

Rank.[®] HTC1

Product description

Rank[®] HTC1 machine is specially designed for cogeneration applications with high-temperature thermal needs, and they can produce useful heat as hot water at 80°C.

In addition, by using heat at temperatures between 180 °C and 210 °C, this high-efficiency machine can produce 45 kWe



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® HTC1

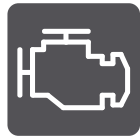
Applications

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

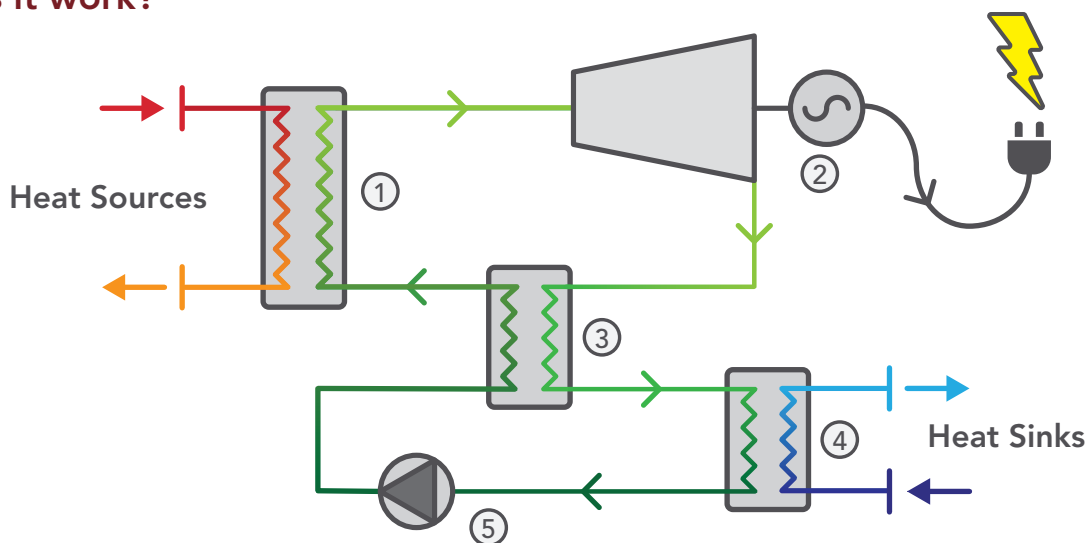


Industrial Processes



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® HTC1

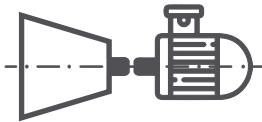
Rank® Technology

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



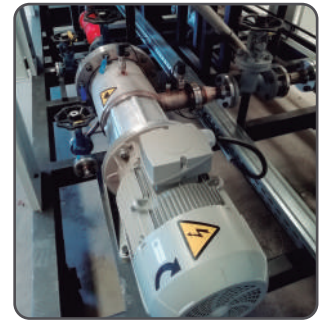
Rank® low-rpm turbine

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

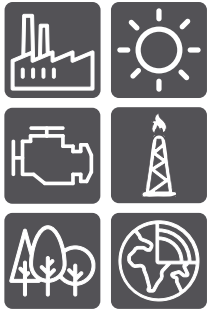





Real-time remote monitoring and predictive control of the machines and automatically generated reports.

