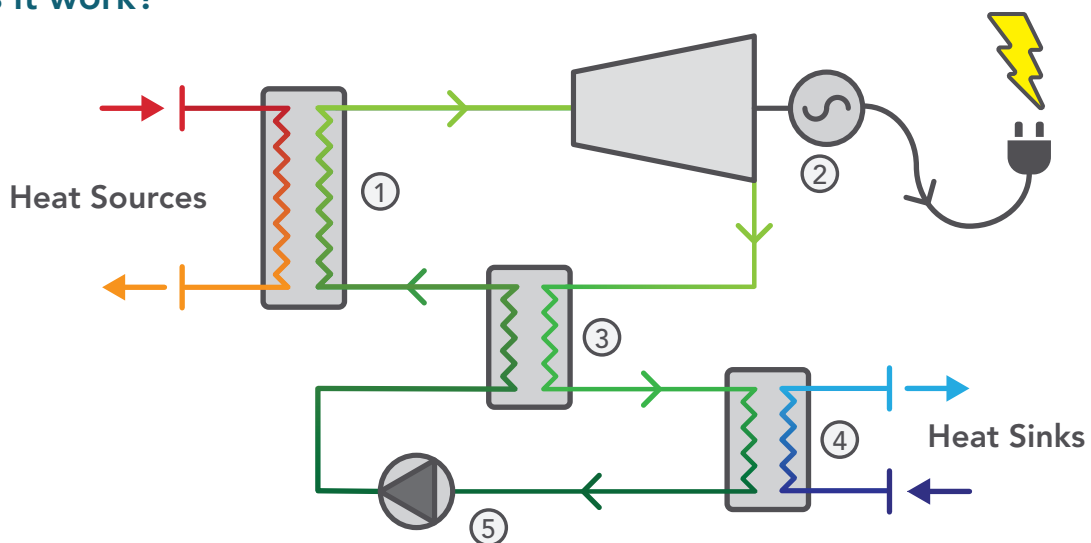


Industrial Processes



Drying

## How does it work?



- ① **Evaporator** A heat exchanger provides heat to the high-pressure working fluid and passes from subcooled liquid to superheated vapor (in the form of water or thermal oil).
- ② **Turbine** The expansion of the superheated vapor is used to generate clean electricity.
- ③ **Regenerator** The expanded working fluid is used to preheat the high-pressure liquid at the inlet of the evaporator to increase the efficiency of the system.
- ④ **Condenser** It produces useful heat (in the form of water) from the condensation of the working fluid at low pressure.
- ⑤ **Pump** The pressure of the working fluid is increased, and the ORC cycle is completed.

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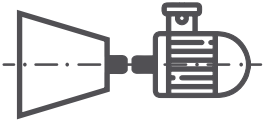
## Rank® Technology

The Rank® equipment is composed of high quality, robust and efficient components, which offer our customers the following advantages and benefits.



### Rank® low rpm turbine

Operation at low revolutions reduces the noise level, lengthens the service life, and improves reliability.



### Rank® direct drive

Direct drive avoids the use of gears or pulleys, minimising the maintenance and increasing electrical efficiency.



### Zero leaks

Our hermetic components eliminate the leakage of the working fluid, reducing maintenance costs and downtime and being more environmentally friendly.



### Magnetic transmission

Magnetic transmission to ensure tightness and to reduce the possibility of leakage.



### Rank® easy-connect

Electronics-free connection to the electricity grid at the required electrical quality conditions.



### Flexible operation

Modular machines that can operate under a wide range of temperature and flow inlet and outlet conditions.



### Digitalisation through the Rank® control system

Our machines operate without the need for the human interface through an automatic, efficient managing system.



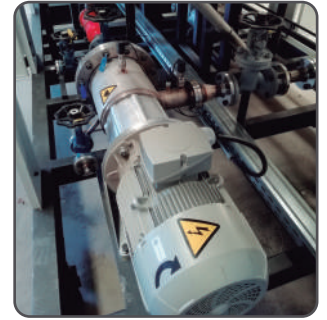
### Safety

It complies with all safety regulations and minimises the risk of accidents.



### Rank® service

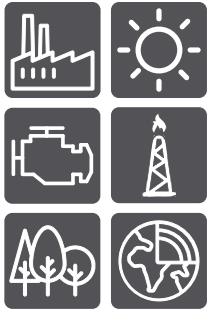





Real-time remote monitoring and predictive control of the machines and automatically generated reports.



## Safety Regulations and Standards

- Low voltage Directive
- Machinery Directive
- Electromagnetic Compatibility Directive
- Pressurized Equipment Directive
- ENA ER G59/3
- ASME B31.1 – Power Piping Code, Mechanical
- ASME B31.3 – Process Piping Code
- ASME Boiler and Pressure Vessel Code Section VIII
- UL 508A- Control Panel Wiring
- EN/ISO 3744:2010

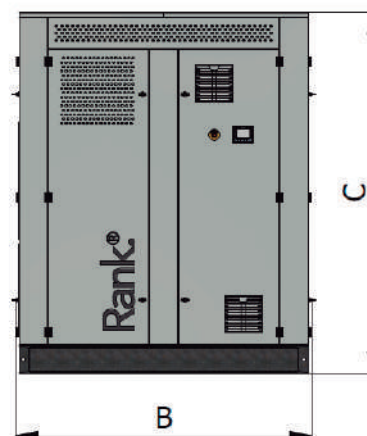
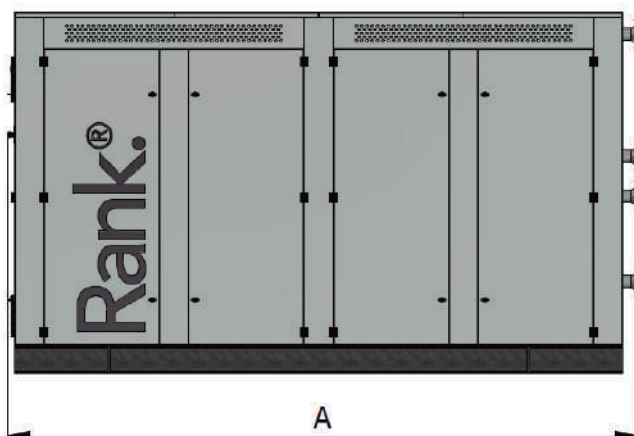
## Technical Data

		Heat source	Heat transfer fluid *	Water	-
			Inlet temperature	90-120	°C
			Outlet temperature	80-110	°C
			Volumetric flow rate	165	m <sup>3</sup> /h
			Thermal power	1 000-2 000	kWt
			Connections diameter	DN200 PN16	-
			Pressure drop	125	kPa
			Heat transfer fluid inner volume	250	L
		Useful heat	Heat transfer fluid	Water	-
			Inlet temperature	20-40	°C
			Outlet temperature	30-50	°C
			Volumetric flow rate	125	m <sup>3</sup> /h
			Thermal power	800-1 600	kWt
			Connections diameter	DN200 PN16	-
			Pressure drop	125	kPa
			Heat transfer fluid inner volume	250	L
		Electricity	Gross power	80-175	kWe
			Net power	60-160	kWe
			Voltage	3 x 400	V
			Frequency	50/60	Hz
			Intensity	250	A
			Data Connection	RJ45	-
Container transport (optional)			HC 40'		

\* The heat transfer fluid can be water, steam, or thermal oil

HC (high cube)

## Dimensions



A = 8 000 mm  
 B = 2 250 mm  
 C = 2 500 mm  
 Weight 10 500 kg