# LCX

## chillers and heat pumps technical manual

GB


Air condensed water chillers
and heat pumps **LCX** series

**40 kW - 360 kW**

CE

eco R410A

EUROVENT CERTIFIED PERFORMANCE

Galletti
AIR CONDITIONING

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## DECLARATION OF CONFORMITY CE

Galletti S.p.A., whose head office is located at 12/a Via Romagnoli 12/a Bentivoglio (Bologna) - Italy, hereby declares, under its own responsibility, that the water chillers and heat pumps belonging to the series: (see table below), units intended for applications in civil air conditioning systems, comply with the requirements of **EEC Directives 2006/42/CE, 2004/108/CE, 2006/95/CE and 97/23/CE (PED)**.
These units are the result of an assembly of components [compressors, brazed plate heat exchangers, liquid receivers, pipes, control and safety valves] which are individually provided, where required, with certification in accordance with current directives: the category to which the machines belong is determined on the basis of an analysis of the components subject to the PED and corresponds to the highest category among the components used.
For each series of machines, the conformity of the assembly has been assessed by notified bodies, applying the assessment procedures (forms) pursuant to annex II of the PED - Directive **97/23/CE**, as shown in the following table:

Bentivoglio li, 10/04/2015

| Serie<br>Range | Grandezza<br>Size | Organismo Notificato<br>Notified body | N° certificato<br>certificate | Procedura di valutazione di conformità<br>Conformity Compliance Module | Categoria PED<br>PED category | Marcatura<br>Marking |
|---|---|---|---|---|---|---|
| MCC - MCC H | 6 - 7 - 9 - 12 - 15 | 0425 | 2422/0 | Modulo D1 | I | CE |
| MCC - MCC H | 18 - 22 - 25 - 33 - 37 | 0425 | | Modulo D1 | II | CE + PED |
| MCW - MCW / H | 5 - 7 - 10 - 12 - 15 - 18 - 20 | 0425 | | Modulo D1 | I | CE |
| MCW - MCW / H | 22 - 27 - 31 - 39 | 0425 | | Modulo D1 | II | CE + PED |
| MPE - MPEH | 4 - 5 - 7 - 8 - 10 - 13 - 15 - 18 | 0425 | | Modulo D1 | I | CE |
| MPE - MPEH | 20-24-27-28-32-35-40-54-66 | 0425 | | Modulo D1 | II | CE + PED |
| MPE - MPEH | T30-T34-T40-T45-T54-T61-T69-T76 | 0425 | | Modulo D1 | II | CE + PED |
| MPI | 15 | 0425 | | Modulo D1 | I | CE |
| MPI | 27 | 0425 | | Modulo D1 | II | CE + PED |
| MPI DC | 8 - 10 - 14 - 15 - 18 | 0425 | | Modulo D1 | I | CE |
| MPI DC | 23 - 27 - 29 | 0425 | | Modulo D1 | II | CE + PED |
| HWMC | 10 | 0425 | | Modulo D1 | I | CE |
| HWMC | 13 - 18 - 23 - 29 | 0425 | | Modulo D1 | II | CE + PED |
| MCP | 7 - 9 | 0425 | | Modulo D1 | I | CE |
| MCP | 10-13-15-18-27-32-40-T18-T22-T24-T30 | 0425 | | Modulo D1 | II | CE + PED |
| LCX - LCX H | 42 - 52 - 62 - 72 - 82<br>91/2/4 - 101/2/4 - 121/2/4<br>141/2/4 - 161/2/4 - 174 - 194 - 214 | 0425 | | Modulo D1 | II | CE + PED |
| LEW | 41-42-51-52-61-62-71-72-81-82-91-92-111-112-131-132-141-142-144-161-162-164-181-182 | 0425 | | Modulo D1 | II | CE + PED |

Water Chillers and heat pumps are in acordarce with the law 97/23/CE (PED) filling in D1 form, approved by the third notified body ICIM N° 0425.

Galletti S.p.A.
Luca Galletti

## UNIT IDENTIFICATION

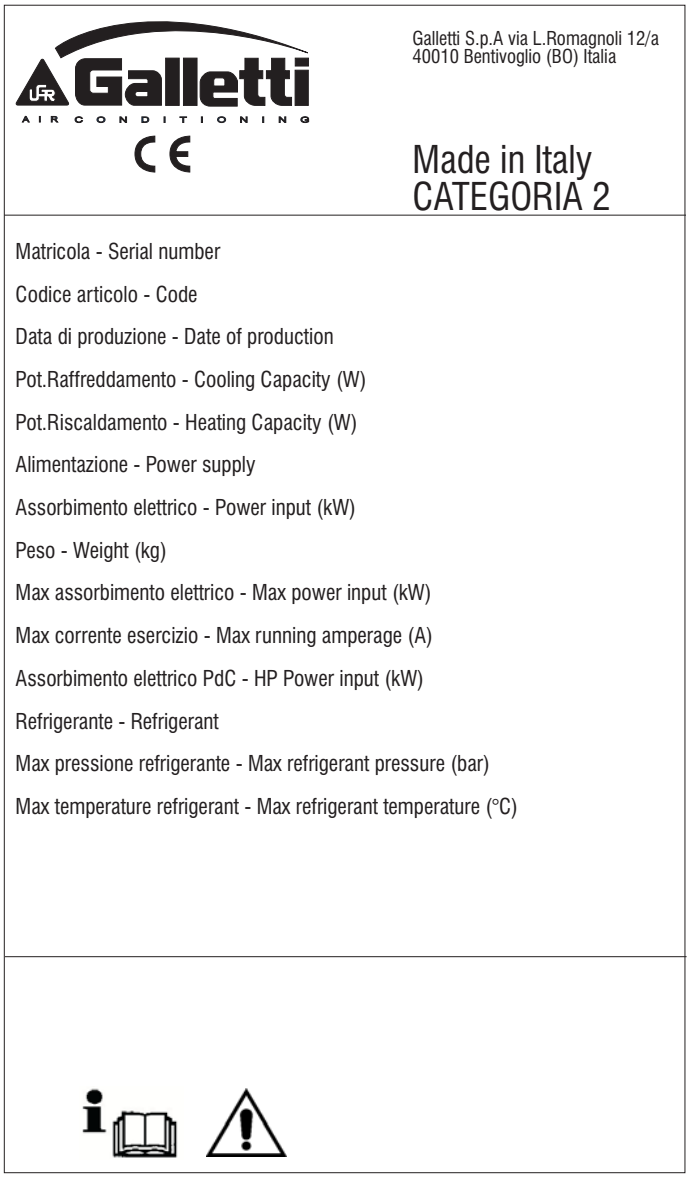
The unit data are reported on the rating label in this page.

**The label shows the following data:**

- Series and size of the unit
- Date of manufacture
- Main technical data
- Manufacturer
- The label is applied on the unit, usually on the enclosing panels beside the condenser coil.

**IMPORTANT: NEVER REMOVE THE LABEL**

- Serial number of the unit
- The serial number permits to identify the technical characteristics and the components installed.
- Without this datum it will be impossible to identify the unit correctly.




Example

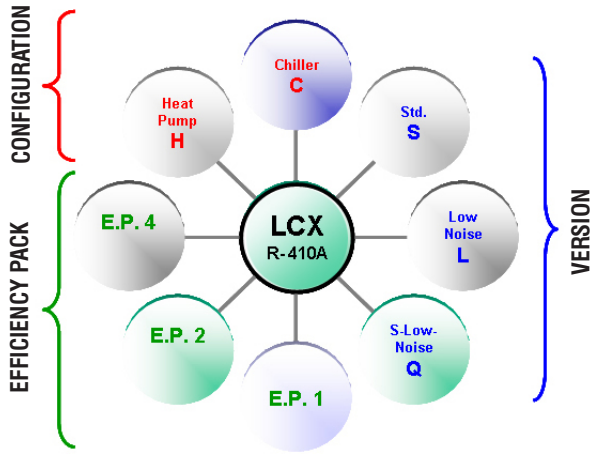
The technical and dimensional data provided herein may undergo changes in connection with product improvements.

- For further information or communication, please contact the company at:info@galletti.it
- To find out the weight of each unit, please refer to the table in the paragraph "Rated specifications"

# 1 THE SERIES

The use of R410A as a refrigerant in specifically developed chillers brings guaranteed advantages thanks to the high exchange coefficients and lower pressure drops in the heat exchanger, which mean enhanced efficiency and reliability plus energy savings.

The LCX project has enabled a range to be developed which, starting off from 17 basic sizes, generates no fewer than 150 different cooling-only or heat pump models - given all the configurations and options that multiply the possibilities of choice - with powers from 40 to approximately 320 kW.




A vast array of options and accessories allows you to build “dedicated” solutions tailored to numerous design and installation requirements.

> **CONFIGURATION**
- **C** Chiller cooling only
- **H** Reversible heat pump

> **EFFICIENCY PACK**

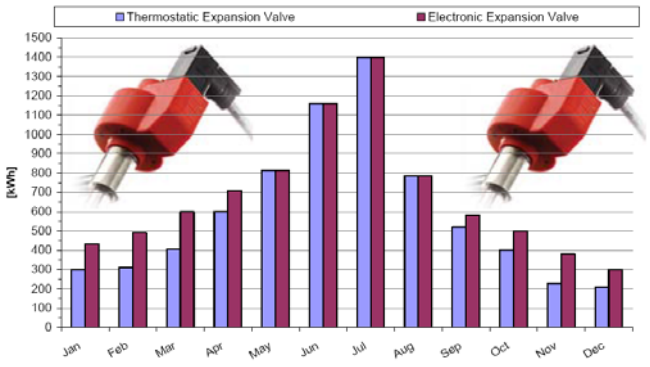
The possibility of setting up different cooling circuits in units of the same power means being able to personalise efficiency levels under full or part load conditions.

- **1** Dual circuit / dual compressor.
  The dual circuit-dual compressor models provide high efficiency values under full load (EER and COP).
- **2** Single circuit / dual compressor.
  The solution of using two compressors in a single cooling circuit increases efficiency under part load conditions, reaching ESEER values greater than 4.
- **4** Dual circuit / 4 compressors.
  4 compressors enable the unit to output power in 4 steps and adapt perfectly to the actual thermal load of the system, while reducing starting currents.

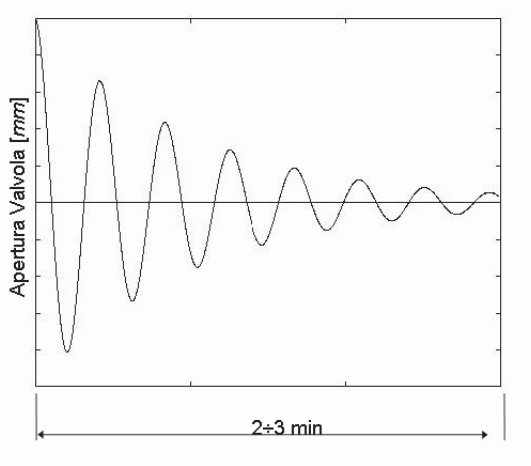
> **VERSION**
- **S** Standard version
- **L** Low-Noise version for a low noise impact
- **Q** Quiet version for a super low noise impact

**ELECTRONIC EXPANSION VALVES**

All units, irrespective of type of construction, are equipped with electronic expansion valves to maximise efficiency under part load conditions.



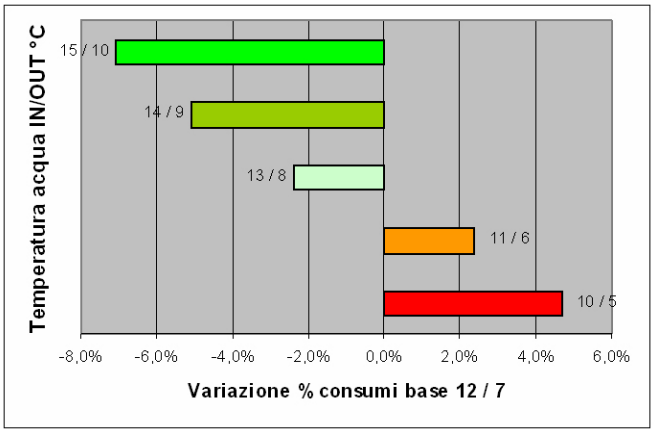

Electronic expansion valves have the capacity, if correctly parameterised and controlled by the software, to optimise cooling circuit performance and decrease the system’s power consumption.
When a sudden change occurs in the thermal load, with a traditional expansion valve there is a transient time of 2 to 3 minutes before a condition of equilibrium is reached.
Proactive action of an Electronic Expansion Valve




In the event of a compressor on/off request:
The electronic driver pre-positions the valve at a point very near the final equilibrium point.
- A status of equilibrium is quickly reached with small adjustments.
- The electronic expansion valve becomes an active, rather than passive, component within the system.
- The transient time is greatly reduced.
- Overall the system is more efficient, with higher EERs and therefore greater savings.

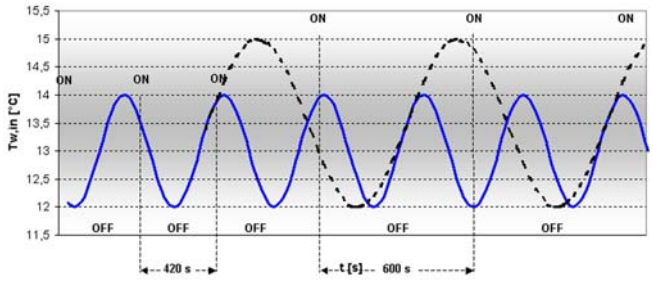
## REGULATION

The electronic control system allows the setpoint to be adjusted automatically according to the outdoor temperature (sensor available as an optional) in order to reduce consumption and broaden the working temperature range. In the summer mode, compensation begins with an outdoor air temperature of 30°C.
The diagram below indicates the increases in efficiency at different water temperatures.



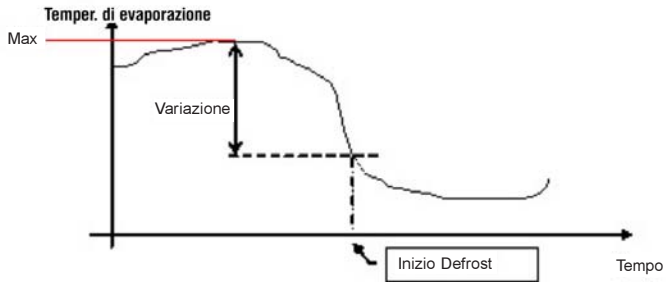

## SELF-ADAPTIVE

The unit can also function in systems with a low water content, even without the use of a water buffer tank, thanks to the automatic adjustment which limits the number of compressor starts and thus extends the life of the compressors themselves.




