

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

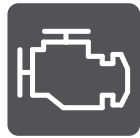
Applications

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

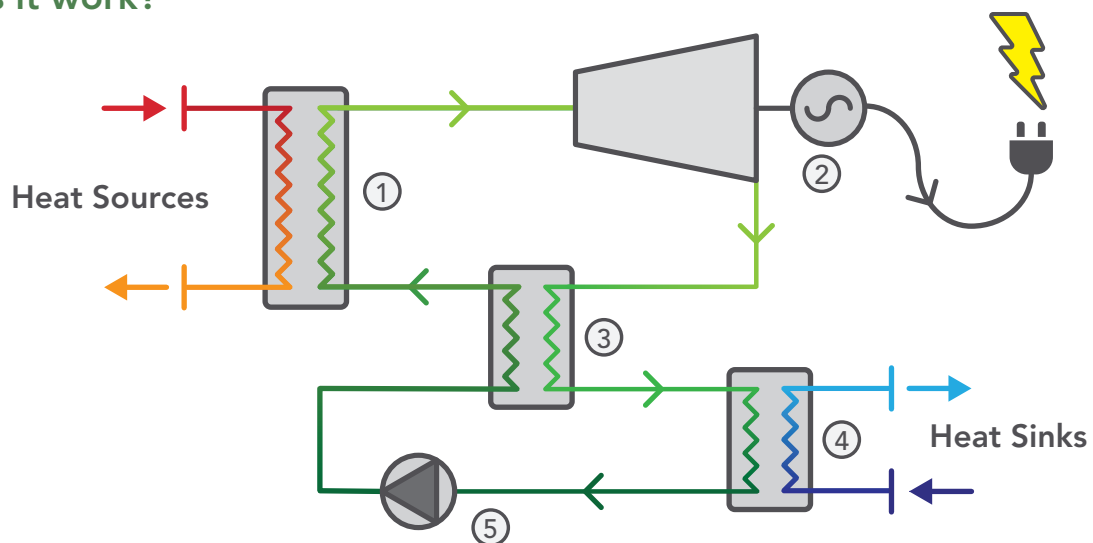


Industrial Processes



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.

Rank® MT1

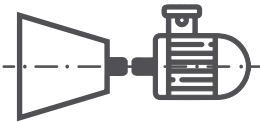
Rank® Technology

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



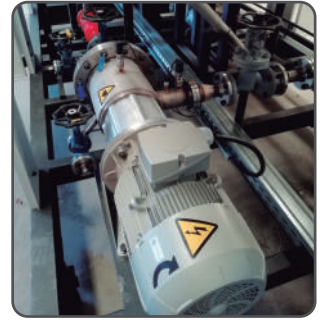
Rank® low-rpm turbine

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

Rank[®] MT1

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	-

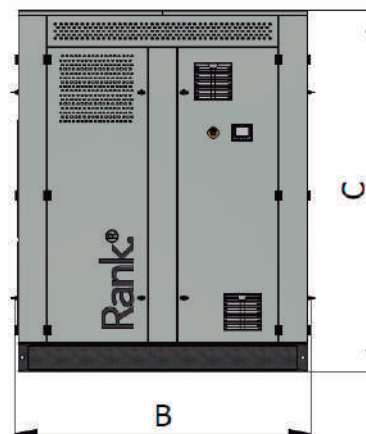
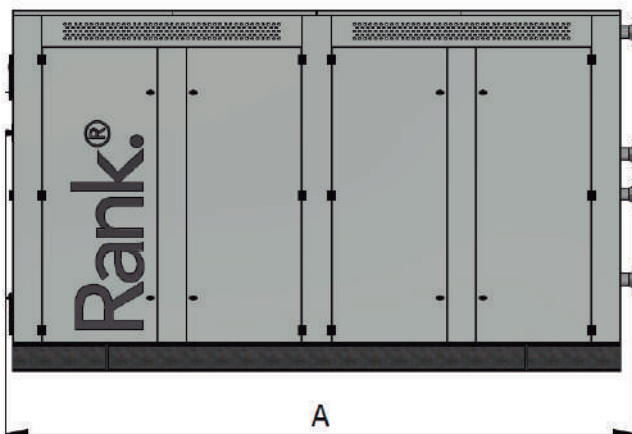
Container transport (optional)

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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Although our staff has made every effort possible to ensure accurate data and close to the final solution, these should be considered indicative and not binding.

