

ENERGY RECUPERATION



# EXAECO®

## RANGE

Very high efficiency, high performance,  
self-regulating double flow unit.  
Economical® solution compliant with  
ErP2012.





## APPLICATION

- ✦ Ventilation, **energy recovery**, thermal comfort and innovating and optimal treatment of indoor air quality. **Self-regulated, high efficiency** and **high-performance** unit for office and industrial installations.
- ✦ Efficiency greater than **80 %** (EN308), complies with **RT 2012** and directive **2009/125/EC**.
- ✦ New levels of air **filtration** and **purification**, control and optimization of energy consumption.
- One- or two-piece smart, plug and play unit (EN15232).

## RANGE

- Available in 4 sizes and 8 models, the **EXAECO®** range covers air flows from 5 000 to 22 000 m<sup>3</sup>/h.

The **EXAECO®** range is offered in 4 versions each available, on the fresh air side, with right- or left-hand access:

- **EXAECO®**: self-regulated energy recovery unit without heating batteries, with **FEE®** function for optimization of energy consumption.
- **EXAECO ELITE®**: **EXAECO®** unit combined with the **ELITE** module for climatic comfort with the choice of one or a combination of two heating battery: water heating battery, electric heating battery, changeover battery, water cooling battery, direct expansion battery, cold only or reversible.

## CONSTRUCTION

The **EXAECO®** range together with its associated **ELITE**, **PURE** and **EDEN** modules are designed and manufactured in compliance with the **EUROVENT** certification processes and meet current European standards (EN1886, EN13053, etc.) to guarantee mechanical strength, sealing, acoustic levels and technical performance.

- ✦ Structure in aluminium profile with **thermal breaks** using polyamide spacers built into the profile (class TB3 in accordance with EN1886).
- Corners in reinforced polyamide.
- Double skin panels 10/10th (Class D2 in accordance with EN1886).
- ✦ Insulation: 50 mm high density 50 mm A1 (M0) (L2 and T3 class for airtightness of the envelope according to EN1886).
- External surface: RAL7035 pre-lacquered metal sheet with protective film.
- Internal surface: galvanized steel.
- Frame in heavy gauge 30/10 galvanised steel. Module ELITE on galvanised feets.
- For external installations, a roof must be integrated (option).
- ✦ Access to the internal components by pivoting doors with progressive locking handles along with a safety latch on all doors.

## EXAECO® EQUIPMENT

### MOTOR FANS

- ✦ Plug fans in epoxy-treated galvanised steel.
- The design of the **EXAECO®** range (position of the fans) minimises leaks of return air to the blast air as much as possible and limits the leakage rate caused by the rotating heat exchanger.
- ✦ Direct drive DC motor with high efficiency electronic (EC) thermal cut-out and speed variation integrated for model 10.  
Direct drive motor, IE2/IP55, thermal cut-out and frequency converters incorporated on models 13 and 17, synchronous motor **with permanent magnet IE3/IP55** and frequency converter for model 22.
- ✦ All **EXAECO®** models comply with phase 2 (2015) of directive ERP 2009/125/EC.
- Several air flow modulations are available.

## HEAT EXCHANGER

High efficiency rotating heat exchanger in aluminium, with **variable speed**. Heat exchanger in a rigid frame mounted on slides for easy extraction and maintenance.

Rotating air-air heat exchangers produced by KLINGENBURG which participates in the **Eurovent** certification program for the AARE.

When used for local high humidity, provide a tray condensate (option) under the rotary exchanger.

## FILTERS

- ✦ High efficiency **F7** Opacimetric filters (large filtering surface) for fresh air and exhaust air.
- The filters are always mounted upstream of components to ensure they are protected. Fitted on slide rails fitted with lip seals to provide effective air-tightness.
- ✦ Access to the filters by pivoting doors with progressive reduction handles and safety latch.  
Checking of filter fouling at periods which can be changed in the regulation system and fresh air filter fouling pressure switch. Optionally, return air filter fouling pressure switch and "J" liquid pressure gauges fitted on the unit.

## 3-WAYS MODULE

- As standard, the **EXAECO®** range is fitted with a motor-driven 3-ways mixing system, using class 4 opposing displacement aluminium profiled blades.
- ✦ The registers composing this 3-way module are controlled and automatically managed by the regulation system and provide anti-freeze, insulation and fire safety functions (register downstream of the fresh air filter), optimization of energy gains and quality of the indoor air (**EXAECO PURE®** and **EXAECO EDEN®**) on start-up (recirculation) and when the unit is in operation using the **FEE®** principle: **Free Energy Efficiency** (see features section).

## PROBES

The **EXAECO®** module is fitted as standard with:

- ✦ Outdoor/fresh air temperature probe, air supply probe, return air temperature probe and CO<sub>2</sub> probe. These probes are all fitted and wired in the unit and connected to the regulation system. They carry out all the functions enabling the unit to operate optimally in accordance with the actual requirements of the installation and are involved in the implementation by the regulation system of free-cooling, night-cooling, cold recovery, recirculation and the **ecological® FEE®** solution (Free Energy Efficiency).

## ELECTRICAL COMPARTMENT AND REGULATION SYSTEM

This sealed compartment incorporated into the unit includes all the electrical components and regulation system.

- ✦ Provided with pivoting doors fitted with progressive closure handles and a safety latch, this compartment contains the electrical control panel, the smart regulation system using the inverters for the motors (models 13 to 22).
- ✦ The access door to the electrical compartment accommodates a display panel with an IP65 LCD screen for interior or exterior installation, and a lockable switch.
- The display on the front panel gives access to the settings and setpoints of the regulation system. A fixed strip fitted with grommets allows the unit to be electrically connected providing quick and simple installation.
- ✦ A remote control with features similar to the display panel (from 10m to 1km combined with repeater), or a touch user screen for temperature control, restart, default, etc. functions may be connected to the regulator present in the compartment. (up to 100 m).
- Weekly internal timers allow operation at two air flows, programmable as required on site with two setting periods per day for each flow rate.
- Timer for setting annual holidays and public holidays.
- Weekly timer for starting/stopping recirculation.



- ✧ The regulation system integrated into the **EXAECO®** unit enables to manage the various configurations of the **ELITE** climatic module.

## EXAECO ELITE® EQUIPMENT

The **EXAECO ELITE®** version combines an **ELITE** module with the same cross-section as the **EXAECO®** unit enabling heating coils to be incorporated in the system to provide climatic comfort suited to the environmental conditions and the operating requirements of the building. This module can be fitted with:

- Hot water coil only (H).
- Electric heating battery (E).
- Hot water battery and cold water battery (HC).
- Electric heating battery and cold water battery (EC).
- Hot water battery and direct expansion battery (HDX).
- Electric heating battery and direct expansion battery (EDX).
- Changeover water battery (CO).
- Cold water battery only (C).
- Cold direct expansion battery only (DX) or reversible (DXR). The direct expansion battery is managed by the outdoor unit. An interface (optional) to the **EXAECO®** unit regulation system sends a signal to start the chiller unit.

- ✧ As standard, the **ELITE** modules incorporating a cold battery, or a direct expansion coil are fitted with a **stainless steel condensate tray** mounted on a runner for quick extraction and easy maintenance. In addition, the module incorporates a **removable trap** connected to the outlet from the condensate tray and connected to a drain on the

lower part of the module. These internal components are accessed by means of a door with a handle and a safety latch.

- As standard the regulation is delivered in language MODBUS, WEB and BACNET.



## FUNCTIONS

The **EXAECO®** range is self-regulating, plug and play and communicates on a MODBUS RS485. Based on the principles of high efficiency (more than 80%) energy recovery (EN308 and **EUROVENT** certification of the heat exchanger), reductions of CO<sub>2</sub> emissions (in compliance with the 2nd step planned in 2015 by directive ErP 2009/125/EC), performance requirements for air conditioning and ventilation systems (EN13779, **PSFP less than 1.5**), our **EXAECO®** program incorporates a complete and innovative system for implementing **optimal economical®** solutions based on temperature criteria (indoor and outdoor) and Indoor Air Quality (IAQ).

### FEE®: FREE ENERGY EFFICIENCY

- Using the 3-ways module fitted as standard to the **EXAECO®** range, the **FEE®** function is managed autonomously and automatically and provides maximum optimization of energy gains.
- ✧ Depending on the outdoor temperature, the blowing temperature instruction (or ambient temperature of exhaust air), the 3-ways module controlled by modulating servomotors provides partial or total recycling (90% to maintain 10% fresh air, adjustable) to limit energy consumption and heat or cold production. This function will also be interlocked to the quality of the extracted air through a CO<sub>2</sub> probe incorporated within the unit which determines to what extent the **FEE®** function can be used without degrading the indoor air quality (threshold 1000 ppm in compliance with current regulations). This CO<sub>2</sub> threshold (seuil) instruction can be adjusted on site.
- ✧ Depending on the situation, the **FEE®** function provides **energy savings of more than 40%**.

### FREE COOLING

- ✧ To optimize the energy contribution from the fresh air, the unit fitted with temperature probes on the outdoor air and the ambient air of the building (probe on the return air) which are used to control the motor to **optimize the speed of the rotating heat exchanger**. In summer, when the outdoor temperature drops to less than the indoor temperature, the rotating heat exchanger is stopped and the **EXAECO®** unit operates using fresh air only.

### COLD RECOVERY

- ✧ During the summer, if the interior temperature is less than the exterior temperature, the rotating heat exchanger operates so as to recover the energy and optimize energy consumption. At this point, the **FEE®** (Free Energy Efficiency) function will be activated to improve energy savings if the CO<sub>2</sub> content of the indoor air (threshold 1000 ppm adjustable) allows this.

\*In standard, the regulation is delivered in MODBUS, WEB and BACNET.

### NIGHT COOLING

- ✧ The night cooling function enables the indoor temperature of the building to be lowered according to the climatic conditions over the last 24 hours. Between midnight and 7 a.m. (time slot adjustable), the night cooling function starts if the outside temperature exceeds 22°C (adjustable) during the day (between 6 a.m. and 10 p.m.). Night cooling operates if the outside temperature is between 10 and 18°C (adjustable) and if the exhaust air temperature is greater than 18°C (adjustable).
- ✧ In addition, this function has a specific configured ventilation speed set to 85% (adjustable).

### RECIRCULATION

- ✧ To optimize the energy consumption of the **EXAECO®** range, the regulation system enables a timer to be set for the recirculation ranges (outside the LS/HS operating times). During this period, the unit starts up with recycled air only (fresh air and exhaust air dampers closed on the 3-ways module) with gradual run-up of the heat exchanger, fans and batteries (**ELITE** version) in order to set the temperature of the heat exchanger and indoor environment. For energy saving reasons, the night cooling function takes priority over the recirculation function.

### INDOOR AIR QUALITY

- ✧ As standard, the **EXAECO®** range is fitted with a CO<sub>2</sub> probe on the exhaust air. This probe allows the 3-ways module to be configured to maintain a suitable CO<sub>2</sub> rate.

### HEAT EXCHANGER FOULING SAFETY SYSTEM

- ✧ To avoid the heat exchanger becoming fouled while the fans are operating and energy recovery is inactive (heat exchanger stopped), the regulation system automatically carries out a rotation of the heat exchanger (average 1 minute per hour).

