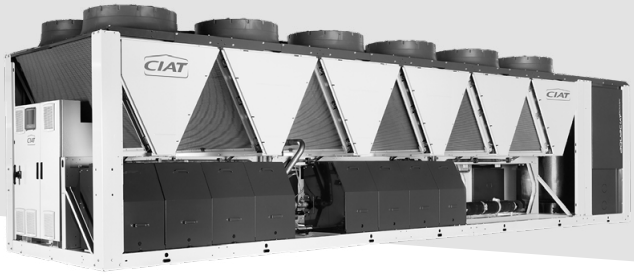
AQUACIAT^{POWER} ™ LD/ILD

Water chiller &
heat pump



The high-performance single unit solution now available with R-32

Compact and silent

Scroll compressors

High-efficiency brazed-plate heat exchangers

Self-adjusting electronic control

Cooling capacity: 170 to 940 kW

Heating capacity: 160 to 520 kW

Cooling and heating | **Hydraulic module** | **Heat recovery** | ErP READY 2021 | R-32

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

USE

The new generation of **AQUACIAT^{POWER}™** 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^{POWER} ™ 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_2 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^{POWER} ™ 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^{POWER} ™ units automatically adjust cooling capacity, anticipating variations in load and starting only the number of compressors needed to ensure optimum operation and energy efficiency.

The optional variable-speed fan motors guarantee even better results.

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^{POWER}™ 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^{POWER} ™ range guarantees the acoustic comfort of occupants and meets the needs of the most sensitive environments, including hotels, offices and hospitals.

■ Quick, simple installation

With a wide variety of connection accessories and equipment, the AQUACIAT^{POWER} ™ 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

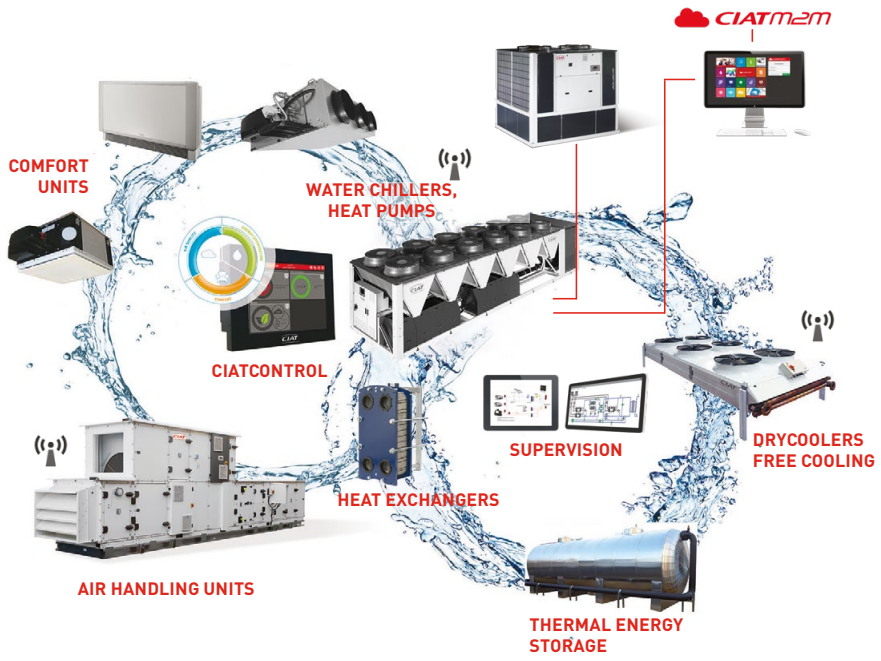
As an expert on customised HVAC solutions, CIAT works to improve the well-being of individuals in their living areas or places of work. Aware of the thermal, energy and air quality issues faced today by every sector of activity, CIAT has responded by developing global systems based on an adapted and efficient combination of products. The latest-generation AQUACIATPOWER ™ 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 AQUACIATPOWER ™ 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

AQUACIATPOWER ™ LD/ILD series

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

Units with nominal high energy performance (option)

In this configuration, the AQUACIATPOWER ™ unit is optimised for full-load applications for which an optimum EER and COP value is required. In this case, the machine is equipped with high-speed fans enabling nominal efficiency and a broader application range.

Units equipped with variable-speed fans (option)

High seasonal energy efficiency version.

In this configuration, the AQUACIATPOWER ™ unit is optimised for partial load applications for which an optimum SEER and SCOP value is required. In this case, the machine is equipped with variable-speed fans, optimising the partial load efficiency throughout the year.

Description

AQUACIAT POWER ™ 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:
  - 400 V-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 POWER ™ 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 (Chiller)

Configuration

	Energy versions	
Acoustic versions	**High outdoor temperature** option	**Nominal high performance** option
	AQUACIAT POWER ™ **Standard** (AC motor fans)	**AQUACIAT POWER ™** **Seasonal high-performance version** (Optional AC motor fans + Inverter or EC motor fans)
	Very Low Noise option	**Very Low Noise** option
	Ultra Low Noise option	**Ultra Low Noise** option

CUSTOMER BENEFITS

Environmental responsibility

We are committed to helping you meet even your strictest environmental targets.

We strive to make our products more efficient and environmentally friendly.

AQUACIATPOWER ™ R-32 exceeds the requirements of Ecodesign 2021.

ErP READY 2021 | R-32 | SEER UP TO 5,33

User comfort

We care about your users' acoustic comfort.

Thanks to fans with low noise levels installed as standard and the noise reduction technologies integrated into the new AQUACIATPOWER ™ range, we can guarantee a level of acoustic comfort which meets the expectations of your users.

The optional variable-speed fans reduce the acoustic level at part load (night, mid-season, etc.).

VERY LOW NOISE

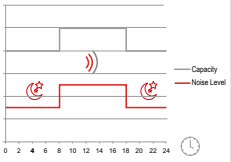
-3 to -4 dB(A)
Compressor noise insulation

ULTRA LOW NOISE

-5 to -6 dB(A)
Reinforced noise insulation on compressors and all noise-generating components

NIGHT MODE

Noise level reduction



Simplicity

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

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

Reliability

We guarantee total reliability for your equipment, with state-of-the-art monitoring solutions.

CIATM2M enables you to track and monitor your CIAT equipment.

- Real-time data extraction via customised access to the CIATM2M website (controller control panel, temperature/event curve, fault alerts and memory and parameter history).
- Email alerts for equipment events.
- Monthly and annual reports with analysis and recommendations from CIAT experts

CIATM2M

Energy savings

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

Heat recovery options can be used to produce free additional hot water at a high temperature. This hot water can be used to prepare domestic hot water or to heat swimming pools, spas or hot tubs

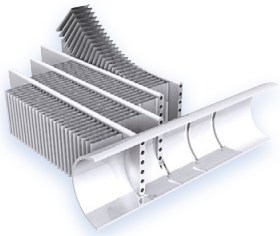
30% energy

/	100 %	Chilled or hot water production
	+	
80°	25 %	Domestic hot water production
	or	
65°	100 %	Hot water production

Main components

MICRO-CHANNEL COIL, LD COOLING ONLY VERSION

COPPER-ALUMINIUM COIL, ILD HEAT PUMP VERSION



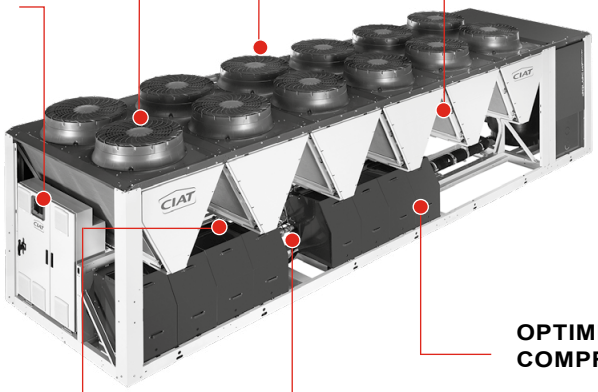
FAN SPIGOT (COMPOSITE)

FIXED SPEED FANS (STANDARD)
VARIABLE-SPEED FANS (INVERTER OR EC MOTOR OPTION)

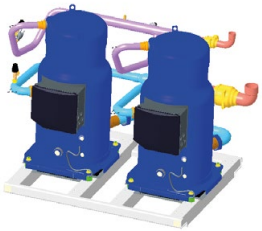
HYDRAULIC MODULE OPTION WITH OR WITHOUT BUFFER TANK

VARIABLE OR FIXED SPEED PUMP

CONNECT TOUCH CONTROL



OPTIMISED SCROLL COMPRESSORS



R-32

ASYMMETRICAL BRAZED PLATE HEAT EXCHANGER

ELECTRONIC EXPANSION VALVE

DESCRIPTION OF THE MAIN COMPONENTS

Compressors
- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase heater
- Mounted on anti-vibration mounts

Water type heat exchanger
- Asymmetrical brazed-plate heat exchanger
- Plate patterns optimised for high efficiency
- 19 mm armaflex thermal insulation

Air-cooled exchanger
- Liquid chiller: air-cooled exchanger, all-aluminium, micro-channels
- Heat pump: air-cooled exchanger, copper tube coil, aluminium fins
- Propeller fans with composite blades offering an optimised profile with fixed-speed or variable-speed according to the model, variable-speed option using frequency inverter or EC motor
- Motors – IP 54, class F

Refrigerating accessories
- Dehumidifier filters with rechargeable cartridges
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line
- Four-way reverse cycle valve in cooling/heating mode

Control and safety instruments
- Low and high pressure sensors
- Safety valves on refrigerant circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow controller

Electrical cabinet
- Electrical cabinet with IP 54 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

Casing
Frame made from RAL 7035 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 7 languages (FR-EN-DE-ES-I-PT-NL)

The electronic control module performs the following main functions:
- Regulation of the chilled 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 operating time balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short-cycle protection
- Frost protection (exchanger heater option)
- Phase reversal protection
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump operating time balancing
- Management of the machine operating limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnosis 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
- Master/slave management of the two machines in parallel with operating time 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 (hydronic 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.
- Innovative smart energy monitoring, providing users with smart data such as real-time electrical energy consumption and heating and cooling capacity, and instantaneous and average energy efficiency rates.

DESCRIPTION OF THE MAIN COMPONENTS

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.

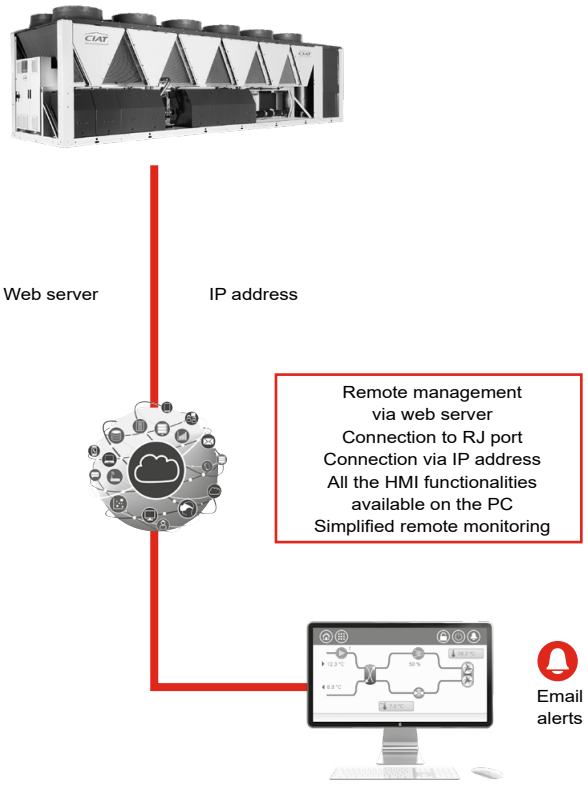
A range of communication protocols are available: MODBUS/ JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP (BTL certified) as an option, enabling most CMS/BMS to be integrated

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 heat recovery unit using the desuperheater.
- Switch control for the customer pump, external to the machine (on/off).

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
- Power limitation adjustable by 4-20 mA signal
- Second power limitation level
- Power indication: analogue output (0-10 V) providing an indication of the unit's load rate.
- User fault reporting, enables integration of a fault in the water loop
- General fault reporting: this contact indicates that the unit has stopped completely
- Alert reporting: this contact indicates the presence of a minor fault which did not cause the refrigerant circuit in question to stop.
- End of storage signal: enables return to the second setpoint at the end of the storage cycle
- Schedule override: closing this contact cancels the time schedule.
- Desuperheater activation control
- Desuperheater pump On/Off control.



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, according to the unit's refrigerant charge, in compliance with the F-GAS regulations.

PEACE OF MIND

Total reliability with state-of-the-art monitoring solutions: CIATM2M

CIATM2M, the CIAT supervision solution

CIATM2M is a remote supervision solution dedicated to monitoring and controlling several CIAT machines in real time.

Advantages

- Access to the operating trend curves for analysis
- Improved energy performance
- Improved availability rate for the machines

Functions

CIATM2M will send data in real time to the supervision website, www.ciatm2m.com.

The machine operating data can be accessed from any PC, smartphone or tablet.

Any event can configured to trigger a mail alert.

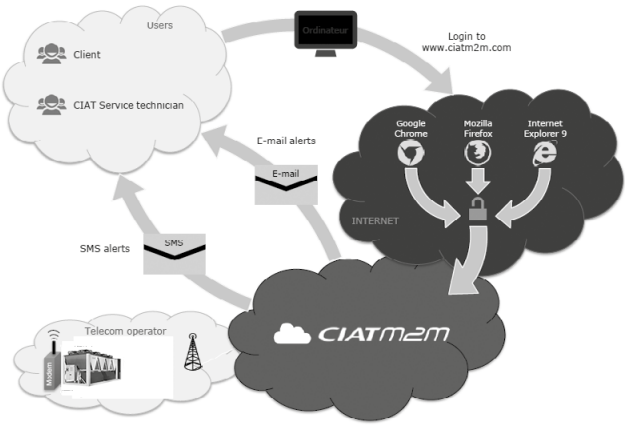
Parameters monitored:
- Overview
- Control panel for the controllers
- Events
- Temperature curves

Monthly and annual reports are available to analyse:
- The performance and operation of the machine
  Example: operating curves and time, number of compressor start-ups, events, preventive maintenance actions to be performed, etc.

Incidents such as a drift in the measurements on a temperature sensor, incorrectly set control parameters, or even incorrect settings between one compressor stage and the other are immediately detected, and the corrective actions put in place.

Equipment

This kit can be used on both machines which are already in use (existing inventory), and on new machines which do not have sufficient space in their electrical cabinets.
- 1 transportable cabinet
- 1 wall-mounted antenna

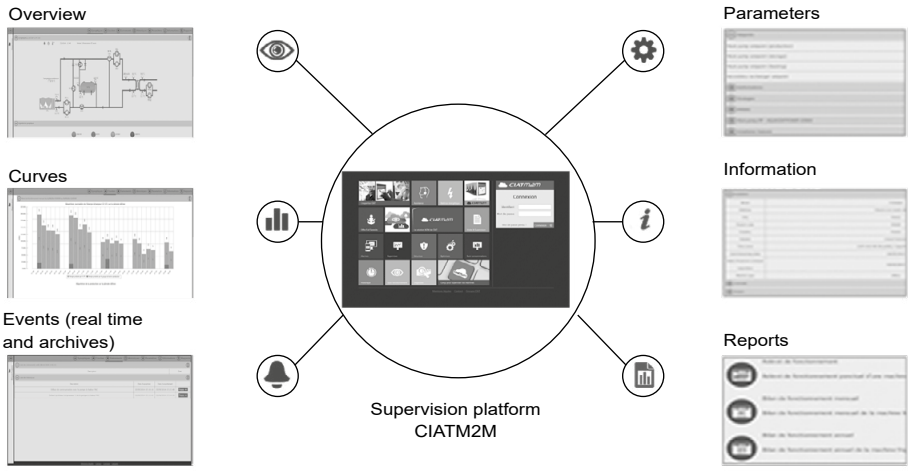


CIATM2M kit contents

- 1 GPRS/3G modem
- 1 SIM card
- 1 power supply (24 VDC)
- 1 power protection device
- 1 GSM antenna
- Rail mounting
- Enclosed casing to protect the equipment during transport
- Packing box for cable routing (bus, power supply, Ethernet)

Compatibility

Up to three machines per CIATM2M kit



SEASONAL PERFORMANCE IN COOLING MODE

Analyses of installed systems show that the heat load varies from season to season and that a water chiller operates at reduced capacity for the majority of the time.

Partial load efficiency is therefore essential when choosing a water chiller. It is with this in mind that the new AQUACIAT POWER™ range was designed. In particular, the entire range uses R32 refrigerant which, thanks to its thermodynamic performance, makes it possible to obtain much higher seasonal performance levels.

As its compressors are connected in parallel on the refrigerating circuit, the AQUACIAT POWER™ easily and efficiently adjusts the cooling capacity to the system's needs. The self-adjusting Connect Touch control anticipates variations in load and starts only the number of compressors needed. This ensures optimum operation of the compressors and guarantees energy efficiency for the majority of the system's life.

In the high seasonal energy efficiency configuration, AQUACIAT POWER ™ has variable-speed fan motor assemblies. This technology enables the machine's partial-load performance to be improved, along with its seasonal performance (SEER, SEPR and SCOP).

The (**S**easonal **E**nergy **E**fficiency **R**atio **(SEER)** measures the seasonal energy efficiency of liquid chillers **for comfort applications** by calculating the ratio between the annual cooling demand of the building and the chiller's annual energy demand. It takes into account the energy efficiency for each outdoor temperature weighted by the number of hours observed for each of these temperatures, using actual climate data.

The **SEER** is a new way of measuring the energy efficiency of liquid chillers for **comfort applications** over an entire year. The new indicator provides a more realistic overview of the cooling system's energy efficiency and its actual impact on the environment (Ecodesign regulation 2016/2281).

MEPS(*) relating to EU ecodesign for chillers with air cooled condensers		Level 1 (since 01/01/2018)	Level 2 (from 01/01/2021)
SEER for comfort Chillers < 400kW	kWh/ kWh	3,80	4,09
SEER for comfort Chillers > 400kW	kWh/ kWh	4,09	4,55

(*) Minimum energy performance standards set by EU member states to comply with the EU Ecodesign directive.

AQUACIAT POWER™ LD comply with Ecodesign regulation 2016/2281

ErP READY 2021

The (**S**easonal **E**nergy **P**erformance **R**atio) (**SEPR**) measures the seasonal energy efficiency of liquid chillers for **process applications** by calculating the ratio between the annual process cooling demand and the chiller's annual energy demand. It takes into account the energy efficiency at each outdoor temperature for the average European climate weighted by the number of hours observed for each of these temperatures.

The **SEPR** is a new way of measuring the energy efficiency of liquid chillers for **process applications** over an entire year. The new indicator provides a more realistic overview of the cooling system's energy efficiency and its actual impact on the environment (Ecodesign regulation 2015/1095 and 2016/2281).

MEPS(*) relating to EU ecodesign for chillers with air cooled condensers		Level 1 (since 01/07/2016)	Level 2 (since 01/07/2018)
SEPR for kWh/kWh < 300 kW medium temperature chillers	kWh/ kWh	2,24	2,58
SEPR for kWh/kWh > 300 kW medium temperature chillers	kWh/ kWh	2,80	3,22

MEPS(*) relating to EU ecodesign for chillers with air cooled condensers		Level 1 (since 01/01/2018)	Level 2 (from 01/01/2021)
SEPR for kWh/kWh < 400 kW process high temperature chillers	kWh/ kWh	4,50	5,00
SEPR for kWh/kWh > 400 kW process high temperature chillers	kWh/ kWh	5,00	5,50

(*) Minimum Efficiency Performance Standards: performance standards set by EU member states to comply with the EU Ecodesign directive. SCOP for the comfort heat pump (as per EU ecodesign directive)

SEASONAL PERFORMANCE IN HEATING MODE

The (**S**easonal **C**oefficient **O**f **P**erformance) **(SCOP)** measures the seasonal energy efficiency of heat pumps in heating mode.

The Ecodesign European directive takes into account the product's environmental impact throughout its life cycle. It defines the mandatory energy efficiency requirements for water chillers and heat pumps.

Products that do not meet the energy efficiency requirements set by the new directive will gradually be phased out of the market, forcing manufacturers to develop and offer more efficient products.

Like the SEER relating to water chillers, the new seasonal coefficient of performance (SCOP) resulting from this new European directive is used to evaluate the energy efficiency of heat pumps. Until now, only the COP has been used to measure energy efficiency in heating mode.

The COP was exclusively calculated using a single measuring point, and only took into account operation at full load, which did not represent the efficiency of the heat pump over an entire heating season.

The purpose of the SCOP is to characterise the seasonal efficiency of the heat pump by taking into account the efficiency at partial load and full load established for several outdoor temperatures. The SCOP is the ratio between the building's annual heating demand and the annual electricity consumption of the heating system. It is measured in accordance with the EN14825 standard based on an average reference climate that takes into account several reference temperatures between -10 °C and +16 °C

Primary energy evaluation

In order to compare the energy efficiency of products using different energy sources, the Ecodesign directive introduced a new seasonal energy efficiency calculation known as Ηs (Greek letter eta followed by the letter "s" for seasonal) and expressed as a percentage. For heat pumps, the SCOP (final energy) value is transposed to Ηs (primary energy) by taking into account a conversion coefficient of 2.5 which corresponds to the average efficiency of the electrical production and various corrections for the responsiveness of the regulation system (i = 3 for air-to-water heat pumps).

$$\eta_s\ (\%) = \frac{SCOP(kW/kW)\times 100}{2,5} - \sum_i \text{corrections}$$

The minimum seasonal efficiency requirements to be met by low temperature heat pumps, set by the standard, are as follows:

MEPS(*) relating to EU ecodesign for air-to-water heat pumps		Level 2 (since 09/2017)	
		Space & Hot Water 47/55 °C	Space Heating 30/35 °C
SCOP for heat pump < 400 kW	kWh/ kWh	2,83	3,20
EtasS		110	125

AQUACIAT POWER™ ILD comply with Ecodesign regulation 813/2013.

HYDRAULIC MODULE

The "ALL IN ONE" solution

The PLUG & COOL solution offered by AQUACIAT POWER ™

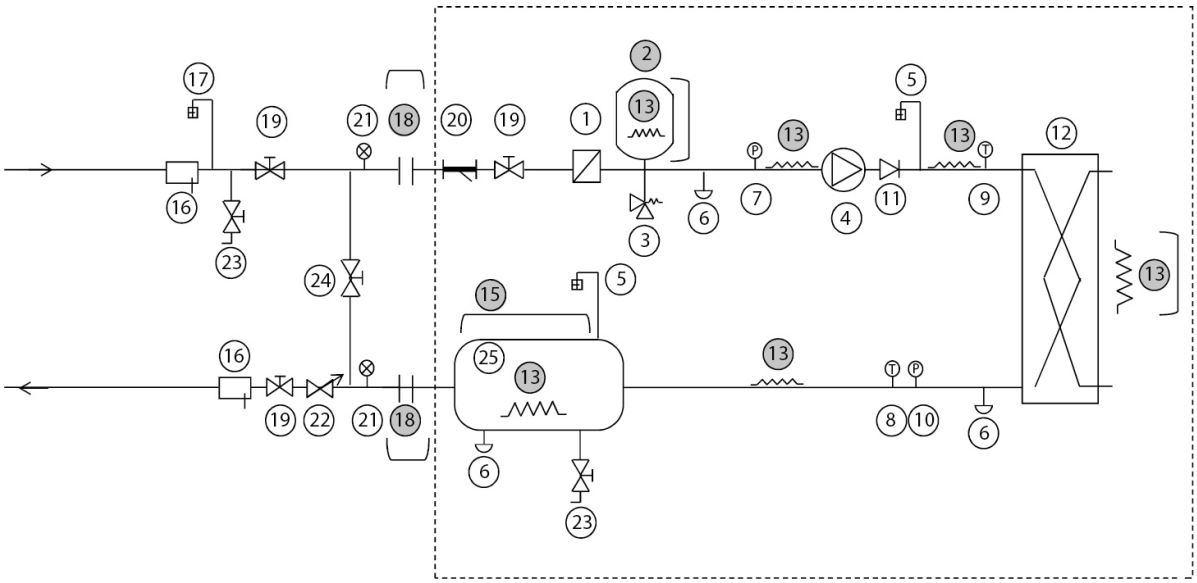
The hydronic module contains all the water circuit components needed for the system to operate correctly:
- Buffer tank with 19-mm insulation, 550-litre capacity (option).
- Expansion vessel (option):
  - 50 litres for models 602 to 900.
  - 80 litres for models 902 to 3500.
- Wide choice of pumps:
  - Single or dual pumps with operating time balancing and backup.
  - High- or low-pressure pumps.
  - Fixed-speed or variable-speed pumps.
- Water temperature and pressure sensors.
- Water filter.
- Relief valve.
- Drain circuit.
- Air bleed valve.
- Frost protection (option).

The components in the hydraulic system are carefully selected and factory assembled and tested to make the installation of the units simple and economical.

This ensures conditioning times, implementation times and space requirements are kept to a minimum.

Hydraulic module

AQUACIAT POWER ™ hydronic module diagram



Components of the unit and hydronic module
1 Mesh filter
2 Expansion tank
3 Relief valve
4 Circulating pump (single or dual)
5 Air purge
6 Water drain tap
7 Pressure sensor
Note: provides pressure information from the pump inlet
8 Temperature probe
Note: provides temperature information from the heat exchanger outlet
9 Temperature probe
Note: provides temperature information from the heat exchanger inlet
10 Pressure sensor
Note: provides pressure information from the heat exchanger outlet
11 Check valve (if dual-pump)
12 Plate heat exchanger
13 Heater or heat trace cable for frost protection
14 Water type heat exchanger flow rate sensor
15 Water buffer tank module
◯ Option

System components
16 Pocket
17 Air purge
18 Flexible connection
19 Shut-off valve
20 800 µm screen filter (Option - mandatory in the case of a unit without hydronic module/included on the hydraulic version)
2 Pressure gauge
22 Water flow control valve
Note: not required if hydronic module with variable-speed pump
23 Charging valve
24 Bypass valve for frost protection (if shut-off valves are closed (item 19) during winter)
25 Buffer tank (if required)
- - - - - Hydronic module (unit with hydronic module option)

Notes:
- The system must be protected against frost.
- The unit's hydronic module and the water type heat exchanger may be protected (factory-fitted option) against freezing using electric heaters and heat trace cables (13)
- The pressure sensors are assembled on connections without Schrader. Depressurise and drain the system before any work.

VARIABLE FLOW PUMP

Description

The AQUACIATPOWER™ may be equipped with one or two variable speed pumps which save you energy by adjusting the electrical consumption of one pump to the actual requirements of a hydraulic system, in particular for oversized installations.

Simple to use

The variable-speed pump function is totally integrated and protected on the machine, and is installed outdoors, requiring no machine room work.

The assembly is factory-fitted and pre-set on the unit; it is therefore quick to install and reduces the cost of work, in particular because there is no water flow control valve on the unit's outlet.

The ability to adjust the water flow to your requirements means that the pump pressure can be adapted precisely to the actual pressure drop on the system when it is started up on-site.

