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SELECTION

Family POKER-PI
THAITP 150
Model THAITP 150 P1 3mod
Webcode PKI07



The images are for reference purposes only and may not represent exactly the models or the equipment subject of this document.

CONSTRUCTION FEATURES

Modular reversible heat pump with air condensation and helical fans. Series with hermetic scroll inverter compressors and environmentally friendly R290 refrigerant.

T - High temperature/efficiency version

P1 - Installation with pump

POWER SUPPLY: 400V/3PH/50HZ

TYPE OF COIL: BRH-COPP/ALLUM. HYDROPHIL COIL

CONDENSING CONTROL: FIEC-CONDENSING CONTROL

CONTROLS: LKD-GAS LEAK DETECTOR

ELECTRONIC EXPANSION VALVE: EEV-ELECTRONIC EXPANSION VALVE

EFFICIENCY OPTIMIZER: EEO - EER OPTIMIZER

COIL PROTECTION: RPB-COIL PROTECTION GRILLES

DRAIN PAN HEATER: RAB-DRAIN PAN ANTIFREEZE HEATER

EXCHANGER: PA-PLATE EXCHANGER

PRESSURE VISUALISATION DISPLAY: SPS-HIGH-LOW PRESSURE DISPLAY

PACKAGING TYPE: PROTECTIVE PACKAGING

- o Load-bearing structure and panels in galvanised and RAL 9018 painted sheet metal; galvanised steel sheet metal base.
- o The structure consists of two sections:
 - technical compartment dedicated to housing the compressors and the main components of the refrigeration circuit;
 - aeraulic compartment dedicated to housing the heat exchange coils and electric fans, including protection nets;
- o Ex ventilation system to ensure flushing of the technical compartment in the event of a refrigerant gas leak.
- o Scroll type rotary hermetic compressor with inverter activation to control variable capacity with peak current reduction during the start-up phase and power factor correction of the automatic utility towards the mains. They include thermal protection and casing heater activated automatically when the unit stops (as long as still electrically powered).
- o Adequately insulated, braze-welded plate water side heat exchanger in stainless steel.
- o Air-side heat exchanger consisting of copper tube coil and aluminium fins with hydrophilic surface treatment.
- o Helical electric fans with external rotor and permanent magnet motor, equipped with internal thermal protection and complete with protection grid.
- o 2 "GM male threaded hydraulic connections.
- o Differential pressure switch that protect the unit from any water flow interruptions.
- o Refrigerant circuit made from annealed copper tubing (EN 12735- 1-2) complete with: hermetic filter drier, charge connections, safety pressure switch on high pressure side with manual reset, pressure transducer BP and AP, safety valves on high and low pressure side, liquid sight glass, suction line insulation, electronic expansion valve, cycle reversal valve and liquid receiver, non-return valves, gas separator and suction tap on compressors (for heat pumps).
- o Easy-access pressure taps, complete with safety tap.
- o Unit with IP24 protection rating
- o Control with AdaptiveFunction Plus operation.
- o The unit is complete with a charge of R290 refrigerant.

ELECTRICAL PANEL

- o The electrical panel with IP54 protection rating can be accessed by opening the front panel, in compliance with EN 60204-1/IEC 60204-1 Standards in force, fitted with opening and closing via specific tool.
- o Complete with:
 - electrical wiring arranged for power supply 400-3ph-50Hz;
 - numbered electric cables;

