

Rank.[®] HP4

Product description

If there is a heating requirement at a temperature above 100 °C, the Rank[®] HP4 machine can provide up to 2 000 kWt heating capacity.

Rank[®] HP4 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[®] 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.



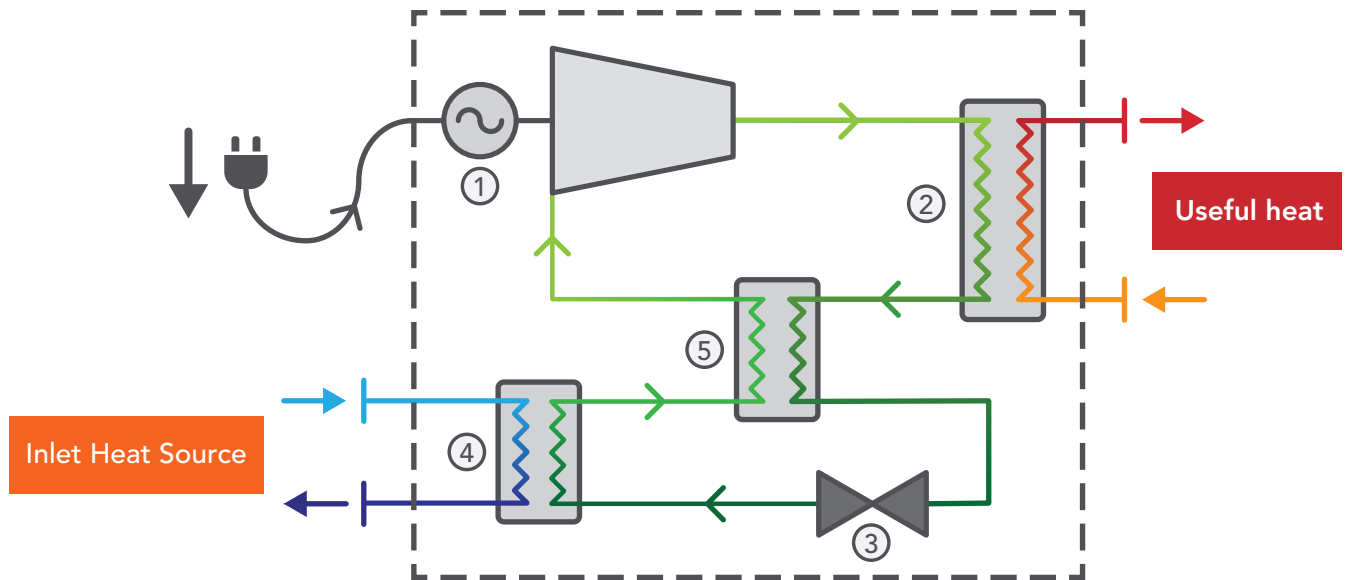
A Rank[®] machine for every need

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

100-140 °C	HP1	HP2	HP3	HP4
	120-240 kWt	250-500 kWt	500-1000 kWt	1000-2000 kWt

Rank.[®]HP4

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[®] 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.

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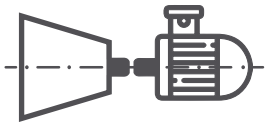
Rank® Technology

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



Rank® low-rpm 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.



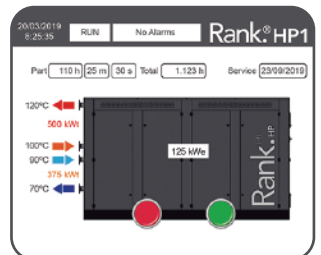
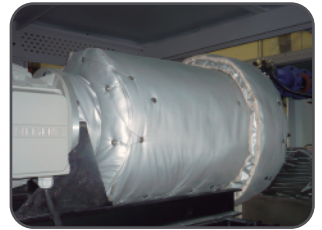
Safety

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



Rank® service

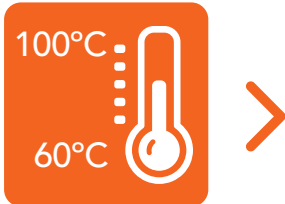

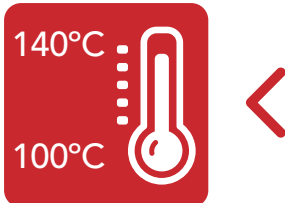
Real-time remote monitoring and predictive control of the machines and automatically generated reports.



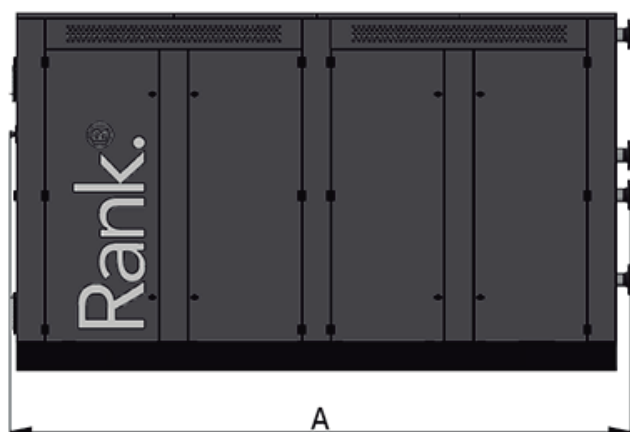
Safety Regulations and Standards

- 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	88	m ³ /h
	Thermal power	720-1520	kWt
	Connections diameter	DN150 PN16	-
	Pressure drop	125	kPa
	Heat transfer fluid inner volume	500	L
	Power	240-480	kWe
	Voltage	3 x 400	V
	Frequency	50/60	Hz
	Intensity	880	A
	Heat transfer fluid	Water	-
	Inlet temperature	80-120	°C
	Outlet temperature	100-140	°C
	Volumetric flow rate	88	m ³ /h
	Thermal power	1 000-2 000	kWt
	Connections diameter	DN150 PN16	-
	Pressure drop	125	kPa
	Heat transfer fluid inner volume	500	L
	Data Connection	RJ45	-

Dimensions



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