

User Darius Trifan (ROMSTAL BULGARIA)

Date 9.5.2018 r.

Reference:

SELECTION

Family	Compact-Y MD
	THAEY 133-265
Model	THAEY 250
Webcode	CY011



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

CONSTRUCTION FEATURES

Packaged air-cooled reversible heat pump with axial fans. Range with hermetic Scroll compressors and R410A refrigerant gas.

POWER SUPPLY: 400V/3PH+N/50HZ

TYPE OF COIL: BRA-COPPER/ALLUMINIUM COIL

CONDENSING CONTROL: FI10-CONDENSING CONTROL -10°

COIL PROTECTION: RPB-COIL PROTECTION GRILLES

TYPE OF PACKAGE: PROTECTIVE PACKAGING

E968573737: KSA - RUBBER ANTIVIBRATION MOUNTINGS

- Load-bearing structure and panels in galvanised and painted sheet steel (RAL 9018); base in galvanised sheet steel.
 - Hermetic, Scroll-type rotary compressors, complete with internal thermal protection and crankcase heater activated automatically when the unit stops (as long as the power supply to the unit is preserved).
 - Water side, braze welded plate heat exchanger in stainless steel, complete with antifreeze electric heater and suitably insulated.
 - Air side heat exchanger comprised of a coil of copper pipes and aluminium fins.
 - Double motor-driven, spiral fan with external rotor, fitted with internal thermal protection and complete with protection grille.
 - Proportional electronic device for the pressurised and continuous regulation of the fan rotation speed down to an external air temperature of -10°C when operating as a chiller and up to an external air temperature of 40°C when operating as a heat pump.
 - Male threaded hydraulic connections.
 - Differential pressure switch that protects the unit from any interruptions to the water flow.
 - Refrigerant circuit realized with annealed copper tube (EN 12735-1-2) complete with: filter drier, charge connections, safety pressure switch on the high pressure side, pressure switch on the low pressure side, safety valve, thermostatic expansion valve, cycle inversion valve, liquid receiver, 2 check valves and gas separator.
 - Unit with IP24 level of protection.
 - Compatible control, with AdaptiveFunction Plus function.
- The unit is complete with the R410A refrigerant charge.

ELECTRICAL PANEL

○ Electrical board accessible by opening the front panel, conforming with current IEC norms, can be opened and closed with a suitable tool.

○ Complete with:

- electrical wiring arranged for power supply 400-3ph+N-50Hz;
- auxiliary power supply 230V-1ph-50Hz drawn from the main power supply;
- general isolator, complete with door interlocking isolator;
- automatic compressor, pump and fan protection switch;
- protection fuse for auxiliary circuit;
- compressor, pump and fan power contactor;
- remote unit control.

○ Programmable electronic board with microprocessor, controlled by the keyboard inserted in the machine.

○ This electronic board performs the following functions:

- Regulation and management of the outlet water temperature set points; of the shutter steps; of cycle reversal; of the safety timer delays; of the circulating pump; of the compressor and system pump hour-run meter; of defrost cycles at pressure; of the electronic anti-freeze protection which cuts in automatically when the machine is switched off; and of the functions which control the operation of the individual parts making up the machine;
- complete protection of the unit, automatic emergency shutdown and display of the alarms which have been activated;
- compressor protection phase sequence monitor;

