

## Air Cooled Chiller&Heat Pump with Inverter scroll compressors

**EWA(Y)T~CZ N/P/H**

**BLUEvolution**

- Nominal capacity range 16 - 90 kW
- Packaged solution
- R-32 refrigerant



**Performance according to EN14511.**



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## INDEX

Introduction .....	3
Refrigerant charge .....	6
Nomenclature.....	6
Standard components.....	7
Options .....	9
Accessories.....	9
Technical specification .....	13
Electrical specification.....	43
Sound levels .....	49
Envelopes.....	50
Installation notes .....	52

## Low operating cost.

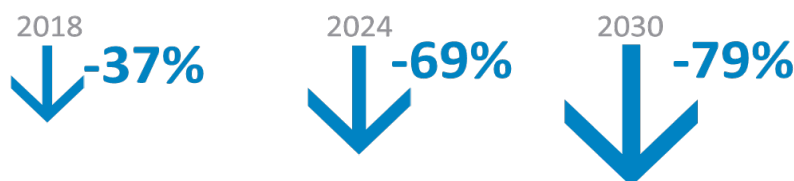
The new Daikin *BLUEEVOLUTION* chiller&heat pump series (EWA(Y)T-CZ) is the result of careful design aimed to optimize the energy efficiency and thus the total life cycle cost of the unit, with reduced operating cost thanks to outstanding performances and reliability.

The units feature high efficiency scroll compressor arranged in single or tandem configuration on each refrigerant circuit, optimized condensing section with advanced technology condensing fans and plates evaporator with low refrigerant content and reduced pressure drops.

## Low environmental impact.

Latest revision of F-GAS, entered into force in 2015, set up a phase down program for traditional HFC's refrigerants. In 2018 first significant reduction step has been introduced (37%) and in 2030 the reduction (calculated in equivalent CO2 tons) will need to achieve almost 80%.

### HFC's phase down objectives\*:



(\*) Baseline value (100%) is the annual average of total quantity of CO2 equivalents placed on EU Market from 2009 to 2012

The new Daikin *BLUEEVOLUTION* series uses R-32 refrigerant to reduce drastically the carbon footprint of the unit. The selection of R-32 (chemical name difluoromethane) minimises the global warming impact of scroll compressor units thanks to the lower Global Warming Potential in combination with high-energy efficiency.

The Global Warming Potential of R-32 is 675, which is only one third of the commonly used refrigerant R-410A.

Thanks to the low flammability classification (R-32 refrigerant is classified A2L in ISO817), it can be safely used in many applications including chilled water systems. Being a single component refrigerant, R-32 is also easier to recycle and reuse, that is another environmental plus in its favour.

Daikin has a long history of continuous reduction of the environmental impact of cooling, heating and refrigeration, having a unique expertise that comes from manufacturing both refrigerants and equipment. This position is one of the results of company's corporate philosophy to "Be a Company that Leads in Applying Environmentally Friendly Practices".

## Outstanding reliability.

The units have one or two truly independent refrigerant circuits with one or two compressors to assure maximum safety for any maintenance, whether planned or not.

## Condensation control.

Units are equipped with fan speed modulation.

## Fan silent mode.

Units are standardly supplied with fan silent mode. This feature allows the user to set up detailed time bands to reduce fan rotation speed and therefore sound emission in those areas where night quietness is a mandatory requirement. The average sound power reduction is -2dB(A).

## Superior control logic.

The control logic is designed to provide maximum efficiency, to continue operation in unusual operating conditions and to provide history of unit operation. Easy interface with, Bacnet, Ethernet TCP/IP or Modbus communications. Master/Slave operation is provided as standard allowing to connect up to 4 units working as single system.

## Dynamic Condensing Pressure Management.

Superior software logic has been developed to get the highest efficiency at whatever operating condition: thanks to the Dynamic Condensing Pressure Management the unit controller adjusts the condensing pressure set-point to minimize the overall power input.

## Code requirements – Safety and compliance to laws/directives

Units are designed and manufactured in accordance to the following directives and harmonized standards:

Low voltage directive	DIRECTIVE 2014/35/EU
Electromagnetic compatibility (EMC)	DIRECTIVE 2014/30/EU
Machinery directive	DIRECTIVE 2006/42/EC
Pressure equipment Directive	DIRECTIVE 2014/68/EU
Ecodesing	DIRECTIVE 2009/125/EC
Safety of machinery	EN 60335-2-40
EMC - Part 6-2	EN 61000-6-2
EMC - Part 6-4	EN 61000-6-4
Low voltage directive	DIRECTIVE 2014/35/EU
Electromagnetic compatibility (EMC)	DIRECTIVE 2014/30/EU

## Certifications.

Units are CE and EAC marked, complying with European directives in force, concerning manufacturing and safety. On request units can be produced complying with laws in force in non-European countries (ASME, etc.), and with other applications.

## Compressors

Hermetic orbiting scroll type optimized for R-32 operation and complete with motor over-temperature and over-current protection devices. Each compressor is equipped with an oil heater that keeps the oil from being diluted by the refrigerant when the unit is not running. Each compressor is mounted on rubber antivibration mounts and is standardly equipped with compressor jacket for a quite operation. Unit is delivered with complete oil charge. The Variable Frequency Drive (VFD) is integrated in the electrical panel of the unit and it allows continuous modulation of compressor's rotational speed.

On site, unit can be set to operate in boosted mode, please check the technical table values in the \_MAX section.

## Water Side Heat Exchanger

The unit is equipped with a direct expansion plate-to-plate type Heat Exchanger optimized for R-32 refrigerant operation. This heat exchanger is made of stainless-steel brazed plates and is covered with 20mm closed cell insulation material. The flow switch is standard and factory mounted while the water filter on the heat exchanger side is shipped with the chiller but needs to be field installed.

## Air Side Heat Exchanger

The Air Side Heat Exchanger is manufactured with internally enhanced seamless copper tubes arranged in a staggered row pattern and mechanically expanded into lanced and rippled aluminum Air Side Heat Exchanger fins with full fin collars. An integral sub-cooler circuit provides sub-cooling to effectively eliminate liquid flashing and increase cooling capacity without increasing the power input.

## Air Side Heat Exchanger fans

Air Side Heat Exchanger fans are propeller type with high efficiency design blades to maximize performances. The blades are made of glass-reinforced resin and a guard protects each fan. Units are standardly equipped with inverter driven fans.

## Electronic expansion valve

The unit is equipped with electronic expansion valves to achieve precise control of R-32 refrigerant mass flow. Electronic expansion valves become mandatory to improve the energy efficiency and to accurately control the temperature in a wide range.

Electronic expansion valves have unique features: short opening and closing time, high resolution, positive shut-off function to eliminate use of additional solenoid valve, continuous modulation of mass flow without stress in the refrigerant circuit and corrosion resistant stainless-steel body.

If compared to traditional thermostatic valves, electronic expansion valves allow the system to work with low condenser pressure (wintertime) without any refrigerant flow problems and to perfectly control the chilled water temperature.

### Refrigerant circuit

Each unit has one or two independent refrigerant circuits and each one includes:

- Compressors
- Refrigerant
- Water side Heat Exchanger
- Air Side Heat Exchanger
- Electronic expansion valve
- Filters
- Charging valves
- High pressure switch
- High pressure transducers
- Low pressure transducers
- Suction temperature sensor
- Discharge temperature sensor

### Electrical panel

Power and control are in the main panel that is manufactured to ensure protection against weather conditions. The electrical panel is IPX4 and fitted with a main switch interlocked door that shuts off power supply when opening.

### Safety device / logic for each refrigerant circuit

The following devices / logics are available:

- high pressure switch;
- high pressure transducer;
- low pressure transducer;
- high compressor discharge temperature;
- Compressor case temperature switch
- low pressure ratio;

### System security

The following securities are available:

- low ambient temperature lock-out;
- freeze protection.

### Supervising systems remote communication

Controller can communicate to BMS (Building Management System) based on the most common protocols as:

- Modbus MSTP TCP-IP Accessory
- BACnet MSTP TCP-IP Accessory

Note: Equipment contains fluorinated greenhouse gases.

**Actual refrigerant charge depends on the final unit construction, details can be found on the unit labels.**

EWY	T	025	C	Z	N	-	A	1	DAE
									<b>Machine type</b>
									EWY = Heat pump
									EWA = Cooling only
									<b>Refrigerant</b>
									T = HFC R-32 refrigerant
									<b>Capacity Class in [kW] (Cooling)</b>
									Always 3-digit code
									<b>Model series</b>
									C = product
									<b>Inverter</b>
									Z = Full inverter unit
									<b>Execution/Version</b>
									N = Packaged, no pump
									P = Packaged, pump low lift
									H = Packaged, pump high lift
									<b>Option</b>
									- = no options
									A = OP.192 HIGH AMBIENT TEMPERATURE KIT
									B = OP.191 ANTIFREEZE PROTECTION ELECTRIC HEATER
									<b>Yintage</b>
									A
									<b>Number of circuits</b>
									1
									2

## Standard Component and Features (supplied on basic units)

**Hour run meter (provided as standard)**

**General fault contactor (provided as standard)**

**Main switch interlock door (provided as standard)**

**Master / Slave (provided as standard)**

The DAIKIN Master/ Slave (M/S) control. Once set which unit has the role of master, the other(s) will operate as slave(s) based on the inputs provided by the master.

The chillers must be installed in parallel in the hydronic plant.

With Master/Slave control it is possible to balance the working hours of the compressors enhancing reliability and extending the life of the system.

In order to operate in Master/Slave mode an additional probe (NTC10K type or available as an accessory EKTSMs) must be installed on the common line of the plant and connected to the master unit.

The master / slave feature allows to manage the start and stop of field supplied water pumps. The power supply of the field supplied pumps is separate from the unit.

**20mm evaporator insulation (provided as standard)**

The heat exchanger is fitted with 20mm closed cell insulation material

**Brine Version (provided as standard)**

For operation with temperature at the outlet of the evaporator below +4°C the unit must operate with a glycol mixture (with ethylene or propylene glycol) and the Brine Version to be enabled in the controller.



**Fans speed regulation**

Fans speed regulation: continuous modulation of the fans' speed for optimal condensation control at low ambient temperatures.

Fans silent mode: This feature allows the user to set up customized time bands to reduce fans' speed rotation and therefore sound emission in those areas where quiet is a mandatory requirement during specific time of the day (e.g. night operation). The average sound power reduction is -2 dB(A). For heat pump operation, it must be taken into account that the unit will defrost more often.

Fan Boost: the unit can go in fan Boost operation in case of external canalization or in case of high ambient conditions just enabling the function in the controller. Refer to "Available fan static pressure correction factors" tables in case of additional pressure drop due to ducts or canalizations.

**Alarm from external device**

The unit controller is able to receive an external alarm signal. The user can decide whether this alarm signal will stop the unit or not.

**Water filter (provided as standard)**

The water filter removes impurities from the water by means of a fine physical barrier. It must be installed on the water pipe connected to the heat exchanger inlet.

The filter is shipped loose. NOTE: The installation of the water filter is mandatory.

**Shut off valve (provided as standard)**

Shut off valves are delivered with the unit and to be field installed.

**Evaporator flow switch (provided as standard)**

It is always factory mounted on the leaving water side and cabled. For additional information please check the Piping Diagram ("Hydraulic schemes" paragraph).

**Hydronic kit**

Unit mounted hydronic kits are available for the P and H version in low and high lift solution.

The Low lift pump kit provides an average available head of 100 kPa at chiller standard conditions. The High lift pump kit provides an average available head of 200 kPa at chiller standard conditions.

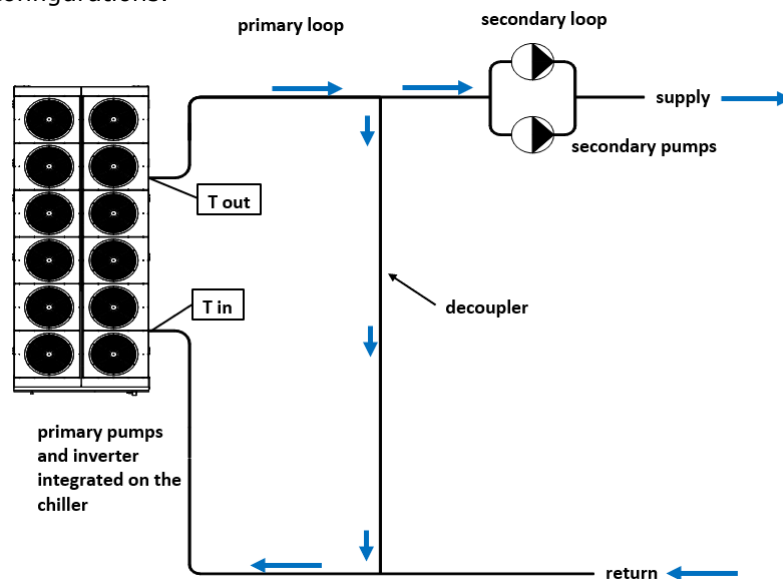
The kit is completed with mechanical elements specified in the P&I. The hydronic kit is protected from freezing selecting the additional OP.191-ANTIFREEZE PROTECTION ELECTRIC HEATER.

## Inverter for pump (provided as standard for P and H versions)

The Inverter kit is standardly associated with the hydronic kit. The inverter for the pump has been designed for operation at an ambient temperature of max 50 ° C; continuous operation at full load at an ambient temperature of 50 ° C will reduce the useful life of the inverter itself.

The inverter pump can be used for the following purposes:

- **Adjusting the water flow rate during unit commissioning.**
- **Set a "thermostat off" pump speed.** With the inverter kit, it is possible to manage two different water flow settings: a setting for water flow during the "Thermostat ON" mode (when the chiller is actually providing cooling to the plant), and a set for the "thermostat off" mode (when the plant load is satisfied and the compressors are waiting to start). This feature allows to achieve energy saving on plant operating cost by reducing the speed of the pumps when the chiller has reached the set point.
- **Control variable flow on primary loop based on chiller delta-T (available for single chiller installation only)**  
Having the unit with the inverter kit for the on-board pump it is possible to manage a variable water flow rate for the primary loop. This function is available as standard when the hydronic kit plus inverter are selected. The standard feature is applicable for single unit installation only. In case of multiple chillers installation an additional control is needed.  
The variable flow control is suitable for primary/secondary plant but can not be used in Variable Primary Flow chilled water system configurations.



In a Primary-Secondary plant configuration a key component is the decoupler. The decoupler is always open (no valve must be installed). The aim of the decoupler is to allow the primary and secondary pumps to operate at different flow rates. This is necessary because the primary pumps and secondary pumps are managed differently and so the primary and secondary flow rate are practically never the same. Specifically, the primary flow rate is managed based on the chiller delta-T ( $T_{out} - T_{in}$ ), the secondary flow rate is regulated to maintain the necessary pressure differential in the secondary loop. The direction of the water flow through the decoupler must be always from supply to return. To ensure this the primary flow rate must be higher than the secondary flow rate. If this condition is not respected the warmer return water will flow backwards through the decoupler and raise the supply water temperature. Due to the higher temperature of the supply water the terminal (users) unit control will open the valves asking for higher water flow rate. The secondary pumps will speed up increasing even more the water flow rate on secondary plant making the situation even worse (secondary flow rate  $\gg$  primary flow rate). As a result there will be no control on the supply water temperature losing effectiveness of the cooling plant.

