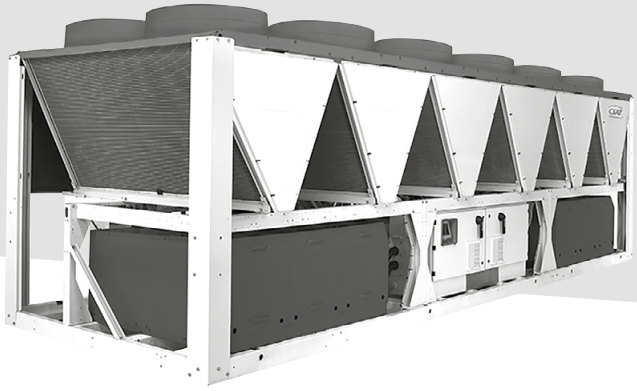
POWERCIAT™ LX

Water chillers



Energy excellence !

Eurovent-certified
SEER up to 4,7, SEPR up to 6,2
Operating range from -20 °C to +55 °C
Compact and silent
High-efficiency flooded shell and tube evaporator
Aluminium micro-channel condenser
Hydraulic module & heat recovery

Cooling capacity: 271 to 1512 kW

Cooling only

Hydraulic module

Heat recovery

Use

The latest generation of **POWERCIAT** high-efficiency air-towater water chillers are the perfect solution for all cooling applications in the Offices, 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.

POWERCIAT is optimised to use ozone-friendly HFC R-134a refrigerant.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SEER and SEPR) and CO_2 reduction to comply with the various applicable European directives and regulations.

Range

■ POWERCIAT series LX HE

Cooling only version High seasonal energy efficiency.

The product is optimised for part load applications and fulfils the provisions of the new Ecodesign regulation governing comfort and process applications. In this case, the machine is equipped as standard with variable-speed fans with AC motor and external speed regulator, allowing for optimisation of the part load efficiency throughout the year.

DESCRIPTION

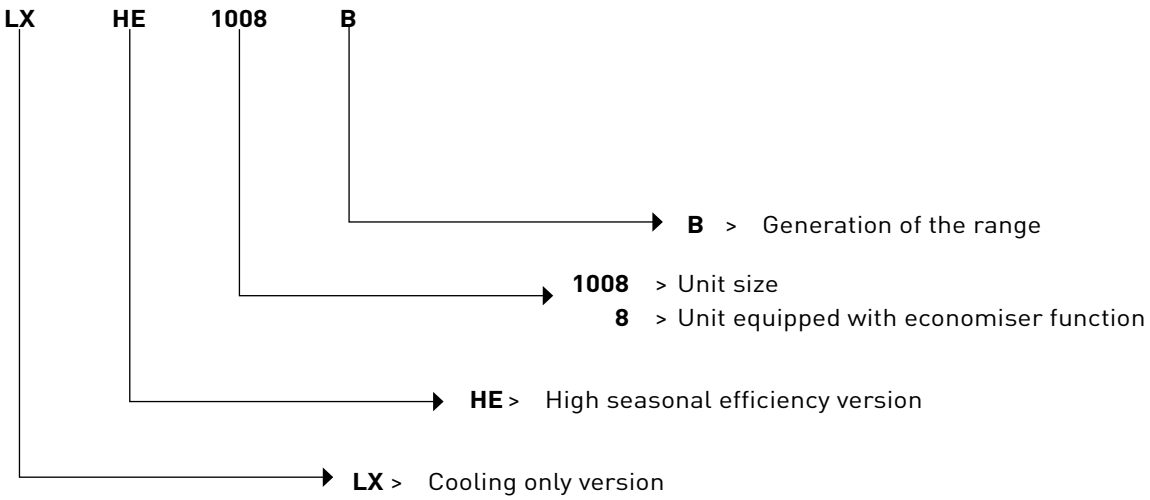
POWERCIAT units are packaged machines supplied as standard with the following components:

- Twin-screw semi-hermetic compressors
- Flooded shell and tube type chilled-water evaporator
- Air-cooled exchanger, all-aluminium micro-channel coil with 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 **POWERCIAT** range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC.
- Electromagnetic compatibility directive 2014/30/EU.
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2014/35/EU.
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN 60-204 - 1
- Refrigeration systems and heat pumps EN 378-2
- Regulation (EU) no. 2016/2281 implementing directive 2009/125/EC with regard to Ecodesign requirements

DESCRIPTION



CONFIGURATION

HE	High Seasonal Efficiency
HE LN option	High Seasonal Efficiency Low Noise
HE XLN option	High Seasonal Efficiency Xtra Low Noise

DESCRIPTION OF THE MAIN COMPONENTS

Compressors
- Twin-screw semi-hermetic type
- 2 screws fitted on ball and roller bearings
- Continuous powerCTRL
- Built-in electric motor, cooled by intake gases
- Integral electronic protection of the motor against thermal and electrical overloads
- Monitoring of rotation direction, absence of phase, over and under voltage, and power supply failure
- Monitoring of lubrication under differential pressure
- Built-in oil filter
- Internal pressure surge valve and valve to prevent reverse rotation during shutdown phases
- Monitoring of maximum head pressure
- Oil separator with integrated silencer to reduce pulses from the discharged gas
- Star-delta start limiting the in-rush current

Shell and tube evaporator
- High performance glandless technology
- Copper tube bundle with internal and external grooves
- 19-mm thermal insulation
- Victaulic type coupling
- Maximum pressure, water side, of 10 bar **(21 bar as option)**

Condenser
- Air-cooled exchanger, all-aluminium micro-channel coil
- Propeller fans with composite blades offering an optimised profile, variable speed
- Motors – IP 54, class F

Refrigerating accessories
- Dehumidifier filters with rechargeable cartridges
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line

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 protection rating: IP 44 (IP 54 optional)
- A connection point without neutral for sizes 808B to 3028B
- Two connection points without neutral for sizes 3428B to 4608B (one connection point optional)
- 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

Chassis
Frame made from RAL 7035 light grey & RAL 7024 graphite grey painted panels

Connect Touch control module
- User interface with 5-inch touchscreen
- Intuitive, user - friendly navigation using icons
- Clear text display of information available in 9 languages (F-GBD- NL-E-I-P-RU +Chinese)

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

DESCRIPTION OF THE MAIN COMPONENTS

- In-series staged powerCTRL system on the compressors according to the thermal requirements
- Management of compressor short-cycle protection
- Frost protection (exchanger heater option)
- Phase reversal protection
- 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
- Lead/Lag 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 (hydraulic module version)
- Display of all machine parameters (3 access levels, User/ Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

Remote management

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

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

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

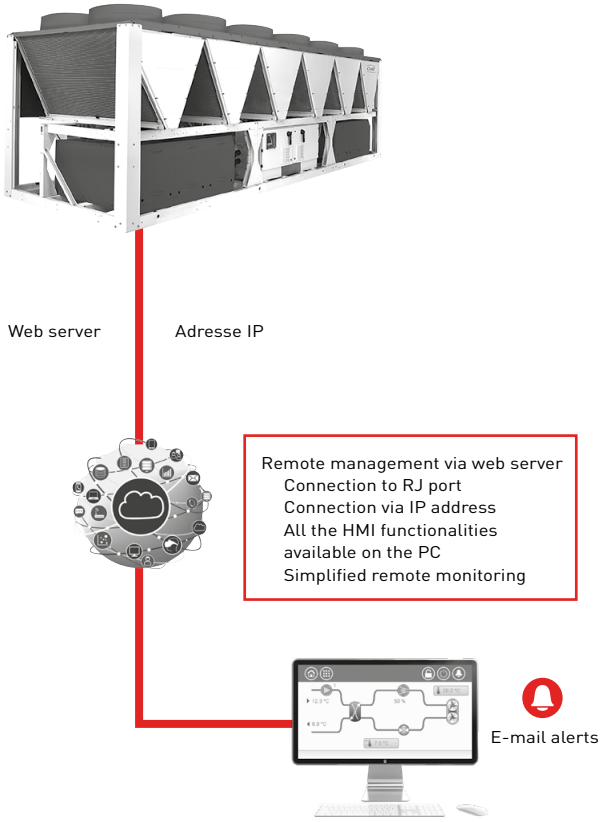
Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- 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.
- 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
- 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.