### FIRE SAFETY

- ✧ The internal regulation cabinet of the **EXAECO®** unit has two terminals for connecting a "Fireman's stop" on opening which forces the immediate and complete shutdown of the unit (fans, rotating heat exchanger, etc.) and closes the fire safety damper situated downstream of the fresh air filter and the extracted air damper.
- As an option, the unit may be factory-fitted with an optical smoke detector connected to this contact.





### SMART REGULATION

- ✧ The EXAECO® range and its ELITE version are plug and play. The regulation system factory-fitted, wired and tested is integrated into a sealed compartment. As standard, the regulation system is supplied in MODBUS BACNET or WEB.
- ✧ As standard, the EXAECO® unit is fitted with an LCD IP65 screen to the front panel. As an option, it is possible to connect one and/or another of the following remote controls :
  - LCD remote control with the same features as the front panel screen and which can be moved from 10 m to 1 km (requires repeater option) or limited to 10m if the unit is connected to a BMS.
  - User control with touch screen which can be moved up to 100 m whether or not the unit is connected to a BMS.

EXAECO® units are intended for the ventilation and comfort air treatment of indoor environments with average humidity. They are not suited to humid environments such as swimming pools, saunas, sea therapy, laundry, etc.

- ✧ When carrying out clean air compensation and renewal, the regulation system of the EXAECO® unit acts on the temperature control according to the season. In Winter, the regulation system controls the blowing temperature according to the outdoor temperature (adjustable air law). If the external temperature goes over 13°C (setpoint adjustable) the the regulation system goes into control mode on the extracted air temperature (setpoint adjustable).
- For comfort use (ELITE version) providing heating and/or cooling
- to the building along with clean air renewal, the EXAECO® unit regulation system acts on the temperature control of the extracted air from the building (adjustable instruction) or on the ambient temperature (optional ambient probe).
- ✧ The regulator is fitted with a battery which enables users settings to be maintained in the event of a power cut.
- ✧ Changeover from summer time to winter time is automatic (this function can be disabled).



| ÉQUIPEMENTS                                                                                          | FIRST | ELITE E | ELITE H | ELITE CO | ELITE DXR |
|------------------------------------------------------------------------------------------------------|-------|---------|---------|----------|-----------|
| Low energy consumption EC fan motors                                                                 | I     | I       | I       | I        | I         |
| Opacimetric, F7 fresh air filter                                                                     | I     | I       | I       | I        | I         |
| Opacimetric, F7 exhaust air filter                                                                   | I     | I       | I       | I        | I         |
| High efficiency Rotary Heat Exchanger (>80%). EUROVENT certified                                     | I     | I       | I       | I        | I         |
| Variable speed Rotary Exchanger                                                                      | I     | I       | I       | I        | I         |
| 50mm, RAL 7035 double skin                                                                           | I     | I       | I       | I        | I         |
| Remote LDC display (IP65)                                                                            | I     | I       | I       | I        | I         |
| MODBUS or BACNET communication management in RS485 or TCP / IP or Web (selection access on the menu) | I     | I       | I       | I        | I         |
| Commissioning Speed(s) LS-HS with regulation EASY                                                    | I     | I       | I       | I        | I         |
| Blowing temperature sensor                                                                           | I     | I       | I       | I        | I         |
| Exhaust air sensor                                                                                   | I     | I       | I       | I        | I         |
| Outside temperature sensor                                                                           | I     | I       | I       | I        | I         |
| Defrost sensor on water battery                                                                      | -     | -       | I       | I        | -         |
| Inclined condensate trays for DX changeover battery                                                  | -     | -       | -       | I        | I         |
| Safety thermostat on electric heating battery                                                        | -     | I       | -       | -        | -         |
| Rotation exchanger sensor                                                                            | I     | I       | I       | I        | I         |
| Lockable proximity switch                                                                            | I     | I       | I       | I        | I         |
| Power cord grommet                                                                                   | I     | I       | I       | I        | I         |
| FUNCTIONS                                                                                            | FIRST | ELITE E | ELITE H | ELITE CO | ELITE DXR |
| Self-regulating electric heating battery                                                             | -     | I       | -       | -        | -         |
| Self-regulating water heating, cooling or changeover battery                                         | -     | -       | I       | -        | -         |
| Cold water battery or reversible                                                                     | -     | -       | -       | I        | -         |
| Expansion and reversible R410A battery                                                               | -     | -       | -       | -        | I         |
| Free-Cooling optimum management                                                                      | I     | I       | I       | I        | I         |
| Free-Heating optimum management                                                                      | I     | I       | I       | I        | I         |
| Night-Cooling management (night boost ventilation)                                                   | I     | I       | I       | I        | I         |
| Recirculation management (FEE module)                                                                | I     | I       | I       | I        | I         |
| Optimal cooling recovery                                                                             | I     | I       | I       | I        | I         |
| Optimal heating recovery                                                                             | I     | I       | I       | I        | I         |
| Blowing temperature management (air regulation)                                                      | I     | I       | I       | I        | I         |
| Ambient air management (exhaust air)                                                                 | I     | I       | I       | I        | I         |
| Weekly timer                                                                                         | I     | I       | I       | I        | I         |
| Holidays and bank holidays timer                                                                     | I     | I       | I       | I        | I         |
| Fresh air filter pressure switch                                                                     | I     | I       | I       | I        | I         |
| Flow rate pressure switch control (blowing + recovery)                                               | I     | I       | I       | I        | I         |
| Fire safety mode (5 modules available)                                                               | I     | I       | I       | I        | I         |
| FACTORY ASSEMBLED OPTIONS                                                                            | FIRST | ELITE E | ELITE H | ELITE CO | ELITE DXR |
| LOBBY®: airflow modulation at constant pressure                                                      | m     | m       | m       | m        | m         |
| DIVA®: proportional CO <sub>2</sub> flow rate modulation                                             | m     | m       | m       | m        | m         |
| MAC2®: airflow modulation at constant pressure                                                       | m     | m       | m       | m        | m         |
| QUATTRO®: proportional adjustment by CO <sub>2</sub> level between 2 constant flows                  | m     | m       | m       | m        | m         |
| OPTIONS CHANTIER                                                                                     | FIRST | ELITE E | ELITE H | ELITE CO | ELITE DXR |
| Changeover pad for hot/cold switch on changeover battery                                             | u     | -       | -       | u        | -         |
| Remote LCD control (up to 100m)                                                                      | u     | u       | u       | u        | u         |
| Ambient temperature management via LCD remote control                                                | u     | u       | u       | u        | u         |
| WONDEROOM® areas temperature management with direct communication to the unit                        | u     | u       | u       | u        | u         |

| Dim<br>(mm) | EXAECO® |        |        |        |
|-------------|---------|--------|--------|--------|
|             | 10      | 13     | 17     | 22     |
| A           | 2550    | 2690   | 2873   | 2873   |
| A1          | 830     | 900    | 990    | 990    |
| A2          | 1564    | 1704   | 1884   | 1884   |
| B           | 1620    | 1820   | 2090   | 2285   |
| C           | 2100    | 2250   | 2315   | 2510   |
| D           | 1110    | 1310   | 1580   | 1770   |
| E           | 706     | 806    | 806    | 906    |
| E1          | 245     | 220    | 250    | 250    |
| F           | 1510    | 1600   | -      | -      |
| F1          | 566     | 636    | 726    | 726    |
| F2          | 1300    | 1440   | 1620   | 1620   |
| F3          | 1490    | 1690   | 1960   | 2155   |
| F4          | 420     | 445    | 520    | 450    |
| G           | 155     | 160    | 160    | 160    |
| G1          | 460     | 500    | 550    | 550    |
| G2          | 475     | 535    | 580    | 560    |
| I           | 95      | 130    | 130    | 130    |
| I2          | 60      | 60     | 100    | 90     |
| J           | 1190    | 1260   | 1290   | 1400   |
| J1          | 745     | 830    | 860    | 940    |
| J2          | 1160    | 1220   | 1260   | 1365   |
| J3          | 695     | 795    | 820    | 900    |
| K           | 620     | 690    | 780    | 780    |
| K1          | 320     | 395    | 525    | 525    |
| M           | 530     | 500    | 455    | 372    |
| M1          | 780     | 850    | 940    | 940    |
| M2          | 1514    | 1654   | 1834   | 1834   |
| M3          | 1275    | 1475   | 1745   | 1940   |
| T*          | 1" 1/4  | 1" 1/2 | 2"     | 2"     |
| T1*         | 2"      | 2"     | 2"     | 2"     |
| T2**        | 1" 1/8  | 1" 1/8 | 1" 1/8 | 1" 3/8 |
| T3**        | 1" 5/8  | 1" 5/8 | 1" 5/8 | 2" 1/8 |

\* Steel tube with gas pitch thread \*\* Copper tube

G-I-J-J1-T: hot water battery (H)

G1-I-J-J1-T1: cold water battery (C-CO)

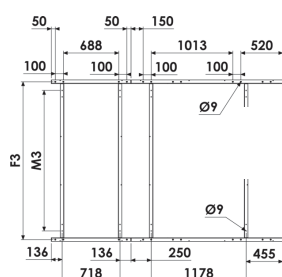
G2-I2-J2-J3-T2-T3: Direct expansion battery (DX-DXR)

J2 -1 AND J3-1: System 1 of Direct expansion (DX-DXR)

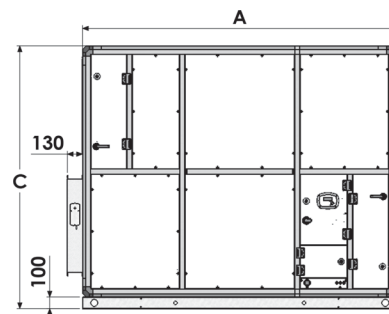
J2 -2 AND J3-2: System 2 of Direct expansion (DX-DXR)

J2 -3 AND J3-3: System 3 of Direct expansion (DX-DXR)

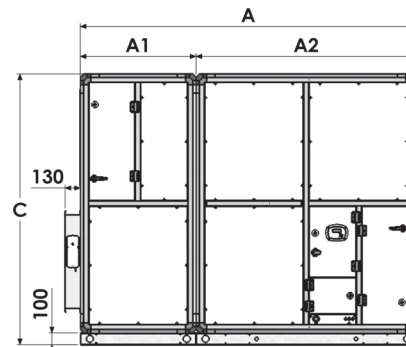
J2 -4 AND J3-4: System =4 of Direct expansion (DX-DXR)



EXAECO® 17 and 22

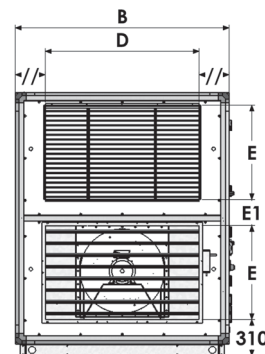


EXAECO®  
10 and 13

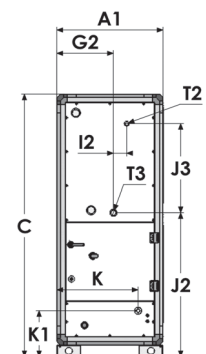


EXAECO®  
17 and 22

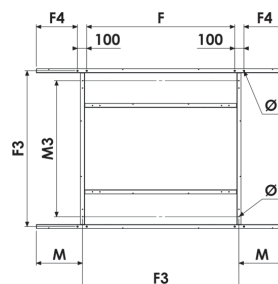
SIDE VIEW EXAECO®



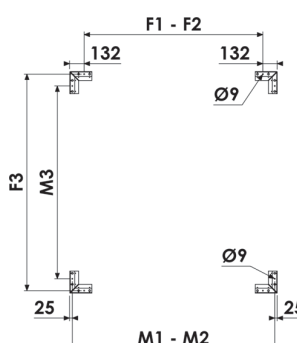
ELITE®MODULE



TOP VIEW OF EXAECO® FRAME AND FEET MODULES ELITE ®



EXAECO® 10 and 13



ELITE MODULE

| EXAECO®<br>model | EXAECO®<br>Unit<br>(kg) | PURE<br>Module IAQ*<br>(kg) | ELITE<br>Climatic module<br>(kg) |         |               |
|------------------|-------------------------|-----------------------------|----------------------------------|---------|---------------|
|                  |                         |                             | H/E                              | C/CO/DX | HC/EC/HDX/EDX |
| 10               | 1120                    | 310                         | 270                              | 280     | 320           |
| 13               | 1350                    | 360                         | 320                              | 330     | 380           |
| 17               | 550 + 1100              | 420                         | 370                              | 380     | 440           |
| 22               | 650 + 1200              | 470                         | 410                              | 420     | 490           |