On the other side any excess in the primary flow, vs. secondary flow, flows through the decoupler from the supply to the return mixing with the warmer return water. To reach this target it is very important to have minimum pressure drop in the decoupler that needs to be sized to reach a pressure drop that should not exceed 4÷5 kPa for the flow rate of the primary pump.

Activating the variable flow control the chiller will modulate the water flow rate based on the chiller delta-T.

When the secondary loop will reduce the water flow rate (because the plant load decreases), the water flow rate in the decoupler (always from supply to return) increases. The return water temperature mixes with the supply water from the decoupler reducing the inlet water temperature and so the delta-T on the chiller. As a consequence the chiller control reduces the speed of the pump, reducing the primary flow rate.

On the opposite, when the flow rate on secondary flow increases also the water temperature at the chiller inlet increases (increasing the delta-T); therefore, the chiller control will increase the water flow rate.



## Options – On request

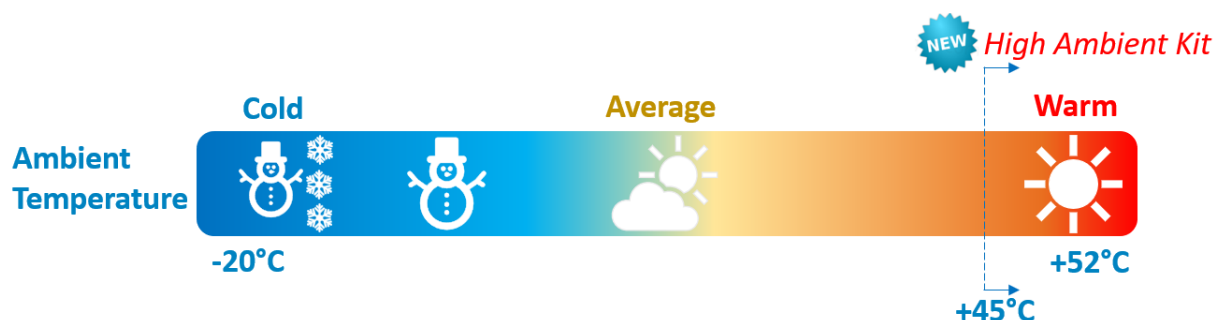
### ANTIFREEZE PROTECTION ELECTRIC HEATER (OP. Code 191) – Option Incompatibility OP.192

A heater tape is wound around the water side components to protect vital parts of the hydraulic system inside the unit including the BPHE. This heater tape will only protect internal parts of the unit. It can not protect field installed parts outside the unit. Field heater tapes must be provided by the installer. Selecting OP.191 the nomenclature Digit is "B", for additional information refer to "Nomenclature" paragraph.

### HIGH AMBIENT TEMPERATURE KIT (OP. Code 192) - Option Incompatibility OP.191

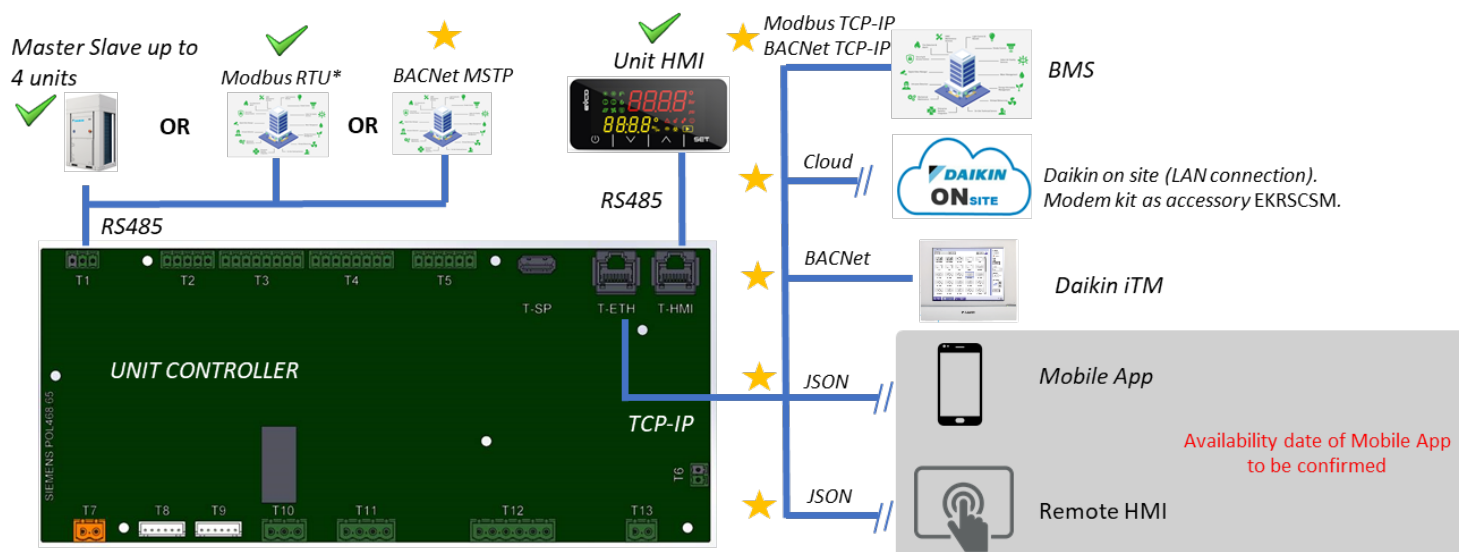
The high ambient kit allows to increase the maximum operating ambient temperature (OAT) thanks to an oversized electrical panel and acceleration of the fan speed order to reach 52°C OAT.

In case of OP.192 is selected together with the Pump Kit the pump control will be ON/OFF so without the Inverter. Selecting OP.192 the nomenclature Digit is "A", for additional information refer to "Nomenclature" paragraph.



## Accessories

Probes	
EKTSMS	Temperature sensor for master/slave configuration
Serial Cards & Communication Modules	
EKRSCIO	I/O extension for VPF, domestic hot water, demand limit, setpoint reset, low noise
EKRSCBMS	Connectivity for external BMS communication (Modbus RTU/TCP, Bacnet MSTP/IP)
EKRSCSM	kit DoS router with antenna and M2M sim card



- ✓ Available in the standard unit.
- ★ Available with connectivity kit EKRSCBMS

## EKTSMS – Temperature sensor for master/slave configuration

**EKRSCIO** is an additional module for the controller extending the numbers of Inputs/Outputs (I/O). The additional I/O module is valid for VPF-Variable Primary Flow, DHW-Domestic hot water management, Demand limit, Setpoint reset, Low noise, Double set point, Defrost out, Cooling heating output.

### *I/O extension – PINOUT*

Temperature sensors	Domestic Hot Water sensor	NTC10K measuring range 100-670000 Ω	X1
Voltage Input	Demand Limit/Current Limit	Analog input volt 0-10V	X2
Voltage Input	Evaporator DP (VPF)/DHW 3WV Feedback Open	Analog input volt 0-10V	X3
	System DP (VPF)/DHW 3WV Feedback Close	Analog input volt 0-10V	X4
	Setpoint Reset	Analog input volt 0-10V	X5
Digital inputs	Low Noise	Digital input potential free contact	X6

Digital inputs	Thermo On/Off	Digital input potential free contact	X7
	Domestic Hot Water Enable	Digital input potential free contact	X8
	Double Setpoint	Powered Digital input 230VAC	DI1
Digital outputs	Cooling/Heating	Digital output relay 230V - 2A	DO1
Digital outputs	Defrost Output	Digital output relay 230V - 2A	DO2
	Bypass Valve (VPF)	Digital output relay 230V - 2A	DO3
	Domestic Hot Water 3 Way Valve	Digital output relay 230V - 2A	DO4
	-	Digital output relay 230V - 2A	DO5

	M/S	DHW	VPF	Demand Limit	Current Limit
M/S		Not compatible	Not compatible	To be confirmed	To be confirmed
DHW			Not compatible	Compatible	Compatible
VPF				Compatible	Compatible
Demand Limit					Compatible
Current Limit					

### **Double set point**

Possibility to set two different chilled water temperature set points.

### **Ambient outside temperature sensor and setpoint reset (provided as standard)**

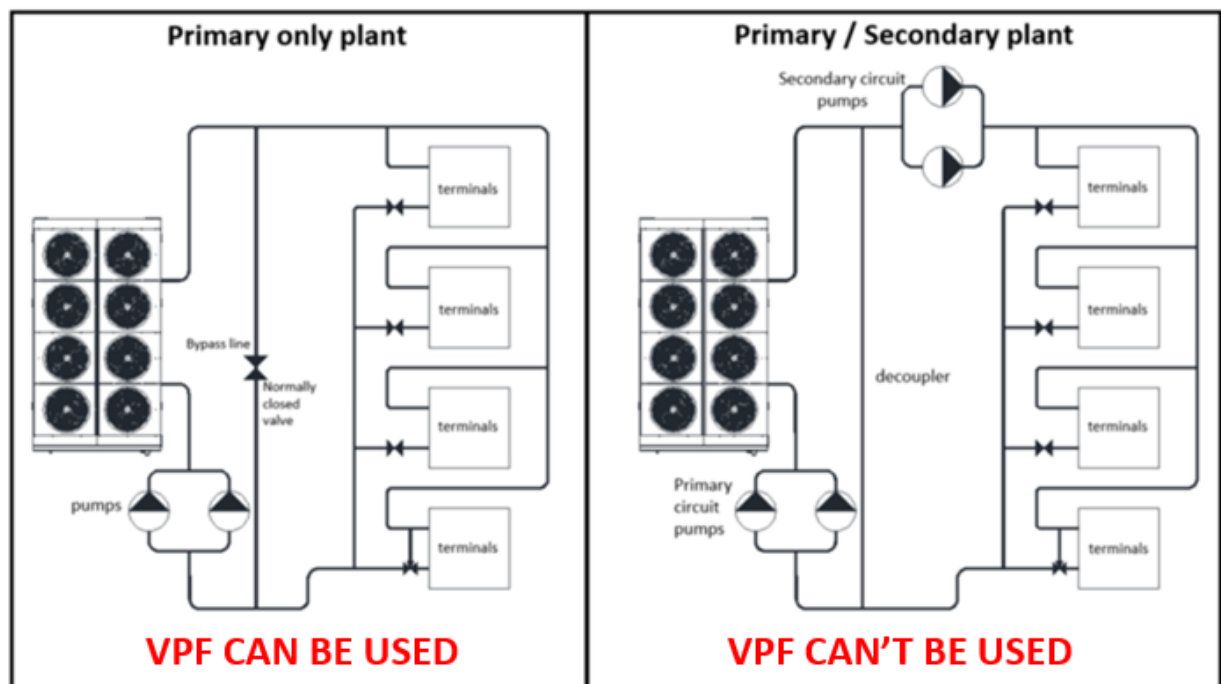
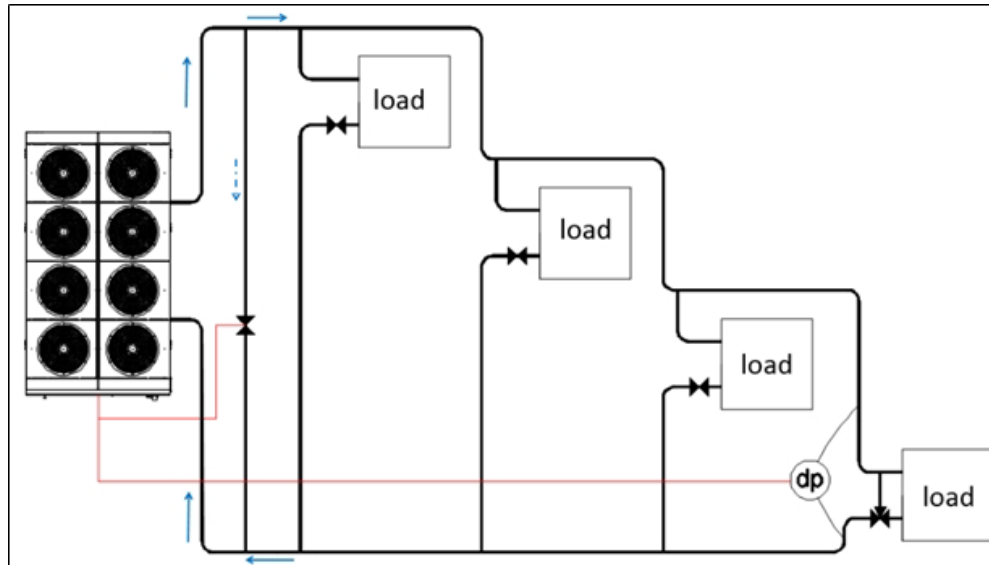
The leaving water temperature set-point can be overwritten through an external 0-10V signal, through the ambient temperature, or through the water side heat exchanger ΔT.

### **Variable Primary Flow**

By selecting EKRSCIO the chiller can manage the Variable Primary water flow according to the differential pressure measured in a specific point of the plant, selected by the plant designer. The differential pressure transducer is available as an accessory. However, not providing the connection capillaries between the evaporator and the accessory itself. Once installed, the differential pressure transducer must be connected to the unit. As an alternative the unit controller can receive directly the differential pressure value from an external BMS communicating with the standards communication protocols (eg. MODBUS).

The Variable Primary Flow (VPF) configuration is an alternative to the more "traditional" Primary/Secondary (P/S) plant configuration.

*Daikin Applied Europe is not responsible for the plant configuration and cannot confirm the optimal position of the differential pressure transducer.*



A bypass line (field supply) needs to be installed which always guarantees that the minimum water flow of the chiller is supplied (refer to the "Operating limit" chapter for indication on minimum water flow). The bypass valve will be an ON/OFF normally closed valve controlled by the chiller. In case the minimum water flow allowed is not reached, the chiller will open the bypass line restoring the water flow above the minimum value.

In case of multiple units' installations in a primary only plant, to control the pump speed an external control is required. Master/Slave function does not support primary only chilled water systems with variable flow operation. For unit installed in Primary/Secondary plants the option Variable Primary Flow is not applicable. In this case an external control is required.

**Note:** VPF can be used only for units installed in a primary only plant to be controlled according to VPF strategy. Master/Slave function does not support primary only chilled water systems with variable flow operation.

#### Differential Pressure Transducers - (Accessory to be coded in the price list)

#### Domestic Hot Water

By selecting EKRSCIO the chiller can manage the Domestic Hot Water Loop with different configurations.

The unit can receive an external input coming from an external temp. sensor in order to switch to the DHW setpoint and giving an output to a 3-way valve the hot water can be diverted to the DHW Loop.

### Low Noise

By selecting EKRSCIO the unit can manage the Low Noise Operation.

### EKRSCBMS – Connectivity Card

In case the BMS communication is needed, with Modbus or BACnet protocol, the connectivity card is delivered with the unit. Through a dedicated App, available for iOS and Android, it is possible to scan the QRCode and the activation key and generate the controller license file for activating the corresponding communication protocol.