Operating principle

- **Full load operating**

A regulator, with a direct display of the flow rate and pressure on the Connect Touch screen, enables one pump (pump A in the example below) to be adapted, by lowering its pressure P1 to the requirements of system P2, to obtain the optimal water flow rate setpoint. Electricity bills relating to the pump's consumption are reduced accordingly, guaranteeing a return on investment (ROI) in just a few years, compared to the same fixed-speed pump equipped with a basic flow control valve.

- Partial load operation

Three partial load operating modes are available:

1 - Fixed speed

The control ensures the pump continuously runs at a constant speed, based on the capacity of the compressor(s). When the compressor is powered off, the Connect Touch "standby" function manages the electrical power consumed by the pump by reducing its speed to the minimum.

This provides energy savings of around 33%.

2 - Variable flow: Constant pressure difference control

The control system continually adjusts the speed of the pump to ensure a constant pressure difference. This solution is suitable for installations with two-way valves. This control mode is used to ensure a uniform supply in each hydraulic circuit to make sure that each terminal unit operates at a satisfactory pressure

3 - Variable flow: Constant temperature difference control

The regulation maintains a constant temperature difference whatever the load rate of the unit by reducing the flow rate to the minimum acceptable limit. This control mode is suitable for most comfort applications.

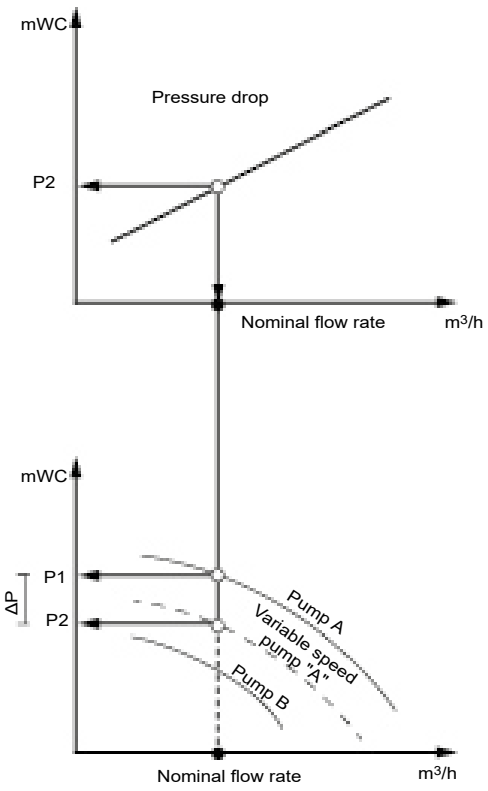
This provides energy savings of around 66% for the pump in each of these last two operating modes

SOFT START

A SOFT START function prevents any current peaks when the pump is started up to protect the electrical system, thereby limiting the building's electricity use at peak times and ensuring the smooth operation of the pipework

STANDBY function

Lowering the speed when the compressors are on standby reduces the water flow rate to ensure the water loop is perfectly homogenised and the control temperature sensors are well irrigated. This reduces the pump's electricity consumption by around 80% during standby periods, which represents a significant proportion of the machine's normal operating time, in particular for air conditioning applications.



R-32

ENVIRONMENTAL RESPONSIBILITY

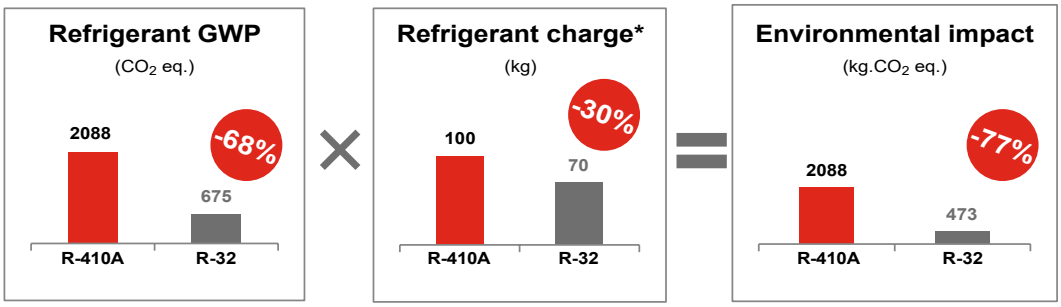
The AQUACIATPOWER™ contributes to sustainable development via an environmentally responsible approach, aimed at balancing ecological and economic concerns. This enables it to meet the requirements of future European thermal regulations and to protect our environment for future generations.

The impact of an air conditioning system on global warming of the planet is in large part caused by CO_2 emissions released into the atmosphere when the electricity required to power the unit is produced (indirect effect) and in small part by CO_2 emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (direct effect).

With AQUACIATPOWER ™, 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



To conclude, the potential direct impact of AQUACIATPOWER ™ on the environment with R-32 refrigerant is reduced by 77% compared to the previous generation R-410A.

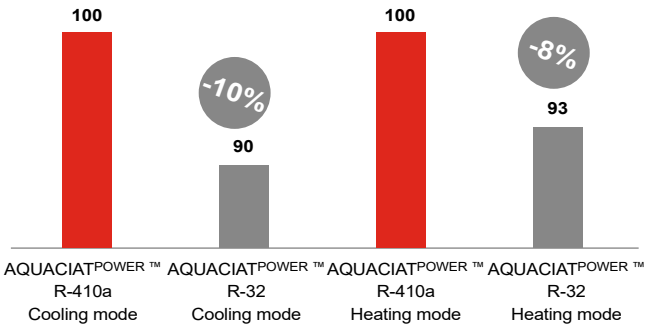
■ Reduced indirect environmental impact (Energy)

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

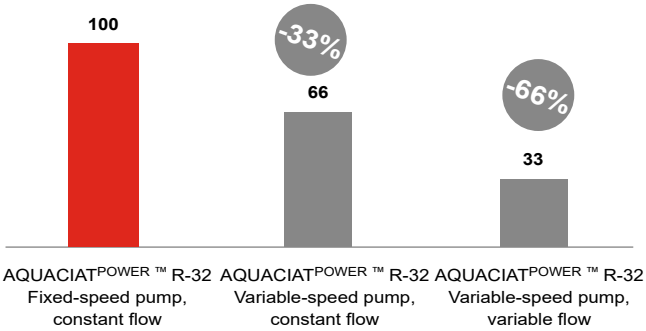
The seasonal efficiency of AQUACIATPOWER ™ R-32 in heating mode is 10% greater than the previous R-410A and 6% greater in heating mode.

In addition, the AQUACIATPOWER ™ 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)



ENVIRONMENTAL RESPONSIBILITY

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 POWER ™ 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 communicate the environmental specifications of their products in the form of an eco-declaration, known as the Product Environmental Profile (PEP).

The PEP ecopassport® programme guarantees that PEPs are created, checked and communicated correctly according to the requirements of standard ISO 14025 and standard IEC/PAS 62545.

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 PEPs for liquid chillers and heat pumps with, not only the 8 mandatory indicators, but all 27 indicators.

The PEP d'AQUACIAT POWER ™ LD can be downloaded from the PEP ecopassport® website: http://www.pep-ecopassport.org

AVAILABLE OPTIONS

Options	Description	Advantages	LD	ILD
Corrosion protection, traditional coils	Fins made of pre-treated aluminium (polyurethane and epoxy)	Improved corrosion resistance, recommended for moderate marine and urban environments	No	●
Low-temperature brine solution	Low temperature chilled water production down to -15 °C with ethylene glycol and down to -12 °C with propylene glycol.	Covers specific applications such as ice storage and industrial processes	●	No
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	●	●
Very Low Noise	Acoustic compressor enclosure and low-speed fans	Noise level reduction for sensitive sites	●	●
Ultra Low Noise	Acoustic compressor enclosure, low-speed fans and enhanced sound insulation of main noise sources	Noise level reduction for sensitive sites	●	●
High ambient temperature	Unit equipped with a higher speed fan	Unit operating range extended to higher ambient temperatures	●	●
Protection grilles	Metallic protection grilles	Coil protection against possible impact	●	●
Electronic starter per compressor	Electronic starter on each compressor	Reduced start-up current	●	●
Electronic starter per circuit	Electronic starter on each circuit	Economical solution for 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 0 °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	●	●
Exchanger & hydraulic frost protection	Electrical heaters on the water type heat exchanger, water pipes, hydronic module and expansion tank	Water type heat exchanger and hydronic module frost protection down to an outdoor air temperature of -20 °C	●	●
Exchanger & hydraulic frost protection	Electrical heater on the water exchanger, water pipes, hydronic module and optional expansion tank & 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)	●	●
Total heat recovery	Unit equipped with an additional heat exchanger in series with the condenser coils	Production of free hot water, adjustable on demand	●	No
Master/slave operation	Unit equipped with supplementary water outlet temperature sensor kit to be field installed allowing master/slave operation of two units connected in parallel	Optimised operation of two units connected in parallel operation with runtime balancing	●	●
Compressor suction and discharge valves	Shut-off valves on the common compressor suction and discharge pipes	Simplified maintenance. Possibility to store the refrigerant charge in the cooler or condenser side during servicing	●	●
HP evap. single-pump	Evaporator hydronic module equipped with high pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available)	Quick and easy installation (plug & play)	0602R-1400R	●
HP dual-pump hydronic module	Dual high pressure water pump, water filter, electronic water flow rate control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available)	Quick and easy installation (plug & play)	0602R-1400R	●
LP single-pump hydronic module	Single low pressure water pump, water filter, electronic water flow rate control, 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)	0602R-1400R	●

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

AVAILABLE OPTIONS

Options	Description	Advantages	LD	ILD
LP dual-pump hydronic module	Dual low pressure water pump, water filter, electronic water flow control, 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)	0602R-1400R	●
HP evap. variable-speed single-pump	Evaporator hydronic module equipped with a high pressure variable-speed pump, drain valve, 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 reduction in pumping energy consumption level (more than two-thirds), precise water flow control, improved system reliability	●	●
HP VSD dual-pump hydraulic mod.	Dual high pressure water pump with speed regulator, pressure sensors. Multiple variable water flow control options. For more details, refer to the relevant section.	Quick and easy installation (plug & play), significant reduction in pumping energy consumption level (more than two-thirds), precise water flow control, improved system reliability	●	●
High nominal energy efficiency	Higher air flow through the condenser coils improving heat exchange efficiency on the condenser	Energy cost reduction and extended operating envelope (full load operation at higher air temperature)	●	●
High seasonal energy efficiency (VSD)	Unit equipped with variable-speed fans (VSD)	Enhances the unit seasonal energy efficiency performance and reduces the noise emission thanks to a smooth fan speed variation.	0602R-1400R	●
High seasonal energy efficiency (EC)	Variable-speed fans with EC motors	Enhances the unit seasonal energy efficiency performance and reduces the noise emission thanks to a smooth fan speed variation.	●	●
High energy efficiency underfloor heating/ cooling system application	Optimisation of the refrigerant circuit for the underfloor heating/cooling system application	Improvement of performances and reduction of energy costs for the underfloor heating/ cooling system application	No	●
Lon gateway	Two-directional communication board complying with Lon Talk protocol	Connects the unit by communication bus to a building management system	●	●
Bacnet over IP	Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)	Easy, high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters	●	●
Energy Management Module	EMM Control board with additional inputs/outputs. See Energy Management Module option chapter	Extended remote control capabilities (Setpoint reset, ice storage end, demand limits, boiler on/off command...)	●	●
Contact for refrigerant leak detection	0-10 V signal to report any refrigerant leakage in the unit directly (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	●	●
Coil defrost resistance heaters	Electric heaters under the coils and the condensate pans	Prevents frost formation on the coils; compulsory in heating mode if the outdoor temperature is below 0 °C	No	●
Insulation of the evap. in/out ref. lines	Thermal insulation of the evaporator inlet/outlet refrigerant lines, with flexible and 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. No heat transfer variation, salt spray resistance test for 4000 hours (ASTM B117)	Protect2 Improved corrosion resistance of the MCHE coils by 2, recommended for use in moderately corrosive environments	●	No
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 thermal transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794	Protect4 Improved corrosion resistance of the MCHE coils by 4, recommended for use in corrosive environments	●	No
Flanged evaporator water connection kit	Victaulic piping connections with flanged joints	Easy installation	●	●

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

AVAILABLE OPTIONS

Options	Description	Advantages	LD	ILD
Compressor enclosure	Compressor enclosure	Improved aesthetics, compressor protection against external elements (dust, sand, water…)	●	●
230 V electrical plug	230 V AC power source provided with plug socket and transformer (180 VA, 0.8 A)	Enables connection of a laptop or an electrical device during unit start-up or servicing	●	●
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	●	●
Screwed water connection sleeve kit	DSH connections with screw connection sleeves	Easy installation. Allows unit connection to a screw connector	●	●
Water buffer tank module	Integrate water buffer tank	Avoid short cycle on compressors and ensure a stable water in the loop	●	●
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 sleeves connection	Flexible connections on the exchanger 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	●	●
Free cooling mode drycooler management	Control and connections to a free cooling drycooler Opera or Vextra fitted with optional FC control box	Easy system management, control capabilities extended to a drycooler used in free cooling mode	●	●
Desuperheater flexible couplings	Flexible connections on the desuperheater water side	Easy to install. Limits the transmission of vibrations to the water network	●	●
Installation or application process outside Europe	Specific management of option compatibility	Permits non-standard option compatibility for HVAC application in the EU	●	No
Compliance with Moroccan regulations	Specific regulatory documentation	Compliance with Moroccan regulations	●	●
Plastic sheeting	Plastic sheeting covering the unit, with strapping securing it on the wooden pallet.	Protects the machine from dust and dirt from outside while the unit is being transported and stored.	●	●

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

TECHNICAL CHARACTERISTICS - COOLING ONLY

AQUACIATPOWER ™ LD				0602R	0650R	0750R	0900R	1100R	1200R	1350R	1400R	1600R
Cooling												
Standard unit Full load performances* CA1	Nominal capacity		kW	165	180	198	217	256	296	328	361	394
	EER		kW/kW	3,05	3,24	3,04	3,02	2,81	2,96	2,86	2,94	2,86
Seasonal energy efficiency**	**SEER 12/7°C Comfort low temp.**		**kWh/kWh**	**4,49**	**4,64**	**4,45**	**4,47**	**4,35**	**4,70**	**4,67**	**4,62**	**5,09**
	ηs cool 12/7°C		**%**	**169**	**181**	**178**	**176**	**171**	**185**	**183**	**183**	**201**
	SEER 23/18°C Comfort medium temp.		**kWh/kWh**	**5,27**	**5,52**	**5,22**	**5,26**	**4,99**	**5,66**	**5,55**	**5,43**	**5,95**
	SEPR 12/7°C Process high temp.		kWh/kWh	5,27	5,42	5,34	5,19	5,14	5,44	5,47	5,60	6,34
	SEPR -2/-8°C Process medium temp.		kWh/kWh	3,06	3,11	3,08	3,00	3,04	3,09	3,14	3,09	3,44
Unit + Rated & Seasonal high performance options Full load performances* CA1	Nominal capacity		kW	172	187	206	227	270	311	346	380	416
	EER		kW/kW	3,20	3,36	3,21	3,16	3,03	3,15	3,09	3,14	3,09
Seasonal energy efficiency**	**SEER 12/7°C Comfort low temp.**		**kWh/kWh**	**4,82**	**5,02**	**4,84**	**4,94**	**4,79**	**5,25**	**5,15**	**5,09**	**5,11**
	ηs cool 12/7°C		**%**	**190**	**198**	**191**	**195**	**189**	**207**	**203**	**201**	**201**
	SEER 23/18°C Comfort medium temp.		**kWh/kWh**	**5,98**	**6,23**	**5,93**	**5,99**	**5,69**	**6,35**	**6,17**	**6,13**	**6,07**
	SEPR 12/7°C Process high temp.		kWh/kWh	6,30	6,61	6,42	6,13	5,97	6,30	6,24	6,36	6,30
	SEPR -2/-8°C Process medium temp.		kWh/kWh	3,48	3,60	3,54	3,41	3,41	3,51	3,56	3,50	3,57
Part Load integrated values	IPLV.SI		kW/kW	5,06	5,16	5,04	5,16	5,08	5,25	5,23	5,21	5,52
Sound levels												
Unit + High temperature option/Nominal high performance												
Sound power(1)			dB(A)	91,0	91,5	91,5	92,0	92,0	93,0	93,0	93,5	93,5
Sound pressure at 10 m(2)			dB(A)	58,5	59,5	59,5	60,0	60,0	60,5	60,5	61,0	61,5
Standard unit												
Sound power(1)			dB(A)	88,5	89,0	89,0	89,5	89,5	90,5	90,5	91,0	91,0
Sound pressure at 10 m(2)			dB(A)	56,5	57,0	57,0	57,5	57,5	58,5	58,5	59,0	58,5
Unit + Very Low Noise option												
Sound power(1)			dB(A)	85,5	85,5	85,5	86,5	86,5	87,5	87,5	88,0	88,0
Sound pressure at 10 m(2)			dB(A)	53,0	53,5	53,5	54,5	54,5	55,5	55,5	55,5	56,0
Unit + Ultra Low Noise option												
Sound power(1)			dB(A)	83,5	83,5	83,5	84,5	84,5	85,5	85,5	86,0	86,0
Sound pressure at 10 m(2)			dB(A)	51,5	51,5	51,5	52,5	52,5	53,5	53,5	53,5	53,5

* In accordance with standard EN14511-3:2018.

** In accordance with EN14825:2018, average climate conditions

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

ηs cool12/7°C & SEER 12/7°C **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

SEER 23/18 °C **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

SEPR 12/7 °C Values calculated in accordance with EN14825:2016

SEPR -2/-8 °C Values calculated in accordance with EN14825:2016

IPLV.SI Calculated as per AHRI standard 551-591.

(1) In dB ref=10^{-12} W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

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

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

Eurovent certified values

TECHNICAL CHARACTERISTICS - COOLING ONLY

AQUACIATPOWER ™ LD		0602R	0650R	0750R	0900R	1100R	1200R	1350R	1400R	1600R
Dimensions										
Standard unit										
Length	mm	2410	2410	2410	2410	2410	3604	3604	3604	3604
Width	mm	2253	2253	2253	2253	2253	2253	2253	2253	2253
Height	mm	2324	2324	2324	2324	2324	2324	2324	2324	2324
Unit + water buffer tank module option										
Length	mm	3604	3604	3604	3604	3604	4798	4798	4798	4798
Operating weight (3)										
Standard unit	kg	1349	1397	1397	1521	1556	1995	2049	2211	2269
Unit + Ultra Low Noise option	kg	1453	1501	1501	1656	1690	2153	2208	2394	2452
Unit + Ultra Low Noise + HP dual-pump hydronic module option	kg	1588	1636	1636	1791	1837	2302	2403	2589	2646
Unit + Ultra Low Noise + HP dual-pump hydronic module + Buffer tank module option	kg	2571	2619	2619	2774	2819	3288	3389	3575	3632
Compressors		Hermetic Scroll 48,3 r/s								
Circuit A		1	1	1	2	2	2	2	3	3
Circuit B		2	2	2	2	2	3	3	3	3
No. of power stages		3	3	3	4	4	5	5	6	6
Unit PED category		III	III	III	III	III	III	III	III	III
Refrigerant(3)		R-32 / A2L/ GWP= 675 following ARI4								
Circuit A	kg	6,40	9,70	9,70	11,40	11,80	12,50	13,30	18,10	18,90
	tCO_2e	4,3	6,5	6,5	7,7	8,0	8,4	9,0	12,2	12,8
Circuit B	kg	11,40	11,40	11,40	11,40	11,80	17,50	18,30	18,10	18,90
	tCO_2e	7,7	7,7	7,7	7,7	8,0	11,8	12,4	12,2	12,8
Oil										
Circuit A	l	6,6	6,6	6,6	13,2	13,2	13,2	13,2	19,8	19,8
Circuit B	l	13,2	13,2	13,2	13,2	13,2	19,8	19,8	19,8	19,8
Capacity control		Connect'Touch								
Minimum capacity	%	33	33	25	25	25	20	20	17	17
Condenser		All-aluminium micro-channel coils (MCHE)								
Fans		Axial with rotating impeller								
Standard unit										
Quantity		3	4	4	4	4	5	5	6	6
Maximum total air flow	l/s	11790	15720	15720	15720	15720	19650	19650	23580	23580
Maximum rotation speed	r/s	12	12	12	12	12	12	12	12	12
Evaporator		Dual-circuit plate heat exchanger								
Water volume	l	15	15	15	19	27	27	35	44	44
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000
Hydraulic module (option)		Pump, victaulic screen filter, relief valve, drain valve (water and air), 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	50	50	50	50	50	80	80	80	80
Buffer tank volume (option)	l	550	550	550	550	550	550	550	550	550
Max. water-side operating pressure with hydronic module	kPa	400	400	400	400	400	400	400	400	400
Hydraulic connections with/without hydronic module		Victaulic® type								
Connections	inches	3	3	3	3	3	4	4	4	4
External diameter	mm	88,9	88,9	88,9	88,9	88,9	114,3	114,3	114,3	114,3
Casing paint colour		Colour code RAL 7035 & 7024								

(1) In dB ref=10^{-12} W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
(2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
(3) Values are guidelines only. Refer to the unit name plate.

TECHNICAL CHARACTERISTICS - COOLING ONLY

AQUACIATPOWER ™ LD				1750R	1800R	2000R	2200R	2400R	2650R	2800R	2950R	3200R	3500R
Cooling													
Standard unit Full load performances* CA1	Nominal capacity		kW	428	458	523	586	645	688	743	765	836	890
	EER		kW/kW	2,93	2,85	2,85	2,94	2,93	2,83	2,85	2,81	2,77	2,66
Seasonal energy efficiency**	**SEER 12/7°C Comfort low temp.**		**kWh/kWh**	**5,37**	**5,30**	**5,21**	**5,24**	**5,35**	**5,20**	**5,43**	**5,38**	**5,22**	**5,07**
	ηs cool 12/7°C		**%**	**212**	**209**	**205**	**207**	**211**	**205**	**214**	**212**	**206**	**200**
	SEER 23/18°C Comfort medium temp.		**kWh/kWh**	**6,25**	**6,12**	**6,25**	**6,41**	**6,59**	**6,33**	**6,69**	**6,60**	**6,34**	**6,06**
	SEPR 12/7°C Process high temp.		kWh/kWh	6,38	6,29	6,24	6,26	6,32	6,11	6,17	6,10	6,03	5,79
	SEPR -2/-8°C Process medium temp.		kWh/kWh	3,43	3,44	3,43	See selection from the electronic catalogue offer						
Unit + Rated & Seasonal high performance options CA1 Full load performances*	Nominal capacity		kW	451	484	553	616	677	726	782	807	882	944
	EER		kW/kW	3,14	3,09	3,08	3,15	3,14	3,06	3,07	3,04	3,00	2,92
Seasonal energy efficiency**	**SEER 12/7°C Comfort low temp.**		**kWh/kWh**	**5,28**	**5,24**	**5,29**	**5,32**	**5,32**	**5,20**	**5,33**	**5,30**	**5,31**	**5,18**
	ηs cool 12/7°C		**%**	**208**	**207**	**209**	**210**	**210**	**205**	**210**	**209**	**209**	**204**
	SEER 23/18°C Comfort medium temp.		**kWh/kWh**	**6,33**	**6,23**	**6,32**	**6,56**	**6,51**	**6,28**	**6,54**	**6,47**	**6,56**	**6,32**
	SEPR 12/7°C Process high temp.		kWh/kWh	6,41	6,32	6,27	6,27	6,33	6,14	6,25	6,18	6,07	5,86
	SEPR -2/-8°C Process medium temp.		kWh/kWh	3,55	3,55	3,55	See selection from the electronic catalogue offer						
Part Load integrated values	IPLV.SI		kW/kW	5,68	5,63	5,60	5,75	5,71	5,60	5,74	5,71	5,63	5,51
Sound levels													
Unit + High temperature option/Nominal high performance													
Sound power(1)			dB(A)	94,0	94,0	94,5	97,5	97,5	98,0	98,0	98,5	98,5	99,0
Sound pressure at 10 m(2)			dB(A)	61,5	61,5	62,0	65,0	65,0	66,0	65,0	66,0	66,0	66,5
Standard unit													
Sound power(1)			dB(A)	91,5	91,5	92,0	96,5	96,5	97,0	97,0	97,5	97,5	98,0
Sound pressure at 10 m(2)			dB(A)	59,5	59,0	60,0	64,0	64,0	64,5	65,0	65,0	65,0	65,5
Unit + Very Low Noise option													
Sound power(1)			dB(A)	88,5	88,5	89,0	92,5	92,5	93,0	93,0	93,5	93,5	94,5
Sound pressure at 10 m(2)			dB(A)	56,0	56,5	57,0	60,5	60,0	60,5	60,0	61,0	60,5	61,5
Unit + Ultra Low Noise option													
Sound power(1)			dB(A)	86,5	86,5	87,0	90,0	90,0	90,5	90,5	90,5	90,5	91,0
Sound pressure at 10 m(2)			dB(A)	54,5	54,0	55,0	57,5	57,5	58,0	58,0	57,5	58,0	58,5

*	In accordance with standard EN14511-3:2018.
**	In accordance with EN14825:2018, average climate conditions
CA1	Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
ηs cool 12/7°C & SEER 12/7°C	**Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**
SEER 23/18 °C	**Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**
SEPR 12/7 °C	Values calculated in accordance with EN14825:2016
SEPR -2/-8 °C	Values calculated in accordance with EN14825:2016
IPLV.SI	Calculated as per AHRI standard 551-591.
(1)	In dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
(2)	In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).