DESCRIPTION OF THE MAIN COMPONENTS



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.

AVAILABLE OPTIONS

Options	Description	Advantages	LX HE
Medium-temperature brine solution	Implementation of new algorithms of control and evaporator redesign to allow chilled brine solution production down to -12 °C when ethylene glycol is used (-8 °C with propylene glycol)	Covers specific applications such as ice storage and industrial processes	•
Low-temperature brine solution	Implementation of new algorithms of control and evaporator redesign to allow chilled brine solution production down to -15 °C when ethylene glycol is used (-10 °C with propylene glycol)	Covers specific applications such as ice storage and industrial processes	•
Light-brine solution, down to -3 °C	Implementation of new algorithms of control to allow chilled brine solution production down to -3 °C when ethylene glycol is used (0 °C with propylene glycol)	Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements	•
Unit equipped for air discharge ducting	Fans equipped with discharge connection flanges - maximum available pressure 60 Pa	Facilitates connections to the discharge ducts	•
Low Noise	Aesthetic and sound absorbing compressor enclosure	Noise level reduction	•
Xtra Low Noise	Acoustic compressor enclosure and low-speed fans	Noise emission reduction at reduced fan speed	•
IP54 control box	Increased leak tightness of the unit	Protects the inside of the electrical box from dust, water and sand. As a rule, this option is recommended for installations located in polluted environments	•
Tropicalisation of the electrical box	Electrical box equipped with an electrical heater and a fan. Electrical connections on the compressors painted with a special varnish.	Grant safe operation in typical ""tropical"" climate. This option is recommended for all applications where humidity inside the electrical box can reach 80% at 40°C and unit can remain in stand-by for a long time under this conditions.	•
Protection grilles	Metal grilles on the 4 unit sides.	Improves protection against intrusion to the unit interior, and protects the coil and piping against impacts.	•
230 V electrical plug	230 VAC power supply source provided with plug socket and transformer (180 VA, 0.8 A)	Permits connection of a laptop or an electrical device during unit commissioning or servicing	•
Water exchanger frost protection	Electric resistance heater on the water exchanger and discharge valve	Water exchanger frost protection down to -20 °C outside temperature	•
Evaporator & hydraulic module frost protection	Electric resistance heater on water exchanger, discharge valve and hydraulic module	Water exchanger and hydraulic module frost protection down to -20 °C outside temperature	Sizes 808B to 1108B
Total heat recovery	Unit equipped with additional heat exchanger in parallel with the condenser coils.	Production of free hot-water simultaneously with chilled water production	Sizes 808B to 3028B
Evaporator with one pass less	Evaporator with one pass more on the water	Optimise chiller operation when the chilled water circuit is designed with low waterflows (high delta T evaporator inlet/ oulet)	Sizes 808B-3028B
Lead/Lag operation	Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing lead/lag operation of two units connected in parallel	Optimised operation of two units connected in parallel operation with operating time equalisation	•
21 bar evaporator	Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)	Covers applications with a high water column evaporator side (typically high buildings)	•

• ALL MODELS

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

AVAILABLE OPTIONS

Options	Description	Advantages	LX HE
Single power connection point	Unit power connection via one main supply connection	Quick and easy installation	Sizes 3428B to 4608B
Evap. and pumps with aluminum jacket	Evaporator and pumps covered with an aluminum sheet for thermal insulation protection	Improved resistance to aggressive climate conditions	Sizes 808B-1108B
Reversed evaporator water connections	Evaporator with reversed water inlet/outlet	Easy installation on sites with specific requirements	•
Service valve set	Liquid line valve (evaporator inlet), compressor suction and discharge line valves and economiser line valve	Allow isolation of various refrigerant circuit components for simplified service and maintenance	•
Evaporator with one pass more	Evaporator with one pass more on the water side	Optimise chiller operation when the chilled water circuit is designed with low waterflows (high delta T evaporator inlet/ outlet)	•
Set point adjustment by 4-20 mA signal	Connections to allow a 4-20 mA signal input	Easy energy management, allow to adjust set point by a 4-20 mA external signal	•
Lon gateway	Two-directional communication board complying with Lon Talk protocol	Connects the unit by communication bus to a building management system	•
HP single-pump hydraulic module	Complete hydraulic module equipped with water filter, relief valve, one high pressure pump and drain valve. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in safety hydraulic components available).	Quick and easy installation (plug & play)	Sizes 808B to 1108B
HP dual-pump hydraulic module	Dual high pressure water pump, water filter, electronic water flow control, pressure transducers. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in safety hydraulic components available)	Quick and easy installation (plug & play)	Sizes 808B to 1108B
Dual relief valves on 3-way valve	Three-way valve upstream of dual relief valves on the shell and tubes evaporator	Valve replacement and inspection facilitated without refrigerant loss. Conforms to European standard EN378/BGVD4	Sizes 808B to 3028B
Compliance with Swiss regulations	Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications	Compliance with Swiss regulations	•
Compliance with Russian regulations	EAC certification	Compliance with Russian regulations	•
Bacnet over IP	Bi-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	Control board with additional inputs/outputs. See Contacts available in option on control description	Extended remote control capabilities (setpoint reset by 0-20 mA input, ice storage end, demand limits, boiler on/off command...)	•
7" user interface	Control supplied with a 7 inch colour touch screen user interface	Enhanced ease of use	•
Input contact for Refrigerant leak detection	0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)	Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions	•
Compliance with Australian regulations	Unit approved to Australian code	Compliance with Australian regulations	•

- ALL MODELS

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

AVAILABLE OPTIONS

Options	Description	Advantages	LX HE
Insulation of the evap. in/ out ref.lines	Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation	Prevents condensation on the evaporator entering/ leaving refrigerant lines	•
MCHE anti-corosion protection Protect2	Coating by conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. Minimal heat transfer variation, salt spray resistance test for 4000 hours (ASTM B117)	Protect2 Improved corrosion resistance of the MCHE coils by 2, recommended for use in moderately corrosive environments	•
MCHE anti-corosion protection Protect4	Extremely durable and flexible epoxy polymer coating applied on micro channel coils by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794	Protect4 Improved corrosion resistance of the MCHE coils by 4, recommended for use in corrosive environments	•
Evaporator with aluminium jacket	Evaporator covered with an aluminium sheet for thermal insulation protection	Improved resistance to aggressive climate conditions	•
Expansion tank	6 bar expansion tank integrated in the hydraulic module (requires hydraulic module option)	Easy and fast installation (plug & play), & protection of closed water systems from excessive pressure	Sizes 808B to 1108B
Anti-vibration mounts	Elastomer anti-vibration mounts to be placed under the unit (material classified B2 fire class according to DIN 4102).	Isolate the unit from the building, avoid transmission of vibrations and associated noise to the building. Must be used in conjunction with a flexible connection on the water side	•
Free cooling dry cooler management	Control & connections to a free cooling dry cooler Opera or Vextra fitted with the FC control box option	Easy system management, extended control capabilities to a dry cooler used in free cooling mode	•
Variable Water Flow control	Hydraulic control function package that permits control of the water flow rate based on different possible logics (at customer choice): constant ΔT, constant outlet pressure and fixed-speed control	When variable-speed pumps on the primary circuit, the VWF control modulates flow rate through the evaporator, minimising pump consumption while ensuring safe/optimised chiller operation	Sizes 808B to 1108B
Delivery with plastic tarp	Plastic tarp covering units with strapping and campled on the wooden pallet	Allow unit to avoid dust and dirt from the outside environment during stocking and shipping	•