	M/S - Master (T1)	M/S - Slave (T1)	Modbsu RTU (T1)	Modbus TCP-IP	Bacnet MSTP (T1)	Bacnet TCP-IP	IO Extension Pack	Modem
M/S - Master (T1)		Not compatible	Not compatible	Compatible	Not compatible	Compatible	Compatible	Compatible
M/S - Slave (T1)			Not compatible	Not compatible	Not compatible	Compatible	Not compatible	Compatible
Modbsu RTU (T1)				Compatible	Not compatible	Compatible	Not compatible	Compatible
Modbus TCP-IP					Compatible	Compatible	Compatible	To be confirmed- CF
Bacnet MSTP (T1)						To be confirmed	Not compatible	Compatible
Bacnet TCP-IP							Compatible	To be confirmed - CF
IO Extension Pack								Compatible
Modem								

### EKRSCSM - Daikin on site modem with antenna (Accessory)

Connecting the unit to Daikin on Site will be possible through a dedicated modem that can be ordered from Factory as an accessory.

EWAT~CZN

MODEL		EWAT016CZN-A1	EWAT021CZN-A1	EWAT025CZN-A1	EWAT032CZN-A1	EWAT040CZN-A1	EWAT040CZN-A2
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	15.9	20.9	25.6	32.4	39.6	41.4
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	5.5	6.6	8.5	10.3	13.4	13.2
EER		2.9	3.16	3	3.13	2.95	3.12
SEER		5	5	5.06	5.21	5.09	5.41
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	222	245	245	340	339	480
Operating Weight	kg	223	247	247	343	342	486
<b>WATER HEAT EXCHANGER</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.8	1	1.2	1.6	1.9	2
Water pressure drop	kPa	19.8	11.3	16.3	19.2	27.6	9.91
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3228	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2
<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWAT050CZN-A2	EWAT064CZN-A2	EWAT090CZN-A2
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	50.8	64	88.3
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	17	21.8	31
EER		2.98	2.93	2.84
SEER		5.33	5.21	5.03
IPLV		5.92	5.88	5.61
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS
<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	480	574	672
Operating Weight	kg	486	580	680
<b>WATER HEAT EXCHANGER</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.4	3.1	4.2
Water pressure drop	kPa	14.3	21.7	20.1
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)

## EWAT~CZP

MODEL		EWAT016CZP-A1	EWAT021CZP-A1	EWAT025CZP-A1	EWAT032CZP-A1	EWAT040CZP-A1	EWAT040CZP-A2
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	16.2	21.1	25.8	32.7	39.9	41.7
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	5.5	6.6	8.5	10.3	13.3	13.2
EER		2.96	3.22	3.05	3.18	3	3.17
SEER		5.3	5.41	5.41	5.7	5.36	5.76
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	256	278	278	383	382	531
Operating Weight	kg	257	280	280	386	385	537
<b>WATER HEAT EXCHANGER</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.8	1	1.2	1.6	1.9	2
Water pressure drop	kPa	19.8	11.3	16.3	19.2	27.6	9.91
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3228	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2
<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWAT050CZP-A2	EWAT064CZP-A2	EWAT090CZP-A2
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	51.1	64.4	88.8
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	17	21.9	31.1
EER		3.03	2.95	2.85
SEER		5.48	5.34	5.18
IPLV		5.92	5.88	5.61
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS
<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	531	630	727
Operating Weight	kg	537	636	735
<b>WATER HEAT EXCHANGER</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.4	3.1	4.2
Water pressure drop	kPa	14.3	21.7	20.1
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)



EWAT~CZH

MODEL		EWAT016CZH-A1	EWAT021CZH-A1	EWAT025CZH-A1	EWAT032CZH-A1	EWAT040CZH-A1	EWAT040CZH-A2
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	16.2	21.2	25.9	32.8	40.1	41.8
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	5.62	6.74	8.7	10.4	13.5	13.3
EER		2.89	3.15	2.98	3.14	2.97	3.15
SEER		5.2	5.32	5.34	5.67	5.34	5.76
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	256	278	278	383	382	531
Operating Weight	kg	257	280	280	386	385	537
<b>WATER HEAT EXCHANGER</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.8	1	1.2	1.6	1.9	2
Water pressure drop	kPa	19.8	11.3	16.3	19.2	27.6	9.9
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3228	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2
<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWAT050CZH-A2	EWAT064CZH-A2	EWAT090CZH-A2
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	51.3	64.5	88.9
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	17	22	31.2
EER		3.02	2.93	2.85
SEER		5.4	5.27	5.12
IPLV		5.92	5.88	5.61
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS
<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	531	630	727
Operating Weight	kg	537	636	735
<b>WATER HEAT EXCHANGER</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.4	3.1	4.2
Water pressure drop	kPa	14.3	21.7	20.1
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)

**EWAT~CZN MAX ("MAX" configuration has to be setted on site through the controller)**

MODEL		EWAT016CZN-A1_MAX	EWAT021CZN-A1_MAX	EWAT025CZN-A1_MAX	EWAT032CZN-A1_MAX	EWAT040CZN-A1_MAX	EWAT040CZN-A2_MAX
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	18.3	25	29.3	38.6	45.2	49.6
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	6.8	8.5	10.7	13.5	16.7	17.3
EER		2.69	2.94	2.74	2.87	2.71	2.87
SEER		5	5	5.06	5.21	5.09	5.41
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	222	245	245	340	339	480
Operating Weight	kg	223	247	247	343	342	486
<b>WATER HEAT EXCHANGER</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.9	1.2	1.4	1.8	2.2	2.4
Water pressure drop	kPa	25.6	15.7	20.7	26.4	35	13.8
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3228	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2
<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWAT050CZN-A2_MAX	EWAT064CZN-A2_MAX	EWAT090CZN-A2_MAX
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	58.2	72.7	98.3
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	21.3	27.4	38.2
EER		2.73	2.65	2.57
SEER		5.33	5.21	5.03
IPLV		5.92	5.88	5.61
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS
<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	480	574	672
Operating Weight	kg	486	580	680
<b>WATER HEAT EXCHANGER</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.8	3.5	4.7
Water pressure drop	kPa	18.3	27.4	24.4
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)

**EWAT~CZP MAX ("MAX" configuration has to be setted on site through the controller)**

MODEL		EWAT016CZP-A1_MAX	EWAT021CZP-A1_MAX	EWAT025CZP-A1_MAX	EWAT032CZP-A1_MAX	EWAT040CZP-A1_MAX	EWAT040CZP-A2_MAX
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	18.6	25.3	29.6	38.9	45.6	50
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	6.8	8.5	10.6	13.4	16.6	17.2
EER		2.75	2.98	2.78	2.91	2.75	2.91
SEER		5.3	5.41	5.41	5.7	5.36	5.76
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	256	278	278	383	382	531
Operating Weight	kg	257	280	280	386	385	537
<b>WATER HEAT EXCHANGER</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.88	1.2	1.4	1.84	2.16	2.37
Water pressure drop	kPa	25.6	15.7	20.7	26.4	35	13.8
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3228	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2
<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWAT050CZP-A2_MAX	EWAT064CZP-A2_MAX	EWAT090CZP-A2_MAX
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	58.6	73.3	98.8
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	21.2	27.5	38.4
EER		2.77	2.67	2.58
SEER		5.48	5.34	5.18
IPLV		5.92	5.88	5.61
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS
<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	531	630	727
Operating Weight	kg	537	636	735
<b>WATER HEAT EXCHANGER</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.8	3.5	4.7
Water pressure drop	kPa	18.3	27.4	24.4
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)

**EWAT~CZH MAX ("MAX" configuration has to be setted on site through the controller)**

MODEL		EWAT016CZH-A1_MAX	EWAT021CZH-A1_MAX	EWAT025CZH-A1_MAX	EWAT032CZH-A1_MAX	EWAT040CZH-A1_MAX	EWAT040CZH-A2_MAX
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	18.7	25.4	29.6	39.1	45.7	50.1
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	6.9	8.7	10.8	13.5	16.7	17.3
EER		2.69	2.93	2.73	2.89	2.73	2.9
SEER		5.2	5.32	5.34	5.67	5.34	5.76
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	256	278	278	383	382	531
Operating Weight	kg	257	280	280	386	385	537
<b>WATER HEAT EXCHANGER</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.9	1.2	1.4	1.8	2.2	2.4
Water pressure drop	kPa	25.6	15.7	20.7	26.4	35	13.8
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3228	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2
<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWAT050CZH-A2_MAX	EWAT064CZH-A2_MAX	EWAT090CZH-A2_MAX
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	58.7	73.4	98.9
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	21.3	27.6	38.5
EER		2.76	2.66	2.57
SEER		5.4	5.27	5.12
IPLV		5.92	5.88	5.61
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS
<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	531	630	727
Operating Weight	kg	537	636	735
<b>WATER HEAT EXCHANGER</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.8	3.5	4.7
Water pressure drop	kPa	18.3	27.4	24.4
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)



EWYT~CZN

MODEL		EWYT016CZN-A1	EWYT021CZN-A1	EWYT025CZN-A1	EWYT032CZN-A1	EWYT040CZN-A1	EWYT040CZN-A2
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	15.9	20.9	25.6	32.4	39.6	41.4
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	5.5	6.6	8.5	10.3	13.4	13.2
EER		2.9	3.16	3	3.13	2.95	3.12
SEER		5	5	5.06	5.21	5.09	5.41
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>HEATING PERFORMANCE</b>							
Capacity - Heating	kW	15.9	20.2	24.8	32.4	39.4	40.3
Unit power input - Heating	kW	4.7	5.8	7.5	9.4	11.8	11.9
COP		3.41	3.46	3.33	3.45	3.33	3.38
SCOP Low / Medium Temp		3.89 / 0	4 / 2.83	4.07 / 2.89	4.06 / 2.85	4.07 / 2.89	4.02 / 2.93
<b>WATER HEAT EXCHANGER HEATING</b>							
Water temperature in	°C	40	40	40	40	40	40
Water temperature out	°C	45	45	45	45	45	45
Water flow rate	l/s	0.8	1	1.2	1.5	1.9	1.9
Water pressure drop	kPa	19.6	10.6	15.4	19.1	27.1	9.4
<b>FAN</b>							
Air Temperature		7	7	7	7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.8	1	1.2	1.6	1.9	2
Water pressure drop	kPa	19.8	11.3	16.3	19.2	27.6	9.91
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3228	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	227	252	252	350	349	494
Operating Weight	kg	228	254	254	353	352	500
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2

# TECHNICAL SPECIFICATION

<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWYT050CZN-A2	EWYT064CZN-A2	EWYT090CZN-A2
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	50.8	64	88.3
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	17	21.8	31
EER		2.98	2.93	2.84
SEER		5.33	5.21	5.03
IPLV		5.92	5.88	5.61
<b>HEATING PERFORMANCE</b>				
Capacity - Heating	kW	49.8	61.9	85.8
Unit power input - Heating	kW	15.4	19.1	27.2
COP		3.24	3.23	3.16
SCOP Low / Medium Temp		4 / 2.92	3.98 / 2.9	4 / 2.89
<b>WATER HEAT EXCHANGER HEATING</b>				
Water temperature in	°C	40	40	40
Water temperature out	°C	45	45	45
Water flow rate	l/s	2.4	3	4.1
Water pressure drop	kPa	13.8	20.4	19.1
<b>FAN</b>				
Air Temperature		7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m2°C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.4	3.1	4.2
Water pressure drop	kPa	14.3	21.7	20.1
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS

<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	494	588	693
Operating Weight	kg	500	594	701
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)

EWYT~CZP

MODEL		EWYT016CZP-A1	EWYT021CZP-A1	EWYT025CZP-A1	EWYT032CZP-A1	EWYT040CZP-A1	EWYT040CZP-A2
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	16.1	21.1	25.9	32.7	39.9	41.7
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	5.4	6.6	8.5	10.3	13.3	13.2
EER		3	3.2	3.1	3.2	3	3.2
SEER		5.3	5.41	5.41	5.7	5.36	5.76
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>HEATING PERFORMANCE</b>							
Capacity - Heating	kW	15.6	19.9	24.6	32.1	39	40
Unit power input - Heating	kW	4.6	5.8	7.4	9.3	11.7	11.8
COP		3.37	3.43	3.31	3.44	3.33	3.38
SCOP Low / Medium Temp		4.03 / 0	4.19 / 2.93	4.19 / 2.97	4.18 / 2.9	4.18 / 2.95	4.19 / 3.02
<b>WATER HEAT EXCHANGER HEATING</b>							
Water temperature in	°C	40	40	40	40	40	40
Water temperature out	°C	45	45	45	45	45	45
Water flow rate	l/s	0.8	1	1.2	1.5	1.9	1.9
Water pressure drop	kPa	19.6	10.6	15.4	19.1	27.1	9.4
<b>FAN</b>							
Air Temperature		7	7	7	7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.8	1	1.2	1.6	1.9	2
Water pressure drop	kPa	19.8	11.3	16.3	19.2	27.6	9.91
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3228	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	261	286	286	393	392	546
Operating Weight	kg	262	288	288	396	395	551
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2

<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWYT050CZP-A2	EWYT064CZP-A2	EWYT090CZP-A2
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	51.1	64.4	88.8
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	17	21.9	31.1
EER		3.03	2.95	2.85
SEER		5.48	5.34	5.18
IPLV		5.92	5.88	5.61
<b>HEATING PERFORMANCE</b>				
Capacity - Heating	kW	49.5	61.4	85.3
Unit power input - Heating	kW	15.3	19.2	27.3
COP		3.23	3.2	3.13
SCOP Low / Medium Temp		4.12 / 2.98	4.01 / 2.87	4.04 / 2.91
<b>WATER HEAT EXCHANGER HEATING</b>				
Water temperature in	°C	40	40	40
Water temperature out	°C	45	45	45
Water flow rate	l/s	2.4	3	4.1
Water pressure drop	kPa	13.8	20.4	19.1
<b>FAN</b>				
Air Temperature		7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m2°C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.4	3.1	4.2
Water pressure drop	kPa	14.3	21.7	20.1
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS

<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	546	644	749
Operating Weight	kg	551	650	757
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)

EWYT~CZH

MODEL		EWYT016CZH-A1	EWYT021CZH-A1	EWYT025CZH-A1	EWYT032CZH-A1	EWYT040CZH-A1	EWYT040CZH-A2
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	16.2	21.2	25.9	32.8	40.1	41.8
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	5.6	6.7	8.7	10.4	13.5	13.3
EER		2.89	3.15	2.98	3.14	2.97	3.15
SEER		5.2	5.32	5.34	5.67	5.34	5.76
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>HEATING PERFORMANCE</b>							
Capacity - Heating	kW	15.5	19.8	24.5	32	38.9	39.9
Unit power input - Heating	kW	4.8	6	7.6	9.5	11.9	12
COP		3.24	3.31	3.22	3.37	3.28	3.33
SCOP Low / Medium Temp		3.88 / 0	4.06 / 2.84	4.08 / 2.89	4.11 / 2.87	4.13 / 2.91	4.14 / 2.98
<b>WATER HEAT EXCHANGER HEATING</b>							
Water temperature in	°C	40	40	40	40	40	40
Water temperature out	°C	45	45	45	45	45	45
Water flow rate	l/s	0.8	1	1.2	1.6	1.9	1.9
Water pressure drop	kPa	19.6	10.6	15.4	19.1	27.1	9.4
<b>FAN</b>							
Air Temperature		7	7	7	7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.8	1	1.2	1.6	1.9	2
Water pressure drop	kPa	19.8	11.3	16.3	19.2	27.6	9.9
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3227	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	261	286	286	393	392	546
Operating Weight	kg	262	288	288	396	395	551
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2

