



AQUACIAT LD/LLD

Технические характеристики

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→ Water chillers
Heat pump

“*Compact and silent*”

- Scroll compressors*
- High efficiency brazed-plate heat exchangers*
- All-aluminium micro-channel condenser*
- Self-adjusting electronic control*



Cooling capacity: 40 to 156 kW
Heating capacity: 42 to 158 kW



Cooling only



Cooling and heating



Hydraulic module



Heat recovery



Use

The latest generation of **AQUACIAT** heat pumps and water chillers are the perfect solution for all heating and cooling applications in the Office, Healthcare, Industry, Administration, Shopping Centres and Collective Housing markets.

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

AQUACIAT is optimised to use ozone-friendly HFC R410A refrigerant.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (ESEER and SCOP) and CO2 reduction to comply with the various applicable European directives and regulations.

Range

AQUACIAT LD series

Cooling only version.

AQUACIAT ILD series

Reversible heat pump version.

These two versions are optimised to meet the most demanding technical and economic requirements

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

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

■ Water type heat exchanger

- Brazed-plate exchanger
- Evaporator or condenser mode exchanger on the reversible heat pump version
- Plate patterns optimised for high efficiency
- 19 mm armaflex thermal insulation

■ Air-cooled exchanger

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

■ Refrigerating accessories

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

■ Control and safety instruments

- Low and high pressure sensors
- Safety valves on refrigerating circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow rate controller

■ Electrical cabinet

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

■ Frame

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

■ Connect Touch control module

- User interface with 4.3 inch touchscreen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 5 languages (F-GB-D-E-I)



The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and runtime balancing
- Self-adjusting and proactive functions with adjustment of drift control for parameters
- 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 runtime balancing
- Management of the machine operation limit according to the 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
- Master/slave management of the two machines in parallel with runtime balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

■ Remote control

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

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

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

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

- Automatic operation control: when this contact is open, the machine stops
- Heating/cooling 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 refrigerating circuits to stop
- Operational status reporting indicates that the unit is in production mode.
- Activation control for partial energy recovery using the desuperheater
- Switch control for the customer pump, external to the machine (on/off).

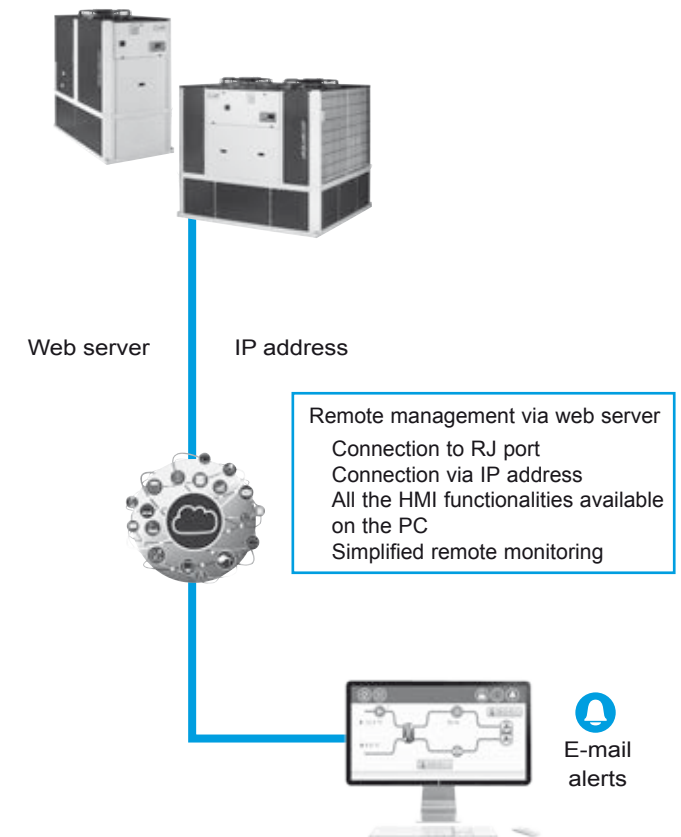
Contacts available as an option:

