

Reference: 90 Tottenham Court Rd – Super Quiet ASHP

Date 28/11/2019

SELECTION

Family	WinPACK HE-A
	THAEQY 2110-4340
Model	THAEQY 2220 ASDP1
Webcode	WKE11



The images are for reference purposes only and may not represent exactly the models or the equipment subject of this document.
The certified standard performances and the certified software tool version can be verified in www.eurovent-certification.com

CONSTRUCTION FEATURES

Packaged heat pumps with air evaporation/condensation and R410A ecological refrigerant. Range with hermetic scroll compressors.
Q - Super-silenced version with soundproofed compressors and low fan speed
ASDP1 - Installation with double pump and storage tank. (550 l)

POWER SUPPLY: 400V/3PH/50HZ
ANTIVIBRATIONS MOUNTINGS: SAM3- SPRING ANTIV.M.ASP/ASDP
TYPE OF COIL: RAP-COPP/PREPAINT. ALLUM.COIL
AUXILIARY INPUT: CS-SHIFTING SET-POINT
CONDENSING CONTROL: FI15-CONDENSING CONTROL
CONTROLS: LKD-GAS LEAK DETECTOR
VOLTAGE CONTROL: CMT-MIN-MAX VOLTAGE CONTROL
ELECTRONIC EXPANSION VALVE: EEV-ELECTRONIC EXPANSION VALVE
COMPR. SOUNDJACKET: CAC - COMPR. SOUNDJACKET
BMS CONNECTION: SS-RS485 SERIAL INTERFACE MODB
EFFICIENCY METER: EEM - ENERGY EFFICIENCY METER
EVAPORATOR ANTIFREEZE HEATER: RA-EVAPORATOR ELECTRIC. HEATER
ANTIFREEZE PUMPING GROUP: RAE2-DOUBLE PUMP ELEC.HEATER
POWER FACTOR CORR.CAPACITOR: CR-POWER FACTOR CORR.CAPACITOR
TANK ELECTRICAL HEATER: RAS-TANK ANTIFREE ELECT.HEATER
COMPRESSORS VALVES: RS-INLET/OUTLET SHUT-OFF VALVE
EXCHANGER: PA-PLATE EXCHANGER
SOFT STARTER: SFS - SOFT-STARTER
SOUNDPROOFING: BC160-INSULATED COMPRESSOR BOX
PRESSURE VISUALISATION DISPLAY: SPS-HIGH-LOW PRESSURE DISPLAY
PACKAGING TYPE: PROTECTIVE PACKAGING
SAFETY VALVE: DVS - DOUBLE SAFETY VALVE

- Load-bearing structure and panels in galvanised and RAL 9018 painted sheet metal; galvanised steel sheet metal base.
- The structure consists of two sections:
 - technical compartment that houses the compressors, electrical panel and main components of the cooling circuit;
 - aeraulic circuit to house the heat exchange coils and motor-driven fans
- Hermetic, Scroll-type rotary compressors complete with internal circuit breaker protection and crankcase resistance automatically activated when the unit stops (as long as the unit is powered).
- Adequately insulated, braze-welded plate water side heat exchanger in stainless steel (tube and shell exchanger - STE option).
- Air side heat exchanger with MCHX micro-channel pipes or copper coil pipes and aluminium fins:
- External rotor axial motor-driven fans equipped with internal thermal protection and complete with a protection grille set in a single row for 2-compressor units and in a double row for 4-compressor units.
- The Q-Super silenced version has a standard electronic proportional device (FI15) for pressurised and continuous adjustment of the fan rotation speed, up to a minimum outdoor air temperature of -15°C when operating as a chiller, and up to a maximum outdoor air temperature of 40°C when operating as a heat pump.
- Victaulic-type hydraulic connections.
- Differential pressure switch to protect the unit against possible water flow interruptions.
- Cooling circuits made with annealed copper pipes (EN 12735-1-2) equipped with: dryer filter cartridge, load connections, high pressure side manual reset safety pressure switch, BP and AP pressure transducer, valve/safety valve, tap upstream of the filter, electronic expansion valve, liquid indicator, intake line isolation, cycle inversion and liquid receiver valve, check valve, compressor intake gas separator and solenoid valve on the liquid line.

- Unit with IP24 rate.
- Control with AdaptiveFunction Plus operation.
- The unit is supplied with an amount of R410A refrigerant fluid.

