

# Rank.<sup>®</sup> HP1

## Product description

In the case there are useful heat demands with temperatures above 100°C, the Rank<sup>®</sup> HP1 machine allows the generation of thermal powers up to 120 kWt.

It is a high temperature heat pump equipment, which uses low temperature heat sources (above 60°C) and has high efficiency values, with a COP of 4.



## What is it for

The Rank<sup>®</sup> HP equipment allows, through the use of a low temperature heat source, the production of useful heat at a higher temperature. For this they consume electrical energy, but efficiently.



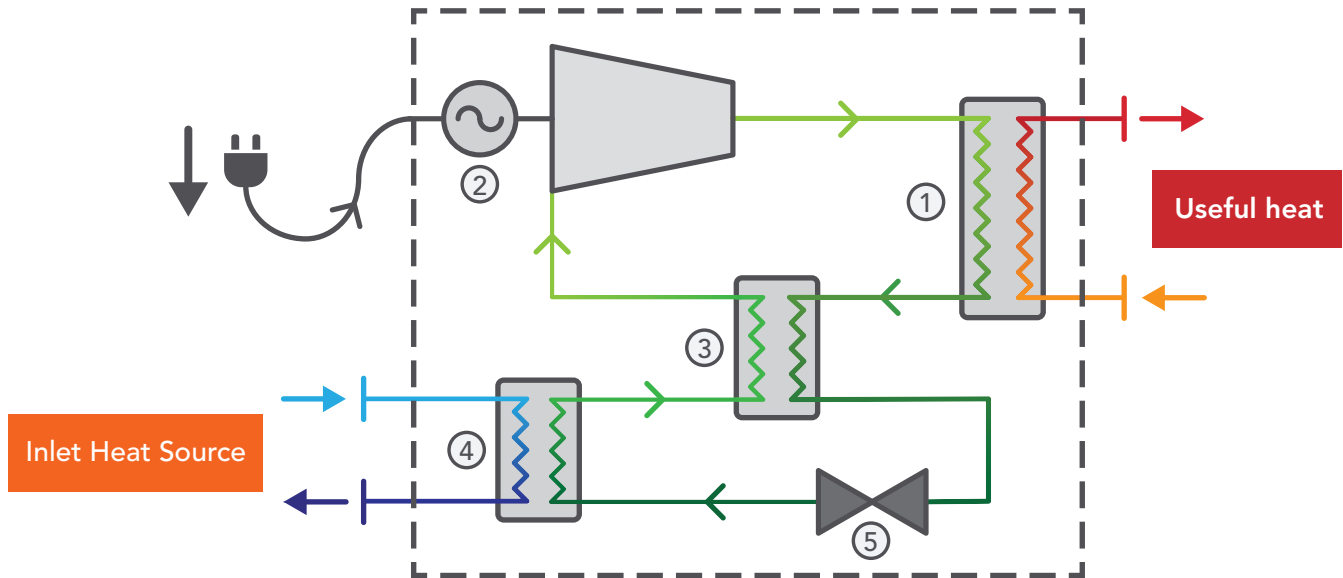
## A Rank<sup>®</sup> machine for every need

Whatever your need is, there is a Rank<sup>®</sup> machine that can be adapted to it, through a variety of products that cover a wide range of power.



# Rank® HP1

## How does it work



- |                   |  |
|-------------------|--|
| ① Condenser       | The condensation of the working fluid releases heat at high temperature (useful heat). |
| ② Compressor      | The working fluid circulates through the system thanks to the compressor.              |
| ③ Regenerator     | To increase the efficiency of the system, a regenerator is used.                       |
| ④ Evaporator      | The evaporator takes the low temperature heat from the source.                         |
| ⑤ Expansion valve | The expansion valve regulates the pressure levels on the system.                       |

## Energy and economic savings

The Rank® HP equipment has associated important energy and economic savings. This is because of the high values of COP they present.