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

■ Maintenance

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

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



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

AVAILABLE OPTIONS

Options	Description	Advantages	LD	ILD
Condenser with anti-corrosion post-treatment	Copper/aluminium coils supplied with Blygold Polual treatment applied	Improved corrosion resistance, recommended for industrial, rural and marine environments	▲	no
Corrosion protection, traditional coils	Fins made of pre-treated aluminium (polyurethane and epoxy)	Improved corrosion resistance, recommended for moderate marine and urban environments	▲	●
Low temperature glycol/water mix	Production of chilled water at low temperatures (down to 0°C) with ethylene glycol and propylene glycol.	Covers specific applications such as ice storage and industrial processes	●	●
Very low temperature glycol/water mix	Production of chilled water at low temperatures (down to -15°C with ethylene glycol and -12°C with propylene glycol).	Covers specific applications such as ice storage and industrial processes	●	●
Xtra Fan	Unit equipped with special variable speed fans: Xtra Fan (see dedicated section for the maximum available pressure according to the size), with each fan equipped with a connection flange and sleeves for connection to the duct system.	Ducted fan discharge, optimised condensing temperature control (or evaporating temperature control on the heat pump version), based on the operating conditions and system characteristics	●	●
Xtra Low Noise	Sound absorbing enclosure for the compressor and low speed fans	Reduces the noise level by reducing the fan speeds	●	●
Protective grilles	Metal protective grilles	Protects the coils against any impacts	●	no (*)
Soft Starter	Electronic starter on each compressor	Reduces the start-up current	●	●
Winter operation (down to -20°C)	Controls the fan speed	Stable operation of the unit when the air temperature is between 0°C and -20°C.	●	●
Antifreeze protection down to -20°C	Electric heater on the hydraulic module	Frost protection of the hydraulic module at low outdoor temperatures	●	●
Water heat exchanger and hydraulic module frost protection	Trace heaters on the water heat exchanger, water pipes, hydraulic module, expansion vessel and buffer tank module	Frost protection of the water type heat exchanger and hydraulic module down to an outdoor air temperature of -20°C	●	●
Partial heat recovery	Unit equipped with a desuperheater on each refrigerating circuit	Simultaneous free production of hot water (high temperature) and production of chilled water (or hot water for the heat pump)	●	●
Master/slave operation	Unit equipped with an additional water outlet temperature sensor, to be installed on site, enabling Master/Slave operation of 2 units connected in parallel	Optimised operation of two units connected in parallel with run time equalisation	●	●
HP single-pump hydraulic module	Single high-pressure water pump, water filter, electronic water flow control, pressure transducers. For more details, refer to the dedicated section (expansion tank not included. Option with integrated hydraulic safety components available.)	Quick, easy installation (plug & play)	●	●
HP dual-pump hydraulic module	Dual high-pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated section (expansion tank not included. Option with integrated hydraulic safety components available.)	Quick, easy installation (plug & play)	●	●
LP single-pump hydraulic module	Single low-pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated section (expansion tank not included. Option with integrated hydraulic safety components available.)	Quick, easy installation (plug & play)	●	●
LP dual-pump hydraulic module	Dual low-pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated section (expansion tank not included. Option with integrated hydraulic safety components available.)	Quick, easy installation (plug & play)	●	●
HP single variable-speed pump hydraulic module	Single high pressure water pump with variable speed drive, water filter, electronic water flow rate control, pressure sensors. Multiple water flow control options. For more details, refer to the dedicated section (expansion tank not included. Option with integrated hydraulic safety components available.)	Quick, easy installation (plug & play), significant reduction in energy consumption for pump use (more than two-thirds), tighter water flow control, improved system reliability	●	●
HP variable speed dual pump hydraulic module	Dual high pressure water pump with variable speed drive, water filter, electronic water flow rate control, pressure sensors. Multiple water flow control options. For more details, refer to the dedicated section (expansion tank not included. Option with integrated hydraulic safety components available.)	Quick, easy installation (plug & play), significant reduction in energy consumption for pump use (more than two-thirds), tighter water flow control, improved system reliability	●	●

● ALL MODELS

▲ ALL MODELS with desuperheater or low and very low temperature glycol/water mix option

(*) Standard equipment on ILD version



→ Water chillers Heat pump

Options	Description	Advantages	LD	ILD
HP variable speed dual pump hydraulic module	Dual high pressure water pump with variable speed drive, water filter, electronic water flow rate control, pressure sensors. Multiple water flow control options. For more details, refer to the dedicated section (expansion tank not included. Option with integrated hydraulic safety components available.)	Quick, easy installation (plug & play), significant reduction in energy consumption for pump use (more than two-thirds), tighter water flow control, improved system reliability	●	●
LON communication gateway	Two-directional communication board complying with Lon Talk protocol	Connects the unit by communication bus to a building management system	●	●
BACnet/IP	Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)	Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters	●	●
External management of the boiler	Control board factory installed on the unit for controlling a boiler	"Expands the remote control capacities to include a boiler on/off control. Facilitates control of a basic heating system"	no	●
Management of electric heaters	Control board factory-fitted on the unit with additional inputs/ outputs enabling up to 4 external heating stages to be managed (electric heaters.etc.)	Expands the remote control capacities to include a maximum of four electric heaters. Facilitates control of a basic heating system	no	●
Compliance with Russian regulations	EAC certification	Compliance with Russian regulations	●	●
Protect2 anti-corrosion protection for micro-channel coils	Coating which uses a conversion process to alter the aluminium surface into a coating which forms an integral part of the coil. Complete immersion in a bath to ensure 100% coverage. No thermal transfer variation, tested to withstand more than 4000 hours of salt spray as per ASTM B117	Protect2 coating which doubles the corrosion resistance offered by micro-channel coils, recommended for use in moderately corrosive environments	●	no
Protect4 anti-corrosion protection for micro-channel coils	Flexible, durable polyepoxide coating applied using an electroplating process to give micro-channel coils an anti-UV top layer. Minimal variation in the thermal transfer, tested to withstand more than 6000 hours of constant neutral salt spray as per ASTM B117, improved impact resistance as per ASTM D2794	Protect4 coating gives a fourfold increase in the corrosion resistance offered by micro-channel coils, recommended for use in corrosive environments	●	no
Water heat exchanger connection sleeves, screw connection	Water heat exchanger inlet/outlet connection sleeves, screw connection	Allows unit connection to a screw connector	●	●
Reinforced filtration of the fan frequency inverter	Fan frequency inverter compliant with IEC 61800-3 class C1	Allows the unit to be installed in a residential environment, by reducing electromagnetic disturbance	no	● with variable speed fan option
Reinforced filtration of the pump frequency inverter	Pump frequency inverter compliant with IEC 61800-3 class C1	Allows the unit to be installed in a residential environment, by reducing electromagnetic disturbance	● with variable speed pump option	● with variable speed pump option
Expansion vessel	6-bar expansion vessel integrated into the hydraulic module (requires option 116)	Easy, quick installation (ready to use), and closed circuit protection of hydraulic systems to counter excessive pressure	●	●
Buffer tank module	Integrated buffer tank module	Prevents compressor short cycling and provides stability of the water in the loop	●	●
Anti-vibration mounts	Elastomer anti-vibration mounts to be fitted underneath the unit	Isolates the unit from the building, preventing vibrations and noise from being transmission to the building. Must be used in conjunction with a flexible connection on the water side	●	●
Flexible connection couplings for the exchanger	Flexible connections for the water type heat exchanger	Easy to install. Limits the transmission of vibrations to the water network	●	●
Water filter on the evaporator	Water filter	Prevents fouling in the water network	● no pump	● no pump
Setpoint adjustable via 4-20 mA signal	Connections enabling a 4-20 mA signal input	Simplified energy management, enabling the setpoint to be set by a 4-20 mA external signal	●	●
Free cooling mode drycooler management	Control and connections for an Opera or Vextra drycooler in free cooling mode equipped with the FC optional control unit	Simplified system management, increased control capacities to enable the drycooler to be used in free cooling mode	●	no