ELECTRICAL PANEL

- Electrical panel can be accessed by opening the front panel, in compliance with IEC Standards in force, fitted with opening and closing via specific tool.
- Complete with:
 - electrical cables prepared for 400-3ph-50Hz power supply voltage;
 - auxiliary circuit power supply 230V-1ph-50Hz drawn from the main power supply;
 - 12V-1ph-50Hz control power supply drawn from the main power supply;
 - power supply isolator master switch, complete with safety door locking device;
 - automatic circuit breaker protection for compressors and motordriven fans;
 - auxiliary circuit protection fuse;
 - compressor power contactor;
 - machine remote controls: ON/OFF summer-winter switch;
 - machine remote controls: compressor operation light and main lock light.
- Programmable microprocessor electronic board handled by the keyboard inserted in the machine.
- This electronic board performs the following functions:
 - regulation and control of the unit outlet water temperature settings; of the cycle inversion; of the safety timers; of the circulation pump; of the system compressor and pump hour-run meter; dei cicli di sbrinamento; of the pressurised defrost cycles; electronic anti-freeze protection that is automatically activated when the unit is off; and of the functions that control the operations of the individual parts making up the unit;
 - complete protection of the unit, possible shutdown and display of all the triggered alarms;
 - compressor protection phase sequence monitor;
 - unit protection against low or high phase power supply voltage;
 - display of the programmed set points on the display; of the water in/out temperatures on the display; of the condensation and evaporation pressures; of the electrical voltage values in the three phases of the electrical circuit that powers the unit; of the alarms on the display; of the chiller or heat pump function on the display;
 - user interface menu;
 - automatic pump operating time balance;
 - automatic activation of standby pump in the event of an alarm;
 - alarm code and description;
 - alarms log management (menu protected by manufacturer password).
- In particular, for every alarm, the following are memorised:
 - date and time of intervention;
 - in/out water temperature values as soon as the alarm was triggered;
 - 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;
- Advanced functions:
 - Hi-Pressure Prevent function with forced partialisation of the cooling capacity with high outdoor temperature (with summer operation);
 - prepared for serial connection (SS, FTT10, KBE, KBM, KUSB accessory);
 - possibility to have discrete input for dual Set point remote management (DSP);
 - possibility of having a discrete input for total recovery management (RC100), the desuperheater (DS) or for the production of domestic hot water by means of a 3-way diverter valve (VDEV). In this case, there is the possibility of using a temperature probe instead of the discrete input. (see specific section for more information);
 - possibility to have an analogue input for sliding Set point by means of a 4-20mA remote signal(CS);
 - time bands and process parameters management with the possibility of programming weekly/daily operation;
 - check-up and verification of the programmed maintenance status;
 - computer-assisted machine test;
 - self-diagnosis with continuous monitoring of the machine operation status.
- Set-point regulation via the AdaptiveFunction Plus with two options:
 - fixed set-point (Precision option);
 - set-point sliding (Economy options).

TECHNICAL DATA - THAEQY 2220 ASDP1

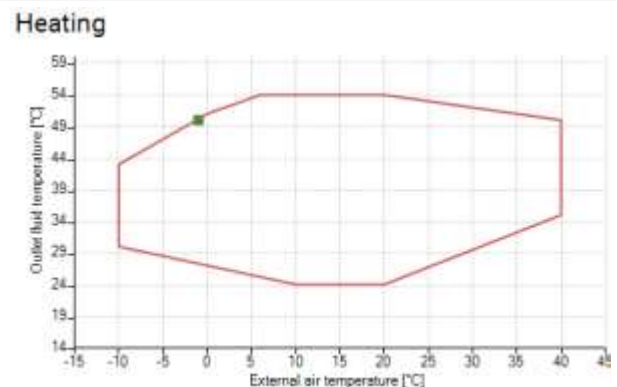
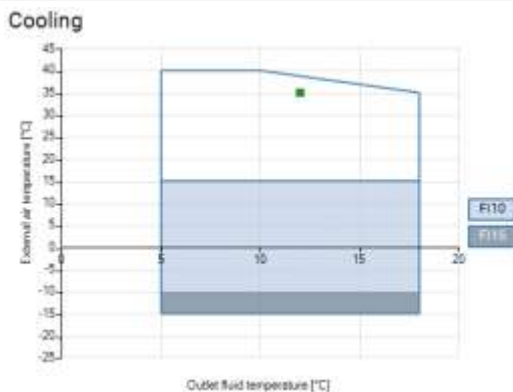
Design parameters

		Cooling	Heating
External air temperature	[°C]	35	-1
External air humidity	[%]	50	90
User side exchanger inlet fluid temperature	[°C]	18	45
User side exchanger outlet fluid temperature	[°C]	12	50
Altitude	[m]	0	
User side exchanger fluid		Water	Water
Fouling factor	[m ² °C/kW]	0.035	0.035

Performances

<i>At design conditions:</i>		Cooling	Heating
Capacity (gross)	[kW]	212.8	183.2
Absorbed power (gross)	[kW]	84.0	73.8
EER (gross)		2.53	
COP (gross)			2.48
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Capacity (UNI EN 14511/2018)	[kW]	214.4	181.7
EER (UNI EN 14511/2018)		2.53	
COP (UNI EN 14511/2018)			2.44
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<i>At Eurovent conditions:</i>			
ESEER (UNI EN 14511/2018)		3.84	
EER 100% (UNI EN 14511/2018)		2.37	
EER 75% (UNI EN 14511/2018)		3.30	
EER 50% (UNI EN 14511/2018)		4.18	
EER 25% (UNI EN 14511/2018)		4.17	
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<i>Adaptive Function Plus:</i>			
ESEER+		4.49	

