



# ERACS2-Q



**1062 - 3222**  
**200 - 826 kW**

INTEGRA unit for 4-pipe systems, air source for outdoor installation



(La foto dell'unità è indicativa e potrebbe variare in base al modello)

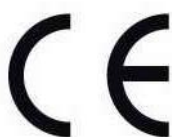
- Unique proposal
- Energy saving
- Extensive range of operation
- Version 'XL-CA-E' available
- Hot water supply



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## ERACS2-Q 1062 - 3222



Company quality system  
certified to UNI EN ISO 9001  
and environmental certification  
UNI EN ISO 14001

### Liability disclaimer

This bulletin is not exhaustive about: installation, use, safety precautions, handling and transport. Refer to "General Manual for Installation" for further informations.

This bulletin refers to standard executions, in particular for dimension, weight, electric, hydraulic, aeraulic and refrigerant connections (whereas applicable). Contact Climaveneta Commercial Office for further drawings and schemes.

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## 1. PRODUCT PRESENTATION

### 4-pipe systems

This type of system is suitable for air-conditioning buildings that require separate areas to be heated and cooled at the same time.

It is combined with centralised solutions capable of producing hot and cold water in the two hydronic circuits of the system, assuring maximum comfort in every room of the building, independently and in any period of the year.

From now on, a single intelligent unit is sufficient for the management of these complex systems: INTEGRA.

### INTEGRA unit for 4-pipe systems, air source for outdoor installation

The ERACS2-Q series multi-use units are able to simultaneously meet hot and cold water production requests and are thus a valid alternative to traditional systems based on chillers and boilers for applications such as office blocks, pools and shopping centres.

The advanced control logic, developed by Climaveneta, ensures that heating and cooling loads are perfectly met. When these are simultaneous, the unit exchanges evaporation and condensation heat with the system cooling and heating circuits respectively. When heat loads are not balanced or one of the two are missing, the unit automatically switches to a third heat source which can be air or water according to the model.

The ERACS2-Q are units for outdoor installation. For these products, heat is exchanged on the source side by a refrigerant-air coils exchanger; it acts as a condenser or as an evaporator according to machine conditions.



#### 1.1 Unique proposal

Unit designed to satisfy the cold and the hot side requirements simultaneously, for 4-pipe systems without any particular operation mode setting.

#### 1.2 Energy saving

Energy saving guaranteed by the advanced operation's logic. The best operation mode is set completely automatically and independently by the unit's controller, in order to minimize the absorbed energy whatever the cooling and/or heating demand might be.

#### 1.3 Extensive range of operation

Unit's operation guaranteed with external air temperature down to -10°C during winter and up to 46°C during summer.

#### 1.4 Version 'XL-CA-E' available

Exclusive Premium version. Together for the first time, the lowest noise level on the market and the maximum efficiency in each operating mode.

#### 1.5 Hot water supply

Supply of hot water in use up to 55°C, offering maximum versatility with respect to different plant engineering solutions.

### 1.6 Tests

Perfect functionality of Climaveneta units is guaranteed by accurate tests carried out along the productive process, and by final test of every unit at the end of the work cycle, as imposed by ISO9001.

Climaveneta also offers clients the chance to require and witness additional performance and sound level tests be performed; highly skilled technical crew follow these operations in detail, to ensure maximum satisfaction of the customer.

For units of the ERACS2-Q series Climaveneta offers the possibility to conduct visionati or presenziati tests.

**Running tests** are standard tests similar to those normally conducted at the productive unit that the client can observe without participation.

**Witness tests** are extra tests that the client can observe and during which can request clarifications upon modalities or work conditions of the unit, receiving test reports at the end. Witness tests can include sound level and performance tests.

**Acoustical tests** allow to verify levels of sound emissions of the unit; tests are performed repeating measurements of sound pressure in determined points, positioned on an ideal grid with walls 1 meter distance from the unit panels. For every measuring point a spectrum in octave band for sound pressure and the average value is supplied to the customer. Then the average global values for pressure at 1 meter, according to ISO3744, and the average sound power, referred to the whole unit, are counted.

Performance tests are based on the measurement of electric data, water flow, working temperature, electric power absorbed, and capacity delivered.

Measurements can be made at one or three work points while varying the outlet temperatures of the evaporator and condenser conditions. At the clients discretion, performance tests can be conducted under full or part load conditions for every operating mode possible for the unit.

**Full load tests** conducted in one or three work points permit two further personalized versions:

- with a mixture of ethyl glycol water in the heat exchanger;
- up to the maximum working temperature of the heat exchanger on the source side.

**Part load** tests can be conducted using two different load partialization methods: the first one requires to reduce the active resources' number, while second one requires to modulate load on each resource. At part load the unit can be tested just in one working point.

The following two tests can always be requested during final testing:

- **Simulation of the most common alarm states**
- **Measurement of pressure drop of exchanger on hydraulic circuit side**

## 2. UNIT DESCRIPTION

### INTEGRA unit for 4-pipe systems, air source for outdoor installation

Multi-purpose outdoor unit for use in 4-pipe systems for the simultaneous production of chilled and hot water by means of two independent hydronic circuits. These units are able to satisfy the demand for hot and cold water simultaneously through a system that does not require seasonal switching and is therefore a valid alternative to traditional plants with chiller and boiler. Each circuit works with a semi-hermetic screw compressor using R134a, two shell and tubes heat exchangers shared by both circuits, a cold heat exchanger on plant's side that acts as an evaporator in the production of cold water, a heat exchanger on plant's side that works as a condenser in the production of hot water, and a source side coil heat exchanger that works as either condenser or evaporator as required by the loads.

The unit is supplied fully refrigerant charged and factory tested. On site installation only requires power and hydraulic connection.

### 2.1 Standard unit composition

#### Structure

Base and frame in galvanized steel. The supporting frame are polyester-painted for the highest resistance to external factors: surfaces' hue and brightness are preserved. Sizes from 1062 to 1962 characterized by external panel made from aluminium alloy for total corrosion resistance. In silenced versions, pipes and compressors' box are covered with an acoustic layer to reduce global noise emissions.

#### Refrigerant circuit

The unit has two completely independent cooling circuits in order to ensure continuous operation, limited pollution, and easy maintenance. Each cooling circuit is fitted as standard with:

- economizers
- electronic expansion valve
- safety valves and high and low pressure transducers
- check valve on the compressor delivery line
- on-off cock on the compressor's suction and delivery line and on the refrigerant line
- solenoid valve on the refrigerant line
- dryer filter with replaceable cartridge
- refrigerant line sight glass with humidity indicator
- high-pressure safety pressure-switch
- liquid receivers
- liquid separators.

#### Compressors

New semi-hermetic screw compressors designed for high efficiency both at full and partial load. Semi-hermetic screw compressors with 2 five- and six-lobe rotors: the five-lobe rotor is splined directly onto the motor (nominal speed 2950 rpm) without the use of interposed overgears. The bearings provided along the rotor axis in a separate chamber isolated from the compression chamber are made in carbon steel. Each compressor is provided with an inlet for refrigerant injection (for the extension of operating limits) and the use of the economiser (for the output capacity and efficiency's increase). Optimized lubrication guarantees oil's distribution between mechanical parts, without using an oil pump; the built-in oil separator has 3 stages of separation, and a 10 mm stainless steel mesh filter ensures the constant presence of oil inside. Cooling power is partialized by a slide valve, which depending on the position assumed, permits compression chamber reduction by steps; each compressor can therefore deliver 100%, 75% and 50%

of its capacity. The two pole motors are fitted as standard with electric devices to limit the absorbed current during compressor start-up, and with empty start-up. Each compressor is fitted with manual-reset motor thermal protection, delivery gas temperature and oil level controls and an electric resistance for the carter's heating while the compressor is stopped. A check valve fitted on the refrigerant delivery line prevents the rotors from reversing after stopping. On-off cocks on the delivery line of each compressor to isolate the refrigerant charge in the heat exchanger when required.

#### Plant side cold heat exchanger

Direct expansion type shell and tube heat exchanger; it acts as an evaporator with refrigerant flow inside the pipes and water flow on the shell side. The tubes have asymmetrical flows that maintain the correct speed of the refrigerant in the tubes when passing from the liquid phase into steam. The water flow on the shell side is fitted with baffles to increase turbulence and therefore the efficiency of exchange. The steel shell has external foamed closed-cell elastomer insulating lining 10 mm thick and thermal conductivity of 0.033 W/mK at 0°C. The tube nest is manufactured using copper tubes with internal grooves for favouring heat exchange and mechanically expanded onto the tube plates. The heat exchanger is fitted with a differential pressure switch which controls the flow of water when the unit is working, in this way preventing the formation of ice inside. The heat exchanger is made in compliance with PED standard work pressure requisites.

#### Plant side hot heat exchanger

Direct expansion shell and tube heat exchanger; it acts as a condenser with refrigerant flow inside the pipes and water flow on the shell side. The tubes have asymmetrical flows that maintain the correct speed of the refrigerant in the tubes during phase transition. The water flows on the shell side is fitted with baffles to increase turbulence and therefore the efficiency of exchange. The tube nest is manufactured using copper tubes with internal grooves for favouring heat exchange and mechanically expanded onto the tube plates. The heat exchanger is fitted with a differential pressure switch which controls the flow of water when the unit is working, in this way preventing anomalies and overheating. The heat exchanger is made in compliance with PED standard work pressure requisites.

#### Source side heat exchanger

Air-refrigerant heat exchanger, working as a condenser or an evaporator depending to the specific operating mode. Made with copper tubes and aluminium fins. The aluminium fins are spaced to guarantee the best heat exchange efficiency. The lower part of the exchanger works as a subcooling circuit increasing the cooling capacity, when it is working as a condenser.

#### Fan section source side

Axial electric fans, system of protection IP54 and "F" insulation class, with external rotor, profiled die-cast aluminium blades, housed in aerodynamic hoods complete with guard grille. 6-poles electric motor with built-in thermal protection.

Variable Speed low-temperature Device (DVV) to control condensation adjusting the rotational speed with voltage steps (auto-transformer) is standard on LN-CA and SL-CA versions.

Sizes of the versions XL-CA and XL-CA-E adopt electronically commutated fans (EC fans). The brushless motor, governed by a special controller, continuously adjust fans' speed to minimize energy consumption, electromagnetic noises and current's absorption even during start-up phase.



## Electrical and control panel

Electric power and control panel compliant with EN 60204-1/ IEC 204-1, complete with:

- electronic controller
- transformer for control circuit
- general door lock isolator
- power circuit with bar distribution system
- fuses and contactors for compressors
- terminals for cumulative alarm block
- remote ON/OFF terminals
- spring-type control circuit terminal boards
- phase sequence relays.

Power supply 400/3/50 with part winding start for sizes 1062-1962 and star/delta for sizes 2022-3222.

## 2.2 Certifications

EUROVENT Certification program

CE - Product quality certificate for the European Union

GOST - Product quality certificate for Russian Federation

SAFETY QUALITY LICENCE - Product quality certificate for Popular Republic of China

M&I - Product quality certificate for Australia and New Zealand

Machine directive 2006/42/EC

PED directive 97/23/EC

Low Voltage directive 2006/95/EC

ElectroMagnetic compatibility directive 2004/108/EC

ISO 9001 - Company's Quality Management System certification

ISO 14001 - Company's Environmental Management System certification

## 2.3 Units' tests

Tests carried out along the all productive process as imposed by ISO9001. Possibility to have performance and acoustical witness tests, with the support of qualified technical operators. Performance tests give the possibility to measure:

- electrical data
- heat exchangers' waterflow
- operating temperature
- absorbed and given power, both at full load and partial load condition, in each operating mode.

It's even possible to have a simulation of the most common alarms and the pressure drops (water side) measurements.

The acoustical tests allow to verify level of sound emissions of the unit according to ISO3744.

## 2.4 Electronic control W3000SE Large

The controller W3000 large offers the latest control and functions specially developed for these units. The keypad is generously sized with full operating status display. The controls and detailed LCD make access to machine settings easy and safe. These resources permit to directly act on the unit settings through a multilevel menu, available in several languages. The diagnostics includes full management of alarms with black-box functions and alarm record for better analysis of unit performance. For multi-units plants a special device to coordinate and manage all the resources is available as an option; energy metering device is even possible as an option. Supervision is easy through Climaveneta devices or with various options for interfacing to ModBus, Bacnet, Echelon LonTalk protocols. Compatibility with remote keyboard (management up to 10 units). Clock available with programming of operation (standard 4 days and 10 time bands). Temperature regulation managed on the two water circuits, with a proportional logic referred to the return water temperatures. This allows to satisfy simultaneously the different heating- and cooling requests, with no need of mode changeover. Exclusive self-adaptive defrost logic, monitoring multiple operational- and ambient parameters, which allows to

reduce the number and duration of the defrost cycles, with a benefit for the overall energy efficiency.

## 2.5 Versions

### CA

Class A of efficiency as per Eurovent.

### LN-CA

Low-noise version, Class A of efficiency as per Eurovent. Acoustic insulation on the compressors box and a low fans' rotational speed gives the minimization of sound emission.

### SL-CA

Super Low-noise version, Class A of efficiency as per Eurovent. Acoustic insulation on the compressors box, on pipes and a low fans' rotational speed gives the minimization of sound emission.

### XL-CA

eXtra Low-noise version, Class A of efficiency as per Eurovent. Special acoustic insulation on the compressors box composed by 5 layers, insulation on pipes and a low fans' rotational speed make the sizes of XL version some of the most silent chillers in the market.

### XL-CA-E

Super Low-noise version, exceeds the Class A of efficiency as per Eurovent. Acoustic insulation on the compressors box, on pipes and a low fans' rotational speed gives the minimization of sound emission. The generous sizing of heat exchange surfaces permits the efficiency at full load on the top of the market: EER higher than 3,1 and COP higher than 3,5 (at standard conditions referred to chiller and heat pump respectively).

## 2.6 Functions

### < >, Standard unit

Multi-purpose units for the simultaneous and independent production of chiller/hot water.

## 2.7 Accessories

| ACCESSORIES                                             | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BENEFIT                                                                                                                                                        |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cu/Cu condensing coils                                  | Air-refrigerant heat exchanger with copper fins and tubes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Recommended for applications in corrosive atmospheres                                                                                                          |
| Condensing coils with epoxy-coated fins                 | Painted air-refrigerant heat exchanger.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Recommended for applications in medium level pollution atmospheres.                                                                                            |
| Condensing coils with Fin Guard Silver treatment        | Air-refrigerant heat exchanger with epoxidic treatment on coils and fins.                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Recommended for marine exposure conditions, with an high level of pollution or other aggressive atmospheres.                                                   |
| Soft start                                              | Electronic device adopted to manage the inrush current.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Break down of the inrush current as soon as the electrical motor is switch on, lower motor's mechanical wear, favourable sizing for the electrical system.     |
| Hydronic group<br>(see dedicate section).               | N° 2 centrifugal pumps, normalized to EN733. Three-phase electrical motor, protected to IP55, insulation class F. The two pumps are managed in order to balance their running time. Inlet/outlet and discharge valves. Check valve. Air vent.                                                                                                                                                                                                                                                                                            |                                                                                                                                                                |
| Variable flow hydronic group<br>(see dedicate section). | Centrifugal pumps, normalized to EN733. Three-phase electrical motor, protected to IP55, insulation class F, coupled with an inverter which modulates the current's frequency between 25 and 50 Hz. The two pumps are managed in order to balance their running time. Electronic devices used to manage them setted in the electrical panel, driven directly by the unit's controller. Inlet/outlet and discharge valves. Check valve. Air vent. Overall unit's dimension could slightly change. Refer to sales dpt for further details. |                                                                                                                                                                |
| kit HWT                                                 | Kit for high hot primary heat exchanger leaving water temperature up to 60°C and for high outdoor temperature: up to 50°C at full load and up to 57°C at partial load. The accessory is required for applications with high water temperature requestes (higher then 55°C) or for installation in extremely hot areas.                                                                                                                                                                                                                   |                                                                                                                                                                |
| Compressors' on/off signal                              | Auxiliary contacts providing a voltage-free signal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Allows remote signalling of compressor's activation or remote control of any auxiliary loads.                                                                  |
| ModBUS connectivity                                     | Interface module for ModBUS protocols                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Allows integration with BMS operating with ModBUS protocol                                                                                                     |
| BACnet connectivity                                     | Interface module for BACnet protocols                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Allows integration with BMS operating with BACnet protocol                                                                                                     |
| Echelon connectivity                                    | Interface module for Echelon systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Allows integration with BMS operating with LonWorks protocols                                                                                                  |
| Auxiliary Signal 4-20mA                                 | 4..20mA analogue input. Allows to change the operating set-point according to the value of current applied to the analogue input                                                                                                                                                                                                                                                                                                                                                                                                         | Enforce Energy Saving policies                                                                                                                                 |
| Automatic circuit breakers                              | Over-current switch on the major electrical loads.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | It protects compressors and/or fans from possible current peaks.                                                                                               |
| Input remote demand limit                               | Digital input (voltage free)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | It permits to limit the unit's power absorption for safety reasons or in temporary situation.                                                                  |
| EC fans                                                 | Electronically commutated fans (EC fans); the brushless motor, governed by a special controller, continuously adjust fans' speed.                                                                                                                                                                                                                                                                                                                                                                                                        | Reduced energy consumption, electromagnetic noises and current's absorption even during start-up phase. Noise reduces proportionally to unit's partialization. |
| Coil protection grill in peraluman                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                |
| Anti-intrusions grills                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Avoid the intrusion of solid bodies into the unit's structure                                                                                                  |
| Numbered cables on electrical board                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                |
| Remote signal double SetPoint                           | Allows to activate the Energy Saving set-point                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Enforce Energy Saving policy                                                                                                                                   |
| Flanged evaporator connection                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                |
| Evaporator flowswitch (water side)                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                |
| Container packing                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                |
| Coil s protection grill and nylon coverage              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                |

| ACCESSORIES                                  | DESCRIPTION                                                    | BENEFIT                                                                                                                                               |
|----------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rubber anti vibration device                 |                                                                |                                                                                                                                                       |
| Spring anti vibration device                 |                                                                |                                                                                                                                                       |
| Relay for pump(s) management                 | Relay for the pump(s) on/off.                                  | It permits the pumps on/off. In case of 2 pumps, one in stand-by to the other, it's possible to balance the operating hours between them.             |
| Power factor correction                      | Condensators on the compressors' power inlet line.             | The unit's average cos(phi) increases from an average value of 0,87 to a value (average) of 0,92.                                                     |
| BACnet OVER IP connectivity                  | Interface module for BACnet OVER-IP protocols                  | Allows to interconnect BACnet devices over Internet Protocol within wide-area networks                                                                |
| Double antifreeze heater                     |                                                                |                                                                                                                                                       |
| Double insulation on evaporator (water side) |                                                                |                                                                                                                                                       |
| DEMETERA (see dedicated manual)              | Software to monitor capacity and energy absorbed by the units. | Allows a dynamic monitoring of the installed units and therefore a data (hourly based) downloading to support the current needs of energy management. |
| Network analyzer per DEMETERA                | Tools to measure the electricity absorbed by the unit.         | They meter the electricity absorbed and are connected with RS485 bus to an external device for energy metering (DEMETERA - see dedicated manual)      |
| Group regulation device                      | (see dedicate section)                                         |                                                                                                                                                       |
| Supervisory device                           | (see dedicate section)                                         |                                                                                                                                                       |



## 2.8 Operating principle

The ERACS2-Q units are especially designed for 4 pipes systems. Their hydraulic circuits are therefore divided into two separated sections: one hot (condenser side) and one cold (evaporator side). [See picture below].

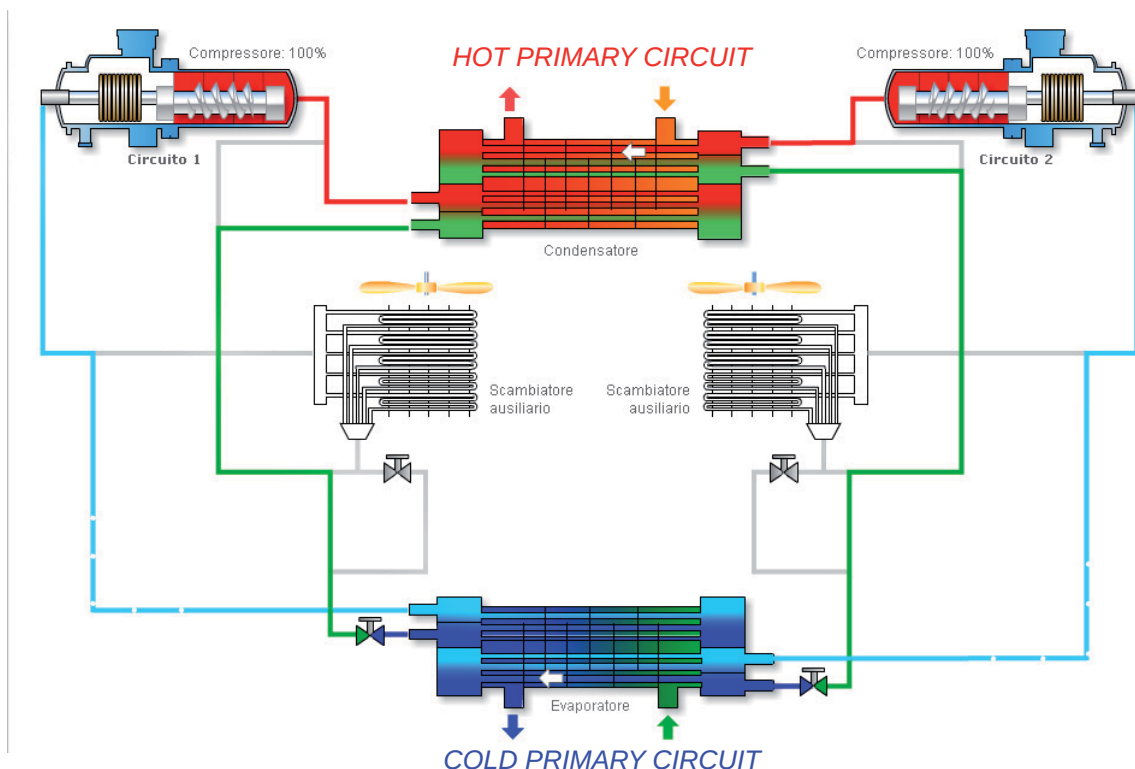
These units can produce hot and chilled water at the same time and totally independently, adapting to the variable requests inside the building.

There are three basic operating configurations which are totally independent from external temperature conditions:

- only chilled water production (the unit works as a simple chiller);

- only hot water production (the unit works as an heat pump);
- combined production of hot and chilled water (the unit produces simultaneously and autonomously cold and hot water for the two plant's sections).

The above working configurations are selected automatically (on-board microprocessor) in order to minimize the absorbed energy and satisfy each thermal building's requests.



### PRODUCTION OF ONLY CHILLED WATER

The unit works like a simple chiller and therefore rejects the condensation heat to the atmosphere through an air-refrigerant finned tube heat exchanger (condensation coil). The water is cooled in a refrigerant-water exchanger (evaporator).

### PRODUCTION OF ONLY HOT WATER

In this case, the unit works exactly like a heat pump which channels the heat of the external atmosphere through an air-refrigerant finned coil (evaporator) in order to heat the water sent inside the building through a refrigerant-water exchanger (condenser). The main difference compared with traditional reverse cycle heat pumps is that the hot water is produced in a different heat exchanger from the one previously used to produce chilled water, featuring a dedicated evaporator. This is necessary in order to keep the hot and cold sections separate, as required by four-tube systems.

### COMBINED PRODUCTION OF HOT AND CHILLED WATER

If users required hot and chilled water at the same time, the unit behaves like a water-water unit, managing condensation and evaporation on two separate heat exchangers connected with the two separate circuits (hot and cold) of the 4-pipes plant. The cooling and heating energy are provided respectively to evaporator and condenser. These heat exchangers are then hydraulically coupled to the two circuits (cold and heat) of the 4-pipes plant.

The multi-purpose units are designed with two separate refrigerant circuits. Thanks to the advanced control logic specifically developed for these units, this solution ensures the units are always able to respond to building loads. The two refrigerant circuits are intelligently managed by the unit's controller and are able to adopt independently one from the other the most convenient operation mode to satisfy the building's requirements with the highest efficiency.

The use of suitable thermal storage tanks, both on the cold and hot sides, offers effective system operating modularity and optimises running costs.

## 2.9 TER - Total Efficiency Ratio

Completely integrated functions and maximum performance synergy require an advanced measurement rating for the total efficiency of the unit:

### TER - TOTAL EFFICIENCY RATIO

If you have a unit that can provide for heating and cooling simultaneously, then measuring efficiency with the traditional ratings such as EER and COP would be limiting.

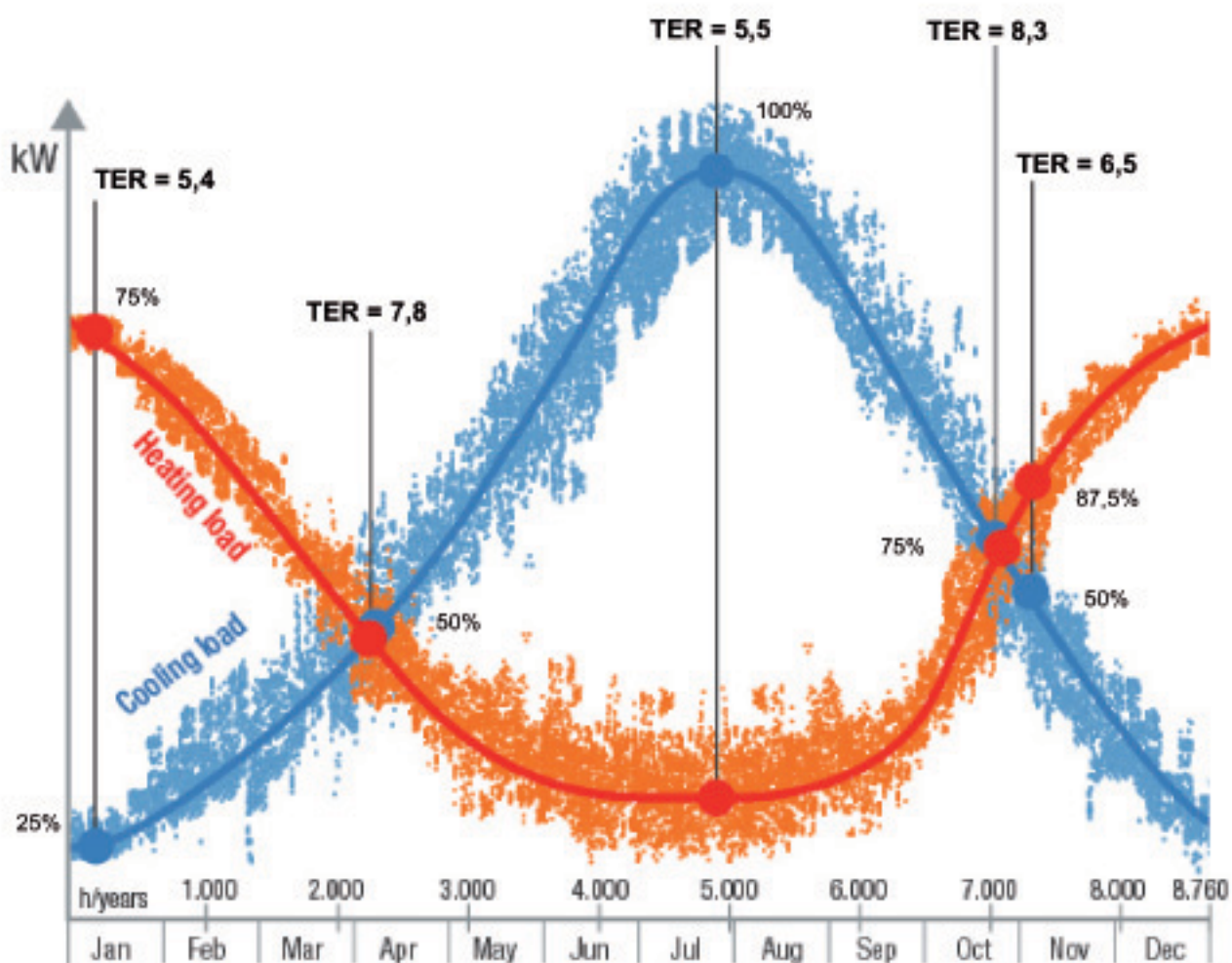
In all the cases in which INTEGRA produces hot and cold water simultaneously, the real efficiency of the unit is the sum of its performance in the hot and cold modes.

To objectively measure performance under simultaneous load conditions, Climaveneta, a pioneer in the development of this technology, has conceived TER – total efficiency ratio.

The **TER** is calculated as the ratio between the sum of the delivered heating and cooling power and electrical power input.

The **TER** reaches its maximum value when the loads are completely balanced and is the most effective way of representing the real efficiency of the unit.

$$\text{TER} = (\text{COOLING POWER} + \text{HEATING POWER}) / \text{TOTAL ABSORBED POWER}$$



Operating conditions:

Evaporator in/out temperature 12/7 °C - Condenser in/out temperature 40/45 °C - Out air temperature 15 °C

## 2.10 Group regulation device MANAGER 3000

Manager3000 allows the regulation within a group of hydronic units. The controller features high-level algorithms and user interface. The controller is suitable for the management of 2- or 4-pipe systems, with regulation on one water circuit, for chiller- or heat pump units and relevant mode change-over, and also with regulation on two circuits, with independent set-points and parameters, thus exploiting the simultaneous supply of chilled- and hot water.

The controller manages up to 8 units, with activation logic focused at the balancing of operation times and at the achievement of the highest energy efficiency. It is possible to define conditions of dynamic stand-by and priority as regards the units' activation. It is also feasible the rotation among the system's units, also in cases of constant load.

The alarm management is featured, with plain text descriptions and possible notification to remote recipients. Two relay outputs are available, associated to unit- and device alarms.

The user interface allows a safe and easy use, thanks to its touch-screen display, back-lit 8.4" type.

The multi-level menu features the language selection and differentiated access profiles (user and maintenance). The circuit temperatures and the status of both system- and unit- operation are displayed, via one overview page plus detailed pages. The regulation can be based on proportional- or proportional+integral logics, or also on a dead-band algorithm with dynamic adjustment,

with relevant temperature inputs managed by the device.

Features as set-point offset, also referred to the outdoor temperature, and demand limit are included, with relevant analog inputs.