● ALL MODELS



ACCESSORIES

Options	Description	Advantages	LD	ILD
M2M 1 supervision units - France	Monitoring solution enabling customers to remotely track and monitor equipment in real time, France only	Real-time expert technical support to increase equipment availability and improve performance.	●	●
M2M 3 supervision units - France	Monitoring solution enabling customers to remotely track and monitor several items of equipment in real time, France only	Real-time expert technical support to increase equipment availability and improve performance.	●	●
M2M 1 supervision unit - International	Monitoring solution enabling customers to remotely track and monitor equipment in real time, outside of France	Real-time expert technical support to increase equipment availability and improve performance.	●	●
M2M 3 supervision units - International	Monitoring solution enabling customers to remotely track and monitor several items of equipment in real time, outside of France	Real-time expert technical support to increase equipment availability and improve performance.	●	●

- ALL MODELS

TECHNICAL CHARACTERISTICS - COOLING ONLY



AQUACIAT LD			150A	180A	200A	240A	260A	300A	360A	390A	450A	520A	600A	
Cooling														
Standard unit	C1	Nominal capacity	kW	40	44	51	58	67	79	87	97	114	135	156
	C1	EER	kW/kW	2.87	2.76	2.67	2.66	2.72	2.70	2.73	2.73	2.67	2.70	2.65
Full load performances*	C1	Eurovent class		C	C	D	D	C	C	C	D	C	D	
	C2	Nominal capacity	kW	53	59	69	81	85	98	114	126	151	171	194
	C2	EER	kW/kW	3.44	3.32	3.12	3.31	2.97	3.06	3.18	3.09	3.10	2.99	3.01
Seasonal efficiency*	C1	ESEER	kW/kW	3.75	3.88	3.95	3.80	3.62	3.67	3.91	3.94	3.83	3.68	3.87
Part Load integrated values		IPLV	kW/kW	4.54	4.71	4.81	4.58	4.26	4.39	4.55	4.53	4.55	4.29	4.64
Sound levels														
Standard unit														
		Sound power ⁽¹⁾	dB(A)	80	81	81	81	87	87	84	84	84	90	90
		Sound pressure at 10 m ⁽²⁾	dB(A)	49	49	49	49	55	55	52	52	52	58	58
Unit + Xtra Low Noise option														
		Sound power ⁽¹⁾	dB(A)	79	80	80	80	80	80	83	83	83	83	83
		Sound pressure at 10 m ⁽²⁾	dB(A)	48	48	48	48	48	48	51	51	51	51	51
Dimensions														
		Length	mm	1090	1090	1090	1090	1090	1090	2270	2270	2270	2270	2270
		Width	mm	2109	2109	2109	2109	2109	2109	2123	2123	2123	2123	2123
		Height	mm	1440	1440	1440	1440	1440	1440	1440	1440	1440	1440	1440
		Height with Buffer Tank Module	mm	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040
Operating weight with micro-channel coils⁽³⁾														
		Standard unit	kg	422	430	436	449	445	463	753	762	771	829	854
		Unit + High pressure single pump option	kg	463	472	478	491	487	505	820	829	842	903	928
		Unit + High pressure dual pump option	kg	489	498	504	517	513	531	865	874	891	940	965
		Unit + High pressure single pump option + Buffer tank module	kg	859	868	874	887	883	901	1253	1262	1275	1336	1361
		Unit + High pressure dual pump option + Buffer tank module	kg	885	894	900	913	909	927	1298	1307	1324	1373	1398
Compressors														
Hermetic Scroll 48.3 r/s														
		Circuit A	Qty	2	2	2	2	2	2	3	3	2	2	
		Circuit B	Qty	-	-	-	-	-	-	-	-	2	2	
		No. of control stages	Qty	2	2	2	2	2	2	3	3	3	4	
Refrigerant with micro-channel coils⁽³⁾														
R410A														
		Circuit A	kg	4.7	5.3	5.9	6.7	6.2	7.3	10.7	10.8	11.4	6.5	7.4
			tCO ₂ eq	9.8	11.1	12.3	14.0	12.9	15.2	22.3	22.6	23.8	13.6	15.5
		Circuit B	kg	-	-	-	-	-	-	-	-	-	6.5	7.4
			tCO ₂ eq	-	-	-	-	-	-	-	-	-	13.6	15.5
Oil charge														
POE SZ160 (EMKARATE RL 32-3MAF).														
		Circuit A	l	5.8	7.2	7.2	7.2	7	7	10.8	10.5	10.5	7	7
		Circuit B	l	-	-	-	-	-	-	-	-	-	7	7
Control														
Connect Touch Control														
		Minimum output	%	50	50	50	50	50	50	33	33	33	25	25
Air heat exchanger														
All-aluminium micro-channel coil														
Fans - Standard unit														
		Quantity		1	1	1	1	1	1	2	2	2	2	2
		Maximum total air flow	l/s	3885	3883	3687	3908	5013	5278	6940	6936	7370	10026	10556
		Maximum rotation speed	r/s	12	12	12	12	16	16	12	12	12	16	16
Water heat exchanger														
Direct expansion, plate heat exchanger														
		Water content	l	2.6	3	3.3	4	4.8	5.6	8.7	9.9	11.3	12.4	14.7
		Max water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Hydraulic module (option)														
Single or dual pump (as required) Pump, Victaulic screen filter, relief valve, expansion vessel, water and air bleed valves, pressure sensors														
		Expansion tank volume	l	12	12	12	12	12	12	35	35	35	35	35
		Expansion vessel pressure ⁽⁴⁾	bar	1	1	1	1	1	1	1.5	1.5	1.5	1.5	1.5
		Max. water-side operating pressure with hydraulic module	kPa	400	400	400	400	400	400	400	400	400	400	400
Buffer tank module (option)														
Single or dual pump (as required) Pump, Victaulic screen filter, relief valve, expansion vessel, water and air bleed valves, pressure sensors														
		Water volume	l	250	250	250	250	250	250	250	250	250	250	250
		Expansion tank volume	l	18	18	18	18	18	18	35	35	35	35	35
		Expansion vessel pressure ⁽⁴⁾	bar	1	1	1	1	1	1	1.5	1.5	1.5	1.5	1.5
		Max. water-side operating pressure with hydraulic module	kPa	400	400	400	400	400	400	400	400	400	400	400
Water connections with or without hydraulic module														
Victaulic														
		Connections	inch	2	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	60.3
Casing paint														
Colour code RAL 7035 and RAL7024														