## SMART DEFROST SYSTEM

The exclusive defrost system (optional feature available with the advanced controller) can correctly identify an impairment of performance in the outdoor exchanger due to the formation of ice and minimise the process time in relation to normal operation of the unit.

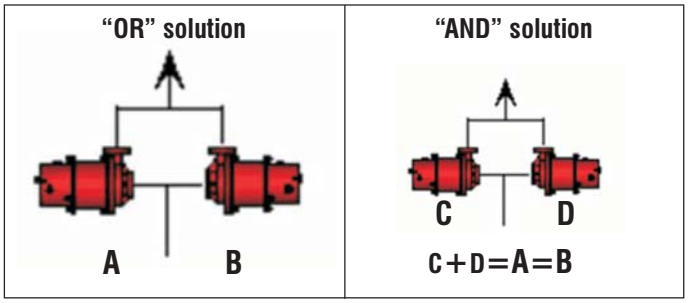



## INTERCONNECTIVITY

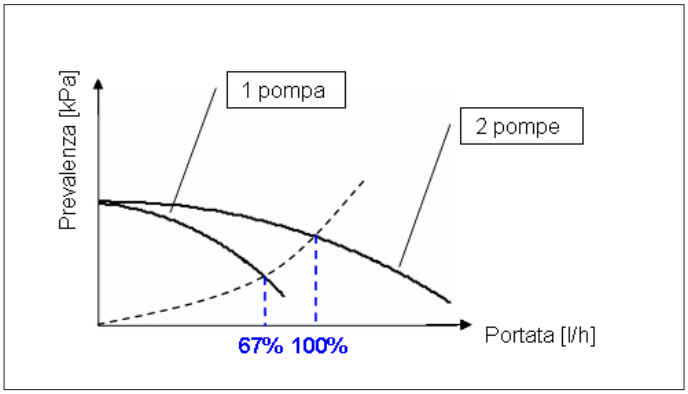
ERGO network s as a standard feature
With advanced microprocessor control it is possible to implement:
- LAN networks
- GSM kit for reading and setting data via a mobile phone
- WEB kit for reading and setting data remotely from a PC via access to the IP address of the chiller unit or network of units.

## WATER PUMP OPTIONS

Complete hydronic kits can be incorporated within the units without modifying their size and you have the option of choosing the water circulation pump.
- Single pump, standard head or uprated (high head).
- Dual pump solution (OR): standard head or uprated (high head), operating singly. The pumps operate in turns on a time/fault basis. In the case, the microprocessor controls the pumps in such a way as to equally divide the hours of operation, changing over the pumps in the event of a fault.
- Dual pump solution (AND): standard or uprated pump, operating simultaneously.
  Connected in parallel, they deliver water at the nominal flow rate when operating simultaneously.

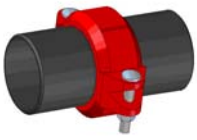



Under part load conditions operation is limited to a single pump, reducing the capacity by 1/3 compared to the rated value and resulting in average savings of about 30% in pumping costs.




In the case of two pumps in combination, the advanced microprocessor is mandatory because it controls the on/off switching of the second pump according to the number of capacity steps required at every instant. This makes operation of the unit cost-effective for most of its life since, based on well-known analyses, chillers operate 97% of the time under part load conditions.

All LCX models are constructed so that the water inlet and outlet pipes are outside the unit. Pairs of quick connect couplings with a welding ring are available as an optional.



## REDUCTION IN OVERALL DIMENSIONS/TRANSPORT COSTS.

Reduction in footprint and increase in power density (kW/m$^2$). Thanks to the decrease in depth (now 1180 mm up to model 160), it is possible to reduce transport costs.


RG66010694-Rev00

## 2 CONSTRUCTIVE FEATURES

**STRUCTURE**
Galvanised steel sheet base with a textured polyester powder coating for outdoors (colour RAL9005, deep black).
Structure built from steel sheet, with a textured polyester powder coating for outdoors (colour RAL9002) to ensure effective resistance to corrosive agents.
Fastening devices are made of non-oxidizable materials, or carbon steel that has undergone surface-passivating treatments.
The compressor compartment is completely sealed and may be accessed on 3 sides thanks to easy-to-remove panels that greatly simplify maintenance and/or inspection.
Micro-switch coupled with the rear panel over the ventilating section to make routine and extraordinary maintenance operations safe.
Insulation from vibrations can be achieved using rubber or spring vibration dampers (available as an optional).

**HYDRONIC KITS**
All units have lead-out plumbing connections with victaulic connectors (selectable option) situated on the rear of the unit, suitably positioned air vent valves, safety valve and paddle flow switch and outlet water temperature probe functioning as an antifreeze thermostat.
Available on request there are numerous pump systems that can be incorporated within the chiller unit without changing its overall dimensions:
- single standard or high delivery head pump
- standard or high head pump and associated back-up pump
- standard pump for combined operation.
- high head pump for combined operation.

Each hydronic kit includes a membrane expansion tank.
The pump system is incorporated in the structure of the unit and is arranged so as to ensure that the pump motors are always cooled by outside air.
In the case of pump systems including a back-up pump, the microprocessor controls the pumps in such a way as to equally divide the hours of operation, changing over the pumps in the event of a fault.
In the case of two pumps in combination, the advanced microprocessor is mandatory because it controls the on/off switching of the second pump according to the number of capacity steps required.
The pump system is incorporated in the structure of the unit and is arranged so as to ensure that the pump motors are always cooled by outside air.
In addition to the pump kit, a water buffer tank can be installed inside the fan compartment, on the outlet side of water circuit, in order to attenuate the inevitable temperature fluctuations caused by the ON/OFF switching of the compressors.
The available optionals include a water circuit antifreeze kit, which can be configured according to the hydronic solutions chosen, and uses self-regulating PTC heating elements interlocked with compressor operation and the set-point value.

**COOLING CIRCUIT**
The cooling circuit is built using only components of the finest quality brands produced by qualified manufacturers according to the specifications of Directive 97/23 for brazing. Strict design and quality control standards are applied during all phases of construction of the internal piping.
For all rated powers, the cooling circuit can be set up in 3 different configurations called “efficiency packs”:
- Efficiency pack 1: 2 cooling circuits, 1 compressor per circuit.
- Efficiency Pack 2: 1 cooling circuit, 2 compressors in tandem.
- Efficiency Pack 4: 2 cooling circuits, 2 compressors per circuit.

The main components of the cooling circuit are:
- Scroll-type compressors designed to work with R410A, operating singly or combined in a tandem configuration.
- Brazed plate heat exchangers made of STAINLESS STEEL AISI 316 and optimised for use with R410A.
- Finned block condenser with 8 mm copper piping and aluminium fins, characterised by ample heat exchange surfaces.
- Dehydrating filter.
- Flow indicator with humidity indicator.
- Electronically controlled electric expansion valve including software designed and optimised so as to follow the cooling load under all conditions of use. In the case of heat pump models, dual mechanical thermostatic valve dedicated to each finned coil to provide optimised operation in the heating mode (the electronic valve is used in the cooling mode).
- Cycle-reversing valve (heat pumps).
- Check valves (heat pumps).
- Liquid receiver (heat pumps).
- High and low pressure switches.
- Safety valve.
- Schrader valves for checks and/or maintenance.
- Refrigerant pressure gauges (optional)

Optionally, partial recovery of the condensation heat (40%) can be obtained by means of suitably sized plate exchangers.

**FAN DRIVE ASSEMBLY**
4/6/8-pole axial-type fans with airfoil-shaped blades made of hybrid plastic/aluminium material, statically and dynamically balanced in two planes, fitted with a protective grille and mounted with rubber vibration dampers placed in between. The fan is housed in a special compartment having a profile designed to optimise ventilation.
The condensation control system continuously and automatically regulates the fan speed, further limiting the noise emissions of the unit during night-time operation and under partial load conditions (opt).

**FINNED BLOCK HEAT EXCHANGER**
Made of 8mm diameter copper pipes and aluminium fins, generously sized. The use of finned block heat exchangers with 8mm diameter pipes reduces pressure drops on the air side, thus significantly improving the noise levels of the units.
The special engineering of the heat exchangers allows defrost cycles to be carried out at maximum speed in the models with heat pump operation, which brings clear benefits in terms of the integrated efficiency of the whole cycle.
The finned block condensers can be fitted with a protective outer grille.

**ELECTRIC CONTROL BOARD**
Electric control board with a door interlock isolating switch and watertight panels providing quick access to the control keys, built in conformity with standard EN 60204, wired in accordance with directive EEC 73/23, directive CEE 89/336 on electromagnetic compatibility and related standards. Is equipped with an air circulation system that is active while the unit is running.
The door of the compartment housing the electric control board lifts up and open by means of hydraulic pistons, optimising accessibility during routine and extraordinary maintenance work.
The cables inside the electric compartment are numbered.
The available options include a 400/3/50 power configuration with transformer for the auxiliary circuits, or thermal magnetic motor protectors for safeguarding against overcurrents/mains voltage fluctuations, or a combination of these solutions.

**ELECTRONIC MICROPROCESSOR CONTROL**
The electronic control enables the complete control of the unit. It can be easily accessed through a polycarbonate flap with IP65 protection rating.
The self-adaptive logic enables the unit to operate even in systems where the water content is low, without the use of an inertial water storage reservoir. By reading the outdoor air temperature, it can automatically change the setpoint to adapt it to the outdoor load conditions or keep the unit running even in the harshest winter conditions.
The basic controller comes complete with the MODBUS protocol and enables an immediate connection to ERGO networks.
The main functions are control of water temperature at the evaporator inlet, complete alarm management, dynamic setpoint adjustment according to air temperature, possibility of connecting an external terminal which replicates the control functions and can be connected to an RS485 serial line for supervision/remote technical support.

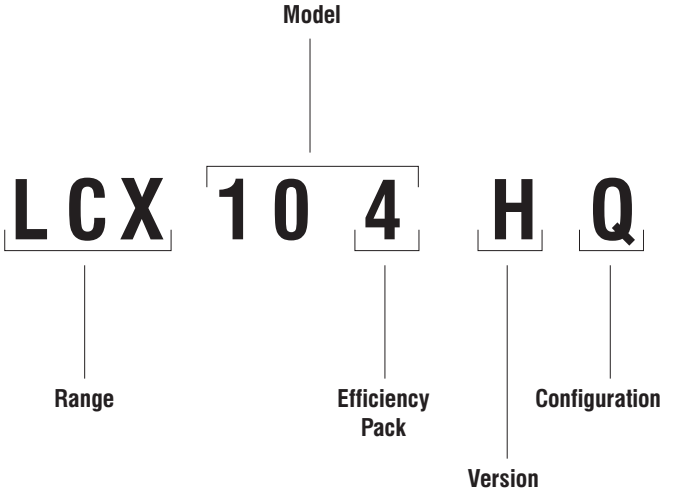
## 2 CONSTRUCTIVE FEATURES

Available on request is an advanced PCO microprocessor + PGD graphic keypad which enables fine control of the unit and of the cooling circuit parameters, providing a sort of record of the vital parameters of the cycle (pressures and temperatures) in order to draw attention to any anomalous behaviour.
With the advanced microprocessor control it is possible to set up LAN networks for controlling 4 units in parallel.
Options of remote communication via RS485 serial card (Carel or Modbus protocol), Lonworks, with GSM modem kit or PicoWeb Ethernet card. Supervisor software supplied on request.

## 3 MODELS AND CONFIGURATIONS

**FIELD OF APPLICATION**
LCX air-condensed water chillers and heat pumps have been designed to cool and heat water for air conditioning and heating systems in residential, commercial and industrial buildings.

When choosing a model, after determining the required power it is necessary to select the version (CHILLER or HEAT PUMP), cooling circuit architecture (EFFICIENCY PACK) and degree of noise control (STANDARD, LOW NOISE or QUIET).
It will then be necessary to choose the optionals and accessories which define the unit.

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> **CONFIGURATION**
**C** Chiller cooling only
**H** Reversible heat pump

> **VERSION**
**S** Standard version
**L** Low-Noise version for a low noise impact
**Q** Quiet version for a super low noise impact

| | |
|---|---|
| **DIGIT 1 - Power supply** | |
| 400/3/50 + N | **0** |
| 400/3/50 with 230V transformer | **1** |
| 400/3/50 + N + thermal-magnetic breaker | **2** |
| 400/3/50 with transformer + thermal-magnetic breaker | **3** |
| **DIGIT 2 - Microprocessor controller / expansion devices** | |
| Base + electronic expansion valve | **0** |
| Advanced + electronic expansion valve | **B** |
| **DIGIT 3 - Water circulation pump** | |
| Not present | **0** |
| Single standard pump and expansion vessel | **1** |
| Single uprated pump and expansion vessel | **2** |
| Double standard pump for simultaneous (AND) operation and expansion vesse (only if digit 2 = B) | **3** |
| Double uprated pump for simultaneous (AND) operation and expansion vessel (only if digit 2 = B) | **4** |
| Double standard pump for alternate (OR) operation and expansion vessel | **5** |
| Double uprated pump for alternate (OR) operation and expansion vessel | **6** |
| **DIGIT 4 - Water tank** | |
| Not present | **0** |
| Present | **S** |
| **DIGIT 5 - Heat recovery (condensation control is mandatory)** | |
| Not present | **0** |
| Partial (desuperheater, 40%) | **D** |
| **DIGIT 6 - Condensation control** | |
| Not present | **0** |
| Regulation of the fan speed with cutting phase device (mandatory with DIGIT 5 = "D") | **C** |
| **DIGIT 7 - antifreeze kit** | |
| Not present | **0** |
| Present, standard unit (antifreeze kit only on plates evaporator) | **E** |
| Present, unit with pump and expansion vessel | **P** |
| Present, unit with buffer tank, pump and expansion vessel | **S** |
| **DIGIT 8 - Remote communication** | |
| Not present | **0** |
| RS485 (Carel o Modbus protocol) | **1** |
| Lonworks serial card (only if DIGIT 2 = B) | **2** |
| **DIGIT 9 - Special execution for finned pack heat exchanger** | |
| Standard | **0** |
| Copper /Copper | **R** |
| Cataphoresis | **C** |
| Fins protection treatment | **B** |
| **DIGIT 10 - Package** | |
| Standard | **0** |
| Wooden crate | **1** |
| Wooden box | **2** |
| **DIGIT 11 - Base insulation** | |
| Not present | **0** |
| Rubber antivibration dampers | **G** |
| Spring antivibration dampers | **M** |
| **DIGIT 12 - Remote control** | |
| Not present | **0** |
| Simplified remote control panel | **1** |
| Base microprocessor remote control panel (only if DIGIT 2 = 0) | **2** |
| Advanced microprocessor remote control panel (only if DIGIT 2 = B) | **3** |
| **DIGIT 13 - Hydraulic installation items** | |
| Not present | **0** |
| Pair of victaulic coupling for quick in-out water connection | **V** |
| **ACCESSORIES** | |
| Power factor correction capacitors | **A** |
| Soft-starter kit (**) | **B** |
| Service kit (probes for a unit operation quick check) (*) | **C** |
| Clock card (*) | **D** |
| ON-OFF compressors control | **E** |
| Remote control to limit compressor turning ON (*) | **F** |
| Boards for customizable digital alarms (*) | **G** |
| Outdoor air temperature probe for automatic adjustment of the set point (*) | **H** |
| Pressure gauges | **I** |
| kit for filter interception (solenoid and tap on the liquid line) | **L** |
| Other reference standard than the EEC 97/23 PED | **M** |
| Pipe for unit lifting up | **N** |
| Finned pack heat exchanger protection grille | **P** |

