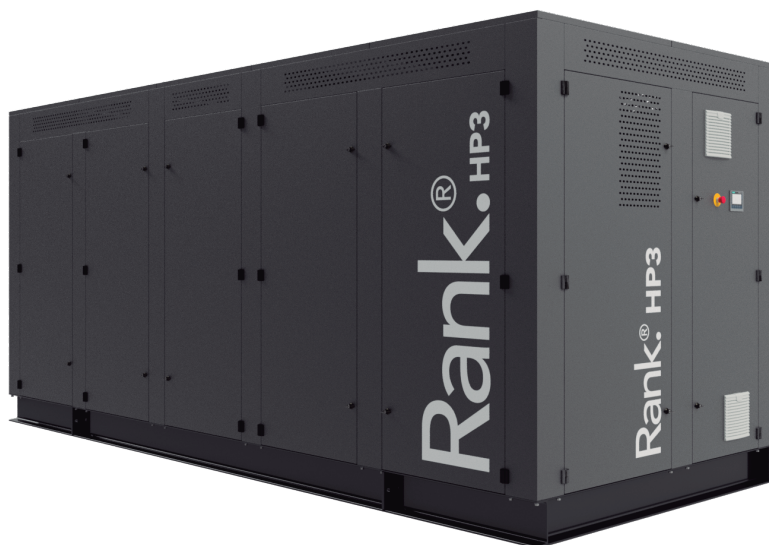


# Rank.<sup>®</sup> HP3

## Product description

If there is a heating requirement at a temperature above 100 °C, the Rank<sup>®</sup> HP3 machine can provide up to 500 kWt heating capacity.

Rank<sup>®</sup> HP3 is a high-temperature heat pump based on vapor compression technology, which uses low-temperature heat sources (above 60°C) and has high energy performance values, COP of 4.



## What is it for?

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



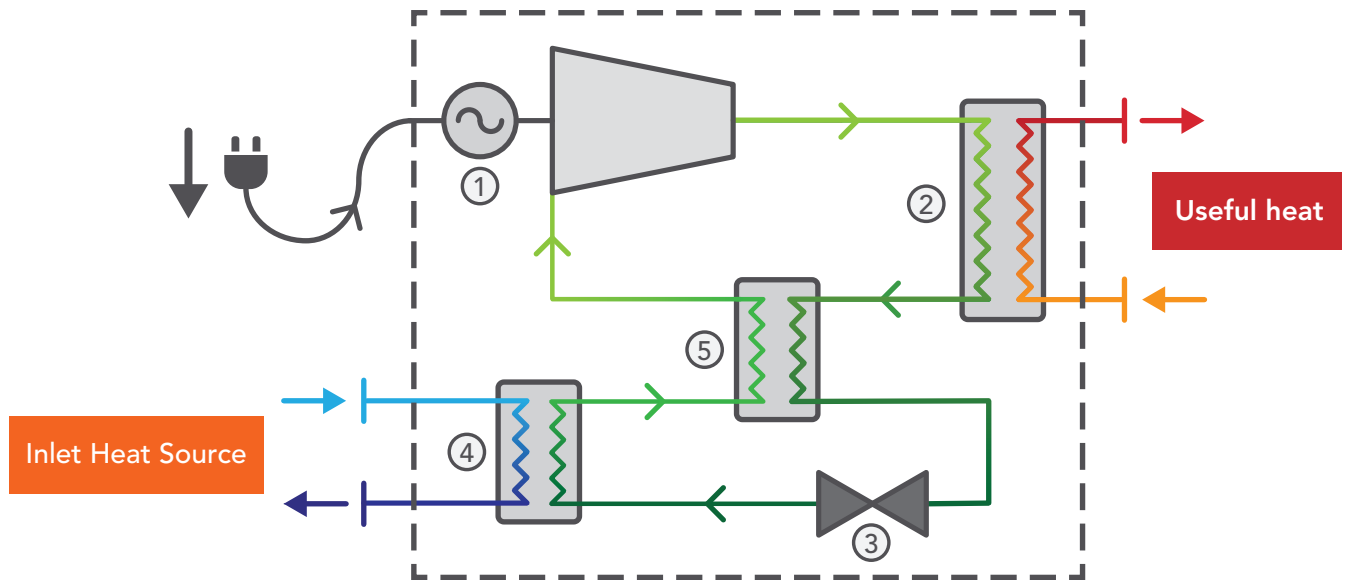
## A Rank<sup>®</sup> machine for every need