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Eurovent certified values

TECHNICAL CHARACTERISTICS - COOLING ONLY

AQUACIATPOWER ™ LD		1750R	1800R	2000R	2200R	2400R	2650R	2800R	2950R	3200R	3500R
Dimensions											
Standard unit											
Length	mm	4798	4798	4798	5992	5992	5992	7186	7186	7186	7186
Width	mm	2253	2253	2253	2253	2253	2253	2253	2253	2253	2253
Height	mm	2324	2324	2324	2324	2324	2324	2324	2324	2324	2324
Unit + water buffer tank module option											
Length	mm	5992	5992	5992	7186	7186	7186	8380	8380	8380	8380
Operating weight (3)											
Standard unit	kg	2697	2722	2927	3265	3511	3511	4042	4042	4291	4291
Unit + Ultra Low Noise option	kg	2904	2930	3158	3434	3703	3703	4260	4260	4535	4535
Unit + Ultra Low Noise + HP dual-pump hydronic module option	kg	3138	3164	3430	3743	4013	4013	4650	4650	4925	4925
Unit + Ultra Low Noise + HP dual-pump hydronic module + Buffer tank module option	kg	4131	4156	4421	4750	5020	5020	5671	5671	5946	5946
Compressors		Hermetic Scroll 48,3 r/s									
Circuit A		3	3	4	2	3	3	3	3	4	4
Circuit B		4	4	4	3	3	3	4	4	4	4
No. of power stages		7	7	8	5	6	6	7	7	8	8
Unit PED category		IV	IV	IV	III	III	III	IV	IV	IV	IV
Refrigerant(3)		R-32 / A2L/ GWP= 675 following ARI4									
Circuit A	kg	19,20	19,50	25,00	24	25,50	25,50	27,40	27,40	32,40	32,40
	tCO_2e	13,0	13,2	16,9	15,9	17,2	17,2	18,5	18,5	21,9	21,9
Circuit B	kg	24,10	24,50	25,00	25,50	25,50	25,50	32,40	32,40	32,40	32,40
	tCO_2e	16,3	16,5	16,9	17,2	17,2	17,2	21,9	21,9	21,9	21,9
Oil											
Circuit A	l	19,8	19,8	26,4	13,2	19,8	19,8	19,8	19,8	26,4	26,4
Circuit B	l	26,4	26,4	26,4	19,8	19,8	19,8	26,4	26,4	26,4	26,4
Capacity control		Connect'Touch									
Minimum capacity	%	14	14	13	20	17	17	14	14	13	13
Condenser		All-aluminium micro-channel coils (MCHE)									
Fans		Axial with rotating impeller									
Standard unit											
Quantity		7	7	8	9	10	10	11	11	12	12
Maximum total air flow	l/s	27510	27510	31440	35370	39300	39300	43230	43230	47160	47160
Maximum rotation speed	r/s	12	12	12	12	12	12	12	12	12	12
Evaporator		Dual-circuit plate heat exchanger									
Water volume	l	44	47	53	73	73	73	84	84	84	84
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Hydraulic module (option)		Pump, victaulic screen filter, relief valve, drain valve (water and air), 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	80	80	80	80	80	80	80	80	80	80
Buffer tank volume (option)	l	550	550	550	550	550	550	550	550	550	550
Max. water-side operating pressure with hydronic module	kPa	400	400	400	400	400	400	400	400	400	400
Hydraulic connections with/without hydronic module		Victaulic® type									
Connections	inches	4	4	4	5	5	5	5	5	5	5
External diameter	mm	114,3	114,3	114,3	139,7	139,7	139,7	139,7	139,7	139,7	139,7
Casing paint colour		Colour code RAL 7035 & 7024									

(1) In dB ref=10^{-12} W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
(2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
(3) Values are guidelines only. Refer to the unit name plate.

TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

AQUACIATPOWER ™ ILD				0602R	0700R	0800R	0900R	1000R	1150R
Heating									
Standard unit Full load performances*	HA1	Nominal capacity	kW	178	197	237	256	275	317
		COP	kW/kW	3,88	3,80	3,84	3,84	3,82	3,82
	HA2	Nominal capacity	kW	173	192	231	250	269	310
		COP	kW/kW	3,16	3,09	3,14	3,12	3,11	3,10
Seasonal energy efficiency**	HA1	**SCOP 30/35°C**	**kWh/kWh**	**3,44**	**3,45**	**3,39**	**3,47**	**3,48**	**3,57**
		ηs heat 30/35°C	**%**	**135**	**135**	**133**	**136**	**136**	**140**
		Prated	kW	139	155	186	200	217	250
Unit + Rated & Seasonal high performance options Full load performances*	HA1	Nominal capacity	kW	178	197	237	256	275	317
		COP	kW/kW	3,88	3,80	3,84	3,84	3,82	3,82
Seasonal energy efficiency**	HA1	**SCOP 30/35°C**	**kWh/kWh**	**3,67**	**3,66**	**3,74**	**3,77**	**3,80**	**3,87**
		ηs heat 30/35°C	**%**	**144**	**143**	**147**	**148**	**149**	**152**
		Prated	kW	138	155	185	200	216	250
Cooling									
Standard unit Full load performances*	CA1	Nominal capacity	kW	155	171	204	223	239	285
		EER		2,73	2,55	2,73	2,63	2,56	2,66
Seasonal energy efficiency**		SEER 12/7°C Comfort low temp.	kWh/kWh	4,17	4,01	4,18	4,08	4,04	4,48
		SEPR 12/7°C Process high temp.	kWh/kWh	4,68	4,51	4,64	4,52	4,50	4,83
Unit + Rated & Seasonal high performance options Full load performances*	CA1	Nominal capacity	kW	164	181	215	236	254	302
		EER	kW/kW	2,87	2,72	2,86	2,80	2,76	2,85
Seasonal energy efficiency**		SEER 12/7°C Comfort low temp.	kWh/kWh	4,41	4,23	4,48	4,41	4,34	4,78
		SEPR 12/7°C Process high temp.	kWh/kWh	5,47	5,23	5,41	5,23	5,15	5,49
Sound levels									
Unit + High temperature option/Nominal high performance									
Sound power(1)			dB(A)	90,5	91,0	91,5	92,0	92,0	93,0
Sound pressure at 10 m(2)			dB(A)	58,5	59,0	59,5	60,0	60,0	61,0
Standard unit									
Sound power(1)			dB(A)	88,0	88,5	89,0	89,5	89,5	90,5
Sound pressure at 10 m(2)			dB(A)	55,5	56,0	56,5	57,0	57,0	58,0
Unit + Very Low Noise option(3)									
Sound power(1)			dB(A)	85,0	86,0	86,5	87,0	87,0	88,0
Sound pressure at 10 m(2)			dB(A)	53,0	53,5	54,0	54,5	54,5	55,5
Unit + Ultra Low Noise option(3)									
Sound power(1)			dB(A)	83,0	84,0	84,5	85,0	85,0	86,0
Sound pressure at 10 m(2)			dB(A)	51,0	52,0	52,5	53,0	53,0	54,0

* In accordance with standard EN14511-3:2018.

** In accordance with EN14825:2018, average climate 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 m². 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 m². k/W

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W

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

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

(1) In dB ref=10^{-12} W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

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

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Eurovent certified values

TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

AQUACIATPOWER ™ ILD		0602R	0700R	0800R	0900R	1000R	1150R
Dimensions							
Standard unit							
Length	mm	2410	2410	2410	2410	2410	3604
Width	mm	2253	2253	2253	2253	2253	2253
Height	mm	2324	2324	2324	2324	2324	2324
Unit + water buffer tank module option(3)							
Length	mm	3604	3604	3604	3604	3604	4798
Operating weight (3)							
Standard unit	kg	1569	1575	1784	1811	1817	2394
Unit + Ultra Low Noise option	kg	1672	1678	1918	1946	1952	2552
Unit + Ultra Low Noise + HP dual-pump hydronic module option	kg	1808	1814	2065	2092	2098	2747
Unit + Ultra Low Noise + HP dual-pump hydronic module + Buffer tank module option	kg	2791	2797	3048	3075	3081	3756
Compressors		Hermetic Scroll 48,3 r/s					
Circuit A		1	1	2	2	2	2
Circuit B		2	2	2	2	2	3
No. of power stages		3	3	4	4	4	5
Unit PED category		III	III	III	III	III	III
Refrigerant(3)		R-32 / A2L/ GWP= 675 following ARI4					
Circuit A	kg	10,50	10,50	16,00	16,00	16,00	16,00
	tCO_2e	7,1	7,1	10,8	10,8	10,8	10,8
Circuit B	kg	16,00	16,00	16,00	16,00	16,00	28,50
	tCO_2e	10,8	10,8	10,8	10,8	10,8	19,2
Oil							
Circuit A	l	6,6	6,6	13,2	13,2	13,2	13,2
Circuit B	l	13,2	13,2	13,2	13,2	13,2	22,8
Capacity control		Connect'Touch					
Minimum capacity	%	33	33	25	25	25	20
Condenser		Grooved copper tubes and aluminium fins					
Fans		Axial with rotating impeller					
Standard unit							
Quantity		3	3	4	4	4	5
Maximum total air flow (cooling mode)	l/s	11790	11790	15720	15720	15720	19650
Maximum rotation speed (heating mode)	r/s	12	12	12	12	12	12
Maximum total air flow (heating mode)	l/s	14460	14460	19280	19280	19280	24100
Maximum rotation speed (heating mode)	r/s	16	16	16	16	16	16
Evaporator		Dual-circuit plate heat exchanger					
Water volume	l	16,2	16,2	16,2	20,7	20,7	38,7
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000
Hydraulic module (option)		Pump, victaulic screen filter, relief valve, drain valve (water and air), 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	50	50	50	50	50	80
Buffer tank volume (option)	l	550	550	550	550	550	550
Max. water-side operating pressure with hydronic module	kPa	400	400	400	400	400	400
Hydraulic connections with/without hydronic module		Victaulic® type					
Connections	inches	3	3	3	3	3	4
External diameter	mm	88,5	88,6	88,7	88,8	88,9	114,3
Casing paint colour		Colour code RAL 7035 & 7024					

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

TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

AQUACIATPOWER ™ ILD				1250R	1400R	1500R	1600R	1750R	2000R
Heating									
Standard unit Full load performances*	HA1	Nominal capacity	kW	336	387	406	441	467	537
		COP	kW/kW	3,81	3,82	3,81	3,80	3,73	3,80
	HA2	Nominal capacity	kW	329	378	397	431	458	526
		COP	kW/kW	3,09	3,10	3,09	3,10	3,03	3,09
Seasonal energy efficiency**	HA1	**SCOP 30/35°C**	**kWh/kWh**	**3,58**	**3,55**	**3,57**	**3,54**	**3,53**	**3,57**
		ηs heat 30/35°C	**%**	**140**	**139**	**140**	**139**	**138**	**140**
		Prated	kW	266	305	321	349	371	425
Unit + Rated & Seasonal high performance options Full load performances*	HA1	Nominal capacity	kW	336	387	406	441	467	537
		COP	kW/kW	3,81	3,82	3,81	3,80	3,73	3,80
Seasonal energy efficiency**	HA1	**SCOP 30/35°C**	**kWh/kWh**	**3,86**	**3,90**	**3,91**	**3,92**	**3,89**	**3,96**
		ηs heat 30/35°C	**%**	**151**	**153**	**153**	**154**	**153**	**155**
		Prated	kW	265	305	320	348	370	424
Cooling									
Standard unit Full load performances*	CA1	Nominal capacity	kW	305	341	358	389	414	470
		EER		2,59	2,64	2,57	2,64	2,55	2,55
Seasonal energy efficiency**		SEER 12/7°C Comfort low temp.	kWh/kWh	4,50	4,46	4,33	4,44	4,38	4,32
		SEPR 12/7°C Process high temp.	kWh/kWh	4,76	4,93	4,79	4,94	4,82	4,83
Unit + Rated & Seasonal high performance options Full load performances*	CA1	Nominal capacity	kW	324	362	381	413	439	500
		EER	kW/kW	2,80	2,82	2,76	2,81	2,74	2,73
Seasonal energy efficiency**		SEER 12/7°C Comfort low temp.	kWh/kWh	4,81	4,88	4,87	4,81	4,75	4,81
		SEPR 12/7°C Process high temp.	kWh/kWh	5,34	5,60	5,40	5,60	5,43	5,47
Sound levels									
Unit + High temperature option/Nominal high performance									
Sound power(1)			dB(A)	93,5	94,0	94,0	94,5	94,5	95,0
Sound pressure at 10 m(2)			dB(A)	61,5	62,0	62,0	62,0	62,0	62,5
Standard unit									
Sound power(1)			dB(A)	91,0	91,5	91,5	92,0	92,5	93,0
Sound pressure at 10 m(2)			dB(A)	58,5	59,5	59,5	60,0	60,0	60,5
Unit + Very Low Noise option(3)									
Sound power(1)			dB(A)	88,0	89,0	89,0	89,5	90,0	90,0
Sound pressure at 10 m(2)			dB(A)	55,5	56,5	56,5	57,0	57,5	57,5
Unit + Ultra Low Noise option(3)									
Sound power(1)			dB(A)	86,0	86,5	87,0	87,5	87,5	88,0
Sound pressure at 10 m(2)			dB(A)	54,0	54,5	55,0	55,5	55,5	56,0

* In accordance with standard EN14511-3:2018.

** In accordance with EN14825:2018, average climate 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^2. 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^2. 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^2. k/W

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

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

(1) In dB ref=10^{-12} W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

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

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Eurovent certified values

TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

AQUACIAT POWER ™ ILD		1250R	1400R	1500R	1600R	1750R	2000R
Dimensions							
Standard unit							
Length	mm	3604	3604	3604	4798	4798	4798
Width	mm	2253	2253	2253	2253	2253	2253
Height	mm	2324	2324	2324	2324	2324	2324
Unit + water buffer tank module option(3)							
Length	mm	4798	4798	4798	5992	5992	5992
Operating weight (3)							
Standard unit	kg	2452	2672	2678	3154	3180	3430
Unit + Ultra Low Noise option	kg	2611	2855	2861	3361	3387	3661
Unit + Ultra Low Noise + HP dual-pump hydronic module option	kg	2806	3089	3095	3595	3658	3932
Unit + Ultra Low Noise + HP dual-pump hydronic module + Buffer tank module option	kg	3815	4098	4104	4595	4658	4932
Compressors		Hermetic Scroll 48,3 r/s					
Circuit A		2	2	2	3	3	4
Circuit B		3	4	4	4	4	4
No. of power stages		5	6	6	7	7	8
Unit PED category		IV	IV	IV	IV	IV	IV
Refrigerant(3)		R-32 / A2L/ GWP= 675 following ARI4					
Circuit A	kg	18,00	18,00	18,00	29,00	29,00	35,00
	tCO_2e	12,2	12,2	12,2	19,6	19,6	23,6
Circuit B	kg	28,50	34,00	34,00	34,50	35,00	35,00
	tCO_2e	19,2	23,0	23,0	23,3	23,6	23,6
Oil							
Circuit A	l	13,2	13,2	13,2	22,8	22,8	30,4
Circuit B	l	22,8	30,4	30,4	30,4	30,4	30,4
Capacity control		Connect'Touch					
Minimum capacity	%	20	17	17	14	14	13
Condenser		Grooved copper tubes and aluminium fins					
Fans		Axial with rotating impeller					
Standard unit							
Quantity		5	6	6	7	7	8
Maximum total air flow (cooling mode)	l/s	19650	23580	23580	27510	27510	31440
Maximum rotation speed (heating mode)	r/s	12	12	12	12	12	12
Maximum total air flow (heating mode)	l/s	24100	28920	28920	33740	33740	38560
Maximum rotation speed (heating mode)	r/s	16	16	16	16	16	16
Evaporator		Dual-circuit plate heat exchanger					
Water volume	l	48,6	48,6	48,6	48,6	52,2	58,5
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000
Hydraulic module (option)		Pump, victaulic screen filter, relief valve, drain valve (water and air), 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	80	80	80	80	80	80
Buffer tank volume (option)		550	550	550	550	550	550
Max. water-side operating pressure with hydronic module	kPa	400	400	400	400	400	400
Hydraulic connections with/without hydronic module		Victaulic® type					
Connections	inches	4	4	4	4	4	4
External diameter	mm	114,4	114,5	114,6	114,7	114,8	114,9
Casing paint colour		Colour code RAL 7035 & 7024					

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

ELECTRICAL SPECIFICATIONS

Basic unit (excluding pump)

AQUACIAT POWER ™ LD		0602R	0650R	0750R	0900R	1100R	1200R	1350R	1400R	1600R	1750R
Power circuit supply											
Nominal voltage	V-ph-Hz	400-3-50									
Voltage range	V	360-440									
Control circuit supply		24 V via internal transformer									
Maximum operating input power(1) or (2)											
Circuit A&B	kW	71,6	77,2	86,8	95,4	114,6	128,9	143,3	157,5	171,9	186,2
Power factor at maximum power(1) or (2)											
Standard unit power factor		0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83
Maximum operating current draw (Un)(1) or (2)											
Standard unit	A	123,9	134,4	151,0	165,2	198,4	223,1	248,0	272,7	297,6	322,3
Maximum current (Un-10%)(1) or (2)											
Standard unit	A	132,6	143,8	161,8	176,8	212,8	239	266	292,2	319,2	345,4
Maximum start-up current (Un)(2) + (3)											
Standard unit	A	300	347	364	341	411	436	461	485	510	535
Unit + Electronic starter option	A	257	295	312	298	359	384	409	433	458	483

AQUACIAT POWER ™ LD		1800R	2000R	2200R	2400R	2650R	2800R	2950R	3200R	3500R
Power circuit supply										
Nominal voltage	V-ph-Hz	400-3-50								
Voltage range	V	360-440								
Control circuit supply		24 V via internal transformer								
Maximum operating input power(1) or (2)										
Circuit A&B	kW	200,6	229,2	246,7	271,9	295,3	316,7	328,4	361,4	392,6
Power factor at maximum power(1) or (2)										
Standard unit power factor		0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83
Maximum operating current draw (Un)(1) or (2)										
Standard unit	A	347,2	396,8	432,3	478,0	517,0	556,2	575,7	634,4	686,4
Maximum current (Un-10%)(1) or (2)										
Standard unit	A	372,4	425,6	464,8	514	556	598,2	619,2	682,4	738,4
Maximum start-up current (Un)(2) + (3)										
Standard unit	A	560	609	763	815	848	893	906	971	1017
Unit + Electronic starter option	A	508	557	680	732	765	811	824	889	934

AQUACIAT POWER ™ ILD		0602R	0700R	0800R	0900R	1000R	1150R	1250R	1400R	1500R	1600R	1750R	2000R
Power circuit supply													
Nominal voltage	V-ph-Hz	400-3-50											
Voltage range	V	360-440											
Control circuit supply		24 V via internal transformer											
Maximum operating input power(1) or (2)													
Circuit A&B	kW	71,6	81,2	95,4	105,0	114,6	133,7	143,3	162,3	171,9	186,2	200,6	229,2
Power factor at maximum power(1) or (2)													
Standard unit power factor		0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83	0,83
Maximum operating current draw (Un)(1) or (2)													
Standard unit	A	129,0	145,6	172,0	188,6	205,2	239,9	256,5	291,2	307,8	334,2	359,1	410,4
Maximum current (Un-10%)(1) or (2)													
Standard unit	A	135,6	151,6	180,8	196,8	212,8	250	266	303,2	319,2	348,4	372,4	425,6
Maximum start-up current (Un)(2) + (3)													
Standard unit	A	300	355	341	394	411	444	461	494	510	535	560	609
Unit + Electronic starter option	A	257	303	298	342	359	392	409	442	458	483	508	557

(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.

ELECTRICAL SPECIFICATIONS

Short circuit current withstand capability (TN system(1))

AQUACIATPOWER ™ LD		0602R	0650R	0750R	0900R	1100R	1200R	1350R	1400R	1600R
Rated short-circuit withstand currents										
Short time (1s) assigned current - Icw	kA eff	8,5	8,5	8,5	8,5	8,5	20	20	20	20
Rated peak current - Ipk	kA pk	330	330	330	330	330	330	330	330	330
Value with upstream protection										
Conditional short circuit assigned current Icc	kA eff	50	50	50	50	50	50	50	50	50
Associated protection - type		INS250	INS250	INS250	INS250	INS250	INS400	INS400	INS400	INS400
Associated protection - rating/reference		TM160D / LV430840	TM200D / LV431831	TM200D / LV431831	TM250D / LV431831	TM250D / LV431831	TM250D / LV431831	Micrologic 2,3 400A / LV432693	Micrologic 2,3 400A / LV432693	Micrologic 2,3 400A / LV432693

AQUACIATPOWER ™ LD		1750R	1800R	2000R	2200R	2400R	2650R	2800R	2950R	3200R	3500R
Rated short-circuit withstand currents											
Short time (1s) assigned current - Icw	kA eff	20	20	20	20	20	20	35	35	35	35
Rated peak current - Ipk	kA pk	330	330	330	330	330	330	330	330	330	330
Value with upstream protection											
Conditional short circuit assigned current Icc	kA eff	50	50	50	50	50	50	50	50	50	50
Associated protection - type		INS400	INS500	INS500	INS630	INS630	INS630	INS800	INS800	INS800	INS800
Associated protection - rating/ reference		Micrologic 2,3 400A / LV432693	Micrologic 2,3 630A / LV432893	Micrologic 2,3 630A / LV432893	Micrologic 2,3 630A / LV432893	Micrologic 2,3 630A / LV432893	Micrologic 2,3 630A / LV432893	Micrologic 5,0 800A / 34426	Micrologic 5,0 800A / 34426	Micrologic 5,0 800A / 34426	Micrologic 5,0 800A / 34426

AQUACIATPOWER ™ ILD		165R	180R	210R	230R	270R	310R
Rated short-circuit withstand currents							
Short time (1s) assigned current - Icw	kA eff	8,5	8,5	8,5	8,5	8,5	20
Rated peak current - Ipk	kA pk	330	330	330	330	330	330
Value with upstream protection							
Conditional short circuit assigned current Icc	kA eff	50	50	50	50	50	50
Associated protection - type		INS250	INS250	INS250	INS250	INS250	INS400
Associated protection - rating/reference		TM160D / LV430840	TM200D / LV431831	TM250D / LV431831	TM250D / LV431831	TM250D / LV431831	Micrologic 2,3 400A / LV432693

AQUACIATPOWER ™ ILD		330R	370R	400R	430R	470R	520R
Rated short-circuit withstand currents							
Short time (1s) assigned current - Icw	kA eff	20	20	20	20	20	20
Rated peak current - Ipk	kA pk	330	330	330	330	330	330
Value with upstream protection							
Conditional short circuit assigned current Icc	kA eff	50	50	50	50	50	50
Associated protection - type		INS400	INS400	INS400	INS400	INS500	INS500
Associated protection - rating/reference		Micrologic 2,3 400A / LV432693	Micrologic 2,3 400A / LV432693	Micrologic 2,3 400A / LV432693	Micrologic 2,3 400A / LV432693	Micrologic 2,3 630A / LV432893	Micrologic 2,3 630A / LV432893

(1) If another current limitation protection device is used, its time-current and thermal constraint (I^2t) 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.

PARTIAL RECOVERY WITH DESUPERHEATER

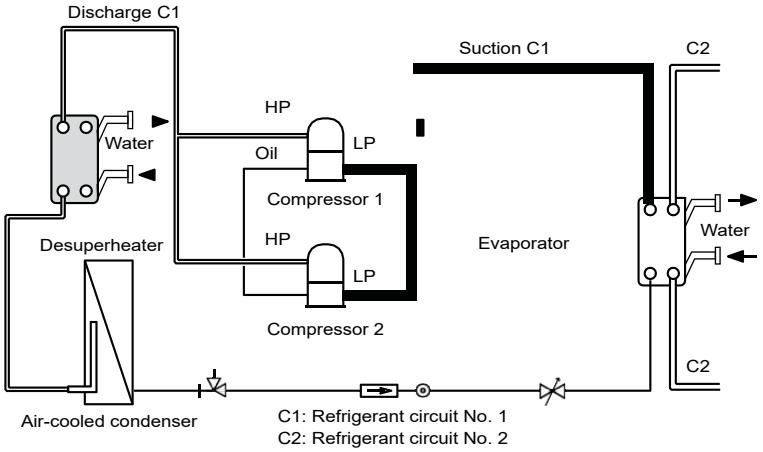
The AQUACIAT POWER ™ range may be equipped as an option with an energy recovery function using a desuperheater.

Heat from gases released by the compressors is recovered directly by a type of heat exchanger called a desuperheater located on the unit to produce free, additional hot water.

This optional configuration requires assembly in our factories and is by order only.

Refrigeration circuit diagram

This refrigeration diagram illustrates a unit with a desuperheater on each refrigerating circuit. For heat recovery to be possible, the unit must be operating. For the same cooling capacity, the desuperheater provides a source of free hot water and lowers the unit's electrical power consumption.



Hydraulic connections: configuration and precautions

The hydraulic supply for each desuperheater is delivered in parallel. In order to ensure that the unit can start and operate under the correct conditions, the desuperheater circuit water loop must be as short as possible and be able to increase quickly in temperature. The minimum desuperheater water inlet temperature is 30 °C. It may require the use of a three-way valve with its controller and a sensor controlling the minimum water inlet temperature.

Note:

The water loop for the desuperheater circuit must include an expansion vessel and a valve. Special attention should be paid when selecting the expansion vessel as the recovery water circuit can reach 120°C if the pump is turned off or if no hot water is consumed

Operating limits

LD units

Desuperheater		Minimum	Maximum
Water inlet temperature at start-up	°C	30 (1)	75
Water outlet temperature during operation	°C	45	80
Water inlet temperature on shut-down	°C	3	75

ILD units

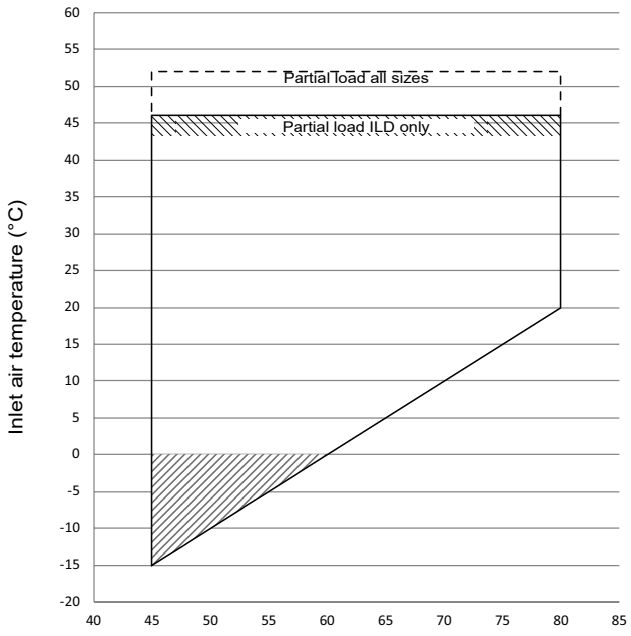
Desuperheater		Minimum	Maximum
Water inlet temperature at start-up	°C	30 (1)	60
Water outlet temperature during operation	°C	45	80
Water inlet temperature on shut-down	°C	3	60

Note: Do not exceed the maximum operating temperature.

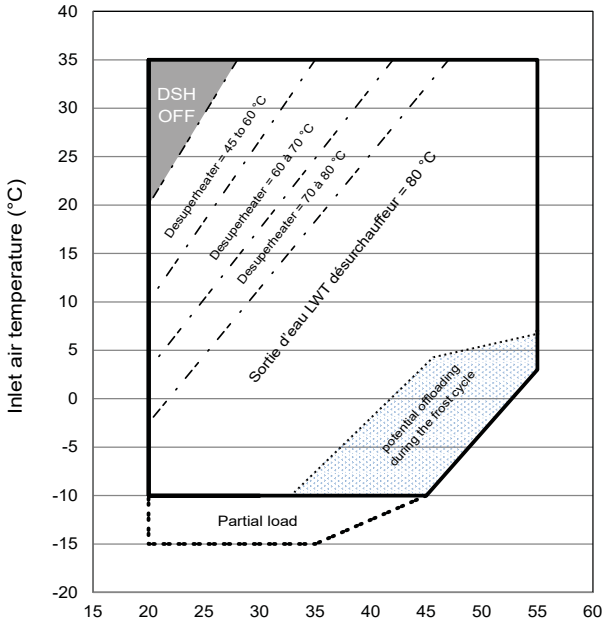
(1) On start-up, the water inlet temperature must not be below 25 °C. On lower temperature installations, a 3-way valve is required until the desuperheater water outlet reaches 45 °C.

