



## AQUACIAT™ LD ILD

Water chillers  
Heat pump



Unit with protection grille option

### *Compact and silent*

*Scroll compressors*

*High-efficiency brazed-plate heat exchanger*

*All-aluminium micro-channel condenser*

*Self-adjusting electronic control*

*Cooling capacity, LD: 40 to 160 kW*

*Cooling capacity, ILD: 40 to 150 kW*

*Heating capacity, ILD: 40 to 150 kW*



Cooling only



Cooling and heating



Hydronic module



Heat recovery

R-32 

## USE

The new generation of **AQUACIAT** high-efficiency air-to-water heat pumps and water chillers offers an optimal solution for all heating and cooling applications used for the Healthcare, Office, and Hotel sectors.

These units are designed for outdoor installation and require no special protection against adverse weather conditions.

**AQUACIAT** is optimised for R-32, the environmentally-responsible fluid with the lowest GWP.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SEER and SCOP) and CO<sub>2</sub> reduction to comply with the various applicable European directives and regulations.

### ■ Self-regulating operation to adapt to seasonal variations and requirements

With exceptional SEER and SCOP seasonal energy efficiency levels, the **AQUACIAT** range offers the best technology combined with savings throughout the year.

Due to climatic variations and the different air-conditioning needs of tertiary buildings, most of the time water chillers and heat pumps run at partial load.

Equipped with multiple compressors, **AQUACIAT** units automatically adjust cooling capacity, anticipating variations in load and starting only the number of compressors needed to ensure optimum operation and energy efficiency.

Thanks to their exceptional thermodynamic performance, provided by radical selection of components, an electronic expansion valve as standard, and a specific control function, standard **AQUACIAT** units reach a high level of seasonal efficiency in cooling mode (SEER) and in heating mode (SCOP).

### ■ Acoustic comfort

With different levels of sound equipment available, the **AQUACIAT** range guarantees the acoustic comfort of occupants and meets the most sensitive environmental requirements as is the case in Hotels, Offices and Hospitals.

## Use

### ■ Quick, simple installation

With a wide variety of connection accessories and equipment, the **AQUACIAT** range is quick and simple to install.

The advanced controller functions and different communication protocols enable local control via CMS/BMS or remote control, providing building management with peace of mind.



OFFICES



HOTELS



HEALTHCARE

## GLOBAL SYSTEM SOLUTIONS



As an expert on customised HVAC solutions, CIAT works to improve the well-being of individuals in their living areas or places of work. Aware of the thermal, energy and air quality issues faced today by every sector of activity, CIAT has responded by developing global systems based on an adapted and efficient combination of products. The latest-generation **AQUACIAT** with a low environmental footprint is part of our sustainable development process.

### ■ Global energy systems based on the water loop for heating, cooling and indoor air quality

To comply with today's thermal and environmental regulations, CIAT designs optimised water loop energy systems comprised of comfort units, heat pumps such as **AQUACIAT** and dual-flow air handling units. As a renewable resource and a highly effective heat-transfer fluid, water not only represents an excellent alternative to direct expansion systems, it also meets F-Gas regulations in terms of confinement and limitation of refrigerants within buildings.

### ■ Benefits of the water loop

- **More competitive:** Equipment that is more cost effective and requires less maintenance than direct expansion systems.
- **Greater comfort:** Flexible, precise control of occupant comfort.
- **Greater energy efficiency:** The homogeneity and the thermal stability of water reduce the energy requirements for transferring heat.
- **Environmentally sustainable:** No refrigerant is required on the premises and only a small amount is used in the heat pump installed outside the building's occupied spaces.
- **Easy to install:** No refrigerant specialists are required during installation.
- **Flexibility:** A water loop energy system adapts easily to the configuration of buildings and the changes that may be made to spaces over time.



## RANGE

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### ■ AQUACIAT LD/ILD series

In the **LD** water chiller & **ILD** standard reversible heat pump versions, **AQUACIAT** units are optimised to meet the most demanding technical and economic requirements.

### ■ Operation at high outdoor temperatures (options)

In this configuration, the **AQUACIAT** unit is optimised to operate at outdoor temperatures of +46°C in cooling mode. In this case, the machine is equipped with high-flow variable-speed fans, enabling a wider range of application while preserving the noise level under nominal outdoor conditions.

### ■ XtraLow Noise Units (option)

In this configuration, the compressors of the **AQUACIAT** unit are covered with a soundproofing jacket, the control of the variable-speed fans ensures the lowest noise level in all circumstances while preserving energy performance.

### ■ All-season operation (options)

In this configuration, the **AQUACIAT** unit is equipped with variable-speed fans and configured for optimal operation down to outdoor temperatures of -20°C in cooling mode.

## DESCRIPTION

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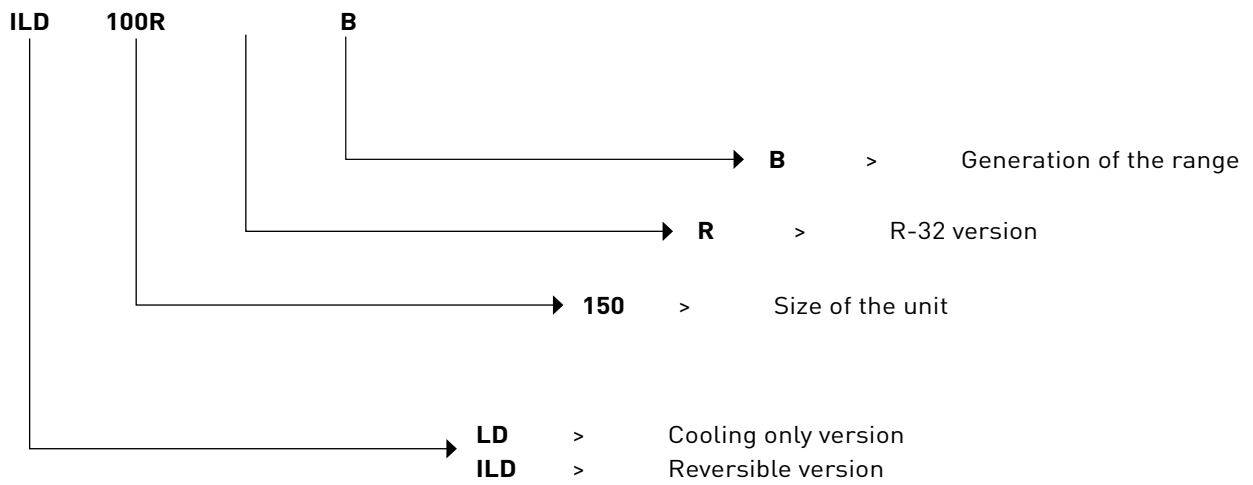
**AQUACIAT** units are packaged machines supplied as standard with the following components:

- Hermetic SCROLL compressors
- Brazed-plate condenser or evaporator water type heat exchanger
- All-aluminium micro-channel condenser (LD) or evaporator air-cooled exchanger, copper tube coil with aluminium fins (ILD) and axial fan motor assembly
- Electrical power and remote control cabinet:
  - 400V-3ph-50 Hz (+/-10%) mains power supply + earth
  - Transformer fitted as standard on the machine for supplying the remote control circuit with 24 V
- Connect Touch electronic control module
- Casing for outdoor installation

The entire **AQUACIAT** range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC.
  - Electromagnetic compatibility directive 2014/30/EC
  - Safety of machinery: Electrical equipment of machines EN 60204-1
  - EMC immunity and emissions EN 61800-3 'C3'
  - Regulation (EC) No. 1907/2006 REACH
- Pressure equipment directive (PED) 2014/68/EU
- Refrigerating systems and heat pumps EN 378-2
  - Regulation (EU) No. 813/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements (Heat pump)
  - Regulation (EU) No. 2016/2281 implementing Directive 2009/125/EC with regard to ecodesign requirements (Comfort Chiller and High Temperature Process Chiller)
  - Regulation (EU) No. 2015/1095 implementing Directive 2009/125/EC with regard to ecodesign requirements (Low and Medium Temperature Process Chiller)

## DESCRIPTION



## CONFIGURATION

LD-ILD	Standard version
LD-ILD, XLN option	Xtra Low Noise version



## CUSTOMER BENEFITS

### Environmental responsibility

We are committed to meeting your strictest environmental requirements.

We focus our energies on making our products ever more efficient and environmentally friendly.

**AQUACIAT** exceeds the requirements of the 2021 Ecodesign regulations.



### Simplicity

To save you time, we guarantee easy installation and integration in the building management system.

- No machine room required for the pumps and other accessories thanks to the hydronic module option available across the entire range.
- Optimum use of the surface area for easy integration into an existing building.
- Quick, easy installation and commissioning.
- Single-unit solution for quick commissioning and reliable installation.
- Communication with all types of building management system (BMS) via Modbus protocol available as standard, or optional LON or BACNET protocols.



### User comfort

We guarantee acoustic comfort for your users.

Thanks to our low-noise fans installed as standard and the noise-reducing technologies integrated in the new **AQUACIAT** range, we guarantee the level of acoustic comfort which meets your user requirements.

Our optional variable-speed fans reduce the noise level at partial load (night, mid-season, etc.).