• ALL MODELS

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

TECHNICAL SPECIFICATIONS

POWERCIAT LX HE				808B	908B	1008B	1108B	1358B	1528B	1858B	2008B	2158B
Cooling												
LX HE standard Full load performances*	CA1	Nominal capacity	kW	277	300	322	392	444	494	623	676	730
		EER	kW/kW	3,15	3,12	3,08	3,18	3,11	3,08	3,22	3,28	3,10
LX HE with Xtra Low Noise option Full load performances*	CA1	Nominal capacity	kW	271	293	313	384	432	478	607	659	709
		EER	kW/kW	3,13	3,08	3,00	3,16	3,03	2,93	3,13	3,20	2,97
LX HE standard Seasonal energy efficiency**		**$SEER_{12/7°C}$ Comfort low temp.**	**kWh/kWh**	**4,47**	**4,46**	**4,40**	**4,33**	**4,56**	**4,55**	**4,55**	**4,62**	**4,56**
		$ns\ cool_{12/7°C}$	**%**	**176**	**175**	**173**	**170**	**179**	**179**	**179**	**182**	**179**
		$SEPR_{12/7°C}$ Process high temp.	**kWh/kWh**	**5,70**	**5,69**	**5,65**	**5,78**	**5,72**	**5,74**	**5,68**	**5,79**	**5,63**
LX HE with medium-temperature brine solution option Seasonal energy efficiency**		**$SEPR_{-2/-8°C}$ Process medium temp.*** **	**kWh/kWh**	**2,72**	**3,02**	**3,18**	**2,81**	**3,51**	**3,56**	**3,65**	**3,67**	**3,44**
LX HE with variable water flow control option Seasonal energy efficiency**		**$SEER_{12/7°C}$ Comfort low temp.**	**kWh/kWh**	**4,47**	**4,47**	**4,43**	**4,49**	-	-	-	-	-
		$ns\ cool_{12/7°C}$	**%**	**176**	**176**	**174**	**177**	-	-	-	-	-
		$SEPR_{12/7°C}$ Process high temp.	**kWh/kWh**	**5,72**	**5,71**	**5,68**	**5,83**	-	-	-	-	-
LX HE with low-temperature brine solution option Seasonal energy efficiency**		**$SEPR_{-2/-8°C}$ Process medium temp.*** **	**kWh/kWh**	**3,29**	**3,46**	**3,52**	**3,26**	**3,42**	**3,50**	**3,50**	**3,62**	**3,38**
LX HE with Xtra Low Noise option Seasonal energy efficiency**		**$SEER_{12/7°C}$ Comfort low temp.**	**kWh/kWh**	**4,49**	**4,48**	**4,41**	**4,33**	**4,56**	**4,57**	**4,56**	**4,62**	**4,56**
		$ns\ cool_{12/7°C}$	**%**	**176**	**176**	**173**	**170**	**179**	**180**	**179**	**182**	**179**
		$SEPR_{12/7°C}$ Process high temp.	**kWh/kWh**	**5,82**	**5,88**	**5,79**	**5,57**	**5,70**	**5,79**	**5,92**	**5,93**	**5,79**
LX HE with medium-temperature brine solution, Xtra Low Noise options Seasonal energy efficiency**		**$SEPR_{-2/-8°C}$ Process medium temp.*** **	**kWh/kWh**	**2,75**	**3,10**	**3,29**	**2,83**	**3,54**	**3,67**	**3,79**	**3,82**	**3,55**
LX HE with variable water flow control option & Xtra Low Noise Seasonal energy efficiency**		**$SEER_{12/7°C}$ Comfort low temp.**	**kWh/kWh**	**4,47**	**4,47**	**4,42**	**4,47**	-	-	-	-	-
		$ns\ cool_{12/7°C}$	**%**	**176**	**176**	**174**	**176**	-	-	-	-	-
		$SEPR_{12/7°C}$ Process high temp.	**kWh/kWh**	**5,84**	**5,91**	**5,82**	**5,61**	-	-	-	-	-
LX HE with low-temperature brine solution, Xtra Low Noise options Seasonal energy efficiency**		**$SEPR_{-2/-8°C}$ Process medium temp.*** **	**kWh/kWh**	**3,35**	**3,58**	**3,71**	**3,38**	**3,64**	**3,61**	**3,63**	**3,78**	**3,50**
Sound levels												
LX HE												
Sound power[1]			dB(A)	99	99	99	99	101	99	101	99	103
Sound pressure at 10 m[2]			dB(A)	67	67	67	67	69	67	68	66	70
LX HE + Low Noise option												
Sound power[1]			dB(A)	93	93	94	95	95	95	97	96	97
Sound pressure at 10 m[2]			dB(A)	61	61	62	63	63	63	64	63	64
LX HE + Xtra low noise option												
Sound power[1]			dB(A)	87	87	87	90	91	91	93	92	94
Sound pressure at 10 m[2]			dB(A)	55	55	55	58	59	59	60	59	61

*	In accordance with standard EN14511-3:2022.
**	In accordance with standard EN14825:2022
***	30 % brine solution
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
$ns\ cool_{12/7\ °C}$ & $SEER_{12/7\ °C}$	**Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Comfort application**
$SEPR_{12/7°C}$	**Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Process application High Temperature**
$SEPR_{-2/-8°C}$	**Bold values compliant to Ecodesign Regulation (EU) No. 2015/1095 for Process application Medium Temperature**
-	Non applicable
(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

CARRIER participates in the ECP programme for LCP-HP. Check ongoing validity of certificate: www.eurovent-certification.com

Eurovent certified values

TECHNICAL SPECIFICATIONS

POWERCIAT LX HE		808B	908B	1008B	1108B	1358B	1528B	1858B	2008B	2158B
Dimensions										
LX HE										
Length	mm	3604	3604	3604	4798	4798	4798	7186	7186	7186
Width	mm	2253	2253	2253	2253	2253	2253	2253	2253	2253
Height	mm	2322	2322	2322	2322	2322	2322	2322	2322	2322
Operating weight[3]										
LX HE standard	kg	3081	3112	3132	3729	3791	3852	4878	5024	5282
LX HE Unit + Low noise option	kg	3349	3380	3400	4028	4090	4151	5209	5355	5613
Compressors		06T semi-hermetic screw, 50 r/s								
Circuit A		1	1	1	1	1	1	1	1	1
Circuit B		1	1	1	1	1	1	1	1	1
Refrigerant[3]		R-134a (GWP=1430 following AR4)								
Circuit A	kg	39	37	37	52	53	55	60	61	69
	tCO_2e	55,8	52,9	52,9	74,4	75,8	77,9	85,8	87,2	98,0
Circuit B	kg	40,0	38	39	40,0	40	37,0	61	64	61
	tCO_2e	57,2	54,3	55,8	57,2	57,2	52,9	87,2	91,5	86,5
Oil										
Circuit A	l	20,8	20,8	20,8	23,5	23,5	23,5	23,5	23,5	27,6
Circuit B	l	20,8	20,8	20,8	20,8	20,8	20,8	23,5	23,5	23,5
Capacity control		Connect Touch, electronic expansion valve (EXV)								
Minimum capacity	%	15	15	15	15	15	15	15	15	15
Air-cooled exchanger		Aluminium micro-channel coils (MCHE)								
Fans										
LX HE		Axial type, with rotating impeller, FLYING-BIRD 6								
Quantity		6	6	6	8	8	8	11	12	12
Maximum total air flow	l/s	28920	28920	28920	38560	38560	38560	53020	57840	57840
Maximum rotation speed	r/s	15,7	15,7	15,7	15,7	15,7	15,7	15,7	15,7	15,7
LX HE Unit + Xtra Low Noise option										
Maximum total air flow	l/s	23580	23580	23580	31440	31440	31440	43230	47160	47160
Maximum rotation speed	r/s	11,7	11,7	11,7	11,7	11,7	11,7	11,7	11,7	11,7
Exchanger		Flooded multi-pipe type								
Water volume	l	58	61	61	66	70	77	79	94	98
Max. water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000
Hydraulic module (option)		Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors								
Pump		Centrifugal pump, monocell, 48.3 r/s, low- or high-pressure (as required), single or dual (as required)								
Expansion vessel volume	l	50	50	50	50	50	80	-	-	-
Max. water-side operating pressure with hydraulic module	kPa	400	400	400	400	400	400	-	-	-
Water connections with or without hydraulic module		Victaulic® type								
Connections	in	5 or 4	5 or 4	5 or 4	5 or 4	5 or 4	5 or 4	5	6	6
External diameter[4]	mm	114,3 or 141,3	114,3 or 141,3	114,3 or 141,3	114,3 or 141,3	114,3 or 141,3	114,3 or 141,3	141,3	168,3	168,3
Casing paintwork		Colour code RAL 7035 & RAL 7024								