A value of COP of 4 indicates that to generate 4 kWt of useful heat at high temperature, only 1 kW of electrical consumption is required. Obviously, it is a heat production much more efficient than an electrical resistance.

In addition, by using a quarter of the necessary energy, energy and economic savings are produced with respect to the use of fossil fuels. This is due to the use of a low temperature heat source and the high temperature heat pump cycle used.

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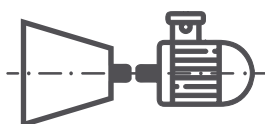
## Rank® Technology

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 compressor

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.



### 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.



### Internet Of Things

Real time data transmission via internet that allows, predictive maintenance by server data analysis, online supervision (PC, mobile phone, tablet, etc.) and remote configuration of working parameters.



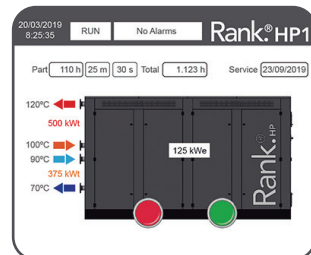
### Security

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.

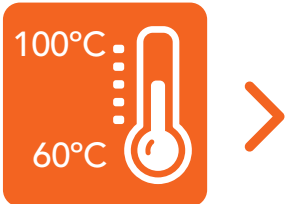

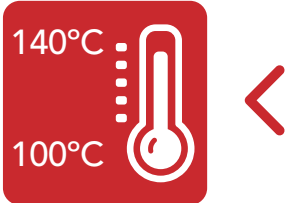


## Safety Regulations and Standards

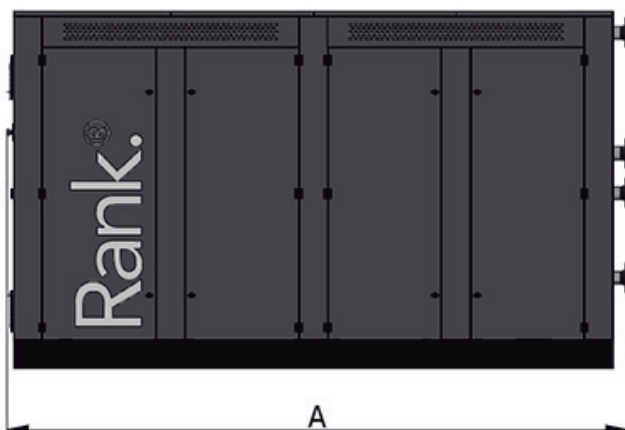
- Low voltage Directive
- Machinery Directive
- Electromagnetic Compatibility Directive
- Pressurized Equipment Directive
- ASME B31.1 – Power Piping Code, Mechanical
- ASME B31.3 – Process Piping Code
- ASME Boiler and Pressure Vessel Code Section VIII
- UL 508A- Control Panel Wiring
- EN/ISO 3744:2010

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## Technical Data

 <p>Inlet Heat source</p>	Heat transfer fluid	Water	-
	Inlet temperature	60-100	°C
	Outlet temperature	40-80	°C
	Volumetric flow rate	6	m <sup>3</sup> /h
	Thermal power	50-90	kWt
	Connections diameter	DN80 PN16	-
	Pressure drop	125	kPa
Heat transfer fluid inner volume		20	L
 <p>Electricity</p>	Power	15-30	kWe
	Voltage	3 x 400	V
	Frequency	50	Hz
	Intensity	54	A
 <p>Useful heat</p>	Heat transfer fluid	Water	-
	Inlet temperature	80-120	°C
	Outlet temperature	100-140	°C
	Volumetric flow rate	6	m <sup>3</sup> /h
	Thermal power	60-120	kWt
	Connections diameter	DN65 PN16	-
	Pressure drop	125	kPa
Heat transfer fluid inner volume		15	L
Data Connection		RJ45	-

## 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 the most accurate data and close to the final solution, these should be considered as indicative and not binding.