\*: Indoor Air Quality, innovative and patented technology DBD-Lyse®

ELECTRICAL  
CHARACTERISTICS

| Model     | Voltage<br>(V / Ph / Hz) | Motor<br>Power<br>(kW) | Current<br>(A) | Working<br>Temp.<br>(°C /) | Protection<br>rating<br>Class | Thermal<br>cutout<br>* | ELITE/EDEN<br>Voltage<br>(V/Ph/Hz) | Electric Heating (E)<br>Protection crnt.<br>(A) |
|-----------|--------------------------|------------------------|----------------|----------------------------|-------------------------------|------------------------|------------------------------------|-------------------------------------------------|
| EXAECO 10 | 400 / 3+N / 50           | 2 x 3,3 kW             | 2 x 5,2 A      | -20 / 40 °C                | IP54 / F                      | PTI                    | 400 / 3+N / 50                     | 36                                              |
| EXAECO 13 | 400 / 3+N / 50           | 2 x 4 kW               | 2 x 8,2 A      | -20 / 40 °C                | IP55 / F                      | PTC                    | 400 / 3+N / 50                     | 39                                              |
| EXAECO 17 | 400 / 3+N / 50           | 2 x 7,5 Kw             | 2 x 14,8 A     | -20 / 40 °C                | IP55 / F                      | PTC                    | 400 / 3+N / 50                     | 52                                              |
| EXAECO 22 | 400 / 3+N / 50           | 2 x 11 kW              | 2 x 23,2 A     | -20 / 40 °C                | IP55 / F                      | PTC                    | 400 / 3+N / 50                     | 61                                              |

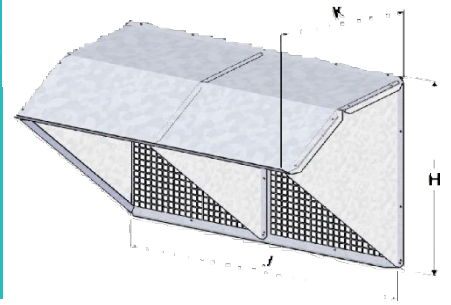
\* PTI: Integrated thermal cutout PTC: Thermal protection by PTC probe connected to the regulation system

ELECTRIC BATTERY  
PERFORMANCES

| EXAECO® E | Air flow<br>(m³/h) | Electric heating<br>coil E<br>(kW) | Unit output<br>temp. °C | Fresh air temperature °C |      |      |      |      |
|-----------|--------------------|------------------------------------|-------------------------|--------------------------|------|------|------|------|
|           |                    |                                    |                         | 0                        | -5   | -10  | -15* | -20* |
| 10        | 10000              | 24,75                              |                         | 23,1                     | 22   | 20,9 | 22,1 | 21,3 |
| 13        | 13000              | 27                                 |                         | 21,9                     | 20,8 | 19,8 | 20,9 | 20,2 |
| 17        | 17000              | 36                                 |                         | 22                       | 21   | 19,9 | 21,1 | 20,3 |
| 22        | 22000              | 42                                 |                         | 21,2                     | 20,1 | 19   | 20,2 | 19,4 |

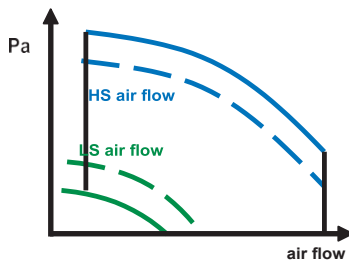
\*: With 30% recycled air at 20°C (FEE® function of 3-way module)

| KIT<br>SOLENOID VALVE<br>Water rating °C | ELITE H<br>Hot water coil<br>90/70 80/60 60/50 45/40 | ELITE C/CO<br>Cold/Changeover coil<br>45/40 7/12 6/11 | RAIN VISOR |           |           |                |
|------------------------------------------|------------------------------------------------------|-------------------------------------------------------|------------|-----------|-----------|----------------|
|                                          |                                                      |                                                       | H<br>(mm)  | J<br>(mm) | K<br>(mm) | Weight<br>(kg) |
| <b>EXAECO 10</b>                         | 32/16 - 1"1/4 F - IP54                               | 50/40 - 2" F - IP54                                   | 706        | 1110      | 485       | 15             |
| <b>EXAECO 13</b>                         | 32/16 - 1"1/4 F - IP54                               | 50/40 - 2" F - IP54                                   | 806        | 1310      | 550       | 19             |
| <b>EXAECO 17</b>                         | 50/40 - 2" F - IP54                                  | 50/40 - 2" F - IP54                                   | 806        | 1580      | 550       | 21             |
| <b>EXAECO 22</b>                         | 50/40 - 2" F - IP54                                  | 50/40 - 2" F - IP54                                   | 906        | 1770      | 610       | 26             |



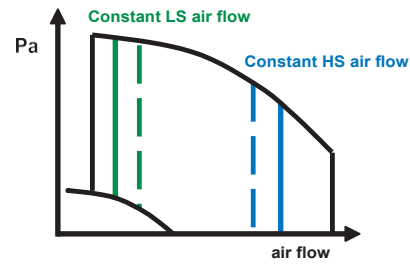


The EXAECO® unit has a factory-programmable regulator as standard used to configure the flow modulations described below:



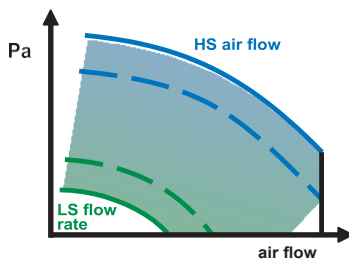
EXAECO® operation

1 or 2 air flows (LS/HS) as required per fan



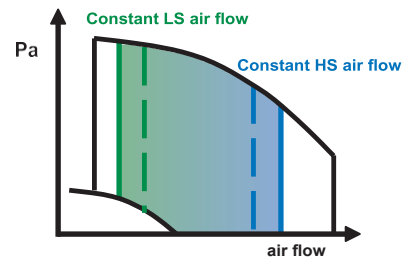
EXAECO® + MAC2 EC® operation

1 or 2 CONSTANT air flows as required per fan



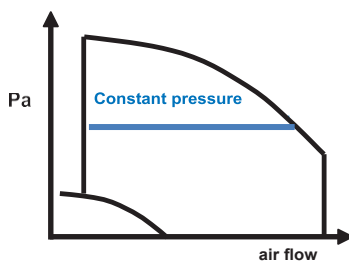
EXAECO® + DIVA EC® operation

PROPORTIONAL ventilation between two air flows (LS/HS) fan for all fresh air operation



EXAECO® + QUATTRO EC® operation

PROPORTIONAL ventilation between two CONSTANT flow rates per fan for all fresh air operation



EXAECO® + LOBBY EC® operation

CONSTANT PRESSURE ventilation by fan



Remote control with LCD display (optional) max 10 m or 1000 m with repeater (optional). Same functions as screen on front panel of the EXAECO® unit.

User touch screen max. 100m. Functions temperature control, restart, default, etc. Touch wall control ref. ED TOUCH Version not compatible SEASON. Max 100 m.



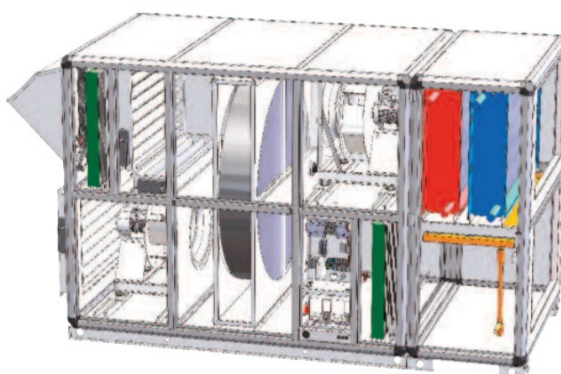
Control panel with IP65 LCD display mounted on the front panel of the EXAECO® for adjusting timers, air flows, temperature (proportional management of the 3-ways module, water or electric heating coils, night over-ventilation) checking and readout of defaults, etc.

| EXAECO®<br>with AIR FLOW<br>MODULATION                                                                                      | STOP => HS   | STOP => LS => HS | STOP => LS   | &  | LS => HS       | FORCE STOP                                          |
|-----------------------------------------------------------------------------------------------------------------------------|--------------|------------------|--------------|----|----------------|-----------------------------------------------------|
| <b>EXAECO®</b><br><br>Regulation<br>at 1 or 2 adjustable<br>air flows<br>(LS/HS)                                            | TIMER        | TIMER            | TIMER        | &  | Dry contact*   | LCD control<br>"EASY" or remote<br>à distance<br>or |
|                                                                                                                             | or           | or               |              | or |                | or                                                  |
|                                                                                                                             | Dry contact* | Dry contact*     | Dry contact* | &  | Dry contact*   | Dry contact*                                        |
| <b>EXAECO MAC2 EC®</b><br><br>Regulation<br>at 1 or 2<br>CONSTANT<br>air flows                                              | TIMER        | TIMER            | TIMER        | &  | Dry contact*   | LCD control<br>"EASY" or remote<br>control<br>or    |
|                                                                                                                             | or           | or               |              | or |                | or                                                  |
|                                                                                                                             | Dry contact* | Dry contact*     | Dry contact* | &  | Dry contact*   | Dry contact*                                        |
| <b>EXAECO LOBBY®</b><br><br>Regulation at<br>adjustable<br>CONSTANT PRESSURE<br>and variable air flows                      |              |                  | TIMER        |    |                | LCD control<br>"EASY" or remote<br>control<br>or    |
|                                                                                                                             |              |                  | or           |    |                | or                                                  |
|                                                                                                                             |              |                  | Dry contact* |    |                | Dry contact*                                        |
| <b>EXAECO DIVA EC®</b><br><br>Regulation with<br>PROPORTIONAL<br>ventilation between<br>2 adjustable air flows              |              |                  | TIMER        | &  | 010V CO2 probe | LCD control<br>"EASY" or remote<br>control<br>or    |
|                                                                                                                             |              |                  |              | or |                | or                                                  |
|                                                                                                                             |              |                  |              |    | 010V CO2 probe | Dry contact*                                        |
| <b>EXAECO QUATTROEC®</b><br>Regulation<br>with PROPORTIONAL<br>ventilation<br>between 2<br>CONSTANT adjustable<br>air flows |              |                  | TIMER        | &  | 010V CO2 probe | LCD control<br>"EASY" or remote<br>control<br>or    |
|                                                                                                                             |              |                  |              | or |                | or                                                  |
|                                                                                                                             |              |                  |              |    | 010V CO2 probe | Dry contact*                                        |

Standard function built in to the unit

Optional accessory not fitted

\*Dry contact: CDC type remote control/On-Off CO2 probe/On-Off humidity probe/All types of dry contact, etc.