Rank® MT2

Product description

The Rank® MT2 machine generates clean electricity up to 45 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 300 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.



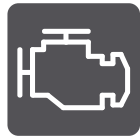
Applications

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

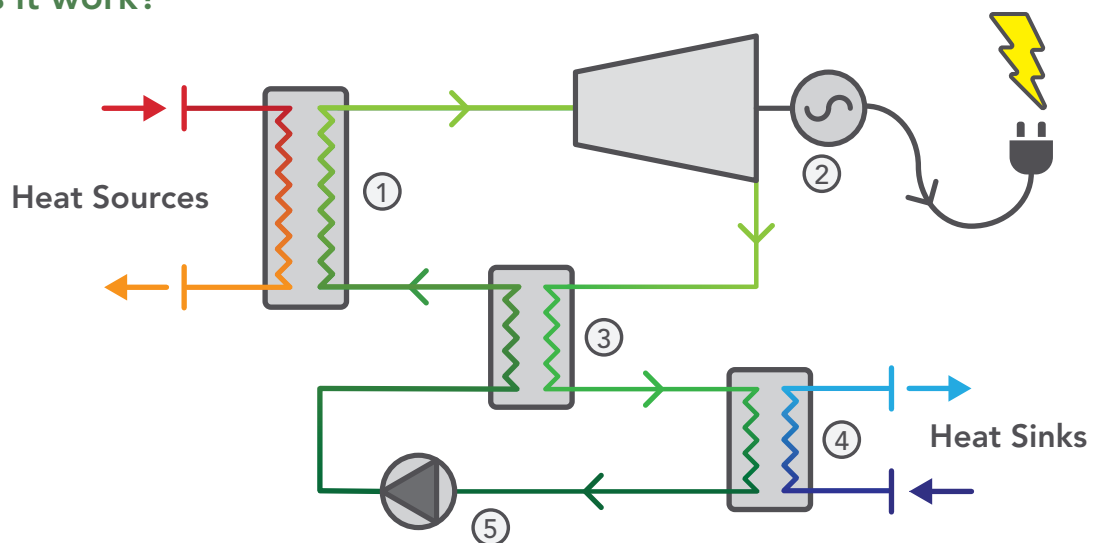


Industrial Processes



Drying

How does it work?



- ① **Evaporator** A heat exchanger 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® MT2

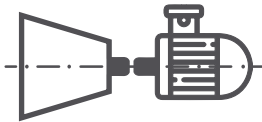
Rank® Technology

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



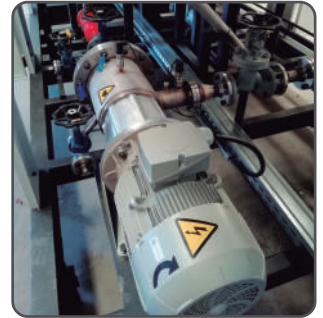
Rank® low-rpm turbine

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.



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
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- UL 508A- Control Panel Wiring
- EN/ISO 3744:2010

Technical Data



Heat source

Heat transfer fluid *	Water	-
Inlet temperature	120-150	°C
Outlet temperature	110-140	°C
Volumetric flow rate	37	m ³ /h
Thermal power	300-400	kWt
Connections diameter	DN100 PN16	-
Pressure drop	125	kPa
Heat transfer fluid inner volume	50	L



Useful heat

Heat transfer fluid	Water	-
Inlet temperature	20-40	°C
Outlet temperature	30-50	°C
Volumetric flow rate	30	m ³ /h
Thermal power	200-300	kWt
Connections diameter	DN100 PN16	-
Pressure drop	125	kPa
Heat transfer fluid inner volume	50	L