The device is integrated in the best way with the units, preventing simultaneous activations or resources and optimizing efficiency, overall inrush current values and also operation of water pumps possibly associated to the units.

The WebManager option allows the access to the device and its settings, via any computer, with direct- or LAN-based connection, therefore also via internet resources; this is associated to the availability of historical charts for the main operating variables.

The "Variable Primary Flow" option represents a unique regulation dedicated to hydronic systems with variable water flow.

This represents a crucial contribution to the reduction of the costs related to the hydraulic plant and its operation.

It is available as option the interface

with the Demetra metering device: thus it is possible to acquire and log the values of the system units' electric consumption, together with their operating status; this allows therefore to analyze the system's operating performances throughout time, in terms of both absorbed energy and cooling / heating capacities, consistently with the implementation of enhanced energy management policies for the building.



## 2.11 Supervisory device FWS 3000

Supervisory device for a system composed of Climaveneta units.

Supervision can be operated via any computer, with direct- or LAN-based connection. It is therefore achieved the internet-based management of the resources, thanks to the built-in web-server and to the availability of web pages specifically defined both for the overall system monitoring and the access to detailed information about each unit.

The supervision achieved by this way does not require the installation of any additional software on the computer and utilizes the most common browsers. This allows the use of any computer connected to the network or web. A RS-485 serial connection is available for the communication with the slave devices, up to 15 connected units. FWS3000 is particularly effective for the supervision of systems composed of packaged or WET units.

The access to the supervision is easy and safe, thanks to the use of password. It is possible to visualize a complete list of

unit operational variables: temperatures, humidity, indoor air quality, status of the unit. This is associated to the availability

of historical charts for the main operating variables. It is also available the display of alarms, with plain text descriptions and possible notification to remote recipient.

The setting of the main operational parameters, for each unit, is also allowed: unit status, mode, set-point, time scheduling (based on 4 days, 10 time belts per day).

Various levels of customization are offered, for both the web pages and connectivity-related functions.

It is available as option the interface with the Demetra metering device: thus it is possible to acquire and log the values of the system units' electric consumption, together with their operating status; this allows therefore to analyze the system's operating perfor-

mances throughout time, in terms of both absorbed energy and cooling / heating capacities, consistently with the implementation of enhanced energy management policies for the building.



### 3.1 GENERAL TECHNICAL DATA

## ERACS2-Q CA

| SIZE                                             |           | 1062       | 1162       | 1362       | 1562       | 1762       | 1962       | 2022       |
|--------------------------------------------------|-----------|------------|------------|------------|------------|------------|------------|------------|
| ERACS2-Q /CA<br>COOLING (1)                      |           |            |            |            |            |            |            |            |
| <b>Cooling capacity</b>                          | <b>kW</b> | <b>210</b> | <b>248</b> | <b>302</b> | <b>329</b> | <b>380</b> | <b>425</b> | <b>483</b> |
| Total power input (unit)                         | kW        | 72,1       | 84,8       | 101        | 109        | 129        | 144        | 156        |
| EER                                              |           | 2,91       | 2,93       | 2,98       | 3,01       | 2,95       | 2,95       | 3,10       |
| ESEER                                            |           | -          | -          | -          | -          | -          | -          | -          |
| Heat exchanger water flow                        | m³/h      | 36,2       | 42,8       | 52,1       | 56,7       | 65,5       | 73,2       | 83,1       |
| Heat exchanger pressure drop                     | kPa       | 28,8       | 40,2       | 36,6       | 43,4       | 40,3       | 27,9       | 26,7       |
| ERACS2-Q /CA<br>HEATING (2)                      |           |            |            |            |            |            |            |            |
| <b>Heating capacity</b>                          | <b>kW</b> | <b>218</b> | <b>258</b> | <b>308</b> | <b>339</b> | <b>396</b> | <b>434</b> | <b>492</b> |
| Total power input (unit)                         | kW        | 67,0       | 80,7       | 92,2       | 101        | 122        | 131        | 149        |
| COP                                              |           | 3,64       | 3,52       | 3,63       | 3,70       | 3,53       | 3,66       | 3,60       |
| Heat exchanger water flow                        | m³/h      | 37,8       | 44,9       | 53,6       | 58,9       | 68,7       | 75,4       | 85,5       |
| Heat exchanger pressure drop                     | kPa       | 31,5       | 44,3       | 38,8       | 46,9       | 44,4       | 29,6       | 28,2       |
| ERACS2-Q /CA<br>REFRIGERATION AND HEATING (3)    |           |            |            |            |            |            |            |            |
| Cooling capacity                                 | kW        | 209        | 248        | 305        | 329        | 381        | 428        | 484        |
| Total power input (unit)                         | kW        | 60,6       | 72,2       | 87,1       | 92,5       | 111        | 122        | 134        |
| Heat exchanger water flow                        | m³/h      | 36,2       | 42,8       | 52,1       | 56,7       | 65,5       | 73,2       | 83,1       |
| Heat exchanger pressure drop                     | kPa       | 28,8       | 40,2       | 36,6       | 43,4       | 40,3       | 27,9       | 26,7       |
| <b>Heat recovery thermal capacity</b>            | <b>kW</b> | <b>266</b> | <b>316</b> | <b>386</b> | <b>416</b> | <b>486</b> | <b>542</b> | <b>609</b> |
| TER - Total Efficiency Ratio                     |           | 7,83       | 7,81       | 7,94       | 8,06       | 7,80       | 7,96       | 8,17       |
| Heat exchanger recovery water flow               | m³/h      | 46,1       | 54,9       | 67,2       | 72,4       | 84,4       | 94,2       | 106        |
| Plant side heat exchanger recovery pressure drop | kPa       | 46,8       | 66,3       | 60,9       | 70,7       | 67,0       | 46,1       | 43,3       |
| COMPRESSORS                                      |           |            |            |            |            |            |            |            |
| Number                                           | N°.       | 2          | 2          | 2          | 2          | 2          | 2          | 2          |
| Number of capacity                               | N°.       | 6          | 6          | 6          | 6          | 6          | 6          | 6          |
| Number of circuits                               | N°.       | 2          | 2          | 2          | 2          | 2          | 2          | 2          |
| Type of regulation                               | STEPS     | STEPS      | STEPS      | STEPS      | STEPS      | STEPS      | STEPS      | STEPS      |
| Minimum capacity steps                           | %         | 25         | 25         | 25         | 25         | 25         | 25         | 25         |
| Type of refrigerant                              | R134a     | R134a      | R134a      | R134a      | R134a      | R134a      | R134a      | R134a      |
| Refrigerant charge                               | kg.       | 83         | 97         | 132        | 132        | 160        | 167        | 210        |
| Oil charge                                       | kg.       | 19         | 20         | 20         | 30         | 30         | 30         | 44         |
| FANS                                             |           |            |            |            |            |            |            |            |
| Number                                           | N°.       | 6          | 6          | 6          | 8          | 8          | 10         | 10         |
| Air flow                                         | m³/s      | 30,4       | 32,5       | 34,6       | 43,4       | 45,6       | 54,2       | 50,6       |
| Singol power input                               | kW        | 2          | 2          | 2          | 2          | 2          | 2          | 2          |
| NOISE LEVELS (4)                                 |           |            |            |            |            |            |            |            |
| Total sound power                                | dB(A)     | 97         | 97         | 97         | 98         | 99         | 99         | 99         |
| Total sound pressure                             | dB(A)     | 65         | 65         | 65         | 66         | 66         | 66         | 66         |
| DIMENSIONS AND WEIGHTS (5)                       |           |            |            |            |            |            |            |            |
| Length                                           | mm.       | 4610       | 4610       | 5610       | 5610       | 6610       | 6610       | 6300       |
| Width                                            | mm.       | 2220       | 2220       | 2220       | 2220       | 2220       | 2220       | 2260       |
| Height                                           | mm.       | 2150       | 2420       | 2430       | 2430       | 2430       | 2430       | 2350       |
| Weight                                           | kg.       | 3600       | 3870       | 4620       | 5040       | 5520       | 5670       | 7580       |

1 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

2 Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

3 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C  
Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;  
in compliance with ISO 3744 for non-certified units  
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained  
from the sound power level

5 Standard configuration

- Not available



## GENERAL TECHNICAL DATA

ERACS2-Q  
CA

| SIZE                                             |           | 2222       | 2422       | 2622       | 2722       | 3222        |  |  |
|--------------------------------------------------|-----------|------------|------------|------------|------------|-------------|--|--|
| ERACS2-Q /CA<br>COOLING (1)                      |           |            |            |            |            |             |  |  |
| <b>Cooling capacity</b>                          | <b>kW</b> | <b>525</b> | <b>554</b> | <b>624</b> | <b>701</b> | <b>826</b>  |  |  |
| Total power input (unit)                         | kW        | 167        | 176        | 201        | 222        | 264         |  |  |
| EER                                              |           | 3,14       | 3,16       | 3,10       | 3,15       | 3,13        |  |  |
| ESEER                                            |           | -          | -          | -          | -          | -           |  |  |
| Heat exchanger water flow                        | m³/h      | 90,4       | 95,3       | 107        | 121        | 142         |  |  |
| Heat exchanger pressure drop                     | kPa       | 29,0       | 32,3       | 23,1       | 30,5       | 30,9        |  |  |
| ERACS2-Q /CA<br>HEATING (2)                      |           |            |            |            |            |             |  |  |
| <b>Heating capacity</b>                          | <b>kW</b> | <b>541</b> | <b>571</b> | <b>615</b> | <b>711</b> | <b>826</b>  |  |  |
| Total power input (unit)                         | kW        | 159        | 169        | 178        | 207        | 240         |  |  |
| COP                                              |           | 3,74       | 3,70       | 3,76       | 3,74       | 3,74        |  |  |
| Heat exchanger water flow                        | m³/h      | 94,1       | 99,2       | 107        | 124        | 143         |  |  |
| Heat exchanger pressure drop                     | kPa       | 31,4       | 34,9       | 22,8       | 31,9       | 31,5        |  |  |
| ERACS2-Q /CA<br>REFRIGERATION AND HEATING (3)    |           |            |            |            |            |             |  |  |
| Cooling capacity                                 | kW        | 522        | 550        | 631        | 701        | 826         |  |  |
| Total power input (unit)                         | kW        | 145        | 153        | 170        | 193        | 228         |  |  |
| Heat exchanger water flow                        | m³/h      | 90,4       | 95,3       | 107        | 121        | 142         |  |  |
| Heat exchanger pressure drop                     | kPa       | 29,0       | 32,3       | 23,1       | 30,5       | 30,9        |  |  |
| <b>Heat recovery thermal capacity</b>            | <b>kW</b> | <b>658</b> | <b>694</b> | <b>791</b> | <b>883</b> | <b>1041</b> |  |  |
| TER - Total Efficiency Ratio                     |           | 8,14       | 8,12       | 8,35       | 8,19       | 8,17        |  |  |
| Heat exchanger recovery water flow               | m³/h      | 114        | 121        | 138        | 153        | 181         |  |  |
| Plant side heat exchanger recovery pressure drop | kPa       | 46,4       | 51,7       | 37,8       | 49,2       | 50,1        |  |  |
| COMPRESSORS                                      |           |            |            |            |            |             |  |  |
| Number                                           | N°.       | 2          | 2          | 2          | 2          | 2           |  |  |
| Number of capacity                               | N°.       | 6          | 6          | 6          | 6          | 6           |  |  |
| Number of circuits                               | N°.       | 2          | 2          | 2          | 2          | 2           |  |  |
| Type of regulation                               |           | STEPS      | STEPS      | STEPS      | STEPS      | STEPS       |  |  |
| Minimum capacity steps                           | %         | 25         | 25         | 25         | 25         | 25          |  |  |
| Type of refrigerant                              |           | R134a      | R134a      | R134a      | R134a      | R134a       |  |  |
| Refrigerant charge                               | kg.       | 240        | 250        | 254        | 312        | 360         |  |  |
| Oil charge                                       | kg.       | 44         | 44         | 38         | 38         | 70          |  |  |
| FANS                                             |           |            |            |            |            |             |  |  |
| Number                                           | N°.       | 12         | 12         | 12         | 14         | 16          |  |  |
| Air flow                                         | m³/s      | 65,6       | 61,0       | 61,0       | 72,5       | 82,9        |  |  |
| Singol power input                               | kW        | 2          | 2          | 2          | 2          | 2           |  |  |
| NOISE LEVELS (4)                                 |           |            |            |            |            |             |  |  |
| Total sound power                                | dB(A)     | 101        | 101        | 101        | 101        | 102         |  |  |
| Total sound pressure                             | dB(A)     | 68         | 68         | 68         | 68         | 69          |  |  |
| DIMENSIONS AND WEIGHTS (5)                       |           |            |            |            |            |             |  |  |
| Length                                           | mm.       | 7200       | 7200       | 7200       | 8400       | 9700        |  |  |
| Width                                            | mm.       | 2260       | 2260       | 2260       | 2260       | 2260        |  |  |
| Height                                           | mm.       | 2350       | 2350       | 2350       | 2350       | 2350        |  |  |
| Weight                                           | kg.       | 8060       | 8160       | 8600       | 9160       | 11380       |  |  |

1 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

2 Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

3 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C  
Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;  
in compliance with ISO 3744 for non-certified units  
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained  
from the sound power level

5 Standard configuration

- Not available



## GENERAL TECHNICAL DATA

ERACS2-Q  
LN-CA

| SIZE                                             |       | 1062  | 1162  | 1362  | 1562  | 1762  | 1962  | 2022  |
|--------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| ERACS2-Q /LN-CA<br>COOLING (1)                   |       |       |       |       |       |       |       |       |
| Cooling capacity                                 | kW    | 205   | 241   | 294   | 322   | 369   | 414   | 469   |
| Total power input (unit)                         | kW    | 70,8  | 84,6  | 103   | 109   | 130   | 144   | 163   |
| EER                                              |       | 2,89  | 2,85  | 2,86  | 2,96  | 2,83  | 2,87  | 2,88  |
| ESEER                                            |       | -     | -     | -     | -     | -     | -     | -     |
| Heat exchanger water flow                        | m³/h  | 35,3  | 41,5  | 50,6  | 55,4  | 63,6  | 71,2  | 80,7  |
| Heat exchanger pressure drop                     | kPa   | 27,4  | 37,9  | 34,5  | 41,4  | 38,0  | 26,4  | 25,1  |
| ERACS2-Q /LN-CA<br>HEATING (2)                   |       |       |       |       |       |       |       |       |
| Heating capacity                                 | kW    | 218   | 258   | 308   | 339   | 396   | 434   | 492   |
| Total power input (unit)                         | kW    | 67,0  | 80,7  | 92,2  | 101   | 122   | 131   | 149   |
| COP                                              |       | 3,64  | 3,52  | 3,63  | 3,70  | 3,53  | 3,66  | 3,60  |
| Heat exchanger water flow                        | m³/h  | 37,8  | 44,9  | 53,6  | 58,9  | 68,7  | 75,4  | 85,5  |
| Heat exchanger pressure drop                     | kPa   | 31,5  | 44,3  | 38,8  | 46,9  | 44,4  | 29,6  | 28,2  |
| ERACS2-Q /LN-CA<br>REFRIGERATION AND HEATING (3) |       |       |       |       |       |       |       |       |
| Cooling capacity                                 | kW    | 209   | 248   | 305   | 329   | 381   | 428   | 484   |
| Total power input (unit)                         | kW    | 60,6  | 72,2  | 87,1  | 92,5  | 111   | 122   | 134   |
| Heat exchanger water flow                        | m³/h  | 35,3  | 41,5  | 50,6  | 55,4  | 63,6  | 71,2  | 80,7  |
| Heat exchanger pressure drop                     | kPa   | 27,4  | 37,9  | 34,5  | 41,4  | 38,0  | 26,4  | 25,1  |
| Heat recovery thermal capacity                   | kW    | 266   | 316   | 386   | 416   | 486   | 542   | 609   |
| TER - Total Efficiency Ratio                     |       | 7,83  | 7,81  | 7,94  | 8,06  | 7,80  | 7,96  | 8,17  |
| Heat exchanger recovery water flow               | m³/h  | 46,1  | 54,9  | 67,2  | 72,4  | 84,4  | 94,2  | 106   |
| Plant side heat exchanger recovery pressure drop | kPa   | 46,8  | 66,3  | 60,9  | 70,7  | 67,0  | 46,1  | 43,3  |
| COMPRESSORS                                      |       |       |       |       |       |       |       |       |
| Number                                           | N°.   | 2     | 2     | 2     | 2     | 2     | 2     | 2     |
| Number of capacity                               | N°.   | 6     | 6     | 6     | 6     | 6     | 6     | 6     |
| Number of circuits                               | N°.   | 2     | 2     | 2     | 2     | 2     | 2     | 2     |
| Type of regulation                               | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS |
| Minimum capacity steps                           | %     | 25    | 25    | 25    | 25    | 25    | 25    | 25    |
| Type of refrigerant                              | R134a | R134a | R134a | R134a | R134a | R134a | R134a | R134a |
| Refrigerant charge                               | kg.   | 83    | 97    | 132   | 132   | 160   | 167   | 210   |
| Oil charge                                       | kg.   | 19    | 20    | 20    | 30    | 30    | 30    | 44    |
| FANS                                             |       |       |       |       |       |       |       |       |
| Number                                           | N°.   | 6     | 6     | 6     | 8     | 8     | 10    | 10    |
| Air flow                                         | m³/s  | 22,8  | 25,0  | 27,2  | 33,3  | 35,6  | 41,6  | 38,1  |
| Singol power input                               | kW    | 1,2   | 1,2   | 1,2   | 1,2   | 1,2   | 1,2   | 1,2   |
| NOISE LEVELS (4)                                 |       |       |       |       |       |       |       |       |
| Total sound power                                | dB(A) | 90    | 91    | 91    | 92    | 92    | 92    | 93    |
| Total sound pressure                             | dB(A) | 58    | 59    | 59    | 60    | 59    | 59    | 60    |
| DIMENSIONS AND WEIGHTS (5)                       |       |       |       |       |       |       |       |       |
| Length                                           | mm.   | 4610  | 4610  | 5610  | 5610  | 6610  | 6610  | 6300  |
| Width                                            | mm.   | 2220  | 2220  | 2220  | 2220  | 2220  | 2220  | 2260  |
| Height                                           | mm.   | 2150  | 2420  | 2430  | 2430  | 2430  | 2430  | 2350  |
| Weight                                           | kg.   | 3600  | 3870  | 4620  | 5040  | 5520  | 5670  | 7580  |

1 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

2 Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

3 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C  
Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;  
in compliance with ISO 3744 for non-certified units  
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained  
from the sound power level

5 Standard configuration

- Not available

## GENERAL TECHNICAL DATA

ERACS2-Q  
LN-CA

| SIZE                                             |       | 2222  | 2422  | 2622  | 2722  | 3222  |  |  |
|--------------------------------------------------|-------|-------|-------|-------|-------|-------|--|--|
| ERACS2-Q /LN-CA<br>COOLING (1)                   |       |       |       |       |       |       |  |  |
| Cooling capacity                                 | kW    | 513   | 541   | 604   | 684   | 799   |  |  |
| Total power input (unit)                         | kW    | 168   | 177   | 206   | 225   | 274   |  |  |
| EER                                              |       | 3,06  | 3,05  | 2,93  | 3,03  | 2,91  |  |  |
| ESEER                                            |       | -     | -     | -     | -     | -     |  |  |
| Heat exchanger water flow                        | m³/h  | 88,4  | 93,2  | 104   | 118   | 138   |  |  |
| Heat exchanger pressure drop                     | kPa   | 27,7  | 30,8  | 21,6  | 29,0  | 29,0  |  |  |
| ERACS2-Q /LN-CA<br>HEATING (2)                   |       |       |       |       |       |       |  |  |
| Heating capacity                                 | kW    | 541   | 571   | 615   | 711   | 826   |  |  |
| Total power input (unit)                         | kW    | 159   | 169   | 178   | 207   | 240   |  |  |
| COP                                              |       | 3,74  | 3,70  | 3,76  | 3,74  | 3,74  |  |  |
| Heat exchanger water flow                        | m³/h  | 94,1  | 99,2  | 107   | 124   | 143   |  |  |
| Heat exchanger pressure drop                     | kPa   | 31,4  | 34,9  | 22,8  | 31,9  | 31,5  |  |  |
| ERACS2-Q /LN-CA<br>REFRIGERATION AND HEATING (3) |       |       |       |       |       |       |  |  |
| Cooling capacity                                 | kW    | 522   | 550   | 631   | 701   | 826   |  |  |
| Total power input (unit)                         | kW    | 145   | 153   | 170   | 193   | 228   |  |  |
| Heat exchanger water flow                        | m³/h  | 88,4  | 93,2  | 104   | 118   | 138   |  |  |
| Heat exchanger pressure drop                     | kPa   | 27,7  | 30,8  | 21,6  | 29,0  | 29,0  |  |  |
| Heat recovery thermal capacity                   | kW    | 658   | 694   | 791   | 883   | 1041  |  |  |
| TER - Total Efficiency Ratio                     |       | 8,14  | 8,12  | 8,35  | 8,19  | 8,17  |  |  |
| Heat exchanger recovery water flow               | m³/h  | 114   | 121   | 138   | 153   | 181   |  |  |
| Plant side heat exchanger recovery pressure drop | kPa   | 46,4  | 51,7  | 37,8  | 49,2  | 50,1  |  |  |
| COMPRESSORS                                      |       |       |       |       |       |       |  |  |
| Number                                           | N°.   | 2     | 2     | 2     | 2     | 2     |  |  |
| Number of capacity                               | N°.   | 6     | 6     | 6     | 6     | 6     |  |  |
| Number of circuits                               | N°.   | 2     | 2     | 2     | 2     | 2     |  |  |
| Type of regulation                               |       | STEPS | STEPS | STEPS | STEPS | STEPS |  |  |
| Minimum capacity steps                           | %     | 25    | 25    | 25    | 25    | 25    |  |  |
| Type of refrigerant                              |       | R134a | R134a | R134a | R134a | R134a |  |  |
| Refrigerant charge                               | kg.   | 240   | 250   | 254   | 312   | 360   |  |  |
| Oil charge                                       | kg.   | 44    | 44    | 38    | 38    | 70    |  |  |
| FANS                                             |       |       |       |       |       |       |  |  |
| Number                                           | N°.   | 12    | 12    | 12    | 14    | 16    |  |  |
| Air flow                                         | m³/s  | 50,6  | 46,0  | 46,0  | 54,9  | 62,8  |  |  |
| Singol power input                               | kW    | 1,2   | 1,2   | 1,2   | 1,2   | 1,2   |  |  |
| NOISE LEVELS (4)                                 |       |       |       |       |       |       |  |  |
| Total sound power                                | dB(A) | 95    | 95    | 95    | 95    | 96    |  |  |
| Total sound pressure                             | dB(A) | 62    | 62    | 62    | 62    | 63    |  |  |
| DIMENSIONS AND WEIGHTS (5)                       |       |       |       |       |       |       |  |  |
| Length                                           | mm.   | 7200  | 7200  | 7200  | 8400  | 9700  |  |  |
| Width                                            | mm.   | 2260  | 2260  | 2260  | 2260  | 2260  |  |  |
| Height                                           | mm.   | 2350  | 2350  | 2350  | 2350  | 2350  |  |  |
| Weight                                           | kg.   | 8060  | 8160  | 8600  | 9160  | 11380 |  |  |

1 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

2 Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

3 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C  
Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;  
in compliance with ISO 3744 for non-certified units  
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained  
from the sound power level

5 Standard configuration

- Not available

## GENERAL TECHNICAL DATA

ERACS2-Q  
SL-CA

| SIZE                                             |       | 1062  | 1162  | 1362  | 1562  | 1762  | 1962  | 2022  |
|--------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| ERACS2-Q /SL-CA<br>COOLING (1)                   |       |       |       |       |       |       |       |       |
| Cooling capacity                                 | kW    | 199   | 233   | 283   | 314   | 356   | 401   | 464   |
| Total power input (unit)                         | kW    | 72,7  | 87,6  | 109   | 113   | 137   | 149   | 166   |
| EER                                              |       | 2,74  | 2,66  | 2,61  | 2,78  | 2,59  | 2,69  | 2,80  |
| ESEER                                            |       | -     | -     | -     | -     | -     | -     | -     |
| Heat exchanger water flow                        | m³/h  | 34,3  | 40,1  | 48,8  | 54,0  | 61,3  | 69,1  | 79,9  |
| Heat exchanger pressure drop                     | kPa   | 26,0  | 35,4  | 32,1  | 39,4  | 35,3  | 24,8  | 24,6  |
| ERACS2-Q /SL-CA<br>HEATING (2)                   |       |       |       |       |       |       |       |       |
| Heating capacity                                 | kW    | 211   | 251   | 301   | 330   | 385   | 422   | 486   |
| Total power input (unit)                         | kW    | 64,8  | 78,4  | 89,9  | 98,4  | 119   | 127   | 147   |
| COP                                              |       | 3,56  | 3,44  | 3,56  | 3,62  | 3,46  | 3,58  | 3,56  |
| Heat exchanger water flow                        | m³/h  | 36,7  | 43,6  | 52,3  | 57,4  | 66,9  | 73,3  | 84,4  |
| Heat exchanger pressure drop                     | kPa   | 29,6  | 41,9  | 36,9  | 44,4  | 42,1  | 27,9  | 27,5  |
| ERACS2-Q /SL-CA<br>REFRIGERATION AND HEATING (3) |       |       |       |       |       |       |       |       |
| Cooling capacity                                 | kW    | 209   | 248   | 305   | 329   | 381   | 428   | 484   |
| Total power input (unit)                         | kW    | 60,6  | 72,2  | 87,1  | 92,5  | 111   | 122   | 134   |
| Heat exchanger water flow                        | m³/h  | 34,3  | 40,1  | 48,8  | 54,0  | 61,3  | 69,1  | 79,9  |
| Heat exchanger pressure drop                     | kPa   | 26,0  | 35,4  | 32,1  | 39,4  | 35,3  | 24,8  | 24,6  |
| Heat recovery thermal capacity                   | kW    | 266   | 316   | 386   | 416   | 486   | 542   | 609   |
| TER - Total Efficiency Ratio                     |       | 7,83  | 7,81  | 7,94  | 8,06  | 7,80  | 7,96  | 8,17  |
| Heat exchanger recovery water flow               | m³/h  | 46,1  | 54,9  | 67,2  | 72,4  | 84,4  | 94,2  | 106   |
| Plant side heat exchanger recovery pressure drop | kPa   | 46,8  | 66,3  | 60,9  | 70,7  | 67,0  | 46,1  | 43,3  |
| COMPRESSORS                                      |       |       |       |       |       |       |       |       |
| Number                                           | N°.   | 2     | 2     | 2     | 2     | 2     | 2     | 2     |
| Number of capacity                               | N°.   | 6     | 6     | 6     | 6     | 6     | 6     | 6     |
| Number of circuits                               | N°.   | 2     | 2     | 2     | 2     | 2     | 2     | 2     |
| Type of regulation                               | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS |
| Minimum capacity steps                           | %     | 25    | 25    | 25    | 25    | 25    | 25    | 25    |
| Type of refrigerant                              | R134a | R134a | R134a | R134a | R134a | R134a | R134a | R134a |
| Refrigerant charge                               | kg.   | 83    | 97    | 132   | 132   | 160   | 167   | 210   |
| Oil charge                                       | kg.   | 19    | 20    | 20    | 30    | 30    | 30    | 44    |
| FANS                                             |       |       |       |       |       |       |       |       |
| Number                                           | N°.   | 6     | 6     | 6     | 8     | 8     | 10    | 10    |
| Air flow                                         | m³/s  | 18,3  | 20,2  | 22,1  | 26,9  | 28,6  | 33,7  | 35,1  |
| Singol power input                               | kW    | 0,9   | 0,9   | 0,9   | 0,9   | 0,9   | 0,9   | 1,1   |
| NOISE LEVELS (4)                                 |       |       |       |       |       |       |       |       |
| Total sound power                                | dB(A) | 86    | 87    | 87    | 88    | 88    | 88    | 89    |
| Total sound pressure                             | dB(A) | 54    | 55    | 55    | 56    | 55    | 55    | 56    |
| DIMENSIONS AND WEIGHTS (5)                       |       |       |       |       |       |       |       |       |
| Length                                           | mm.   | 4610  | 4610  | 5610  | 5610  | 6610  | 6610  | 6300  |
| Width                                            | mm.   | 2220  | 2220  | 2220  | 2220  | 2220  | 2220  | 2260  |
| Height                                           | mm.   | 2150  | 2420  | 2430  | 2430  | 2430  | 2430  | 2350  |
| Weight                                           | kg.   | 3600  | 3870  | 4620  | 5040  | 5520  | 5670  | 7670  |

1 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

2 Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

3 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C  
Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;  
in compliance with ISO 3744 for non-certified units  
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained  
from the sound power level