- The "Lp4m dB(A)" curves indicate the sound pressure level measured at 4m, in free field conditions, with hemispherical distribution on a reflecting plane, disconnecting the exterior "fresh air intake" and "stale air expulsion" ducts and connecting the interior "fresh air injection" and "stale air extraction" ducts.
- To obtain the overall sound pressure level Lp dB(A), at a given distance, add the values below to Lp4m

| Distance (m)             | 1,5 | 3 | 4 | 5  | 7  | 10 |
|--------------------------|-----|---|---|----|----|----|
| Distance weighting dB(A) | 9   | 3 | 0 | -2 | -5 | -8 |

**NOTA:** Tolerance = Global  
Values + / - 3 dB(A)  
Acoustic spectra +/- 5 dB(A)

- The "LW fresh air injection dB(A)" curves indicate overall sound power emitted at the "fresh air injection" duct. or "Return air rejected".
- To obtain the spectre of acoustic power Lw cond blowing dB (A), sides "Fresh air blowing" or "Return air rejection", add the values below to the acoustic power "Lw cond blowing" read on curves.

| Downstream acoustic spectrum weighting function "Lw cond blower dB(A)" Indicated on the curves |       |        |        |        |         |         |         |         |
|------------------------------------------------------------------------------------------------|-------|--------|--------|--------|---------|---------|---------|---------|
| Frequency                                                                                      | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz |
| Weighting EXAECO 10 dB(A)                                                                      | -26   | -16    | -13    | -7     | -4      | -6      | -15     | -21     |
| Weighting EXAECO 13 dB(A)                                                                      | -31   | -14    | -12    | -8     | -5      | -6      | -11     | -16     |
| Weighting EXAECO 17 dB(A)                                                                      | -31   | -15    | -12    | -8     | -5      | -6      | -9      | -15     |
| Weighting EXAECO 22 dB(A)                                                                      | -31   | -15    | -12    | -8     | -5      | -6      | -9      | -15     |

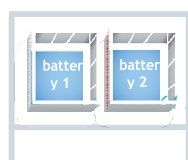
- Curves "Lw cond extraction dB (A)" correspond to the global acoustic power shone in girdle sides "Return air extraction" and "Fresh air input".
- To obtain the acoustic spectre of acoustic power Lw cond extraction dB ( A ), sides "Return air extraction" and "Fresh air input", Add the values below to the acoustic power "Lw cond extraction" read on curves.

| Upstream acoustic spectrum weighting function "Lw cond extraction dB(A)" indicated on the curves |       |        |        |        |         |         |         |         |
|--------------------------------------------------------------------------------------------------|-------|--------|--------|--------|---------|---------|---------|---------|
| Frequency                                                                                        | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz |
| Weighting EXAECO 10 dB(A)                                                                        | -19   | -9     | -7     | -5     | -8      | -9      | -16     | -22     |
| Weighting EXAECO 13 dB(A)                                                                        | -26   | -9     | -7     | -7     | -6      | -8      | -12     | -19     |
| Weighting EXAECO 17 dB(A)                                                                        | -26   | -10    | -7     | -7     | -6      | -7      | -12     | -18     |
| Weighting EXAECO 22 dB(A)                                                                        | -31   | -15    | -12    | -8     | -5      | -6      | -9      | -15     |

- To obtain the acoustic spectre NSC4 dB ( A ) (sound level in 4 m in hemispherical open field, device put on the ground on reflecting plan, extremities of the power plant linked with the aspiration and the rejections by girdles of the same sound insulation as this one), to deduct 18 dB ( A ) in the value of Lp4m.

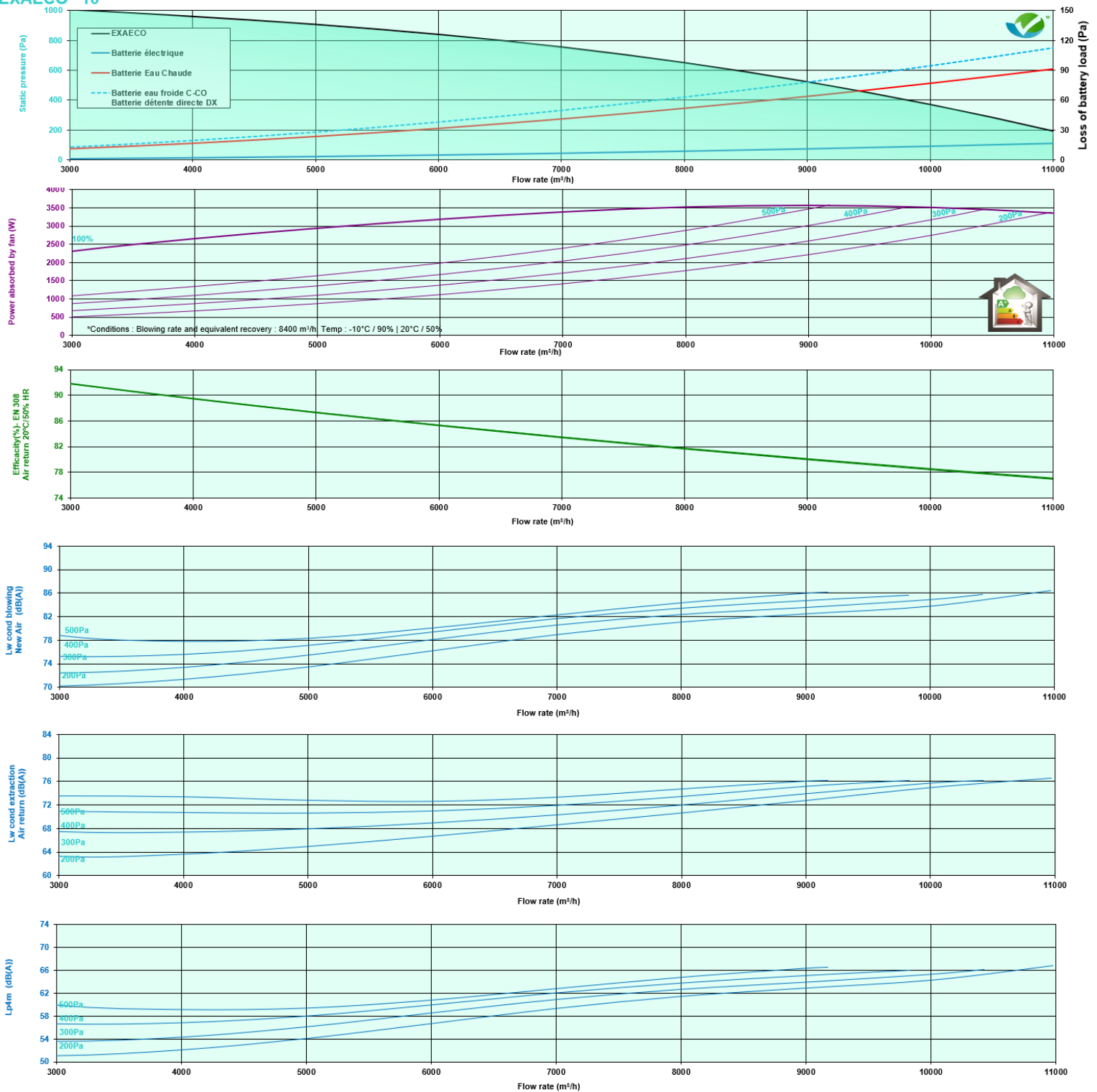
## GLOBAL SOLUTIONS EXAECO®

| Versions         | BATTERY POSITION | EXTERNAL MODULE COMBIBOX CONCEPT® |       |       |             |       |                        |       |
|------------------|------------------|-----------------------------------|-------|-------|-------------|-------|------------------------|-------|
|                  |                  | HEATING                           |       |       | REFRESHMENT |       | CHANGEOVER<br>Hot/Cold |       |
|                  |                  | Electric                          | Water | R410A | Water       | R410A | Water                  | R410A |
| EXAECO           | WITHOUT          | -                                 | -     | -     | -           | -     | -                      | -     |
| EXAECO ELITE E   | BATTERY 1        | ✓                                 | -     | -     | -           | -     | -                      | -     |
| EXAECO ELITE H   | BATTERY 1        | -                                 | ✓     | -     | -           | -     | -                      | -     |
| EXAECO ELITE CO  | BATTERY 2        | -                                 | ✓     | -     | ✓           | -     | ✓                      | -     |
| EXAECO ELITE DXR | BATTERY 2        | -                                 | -     | ✓     | -           | ✓     | -                      | ✓     |
| EXAECO ELITE EC  | BATTERY 1+2      | ✓                                 | -     | -     | ✓           | -     | -                      | -     |
| EXAECO ELITE HC  | BATTERY 1+2      | -                                 | ✓     | -     | ✓           | -     | -                      | -     |
| EXAECO ELITE EDX | BATTERY 1+2      | ✓                                 | -     | -     | -           | ✓     | -                      | -     |
| EXAECO ELITE HDX | BATTERY 1+2      | -                                 | ✓     | -     | -           | ✓     | -                      | -     |



EXAECO® = Energy recovery unit without heating coil.  
EXAECO ELITE® = Energy recovery unit with (1) and/or (2) heating coils.

## EXAECO® 10





# PERFORMANCE CHARACTERISTICS OF EXAECO 10 HEAT BATTERIES

# EXAECO®



4

## H (ELITE)

## Hot water battery

| Water temp. (°C/°C) | Air inlet temp. (°C) | Air flow (m³/h)                | 2000      | 4000      | 6000      | 8000      | 10000     |
|---------------------|----------------------|--------------------------------|-----------|-----------|-----------|-----------|-----------|
| 90/70               | 11                   | Power (kW)/Air out T. (°C)     | 47,1/81,3 | 83,5/73,4 | 113/67,4  | 138/62,7  | 160/58,9  |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 2080/3    | 3680/7    | 4990/10   | 6100/13   | 7060/17   |
|                     | 15                   | Power (kW)/Air out T. (°C)     | 44,5/81,5 | 78,8/73,8 | 107/68,1  | 130/63,7  | 151/60,1  |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 1960/3    | 3470/6    | 4700/9    | 5740/12   | 6650/15   |
| 80/60               | 11                   | Power (kW)/Air out T. (°C)     | 40,5/71,4 | 71,3/64,2 | 96,4/59   | 117/54,9  | 136/51,5  |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 1780/3    | 3130/5    | 4230/8    | 5160/11   | 5970/13   |
|                     | 15                   | Power (kW)/Air out T. (°C)     | 37,9/71,5 | 66,5/64,7 | 89,7/59,6 | 109/55,8  | 126/52,7  |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 1660/2    | 2920/5    | 3940/8    | 4800/10   | 5550/13   |
| 60/50               | 11                   | Power (kW)/Air out T. (°C)     | 29,5/55,1 | 52,6/50,3 | 71,5/46,6 | 87,6/43,7 | 102/41,3  |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 2580/5    | 4590/10   | 6250/15   | 7650/21   | 8870/28   |
|                     | 15                   | Power (kW)/Air out T. (°C)     | 26,9/55,2 | 47,9/50,7 | 65/47,3   | 79,5/44,7 | 92,1/42,5 |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 2350/5    | 4180/8    | 5680/12   | 6940/18   | 8050/23   |
| 45/40               | 11                   | Power (kW)/Air out T. (°C)     | 20,4/41,4 | 36,2/38,1 | 49,2/35,5 | 60,2/33,5 | 69,8/31,8 |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 3540/5    | 6300/10   | 8550/15   | 10500/21  | 12100/28  |
|                     | 15                   | Power (kW)/Air out T. (°C)     | 17,8/41,6 | 31,5/38,5 | 42,7/36,2 | 52,1/34,5 | 60,4/33   |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 3090/4    | 5470/9    | 7420/13   | 9060/16   | 10500/21  |