Electricity

Gross power	30-45	kWe
Net power	25-40	kWe
Voltage	3 x 400	V
Frequency	50/60	Hz
Intensity	64	A

Data Connection	RJ45	-
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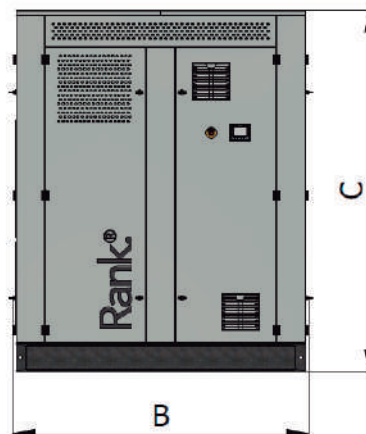
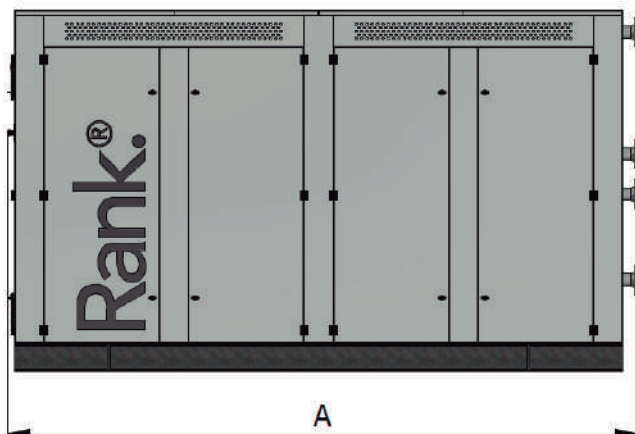
Container transport (optional)

HC 20'

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

HC (high cube)

Dimensions



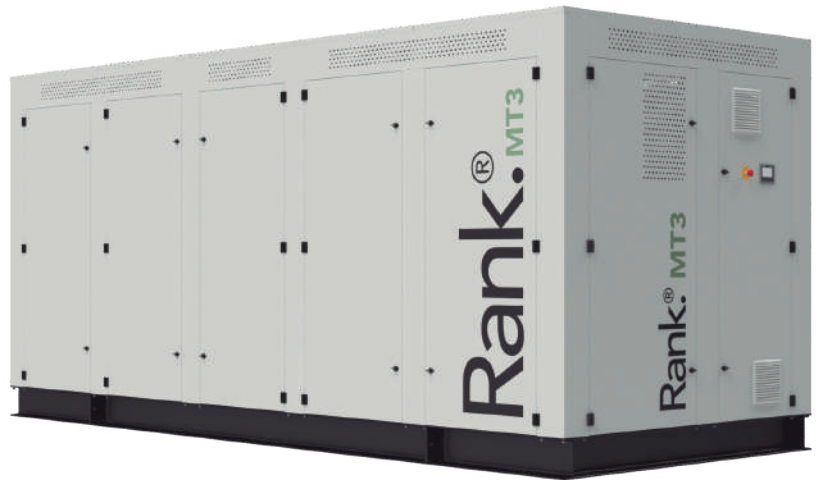
A = 4 850 mm
 B = 2 050 mm
 C = 2 400 mm
 Weight 6 500 kg

Rank.[®] MT3

Product description

The Rank.[®] MT2 machine generates clean electricity up to 100 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 600 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[®] MT3