PARTIAL RECOVERY WITH DESUPERHEATER

Cooling mode operating range



Heating mode operating range



Notes

1. Desuperheater water type heat exchanger ΔT = 10K.
2. The water type heat exchanger is protected against frost down to -20 °C (with Water exchanger frost protection option or water type heat exchanger and hydronic module frost protection option (if present) or water loop protected by antifreeze solution for outdoor temperatures < 0 °C)
   The water loop on the desuperheater water type heat exchanger must be protected by the customer for outdoor temperatures below 0 °C
3. Operating ranges are guidelines only. Verify the operating range with the electronic catalogue.

Key

- Operating range at full load
- All-season operation option for LD 602 to 1400 units (see note 2)
- Heating mode: Part load at inlet air temperature between -10 and -15 °C.
  Cooling mode: Partial load above 46 °C of inlet air temperature.
  Limited desuperheater power.
- Operating range at part load for ILD only with limited desuperheater power.
- Potential load shedding during the defrosting cycle at low outdoor temperatures (see operating range for ILD 602R - 2000R)
  Limited desuperheater power. Please refer to the selection in the electronic catalogue.
- Desuperheater not operational
- Limited desuperheater leaving water temperature

PARTIAL RECOVERY WITH DESUPERHEATER

Technical specifications

AQUACIAT POWER ™ LD		0602R	0650R	0750R	0900R	1100R	1200R	1350R	1400R	1600R	1750R
Desuperheater in circuits A/B		Brazed-plate heat exchanger									
Water volume circuits A/B	l	2 / 3,75	2 / 3,75	3,75 / 3,75	3,75 / 3,75	3,75 / 3,75	3,75 / 5,5	3,75 / 5,5	5,5 / 5,5	5,5 / 5,5	5,5 / 7,5
Maximum operating pressure, water side	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Water connections		Victaulic									
Connection	in	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"
External diameter	mm	60,3	60,3	60,3	60,3	60,3	60,3	60,3	60,3	60,3	60,3
Operating weight (1)											
Standard unit + desuperheater option	kg	1409	1457	1457	1581	1616	2055	2109	2271	2329	2757
Unit + Ultra Low noise + desuperheater option	kg	1492	1540	1540	1690	1725	2182	2236	2416	2474	2920
Unit + Ultra Low Noise + HP dual-pump hydronic module + desuperheater option	kg	1627	1675	1675	1825	1871	2331	2431	2611	2669	3154
Unit + Ultra Low Noise + HP dual-pump hydronic module + Water buffer tank module + desuperheater option	kg	2610	2658	2658	2808	2854	3318	3417	3597	3654	4146

AQUACIAT POWER ™ LD		1800R	2000R	2200R	2400R	2650R	2800R	2950R	3200R	3500R
Desuperheater in circuits A/B		Brazed-plate heat exchanger								
Water volume circuits A/B	l	5,5 / 7,5	7,5 / 7,5	7,5 / 11	11 / 11	11 / 11	11 / 15	11 / 15	15 / 15	15 / 15
Maximum operating pressure, water side	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000
Water connections		Victaulic								
Connection	in	2"	2"	2"	2"	2"	2"	2"	2"	2"
External diameter	mm	60,3	60,3	60,3	60,3	60,3	60,3	60,3	60,3	60,3
Operating weight (1)										
Standard unit + desuperheater option	kg	2782	2987	3325	3571	3571	4102	4102	4351	4351
Unit + Ultra Low noise + desuperheater option	kg	2945	3168	3458	3724	3724	4276	4276	4545	4545
Unit + Ultra Low Noise + HP dual-pump hydronic module + desuperheater option	kg	3179	3439	3768	4034	4034	4665	4665	4934	4934
Unit + Ultra Low Noise + HP dual-pump hydronic module + Water buffer tank module + desuperheater option	kg	4171	4431	4775	5041	5041	5686	5686	5955	5955

(1) Weights are guidelines only. Refer to the unit name plate.

PARTIAL RECOVERY WITH DESUPERHEATER

Technical specifications

AQUACIAT POWER ™ ILD		0602R	0700R	0800R	0900R	1000R	1150R
Desuperheater in circuits A/B		Brazed-plate heat exchanger					
Water volume circuits A/B	l	2 / 3,75	2 / 3,75	3,75 / 3,75	3,75 / 3,75	3,75 / 3,75	3,75 / 5,5
Maximum operating pressure, water side	kPa	1000	1000	1000	1000	1000	1000
Water connections		Victaulic					
Connection	in	2"	2"	2"	2"	2"	2"
External diameter	mm	60,3	60,3	60,3	60,3	60,3	60,3
Operating weight (1)							
Standard unit + desuperheater option	kg	1651	1657	1873	1900	1906	2500
Unit + Ultra Low noise + desuperheater option	kg	1735	1741	1981	2009	2015	2626
Unit + Ultra Low Noise + HP dual-pump hydronic module + desuperheater option	kg	1870	1876	2128	2156	2162	2821
Unit + Ultra Low Noise + HP dual-pump hydronic module + Water buffer tank module + desuperheater option	kg	2853	2859	3111	3138	3144	3831

AQUACIAT POWER ™ ILD		1250R	1400R	1500R	1600R	1750R	2000R
Desuperheater in circuits A/B		Brazed-plate heat exchanger					
Water volume circuits A/B	l	3,75 / 5,5	3,75 / 7,5	3,75 / 7,5	5,5 / 7,5	5,5 / 7,5	7,5 / 7,5
Maximum operating pressure, water side	kPa	1000	1000	1000	1000	1000	1000
Water connections		Victaulic					
Connection	in	2"	2"	2"	2"	2"	2"
External diameter	mm	60,3	60,3	60,3	60,3	60,3	60,3
Operating weight (1)							
Standard unit + desuperheater option	kg	2558	2785	2791	3283	3309	3565
Unit + Ultra Low noise + desuperheater option	kg	2685	2930	2936	3446	3472	3746
Unit + Ultra Low Noise + HP dual-pump hydronic module + desuperheater option	kg	2880	3164	3170	3681	3744	4018
Unit + Ultra Low Noise + HP dual-pump hydronic module + Water buffer tank module + desuperheater option	kg	3889	4173	4179	4680	4743	5017

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

TOTAL HEAT RECLAIM

The AQUACIATPOWER ™ range can be equipped with a total heat recovery function as an option

The principle consists of producing free additional hot water at a high temperature of up to 65 °C by adding a dual-circuit water-cooled condenser which allows all the heat released by the machine to be recovered.

This optional configuration requires assembly in our factories and is by order only.

Operating principle

If hot water production is required, the compressor discharge gases are directed towards the heat recovery condenser. The refrigerant releases its heat to the hot water that leaves the condenser at a temperature of up to 65 °C. In this way 100% of the heat rejected by the liquid chiller can be used to produce hot water. When the demand for heat is satisfied, the hot gas is again directed towards the air condenser where the heat is rejected to the outside air by the fans.

The hot water temperature is controlled by the machine's Connect Touch control unit.

Note: Heat recovery is only possible if the machine produces cold water at the same time.

Operating limits

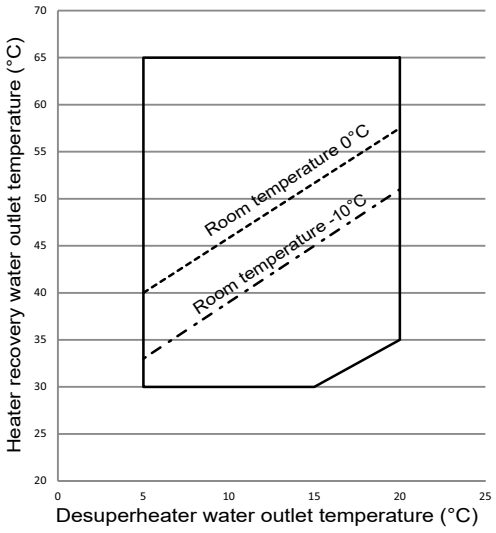
Unités LD

Total recovery exchanger		Minimum	Maximum
Water inlet temperature at start-up	°C	25 (1)	60
Water inlet temperature during operation	°C	30	65
Water inlet temperature on shut-down	°C	3	70

Note: Do not exceed the maximum operating temperature.

(1) On start-up, the water inlet temperature must not be below 25°C. On lower temperature installations, a three-way valve must be used.

Operating range in heat recovery mode



Key

Full load

50% part load limitation below -10°C ambiant air temperature

50% part load limitation below 0°C ambiant air temperature

Notes

- Evaporator ΔT = 5K
- Condenser ΔT = 5K
- These operating ranges are guidelines only. Verify the operating range with the Carrier electronic catalogue.

TOTAL HEAT RECLAIM

Caractéristiques techniques

AQUACIATPOWER ™ LD		0602R	0650R	0750R	0900R	1100R	1200R	1350R	1400R	1600R	1750R
Total recovery exchanger		Brazed-plate heat exchanger									
Water volume circuits A/B	l	20	24	24	29	29	31	31	31	31	44
Maximum operating pressure, water side	kPa	600	600	600	600	600	600	600	600	600	600
Water connections		Victaulic									
Connection	in	3"	3"	3"	3"	3"	4"	4"	4"	4"	4"
External diameter	mm	88,9	88,9	88,9	88,9	88,9	114,3	114,3	114,3	114,3	114,3
Operating weight (1)											
Standard unit + total recovery	kg	1490	1580	1580	1740	1775	2300	2354	4561	2620	3084
Unit + Ultra Low noise + total recovery	kg	1573	1663	1663	1849	1884	2427	2481	4706	2765	3247

AQUACIATPOWER ™ LD		1800R	2000R	2200R	2400R	2650R	2800R	2950R	3200R	3500R
Total recovery exchanger		Brazed-plate heat exchanger								
Water volume circuits A/B	l	44	44	61	61	61	61	61	61	61
Maximum operating pressure, water side	kPa	600	600	600	600	600	600	600	600	600
Water connections		Victaulic								
Connection	in	4"	4"	5"	5"	5"	5"	5"	5"	5"
External diameter	mm	114,3	114,3	139,7	139,7	139,7	139,7	139,7	139,7	139,7
Operating weight (1)										
Standard unit + total recovery	kg	3110	3315	3848	4093	4093	4627	4627	4876	4876
Unit + Ultra Low noise + total recovery	kg	3273	3496	3981	4246	4246	4801	4801	5070	5070

(1) Weights are guidelines only. Refer to the unit name plate.

XTRA FAN OPERATING PRESSURE VENTILATION

The AQUACIAT POWER ™ range can be equipped as an option with the XTRAFAN operating pressure ventilation.

Functions

The XTRAFAN offers a wide range of functions, making a whole host of flexible installation conditions possible, such as:

- The option of installation in a confined space, for example on a terrace surrounded by walls, where only an air supply with static pressure of between 100 and 200 pascals within a duct enables use without recirculation or mixing of air at the condenser intake,
- Installation in an urban area in which noise is a particular issue, where operation is only possible by adapting a sound trap to the supply air,
- A self-adjusting variable speed function which allows "all-season" cooling, fully secured for industrial processes, including during harsh winter conditions with an external temperature of -20 °C,
- The freedom to precisely adjust the ventilation speed on-site to what is "strictly necessary" to obtain the optimum air supply pressure, or the maximum acceptable noise level for the site on which the unit is located,
- An improvement in the EER and electrical consumption for the unit, in direct proportion to the load required by the installation.

The various performances (cooling capacity, heating capacity, input power, energy efficiency) depend on the rotation speed of the fans, and therefore on the desired operating pressure in the duct:

- At an operating pressure of between 0 and 100 Pa, the machine performances are barely affected
- At an operating pressure of between 100 and 200 Pa, the machine performances may be significantly affected, particularly according to the air and water temperature conditions.

The sound level at the duct outlet and the level radiated around the machine depends on the operating pressure.

Refer to the selection tool to evaluate the estimated impact of the ducting system on the machine's operating conditions.

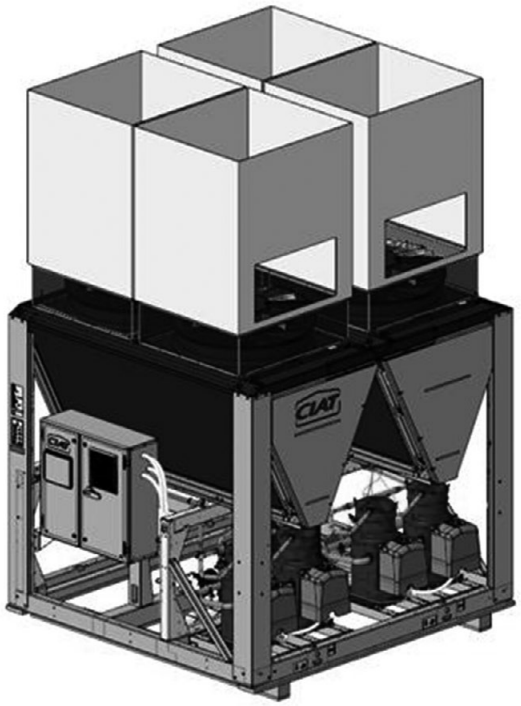
Precautions for installation

On-site installation of a packaged reversible air-to-water unit requires some safety measures to be taken, particularly if it is installed in a machine room. For example, the evacuation of condensates specific to these units, including at very low outdoor temperatures.

During defrosting cycles, reversible units are liable to discharge a large amount of water onto the ground, which must be drained, as well as steam from the fan discharge which can damage the air discharge ducts. The ground supporting the unit must be perfectly watertight and capable of collecting and draining the defrosted water, including during freezing periods. It is recommended that the unit is raised by approximately 300 mm.

If an air discharge duct is installed on site, its weight must not be supported by the roof of the unit. Each fan must be connected independently.

The duct must be connected to the unit using a flexible supply air sleeve, included in the option



INTELLIGENTLY DESIGNED ACOUSTICS

To comply with the various restrictions on integration, the AQUACIATPOWER ™ has two sound finish levels, enabling it to be easily integrated into a number of zones without causing disruption to users or their neighbours.

Basic version

The distinguishing feature of the AQUACIAT range is its rigorous design incorporating "noiseless" assembly techniques to reduce vibrations and sources of noise:

- New-generation scroll compressors with a continuous scrolling motion to lessen vibrations
- Compressor structure separated from the unit by anti-vibration mounts
- Pipes separated from the unit structure
- Fans made from a synthetic material, with aerodynamic blades offering an optimised profile. Optimised coil-fan combination, the result of many hours of study of the thermal and acoustic properties in our Research and Innovation Centre, to ensure a linear flow of air without turbulence, to limit noise to an acceptable acoustic spectrum.
- Even with the basic version, the fans rotate at low speed to guarantee maximum comfort
- The Connect Touch controller automatically adjusts the fan air flow rate according to the outdoor air temperature and the unit's load rate which enables the sound level to be significantly reduced, particularly at night, mid-season, morning and evening, which totals more than 75% of the time the unit is used

Very Low Noise option

In this version, the compressors are fitted inside an insulated soundproof box, and the rotation speed of the fans is kept to a minimum, but the output power and thermal performance remains the same as the basic version.

VERY LOW NOISE

-3 to -4 dB(A)

Thanks to the compressor enclosure

Ultra Low Noise option

In this version, the compressor soundproof box and all sources of vibration which generate noise have had a special coating applied, and the rotation speed of the fans is kept to a minimum, but the output power and thermal performance remains the same as the basic version.

ULTRA LOW NOISE

-5 to -6 dB(A)

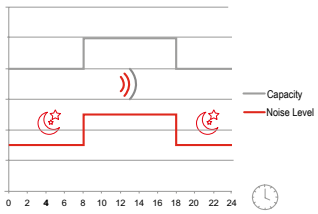
Thanks to a specific soundproof box and an acoustic and vibration treatment on the structure

Night mode

The AQUACIATPOWER ™ has a Night Mode function enabling the sound level to be limited at night or when the building is unoccupied (according to the user programming) by controlling the output and the fan rotation speed.

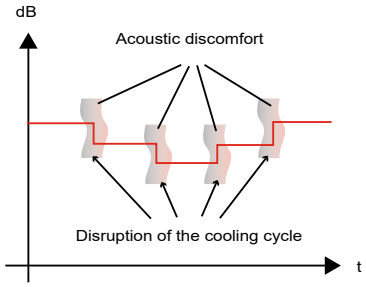
NIGHT MODE

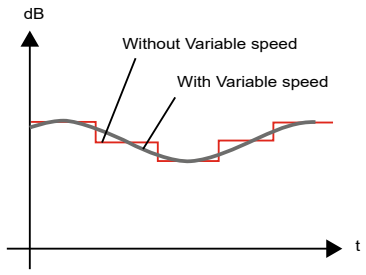
Noise level reduction



Acoustic signature

As important as the sound power level, the acoustic signature reflects the noise disturbance generated by the unit.





The AQUACIATPOWER ™ can be equipped as an option with a variable speed motor, enabling a soft start of the fan (all-season operation).

It avoids the increases in noise linked to the on/off sequences, thereby improving the unit's acoustic signature.

Likewise, installing a variable-speed pump reduces the acoustic level of the pumping function by adjusting the pump speed as required. The soft start improves the signature and reduces nuisance noise.

With all these benefits and its three acoustic finish levels, the AQUACIATPOWER ™ range can be integrated into any site, ensuring any constraints in terms of the sound environment can be met, while guaranteeing optimal comfort for both users and their neighbours, allowing customers in the hotel industry to enjoy their rest, and promoting rest and recovery for users in the hospital sector.

OFFICES HOTELS HEALTHCARE

SOUND LEVELS - COOLING ONLY

Standard unit

■ Sound power level (LW)

AQUACIATPOWER ™ LD Standard unit	Power level spectrum (1)									Global sound power level (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	83,0	77,0	81,0	86,0	85,0	81,0	73,0	70,0	dB(A)	88,5
0650R	dB	85,0	80,5	83,0	86,5	84,5	82,5	73,0	70,5	dB(A)	89,0
0750R	dB	85,0	80,5	83,0	86,5	84,5	82,5	73,0	70,5	dB(A)	89,0
0900R	dB	83,5	77,5	82,0	86,5	85,5	82,0	74,0	70,5	dB(A)	89,5
1100R	dB	84,5	81,0	84,0	87,0	85,0	83,0	73,5	71,0	dB(A)	89,5
1200R	dB	85,5	81,5	85,0	88,0	86,0	84,0	74,5	72,0	dB(A)	90,5
1350R	dB	85,5	81,5	85,0	88,0	86,0	84,0	74,5	72,0	dB(A)	90,5
1400R	dB	85,5	79,5	84,0	88,5	87,5	83,5	75,5	72,5	dB(A)	91,0
1600R	dB	86,0	82,0	85,0	88,0	86,5	84,5	74,5	72,5	dB(A)	91,0
1750R	dB	86,0	80,0	84,5	89,0	88,0	84,5	76,5	73,0	dB(A)	91,5
1800R	dB	86,5	82,5	86,0	88,5	87,0	85,0	75,5	73,0	dB(A)	91,5
2000R	dB	87,0	83,5	86,5	89,5	87,5	85,5	76,0	73,5	dB(A)	92,0
2200R	dB	97,0	99,5	98,0	90,5	87,0	92,0	83,5	77,5	dB(A)	96,5
2400R	dB	90,5	85,5	88,5	92,5	89,0	93,0	82,0	79,5	dB(A)	96,5
2650R	dB	97,5	100,0	98,5	90,5	87,0	92,5	83,5	77,5	dB(A)	97,0
2800R	dB	91,0	86,5	89,5	93,5	89,5	93,5	82,5	80,0	dB(A)	97,0
2950R	dB	98,0	100,5	99,0	91,0	87,5	93,0	84,5	78,5	dB(A)	97,5
3200R	dB	91,0	86,5	89,5	93,5	89,5	93,5	82,5	80,0	dB(A)	97,5
3500R	dB	91,5	87,0	90,0	94,0	90,0	94,0	83,0	80,5	dB(A)	98,0

(1) In dB ref=10^{-12} W, as a guideline. Measured in accordance with ISO 9614-1.
(2) In dB ref=10^{-12} W, (A) weighting, with an uncertainty of +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

■ Sound pressure level (Lp)

Measurement conditions: free field, 10 metres from machine, 1.5 metres above floor level, directivity 2

Note: the sound pressure levels depend on the installation conditions of each system. As such, the levels listed here are given for information only. Only the sound power levels are comparable and certified.

AQUACIATPOWER ™ LD Standard unit	Sound pressure spectrum (1)									Global sound pressure spectrum (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	51,0	45,0	49,0	54,0	53,0	49,0	41,0	38,0	dB(A)	56,5
0650R	dB	53,0	48,5	51,0	54,5	52,5	50,5	41,0	38,5	dB(A)	57,0
0750R	dB	53,0	48,5	51,0	54,5	52,5	50,5	41,0	38,5	dB(A)	57,0
0900R	dB	51,5	45,5	50,0	54,5	53,5	50,0	42,0	38,5	dB(A)	57,5
1100R	dB	52,5	49,0	52,0	55,0	53,0	51,0	41,5	39,0	dB(A)	57,5
1200R	dB	53,5	49,5	53,0	56,0	54,0	52,0	42,5	40,0	dB(A)	58,5
1350R	dB	53,5	49,5	53,0	56,0	54,0	52,0	42,5	40,0	dB(A)	58,5
1400R	dB	53,5	47,5	52,0	56,5	55,5	51,5	43,5	40,5	dB(A)	59,0
1600R	dB	54,0	50,0	53,0	56,0	54,5	52,5	42,5	40,5	dB(A)	58,5
1750R	dB	53,5	47,5	52,0	56,5	55,5	52,0	44,0	40,5	dB(A)	59,5
1800R	dB	54,0	50,0	53,5	56,0	54,5	52,5	43,0	40,5	dB(A)	59,0
2000R	dB	54,5	51,0	54,0	57,0	55,0	53,0	43,5	41,0	dB(A)	60,0
2200R	dB	64,5	67,0	65,5	58,0	54,5	59,5	51,0	45,0	dB(A)	64,0
2400R	dB	58,0	53,0	56,0	60,0	56,5	60,5	49,5	47,0	dB(A)	64,0
2650R	dB	65,0	67,5	66,0	58,0	54,5	60,0	51,0	45,0	dB(A)	64,5
2800R	dB	58,5	54,0	57,0	61,0	57,0	61,0	50,0	47,5	dB(A)	65,0
2950R	dB	65,5	68,0	66,5	58,5	55,0	60,5	52,0	46,0	dB(A)	65,0
3200R	dB	58,5	54,0	57,0	61,0	57,0	61,0	50,0	47,5	dB(A)	65,0
3500R	dB	59,0	54,5	57,5	61,5	57,5	61,5	50,5	48,0	dB(A)	65,5

(1) In dB ref=2x10^{-5} Pa, as a guideline.
(2) In dB ref=2x10^{-5} Pa, (A) weighting with an uncertainty of +/-3 dB.

SOUND LEVELS - COOLING ONLY

Unit + High temperature option/Nominal high performance

Sound power level (LW)

AQUACIATPOWER ™ LD Unit + High temperature option/Nominal high performance		Power level spectrum (1)								Global sound power level (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	82,5	83,5	83,5	87,0	87,5	83,0	75,5	73,5	dB(A)	91,0
0650R	dB	84,0	85,0	85,0	87,5	88,0	84,0	75,5	74,0	dB(A)	90,5
0750R	dB	84,0	85,0	85,0	87,5	88,0	84,0	75,5	74,0	dB(A)	90,5
0900R	dB	83,5	84,5	85,0	88,5	89,0	84,5	76,5	74,5	dB(A)	92,0
1100R	dB	84,0	85,0	85,5	88,0	88,5	85,0	76,0	74,5	dB(A)	92,0
1200R	dB	85,0	86,0	86,5	89,0	89,5	85,5	77,0	75,5	dB(A)	93,0
1350R	dB	85,0	86,0	86,5	89,0	89,5	85,5	77,0	75,5	dB(A)	93,0
1400R	dB	85,0	86,0	86,0	89,5	90,0	85,5	78,0	76,0	dB(A)	93,5
1600R	dB	86,0	87,0	87,5	90,0	90,0	86,5	77,5	76,0	dB(A)	93,5
1750R	dB	85,5	86,5	87,0	90,0	91,0	86,0	78,5	76,5	dB(A)	94,0
1800R	dB	86,0	87,0	87,5	90,0	90,5	86,5	78,0	76,5	dB(A)	94,0
2000R	dB	86,5	87,5	88,0	90,5	91,0	87,5	78,5	77,0	dB(A)	94,5
2200R	dB	96,5	99,5	98,0	92,0	91,5	92,0	84,0	79,5	dB(A)	97,5
2400R	dB	90,0	89,5	90,0	93,5	92,5	93,0	83,0	81,0	dB(A)	97,5
2650R	dB	97,5	100,5	98,5	92,5	92,0	93,0	84,5	80,0	dB(A)	98,0
2800R	dB	90,0	89,5	90,0	93,5	92,5	93,0	83,0	81,0	dB(A)	98,0
2950R	dB	97,5	100,5	99,0	92,5	92,0	93,0	84,5	80,0	dB(A)	98,5
3200R	dB	90,5	90,0	90,5	94,0	93,0	94,0	83,5	81,5	dB(A)	98,5
3500R	dB	91,0	90,5	91,0	94,5	93,5	94,5	84,0	82,0	dB(A)	99,0

(1) In dB ref=10^{-12} W, as a guideline. Measured in accordance with ISO 9614-1.
(2) In dB ref=10^{-12} W, (A) weighting, with an uncertainty of +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

Sound pressure level (Lp)

Measurement conditions: free field, 10 metres from machine, 1.5 metres above floor level, directivity 2

Note: the sound pressure levels depend on the installation conditions of each system. As such, the levels listed here are given for information only. Only the sound power levels are comparable and certified.

AQUACIATPOWER ™ LD Unit + High temperature option/Nominal high performance		Sound pressure spectrum (1)								Global sound pressure spectrum (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	50,5	51,5	51,5	55,0	55,5	51,0	43,5	41,5	dB(A)	58,5
0650R	dB	52,0	53,0	53,0	55,5	56,0	52,0	43,5	42,0	dB(A)	59,5
0750R	dB	52,0	53,0	53,0	55,5	56,0	52,0	43,5	42,0	dB(A)	59,5
0900R	dB	51,5	52,5	53,0	56,5	57,0	52,5	44,5	42,5	dB(A)	60,0
1100R	dB	52,0	53,0	53,5	56,0	56,5	53,0	44,0	42,5	dB(A)	60,0
1200R	dB	53,0	54,0	54,5	57,0	57,5	53,5	45,0	43,5	dB(A)	60,5
1350R	dB	53,0	54,0	54,5	57,0	57,5	53,5	45,0	43,5	dB(A)	60,5
1400R	dB	53,0	54,0	54,0	57,5	58,0	53,5	46,0	44,0	dB(A)	61,0
1600R	dB	54,0	55,0	55,5	58,0	58,0	54,5	45,5	44,0	dB(A)	61,5
1750R	dB	53,0	54,0	54,5	57,5	58,5	53,5	46,0	44,0	dB(A)	61,5
1800R	dB	53,5	54,5	55,0	57,5	58,0	54,0	45,5	44,0	dB(A)	61,5
2000R	dB	54,0	55,0	55,5	58,0	58,5	55,0	46,0	44,5	dB(A)	62,0
2200R	dB	64,0	67,0	65,5	59,5	59,0	59,5	51,5	47,0	dB(A)	65,0
2400R	dB	57,5	57,0	57,5	61,0	60,0	60,5	50,5	48,5	dB(A)	65,0
2650R	dB	65,0	68,0	66,0	60,0	59,5	60,5	52,0	47,5	dB(A)	66,0
2800R	dB	57,5	57,0	57,5	61,0	60,0	60,5	50,5	48,5	dB(A)	65,0
2950R	dB	65,0	68,0	66,5	60,0	59,5	60,5	52,0	47,5	dB(A)	66,0
3200R	dB	58,0	57,5	58,0	61,5	60,5	61,5	51,0	49,0	dB(A)	66,0
3500R	dB	58,5	58,0	58,5	62,0	61,0	62,0	51,5	49,5	dB(A)	66,5

(1) In dB ref=$2x10^{-5}$ Pa, as a guideline.
(2) In dB ref=$2x10^{-5}$ Pa, (A) weighting with an uncertainty of +/-3 dB.