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.[®] HTC1

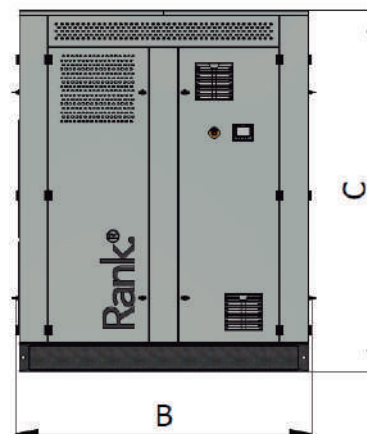
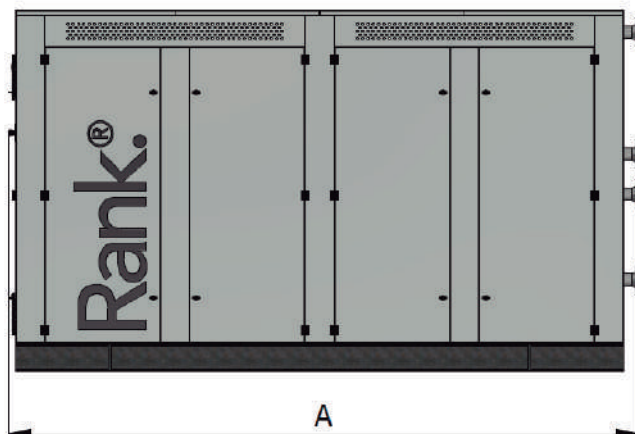
Technical Data

		Heat source	Heat transfer fluid *	Thermal Oil	-
			Inlet temperature	180-210	°C
			Outlet temperature	120-150	°C
			Volumetric flow rate	13	m ³ /h
			Thermal power	300-500	kWt
			Connections diameter	DN80 PN16	-
			Pressure drop	50	kPa
			Heat transfer fluid inner volume	45	L
		Useful heat	Heat transfer fluid	Water	-
			Inlet temperature	45-65	°C
			Outlet temperature	60-80	°C
			Volumetric flow rate	19	m ³ /h
			Thermal power	200-350	kWt
			Connections diameter	DN80 PN16	-
			Pressure drop	100	kPa
			Heat transfer fluid inner volume	60	L
		Electricity	Gross power	25-45	kWe
			Net power	20-35	kWe
			Voltage	3 x 400	V
			Frequency	50	Hz
			Intensity	82	A
			Container transport (optional)	HC 20'	

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

HC (high cube)

Dimensions



A = 4 400 mm
 B = 2 050 mm
 C = 2 500 mm
 Weight 5 500 kg

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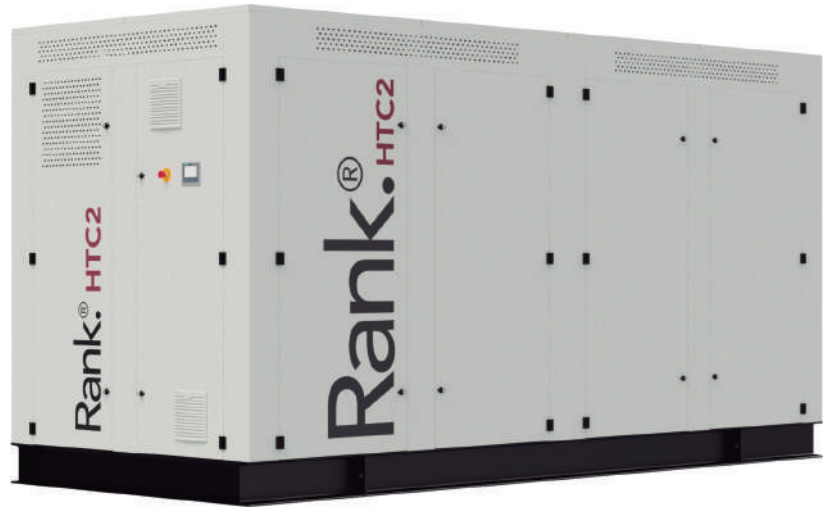
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Rank.[®] HTC2

Product description

Rank[®] HTC2 machine is specially designed for cogeneration applications with high-temperature thermal needs, and they can produce useful heat as hot water at 80°C.

In addition, by using heat at temperatures between 180 °C and 210 °C, this high-efficiency machine can produce 90 kWe.



