

Rank.[®] HT1

Product description

When it is possible to use heat sources at temperatures above 150 °C, the Rank.[®] HT1 machine is the most efficient option, with an electric generation up to 30 kWe.

The heat recovered from the condenser, in the form of water up to 50 °C, can be used for a wide range of applications with thermal power below 500 kWt.



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	
90°C	120°C	150°C	180°C	210°C

What is Rank.[®]?

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



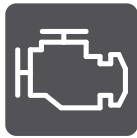
Applications

Among the main applications of the Rank® ORC machines, we highlight the waste heat recovery and the utilisation 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

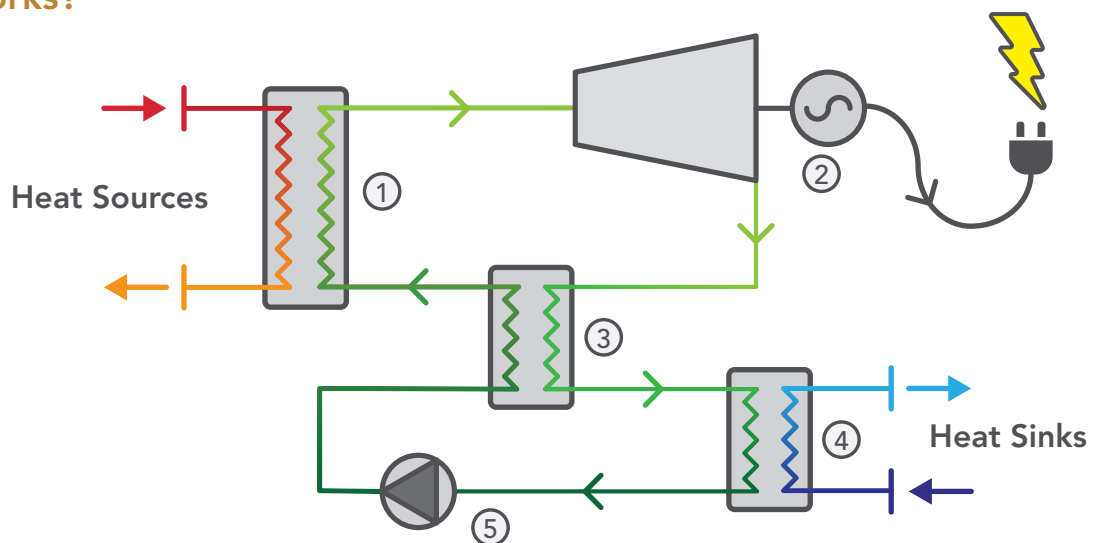


Industrial Processes



Drying

How it works?



- ① **Evaporator** A heat exchanger that 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** To increase the efficiency of the system, the expanded working fluid is used to preheat the high-pressure liquid at the inlet of the evaporator.
- 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.

Rank® HT1

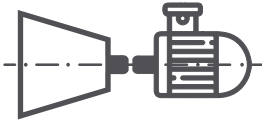
Rank® Technology

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



Rank® low rpm turbine

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



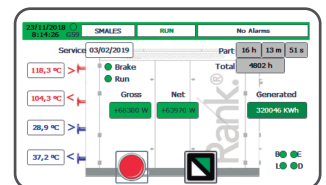
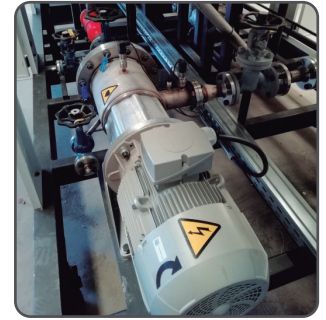
Security

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.



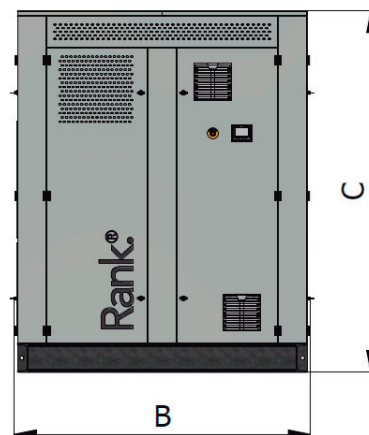
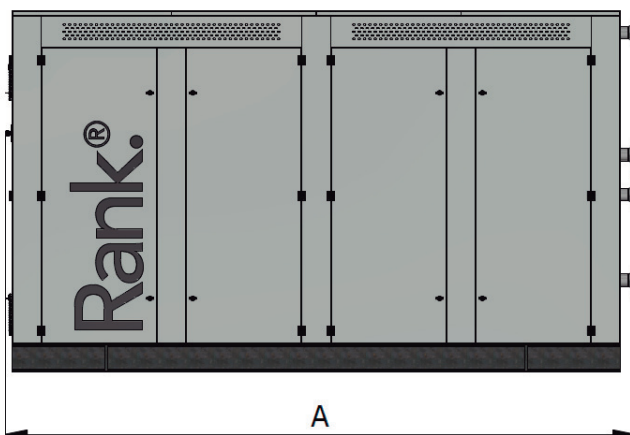
Safety Regulations and Standards

- 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	Thermal Oil	-
			Inlet temperature	150-180	°C
			Outlet temperature	110-140	°C
			Volumetric flow rate	13	m ³ /h
			Thermal power	200-300	kWt
			Connections diameter	DN65 PN16	-
			Pressure drop	100	kPa
			Heat transfer fluid inner volume	20	L
		Useful heat	Heat transfer fluid	Water	-
			Inlet temperature	20-40	°C
			Outlet temperature	30-50	°C
			Volumetric flow rate	17	m ³ /h
			Thermal power	150-200	kWt
			Connections diameter	DN65 PN16	-
			Pressure drop	125	kPa
			Heat transfer fluid inner volume	15	L
		Electricity	Gross power	20-30	kWe
			Net power	18-25	kWe
			Voltage	3 x 400	V
			Frequency	50	Hz
			Intensity	54	A
			Data Connection	RJ45	-

Dimensions



A = 3.350 mm
 B = 1.550 mm
 C = 2.200 mm
 Weight 5.500 Kg