#### XTRA LOW NOISE LEVEL

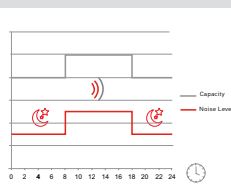
-9 dB(A)

Compressors and all noise-generating components equipped with reinforced noise insulation

#### NIGHT MODE



Sound level reduction



### Reliability

We use state-of-the-art monitoring solutions to guarantee complete reliability for your equipment.

**ABOUND HVAC Performance** lets you track and monitor your CIAT equipment.

- Data extraction in real time via customised access to the **ABOUND HVAC Performance** website (controller dashboard, temperature/event curve, fault memory and alerts and parameter history).
- Email alerts for equipment incidents.
- Monthly and annual reports with analysis and recommendations from CIAT experts



### Energy savings

We develop solutions to enable substantial savings while protecting the environment and guaranteeing user comfort.

The partial heat recovery option allows additional hot water to be produced free of charge and at a higher temperature. This hot water can be used to prepare domestic hot water for heating swimming pools, spas and hot tubs.



100 % Chilled or hot water production



25 % Domestic hot water production

## DESCRIPTION OF THE MAIN COMPONENTS

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### ■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase resistance (**AQUACIAT ILD**)
- Mounted on anti-vibration mounts

### ■ Water type heat exchanger

- Brazed-plate exchanger
- Condenser or evaporator mode exchanger on the reversible heat pump version
- Plate profile for high-performance optimisation
- 19-mm armaxflex thermal insulation
- Frost protection with heater

### ■ Air-cooled exchanger

- Air-cooled exchanger:
  - All-aluminium micro-channel coil, cooling only version
  - Copper tube coil with aluminium fins, reversible heat pump version
- Condenser or evaporator mode exchanger on the reversible heat pump version
- Propeller fans with composite blades offering an optimised profile, fixed-speed as standard or variable-speed as an option
- Motors – IP 54, class F

### ■ Refrigerant accessories

- Dehumidifier filters
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line
- 4-way cycle inversion valves in cooling/heating mode on the reversible heat pump version

### ■ Regulation and safety instruments

- Low and high pressure sensors
- Relief valves on the refrigerant circuit
- Water temperature control sensors
- Evaporator antifreeze sensor
- Factory-fitted evaporator water flow controller

### ■ Electrical cabinet

- Electrical cabinet with IP 44 protection rating
- A connection point without neutral
- Front-mounted main safety switch with handle
- Control circuit transformer
- 24 V control circuit
- Fan and compressor motor circuit breaker
- Fan and compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components

### ■ Frame

Frame made from RAL7035 light grey & RAL 7024 graphite grey painted panels.

### ■ Connect Touch control module

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 6 languages (F-GB-D-E-I-NL)



## DESCRIPTION OF THE MAIN COMPONENTS

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The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and runtime balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Frost protection (exchanger heaters)
- Compressors phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump runtime balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnostics of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Lead/Lag management of the two machines in parallel with runtime balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

### ■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP as an option, enabling most CMS/BMS to be integrated.

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

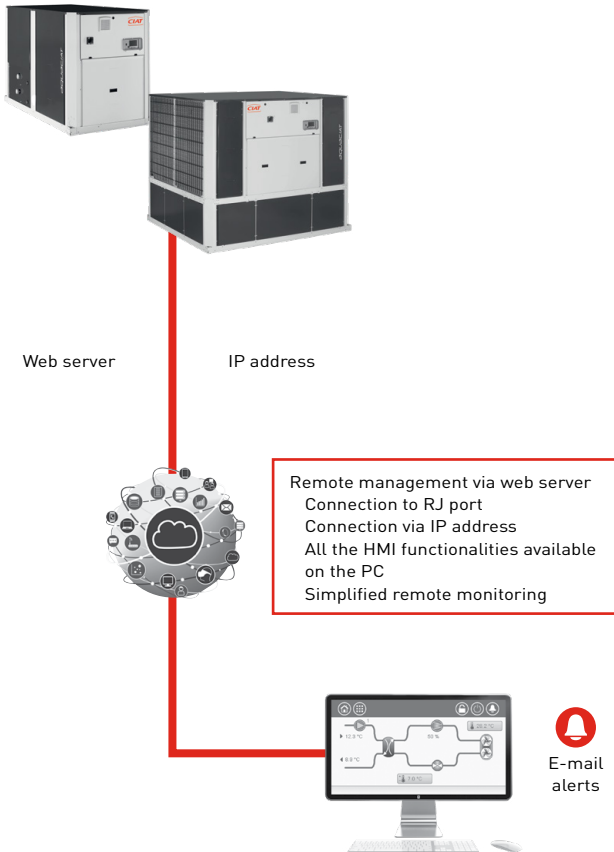
- Automatic operation control: When this contact is open, the machine stops
- Heating/cooling operating mode selection
- Setpoint 1/setpoint 2 selector: When this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: Closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: This contact indicates the presence of a major fault which has caused one or both refrigerant circuits to stop
- Operational status reporting indicates that the unit is in production mode.
- Activation control for partial energy recovery using the desuperheater
- Switch control for the customer pump, external to the machine (on/off).
- 0-10V output available for control of a variable flow pump (unit without hydronic module)



## DESCRIPTION OF THE MAIN COMPONENTS

Contacts available as an option:

- Setpoint adjustable via 4-20 mA signal: This input is used to adjust the setpoint in COOLING mode
- On/off control for a boiler
- 4-stage on/off management for additional heaters.



### ■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.

- The scheduled maintenance reminder: When activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- The compulsory F-GAS sealing test maintenance reminder: When activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, based on the unit's refrigerant charge, in compliance with the F-GAS regulations

### ■ SGR Ready

- Heat pump **AQUACIAT ILD** are SGR ready certified, standardized and secured label for integration on the smart electrical networks.





## ENVIRONMENTAL RESPONSIBILITY

The **AQUACIAT** contributes to sustainable development via an environmentally responsible approach, aimed at balancing ecological and economic concerns. This enables it to meet the requirements of future European thermal regulations and to protect our environment for future generations.

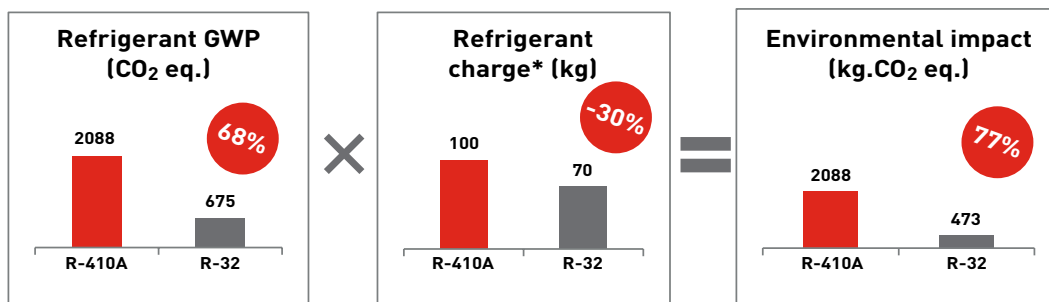
The impact of an air conditioning system on global warming of the planet is in large part caused by CO<sub>2</sub> emissions released into the atmosphere when the electricity required to power the unit is produced (indirect effect) and in small part by CO<sub>2</sub> emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (direct effect).

With **AQUACIAT**, it's a win-win situation: Its low charge of R-32 refrigerant with low GWP reduces the direct environmental impact by 80% while reducing the indirect environmental impact thanks to its high energy performance.

### ■ 77% reduction in the direct environmental impact (refrigerant)

This performance is the result of the high-quality components used, which have all been rigorously selected:

- R-32 refrigerant with low environmental impact (Ozone depletion potential =0, Global warming potential =675)
- Aluminium micro-channel coil on LD chiller versions with a 40% reduction in refrigerant charge compared to a conventional coil
- New generation of copper tube coil-aluminium fins on ILD heat pump versions with a 30% reduction in refrigerant charge compared to a conventional coil
- Asymmetrical brazed-plate heat exchanger (BPHE) with a reduction in the refrigerant charge compared to a shell and tube heat exchanger
- Systematic tightness check of units in leak detection cabinets at end of line production



**In conclusion, the direct environmental impact potential of the AQUACIAT with R-32 refrigerant is reduced by 77% compared to the previous R-410A generation.**

## ENVIRONMENTAL RESPONSIBILITY

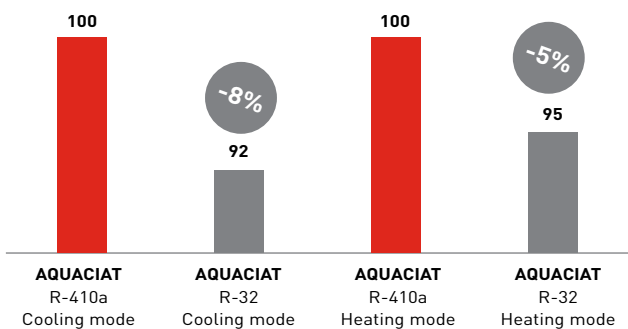
### ■ Reduced indirect environmental impact (Energy)

The high energy performance offered by **AQUACIAT R-32** enables energy consumption to be greatly reduced, thereby cutting energy bills for the user whilst reducing the unit's carbon footprint.