# 4 TECHNICAL CHARACTERISTICS

## 4.1 RATED TECHNICAL DATA OF LCX CS WATER CHILLERS, STANDARD VERSION

| Rated technical data of LCX water chillers, STANDARD version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| **Efficiency Pack** | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...CS** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | - | - | 58,2 | 66,5 | 78,2 | 88,6 | 88,6 | - | 102 | 113 | - | 113 | 113 | 119 |
| Total cooling power input (UNI14511) | kW | - | - | 21,0 | 23,6 | 27,2 | 31,3 | 32,2 | - | 36,1 | 36,1 | - | 40,5 | 40,5 | 42,1 |
| Rated current input | A | - | - | 35,7 | 39,9 | 45,5 | 53,4 | 54,8 | - | 61,0 | 61,0 | - | 69,2 | 69,2 | 71,7 |
| EER (UNI14511) | | - | - | 2,78 | 2,82 | 2,88 | 2,83 | 2,75 | - | 2,81 | 2,81 | - | 2,79 | 2,78 | 2,83 |
| ESEER | | - | - | 3,67 | 3,72 | 3,80 | 3,29 | 3,61 | - | 3,72 | 3,37 | - | 3,36 | 3,68 | 3,76 |
| Eurovent Efficency Class | | - | - | C | C | C | C | C | - | C | C | - | C | C | C |
| Maximum current input | A | - | - | 60 | 64 | 75 | 91 | 91 | - | 101 | 101 | - | 119 | 119 | 120 |
| Starting current | A | - | - | 195 | 192 | 200 | 261 | 261 | - | 269 | 269 | - | 319 | 319 | 247 |
| Starting current with Soft-Starter kit | A | - | - | 120 | 133 | 148 | 199 | 199 | - | 207 | 207 | - | 254 | 254 | 172 |
| No. of scroll compressors / circuits | | - | - | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 2 | 2 / 1 | - | 2 / 2 | 2 / 1 | - | 2 / 2 | 2 / 1 | 4 / 2 |
| No. of axial fans | | - | - | 4 | 4 | 4 | 6 | 6 | - | 6 | 6 | - | 8 | 8 | 8 |
| Air flow rate | $m^3/h$ | - | - | 21379 | 21379 | 21379 | 30913 | 30913 | - | 30913 | 30913 | - | 41340 | 41340 | 41340 |
| Water flow rate | l/h | - | - | 10046 | 11477 | 13492 | 15284 | 15284 | - | 17517 | 17517 | - | 19449 | 19447 | 20517 |
| Pressure drop, water side | kPa | - | - | 28 | 29 | 31 | 32 | 32 | - | 32 | 32 | - | 34 | 34 | 34 |
| Available head, standard pump | kPa | - | - | 142 | 138 | 135 | 130 | 130 | - | 127 | 127 | - | 115 | 115 | 116 |
| Buffer tank | $dm^3$ | - | - | 200 | 200 | 200 | 220 | 220 | - | 220 | 220 | - | 340 | 340 | 340 |
| Expansion tank | $dm^3$ | - | - | 12 | 12 | 12 | 12 | 12 | - | 12 | 12 | - | 12 | 12 | 12 |
| Plumbing connections | " | - | - | 2 | 2 | 2 | 2 | 2 | - | 2 | 2 | - | $2\ ^1/_2$ | $2\ ^1/_2$ | $2\ ^1/_2$ |
| Height | mm | - | - | 1735 | 1735 | 1735 | 1735 | 1735 | - | 1735 | 1735 | - | 1735 | 1735 | 1679 |
| Length | mm | - | - | 2090 | 2090 | 2090 | 2442 | 2442 | - | 2442 | 2442 | - | 3190 | 3190 | 3540 |
| Depth | mm | - | - | 1183 | 1183 | 1183 | 1183 | 1183 | - | 1183 | 1183 | - | 1183 | 1183 | 1183 |
| Sound power level | dB(A) | - | - | 82 | 82 | 82 | 83 | 83 | - | 83 | 83 | - | 83 | 83 | 82 |
| Sound pressure level | dB(A) | - | - | 54 | 54 | 54 | 55 | 55 | - | 55 | 55 | - | 55 | 55 | 54 |
| Base unit operating weight | kg | - | - | 540 | 570 | 650 | 730 | 730 | - | 730 | 730 | - | 1010 | 1010 | 1050 |
| Unit with pump and full tank operating weight | kg | - | - | 877 | 907 | 987 | 1138 | 1138 | - | 1138 | 1138 | - | 1581 | 1581 | 1641 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX STANDARD version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| **Efficiency pack** | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...CS** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | | |
| Max power input | kW | - | - | 30,3 | 33,7 | 37,6 | 45,5 | 45,5 | - | 52,0 | 52,0 | - | 59,6 | 59,6 | 60,5 |
| Max current absorption | A | - | - | 60,2 | 64,3 | 75,0 | 91,3 | 91,3 | - | 100,6 | 100,6 | - | 119,1 | 119,1 | 120,3 |
| Start up curret | A | - | - | 194,8 | 192,1 | 200,0 | 260,7 | 260,7 | - | 269,2 | 269,2 | - | 319,0 | 319,0 | 246,6 |
| Start up current with softstarter device | A | - | - | 120,3 | 133,1 | 148,0 | 198,7 | 198,7 | - | 207,2 | 207,2 | - | 254,0 | 254,0 | 172,1 |
| Fans number | n° | - | - | 4 | 4 | 4 | 6 | 6 | - | 6 | 6 | - | 8 | 8 | 8 |
| Fans rated power input | kW | - | - | 1,17 | 1,17 | 1,17 | 1,75 | 1,75 | - | 1,75 | 1,75 | - | 2,34 | 2,34 | 2,34 |
| Fans rated current absorption | A | - | - | 4,4 | 4,4 | 4,4 | 6,6 | 6,6 | - | 6,6 | 6,6 | - | 8,8 | 8,8 | 8,8 |
| Standard pump rated power input | kW | - | - | 1,4 | 1,4 | 1,4 | 1,8 | 1,8 | - | 1,8 | 1,8 | - | 1,8 | 1,8 | 1,8 |
| Standard pump rated current absorption | A | - | - | 2,5 | 2,5 | 2,5 | 3,4 | 3,4 | - | 3,4 | 3,4 | - | 3,4 | 3,4 | 3,4 |
| Uprated pump rated power input | kW | - | - | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | - | 2,9 | 2,9 | - | 3,3 | 3,3 | 3,3 |
| Uprated pump rated current absorption | A | - | - | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | - | 4,8 | 4,8 | - | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated power input | kW | - | - | 2,6 | 2,6 | 2,6 | 2,7 | 2,7 | - | 2,7 | 2,7 | - | 2,7 | 2,7 | 2,7 |
| Standard AND pump rated current absorption | A | - | - | 5,4 | 5,4 | 5,4 | 5,0 | 5,0 | - | 5,0 | 5,0 | - | 5,0 | 5,0 | 5,0 |
| Uprated AND pump rated power input | kW | - | - | 2,6 | 2,6 | 2,6 | 3,5 | 3,5 | - | 3,5 | 3,5 | - | 5,9 | 5,9 | 5,9 |
| Uprated AND pump rated current absorption | A | - | - | 5,4 | 5,4 | 5,4 | 6,4 | 6,4 | - | 6,4 | 6,4 | - | 9,6 | 9,6 | 9,6 |
| Auxiliary devices power supply | V | - | - | 24 | 24 | 24 | 24 | 24 | - | 24 | 24 | - | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.1 RATED TECHNICAL DATA OF LCX CS WATER CHILLERS, STANDARD VERSION

| Rated technical data of LCX water chillers, STANDARD version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 | 360 |
| **Efficiency Pack** | | 1 | 2 | 4 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...CS** | | **141** | **142** | **144** | **161** | **162** | **164** | **174** | **194** | **214** | **244** | **274** | **294** | **324** | **364** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | 144 | 144 | 143 | 160 | 160 | 152 | 162 | 183 | 201 | 245 | 263 | 293 | 327 | 354 |
| Total cooling power input (UNI14511) | kW | 50,9 | 50,9 | 50,8 | 58,9 | 58,9 | 56,4 | 58,1 | 65,6 | 76,4 | 95,8 | 90,5 | 104 | 119 | 138 |
| Rated current input | A | 85,8 | 85,8 | 85,6 | 98,5 | 98,5 | 94,4 | 97,1 | 109 | 126 | 157 | 150 | 172 | 195 | 226 |
| EER (UNI14511) | | 2,83 | 2,83 | 2,82 | 2,71 | 2,71 | 2,70 | 2,78 | 2,78 | 2,63 | 2,55 | 2,91 | 2,81 | 2,76 | 2,56 |
| ESEER | | 3,48 | 3,63 | 3,64 | 3,49 | 3,75 | 3,68 | 3,71 | 3,59 | 3,72 | 3,68 | 3,71 | 3,62 | 3,59 | 3,54 |
| Eurovent Efficency Class | | C | C | C | C | C | C | C | C | D | D | B | C | C | D |
| Maximum current input | A | 131 | 131 | 129 | 137 | 144 | 150 | 136 | 155 | 173 | 196 | 224 | 237 | 251 | 300 |
| Starting current | A | 330 | 330 | 245 | 389 | 396 | 266 | 252 | 310 | 330 | 380 | 403 | 468 | 476 | 497 |
| Starting current with Soft-Starter kit | A | 265 | 265 | 186 | 306 | 306 | 214 | 200 | 248 | 268 | 215 | 338 | 385 | 393 | 360 |
| No. of scroll compressors / circuits | | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| No. of axial fans | | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 6,0 | 6 | 6 | 8,0 | 8 | 8 | 8 |
| Air flow rate | $m^3/h$ | 39890 | 39890 | 39890 | 39890 | 39890 | 39890 | 67672 | 67672 | 67672 | 75478 | 103511 | 97902 | 97902 | 97902 |
| Water flow rate | l/h | 24817 | 24815 | 24665 | 27525 | 27525 | 26192 | 27841 | 31473 | 34669 | 42146 | 45335 | 50506 | 56411 | 60931 |
| Pressure drop, water side | kPa | 36 | 36 | 36 | 36 | 36 | 36 | 37 | 37 | 38 | 38 | 39 | 40 | 41 | 41 |
| Available head, standard pump | kPa | 177 | 176 | 172 | 162 | 162 | 162 | 171 | 151 | 163 | 194 | 179 | 166 | 159 | 137 |
| Buffer tank | $dm^3$ | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 | 600 | 765 | 765 | 765 | 765 |
| Expansion tank | $dm^3$ | 12 | 12 | 12 | 12 | 12 | 12 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Plumbing connections | " | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 |
| Height | mm | 1735 | 1735 | 1679 | 1735 | 1735 | 1679 | 1847 | 1847 | 1847 | 2247 | 2330 | 2330 | 2330 | 2330 |
| Length | mm | 3190 | 3190 | 3540 | 3190 | 3190 | 3540 | 3538 | 3538 | 3538 | 3538 | 4206 | 4206 | 4206 | 4206 |
| Depth | mm | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 |
| Sound power level | dB(A) | 84 | 84 | 82 | 84 | 84 | 82 | 85 | 85 | 86 | 86 | 86 | 86 | 86 | 87 |
| Sound pressure level | dB(A) | 56 | 56 | 54 | 56 | 56 | 54 | 57 | 57 | 58 | 58 | 58 | 58 | 58 | 59 |
| Base unit operating weight | kg | 1055 | 1055 | 1070 | 1085 | 1085 | 1220 | 1440 | 1460 | 1470 | 1620 | 1880 | 1912 | 1947 | 1947 |
| Unit with pump and full tank operating weight | kg | 1626 | 1626 | 1661 | 1656 | 1656 | 1811 | 2208 | 2276 | 2286 | 2469 | 2894 | 2926 | 2961 | 2961 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX STANDARD version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 | 360 |
| **Efficiency pack** | | 1 | 2 | 2 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...CS** | | **141** | **142** | **144** | **161** | **162** | **164** | **174** | **194** | **214** | **244** | **274** | **294** | **324** | **364** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | | |
| Max power input | kW | 65,7 | 65,7 | 67,3 | 75,1 | 76,6 | 75,1 | 75,4 | 88,4 | 101,4 | 113,7 | 128,0 | 138,8 | 149,7 | 179,0 |
| Max current absorption | A | 130,5 | 130,5 | 128,6 | 136,9 | 144,0 | 150,0 | 136,3 | 154,8 | 173,4 | 196,3 | 224,0 | 237,5 | 250,9 | 300,0 |
| Start up curret | A | 329,9 | 329,9 | 245,2 | 388,6 | 395,6 | 265,8 | 252,1 | 309,7 | 330,2 | 380,0 | 403,2 | 467,9 | 476,0 | 497,0 |
| Start up current with softstarter device | A | 264,9 | 264,9 | 186,2 | 305,6 | 312,6 | 213,8 | 200,1 | 247,7 | 268,2 | 315,0 | 338,2 | 384,9 | 393,0 | 440,0 |
| Fans number | n° | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 6 | 6 | 6 | 8 | 8 | 8 | 8 |
| Fans rated power input | kW | 2,34 | 2,34 | 2,34 | 2,34 | 2,34 | 2,34 | 6,3 | 6,3 | 6,3 | 6,3 | 8,4 | 8,4 | 8,4 | 8,4 |
| Fans rated current absorption | A | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 15 | 15 | 15 | 15 | 20 | 20 | 20 | 20 |
| Standard pump rated power input | kW | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,8 | 2,8 | 3,7 | 5,1 | 5,1 | 5,1 | 5,1 | 5,1 |
| Standard pump rated current absorption | A | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 6,8 | 9,2 | 9,2 | 9,2 | 9,2 | 9,2 |
| Uprated pump rated power input | kW | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,7 | 5,1 | 5,1 | 9,1 | 9,1 | 9,1 | 9,1 | 9,1 |
| Uprated pump rated current absorption | A | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 6,8 | 9,2 | 9,2 | 15,5 | 15,5 | 15,5 | 15,5 | 15,5 |
| Standard AND pump rated power input | kW | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 4,0 | 4,0 | 4,0 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated current absorption | A | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 6,8 | 6,8 | 6,8 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 |
| Uprated AND pump rated power input | kW | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | 5,6 | 5,6 | 5,6 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 |
| Uprated AND pump rated current absorption | A | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 13,6 | 13,6 | 13,6 | 13,6 | 13,6 |
| Auxiliary devices power supply | V | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.2 RATED TECHNICAL DATA OF LCX CL WATER CHILLERS, LOW NOISE VERSION