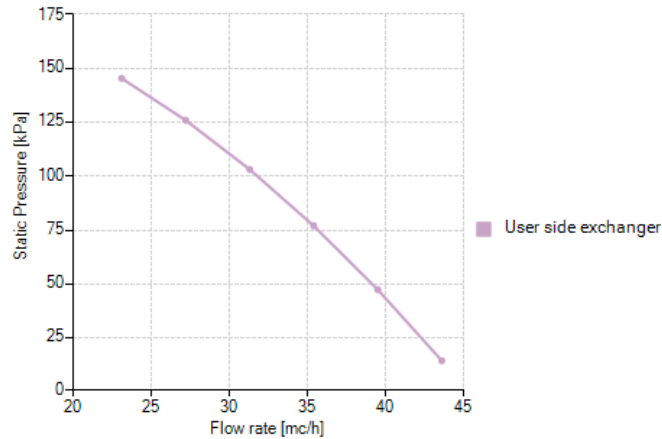
Functioning limits



User side exchanger

Flow rate	[m ³ /h]	30.5	31.5
Static Pressure	[kPa]	107	102

Static Pressure



Fans

Type:		Axial
Fan number		4
Consumption for each	[kW]	0.6
Air flow rate	[m ³ /h]	44200

Technical features

Refrigerant:		R410A
Compressors		Scroll
Number of compressors		2
Number of independent circuits		1
Number of compressor steps		2

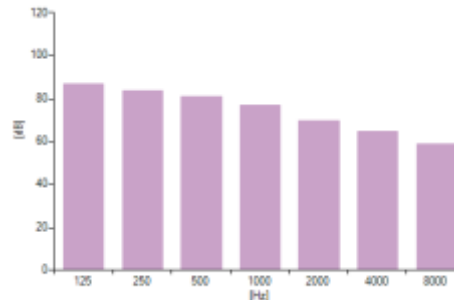
Noise

Unit without additional options for noise reduction

Sound Power level (1)	[dBA]	82
Sound Pressure level (10m) (2)	[dBA]	50
Sound Pressure level (1m) (2)	[dBA]	62.5

(Performance given without pump)

[Hz]	[dB]
125	87
250	84
500	81
1000	77
2000	70
4000	65
8000	59



Unit with additional options for noise reduction

Sound Power level (1)	[dBA]	81
Sound Pressure level (10m) (2)	[dBA]	49
Sound Pressure level (1m) (2)	[dBA]	62

with the following options

CAC - COMPR. SOUNDJACKET

(Performance given without pump)

Electrical data

Total electrical power (3)	[kW]	86.2	76.0
Pump electrical power	[kW]	2.2	
Electrical power supply	[V-ph-Hz]	400-3-50	
Auxiliary power supply	[V-ph-Hz]	230-1-50	
Nominal current (4)	[A]	136.5	
Maximum current	[A]	163.5	
Starting current	[A]	385.5	
Starting current SFS	[A]	265.5	

Size and weight

Length	[mm]	4550
Height	[mm]	2440
Depth	[mm]	1350
Weight (5)	[kg]	2100
Oil charge	[kg]	9.8
Amount of refrigerant (5)	[kg]	79

Partial loads

Cooling

Load	%	100	90	80	70	60	50	40	30	20	10
Outlet fluid temperature	°C	12	12	12	12	12	12	12	12	12	12
External air temperature	°C	35	35	35	35	35	35	35	35	35	35
Capacity (GROSS VALUE)	kW	212.8	191.5	170.3	149	127.7	106.4	85.1	63.8	42.6	21.3
EER (GROSS VALUE)		2.53	2.57	2.7	2.9	3.21	3.24	3.15	3.01	2.77	2.22

Flow rate determined at full load condition

Heating

Load	%	100	90	80	70	60	50	40	30	20	10
Outlet fluid temperature	°C	50	50	50	50	50	50	50	50	50	50
External air temperature	°C	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Capacity (GROSS VALUE)	kW	183.2	164.9	146.6	128.2	109.9	91.6	73.3	55	36.6	18.3
COP (GROSS VALUE)		2.48	2.42	2.43	2.45	2.47	2.48	2.42	2.32	2.15	1.75

Flow rate determined at full load condition

SCOP (EN 14825)

Reference conditions

	AVERAGE	WARMER	-
Reference heating season			
Application type	LOW	LOW	-
Application temperature [°C]	35	35	-
Tdesign [°C]	-10	2	-
Water flow	FIXED	FIXED	-
Outlet water temperature	VARIABLE	VARIABLE	-
Bivalent temperature [°C]	-6	3	-
Pdesign [kW]	188	220	-
Annual Heating Demand Q _{he} [kWh]	108,084	66,862	-
SCOP net	3.64	4.43	-
SCOP	3.59	4.40	-
Seasonal efficiency (Reg.813/2013 UE) [%]	141%	173%	-
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

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

Note

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| (1) | Standard reference UNI EN-ISO 9614 |
| (2) | Standard reference UNI EN-ISO 3744 |
| (3) | Total absorbed power (compressors, fans if present and pumps if selected) |
| (4) | Referred to nominal conditions: Ta: 35°C Tw:12/7°C |
| (5) | The value is indicative and may be subject to change based on the selected accessories |