(3) Values are guidelines only. Refer to the unit name plate.
(4) Depends on the number of passes on the evaporator

TECHNICAL SPECIFICATIONS

POWERCIAT LX HE				2308B	2528B	2628B	3028B	3428B	3828B	4008B	4408B	4608B
Cooling												
LX HE standard Full load performances*	CA1	Nominal capacity	kW	782	825	899	983	1143	1262	1330	1441	1512
		EER	kW/kW	3,10	3,08	3,12	3,17	3,22	3,19	3,16	3,05	3,07
LX HE with Xtra Low Noise option Full load performances*	CA1	Nominal capacity	kW	757	795	878	969	1113	1226	1290	1392	1464
		EER	kW/kW	2,93	2,89	2,99	3,03	3,11	3,05	2,98	2,82	2,89
LX HE standard Seasonal energy efficiency**		**$SEER_{12/7°C}$ Comfort low temp.**	**kWh/kWh**	**4,55**	**4,56**	**4,56**	**4,60**	**4,58**	**4,61**	**4,55**	**4,55**	**4,55**
		ns $cool_{12/7°C}$	**%**	**179**	**179**	**179**	**181**	**180**	**181**	**179**	**179**	**179**
		$SEPR_{12/7°C}$ Process high temp.	**kWh/kWh**	NA	**5,55**	**5,54**	**5,83**	**5,76**	**5,71**	**5,68**	**5,56**	NA
LX HE with medium-temperature brine solution option Seasonal energy efficiency**		**$SEPR_{-2/-8°C}$ Process medium temp.*** **	**kWh/kWh**	**3,35**	**3,53**	**3,44**	**3,55**	**3,52**	**3,47**	**3,60**	**3,63**	NA
LX HE with variable water flow control option Seasonal energy efficiency**		**$SEER_{12/7°C}$ Comfort low temp.**	**kWh/kWh**	-	-	-	-	-	-	-	-	-
		ns $cool_{12/7°C}$	**%**	-	-	-	-	-	-	-	-	-
		$SEPR_{12/7°C}$ Process high temp.	**kWh/kWh**	-	-	-	-	-	-	-	-	-
LX HE with low-temperature brine solution option Seasonal energy efficiency**		**$SEPR_{-2/-8°C}$ Process medium temp.*** **	**kWh/kWh**	**3,34**	**3,47**	**3,39**	**3,47**	**3,29**	**2,63**	**3,45**	**3,53**	NA
LX HE with Xtra Low Noise option Seasonal energy efficiency**		**$SEER_{12/7°C}$ Comfort low temp.**	**kWh/kWh**	**4,58**	**4,56**	**4,57**	**4,56**	**4,60**	**4,62**	**4,59**	**4,56**	**4,55**
		ns $cool_{12/7°C}$	**%**	**180**	**179**	**180**	**179**	**181**	**182**	**181**	**179**	**179**
		$SEPR_{12/7°C}$ Process high temp.	**kWh/kWh**	**5,72**	**5,80**	**5,76**	**5,88**	**5,90**	**5,81**	**5,71**	**5,68**	**5,52**
LX HE with medium-temperature brine solution, Xtra Low Noise options Seasonal energy efficiency**		**$SEPR_{-2/-8°C}$ Process medium temp.*** **	**kWh/kWh**	**3,57**	**3,66**	**3,55**	**3,78**	**3,61**	**3,31**	**3,22**	**3,27**	**3,28**
LX HE with variable water flow control option & Xtra Low Noise Seasonal energy efficiency**		**$SEER_{12/7°C}$ Comfort low temp.**	**kWh/kWh**	-	-	-	-	-	-	-	-	-
		ns $cool_{12/7°C}$	**%**	-	-	-	-	-	-	-	-	-
		$SEPR_{12/7°C}$ Process high temp.	**kWh/kWh**	-	-	-	-	-	-	-	-	-
LX HE with low-temperature brine solution, Xtra Low Noise options Seasonal energy efficiency**		**$SEPR_{-2/-8°C}$ Process medium temp.*** **	**kWh/kWh**	**3,55**	**3,59**	**3,47**	**3,70**	**3,58**	**3,44**	**3,67**	**3,67**	**3,45**
Sound levels												
LX HE												
Sound power[1]			dB(A)	103	101	104	102	103	102	104	104	104
Sound pressure at 10 m[2]			dB(A)	70	68	71	69	70	69	71	71	71
LX HE + Low Noise option												
Sound power[1]			dB(A)	98	97	99	98	98	98	100	99	99
Sound pressure at 10 m[2]			dB(A)	65	64	66	65	65	65	67	66	66
LX HE + Xtra low noise option												
Sound power[1]			dB(A)	94	94	95	94	94	94	99	95	96
Sound pressure at 10 m[2]			dB(A)	61	61	62	61	61	61	66	62	63

*	In accordance with standard EN14511-3:2022.
**	In accordance with standard EN14825:2022
***	30 % brine solution
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
ns $cool_{12/7 °C}$ & $SEER_{12/7 °C}$	**Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Comfort application**
$SEPR_{12/7°C}$	**Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Process application High Temperature**
$SEPR_{-2/-8°C}$	**Bold values compliant to Ecodesign Regulation (EU) No. 2015/1095 for Process application Medium Temperature**
NA	Not authorised for the specific application for the CEE market
-	Non applicable
(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

CARRIER participates in the ECP programme for LCP-HP. Check ongoing validity of certificate: www.eurovent-certification.com