SOUND LEVELS - COOLING ONLY

Unit + Very Low Noise option

Sound power level (LW)

AQUACIAT POWER ™ LD Unit + Very Low Noise option	Power level spectrum (1)									Global sound power level (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	75,5	80	83	85	80	75	69	74	dB(A)	85,0
0700R	dB	76,5	81	84	86	81	76	70	75	dB(A)	86,0
0800R	dB	77	82	85	86	82	77	71	75	dB(A)	86,5
0900R	dB	77,5	82	85	87	82	77	71	76	dB(A)	87,0
1000R	dB	78	82	85	87	81	78	71	75	dB(A)	87,0
1150R	dB	78,5	83	86	88	83	79	72	77	dB(A)	88,0
1250R	dB	79	83	86	88	82	79	72	76	dB(A)	88,0
1400R	dB	79,5	84	87	89	84	79	73	78	dB(A)	89,0
1500R	dB	80	84	87	89	83	80	73	77	dB(A)	89,0
1600R	dB	80	85	87	89	84	80	73	78	dB(A)	89,5
1750R	dB	81	85	88	90	84	81	74	78	dB(A)	90,0
2000R	dB	81	85	88	90	84	81	74	78	dB(A)	90,0

(1) In dB ref=10^{-12} W, as a guideline. Measured in accordance with ISO 9614-1.
(2) In dB ref=10^{-12} W, (A) weighting, with an uncertainty of +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

Sound pressure level (Lp)

Measurement conditions: free field, 10 metres from machine, 1.5 metres above floor level, directivity 2

Note: the sound pressure levels depend on the installation conditions of each system. As such, the levels listed here are given for information only. Only the sound power levels are comparable and certified.

AQUACIAT POWER ™ LD Unit + Very Low Noise option	Sound pressure spectrum (1)									Global sound pressure spectrum (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	53,0	45,5	47,5	52,5	48,5	44,0	37,5	33,5	dB(A)	53,0
0650R	dB	54,0	48,0	49,0	52,5	48,5	45,0	37,0	34,0	dB(A)	53,5
0750R	dB	54,0	48,0	49,0	52,5	48,5	45,0	37,0	34,0	dB(A)	53,5
0900R	dB	54,5	47,0	48,5	54,0	50,0	45,0	38,5	35,0	dB(A)	54,5
1100R	dB	55,5	49,5	50,5	54,0	49,5	46,5	38,5	35,5	dB(A)	54,5
1200R	dB	56,5	50,5	51,5	55,0	50,5	47,5	39,5	36,5	dB(A)	55,5
1350R	dB	56,5	50,5	51,5	55,0	50,5	47,5	39,5	36,5	dB(A)	55,5
1400R	dB	55,5	48,0	50,0	55,0	51,0	46,5	40,0	36,0	dB(A)	55,5
1600R	dB	56,5	50,5	51,5	55,0	51,0	48,0	40,0	36,5	dB(A)	56,0
1750R	dB	56,0	48,5	50,0	55,5	51,5	46,5	40,0	36,0	dB(A)	56,0
1800R	dB	57,0	51,0	52,0	55,5	51,0	48,0	40,0	37,0	dB(A)	56,5
2000R	dB	57,5	51,5	52,5	56,0	51,5	48,5	40,5	37,5	dB(A)	57,0
2200R	dB	71,5	65,5	63,0	55,5	50,5	53,5	47,0	41,0	dB(A)	60,5
2400R	dB	62,5	55,5	54,0	58,0	53,0	55,0	46,0	43,5	dB(A)	60,0
2650R	dB	72,0	65,5	63,0	55,5	50,5	54,0	47,0	41,5	dB(A)	60,5
2800R	dB	62,5	55,5	54,0	58,5	53,0	55,0	46,0	43,5	dB(A)	60,0
2950R	dB	72,5	66,5	64,0	56,0	51,0	54,5	48,0	42,0	dB(A)	61,0
3200R	dB	63,0	56,0	54,5	59,0	53,5	55,5	46,5	44,5	dB(A)	60,5
3500R	dB	64,0	57,0	55,5	60,0	54,5	56,5	47,5	45,5	dB(A)	61,5

(1) In dB ref=2x10^{-5} Pa, as a guideline.
(2) In dB ref=2x10^{-5} Pa, (A) weighting with an uncertainty of +/-3 dB.

SOUND LEVELS - COOLING ONLY

Unit + Ultra Low Noise option

■ Sound power level (LW)

AQUACIAT POWER ™ LD Unit + Low Noise option	Power level spectrum (1)									Global sound power level (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	82,5	76,5	77,5	81,5	80,0	74,0	66,5	63,0	dB(A)	83,5
0650R	dB	83,0	79,5	80,0	82,5	79,0	74,5	67,0	63,5	dB(A)	83,5
0750R	dB	83,0	79,5	80,0	82,5	79,0	74,5	67,0	63,5	dB(A)	83,5
0900R	dB	83,5	78,0	79,0	83,0	81,5	75,5	67,5	64,0	dB(A)	84,5
1100R	dB	83,5	80,5	81,5	83,5	80,0	76,0	68,5	65,0	dB(A)	84,5
1200R	dB	84,5	81,5	82,5	84,5	81,0	77,0	69,5	66,0	dB(A)	85,5
1350R	dB	84,5	81,5	82,5	84,5	81,0	77,0	69,5	66,0	dB(A)	85,5
1400R	dB	85,0	79,0	80,0	84,0	82,5	76,5	69,0	65,5	dB(A)	86,0
1600R	dB	84,5	82,0	82,5	85,0	81,0	77,0	70,0	66,5	dB(A)	86,0
1750R	dB	85,5	80,0	80,5	85,0	83,5	77,0	69,5	66,0	dB(A)	86,5
1800R	dB	85,5	82,5	83,5	85,5	82,0	78,0	70,5	67,0	dB(A)	86,5
2000R	dB	86,0	83,0	84,0	86,0	82,5	78,5	71,0	67,5	dB(A)	87,0
2200R	dB	87,0	84,0	84,5	86,0	84,5	83,5	81,0	76,0	dB(A)	90,0
2400R	dB	90,0	85,0	87,5	87,5	85,0	82,0	75,5	73,5	dB(A)	90,0
2650R	dB	87,5	84,5	85,0	87,0	85,0	84,0	82,0	77,0	dB(A)	90,5
2800R	dB	91,0	85,5	88,0	88,0	85,5	82,5	76,0	74,0	dB(A)	90,5
2950R	dB	87,0	84,0	84,5	86,5	84,5	83,5	81,5	76,5	dB(A)	90,5
3200R	dB	91,0	86,0	88,0	88,0	85,5	82,5	76,5	74,0	dB(A)	90,5
3500R	dB	91,5	86,5	88,5	88,5	86,0	83,0	77,0	74,5	dB(A)	91,0

(1) In dB ref=10^{-12} W, as a guideline. Measured in accordance with ISO 9614-1.
(2) In dB ref=10^{-12} W, (A) weighting, with an uncertainty of +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

■ Sound pressure level (Lp)

Measurement conditions: free field, 10 metres from machine, 1.5 metres above floor level, directivity 2

Note: the sound pressure levels depend on the installation conditions of each system. As such, the levels listed here are given for information only. Only the sound power levels are comparable and certified.

AQUACIAT POWER ™ LD Unit + Low Noise option	Sound pressure spectrum (1)									Global sound pressure spectrum (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	50,5	44,5	45,5	49,5	48,0	42,0	34,5	31,0	dB(A)	51,5
0650R	dB	51,0	47,5	48,0	50,5	47,0	42,5	35,0	31,5	dB(A)	51,5
0750R	dB	51,0	47,5	48,0	50,5	47,0	42,5	35,0	31,5	dB(A)	51,5
0900R	dB	51,5	46,0	47,0	51,0	49,5	43,5	35,5	32,0	dB(A)	52,5
1100R	dB	51,5	48,5	49,5	51,5	48,0	44,0	36,5	33,0	dB(A)	52,5
1200R	dB	52,5	49,5	50,5	52,5	49,0	45,0	37,5	34,0	dB(A)	53,5
1350R	dB	52,5	49,5	50,5	52,5	49,0	45,0	37,5	34,0	dB(A)	53,5
1400R	dB	53,0	47,0	48,0	52,0	50,5	44,5	37,0	33,5	dB(A)	53,5
1600R	dB	52,5	50,0	50,5	53,0	49,0	45,0	38,0	34,5	dB(A)	53,5
1750R	dB	53,0	47,5	48,0	52,5	51,0	44,5	37,0	33,5	dB(A)	54,5
1800R	dB	53,0	50,0	51,0	53,0	49,5	45,5	38,0	34,5	dB(A)	54,0
2000R	dB	53,5	50,5	51,5	53,5	50,0	46,0	38,5	35,0	dB(A)	55,0
2200R	dB	54,5	51,5	52,0	53,5	52,0	51,0	48,5	43,5	dB(A)	57,5
2400R	dB	57,5	52,5	55,0	55,0	52,5	49,5	43,0	41,0	dB(A)	57,5
2650R	dB	55,0	52,0	52,5	54,5	52,5	51,5	49,5	44,5	dB(A)	58,0
2800R	dB	58,5	53,0	55,5	55,5	53,0	50,0	43,5	41,5	dB(A)	58,0
2950R	dB	54,5	51,5	52,0	54,0	52,0	51,0	49,0	44,0	dB(A)	57,5
3200R	dB	58,5	53,5	55,5	55,5	53,0	50,0	44,0	41,5	dB(A)	58,0
3500R	dB	59,0	54,0	56,0	56,0	53,5	50,5	44,5	42,0	dB(A)	58,5

(1) In dB ref=2x10^{-5} Pa, as a guideline.
(2) In dB ref=2x10^{-5} Pa, (A) weighting with an uncertainty of +/-3 dB.

SOUND LEVELS - REVERSIBLE HEAT PUMP

Standard unit

Sound power level (LW) - Cooling mode

AQUACIAT POWER™ ILD Standard unit	Power level spectrum (1)									Global sound power level (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	75	81	84	86	85	81	72	76	dB(A)	88,0
0700R	dB	75	82	84	87	84	81	73	76	dB(A)	88,5
0800R	dB	76	82	85	87	85	81	73	76	dB(A)	89,0
0900R	dB	76	83	85	88	86	82	74	77	dB(A)	89,5
1000R	dB	76	82	85	88	85	82	73	77	dB(A)	89,5
1150R	dB	77	84	86	89	86	83	75	78	dB(A)	90,5
1250R	dB	77	84	86	90	87	84	75	78	dB(A)	91,0
1400R	dB	78	85	87	90	87	84	76	79	dB(A)	91,5
1500R	dB	78	84	87	90	87	84	75	79	dB(A)	91,5
1600R	dB	78	85	88	90	88	85	76	79	dB(A)	92,0
1750R	dB	79	85	88	91	88	85	76	79	dB(A)	92,5
2000R	dB	79	86	88	91	89	86	77	80	dB(A)	93,0

(1) In dB ref=10^{-12} W, as a guideline. Measured in accordance with ISO 9614-1.
(2) In dB ref=10^{-12} W, (A) weighting, with an uncertainty of +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

Sound pressure level (Lp) - Cooling mode

Measurement conditions: free field, 10 metres from machine, 1.5 metres above floor level, directivity 2

Note: the sound pressure levels depend on the installation conditions of each system. As such, the levels listed here are given for information only. Only the sound power levels are comparable and certified.

AQUACIAT POWER™ ILD Standard unit	Sound pressure spectrum (1)									Global sound pressure spectrum (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	43	49	52	54	53	49	40	44	dB(A)	56,0
0700R	dB	43	50	52	55	52	49	41	44	dB(A)	56,5
0800R	dB	44	50	53	55	53	49	41	44	dB(A)	57,0
0900R	dB	44	51	53	56	54	50	42	45	dB(A)	57,5
1000R	dB	44	50	53	56	53	50	41	45	dB(A)	57,5
1150R	dB	45	52	54	57	54	51	43	46	dB(A)	58,5
1250R	dB	45	52	54	58	55	52	43	46	dB(A)	59,0
1400R	dB	46	53	55	58	55	52	44	47	dB(A)	59,5
1500R	dB	46	52	55	58	55	52	43	47	dB(A)	59,5
1600R	dB	46	52	55	58	55	52	44	47	dB(A)	60,0
1750R	dB	46	53	55	58	56	53	44	47	dB(A)	60,0
2000R	dB	47	53	56	59	56	53	44	47	dB(A)	60,5

(1) In dB ref=$2x10^{-5}$ Pa, as a guideline.
(2) In dB ref=$2x10^{-5}$ Pa, (A) weighting with an uncertainty of +/-3 dB.

SOUND LEVELS - REVERSIBLE HEAT PUMP

Unit + High temperature option/Nominal high performance

■ Sound power level (LW) - Cooling mode

AQUACIAT POWER ™ ILD Unit + High temperature option/ Nominal high performance	Power level spectrum (1)									Global sound power level (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	81	88	92	88	86	82	74	75	dB(A)	90,5
0650R	dB	81	88	92	89	87	83	75	75	dB(A)	91,0
0800R	dB	82	88	93	89	87	83	75	75	dB(A)	91,5
0900R	dB	83	89	93	90	88	84	76	76	dB(A)	92,0
1000R	dB	82	89	93	90	87	84	76	76	dB(A)	92,0
1150R	dB	84	90	94	91	89	85	77	77	dB(A)	93,0
1250R	dB	84	90	94	92	89	86	77	78	dB(A)	93,5
1350R	dB	84	91	95	92	90	86	78	78	dB(A)	94,0
1500R	dB	84	91	95	92	89	86	78	78	dB(A)	94,0
1750R	dB	85	91	95	92	90	86	78	78	dB(A)	94,5
1800R	dB	85	91	95	93	90	87	78	78	dB(A)	94,5
2000R	dB	85	91	96	93	90	87	79	79	dB(A)	95,0

(1) In dB ref=10^{-12} W, as a guideline. Measured in accordance with ISO 9614-1.
(2) In dB ref=10^{-12} W, (A) weighting, with an uncertainty of +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

■ Sound pressure level (Lp) - Cooling mode

Measurement conditions: free field, 10 metres from machine, 1.5 metres above floor level, directivity 2

Note: the sound pressure levels depend on the installation conditions of each system. As such, the levels listed here are given for information only. Only the sound power levels are comparable and certified.

AQUACIAT POWER ™ ILD Unit + High temperature option/ Nominal high performance	Sound pressure spectrum (1)									Global sound pressure spectrum (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	49	56	60	56	54	50	42	43	dB(A)	58,5
0700R	dB	49	56	60	57	55	51	43	43	dB(A)	59,0
0800R	dB	50	56	61	57	55	51	43	43	dB(A)	59,5
0900R	dB	51	57	61	58	56	52	44	44	dB(A)	60,0
1000R	dB	50	57	61	58	55	52	44	44	dB(A)	60,0
1150R	dB	52	58	62	59	57	53	45	45	dB(A)	61,0
1250R	dB	52	58	62	60	57	54	45	46	dB(A)	61,5
1400R	dB	52	59	63	60	58	54	46	46	dB(A)	62,0
1500R	dB	52	59	63	60	57	54	46	46	dB(A)	62,0
1600R	dB	52	59	63	60	57	54	46	46	dB(A)	62,0
1750R	dB	52	59	63	60	57	54	46	46	dB(A)	62,5
2000R	dB	53	59	63	61	58	55	46	46	dB(A)	63,0

(1) In dB ref=$2x10^{-5}$ Pa, as a guideline.
(2) In dB ref=$2x10^{-5}$ Pa, (A) weighting with an uncertainty of +/-3 dB.

SOUND LEVELS - REVERSIBLE HEAT PUMP

Unit + Very Low Noise option

■ Sound power level (LW) - Cooling mode

AQUACIAT POWER ™ ILD Unit + Very Low Noise option	Power level spectrum (1)									Global sound power level (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	75,5	80	83	85	80	75	69	74	dB(A)	85,0
0700R	dB	76,5	81	84	86	81	76	70	75	dB(A)	86,0
0800R	dB	77	82	85	86	82	77	71	75	dB(A)	86,5
0900R	dB	77,5	82	85	87	82	77	71	76	dB(A)	87,0
1000R	dB	78	82	85	87	81	78	71	75	dB(A)	87,0
1150R	dB	78,5	83	86	88	83	79	72	77	dB(A)	88,0
1250R	dB	79	83	86	88	82	79	72	76	dB(A)	88,0
1400R	dB	79,5	84	87	89	84	79	73	78	dB(A)	89,0
1500R	dB	80	84	87	89	83	80	73	77	dB(A)	89,0
1600R	dB	80	85	87	89	84	80	73	78	dB(A)	89,5
1750R	dB	81	85	88	90	84	81	74	78	dB(A)	90,0
2000R	dB	81	85	88	90	84	81	74	78	dB(A)	90,0

(1) In dB ref=10^{-12} W, as a guideline. Measured in accordance with ISO 9614-1.
(2) In dB ref=10^{-12} W, (A) weighting, with an uncertainty of +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

■ Sound pressure level (Lp) - Cooling mode

Measurement conditions: free field, 10 metres from machine, 1.5 metres above floor level, directivity 2

Note: the sound pressure levels depend on the installation conditions of each system. As such, the levels listed here are given for information only. Only the sound power levels are comparable and certified.

AQUACIAT POWER ™ ILD Unit + Very Low Noise option	Sound pressure spectrum (1)									Global sound pressure spectrum (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	44	48	51	53	48	43	37	42	dB(A)	53,0
0700R	dB	45	49	52	54	49	44	38	43	dB(A)	54,0
0800R	dB	45	50	53	54	50	45	39	43	dB(A)	54,5
0900R	dB	46	50	53	55	50	45	39	44	dB(A)	55,0
1000R	dB	46	50	53	55	49	46	39	43	dB(A)	55,0
1150R	dB	47	51	54	56	51	47	40	45	dB(A)	56,0
1250R	dB	47	51	54	56	50	47	40	44	dB(A)	56,0
1400R	dB	48	52	55	57	52	47	41	46	dB(A)	57,0
1500R	dB	48	52	55	57	51	48	41	45	dB(A)	57,0
1600R	dB	48	52	55	57	52	47	41	46	dB(A)	57,0
1750R	dB	49	53	55	58	52	48	41	46	dB(A)	57,5
2000R	dB	49	53	55	58	52	48	41	46	dB(A)	57,5

(1) In dB ref=2x10^{-5} Pa, as a guideline.
(2) In dB ref=2x10^{-5} Pa, (A) weighting with an uncertainty of +/-3 dB.

SOUND LEVELS - REVERSIBLE HEAT PUMP

Unit + Ultra Low Noise option

Sound power level (LW) - Cooling mode

AQUACIAT POWER ™ ILD Unit + Ultra Low Noise option	Power level spectrum (1)									Global sound power level (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	79	80	83	81	78	73	67	74	dB(A)	83
0700R	dB	80	82	84	83	79	74	69	75	dB(A)	84
0800R	dB	80	82	85	83	80	74	69	76	dB(A)	85
0900R	dB	81	83	85	84	80	75	70	76	dB(A)	85
1000R	dB	81	82	85	84	80	75	70	76	dB(A)	85
1150R	dB	82	84	86	85	81	76	71	77	dB(A)	86
1250R	dB	82	83	86	85	81	76	71	77	dB(A)	86
1400R	dB	82	84	87	85	81	77	71	78	dB(A)	87
1500R	dB	83	84	87	86	82	77	72	78	dB(A)	87
1600R	dB	83	85	88	86	83	78	72	79	dB(A)	88
1750R	dB	83	85	88	86	82	78	72	79	dB(A)	88
2000R	dB	84	85	88	87	83	78	73	79	dB(A)	88

(1) In dB ref=10^{-12} W, as a guideline. Measured in accordance with ISO 9614-1.
(2) In dB ref=10^{-12} W, (A) weighting, with an uncertainty of +/-3 dB. Measured in accordance with ISO 9614-1 and certified by Eurovent.

Sound pressure level (Lp) - Cooling mode

Measurement conditions: free field, 10 metres from machine, 1.5 metres above floor level, directivity 2

Note: the sound pressure levels depend on the installation conditions of each system. As such, the levels listed here are given for information only. Only the sound power levels are comparable and certified.

AQUACIAT POWER ™ ILD Unit + Ultra Low Noise option	Sound pressure spectrum (1)									Global sound pressure spectrum (2)	
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
0602R	dB	47	48	51	49	46	41	35	42	dB(A)	51
0700R	dB	48	50	52	51	47	42	37	43	dB(A)	52
0800R	dB	48	50	53	51	48	42	37	44	dB(A)	53
0900R	dB	49	51	53	52	48	43	38	44	dB(A)	53
1000R	dB	49	50	53	52	48	43	38	44	dB(A)	53
1150R	dB	50	52	54	53	49	44	39	45	dB(A)	54
1250R	dB	50	51	54	53	49	44	39	45	dB(A)	54
1400R	dB	50	52	55	53	49	45	39	46	dB(A)	55
1500R	dB	51	52	55	54	50	45	40	46	dB(A)	55
1600R	dB	51	53	55	54	50	45	40	46	dB(A)	56
1750R	dB	51	52	55	54	50	45	40	46	dB(A)	56
2000R	dB	51	53	56	54	50	46	40	47	dB(A)	56

(1) In dB ref=2x10^{-5} Pa, as a guideline.
(2) In dB ref=2x10^{-5} Pa, (A) weighting with an uncertainty of +/-3 dB.

INSTALLATION WATER VOLUME - EXCHANGER WATER FLOW RATE

The Connect Touch control is equipped with anticipation logic making it highly flexible in adjusting operation to parameter drift, particularly on hydraulic systems with low water volumes. By adjusting compressor running times, it prevents short cycle protection cycles from starting and, in most cases, eliminates the need for a buffer tank.

Note The minimum volumes of chilled water are calculated for EUROVENT rated conditions:

Cooling mode

- Chilled water temperature = 12 °C/7 °C
- Outdoor air temperature = 35 °C

Heating mode

- Hot water temperature = 40 °C/45 °C
- Outdoor air temperature = 7 °C

This value is applicable for most air conditioning applications (unit with fan coil units).

Note:

For installations running with a low volume of water (assembly with air handling unit) or for industrial processes, the buffer tank is a required component.

AQUACIAT POWER ™ LD		0602R	0650R	0750R	0900R	1100R	1200R	1350R	1400R	1600R
Minimum system water volume, air conditioning application	(litres)	431	468	516	568	676	777	864	949	1039
Minimum system water volume, industrial process application	(litres)	1121	1217	1342	1476	1758	2021	2247	2467	2702
Water type heat exchanger flow rate without hydronic module Min(1)/Max(2)	(l/s)	3,1 / 17,5	3,1 / 17,5	3,7 / 17,5	3,1 / 17,5	3,8 / 21,8	3,5 / 29,8	4,6 / 35,2	4,3 / 33,8	5,4 / 38,9
Water type heat exchanger flow rate with low-pressure hydronic module	Single min(3)/ Max (l/s)	3,1 / 12	3,1 / 12	3,7 / 12	3,1 / 12	3,8 / 15	3,5 / 19	4,6 / 20	4,3 / 20	5,4 / 28
	Dual min(3)/ Max (l/s)	3,1 / 11	3,1 / 11	3,7 / 12	3,1 / 12	3,8 / 15	3,5 / 19	4,6 / 20	4,3 / 20	5,4 / 23
Water type heat exchanger with high-pressure hydronic module	Single min(3)/Max (l/s)	3,1 / 14	3,1 / 14	3,7 /	3,1 / 14	3,8 / 16	3,5 / 18	4,6 / 25	4,3 / 25	5,4 / 25
	Dual min(3)/Max (l/s)	3,1 / 14	3,1 / 14	3,7 / 14	3,1 / 14	3,8 / 17	3,5 / 19	4,6 / 24	4,3 / 24	5,4 /25

AQUACIAT POWER ™ LD		1750R	1800R	2000R	2200R	2400R	2650R	2800R	2950R	3200R	3500R
Minimum system water volume, air conditioning application	(litres)	1126	1209	1381	1542	1694	1816	1955	2017	2204	2359
Minimum system water volume, industrial process application	(litres)	2928	3144	3590	4009	4405	4723	5083	5245	5730	6132
Water type heat exchanger flow rate without hydronic module Min(1)/Max(2)	(l/s)	5,8 / 40,4	6,2 / 41,6	6,9 / 43,4	7,3 / 57,3	7,3 / 57,3	7,3 / 57,3	8,3 / 62,7	8,3 / 62,7	8,3 / 62,7	8,3 / 62,7
Water type heat exchanger flow rate with low-pressure hydronic module	Single min(3)/ Max (l/s)	5,8 / 29	6,2 / 29	6,9 / 27	-	-	-	-	-	-	-
	Dual min(3)/ Max (l/s)	5,8 / 28	6,2 / 29	6,9 / 27	-	-	-	-	-	-	-
Water type heat exchanger with high-pressure hydronic module	Single min(3)/Max (l/s)	5,8 / 29	6,2 / 29	6,9 / 29	-	-	-	-	-	-	-
	Dual min(3)/Max (l/s)	5,8 / 28	6,2 / 28	6,9 / 34	7,3 / 42,4	7,3 / 42,4	7,3 / 42,4	8,3 / 50,4	8,3 / 50,4	8,3 / 50,4	8,3 / 50,4

(1) Minimum flow rate for maximum permitted water temperature difference conditions (10 °C)
(2) Maximum flow rate for a pressure drop of 100 kPa in the plate heat exchanger
(3) Minimum factory flow rate setting according to the type of pump

INSTALLATION WATER VOLUME - EXCHANGER WATER FLOW RATE

AQUACIAT POWER ™ ILD		0602R	0700R	0800R	0900R	1000R	1150R	1250R	1400R	1500R	1600R	1750R	2000R
Minimum system water volume, air conditioning application - cooling	(litres)	388	425	488	550	588	700	763	863	900	975	1050	1213
Minimum system water volume, air conditioning application - heating	(litres)	1360	1520	1840	2000	2080	2480	2640	2960	3120	3400	3600	4160
Minimum system water volume, industrial process application	(litres)	1008	1105	1268	1430	1528	1820	1983	2243	2340	2535	2730	3153
Water type heat exchanger flow rate without hydronic module Min(1)/Max(2)	(l/s)	3,1 / 17,5	3,7 / 17,5	3,1 / 17,5	3,8 / 21,8	3,8 / 21,8	4,6 / 35,2	5,8 / 40,4	5,8 / 40,4	5,8 / 40,4	5,8 / 40,4	6,2 / 41,6	6,9 / 43,4
Water type heat exchanger flow rate with low-pressure hydronic module	Single min(3)/ Max (l/s)	3,1 / 12,0	3,7 / 12,0	3,1 / 13,6	3,8 / 14,7	3,8 / 14,7	4,6 / 20,1	5,8 / 28,8	5,8 / 28,8	5,8 / 28,9	5,8 / 28,10	6,2 / 29,7	6,9 / 30,1
	Dual min(3)/ Max (l/s)	3,1 / 10,5	3,7 / 13,2	3,1 / 13,9	3,8 / 14,7	3,8 / 14,7	4,6 / 20,0	5,8 / 27,8	5,8 / 27,8	5,8 / 27,8	5,8 / 27,8	6,2 / 26,8	6,9 / 29,3
Water type heat exchanger with high-pressure hydronic module	Single min(3)/Max (l/s)	3,1 / 14,1	3,7 / 14,1	3,1 / 15,2	3,8 / 16,0	3,8 / 16,0	4,6 / 25,0	5,8 / 25,5	5,8 / 25,6	5,8 / 25,7	5,8 / 28,5	6,2 / 28,6	6,9 / 34,9
	Dual min(3)/Max (l/s)	3,1 / 13,7	3,7 / 13,7	3,1 / 15,6	3,8 / 16,6	3,8 / 16,6	4,6 / 24,4	5,8 / 25,0	5,8 / 28,2	5,8 / 28,2	5,8 / 28,2	6,2 / 33,3	6,9 / 33,7

(1) Minimum flow rate for maximum permitted water temperature difference conditions (10 °C)
(2) Maximum flow rate for a pressure drop of 100 kPa in the plate heat exchanger
(3) Minimum factory flow rate setting according to the type of pump

Operating range

AQUACIATPOWER ™ devices have a broad field of application, enabling them to meet a range of heating and cooling requirements in the most varied of climates.