## C-CO (ELITE)

## Cold and changeover battery

| Water temp. (°C/°C) | Inlet T air (°C-%HR) | Air flow (m³/h)                 | 2000           | 4000           | 6000           | 8000           | 10000          |
|---------------------|----------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| 7/12                | 32/40                | Power(kW)/AiroutT.(°C-%HR)      | 21,4/10,5-98,2 | 37/12,7-94,7   | 49,6/14,2-91,6 | 60,2/15,3-89   | 69,3/16,2-86,8 |
|                     |                      | Water flow (l/h)/DP water (kPa) | 3660/4         | 6340/5         | 8500/8         | 10300/10       | 11900/12       |
|                     | 27/50                | Power(kW)/AiroutT.(°C-%HR)      | 16,6/10,6-98,7 | 28,3/12,3-96,2 | 37,6/13,5-93,9 | 45,3/14,5-91,9 | 51,9/15,2-90,2 |
|                     |                      | Water flow (l/h)/DP water (kPa) | 2840/2         | 4850/4         | 6440/5         | 7760/7         | 8910/9         |
| 6/11                | 25/50                | Power(kW)/AiroutT.(°C-%HR)      | 12,9/10,7-98,7 | 21,7/12,2-96,3 | 28,5/13,3-94,1 | 34,1/14-92,2   | 38,9/14,6-90,5 |
|                     |                      | Water flow (l/h)/DP water (kPa) | 2220/3         | 3710/4         | 4890/4         | 5850/4         | 6670/5         |
|                     | 32/40                | Power(kW)/AiroutT.(°C-%HR)      | 22,9/9,5-98,1  | 39,8/11,8-94,6 | 53,5/13,4-91,4 | 65,1/14,6-88,8 | 75,1/15,6-86,6 |
|                     |                      | Water flow (l/h)/DP water (kPa) | 3920/4         | 6830/5         | 9170/9         | 11200/11       | 12900 / 14     |
| 45/40               | 27/50                | Power(kW)/AiroutT.(°C-%HR)      | 18,1/9,6-98,6  | 31,1/11,5-96,1 | 41,6/12,8-93,7 | 50,3/13,7-91,7 | 57,8/14,5 - 90 |
|                     |                      | Water flow (l/h)/DP water (kPa) | 3110/3         | 5340/5         | 7120/6         | 8620/8         | 9910/9         |
|                     | 25/50                | Power(kW)/AiroutT.(°C-%HR)      | 14,5/9,7-98,7  | 24,6/11,3-96,2 | 32,5/12,5-94   | 39,2/13,3-92   | 44,8/14-90,3   |
|                     |                      | Water flow (l/h)/DP water (kPa) | 2490/3         | 4220/3         | 5580/5         | 6710/5         | 7690/7         |
| 45/40               | 11                   | Power (kW)/Air out T. (°C)      | 20,7/41,9      | 37,3/38,8      | 51,1/36,4      | 62,9/34,5      | 73,3/32,9      |
|                     |                      | Water flow (l/h)/DP water (kPa) | 3600/3         | 6480/3         | 8880/4         | 10900/6        | 12700/8        |
|                     | 15                   | Power (kW)/Air out T. (°C)      | 18,1/42        | 32,4/39,2      | 44,2/37        | 54,4/35,3      | 63,3/33,9      |
|                     |                      | Water flow (l/h) DP water (kPa) | 3140/2         | 5630/3         | 7690/5         | 9450/5         | 11000/6        |

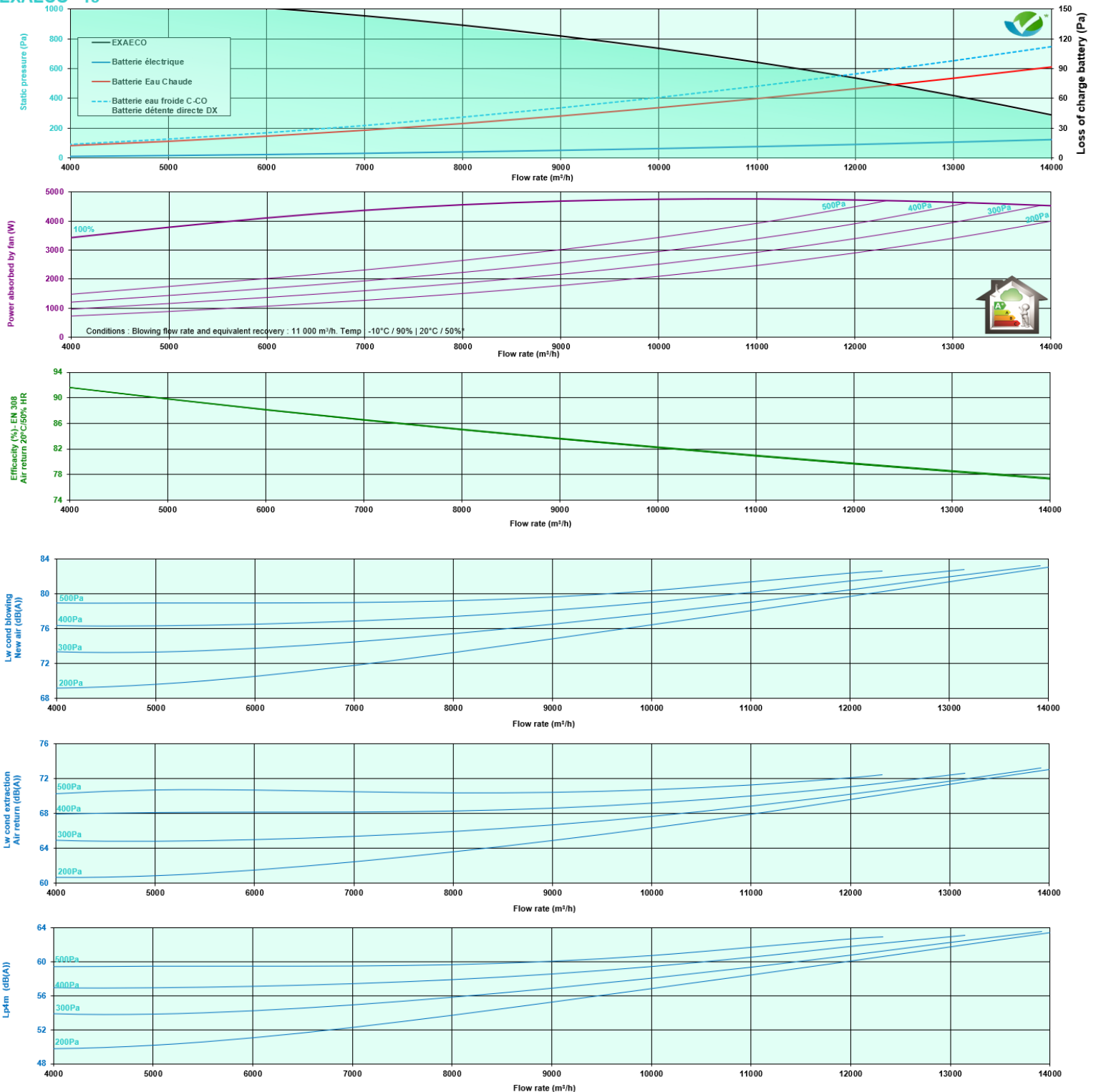
## DX-DXR with R410A (ELITE)

## Cold direct expansion battery alone and reversible

| Evap. Temp. (°C) | Inlet T air (°C-%HR) | Air flow (m³/h)        | 2000      | 4000      | 6000      | 8000      | 10000     |
|------------------|----------------------|------------------------|-----------|-----------|-----------|-----------|-----------|
| 7                | 32/40                | Power (kW)             | 21,4      | 37,2      | 49,8      | 60,4      | 69,4      |
|                  |                      | Air out temp. (°C-%HR) | 11-93,1   | 13,2-88   | 14,8-84,7 | 16-82,2   | 17-80,3   |
|                  | 27/50                | Power (kW)             | 17,3      | 30        | 40,1      | 48,6      | 55,9      |
|                  |                      | Air out temp. (°C-%HR) | 10,4-94,9 | 12,3-91,1 | 13,6-88,5 | 14,5-86,6 | 15,3-85   |
| 5                | 25/50                | Power (kW)             | 14,2      | 24,6      | 32,8      | 39,8      | 45,5      |
|                  |                      | Air out temp. (°C-%HR) | 10,2-95,1 | 11,8-91,4 | 12,9-88,8 | 13,7-86,9 | 14,4-85,4 |
|                  | 32/40                | Power (kW)             | 23,9      | 41,7      | 55,9      | 67,7      | 77,4      |
|                  |                      | Air out temp. (°C-%HR) | 9,3-92,6  | 11,9-87,5 | 13,6-84,1 | 15-81,7   | 16,1-79,8 |
| 40               | 27/50                | Power (kW)             | 19,8      | 34,4      | 46,3      | 55,9      | 64,1      |
|                  |                      | Air out temp. (°C-%HR) | 8,8-94,6  | 10,9-90,7 | 12,3-88   | 13,4-86,1 | 14,3-84,6 |
|                  | 25/50                | Power (kW)             | 16,8      | 29,1      | 38,9      | 47,1      | 54        |
|                  |                      | Air out temp. (°C-%HR) | 8,4-94,8  | 10,3-90,9 | 11,6-88,3 | 12,6-86,4 | 13,4-84,9 |
| 40               | 11                   | Power (kW)             | 17,5      | 31,8      | 44        | 54,7      | 64,2      |
|                  |                      | Air out temp. (°C)     | 37,2      | 34,7      | 32,9      | 31,4      | 30,2      |
|                  | 15                   | Power (kW)             | 15,1      | 27,3      | 37,8      | 46,9      | 55,1      |
|                  |                      | Air out temp. (°C)     | 37,5      | 35,4      | 33,8      | 32,5      | 31,5      |

Condensing temp. (°C)

## EXAECO® 13



Air flow (m3/h)