<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWYT050CZH-A2	EWYT064CZH-A2	EWYT090CZH-A2
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	51.3	64.5	88.9
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	17	22	31.2
EER		3.02	2.93	2.85
SEER		5.4	5.27	5.12
IPLV		5.92	5.88	5.61
<b>HEATING PERFORMANCE</b>				
Capacity - Heating	kW	49.4	61.3	85.2
Unit power input - Heating	kW	15.4	19.3	27.4
COP		3.2	3.17	3.12
SCOP Low / Medium Temp		4.09 / 2.96	3.94 / 2.84	4 / 2.88
<b>WATER HEAT EXCHANGER HEATING</b>				
Water temperature in	°C	40	40	40
Water temperature out	°C	45	45	45
Water flow rate	l/s	2.4	3	4.1
Water pressure drop	kPa	13.8	20.4	19.1
<b>FAN</b>				
Air Temperature		7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.4	3.1	4.2
Water pressure drop	kPa	14.3	21.7	20.1
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS



<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	546	644	749
Operating Weight	kg	551	650	757
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)

**EWYT~CZN MAX ("MAX" configuration has to be setted on site through the controller)**

MODEL		EWYT016CZN-A1_MAX	EWYT021CZN-A1_MAX	EWYT025CZN-A1_MAX	EWYT032CZN-A1_MAX	EWYT040CZN-A1_MAX	EWYT040CZN-A2_MAX
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	18.3	25	29.3	38.6	45.2	49.6
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	6.8	8.5	10.7	13.5	16.7	17.3
EER		2.69	2.94	2.74	2.87	2.71	2.87
SEER		5	5	5.06	5.21	5.09	5.41
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>HEATING PERFORMANCE</b>							
Capacity - Heating	kW	18.3	24.3	28.7	36.5	44.7	48.7
Unit power input - Heating	kW	5.6	7.2	9	11.5	14.2	14.7
COP		3.28	3.38	3.19	3.17	3.15	3.31
SCOP Low / Medium Temp		3.89 / 0	4 / 2.83	4.07 / 2.89	4.06 / 2.85	4.07 / 2.89	4.02 / 2.93
<b>WATER HEAT EXCHANGER HEATING</b>							
Water temperature in	°C	40	40	40	40	40	40
Water temperature out	°C	45	45	45	45	45	45
Water flow rate	l/s	0.9	1.2	1.4	1.7	2.1	2.3
Water pressure drop	kPa	25.3	14.7	19.8	23.7	34.1	13.25
<b>FAN</b>							
Air Temperature		7	7	7	7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.9	1.2	1.4	1.8	2.2	2.4
Water pressure drop	kPa	25.5	15.6	20.7	26.3	35	13.7
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3227	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	227	252	252	350	349	494
Operating Weight	kg	228	254	254	353	352	500
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2

<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWYT050CZN-A2_MAX	EWYT064CZN-A2_MAX	EWYT090CZN-A2_MAX
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	58.2	72.7	98.3
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	21.3	27.4	38.2
EER		2.73	2.65	2.57
SEER		5.33	5.21	5.03
IPLV		5.92	5.88	5.61
<b>HEATING PERFORMANCE</b>				
Capacity - Heating	kW	57.3	69.2	94.7
Unit power input - Heating	kW	18.6	23.2	32.4
COP		3.09	2.98	2.92
SCOP Low / Medium Temp		4 / 2.92	3.98 / 2.9	4 / 2.89
<b>WATER HEAT EXCHANGER HEATING</b>				
Water temperature in	°C	40	40	40
Water temperature out	°C	45	45	45
Water flow rate	l/s	2.74	3.31	4.52
Water pressure drop	kPa	17.7	24.9	22.7
<b>FAN</b>				
Air Temperature		7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m2°C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.8	3.5	4.7
Water pressure drop	kPa	18.3	27.4	24.4
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS

<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	494	588	693
Operating Weight	kg	500	594	701
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)

**EWYT~CZP MAX ("MAX" configuration has to be setted on site through the controller)**

MODEL		EWYT016CZP-A1_MAX	EWYT021CZP-A1_MAX	EWYT025CZP-A1_MAX	EWYT032CZP-A1_MAX	EWYT040CZP-A1_MAX	EWYT040CZP-A2_MAX
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	18.6	25.3	29.6	38.9	45.6	50
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	6.8	8.5	10.6	13.4	16.6	17.2
EER		2.75	2.98	2.78	2.91	2.75	2.91
SEER		5.3	5.41	5.41	5.7	5.36	5.76
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>HEATING PERFORMANCE</b>							
Capacity - Heating	kW	18	24	28.4	36.2	44.3	48.4
Unit power input - Heating	kW	5.3	7.2	8.9	11.5	14.1	14.6
COP		3.26	3.36	3.18	3.16	3.15	3.31
SCOP Low / Medium Temp		4.03 / 0	4.19 / 2.93	4.19 / 2.97	4.18 / 2.9	4.18 / 2.95	4.19 / 3.02
<b>WATER HEAT EXCHANGER HEATING</b>							
Water temperature in	°C	40	40	40	40	40	40
Water temperature out	°C	45	45	45	45	45	45
Water flow rate	l/s	0.9	1.2	1.4	1.7	2.1	2.3
Water pressure drop	kPa	25.3	14.7	19.8	23.7	34.1	13.3
<b>FAN</b>							
Air Temperature		7	7	7	7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.9	1.2	1.4	1.8	2.2	2.4
Water pressure drop	kPa	25.6	15.7	20.7	26.4	35	13.8
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3228	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	261	286	286	393	392	546
Operating Weight	kg	262	288	288	396	395	551
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2

<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

<b>MODEL</b>		<b>EWYT050CZP-A2_MAX</b>	<b>EWYT064CZP-A2_MAX</b>	<b>EWYT090CZP-A2_MAX</b>
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	58.6	73.3	98.8
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	21.2	27.5	38.4
EER		2.77	2.67	2.58
SEER		5.48	5.34	5.18
IPLV		5.92	5.88	5.61
<b>HEATING PERFORMANCE</b>				
Capacity - Heating	kW	58.9	68.7	94.1
Unit power input - Heating	kW	18.5	23.3	32.5
COP		3.08	2.96	2.9
SCOP Low / Medium Temp		4.12 / 2.98	4.01 / 2.87	4.04 / 2.91
<b>WATER HEAT EXCHANGER HEATING</b>				
Water temperature in	°C	40	40	40
Water temperature out	°C	45	45	45
Water flow rate	l/s	2.7	3.3	4.5
Water pressure drop	kPa	17.7	24.9	22.7
<b>FAN</b>				
Air Temperature		7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m2°C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.8	3.5	4.7
Water pressure drop	kPa	18.3	27.4	24.4
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS

<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	546	644	749
Operating Weight	kg	551	650	757
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)

**EWYT~CZH MAX ("MAX" configuration has to be setted on site through the controller)**

MODEL		EWYT016CZH-A1_MAX	EWYT021CZH-A1_MAX	EWYT025CZH-A1_MAX	EWYT032CZH-A1_MAX	EWYT040CZH-A1_MAX	EWYT040CZH-A2_MAX
<b>COOLING PERFORMANCE</b>							
Capacity - Cooling	kW	18.7	25.4	29.6	39.1	45.7	50.1
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	18	14	12	19	15	14
Unit power input - Cooling	kW	6.9	8.7	10.8	13.5	16.7	17.3
EER		2.69	2.93	2.73	2.89	2.73	2.9
SEER		5.2	5.32	5.34	5.67	5.34	5.76
IPLV		5.83	6.29	6.05	6.25	5.87	6.37
<b>HEATING PERFORMANCE</b>							
Capacity - Heating	kW	18	23.9	28.3	36.1	44.2	48.3
Unit power input - Heating	kW	5.7	7.3	9.1	11.6	14.2	14.7
COP		3.15	3.26	3.1	3.11	3.11	3.28
SCOP Low / Medium Temp		3.88 / 0	4.06 / 2.84	4.08 / 2.89	4.11 / 2.87	4.13 / 2.91	4.14 / 2.98
<b>WATER HEAT EXCHANGER HEATING</b>							
Water temperature in	°C	40	40	40	40	40	40
Water temperature out	°C	45	45	45	45	45	45
Water flow rate	l/s	0.9	1.2	1.4	1.8	2.2	2.3
Water pressure drop	kPa	25.3	14.7	19.8	23.7	34.1	13.3
<b>FAN</b>							
Air Temperature		7	7	7	7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>							
Type *		Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water	Water	Water	Water
Fouling Factor	m <sup>2</sup> °C/W	0	0	0	0	0	0
Water Volume	l	1	2	2	2	2	5
Water temperature in	°C	12	12	12	12	12	12
Water temperature out	°C	7	7	7	7	7	7
Water flow rate	l/s	0.9	1.2	1.4	1.9	2.2	2.4
Water pressure drop	kPa	25.6	15.7	20.7	26.4	35	13.8
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>							
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>							
Type *		Axial	Axial	Axial	Axial	Axial	Axial
Drive *		VFD	VFD	VFD	VFD	VFD	VFD
Nominal air flow	l/s	3228	3122	3524	5080	6701	5444
Air Temperature	°C	35	35	35	35	35	35
Quantity	No.	1	1	1	2	2	2
Speed	rpm	800	800	900	700	900	700
Motor input	kW	0.4	0.4	0.5	0.5	1.1	0.5
<b>CASING</b>							
Colour *		IW	IW	IW	IW	IW	IW
Material *		GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
<b>DIMENSIONS</b>							
Height	mm	1878	1878	1878	1878	1878	1878
Width	mm	1152	1152	1152	1752	1752	2306
Length	mm	802	802	802	802	802	814
<b>WEIGHT</b>							
Unit Weight	kg	261	286	286	393	392	546
Operating Weight	kg	262	288	288	396	395	551
<b>COMPRESSOR</b>							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	2.2	2.2	2.2	3.2	3.2	4.4
Quantity	No.	1	1	1	1	1	2



<b>SOUND LEVEL**</b>							
Sound Power - Cooling	dB(A)	76	76	78	79	80	80
Sound Pressure level @1m distance - Cooling	dB(A)	59.7	59.7	61.7	62.2	63.2	62.8
<b>REFRIGERANT CIRCUIT</b>							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	3	5.5	5.5	7	8	12
N. of circuits	No.	1	1	1	1	1	2
<b>PIPING CONNECTIONS</b>							
Evaporator water inlet/outlet	mm	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	1"1/4 (female)	2" (female)

MODEL		EWYT050CZH-A2_MAX	EWYT064CZH-A2_MAX	EWYT090CZH-A2_MAX
<b>COOLING PERFORMANCE</b>				
Capacity - Cooling	kW	58.7	73.4	98.9
Capacity control - Type		Inverter Controlled	Inverter Controlled	Inverter Controlled
Capacity control - Minimum capacity	%	12	15	14
Unit power input - Cooling	kW	21.3	27.6	38.5
EER		2.76	2.66	2.57
SEER		5.4	5.27	5.12
IPLV		5.92	5.88	5.61
<b>HEATING PERFORMANCE</b>				
Capacity - Heating	kW	56.7	68.6	94
Unit power input - Heating	kW	18.6	23.4	32.6
COP		3.06	2.94	2.88
SCOP Low / Medium Temp		4.09 / 2.96	3.94 / 2.84	4 / 2.88
<b>WATER HEAT EXCHANGER HEATING</b>				
Water temperature in	°C	40	40	40
Water temperature out	°C	45	45	45
Water flow rate	l/s	2.7	3.3	4.5
Water pressure drop	kPa	17.7	24.9	22.7
<b>FAN</b>				
Air Temperature		7	7	7
<b>WATER HEAT EXCHANGER COOLING</b>				
Type *		Brazed plate	Brazed plate	Brazed plate
Fluid		Water	Water	Water
Fouling Factor	m2°C/W	0	0	0
Water Volume	l	5	5	8
Water temperature in	°C	12	12	12
Water temperature out	°C	7	7	7
Water flow rate	l/s	2.8	3.5	4.7
Water pressure drop	kPa	18.3	27.4	24.4
Insulation material *		Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam	Black closed-cell flexible elastomeric foam
<b>AIR HEAT EXCHANGER</b>				
Type *		Al Fins&Cu Tubes	Al Fins&Cu Tubes	Al Fins&Cu Tubes
<b>FAN</b>				
Type *		Axial	Axial	Axial
Drive *		VFD	VFD	VFD
Nominal air flow	l/s	7048	8967	13402
Air Temperature	°C	35	35	35
Quantity	No.	2	3	4
Speed	rpm	900	800	900
Motor input	kW	1.1	1.2	2.3
<b>CASING</b>				
Colour *		IW	IW	IW
Material *		GPSS	GPSS	GPSS

<b>DIMENSIONS</b>				
Height	mm	1878	1878	1878
Width	mm	2306	2906	3506
Length	mm	814	814	814
<b>WEIGHT</b>				
Unit Weight	kg	546	644	749
Operating Weight	kg	551	650	757
<b>COMPRESSOR</b>				
Type		Scroll	Scroll	Scroll
Oil charge	l	4.4	5.4	6.4
Quantity	No.	2	2	2
<b>SOUND LEVEL**</b>				
Sound Power - Cooling	dB(A)	81	83	85
Sound Pressure level @1m distance - Cooling	dB(A)	63.8	65.4	67
<b>REFRIGERANT CIRCUIT</b>				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	12	13	16
N. of circuits	No.	2	2	2
<b>PIPING CONNECTIONS</b>				
Evaporator water inlet/outlet	mm	2" (female)	2" (female)	2" (female)

All the cooling performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: 12,0/7,0°C; ambient 35,0°C, unit at full load operation; operating fluid: Water; fouling factor = 0. EN14511:2018

All the heating performances (Heating capacity, unit power input in heating and COP) are based on the following conditions: 40,0/45,0°C; ambient 7,0°C, unit at full load operation; operating fluid: Water; fouling factor = 0. EN14511:2018

The values of SCOP and  $\eta_s$  are calculated in accordance with the Ecodesign regulation No. 813/2013 and the standard EN 14825-2018, these units are classified as "Medium Temperature Heat Pumps" except for the 16kW size that is classified as "Low Temperature Heat Pumps".

SCOP calculation for Low and Medium Temperature is based on the following conditions: T<sub>bivalent</sub> -7 °C, T<sub>design</sub> -10 °C, Average Climate.

SEER is calculated in accordance with the regulation No. 2281/2016 and standard EN14825 for information only, unless the unit is a "cooling-only" type.

\*\* Sound power level is measured in cooling mode at full load (referred to 12/7°C, ambient 35°C) in accordance with ISO 9614 and Eurovent requirements The sound pressure is calculated from the sound power level and are for information only and not considered binding.

The minimum capacity indicated is referred to unit operating at standard Eurovent conditions.

Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request.