* In accordance with standard EN14511-3:2013.

C1 Cooling mode conditions: water type heat exchanger inlet/outlet temperature 12°C/7°C, outdoor air temperature 35°C, evaporator fouling level 0 m²/kW.

C2 Cooling mode conditions: water type heat exchanger inlet/outlet temperature 23°C/18°C, outdoor air temperature 35°C, evaporator fouling level 0 m²/kW.

IPLV Calculations based on standard performances (in accordance with AHRJ 550-590).

(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.

(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.

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.



Eurovent certified values

TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP



AQUACIAT ILD				150A	180A	200A	240A	260A	300A	302A	360A	390A	450A	520A	600A
Cooling															
Standard unit	C1	Nominal capacity	kW	38	43	50	59	64	74	78	86	96	113	132	149
Full load performances*	C1	EER	kW/kW	2.84	2.7	2.65	2.77	2.7	2.58	2.79	2.7	2.7	2.69	2.77	2.58
	C1	Eurovent class		C	C	D	C	C	D	C	C	C	D	C	D
	C2	Nominal capacity	kW	48	54	63	71	79	93	97	108	118	143	163	187
	C2	EER	kW/kW	3.28	3.16	3.09	3.12	3.08	2.97	3.19	3.14	3.1	3.1	3.17	2.92
Seasonal efficiency*	C1	ESEER	kW/kW	3.80	3.77	3.81	3.61	3.61	3.57	3.84	3.77	3.88	4.04	3.75	3.67
Heating															
Standard unit	H1	Nominal capacity	kW	42	47	53	61	70	78	80	93	101	117	138	158
Full load performances*	H1	COP	kW/kW	3.08	3.05	3.03	3.03	3.06	2.87	3.08	3.02	3.09	3.06	3.07	2.97
	H1	Eurovent class		B	B	B	B	B	C	B	B	B	B	B	C
	H2	Nominal capacity	kW	43	47	55	63	71	80	83	95	103	121	141	162
	H2	COP	kW/kW	3.72	3.72	3.76	3.73	3.72	3.47	3.74	3.74	3.77	3.73	3.73	3.59
Seasonal efficiency**		SCOP	kW/kW	3.07	3.1	3.21	3.07	3.1	2.96	3.14	3.17	3.23	3.23	3.14	3.13
		ηs heat	%	120	121	125	120	121	115	123	124	126	126	123	122
		Prated	kW	33.0	37	42	51	57	65	66	76	83	97	113	131
Part Load integrated values		IPLV	kW/kW	4.57	4.54	4.51	4.21	4.18	4.29	4.58	4.40	4.46	4.90	4.33	4.39
Sound levels															
Standard unit															
Sound power ⁽¹⁾			dB(A)	80	81	81	86	87	87	84	84	84	84	90	90
Sound pressure at 10 m ⁽²⁾			dB(A)	49	49	49	55	55	55	52	52	52	52	58	58
Unit + Xtra Low Noise option															
Sound power ⁽¹⁾			dB(A)	79	80	80	80	80	80	83	83	83	83	83	83
Sound pressure at 10 m ⁽²⁾			dB(A)	48	48	48	48	48	48	51	51	51	51	51	51
Dimensions															
Length			mm	1090	1090	1090	1090	1090	1090	2270	2270	2270	2270	2270	2270
Width			mm	2109	2109	2109	2109	2109	2109	2123	2123	2123	2123	2123	2123
Height			mm	1440	1440	1440	1440	1440	1440	1440	1440	1440	1440	1440	1440
Height with Buffer Tank Module			mm	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040
Operating weight⁽³⁾															
Standard unit			kg	497	506	543	549	559	564	777	896	905	979	1053	1057
Unit + High pressure single pump option			kg	539	548	585	591	601	606	844	963	972	1050	1127	1131
Unit + High pressure dual pump option			kg	565	574	611	617	627	632	889	1008	1017	1098	1164	1168
Unit + High pressure single pump option + Buffer tank module			kg	935	943	981	986	996	1001	1276	1395	1404	1482	1560	1563
Unit + High pressure dual pump option + Buffer tank module			kg	961	969	1006	1012	1022	1027	1321	1440	1449	1531	1597	1600
Compressors															
Hermetic Scroll 48.3 r/s															
Circuit A			Qty	2	2	2	2	2	2	2	3	3	3	2	2
Circuit B			Qty	-	-	-	-	-	-	-	-	-	-	2	2
No. of control stages			Qty	2	2	2	2	2	2	2	3	3	3	4	4
Refrigerant⁽³⁾															
R-410A															
Circuit A			kg	12.5	13.5	16.5	17.5	18	16.5	21.5	27.5	28.5	33	19	18.5
			tCO ₂ eq	26.1	28.2	34.5	36.5	37.6	34.5	44.9	57.4	59.5	68.9	39.7	38.6
Circuit B			kg	-	-	-	-	-	-	-	-	-	-	19	18.5
			tCO ₂ eq	-	-	-	-	-	-	-	-	-	-	39.7	38.6
Oil charge															
POE SZ160 (EMKARATE RL 32-3MAF).															
Circuit A			l	5.8	7.2	7.2	7.2	7.0	7.0	7.2	7.0	7.0	7.0	7.0	7.0
Circuit B			l	-	-	-	-	-	-	-	-	-	-	7.0	7.0