| Rated technical data of LCX water chillers, LOW NOISE version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| **Efficiency Pack** | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...CL** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | 45,2 | 52,4 | 58,2 | 66,6 | 78,5 | 88,6 | 88,6 | 90,3 | 102 | 102 | 105 | 113 | 113 | 116 |
| Total cooling power input (UNI14511) | kW | 15,7 | 18,0 | 20,3 | 22,9 | 26,6 | 30,2 | 31,1 | 31,5 | 35,2 | 35,2 | 36,0 | 40,2 | 40,2 | 41,0 |
| Rated current input | A | 27,7 | 34,2 | 42,2 | 46,9 | 53,3 | 54,7 | 61,4 | 55,3 | 64,9 | 72,9 | 70,2 | 72,7 | 76,8 | 72,3 |
| EER (UNI14511) | | 2,88 | 2,91 | 2,86 | 2,90 | 2,95 | 2,93 | 2,85 | 2,87 | 2,89 | 2,89 | 2,90 | 2,81 | 2,81 | 2,84 |
| ESEER | | 3,98 | 4,23 | 4,02 | 4,02 | 4,06 | 3,61 | 4,03 | 3,86 | 3,66 | 4,09 | 3,95 | 3,43 | 3,75 | 3,64 |
| Eurovent Efficency Class | | C | B | C | B | B | B | C | C | C | C | B | C | C | C |
| Maximum current input | A | 41 | 44 | 51 | 55 | 66 | 77 | 77 | 81 | 86 | 86 | 87 | 95 | 95 | 96 |
| Starting current | A | 159 | 162 | 185 | 183 | 191 | 246 | 246 | 194 | 254 | 254 | 198 | 295 | 295 | 220 |
| Starting current with Soft-Starter kit | A | 88 | 101 | 111 | 124 | 139 | 184 | 184 | 126 | 192 | 192 | 129 | 221 | 221 | 146 |
| No. of scroll compressors/ circuits | | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 |
| No. of axial fans | | 4 | 4 | 6 | 6 | 6 | 8 | 8 | 8,0 | 8 | 8 | 8,0 | 6 | 6 | 6 |
| Air flow rate | $m^3/h$ | 15398 | 15398 | 21955 | 21955 | 21955 | 29393 | 29393 | 29393 | 29393 | 29393 | 29393 | 43434 | 43434 | 43434 |
| Water flow rate | l/h | 7803 | 9035 | 10035 | 11482 | 13549 | 15283 | 15283 | 15574 | 17539 | 17539 | 18027 | 19478 | 19478 | 20075 |
| Pressure drop, water side | kPa | 26 | 28 | 28 | 29 | 31 | 32 | 32 | 32 | 32 | 32 | 34 | 34 | 34 | 34 |
| Available head, standard pump | kPa | 155 | 153 | 142 | 137 | 133 | 129 | 129 | 129 | 127 | 127 | 127 | 115 | 115 | 114 |
| Buffer tank | $dm^3$ | 200 | 200 | 220 | 220 | 220 | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 |
| Expansion tank | $dm^3$ | 12,0 | 12,0 | 12 | 12 | 12 | 12 | 12 | 12,0 | 12 | 12 | 12,0 | 24 | 24 | 24 |
| Plumbing connections | " | 2 | 2 | 2 | 2 | 2 | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | 3 | 3 | 3 |
| Height | mm | 1735 | 1735 | 1735 | 1735 | 1735 | 1735 | 1735 | 1679,0 | 1735 | 1735 | 1679,0 | 1847 | 1847 | 1847 |
| Length | mm | 2090 | 2090 | 2442 | 2442 | 2442 | 3190 | 3190 | 3540,0 | 3190 | 3190 | 3540,0 | 3538 | 3538 | 3538 |
| Depth | mm | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183,0 | 1183 | 1183 | 1183,0 | 1653 | 1653 | 1653 |
| Sound power level | dB(A) | 74 | 74 | 77 | 77 | 77 | 78 | 78 | 77 | 78 | 78 | 77 | 80 | 80 | 77 |
| Sound pressure level | dB(A) | 46 | 46 | 49 | 49 | 49 | 50 | 50 | 49 | 50 | 50 | 49 | 52 | 52 | 49 |
| Base unit operating weight | kg | 525 | 525 | 630 | 635 | 700 | 905 | 905 | 980,0 | 915 | 915 | 980,0 | 1260 | 1260 | 1275 |
| Unit with pump and full tank operating weight | kg | 862 | 862 | 982 | 987 | 1067 | 1426 | 1426 | 1557 | 1436 | 1436 | 1557 | 2040 | 2040 | 2055 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX LOW NOISE version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| **Efficiency pack** | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...CL** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | | |
| Max power input | kW | 22,1 | 24,5 | 28,5 | 31,9 | 35,8 | 42,7 | 42,7 | 44,1 | 49,2 | 49,2 | 49,1 | 56,2 | 56,2 | 57,1 |
| Max current absorption | A | 40,6 | 43,5 | 51,1 | 55,2 | 65,9 | 76,9 | 76,9 | 81,1 | 86,1 | 86,1 | 87,0 | 95,0 | 95,0 | 96,3 |
| Start up curret | A | 159,4 | 161,7 | 185,5 | 182,7 | 190,7 | 246,0 | 246,0 | 194,2 | 254,2 | 254,2 | 198,4 | 294,7 | 295,4 | 220,5 |
| Start up current with softstarter device | A | 87,6 | 100,7 | 111,0 | 123,7 | 138,7 | 184,0 | 184,0 | 122,4 | 192,2 | 192,2 | 137,4 | 229,7 | 230,4 | 146,0 |
| Fans number | n° | 4 | 4 | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 6 | 6 |
| Fans rated power input | kW | 0,54 | 0,54 | 0,81 | 0,81 | 0,81 | 1,08 | 1,08 | 1,08 | 1,08 | 1,08 | 1,08 | 4,02 | 4,02 | 4,02 |
| Fans rated current absorption | A | 2,54 | 2,54 | 3,84 | 3,84 | 3,84 | 5,12 | 5,12 | 5,12 | 5,12 | 5,12 | 5,12 | 7,74 | 7,74 | 7,74 |
| Standard pump rated power input | kW | 1,4 | 1,4 | 1,4 | 1,4 | 1,4 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 |
| Standard pump rated current absorption | A | 2,5 | 2,5 | 2,5 | 2,5 | 2,5 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 |
| Uprated pump rated power input | kW | 1,8 | 1,8 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 3,3 | 3,3 | 3,3 |
| Uprated pump rated current absorption | A | 3,2 | 3,2 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated power input | kW | 2,6 | 2,6 | 2,6 | 2,6 | 2,6 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 |
| Standard AND pump rated current absorption | A | 5,4 | 5,4 | 5,4 | 5,4 | 5,4 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| Uprated AND pump rated power input | kW | 2,6 | 2,6 | 2,6 | 2,6 | 2,6 | 3,5 | 3,5 | 3,5 | 3,5 | 3,5 | 3,5 | 5,9 | 5,9 | 5,9 |
| Uprated AND pump rated current absorption | A | 5,4 | 5,4 | 5,4 | 5,4 | 5,4 | 6,4 | 6,4 | 6,4 | 6,4 | 6,4 | 6,4 | 9,6 | 9,6 | 9,6 |
| Auxiliary devices power supply | V | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.2 RATED TECHNICAL DATA OF LCX CL WATER CHILLERS, LOW NOISE VERSION

| Rated technical data of LCX water chillers, LOW NOISE version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 | 360 |
| **Efficiency Pack** | | 1 | 2 | 4 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...CL** | | **141** | **142** | **144** | **161** | **162** | **164** | **ND** | **194** | **214** | **244** | **274** | **294** | **324** | **364** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | 127 | 127 | 133 | 160 | 160 | 152 | - | 177 | 197 | 219 | 255 | 278 | 315 | 337 |
| Total cooling power input (UNI14511) | kW | 46,7 | 46,7 | 46,5 | 58,5 | 58,5 | 56,1 | - | 63,6 | 74,2 | 83,9 | 90,0 | 107 | 122 | 150 |
| Rated current input | A | 75,3 | 75,3 | 74,9 | 94,0 | 94,0 | 90,2 | - | 102 | 119 | 135 | 143 | 171 | 195 | 239 |
| EER (UNI14511) | | 2,73 | 2,73 | 2,86 | 2,74 | 2,74 | 2,71 | - | 2,79 | 2,65 | 2,61 | 2,84 | 2,59 | 2,58 | 2,25 |
| ESEER | | 3,47 | 3,76 | 3,91 | 3,59 | 3,81 | 3,71 | - | 3,54 | 3,69 | 3,61 | 3,50 | 3,54 | 3,56 | 3,49 |
| Eurovent Efficency Class | | C | C | C | C | C | C | - | C | D | D | C | D | D | F |
| Maximum current input | A | 106 | 106 | 105 | 120 | 120 | 126 | - | 148 | 167 | 190 | 215 | 229 | 242 | 300 |
| Starting current | A | 306 | 306 | 222 | 371 | 371 | 241 | - | 307 | 318 | 382 | 398 | 494 | 472 | 497 |
| Starting current with Soft-Starter kit | | 231 | 231 | 163 | 276 | 279 | 189 | - | 245 | 256 | 217 | 333 | 381 | 389 | 352 |
| No. of scroll compressors / circuits | | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | - | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| No. of axial fans | | 6 | 6 | 6 | 6 | 6 | 6 | - | 6,0 | 6 | 6 | 8,0 | 8 | 8 | 8 |
| Air flow rate | $m^3/h$ | 43434 | 43434 | 43434 | 40235 | 40235 | 40235 | - | 55808 | 63261 | 63261 | 87186 | 81687 | 81687 | 81687 |
| Water flow rate | l/h | 21967 | 21965 | 22949 | 27595 | 27601 | 26210 | - | 30574 | 33918 | 37691 | 44001 | 47825 | 54326 | 58016 |
| Pressure drop, water side | kPa | 36 | 36 | 36 | 37 | 37 | 37 | - | 37 | 37 | 38 | 38 | 39 | 40 | 41 |
| Available head, standard pump | kPa | 170 | 170 | 168 | 162 | 162 | 162 | - | 155 | 160 | 190 | 181 | 168 | 163 | 142 |
| Buffer tank | $dm^3$ | 600 | 600 | 600 | 600 | 600 | 600 | - | 600 | 600 | 600 | 765 | 765 | 765 | 765 |
| Expansion tank | $dm^3$ | 24 | 24 | 24 | 24 | 24 | 24 | - | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Plumbing connections | " | 3 | 3 | 3 | 3 | 3 | 3 | - | 3 | 4 | 4 | 4 | 4 | 4 | 4 |
| Height | mm | 1847 | 1847 | 1847 | 1847 | 1847 | 1847 | - | 1847 | 2247 | 2247 | 2330 | 2330 | 2330 | 2330 |
| Length | mm | 3538 | 3538 | 3538 | 3538 | 3538 | 3538 | - | 3538 | 3538 | 3538 | 4206 | 4206 | 4206 | 4206 |
| Depth | mm | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 | - | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 |
| Sound power level | dB(A) | 81 | 81 | 77 | 81 | 81 | 77 | - | 82 | 82 | 82 | 84 | 84 | 84 | 85 |
| Sound pressure level | dB(A) | 53 | 53 | 49 | 53 | 53 | 49 | - | 54 | 54 | 54 | 56 | 56 | 56 | 57 |
| Base unit operating weight | kg | 1310 | 1310 | 1290 | 1330 | 1330 | 1440 | - | 1460 | 1510 | 1620 | 1880 | 1912 | 1947 | 1947 |
| Unit with pump and full tank operating weight | kg | 2090 | 2090 | 2070 | 2110 | 2110 | 2220 | - | 2276 | 2326 | 2469 | 2894 | 2926 | 2961 | 2961 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX LOW NOISE version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 | 360 |
| **Efficiency pack** | | 1 | 2 | 2 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...CL** | | **141** | **142** | **144** | **161** | **162** | **164** | **174** | **194** | **214** | **244** | **274** | **294** | **324** | **364** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | | |
| Max power input | kW | 62,3 | 62,3 | 63,9 | 73,2 | 73,2 | 71,7 | - | 86,5 | 99,5 | 111,8 | 125,49 | 136,33 | 147,17 | 173,0 |
| Max current absorption | A | 106,5 | 106,5 | 104,5 | 119,9 | 119,9 | 126,0 | - | 148,4 | 166,9 | 189,9 | 215,44 | 228,9 | 242,36 | 290,0 |
| Start up curret | A | 306,2 | 306,1 | 222,4 | 371,4 | 371,3 | 241,5 | - | 307,0 | 318,4 | 381,8 | 397,71 | 463,65 | 472,42 | 487,0 |
| Start up current with softstarter device | A | 241,2 | 241,1 | 163,4 | 288,4 | 288,3 | 189,5 | - | 245,0 | 256,4 | 316,8 | 332,71 | 380,65 | 389,42 | 430,0 |
| Fans number | n° | 6 | 6 | 6 | 6 | 6 | 6 | - | 6 | 6 | 6 | 8 | 8 | 8 | 8 |
| Fans rated power input | kW | 4,02 | 4,02 | 4,02 | 4,02 | 4,02 | 4,02 | - | 4,02 | 4,02 | 4,02 | 6,1 | 6,1 | 6,1 | 8,4 |
| Fans rated current absorption | A | 7,74 | 7,74 | 7,74 | 7,74 | 7,74 | 7,74 | - | 7,74 | 7,74 | 7,74 | 10,3 | 10,3 | 10,3 | 20 |
| Standard pump rated power input | kW | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | - | 2,8 | 3,7 | 5,1 | 5,1 | 5,1 | 5,1 | 5,1 |
| Standard pump rated current absorption | A | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | - | 4,8 | 6,8 | 9,2 | 9,2 | 9,2 | 9,2 | 9,2 |
| Uprated pump rated power input | kW | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | - | 5,1 | 5,1 | 9,1 | 9,1 | 9,1 | 9,1 | 9,1 |
| Uprated pump rated current absorption | A | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | - | 9,2 | 9,2 | 15,5 | 15,5 | 15,5 | 15,5 | 15,5 |
| Standard AND pump rated power input | kW | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | - | 4,0 | 4,0 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated current absorption | A | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | - | 6,8 | 6,8 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 |
| Uprated AND pump rated power input | kW | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | - | 5,6 | 5,6 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 |
| Uprated AND pump rated current absorption | A | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | - | 9,6 | 9,6 | 13,6 | 13,6 | 13,6 | 13,6 | 13,6 |
| Auxiliary devices power supply | V | 24 | 24 | 24 | 24 | 24 | 24 | - | 24 | 24 | 24 | 24 | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.3 RATED TECHNICAL DATA OF LCX CQ WATER CHILLERS, QUITE (SUPER LOW NOISE) VERSION