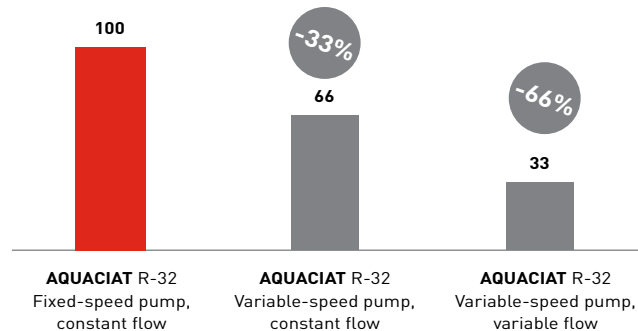
The seasonal efficiency of the **AQUACIAT R-32** in cooling mode is 8% greater than that of the previous version with R-410A and 5% greater in heating mode.

In addition, the **AQUACIAT** unit with R-32 refrigerant can be equipped with a variable-speed pump with constant or variable water flow control to significantly reduce pumping energy costs.

**Energy consumption level during operation (kWh index)**



**Pump energy consumption (kWh index)**



This performance is the result of the high-quality components used, which have all been rigorously selected:

- R-32 refrigerant with high energy performance,
- New generation of scroll compressors optimised for R-32 refrigerant
- Asymmetrical brazed-plate heat exchanger with extremely low water-side pressure drops enabling a reduction in pump electricity consumption
- Optional variable-speed pump enabling automatic adjustment of the rated water flow rate (disposal of the control valve), during operation and during unit shut down periods.

**To conclude, the AQUACIAT unit with R-32 refrigerant and variable-speed pump greatly reduces the indirect environmental impact compared to the previous generation R-410A.**

### ■ EcoPassport®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to report the environmental specifications of their products in the form of an environmental claim known as a Product Environmental Profile (PEP).

The PEP ecopassport® programme guarantees that PEPs are correctly drawn up, verified and reported in line with the requirements of the ISO 14025 and IEC/PAS 62545 standards.

The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to eight mandatory indicators:

1. Global Warming Potential
2. Impact on the ozone layer
3. Acidification of soil and water
4. Eutrophication of water
5. Photochemical ozone creation
6. Abiotic resource depletion
7. Fresh water consumption
8. Total use of primary energy during the life cycle



Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM, LEED. BREEAM, LEED gives additional recognition for materials with robust environmental product declaration types using manufacturer data.

CIAT is the first HVAC manufacturer to provide the PEP for liquid chillers and heat pumps including not only the 8 mandatory indicators, but all 27 indicators.

The **AQUACIAT** PEP can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org/fr/>

## AVAILABLE OPTIONS

Options	Description	Advantages	AQUACIAT LD	AQUACIAT ILD
Corrosion protection, traditional coils	Fins made of pre-treated aluminum by chemical conversion	Improved corrosion resistance, recommended for moderate marine and urban environments	No	•
Low-temperature brine solution	Low temperature chilled water production down to -8°C with ethylene or propylene glycol	Covers specific applications such as ice storage and industrial processes	•	According sizes
XtraFan	Unit equipped with specific variable-speed fans: XtraFans (See specific chapter for maximum available static pressure according to size), each fan equipped with a connection flange and flexible sleeves	Ducted fan discharge, optimised temperature control, based on the operating conditions and system characteristics	•	•
Return air connection frame	Unit equipped with a connection frame at the heat exchange coil inlet	Facilitates channelling of the air at the unit inlet.	•	•
Xtra Low Noise	Acoustic compressor enclosure and low-speed fans	Noise emission reduction at reduced fan speed	•	•
High ambient temperature	Unit equipped with a higher speed fan	Unit operating range extended to higher ambient temperatures	•	•
EC fans	Unit equipped with EC fans	Improves the unit's energy efficiency	•	•
Protection grilles	Metallic protection grilles	Coil protection against possible impact	•	•
Air filter and return air connection frame	Unit equipped with a connection frame at the heat exchange coil inlet and G2 efficiency washable filter in accordance with EN 779	Facilitates channelling of the air at the unit inlet and protects the air exchanger against pollution	•	•
Electronic starter per compressor	Electronic starter on each compressor	Reduced start-up current	•	•
All year round cooling operation down to -20°C	Fanspeed control via frequency converter	Stable unit operation when the outdoor air temperature is between -10°C and -20°C	•	•
Water exchanger frost protection	Electric heater on the water exchanger and the water piping	Water exchanger module frost protection between 0°C and -20°C outside air temperature	•	•
Hydronic module antifreeze protection	Electric heater on the hydronic module	Antifreeze protection of the hydronic module for outdoor temperatures down to -20°C	•	•
Exchanger and hydronic module antifreeze protection	Electric heaters on the water heat exchanger, water pipes, hydronic module, optional expansion tank and buffer tank	Water type heat exchanger and hydronic module frost protection down to an outdoor air temperature of -20°C	•	•
Partial heat recovery	Unit equipped with one desuperheater on each refrigerant circuit	Production of free high-temperature hot-water simultaneously with chilled water production (or hot water for heat pump)	•	•
Lead/Lag operation	Unit equipped with supplementary water outlet temperature sensor kit to be field installed allowing Lead/Lag operation of two units connected in parallel	Optimised operation of two units connected in parallel operation with operating time equalisation	•	•
Evaporator single HP pump	High pressure fixed-speed water pump, drain valve, air vent and pressure sensors. (optional expansion tank and built-in safety hydraulic components available)	Quick and easy installation (plug & play)	•	•
Evaporator dual HP pump	Dual high pressure fixed-speed water pump, pressure sensors.(optional expansion tank and built-in hydraulic safety components available)	Quick and easy installation (plug & play)	•	•
Variable-speed single HP pump	Single low pressure water pump, water filter, electronic water flow control, pressure sensors.Multiple variable water flow control options (optional expansion tank and built-in hydraulic safety components available)	Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control.	•	•

• ALL MODELS

(1) Standard equipment on ILD version

Refer to the selection tool to find out which options are not compatible.

## AVAILABLE OPTIONS

Options	Description	Advantages	AQUACIAT LD	AQUACIAT ILD
Variable-speed dual high pressure pump	Dual high pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. For more details, refer to the dedicated section.	Quick and easy installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability	•	•
Variable-speed single LP pump	Single low pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. (optional expansion tank and built-in hydraulic safety components available)	Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control.	•	•
Variable-speed dual LP pump	Evaporator hydronic module equipped with a variable-speed low pressure pump, a drain valve, an air vent and pressure sensors. For more details, refer to the dedicated section (expansion tank not included; option with built-in hydraulic safety components available)	Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control.	•	•
Evaporator single LP pump	Single low pressure fixed-speed water pump, pressure sensors. (optional expansion tank and built-in hydraulic safety components available)	Quick and easy installation (plug & play)	•	•
Dual LP pump hydronic module	Dual low pressure water pump, water filter, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components)	Quick and easy installation (plug & play)	•	•
Heating Optimized	Specific configuration to optimized heating mode	Enlarge operating map in heating mode, and increase energetics performances (COP/ SCOP)	No	•
Lon gateway	Bidirectional communication board using LonTalk protocol	Connects the unit by communication bus to a centralised building management system	•	•
Bacnet over IP	Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)	Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters	•	•
Refrigerant leak detector	Unit equipped with refrigerant leak detector	Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions	•	•
External boiler management	Control board factory-installed on the unit to control a boiler	Extended remote control capabilities to a boiler on/off command. Permits easy control of a basic heating system	No	•
Electric heaters management	Control board factory-installed on the unit with additional inputs/outputs in order to manage up to 4 external heating stages (electrical heaters...)	Extended remote control capabilities to up to 4 electrics heaters. Permits easy control of a basic heating system	No	•
Smart Grid Ready	Standardized and secured label for integration on the smart electrical networks (DE, AUT, CH).	Optimizing the energy efficiency of the installation and helping to reduce the carbon footprint	No	•
Input contact for Refrigerant leak detection	0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)	Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions	•	•
Compliance with Russian regulations	EAC certification	Compliance with Russian regulations	•	•
Insulation of the evap. in/out ref. lines	Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation	Prevents condensation on the evaporator entering/leaving refrigerant lines	•	•
MCHE anti-corrosion protection Protect2	Coating by conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. Minimal heat transfer variation, salt spray resistance test for 4000 hours (ASTM B117) [or equivalent]	Protect2 Improved corrosion resistance of the MCHE coils by 2, recommended for use in moderately corrosive environments	•	No

• ALL MODELS

[1] Standard equipment on ILD version

Refer to the selection tool to find out which options are not compatible.