5 Standard configuration

- Not available

## GENERAL TECHNICAL DATA

ERACS2-Q  
SL-CA

| SIZE                                             |       | 2222  | 2422  | 2622  | 2722  | 3222  |  |  |
|--------------------------------------------------|-------|-------|-------|-------|-------|-------|--|--|
| ERACS2-Q /SL-CA<br>COOLING (1)                   |       |       |       |       |       |       |  |  |
| Cooling capacity                                 | kW    | 509   | 537   | 597   | 678   | 790   |  |  |
| Total power input (unit)                         | kW    | 170   | 180   | 210   | 229   | 281   |  |  |
| EER                                              |       | 2,99  | 2,98  | 2,85  | 2,96  | 2,81  |  |  |
| ESEER                                            |       | -     | -     | -     | -     | -     |  |  |
| Heat exchanger water flow                        | m³/h  | 87,6  | 92,5  | 103   | 117   | 136   |  |  |
| Heat exchanger pressure drop                     | kPa   | 27,3  | 30,3  | 21,1  | 28,5  | 28,3  |  |  |
| ERACS2-Q /SL-CA<br>HEATING (2)                   |       |       |       |       |       |       |  |  |
| Heating capacity                                 | kW    | 536   | 564   | 607   | 703   | 815   |  |  |
| Total power input (unit)                         | kW    | 158   | 167   | 176   | 205   | 238   |  |  |
| COP                                              |       | 3,71  | 3,67  | 3,72  | 3,70  | 3,70  |  |  |
| Heat exchanger water flow                        | m³/h  | 93,1  | 98,0  | 105   | 122   | 142   |  |  |
| Heat exchanger pressure drop                     | kPa   | 30,8  | 34,1  | 22,2  | 31,2  | 30,7  |  |  |
| ERACS2-Q /SL-CA<br>REFRIGERATION AND HEATING (3) |       |       |       |       |       |       |  |  |
| Cooling capacity                                 | kW    | 522   | 550   | 631   | 701   | 826   |  |  |
| Total power input (unit)                         | kW    | 145   | 153   | 170   | 193   | 228   |  |  |
| Heat exchanger water flow                        | m³/h  | 87,6  | 92,5  | 103   | 117   | 136   |  |  |
| Heat exchanger pressure drop                     | kPa   | 27,3  | 30,3  | 21,1  | 28,5  | 28,3  |  |  |
| Heat recovery thermal capacity                   | kW    | 658   | 694   | 791   | 883   | 1041  |  |  |
| TER - Total Efficiency Ratio                     |       | 8,14  | 8,12  | 8,35  | 8,19  | 8,17  |  |  |
| Heat exchanger recovery water flow               | m³/h  | 114   | 121   | 138   | 153   | 181   |  |  |
| Plant side heat exchanger recovery pressure drop | kPa   | 46,4  | 51,7  | 37,8  | 49,2  | 50,1  |  |  |
| COMPRESSORS                                      |       |       |       |       |       |       |  |  |
| Number                                           | N°.   | 2     | 2     | 2     | 2     | 2     |  |  |
| Number of capacity                               | N°.   | 6     | 6     | 6     | 6     | 6     |  |  |
| Number of circuits                               | N°.   | 2     | 2     | 2     | 2     | 2     |  |  |
| Type of regulation                               |       | STEPS | STEPS | STEPS | STEPS | STEPS |  |  |
| Minimum capacity steps                           | %     | 25    | 25    | 25    | 25    | 25    |  |  |
| Type of refrigerant                              |       | R134a | R134a | R134a | R134a | R134a |  |  |
| Refrigerant charge                               | kg.   | 240   | 250   | 254   | 312   | 360   |  |  |
| Oil charge                                       | kg.   | 44    | 44    | 38    | 38    | 70    |  |  |
| FANS                                             |       |       |       |       |       |       |  |  |
| Number                                           | N°.   | 12    | 12    | 12    | 14    | 16    |  |  |
| Air flow                                         | m³/s  | 46,6  | 42,4  | 42,4  | 50,7  | 58,0  |  |  |
| Singol power input                               | kW    | 1,1   | 1,1   | 1,1   | 1,1   | 1,1   |  |  |
| NOISE LEVELS (4)                                 |       |       |       |       |       |       |  |  |
| Total sound power                                | dB(A) | 91    | 91    | 91    | 91    | 92    |  |  |
| Total sound pressure                             | dB(A) | 58    | 58    | 58    | 58    | 59    |  |  |
| DIMENSIONS AND WEIGHTS (5)                       |       |       |       |       |       |       |  |  |
| Length                                           | mm.   | 7200  | 7200  | 7200  | 8400  | 9700  |  |  |
| Width                                            | mm.   | 2260  | 2260  | 2260  | 2260  | 2260  |  |  |
| Height                                           | mm.   | 2350  | 2350  | 2350  | 2350  | 2350  |  |  |
| Weight                                           | kg.   | 8150  | 8250  | 8690  | 9260  | 11480 |  |  |

1 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

2 Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

3 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C  
Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;  
in compliance with ISO 3744 for non-certified units  
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained  
from the sound power level

5 Standard configuration

- Not available

## GENERAL TECHNICAL DATA

ERACS2-Q  
XL-CA

| SIZE                                             |       | 2022  | 2222  | 2422  | 2622  | 2722  | 3222  |  |
|--------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|--|
| ERACS2-Q /XL-CA<br>COOLING (1)                   |       |       |       |       |       |       |       |  |
| Cooling capacity                                 | kW    | 454   | 500   | 528   | 584   | 665   | 772   |  |
| Total power input (unit)                         | kW    | 167   | 169   | 180   | 212   | 230   | 287   |  |
| EER                                              |       | 2,73  | 2,95  | 2,94  | 2,76  | 2,90  | 2,70  |  |
| ESEER                                            |       | -     | -     | -     | -     | -     | -     |  |
| Heat exchanger water flow                        | m³/h  | 78,2  | 86,2  | 91,0  | 101   | 115   | 133   |  |
| Heat exchanger pressure drop                     | kPa   | 23,6  | 26,4  | 29,4  | 20,2  | 27,4  | 27,1  |  |
| ERACS2-Q /XL-CA<br>HEATING (2)                   |       |       |       |       |       |       |       |  |
| Heating capacity                                 | kW    | 486   | 536   | 564   | 607   | 703   | 815   |  |
| Total power input (unit)                         | kW    | 143   | 152   | 161   | 170   | 199   | 230   |  |
| COP                                              |       | 3,56  | 3,71  | 3,67  | 3,72  | 3,70  | 3,70  |  |
| Heat exchanger water flow                        | m³/h  | 84,4  | 93,1  | 98,0  | 105   | 122   | 142   |  |
| Heat exchanger pressure drop                     | kPa   | 27,5  | 30,8  | 34,1  | 22,2  | 31,2  | 30,7  |  |
| ERACS2-Q /XL-CA<br>REFRIGERATION AND HEATING (3) |       |       |       |       |       |       |       |  |
| Cooling capacity                                 | kW    | 484   | 522   | 550   | 631   | 701   | 826   |  |
| Total power input (unit)                         | kW    | 134   | 145   | 153   | 170   | 193   | 228   |  |
| Heat exchanger water flow                        | m³/h  | 78,2  | 86,2  | 91,0  | 101   | 115   | 133   |  |
| Heat exchanger pressure drop                     | kPa   | 23,6  | 26,4  | 29,4  | 20,2  | 27,4  | 27,1  |  |
| Heat recovery thermal capacity                   | kW    | 609   | 658   | 694   | 791   | 883   | 1041  |  |
| TER - Total Efficiency Ratio                     |       | 8,17  | 8,14  | 8,12  | 8,35  | 8,19  | 8,17  |  |
| Heat exchanger recovery water flow               | m³/h  | 106   | 114   | 121   | 138   | 153   | 181   |  |
| Plant side heat exchanger recovery pressure drop | kPa   | 43,3  | 46,4  | 51,7  | 37,8  | 49,2  | 50,1  |  |
| COMPRESSORS                                      |       |       |       |       |       |       |       |  |
| Number                                           | N°.   | 2     | 2     | 2     | 2     | 2     | 2     |  |
| Number of capacity                               | N°.   | 6     | 6     | 6     | 6     | 6     | 6     |  |
| Number of circuits                               | N°.   | 2     | 2     | 2     | 2     | 2     | 2     |  |
| Type of regulation                               | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS |  |
| Minimum capacity steps                           | %     | 25    | 25    | 25    | 25    | 25    | 25    |  |
| Type of refrigerant                              | R134a | R134a | R134a | R134a | R134a | R134a | R134a |  |
| Refrigerant charge                               | kg.   | 210   | 240   | 250   | 254   | 312   | 360   |  |
| Oil charge                                       | kg.   | 44    | 44    | 44    | 38    | 38    | 70    |  |
| FANS                                             |       |       |       |       |       |       |       |  |
| Number                                           | N°.   | 10    | 12    | 12    | 12    | 14    | 16    |  |
| Air flow                                         | m³/s  | 30,5  | 40,7  | 36,9  | 36,9  | 44,2  | 50,5  |  |
| Singol power input                               | kW    | 0,43  | 0,43  | 0,43  | 0,43  | 0,43  | 0,43  |  |
| NOISE LEVELS (4)                                 |       |       |       |       |       |       |       |  |
| Total sound power                                | dB(A) | 85    | 87    | 87    | 87    | 87    | 88    |  |
| Total sound pressure                             | dB(A) | 52    | 54    | 54    | 54    | 54    | 55    |  |
| DIMENSIONS AND WEIGHTS (5)                       |       |       |       |       |       |       |       |  |
| Length                                           | mm.   | 6300  | 7200  | 7200  | 7200  | 8400  | 9700  |  |
| Width                                            | mm.   | 2260  | 2260  | 2260  | 2260  | 2260  | 2260  |  |
| Height                                           | mm.   | 2350  | 2350  | 2350  | 2350  | 2350  | 2350  |  |
| Weight                                           | kg.   | 7790  | 8260  | 8350  | 8790  | 9340  | 11580 |  |

1 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

2 Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

3 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C  
Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;  
in compliance with ISO 3744 for non-certified units  
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained  
from the sound power level

5 Standard configuration

- Not available



## GENERAL TECHNICAL DATA

ERACS2-Q  
XL-CA-E

| SIZE                                               |       | 1062  | 1162  | 1362  | 1562  | 1762  | 2022  | 2222  |
|----------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| ERACS2-Q /XL-CA-E<br>COOLING (1)                   |       |       |       |       |       |       |       |       |
| Cooling capacity                                   | kW    | 204   | 247   | 293   | 319   | 366   | 473   | 510   |
| Total power input (unit)                           | kW    | 66,6  | 77,0  | 99,5  | 105   | 127   | 152   | 163   |
| EER                                                |       | 3,07  | 3,21  | 2,95  | 3,06  | 2,88  | 3,11  | 3,14  |
| ESEER                                              |       | -     | -     | -     | -     | -     | -     | -     |
| Heat exchanger water flow                          | m³/h  | 35,2  | 42,5  | 50,5  | 55,0  | 63,1  | 81,4  | 87,7  |
| Heat exchanger pressure drop                       | kPa   | 27,2  | 39,8  | 34,4  | 40,8  | 37,4  | 25,5  | 27,3  |
| ERACS2-Q /XL-CA-E<br>HEATING (2)                   |       |       |       |       |       |       |       |       |
| Heating capacity                                   | kW    | 218   | 267   | 308   | 340   | 393   | 513   | 552   |
| Total power input (unit)                           | kW    | 62,4  | 77,6  | 88,4  | 95,2  | 116   | 145   | 154   |
| COP                                                |       | 3,65  | 3,60  | 3,63  | 3,71  | 3,51  | 3,72  | 3,80  |
| Heat exchanger water flow                          | m³/h  | 37,9  | 46,4  | 53,5  | 59,1  | 68,3  | 89,1  | 95,9  |
| Heat exchanger pressure drop                       | kPa   | 31,6  | 47,5  | 38,7  | 47,2  | 43,8  | 30,6  | 32,6  |
| ERACS2-Q /XL-CA-E<br>REFRIGERATION AND HEATING (3) |       |       |       |       |       |       |       |       |
| Cooling capacity                                   | kW    | 209   | 248   | 305   | 329   | 381   | 484   | 522   |
| Total power input (unit)                           | kW    | 60,6  | 72,2  | 87,1  | 92,5  | 111   | 134   | 145   |
| Heat exchanger water flow                          | m³/h  | 35,2  | 42,5  | 50,5  | 55,0  | 63,1  | 81,4  | 87,7  |
| Heat exchanger pressure drop                       | kPa   | 27,2  | 39,8  | 34,4  | 40,8  | 37,4  | 25,5  | 27,3  |
| Heat recovery thermal capacity                     | kW    | 266   | 316   | 386   | 416   | 486   | 609   | 658   |
| TER - Total Efficiency Ratio                       |       | 7,83  | 7,81  | 7,94  | 8,06  | 7,80  | 8,17  | 8,14  |
| Heat exchanger recovery water flow                 | m³/h  | 46,1  | 54,9  | 67,2  | 72,4  | 84,4  | 106   | 114   |
| Plant side heat exchanger recovery pressure drop   | kPa   | 46,8  | 66,3  | 60,9  | 70,7  | 67,0  | 43,3  | 46,4  |
| COMPRESSORS                                        |       |       |       |       |       |       |       |       |
| Number                                             | N°.   | 2     | 2     | 2     | 2     | 2     | 2     | 2     |
| Number of capacity                                 | N°.   | 6     | 6     | 6     | 6     | 6     | 6     | 6     |
| Number of circuits                                 | N°.   | 2     | 2     | 2     | 2     | 2     | 2     | 2     |
| Type of regulation                                 | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS | STEPS |
| Minimum capacity steps                             | %     | 25    | 25    | 25    | 25    | 25    | 25    | 25    |
| Type of refrigerant                                |       | R134a | R134a | R134a | R134a | R134a | R134a | R134a |
| Refrigerant charge                                 | kg.   | 97    | 116   | 132   | 132   | 167   | 248   | 254   |
| Oil charge                                         | kg.   | 19    | 20    | 20    | 30    | 30    | 44    | 44    |
| FANS                                               |       |       |       |       |       |       |       |       |
| Number                                             | N°.   | 6     | 8     | 8     | 8     | 10    | 12    | 14    |
| Air flow                                           | m³/s  | 20,2  | 26,9  | 26,9  | 28,6  | 33,7  | 42,0  | 52,3  |
| Singol power input                                 | kW    | 0,43  | 0,43  | 0,43  | 0,43  | 0,43  | 0,43  | 0,43  |
| NOISE LEVELS (4)                                   |       |       |       |       |       |       |       |       |
| Total sound power                                  | dB(A) | 85    | 86    | 86    | 87    | 87    | 86    | 88    |
| Total sound pressure                               | dB(A) | 53    | 54    | 54    | 54    | 54    | 53    | 55    |
| DIMENSIONS AND WEIGHTS (5)                         |       |       |       |       |       |       |       |       |
| Length                                             | mm.   | 4610  | 5610  | 5610  | 6610  | 6610  | 8400  | 9300  |
| Width                                              | mm.   | 2220  | 2220  | 2220  | 2220  | 2220  | 2260  | 2260  |
| Height                                             | mm.   | 2420  | 2430  | 2430  | 2430  | 2430  | 2350  | 2350  |
| Weight                                             | kg.   | 3900  | 4490  | 4830  | 5590  | 5730  | 8510  | 8720  |

1 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

2 Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

3 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;  
in compliance with ISO 3744 for non-certified units  
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level

5 Standard configuration

- Not available

## GENERAL TECHNICAL DATA

ERACS2-Q  
XL-CA-E

| SIZE                                             |           | 2422       | 2622       |  |  |  |  |  |
|--------------------------------------------------|-----------|------------|------------|--|--|--|--|--|
| ERACS2-Q /XL-CA-E                                |           |            |            |  |  |  |  |  |
| COOLING                                          | (1)       |            |            |  |  |  |  |  |
| <b>Cooling capacity</b>                          | <b>kW</b> | <b>541</b> | <b>611</b> |  |  |  |  |  |
| Total power input (unit)                         | kW        | 169        | 193        |  |  |  |  |  |
| EER                                              |           | 3,20       | 3,17       |  |  |  |  |  |
| ESEER                                            |           | -          | -          |  |  |  |  |  |
| Heat exchanger water flow                        | m³/h      | 93,2       | 105        |  |  |  |  |  |
| Heat exchanger pressure drop                     | kPa       | 30,8       | 22,1       |  |  |  |  |  |
| ERACS2-Q /XL-CA-E                                |           |            |            |  |  |  |  |  |
| HEATING                                          | (2)       |            |            |  |  |  |  |  |
| <b>Heating capacity</b>                          | <b>kW</b> | <b>588</b> | <b>644</b> |  |  |  |  |  |
| Total power input (unit)                         | kW        | 164        | 176        |  |  |  |  |  |
| COP                                              |           | 3,80       | 3,89       |  |  |  |  |  |
| Heat exchanger water flow                        | m³/h      | 102        | 112        |  |  |  |  |  |
| Heat exchanger pressure drop                     | kPa       | 37,1       | 25,0       |  |  |  |  |  |
| ERACS2-Q /XL-CA-E                                |           |            |            |  |  |  |  |  |
| REFRIGERATION AND HEATING                        | (3)       |            |            |  |  |  |  |  |
| Cooling capacity                                 | kW        | 550        | 631        |  |  |  |  |  |
| Total power input (unit)                         | kW        | 153        | 170        |  |  |  |  |  |
| Heat exchanger water flow                        | m³/h      | 93,2       | 105        |  |  |  |  |  |
| Heat exchanger pressure drop                     | kPa       | 30,8       | 22,1       |  |  |  |  |  |
| <b>Heat recovery thermal capacity</b>            | <b>kW</b> | <b>694</b> | <b>791</b> |  |  |  |  |  |
| TER - Total Efficiency Ratio                     |           | 8,12       | 8,35       |  |  |  |  |  |
| Heat exchanger recovery water flow               | m³/h      | 121        | 138        |  |  |  |  |  |
| Plant side heat exchanger recovery pressure drop | kPa       | 51,7       | 37,8       |  |  |  |  |  |
| COMPRESSORS                                      |           |            |            |  |  |  |  |  |
| Number                                           | N°.       | 2          | 2          |  |  |  |  |  |
| Number of capacity                               | N°.       | 6          | 6          |  |  |  |  |  |
| Number of circuits                               | N°.       | 2          | 2          |  |  |  |  |  |
| Type of regulation                               |           | STEPS      | STEPS      |  |  |  |  |  |
| Minimum capacity steps                           | %         | 25         | 25         |  |  |  |  |  |
| Type of refrigerant                              |           | R134a      | R134a      |  |  |  |  |  |
| Refrigerant charge                               | kg.       | 282        | 286        |  |  |  |  |  |
| Oil charge                                       | kg.       | 44         | 38         |  |  |  |  |  |
| FANS                                             |           |            |            |  |  |  |  |  |
| Number                                           | N°.       | 14         | 16         |  |  |  |  |  |
| Air flow                                         | m³/s      | 48,6       | 53,0       |  |  |  |  |  |
| Singol power input                               | kW        | 0,43       | 0,43       |  |  |  |  |  |
| NOISE LEVELS                                     |           |            |            |  |  |  |  |  |
| Total sound power                                | (4) dB(A) | 88         | 88         |  |  |  |  |  |
| Total sound pressure                             | dB(A)     | 55         | 55         |  |  |  |  |  |
| DIMENSIONS AND WEIGHTS                           |           |            |            |  |  |  |  |  |
| Length                                           | (5) mm.   | 9300       | 9300       |  |  |  |  |  |
| Width                                            | mm.       | 2260       | 2260       |  |  |  |  |  |
| Height                                           | mm.       | 2350       | 2350       |  |  |  |  |  |
| Weight                                           | kg.       | 8890       | 9400       |  |  |  |  |  |

1 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

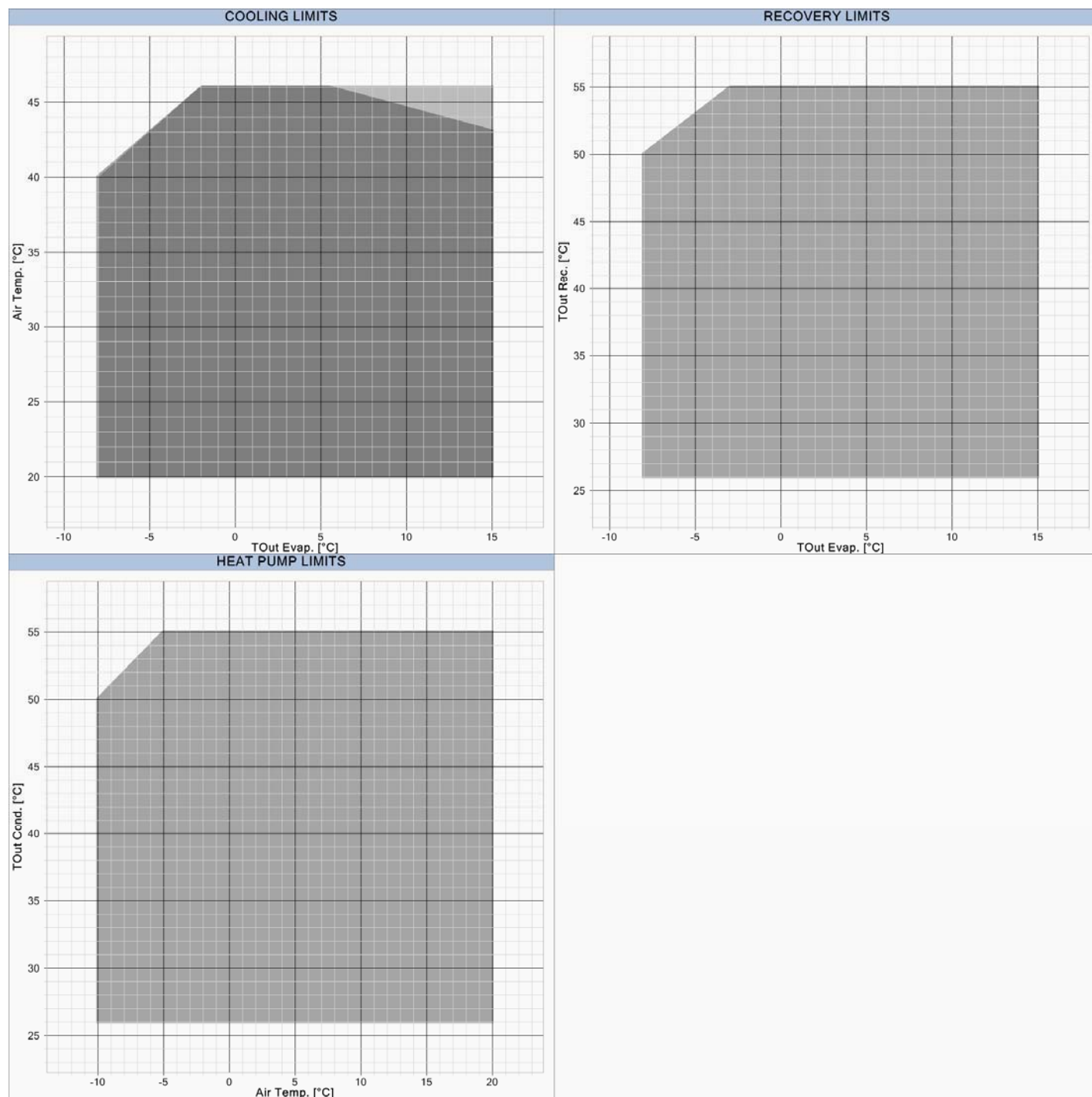
2 Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

3 Plant (side) cooling exchanger water (in/out) 12/7 °C  
Source (side) heat exchanger air (in) 35 °C

Plant (side) heating exchanger water (in/out) 40/45 °C  
Source (side) heat exchanger air (in) 7 °C R.H. 87%

4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;  
in compliance with ISO 3744 for non-certified units  
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level

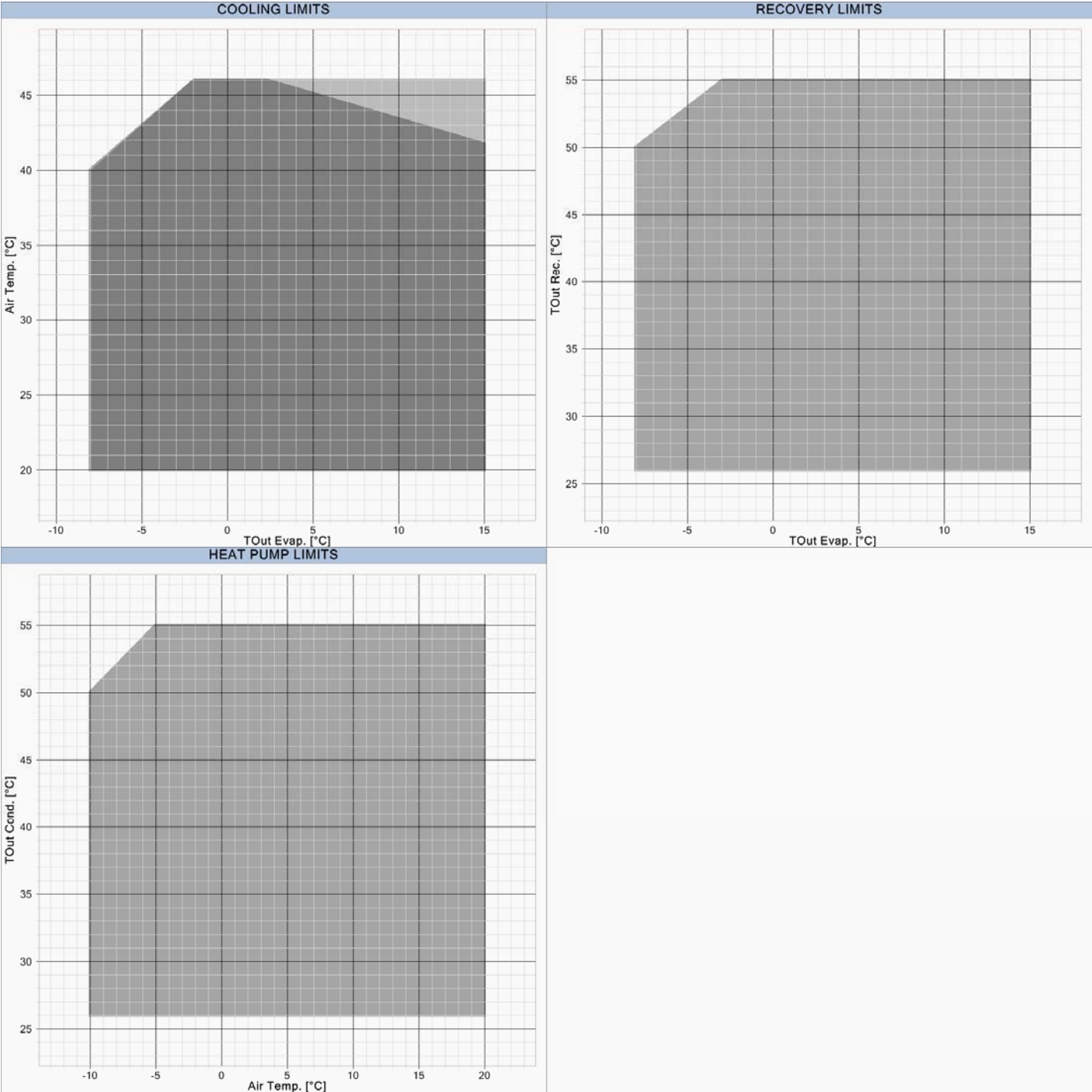
5 Standard configuration  
- Not available



- Selection limits
- Selection limits
- Economizers de-activated and unit in non silenced mode

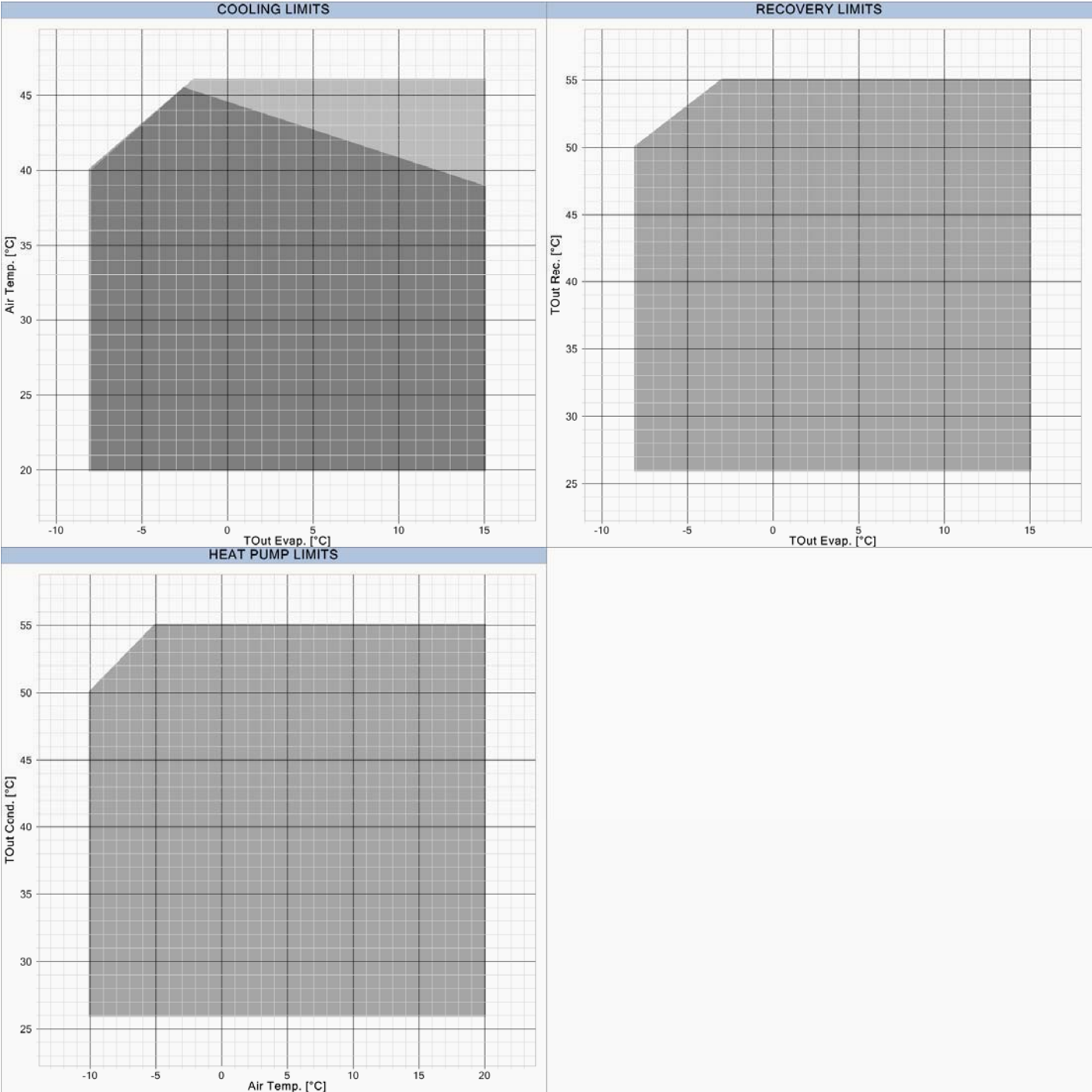
**NOTE:**

The represented operating limit refers to the standard unit's operation. Thanks to the condensation and evaporation control device adopted in ERACS2-Q line, the units can work in each of the possible operating mode from -10°C up to 46°C outdoor air temperature.



