Rank® MT1

Product description

The Rank® MT1 machine generates clean electricity up to 20 kWe, taking advantage of heat sources below 150 °C.
Besides having excellent electrical performance, the heat produced in the condenser can be used at temperatures up to 50 °C.
This heat is available for several applications with thermal needs below 150 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
LT4	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.

Rank® MT1

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.

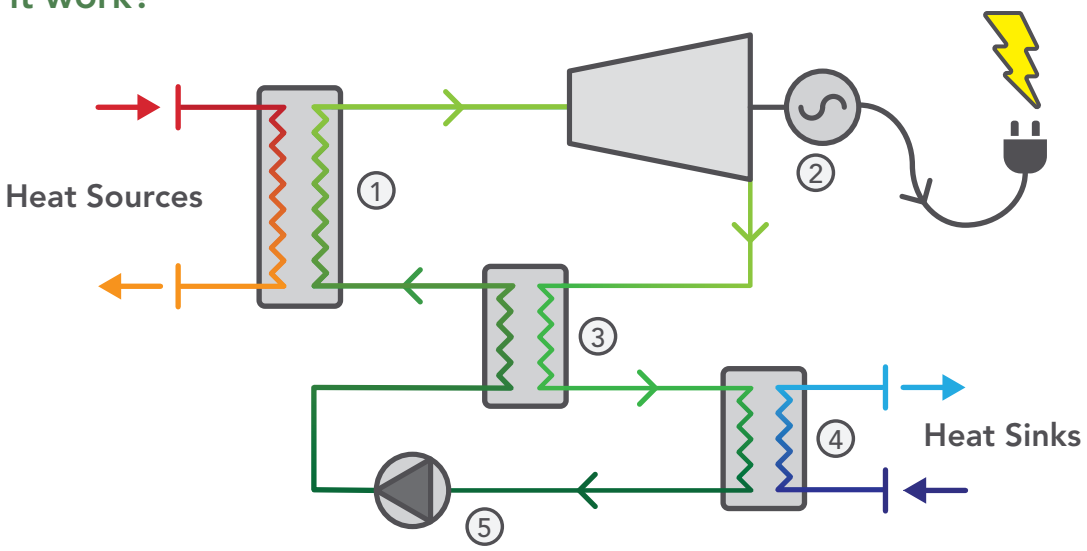
Heat sources

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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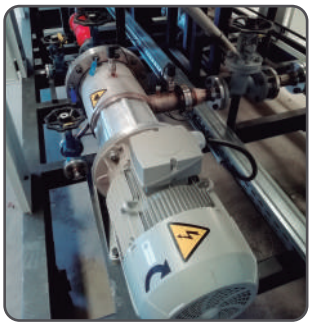
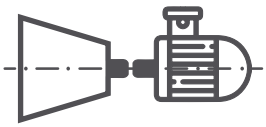
Rank® Technology

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

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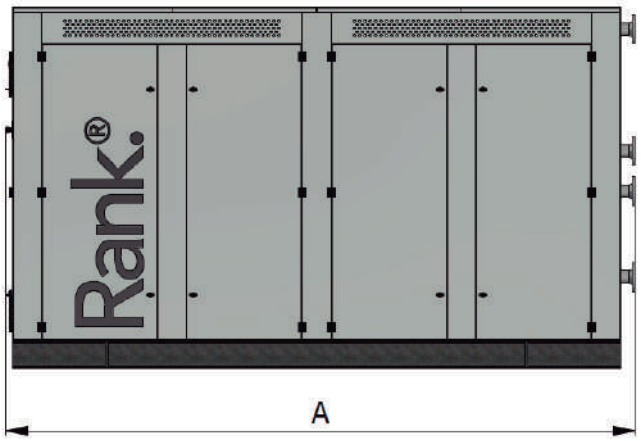
Technical Data

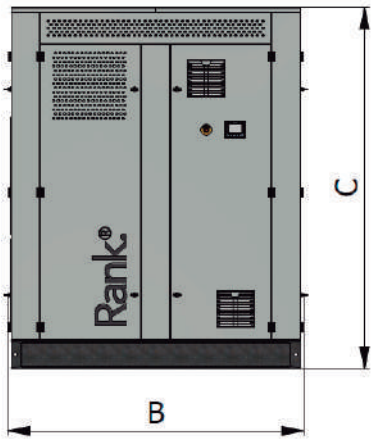
Heat source	Heat transfer fluid *	Water	-
	Inlet temperature	120-150	°C
	Outlet temperature	110-140	°C
	Volumetric flow rate	17	m^3/h
	Thermal power	150-200	kWt
	Connections diameter	DN80 PN16	-
	Pressure drop	125	kPa
	Heat transfer fluid inner volume	20	L
Useful heat	Heat transfer fluid	Water	-
	Inlet temperature	20-40	°C
	Outlet temperature	30-50	°C
	Volumetric flow rate	14	m^3/h
	Thermal power	100-150	kWt
	Connections diameter	DN65 PN16	-
	Pressure drop	125	kPa
	Heat transfer fluid inner volume	15	L
Electricity	Gross power	15-22	kWe
	Net power	13-20	kWe
	Voltage	3 x 400	V
	Frequency	50/60	Hz
	Intensity	31.5	A
	Data Connection	RJ45	-
Container transport (optional)		DC 20'	

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

DC (dry container)

Dimensions





A = 3 350 mm
B = 1 550 mm
C = 2 200 mm
Weight 5 500 kg

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