TECHNICAL SPECIFICATIONS

POWERCIAT LX HE		2308B	2528B	2628B	3028B	3428B	3828B	4008B	4408B	4608B
Dimensions										
LX HE										
Length	mm	7186	7186	8380	9574	11962	11962	11962	11962	13157
Width	mm	2253	2253	2253	2253	2253	2253	2253	2253	2253
Height	mm	2322	2322	2322	2322	2322	2322	2322	2322	2322
Operating weight[3]										
LX HE standard	kg	5594	5643	6262	6772	8061	8202	8793	8868	9218
LX HE Unit + Low noise option	kg	5925	5974	6593	7103	8435	8576	9167	9242	9592
Compressors		06T semi-hermetic screw, 50 r/s								
Circuit A		1	1	1	1	1	1	1	1	1
Circuit B		1	1	1	1	1	1	1	1	1
Refrigerant[3]		R-134a (GWP=1430 following AR4)								
Circuit A	kg	69	69	72	79	82	84	115	121	124
	tCO_2e	98,7	98,7	103,0	113,0	117,3	120,1	164,5	173,0	177,3
Circuit B	kg	67	67	74	83	118	130	121	127	130
	tCO_2e	95,8	95,8	105,8	118,7	168,7	185,9	173,0	181,6	185,9
Oil										
Circuit A	l	27,6	27,6	27,6	27,6	27,6	27,6	36,0	36,0	36,0
Circuit B	l	23,5	23,5	27,6	27,6	36,0	36,0	36,0	36,0	36,0
Capacity control		Connect Touch, electronic expansion valve (EXV)								
Minimum capacity	%	15	15	15	15	15	15	15	15	15
Air-cooled exchanger		Aluminium micro-channel coils (MCHE)								
Fans		Axial type, with rotating impeller, FLYING-BIRD 6								
LX HE										
Quantity		12	12	14	16	20	20	20	20	22
Maximum total air flow	l/s	57840	57840	67480	77120	96400	96400	96400	96400	106040
Maximum rotation speed	r/s	15,7	15,7	15,7	15,7	15,7	15,7	15,7	15,7	15,7
LX HE Unit + Xtra Low Noise option										
Maximum total air flow	l/s	47160	47160	55020	62880	78600	78600	78600	78600	86460
Maximum rotation speed	r/s	11,7	11,7	11,7	11,7	11,7	11,7	11,7	11,7	11,7
Exchanger		Flooded multi-pipe type								
Water volume	l	119	119	130	140	164	174	180	189	189
Max. water-side operating pressure without hydraulic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000
Water connections with or without hydraulic module		Victaulic® type								
Connections	in	6	6	6	8	6	6	6	6	6
External diameter	mm	168,3	168,3	168,3	219,1	168,3	168,3	168,3	168,3	168,3
Casing paintwork		Colour code RAL 7035 & RAL 7024								

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

TECHNICAL SPECIFICATIONS

Basic unit (excluding pump)

POWERCIAT LX HE		808B	908B	1008B	1108B	1358B	1528B	1858B	2008B	2158B	2308B	2528B	2628B	3028B
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) - LX HE														
Standard unit	kW	127	138	148	174	194	212	260	280	310	329	359	381	446
Unit + Xtra Low Noise option	kW	122	132	143	166	186	205	250	269	300	318	349	369	432
Power factor at maximum power(2) - LX HE														
Displacement Power Factor (Cos Phi)		0,90	0,90	0,89	0,90	0,90	0,90	0,90	0,90	0,89	0,89	0,89	0,88	0,89
Displacement Power Factor (Cos Phi) unit + Xtra Low Noise option		0,90	0,90	0,89	0,90	0,90	0,90	0,90	0,90	0,89	0,89	0,89	0,88	0,89
Nominal unit current draw(3) - LX HE														
Standard unit	A	148	164	180	207	238	259	320	345	396	417	433	495	533
Unit + Xtra Low Noise option	A	138	154	170	195	226	247	304	326	377	398	414	473	509
Maximum operating current draw (Un)(1) - LX HE														
Standard unit	A	204	222	240	279	312	342	417	449	504	534	580	625	723
Unit + Xtra Low Noise option	A	195	213	231	267	300	330	401	432	487	517	563	605	700
Maximum current (Un-10 %)(2) - LX HE														
Standard unit	A	216	235	254	295	330	362	441	475	534	566	615	663	767
Unit + Xtra Low Noise option	A	207	226	245	283	318	350	425	458	517	549	598	643	744
Start-up current(3) + (4) - LX HE														
Standard unit	A	246	246	262	379	480	480	539	564	738	759	759	839	858
Unit + Xtra Low Noise option	A	241	241	257	374	475	475	531	555	730	751	751	828	846
Maximum start-up current (Un)(2) + (4) - LX HE														
Standard unit	A	275	293	293	408	511	511	618	618	783	813	813	906	955
Unit + Xtra Low Noise option	A	270	288	288	403	506	506	610	609	775	805	805	895	943

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).
(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).
(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.
(4) Standardised EUROVENT conditions, water-cooled exchanger inlet/outlet = 12 °C / 7 °C, outdoor air temperature = 35 °C.

TECHNICAL SPECIFICATIONS

POWERCIAT LX HE		3428B	3828B	4008B	4408B	4608B
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) - LX HE						
Standard unit	kW					
Circuit 1(a)	kW	194	223	264	284	307
Circuit 2(a)	kW	284	308	282	305	307
Single power connection point option	kW	478	532	546	588	614
Unit with Xtra Low Noise option						
Circuit 1(a)	kW	187	216	255	274	297
Circuit 2(a)	kW	275	298	273	296	297
Single power connection point option	kW	461	514	528	570	594
Power factor at maximum power(1) - LX HE						
Standard unit						
Displacement Power Factor (Cos Phi)		0,89	0,89	0,89	0,89	0,89
Unit + Xtra Low Noise option						
Displacement Power Factor (Cos Phi)		0,89	0,89	0,89	0,89	0,89
Nominal unit current draw(2) - LX HE						
Standard unit						
Circuit 1(a)	A	251	267	334	347	382
Circuit 2(a)	A	350	386	347	379	382
Single power connection point option	A	601	652	681	726	764
Unit + Xtra Low Noise option						
Circuit 1(a)	A	239	255	319	332	366
Circuit 2(a)	A	334	367	332	364	366
Single power connection point option	A	572	621	650	695	731
Maximum operating current draw (Un)(1) - LX HE						
Standard unit						
Circuit 1(a)	A	316	362	430	460	498
Circuit 2(a)	A	463	500	460	495	498
Single power connection point option	A	778	862	889	954	995
Unit with Xtra Low Noise option						
Circuit 1(a)	A	304	350	415	445	482
Circuit 2(a)	A	447	483	445	480	482
Single power connection point option	A	751	833	860	925	963
Maximum current (Un-10 %)(1) - LX HE						
Standard unit						
Circuit 1(a)	A	335	384	466	498	529
Circuit 2(a)	A	501	531	498	526	529
Single power connection point option	A	835	915	963	1023	1057
Unit with Xtra Low Noise option						
Circuit 1(a)	A	323	372	451	483	513
Circuit 2(a)	A	485	514	483	511	513
Single power connection point option	A	808	886	934	994	1025

(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).
(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies refrigerant circuit B. For units LX 3428B to 4608B: circuit 1 supplies circuit A, circuit 2 supplies circuit B.

TECHNICAL SPECIFICATIONS

POWERCIAT LX HE		3428B	3828B	4008B	4408B	4608B
Start-up current[3] - LX HE						
Standard unit						
Circuit 1[a]	A	587	587	629	629	629
Circuit 2[a]	A	629	629	629	629	629
Single power connection point option	A	687	702	729	744	744
Unit + Xtra Low Noise option						
Circuit 1[a]	A	587	587	629	629	629
Circuit 2[a]	A	629	629	629	629	629
Single power connection point option	A	671	684	714	729	727
Maximum start-up current (Un)[2] - LX HE						
Standard unit						
Circuit 1[a]	A	587	587	629	629	629
Circuit 2[a]	A	629	629	629	629	629
Single power connection point option	A	802	820	844	862	862
Unit + Xtra Low Noise option						
Circuit 1[a]	A	587	587	629	629	629
Circuit 2[a]	A	629	629	629	629	629
Single power connection point option	A	786	802	829	847	845

(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.
(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies refrigerant circuit B. For units LX 3428B to 4608B: circuit 1 supplies circuit A, circuit 2 supplies circuit B.