Multi-climate:

Cooling mode from -20 °C to +44 °C (option +48 °C)

The AQUACIATPOWER ™ HE series is equipped as standard with all the management devices and algorithms to enable all-season operation in all climates. The AQUACIATPOWER ™ equipped with optional all-season operation and/or variable-speed fans is able to operate in conditions ranging from the heat of the Mediterranean basin to the cold of Scandinavia, the humid Atlantic coast to the dry climate of Central Europe.

Heating mode from -10 °C to +35 °C

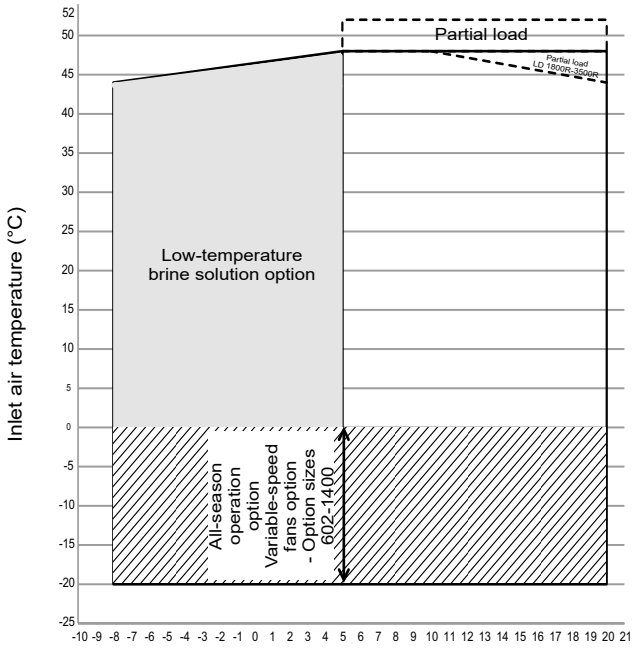
The design of the AQUACIATPOWER ™ makes it suitable for the majority of heating and air conditioning applications, regardless of the climate. Water heated to +45 °C is guaranteed, even for outdoor temperatures of -10 °C.

Multi-application: air conditioning, industrial processes

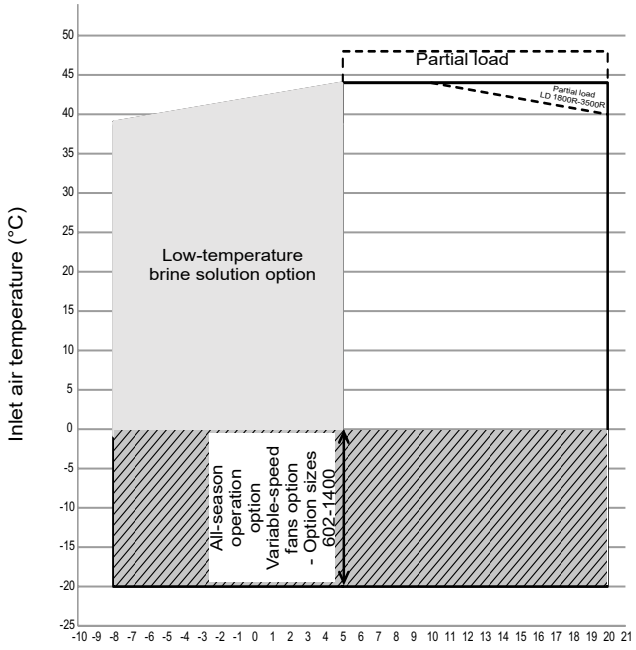
The AQUACIATPOWER ™ can be used for all traditional air conditioning applications in sectors as varied as collective housing, hotels, shopping centres and offices.

LD 602R - 3500R units

Operating range
Options: Rated high performance or Extended application range



Operating range
Standard unit basic version VLN / ULN acoustic version



1. Water type heat exchanger ΔT = 5K
2. The water type heat exchanger is protected against frost down to -20 °C (with Water exchanger frost protection option or water type heat exchanger and hydronic module frost protection option (if present) or water loop protected by antifreeze solution for outdoor temperatures < 0 °C)
3. Operating ranges are guidelines only. The operating range must be checked with the Selection software.

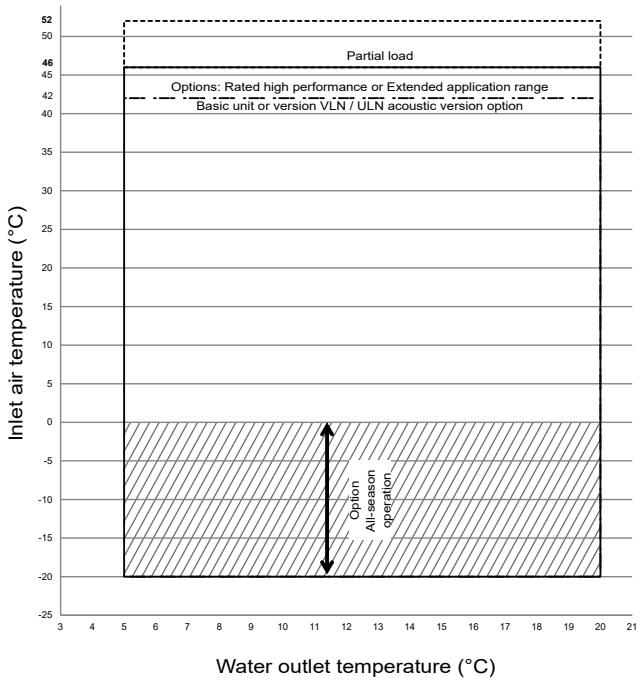
Key

- Full load
- All-season operation option or variable-speed fans option for units LD 602 to 1400 (see note 2)
- Partial load
- Extension of the operating range for units with low-temperature brine solution option

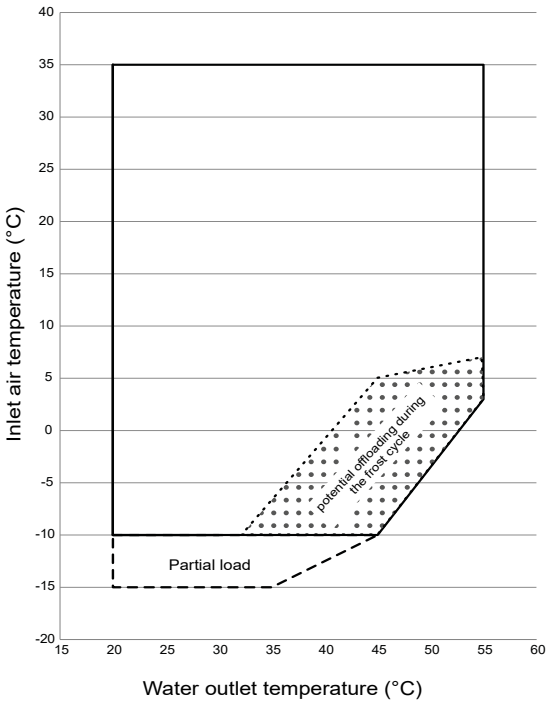
OPERATING RANGE

ILD 602R - 2000R units

Cooling mode



Heating mode



Full load operating range of AQUACIATPOWER ™ ILD units with Rated high performance or Extended application range option

Extended operating range in cooling mode: ILD unit with Winter operation option for outdoor air temperatures down to -20 °C.
The water type heat exchanger must be protected against freezing.

Part load or potential load shedding during the frosting cycle depending on the humidity conditions. Refer to the manufacturer's electronic catalogue.

Heating mode: Partial load at inlet air temperature between -10 and -15 °C
Cooling mode: Partial load above 46 °C of inlet air temperature.

Part load operation outside of an inlet air temperature of 42 °C for Basic ILD units or units with the Low noise level option

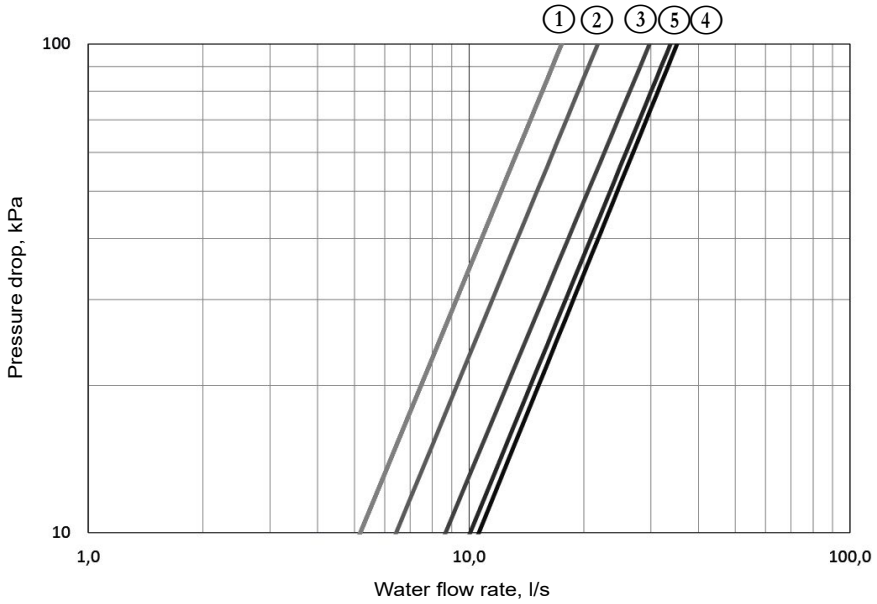
For operation in pure water at an inlet air temperature below 0 °C, the frost protection option must be provided

HYDRAULIC SPECIFICATIONS

Water pressure drop in the evaporator

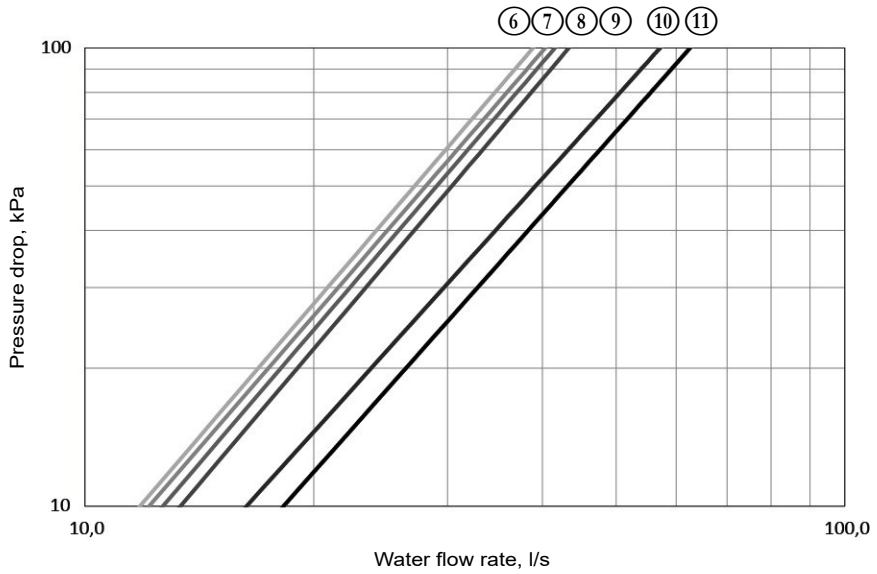
Data applicable for pure water at 20 °C.

LD 602R - 1400R



1 LD 602R - 900R
2 LD 1100R
3 LD 1200R
4 LD 1350R
5 LD 1400R

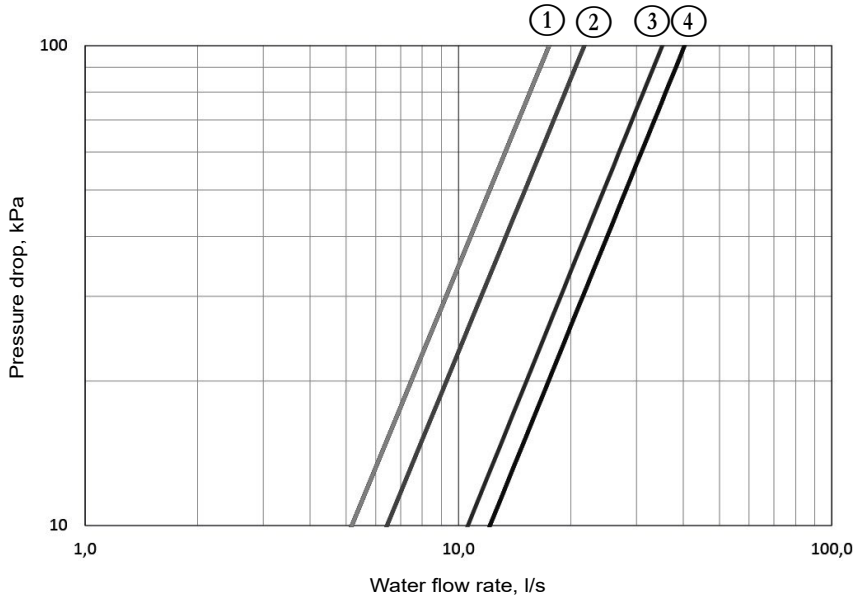
LD 1600R - 3500R



6 LD 1600R
7 LD 1750R
8 LD 1800R
9 LD 2000R
10 LD 2200R - 2650R
11 LD 2800R - 3500R

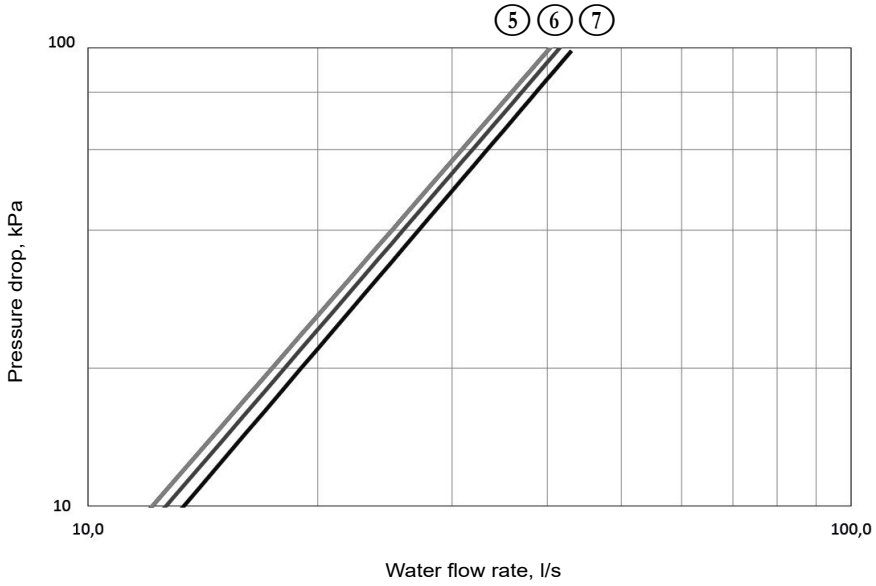
HYDRAULIC SPECIFICATIONS

ILD 602R-1400R



1 ILD 602R - 800R
2 ILD 900R - 1000R
3 ILD 1150R - 1250R
4 ILD 1400R

ILD 1500R-2000R

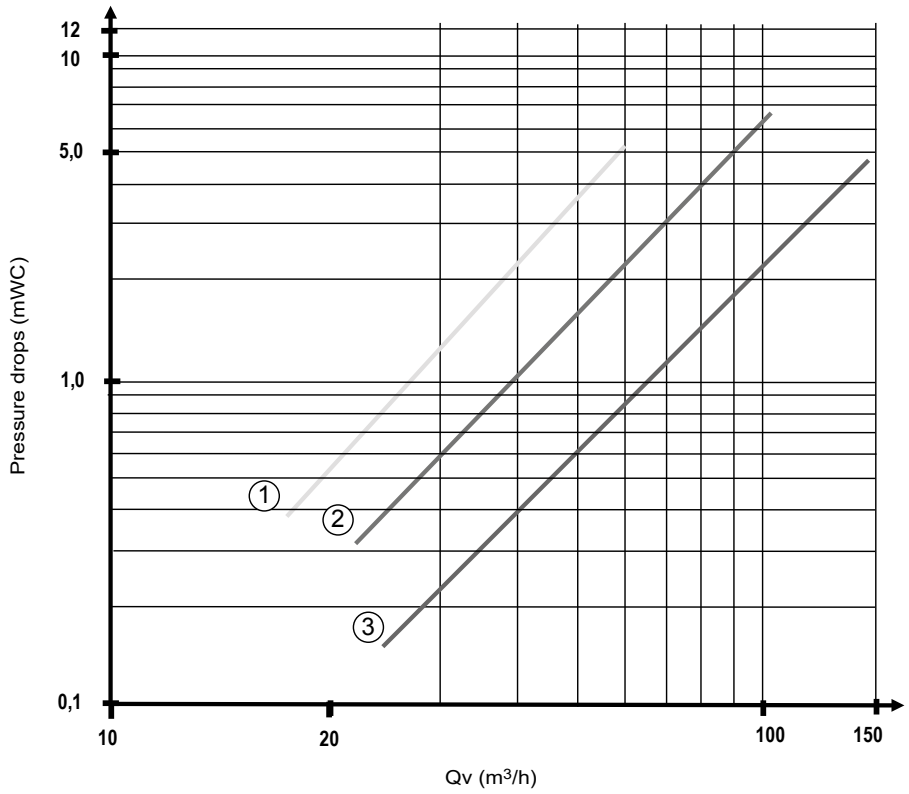


5 ILD 1500R - 1600R
6 ILD 1750R
7 ILD 2000R

HYDRAULIC SPECIFICATIONS

Water pressure drop in the filter

Screen filter (800 µm)



1 LD 602R - 650R and ILD 602R - 700R (DN80 filter)
2 LD 750R - 1200R and ILD 800R - 1250R (DN100 filter)
3 LD 1350R - 3500R and ILD 1400R - 2000R (DN125 filter)

HYDRAULIC SPECIFICATIONS

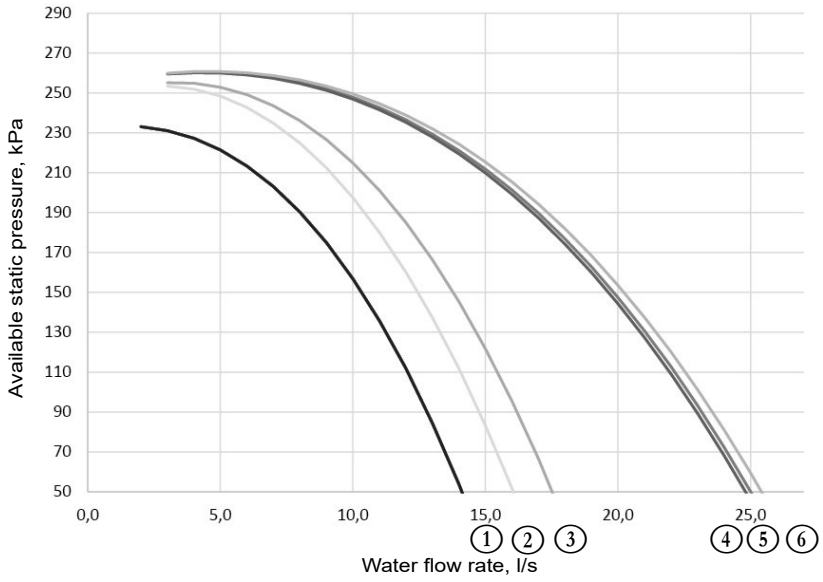
Available static pressure for the installation

Data applicable for:
- Pure water at 20 °C
- Refer to the section "Exchanger water flow rate" for the minimum and maximum water flow rate values
- If a brine solution is used, the maximum water flow rate is reduced

LD high pressure pumps (fixed speed or variable speed)

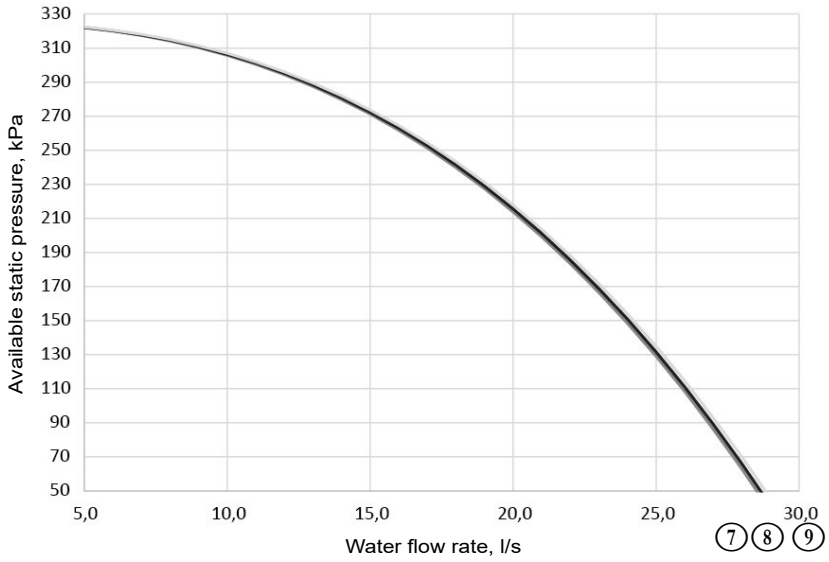
Single pumps

Sizes 602R - 1600R



1 LD 602R - 900R
2 LD 1100R
3 LD 1200R
4 LD 1350R
5 LD 1400R
6 LD 1600R

Sizes 1750R - 2000R

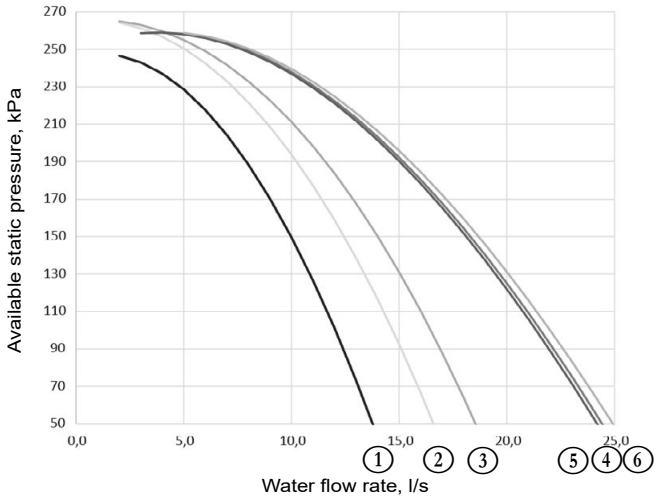


7 LD 1750R
8 LD 1800R
9 LD 2000R

HYDRAULIC SPECIFICATIONS

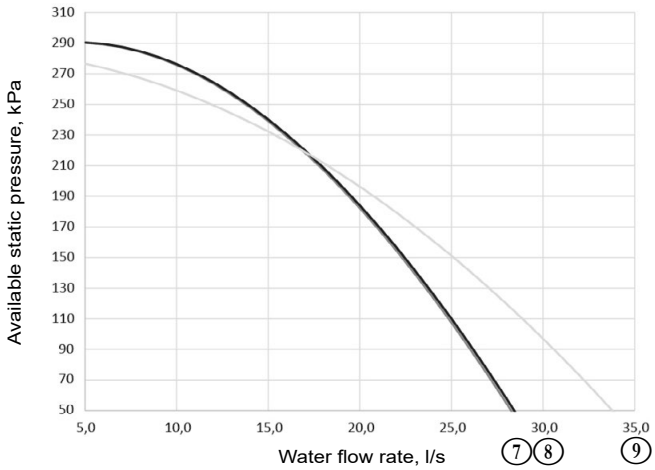
Dual pumps

Sizes 602R - 1600R



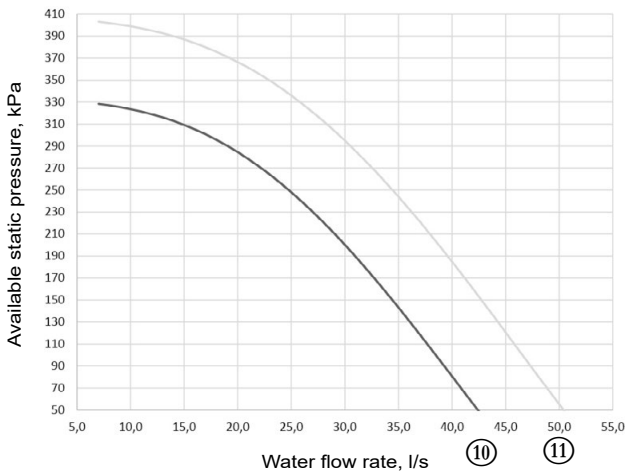
1 LD 602R - 900R
2 LD 1100R
3 LD 1200R
4 LD 1350R
5 LD 1400R
6 LD 1600R