## AVAILABLE OPTIONS

Options	Description	Advantages	AQUACIAT LD	AQUACIAT ILD
MCHE anti-corrosion protection Protect4	Extremely durable and flexible epoxy polymer coating applied on micro channel coils by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117 (or equivalent), superior impact resistance per ASTM D2794 (or equivalent)	Protect4 Improved corrosion resistance of the MCHE coils by 4, recommended for use in extremely corrosive environments	•	No
Evaporator screw connection sleeves (kit)	Evaporator inlet/outlet screw connection sleeves	Allows unit connection to a screw connector	•	•
Reinforced ECM filtration for fan VFD	Pump variable frequency drive compliant with IEC 61800-3 class C1	Allows unit installation in domestic residential environment by reducing electromagnetic interferences	•	•
Reinforced ECM filtration for pump VFD	Pump variable frequency drive compliant with IEC 61800-3 class C1	Allows unit installation in domestic residential environment by reducing electromagnetic interferences	•	•
Expansion tank	6 bar expansion tank integrated in the hydronic module (requires hydronic module option)	Easy and fast installation (plug & play), & protection of closed water systems from excessive pressure	•	•
Water buffer tank module	Integrate water buffer tank	Avoid short cycle on compressors and ensure a stable water in the loop	•	•
Water buffer tank module with 16,31,45kW electrical backup	Integrates a water buffer tank module with a 16,31,45kW auxiliary heater	The tank avoids short cycles on the compressors and ensures the water in the loop is stable. The auxiliary heater provides additional or backup heating in heating mode.	No	•
Anti-vibration mounts	Elastomer anti-vibration mounts to be placed under the unit (material classified as fire class B2 according to DIN 4102).	Isolate the unit from the building, prevent the transmission of vibrations and associated noise to the building. Must be used in conjunction with a flexible connection on the water side	•	•
Exchangers flexible coupling connection	Heat exchanger flexible connections, water side	Easy to install. Limits the transmission of vibrations to the water network	•	•
Exchanger water filter	Water filter	Prevents dust entering the water network	•	•
Dry cooler management, free cooling mode	Regulation and connections for a 09PE or 09VE free cooling Dry cooler unit equipped with a control box with FC option	Easy system management, control capacity extended to a Dry cooler used in free cooling mode	•	No
Installation or application process outside Europe	Specific management of option compatibility	Permits non-standard option compatibility for HVAC application in the EU	•	•
Compliance with Moroccan regulations	Specific regulatory documentation	Compliance with Moroccan regulations	•	•
Delivery with plastic tarp cover	Unit wrapped in a plastic cover and strapped onto a wooden pallet.	Protects against dust and external soiling of the unit during storage and transport.	•	•

• ALL MODELS

(1) Standard equipment on ILD version

Refer to the selection tool to find out which options are not compatible.



## TECHNICAL CHARACTERISTICS - COOLING ONLY

AQUACIAT LD			150R	180R	200R	202R	240R	260R	
<b>Standard unit</b>									
<b>Cooling</b> Full load performances*	CA1	Nominal capacity	kW	41,7	47,3	52,9	56,1	63,6	71,2
		EER	kW/kW	2,95	2,94	2,93	2,97	2,89	2,90
	CA2	Nominal capacity	kW	54,6	62,7	69,4	74,3	84,6	93,0
		EER	kW/kW	3,60	3,60	3,51	3,61	3,63	3,49
Seasonal energy efficiency**	<b>SEER<sub>12/7°C</sub> Comfort low temp.</b>		<b>kWh/kWh</b>	<b>4,41</b>	<b>4,47</b>	<b>4,50</b>	<b>4,62</b>	<b>4,41</b>	<b>4,31</b>
	ns cool <sub>12/7°C</sub>		%	<b>173</b>	<b>176</b>	<b>177</b>	<b>182</b>	<b>174</b>	<b>169</b>
	<b>SEER<sub>23/18°C</sub> Comfort medium temp.</b>		<b>kWh/kWh</b>	<b>6,10</b>	<b>6,11</b>	<b>6,06</b>	<b>6,17</b>	<b>5,61</b>	<b>5,72</b>
	<b>SEPR<sub>12/7°C</sub> Process high temp.</b>		<b>kWh/kWh</b>	<b>6,30</b>	<b>6,23</b>	<b>6,23</b>	<b>6,21</b>	<b>5,92</b>	<b>5,46</b>
	<b>SEPR<sub>-2/-8°C</sub> Process medium temp.</b>		<b>kWh/kWh</b>	<b>3,59</b>	<b>3,65</b>	<b>3,79</b>	<b>3,89</b>	<b>3,65</b>	<b>3,61</b>
Part Load integrated values	IPLV.SI	kW/kW	4,945	5,025	5,182	5,270	5,369	4,630	
<b>Sound levels</b>									
<b>Standard unit and High outdoor temperature option</b>									
Sound power <sup>(1)</sup>		dB(A)	81	82	83,5	83,5	89	89	
Sound pressure at 10 m <sup>(2)</sup>		dB(A)	50	51	52	52	57	58	
<b>Unit + Xtra Low Noise option</b>									
Sound power <sup>(1)</sup>		dB(A)	78	79	80	80	80	80	
Sound pressure at 10 m <sup>(2)</sup>		dB(A)	47	48	49	49	48	49	
<b>Dimensions</b>									
Length		mm	2109	2109	2109	2109	2109	2109	
Width		mm	1090	1090	1090	1090	1090	1090	
Height		mm	1330	1330	1330	1330	1330	1330	
Unit height (XtraFan option)		mm	1372	1372	1372	1372	1372	1372	
Unit height (optional buffer tank)		mm	1931	1931	1931	1931	1931	1931	
Unit height (XtraFan + buffer tank option)		mm	1973	1973	1973	1973	1973	1973	
<b>Operating weight <sup>(3)</sup></b>									
Standard unit		kg	408	409	428	428	435	446	
Unit + single high pressure pump option		kg	428	429	448	448	455	466	
Unit + dual high pressure pump option		kg	455	456	475	475	482	493	
Unit + single high pressure pump and buffer tank options		kg	779	781	800	800	807	817	
Unit + dual high pressure pump and buffer tank options		kg	806	808	827	827	834	844	

\* In accordance with standard EN14511-3:2022.  
 \*\* In accordance with EN14825:2022, average climatic conditions  
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12°C/7°C, outdoor air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>. k/W  
 CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 23°C/18°C, outdoor air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>. k/W  
**ns cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub>** **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**  
**SEER<sub>23/18°C</sub>** **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**  
**SEPR<sub>-2/-8°C</sub>** **Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for HT applications**  
 IPLV.SI Calculated as per standard AHRI 551-591 [SI]  
 (1) in dB ref=10<sup>-12</sup>W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.  
 (2) In dB ref 20 µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A).  
 (3) Values are guidelines only. Refer to the unit name plate.



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**TECHNICAL CHARACTERISTICS - COOLING ONLY**

AQUACIAT LD		150R	180R	200R	202R	240R	260R
<b>Compressors</b>		Hermetic Scroll 48,3 r/s					
Circuit A		2	2	2	2	2	2
Circuit B		-	-	-	-	-	-
No. of control stages		2	2	2	2	2	2
<b>Refrigerant<sup>(3)</sup></b>		R32 / A2L / PRG=675 in accordance with AR4					
Circuit A	kg	3,72	3,92	4,15	4,60	4,70	4,87
	tCO <sub>2</sub> e	2,5	2,6	2,8	3,1	3,2	3,3
Circuit B	kg	-	-	-	-	-	-
	tCO <sub>2</sub> e	-	-	-	-	-	-
<b>Oil charge</b>		POE					
Circuit A	l	6,00	6,00	6,60	6,60	6,60	7,20
Circuit B	l	-	-	-	-	-	-
<b>Capacity control</b>		Connect'Touch					
Minimum capacity	%	50	50	50	50	50	50
<b>PED category</b>		III					
<b>Condenser</b>		All-aluminium micro-channel coils (MCHE)					
<b>Fans</b>		Axial with rotating impeller					
Quantity		1	1	1	1	1	1
Maximum total air flow	l/s	3882	3802	4058	3900	5484	5452
Maximum rotation speed	rps	12	12	12	12	18	18
<b>Evaporator</b>		Direct expansion brazed-plate heat exchanger					
Water volume	l	3,55	4	4,44	4,44	5,18	6,07
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000
<b>Hydronic module (option)</b>		Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors					
Pump		Centrifugal pump, monocell, 48,3 r/s, low- or high pressure (as required), single or dual (as required)					
Expansion vessel volume (option) <sup>(4)</sup>	l	18	18	18	18	18	18
Buffer tank volume (optional)	l	208	208	208	208	208	208
Max. water-side operating pressure with hydronic module	kPa	400	400	400	400	400	400
<b>Water connections with or without hydronic module</b>		Victaulic® type					
Connections	inches	2	2	2	2	2	2
External diameter	mm	60,3	60,3	60,3	60,3	60,3	60,3
<b>Casing paint colour</b>		Colour code RAL 7035 & 7024					

(3) Values are guidelines only. Refer to the unit name plate.