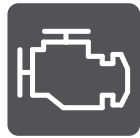
Applications

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

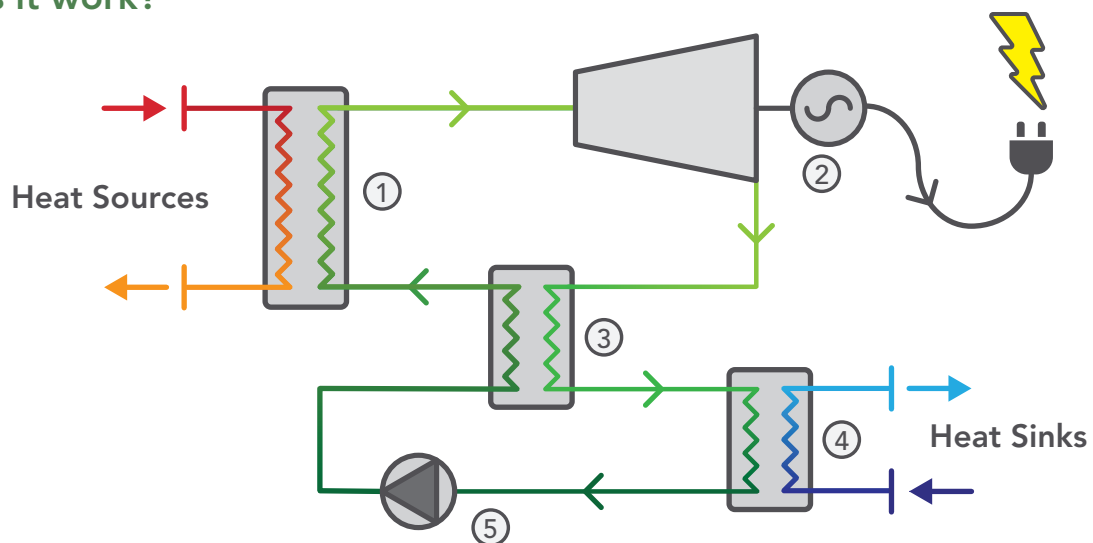


Industrial Processes



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.

Rank® MT3

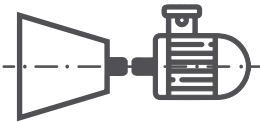
Rank® Technology

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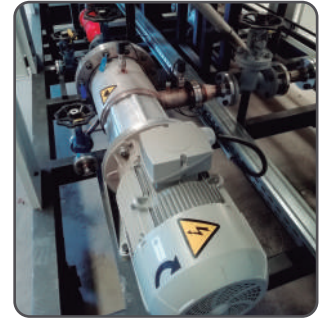
Rank® low-rpm turbine

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



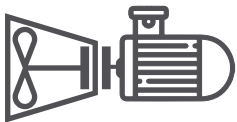
Rank® direct drive

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
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Rank[®] MT3

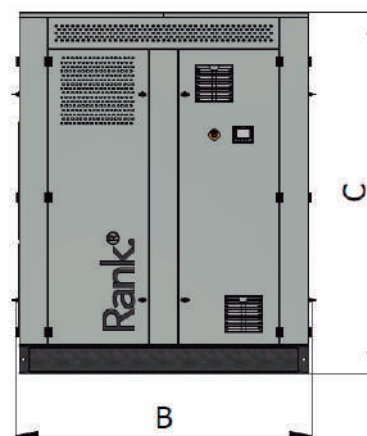
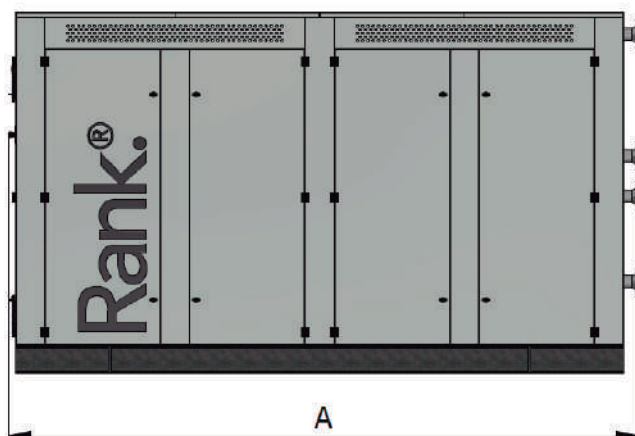
Technical Data