- unit protection against low or high phase power supply voltage;
- visual indication of the programmed set points on the display; of the inlet/outlet water temperature via the display; of the alarms via the display; and of cooling/heat-pump operating mode via LEDs;
- self-diagnosis with continuous monitoring of the functioning of the unit;
- user interface menu;
- automatic pump operating hour balancing (DP1-DP2, ASDP1- ASDP2 installations);
- automatic stand-by pump activation in the event of an alarm (DP1- DP2, ASDP1- ASDP2 installations);
- alarm code and description;
- alarm history management (menu protected by manufacturer password).
- The following is memorized for each alarm:
 - date and time of intervention (if the KSC accessory is present);
 - alarm code and description;
 - inlet/outlet water temperatures when the alarm intervened;
 - alarm delay time from the switch-on of the connected device;
 - compressor status at moment of alarm;
- Advanced functions:
 - configured for serial connection (KRS485, KFTT10, KRS232 and KUSB accessory);
 - possibility to have a digital input for remote management of the double set point (contact RHOSS S.p.A. pre-sales).
 - possibility to have an analogue input for the scrolling set-point via a 4-20mA remote signal (contact RHOSS S.p.A. pre-sales);
 - configured for management of time bands and operation parameters with the possibility of daily/weekly operating programs (KSC accessory);
 - check-up and monitoring of scheduled maintenance status;
 - testing of the units assisted by computer;
 - self-diagnosis with continuous monitoring of the functioning of the unit.
- Set-point regulation through Adaptive Function Plus with two options:
 - fixed set-point (Precision options);
 - scrolling set-point (Economy option).

TECHNICAL DATA - THAEY 250

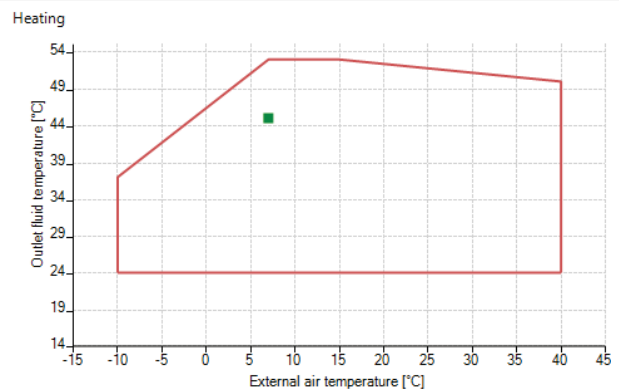
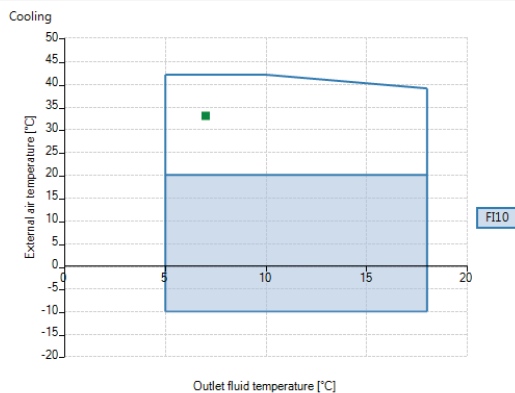
Design parameters

		Cooling	Heating
External air temperature	[°C]	33	7
External air humidity	[%]	50	90
Evaporator Inlet fluid temperature	[°C]	12	
Evaporator Outlet fluid temperature	[°C]	7	
Condenser Inlet fluid temperature	[°C]		40
Condenser Outlet fluid temperature	[°C]		45
Altitude	[m]	0	
Main exchanger fluid		Ethylen glycole 15%	Ethylen glycole 15%
Fouling factor	[m ² °C/kW]	0,035	0,035

Performances

<i>At design conditions:</i>		Cooling	Heating
Capacity (gross)	[kW]	51,3	55,8
Absorbed power (gross)	[kW]	17,7	18,7
EER (gross)		2,89	
COP (gross)			2,98
<hr/>			
Capacity (UNI EN 14511/2013)	[kW]	51,0	56,1
EER (UNI EN 14511/2013)		2,83	
COP (UNI EN 14511/2013)			2,95
<hr/>			
<i>At Eurovent conditions:</i>			
ESEER (UNI EN 14511/2013)		4,20	
EER 100% (UNI EN 14511/2013)		2,68	
EER 75% (UNI EN 14511/2013)		3,80	
EER 50% (UNI EN 14511/2013)		4,43	
EER 25% (UNI EN 14511/2013)		4,57	
<hr/>			
<i>Adaptive Function Plus:</i>			
ESEER+		4,98	