Sizes 1750R - 2000R



7 LD 1750R
8 LD 1800R
9 LD 2000R

Sizes 2200R - 3500R



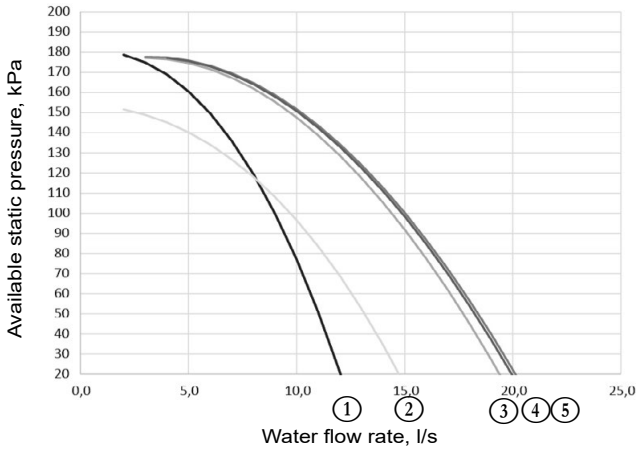
10 LD 2200R - 2650R
11 LD 2800R - 3500R

HYDRAULIC SPECIFICATIONS

■ Low pressure pumps (fixed speed)

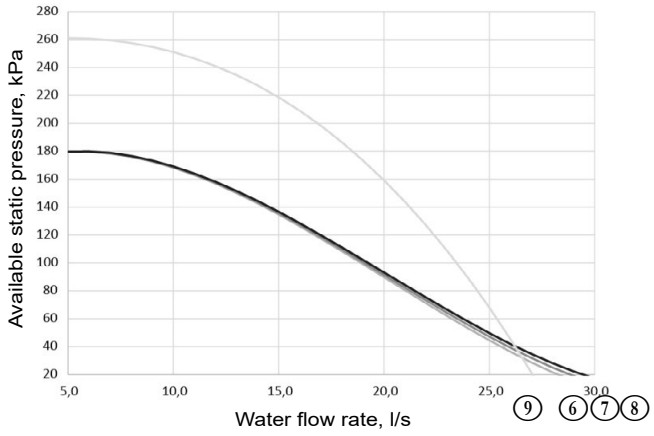
Single pumps

Sizes 602R - 1400R



1 LD 602R - 900R
2 LD 1100R
3 LD 1200R
4 LD 1350R
5 LD 1400R

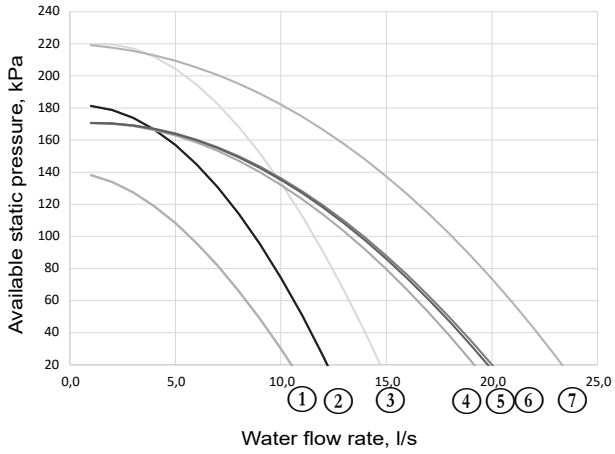
Sizes 1600R - 2000R



6 LD 1600R
7 LD 1750R
8 LD 1800R
9 LD 2000R

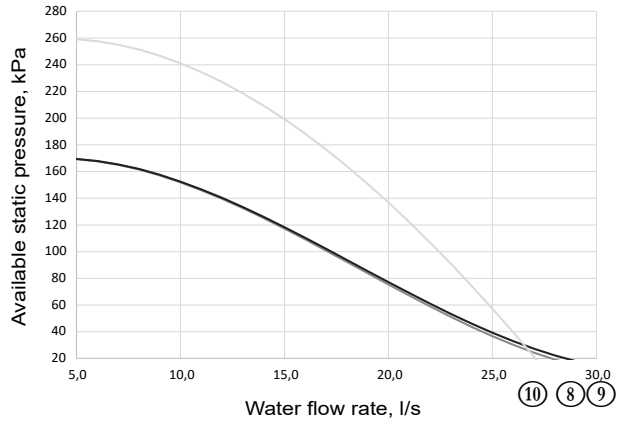
Dual pumps

Sizes 602R - 1600R



1 LD 602R - 650R
2 LD 750R - 900R
3 LD 1100R
4 LD 1200R
5 LD 1350R
6 LD 1400R
7 LD 1600R

Sizes 1750R - 2000R



8 LD 1750R
9 LD 1800R
10 LD 2000R

HYDRAULIC SPECIFICATIONS

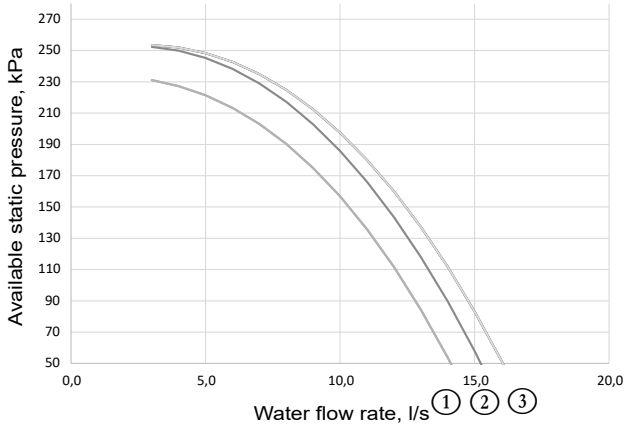
Available static pressure for the installation

Data applicable for:
- Pure water at 20 °C
- Refer to the section "Exchanger water flow rate" for the minimum and maximum water flow rate values
- If a brine solution is used, the maximum water flow rate is reduced

ILD high pressure pumps (fixed speed or variable speed)

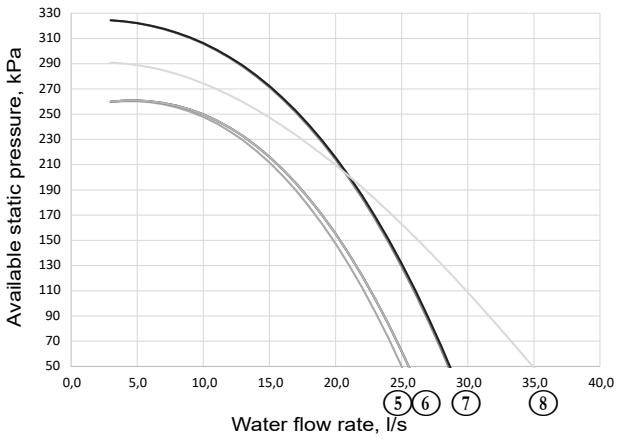
Single pumps

Sizes 602R - 1000R



1 ILD 602R - 700R
2 ILD 800R
3 ILD 900R - 1000R

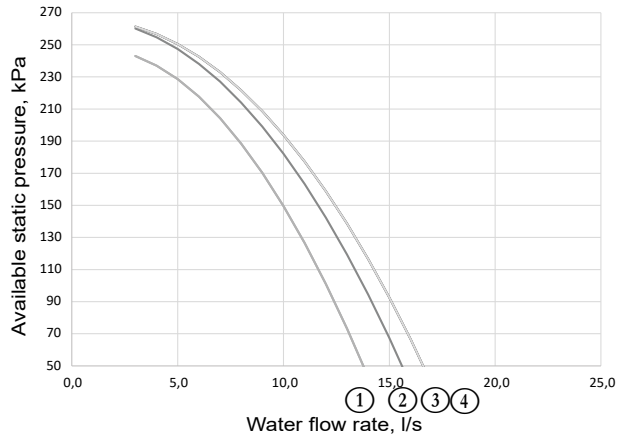
Sizes 1150R - 2000R



5 ILD 1150R
6 ILD 1250R - 1500R
7 ILD 1600R - 1750R
8 ILD 2000R

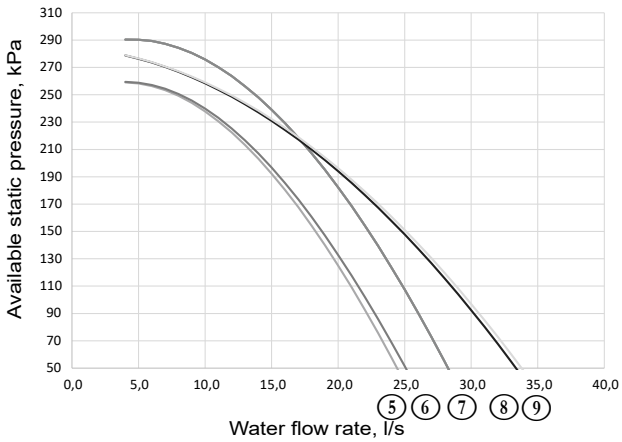
Dual pumps

Sizes 602R - 1000R



1 ILD 602R - 700R
2 ILD 800R
3 ILD 900R
4 ILD 1000R

Sizes 1150R - 2000R



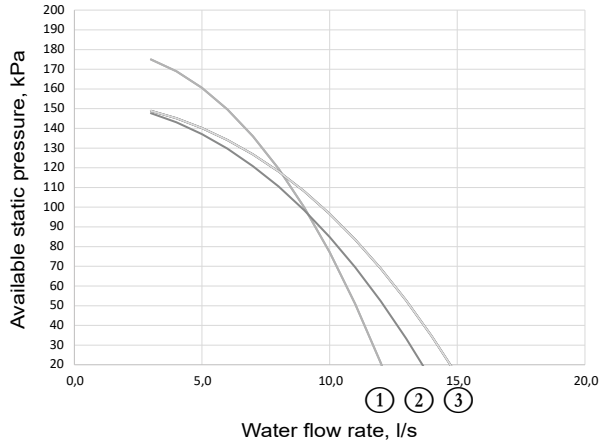
5 ILD 1150R
6 ILD 1250R
7 ILD 1400R
8 ILD 1500R - 1600R
9 ILD 1750R - 2000R

HYDRAULIC SPECIFICATIONS

ILD low-pressure pumps (fixed-speed)

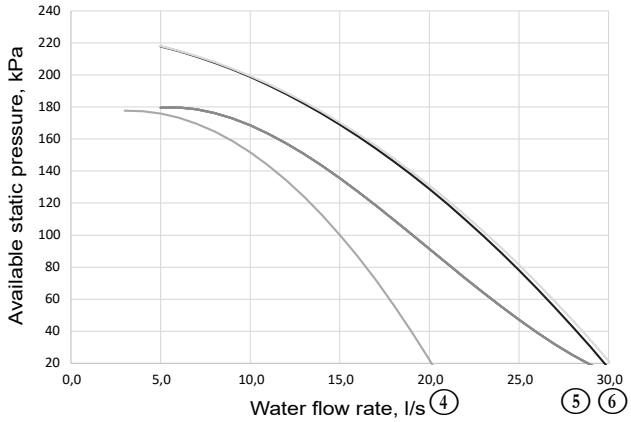
Single pumps

Sizes 602R - 1000R



1 ILD 602R - 700R
2 ILD 800R
3 ILD 900R - 1000R

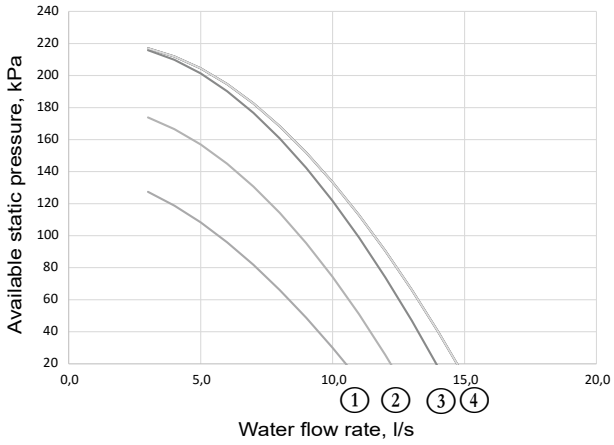
Sizes 1150R - 2000R



4 ILD 1150R
5 ILD 1250R - 1600R
6 ILD 1750R - 2000R

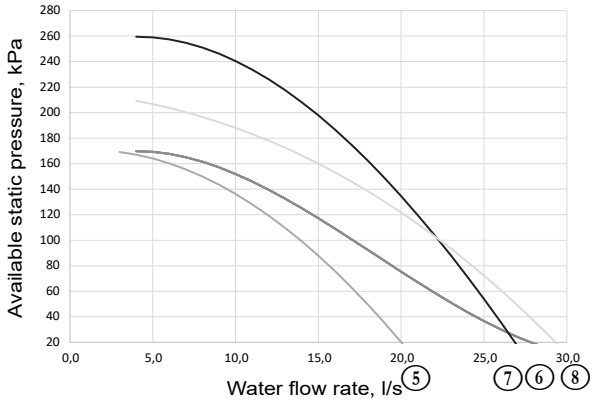
Dual pumps

Sizes 602R - 1000R



1 ILD 602R
2 ILD 700R
3 ILD 800R
4 ILD 900R - 1000R

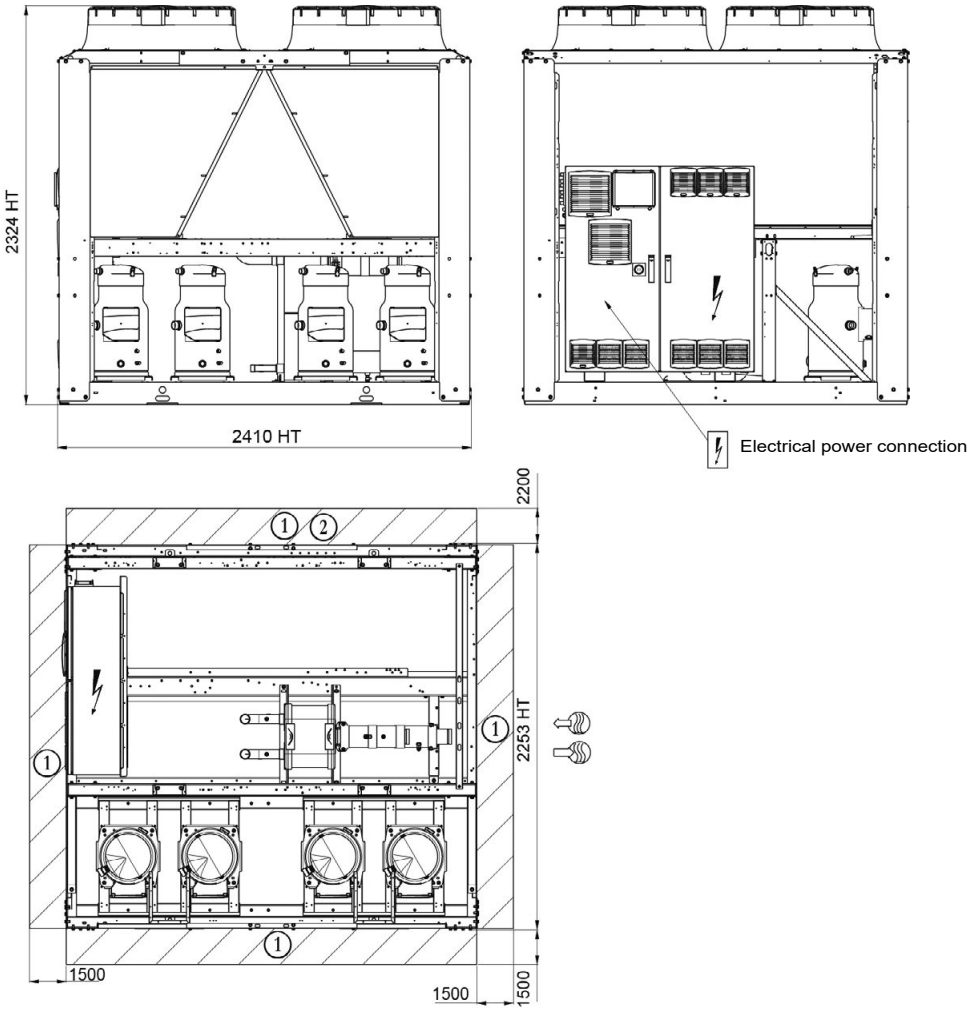
Sizes 1150R - 2000R



5 ILD 1150R
6 ILD 1250R - 1600R
7 ILD 1750R
8 ILD 2000R

DIMENSIONS

AQUACIAT POWER ™ LD 602R to 1100R/ILD 602R to 1000R 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:

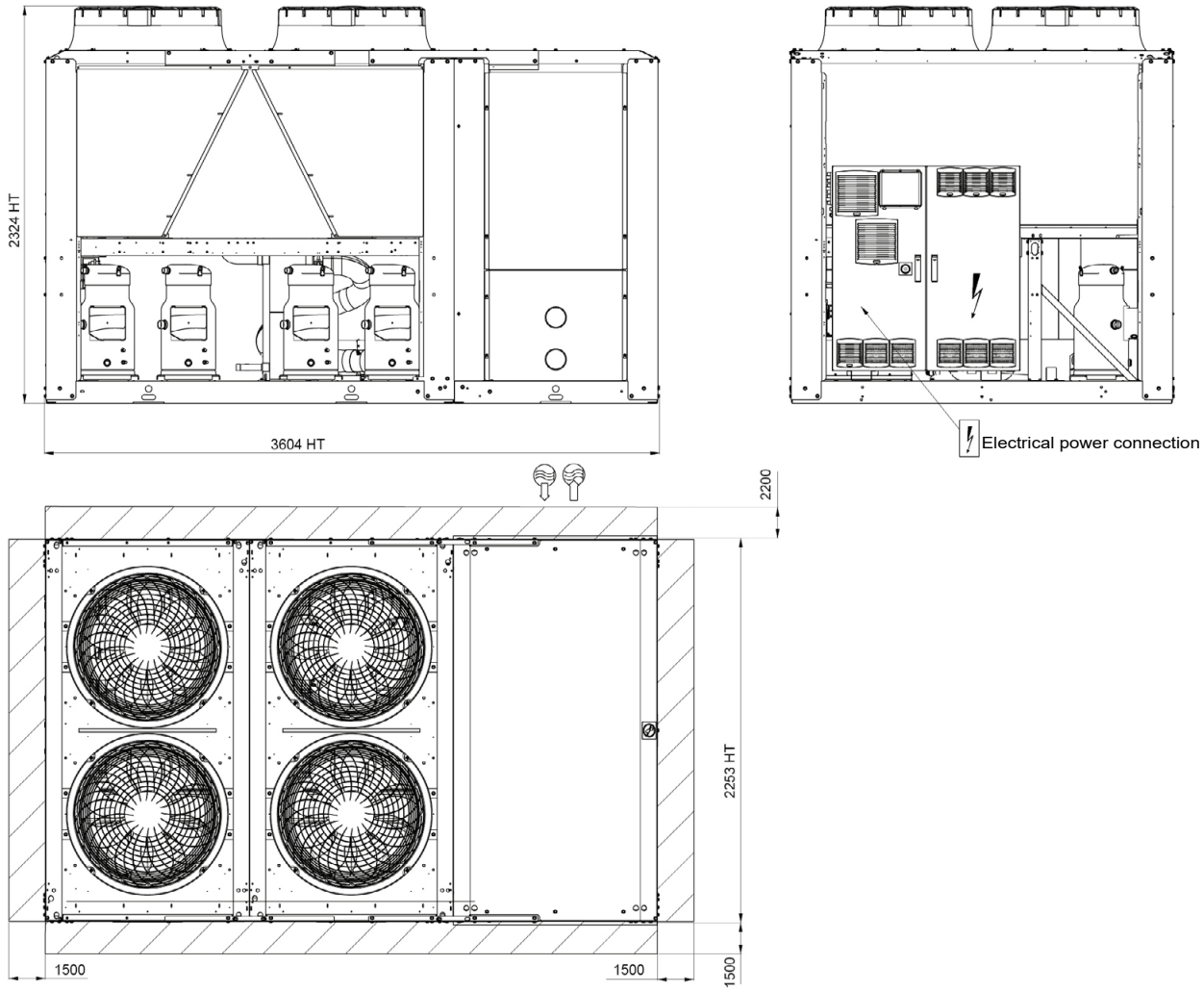
Non-contractual drawings.

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

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

AQUACIAT POWER ™ LD 602R to 1100R/ILD 602R to 1000R 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:

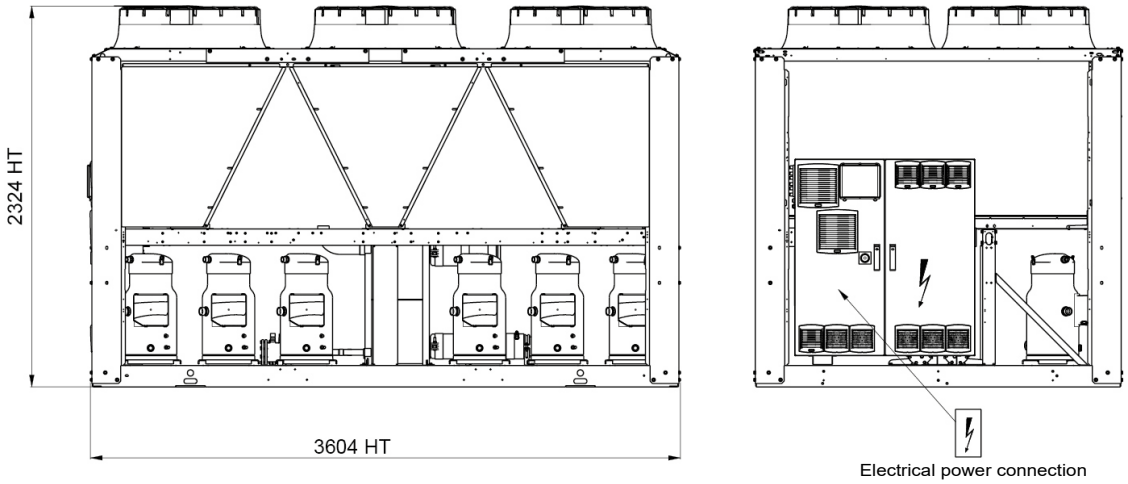
Non-contractual drawings.

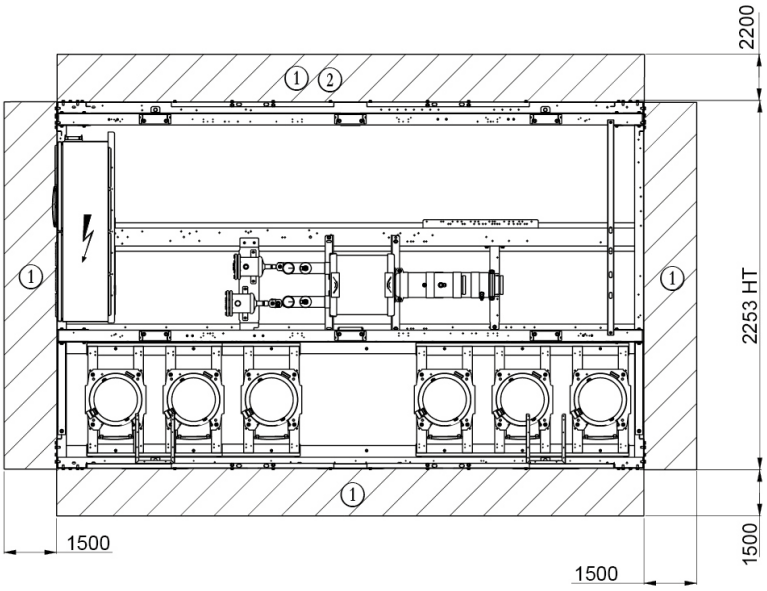
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

AQUACIAT POWER ™ LD 1200R to 1600R/ILD 1150R to 1500R 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:

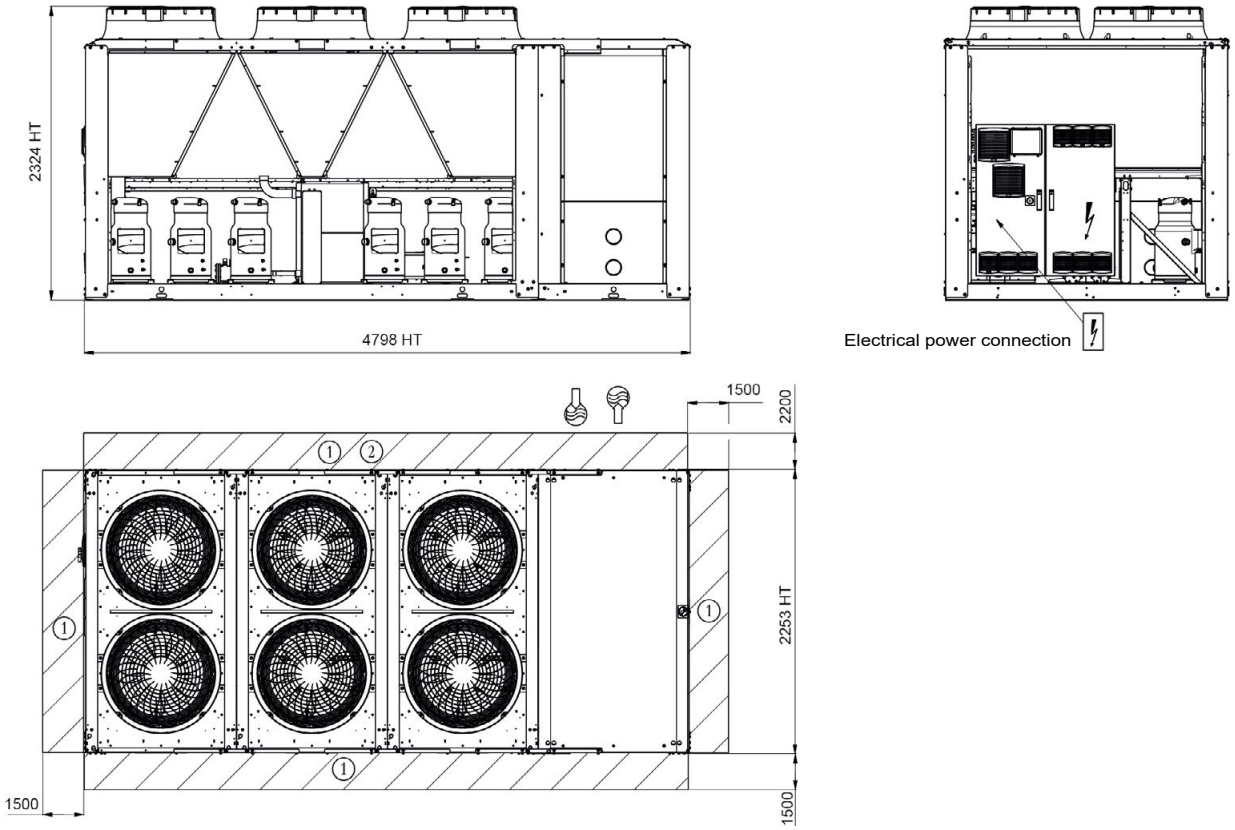
Non-contractual drawings.