All the data are referred to standard unit without options. All data are subject to change without notice

## EWAT~CZN / MAX

MODEL		EWAT016CZN-A1	EWAT021CZN-A1	EWAT025CZN-A1	EWAT032CZN-A1	EWAT040CZN-A1	EWAT040CZN-A2
<b>POWER SUPPLY</b>							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
<b>UNIT</b>							
Maximum inrush current	A	0	0	0	0	0	0
Nominal running current cooling STD / MAX	A	14 / 16	15 / 18	18 / 21	25 / 30	29 / 33	30 / 35
Maximum running current	A	17	21	23	34	38	41
Maximum current for wires sizing	A	21	25	28	41	46	50
<b>COMPRESSORS</b>							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	0	0	0	0	0	0
Starting method		VFD	VFD	VFD	VFD	VFD	VFD

MODEL		EWAT050CZN-A2	EWAT064CZN-A2	EWAT090CZN-A2
<b>POWER SUPPLY</b>				
Phases	No.	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
<b>UNIT</b>				
Maximum inrush current	A	0	0	0
Nominal running current cooling STD / MAX	A	34 / 41	46 / 54	62 / 72
Maximum running current	A	46	61	83
Maximum current for wires sizing	A	56	73	101
<b>COMPRESSORS</b>				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
Maximum running current	A	0	0	0
Starting method		VFD	VFD	VFD

## EWAT~CZP / MAX

MODEL		EWAT016CZP-A1	EWAT021CZP-A1	EWAT025CZP-A1	EWAT032CZP-A1	EWAT040CZP-A1	EWAT040CZP-A2
<b>POWER SUPPLY</b>							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
<b>UNIT</b>							
Maximum inrush current	A	0	0	0	0	0	0
Nominal running current cooling STD / MAX	A	11 / 13	13 / 16	16 / 19	22 / 27	25 / 30	26 / 32
Maximum running current	A	21	25	27	38	42	45
Maximum current for wires sizing	A	21	25	28	41	46	50
<b>COMPRESSORS</b>							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	0	0	0	0	0	0
Starting method		VFD	VFD	VFD	VFD	VFD	VFD

MODEL		EWAT050CZP-A2	EWAT064CZP-A2	EWAT090CZP-A2
<b>POWER SUPPLY</b>				
Phases	No.	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
<b>UNIT</b>				
Maximum inrush current	A	0	0	0
Nominal running current Cooling STD / MAX	A	31 / 38	42 / 51	58 / 68
Maximum running current	A	50	66	88
Maximum current for wires sizing	A	56	73	101
<b>COMPRESSORS</b>				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
Maximum running current	A	0	0	0
Starting method		VFD	VFD	VFD

## EWAT~CZH / MAX

MODEL		EWAT016CZH-A1	EWAT021CZH-A1	EWAT025CZH-A1	EWAT032CZH-A1	EWAT040CZH-A1	EWAT040CZH-A2
<b>POWER SUPPLY</b>							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
<b>UNIT</b>							
Maximum inrush current	A	0	0	0	0	0	0
Nominal running current cooling STD / MAX	A	11 / 13	13 / 16	16 / 19	22 / 27	25 / 30	26 / 32
Maximum running current	A	21	25	27	39	43	46
Maximum current for wires sizing	A	21	25	28	41	46	50
<b>COMPRESSORS</b>							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	0	0	0	0	0	0
Starting method		VFD	VFD	VFD	VFD	VFD	VFD

MODEL		EWAT050CZH-A2	EWAT064CZH-A2	EWAT090CZH-A2
<b>POWER SUPPLY</b>				
Phases	No.	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
<b>UNIT</b>				
Maximum inrush current	A	0	0	0
Nominal running current Cooling STD / MAX	A	31 / 38	42 / 51	58 / 68
Maximum running current	A	51	68	90
Maximum current for wires sizing	A	56	73	101
<b>COMPRESSORS</b>				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
Maximum running current	A	0	0	0
Starting method		VFD	VFD	VFD

## EWYT~CZN / MAX

MODEL		EWAT016CZN-A1	EWAT021CZN-A1	EWAT025CZN-A1	EWAT032CZN-A1	EWAT040CZN-A1	EWAT040CZN-A2
<b>POWER SUPPLY</b>							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
<b>UNIT</b>							
Maximum inrush current	A	0	0	0	0	0	0
Nominal running current cooling STD / MAX	A	13 / 15	15 / 18	18 / 21	24 / 29	28 / 32	29 / 34
Maximum running current	A	17	21	23	34	38	41
Maximum current for wires sizing	A	21	25	28	41	46	50
<b>COMPRESSORS</b>							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	0	0	0	0	0	0
Starting method		VFD	VFD	VFD	VFD	VFD	VFD

MODEL		EWAT050CZN-A2	EWAT064CZN-A2	EWAT090CZN-A2
<b>POWER SUPPLY</b>				
Phases	No.	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
<b>UNIT</b>				
Maximum inrush current	A	0	0	0
Nominal running current cooling STD / MAX	A	33 / 40	44 / 52	60 / 70
Maximum running current	A	46	61	83
Maximum current for wires sizing	A	56	73	101
<b>COMPRESSORS</b>				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
Maximum running current	A	0	0	0
Starting method		VFD	VFD	VFD

## EWYT~CZP / MAX

MODEL		EWAT016CZP-A1	EWAT021CZP-A1	EWAT025CZP-A1	EWAT032CZP-A1	EWAT040CZP-A1	EWAT040CZP-A2
<b>POWER SUPPLY</b>							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
<b>UNIT</b>							
Maximum inrush current	A	0	0	0	0	0	0
Nominal running current cooling STD / MAX	A	11 / 13	13 / 16	16 / 19	22 / 27	25 / 30	26 / 32
Maximum running current	A	21	25	27	38	42	45
Maximum current for wires sizing	A	21	25	28	41	46	50
<b>COMPRESSORS</b>							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	0	0	0	0	0	0
Starting method		VFD	VFD	VFD	VFD	VFD	VFD

MODEL		EWAT050CZP-A2	EWAT064CZP-A2	EWAT090CZP-A2
<b>POWER SUPPLY</b>				
Phases	No.	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
<b>UNIT</b>				
Maximum inrush current	A	0	0	0
Nominal running current Cooling STD / MAX	A	31 / 38	42 / 51	58 / 68
Maximum running current	A	50	66	88
Maximum current for wires sizing	A	56	73	101
<b>COMPRESSORS</b>				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
Maximum running current	A	0	0	0
Starting method		VFD	VFD	VFD

## EWYT~CZH / MAX

MODEL		EWAT016CZH-A1	EWAT021CZH-A1	EWAT025CZH-A1	EWAT032CZH-A1	EWAT040CZH-A1	EWAT040CZH-A2
<b>POWER SUPPLY</b>							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
<b>UNIT</b>							
Maximum inrush current	A	0	0	0	0	0	0
Nominal running current cooling STD / MAX	A	11 / 13	13 / 16	16 / 19	22 / 27	25 / 30	26 / 32
Maximum running current	A	21	25	27	39	43	46
Maximum current for wires sizing	A	21	25	28	41	46	50
<b>COMPRESSORS</b>							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	0	0	0	0	0	0
Starting method		VFD	VFD	VFD	VFD	VFD	VFD

MODEL		EWAT050CZH-A2	EWAT064CZH-A2	EWAT090CZH-A2
<b>POWER SUPPLY</b>				
Phases	No.	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
<b>UNIT</b>				
Maximum inrush current	A	0	0	0
Nominal running current Cooling STD / MAX	A	31 / 37	42 / 51	58 / 68
Maximum running current	A	51	68	90
Maximum current for wires sizing	A	56	73	101
<b>COMPRESSORS</b>				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
Maximum running current	A	0	0	0
Starting method		VFD	VFD	VFD

The data are referred to the standard unit without options

All data are subject to change without notice, Please refer to unit nameplate data

Fluid: Water

Allowed voltage tolerance  $\pm 10\%$ , Voltage unbalance between phases must be within  $\pm 3\%$ .

Maximum starting current: In case of inverter driven units, no inrush current at start up is experienced.

Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; ambient 35°C; compressors + fans current

Maximum running current is based on max compressor absorbed current in its envelope and max fans absorbed current

Maximum unit current for wires sizing is based on minimum allowed voltage



## EWA(Y)T~CZ

	Sound pressure level at 1 m from the unit									Sound Power
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	db(A)	db (A)
EWYT/EWAT016CZ-A1	68.1	63.0	58.0	54.9	55.5	50.8	49.0	42.3	<b>59.6</b>	<b>76.0</b>
EWYT/EWAT021CZ-A1	71.2	65.5	58.7	55.4	53.7	51.5	49.0	42.9	<b>59.6</b>	<b>76.0</b>
EWYT/EWAT025CZ-A1	74.3	69.9	60.9	56.8	54.5	53.5	51.1	44.8	<b>61.6</b>	<b>78.0</b>
EWYT/EWAT032CZ-A1	68.5	62.6	59.5	58.2	57.9	55.0	49.1	33.8	<b>62.2</b>	<b>79.0</b>
EWYT/EWAT040CZ-A1	68.6	62.7	59.7	58.8	59.5	55.9	49.2	33.8	<b>63.2</b>	<b>80.0</b>
EWYT/EWAT040CZ-A2	74.3	68.5	61.8	58.5	56.9	54.6	52.1	45.9	<b>62.8</b>	<b>80.0</b>
EWYT/EWAT050CZ-A2	77.1	72.0	63.4	59.0	56.3	55.1	53.6	47.8	<b>63.8</b>	<b>81.0</b>
EWYT/EWAT064CZ-A2	75.0	70.8	64.9	61.3	58.9	58.6	52.4	46.2	<b>65.4</b>	<b>83.0</b>
EWYT/EWAT090CZ-A2	75.2	71.3	65.7	62.6	60.6	61.3	52.7	46.2	<b>67.0</b>	<b>85.0</b>

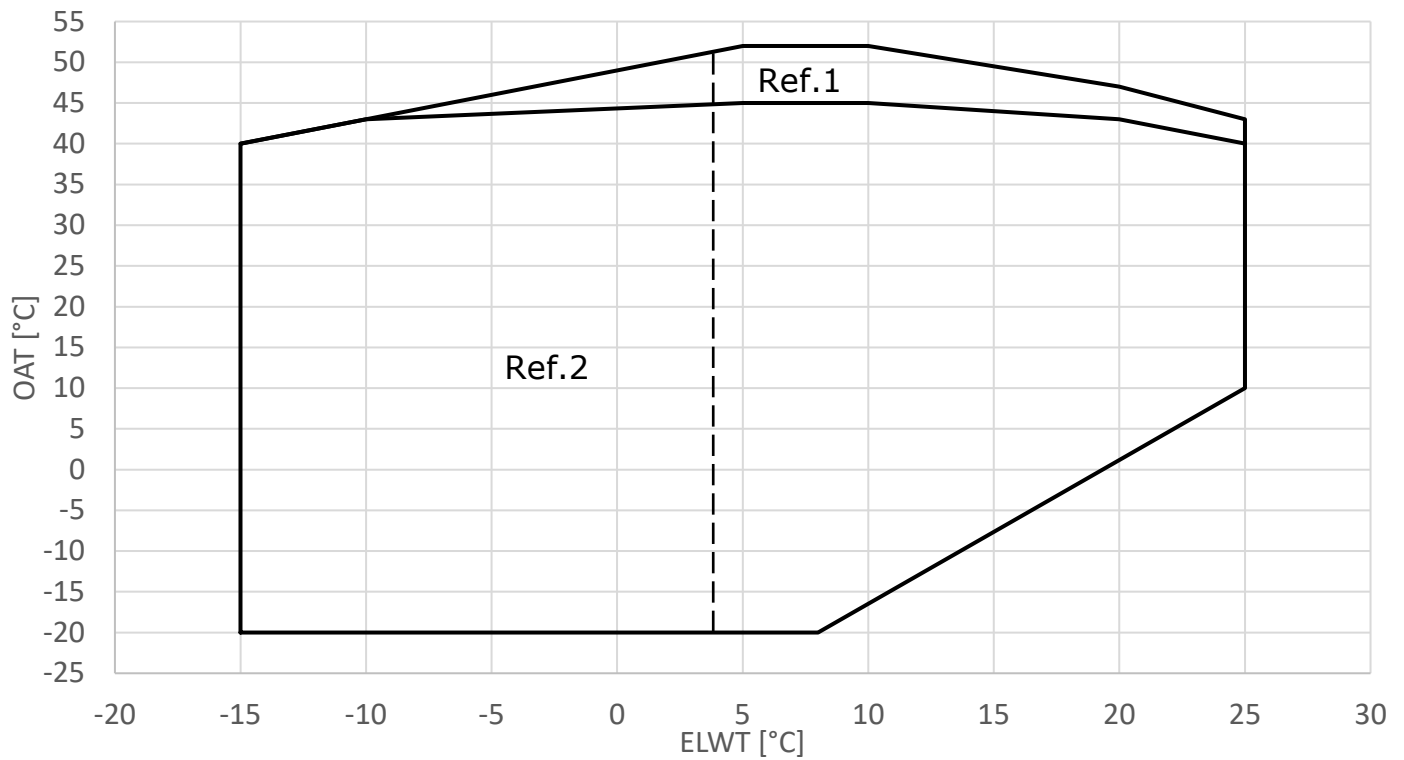
Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1.

The certification refers only to the overall sound power level.

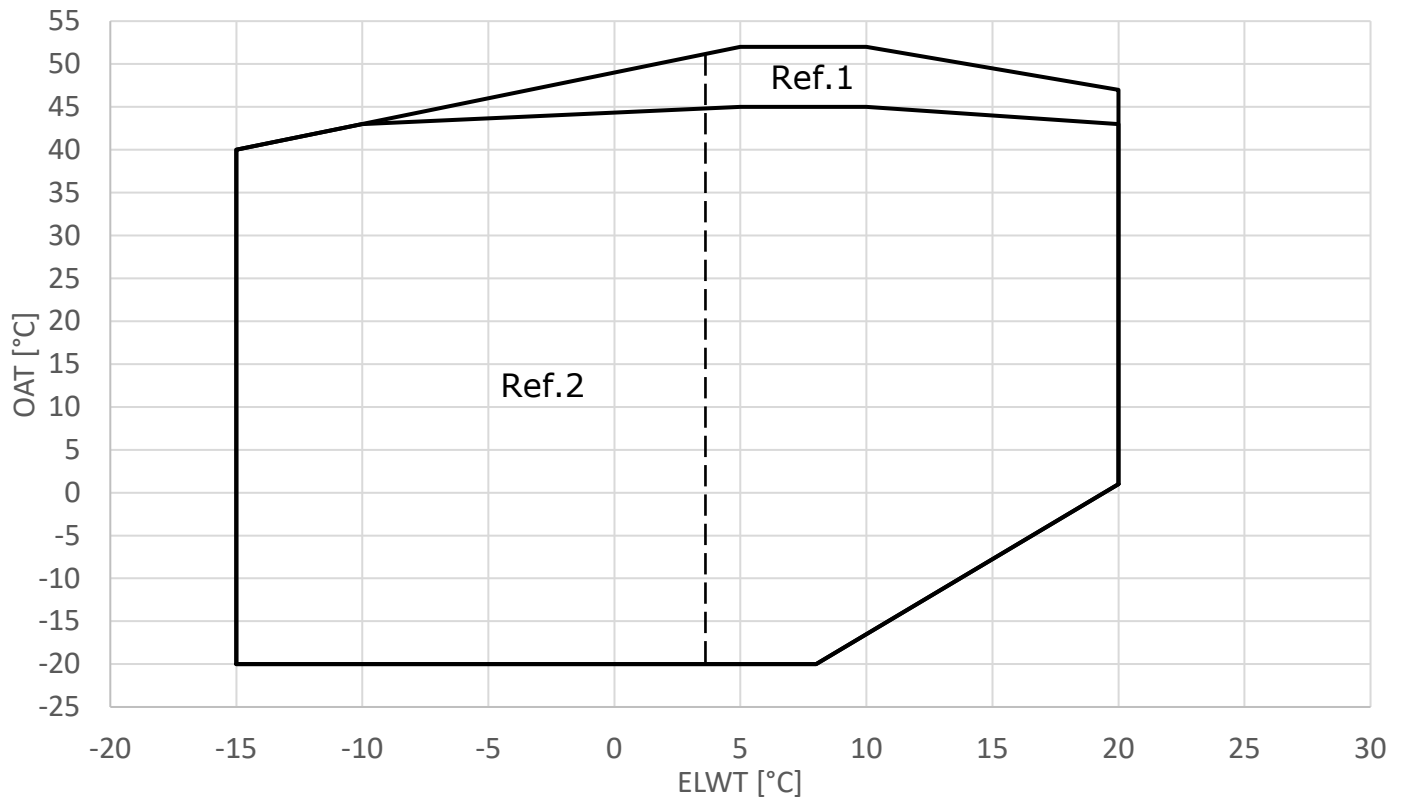
The sound data in the Octave band spectrum is intended for reference only and not considered binding.