* In accordance with standard EN14511-3:2013.

** In accordance with standard EN14825:2013, average climate conditions.

C1 Cooling mode conditions: water type heat exchanger inlet/outlet temperature 12°C/7°C, outdoor air temperature 35°C, evaporator fouling level 0 m²/KW.

C2 Cooling mode conditions: water type heat exchanger inlet/outlet temperature 23°C/18°C, outdoor air temperature 35°C, evaporator fouling level 0 m²/KW.

H1 Heating mode conditions: water type heat exchanger inlet/outlet temperature 40°C/45°C, db/wb outdoor air temperature 7°C/6°C, evaporator fouling level 0 m²/KW.

H2 Heating mode conditions: water type heat exchanger inlet/outlet temperature 30°C/35°C, db/wb outdoor air temperature 7°C/6°C, evaporator fouling level 0 m²/KW.

IPLV Calculations based on standard performances (in accordance with AHRI 550-590).

(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)). Value calculated from the sound power Lw(A).

(3) Weight given as a guide. Refer to the unit name plate.



Eurovent certified values

TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP



AQUACIAT ILD	150A	180A	200A	240A	260A	300A	302A	360A	390A	450A	520A	600A
Power control	Connect Touch Control											
Minimum capacity	%	50	50	50	50	50	50	50	33	33	25	25
Air heat exchanger	Grooved copper tube and aluminium fins											
Fans												
Quantity	1	1	1	1	1	1	1	2	2	2	2	2
Maximum total air flow	l/s	3692	3690	3910	5285	5284	5282	7770	7380	7376	7818	10568
Maximum rotation speed	r/s	12	12	12	16	16	16	12	12	12	12	16
Water heat exchanger	Direct expansion, plate heat exchanger											
Water content	l	2.6	3	4	4.8	4.8	5.6	8.7	8.7	9.9	11.3	12.4
Max water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Hydraulic module (option)	Pump, Victaulic screen filter, relief valve, expansion vessel, water and air bleed valves, pressure sensors											
Single or dual pump (as required)												
Expansion tank volume	l	12	12	12	12	12	12	12	35	35	35	35
Expansion vessel pressure ⁽⁴⁾	bar	1	1	1	1	1	1	1	1.5	1.5	1.5	1.5
Max. water-side operating pressure with hydraulic module	kPa	400	400	400	400	400	400	400	400	400	400	400
Buffer tank module (option)	Pump, Victaulic screen filter, relief valve, expansion vessel, water and air bleed valves, pressure sensors											
Single or dual pump (as required)												
Water volume	l	250	250	250	250	250	250	250	250	250	250	250
Expansion tank volume	l	18	18	18	18	18	18	18	35	35	35	35
Expansion vessel pressure ⁽⁴⁾	bar	1	1	1	1	1	1	1	1.5	1.5	1.5	1.5
Max. water-side operating pressure with hydraulic module	kPa	400	400	400	400	400	400	400	400	400	400	400
Water connections with/without hydraulic module	Victaulic											
Diameter	inch	2	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	60.3
Casing paint	Colour code RAL 7035 and RAL7024											