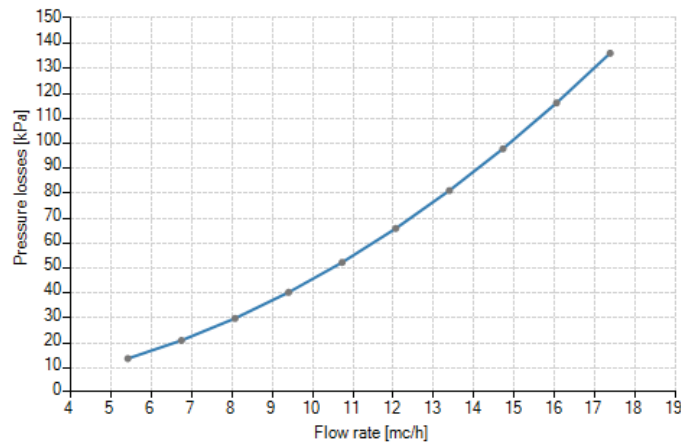
Functioning limits



Main exchanger

Flow rate	[m ³ /h]	9,1	9,9
Pressure losses	[kPa]	37	37

Pressure losses



Fans

Type:	Axial
Fan number	2
Consumption for each	[kW] 0,78
Air flow rate	[m ³ /h] 19500

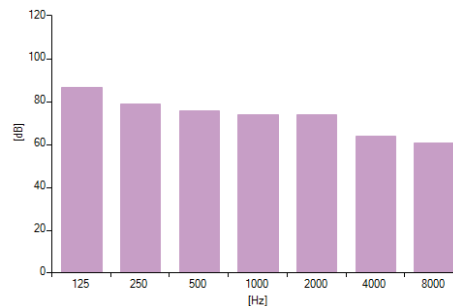
Technical features

Refrigerant:	R410A
Compressors	Scroll
Number of compressors	2
Number of independent circuits	1
Number of compressor steps	3

Noise

Sound Power level (1)	[dBA] 80
Sound Pressure level (5m) (2)	[dBA] 56

[Hz]	[dB]
125	87
250	79
500	76
1000	74
2000	74
4000	64
8000	61



Electrical data

Total electrical power (3)	[kW]	17,7	18,7
Electrical power supply	[V-ph-Hz]	400-3+N-50	
Auxiliary power supply	[V-ph-Hz]	230-1+N-50	
Nominal current (4)	[A]	30,6	
Maximum current	[A]	43,9	
Starting current	[A]	150	

Size and weight

Length	[mm]	2315
Height	[mm]	1570
Depth	[mm]	1000
Weight (5)	[kg]	615
Amount of refrigerant	[kg]	19

Heating

Load	%	100	90	80	70	60	50	40	30	20	10
Outlet fluid temperature	°C	45	45	45	45	45	45	45	45	45	45
External air temperature	°C	7	7	7	7	7	7	7	7	7	7
Capacity (GROSS VALUE)	kW	55,8	50,2	44,6	39	33,5	27,9	22,3	16,7	11,2	5,6
COP (GROSS VALUE)		2,98	2,95	2,92	2,87	2,81	2,74	2,64	2,54	2,39	2,04
COP (UNI EN 14511:2013)		2,95	2,9	2,86	2,81	2,75	2,67	2,56	2,48	2,33	1,99

Flow rate determined at full load condition

SCOP (EN 14825)

Reference heating season	Reference conditions		
	AVERAGE	WARMER	COLDER
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]	-4	4	-
Pdesign [kW]	56	64	-
Annual Heating Demand Qhe [kWh]	32 255	19 214	-
SCOP net	3,71	4,51	-
SCOP	3,59	4,45	-
Seasonal efficiency (Reg.813/2013 UE) [%]	140 %	175 %	-
Efficiency class (Reg.811/2013 UE)	A+	A+++	-

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

Note

(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