- auxiliary circuit power supply 230V-1ph+N-50Hz derived from main power supply;
- main power supply switch with interlocking safety door isolator;
- auxiliary circuit, protected against refrigerant leakage, with safety chain conforming to Category 3 - PLd - SIL2 (according to IEC / EN 61508 and EN 13849)
- inverter compressor protection fuses;
- auxiliary circuit protection fuse;
- remote machine controls: ON/OFF and summer/winter selector;
- remote machine controls: compressor operating light and general lock light.
- o Programmable microprocessor electronic board handled by the keyboard inserted in the machine.
- o This electronic board performs the following functions:
 - regulation and management of the set points for unit outlet water temperature; cycle inversion (heat pumps); safety timer delays; circulating pump; compressor and system pump hour-run meter; defrost cycles; electronic anti-freeze protection which cuts in automatically when the machine is switched off; and the functions which control the operation of the individual parts making up the machine;
 - complete protection of the unit, possible shutdown and display of all the triggered alarms;
 - total compressor protection;
 - visual indication of the programmed set points on the display; of the in/out water temperature via the display; of the condensation and evaporation pressures, of the alarms via the display; and of chiller/heat-pump operating mode via display (heat pumps only);
 - user interface menu;
 - external temperature management for climatic set-point compensation (menu-enabled);
 - displayed inlet water temperature at the recovery desuperheater;
 - alarm code and description;
 - management of alarms log.
- o In particular, each alarm memorises:
 - date and time of intervention;
 - inlet/outlet water temperatures values when the alarm intervened;
 - the evaporation and condensation pressure values at the time of the alarm;
 - alarm delay time from the switch-on of the connected device;
 - compressor status at the time of the alarm;
- o Advanced functions:
 - pump energy-saving management;
 - Smart defrost management;
 - automatic management of anti-legionella cycles;
 - KPR desuperheater pump control for external electric pump supply (to be provided by the installer). For the unit to operate properly, activation of the recovery pump, by the installer, must be controlled by means of a specific discrete output provided in the board on the unit;
 - EEO function - Energy Efficiency Optimiser (standard, see section on Accessories).
 - LKD function - Leak Detector (standard, see Accessories section).
 - set-up for serial connection (SS/KRS485, BE/KBE, BM/KBM, KUSB accessory)
 - possibility to have a digital input for remote management of double set point (DSP);
 - possibility of having a digital input to manage desuperheater (CDS contact) or for production of domestic hot water by means of the 3-way diverter valve (CACS contact). In this case, there is the possibility of using a temperature probe instead of the discrete input. (refer to the specific section for more details);
 - option of having domestic hot water diverter valve (VACS) control;
 - possibility to have an analogue input for the shifting Set-point (CS) via a 4-20mA remote signal;
 - management of time bands and operation parameters with the possibility of daily/weekly functioning programs;
 - check-up and monitoring of scheduled maintenance status;
 - computer-assisted unit testing;
 - self-diagnosis with continuous monitoring of the unit functioning status.
- o MASTER/SLAVE management logic integrated in single systems - Refer to the specific section for more details
- o Set-point regulation via the AdaptiveFunction Plus with two options:
 - fixed set-point (Precision option);
 - set-point sliding (Economy option).

TECHNICAL DATA - THAITP 150 P1 3mod

Design parameters

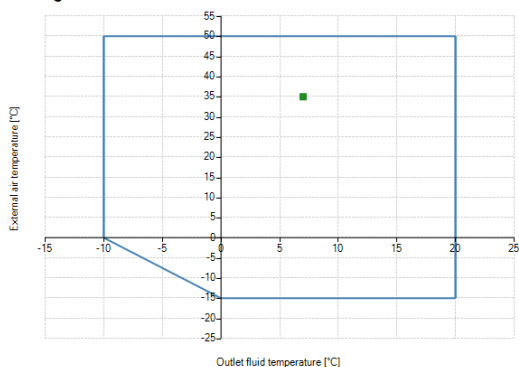
		Cooling	Heating
External air temperature	[°C]	35	-20
External air humidity	[%]	50	90
User side exchanger inlet fluid temperature	[°C]	12	55
User side exchanger outlet fluid temperature	[°C]	7	60
Altitude	[m]	0	
User side exchanger fluid		Ethylene glycol 30%	Ethylene glycol 35%
Fouling factor	[m ² °C/kW]	0	0

Performances (1)

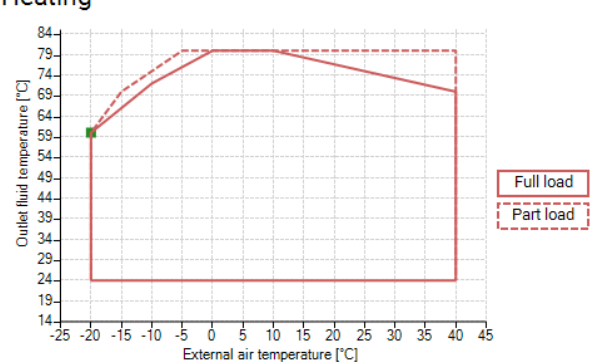
<i>At design conditions:</i>		Cooling	Heating
Capacity (gross)	[kW]	120,9	73,9
Absorbed power (gross)	[kW]	50,5	54,2
EER (gross)		2,39	
COP (gross)			1,36
Part load	[%]	100	
Capacity (UNI EN 14511)	[kW]	121,1	73,6
EER (UNI EN 14511)		2,41	
COP (UNI EN 14511)			1,34

Functioning limits

Cooling



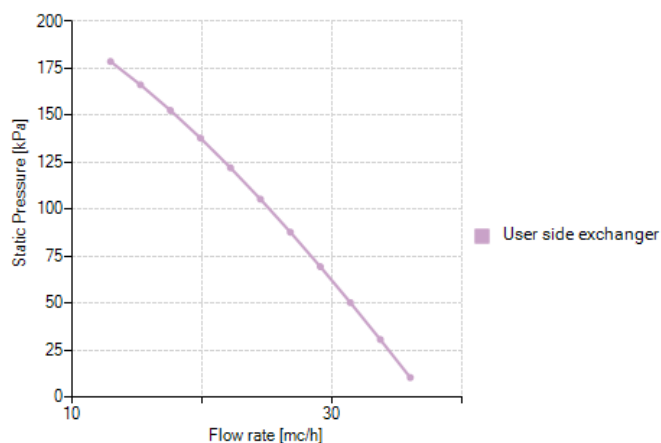
Heating



User side exchanger

		Cooling	Heating
Flow rate	[m ³ /h]	22,6	13,8
Static Pressure	[kPa]	119	170

Static Pressure



Fans

Type:	Axial
Fan number	3
Consumption for each	[kW] 0,9
Air flow rate	[m³/h] 45000

