

User **Klima-Therm**

Date **20/11/2017**

SELECTION

Family	WinPACK SE
	TCAEBY 2110-4340 BT
Model	TCAEBY 2220 BT
Webcode	WK011



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 water chillers and R410A ecological refrigerant. Series with hermetic Scroll compressors.
BT - Low temperature water production**

POWER SUPPLY: 400V/3PH/50HZ
ANTIVIBRATIONS MOUNTINGS: SAG1- RUBBER ANTIVIBR. MOUNT.
TYPE OF COIL: MCHX-MICROCHANNELS
WORKING COND. LOW TEMPERATURE: LWT-SET-POINT H2O -3°C
CONDENSING CONTROL: FI10-CONDENSING CONTROL -10°
VOLTAGE CONTROL: CMT-MIN-MAX VOLTAGE CONTROL
ELECTRONIC EXPANSION VALVE: EEV-ELECTRONIC EXPANSION VALVE
SETTING CONNECTION: SS-SERIAL INTERFACE RS485 MODB
EVAPORATOR ANTIFREEZE HEATER: RA - EVAPORATOR TRACE HEATER
ELECTRIC PANEL HEATER: RQE-ELECTRIC PANELTRACE HEATER
EXCHANGER: PA-PLATE EXCHANGER
PRESSURE VISUALISATION DISPLAY: SPS -HIGH-LOW PRESSURE DISPLAY
TYPE OF PACKAGE: PROTECTIVE PACKAGING
SAFETY VALVE: DVS - DOUBLE SAFETY VALVE

E968573918: KBM - INTERFACCIA RS485 (PROTOCOLLO BACNET MS/TP)

- 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, (except for chiller models 4150÷4270).
- 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, thermostatic expansion valve, liquid indicator, intake line isolation .
- 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 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 on the display;
 - user interface menu;
 - 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 to have a discrete input for DHW management;
 - 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 - TCAEBY 2220 BT

Design parameters

		Cooling
External air temperature	[°C]	30
External air humidity	[%]	50
Evaporator Inlet fluid temperature	[°C]	5
Evaporator Outlet fluid temperature	[°C]	-3
Altitude	[m]	0
Main exchanger fluid		Ethylen glycole 25%
Fouling factor	[m ² °C/kW]	0.035

Performances

<i>At design conditions:</i>		Cooling
Capacity (gross)	[kW]	166.2
Absorbed power (gross)	[kW]	63.6
EER (gross)		2.61
Capacity (UNI EN 14511/2013)	[kW]	166.0
EER (UNI EN 14511/2013)		2.6

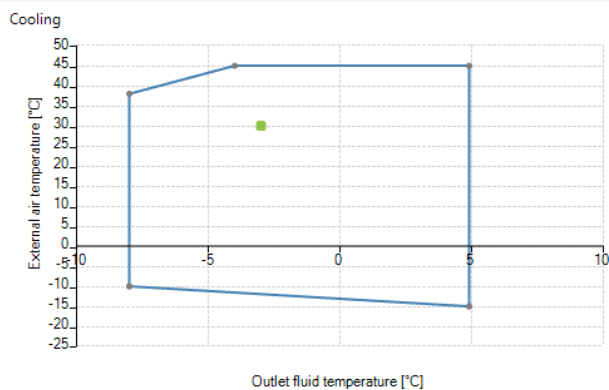
At Eurovent conditions:

ESEER (UNI EN 14511/2013)	3.91
EER 100% (UNI EN 14511/2013)	2.84
EER 75% (UNI EN 14511/2013)	3.54
EER 50% (UNI EN 14511/2013)	4.18
EER 25% (UNI EN 14511/2013)	4.08

Adaptive Function Plus:

ESEER+	4.57
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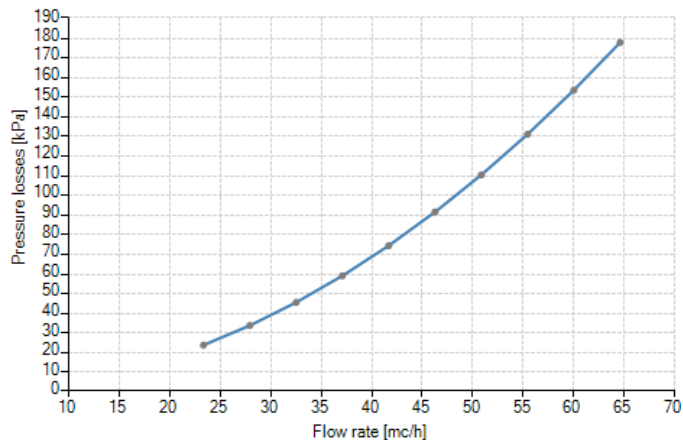
Functioning limits



Main exchanger

Flow rate	[m ³ /h]	19.1
Pressure losses	[kPa]	15

Pressure losses



Fans

Type:		Axial
Fan number		4
Consumption for each	[kW]	1.8
Air flow rate	[m ³ /h]	79200

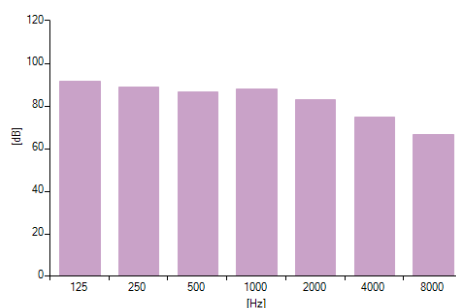
Technical features

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

Noise

Sound Power level (1)	[dBA]	91
Sound Pressure level (10m) (2)	[dBA]	59
Sound Pressure level (1m) (2)	[dBA]	71.5

[Hz]	[dB]
125	92
250	89
500	87
1000	88
2000	83
4000	75
8000	67



Electrical data

Total electrical power (3)	[kW]	63.6
Electrical power supply	[V-ph-Hz]	400-3-50
Auxiliary power supply	[V-ph-Hz]	230-1-50
Nominal current (4)	[A]	124
Maximum current	[A]	168
Starting current	[A]	390

Size and weight

Length	[mm]	4550
Height	[mm]	2440
Depth	[mm]	1350
Weight (5)	[kg]	1340
Oil charge	[kg]	10
Amount of refrigerant	[kg]	23

Partial loads

Cooling

Load	%	100	90	80	70	60	50	40	30	20	10
Outlet fluid temperature	°C	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
External air temperature	°C	30	30	30	30	30	30	30	30	30	30
Capacity (GROSS VALUE)	kW	166.2	149.6	133	116.4	99.7	83.1	66.5	49.9	33.2	16.6
EER (GROSS VALUE)		2.61	2.67	2.73	2.83	2.96	3.01	2.92	2.8	2.58	2.09
EER (UNI EN 14511:2013)		2.6	2.65	2.72	2.81	2.93	2.97	2.89	2.77	2.55	2.06

Flow rate determined at full load condition

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