		Heat source	Heat transfer fluid *	Water	-
			Inlet temperature	120-150	°C
			Outlet temperature	110-140	°C
			Volumetric flow rate	78	m ³ /h
			Thermal power	650-900	kWt
			Connections diameter	DN150 PN16	-
			Pressure drop	125	kPa
			Heat transfer fluid inner volume	120	L
		Useful heat	Heat transfer fluid	Water	-
			Inlet temperature	20-40	°C
			Outlet temperature	30-50	°C
			Volumetric flow rate	63	m ³ /h
			Thermal power	400-600	kWt
			Connections diameter	DN150 PN16	-
			Pressure drop	125	kPa
			Heat transfer fluid inner volume	120	L
		Electricity	Gross power	60-100	kWe
			Net power	50-90	kWe
			Voltage	3 x 400	V
			Frequency	50/60	Hz
			Intensity	148	A
			Data Connection	RJ45	-
Container transport (optional)			HC 20'		

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

HC (high cube)

Dimensions



A = 5 800 mm
 B = 2 250 mm
 C = 2 500 mm
 Weight 8 000 kg

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 www.rank-orc.com

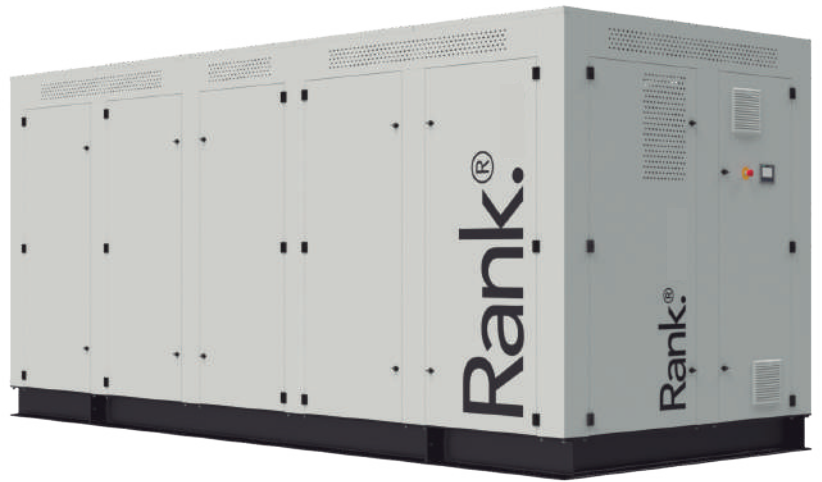
Although our staff has made every effort possible to ensure accurate data and close to the final solution, these should be considered indicative and not binding.

Rank.[®] MT4

Product description

The Rank.[®] MT4 machine generates clean electricity up to 180 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 1 200 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® MT4

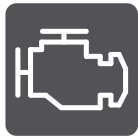
Applications

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

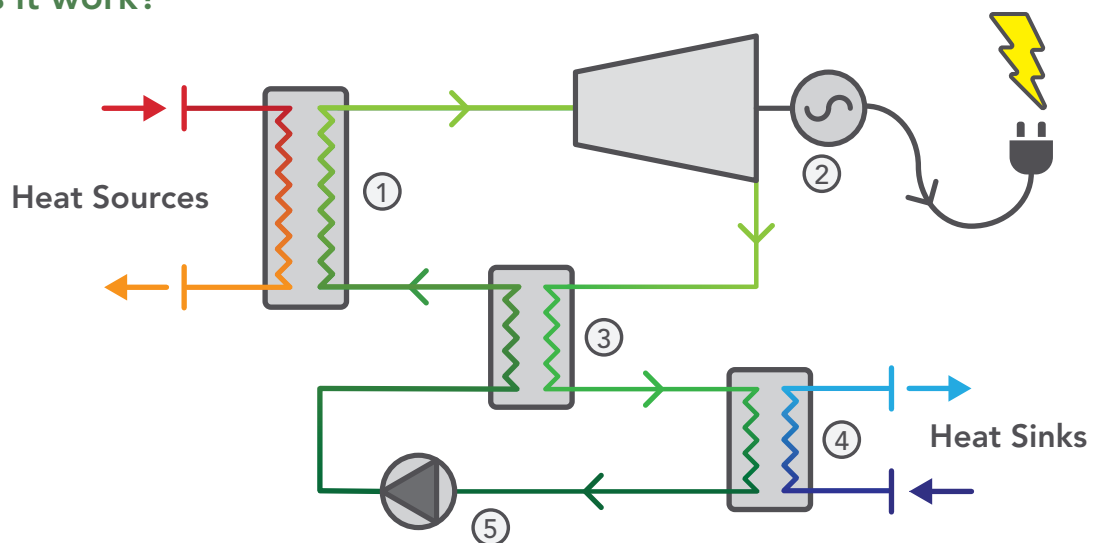


Industrial Processes



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.