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.<sup>®</sup> HP3

## How does it work?



- |                   |                                                                                                                                             |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| ① Compressor      | The compressor suctions the working fluid and increases its pressure and temperature.                                                       |
| ② Condenser       | The working fluid condenses, releasing heat at a high temperature (useful heat).                                                            |
| ③ Expansion valve | The pressure of the working fluid is reduced to the evaporating condition.                                                                  |
| ④ Evaporator      | The low temperature heat source is exchanged in the evaporator.                                                                             |
| ⑤ IHX             | The intermediate heat exchanger (IHX), or liquid-to-suction heat exchanger (LSHX), is used to increase the energy performance of the system |

## Energy and economic savings

The Rank<sup>®</sup> 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 temperatures, only 1 kWe 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 concerning the use of fossil fuels. This is due to using a low-temperature heat source and the high-temperature heat pump cycle used.

# Rank® HP3

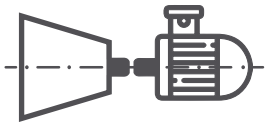
## Rank® Technology

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



### Rank® low-rpm compressor

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.



### 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 the internet allows predictive maintenance by server data analysis, online supervision (PC, mobile phone, tablet, etc.), and remote working parameters.



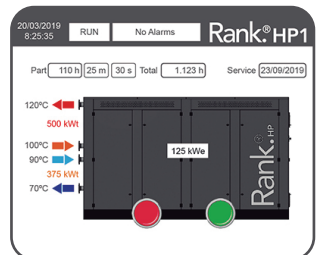
### Safety

It complies with all safety regulations and minimises the risk of accidents.



### Rank® service

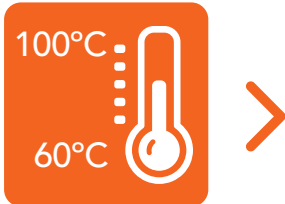

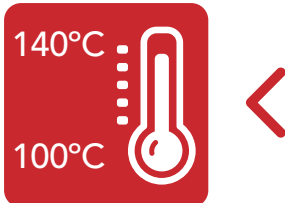
Real-time remote monitoring and predictive control of the machines and automatically generated reports.



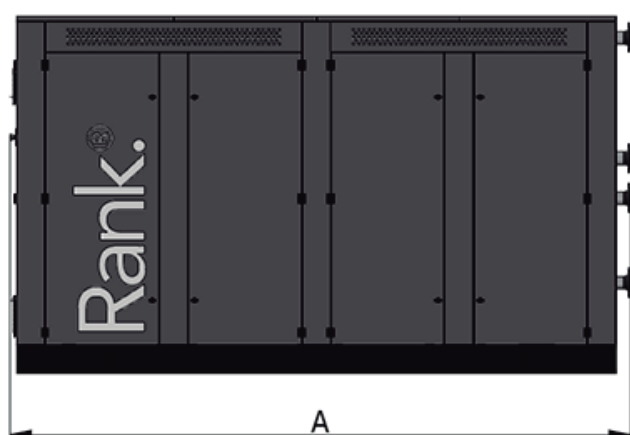
## Safety Regulations and Standards

- Low voltage Directive
- Machinery Directive
- Electromagnetic Compatibility Directive
- Pressurized Equipment Directive
- 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 transfer fluid	Water	-
	Inlet temperature	60-100	°C
	Outlet temperature	40-80	°C
	Volumetric flow rate	22	m <sup>3</sup> /h
	Thermal power	190-380	kWt
	Connections diameter	DN150 PN16	-
	Pressure drop	125	kPa
	Heat transfer fluid inner volume	120	L
	Power	60-120	kWe
	Voltage	3 x 400	V
	Frequency	50/60	Hz
	Intensity	220	A
	Heat transfer fluid	Water	-
	Inlet temperature	80-120	°C
	Outlet temperature	100-140	°C
	Volumetric flow rate	22	m <sup>3</sup> /h
	Thermal power	250-500	kWt
	Connections diameter	DN150 PN16	-
	Pressure drop	125	kPa
	Heat transfer fluid inner volume	120	L
	Data Connection	RJ45	-

## Dimensions



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