The sound pressure is calculated from the sound power level and are for information only and not considered binding.

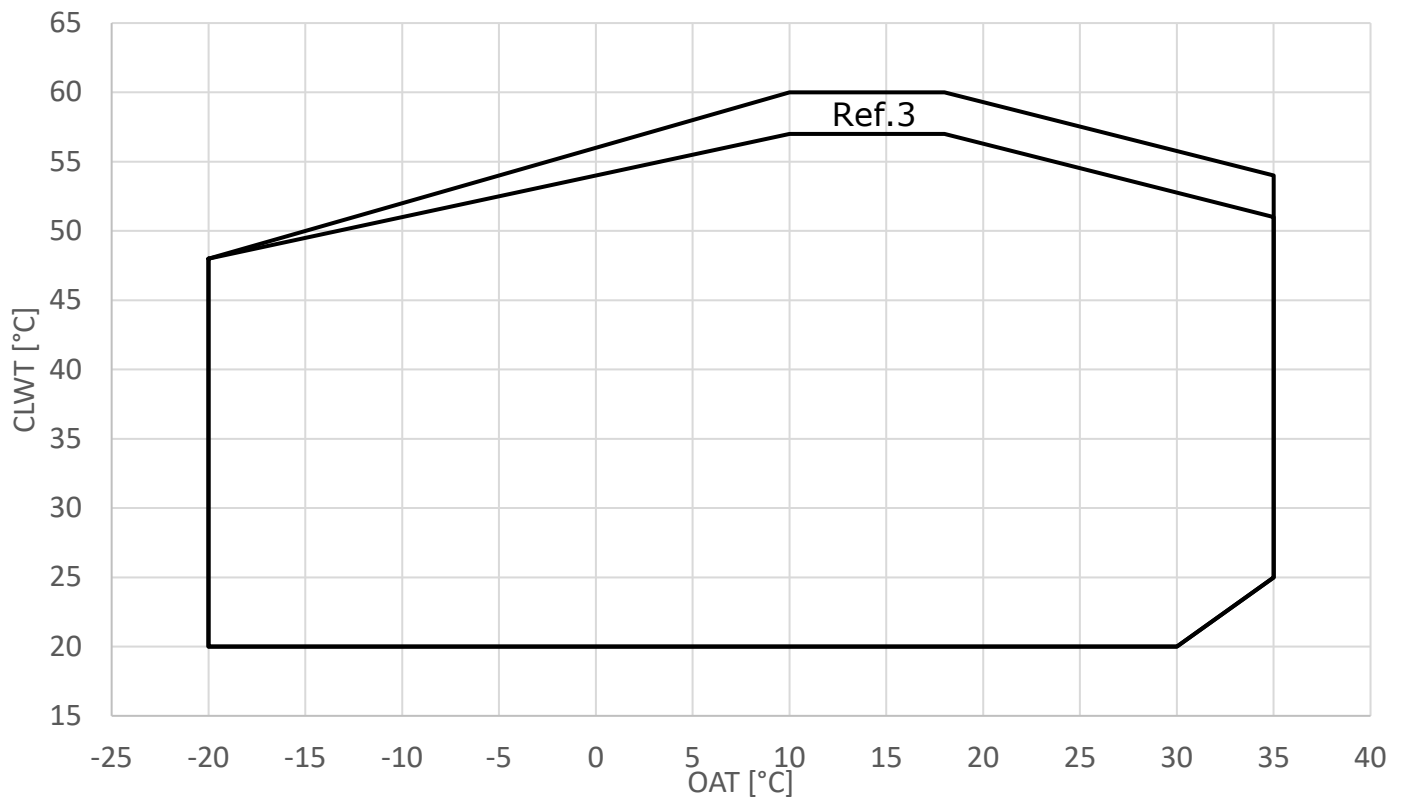
## ENVELOPE COOLING – EWAT-CZ



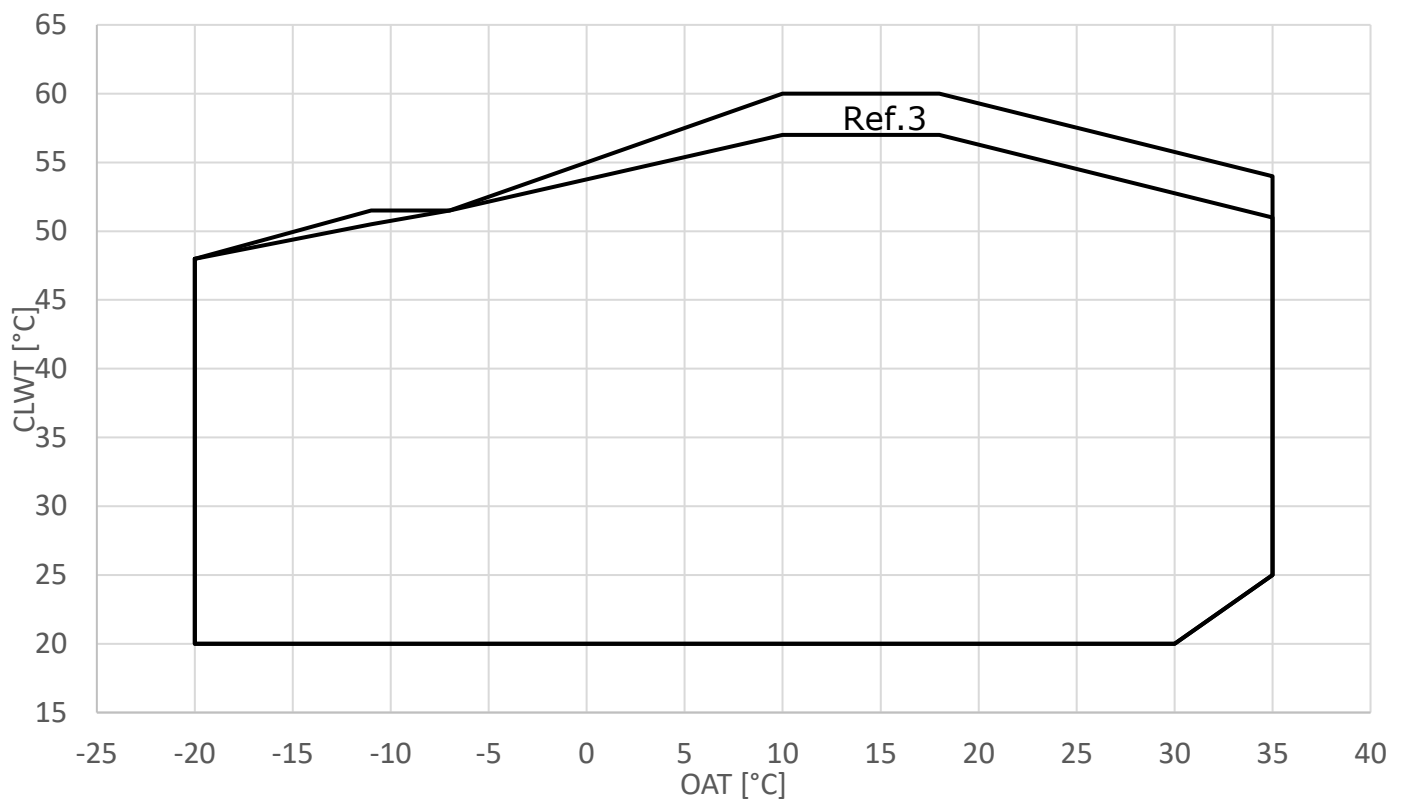
## ENVELOPE COOLING – EWYT-CZ



**ENVELOPE HEATING – EWYT-CZ [sizes 21-90]**



**ENVELOPE HEATING – EWYT-CZ [size16]**



*\*16 kW size has a dedicated envelope, being a "Low Temp. Heat Pump" and not a "Medium Temp." One*

**Ref. 1** Unit operations in this area require OP. 192 - HIGH AMBIENT TEMPERATURE KIT.

**Ref. 2** Unit operations in this area require the enabling of the Brine version in the controller and the use of the proper amount of glycol.

**Ref. 3** Certain unit sizes might work in part load in this area.

### Water heat exchanger - minimum/maximum water $\Delta t$

The minimum and maximum allowed  $\Delta t$  at full load conditions are respectively 4°C and 8°C. Contact factory in case lower or higher  $\Delta t$  are required. Minimum and maximum evaporator flows are to be respected withing the  $\Delta t$  range above.

### Water flow

The following tables indicate the minimum and maximum water flow allowed for each model. For application with Variable Primary Flow refer to the following value for the dimensioning of the bypass line.

The minimum flow indicated correspond to the minimum flow allowed at minimum load for the unit. It is not intended as minimum flow allowed for unit full load operation.

For minimum flow allowed (maximum deltaT) in full load operation refer to Selection Software.

Note: the performances are certified at standard conditions and with the unit operating with the nominal water flow (corresponding to OAT 35°C; water in/out 12/7°C).

N – Naked Version			P – H Pump Versions		
MODEL	Min Flow [l/s]	Max flow [l/s]	MODEL	Min flow [l/s]	Max flow [l/s]
EWAT/EWYT016CZN-A1	0.44	2.34	EWAT/EWYT016CZP(H)-A1	0.44	1.70
EWAT/EWYT021CZN-A1	0.84	2.66	EWAT/EWYT021CZP(H)-A1	0.84	1.90
EWAT/EWYT025CZN-A1	0.84	2.66	EWAT/EWYT025CZP(H)-A1	0.84	1.90
EWAT/EWYT032CZN-A1	1.01	2.66	EWAT/EWYT032CZP(H)-A1	1.01	2.66
EWAT/EWYT040CZN-A1	1.01	2.66	EWAT/EWYT040CZP(H)-A1	1.01	2.66
EWAT/EWYT040CZN-A2	1.41	6.00	EWAT/EWYT040CZP(H)-A2	1.41	3.89
EWAT/EWYT050CZN-A2	1.41	6.00	EWAT/EWYT050CZP(H)-A2	1.41	3.89
EWAT/EWYT064CZN-A2	1.41	6.00	EWAT/EWYT064CZP(H)-A2	1.41	5.50
EWAT/EWYT090CZN-A2	2.43	6.66	EWAT/EWYT090CZP(H)-A2	2.43	6.00

### Minimum glycol percentage for low air ambient temperature to prevent freezing of the hydraulic circuit

AMBIENT T [°C]	-3	-8	-15	-20
ETHYLENE GLYCOL	10%	20%	30%	40%

AMBIENT T [°C]	-3	-8	-15	-20
PROPYLENE GLYCOL	10%	20%	30%	40%

The presence of glycol in the water system will affect unit performances. Refer to the selection software for details. All machine protection systems, such as antifreeze and low-pressure protection will need to be set in accordance to the type and percentage of the glycol and plant requirements.

### Air heat exchanger - Altitude correction factors

ELEVATION ABOVE SEA LEVEL [m]	0	300	600	900	1200	1500	1800
BAROMETRIC PRESSURE [mbar]	1013	997	942	908	875	843	812
COOLING CAPACITY CORRECTION FACTOR	1	0,993	0,986	0,979	0,973	0,967	0,96
POWER INPUT CORRECTION FACTOR	1	1,005	1,009	1,015	1,021	1,026	1,031

Maximum operating altitude is 1800 m above sea level.

### Available fan static pressure correction factors

COOLING			
EXTERNAL STATIC PRESSURE [Pa]	0	50	100
COOLING CAPACITY CORRECTION FACTOR	1	0.99	0.98
UNIT PI CORRECTION FACTOR	1	1.03	1.07
REDUCTION OF MAX OPERATING AMBIENT TEMPERATURE [°C]	0	-1.5	-2.5

<b>HEATING</b>			
<b>EXTERNAL STATIC PRESSURE [Pa]</b>	<b>0</b>	<b>50</b>	<b>100</b>
<b>HEATING CAPACITY CORRECTION FACTOR</b>	1	0.99	0.97
<b>UNIT PI CORRECTION FACTOR</b>	1	1.008	1.011
<b>INCREASE OF MIN OPERATING AMBIENT TEMPERATURE [°C]</b>	0	+0.5	+1.0

<b>COOLING Boosted Fan</b>			
<b>EXTERNAL STATIC PRESSURE [Pa]</b>	<b>0</b>	<b>50</b>	<b>100</b>
<b>COOLING CAPACITY CORRECTION FACTOR</b>	1	1	1
<b>UNIT PI CORRECTION FACTOR</b>	1	1.04	1.09
<b>REDUCTION OF MAX OPERATING AMBIENT TEMPERATURE [°C]</b>	0	0	0

<b>HEATING Boosted Fan</b>			
<b>EXTERNAL STATIC PRESSURE [Pa]</b>	<b>0</b>	<b>50</b>	<b>100</b>
<b>HEATING CAPACITY CORRECTION FACTOR</b>	1	1	1
<b>UNIT PI CORRECTION FACTOR</b>	1	1.05	1.10
<b>INCREASE OF MIN OPERATING AMBIENT TEMPERATURE [°C]</b>	0	0	0

Applications with more than 100 Pa of external static pressure are not recommended.  
 Heating correction factors are intended not considering the de frost.  
 In case of canalization is not possible to reduce Sound power level with Fan Silent Mode.

### Maximum cable dimension

Maximum cable dimension that can be physically connected to the main switch of the unit.

Model	Max cable size [mm <sup>2</sup> ]	Model [A]	Max cable size [mm <sup>2</sup> ]	Model [A]
	STD Configuration		HIGH AMBIENT TEMPERATURE KIT OP.192	
EWAT/EWYT016CZN(P)(H)-A1	16	63	16	63
EWAT/EWYT021CZN(P)(H)-A1	16	63	16	63
EWAT/EWYT025CZN(P)(H)-A1	16	63	16	63
EWAT/EWYT032CZN(P)(H)-A1	16	63	50	100
EWAT/EWYT040CZN(P)(H)-A1	16	63	50	100
EWAT/EWYT040CZN(P)(H)-A2	50	80	50	80
EWAT/EWYT050CZN(P)(H)-A2	50	80	50	80
EWAT/EWYT064CZN(P)(H)-A2	50	100	70	125
EWAT/EWYT090CZN(P)(H)-A2	70	125	70	125

**Plant water content** The chilled water distribution circuits should have a minimum water content to avoid excessive compressors start and stop.

During the span of one hour there will be no more than 10 starts of the compressor. The plant side should therefore ensure that the overall water content allows a more constant functioning of the unit and consequently greater environmental comfort.

The calculation of the water content should also consider the plant's design parameters.