Technical features

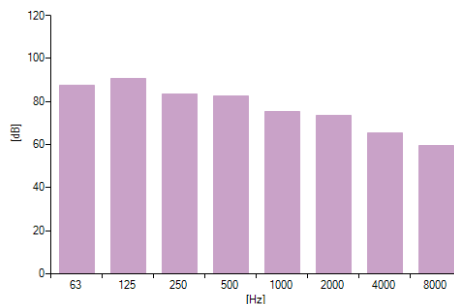
Refrigerant: (6)	R290 (A3)
Amount of refrigerant (7)	[kg] 12,6
Global Warming Potential (GWP)	0,02
Equivalent CO ₂	[ton] 0
Compressors	Inverter
Oil charge	[kg] 9.6
Number of compressors	3
Number of independent circuits	3

Noise

Sound Power level (2)	[dBA] 84
Sound Pressure level (10m) (3)	[dBA] 52
Sound Pressure level (1m) (3)	[dBA] 65

(Performance given without pump)

[Hz]	[dB]
63	88
125	91
250	84
500	83
1000	76
2000	74
4000	66
8000	60



Electrical data

		Cooling	Heating
Total electrical power (4)	[kW]	52,3	56,1
Pump nominal power	[kW]	0,78	
Pump absorbed power	[kW]	1,84	
Electrical power supply	[V-ph-Hz]	400-3-50	
Nominal current (5)	[A]	81,6	
Maximum current	[A]	128,1	

Size and weight

Length	[mm]	3692
Height	[mm]	2335
Depth	[mm]	1320
Empty weight (7)	[kg]	1905
User side inlet/outlet connections	Ø	2" GM

Partial loads

Cooling

Outlet fluid temperature	°C	7									
External air temperature	°C	35									
Load	%	100	90	80	70	60	50	40	30	20	10
Capacity (GROSS VALUE)	kW	120,9	109,3	97,1	84,8	72,8	60,6	48,6	36,4	24,3	12,1
EER (GROSS VALUE)		2,39	2,61	2,8	3,16	3,29	3,63	3,64	3,5	3,86	3,85
Capacity (UNI EN 14511)	kW	121,1	109,6	97,4	85,1	73,1	60,9	48,8	36,7	24,3	12,3
EER (UNI EN 14511)		2,41	2,63	2,82	3,19	3,32	3,67	3,7	3,57	3,97	4,08

Flow rate determined at full load condition

Partial loads

Heating

Outlet fluid temperature	°C	60									
External air temperature	°C	-20									
Load	%	100	90	80	70	60	50	40	30	20	10
Capacity (GROSS VALUE)	kW	73,9	66,8	59,4	52	44,5	37,1	29,6	22,2	14,8	7,4
COP (GROSS VALUE)		1,36	1,52	1,6	1,69	1,7	1,66	1,56	1,6	1,65	1,34
Capacity (UNI EN 14511)	kW	73,6	66,6	59,1	51,7	44,3	36,8	29,4	22	14,6	7,4
COP (UNI EN 14511)		1,34	1,5	1,57	1,66	1,66	1,61	1,5	1,52	1,49	1,12

Flow rate determined at full load condition

SCOP (EN 14825)

	AVERAGE	AVERAGE
Reference heating season	LOW	MEDIUM
Application type	LOW	MEDIUM
Application temperature [°C]	35	55
Tdesign [°C]	-10	-10
Water flow	FIXED	FIXED
Outlet water temperature	VARIABLE	VARIABLE
Bivalent temperature [°C]	-7	-7
Pdesign = Prated [kW]	118	115
SCOP net	4,51	3,71
SCOP	4,46	3,68
Seasonal efficiency (Reg.813/2013 UE) [%]	176	144
Efficiency class (Reg.811/2013 UE)	-	-

The SCOP values could be different from what published in the commercial documentation. This is possibly due to a different unit configuration and/or to different selected parameters

SEER (EN 14825)

Application type	LOW
Application temperature [°C]	7
Tdesign [°C]	35
Water flow	FIXED
Pdesign = Prated [kW]	124,8
SEER	4,68
Seasonal efficiency (Reg.2016/2281 UE) [%]	184

RHOSS reserves the right to make the changes it deems necessary to improve / update the data at any time and without prior notice.

Note

- (1) Performances at the nominal operating frequency of the compressor.
- (2) Standard reference UNI EN-ISO 9614
- (3) Standard reference UNI EN-ISO 3744
- (4) Total absorbed power at selected conditions (compressors, fans if present and pumps if selected)
- (5) Referred to nominal conditions: Ta: 35°C Tw:12/7°C
- (6) Regulated transport ADR UN 3358
- (7) The value is indicative and may be subject to change based on the selected accessories