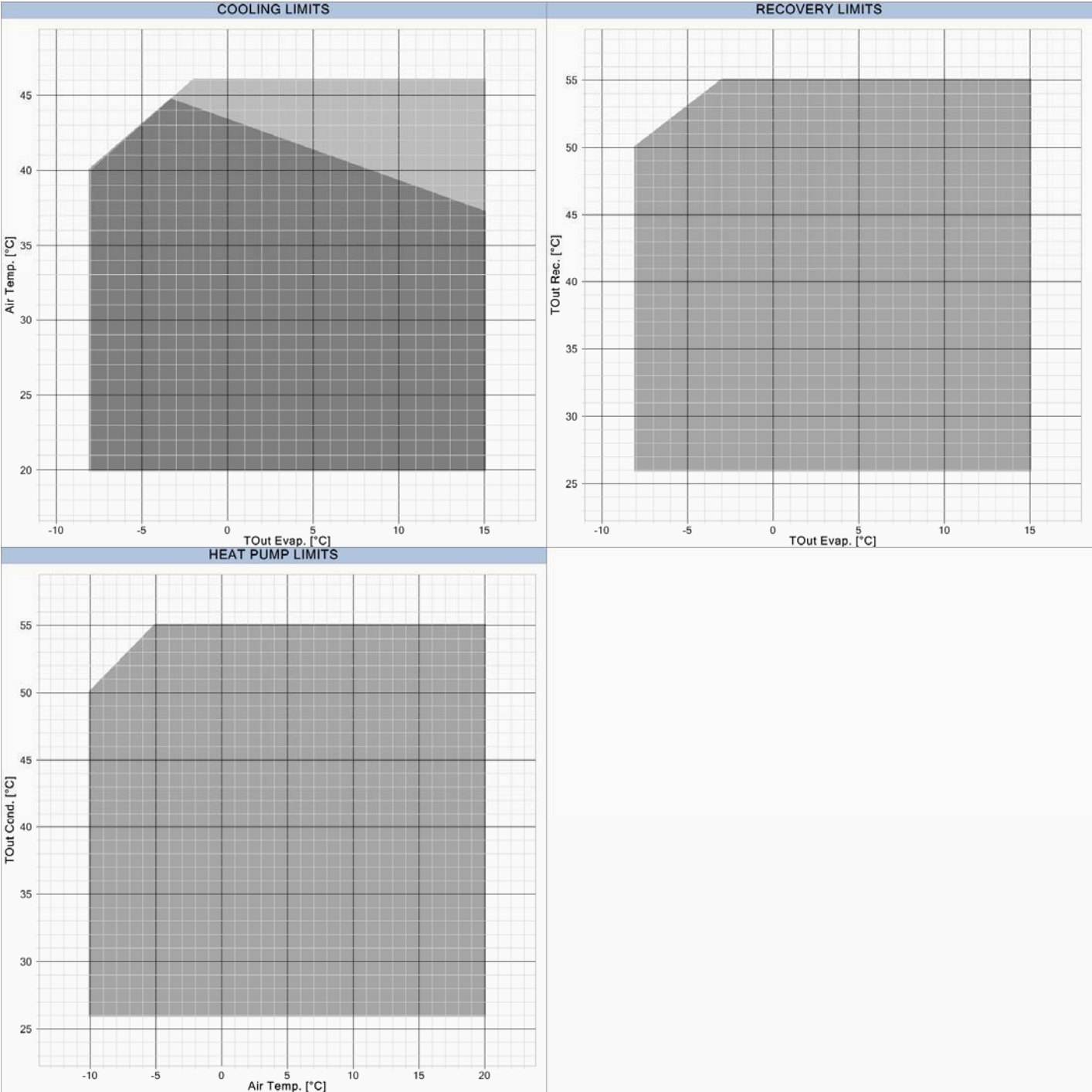
- Selection limits
- Selection limits
- Economizers de-activated and unit in non silenced mode

**NOTE:**  
The represented operating limit refers to the standard unit's operation. Thanks to the condensation and evaporation control device adopted in ERACS2-Q line, the units can work in each of the possible operating mode from -10°C up to 46°C outdoor air temperature.



-  Selection limits
-  Selection limits
-  Economizers de-activated and unit in non silenced mode

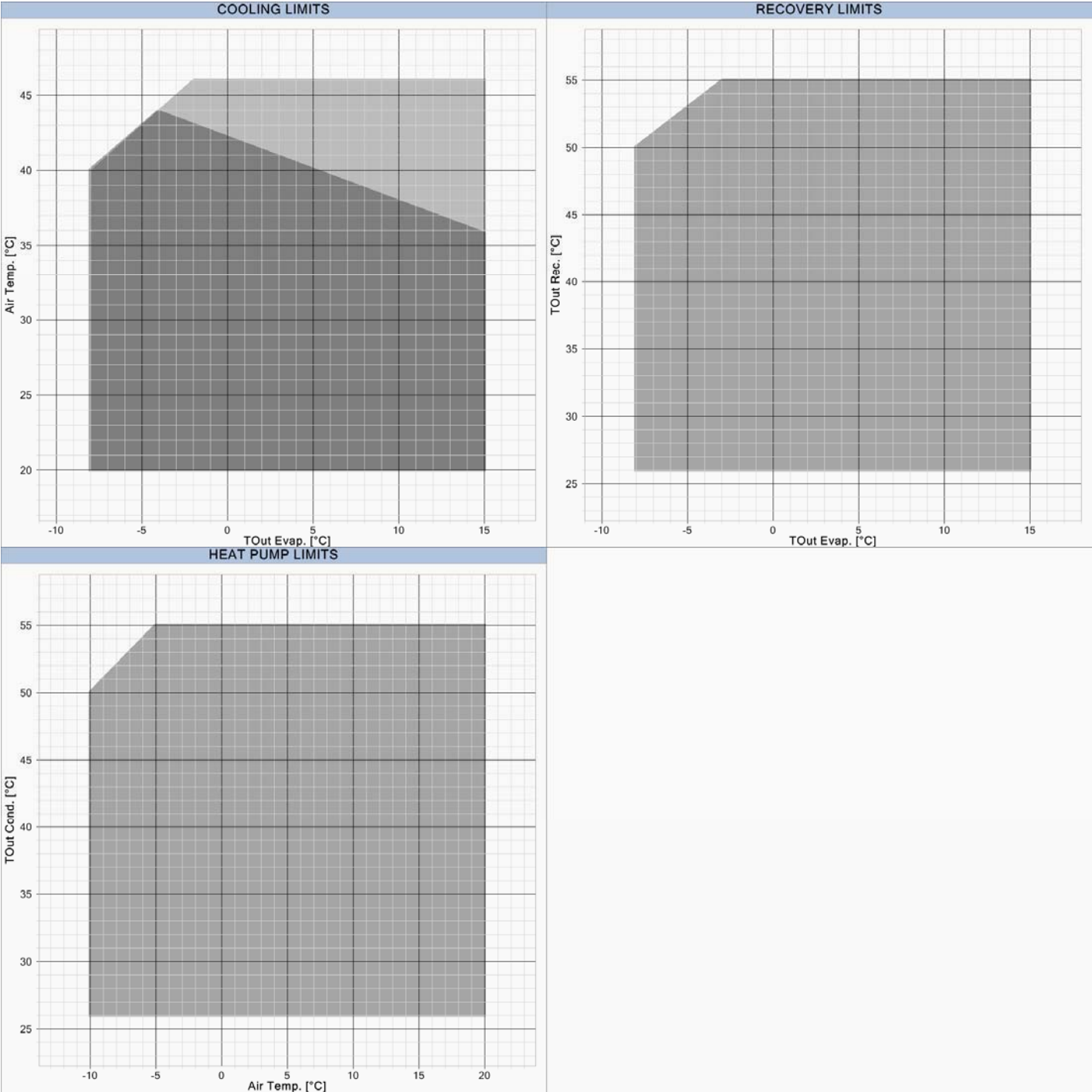
**NOTE:**  
The represented operating limit refers to the standard unit's operation. Thanks to the condensation and evaporation control device adopted in ERACS2-Q line, the units can work in each of the possible operating mode from -10°C up to 46°C outdoor air temperature.



-  Selection limits
-  Selection limits
-  Economizers de-activated and unit in non silenced mode

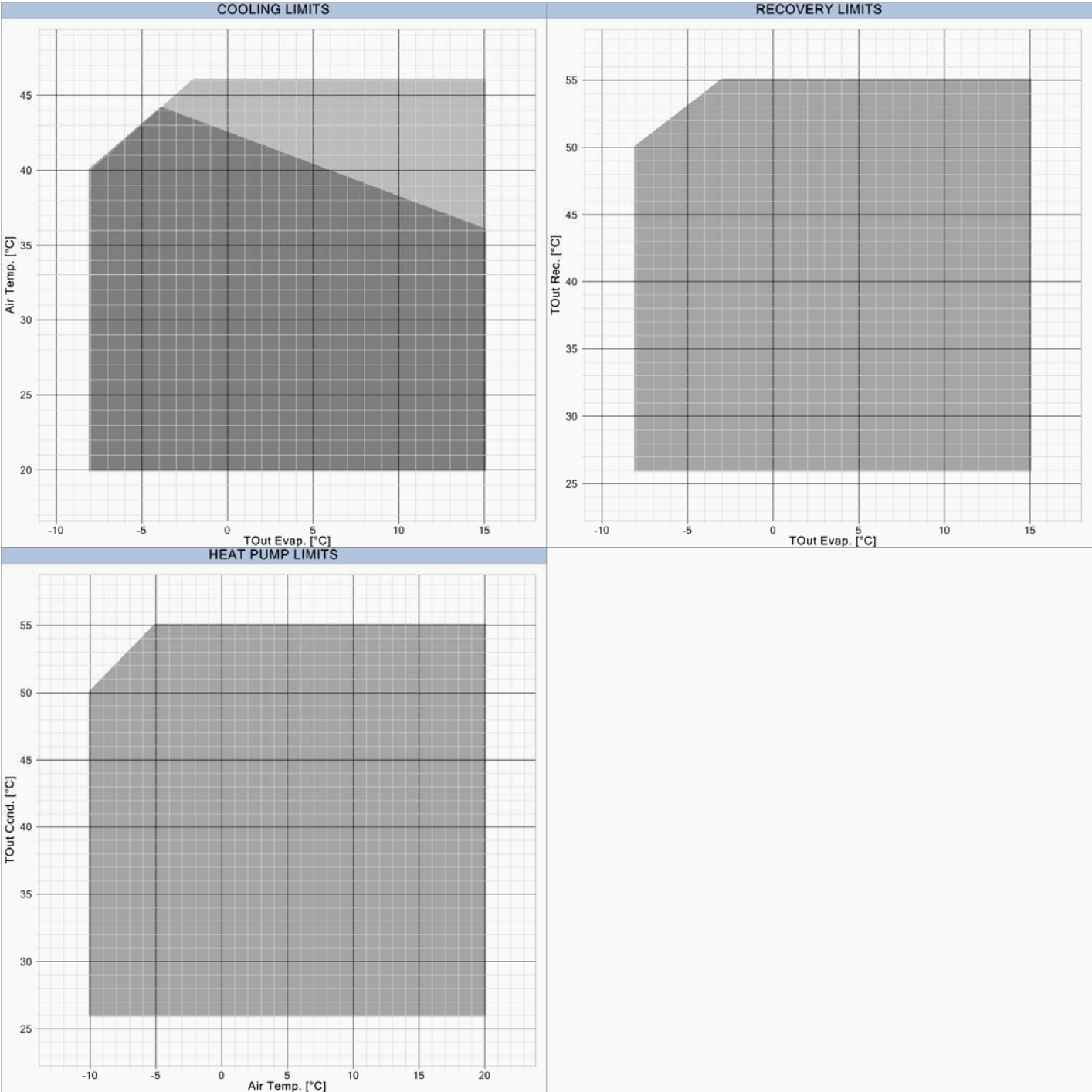
**NOTE:**  
The represented operating limit refers to the standard unit's operation. Thanks to the condensation and evaporation control device adopted in ERACS2-Q line, the units can work in each of the possible operating mode from -10°C up to 46°C outdoor air temperature.





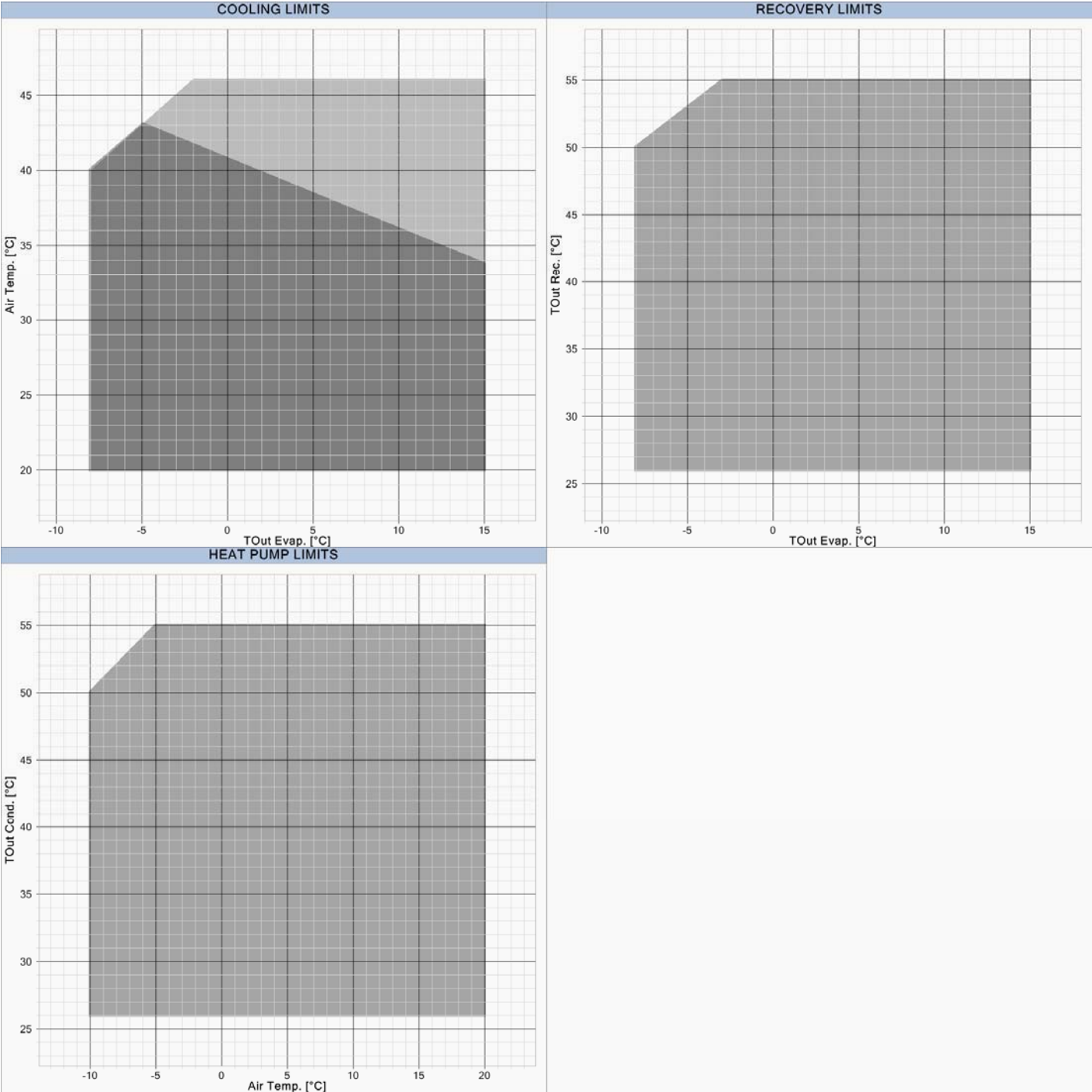
-  Selection limits
-  Selection limits
-  Economizers de-activated and unit in non silenced mode

**NOTE:**  
The represented operating limit refers to the standard unit's operation. Thanks to the condensation and evaporation control device adopted in ERACS2-Q line, the units can work in each of the possible operating mode from -10°C up to 46°C outdoor air temperature.



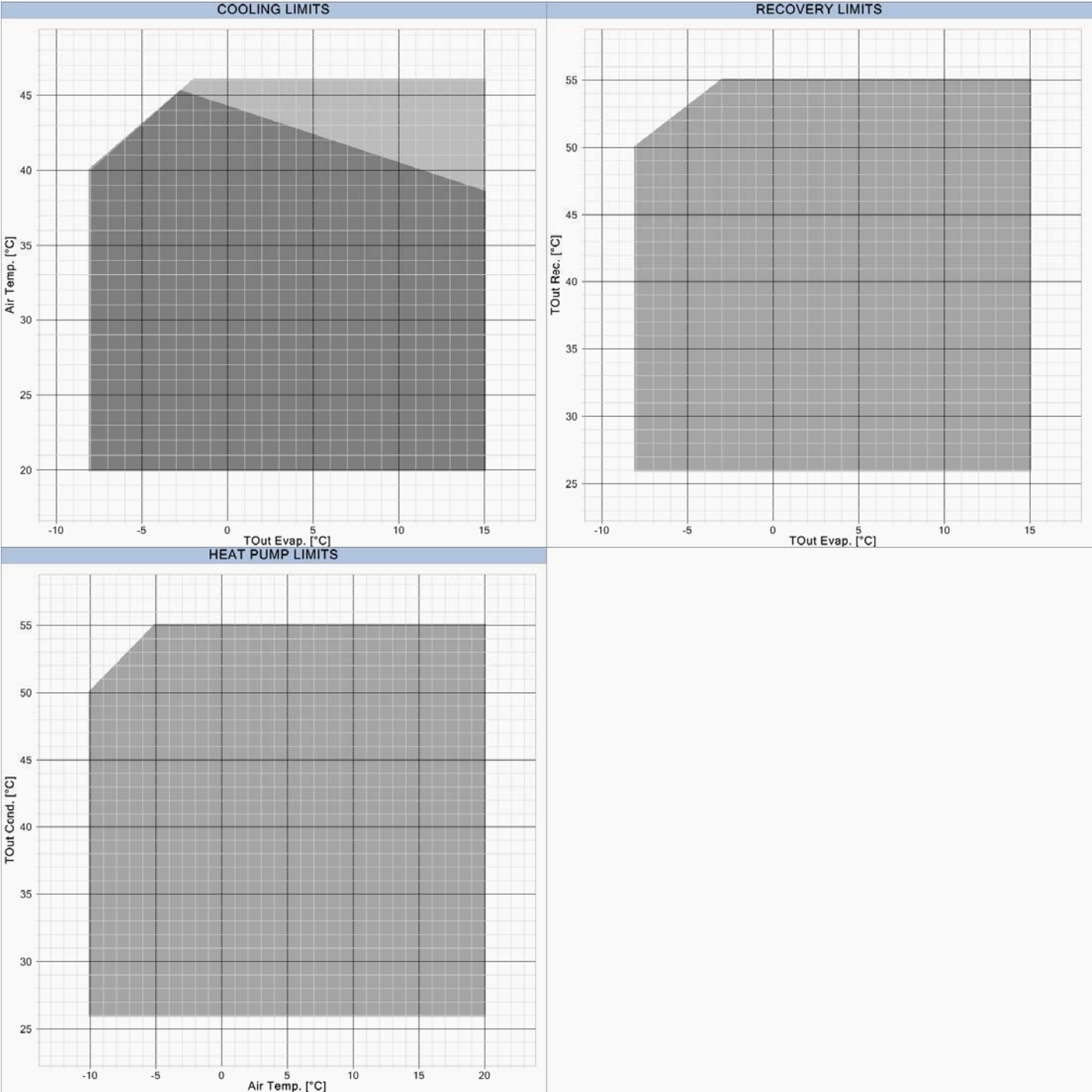
-  Selection limits
-  Selection limits
-  Economizers de-activated and unit in non silenced mode

**NOTE:**  
The represented operating limit refers to the standard unit's operation. Thanks to the condensation and evaporation control device adopted in ERACS2-Q line, the units can work in each of the possible operating mode from -10°C up to 46°C outdoor air temperature.



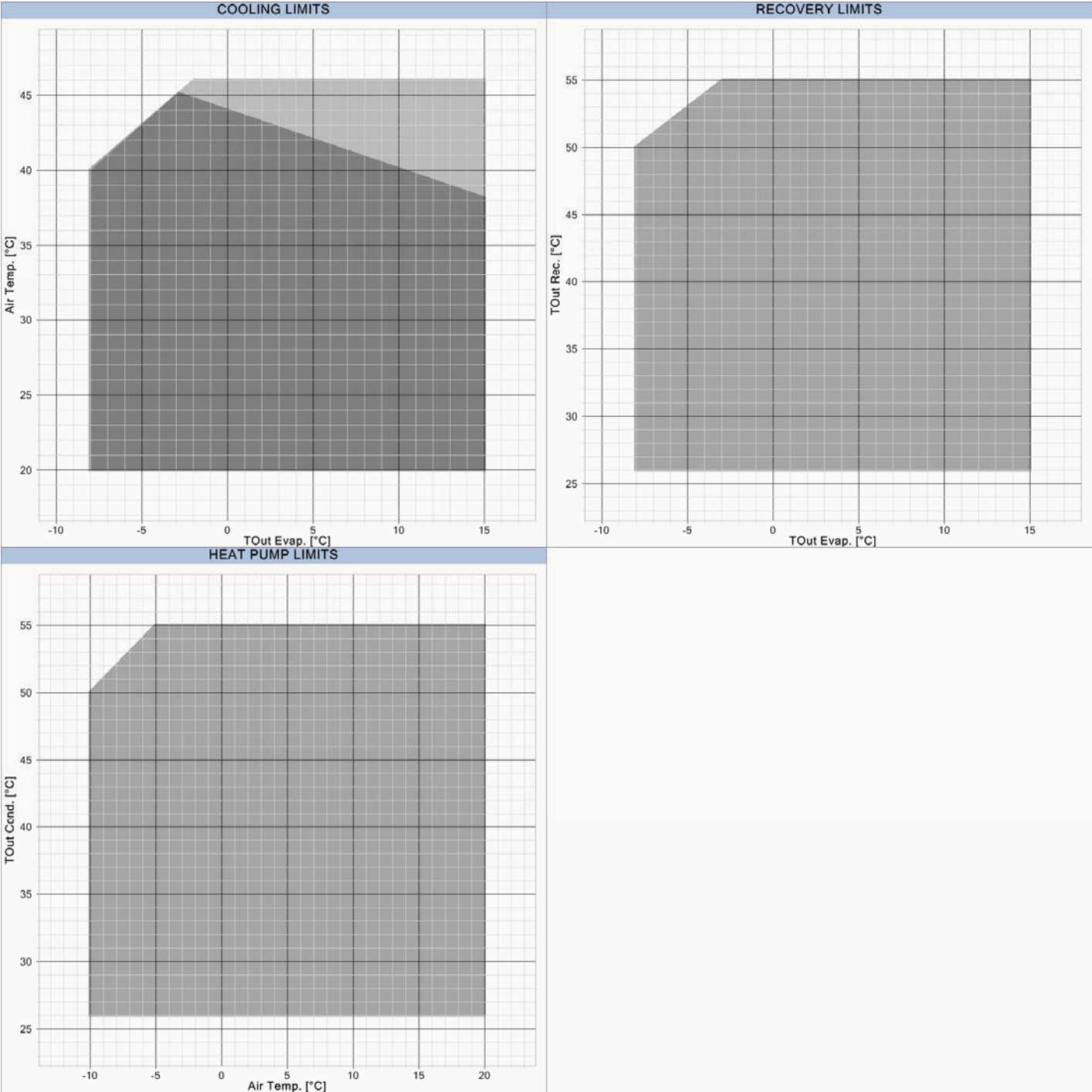
- Selection limits
- Selection limits
- Economizers de-activated and unit in non silenced mode

**NOTE:**  
The represented operating limit refers to the standard unit's operation. Thanks to the condensation and evaporation control device adopted in ERACS2-Q line, the units can work in each of the possible operating mode from -10°C up to 46°C outdoor air temperature.



-  Selection limits
-  Selection limits
-  Economizers de-activated and unit in non silenced mode

**NOTE:**  
The represented operating limit refers to the standard unit's operation. Thanks to the condensation and evaporation control device adopted in ERACS2-Q line, the units can work in each of the possible operating mode from -10°C up to 46°C outdoor air temperature.



-  Selection limits
-  Selection limits
-  Economizers de-activated and unit in non silenced mode

**NOTE:**  
The represented operating limit refers to the standard unit's operation. Thanks to the condensation and evaporation control device adopted in ERACS2-Q line, the units can work in each of the possible operating mode from -10°C up to 46°C outdoor air temperature.

**4.2 ETHYLENE GLYCOL MIXTURE**

Ethylene glycol and water mixture, used as a heat-conveying fluid, cause a variation in unit performance. For correct data, use the factors indicated in the following tabel.

|     | Freezing point (°C)                  |       |      |       |      |       |       |      |
|-----|--------------------------------------|-------|------|-------|------|-------|-------|------|
|     | 0                                    | -5    | -10  | -15   | -20  | -25   | -30   | -35  |
|     | Ethylene glycol percentage by weight |       |      |       |      |       |       |      |
|     | 0                                    | 12%   | 20%  | 30%   | 35%  | 40%   | 45%   | 50%  |
| cPf | 1                                    | 0,985 | 0,98 | 0,974 | 0,97 | 0,965 | 0,964 | 0,96 |
| cQ  | 1                                    | 1,02  | 1,04 | 1,075 | 1,11 | 1,14  | 1,17  | 1,2  |
| cdp | 1                                    | 1,07  | 1,11 | 1,18  | 1,22 | 1,24  | 1,27  | 1,3  |

cPf: cooling power correction factor

cQ: flow correction factor

cdp: pressure drop correction factor

For data concerning other kind of anti-freeze solutions (e.g, propylene glycol) please contact our Sale Department.

**4.3 FOULING FACTORS**

Performances are based on clean condition of tubes (fouling factor = 1). For different fouling values, performance should be adjusted using the correction factors shown in the following table.

| FOULING FACTORS            | PLANT SIDE COLD HEAT EXCHANGER |       |            | SOURCE SIDE HEAT EXCHANGER |       |            | PLANT SIDE HOT HEAT EXCHANGER |
|----------------------------|--------------------------------|-------|------------|----------------------------|-------|------------|-------------------------------|
| ff<br>(m <sup>2</sup> °CW) | F1                             | FK1   | KE<br>[°C] | F2                         | FK2   | KC<br>[°C] | R3                            |
| 0                          | 1,000                          | 1,000 | 0,0        | 1,000                      | 1,000 | 0,0        | 1,000                         |
| 1,80 x 10 <sup>-5</sup>    | 1,000                          | 1,000 | 0,0        | 1,000                      | 1,000 | 0,0        | 1,000                         |
| 4,40 x 10 <sup>-5</sup>    | 1,000                          | 1,000 | 0,0        | 0,990                      | 1,030 | 1,0        | 0,990                         |
| 8,80 x 10 <sup>-5</sup>    | 0,960                          | 0,990 | 0,7        | 0,980                      | 1,040 | 1,5        | 0,980                         |
| 13,20 x 10 <sup>-5</sup>   | 0,944                          | 0,985 | 1,0        | 0,964                      | 1,050 | 2,3        | 0,964                         |
| 17,20 x 10 <sup>-5</sup>   | 0,930                          | 0,980 | 1,5        | 0,950                      | 1,060 | 3,0        | 0,950                         |

ff: fouling factors

f1 - f2: potential correction factors

fk1 - fk2: compressor power input correction factors

r3: capacity correction factors

KE: minimum condenser outlet temperature increase

KC: maximum condenser outlet temperature decrease



**Water flow and pressure drop**Water flow in the heat exchangers is given by:  $Q = P \times 0,86 / Dt$ Q: water flow (m<sup>3</sup>/h)

Dt: difference between inlet and outlet water temp. (°C)