(4) When delivered, the standard pre-infiltration of the tank is not necessarily the optimal value of the system. To permit changing the water volume, change the inflation pressure to a pressure that is close to the static head of the system. Fill the system with water (purging the air) to a pressure value that is 10 to 20kPa higher than the pressure in the tank





## TECHNICAL CHARACTERISTICS - COOLING ONLY

AQUACIAT LD		300R	360R	390R	450R	520R	600R		
<b>Standard unit</b>									
<b>Cooling</b> Full load performances*	CA1	Nominal capacity	kW	81,1	93,4	107	124	140	160
		EER	kW/kW	2,78	2,97	2,83	2,85	2,87	2,76
	CA2	Nominal capacity	kW	103	126	142	162	183	203
		EER	kW/kW	3,22	3,72	3,48	3,40	3,48	3,21
Seasonal energy efficiency**	<b>SEER<sub>12/7°C</sub> Comfort low temp.</b>		<b>kWh/kWh</b>	<b>4,24</b>	<b>4,38</b>	<b>4,51</b>	<b>4,57</b>	<b>4,46</b>	<b>4,37</b>
	ns cool <sub>12/7°C</sub>		%	<b>167</b>	<b>172</b>	<b>177</b>	<b>180</b>	<b>176</b>	<b>172</b>
	<b>SEER<sub>23/18°C</sub> Comfort medium temp.</b>		<b>kWh/kWh</b>	<b>5,46</b>	<b>5,54</b>	<b>5,78</b>	<b>5,73</b>	<b>5,61</b>	<b>5,34</b>
	<b>SEPR<sub>12/7°C</sub> Process high temp.</b>		<b>kWh/kWh</b>	<b>5,21</b>	<b>5,45</b>	<b>5,19</b>	<b>5,24</b>	<b>5,37</b>	<b>5,15</b>
	<b>SEPR<sub>-2/-8°C</sub> Process medium temp.</b>		<b>kWh/kWh</b>	<b>3,67</b>	<b>3,54</b>	<b>3,54</b>	<b>3,74</b>	<b>3,61</b>	<b>3,68</b>
Part Load integrated values	IPLV.SI	kW/kW	4,630	4,904	4,953	4,997	4,707	4,680	
<b>Sound levels</b>									
<b>Standard unit and High outdoor temperature option</b>									
Sound power <sup>(1)</sup>		dB(A)	89	91,5	91,5	92	92	92	
Sound pressure at 10 m <sup>(2)</sup>		dB(A)	57	60	60	60	60	60	
<b>Unit + Xtra Low Noise option</b>									
Sound power <sup>(1)</sup>		dB(A)	80	83	83	83	83	83	
Sound pressure at 10 m <sup>(2)</sup>		dB(A)	48	51	51	52	51	51	
<b>Dimensions</b>									
Length		mm	2109	2275	2275	2275	2275	2275	
Width		mm	1090	2125	2125	2125	2125	2125	
Height		mm	1330	1330	1330	1330	1330	1330	
Unit height (XtraFan option)		mm	1372	1372	1372	1372	1372	1372	
Unit height (optional buffer tank)		mm	1931	1931	1931	1931	1931	1931	
Unit height (XtraFan + buffer tank option)		mm	1973	1973	1973	1973	1973	1973	
<b>Operating weight <sup>(3)</sup></b>									
Standard unit		kg	454	672	734	743	861	877	
Unit + single high pressure pump option		kg	474	692	754	768	886	902	
Unit + dual high pressure pump option		kg	501	719	781	790	908	924	
Unit + single high pressure pump and buffer tank options		kg	825	1110	1172	1186	1304	1320	
Unit + dual high pressure pump and buffer tank options		kg	852	1137	1199	1208	1326	1342	

\* In accordance with standard EN14511-3:2022.  
 \*\* In accordance with EN14825:2022, average climatic conditions  
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12°C/7°C, outdoor air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>. k/W  
 CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 23°C/18 °C, outdoor air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>. k/W  
**ns cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub>**  
**SEER<sub>23/18 °C</sub>**  
**SEPR<sub>-2/-8°C</sub>**  
 IPLV.SI  
 (1) Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications  
 Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications  
 Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for HT applications  
 Calculated as per standard AHRI 551-591 (SI)  
 in dB ref=10<sup>-12</sup>W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.  
 (2) In dB ref 20 µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A).  
 (3) Values are guidelines only. Refer to the unit name plate.



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## TECHNICAL CHARACTERISTICS - COOLING ONLY

AQUACIAT LD		300R	360R	390R	450R	520R	600R
<b>Compressors</b>		Hermetic Scroll 48,3 r/s					
Circuit A		2	2	3	3	2	2
Circuit B		-	-	-	-	2	2
No. of control stages		2	2	3	3	4	4
<b>Refrigerant<sup>(3)</sup></b>		R32 / A2L / PRG=675 in accordance with AR4					
Circuit A	kg	4,84	7,75	8,40	9,00	5,00	5,07
	tCO <sub>2</sub> e	3,3	5,2	5,7	6,1	3,4	3,4
Circuit B	kg	-	-	-	-	5,00	5,07
	tCO <sub>2</sub> e	-	-	-	-	3,4	3,4
<b>Oil charge</b>		POE					
Circuit A	l	7,20	7,20	10,80	10,80	7,20	7,20
Circuit B	l	-	-	-	-	7,20	7,20
<b>Capacity control</b>		Connect'Touch					
Minimum capacity	%	50	50	33	33	25	25
<b>PED category</b>		III					
<b>Condenser</b>		All-aluminium micro-channel coils (MCHE)					
<b>Fans</b>		Axial with rotating impeller					
Quantity		1	2	2	2	2	2
Maximum total air flow	l/s	5414	10568	10512	10974	10904	10827
Maximum rotation speed	rps	18	18	18	18	18	18
<b>Evaporator</b>		Direct expansion brazed-plate heat exchanger					
Water volume	l	6,96	7,4	8,44	9,92	12,69	14,31
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000
<b>Hydronic module (option)</b>		Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors					
Pump		Centrifugal pump, monocell, 48,3 r/s, low- or high pressure (as required), single or dual (as required)					
Expansion vessel volume (option) <sup>(4)</sup>	l	18	35	35	35	35	35
Buffer tank volume (optional)	l	208	208	208	208	208	208
Max. water-side operating pressure with hydronic module	kPa	400	400	400	400	400	400
<b>Water connections with or without hydronic module</b>		Victaulic® type					
Connections	inches	2	2	2	2	2	2
External diameter	mm	60,3	60,3	60,3	60,3	60,3	60,3
<b>Casing paint colour</b>		Colour code RAL 7035 & 7024					

(3) Values are guidelines only. Refer to the unit name plate.

(4) When delivered, the standard pre-infiltration of the tank is not necessarily the optimal value of the system. To permit changing the water volume, change the inflation pressure to a pressure that is close to the static head of the system. Fill the system with water (purging the air) to a pressure value that is 10 to 20kPa higher than the pressure in the tank



## TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

AQUACIAT ILD		150R	180R	200R	240R	260R	300R
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**Standard unit**

<b>Heating</b> Full load performances*	HA1	Nominal capacity	kW	<b>44,1</b>	<b>47,9</b>	<b>54,3</b>	<b>61,6</b>	<b>68,2</b>	<b>61,8</b>
		COP	kW/kW	<b>3,91</b>	<b>3,97</b>	<b>3,89</b>	<b>3,80</b>	<b>3,81</b>	<b>3,03</b>
	HA2	Nominal capacity	kW	<b>42,7</b>	<b>47,0</b>	<b>53,5</b>	<b>59,5</b>	<b>67,2</b>	<b>75,7</b>
		COP	kW/kW	<b>3,07</b>	<b>3,16</b>	<b>3,12</b>	<b>3,01</b>	<b>3,08</b>	<b>3,01</b>
Seasonal energy efficiency**	HA1	SCOP <sub>30/35°C</sub>	kWh/kWh	<b>3,82</b>	<b>3,78</b>	<b>3,81</b>	<b>3,58</b>	<b>3,67</b>	<b>3,65</b>
		ns heat <sub>30/35°C</sub>	%	<b>150</b>	<b>148</b>	<b>149</b>	<b>140</b>	<b>144</b>	<b>143</b>
		P <sub>rated</sub>	kW	32	34	36	43	50	55
<b>Cooling</b> Full load performances*	CA1	Nominal capacity	kW	41,0	43,1	50,3	60,2	65,2	74,3
		EER	kW/kW	2,89	2,69	2,66	2,97	2,90	2,66
Seasonal energy efficiency**		SEER <sub>12/7°C</sub> Comfort low temp.	kWh/kWh	4,19	4,23	4,18	4,34	4,25	4,03
		SEPR <sub>12/7°C</sub> Process high temp.	kWh/kWh	6,08	5,93	5,69	6,13	5,87	5,39

**Unit with Heating Optimized option**

<b>Heating</b> Full load performances*	HA1	Nominal capacity	kW	<b>44,4</b>	<b>48,2</b>	<b>54,6</b>	<b>62,2</b>	<b>68,9</b>	<b>62,3</b>
		COP	kW/kW	<b>4,02</b>	<b>4,09</b>	<b>3,99</b>	<b>3,93</b>	<b>3,92</b>	<b>3,15</b>
	HA2	Nominal capacity	kW	<b>43,1</b>	<b>47,4</b>	<b>53,9</b>	<b>60,2</b>	<b>67,9</b>	<b>76,3</b>
		COP	kW/kW	<b>3,18</b>	<b>3,29</b>	<b>3,23</b>	<b>3,15</b>	<b>3,20</b>	<b>3,17</b>
Seasonal energy efficiency**	HA1	SCOP <sub>30/35°C</sub>	kWh/kWh	<b>3,97</b>	<b>3,93</b>	<b>3,96</b>	<b>3,78</b>	<b>3,88</b>	<b>3,89</b>
		ns heat <sub>30/35°C</sub>	%	<b>156</b>	<b>154</b>	<b>155</b>	<b>148</b>	<b>152</b>	<b>153</b>
		P <sub>rated</sub>	kW	32	34	36	43	50	55
<b>Cooling</b> Full load performances*	CA1	Nominal capacity	kW	38,9	41,1	48,1	57,5	62,7	71,8
		EER	kW/kW	2,75	2,57	2,56	2,85	2,80	2,59
Seasonal energy efficiency**		SEER <sub>12/7°C</sub> Comfort low temp.	kWh/kWh	3,95	4,00	3,98	4,15	4,06	3,89
		SEPR <sub>12/7°C</sub> Process high temp.	kWh/kWh	5,68	5,56	5,39	5,79	5,56	5,17

**Sound levels**
**Standard unit and High outdoor temperature option**

Sound power <sup>(1)</sup>	dB(A)	82,0	83,0	84,0	89,0	89,5	89,5
Sound pressure at 10 m <sup>(2)</sup>	dB(A)	50,0	51,0	52,5	57,5	58,0	58,0
Sound power ECODESIGN SCOPC conditions	dB(A)	77,0	79,0	83,0	83,5	83,5	81,0

**Unit + Xtra Low Noise option**

Sound power <sup>(1)</sup>	dB(A)	78,5	79,0	80,5	80,5	80,5	80,5
Sound pressure at 10 m <sup>(2)</sup>	dB(A)	47,0	47,5	49,0	49,0	48,5	49,0
Sound power ECODESIGN SCOPC conditions	dB(A)	74,5	77,0	80,0	81,0	81,0	79,0

\* In accordance with standard EN14511-3:2022.