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

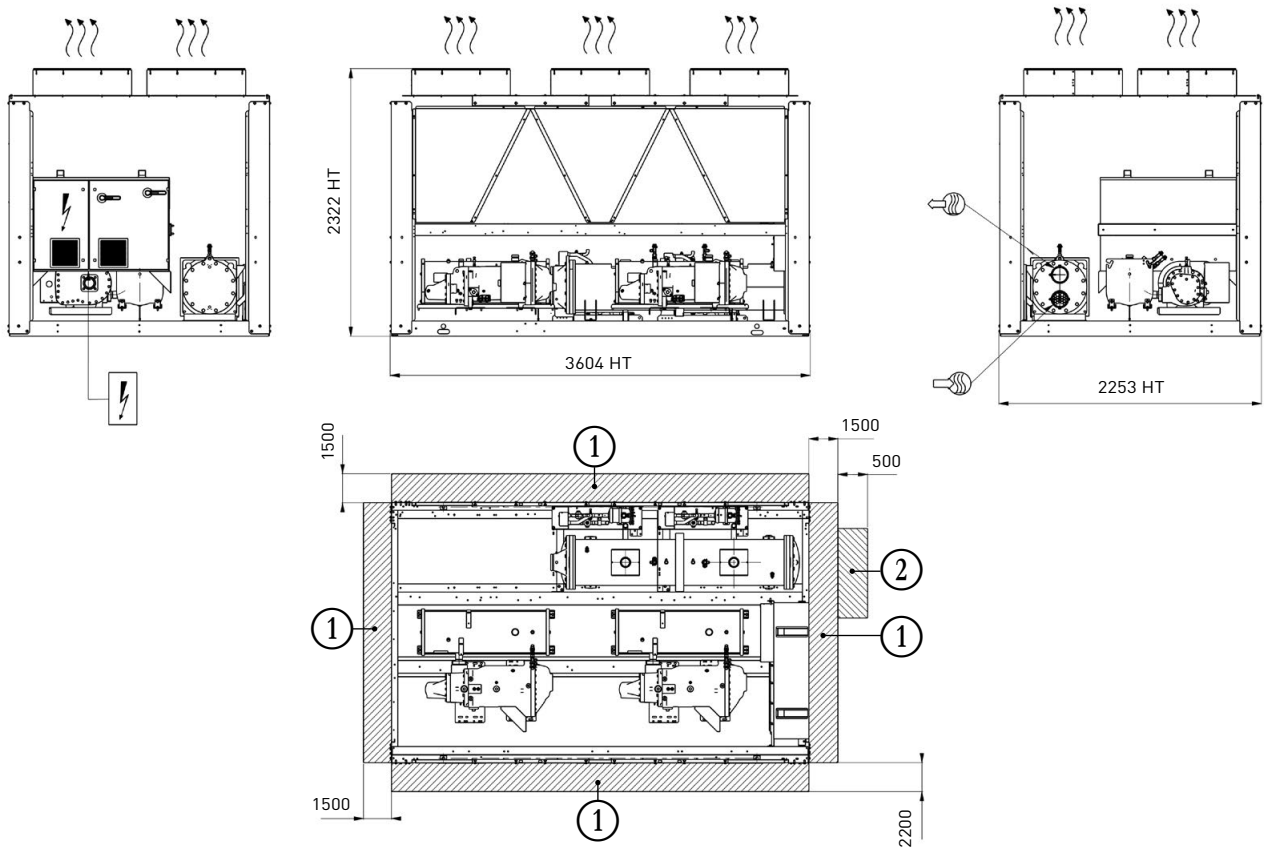
POWERCIAT LX HE		808B to 1528B	1858B to 3028B	3428B to 4608B
Short-circuit withstand current (TN system)				
Circuit A+B	kA	38	50	50
Circuit C+D	kA	NA	NA	50
Unit + single power connection point option	A	NA	NA	50

(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 above are suitable with the TN system.

DIMENSIONS

■ POWERCIAT LX HE 808B to 1008B



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:

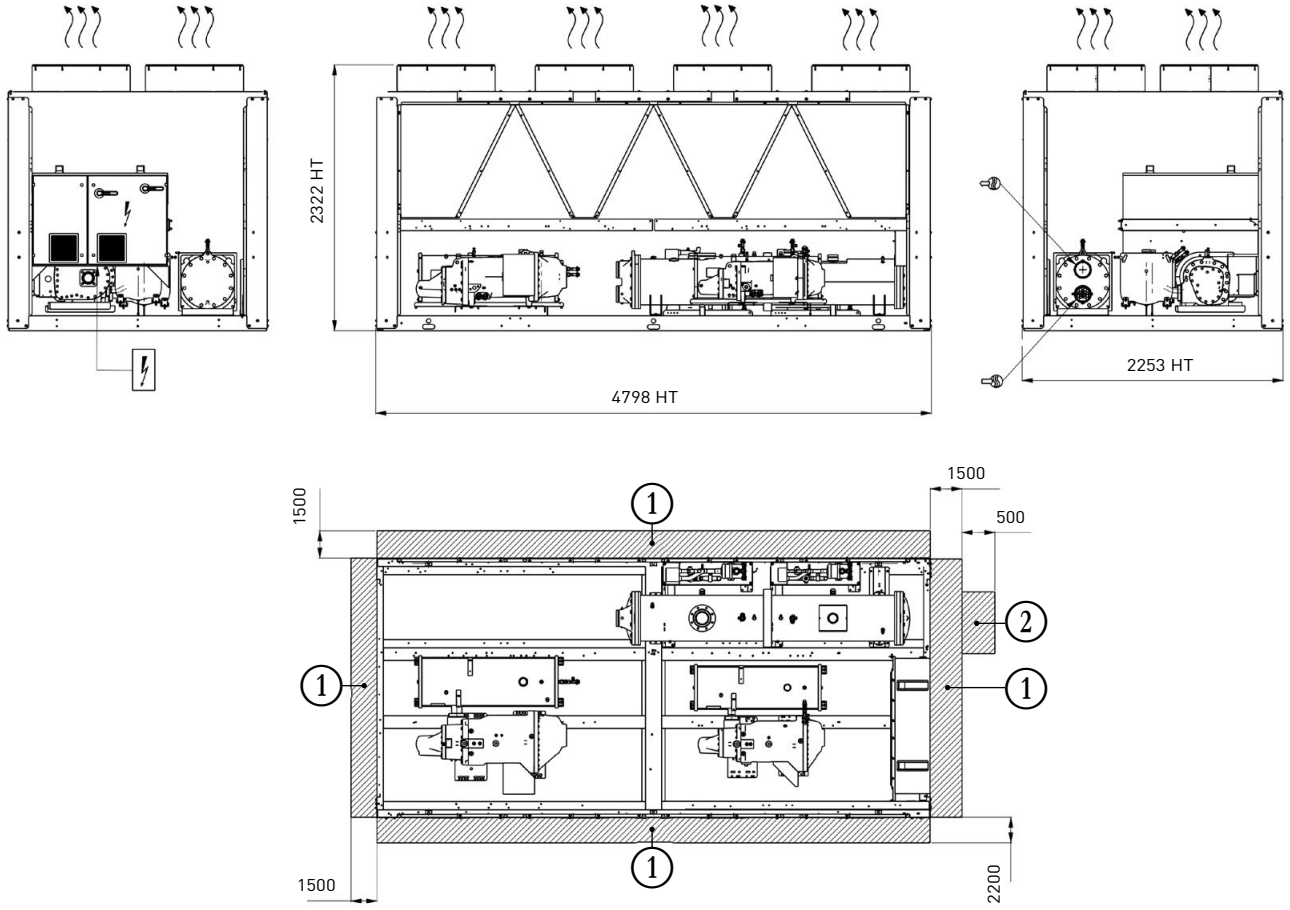
Non-contractual drawings.