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

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

AQUACIAT POWER ™ LD 1200R to 1600R/ILD 1150R to 1500R With buffer tank



Key
All dimensions in mm

1. Clearance required for maintenance and air flow
2. Clearance recommended for coil removal
3. Water inlet
4. Water outlet
5. Air outlet, do not obstruct
6. Electrical cabinet

Notes:

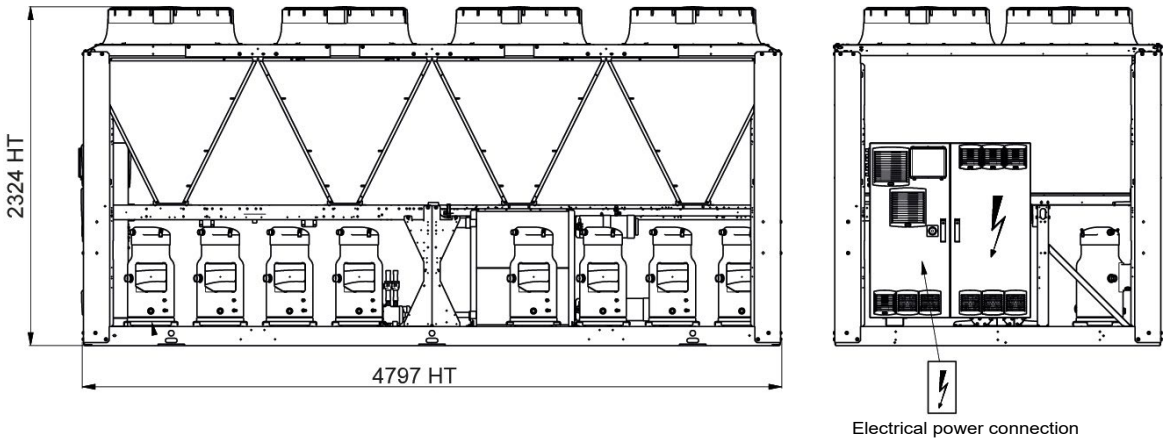
Non-contractual drawings.

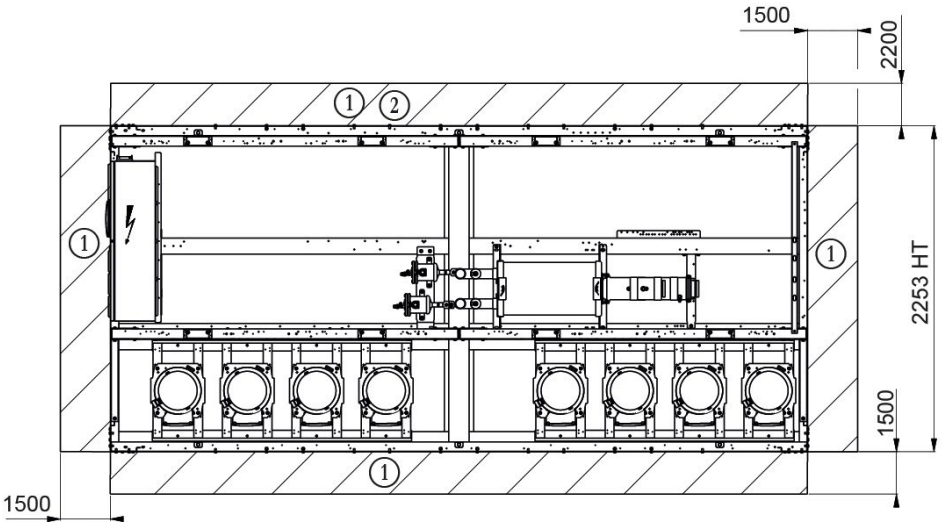
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

AQUACIAT POWER ™ LD 1750R to 2000R/ILD 1600R to 2000R 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:

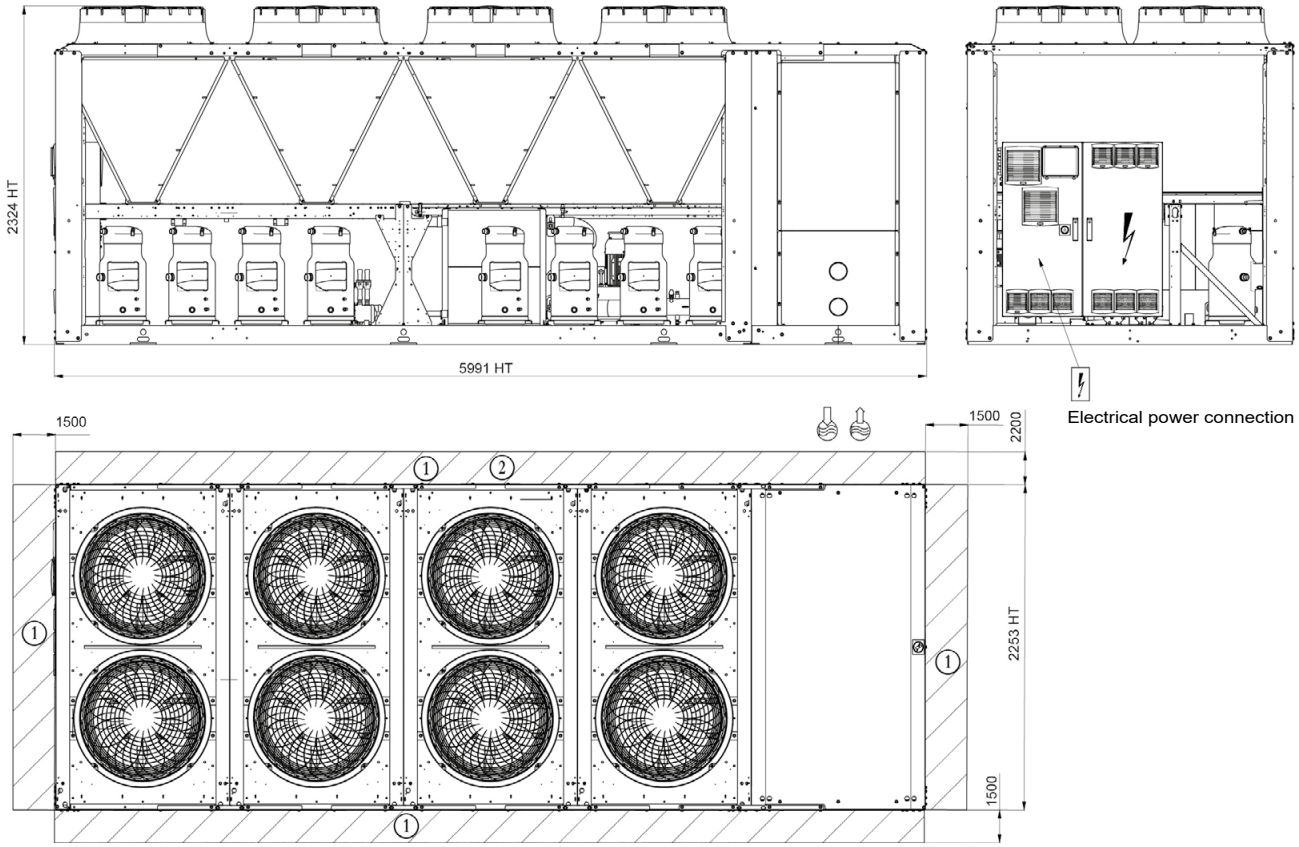
Non-contractual drawings.

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

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

AQUACIAT POWER ™ LD 1750R to 2000R/ILD 1600R to 2000R 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:

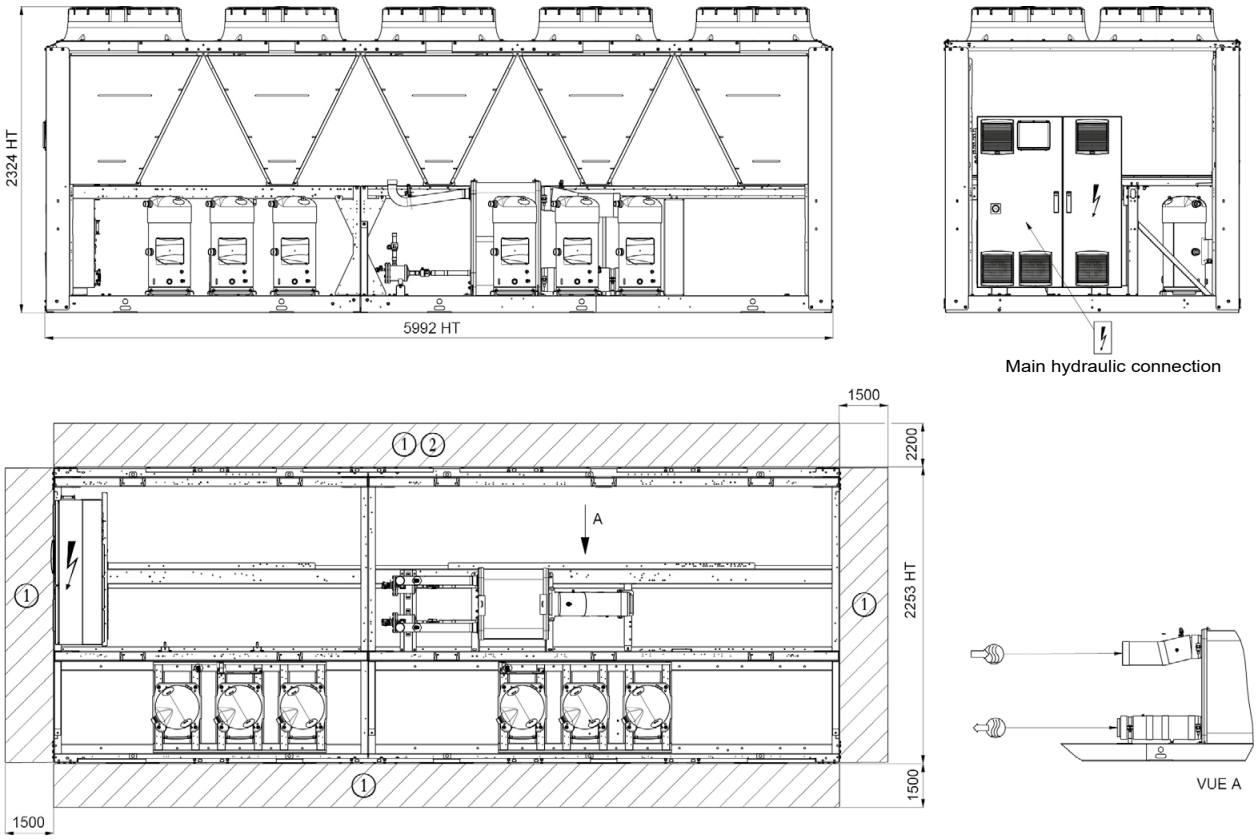
Non-contractual drawings.

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

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

AQUACIAT POWER ™ LD 2200R to 2650R 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:

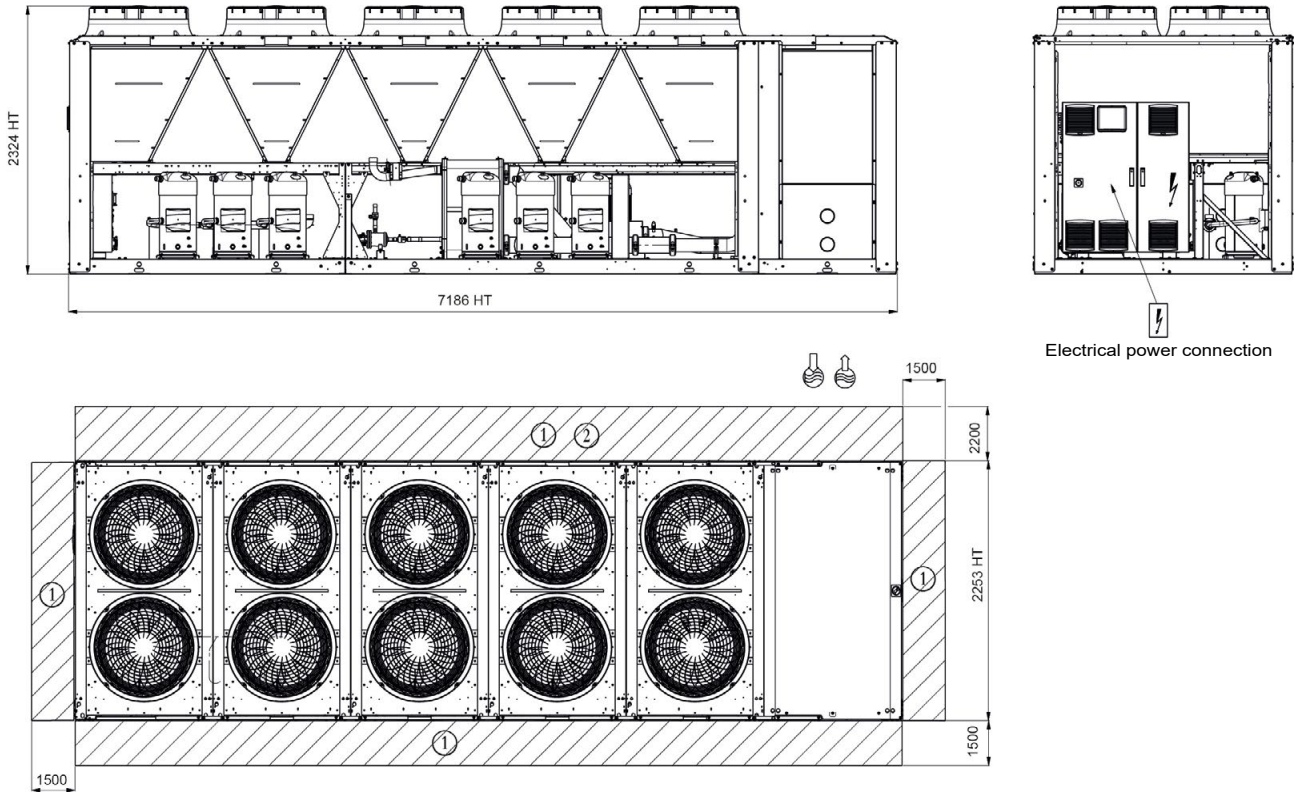
Non-contractual drawings.

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

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

AQUACIAT POWER ™ LD 2200R to 2650R/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:

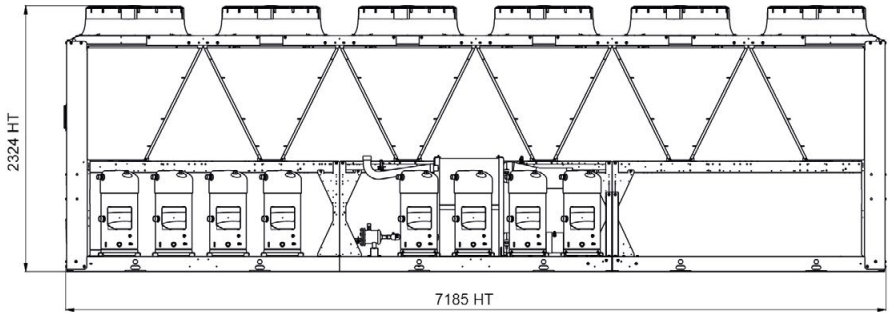
Non-contractual drawings.

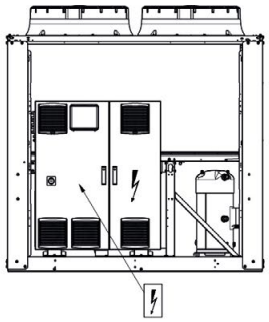
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

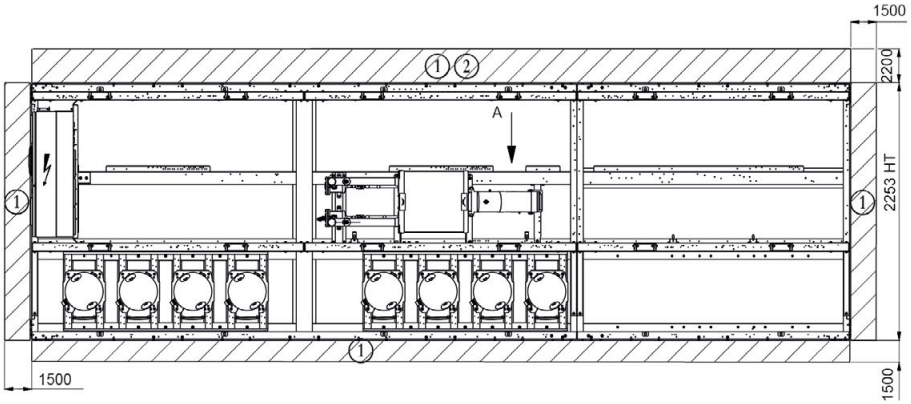
DIMENSIONS

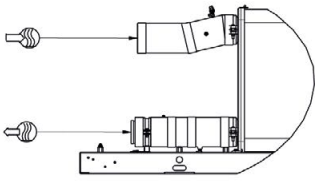
AQUACIAT POWER ™ LD 2800R to 3500R/Without buffer tank





Electrical power connection





VUE A

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:

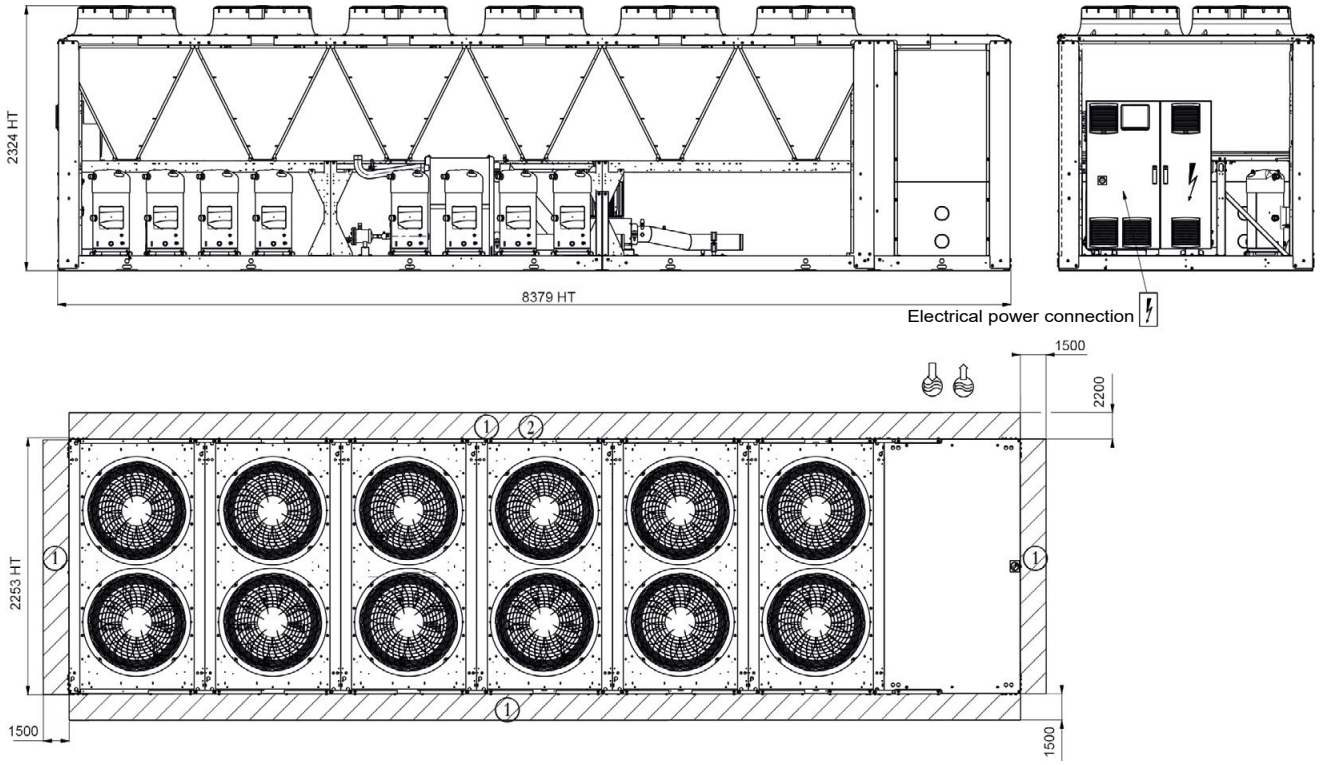
Non-contractual drawings.

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

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

AQUACIATPOWER ™ LD 2800R to 3500R/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.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

INSTALLATION RECOMMENDATIONS

Water quality criteria to be respected

Warning: It is essential that an 800-micron water filter be placed on the unit's water inlet during installation. The quality of the water used has a direct impact on the correct and compliant operation of the machine and its service life. This is particularly true if the water used clogs or corrodes components or promotes the growth of algae or micro-organisms. The water must be tested to determine whether it is suitable for the unit. It is also tested to determine whether chemical treatment is necessary and will suffice to make it of acceptable quality. This analysis should confirm whether or not the various machine components are compatible with the water they come into contact with on-site.

WARNING: failure to follow these instructions will result in the immediate voiding of the unit's warranty.

Lifting and handling

The utmost safety precautions must be taken when lifting and handling the unit.

Always follow the lifting diagram on the unit and in the instruction manual.

Before attempting to lift the unit, make sure the path leading to its intended location is free from obstacles. Always keep the unit vertical when moving it. Never tip it or lie it on its side.

Choosing a location for the unit

AQUACIAT POWER ™ units are designed for outdoor installation. Precautions should be taken to protect the unit from freezing temperatures. Special attention should be paid to ensure sufficient free space (including at the top) to allow maintenance. The unit must be placed on a perfectly level, fireproof surface strong enough to support it when ready for operation. Noise pollution from auxiliary equipment such as pumps should be studied thoroughly.

Potential noise transmission routes should be studied, with assistance from an acoustical engineer if necessary, before installing the unit. It is strongly recommended that flexible couplings are placed over pipes and anti-vibration mounts are fitted underneath the unit (equipment available as an option) to reduce vibrations, and the noise this causes, as much as possible.

Fitting accessories supplied separately

A number of optional accessories may be delivered separately and installed on the unit on site.

You must follow the instructions in the manual.

Electrical connections

You must follow the instructions in the manual. All information concerning electrical connections is stated on the wiring diagrams provided with the unit. Always follow this information to the letter.

Electrical connections must be made in accordance with best current practices and applicable standards and regulations. Electrical cable connections to be made on-site:

- Electrical power supply to the unit
- Contacts available as standard enabling the machine to be controlled remotely (optional)

It should be noted that the unit's electrical system is not protected against lightning strikes.

Therefore devices to protect against transient voltage surges must be installed on the system and inside the power supply unit.

Pipe connections

You must follow the instructions in the manual. All pipes must be correctly aligned and slope towards the system's drain valve. Pipes must be installed to allow sufficient service clearance for the panels, and must be fitted with heat insulation.

Pipe fixings and brackets must be separate to avoid vibrations and ensure no pressure is placed on the unit. Water flow shut-off and control valves must be fitted when the unit is installed.

Pipe connections to be made on site:

- Water supply with pressure-reducing valve
- Evaporator, condenser and drain

Accessories essential to any hydraulic circuit must also be installed, such as:

- Water expansion tank
- Drain nozzles at pipe low points
- Exchanger shut-off valves equipped with filters
- Air vents at pipe high points
- Check the system's water capacity (install a buffer tank if necessary)
- Flexible couplings on exchanger inlets and outlets

Warning:

- ***Pressure in the water circuits below 4 bar for units equipped with the hydronic module***
- ***Place the expansion vessel upstream of the pump.***
- ***Do not place any valves on the expansion vessel.***
- ***Make sure the water circulation pumps are placed directly at the exchanger inlets.***
- ***Make sure the pressure of the water drawn in by the circulation pumps is greater than or equal to the required minimum NPSH, particularly if the hydraulic circuits are "open".***
- ***Test the water quality in accordance with the relevant technical specifications.***
- ***Take the necessary precautions to protect the unit and hydraulic system from freezing temperatures (e.g. allow for the possibility of draining the unit). If glycol is added to prevent freezing, check its type and concentration before system start-up.***
- ***Before making any final hydraulic connections, flush the pipes with clean water to remove any debris in the network.***

INSTALLATION RECOMMENDATIONS

System start-up

System start-up for these machines must be performed by CIAT or a CIAT-authorised firm.

You must follow the instructions in the manual.

List of system start-up checks (non-exhaustive):
- Correct positioning of the unit
- Power supply protections
- Phases and direction of rotation
- Wiring connections on the unit
- Direction of water flow in the unit
- Cleanliness of the water circuit
- Water flow rate at the specified value
- Pressure in the refrigerant circuit
- Direction of rotation of the compressors
- Water pressure drops and flow rates
- Operating readings

Maintenance operations

Specific preventive maintenance operations are required at regular intervals and should be performed by CIAT-approved contractors.

The operating parameters are read and noted on a "CHECK LIST" form to be returned to CIAT.

To do this, you must refer to and comply with the instruction manual.

You must take out a maintenance contract with a CIAT-approved refrigeration equipment specialist. Such a contract is required even during the warranty period.

CONTROL

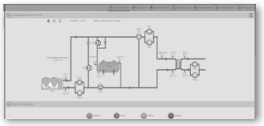
USER-FRIENDLY INTERFACE CONSOLE

- User-friendly 4.3-inch touch screen.
- Information displayed in a choice of languages.
- Temperature and pressure readings.
- Operating and fault status diagnostics.
- Master/slave control of two machines in parallel.
- Fault memory management.
- Pump management.
- Time schedule.
- IP web server
- Programmable maintenance
- Preventive maintenance
- F-Gas maintenance
- E-mail alert
- Indication of energy supplied and consumed instantly (kW) and integrally (kWh)

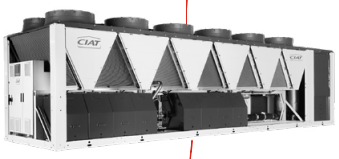
REMOTE M2M MACHINE SUPERVISION

Two years of Full Serenity with:

- Monitoring of machine operation (operation overviews and curves, alarm logs).
- E-mail alerts for alarms (optional SMS alerts).
- Remote update of the M2M.
- Access to a log of machine operation data.
- Remote advice for using M2M.
- System start-up and operating readings.



PRODUCT FUNCTIONALITY



Via potential-free (dry) contact

Customer CMS COMMUNICATION

Via BUS communication

POTENTIAL-FREE (DRY) CONTACTS AVAILABLE AS STANDARD

Inputs:

- Automatic operation control
- Heating/cooling mode selection
- Selection of setpoints 1 / 2
- Power limitation.

Outputs:

- General fault reporting
- Operational status reporting

Additional inputs available as options:

- Setpoint adjustment by 4-20 mA signal
- Power limitation adjustable by 4-20 mA signal
- Second power limitation level
- End of storage signal
- User fault display
- Contact for refrigerant leak detector

Additional outputs available as options:

- Indication of the power level by 0-10 V signal
- Minor alert reporting
- Unit shut-down general fault reporting
- Desuperheater pump On/Off control
- On/off control for a boiler
- 4-stage on/off management for additional heaters

AVAILABLE OUTPUTS

- MODBUS-JBUS RTU (RS485) or TC/IP (standard) open protocol
- LONWORKS protocol (option)
- BTL certified BACNET IP protocol (option)

CIAT SYSTEM FUNCTIONALITY

Communication with CIAT Energy pool controlled by PowerCTRL.

Integrated PowerCTRL:

- Energy optimisation of refrigeration and heating using several generators,
- Manages free cooling capacity
- Uses heat recovery to supply
- Domestic hot water.

Order No.: NA21.769B. Supersedes Order No.: NA21.769A.
Manufactured by: Carrier SCS, Montluel, France.
The manufacturer reserves the right to make any changes, without notice.
The illustrations in this document are for information only and not part of any offer for sale or contract. The manufacturer reserves the right to change the design of the model at any time without notice.