\*\* In accordance with EN14825:2022, average climatic conditions

HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30°C/35°C, outdoor air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W

HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40°C/45°C, outdoor air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12°C/7°C, outdoor air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>. k/W

ns heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications

SEER<sub>12/7°C</sub> & SEPR<sub>12/7°C</sub> Applicable Ecodesign regulation (EU) No. 2016/2281

[1] in dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.

[2] in dB ref 20 µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A).



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## TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

AQUACIAT ILD		150R	180R	200R	240R	260R	300R
<b>Dimensions</b>							
<b>Standard unit</b>							
Length	mm	2109	2109	2109	2109	2109	2109
Width	mm	1090	1090	1090	1090	1090	1090
Height	mm	1330	1330	1330	1330	1330	1330
Unit height (XtraFan option)	mm	1372	1372	1372	1372	1372	1372
Unit height (optional buffer tank)	mm	1931	1931	1931	1931	1931	1931
Unit height (XtraFan + buffer tank option)	mm	1973	1973	1973	1973	1973	1973
<b>Operating weight <sup>(3)</sup></b>							
<b>Standard unit</b>		444	446	469	496	506	515
Unit + single high pressure pump option	kg	464	466	489	516	526	535
Unit + dual high pressure pump option	kg	491	493	516	543	553	562
Unit + single high pressure pump and buffer tank options	kg	816	818	841	868	877	887
Unit + dual high pressure pump and buffer tank options	kg	843	845	868	895	904	914
<b>Compressors</b>		Hermetic Scroll 48,3 r/s					
Circuit A		2	2	2	2	2	2
Circuit B		-	-	-	-	-	-
No. of control stages		2	2	2	2	2	2
<b>Refrigerant<sup>(3)</sup></b>		R-32 / A2L/ PRP= 675 in accordance with AR4					
Circuit A	kg	7,30	7,30	7,80	8,70	8,95	9,20
	tCO <sub>2</sub> e	4,9	4,9	5,3	5,9	6,0	6,2
Circuit B	kg	-	-	-	-	-	-
	tCO <sub>2</sub> e	-	-	-	-	-	-
<b>Oil charge</b>		POE					
Circuit A	l	6	6	7	7	7	7
Circuit B	l	-	-	-	-	-	-
<b>Capacity control</b>		Connect'Touch					
Minimum capacity	%	50	50	50	50	50	50
<b>PED category</b>		III					
<b>Condenser</b>		Grooved copper tubes and aluminium fins					
<b>Fans</b>		Axial with rotating impeller					
<b>Standard unit</b>							
Quantity		1	1	1	1	1	1
Maximum total air flow	l/s	4034	4034	4034	5613	5613	5613
Maximum rotation speed	rps	12	12	12	16	16	16
<b>Evaporator</b>		Direct expansion brazed-plate heat exchanger					
Water volume	l	4	4	4	5	6	7
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000
<b>Hydronic module (option)</b>		Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors					
Pump		Centrifugal pump, monocell, 48,3 r/s, low- or high pressure (as required), single or dual (as required)					
Expansion tank volume (Option)	l	12	12	12	12	12	12
Buffer tank volume (optional)	l	208	208	208	208	208	208
Max. water-side operating pressure with hydronic module	kPa	400	400	400	400	400	400
<b>Water connections with or without hydronic module</b>		Victaulic® type					
Connections	inches	2	2	2	2	2	2
External diameter	mm	60	60	60	60	60	60
<b>Casing paint colour</b>		Colour code RAL 7035 & 7024					

(3) Values are guidelines only. Refer to the unit name plate.



## TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

AQUACIAT ILD			360R	390R	450R	520R	600R	
<b>Standard unit</b>								
<b>Heating</b> Full load performances*	HA1	Nominal capacity	kW	<b>93,3</b>	<b>107</b>	<b>119</b>	<b>137</b>	<b>123</b>
		COP	kW/kW	<b>3,80</b>	<b>3,80</b>	<b>3,80</b>	<b>3,80</b>	<b>3,03</b>
	HA2	Nominal capacity	kW	<b>91,7</b>	<b>105</b>	<b>118</b>	<b>135</b>	<b>150</b>
		COP	kW/kW	<b>3,10</b>	<b>3,09</b>	<b>3,09</b>	<b>3,08</b>	<b>3,00</b>
Seasonal energy efficiency**	HA1	SCOP <sub>30/35°C</sub>	kWh/kWh	<b>3,61</b>	<b>3,56</b>	<b>3,79</b>	<b>3,76</b>	<b>3,78</b>
		ns heat <sub>30/35°C</sub>	%	<b>141</b>	<b>139</b>	<b>149</b>	<b>147</b>	<b>148</b>
		P <sub>rated</sub>	kW	60	68	87	100	109
<b>Cooling</b> Full load performances*	CA1	Nominal capacity	kW	87,0	99,9	114	132	147
		EER	kW/kW	2,88	2,84	2,93	2,85	2,66
	Seasonal energy efficiency**		SEER <sub>12/7°C</sub> Comfort low temp.	kWh/kWh	4,48	4,86	4,88	4,20
SEPR <sub>12/7°C</sub> Process high temp.			kWh/kWh	5,82	5,82	5,89	5,48	5,24
<b>Unit with Heating Optimized option</b>								
<b>Heating</b> Full load performances*	HA1	Nominal capacity	kW	<b>94,4</b>	<b>108</b>	<b>120</b>	<b>137</b>	<b>123</b>
		COP	kW/kW	<b>3,94</b>	<b>3,87</b>	<b>3,88</b>	<b>3,90</b>	<b>3,13</b>
	HA2	Nominal capacity	kW	<b>92,9</b>	<b>106</b>	<b>119</b>	<b>136</b>	<b>151</b>
		COP	kW/kW	<b>3,25</b>	<b>3,18</b>	<b>3,18</b>	<b>3,20</b>	<b>3,15</b>
Seasonal energy efficiency**	HA1	SCOP <sub>30/35°C</sub>	kWh/kWh	<b>3,77</b>	<b>3,71</b>	<b>3,95</b>	<b>3,98</b>	<b>4,00</b>
		ns heat <sub>30/35°C</sub>	%	<b>148</b>	<b>145</b>	<b>155</b>	<b>156</b>	<b>157</b>
		P <sub>rated</sub>	kW	60	69	88	100	109
<b>Cooling</b> Full load performances*	CA1	Nominal capacity	kW	83,4	96,0	110	127	143
		EER	kW/kW	2,77	2,74	2,83	2,76	2,58
	Seasonal energy efficiency**		SEER <sub>12/7°C</sub> Comfort low temp.	kWh/kWh	4,29	4,63	4,66	4,10
SEPR <sub>12/7°C</sub> Process high temp.			kWh/kWh	5,52	5,49	5,58	5,33	5,16
<b>Sound levels</b>								
<b>Standard unit and High outdoor temperature option</b>								
Sound power <sup>(1)</sup>			dB(A)	92,0	92,0	92,0	92,5	92,0
Sound pressure at 10 m <sup>(2)</sup>			dB(A)	60,5	60,5	60,5	61,0	60,5
Sound power ECODESIGN SCOPC conditions			dB(A)	84,5	82,0	82,5	90,0	90,0
<b>Unit + Xtra Low Noise option</b>								
Sound power <sup>(1)</sup>			dB(A)	83,5	83,5	83,5	83,5	83,5
Sound pressure at 10 m <sup>(2)</sup>			dB(A)	52,0	52,0	51,5	52,0	51,5
Sound power ECODESIGN SCOPC conditions			dB(A)	82,0	80,0	81,0	86,0	85,0

\* In accordance with standard EN14511-3:2022.  
 \*\* In accordance with EN14825:2022, average climatic conditions  
 HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30°C/35°C, outdoor air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W  
 HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40°C/45°C, outdoor air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W  
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12°C/7°C, outdoor air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>. k/W  
**ns heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub>** Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications  
**SEER<sub>12/7°C</sub> & SEPR<sub>12/7°C</sub>** Applicable Ecodesign regulation (EU) No. 2016/2281  
 (1) in dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.  
 (2) In dB ref 20 µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A).