P: heat exchanger capacity (kW)

| SIZE                   | PLANT SIDE COLD HEAT EXCHANGER |                            |                            |                            | PLANT SIDE HOT HEAT EXCHANGER |                            |                            |
|------------------------|--------------------------------|----------------------------|----------------------------|----------------------------|-------------------------------|----------------------------|----------------------------|
|                        | K                              | Q min<br>m <sup>3</sup> /h | Q max<br>m <sup>3</sup> /h | C.a.<br>min m <sup>3</sup> | K                             | Q min<br>m <sup>3</sup> /h | Q max<br>m <sup>3</sup> /h |
| ERACS2-Q /CA 1062      | 22                             | 22,5                       | 60,4                       | 1,5                        | 22                            | 23,4                       | 58                         |
| ERACS2-Q /CA 1162      | 22                             | 26,6                       | 71,3                       | 1,8                        | 22                            | 27,7                       | 69                         |
| ERACS2-Q /CA 1362      | 13,5                           | 32,4                       | 86,9                       | 2,2                        | 13,5                          | 33,2                       | 84,5                       |
| ERACS2-Q /CA 1562      | 13,5                           | 35,3                       | 94,6                       | 2,4                        | 13,5                          | 36,4                       | 91                         |
| ERACS2-Q /CA 1762      | 9,4                            | 40,8                       | 109,3                      | 2,7                        | 9,4                           | 42,5                       | 106,3                      |
| ERACS2-Q /CA 1962      | 5,2                            | 45,6                       | 122,2                      | 3                          | 5,2                           | 46,6                       | 118,3                      |
| ERACS2-Q /CA 2022      | 3,86                           | 48,8                       | 138,4                      | 4,4                        | 3,86                          | 52,1                       | 131,7                      |
| ERACS2-Q /CA 2222      | 3,55                           | 53,7                       | 150,6                      | 4,7                        | 3,55                          | 57,5                       | 141,5                      |
| ERACS2-Q /CA 2422      | 3,55                           | 56,7                       | 158,9                      | 5                          | 3,55                          | 60,5                       | 149,4                      |
| ERACS2-Q /CA 2622      | 2                              | 62,7                       | 178,9                      | 5,7                        | 2                             | 65,1                       | 170,1                      |
| ERACS2-Q /CA 2722      | 2,09                           | 71,6                       | 201,8                      | 6,3                        | 2,09                          | 75,4                       | 190,4                      |
| ERACS2-Q /CA 3222      | 1,53                           | 82,9                       | 236,8                      | 7,5                        | 1,53                          | 87,6                       | 224,2                      |
| ERACS2-Q /LN-CA 1062   | 22                             | 22,5                       | 60,4                       | 1,5                        | 22                            | 23,4                       | 58                         |
| ERACS2-Q /LN-CA 1162   | 22                             | 26,6                       | 71,3                       | 1,8                        | 22                            | 27,7                       | 69                         |
| ERACS2-Q /LN-CA 1362   | 13,5                           | 32,4                       | 86,9                       | 2,2                        | 13,5                          | 33,2                       | 84,5                       |
| ERACS2-Q /LN-CA 1562   | 13,5                           | 35,3                       | 94,6                       | 2,4                        | 13,5                          | 36,4                       | 91                         |
| ERACS2-Q /LN-CA 1762   | 9,4                            | 40,8                       | 109,3                      | 2,7                        | 9,4                           | 42,5                       | 106,3                      |
| ERACS2-Q /LN-CA 1962   | 5,2                            | 45,6                       | 122,2                      | 3                          | 5,2                           | 46,6                       | 118,3                      |
| ERACS2-Q /LN-CA 2022   | 3,86                           | 48,8                       | 138                        | 4,4                        | 3,86                          | 52,1                       | 131,7                      |
| ERACS2-Q /LN-CA 2222   | 3,55                           | 53,7                       | 151                        | 4,7                        | 3,55                          | 57,5                       | 141,5                      |
| ERACS2-Q /LN-CA 2422   | 3,55                           | 56,7                       | 159                        | 5                          | 3,55                          | 60,5                       | 149,4                      |
| ERACS2-Q /LN-CA 2622   | 2                              | 62,7                       | 179                        | 5,7                        | 2                             | 65,1                       | 170,1                      |
| ERACS2-Q /LN-CA 2722   | 2,09                           | 71,6                       | 202                        | 6,3                        | 2,09                          | 75,4                       | 190,4                      |
| ERACS2-Q /LN-CA 3222   | 1,53                           | 82,9                       | 237                        | 7,5                        | 1,53                          | 87,6                       | 224,2                      |
| ERACS2-Q /SL-CA 1062   | 22                             | 22,5                       | 60,4                       | 1,5                        | 22                            | 23,4                       | 58                         |
| ERACS2-Q /SL-CA 1162   | 22                             | 26,6                       | 71,3                       | 1,8                        | 22                            | 27,7                       | 69                         |
| ERACS2-Q /SL-CA 1362   | 13,5                           | 32,4                       | 86,9                       | 2,2                        | 13,5                          | 33,2                       | 84,5                       |
| ERACS2-Q /SL-CA 1562   | 13,5                           | 35,3                       | 94,6                       | 2,4                        | 13,5                          | 36,4                       | 91                         |
| ERACS2-Q /SL-CA 1762   | 9,4                            | 40,8                       | 109,3                      | 2,7                        | 9,4                           | 42,5                       | 106,3                      |
| ERACS2-Q /SL-CA 1962   | 5,2                            | 45,6                       | 122,2                      | 3                          | 5,2                           | 46,6                       | 118,3                      |
| ERACS2-Q /SL-CA 2022   | 3,86                           | 48,8                       | 138                        | 4,4                        | 3,86                          | 52,1                       | 131,7                      |
| ERACS2-Q /SL-CA 2222   | 3,55                           | 53,7                       | 151                        | 4,7                        | 3,55                          | 57,5                       | 141,5                      |
| ERACS2-Q /SL-CA 2422   | 3,55                           | 56,7                       | 159                        | 5                          | 3,55                          | 60,5                       | 149,4                      |
| ERACS2-Q /SL-CA 2622   | 2                              | 62,7                       | 179                        | 5,7                        | 2                             | 65,1                       | 170,1                      |
| ERACS2-Q /SL-CA 2722   | 2,09                           | 71,6                       | 202                        | 6,3                        | 2,09                          | 75,4                       | 190,4                      |
| ERACS2-Q /SL-CA 3222   | 1,53                           | 82,9                       | 237                        | 7,5                        | 1,53                          | 87,6                       | 224,2                      |
| ERACS2-Q /XL-CA 2022   | 3,86                           | 48,8                       | 138                        | 4,4                        | 3,86                          | 52,1                       | 131,7                      |
| ERACS2-Q /XL-CA 2222   | 3,55                           | 53,7                       | 151                        | 4,7                        | 3,55                          | 57,5                       | 141,5                      |
| ERACS2-Q /XL-CA 2422   | 3,55                           | 56,7                       | 159                        | 5                          | 3,55                          | 60,5                       | 149,4                      |
| ERACS2-Q /XL-CA 2622   | 2                              | 62,7                       | 179                        | 5,7                        | 2                             | 65,1                       | 170,1                      |
| ERACS2-Q /XL-CA 2722   | 2,09                           | 71,6                       | 202                        | 6,3                        | 2,09                          | 75,4                       | 190,4                      |
| ERACS2-Q /XL-CA 3222   | 1,53                           | 82,9                       | 237                        | 7,5                        | 1,53                          | 87,6                       | 224,2                      |
| ERACS2-Q /XL-CA-E 1062 | 22                             | 22,5                       | 60,4                       | 1,5                        | 22                            | 23,4                       | 58                         |
| ERACS2-Q /XL-CA-E 1162 | 22                             | 26,6                       | 71,3                       | 1,8                        | 22                            | 27,7                       | 69                         |
| ERACS2-Q /XL-CA-E 1362 | 13,5                           | 32,4                       | 86,9                       | 2,2                        | 13,5                          | 33,2                       | 84,5                       |

Q min: minimum water flow admitted to the heat exchanger

Q max: maximum water flow admitted to the heat exchanger

C.a. min: minimum water content admitted in the plant, using traditional control logic

| SIZE                   | PLANT SIDE COLD HEAT EXCHANGER |                            |                            |                            | PLANT SIDE HOT HEAT EXCHANGER |                            |                            |
|------------------------|--------------------------------|----------------------------|----------------------------|----------------------------|-------------------------------|----------------------------|----------------------------|
|                        | K                              | Q min<br>m <sup>3</sup> /h | Q max<br>m <sup>3</sup> /h | C.a.<br>min m <sup>3</sup> | K                             | Q min<br>m <sup>3</sup> /h | Q max<br>m <sup>3</sup> /h |
| ERACS2-Q /XL-CA-E 1562 | 13,5                           | 35,3                       | 94,6                       | 2,4                        | 13,5                          | 36,4                       | 91                         |
| ERACS2-Q /XL-CA-E 1762 | 9,4                            | 40,8                       | 109,3                      | 2,7                        | 9,4                           | 42,5                       | 106,3                      |
| ERACS2-Q /XL-CA-E 2022 | 3,86                           | 48,8                       | 138                        | 4,4                        | 3,86                          | 52,1                       | 131,7                      |
| ERACS2-Q /XL-CA-E 2222 | 3,55                           | 53,7                       | 151                        | 4,7                        | 3,55                          | 57,5                       | 141,5                      |
| ERACS2-Q /XL-CA-E 2422 | 3,55                           | 56,7                       | 159                        | 5                          | 3,55                          | 60,5                       | 149,4                      |
| ERACS2-Q /XL-CA-E 2622 | 2                              | 62,7                       | 179                        | 5,7                        | 2                             | 65,1                       | 170,1                      |

Q min: minimum water flow admitted to the heat exchanger

Q max: maximum water flow admitted to the heat exchanger

C.a. min: minimum water content admitted in the plant, using traditional control logic

## 5.2 HYDRONIC GROUP (Optional)

### Hydraulic group consisting of:

- 2 pumps for tube exchanger
- differential pressure switch
- discharge valves
- pump inlet / outlet valves
- check valve
- purge valve
- drain valve

Each of the components of the hydraulic group has been designed to optimise hydraulic and electrical installation space, time and costs.

The second pump operates in stand-by to the first. The relative operating hours of the two pumps are balanced. In case the operating pump breaks down, the reserve pump is automatically enabled.

The electrical panel of the unit is protected with fuses and contactor with thermal cut-out.

### IN-LINE PUMPS SPECIFICATION

#### 2-pole low head pumps

Centrifugal pumps with in-line suction and delivery flanges, in single and twin versions. Pump body in cast iron and impeller in AISI 316L stainless steel or cast-iron, entirely laser technology welded. Mechanical seal with components in ceramics, carbon and EPDM elastomers. Three-phase electric motor protected to IP55, insulation class F, suitable for continuous service.

#### 2-pole high-head pumps

All versions of the hydronic unit can be supplied with a high head pump. In these cases, the pump features a two-pole motor even in the silent-running versions.

### SINGLE PUMPS SPECIFICATION

#### Low or high head pump

Horizontal one-piece centrifuge pump, normalised to EN 733, axial suction and radial delivery, cast iron body and AISI 316L stainless steel impeller. The section of the shaft in contact with the liquid is made from stainless steel. Mechanical seal with components in various materials depending on the size: ceramic/carbon/NBR or carbon/carburundum/silicon/EPDM. Three-phase electric motor protected to IP55, insulation class F, suitable for continuous service.

N.B.: for the version /SL-CA, /XL-CA e /XL-CA-E, the addition of the hydraulic group with 2 pumps, increase noise output by about 1 dB(A).

### SPECIAL PUMPS

For pumps with different configurations, please contact our sales department.

The supply does not include the following accessories though these are recommended to ensure correct system operation:

- Flow switch
- Pressure gauges upline and downline from the unit
- Flexible joints on piping
- On-off valves
- Outlet control thermometer
- Mains filter

#### Available configurations:

| VERSION | HYDRONIC GROUP |             |             |
|---------|----------------|-------------|-------------|
|         | 2 Poli - BP    | 2 Poli - AP | 4 Poli - BP |
| CA      | X              | X           |             |
| LN-CA   | X              | X           |             |
| SL-CA   |                | X           | X           |
| XL-CA   |                | X           | X           |
| XL-CA-E |                | X           | X           |

### Hydronic group extra weight

| SIZE | VERSION | 2 Poli - BP | 2 Poli - AP | 4 Poli - BP |
|------|---------|-------------|-------------|-------------|
|      |         | extra kg    | extra kg    | extra kg    |
| 1062 | CA      | 246         | 282         | -           |
| 1162 |         | 270         | 386         | -           |
| 1362 |         | 279         | 395         | -           |
| 1562 |         | 303         | 395         | -           |
| 1762 |         | 612         | 756         | -           |
| 1962 |         | 628         | 756         | -           |
| 2022 |         | 1070        | 1190        | -           |
| 2222 |         | 1170        | 1290        | -           |
| 2422 |         | 1170        | 1290        | -           |
| 2622 |         | 1170        | 1290        | -           |
| 2722 |         | 1150        | 1090        | -           |
| 3222 |         | 1100        | 1600        | -           |
| 1062 | LN-CA   | 246         | 282         | -           |
| 1162 |         | 270         | 386         | -           |
| 1362 |         | 279         | 395         | -           |
| 1562 |         | 303         | 395         | -           |
| 1762 |         | 612         | 756         | -           |
| 1962 |         | 628         | 756         | -           |
| 2022 |         | 1070        | 1190        | -           |
| 2222 |         | 1170        | 1290        | -           |
| 2422 |         | 1170        | 1290        | -           |
| 2622 |         | 1170        | 1290        | -           |
| 2722 |         | 1150        | 1090        | -           |
| 3222 |         | 1100        | 1600        | -           |
| 1062 | SL-CA   | -           | 282         | 354         |
| 1162 |         | -           | 386         | 534         |
| 1362 |         | -           | 395         | 543         |
| 1562 |         | -           | 395         | 567         |
| 1762 |         | -           | 756         | 562         |
| 1962 |         | -           | 756         | 562         |
| 2022 |         | -           | 1190        | 1190        |
| 2222 |         | -           | 1290        | 1290        |
| 2422 |         | -           | 1290        | 1330        |
| 2622 |         | -           | 1290        | 1330        |
| 2722 |         | -           | 1090        | 1150        |
| 3222 |         | -           | 1600        | 1540        |
| 2022 | XL-CA   | -           | 1190        | 1190        |
| 2222 |         | -           | 1290        | 1290        |
| 2422 |         | -           | 1290        | 1330        |
| 2622 |         | -           | 1290        | 1330        |
| 2722 |         | -           | 1090        | 1150        |
| 3222 |         | -           | 1600        | 1540        |
| 1062 | XL-CA-E | -           | 282         | 354         |
| 1162 |         | -           | 419         | 567         |
| 1362 |         | -           | 395         | 543         |
| 1562 |         | -           | 628         | 530         |
| 1762 |         | -           | 756         | 562         |
| 2022 |         | -           | 1350        | 1350        |
| 2222 |         | -           | 1370        | 1370        |
| 2422 |         | -           | 1370        | 1410        |
| 2622 |         | -           | 1370        | 1410        |

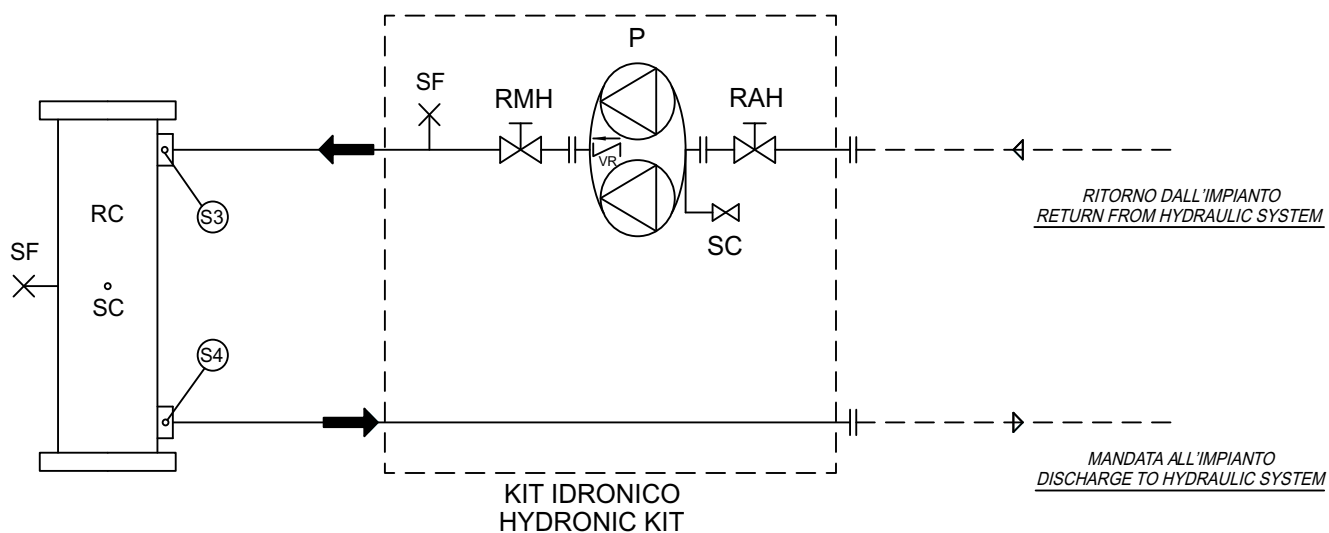
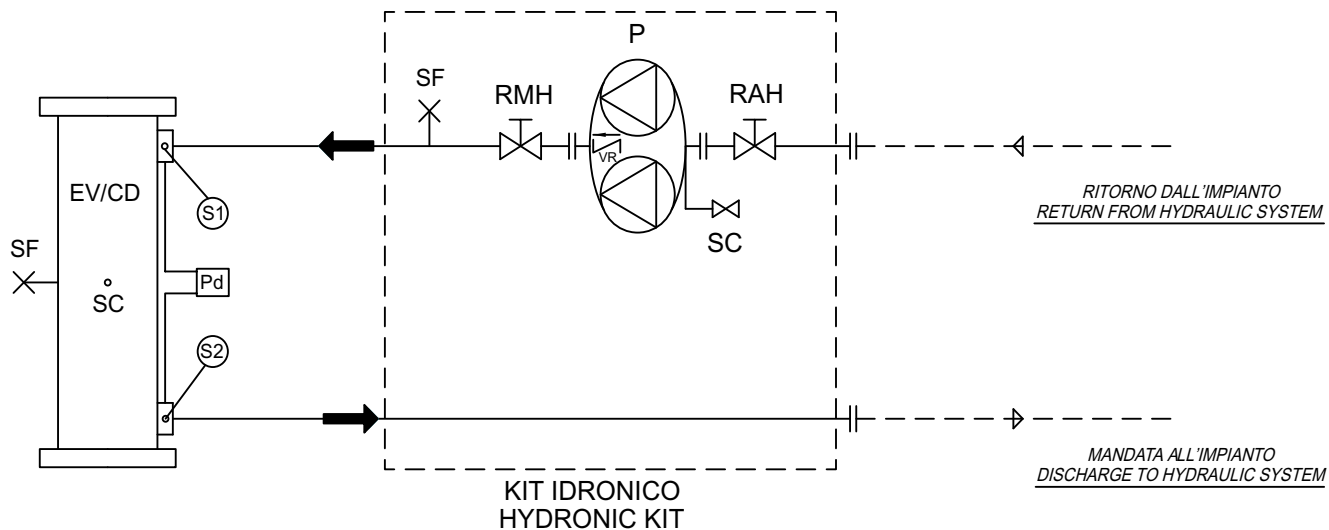
extra kg extra weight (hydronic group + hydraulic connection)

BP Low head pumps

AP High head pumps

**HYDRONIC GROUP (Optional)**

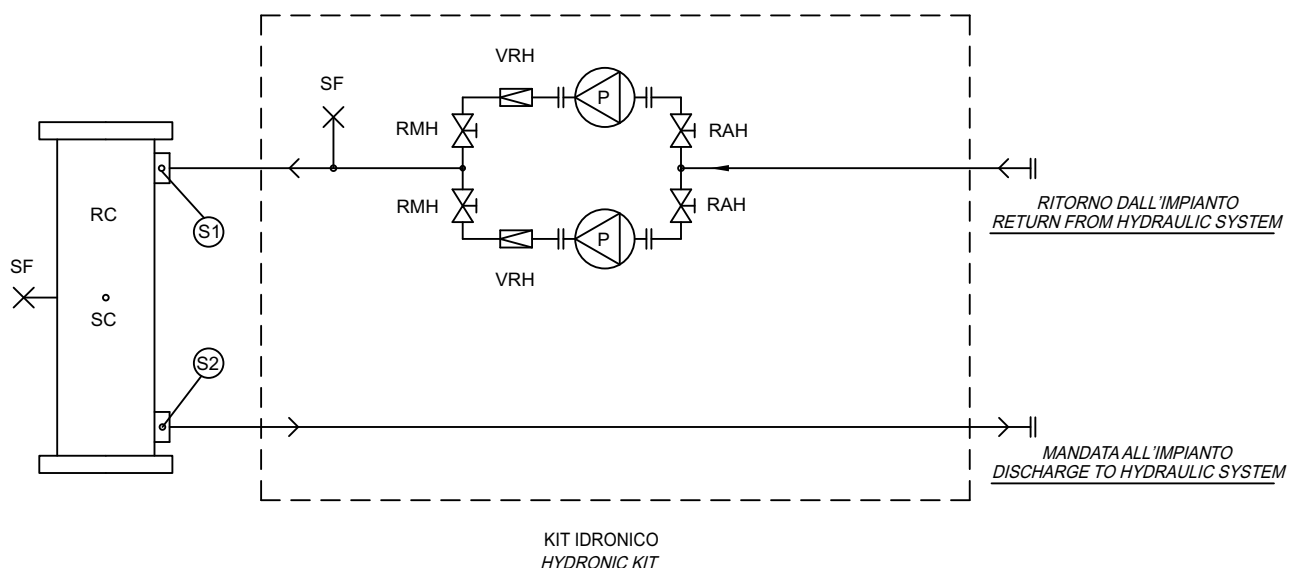
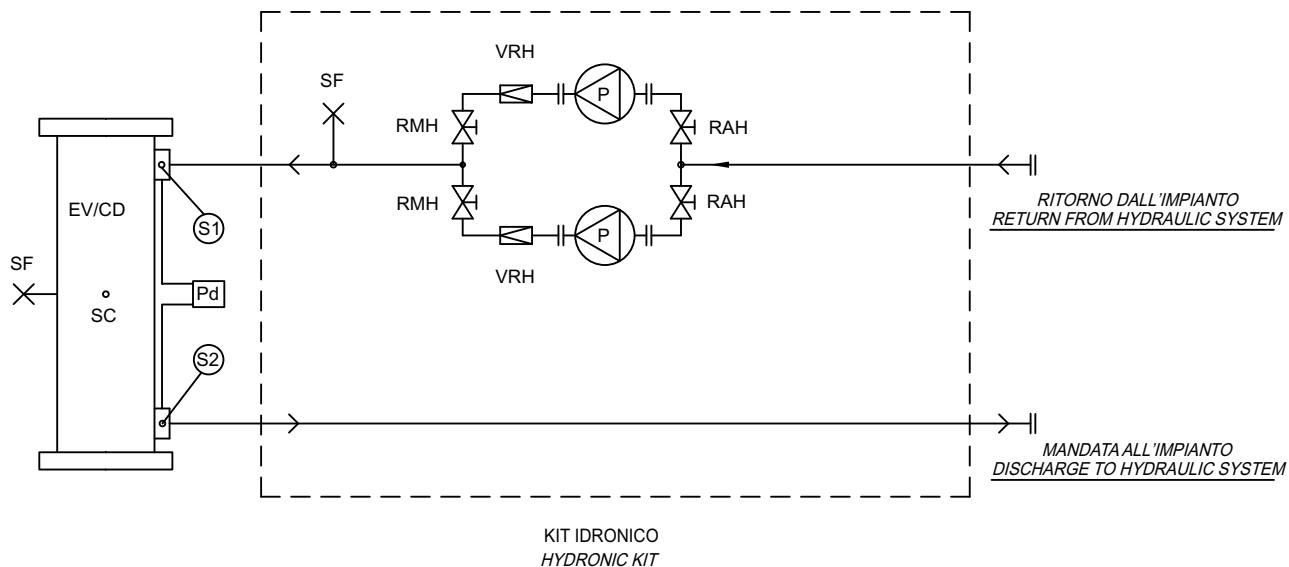
Hydraulic diagram IN-LINE water pump

**LEGENDA - LEGEND****COMPONENTI DEL KIT IDRONICO  
COMPONENTS OF THE HYDRONIC KIT**

|       |                                                                                                                  |
|-------|------------------------------------------------------------------------------------------------------------------|
| EV/CD | Scambiatore freddo lato utenza (scambiatore a fascio tubiero)<br>Plant side cold heat exchanger (tube exchanger) |
| P     | Pompa gemellare<br>Twin rotor pump                                                                               |
| Pd    | Pressostato differenziale lato acqua<br>Water Differential pressure switch                                       |
| RC    | Scambiatore caldo lato utenza (scambiatore a fascio tubiero)<br>Plant side cold heat exchanger (tube exchanger)  |
| RAH   | Rubinetto aspirazione<br>Pump suction valve                                                                      |
| RMH   | Rubinetto mandata<br>Pump discharge valve                                                                        |
| SC    | Valvola di scarico<br>Drain valve                                                                                |
| SF    | Valvola di sfiato<br>Purge valve                                                                                 |
| S1/S3 | Sonda ingresso acqua scambiatore<br>Exchanger water inlet probe                                                  |
| S2/S4 | Sonda uscita acqua scambiatore<br>Exchanger water outlet probe                                                   |
| VR    | Valvola di ritegno (interna alla pompa)<br>Cheek valve (pump inside)                                             |

## HYDRONIC GROUP (Optional)

### Hydraulic diagram single water pump



#### LEGENDA - LEGEND

##### COMPONENTI DEL KIT IDRONICO COMPONENTS OF THE HYDRONIC KIT

|       |                                                                                                                  |
|-------|------------------------------------------------------------------------------------------------------------------|
| EV/CD | Scambiatore freddo lato utenza (scambiatore a fascio tubiero)<br>Plant side cold heat exchanger (tube exchanger) |
| P     | Pompa<br>Water pump                                                                                              |
| Pd    | Pressostato differenziale lato acqua<br>Water Differential pressure switch                                       |
| RC    | Scambiatore caldo lato utenza (scambiatore a fascio tubiero)<br>Plant side cold heat exchanger (tube exchanger)  |
| RAH   | Rubinetto aspirazione<br>Pump suction valve                                                                      |
| RMH   | Rubinetto mandata<br>Pump discharge valve                                                                        |
| SC    | Valvola di scarico<br>Drain valve                                                                                |
| SF    | Valvola di sfianto<br>Purge valve                                                                                |
| S1/S3 | Sonda ingresso acqua scambiatore<br>Exchanger water inlet probe                                                  |
| S2/S4 | Sonda uscita acqua scambiatore<br>Exchanger water outlet probe                                                   |
| VRH   | Valvola di non ritorno<br>One way valve                                                                          |

## HYDRONIC GROUP (Optional)

## COLD CIRCUIT - 2 PUMPS - LOW HEAD PUMP

| SIZE         | Pf (1)(2)<br>[kW] | Q (1)(2)<br>[m3/h] | Rif.<br>Pump | Pump             |           | N.<br>Poli | F.L.I.<br>[kW] | F.L.A.<br>[A] | Ks   | Dps (2)<br>kPa | Hu (2)<br>kPa |
|--------------|-------------------|--------------------|--------------|------------------|-----------|------------|----------------|---------------|------|----------------|---------------|
| 1062         | 210               | 36,1               | P1           | FHE 40-125/22    | SINGLE    | 2          | 2,2            | 5,0           | 33,9 | 44,2           | 115           |
| 1162         | 248               | 42,7               | P2           | FHE 50-125/30    | SINGLE    | 2          | 3,0            | 6,3           | 33,9 | 61,7           | 115           |
| 1362         | 302               | 51,9               | P2           | FHE 50-125/30    | SINGLE    | 2          | 3,0            | 6,3           | 25,4 | 68,5           | 91            |
| 1562         | 329               | 56,6               | P3           | FHE 50-125/40    | SINGLE    | 2          | 4,0            | 7,7           | 25,4 | 81,3           | 115           |
| 1562 XL-CA-E | 319               | 54,9               | P4           | FCTE 80-125/40   | IN - LINE | 2          | 4,0            | 7,7           | 17,5 | 52,7           | 103           |
| 1762         | 380               | 65,4               | P4           | FCTE 80-125/40   | IN - LINE | 2          | 4,0            | 7,7           | 12,7 | 54,3           | 88            |
| 1962         | 425               | 73,1               | P5           | FCTE 80-125/55   | IN - LINE | 2          | 5,5            | 10,4          | 8,5  | 45,4           | 134           |
| 2022         | 469               | 80,7               | P6           | FHE 65-125/55    | SINGLE    | 2          | 5,5            | 10,4          | 7,7  | 49,9           | 127           |
| 2222         | 513               | 88,2               | P6           | FHE 65-125/55    | SINGLE    | 2          | 5,5            | 10,4          | 7,3  | 56,6           | 110           |
| 2422         | 541               | 93,1               | P6           | FHE 65-125/55    | SINGLE    | 2          | 5,5            | 10,4          | 7,3  | 62,9           | 97            |
| 2622         | 604               | 103,9              | P7           | FHE 65-125/75    | SINGLE    | 2          | 7,5            | 13,9          | 5,6  | 60,3           | 142           |
| 2722         | 684               | 117,6              | P8           | FCTE4 100-250/75 | IN - LINE | 4          | 7,5            | 15,4          | 2,9  | 39,7           | 103           |
| 3222         | 800               | 137,6              | P9           | FCTE 100-160/110 | IN - LINE | 2          | 11,0           | 20,2          | 2,5  | 46,8           | 136           |

## HOT CIRCUIT - 2 PUMPS - LOW HEAD PUMP

| SIZE         | Pt (1)(2)<br>[kW] | Q (1)(2)<br>[m3/h] | Rif.<br>Pump | Pump             |           | N.<br>Poli | F.L.I.<br>[kW] | F.L.A.<br>[A] | Ks   | Dps (2)<br>kPa | Hu (2)<br>kPa |
|--------------|-------------------|--------------------|--------------|------------------|-----------|------------|----------------|---------------|------|----------------|---------------|
| 1062         | 218               | 37,5               | P1           | FHE 40-125/22    | SINGLE    | 2          | 2,2            | 5,0           | 33,9 | 47,7           | 104           |
| 1162         | 258               | 44,4               | P2           | FHE 50-125/30    | SINGLE    | 2          | 3,0            | 6,3           | 33,9 | 66,8           | 100           |
| 1362         | 308               | 53,0               | P2           | FHE 50-125/30    | SINGLE    | 2          | 3,0            | 6,3           | 25,4 | 71,3           | 83            |
| 1562         | 339               | 58,3               | P3           | FHE 50-125/40    | SINGLE    | 2          | 4,0            | 7,7           | 25,4 | 86,4           | 104           |
| 1562 XL-CA-E | 340               | 58,5               | P4           | FCTE 80-125/40   | IN - LINE | 2          | 4,0            | 7,7           | 17,5 | 59,8           | 91            |
| 1762         | 396               | 68,1               | P4           | FCTE 80-125/40   | IN - LINE | 2          | 4,0            | 7,7           | 12,7 | 58,9           | 78            |
| 1962         | 434               | 74,6               | P5           | FCTE 80-125/55   | IN - LINE | 2          | 5,5            | 10,4          | 8,5  | 47,4           | 125           |
| 2022         | 492               | 84,6               | P6           | FHE 65-125/55    | SINGLE    | 2          | 5,5            | 10,4          | 7,7  | 54,9           | 117           |
| 2222         | 541               | 93,1               | P6           | FHE 65-125/55    | SINGLE    | 2          | 5,5            | 10,4          | 7,3  | 62,9           | 97            |
| 2422         | 571               | 98,2               | P6           | FHE 65-125/55    | SINGLE    | 2          | 5,5            | 10,4          | 7,3  | 70,1           | 82            |
| 2622         | 615               | 105,8              | P7           | FHE 65-125/75    | SINGLE    | 2          | 7,5            | 13,9          | 5,6  | 62,5           | 137           |
| 2722         | 711               | 122,3              | P8           | FCTE4 100-250/75 | IN - LINE | 4          | 7,5            | 15,4          | 2,9  | 42,9           | 95            |
| 3222         | 826               | 142,1              | P9           | FCTE 100-160/110 | IN - LINE | 2          | 11,0           | 20,2          | 2,5  | 49,9           | 126           |

- (1) Values refer to rated operating conditions  
 (2) Values referred to sizes 1062-1962, CA version  
 Values referred to sizes 2022-3222, LN-CA version  
 Pf Cooling capacity of unit  
 Q Flow of water to evaporator  
 F.L.I. Power absorbed by pump