# PERFORMANCE CHARACTERISTICS OF EXAECO 13 HEAT BATTERIES

# EXAECO®



4

## H (ELITE)

## Hot water battery

| Water temp. (°C/°C) | Air inlet temp. (°C) | Air flow (m³/h)                 | 3000      | 5000      | 7000      | 9000      | 11000     | 13000     |
|---------------------|----------------------|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| 90/70               | 11                   | Power (kW)/Air out T. (°C)      | 69,4/80,1 | 105/74    | 136/69,1  | 163/65,1  | 187/61,7  | 207/58,9  |
|                     |                      | Water flow (L/h)/DP water (kPa) | 3060/5    | 4650/9    | 6000/13   | 7190/17   | 8240/22   | 9190/27   |
|                     | 15                   | Power (kW)/Air out T. (°C)      | 65,6/80,2 | 99,5/74,4 | 128/69,7  | 154/66    | 176/62,8  | 196/60,1  |
|                     |                      | Water flow (L/h)/DP water (kPa) | 2890/5    | 4380/8    | 5660/11   | 6770/16   | 7760/20   | 8650/24   |
| 80/60               | 11                   | Power (kW)/Air out T. (°C)      | 59,6/70,3 | 90,2/64,9 | 116/60,5  | 139/57    | 159/54,1  | 177/51,7  |
|                     |                      | Water flow (L/h)/DP water (kPa) | 2620/5    | 3960/8    | 5100/11   | 6100/13   | 6980/17   | 7780/21   |
|                     | 15                   | Power (kW)/Air out T. (°C)      | 55,8/70,5 | 84,2/65,3 | 108/61,2  | 129/57,9  | 148/55,2  | 165/52,8  |
|                     |                      | Water flow (L/h)/DP water (kPa) | 2450/5    | 3700/7    | 4760/10   | 5680/12   | 6500/15   | 7230/18   |
| 60/50               | 11                   | Power (kW)/Air out T. (°C)      | 43,5/54,3 | 66,4/50,6 | 85,9/47,6 | 103/45,2  | 118/43,1  | 132/41,3  |
|                     |                      | Water flow (L/h)/DP water (kPa) | 3800/8    | 5800/13   | 7510/20   | 9010/28   | 10300/34  | 11500/42  |
|                     | 15                   | Power (kW)/Air out T. (°C)      | 39,7/54,5 | 60,4/51,1 | 78,2/48,3 | 93,6/46,1 | 107/44,2  | 120/42,5  |
|                     |                      | Water flow (L/h)/DP water (kPa) | 3470/7    | 5280/12   | 6830/17   | 8180/24   | 9380/30   | 10500/35  |
| 45/40               | 11                   | Power (kW)/Air out T. (°C)      | 30,1/40,9 | 45,8/38,3 | 59,2/36,3 | 71/34,6   | 81,4/33,1 | 90,9/31,9 |
|                     |                      | Water flow (L/h)/DP water (kPa) | 5220/8    | 7950/13   | 10300/20  | 12300/28  | 14200/35  | 15800/42  |
|                     | 15                   | Power (kW)/Air out T. (°C)      | 26,2/41,1 | 39,8/38,8 | 51,4/36,9 | 61,6/35,4 | 70,6/34,2 | 78,6/33,1 |
|                     |                      | Water flow (L/h)/DP water (kPa) | 4560/6    | 6930/11   | 8950/16   | 10700/22  | 12300/28  | 13700/32  |

## C-CO (ELITE)

## Cold and changeover battery

| Water temp. (°C/°C) | Inlet T air (°C-%HR) | Air flow (m³/h)                 | 3000           | 5000           | 7000           | 9000           | 11000          | 13000          |
|---------------------|----------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 7/12                | 32/40                | Power (kW)/Air out T. (°C-%HR)  | 31,7/10,7-97,5 | 47,4/12,3-94,8 | 60,7/13,6-92,3 | 72,3/14,6-90,1 | 82,6/15,4-88,2 | 91,9/16,1-86,5 |
|                     |                      | Water flow (L/h)/DP water (kPa) | 5430/5         | 8140/7         | 10400/9        | 12400/12       | 14200/16       | 15800/18       |
|                     | 27/50                | Power (kW)/Air out T. (°C-%HR)  | 24,6/10,7-98,2 | 36,5/12,1-96,2 | 46,4/13-94,4   | 55/13,8-92,7   | 62,5/14,5-91,3 | 69,3/15-90     |
|                     |                      | Water flow (L/h)/DP water (kPa) | 4220/3         | 6260/4         | 7960/6         | 9440/9         | 10700/9        | 11900/11       |
| 6/11                | 25/50                | Power (kW)/Air out T. (°C-%HR)  | 19,3/10,8-98,3 | 28,2/12-96,4   | 35,6/12,8-94,6 | 41,9/13,5-93   | 47,5/14-91,6   | 52,5/14,5-90,3 |
|                     |                      | Water flow (L/h)/DP water (kPa) | 3310/3         | 4830/4         | 6100/4         | 7190/5         | 8150/7         | 9000/8         |
|                     | 32/40                | Power (kW)/Air out T. (°C-%HR)  | 33,9/9,8-97,4  | 51/11,5-94,7   | 65,5/12,8-92,1 | 78/13,8-89,9   | 89,2/14,7-88   | 99,3/15,4-86,3 |
|                     |                      | Water flow (L/h)/DP water (kPa) | 5810/4         | 8730/8         | 11200/10       | 13400/14       | 15300/18       | 17000/20       |
| 45/40               | 27/50                | Power (kW)/Air out T. (°C-%HR)  | 26,9/9,7-98,2  | 40,1/11,2-96,1 | 51,2/12,2-94,2 | 60,8/13,1-92,5 | 69,3/13,8-91,1 | 76,9/14,4-89,8 |
|                     |                      | Water flow (L/h)/DP water (kPa) | 4620/4         | 6870/5         | 8770/8         | 10400/9        | 11900/11       | 13200/14       |
|                     | 25/50                | Power (kW)/Air out T. (°C-%HR)  | 21,6/9,8-98,3  | 31,9/11-96,3   | 40,5/12-94,4   | 47,8/12,7-92,8 | 54,2/13,3-91,4 | 60/13,8-90,1   |
|                     |                      | Water flow (L/h)/DP water (kPa) | 3710/4         | 5470/5         | 6940/5         | 8190/7         | 9300/9         | 10300/9        |
| 45/40               | 11                   | Power (kW)/Air out T. (°C)      | 30,6/41,5      | 47,1/39,1      | 61,3/37,2      | 74/35,5        | 85,3/34,1      | 95,5/32,9      |
|                     |                      | Water flow (L/h)/DP water (kPa) | 5320/3         | 8190/3         | 10700/5        | 12900/7        | 14800/8        | 16600/10       |
|                     | 15                   | Power (kW)/Air out T. (°C)      | 26,7/41,6      | 40,9/39,4      | 53,2/37,7      | 64/36,2        | 73,8/35        | 82,5/34        |
|                     |                      | Water flow (L/h)/DP water (kPa) | 4630/3         | 7110/4         | 9250/4         | 11100/6        | 12800/7        | 14300/8        |

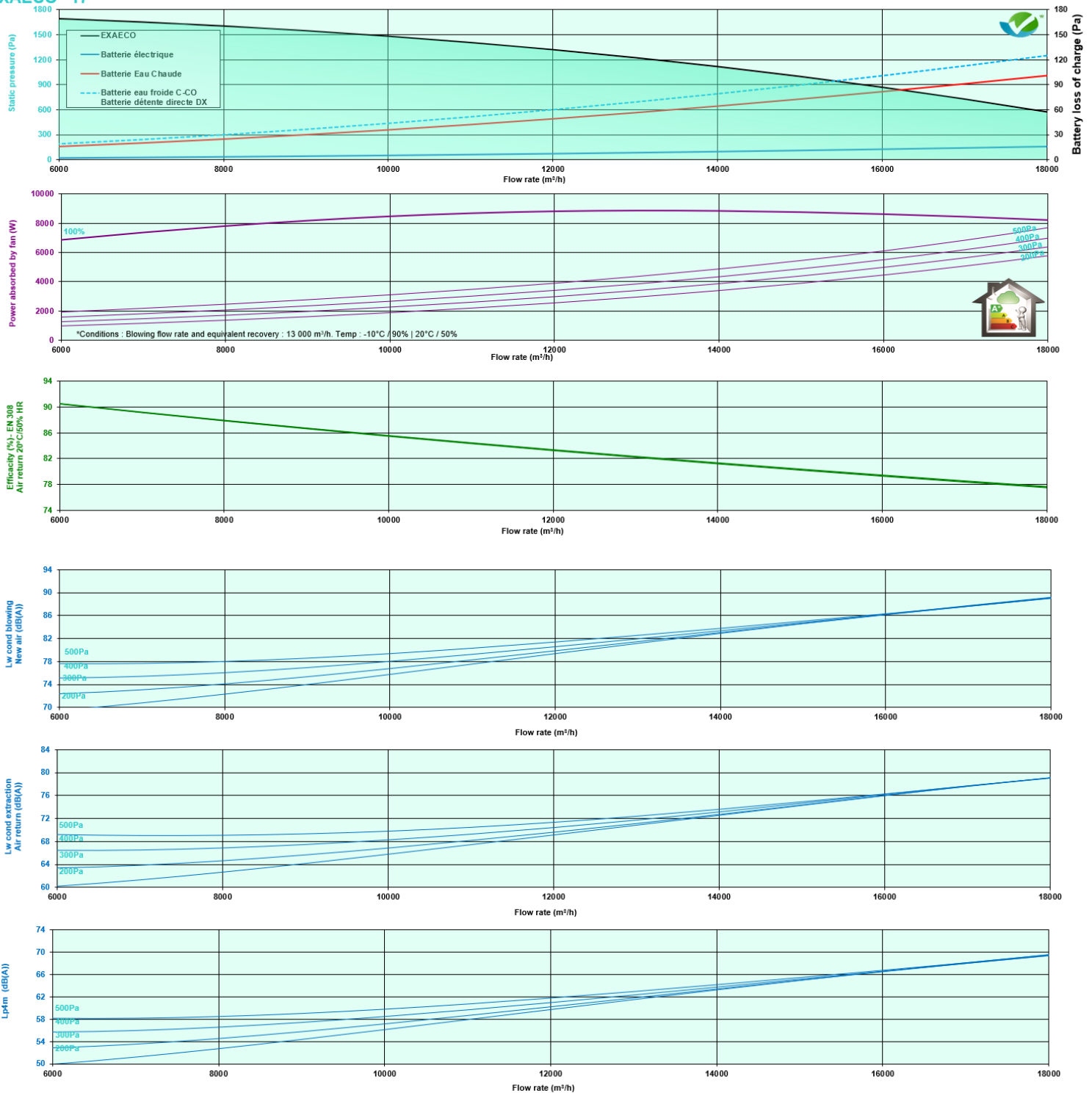
## DX-DXR with R410A (ELITE)

## Cold direct expansion battery alone and reversible

| Evap. Temp. (°C) | Inlet T air (°C-%HR) | Air flow (m³/h)        | 3000      | 5000      | 7000      | 9000      | 11000     | 13000     |
|------------------|----------------------|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| 7                | 32/40                | Power (kW)             | 31,3      | 46,6      | 59,4      | 69,8      | 79,2      | 87,2      |
|                  |                      | Air out temp. (°C-%HR) | 11,4-92   | 13,2-88,2 | 14,5-85,5 | 15,6-83,4 | 16,5-81,7 | 17,2-80,3 |
|                  | 27/50                | Power (kW)             | 25,4      | 37,7      | 48        | 56,6      | 64,1      | 70,8      |
|                  |                      | Air out temp. (°C-%HR) | 10,8-94,1 | 12,2-91,2 | 13,3-89,1 | 14,2-87,5 | 14,9-86,1 | 15,4-85   |
| 5                | 25/50                | Power (kW)             | 20,9      | 31,1      | 39,6      | 46,8      | 53        | 58,3      |
|                  |                      | Air out temp. (°C-%HR) | 10,4-94,3 | 11,7-91,5 | 12,6-89,4 | 13,3-87,7 | 14-86,4   | 14,5-85,3 |
|                  | 32/40                | Power (kW)             | 35        | 52,1      | 66,2      | 77,9      | 88,1      | 96,6      |
|                  |                      | Air out temp. (°C-%HR) | 9,8-91,5  | 11,8-87,7 | 13,4-85   | 14,6-82,9 | 15,6-81,2 | 16,4-79,9 |
| 40               | 27/50                | Power (kW)             | 29        | 43,1      | 54,9      | 64,9      | 73,2      | 80,6      |
|                  |                      | Air out temp. (°C-%HR) | 9,2-93,8  | 10,8-90,8 | 12,1-88,7 | 13-87     | 13,9-85,7 | 14,6-84,6 |
|                  | 25/50                | Power (kW)             | 24,6      | 36,5      | 46,6      | 54,9      | 62,4      | 68,7      |
|                  |                      | Air out temp. (°C-%HR) | 8,8-94    | 10,3-91,1 | 11,3-89   | 12,2-87,3 | 12,9-86   | 13,5-84,8 |
| 40               | 11                   | Power (kW)             | 25,9      | 40        | 52,5      | 63,7      | 74        | 83,4      |
|                  |                      | Air out temp. (°C)     | 36,8      | 34,9      | 33,4      | 32,1      | 31,1      | 30,2      |
|                  | 15                   | Power (kW)             | 22,3      | 34,4      | 45,1      | 54,8      | 63,5      | 71,6      |
|                  |                      | Air out temp. (°C)     | 37,2      | 35,6      | 34,3      | 33,2      | 32,2      | 31,5      |