As a general indication the water content should not be less than the values in the following table:

Heat-Pump	Suggested L/kW	Min water content [L]	Cooling-Only	Suggested L/kW	Min water content [L]
EWYT016CZN/P/H-A1	5.7	<b>90</b>	EWAT016CZN/P/H-A1	3.7	<b>58</b>
EWYT021CZN/P/H-A1	5.0	<b>100</b>	EWAT021CZN/P/H-A1	2.8	<b>58</b>
EWYT025CZN/P/H-A1	4.4	<b>110</b>	EWAT025CZN/P/H-A1	2.3	<b>58</b>
EWYT032CZN/P/H-A1	4.9	<b>160</b>	EWAT032CZN/P/H-A1	2.8	<b>90</b>
EWYT040CZN/P/H-A1	4.6	<b>180</b>	EWAT040CZN/P/H-A1	2.3	<b>90</b>
EWYT040CZN/P/H-A2	3.0	<b>120</b>	EWAT040CZN/P/H-A2	1.5	<b>60</b>
EWYT050CZN/P/H-A2	2.6	<b>130</b>	EWAT050CZN/P/H-A2	1.2	<b>60</b>
EWYT064CZN/P/H-A2	2.7	<b>170</b>	EWAT064CZN/P/H-A2	1.1	<b>73</b>
EWYT090CZN/P/H-A2	2.7	<b>230</b>	EWAT090CZN/P/H-A2	1.0	<b>90</b>

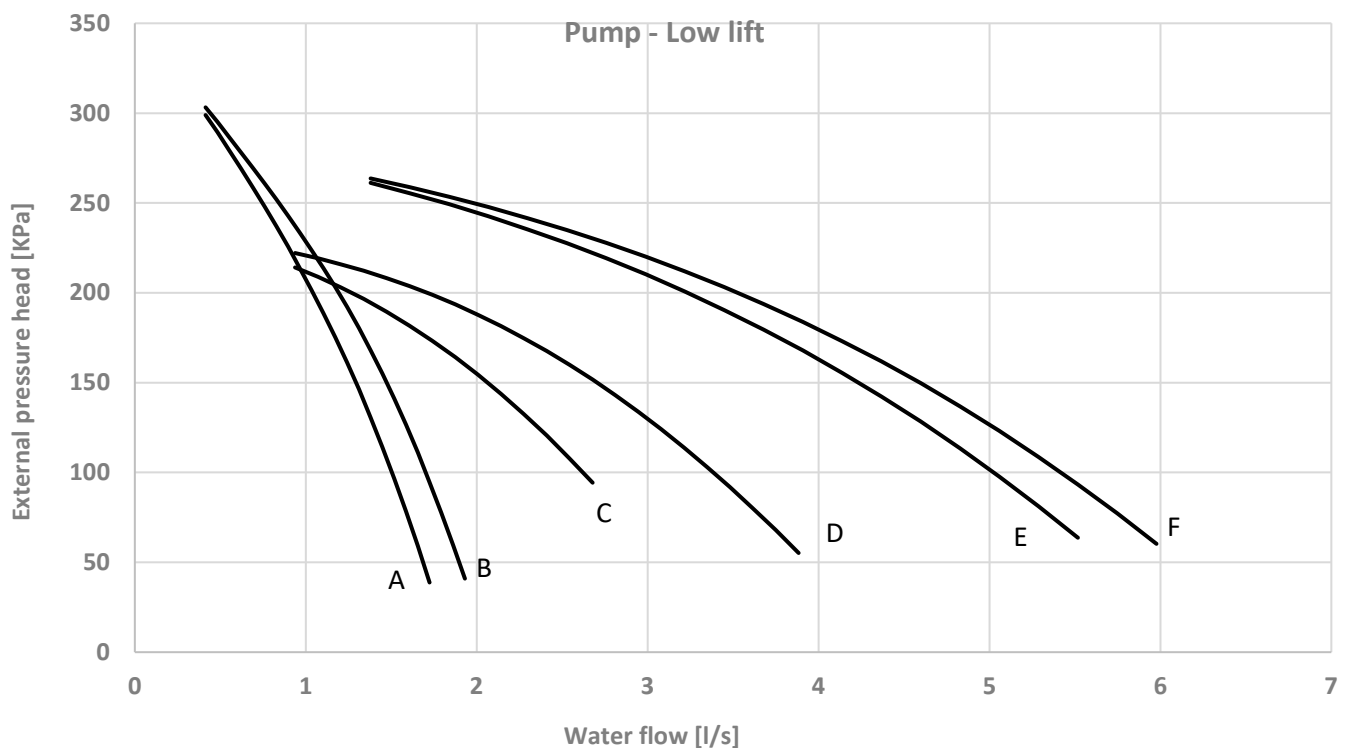
Note: The indication is intended as a general guideline and not intended to substitute the evaluation made by qualified technical personnel or by HVAC engineers. For more detailed analysis is better to consider the use of other more detailed approach.

**Water quality** Before putting the unit into operation, clean the water circuit. Dirt, scales, corrosion debris and other material can accumulate inside the heat exchanger and reduce its heat exchanging capacity. Pressure drop can increase as well, thus reducing water flow. Proper water treatment therefore reduces the risk of corrosion, erosion, scaling, etc. The most appropriate water treatment must be determined locally, according to the type of system and water characteristics. The manufacturer is not responsible for damage to or malfunctioning of equipment caused by failure to treat water or by improperly treated water. Plant water quality must respect the following table;

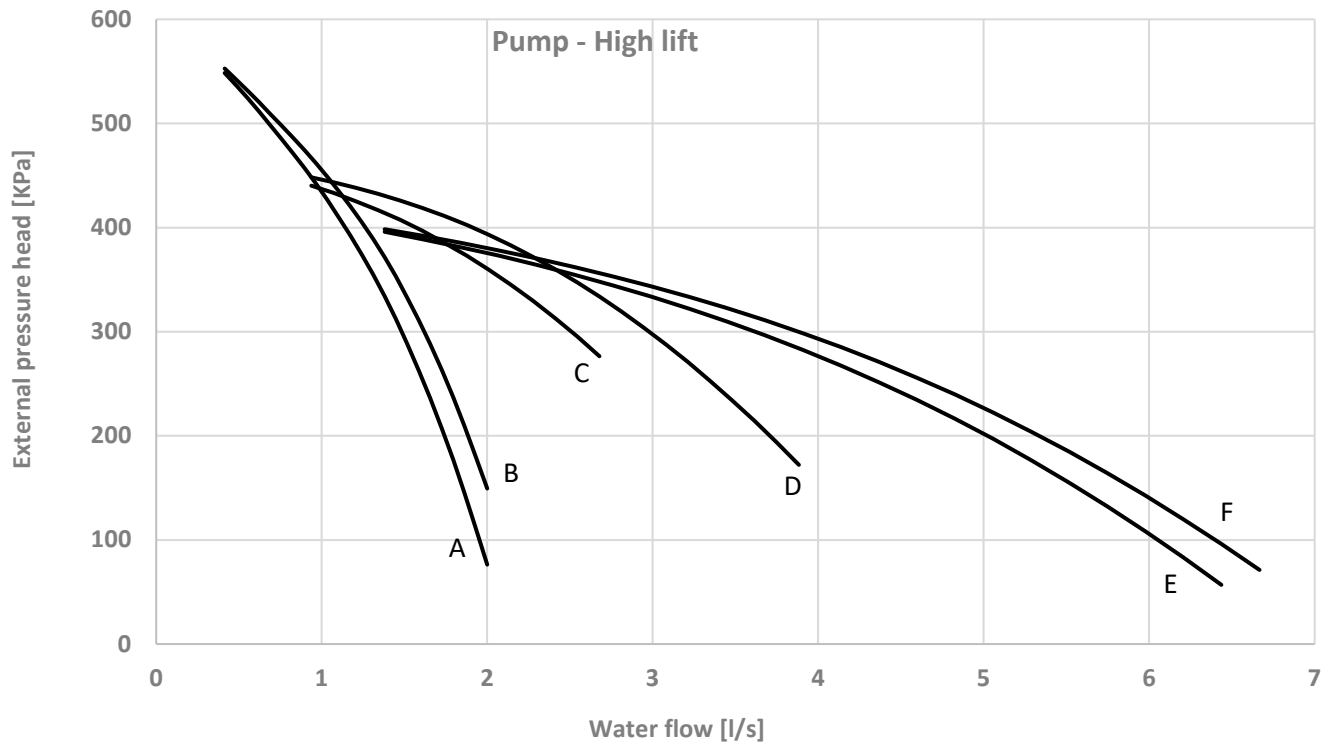
DAE Water quality requirements	BPHE
Ph (25 °C)	7.5 – 9.0
Electrical conductivity [ $\mu\text{S}/\text{cm}$ ] (25°C)	< 500
Chloride ion [ $\text{mgCl}^-/\text{l}$ ]	< 70 (HP <sup>1</sup> ); < 300 (CO <sup>2</sup> )
Sulphate ion [ $\text{mgSO}_4^{2-}/\text{l}$ ]	< 100
Alkalinity [ $\text{mg CaCO}_3/\text{l}$ ]	< 200
Total Hardness [ $\text{mgCaCO}_3/\text{l}$ ]	75 ÷ 150
Iron [ $\text{mgFe}/\text{l}$ ]	< 0.2
Ammonium ion [ $\text{mg NH}_4^+/\text{l}$ ]	< 0.5
Silica [ $\text{mgSiO}_2/\text{l}$ ]	-
Chlorine molecular ( $\text{mgCl}_2/\text{l}$ )	< 0.5

Note: 1. Heat Pump  
2. Cooling Only

### EWA(Y)T~CZP – Pump Low lift



## EWA(Y)T~CZH – Pump High lift



External pressure head refers to unit equipped with hydronic kit, defined as difference between pump external static pressure and evaporator and water filter pressure drops.

For water flow limits of the unit refer to water flow section.

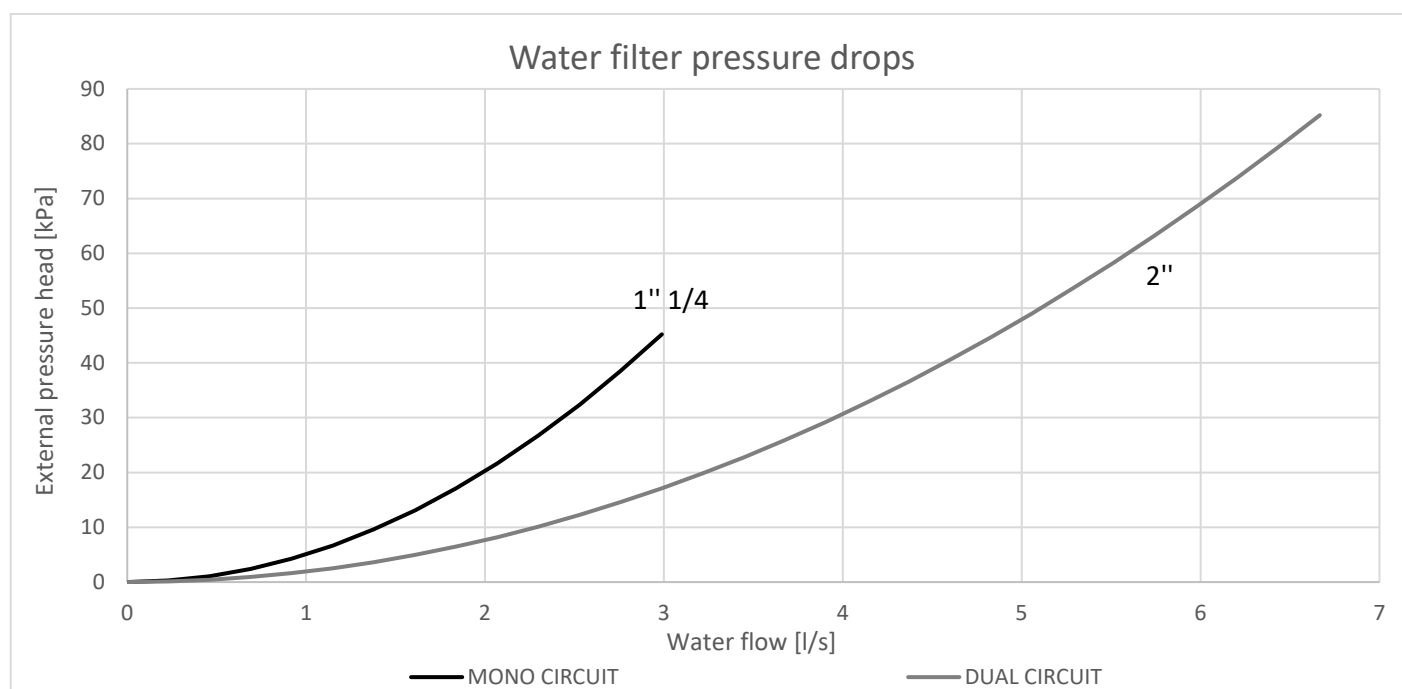
Pump - Low lift		Pump - High lift	
Model	Pump's curve	Model	Pump's curve
EWAT/EWYT016CZP-A1	A	EWAT/EWYT016CZH-A1	A
EWAT/EWYT021CZP-A1	B	EWAT/EWYT021CZH-A1	B
EWAT/EWYT025CZP-A1	B	EWAT/EWYT025CZH-A1	B
EWAT/EWYT032CZP-A1	C	EWAT/EWYT032CZH-A1	C
EWAT/EWYT040CZP-A1	C	EWAT/EWYT040CZH-A1	C
EWAT/EWYT040CZP-A2	D	EWAT/EWYT040CZH-A2	D
EWAT/EWYT050CZP-A2	D	EWAT/EWYT050CZH-A2	D
EWAT/EWYT064CZP-A2	E	EWAT/EWYT064CZH-A2	E
EWAT/EWYT090CZP-A2	F	EWAT/EWYT090CZH-A2	F



## Pump data

Model	Power [kW]	Current [A]	Model	Power [kW]	Current [A]
EWA(Y)T016CZP-A1	1,1	2,4	EWA(Y)T016CZH-A1	1,5	3,2
EWA(Y)T021CZP-A1	1,1	2,4	EWA(Y)T021CZH-A1	1,5	3,2
EWA(Y)T025CZP-A1	1,1	2,4	EWA(Y)T025CZH-A1	1,5	3,2
EWA(Y)T032CZP-A1	1,1	2,4	EWA(Y)T032CZH-A1	2,2	4,56
EWA(Y)T040CZP-A1	1,1	2,4	EWA(Y)T040CZH-A1	2,2	4,56
EWA(Y)T040CZP-A2	1,1	2,4	EWA(Y)T040CZH-A2	2,2	4,56
EWA(Y)T050CZP-A2	1,1	2,4	EWA(Y)T050CZH-A2	2,2	4,56
EWA(Y)T064CZP-A2	2,2	4,56	EWA(Y)T064CZH-A2	3	6,35
EWA(Y)T090CZP-A2	2,2	4,56	EWA(Y)T090CZH-A2	3	6,35

## Water filter pressure drops



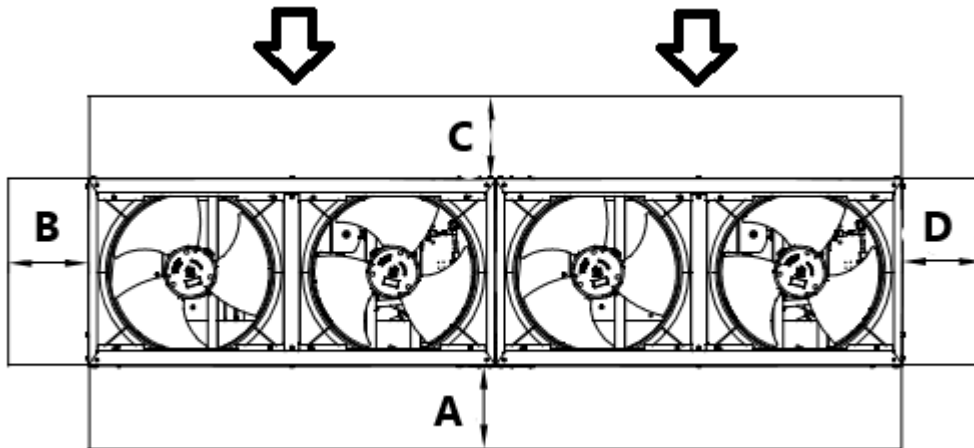
## Space requirements

It is fundamental to respect minimum distances on all units to ensure optimum ventilation to the condenser coils. When deciding where to position the unit and to ensure a proper air flow, the following factors must be taken into consideration:

- avoid any warm air recirculation;
- avoid insufficient air supply to the air-cooled condenser.