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

■ POWERCIAT LX HE 1108B to 1528B



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:

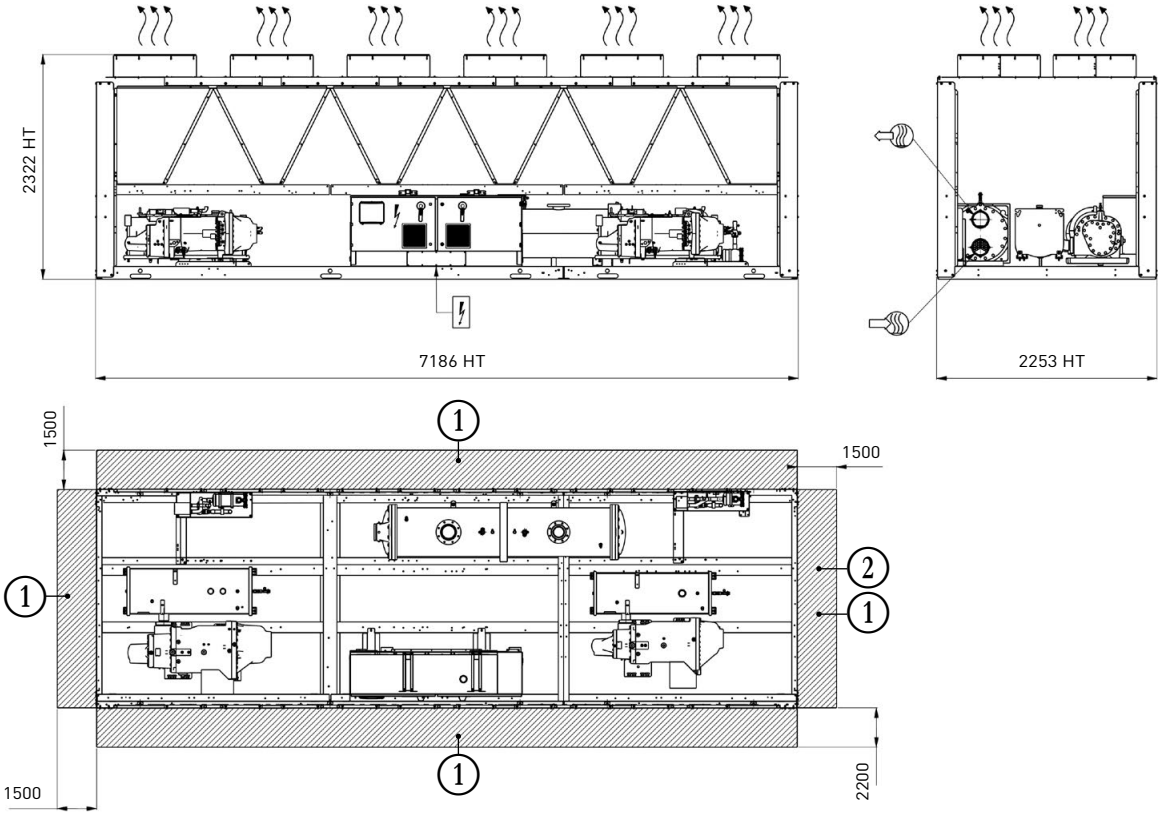
Non-contractual drawings.

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

■ POWERCIAT LX HE 1858B to 2528B



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:

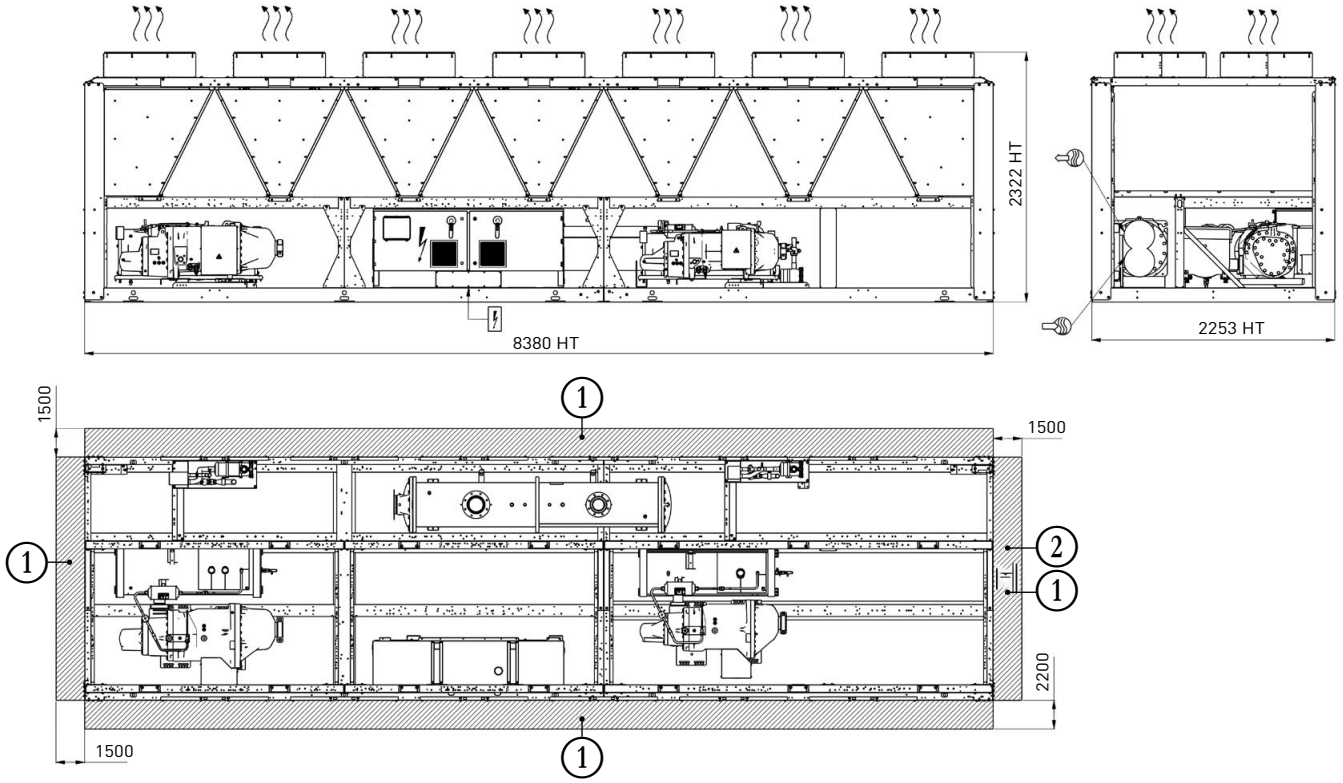
Non-contractual drawings.

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

■ POWERCIAT LX HE 2628B



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:

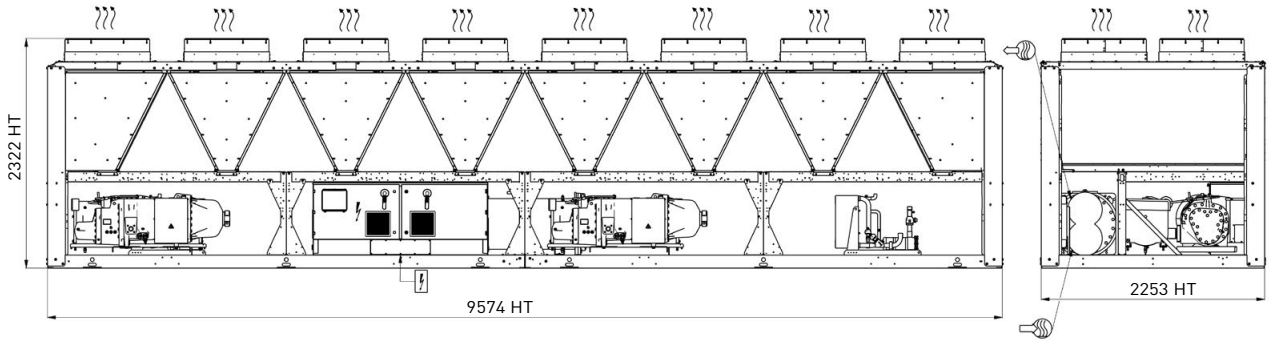
Non-contractual drawings.