Eurovent certified values

CARRIER participates in the ECP programme for LCP-HP Check ongoing validity of certificate: [www.eurovent-certification.com](http://www.eurovent-certification.com)



## TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

AQUACIAT ILD		360R	390R	450R	520R	600R
<b>Dimensions</b>						
<b>Standard unit</b>						
Length	mm	2275	2275	2275	2275	2275
Width	mm	2125	2125	2125	2125	2125
Height	mm	1330	1330	1330	1330	1330
Unit height (XtraFan option)	mm	1372	1372	1372	1372	1372
Unit height (optional buffer tank)	mm	1931	1931	1931	1931	1931
Unit height (XtraFan + buffer tank option)	mm	1973	1973	1973	1973	1973
<b>Operating weight <sup>(3)</sup></b>						
<b>Standard unit</b>						
Unit + single high pressure pump option	kg	779	838	891	1021	1025
Unit + dual high pressure pump option	kg	805	864	923	1054	1058
Unit + single high pressure pump and buffer tank options	kg	1197	1256	1309	1439	1443
Unit + dual high pressure pump and buffer tank options	kg	1223	1282	1341	1472	1476
<b>Compressors</b>						
Hermetic Scroll 48,3 r/s						
Circuit A		2	3	3	2	2
Circuit B		-	-	-	2	2
No. of control stages		2	3	3	4	4
<b>Refrigerant<sup>(3)</sup></b>						
R-32 / A2L/ PRP= 675 in accordance with AR4						
Circuit A	kg	15,20	15,70	19,63	8,95	9,15
	tCO <sub>2</sub> e	10,3	10,6	13,3	6,0	6,2
Circuit B	kg	-	-	-	8,95	9,15
	tCO <sub>2</sub> e	-	-	-	6,0	6,2
<b>Oil charge</b>						
Circuit A	l	7	11	11	7	7
Circuit B	l	-	-	-	7	7
<b>Capacity control</b>						
Connect' Touch						
Minimum capacity	%	50	33	33	25	25
<b>PED category</b>						
III						
<b>Condenser</b>						
Grooved copper tubes and aluminium fins						
<b>Fans</b>						
Axial with rotating impeller						
<b>Standard unit</b>						
Quantity		2	2	2	2	2
Maximum total air flow	l/s	10904	10904	10904	11226	11226
Maximum rotation speed	rps	16	16	16	16	16
<b>Evaporator</b>						
Direct expansion brazed-plate heat exchanger						
Water volume	l	7	8	10	13	14
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000
<b>Hydronic module (option)</b>						
Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors						
Pump		Centrifugal pump, monocell, 48,3 r/s, low- or high pressure (as required), single or dual (as required)				
Expansion vessel volume (option) <sup>(4)</sup>	l	12	35	35	35	35
Buffer tank volume (optional)	l	208	208	208	208	208
Max. water-side operating pressure with hydronic module	kPa	400	400	400	400	400
<b>Water connections with or without hydronic module</b>						
Victaulic® type						
Connections	inches	2	2	2	2	2
External diameter	mm	60	60	60	60	60
<b>Casing paint colour</b>						
Colour code RAL 7035 & 7024						

(3) Values are guidelines only. Refer to the unit name plate.

(4) When delivered, the standard pre-infiltration of the tank is not necessarily the optimal value of the system. To permit changing the water volume, change the inflation pressure to a pressure that is close to the static head of the system. Fill the system with water (purging the air) to a pressure value that is 10 to 20kPa higher than the pressure in the tank

## ELECTRICAL SPECIFICATIONS

AQUACIAT LD/ILD	150R	180R	200R	202R	240R	260R	300R	360R	390R	450R	520R	600R		
<b>Power circuit supply</b>														
Nominal voltage	V-ph-Hz		400-3-50											
Voltage range	V		360-440											
<b>Control circuit supply</b>														
24 V via internal transformer														
<b>Maximum operating input power<sup>(1) or (2)</sup></b>														
Circuit A&B	kW		19	21	24	24	28	31	36	41	48	55	63	71
<b>Power factor at maximum power<sup>(1) or (2)</sup></b>														
Displacement Power Factor (Cos Phi), standard unit			0,81	0,82	0,82	0,82	0,84	0,84	0,85	0,82	0,84	0,85	0,84	0,85
<b>Nominal unit current draw<sup>(4)</sup></b>														
Standard unit	A		26	29	35	35	36	46	52	59	71	81	91	104
<b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b>														
Standard unit	A		34	37	42	42	48	54	60	72	84	93	108	121
<b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>														
Standard unit	A		37	39	44	44	51	58	65	77	89	99	115	129
<b>Maximum start-up current (Un) <sup>(2) + (3)</sup></b>														
Standard unit	A		116	118	165	165	169	177	191	238	206	223	231	251

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

### ■ Short circuit current withstand capability (TN system<sup>(1)</sup>)

AQUACIAT LD/ILD	150R	180R	200R	202R	240R	260R	300R	360R	390R	450R	520R	600R		
<b>Rated short-circuit withstand currents</b>														
Short time (1s) assigned current - I <sub>cw</sub>	kA eff		3,36	3,36	3,36	3,36	3,36	3,36	5,62	5,62	5,62	5,62	5,62	5,62
Allowable peak assigned current - I <sub>pk</sub>	kA pk		20	20	20	20	20	20	15	20	20	15	20	15
<b>Value with upstream protection</b>														
Conditional short circuit assigned current I <sub>cc</sub>	kA eff		40	40	40	40	40	40	40	40	40	30	30	30
Associated protection	Circuit breaker/Schneider													
Associated protection	NS 100H	NS 100H	NS 100H	NS 100H	NS 100H	NS 100H	NS 100H	NS 100H	NS 100H	NS 100H	NS 160H	NS 160H	NS 250H	NS 250H

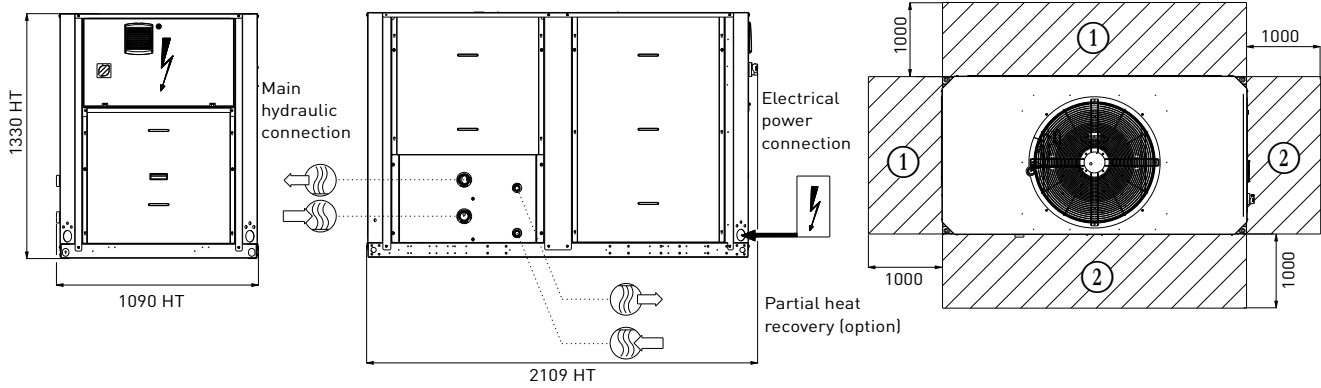
(1) If another current limitation protection device is used, its time-current and thermal constraint (I<sup>2</sup>t) trip characteristics must be at least equivalent to those of the recommended protection.