- (4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

ELECTRICAL SPECIFICATIONS

LD / ILD Standard unit (without hydraulic module)		150A	180A	200A	240A	260A	300A	302A	360A	390A	450A	520A	600A
Power circuit													
Nominal voltage	V-ph-Hz	400-3-50											
Voltage range	V	360-440											
Control circuit supply		24 V via internal transformer											
Nominal unit current draw⁽³⁾													
Circuit A + B	A	25.6	29	33	36	42.4	52.8	53.4	55.4	61.7	77.3	84.8	105.6
Maximum unit power input⁽²⁾													
Circuit A + B	kW	19.5	22.3	24.5	27.9	31.2	35.8	35.6	42.3	45.6	52.5	62.4	71.6
Unit Cosine Phi at maximum power⁽²⁾		0.83	0.81	0.81	0.83	0.81	0.78	0.78	0.83	0.81	0.79	0.81	0.78
Maximum unit current draw (Un-10%)⁽⁵⁾													
Circuit A + B	A	38	49.2	51.4	58.4	74.8	79.6	80.2	89	110.3	117.5	149.6	159.2
Maximum unit current draw (Un)⁽⁴⁾													
Circuit A&B - Standard unit	A	34.8	44.8	46.8	52.8	67	73	73.6	80.6	98.6	107.6	134	146
Maximum start-up current, standard unit (Un)⁽¹⁾													
Circuit A + B	A	113.8	134.8	142.8	145.8	176	213	213.6	173.6	207.6	247.6	243	286
Maximum start-up current, unit with soft start (Un)⁽¹⁾													
Circuit A + B	A	74.7	86.5	93.8	96.2	114.4	139.8	139.8	130.4	155.4	181.4	186.4	215.4

- (1) Maximum instantaneous starting current (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor).
- (2) Power input, at the unit's permanent operating limits (indication given on the unit's name plate).
- (3) Standardised EUROVENT conditions, water type heat exchanger input/output = 12°C/7°C, outdoor air temperature = 35°C.
- (4) Maximum unit current at 400V, during non-permanent operation (indication given on the unit's name plate)
- (5) Maximum unit current at 360V, during non-permanent operation

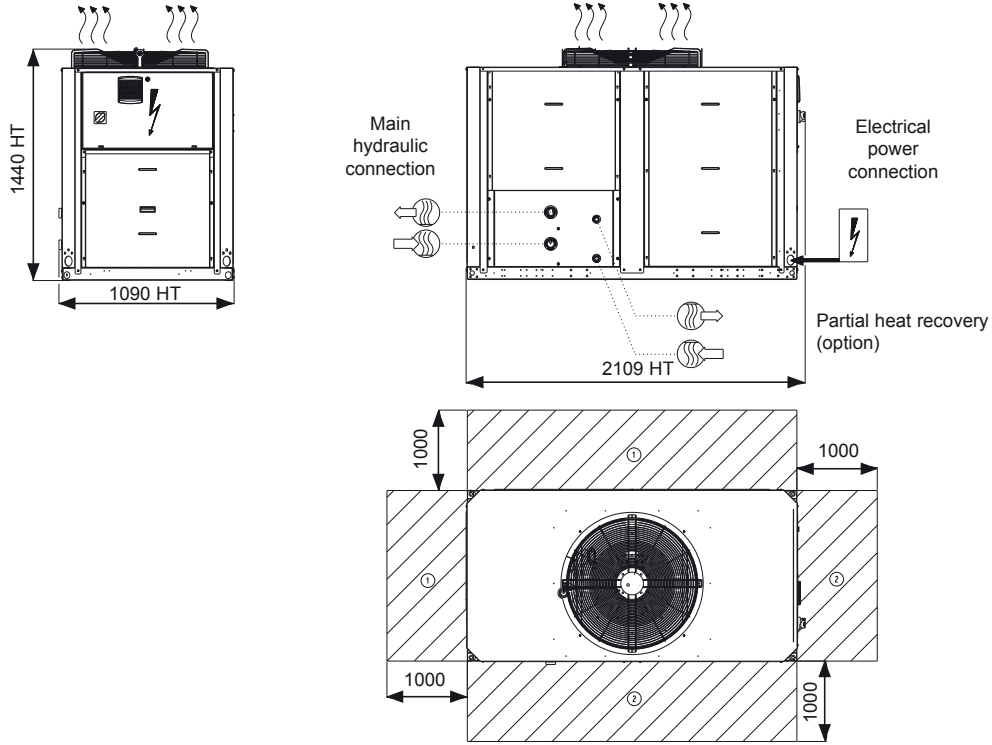
Short circuit current withstand capability (TN system⁽¹⁾)

AQUACIAT LD / ILD	150A	180A	200A	240A	260A	300A	302A	360A	390A	450A	520A	600A
Value without upstream protection												
Short time (1s) assigned current - I _{cw} - kA eff	3.36	3.36	3.36	3.36	3.36	3.36	3.36	5.62	5.62	5.62	5.62	5.62
Allowable peak assigned current - I _{pk} - kA pk	20	20	20	20	20	15	15	20	20	15	20	15
Value with upstream protection												
Conditional short circuit assigned current I _{cc} - kA eff	40	40	40	40	40	40	40	40	40	40	30	30
Associated Schneider circuit breaker Compact type range ⁽²⁾	NS100H	NS100H	NS100H	NS100H	NS100H	NS100H	NS100H	NS100H	NS100H	NS160H	NS160H	NS250H