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® HTC2

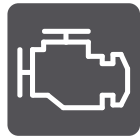
Applications

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

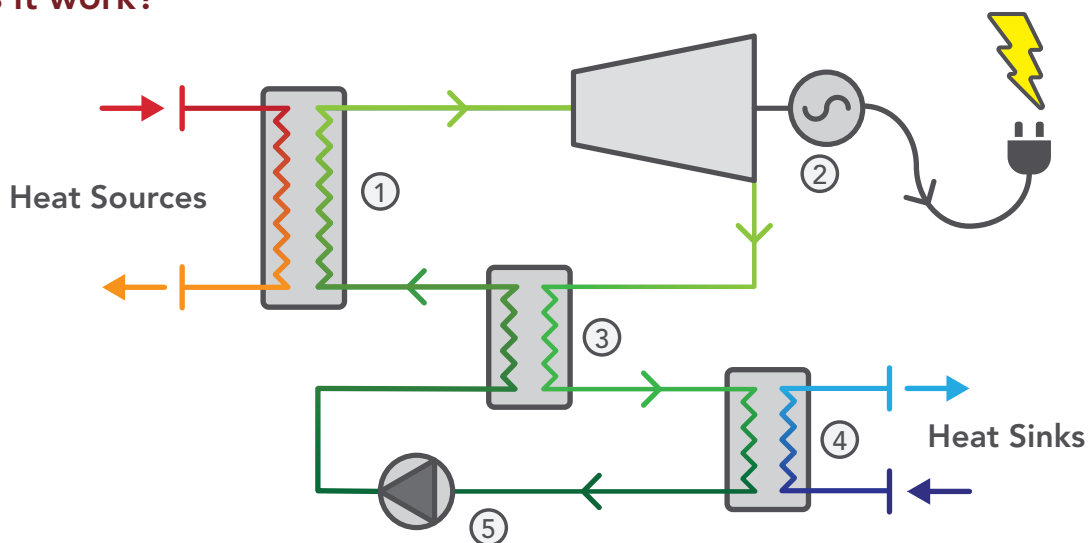


Industrial Processes



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® HTC2

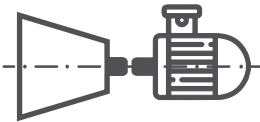
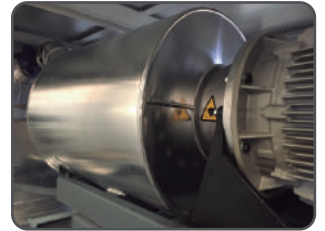
Rank® Technology

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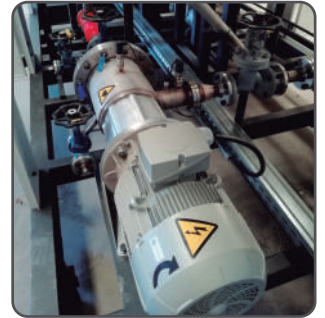
Rank® low-rpm turbine

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

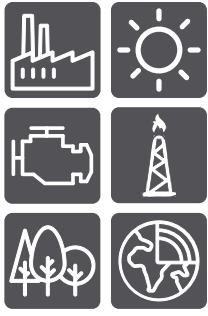





Real-time remote monitoring and predictive control of the machines and automatically generated reports.

Safety Regulations and Standards

- Low voltage Directive
- Machinery Directive
- Electromagnetic Compatibility Directive
- Pressurized Equipment Directive
- ENA ER G59/3
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- ASME B31.3 – Process Piping Code
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- EN/ISO 3744:2010

Rank[®] HTC2

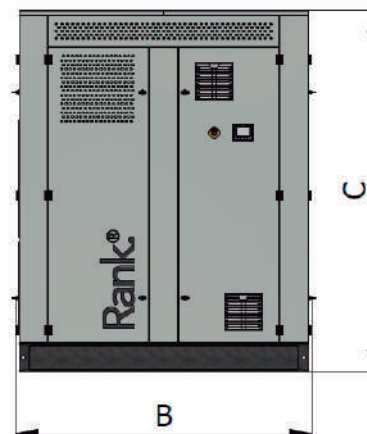
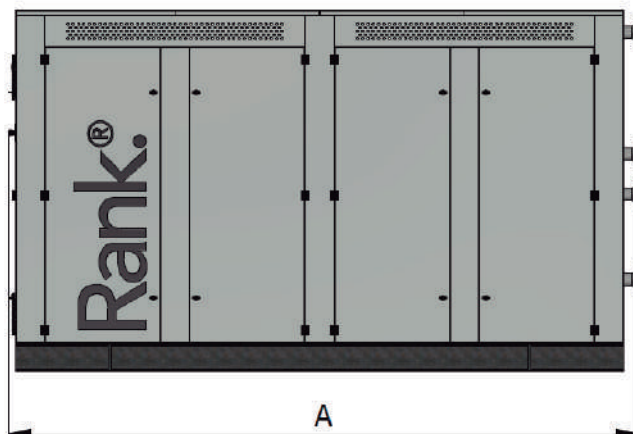
Technical Data