**Note: The short-circuit stability current values given above are suitable for the TN system.**

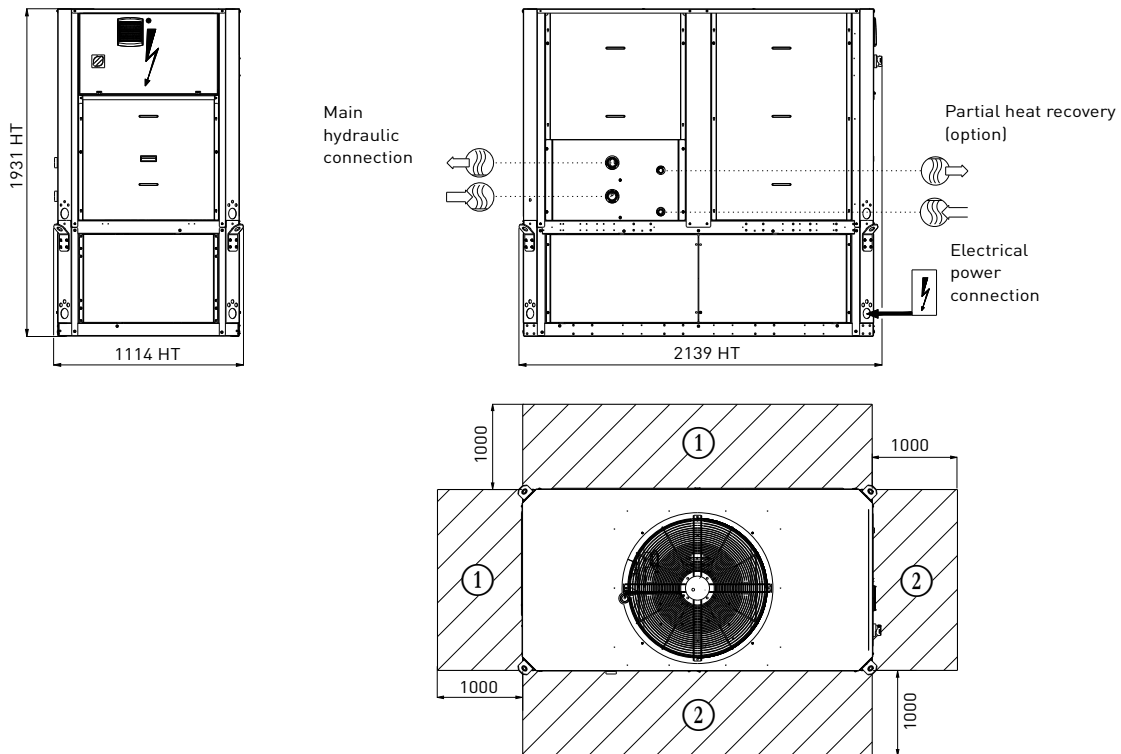


## DIMENSIONS

### ■ AQUACIAT LD-ILD 150R to 300R without buffer tank



### ■ AQUACIAT LD-ILD 150R to 300R with buffer tank



**Key**

All dimensions in mm

① Clearance required for maintenance and air flow

② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

**NOTES:**

**Non-contractual drawings.**

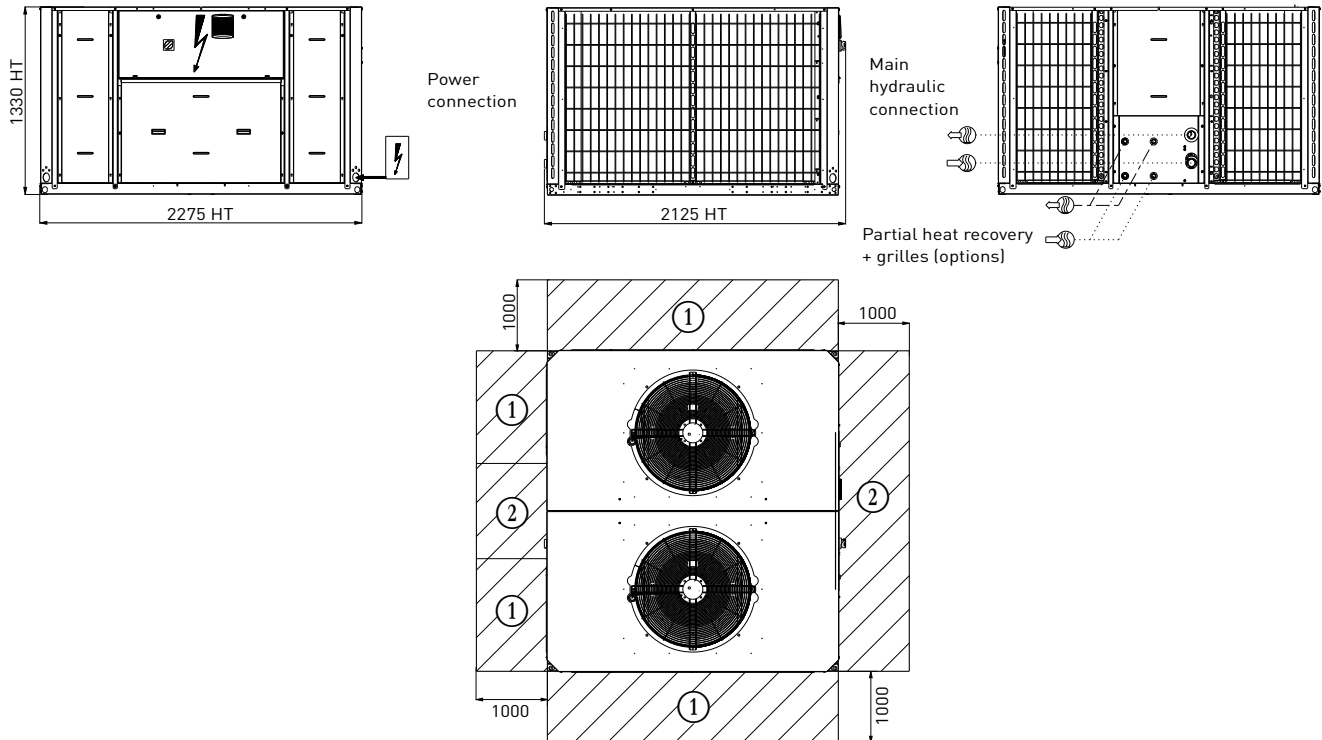
**When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.**

**Refer to the certified dimensional drawings for:**

- The location of the fixing points,
- The weight distribution,
- The centre of gravity coordinates,
- Details of the XtraFan and return air frame option connections.

## DIMENSIONS

### ■ AQUACIAT LD-ILD 360R to 600R without buffer tank



**Key**

All dimensions in mm

① Clearance required for maintenance and air flow

② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

**NOTES:**

**Non-contractual drawings.**

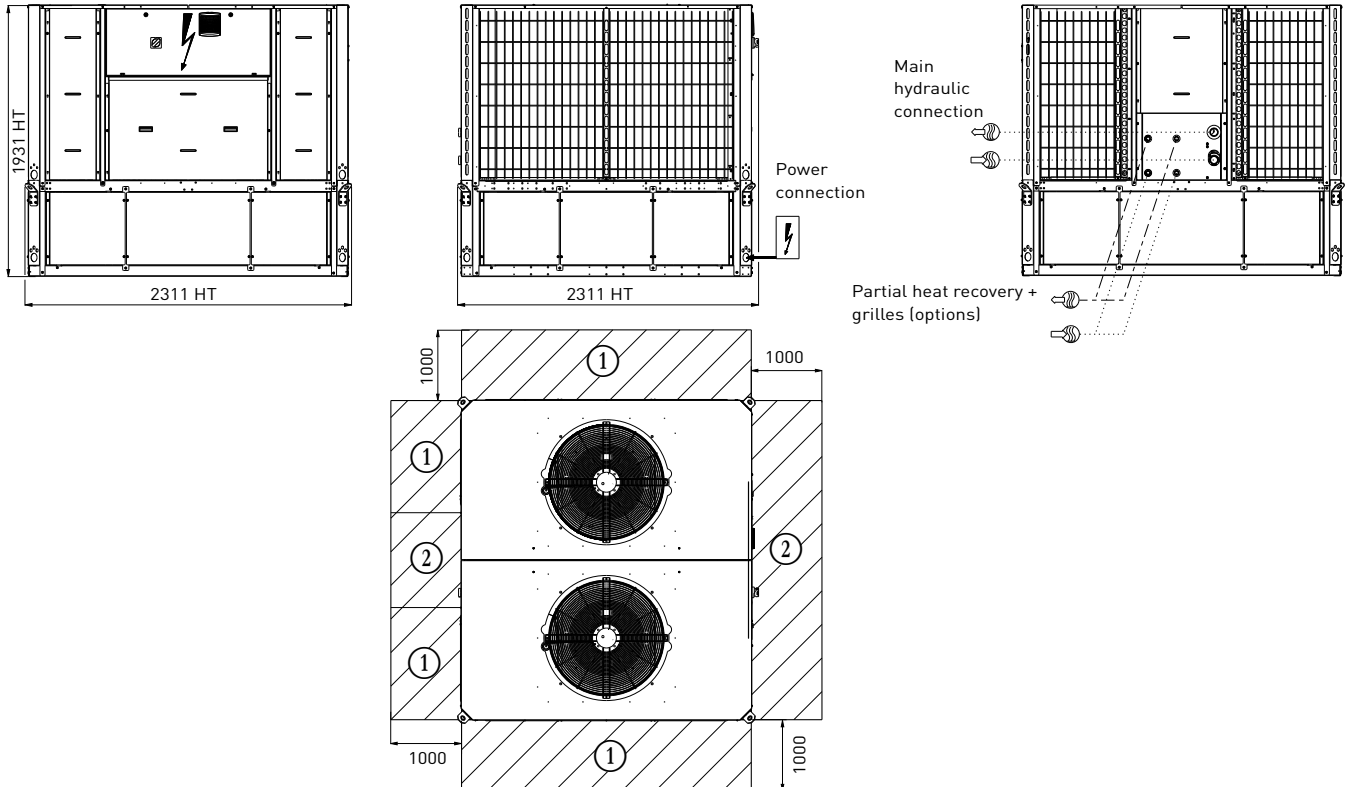
**When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.**

**Refer to the certified dimensional drawings for:**

- The location of the fixing points,
- The weight distribution,
- The centre of gravity coordinates,
- Details of the XtraFan and return air frame option connections.

## DIMENSIONS

### ■ AQUACIAT LD-ILD 360R to 600R with buffer tank



**Key**

All dimensions in mm

① Clearance required for maintenance and air flow

② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

**NOTES:**

**Non-contractual drawings.**

**When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.**

**Refer to the certified dimensional drawings for:**

- The location of the fixing points,
- The weight distribution,
- The centre of gravity coordinates,
- Details of the XtraFan and return air frame option connections.