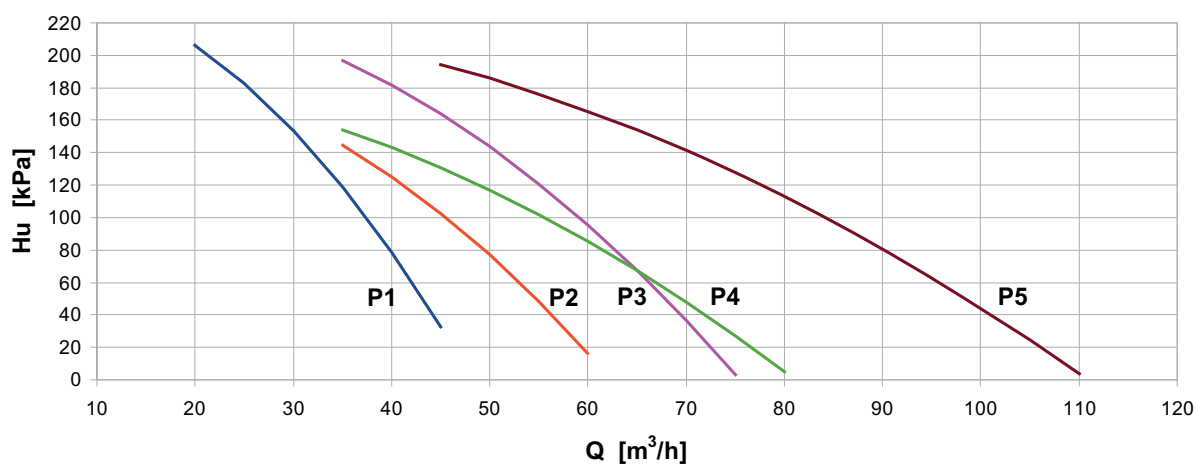
- F.L.A. Current absorbed by pump  
 Ks Total coefficient for the calculation of loss of power with double pump (one on stand-by)  
 Dps Total pressure drop in water circuit (evaporator and pipes)  
 Hu Working head



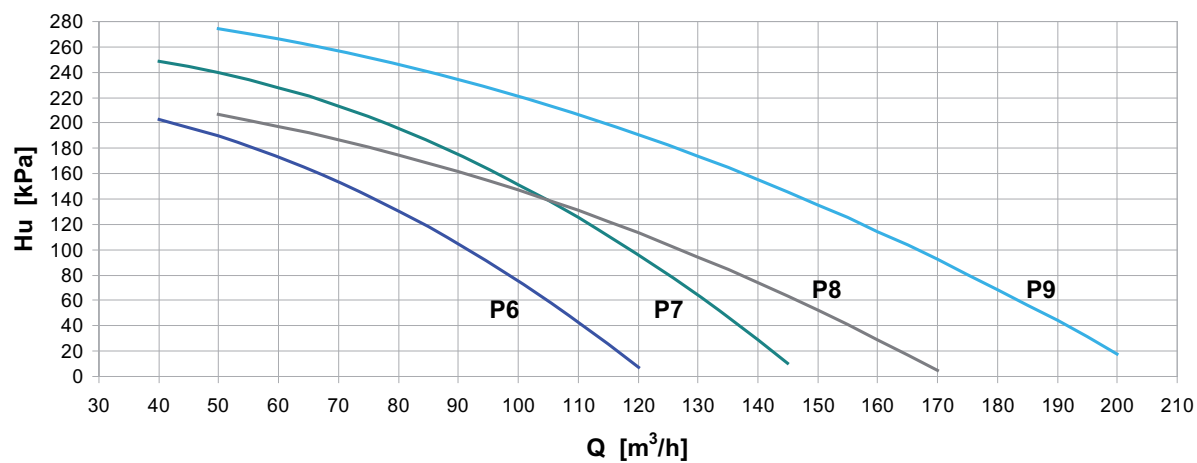
## HYDRONIC GROUP (Optional)

## PUMP CHARACTERISTICS

ERACS2-Q 1062 - 1962



ERACS2-Q 2022 - 3222



## HYDRONIC GROUP (Optional)

## COLD CIRCUIT - 2 PUMPS - HIGH HEAD PUMP

| SIZE         | Pf (1)<br>[kW] | Q (1)<br>[m3/h] | Rif.<br>Pump | Pump              |           | N.<br>Poli | F.L.I.<br>[kW] | F.L.A.<br>[A] | Ks   | Dps (2)<br>kPa | Hu (2)<br>kPa |
|--------------|----------------|-----------------|--------------|-------------------|-----------|------------|----------------|---------------|------|----------------|---------------|
| 1062         | 210            | 36,1            | P1           | FHE 40-160/40     | SINGLE    | 2          | 4,0            | 7,7           | 33,9 | 44,2           | 232           |
| 1162         | 248            | 42,7            | P2           | FHE 50-160/55     | SINGLE    | 2          | 5,5            | 10,4          | 33,9 | 61,7           | 227           |
| 1362         | 302            | 51,9            | P2           | FHE 50-160/55     | SINGLE    | 2          | 5,5            | 10,4          | 25,4 | 68,5           | 200           |
| 1562         | 329            | 56,6            | P2           | FHE 50-160/55     | SINGLE    | 2          | 5,5            | 10,4          | 25,4 | 81,3           | 174           |
| 1562 XL-CA-E | 319            | 54,9            | P3           | FC TE 60-160/55   | IN - LINE | 2          | 5,5            | 10,4          | 17,5 | 52,7           | 192           |
| 1762         | 380            | 65,4            | P4           | FC TE 80-160/75   | IN - LINE | 2          | 7,5            | 13,9          | 12,7 | 54,3           | 185           |
| 1962         | 425            | 73,1            | P4           | FC TE 80-160/75   | IN - LINE | 2          | 7,5            | 13,9          | 8,5  | 45,4           | 185           |
| 2022         | 469            | 80,7            | P5           | FHE 65-160/92     | SINGLE    | 2          | 9,2            | 16,7          | 7,7  | 49,9           | 231           |
| 2222         | 513            | 88,2            | P5           | FHE 65-160/92     | SINGLE    | 2          | 9,2            | 16,7          | 7,3  | 56,6           | 213           |
| 2422         | 541            | 93,1            | P5           | FHE 65-160/92     | SINGLE    | 2          | 9,2            | 16,7          | 7,3  | 62,9           | 199           |
| 2622         | 604            | 103,9           | P6           | FHE 65-160/110    | SINGLE    | 2          | 11,0           | 20,2          | 5,6  | 60,3           | 221           |
| 2722         | 684            | 117,6           | P7           | FC TE 100-160/110 | IN - LINE | 2          | 11,0           | 20,2          | 2,9  | 39,7           | 173           |
| 3222         | 800            | 137,6           | P8           | FCTS4 150-250/185 | IN - LINE | 4          | 18,5           | 37,0          | 2,4  | 45,1           | 177           |

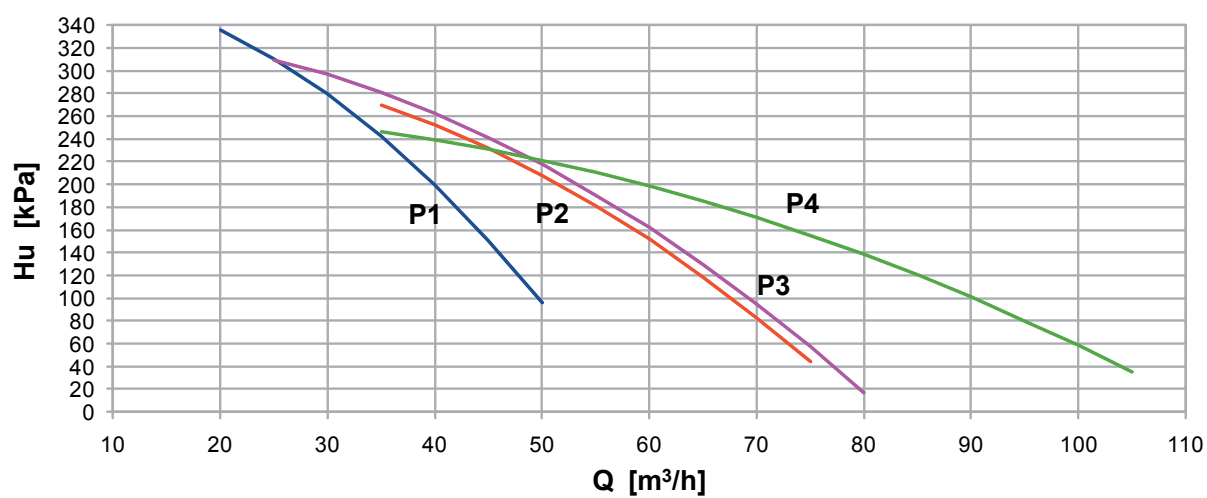
## HOT CIRCUIT - 2 PUMPS - HIGH HEAD PUMP

| SIZE         | Pt (1)(2)<br>[kW] | Q (1)(2)<br>[m3/h] | Rif.<br>Pump | Pump              |           | N.<br>Poli | F.L.I.<br>[kW] | F.L.A.<br>[A] | Ks   | Dps (2)<br>kPa | Hu (2)<br>kPa |
|--------------|-------------------|--------------------|--------------|-------------------|-----------|------------|----------------|---------------|------|----------------|---------------|
| 1062         | 218               | 37,5               | P1           | FHE 40-160/40     | SINGLE    | 2          | 4,0            | 7,7           | 33,9 | 47,7           | 221           |
| 1162         | 258               | 44,4               | P2           | FHE 50-160/55     | SINGLE    | 2          | 5,5            | 10,4          | 33,9 | 66,8           | 212           |
| 1362         | 308               | 53,0               | P2           | FHE 50-160/55     | SINGLE    | 2          | 5,5            | 10,4          | 25,4 | 71,3           | 191           |
| 1562         | 339               | 58,3               | P2           | FHE 50-160/55     | SINGLE    | 2          | 5,5            | 10,4          | 25,4 | 86,4           | 161           |
| 1562 XL-CA-E | 340               | 58,5               | P3           | FC TE 60-160/55   | IN - LINE | 2          | 5,5            | 10,4          | 17,5 | 59,8           | 171           |
| 1762         | 396               | 68,1               | P4           | FC TE 80-160/75   | IN - LINE | 2          | 7,5            | 13,9          | 12,7 | 58,9           | 176           |
| 1962         | 434               | 74,6               | P4           | FC TE 80-160/75   | IN - LINE | 2          | 7,5            | 13,9          | 8,5  | 47,4           | 180           |
| 2022         | 492               | 84,6               | P5           | FHE 65-160/92     | SINGLE    | 2          | 9,2            | 16,7          | 7,7  | 54,9           | 220           |
| 2222         | 541               | 93,1               | P5           | FHE 65-160/92     | SINGLE    | 2          | 9,2            | 16,7          | 7,3  | 62,9           | 199           |
| 2422         | 571               | 98,2               | P5           | FHE 65-160/92     | SINGLE    | 2          | 9,2            | 16,7          | 7,3  | 70,1           | 183           |
| 2622         | 615               | 105,8              | P6           | FHE 65-160/110    | SINGLE    | 2          | 11,0           | 20,2          | 5,6  | 62,5           | 214           |
| 2722         | 711               | 122,3              | P7           | FC TE 100-160/110 | IN - LINE | 2          | 11,0           | 20,2          | 2,9  | 42,9           | 165           |
| 3222         | 826               | 142,1              | P8           | FCTS4 150-250/185 | IN - LINE | 4          | 18,5           | 37,0          | 2,4  | 48,0           | 175           |

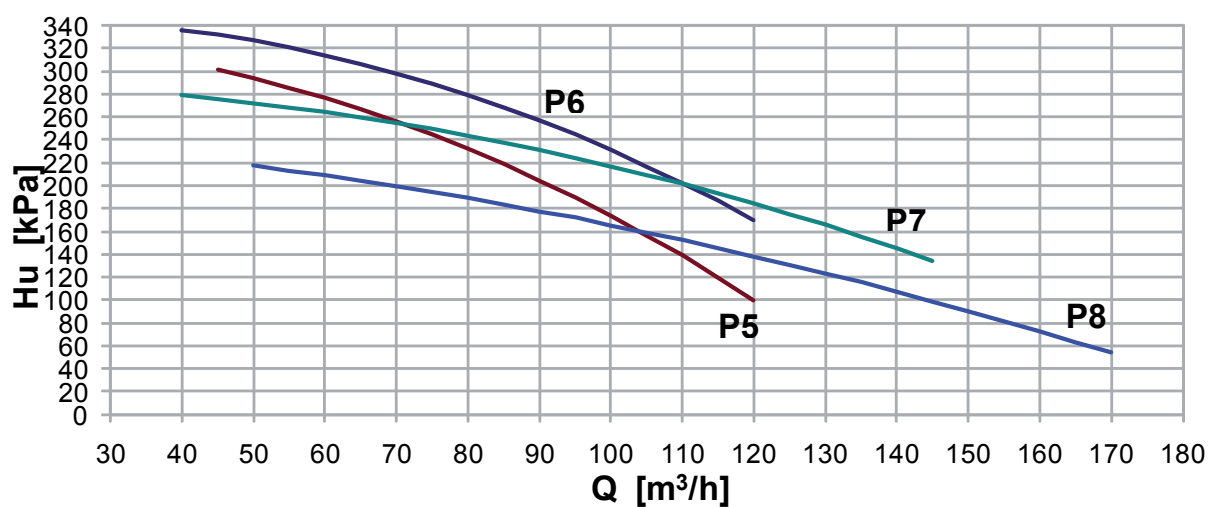
- (1) Values refer to rated operating conditions  
 (2) Values referred to sizes 1062-1962, CA version  
 Values referred to sizes 2022-3222, LN-CA version  
 Pf Cooling capacity of unit  
 Q Flow of water to evaporator  
 F.L.I. Power absorbed by pump

- F.L.A. Current absorbed by pump  
 Ks Total coefficient for the calculation of loss of power with double pump (one on stand-by)  
 Dps Total pressure drop in water circuit (evaporator and pipes)  
 Hu Working head

ERACS2-Q 1062 - 1962



ERACS2-Q 2022 - 3222



## HYDRONIC GROUP (Optional)

## COLD CIRCUIT - 2 PUMPS - 4 POLI - LOW HEAD PUMP

| SIZE         | Pf (1)(2)<br>[kW] | Q (1)(2)<br>[m3/h] | Rif.<br>Pump | Pump              |           | N.<br>Poli | F.L.I.<br>[kW] | F.L.A.<br>[A] | Ks   | Dps<br>kPa | Hu (2)<br>kPa |
|--------------|-------------------|--------------------|--------------|-------------------|-----------|------------|----------------|---------------|------|------------|---------------|
| 1062         | 210               | 36,1               | P1           | FHE4 50-250/22    | SINGLE    | 4          | 2,2            | 4,7           | 33,9 | 44,2       | 88            |
| 1162         | 248               | 42,7               | P2           | FHE4 65-250/40    | SINGLE    | 4          | 4,0            | 8,8           | 33,9 | 61,7       | 108           |
| 1362         | 302               | 51,9               | P2           | FHE4 65-250/40    | SINGLE    | 4          | 4,0            | 8,8           | 25,4 | 68,5       | 89            |
| 1562         | 329               | 56,6               | P3           | FHE4 65-250/55    | SINGLE    | 4          | 5,5            | 11,3          | 25,4 | 81,3       | 99            |
| 1562 XL-CA-E | 319               | 54,9               | P4           | FCTE4 80-250/40   | IN - LINE | 4          | 4,0            | 8,8           | 17,5 | 52,7       | 91            |
| 1762         | 380               | 65,4               | P5           | FCTE4 80-250/55   | IN - LINE | 4          | 5,5            | 11,3          | 12,7 | 54,3       | 113           |
| 1962         | 425               | 73,1               | P5           | FCTE4 80-250/55   | IN - LINE | 4          | 5,5            | 11,3          | 8,5  | 45,4       | 107           |
| 2022         | 469               | 80,7               | P6           | FHE4 80-250/55    | SINGLE    | 4          | 5,5            | 11,3          | 6,4  | 41,3       | 117           |
| 2222         | 513               | 88,2               | P6           | FHE4 80-250/55    | SINGLE    | 4          | 5,5            | 11,3          | 6,0  | 46,3       | 100           |
| 2422         | 541               | 93,1               | P7           | FHE4 80-250/75    | SINGLE    | 4          | 7,5            | 15,4          | 6,0  | 51,5       | 131           |
| 2622         | 604               | 103,9              | P7           | FHE4 80-250/75    | SINGLE    | 4          | 7,5            | 15,4          | 4,3  | 46,1       | 120           |
| 2722         | 684               | 117,6              | P8           | FCTE4 100-250/75  | IN - LINE | 4          | 7,5            | 15,4          | 2,9  | 39,7       | 104           |
| 3222         | 800               | 137,6              | P9           | FCTS4 125-250/110 | IN - LINE | 4          | 11,0           | 21,1          | 2,3  | 44,1       | 147           |

## HOT CIRCUIT - 2 PUMPS - 4 POLI - LOW HEAD PUMP

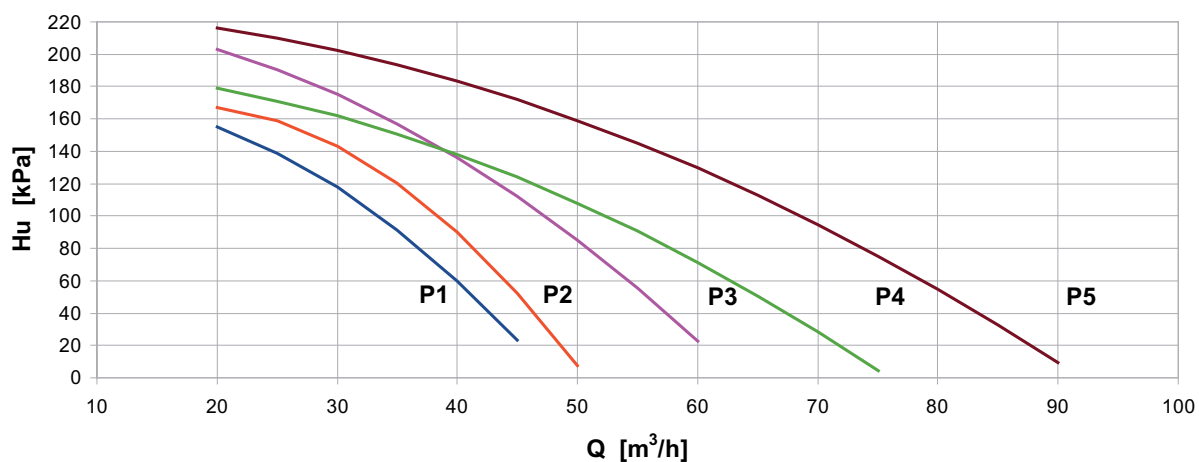
| SIZE         | Pt (1)(2)<br>[kW] | Q (1)(2)<br>[m3/h] | Rif.<br>Pump | Pump              |           | N.<br>Poli | F.L.I.<br>[kW] | F.L.A.<br>[A] | Ks   | Dps<br>kPa | Hu (2)<br>kPa |
|--------------|-------------------|--------------------|--------------|-------------------|-----------|------------|----------------|---------------|------|------------|---------------|
| 1062         | 218               | 37,5               | P1           | FHE4 50-250/22    | SINGLE    | 4          | 2,2            | 4,7           | 33,9 | 47,7       | 79            |
| 1162         | 258               | 44,4               | P2           | FHE4 65-250/40    | SINGLE    | 4          | 4,0            | 8,8           | 33,9 | 66,8       | 94            |
| 1362         | 308               | 53,0               | P2           | FHE4 65-250/40    | SINGLE    | 4          | 4,0            | 8,8           | 25,4 | 71,3       | 82            |
| 1562         | 339               | 58,3               | P3           | FHE4 65-250/55    | SINGLE    | 4          | 5,5            | 11,3          | 25,4 | 86,4       | 89            |
| 1562 XL-CA-E | 340               | 58,5               | P4           | FCTE4 80-250/40   | IN - LINE | 4          | 4,0            | 8,8           | 17,5 | 59,8       | 77            |
| 1762         | 396               | 68,1               | P5           | FCTE4 80-250/55   | IN - LINE | 4          | 5,5            | 11,3          | 12,7 | 58,9       | 102           |
| 1962         | 434               | 74,6               | P5           | FCTE4 80-250/55   | IN - LINE | 4          | 5,5            | 11,3          | 8,5  | 47,4       | 101           |
| 2022         | 492               | 84,6               | P6           | FHE4 80-250/55    | SINGLE    | 4          | 5,5            | 11,3          | 6,4  | 45,5       | 107           |
| 2222         | 541               | 93,1               | P6           | FHE4 80-250/55    | SINGLE    | 4          | 5,5            | 11,3          | 6,0  | 51,5       | 87            |
| 2422         | 571               | 98,2               | P7           | FHE4 80-250/75    | SINGLE    | 4          | 7,5            | 15,4          | 6,0  | 57,4       | 118           |
| 2622         | 615               | 105,8              | P7           | FHE4 80-250/75    | SINGLE    | 4          | 7,5            | 15,4          | 4,3  | 47,8       | 114           |
| 2722         | 711               | 122,3              | P8           | FCTE4 100-250/75  | IN - LINE | 4          | 7,5            | 15,4          | 2,9  | 42,9       | 96            |
| 3222         | 826               | 142,1              | P9           | FCTS4 125-250/110 | IN - LINE | 4          | 11,0           | 21,1          | 2,3  | 47,0       | 140           |

- (1) Values refer to rated operating conditions  
 (2) Values referred to sizes 1062-1962, CA version  
 Values referred to sizes 2022-3222, LN-CA version  
 Pf Cooling capacity of unit  
 Q Flow of water to evaporator  
 F.L.I. Power absorbed by pump

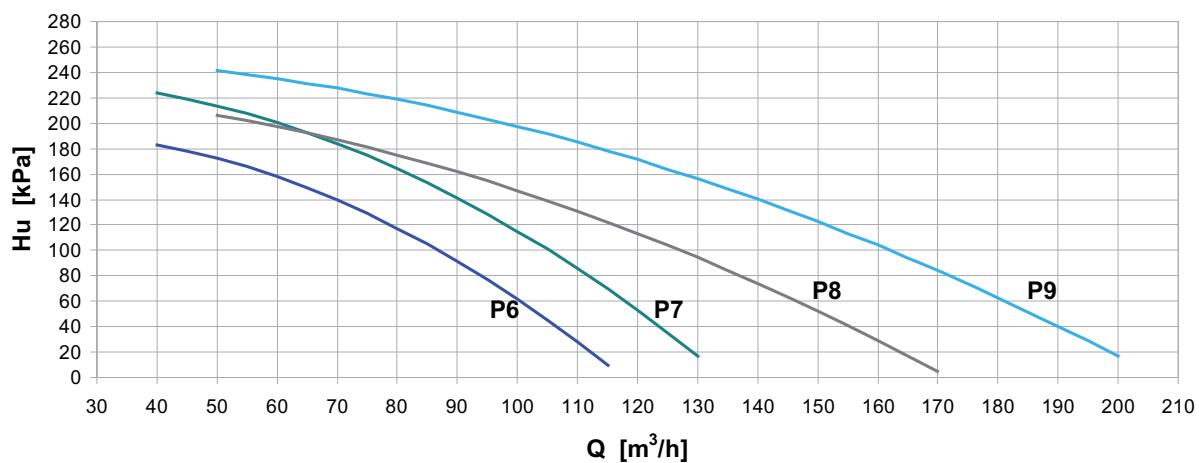
- F.L.A. Current absorbed by pump  
 Ks Total coefficient for the calculation of loss of power with double pump (one on stand-by)  
 Dps Total pressure drop in water circuit (evaporator and pipes)  
 Hu Working head

## PUMP CHARACTERISTICS

ERACS2-Q 1062 - 1962



ERACS2-Q 2022 - 3222



| SIZE        | Maximum values |                |               |               |                |               |                |               |             |
|-------------|----------------|----------------|---------------|---------------|----------------|---------------|----------------|---------------|-------------|
|             | Compressor     |                |               |               | Fans (1)       |               | Total (1) (2)  |               |             |
|             | n              | F.L.I.<br>[kW] | F.L.A.<br>[A] | L.R.A.<br>[A] | F.L.I.<br>[kW] | F.L.A.<br>[A] | F.L.I.<br>[kW] | F.L.A.<br>[A] | S.A.<br>[A] |
| <b>1062</b> | 2              | 2x40,5         | 2x67,1        | 2x169         | 2              | 3.8           | 93.0           | 157           | 235         |
| <b>1162</b> | 2              | 2x48,7         | 2x80,4        | 2x206         | 2              | 3.8           | 109            | 184           | 289         |
| <b>1362</b> | 2              | 2x51,7         | 2x91,7        | 2x267         | 2              | 3.8           | 115            | 206           | 355         |
| <b>1562</b> | 2              | 2x64,3         | 2x104,7       | 2x290         | 2              | 3.8           | 145            | 240           | 388         |
| <b>1762</b> | 2              | 2x70,2         | 2x114,9       | 2x350         | 2              | 3.8           | 156            | 260           | 461         |
| <b>1962</b> | 2              | 2x82,1         | 2x131,7       | 2x423         | 2              | 3.8           | 184            | 301           | 543         |
| <b>2022</b> | 2              | 2x85,4         | 2x137         | 2x246         | 2              | 3.8           | 191            | 312           | 377         |
| <b>2222</b> | 2              | 1x85,4+1x101   | 1x137+1x165   | 1x246+1x300   | 2              | 3.8           | 210            | 348           | 439         |
| <b>2422</b> | 2              | 2x101          | 2x165         | 2x300         | 2              | 3.8           | 226            | 376           | 449         |
| <b>2622</b> | 2              | 2x112          | 2x184         | 2x360         | 2              | 3.8           | 248            | 414           | 534         |
| <b>2722</b> | 2              | 2x127          | 2x208         | 2x404         | 2              | 3.8           | 282            | 469           | 588         |
| <b>3222</b> | 2              | 2x145          | 2x235         | 2x436         | 2              | 3.8           | 318            | 531           | 658         |

**F.L.I.:** Full load power

**F.L.A.:** Full load current

**L.R.A.:** Locked rotor amperes for single compressor

**S.A.:** Inrush current

**(1)** Values calculated referring to the version with the maximum number of fans working at the max absorbed current

**(1) (2)** Safety values to be considered when cabling the unit for power supply and line-protections

Power supply: 400/3/50

Voltage tolerance: 10%

Maximum voltage unbalance: 3%

Give the typical operating conditions of units designed for outdoor installation, which can be associated (according to reference document IEC 60721) to the following classes:

- climatic conditions class 4K4H: air temperature range from -20 up to 55°C (\*), relative humidity range from 4 up to 100%, with possible precipitations, at air pressure from 70 and 106 kPa and a maximum solar radiation of 1120 W/m2

- special climatic conditions negligible

- biological conditions class 4B1 and 4C2: locations in a generic urban area

- mechanically active substances class 4S2: locations in areas with sand or dust representative of urban areas

- mechanical conditions class 4M1: locations protected from significant vibrations or shocks

The required protection level for safe operation, according to reference document IEC 60529, is IP43XW (protection against access, to the most critical unit's parts, of external devices with diameter larger than 1 mm and rain).

The unit can be considered IP44XW protected, i.e. protected against access of external devices (with diameter larger than 1 mm) and water in general.

(\*) for the unit's operating limits, see "selection limits" section

| SIZE        | Maximum values |                |               |               |                |               |                |               |             |
|-------------|----------------|----------------|---------------|---------------|----------------|---------------|----------------|---------------|-------------|
|             | Compressor     |                |               |               | Fans (1)       |               | Total (1) (2)  |               |             |
|             | n              | F.L.I.<br>[kW] | F.L.A.<br>[A] | L.R.A.<br>[A] | F.L.I.<br>[kW] | F.L.A.<br>[A] | F.L.I.<br>[kW] | F.L.A.<br>[A] | S.A.<br>[A] |
| <b>1062</b> | 2              | 2x40,5         | 2x67,1        | 2x169         | 2              | 3.8           | 93.0           | 157           | 235         |
| <b>1162</b> | 2              | 2x48,7         | 2x80,4        | 2x206         | 2              | 3.8           | 109            | 184           | 289         |
| <b>1362</b> | 2              | 2x51,7         | 2x91,7        | 2x267         | 2              | 3.8           | 115            | 206           | 355         |
| <b>1562</b> | 2              | 2x64,3         | 2x104,7       | 2x290         | 2              | 3.8           | 145            | 240           | 388         |
| <b>1762</b> | 2              | 2x70,2         | 2x114,9       | 2x350         | 2              | 3.8           | 156            | 260           | 461         |
| <b>1962</b> | 2              | 2x82,1         | 2x131,7       | 2x423         | 2              | 3.8           | 184            | 301           | 543         |
| <b>2022</b> | 2              | 2x85,4         | 2x137         | 2x246         | 2              | 3.8           | 191            | 312           | 377         |
| <b>2222</b> | 2              | 1x85,4+1x101   | 1x137+1x165   | 1x246+1x300   | 2              | 3.8           | 210            | 348           | 439         |
| <b>2422</b> | 2              | 2x101          | 2x165         | 2x300         | 2              | 3.8           | 226            | 376           | 449         |
| <b>2622</b> | 2              | 2x112          | 2x184         | 2x360         | 2              | 3.8           | 248            | 414           | 534         |
| <b>2722</b> | 2              | 2x127          | 2x208         | 2x404         | 2              | 3.8           | 282            | 469           | 588         |
| <b>3222</b> | 2              | 2x145          | 2x235         | 2x436         | 2              | 3.8           | 318            | 531           | 658         |

**F.L.I.:** Full load power

**F.L.A.:** Full load current

**L.R.A.:** Locked rotor amperes for single compressor

**S.A.:** Inrush current

**(1)** Values calculated referring to the version with the maximum number of fans working at the max absorbed current

**(1) (2)** Safety values to be considered when cabling the unit for power supply and line-protections

Power supply: 400/3/50

Voltage tolerance: 10%

Maximum voltage unbalance: 3%

Give the typical operating conditions of units designed for outdoor installation, which can be associated (according to reference document IEC 60721) to the following classes:

- climatic conditions class 4K4H: air temperature range from -20 up to 55°C (\*), relative humidity range from 4 up to 100%, with possible precipitations, at air pressure from 70 and 106 kPa and a maximum solar radiation of 1120 W/m<sup>2</sup>
- special climatic conditions negligible
- biological conditions class 4B1 and 4C2: locations in a generic urban area
- mechanically active substances class 4S2: locations in areas with sand or dust representative of urban areas
- mechanical conditions class 4M1: locations protected from significant vibrations or shocks

The required protection level for safe operation, according to reference document IEC 60529, is IP43XW (protection against access, to the most critical unit's parts, of external devices with diameter larger than 1 mm and rain).