| Rated technical data of LCX water chillers, QUIET (super low noise) version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| **Efficiency Pack** | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...CQ** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | 43,2 | 50,0 | 55,6 | 63,5 | 75,0 | 84,7 | 84,7 | 86,4 | 97 | 97 | 100 | 107 | 107 | 110 |
| Total cooling power input (UNI14511) | kW | 15,6 | 17,9 | 20,2 | 22,9 | 26,5 | 31,0 | 31,0 | 31,3 | 35,1 | 35,1 | 35,8 | 40,1 | 40,1 | 41,1 |
| Rated current input | A | 26,5 | 30,1 | 34,5 | 38,7 | 44,5 | 52,4 | 52,5 | 52,9 | 59,1 | 59,1 | 60,2 | 64,8 | 64,8 | 66,4 |
| EER (UNI14511) | | 2,76 | 2,79 | 2,76 | 2,78 | 2,83 | 2,73 | 2,73 | 2,76 | 2,76 | 2,76 | 2,79 | 2,66 | 2,66 | 2,67 |
| ESEER | | 3,85 | 4,08 | 3,90 | 3,90 | 3,93 | 3,49 | 3,91 | 3,74 | 3,53 | 3,95 | 3,82 | 3,26 | 3,56 | 3,46 |
| Eurovent Efficency Class | | C | C | C | C | C | C | C | C | C | C | C | D | D | D |
| Maximum current input | A | 41 | 44 | 51 | 55 | 66 | 77 | 77 | 81 | 86 | 86 | 87 | 95 | 95 | 96 |
| Starting current | A | 159 | 162 | 185 | 183 | 191 | 246 | 246 | 194 | 254 | 254 | 198 | 295 | 295 | 220 |
| Starting current with Soft-Starter kit | | 88 | 101 | 111 | 124 | 139 | 184 | 184 | 126 | 192 | 192 | 129 | 221 | 221 | 150 |
| No. of scroll compressors/ circuits | | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 |
| No. of axial fans | | 4 | 4 | 6 | 6 | 6 | 8 | 8 | 8,0 | 8 | 8 | 8,0 | 6 | 6 | 6 |
| Air flow rate | $m^3/h$ | 15398 | 15398 | 21955 | 21955 | 21955 | 29393 | 29393 | 29393 | 29393 | 29393 | 27041 | 35930 | 35930 | 35930 |
| Water flow rate | l/h | 7452 | 8627 | 9601 | 10963 | 12934 | 14610 | 14610 | 14910 | 16742 | 16742 | 18250 | 18383 | 18398 | 18886 |
| Pressure drop, water side | kPa | 26 | 28 | 28 | 29 | 31 | 32 | 32 | 32 | 32 | 32 | 32 | 33 | 33 | 33 |
| Available head, standard pump | kPa | 154 | 152 | 140 | 136 | 133 | 128 | 128 | 127 | 125 | 125 | 128 | 114 | 114 | 114 |
| Buffer tank | $dm^3$ | 200 | 200 | 220 | 220 | 220 | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 |
| Expansion tank | $dm^3$ | 12,0 | 12,0 | 12 | 12 | 12 | 12 | 12 | 12,0 | 12 | 12 | 12,0 | 24 | 24 | 24 |
| Plumbing connections | " | 2.0 | 2.0 | 2 | 2 | 2 | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ | 3 | 3 | 3 |
| Height | mm | 1735 | 1735 | 1735 | 1735 | 1735 | 1735 | 1735 | 1679,0 | 1735 | 1735 | 1679,0 | 1847 | 1847 | 1847 |
| Length | mm | 2090 | 2090 | 2442 | 2442 | 2442 | 3190 | 3190 | 3540,0 | 3190 | 3190 | 3540,0 | 3538 | 3538 | 3538 |
| Depth | mm | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183,0 | 1183 | 1183 | 1183,0 | 1653 | 1653 | 1653 |
| Sound power level | dB(A) | 71 | 71 | 73 | 73 | 73 | 75 | 75 | 74 | 75 | 75 | 74 | 76 | 76 | 73 |
| Sound pressure level | dB(A) | 43 | 43 | 45 | 45 | 45 | 47 | 47 | 46 | 47 | 47 | 46 | 48 | 48 | 45 |
| Base unit operating weight | kg | 525 | 525 | 630 | 635 | 700 | 905 | 905 | 980,0 | 915 | 915 | 980,0 | 1260 | 1260 | 1275 |
| Unit with pump and full tank operating weight | kg | 862 | 862 | 982 | 987 | 1067 | 1426 | 1426 | 1557 | 1436 | 1436 | 1557 | 2040 | 2040 | 2055 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX QUIET version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| **Efficiency pack** | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...CQ** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | | |
| Max power input | kW | 22,1 | 24,5 | 28,5 | 31,9 | 35,8 | 42,7 | 42,7 | 44,1 | 49,2 | 49,2 | 49,1 | 58,0 | 58,0 | 58,9 |
| Max current absorption | A | 40,6 | 43,5 | 51,1 | 55,2 | 65,9 | 76,9 | 76,9 | 81,1 | 86,1 | 86,1 | 87,0 | 98,9 | 98,9 | 100,2 |
| Start up curret | A | 159,4 | 161,7 | 185,5 | 182,7 | 190,7 | 246,0 | 246,0 | 194,2 | 254,2 | 254,2 | 198,4 | 298,7 | 299,5 | 224,7 |
| Start up current with softstarter device | A | 87,6 | 100,7 | 111,0 | 123,7 | 138,7 | 184,0 | 184,0 | 122,4 | 192,2 | 192,2 | 137,4 | 233,7 | 234,5 | 150,2 |
| Fans number | n° | 4 | 4 | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 6 | 6 |
| Fans rated power input | kW | 0,54 | 0,54 | 0,81 | 0,81 | 0,81 | 1,08 | 1,08 | 1,08 | 1,08 | 1,08 | 1,08 | 4,02 | 4,02 | 4,02 |
| Fans rated current absorption | A | 2,56 | 2,56 | 3,84 | 3,84 | 3,84 | 5,12 | 5,12 | 5,12 | 5,12 | 5,12 | 5,12 | 7,74 | 7,74 | 7,74 |
| Standard pump rated power input | kW | 1,4 | 1,4 | 1,4 | 1,4 | 1,4 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 |
| Standard pump rated current absorption | A | 2,5 | 2,5 | 2,5 | 2,5 | 2,5 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 |
| Uprated pump rated power input | kW | 1,8 | 1,8 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 3,3 | 3,3 | 3,3 |
| Uprated pump rated current absorption | A | 3,2 | 3,2 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated power input | kW | 2,6 | 2,6 | 2,6 | 2,6 | 2,6 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 |
| Standard AND pump rated current absorption | A | 5,4 | 5,4 | 5,4 | 5,4 | 5,4 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| Uprated AND pump rated power input | kW | 2,6 | 2,6 | 2,6 | 2,6 | 2,6 | 3,5 | 3,5 | 3,5 | 3,5 | 3,5 | 3,5 | 5,9 | 5,9 | 5,9 |
| Uprated AND pump rated current absorption | A | 5,4 | 5,4 | 5,4 | 5,4 | 5,4 | 6,4 | 6,4 | 6,4 | 6,4 | 6,4 | 6,4 | 9,6 | 9,6 | 9,6 |
| Auxiliary devices power supply | V | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.3 RATED TECHNICAL DATA OF LCX CQ WATER CHILLERS, QUITE (SUPER LOW NOISE) VERSION

| Rated technical data of LCX water chillers, QUIET (super low noise) version | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 |
| **Efficiency Pack** | | 1 | 2 | 4 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...CQ** | | **141** | **142** | **144** | **161** | **162** | **164** | **-** | **194** | **214** | **244** | **274** | **294** | **324** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | 120 | 120 | 124 | 150 | 150 | 138 | - | 160 | 178 | 196 | 241 | 261 | 283 |
| Total cooling power input (UNI14511) | kW | 46,6 | 46,5 | 46,4 | 58,4 | 58,4 | 55,9 | - | 69,9 | 79,4 | 87,1 | 89,9 | 108 | 122 |
| Rated current input | A | 75,1 | 75,1 | 74,8 | 94,0 | 94,0 | 90,1 | - | 112 | 127 | 140 | 144 | 172 | 195 |
| EER (UNI14511) | | 2,58 | 2,58 | 2,67 | 2,57 | 2,57 | 2,47 | - | 2,29 | 2,24 | 2,25 | 2,68 | 2,43 | 2,32 |
| ESEER | | 3,30 | 3,57 | 3,71 | 3,41 | 3,62 | 3,53 | - | 3,36 | 3,51 | 3,43 | 3,32 | 3,37 | 3,38 |
| Eurovent Efficency Class | | D | D | D | D | D | E | - | F | F | F | D | E | E |
| Maximum current input | A | 106 | 106 | 105 | 120 | 120 | 126 | - | 148 | 167 | 190 | 215 | 229 | 242 |
| Starting current | A | 306 | 306 | 222 | 317 | 317 | 241 | - | 307 | 318 | 382 | 398 | 494 | 472 |
| Starting current with Soft-Starter kit | | 231 | 231 | 168 | 276 | 279 | 195 | - | 252 | 266 | 330 | 331 | 382 | 392 |
| No. of scroll compressors / circuits | | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | - | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| No. of axial fans | | 6 | 6 | 6 | 6 | 6 | 6 | - | 6,0 | 6 | 6 | 8,0 | 8 | 8 |
| Air flow rate | $m^3/h$ | 35930 | 35930 | 35930 | 35930 | 35930 | 35930 | - | 35930 | 40953 | 40953 | 69835 | 69835 | 69835 |
| Water flow rate | l/h | 20730 | 20730 | 21337 | 25875 | 25876 | 23812 | - | 27594 | 30652 | 33747 | 41455 | 45007 | 48740 |
| Pressure drop, water side | kPa | 35 | 35 | 35 | 35 | 35 | 36 | - | 35 | 35 | 36 | 37 | 38 | 38 |
| Available head, standard pump | kPa | 170 | 170 | 169 | 166 | 166 | 163 | - | 173 | 181 | 200 | 181 | 172 | 168 |
| Buffer tank | $dm^3$ | 600 | 600 | 600 | 600 | 600 | 600 | - | 600 | 600 | 600 | 765 | 765 | 765 |
| Expansion tank | $dm^3$ | 24 | 24 | 24 | 24 | 24 | 24 | - | 24 | 24 | 24 | 24 | 24 | 24 |
| Plumbing connections | | 3 | 3 | 3 | 3 | 3 | 3 | - | 3 | 4 | 4 | 4 | 4 | 4 |
| Height | mm | 1847 | 1847 | 1847 | 1847 | 1847 | 1847 | - | 1847 | 2247 | 2247 | 2330 | 2330 | 2330 |
| Length | mm | 3538 | 3538 | 3538 | 3538 | 3538 | 3538 | - | 3538 | 3538 | 3538 | 4206 | 4206 | 4206 |
| Depth | mm | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 | - | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 |
| Sound power level | dB(A) | 77 | 77 | 73 | 77 | 77 | 73 | - | 78 | 78 | 78 | 80 | 80 | 80 |
| Sound pressure level | dB(A) | 49 | 49 | 45 | 49 | 49 | 45 | - | 50 | 50 | 50 | 52 | 52 | 52 |
| Base unit operating weight | kg | 1310 | 1310 | 1290 | 1330 | 1330 | 1440 | - | 1460 | 1510 | 1620 | 1880 | 1912 | 1947 |
| Unit with pump and full tank operating weight | kg | 2090 | 2090 | 2070 | 2110 | 2110 | 2220 | - | 2276 | 2326 | 2469 | 2894 | 2926 | 2961 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX QUIET version | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 |
| **Efficiency pack** | | 1 | 2 | 2 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...CQ** | | **141** | **142** | **144** | **161** | **162** | **164** | **174** | **194** | **214** | **244** | **274** | **294** | **324** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | |
| Max power input | kW | 64,1 | 64,1 | 65,7 | 75,0 | 75,0 | 73,5 | - | 86,5 | 99,5 | 111,8 | 124,09 | 134,93 | 145,77 |
| Max current absorption | A | 110,4 | 110,4 | 108,4 | 123,8 | 123,8 | 129,9 | - | 148,4 | 166,9 | 189,9 | 212,78 | 226,24 | 239,7 |
| Start up curret | A | 310,3 | 310,3 | 226,7 | 376,6 | 376,6 | 247,0 | - | 313,8 | 327,8 | 394,7 | 396,35 | 465,35 | 475,13 |
| Start up current with softstarter device | A | 245,3 | 245,3 | 167,7 | 293,6 | 293,6 | 195,0 | - | 251,8 | 265,8 | 329,7 | 331,35 | 382,35 | 392,13 |
| Fans number | n° | 6 | 6 | 6 | 6 | 6 | 6 | - | 6 | 6 | 6 | 8 | 8 | 8 |
| Fans rated power input | kW | 4,02 | 4,02 | 4,02 | 4,02 | 4,02 | 4,02 | - | 4,02 | 4,02 | 4,02 | 4 | 4 | 4 |
| Fans rated current absorption | A | 7,74 | 7,74 | 7,74 | 7,74 | 7,74 | 7,74 | - | 7,74 | 7,74 | 7,74 | 7,2 | 7,2 | 7,2 |
| Standard pump rated power input | kW | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | - | 2,8 | 3,7 | 5,1 | 5,1 | 5,1 | 5,1 |
| Standard pump rated current absorption | A | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | - | 4,8 | 6,8 | 9,2 | 9,2 | 9,2 | 9,2 |
| Uprated pump rated power input | kW | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | - | 5,1 | 5,1 | 9,1 | 9,1 | 9,1 | 9,1 |
| Uprated pump rated current absorption | A | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | - | 9,2 | 9,2 | 15,5 | 15,5 | 15,5 | 15,5 |
| Standard AND pump rated power input | kW | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | - | 4,0 | 4,0 | 5,6 | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated current absorption | A | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | - | 6,8 | 6,8 | 9,6 | 9,6 | 9,6 | 9,6 |
| Uprated AND pump rated power input | kW | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | - | 5,6 | 5,6 | 7,4 | 7,4 | 7,4 | 7,4 |
| Uprated AND pump rated current absorption | A | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | - | 9,6 | 9,6 | 13,6 | 13,6 | 13,6 | 13,6 |
| Auxiliary devices power supply | V | 24 | 24 | 24 | 24 | 24 | 24 | - | 24 | 24 | 24 | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.4 RATED TECHNICAL DATA OF LCX HS REVERSIBLE HEAT PUMPS, STANDARD VERSION