		Heat source	Heat transfer fluid *	Thermal Oil	-
			Inlet temperature	180-210	°C
			Outlet temperature	120-150	°C
			Volumetric flow rate	27	m ³ /h
			Thermal power	600-1.000	kWt
			Connections diameter	DN80 PN16	-
			Pressure drop	50	kPa
			Heat transfer fluid inner volume	75	L
		Useful heat	Heat transfer fluid	Water	-
			Inlet temperature	45-65	°C
			Outlet temperature	60-80	°C
			Volumetric flow rate	40	m ³ /h
			Thermal power	400-700	kWt
			Connections diameter	DN100 PN16	-
			Pressure drop	100	kPa
			Heat transfer fluid inner volume	85	L
		Electricity	Gross power	50-90	kWe
			Net power	40-75	kWe
			Voltage	3 x 400	V
			Frequency	50	Hz
			Intensity	148	A
Container transport (optional)				HC 20'	

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

HC (high cube)

Dimensions



A = 4 900 mm
 B = 2 250 mm
 C = 2 400 mm
 Weight 6 600 kg

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Rank.[®] HTC3

Product description

Rank[®] HTC3 machine is specially designed for cogeneration applications with high-temperature thermal needs, and they can produce useful heat as hot water at 80°C.

In addition, by using heat at temperatures between 180 °C and 210 °C, this high-efficiency machine can produce 145 kWe



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® HTC3

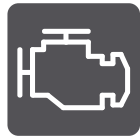
Applications

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

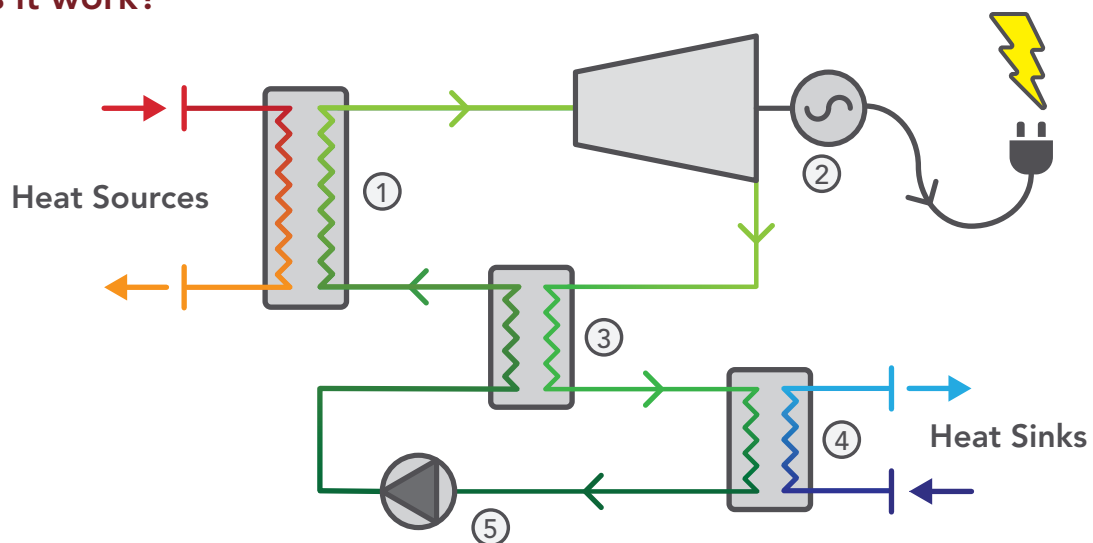


Industrial Processes



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** 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.
- ⑤ Pump** The pressure of the working fluid is increased, and the ORC cycle is completed.