The unit can be considered IP44XW protected, i.e. protected against access of external devices (with diameter larger than 1 mm) and water in general.

(\*) for the unit's operating limits, see "selection limits" section



| SIZE | Maximum values |                |               |               |                |               |                |               |             |
|------|----------------|----------------|---------------|---------------|----------------|---------------|----------------|---------------|-------------|
|      | Compressor     |                |               |               | Fans (1)       |               | Total (1) (2)  |               |             |
|      | n              | F.L.I.<br>[kW] | F.L.A.<br>[A] | L.R.A.<br>[A] | F.L.I.<br>[kW] | F.L.A.<br>[A] | F.L.I.<br>[kW] | F.L.A.<br>[A] | S.A.<br>[A] |
| 1062 | 2              | 2x40,5         | 2x67,1        | 2x169         | 2              | 3.8           | 93.0           | 157           | 235         |
| 1162 | 2              | 2x48,7         | 2x80,4        | 2x206         | 2              | 3.8           | 109            | 184           | 289         |
| 1362 | 2              | 2x51,7         | 2x91,7        | 2x267         | 2              | 3.8           | 115            | 206           | 355         |
| 1562 | 2              | 2x64,3         | 2x104,7       | 2x290         | 2              | 3.8           | 145            | 240           | 388         |
| 1762 | 2              | 2x70,2         | 2x114,9       | 2x350         | 2              | 3.8           | 156            | 260           | 461         |
| 1962 | 2              | 2x82,1         | 2x131,7       | 2x423         | 2              | 3.8           | 184            | 301           | 543         |
| 2022 | 2              | 2x85,4         | 2x137         | 2x246         | 2              | 3.8           | 191            | 312           | 377         |
| 2222 | 2              | 1x85,4+1x101   | 1x137+1x165   | 1x246+1x300   | 2              | 3.8           | 210            | 348           | 439         |
| 2422 | 2              | 2x101          | 2x165         | 2x300         | 2              | 3.8           | 226            | 376           | 449         |
| 2622 | 2              | 2x112          | 2x184         | 2x360         | 2              | 3.8           | 248            | 414           | 534         |
| 2722 | 2              | 2x127          | 2x208         | 2x404         | 2              | 3.8           | 282            | 469           | 588         |
| 3222 | 2              | 2x145          | 2x235         | 2x436         | 2              | 3.8           | 318            | 531           | 658         |

**F.L.I.:** Full load power

**F.L.A.:** Full load current

**L.R.A.:** Locked rotor amperes for single compressor

**S.A.:** Inrush current

(1) Values calculated referring to the version with the maximum number of fans working at the max absorbed current

(1) (2) Safety values to be considered when cabling the unit for power supply and line-protections

Power supply: 400/3/50

Voltage tolerance: 10%

Maximum voltage unbalance: 3%

Give the typical operating conditions of units designed for outdoor installation, which can be associated (according to reference document IEC 60721) to the following classes:

- climatic conditions class 4K4H: air temperature range from -20 up to 55°C (\*), relative humidity range from 4 up to 100%, with possible precipitations, at air pressure from 70 and 106 kPa and a maximum solar radiation of 1120 W/m2

- special climatic conditions negligible

- biological conditions class 4B1 and 4C2: locations in a generic urban area

- mechanically active substances class 4S2: locations in areas with sand or dust representative of urban areas

- mechanical conditions class 4M1: locations protected from significant vibrations or shocks

The required protection level for safe operation, according to reference document IEC 60529, is IP43XW (protection against access, to the most critical unit's parts, of external devices with diameter larger than 1 mm and rain).

The unit can be considered IP44XW protected, i.e. protected against access of external devices (with diameter larger than 1 mm) and water in general.

(\*) for the unit's operating limits, see "selection limits" section

| SIZE        | Maximum values |                |               |               |                |               |                |               |             |
|-------------|----------------|----------------|---------------|---------------|----------------|---------------|----------------|---------------|-------------|
|             | Compressor     |                |               |               | Fans (1)       |               | Total (1) (2)  |               |             |
|             | n              | F.L.I.<br>[kW] | F.L.A.<br>[A] | L.R.A.<br>[A] | F.L.I.<br>[kW] | F.L.A.<br>[A] | F.L.I.<br>[kW] | F.L.A.<br>[A] | S.A.<br>[A] |
| <b>2022</b> | 2              | 2x85,4         | 2x137         | 2x246         | 2              | 3.1           | 191            | 305           | 370         |
| <b>2222</b> | 2              | 1x85,4+1x101   | 1x137+1x165   | 1x246+1x300   | 2              | 3.1           | 210            | 339           | 431         |
| <b>2422</b> | 2              | 2x101          | 2x165         | 2x300         | 2              | 3.1           | 226            | 367           | 440         |
| <b>2622</b> | 2              | 2x112          | 2x184         | 2x360         | 2              | 3.1           | 248            | 405           | 525         |
| <b>2722</b> | 2              | 2x127          | 2x208         | 2x404         | 2              | 3.1           | 282            | 459           | 578         |
| <b>3222</b> | 2              | 2x145          | 2x235         | 2x436         | 2              | 3.1           | 318            | 520           | 647         |

**F.L.I.:** Full load power

**F.L.A.:** Full load current

**L.R.A.:** Locked rotor amperes for single compressor

**S.A.:** Inrush current

**(1)** Values calculated referring to the version with the maximum number of fans working at the max absorbed current

**(1) (2)** Safety values to be considered when cabling the unit for power supply and line-protections

Power supply: 400/3/50

Voltage tolerance: 10%

Maximum voltage unbalance: 3%

Give the typical operating conditions of units designed for outdoor installation, which can be associated (according to reference document IEC 60721) to the following classes:

- climatic conditions class 4K4H: air temperature range from -20 up to 55°C (\*), relative humidity range from 4 up to 100%, with possible precipitations, at air pressure from 70 and 106 kPa and a maximum solar radiation of 1120 W/m<sup>2</sup>

- special climatic conditions negligible

- biological conditions class 4B1 and 4C2: locations in a generic urban area

- mechanically active substances class 4S2: locations in areas with sand or dust representative of urban areas

- mechanical conditions class 4M1: locations protected from significant vibrations or shocks

The required protection level for safe operation, according to reference document IEC 60529, is IP43XW (protection against access, to the most critical unit's parts, of external devices with diameter larger than 1 mm and rain).

The unit can be considered IP44XW protected, i.e. protected against access of external devices (with diameter larger than 1 mm) and water in general.

(\*) for the unit's operating limits, see "selection limits" section

| SIZE        | Maximum values |                |               |               |                |               |                |               |             |
|-------------|----------------|----------------|---------------|---------------|----------------|---------------|----------------|---------------|-------------|
|             | Compressor     |                |               |               | Fans (1)       |               | Total (1) (2)  |               |             |
|             | n              | F.L.I.<br>[kW] | F.L.A.<br>[A] | L.R.A.<br>[A] | F.L.I.<br>[kW] | F.L.A.<br>[A] | F.L.I.<br>[kW] | F.L.A.<br>[A] | S.A.<br>[A] |
| <b>1062</b> | 2              | 2x40,5         | 2x67,1        | 2x169         | 2              | 3.1           | 93.0           | 153           | 231         |
| <b>1162</b> | 2              | 2x48,7         | 2x80,4        | 2x206         | 2              | 3.1           | 113            | 186           | 291         |
| <b>1362</b> | 2              | 2x51,7         | 2x91,7        | 2x267         | 2              | 3.1           | 119            | 208           | 357         |
| <b>1562</b> | 2              | 2x64,3         | 2x104,7       | 2x290         | 2              | 3.1           | 145            | 234           | 382         |
| <b>1762</b> | 2              | 2x70,2         | 2x114,9       | 2x350         | 2              | 3.1           | 160            | 261           | 462         |
| <b>2022</b> | 2              | 2x85,4         | 2x137         | 2x246         | 2              | 3.1           | 195            | 311           | 376         |
| <b>2222</b> | 2              | 1x85,4+1x101   | 1x137+1x165   | 1x246+1x300   | 2              | 3.1           | 214            | 345           | 437         |
| <b>2422</b> | 2              | 2x101          | 2x165         | 2x300         | 2              | 3.1           | 230            | 373           | 447         |
| <b>2622</b> | 2              | 2x112          | 2x184         | 2x360         | 2              | 3.1           | 256            | 418           | 538         |

**F.L.I.:** Full load power

**F.L.A.:** Full load current

**L.R.A.:** Locked rotor amperes for single compressor

**S.A.:** Inrush current

**(1)** Values calculated referring to the version with the maximum number of fans working at the max absorbed current

**(1) (2)** Safety values to be considered when cabling the unit for power supply and line-protections

Power supply: 400/3/50

Voltage tolerance: 10%

Maximum voltage unbalance: 3%

Give the typical operating conditions of units designed for outdoor installation, which can be associated (according to reference document IEC 60721) to the following classes:

- climatic conditions class 4K4H: air temperature range from -20 up to 55°C (\*), relative humidity range from 4 up to 100%, with possible precipitations, at air pressure from 70 and 106 kPa and a maximum solar radiation of 1120 W/m<sup>2</sup>
- special climatic conditions negligible
- biological conditions class 4B1 and 4C2: locations in a generic urban area
- mechanically active substances class 4S2: locations in areas with sand or dust representative of urban areas
- mechanical conditions class 4M1: locations protected from significant vibrations or shocks

The required protection level for safe operation, according to reference document IEC 60529, is IP43XW (protection against access, to the most critical unit's parts, of external devices with diameter larger than 1 mm and rain).

The unit can be considered IP44XW protected, i.e. protected against access of external devices (with diameter larger than 1 mm) and water in general.

(\*) for the unit's operating limits, see "selection limits" section

## 7.1 FULL LOAD SOUND LEVEL

## ERACS2-Q CA

| SOUND POWER |                         |     |     |     |      |      |      |      |                   |
|-------------|-------------------------|-----|-----|-----|------|------|------|------|-------------------|
| SIZE        | Octave band [Hz]        |     |     |     |      |      |      |      | Total sound level |
|             | 63                      | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                   |
|             | Sound power level dB(A) |     |     |     |      |      |      |      |                   |
| 1062        | 93                      | 96  | 97  | 94  | 94   | 86   | 83   | 74   | 97                |
| 1162        | 93                      | 96  | 97  | 94  | 94   | 86   | 83   | 74   | 97                |
| 1362        | 93                      | 96  | 97  | 94  | 94   | 86   | 83   | 74   | 97                |
| 1562        | 94                      | 98  | 97  | 95  | 95   | 88   | 84   | 74   | 98                |
| 1762        | 95                      | 99  | 98  | 96  | 96   | 89   | 85   | 75   | 99                |
| 1962        | 95                      | 99  | 98  | 96  | 96   | 89   | 85   | 75   | 99                |
| 2022        | 90                      | 96  | 99  | 95  | 95   | 90   | 82   | 74   | 99                |
| 2222        | 91                      | 99  | 102 | 98  | 97   | 91   | 83   | 75   | 101               |
| 2422        | 91                      | 99  | 102 | 98  | 97   | 91   | 83   | 75   | 101               |
| 2622        | 91                      | 99  | 102 | 98  | 97   | 91   | 83   | 75   | 101               |
| 2722        | 91                      | 99  | 102 | 98  | 97   | 91   | 83   | 75   | 101               |
| 3222        | 92                      | 100 | 103 | 99  | 98   | 92   | 84   | 76   | 102               |

### Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

| SOUND PRESSURE LEVEL |                            |     |     |     |      |      |      |      |                   |
|----------------------|----------------------------|-----|-----|-----|------|------|------|------|-------------------|
| SIZE                 | Octave band [Hz] at 10 m   |     |     |     |      |      |      |      | Total sound level |
|                      | 63                         | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                   |
|                      | Sound pressure level dB(A) |     |     |     |      |      |      |      |                   |
| 1062                 | 61                         | 64  | 65  | 62  | 62   | 54   | 51   | 42   | 65                |
| 1162                 | 61                         | 64  | 65  | 62  | 62   | 54   | 51   | 42   | 65                |
| 1362                 | 61                         | 64  | 65  | 62  | 62   | 54   | 51   | 42   | 65                |
| 1562                 | 62                         | 66  | 65  | 63  | 63   | 56   | 52   | 42   | 66                |
| 1762                 | 62                         | 66  | 65  | 63  | 63   | 56   | 52   | 42   | 66                |
| 1962                 | 62                         | 66  | 65  | 63  | 63   | 56   | 52   | 42   | 66                |
| 2022                 | 57                         | 63  | 66  | 62  | 62   | 57   | 49   | 41   | 66                |
| 2222                 | 58                         | 66  | 69  | 65  | 64   | 58   | 50   | 42   | 68                |
| 2422                 | 58                         | 66  | 69  | 65  | 64   | 58   | 50   | 42   | 68                |
| 2622                 | 58                         | 66  | 69  | 65  | 64   | 58   | 50   | 42   | 68                |
| 2722                 | 58                         | 66  | 69  | 65  | 64   | 58   | 50   | 42   | 68                |
| 3222                 | 59                         | 67  | 70  | 66  | 65   | 59   | 51   | 43   | 69                |

### Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level

| SOUND POWER |                         |     |     |     |      |      |      |      |                   |
|-------------|-------------------------|-----|-----|-----|------|------|------|------|-------------------|
| SIZE        | Octave band [Hz]        |     |     |     |      |      |      |      | Total sound level |
|             | 63                      | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                   |
|             | Sound power level dB(A) |     |     |     |      |      |      |      |                   |
| 1062        | 90                      | 87  | 86  | 88  | 87   | 80   | 75   | 65   | 90                |
| 1162        | 90                      | 88  | 88  | 90  | 88   | 80   | 75   | 65   | 91                |
| 1362        | 90                      | 87  | 88  | 90  | 88   | 80   | 75   | 65   | 91                |
| 1562        | 91                      | 88  | 89  | 91  | 89   | 81   | 76   | 66   | 92                |
| 1762        | 91                      | 88  | 89  | 91  | 89   | 81   | 76   | 66   | 92                |
| 1962        | 91                      | 88  | 89  | 91  | 89   | 81   | 76   | 66   | 92                |
| 2022        | 90                      | 92  | 95  | 92  | 88   | 83   | 77   | 68   | 93                |
| 2222        | 92                      | 94  | 97  | 94  | 90   | 85   | 79   | 70   | 95                |
| 2422        | 92                      | 94  | 97  | 94  | 90   | 85   | 79   | 70   | 95                |
| 2622        | 92                      | 94  | 97  | 94  | 90   | 85   | 79   | 70   | 95                |
| 2722        | 92                      | 94  | 97  | 94  | 90   | 85   | 79   | 70   | 95                |
| 3222        | 93                      | 95  | 98  | 95  | 91   | 86   | 80   | 71   | 96                |

**Working conditions**

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

| SOUND PRESSURE LEVEL |                            |     |     |     |      |      |      |      |                   |
|----------------------|----------------------------|-----|-----|-----|------|------|------|------|-------------------|
| SIZE                 | Octave band [Hz] at 10 m   |     |     |     |      |      |      |      | Total sound level |
|                      | 63                         | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                   |
|                      | Sound pressure level dB(A) |     |     |     |      |      |      |      |                   |
| 1062                 | 58                         | 55  | 54  | 56  | 55   | 48   | 43   | 33   | 58                |
| 1162                 | 58                         | 56  | 56  | 58  | 56   | 48   | 43   | 33   | 59                |
| 1362                 | 58                         | 55  | 56  | 58  | 56   | 48   | 43   | 33   | 59                |
| 1562                 | 59                         | 56  | 57  | 59  | 57   | 49   | 44   | 34   | 60                |
| 1762                 | 58                         | 55  | 56  | 58  | 56   | 48   | 43   | 33   | 59                |
| 1962                 | 58                         | 55  | 56  | 58  | 56   | 48   | 43   | 33   | 59                |
| 2022                 | 57                         | 59  | 62  | 59  | 55   | 50   | 44   | 35   | 60                |
| 2222                 | 59                         | 61  | 64  | 61  | 57   | 52   | 46   | 37   | 62                |
| 2422                 | 59                         | 61  | 64  | 61  | 57   | 52   | 46   | 37   | 62                |
| 2622                 | 59                         | 61  | 64  | 61  | 57   | 52   | 46   | 37   | 62                |
| 2722                 | 59                         | 61  | 64  | 61  | 57   | 52   | 46   | 37   | 62                |
| 3222                 | 60                         | 62  | 65  | 62  | 58   | 53   | 47   | 38   | 63                |

**Working conditions**

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level

| SOUND POWER |                         |     |     |     |      |      |      |      |                   |
|-------------|-------------------------|-----|-----|-----|------|------|------|------|-------------------|
| SIZE        | Octave band [Hz]        |     |     |     |      |      |      |      | Total sound level |
|             | 63                      | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                   |
|             | Sound power level dB(A) |     |     |     |      |      |      |      |                   |
| 1062        | 89                      | 80  | 83  | 85  | 83   | 75   | 69   | 64   | 86                |
| 1162        | 89                      | 83  | 86  | 85  | 84   | 76   | 69   | 64   | 87                |
| 1362        | 89                      | 83  | 86  | 85  | 84   | 76   | 69   | 64   | 87                |
| 1562        | 90                      | 84  | 87  | 86  | 85   | 77   | 70   | 65   | 88                |
| 1762        | 90                      | 84  | 87  | 86  | 85   | 77   | 70   | 65   | 88                |
| 1962        | 90                      | 84  | 87  | 86  | 85   | 77   | 70   | 65   | 88                |
| 2022        | 92                      | 90  | 92  | 88  | 84   | 78   | 71   | 63   | 89                |
| 2222        | 94                      | 92  | 94  | 90  | 86   | 80   | 72   | 64   | 91                |
| 2422        | 94                      | 92  | 94  | 90  | 86   | 80   | 72   | 64   | 91                |
| 2622        | 94                      | 92  | 94  | 90  | 86   | 80   | 72   | 64   | 91                |
| 2722        | 94                      | 92  | 94  | 90  | 86   | 80   | 72   | 64   | 91                |
| 3222        | 95                      | 93  | 95  | 91  | 87   | 81   | 73   | 65   | 92                |

**Working conditions**

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

| SOUND PRESSURE LEVEL |                            |     |     |     |      |      |      |      |                   |
|----------------------|----------------------------|-----|-----|-----|------|------|------|------|-------------------|
| SIZE                 | Octave band [Hz] at 10 m   |     |     |     |      |      |      |      | Total sound level |
|                      | 63                         | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                   |
|                      | Sound pressure level dB(A) |     |     |     |      |      |      |      |                   |
| 1062                 | 57                         | 48  | 51  | 53  | 51   | 43   | 37   | 32   | 54                |
| 1162                 | 57                         | 51  | 54  | 53  | 52   | 44   | 37   | 32   | 55                |
| 1362                 | 57                         | 51  | 54  | 53  | 52   | 44   | 37   | 32   | 55                |
| 1562                 | 58                         | 52  | 55  | 54  | 53   | 45   | 38   | 33   | 56                |
| 1762                 | 57                         | 51  | 54  | 53  | 52   | 44   | 37   | 32   | 55                |
| 1962                 | 57                         | 51  | 54  | 53  | 52   | 44   | 37   | 32   | 55                |
| 2022                 | 59                         | 57  | 59  | 55  | 51   | 45   | 38   | 30   | 56                |
| 2222                 | 61                         | 59  | 61  | 57  | 53   | 47   | 39   | 31   | 58                |
| 2422                 | 61                         | 59  | 61  | 57  | 53   | 47   | 39   | 31   | 58                |
| 2622                 | 61                         | 59  | 61  | 57  | 53   | 47   | 39   | 31   | 58                |
| 2722                 | 61                         | 59  | 61  | 57  | 53   | 47   | 39   | 31   | 58                |
| 3222                 | 62                         | 60  | 62  | 58  | 54   | 48   | 40   | 32   | 59                |

**Working conditions**

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level

| SOUND POWER |                         |     |     |     |      |      |      |      |                   |
|-------------|-------------------------|-----|-----|-----|------|------|------|------|-------------------|
| SIZE        | Octave band [Hz]        |     |     |     |      |      |      |      | Total sound level |
|             | 63                      | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                   |
|             | Sound power level dB(A) |     |     |     |      |      |      |      |                   |
| 2022        | 88                      | 86  | 88  | 83  | 80   | 74   | 67   | 59   | 85                |
| 2222        | 90                      | 88  | 90  | 85  | 82   | 76   | 69   | 61   | 87                |
| 2422        | 90                      | 88  | 90  | 85  | 82   | 76   | 69   | 61   | 87                |
| 2622        | 90                      | 88  | 90  | 85  | 82   | 76   | 69   | 61   | 87                |
| 2722        | 90                      | 88  | 90  | 85  | 82   | 76   | 69   | 61   | 87                |
| 3222        | 91                      | 89  | 91  | 86  | 83   | 77   | 70   | 62   | 88                |

**Working conditions**

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;

in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

| SOUND PRESSURE LEVEL |                            |     |     |     |      |      |      |      |                   |
|----------------------|----------------------------|-----|-----|-----|------|------|------|------|-------------------|
| SIZE                 | Octave band [Hz] at 10 m   |     |     |     |      |      |      |      | Total sound level |
|                      | 63                         | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                   |
|                      | Sound pressure level dB(A) |     |     |     |      |      |      |      |                   |
| 2022                 | 55                         | 53  | 55  | 50  | 47   | 41   | 34   | 26   | 52                |
| 2222                 | 57                         | 55  | 57  | 52  | 49   | 43   | 36   | 28   | 54                |
| 2422                 | 57                         | 55  | 57  | 52  | 49   | 43   | 36   | 28   | 54                |
| 2622                 | 57                         | 55  | 57  | 52  | 49   | 43   | 36   | 28   | 54                |
| 2722                 | 57                         | 55  | 57  | 52  | 49   | 43   | 36   | 28   | 54                |
| 3222                 | 58                         | 56  | 58  | 53  | 50   | 44   | 37   | 29   | 55                |

**Working conditions**

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level



| SOUND POWER |                         |     |     |     |      |      |      |      |                   |
|-------------|-------------------------|-----|-----|-----|------|------|------|------|-------------------|
| SIZE        | Octave band [Hz]        |     |     |     |      |      |      |      | Total sound level |
|             | 63                      | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                   |
|             | Sound power level dB(A) |     |     |     |      |      |      |      |                   |
| 1062        | 88                      | 79  | 82  | 84  | 82   | 74   | 68   | 63   | 85                |
| 1162        | 88                      | 80  | 84  | 85  | 83   | 75   | 68   | 63   | 86                |
| 1362        | 88                      | 82  | 85  | 84  | 83   | 75   | 68   | 63   | 86                |
| 1562        | 89                      | 83  | 86  | 85  | 84   | 76   | 69   | 64   | 87                |
| 1762        | 89                      | 83  | 86  | 85  | 84   | 76   | 69   | 64   | 87                |
| 2022        | 89                      | 87  | 89  | 84  | 81   | 75   | 68   | 60   | 86                |
| 2222        | 91                      | 89  | 91  | 86  | 83   | 77   | 70   | 62   | 88                |
| 2422        | 91                      | 89  | 91  | 86  | 83   | 77   | 70   | 62   | 88                |
| 2622        | 91                      | 89  | 91  | 86  | 83   | 77   | 70   | 62   | 88                |

**Working conditions**

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;

in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

| SOUND PRESSURE LEVEL |                            |     |     |     |      |      |      |      |                   |
|----------------------|----------------------------|-----|-----|-----|------|------|------|------|-------------------|
| SIZE                 | Octave band [Hz] at 10 m   |     |     |     |      |      |      |      | Total sound level |
|                      | 63                         | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                   |
|                      | Sound pressure level dB(A) |     |     |     |      |      |      |      |                   |
| 1062                 | 56                         | 47  | 50  | 52  | 50   | 42   | 36   | 31   | 53                |
| 1162                 | 56                         | 48  | 52  | 53  | 51   | 43   | 36   | 31   | 54                |
| 1362                 | 56                         | 50  | 53  | 52  | 51   | 43   | 36   | 31   | 54                |
| 1562                 | 56                         | 50  | 53  | 52  | 51   | 43   | 36   | 31   | 54                |
| 1762                 | 56                         | 50  | 53  | 52  | 51   | 43   | 36   | 31   | 54                |
| 2022                 | 56                         | 54  | 56  | 51  | 48   | 42   | 35   | 27   | 53                |
| 2222                 | 58                         | 56  | 58  | 53  | 50   | 44   | 37   | 29   | 55                |
| 2422                 | 58                         | 56  | 58  | 53  | 50   | 44   | 37   | 29   | 55                |
| 2622                 | 58                         | 56  | 58  | 53  | 50   | 44   | 37   | 29   | 55                |

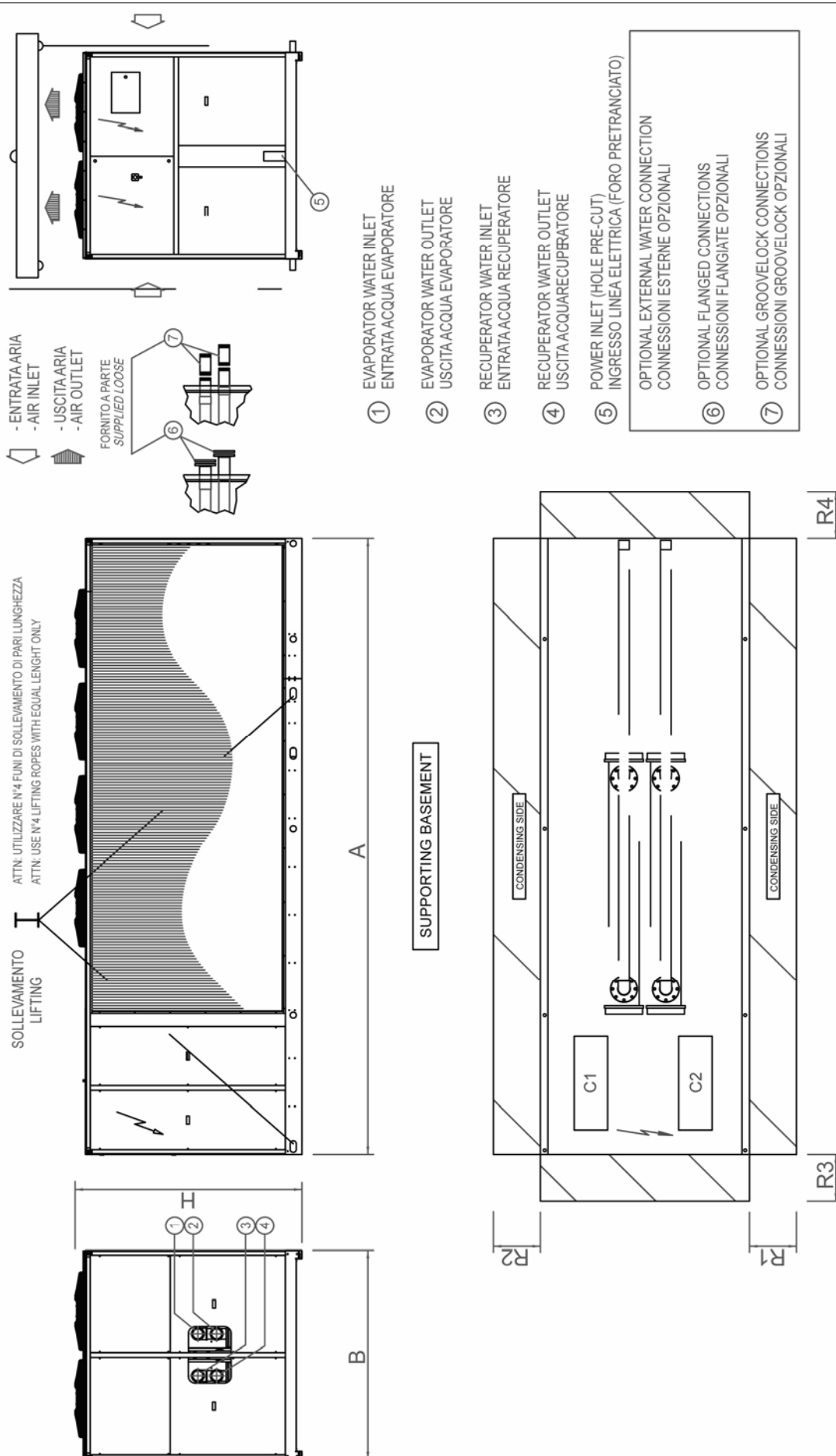
**Working conditions**

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

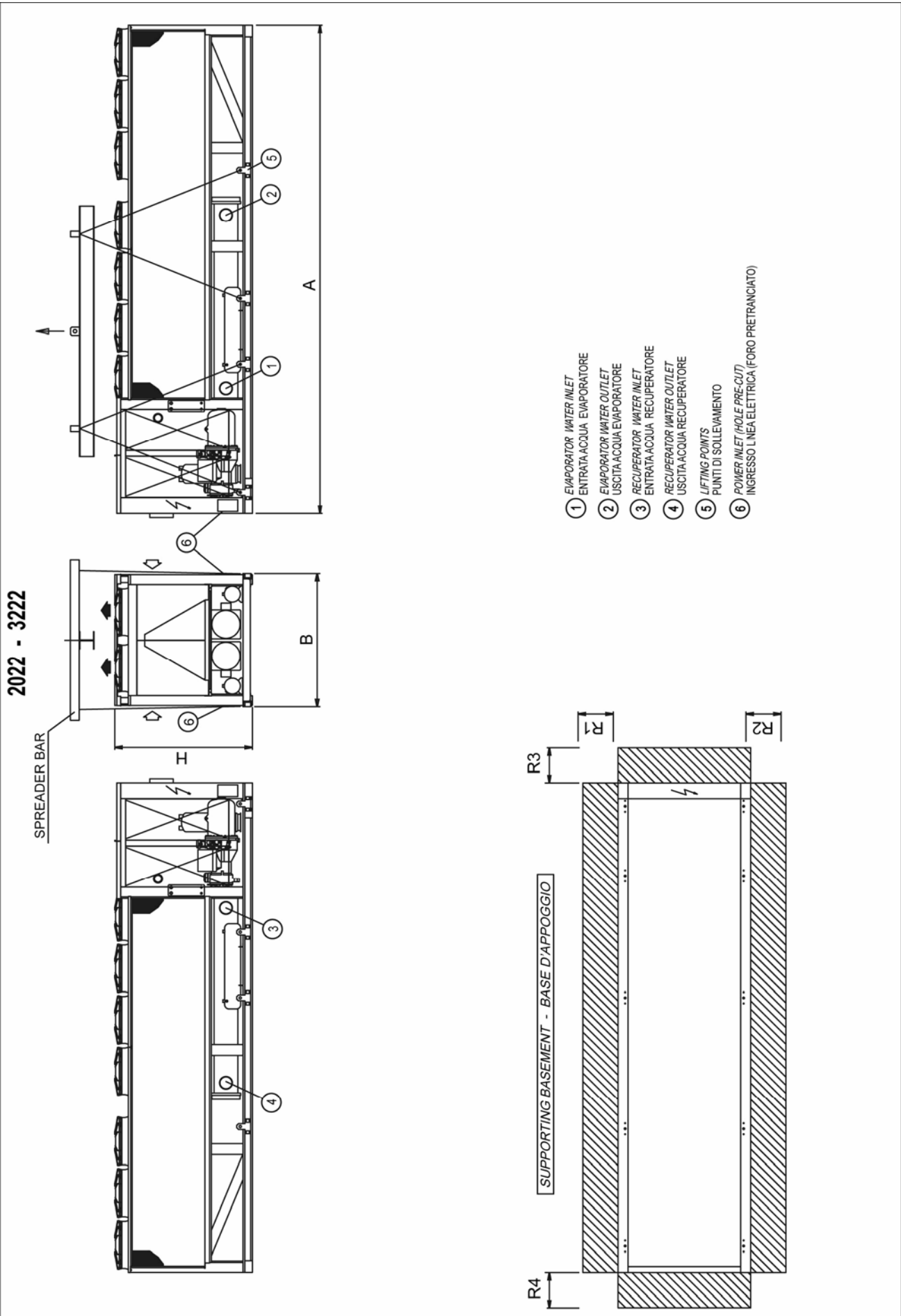
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level