| Rated technical data of LCX...H heat pumps, STANDARD version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| Efficiency Pack | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...HS** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | - | - | 57,4 | 65,6 | 77,1 | 87,4 | 87,4 | - | 100,1 | 100,1 | - | 111,2 | 111,2 | 117,3 |
| Total power input in cooling mode (UNI14511) | kW | - | - | 20,9 | 23,6 | 27,1 | 32,1 | 32,1 | - | 36,4 | 36,4 | - | 40,4 | 40,4 | 42,0 |
| Rated current input | A | - | - | 36 | 40 | 46 | 55 | 55 | - | 62 | 62 | - | 69 | 69 | 72 |
| EER (UNI14511) | | - | - | 2,74 | 2,78 | 2,85 | 2,72 | 2,72 | - | 2,75 | 2,75 | - | 2,75 | 2,75 | 2,80 |
| ESEER | | - | - | 3,60 | 3,64 | 3,72 | 3,23 | 3,54 | - | 3,65 | 3,30 | - | 3,29 | 3,61 | 3,69 |
| Eurovent Efficency Class | | - | - | C | C | C | C | C | - | C | C | - | C | C | C |
| Heating capacity | kW | - | - | 69,5 | 79,2 | 93,5 | 105 | 107 | - | 120 | 120 | - | 134 | 134 | 147 |
| Total power input in heating mode | kW | - | - | 19,8 | 22,1 | 25,7 | 30,0 | 30,0 | - | 34,2 | 34,2 | - | 38,1 | 38,1 | 41,7 |
| Rated current input | A | - | - | 34 | 37 | 43 | 51 | 51 | - | 58 | 58 | - | 65 | 65 | 71 |
| COP (UNI14511) | | - | - | 3,51 | 3,58 | 3,64 | 3,51 | 3,55 | - | 3,52 | 3,52 | - | 3,52 | 3,50 | 3,52 |
| Maximum current input | A | - | - | 60 | 64 | 75 | 91 | 91 | - | 101 | 101 | - | 119 | 119 | 120 |
| Starting current | A | - | - | 195 | 192 | 200 | 261 | 261 | - | 269 | 269 | - | 319 | 319 | 247 |
| Starting current with Soft-Starter kit | A | - | - | 120 | 133 | 148 | 199 | 199 | - | 207 | 207 | - | 254 | 254 | 172 |
| No. of scroll compressors / circuits | | - | - | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 2 | 2 / 1 | - | 2 / 2 | 2 / 1 | - | 2 / 2 | 2 / 1 | 4 / 2 |
| No. of axial fans | | - | - | 4 | 4 | 4 | 6 | 6 | - | 6 | 6 | - | 8 | 8 | 8 |
| Air flow rate | $m^3/h$ | - | - | 21379 | 21379 | 21379 | 30913 | 30913 | - | 30913 | 30913 | - | 41340 | 41340 | 41340 |
| Water flow rate (cooling) | l/h | - | - | 9895 | 11303 | 13293 | 15063 | 15062 | - | 17262 | 17263 | - | 19162 | 19159 | 20214 |
| Pressure drop, water side (cooling) | kPa | - | - | 23 | 23 | 23 | 24 | 24 | - | 26 | 26 | - | 27 | 27 | 25 |
| Available head, standard pump (cooling) | kPa | - | - | 148 | 145 | 142 | 138 | 138 | - | 133 | 133 | - | 122 | 122 | 124 |
| Buffer tank | $dm^3$ | - | - | 200 | 200 | 200 | 220 | 220 | - | 220 | 220 | - | 340 | 340 | 340 |
| Expansion tank | $dm^3$ | - | - | 12 | 12 | 12 | 12 | 12 | - | 12 | 12 | - | 12 | 12 | 12 |
| Plumbing connections | " | - | - | 2 | 2 | 2 | 2 | 2 | - | 2 | 2 | - | $2^1/_2$ | $2^1/_2$ | $2^1/_2$ |
| Height | mm | - | - | 1735 | 1735 | 1735 | 1735 | 1735 | - | 1735 | 1735 | - | 1735 | 1735 | 1679 |
| Length | mm | - | - | 2090 | 2090 | 2090 | 2442 | 2442 | - | 2442 | 2442 | - | 3190 | 3190 | 3540 |
| Depth | mm | - | - | 1183 | 1183 | 1183 | 1183 | 1183 | - | 1183 | 1183 | - | 1183 | 1183 | 1183 |
| Sound power level | dB(A) | - | - | 82 | 82 | 82 | 83 | 83 | - | 83 | 83 | - | 83 | 83 | 82 |
| Sound pressure level | dB(A) | - | - | 54 | 54 | 54 | 55 | 55 | - | 55 | 55 | - | 55 | 55 | 54 |
| Base unit operating weight | kg | - | - | 540 | 570 | 650 | 730 | 730 | - | 730 | 730 | - | 1010 | 1010 | 1050 |
| Unit with pump and full tank operating weight | kg | - | - | 877 | 907 | 987 | 1138 | 1138 | - | 1138 | 1138 | - | 1581 | 1581 | 1641 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Heating mode: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX STANDARD version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| **Efficiency pack** | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...HS** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | | |
| Max power input | kW | - | - | 30,3 | 33,7 | 37,6 | 45,5 | 45,5 | - | 52,0 | 52,0 | - | 59,6 | 59,6 | 60,5 |
| Max current absorption | A | - | - | 60,2 | 64,3 | 75,0 | 91,3 | 91,3 | - | 100,6 | 100,6 | - | 119,1 | 119,1 | 120,3 |
| Start up curret | A | - | - | 194,8 | 192,1 | 200,0 | 260,7 | 260,7 | - | 269,2 | 269,2 | - | 319,0 | 319,0 | 246,6 |
| Start up current with softstarter device | A | - | - | 120,3 | 133,1 | 148,0 | 198,7 | 198,7 | - | 207,2 | 207,2 | - | 254,0 | 254,0 | 172,1 |
| Fans number | n° | - | - | 4 | 4 | 4 | 6 | 6 | - | 6 | 6 | - | 8 | 8 | 8 |
| Fans rated power input | kW | - | - | 1,17 | 1,17 | 1,17 | 1,75 | 1,75 | - | 1,75 | 1,75 | - | 2,34 | 2,34 | 2,34 |
| Fans rated current absorption | A | - | - | 4,4 | 4,4 | 4,4 | 6,6 | 6,6 | - | 6,6 | 6,6 | - | 8,8 | 8,8 | 8,8 |
| Standard pump rated power input | kW | - | - | 1,4 | 1,4 | 1,4 | 1,8 | 1,8 | - | 1,8 | 1,8 | - | 1,8 | 1,8 | 1,8 |
| Standard pump rated current absorption | A | - | - | 2,5 | 2,5 | 2,5 | 3,4 | 3,4 | - | 3,4 | 3,4 | - | 3,4 | 3,4 | 3,4 |
| Uprated pump rated power input | kW | - | - | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | - | 2,9 | 2,9 | - | 3,3 | 3,3 | 3,3 |
| Uprated pump rated current absorption | A | - | - | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | - | 4,8 | 4,8 | - | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated power input | kW | - | - | 2,6 | 2,6 | 2,6 | 2,7 | 2,7 | - | 2,7 | 2,7 | - | 2,7 | 2,7 | 2,7 |
| Standard AND pump rated current absorption | A | - | - | 5,4 | 5,4 | 5,4 | 5,0 | 5,0 | - | 5,0 | 5,0 | - | 5,0 | 5,0 | 5,0 |
| Uprated AND pump rated power input | kW | - | - | 2,6 | 2,6 | 2,6 | 3,5 | 3,5 | - | 3,5 | 3,5 | - | 5,9 | 5,9 | 5,9 |
| Uprated AND pump rated current absorption | A | - | - | 5,4 | 5,4 | 5,4 | 6,4 | 6,4 | - | 6,4 | 6,4 | - | 9,6 | 9,6 | 9,6 |
| Auxiliary devices power supply | V | - | - | 24 | 24 | 24 | 24 | 24 | - | 24 | 24 | - | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.4 RATED TECHNICAL DATA OF LCX HS REVERSIBLE HEAT PUMPS, STANDARD VERSION

| Rated technical data of LCX heat pumps, STANDARD version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 | 360 |
| Efficiency Pack | | 1 | 2 | 4 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...HS** | | **141** | **142** | **144** | **161** | **162** | **164** | **174** | **194** | **214** | **244** | **274** | **294** | **324** | **364** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | 142 | 142 | 141 | 157 | 157 | 150 | 159 | 180 | 198 | 241 | 259 | 289 | 323 | 349 |
| Total power input in cooling mode (UNI14511) | kW | 50,8 | 50,9 | 50,7 | 58,8 | 58,8 | 56,3 | 58,1 | 65,6 | 76,3 | 95,7 | 90,4 | 104,3 | 118,7 | 138 |
| Rated current input | A | 85,8 | 85,8 | 85,6 | 98,5 | 98,5 | 94,4 | 97,1 | 109 | 126 | 157 | 150 | 172 | 195 | 226 |
| EER (UNI14511) | | 2,79 | 2,79 | 2,78 | 2,67 | 2,67 | 2,66 | 2,74 | 2,74 | 2,60 | 2,52 | 2,87 | 2,77 | 2,72 | 2,53 |
| ESEER | | 3,41 | 3,55 | 3,56 | 3,42 | 3,68 | 3,60 | 3,64 | 3,52 | 3,64 | 3,61 | 3,63 | 3,55 | 3,52 | 3,47 |
| Eurovent Efficency Class | | C | C | C | D | D | D | C | C | D | D | C | C | C | D |
| Heating capacity | kW | 166 | 167 | 168 | 185 | 185 | 179 | 189 | 214 | 233 | 282 | 309 | 343 | 374 | 419 |
| Total power input in heating mode | kW | 47,6 | 47,7 | 47,3 | 53,1 | 53,1 | 50,7 | 56,9 | 64,6 | 71,0 | 85,6 | 88,7 | 99,5 | 110,3 | 128 |
| Rated current input | A | 80,3 | 80,3 | 79,8 | 89,0 | 89,0 | 85,0 | 94,8 | 107 | 117 | 140 | 147 | 164 | 181 | 209 |
| COP (UNI14511) | | 3,49 | 3,49 | 3,55 | 3,48 | 3,48 | 3,54 | 3,32 | 3,32 | 3,28 | 3,29 | 3,49 | 3,44 | 3,39 | 3,27 |
| Maximum current input | A | 131 | 131 | 129 | 137 | 144 | 150 | 136 | 155 | 173 | 196 | 224 | 237 | 251 | 300 |
| Starting current | A | 330 | 330 | 245 | 389 | 396 | 266 | 252 | 310 | 330 | 380 | 403 | 468 | 476 | 497 |
| Starting current with Soft-Starter kit | A | 265 | 265 | 186 | 306 | 306 | 214 | 200 | 248 | 268 | 215 | 338 | 385 | 393 | 360 |
| No. of scroll compressors / circuits | | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| No. of axial fans | | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 6 | 6 | 6 | 8 | 8 | 8 | 8 |
| Air flow rate | $m^3/h$ | 39890 | 39890 | 39890 | 39890 | 39890 | 39890 | 67672 | 67672 | 67672 | 75478 | 103511 | 97902 | 97902 | 97902 |
| Water flow rate (cooling) | l/h | 24449 | 24448 | 24301 | 27118 | 27118 | 25805 | 27429 | 31007 | 34156 | 41524 | 44665 | 49760 | 55581 | 60030 |
| Pressure drop, water side (cooling) | kPa | 29 | 31 | 31 | 32 | 32 | 32 | 33 | 34 | 35 | 35 | 35 | 35 | 37 | 35 |
| Available head, standard pump (cooling) | kPa | 181 | 180 | 176 | 165 | 165 | 166 | 173 | 153 | 165 | 196 | 182 | 170 | 161 | 142 |
| Buffer tank | $dm^3$ | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 | 600 | 765 | 765 | 765 | 765 |
| Expansion tank | $dm^3$ | 12 | 12 | 12 | 12 | 12 | 12 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Plumbing connections | " | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 |
| Height | mm | 1735 | 1735 | 1679 | 1735 | 1735 | 1679 | 1847 | 1847 | 1847 | 2247 | 2330 | 2330 | 2330 | 2330 |
| Length | mm | 3190 | 3190 | 3540 | 3190 | 3190 | 3540 | 3538 | 3538 | 3538 | 3538 | 4206 | 4206 | 4206 | 4206 |
| Depth | mm | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 |
| Sound power level | dB(A) | 84 | 84 | 82 | 84 | 84 | 82 | 85 | 85 | 86 | 86 | 86 | 86 | 86 | 87 |
| Sound pressure level | dB(A) | 56 | 56 | 54 | 56 | 56 | 54 | 57 | 57 | 58 | 58 | 58 | 58 | 58 | 59 |
| Base unit operating weight | kg | 1055 | 1055 | 1070 | 1085 | 1085 | 1220 | 1440 | 1460 | 1470 | 1620 | 1880 | 1912 | 1947 | 1947 |
| Unit with pump and full tank operating weight | kg | 1626 | 1626 | 1661 | 1656 | 1656 | 1811 | 2208 | 2276 | 2286 | 2469 | 2894 | 2926 | 2961 | 2961 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Heating mode: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX STANDARD version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 | 360 |
| **Efficiency pack** | | 1 | 2 | 2 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...HS** | | **141** | **142** | **144** | **161** | **162** | **164** | **174** | **194** | **214** | **244** | **274** | **294** | **324** | **364** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | | |
| Max power input | kW | 65,7 | 65,7 | 67,3 | 75,1 | 76,6 | 75,1 | 75,4 | 88,4 | 101,4 | 113,7 | 128,0 | 138,8 | 149,7 | 179,0 |
| Max current absorption | A | 130,5 | 130,5 | 128,6 | 136,9 | 144,0 | 150,0 | 136,3 | 154,8 | 173,4 | 196,3 | 224,0 | 237,5 | 250,9 | 300,0 |
| Start up curret | A | 329,9 | 329,9 | 245,2 | 388,6 | 395,6 | 265,8 | 252,1 | 309,7 | 330,2 | 380,0 | 403,2 | 467,9 | 476,0 | 497,0 |
| Start up current with softstarter device | A | 264,9 | 264,9 | 186,2 | 305,6 | 312,6 | 213,8 | 200,1 | 247,7 | 268,2 | 315,0 | 338,2 | 384,9 | 393,0 | 440,0 |
| Fans number | n° | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 6 | 6 | 6 | 8 | 8 | 8 | 8 |
| Fans rated power input | kW | 2,34 | 2,34 | 2,34 | 2,34 | 2,34 | 2,34 | 6,3 | 6,3 | 6,3 | 6,3 | 8,4 | 8,4 | 8,4 | 8,4 |
| Fans rated current absorption | A | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 15 | 15 | 15 | 15 | 20 | 20 | 20 | 20 |
| Standard pump rated power input | kW | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,8 | 2,8 | 3,7 | 5,1 | 5,1 | 5,1 | 5,1 | 5,1 |
| Standard pump rated current absorption | A | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 6,8 | 9,2 | 9,2 | 9,2 | 9,2 | 9,2 |
| Uprated pump rated power input | kW | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,7 | 5,1 | 5,1 | 9,1 | 9,1 | 9,1 | 9,1 | 9,1 |
| Uprated pump rated current absorption | A | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 6,8 | 9,2 | 9,2 | 15,5 | 15,5 | 15,5 | 15,5 | 15,5 |
| Standard AND pump rated power input | kW | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 4,0 | 4,0 | 4,0 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated current absorption | A | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 6,8 | 6,8 | 6,8 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 |
| Uprated AND pump rated power input | kW | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | 5,6 | 5,6 | 5,6 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 |
| Uprated AND pump rated current absorption | A | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 13,6 | 13,6 | 13,6 | 13,6 | 13,6 |
| Auxiliary devices power supply | V-f-Hz | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.5 RATED TECHNICAL DATA OF LCX HL REVERSIBLE HEAT PUMPS, LOW NOISE VERSION