Condensing temp. (°C)

**EXAECO® 17**



Air flow (m3/h)

# PERFORMANCE CHARACTERISTICS OF EXAECO 17 HEAT BATTERY

# EXAECO®



4

## H (ELITE)

## Electric battery

| Water temp. (°C/°C) | Air inlet temp. (°C) | Air flow (m³/h)                | 5000      | 8000      | 11000     | 14000     | 17000     |
|---------------------|----------------------|--------------------------------|-----------|-----------|-----------|-----------|-----------|
| 90/70               | 11                   | Power (kW)/Air out T. (°C)     | 109/75,9  | 157/69,4  | 197/64,4  | 231/60,4  | 262/57    |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 4790/5    | 6900/6    | 8670/10   | 10200/12  | 11600/15  |
|                     | 15                   | Power (kW)/Air out T. (°C)     | 103/76,2  | 147/70,1  | 185/65,3  | 218/61,4  | 246/58,3  |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 4520/4    | 6500/6    | 8160/9    | 9600/12   | 10900/13  |
| 80/60               | 11                   | Power (kW)/Air out T. (°C)     | 92,9/66,5 | 133/60,7  | 167/56,3  | 196/52,8  | 222/49,9  |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 4080/3    | 5850/5    | 7340/7    | 8610/10   | 9740/13   |
|                     | 15                   | Power (kW)/Air out T. (°C)     | 86,7/66,8 | 124/61,3  | 155/57,2  | 182/53,9  | 206/51,2  |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 3810/4    | 5450/6    | 6820/7    | 8010/9    | 9040/11   |
| 60/50               | 11                   | Power (kW)/Air out T. (°C)     | 68,3/51,8 | 98,7/47,9 | 124/77,8  | 146/42,2  | 166/40,2  |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 5970/5    | 8630/10   | 10900/14  | 12800/19  | 14500/24  |
|                     | 15                   | Power (kW)/Air out T. (°C)     | 62,2/52,2 | 89,7/48,5 | 113/45,6  | 133/43,3  | 151/41,1  |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 5440/6    | 7840/9    | 9860/12   | 11600/16  | 13200/20  |
| 45/40               | 11                   | Power (kW)/Air out T. (°C)     | 47,1/39,1 | 68/36,4   | 85,5/34,2 | 101/32,5  | 114/31    |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 8190/5    | 11800/10  | 14900/14  | 17500/14  | 19800/24  |
|                     | 15                   | Power (kW)/Air out T. (°C)     | 41/39,5   | 58,9/37   | 74/35,1   | 87,1/33,6 | 98,5/32,3 |
|                     |                      | Waterflow (l/h)/DP water (kPa) | 7130/5    | 10200/8   | 12900/12  | 15100/15  | 17100/18  |

## C-CO (ELITE)

## Cold and changeover battery

| Water temp. (°C/°C) | Inlet T air (°C-%HR) | Air flow (m³/h)                 | 5000           | 8000           | 11000          | 14000          | 17000          |
|---------------------|----------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| 7/12                | 32/40                | Power(kW)/AiroutT.(°C-%HR)      | 50,7/11,4-96   | 72,5/13,1-92,7 | 90,7/14,3-90   | 106/15,3-87,7  | 120/16,2-85,7  |
|                     |                      | Water flow (l/h)/DP water (kPa) | 8690/8         | 12400/13       | 15600/18       | 18300/24       | 20600/30       |
|                     | 27/50                | Power(kW)/AiroutT.(°C-%HR)      | 39,4/11,2-97,1 | 55,8/12,6-94,7 | 69,5/13,6-92,6 | 81,2/14,4-90,8 | 91,5/15-89,3   |
|                     |                      | Water flow (l/h)/DP water (kPa) | 6750/5         | 9570/10        | 11900/12       | 13900/16       | 15700/18       |
|                     | 25/50                | Power(kW)/AiroutT.(°C-%HR)      | 30,9/11,2-97,2 | 43,2/12,4-94,9 | 53,4/13,3-92,9 | 62,1/13,9-91,2 | 69,7/14,5-89,6 |
|                     |                      | Water flow (l/h)/DP water (kPa) | 5290/5         | 7410/6         | 9160/9         | 10700/10       | 12000/23       |
| 6/11                | 32/40                | Power(kW)/AiroutT.(°C-%HR)      | 54,2/10,5-95,8 | 77,8/12,3-92,6 | 97,7/13,6-89,8 | 115/14,7-87,4  | 130/15,5-85,4  |
|                     |                      | Water flow (l/h)/DP water (kPa) | 9290/9         | 13300 /15      | 16700/21       | 19700/28       | 22300/33       |
|                     | 27/50                | Power(kW)/AiroutT.(°C-%HR)      | 43,1/10,3-97   | 61,2/11,8-94,6 | 76,4/12,8-92,4 | 89,5/13,7-90,7 | 101/14,4-89,1  |
|                     |                      | Water flow (l/h)/DP water (kPa) | 7380/6         | 10500/10       | 13100/14       | 15400/19       | 17300/22       |
|                     | 25/50                | Power(kW)/AiroutT.(°C-%HR)      | 34,6/10,3-97,1 | 48,8/11,5-94,8 | 60,6/12,5-92,7 | 70,6/13,2-91   | 79,4/13,8-89,4 |
|                     |                      | Water flow (l/h)/DP water (kPa) | 5930/4         | 8370/7         | 10400/9        | 12100/12       | 13600/15       |
| 45/40               | 11                   | Power (kW)/Air out T. (°C)      | 49,1/40,3      | 71,7/37,8      | 91,1/35,7      | 108/34         | 123/32,6       |
|                     |                      | Water flow (l/h)/DP water (kPa) | 8530/4         | 12500/7        | 15800/9        | 18800/13       | 21400/16       |
|                     | 15                   | Power (kW)/Air out T. (°C)      | 42,8/40,5      | 62,3/38,3      | 79/36,4        | 93,6 /35       | 106/33,7       |
|                     |                      | Water flow (l/h)/DP water (kPa) | 7430/4         | 10800/6        | 13700/7        | 16300/10       | 18500/12       |

## DX-DXR with R410A (ELITE)

## Cold direct expansion battery alone and reversible

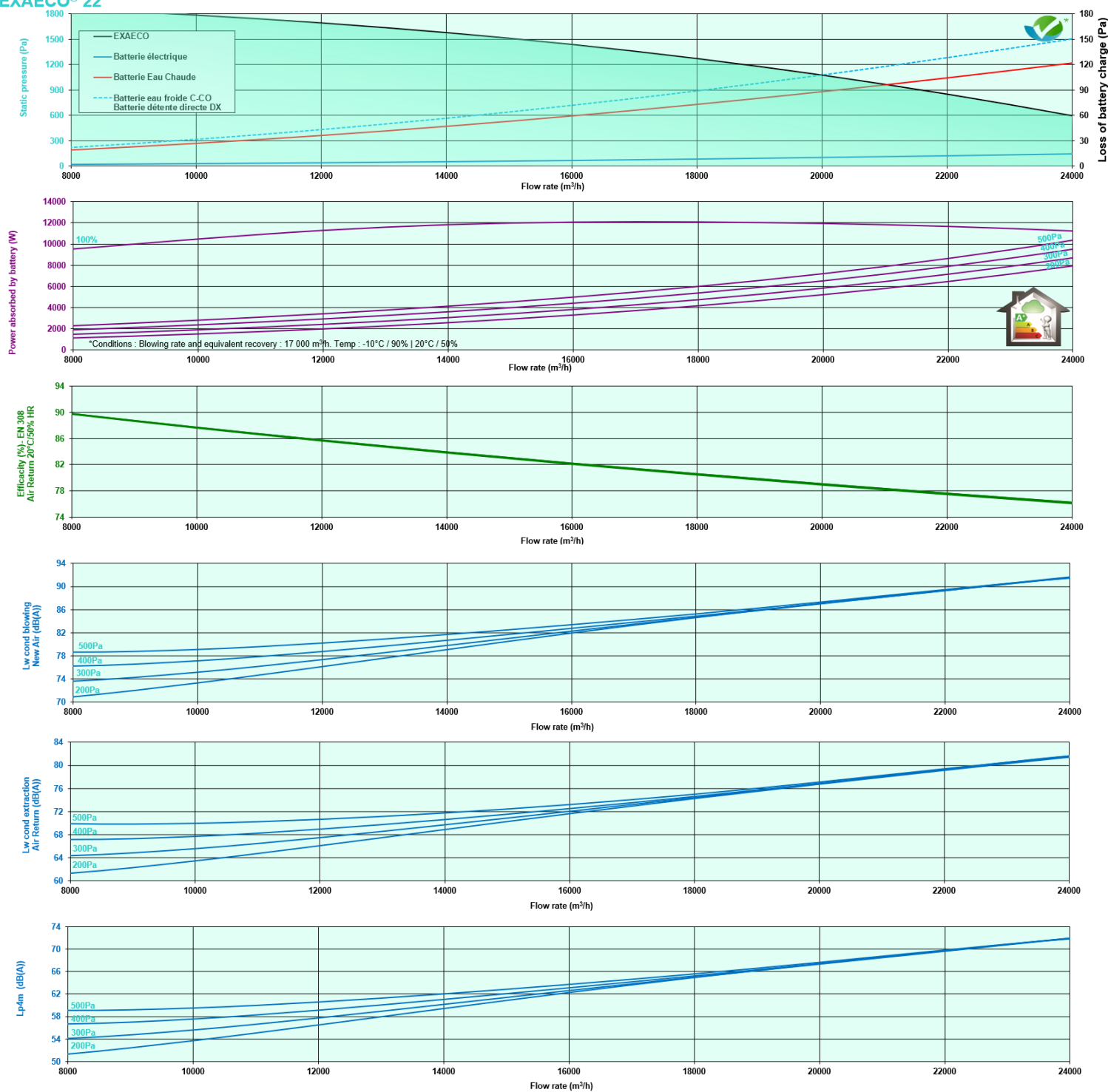
| Evap. Temp. (°C) | Inlet T air (°C-%HR) | Air flow (m³/h)        | 5000      | 8000      | 11000     | 14000     | 17000     |
|------------------|----------------------|------------------------|-----------|-----------|-----------|-----------|-----------|
| 7                | 32/40                | Power (kW)             | 48,9      | 69,9      | 87,5      | 102       | 115       |
|                  |                      | Air out temp. (°C-%HR) | 12,5-89,7 | 14,2-85,9 | 15,4-83,2 | 16,4-81,1 | 17,2-79,5 |
|                  | 27/50                | Power (kW)             | 39,3      | 56        | 70        | 81,9      | 92,6      |
|                  |                      | Air out temp. (°C-%HR) | 11,7-92,4 | 13,1-89,5 | 14,1-87,3 | 14,9-85,7 | 15,5-84,3 |
|                  | 25/50                | Power (kW)             | 32,2      | 45,8      | 57        | 66,9      | 75,2      |
|                  |                      | Air out temp. (°C-%HR) | 11,3-92,6 | 12,5-89,9 | 13,4-87,7 | 14-86     | 14,6-84,7 |
| 5                | 32/40                | Power (kW)             | 54,9      | 78,4      | 98,5      | 115       | 129       |
|                  |                      | Air out temp. (°C-%HR) | 10,9-89,2 | 12,9-85,3 | 14,2-82,6 | 15,4-80,6 | 16,3-78,9 |
|                  | 27/50                | Power (kW)             | 45,4      | 64,6      | 80,9      | 95        | 107       |
|                  |                      | Air out temp. (°C-%HR) | 10,1-92   | 11,7-89   | 12,9-86,9 | 13,8-85,2 | 14,5-83,9 |
|                  | 25/50                | Power (kW)             | 38,1      | 54,4      | 67,9      | 79,6      | 90        |
|                  |                      | Air out temp. (°C-%HR) | 9,7-92,2  | 11,1-89,3 | 12,1-87,2 | 12,9-85,5 | 13,6-84,2 |
| 40               | 11                   | Power (kW)             | 41,1      | 60,4      | 77,3      | 92,3      | 106       |
|                  |                      | Air out temp. (°C)     | 35,6      | 33,6      | 32        | 30,7      | 29,6      |
|                  | 15                   | Power (kW)             | 35,4      | 51,9      | 66,4      | 79,2      | 90,8      |
|                  |                      | Air out temp. (°C)     | 36,1      | 34,4      | 33        | 31,9      | 30,9      |