Rank® HTC3

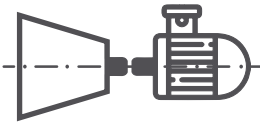
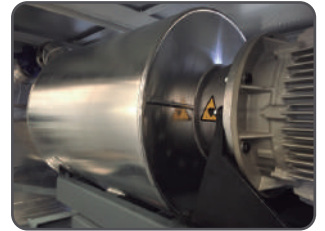
Rank® Technology

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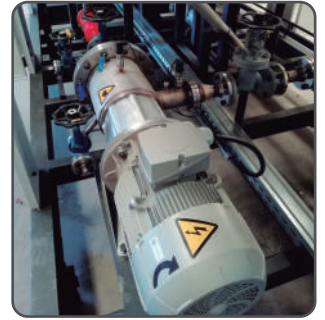
Rank® low-rpm turbine

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

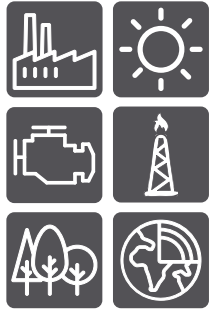
Real-time remote monitoring and predictive control of the machines and automatically generated reports.

Safety Regulations and Standards

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- ASME Boiler and Pressure Vessel Code Section VIII
- UL 508A- Control Panel Wiring
- EN/ISO 3744:2010

Rank® HTC3

Technical Data



Heat source

Heat transfer fluid	Thermal Oil	-
Inlet temperature	180-210	°C
Outlet temperature	120-150	°C
Volumetric flow rate	44	m ³ /h
Thermal power	1 200-1 600	kWt
Connections diameter	DN100 PN16	-
Pressure drop	50	kPa
Heat transfer fluid inner volume	125	L



Useful heat

Heat transfer fluid	Water	-
Inlet temperature	45-65	°C
Outlet temperature	60-80	°C
Volumetric flow rate	66	m ³ /h
Thermal power	800-1 200	kWt
Connections diameter	DN150 PN16	-
Pressure drop	100	kPa
Heat transfer fluid inner volume	275	L



Electricity

Gross power	100-145	kWe
Net power	80-115	kWe
Voltage	3 x 400	V
Frequency	50	Hz
Intensity	265	A

Data Connection	RJ45	-
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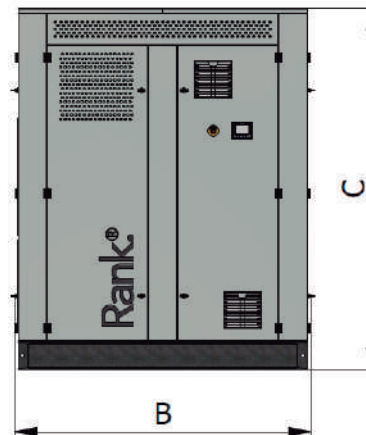
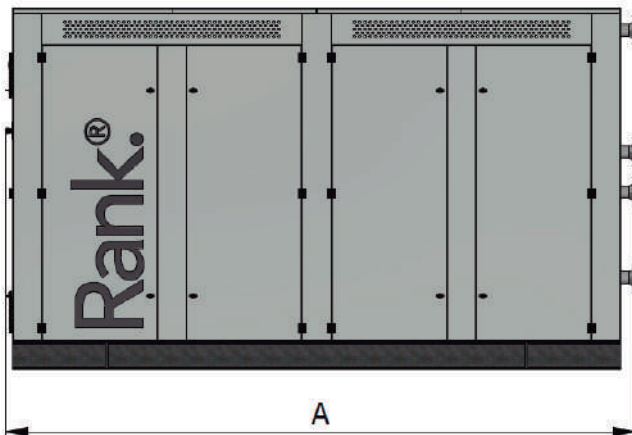
Container transport (optional)

HC 20'

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

HC (high cube)

Dimensions



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

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