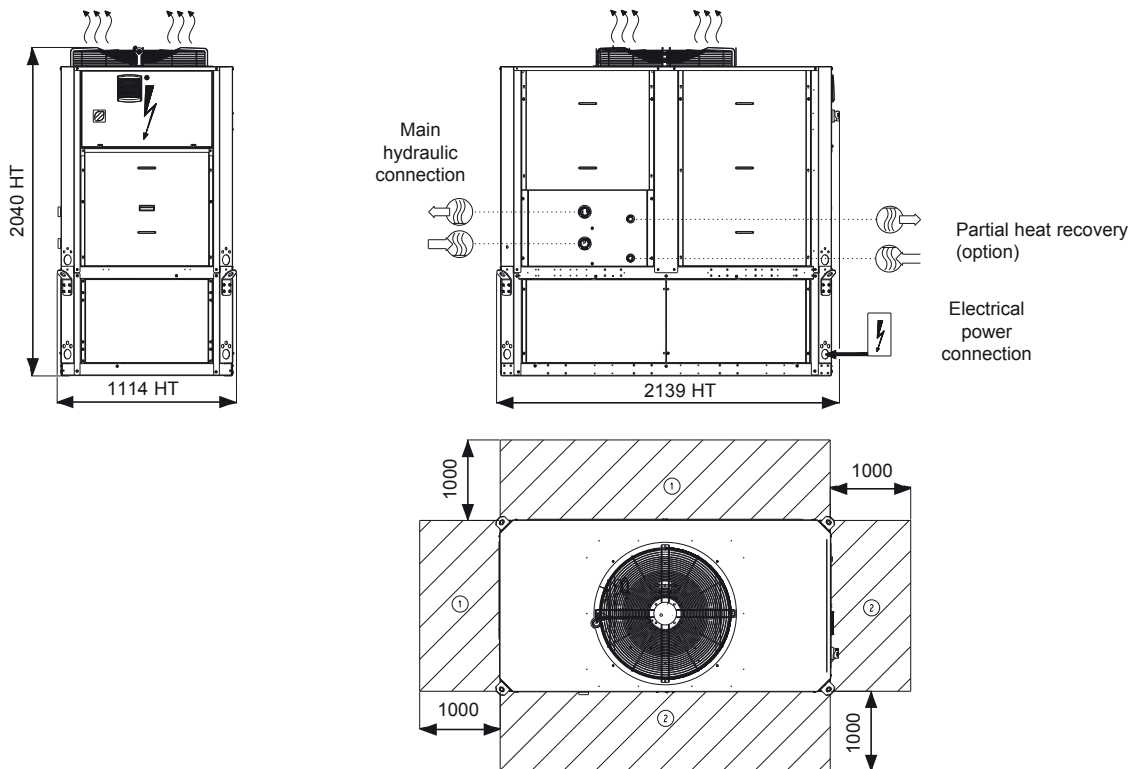
- (1) Type of system earthing
- (2) If another current limiter protective device is used, its time/current activation and heat thermal restriction I²t limits must be at least equivalent to those of the recommended Schneider circuit breaker. Contact your manufacturer's representative.
The short circuit current stability values given above are for the TN system.