| Rated technical data of LCX heat pumps, LOW NOISE version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 45 | | | 70 | | | 90 | | 100 | | | 120 | | |
| Efficiency Pack | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...HL** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | 44,6 | 51,6 | 57,3 | 65,6 | 77,4 | 87,3 | 87,3 | 89,0 | 100 | 100 | 103 | 112 | 112 | 115 |
| Total power input in cooling mode (UNI14511) | kW | 15,7 | 18,0 | 20,3 | 22,9 | 26,5 | 30,1 | 31,0 | 31,4 | 35,1 | 35,1 | 36,0 | 40,8 | 40,6 | 41,1 |
| Rated current input | A | 26,5 | 30,1 | 34,69 | 38,84 | 44,6 | 51,2 | 52,59 | 53,2 | 59,1 | 59,1 | 60,4 | 66,06 | 65,67 | 66,5 |
| EER (UNI14511) | | 2,84 | 2,87 | 2,83 | 2,86 | 2,92 | 2,90 | 2,82 | 2,84 | 2,85 | 2,85 | 2,87 | 2,74 | 2,75 | 2,80 |
| ESEER | | 3,90 | 4,14 | 3,94 | 3,94 | 3,98 | 3,54 | 3,95 | 3,78 | 3,59 | 4,00 | 3,87 | 3,36 | 3,67 | 3,57 |
| Eurovent Efficency Class | | C | C | C | C | B | B | C | C | C | C | C | C | C | C |
| Heating capacity | kW | 52,5 | 59,9 | 66,7 | 76,1 | 88,0 | 103 | 103 | 105 | 114 | 113 | 118 | 135 | 135 | 139 |
| Total power input in heating mode | kW | 14,7 | 17,0 | 19,1 | 21,4 | 24,9 | 28,7 | 28,7 | 29,5 | 32,3 | 32,3 | 33,8 | 38,4 | 38,1 | 39,4 |
| Rated current input | A | 24,9 | 28,4 | 32,6 | 36,3 | 41,9 | 48,6 | 48,6 | 49,9 | 54,3 | 54,3 | 56,7 | 61,8 | 61,4 | 63,5 |
| COP (UNI14511) | | 3,56 | 3,53 | 3,50 | 3,56 | 3,53 | 3,59 | 3,59 | 3,56 | 3,52 | 3,50 | 3,49 | 3,53 | 3,55 | 3,53 |
| Maximum current input | A | 41 | 44 | 51 | 55 | 66 | 77 | 77 | 81 | 86 | 86 | 87 | 95 | 95 | 96 |
| Starting current | A | 159 | 162 | 185 | 183 | 191 | 246 | 246 | 194 | 254 | 254 | 198 | 295 | 295 | 220 |
| Starting current with Soft-Starter kit | A | 88 | 101 | 111 | 124 | 139 | 184 | 184 | 126 | 192 | 192 | 129 | 221 | 221 | 146 |
| No. of scroll compressors / circuits | | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 |
| No. of axial fans | | 4 | 4 | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 6 | 6 |
| Air flow rate | $m^3/h$ | 15398 | 15398 | 21955 | 21955 | 21955 | 29393 | 29393 | 29393 | 29393 | 29393 | 29393 | 43434 | 43434 | 43434 |
| Water flow rate (cooling) | l/h | 7688 | 8901 | 9887 | 11311 | 13349 | 15057 | 15057 | 15344 | 17280 | 17280 | 17761 | 19234 | 19227 | 19829 |
| Pressure drop, water side (cooling) | kPa | 22 | 25 | 25 | 25 | 26 | 25 | 25 | 25 | 29 | 29 | 29 | 27 | 27 | 27 |
| Available head, standard pump (cooling) | kPa | 159 | 156 | 145 | 141 | 138 | 136 | 136 | 135 | 129 | 129 | 132 | 122 | 122 | 121 |
| Buffer tank | $dm^3$ | 200 | 200 | 220 | 220 | 220 | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 |
| Expansion tank | $dm^3$ | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 24 | 24 | 24 |
| Plumbing connections | | 2 | 2 | 2 | 2 | 2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 3 | 3 | 3 |
| Height | mm | 1735 | 1735 | 1735 | 1735 | 1735 | 1735 | 1735 | 1679 | 1735 | 1735 | 1679 | 1847 | 1847 | 1847 |
| Length | mm | 2090 | 2090 | 2442 | 2442 | 2442 | 3190 | 3190 | 3540 | 3190 | 3190 | 3540 | 3538 | 3538 | 3538 |
| Depth | mm | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1653 | 1653 | 1653 |
| Sound power level | dB(A) | 74 | 74 | 77 | 77 | 77 | 78 | 78 | 77 | 78 | 78 | 77 | 80 | 80 | 77 |
| Sound pressure level | dB(A) | 46 | 46 | 49 | 49 | 49 | 50 | 50 | 49 | 50 | 50 | 49 | 52 | 52 | 49 |
| Base unit operating weight | kg | 525 | 525 | 630 | 635 | 700 | 905 | 905 | 980 | 915 | 915 | 980 | 1260 | 1260 | 1275 |
| Unit with pump and full tank operating weight | kg | 862 | 862 | 982 | 987 | 1067 | 1426 | 1426 | 1557 | 1436 | 1436 | 1557 | 2040 | 2040 | 2055 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Heating mode: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX LOW NOISE version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| **Efficiency pack** | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...HL** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | | |
| Max power input | kW | 22,1 | 24,5 | 28,5 | 31,9 | 35,8 | 42,7 | 42,7 | 44,1 | 49,2 | 49,2 | 49,1 | 56,2 | 56,2 | 57,1 |
| Max current absorption | A | 40,6 | 43,5 | 51,1 | 55,2 | 65,9 | 76,9 | 76,9 | 81,1 | 86,1 | 86,1 | 87,0 | 95,0 | 95,0 | 96,3 |
| Start up curret | A | 159,4 | 161,7 | 185,5 | 182,7 | 190,7 | 246,0 | 246,0 | 194,2 | 254,2 | 254,2 | 198,4 | 294,7 | 295,4 | 220,5 |
| Start up current with softstarter device | A | 87,6 | 100,7 | 111,0 | 123,7 | 138,7 | 184,0 | 184,0 | 122,4 | 192,2 | 192,2 | 137,4 | 229,7 | 230,4 | 146,0 |
| Fans number | n° | 4 | 4 | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 6 | 6 |
| Fans rated power input | kW | 0,54 | 0,54 | 0,81 | 0,81 | 0,81 | 1,08 | 1,08 | 1,08 | 1,08 | 1,08 | 1,08 | 4,02 | 4,02 | 4,02 |
| Fans rated current absorption | A | 2,54 | 2,54 | 3,84 | 3,84 | 3,84 | 5,12 | 5,12 | 5,12 | 5,12 | 5,12 | 5,12 | 7,74 | 7,74 | 7,74 |
| Standard pump rated power input | kW | 1,4 | 1,4 | 1,4 | 1,4 | 1,4 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 |
| Standard pump rated current absorption | A | 2,5 | 2,5 | 2,5 | 2,5 | 2,5 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 |
| Uprated pump rated power input | kW | 1,8 | 1,8 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 3,3 | 3,3 | 3,3 |
| Uprated pump rated current absorption | A | 3,2 | 3,2 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated power input | kW | 2,6 | 2,6 | 2,6 | 2,6 | 2,6 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 |
| Standard AND pump rated current absorption | A | 5,4 | 5,4 | 5,4 | 5,4 | 5,4 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| Uprated AND pump rated power input | kW | 2,6 | 2,6 | 2,6 | 2,6 | 2,6 | 3,5 | 3,5 | 3,5 | 3,5 | 3,5 | 3,5 | 5,9 | 5,9 | 5,9 |
| Uprated AND pump rated current absorption | A | 5,4 | 5,4 | 5,4 | 5,4 | 5,4 | 6,4 | 6,4 | 6,4 | 6,4 | 6,4 | 6,4 | 9,6 | 9,6 | 9,6 |
| Auxiliary devices power supply | V-f-Hz | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.5 RATED TECHNICAL DATA OF LCX HL REVERSIBLE HEAT PUMPS, LOW NOISE VERSION

| Rated technical data of LCX heat pumps, LOW NOISE version | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 140 | | | 160 | | | - | 190 | 210 | 240 | 270 | 290 | 320 |
| Efficiency Pack | | 1 | 2 | 4 | 1 | 2 | 4 | - | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...HL** | | **141** | **142** | **144** | **161** | **162** | **164** | ND | **194** | **214** | **244** | **274** | **294** | **324** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | 126 | 126 | 132 | 158 | 158 | 150 | - | 176 | 194 | 216 | 252 | 274 | 311 |
| Total power input in cooling mode (UNI14511) | kW | 46,7 | 46,6 | 46,6 | 59,2 | 59,2 | 56,1 | - | 63,6 | 74,9 | 84,2 | 90,2 | 108 | 123 |
| Rated current input | A | 75,5 | 75,3 | 75,3 | 95,3 | 95,3 | 90,4 | - | 102 | 120 | 135 | 144 | 172 | 196 |
| EER (UNI14511) | | 2,70 | 2,70 | 2,84 | 2,67 | 2,67 | 2,67 | - | 2,77 | 2,59 | 2,57 | 2,80 | 2,54 | 2,54 |
| ESEER | | 3,40 | 3,68 | 3,83 | 3,52 | 3,74 | 3,64 | - | 3,47 | 3,62 | 3,54 | 3,43 | 3,47 | 3,48 |
| Eurovent Efficency Class | | C | C | C | D | D | D | - | C | D | D | C | D | D |
| Heating capacity | kW | 148 | 148 | 155 | 183 | 183 | 174 | - | 206 | 233 | 263 | 295 | 329 | 364 |
| Total power input in heating mode | kW | 44,7 | 44,7 | 43,4 | 52,7 | 52,7 | 50,5 | - | 59,9 | 66,8 | 76,8 | 85,6 | 96,8 | 109 |
| Rated current input | A | 72,0 | 72,0 | 69,8 | 84,5 | 84,5 | 81,1 | - | 95,8 | 107 | 123 | 136 | 154 | 172 |
| COP (UNI14511) | | 3,30 | 3,30 | 3,56 | 3,47 | 3,47 | 3,45 | - | 3,44 | 3,49 | 3,42 | 3,45 | 3,40 | 3,36 |
| Maximum current input | A | 106 | 106 | 105 | 120 | 120 | 126 | - | 148 | 167 | 190 | 215 | 229 | 242 |
| Starting current | A | 306 | 306 | 222 | 371 | 371 | 241 | - | 307 | 318 | 382 | 398 | 464 | 472 |
| Starting current with Soft-Starter kit | A | 231 | 231 | 163 | 276 | 279 | 189 | - | 245 | 256 | 217 | 333 | 381 | 389 |
| No. of scroll compressors / circuits | | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | - | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| No. of axial fans | | 6 | 6 | 6 | 6 | 6 | 6 | - | 6 | 6 | 6 | 8 | 8 | 8 |
| Air flow rate | $m^3/h$ | 43434 | 43434 | 43434 | 40235 | 40235 | 40235 | - | 55808 | 63261 | 63261 | 87186 | 81687 | 81687 |
| Water flow rate (cooling) | l/h | 21723 | 21737 | 22790 | 27297 | 27297 | 25863 | - | 30320 | 33492 | 37260 | 43482 | 47226 | 53617 |
| Pressure drop, water side (cooling) | kPa | 29 | 29 | 29 | 34 | 34 | 32 | - | 33 | 34 | 33 | 36 | 34 | 37 |
| Available head, standard pump (cooling) | kPa | 177 | 177 | 174 | 163 | 163 | 165 | - | 158 | 163 | 195 | 182 | 172 | 165 |
| Buffer tank | $dm^3$ | 600 | 600 | 600 | 600 | 600 | 600 | - | 600 | 600 | 600 | 600 | 600 | 600 |
| Expansion tank | $dm^3$ | 24 | 24 | 24 | 24 | 24 | 24 | - | 24 | 24 | 24 | 24 | 24 | 24 |
| Plumbing connections | | 3 | 3 | 3 | 3 | 3 | 3 | - | 3 | 4 | 4 | 4 | 4 | 4 |
| Height | mm | 1847 | 1847 | 1847 | 1847 | 1847 | 1847 | - | 1847 | 2247 | 2247 | 2330 | 2330 | 2330 |
| Length | mm | 3538 | 3538 | 3538 | 3538 | 3538 | 3538 | - | 3538 | 3538 | 3538 | 4206 | 4206 | 4206 |
| Depth | mm | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 | - | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 |
| Sound power level | dB(A) | 81 | 81 | 77 | 81 | 81 | 77 | - | 82 | 82 | 82 | 84 | 84 | 85 |
| Sound pressure level | dB(A) | 53 | 53 | 49 | 53 | 53 | 49 | - | 54 | 54 | 54 | 56 | 56 | 57 |
| Base unit operating weight | kg | 1310 | 1310 | 1290 | 1330 | 1330 | 1440 | - | 1460 | 1510 | 1620 | 1880 | 1912 | 1947 |
| Unit with pump and full tank operating weight | kg | 2090 | 2090 | 2070 | 2110 | 2110 | 2220 | - | 2276 | 2326 | 2469 | 2894 | 2926 | 2961 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Heating mode: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX LOW NOISE version | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 |
| **Efficiency pack** | | 1 | 2 | 2 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...HL** | | **141** | **142** | **144** | **161** | **162** | **164** | **174** | **194** | **214** | **244** | **274** | **294** | **324** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | |
| Max power input | kW | 62,3 | 62,3 | 63,9 | 73,2 | 73,2 | 71,7 | - | 86,5 | 99,5 | 111,8 | 125,49 | 136,33 | 147,17 |
| Max current absorption | A | 106,5 | 106,5 | 104,5 | 119,9 | 119,9 | 126,0 | - | 148,4 | 166,9 | 189,9 | 215,44 | 228,9 | 242,36 |
| Start up curret | A | 306,2 | 306,1 | 222,4 | 371,4 | 371,3 | 241,5 | - | 307,0 | 318,4 | 381,8 | 397,71 | 463,65 | 472,42 |
| Start up current with softstarter device | A | 241,2 | 241,1 | 163,4 | 288,4 | 288,3 | 189,5 | - | 245,0 | 256,4 | 316,8 | 332,71 | 380,65 | 389,42 |
| Fans number | n° | 6 | 6 | 6 | 6 | 6 | 6 | - | 6 | 6 | 6 | 8 | 8 | 8 |
| Fans rated power input | kW | 4,02 | 4,02 | 4,02 | 4,02 | 4,02 | 4,02 | - | 4,02 | 4,02 | 4,02 | 6,1 | 6,1 | 6,1 |
| Fans rated current absorption | A | 7,74 | 7,74 | 7,74 | 7,74 | 7,74 | 7,74 | - | 7,74 | 7,74 | 7,74 | 10,3 | 10,3 | 10,3 |
| Standard pump rated power input | kW | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | - | 2,8 | 3,7 | 5,1 | 5,1 | 5,1 | 5,1 |
| Standard pump rated current absorption | A | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | - | 4,8 | 6,8 | 9,2 | 9,2 | 9,2 | 9,2 |
| Uprated pump rated power input | kW | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | - | 5,1 | 5,1 | 9,1 | 9,1 | 9,1 | 9,1 |
| Uprated pump rated current absorption | A | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | - | 9,2 | 9,2 | 15,5 | 15,5 | 15,5 | 15,5 |
| Standard AND pump rated power input | kW | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | - | 4,0 | 4,0 | 5,6 | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated current absorption | A | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | - | 6,8 | 6,8 | 9,6 | 9,6 | 9,6 | 9,6 |
| Uprated AND pump rated power input | kW | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | - | 5,6 | 5,6 | 7,4 | 7,4 | 7,4 | 7,4 |
| Uprated AND pump rated current absorption | A | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | - | 9,6 | 9,6 | 13,6 | 13,6 | 13,6 | 13,6 |
| Auxiliary devices power supply | V-f-Hz | 24 | 24 | 24 | 24 | 24 | 24 | - | 24 | 24 | 24 | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.6 RATED TECHNICAL DATA OF LCX HQ REVERSIBLE HEAT PUMPS, QUITE (SUPER LOW NOISE) VERSION