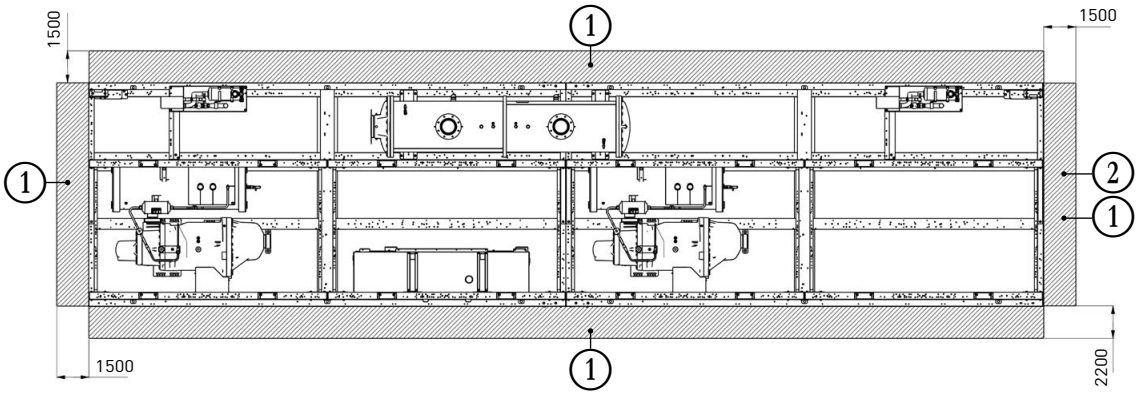
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

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

DIMENSIONS

■ POWERCIAT LX HE 3028B





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:

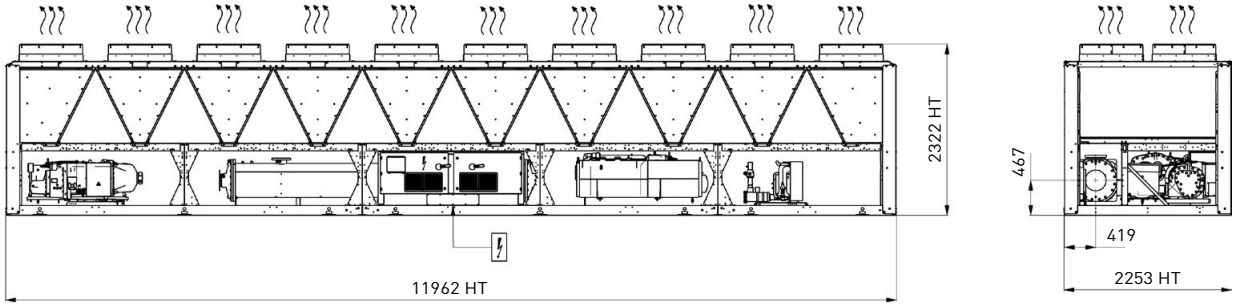
Non-contractual drawings.

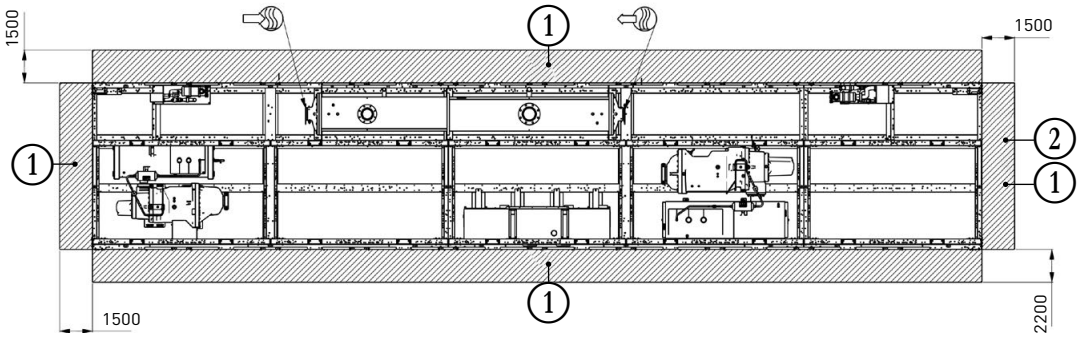
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

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

DIMENSIONS

■ POWERCIAT LX HE 3428B to 4408B





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:

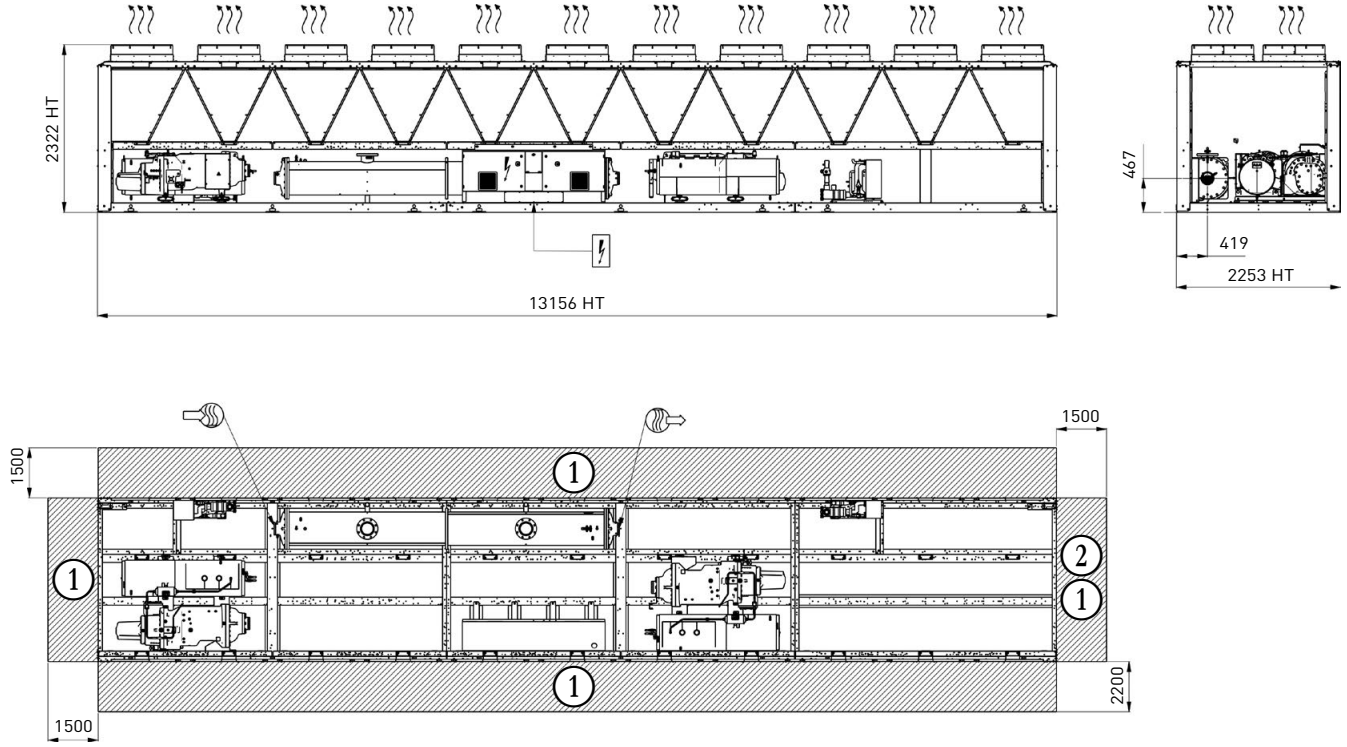
Non-contractual drawings.

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

POWERCIAT LX HE 4608B



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.