DIMENSIONS

AQUACIAT LD-ILD 150A to 300A Without buffer tank

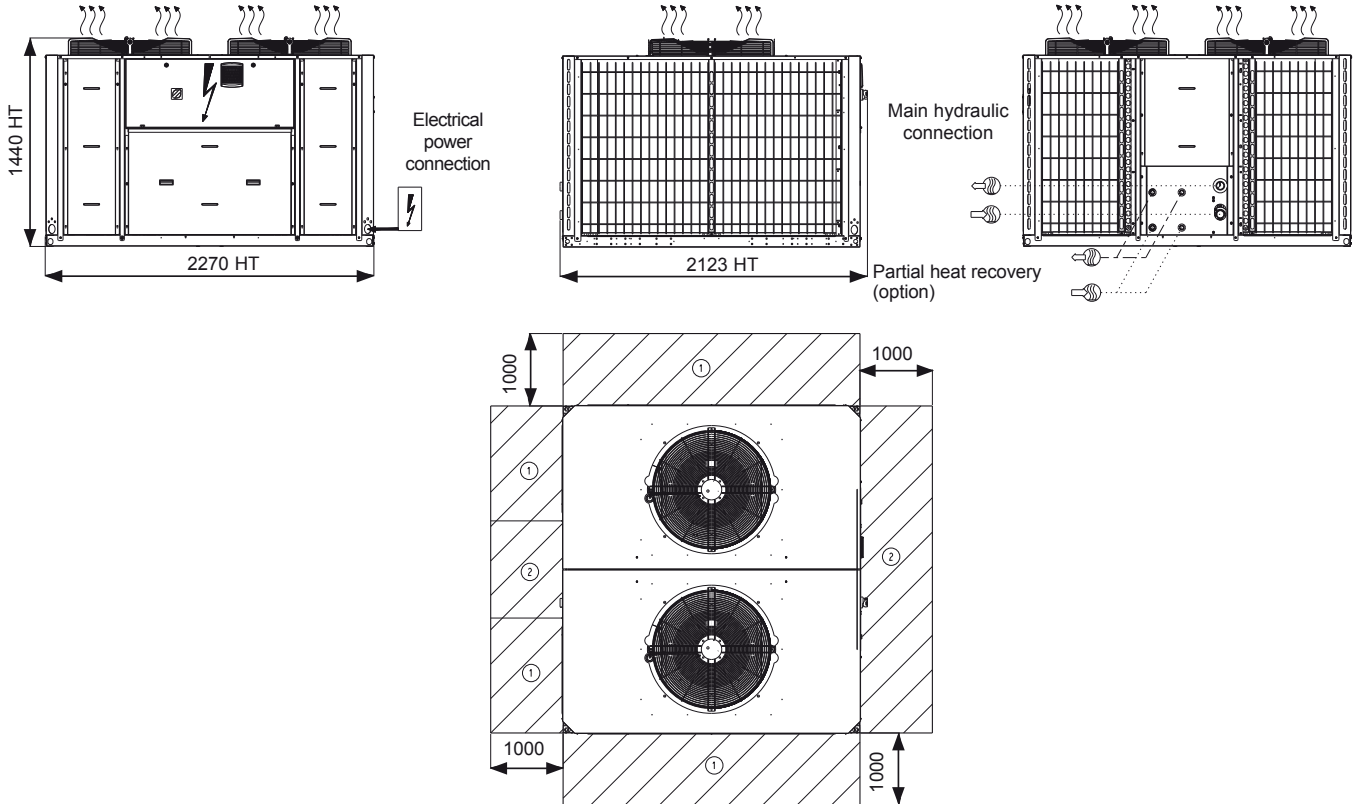


AQUACIAT LD-ILD 150A to 300A With buffer tank

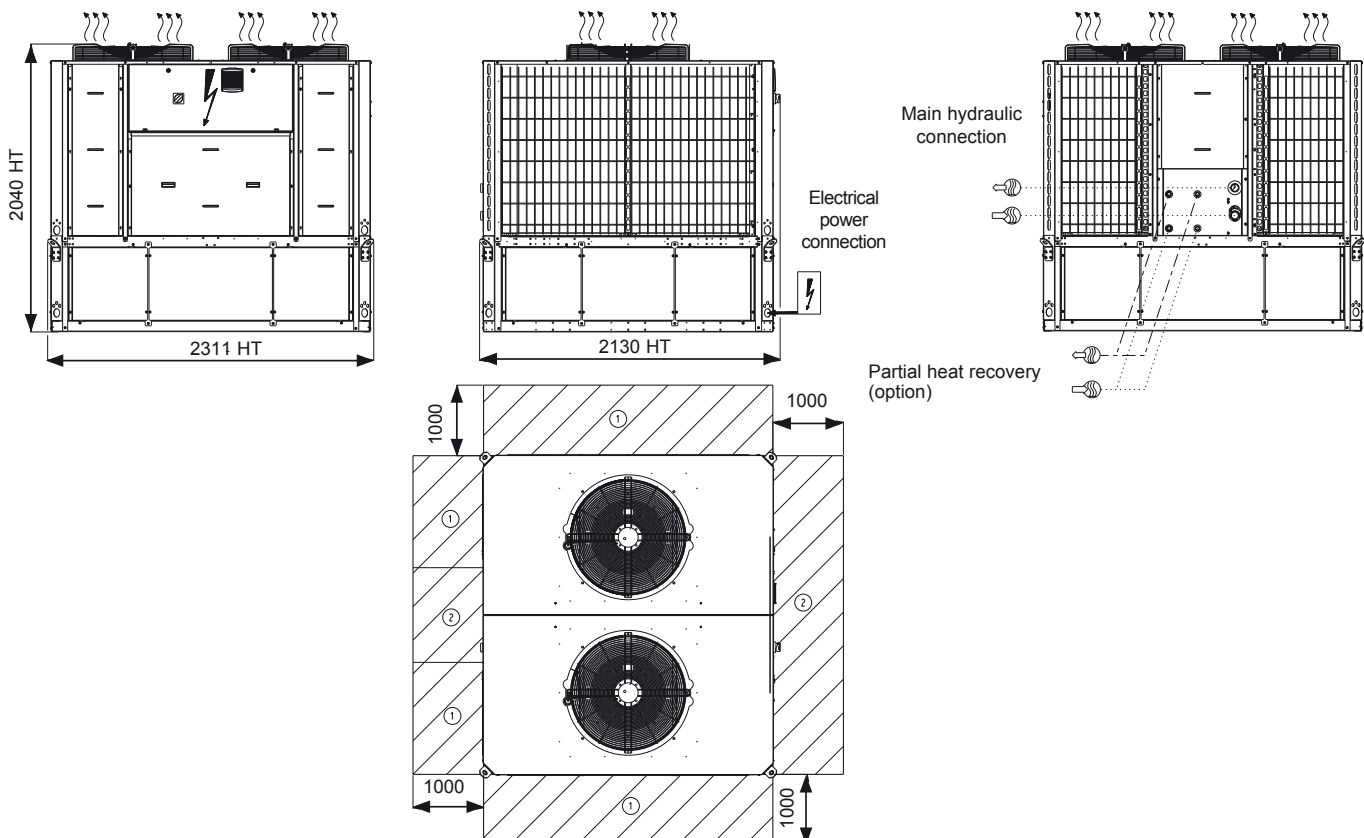


DIMENSIONS

AQUACIAT LD-ILD 302A to 600A Without buffer tank



AQUACIAT LD-ILD 302A to 600A With buffer tank





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