Rank® MT4

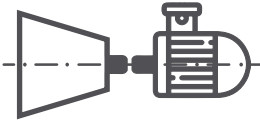
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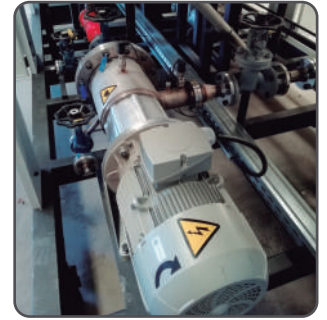
Rank® low-rpm turbine

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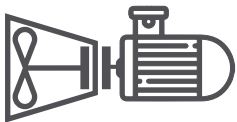
Rank® direct drive

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Zero leaks

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Magnetic transmission

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Rank® easy-connect

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Flexible operation

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



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Rank® service

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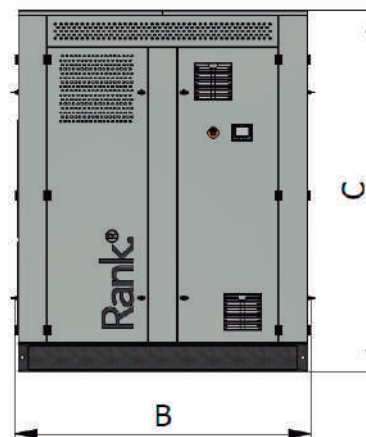
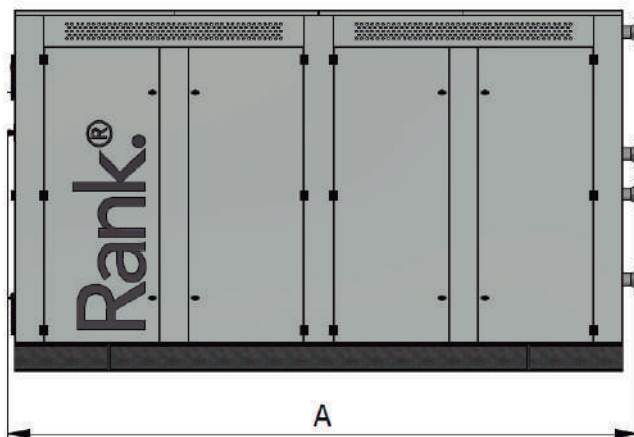
Technical Data

		Heat source	Heat transfer fluid *	Water	-			
			Inlet temperature	120-150	°C			
			Outlet temperature	110-140	°C			
			Volumetric flow rate	156	m ³ /h			
			Thermal power	1 300-1 800	kWt			
			Connections diameter	DN150 PN16	-			
			Pressure drop	125	kPa			
			Heat transfer fluid inner volume	175	L			
			Heat transfer fluid	Water	-			
			Inlet temperature	20-40	°C			
		Useful heat	Outlet temperature	30-50	°C			
			Volumetric flow rate	126	m ³ /h			
			Thermal power	800-1 200	kWt			
			Connections diameter	DN150 PN16	-			
			Pressure drop	125	kPa			
			Heat transfer fluid inner volume	175	L			
					Electricity	Gross power	120-200	kWe
						Net power	100-180	kWe
						Voltage	3 x 400	V
						Frequency	50/60	Hz
Intensity	296	A						
			Data Connection	RJ45	-			
Container transport (optional)			HC 20'					

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

HC (high cube)

Dimensions



A = 6 000 mm
 B = 2 250 mm
 C = 2 500 mm
 Weight 11 000 kg