Both these conditions can cause an increase of condensing pressure, which leads to a reduction in energy efficiency and refrigerating capacity.

Any side of the unit must be accessible for post-installation maintenance operations and vertical air discharge must not be obstructed. Figure below shows the minimum space required.



### DUAL 90 kW unit

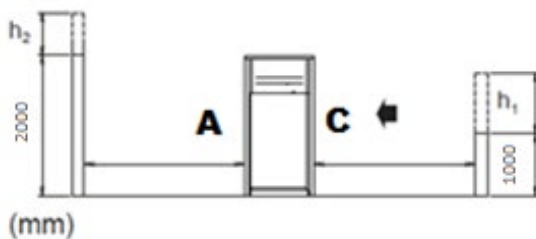
Where:

- **A** : Electrical panel side
- **B/D** : Side view of battery
- **C** : Front view of battery
-  Suction side

If the unit is installed in a free field, the distances indicated are:

$$A/B/C/D \geq 500 \text{ mm}$$

In the presence of obstacles or walls, the following minimum distances are recommended:

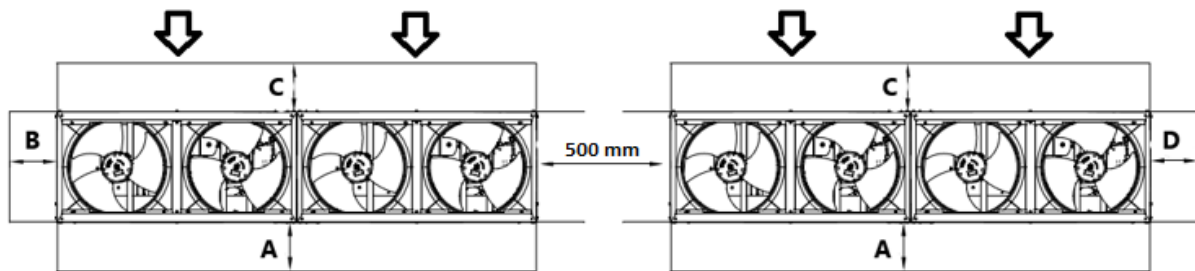


$$h_2 > 0 \rightarrow A \geq A + \frac{h_2}{2}$$

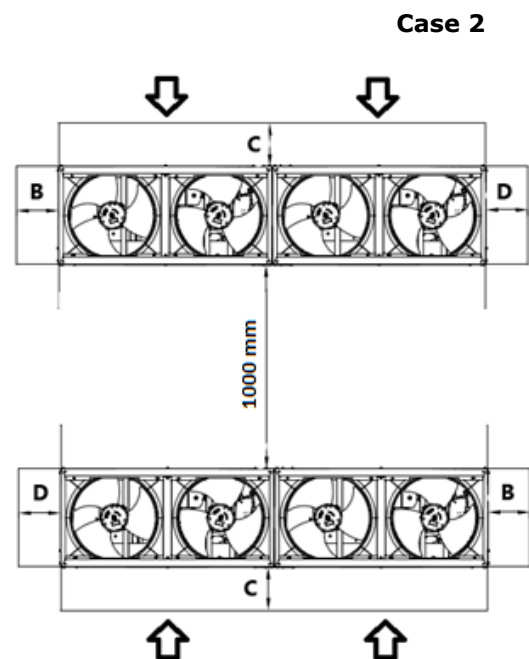
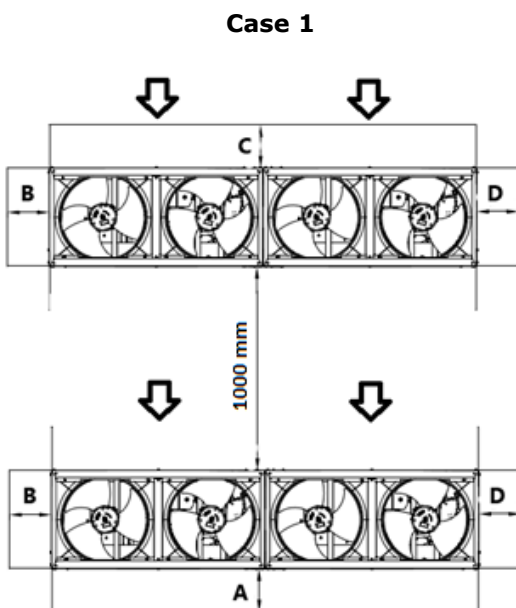
$$h_1 > 0 \rightarrow C \geq C + \frac{h_1}{2}$$

If two units are installed in a free field side by side along their longer sides, A and C, the minimum recommended distance between them is 1000 mm; if two units are installed side by side along their shorter sides, sides B and D, the minimum distance between them should be 500 mm. Should the unit be installed without observing the recommended minimum distances from walls and/or vertical obstacles, there could be a combination of warm air recirculation and/or insufficient supply to the air-cooled condenser which could cause a reduction of capacity and efficiency.

In any case, the microprocessor will allow the unit to adapt itself to new operating conditions and deliver the maximum available capacity under any given circumstances, even if the lateral distance is lower than recommended, unless the operating conditions should affect personnel safety or unit reliability.



*Units installed side by side along their shorter sides, B or D*



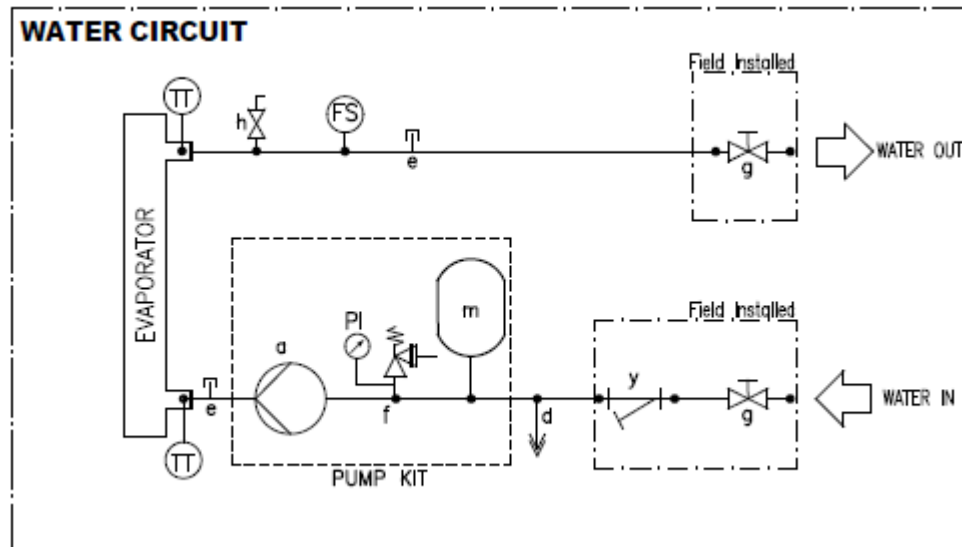
*Units installed side by side along their longer sides (Case 1 and Case 2)*

The minimum distances, reported above, ensure functionality of the unit in most applications.

**Water filter** The installation of the filter is mandatory. The water filter has to be installed as close as possible to the chiller. If the chiller is installed in a different part of the hydraulic system, the installer must ensure the cleaning of the water pipes between water filter and evaporator. The pressure drop value showed in CSS (Chiller Selection Software) are referred to chiller evaporator only.

## Hydraulic schemes

### - Hydraulic scheme



### WATER CIRCUIT EQUIPMENT

d	PUMP
d	DRAIN
e	PLUGGED FITTING
f	SAFETY VALVE 3 BAR 1/2"
g	SHUT OFF VALVE
h	AIR VENT (valvola di sfiato)
m	EXPANSION VESSEL
y	WATER FILTER
TT	TEMPERATURE SENSOR (sensore di temperatura)
PI	PRESSURE GAUGE (manometro)
FS	FLOW SWITCH (flussostato)

## Water pressure

Check whether the water pressure is above 1 bar. If it is lower, add water.

The maximum operating pressure is 3 bar for P and H versions.

For N version please take care that the components installed in the field piping can withstand the water pressure "maximum 3 bar + static pressure of the external pump" and not exceeding 10 bar.

## General

The unit will be designed and manufactured in accordance with the following European directives and harmonized standards:

- Low voltage directive -DIRECTIVE 2014/35/EU
- Electromagnetic compatibility (EMC)DIRECTIVE 2014/30/EU
- Machinery directive - DIRECTIVE 2006/42/EC
- Pressure equipment Directive - DIRECTIVE 2014/68/EU
- Ecodesing - DIRECTIVE 2009/125/EC
- Safety of machinery EN 60335-2-40
- EMC - Part 6-2 EN 61000-6-2
- EMC - Part 6-4 EN 61000-6-4

The unit will be tested at full load in the factory (at the nominal working conditions and water temperatures).

The unit will be delivered to the job site completely assembled and charged with refrigerant and oil.

The installation of the unit must comply with the manufacturer's instructions for rigging and handling equipment.

The unit will be able to start up and operate (as standard) at full load with:

- Outside air temperature from..... °C to..... °C
- Evaporator leaving fluid temperature between..... °C and..... °C

## Refrigerant HFC R-32

**Performance** Chiller shall supply the following performances:

- Number of chiller(s):..... unit(s)
- Cooling capacity for single chiller:..... kW
- Power input for single chiller in cooling mode:..... kW
- Heat exchanger entering water temperature in cooling mode:..... °C
- Heat exchanger leaving water temperature in cooling mode:..... °C
- Heat exchanger water flow:..... l/s
- Nominal outside working ambient temperature in cooling mode:..... °C
- Minimum full load efficiency (EER): ..... (kW/kW)
- Minimum part load efficiency (SEER): ..... (kW/kW)

Operating voltage range should be 400V  $\pm$ 10%, 3ph, 50Hz (or 380V  $\pm$ 10%, 3ph, 60Hz), voltage unbalance maximum 3%, without neutral conductor and shall only have one power connection point.

**Unit description** Chiller shall include one or two independent refrigerant circuits, hermetic orbiting scroll type optimized for R-32 operation, electronic expansion device (EEXV), direct expansion, PHE evaporator, air-cooled condenser section made with copper-aluminum technology, R-32 refrigerant, lubrication system, motor starting components, control system and all components necessary for a safe and stable unit operation.

The chiller will be factory assembled on a robust base frame made of galvanized steel, protected by an epoxy paint.

**Sound level and vibrations** Sound power level shall not exceed .....dB(A). The sound power levels must be rated in accordance to ISO 9614 (other types of rating cannot be used). Vibration on the base frame should not exceed 2 mm/s.

**Dimensions** Unit dimensions shall not exceed following indications:

- Unit length..... mm
- Unit width..... mm
- Unit height..... mm

## Compressors

Hermetic orbiting scroll type optimized for R-32 operation and complete with motor over-temperature and over-current protection devices. Each compressor equipped with oil heater that keeps the oil from being diluted by the refrigerant when the chiller is not running. Each compressor is mounted on rubber antivibration mounts for a quiet operation. Unit is delivered with complete oil charge.

## Evaporator

The units shall be equipped with a direct expansion plate to plate type evaporator

- The evaporator will be made of stainless steel brazed plates and shall be linked with an electrical heater controlled by a thermostat and shall be insulated with flexible, closed cell polyurethane insulation material
- The evaporator will be manufactured in accordance to PED approval
- Flow switch on evaporator is factory mounted as standard
- Water filter on evaporator is shipped loose as standard

### **Air Side Heat Exchanger**

The Air Side Heat Exchanger is manufactured with internally enhanced seamless copper tubes arranged in a staggered row pattern and mechanically expanded into lanced and rippled aluminum Air Side Heat Exchanger fins with full fin collars. An integral sub-cooler circuit provides sub-cooling to effectively eliminate liquid flashing and increase cooling capacity without increasing the power input.

### **Air Side Heat Exchanger fans**

Air Side Heat Exchanger fans are propeller type with high efficiency design blades to maximize performances. The blades are made of glass-reinforced resin and a guard protects each fan. Units are standardly equipped with inverter driven fans.

**Refrigerant circuit** The unit shall have one or two independent refrigerant.

- The circuit shall include as standard: electronic expansion device driven by unit's microprocessor control. The units will be provided with an automatic control for condensing pressure which ensures the working at low external temperatures down to - ..... °C, to maintain condensing pressure.

- The unit automatically unloads when abnormal high condensing pressure is detected. This to prevent the shutdown of the refrigerant circuit (shutdown of the unit) due to a high-pressure fault. The compressor shall be connected to unit's metal base frame by rubber anti vibration supports to prevent the transmission of vibrations to all metal unit structure, in order to limit the unit noise emissions.

### **Master/Slave**

The unit shall be able to operate in Master / Slave mode in order to be connected with another similar unit (up to 4). The master unit shall manage the slave units connected in parallel on the hydraulic plant with the aim of optimize the running hours of each compressor and to balance running hours and the load between the units.

### **Electrical control panel**

Power and control shall be located in the main panel that will be manufactured to ensure protection against all weather conditions.

- The electrical panel shall be IP54 and (when opening the doors) internally protected against possible accidental contact with live parts
- The main panel shall be fitted with a main switch interlocked door that shuts off power supply when opening
- The power section will include compressors and fans starter devices

### **Controller**

The controller will be installed as standard and it will be used to modify unit set-points and check control parameters.

- A sophisticated software with predictive logic, will select the most energy efficient combination of compressors, EEXV and condenser fans to keep stable operating conditions to maximize unit energy efficiency and reliability
- The controller will be able to protect critical components based on external signals received from the unit itself

### **Controller features**

Controller shall be guarantee following minimum functions:

- Management of the compressors,
- Chiller enabled to work in partial failure condition
- Full routine operation at condition of:
  - high ambient temperature value
  - high thermal load
  - high evaporator entering water temperature (start-up)
- Leaving water evaporator temperature regulation
- Display of Status Safety Devices
- Number of starts and compressor working hours
- Optimized management of unit load
- Fan management according to condensing pressure
- Start at high evaporator water temperature
- Master / Slave (provided as standard)
- Variable primary Flow (available as accessory)

In all of us,  
a green heart



Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.



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