Condensing temp. (°C)

P221



**EXAECO® 22**



Air flow (m3/h)

# PERFORMANCE CHARACTERISTICS OF EXAECO22 HEAT BATTERY

# EXAECO®



4

## H (ELITE)

## Electric battery

| Water Air inlet<br>temp. temp.<br>(°C/°C) (°C) |    | Air flow (m³/h)                 | 6000      | 10000     | 14000     | 18000    | 22000    |
|------------------------------------------------|----|---------------------------------|-----------|-----------|-----------|----------|----------|
| 90/70                                          | 11 | Power (kW)/Air out T. (°C)      | 131/76,2  | 195/69,1  | 247/63,7  | 292/59,5 | 332/56   |
|                                                |    | Water flow (l/h)/DP water (kPa) | 5770/4    | 8570/9    | 10900/12  | 12900/17 | 14600/21 |
|                                                | 15 | Power (kW)/Air out T. (°C)      | 124/76,5  | 183/69,8  | 233/64,6  | 275/60,6 | 312/57,3 |
|                                                |    | Water flow (l/h)/DP water (kPa) | 5450/5    | 8080/8    | 10300/11  | 12100/15 | 13700/19 |
| 80/60                                          | 11 | Power (kW)/Air out T. (°C)      | 112/66,8  | 166/60,5  | 210/55,8  | 248/52,1 | 281/49,1 |
|                                                |    | Water flow (l/h)/DP water (kPa) | 4920/5    | 7280/7    | 9220/11   | 10900/13 | 12300/16 |
|                                                | 15 | Power (kW)/Air out T. (°C)      | 105/67,1  | 154/61,1  | 195/56,7  | 230/53,2 | 261/50,4 |
|                                                |    | Water flow (l/h)/DP water (kPa) | 4590/4    | 6780/6    | 8580/9    | 10100/11 | 11500/14 |
| 60/50                                          | 11 | Power (kW)/Air out T. (°C)      | 82,3/52   | 123/47,7  | 156/44,3  | 185/41,7 | 210/39,5 |
|                                                |    | Water flow (l/h)/DP water (kPa) | 7190/7    | 10700/13  | 13700/20  | 16200/26 | 18400/32 |
|                                                | 15 | Power (kW)/Air out T. (°C)      | 75/52,3   | 112/48,3  | 142/45,3  | 168/42,8 | 191/40,9 |
|                                                |    | Water flow (l/h)/DP water (kPa) | 6550/6    | 9750/11   | 12400/17  | 14700/22 | 16700/27 |
| 45/40                                          | 11 | Power (kW)/Air out T. (°C)      | 56,8/39,3 | 84,5/36,2 | 108/33,9  | 127/32,1 | 144/30,6 |
|                                                |    | Water flow (l/h)/DP water (kPa) | 9870/7    | 14700/13  | 18700/20  | 22100/26 | 25100/32 |
|                                                | 15 | Power (kW)/Air out T. (°C)      | 49,4/39,6 | 73,3/36,9 | 93,2/34,9 | 110/33,3 | 125/31,9 |
|                                                |    | Water flow (l/h)/DP water (kPa) | 8600/5    | 12700/11  | 16200/15  | 19100/21 | 21700/25 |

## C-CO (ELITE)

## Cold and changeover battery

| Water Inlet T<br>temp. air<br>(°C/°C) (°C-%HR) |       | Air flow (m³/h)                 | 6000           | 10000          | 14000          | 18000          | 22000         |
|------------------------------------------------|-------|---------------------------------|----------------|----------------|----------------|----------------|---------------|
| 7/12                                           | 32/40 | Power (kW)/Air out T. (°C-%HR)  | 61,4/11,3-96   | 90,7/13,1-92,4 | 115/14,4-89,4  | 136/15,5-87    | 154/16,4-84,9 |
|                                                |       | Water flow (l/h)/DP water (kPa) | 10500/9        | 15600/16       | 19700/25       | 23200/32       | 26300/40      |
|                                                | 27/50 | Power (kW)/Air out T. (°C-%HR)  | 48/11,1-97,1   | 70/12,6-94,4   | 88,2/13,7-92,2 | 104/14,5-90,3  | 117/15,2-88,7 |
|                                                |       | Water flow (l/h)/DP water (kPa) | 8230/7         | 12000/11       | 15100/17       | 17800/21       | 20100/26      |
| 6/11                                           | 25/50 | Power (kW)/Air out T. (°C-%HR)  | 37,7/11,1-97,2 | 54,4/12,4-94,7 | 68,1/13,3-92,5 | 79,6/14-90,6   | 89,6/14,6-89  |
|                                                |       | Water flow (l/h)/DP water (kPa) | 6460/4         | 9330/8         | 11700/11       | 13700/14       | 15400/17      |
|                                                | 32/40 | Power (kW)/Air out T. (°C-%HR)  | 65,7/10,4-95,8 | 97,4/12,3-92,2 | 124/13,7-89,2  | 146/14,8-86,7  | 166/15,8-84,6 |
|                                                |       | Water flow (l/h)/DP water (kPa) | 11300/10       | 16700/19       | 21200/29       | 25100/37       | 28400/46      |
| 45/40                                          | 27/50 | Power (kW)/Air out T. (°C-%HR)  | 52,3/10,2-97   | 76,8/11,8-94,3 | 97/12,9-92     | 114/13,8-90,1  | 129/14,6-88,5 |
|                                                |       | Water flow (l/h)/DP water (kPa) | 8970/8         | 13200/13       | 16600/19       | 19600/25       | 22100/30      |
|                                                | 25/50 | Power (kW)/Air out T. (°C-%HR)  | 42,2/10,1-97,1 | 61,4/11,5-94,5 | 77,1/12,5-92,3 | 90,2/13,3-90,4 | 102/13,9-88,8 |
|                                                |       | Water flow (l/h)/DP water (kPa) | 7230/5         | 10500/9        | 13200/13       | 15470/16       | 17500/20      |
| 45/40                                          | 11    | Power (kW)/Air out T. (°C)      | 59,1/40,4      | 89,3/37,7      | 115/35,5       | 137/33,7       | 156/32,2      |
|                                                |       | Water flow (l/h)/DP water (kPa) | 10300/5        | 15500/8        | 19900/13       | 23800/17       | 27100/21      |
|                                                | 15    | Power (kW)/Air out T. (°C)      | 51,5/40,7      | 77,6/38,2      | 99,5/36,2      | 118/34,6       | 135/33,3      |
|                                                |       | Water flow (l/h)/DP water (kPa) | 8960/4         | 13500/8        | 17300/10       | 20600/14       | 23500/16      |

## DX-DXR with R410A (ELITE)

## Cold direct expansion battery alone and reversible

| Evap. Inlet T<br>Temp. air<br>(°C) (°C-%HR) |       | Air flow (m³/h)        | 6000      | 10000     | 14000     | 18000     | 22000     |
|---------------------------------------------|-------|------------------------|-----------|-----------|-----------|-----------|-----------|
| 7                                           | 32/40 | Power (kW)             | 58,6      | 85,9      | 108       | 127       | 143       |
|                                             |       | Air out temp. (°C-%HR) | 12,5-89,5 | 14,4-95,3 | 15,8-82,4 | 16,8-80,3 | 17,7-78,6 |
|                                             | 27/50 | Power (kW)             | 47,2      | 68,7      | 86,5      | 101       | 115       |
|                                             |       | Air out temp. (°C-%HR) | 11,7-92,2 | 13,3-89   | 14,4-86,8 | 15,2-85   | 15,9-83,6 |
|                                             | 25/50 | Power (kW)             | 38,6      | 56,3      | 70,8      | 83,1      | 93,4      |
|                                             |       | Air out temp. (°C-%HR) | 11,3-92,5 | 12,6-89,3 | 13,6-87,1 | 14,3-85,3 | 14,9-84   |
| 5                                           | 32/40 | Power (kW)             | 65,7      | 96,3      | 121       | 142       | 160       |
|                                             |       | Air out temp. (°C-%HR) | 11-88,9   | 13,1-84,7 | 14,7-81,9 | 15,9-79,7 | 16,8-78,1 |
|                                             | 27/50 | Power (kW)             | 54,1      | 79,4      | 100       | 117       | 132       |
|                                             |       | Air out temp. (°C-%HR) | 10,2-91,8 | 12-88,5   | 13,2-86,3 | 14,2-84,6 | 15-83,2   |
|                                             | 25/50 | Power (kW)             | 45,7      | 66,8      | 84        | 98,6      | 111       |
|                                             |       | Air out temp. (°C-%HR) | 9,7-92,1  | 11,3-88,8 | 12,4-86,6 | 13,3-84,9 | 14-83,5   |
| 40                                          | 11    | Power (kW)             | 49,2      | 74,5      | 96,3      | 116       | 133       |
|                                             |       | Air out temp. (°C)     | 35,5      | 33,3      | 31,5      | 30,2      | 29        |
|                                             | 15    | Power (kW)             | 42,3      | 64        | 82,7      | 99,2      | 114       |
|                                             |       | Air out temp. (°C)     | 36        | 34,1      | 32,6      | 31,5      | 30,5      |

Condensing temp. (°C)

P223