## 1062 - 1962



REMARKS:  
For installation purposes, please refer to the documentation sent after the purchase-contract. This technical data should be considered as indicative. CLIMAVENETA may modify them at any moment."

| SIZE                   | DIMENSIONS AND |      |      |      | FREE SPACES |      |      |      | PLANT SIDE COLD<br>HEAT EXCHANGER |    | SOURCE SIDE HEAT<br>EXCHANGER |    | PLANT SIDE HOT HEAT<br>EXCHANGER |    |
|------------------------|----------------|------|------|------|-------------|------|------|------|-----------------------------------|----|-------------------------------|----|----------------------------------|----|
|                        | A              | B    | H    | PESO | R1          | R2   | R3   | R4   | IN/OUT                            |    | IN/OUT                        |    | IN/OUT                           |    |
|                        | [mm]           | [mm] | [mm] | [kg] | [mm]        | [mm] | [mm] | [mm] | TYPE                              | Ø  | TYPE                          | Ø  | TYPE                             | Ø  |
| ERACS2-Q /CA 1062      | 4610           | 2220 | 2150 | 3600 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /CA 1162      | 4610           | 2220 | 2420 | 3870 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /CA 1362      | 5610           | 2220 | 2430 | 4620 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /CA 1562      | 5610           | 2220 | 2430 | 5040 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /CA 1762      | 6610           | 2220 | 2430 | 5520 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /CA 1962      | 6610           | 2220 | 2430 | 5670 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /LN-CA 1062   | 4610           | 2220 | 2150 | 3600 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /LN-CA 1162   | 4610           | 2220 | 2420 | 3870 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /LN-CA 1362   | 5610           | 2220 | 2430 | 4620 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /LN-CA 1562   | 5610           | 2220 | 2430 | 5040 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /LN-CA 1762   | 6610           | 2220 | 2430 | 5520 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /LN-CA 1962   | 6610           | 2220 | 2430 | 5670 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /SL-CA 1062   | 4610           | 2220 | 2150 | 3600 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /SL-CA 1162   | 4610           | 2220 | 2420 | 3870 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /SL-CA 1362   | 5610           | 2220 | 2430 | 4620 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /SL-CA 1562   | 5610           | 2220 | 2430 | 5040 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /SL-CA 1762   | 6610           | 2220 | 2430 | 5520 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /SL-CA 1962   | 6610           | 2220 | 2430 | 5670 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /XL-CA-E 1062 | 4610           | 2220 | 2420 | 3900 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /XL-CA-E 1162 | 5610           | 2220 | 2430 | 4490 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /XL-CA-E 1362 | 5610           | 2220 | 2430 | 4830 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /XL-CA-E 1562 | 6610           | 2220 | 2430 | 5590 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |
| ERACS2-Q /XL-CA-E 1762 | 6610           | 2220 | 2430 | 5730 | 2000        | 2000 | 1100 | 1100 | UNI ISO 7/1-R4                    | 4" | UNI ISO 7/1-R4                | 4" | UNI ISO 7/1-R4                   | 4" |



"REMARKS:  
For installation purposes, please refer to the documentation sent after the purchase-contract. This technical data should be considered as indicative. CLIMAVENETA may modify them at any moment."

| SIZE                   | DIMENSIONS AND |      |      |       | FREE SPACES |      |      |      | PLANT SIDE COLD<br>HEAT EXCHANGER |    | SOURCE SIDE HEAT<br>EXCHANGER |    | PLANT SIDE HOT HEAT<br>EXCHANGER |    |
|------------------------|----------------|------|------|-------|-------------|------|------|------|-----------------------------------|----|-------------------------------|----|----------------------------------|----|
|                        | A              | B    | H    | PESO  | R1          | R2   | R3   | R4   | IN/OUT                            |    | IN/OUT                        |    | IN/OUT                           |    |
|                        | [mm]           | [mm] | [mm] | [kg]  | [mm]        | [mm] | [mm] | [mm] | TYPE                              | Ø  | TYPE                          | Ø  | TYPE                             | Ø  |
| ERACS2-Q /CA 2022      | 6300           | 2260 | 2350 | 7580  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /CA 2222      | 7200           | 2260 | 2350 | 8060  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /CA 2422      | 7200           | 2260 | 2350 | 8160  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /CA 2622      | 7200           | 2260 | 2350 | 8600  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /CA 2722      | 8400           | 2260 | 2350 | 9160  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /CA 3222      | 9700           | 2260 | 2350 | 11380 | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /LN-CA 2022   | 6300           | 2260 | 2350 | 7580  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /LN-CA 2222   | 7200           | 2260 | 2350 | 8060  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /LN-CA 2422   | 7200           | 2260 | 2350 | 8160  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /LN-CA 2622   | 7200           | 2260 | 2350 | 8600  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /LN-CA 2722   | 8400           | 2260 | 2350 | 9160  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /LN-CA 3222   | 9700           | 2260 | 2350 | 11380 | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /SL-CA 2022   | 6300           | 2260 | 2350 | 7670  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /SL-CA 2222   | 7200           | 2260 | 2350 | 8150  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /SL-CA 2422   | 7200           | 2260 | 2350 | 8250  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /SL-CA 2622   | 7200           | 2260 | 2350 | 8690  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /SL-CA 2722   | 8400           | 2260 | 2350 | 9260  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /SL-CA 3222   | 9700           | 2260 | 2350 | 11480 | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /XL-CA 2022   | 6300           | 2260 | 2350 | 7790  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /XL-CA 2222   | 7200           | 2260 | 2350 | 8260  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /XL-CA 2422   | 7200           | 2260 | 2350 | 8350  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /XL-CA 2622   | 7200           | 2260 | 2350 | 8790  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /XL-CA 2722   | 8400           | 2260 | 2350 | 9340  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /XL-CA 3222   | 9700           | 2260 | 2350 | 11580 | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |
| ERACS2-Q /XL-CA-E 2022 | 8400           | 2260 | 2350 | 8510  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /XL-CA-E 2222 | 9300           | 2260 | 2350 | 8720  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /XL-CA-E 2422 | 9300           | 2260 | 2350 | 8890  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 6" | FLEXIBLE JOINT                | 6" | FLEXIBLE JOINT                   | 6" |
| ERACS2-Q /XL-CA-E 2622 | 9300           | 2260 | 2350 | 9400  | 2000        | 2000 | 1800 | 1500 | FLEXIBLE JOINT                    | 8" | FLEXIBLE JOINT                | 8" | FLEXIBLE JOINT                   | 8" |

## LEGEND OF PIPE CONNECTIONS

### UNI ISO 228/1

Pipe threads where pressure-tight joints are not made on the threads - Designation, dimensions and tolerances

#### Used terminology:

G: Pipe threads where pressure-tight joints are not made on the threads

A: Close tolerance class for external pipe threads where pressure-tight joints are not made on the threads

B: Wider tolerance class for external pipe threads where pressure-tight joints are not made on the threads

Internal threads: G letter followed by thread mark (only tolerance class)

External threads: G letter followed by thread mark and by A letter for A class external threads or by B letter for B class external threads.

### UNI ISO 7/1

Pipe threads where pressure-tight joints are made on the threads - Designation, dimensions and tolerances

#### Used terminology:

Rp: Internal cylindrical threads where pressure-tight joints are made on the threads

Rc: Internal conical threads where pressure-tight joints are made on the threads

R: External conical threads where pressure-tight joints are made on the threads

Internal cylindrical threads: R letter followed by p letter

Internal conical threads: R letter followed by c letter

External conical threads: R letter

| Designation            | Description                                                                                                                                                                                       |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UNI ISO 7/1 - Rp 1 1/2 | Internal cylindrical threads where pressure-tight joints are made on the threads, defined by standard<br>UNI ISO 7/1<br>Conventional $\varnothing$ 1 1/2"                                         |
| UNI ISO 7/1 - Rp 2 1/2 | Internal cylindrical threads where pressure-tight joints are made on the threads, defined by standard<br>UNI ISO 7/1<br>Conventional $\varnothing$ 2 1/2"                                         |
| UNI ISO 7/1 - Rp 3     | Internal cylindrical threads where pressure-tight joints are made on the threads, defined by standard<br>UNI ISO 7/1<br>Conventional $\varnothing$ 3"                                             |
| UNI ISO 7/1 - R 3      | External conical threads where pressure-tight joints are made on the threads, defined by standard<br>UNI ISO 7/1<br>Conventional $\varnothing$ 3"                                                 |
| UNI ISO 228/1 - G 4 B  | Internal cylindrical threads where pressure-tight joints are not made on the threads, defined by standard UNI ISO 228/1<br>Tolerance class B for external thread<br>Conventional $\varnothing$ 4" |
| DN 80 PN 16            | Flange Nominal Diameter: 80 mm<br>Nominal Pressure: 16 bar                                                                                                                                        |

#### Notes:

Conventional diameter value [in inches] identifies short thread designation, based upon the relative standard.

All relative values are defined by standards.

As example, here below some values:

|                            | UNI ISO 7/1 | UNI ISO 228/1 |
|----------------------------|-------------|---------------|
| Conventional $\varnothing$ | 1"          | 1"            |
| Pitch                      | 2.309 mm    | 2.309 mm      |
| External $\varnothing$     | 33.249 mm   | 33.249 mm     |
| Core $\varnothing$         | 30.291 mm   | 30.291 mm     |
| Thread height              | 1.479 mm    | 1.479 mm      |

## 9. VARIABLE FLOW HYDRONIC GROUP (optional)

The energy consumption associated with fluid circulation weighs heavily on the total operating costs of a large installation, especially when the units work at part load, and even more, when they are in stand-by. Under these conditions, although the power absorbed by the compressors and fans is reduced, the power consumed for water circulation remains high.

The ERACS2 units permit reduction in system power consumption using inverter driven pumps. Energy savings are considerable and immediately evident, since a  $\Delta x$  reduction on the waterflow means an energy saving up to an amount of  $(\Delta x)^3$ .

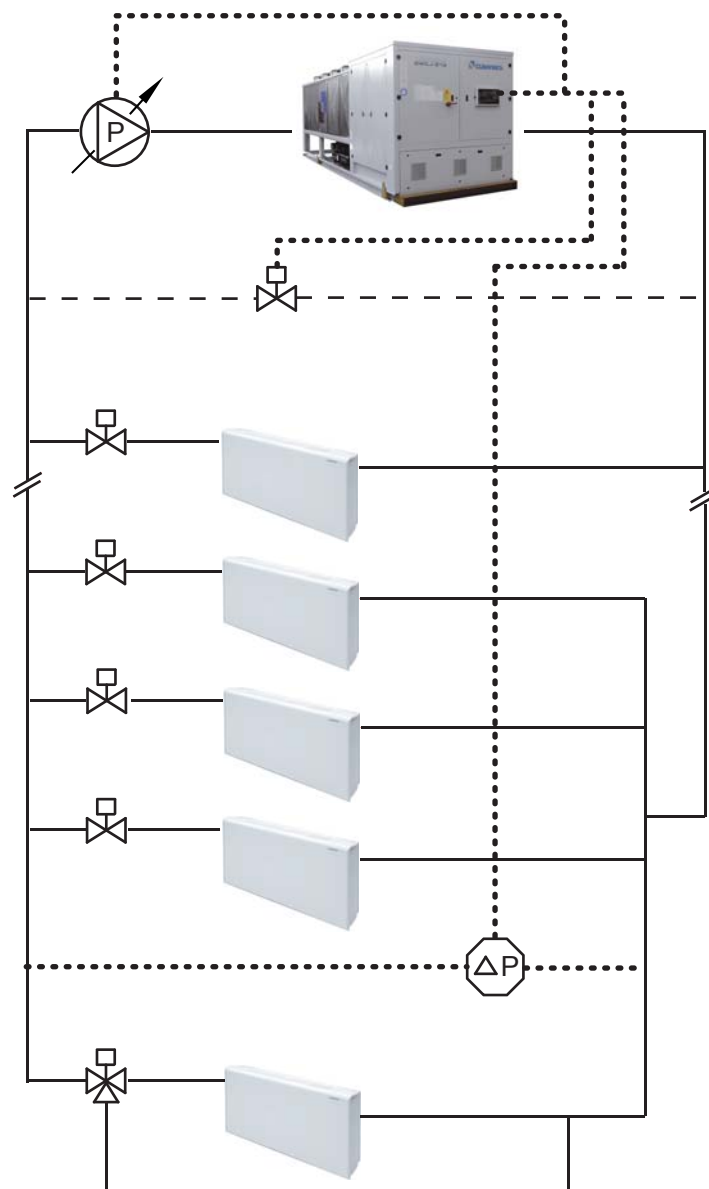
High head or low head inverter driven pumps are available as an option.

In the most advanced systems (see the simplified model shown in the diagram below), these become the pumps for the entire hydraulic circuit, and this eliminates the need to detach a primary circuit (constant flow) on the units and a secondary circuit (variable flow) on the plant.

This hydraulic separation was forced in the past, since the units weren't designed to properly work with variable flow. Now, thanks to the ERACS2 units, plant designers need no longer worry about this limitation. The units have been designed to work with maximum efficiency even with variable flow on the main heat

exchangers; all the resources independently adjusts themselves in order to keep the outlet water temperature constant.

This important feature simplifies the systems' design and offers advantages in terms of both reductions in consumption and hydraulic circuit sizing. The integration of pumps + inverters in the unit permits significant savings in space, circuit components, and system start-up times. To conclude, this innovative solution gives, beyond energy saving and running cost reduction, even advantages in the initial capital cost of the plant. The plant itself in fact, is simplified.



Example of a 2-pipe plant with a single hydraulic variable flow circuit  
(pressure transducer and by-pass valve at customer care)



## VARIABLE FLOW HYDRONIC GROUP (optional)

### 9.1 VPF systems: plants designed with a single variable flow hydraulic circuit

#### Traditional plant

The two hydraulic circuits of the plant can be recognized: the hot and the cold one.

In the traditional solution, both of them are hydraulically splitted in a primary constant flow circuit (insisting on the units) and a secondary variable flow circuit dedicated to the plant's final utilities.

An element of the plant works to decouple the two circuits: when pumps user-side partialize according to the building's requestes, it balances the all system by-passing the exceding flow to the unit.

The unit manages its own pumps as a function of its state (on/ off) balancing the operating hours between them.

On the other side, the plant's inverter-pumps are managed through a differential pressure transducer: it reads the pressure drops variation on the circuit and traduce them in a power signal; this signal reports the percentage of load on the building and determines the pumps' modulation.

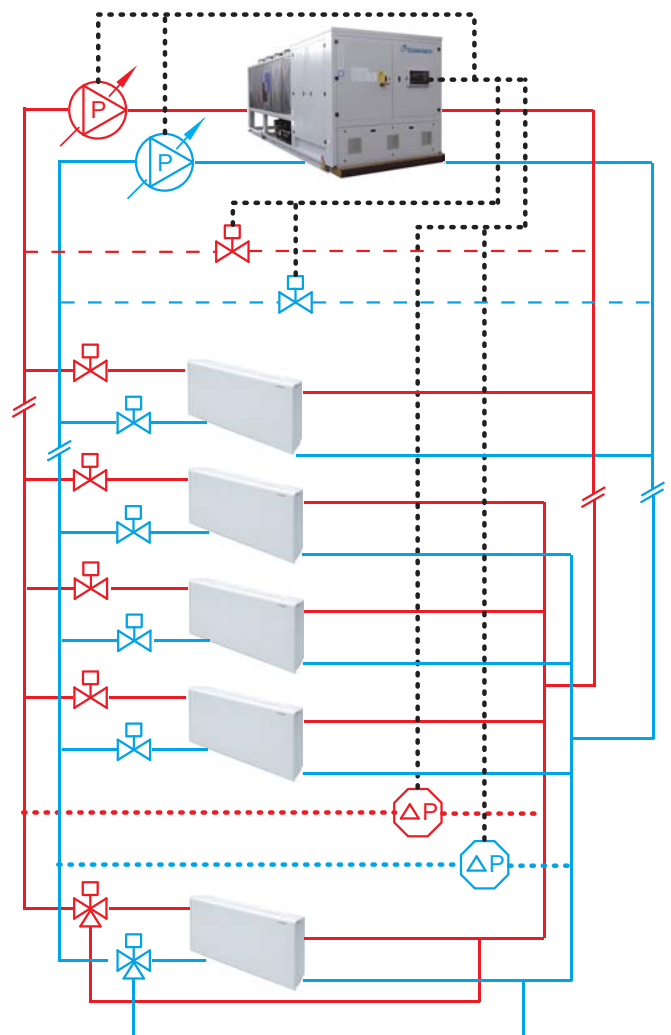
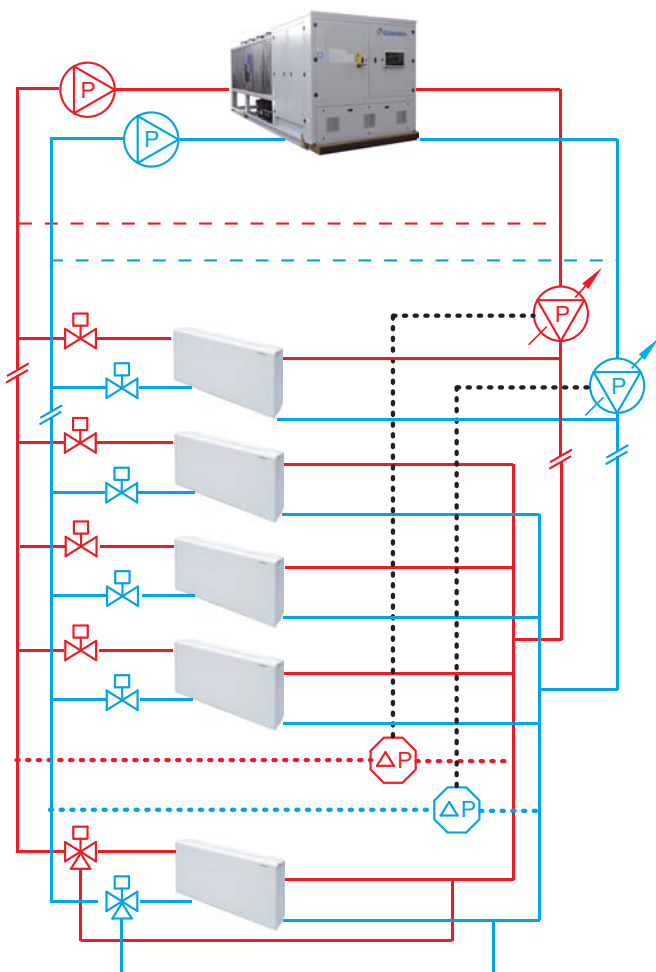
#### "Smart" plant

In this advanced solution for plant's design, both the cold and hot circuits are variable flow circuits.

The inverter-pumps insist on the cold and hot heat exchangers and are controlled directly by the unit's W3000 controller.

The sophisticated algorithms developed by Climaveneta allow the direct power signals coming from the plant's pressure transducer to be elaborated; this elaboration's result is the pumps and by-pass valves control through voltage signals.

The complete control of all resources (compressors, fans, pumps and by-pass valves) ensures the maximum system's efficiency together with the highest reliability on the units.



Example of a 4-pipe plant with two single hydraulic variable flow circuits (pressure transducers and by-pass valves at customer care)

**VARIABLE FLOW HYDRONIC GROUP (optional)**

Differential pressure transducer on the farthest pipe of the plant and by-pass valve are at customer charge.

Climaveneta provides only some indications for the plants design, as a function of the minimum waterflow on the primary heat exchanger.

| Minimum waterflow to technical bulletin [m <sup>3</sup> /h] | Kvs | Recommended valve | Ø Valve | Valve motor | Ø ByPass   |
|-------------------------------------------------------------|-----|-------------------|---------|-------------|------------|
| 19 to 30                                                    | 40  | VVG41.50          | DN50    | SKB60       | DN50 (2")  |
| up to 37                                                    | 49  | VVF31.65          | DN65    | SKB60       | DN65 (2"½) |
| up to 60                                                    | 78  | VVF31.80          | DN80    | SKB60       | DN80 (3")  |
| up to 95                                                    | 124 | VVF31.90          | DN100   | SKC60       | DN100 (4") |
| up to 150                                                   | 200 | VVF31.91          | DN125   | SKC60       | DN125 (5") |
| up to 230                                                   | 300 | VVF31.92          | DN150   | SKC60       | DN150 (6") |

2-way valve and minimum recommended bypass pipe diameter as a function of the minimum waterflow.

## VARIABLE FLOW HYDRONIC GROUP (optional)

### 9.2 VPF.D systems: plants designed for variable flow, decoupled, primary and secondary circuits

Even in that cases in which is not possible to work with a single variable primary flow circuits, or in that situations in which is preferable to maintain decoupled the primary circuits (to the units) and the secondary circuit (to the plants), it's possible the primary flow on pumps controlled by the unit.

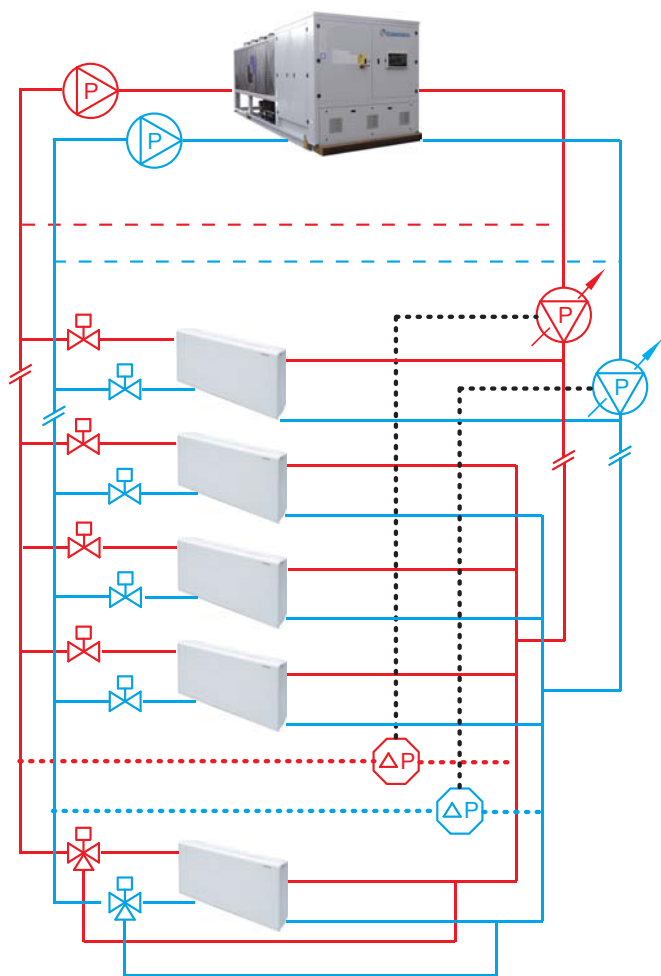
The energy savings are lower than the solution with a unique VPF system, but still important especially when the units are in stand-by and it's possible to reduce the waterflow through the unit up to 50%.

The VPF.D systems can be easily adopted in retrofit application, where the chiller is supposed to be replaced but not the plant.

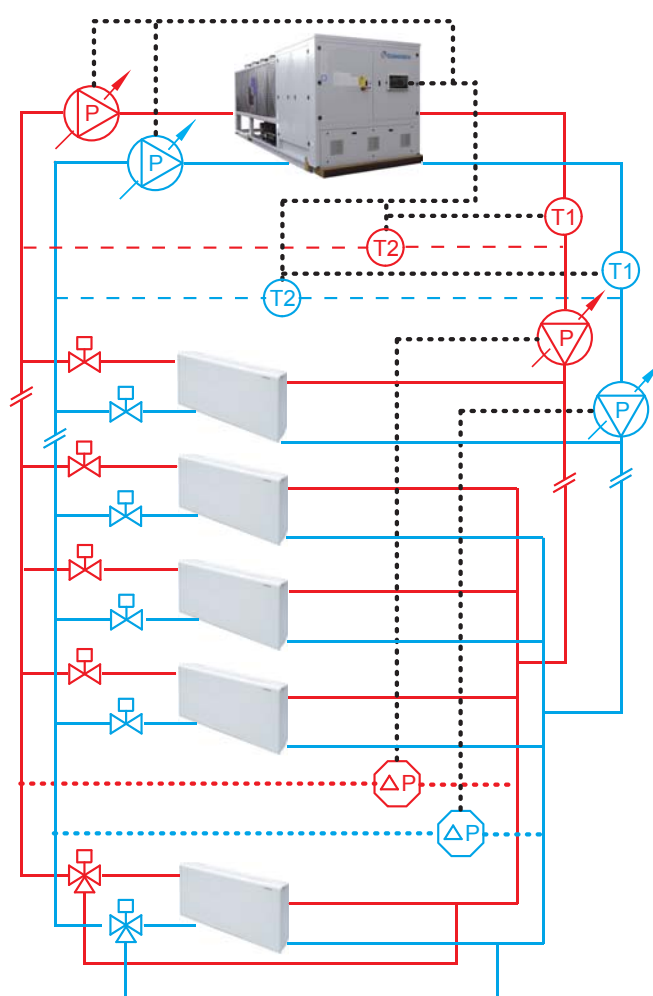
The regulation is up to the unit's controller, detecting the delta temperature at the primary heat exchanger: when the building's load decreases, waterflow is reduced in order to maintain a fixed delta T between the exchangers' inlet and outlet.

The VPF.D system by Climaveneta assures even the waterflow balancing between primary and secondary circuit, in order to avoid the flow inversion in the decoupling pipe.

Traditional plant



"Smart" plant



Example of a 4-pipe plant with cold and hot circuits hydraulically separated in a primary and a secondary ones, both of them featuring variable flow

Climaveneta provides in the table below some indications for the plants design, as a function of the nominal waterflow on the primary heat exchanger.

NOTE: temperature probes are separately supplied

| Minimum waterflow to technical bulletin [m3/h] | Ø Decoupling pipe |
|------------------------------------------------|-------------------|
| 25 to 40                                       | 2"½               |
| up to 60                                       | 3"                |
| up to 100                                      | 4"                |
| up to 150                                      | 5"                |
| up to 225                                      | 6"                |
| up to 375                                      | 8"                |

Minimum decoupling pipe diameter as a function of the minimum waterflow

## VARIABLE FLOW HYDRONIC GROUP (optional)

### Variable flow hydraulic group consisting of:

- 2 inverter-pumps per each hydraulic circuit
- discharge valves
- pump inlet / outlet valves
- check valve
- air vent
- inverter with 25-50 Hz frequency modulation capability
- extensions on the W3000 controller for the complete management of variable flow pumps
- additional pressure transducer for increased safety controlling the minimum flow of water to the evaporator.

### WARNING:

In VPF configuration both the differential pressure transducers and the by-pass valves are at customer care.

The only must for the Climaveneta control to work properly is that:

- differential pressure transducers must give a electrical power signal 4-20 mA
- by-pass valves must be engaged by a 0-10 V signal.

Each of the components of the hydraulic group has been designed to optimise hydraulic and electrical installation space, time and costs. The following solutions are available on request:

### Low or high head pump

Horizontal one-piece centrifuge pump, normalised to EN 733, axial suction and radial delivery, cast iron body and AISI 316L stainless steel impeller. The section of the shaft in contact with the liquid is made of stainless steel. Mechanical seal with components in various materials depending on the size: ceramic/carbon/NBR or carbon/carburundum/silicon/EPDM. Three-phase electric motor protected to IP55, insulation class F, suitable for continuous service.

The pump is combined with a frequency converter with 25-50 Hz modulation capability. The inverter is a feeding device, which when connected to the pump motor permits intelligent management as required by system conditions and the loads required. Pump motor-inverter assembly and connection are performed by Climaveneta.

The second pump operates in stand-by to the first. The relative operating hours of the two pumps are balanced. In case the operating pump breaks down, the reserve pump is automatically enabled.

### Special pumps

For pumps with different configurations, please contact our sales department.

### Integration of pumps in each size

For the integration of the pumps and the circuit's hydraulic diagram, see Enclosure B to this bulletin.

### Pump characteristics

For the technical specifications of the pumps installed and the respective curve characteristics, see Enclosure B to this bulletin.

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