| Rated technical data of LCX...H heat pumps, QUIET (super low noise) version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| Efficiency Pack | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...HQ** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | 42,80 | 49,50 | 55,10 | 62,90 | 74,20 | 83,90 | 83,90 | 85,60 | 96,10 | 96,10 | 99,00 | 105,60 | 105,70 | 108,50 |
| Total power input in cooling mode (UNI14511) | kW | 15,60 | 17,90 | 20,20 | 22,90 | 26,50 | 30,00 | 30,80 | 31,20 | 35,10 | 35,10 | 35,80 | 40,00 | 40,00 | 41,00 |
| Rated current input | A | 26,53 | 30,13 | 34,69 | 38,84 | 44,60 | 51,20 | 52,59 | 53,18 | 59,10 | 59,10 | 60,40 | 66,06 | 65,67 | 66,50 |
| EER (UNI14511) | | 2,75 | 2,77 | 2,73 | 2,75 | 2,81 | 2,80 | 2,72 | 2,74 | 2,74 | 2,74 | 2,76 | 2,64 | 2,64 | 2,65 |
| ESEER | | 3,90 | 4,14 | 3,94 | 3,94 | 3,98 | 3,54 | 3,95 | 3,78 | 3,59 | 4,00 | 3,87 | 3,36 | 3,67 | 3,57 |
| Eurovent Efficency Class | | C | C | C | C | C | C | C | C | C | C | C | D | D | D |
| Heating capacity | kW | 50,70 | 57,80 | 64,30 | 73,70 | 85,40 | 98,80 | 99,60 | 101,20 | 108,70 | 109,60 | 113,70 | 129,60 | 130,00 | 134,20 |
| Total power input in heating mode | kW | 14,70 | 16,90 | 19,00 | 21,30 | 24,80 | 27,70 | 28,50 | 29,40 | 31,20 | 32,40 | 33,70 | 37,70 | 37,60 | 38,70 |
| Rated current input | A | 24,91 | 28,39 | 32,56 | 36,27 | 41,90 | 48,62 | 48,63 | 49,93 | 54,31 | 54,31 | 56,68 | 61,84 | 61,37 | 63,46 |
| COP (UNI14511) | | 3,45 | 3,43 | 3,39 | 3,46 | 3,44 | 3,57 | 3,50 | 3,45 | 3,48 | 3,38 | 3,37 | 3,44 | 3,45 | 3,47 |
| Maximum current input | A | 41 | 44 | 51 | 55 | 66 | 77 | 77 | 81 | 86 | 86 | 87 | 95 | 95 | 96 |
| Starting current | A | 159 | 162 | 185 | 183 | 191 | 246 | 246 | 194 | 254 | 254 | 198 | 295 | 295 | 220 |
| Starting current with Soft-Starter kit | A | 88 | 101 | 111 | 124 | 139 | 184 | 184 | 126 | 192 | 192 | 129,0 | 221 | 221 | 150 |
| No. of scroll compressors / circuits | | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 |
| No. of axial fans | | 4 | 4 | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 6 | 6 |
| Air flow rate | $m^3/h$ | 15398 | 15398 | 21955 | 21955 | 21955 | 29393 | 29393 | 29393 | 29393 | 29393 | 29393 | 43434 | 43434 | 43434 |
| Water flow rate (cooling) | l/h | 7376 | 8538 | 9502 | 10849 | 12801 | 14459 | 14459 | 14756 | 16569 | 16569 | 17072 | 18206 | 18226 | 18698 |
| Pressure drop, water side (cooling) | kPa | 21 | 24 | 24 | 24 | 25 | 24 | 24 | 24 | 27 | 27 | 28 | 26 | 26 | 26 |
| Available head, standard pump (cooling) | kPa | 159 | 156 | 145 | 141 | 138 | 136 | 136 | 135 | 129 | 129 | 132 | 122 | 122 | 121 |
| Buffer tank | $dm^3$ | 200 | 200 | 220 | 220 | 220 | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 |
| Expansion tank | $dm^3$ | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 24 | 24 | 24 |
| Plumbing connections | | 2 | 2 | 2 | 2 | 2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 3 | 3 | 3 |
| Height | mm | 1735 | 1735 | 1735 | 1735 | 1735 | 1735 | 1735 | 1679 | 1735 | 1735 | 1679 | 1847 | 1847 | 1847 |
| Length | mm | 2090 | 2090 | 2442 | 2442 | 2442 | 3190 | 3190 | 3540 | 3190 | 3190 | 3540 | 3538 | 3538 | 3538 |
| Depth | mm | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1183 | 1653 | 1653 | 1653 |
| Sound power level | dB(A) | 71,0 | 71,0 | 73,0 | 73,0 | 73,0 | 75,0 | 75,0 | 74,0 | 75,0 | 75,0 | 74,0 | 76,0 | 76,0 | 73,0 |
| Sound pressure level | dB(A) | 43,0 | 43,0 | 45,0 | 45,0 | 45,0 | 47,0 | 47,0 | 46,0 | 47,0 | 47,0 | 46,0 | 48,0 | 48,0 | 45,0 |
| Base unit operating weight | kg | 525 | 525 | 630 | 635 | 700 | 905 | 905 | 980 | 915 | 915 | 980 | 1260 | 1260 | 1275 |
| Unit with pump and full tank operating weight | kg | 862 | 862 | 982 | 987 | 1067 | 1426 | 1426 | 1557 | 1436 | 1436 | 1557 | 2040 | 2040 | 2055 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Heating mode: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX QUIET version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| **Efficiency pack** | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCX...HQ** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | | |
| Max power input | kW | 22,1 | 24,5 | 28,5 | 31,9 | 35,8 | 42,7 | 42,7 | 44,1 | 49,2 | 49,2 | 49,1 | 58,0 | 58,0 | 58,9 |
| Max current absorption | A | 40,6 | 43,5 | 51,1 | 55,2 | 65,9 | 76,9 | 76,9 | 81,1 | 86,1 | 86,1 | 87,0 | 98,9 | 98,9 | 100,2 |
| Start up curret | A | 159,4 | 161,7 | 185,5 | 182,7 | 190,7 | 246,0 | 246,0 | 194,2 | 254,2 | 254,2 | 198,4 | 298,7 | 299,5 | 224,7 |
| Start up current with softstarter device | A | 87,6 | 100,7 | 111,0 | 123,7 | 138,7 | 184,0 | 184,0 | 122,4 | 192,2 | 192,2 | 137,4 | 233,7 | 234,5 | 150,2 |
| Fans number | n° | 4 | 4 | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 6 | 6 |
| Fans rated power input | kW | 0,54 | 0,54 | 0,81 | 0,81 | 0,81 | 1,08 | 1,08 | 1,08 | 1,08 | 1,08 | 1,08 | 4,02 | 4,02 | 4,02 |
| Fans rated current absorption | A | 2,56 | 2,56 | 3,84 | 3,84 | 3,84 | 5,12 | 5,12 | 5,12 | 5,12 | 5,12 | 5,12 | 7,74 | 7,74 | 7,74 |
| Standard pump rated power input | kW | 1,4 | 1,4 | 1,4 | 1,4 | 1,4 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 |
| Standard pump rated current absorption | A | 2,5 | 2,5 | 2,5 | 2,5 | 2,5 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 | 3,4 |
| Uprated pump rated power input | kW | 1,8 | 1,8 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 3,3 | 3,3 | 3,3 |
| Uprated pump rated current absorption | A | 3,2 | 3,2 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated power input | kW | 2,6 | 2,6 | 2,6 | 2,6 | 2,6 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 |
| Standard AND pump rated current absorption | A | 5,4 | 5,4 | 5,4 | 5,4 | 5,4 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| Uprated AND pump rated power input | kW | 2,6 | 2,6 | 2,6 | 2,6 | 2,6 | 3,5 | 3,5 | 3,5 | 3,5 | 3,5 | 3,5 | 5,9 | 5,9 | 5,9 |
| Uprated AND pump rated current absorption | A | 5,4 | 5,4 | 5,4 | 5,4 | 5,4 | 6,4 | 6,4 | 6,4 | 6,4 | 6,4 | 6,4 | 9,6 | 9,6 | 9,6 |
| Auxiliary devices power supply | V-f-Hz | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 4 TECHNICAL CHARACTERISTICS

## 4.6 RATED TECHNICAL DATA OF LCX HQ REVERSIBLE HEAT PUMPS, QUITE (SUPER LOW NOISE) VERSION

| Rated technical data of LCX...H heat pumps, QUIET (super low noise) version | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 |
| Efficiency Pack | | 1 | 2 | 4 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...HQ** | | **141** | **142** | **144** | **161** | **162** | **164** | ND | **194** | **214** | **244** | **274** | **294** | **324** |
| Power supply | V-ph-Hz | 400-3N-50 | | | | | | | | | | | | |
| Cooling capacity (UNI14511) | kW | 119,00 | 119,00 | 123,60 | 148,60 | 148,60 | 137,50 | - | 159,70 | 176,80 | 194,30 | 238,50 | 259,10 | 280,00 |
| Total power input in cooling mode (UNI14511) | kW | 46,50 | 46,50 | 46,30 | 58,40 | 58,40 | 55,80 | - | 70,40 | 79,20 | 87,00 | 89,80 | 107,40 | 121,80 |
| Rated current input | A | 75,11 | 75,11 | 74,81 | 94,00 | 94,00 | 90,06 | - | 113,36 | 127,45 | 139,82 | 143,54 | 171,73 | 194,66 |
| EER (UNI14511) | | 2,56 | 2,56 | 2,67 | 2,55 | 2,55 | 2,46 | - | 2,27 | 2,23 | 2,23 | 2,66 | 2,41 | 2,30 |
| ESEER | | 3,23 | 3,50 | 3,64 | 3,35 | 3,55 | 3,46 | - | 3,30 | 3,44 | 3,36 | 3,26 | 3,30 | 3,31 |
| Eurovent Efficency Class | | D | D | D | D | D | E | - | F | F | D | E | E | F |
| Heating capacity | kW | 142,60 | 143,30 | 149,20 | 175,30 | 175,30 | 169,00 | - | 198,70 | 225,40 | 252,50 | 285,50 | 317,50 | 351,60 |
| Total power input in heating mode | kW | 44,50 | 44,50 | 43,30 | 52,70 | 52,70 | 50,30 | - | 59,50 | 66,60 | 76,00 | 84,60 | 95,90 | 107,90 |
| Rated current input | A | 71,66 | 71,67 | 69,73 | 84,48 | 84,48 | 80,77 | - | 95,33 | 106,65 | 121,58 | 134,63 | 152,54 | 171,66 |
| COP (UNI14511) | | 3,20 | 3,22 | 3,44 | 3,33 | 3,33 | 3,36 | - | 3,34 | 3,38 | 3,32 | 3,38 | 3,31 | 3,26 |
| Maximum current input | A | 106 | 106 | 105 | 120 | 120 | 126 | - | 148 | 167 | 190 | 215 | 229 | 242 |
| Starting current | A | 306 | 306 | 222 | 371 | 371 | 241 | - | 307 | 318 | 382 | 398 | 464 | 472 |
| Starting current with Soft-Starter kit | A | 231 | 231 | 168 | 276 | 279 | 195 | - | 252 | 266 | 330 | 331,0 | 382 | 392 |
| No. of scroll compressors / circuits | | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | - | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| No. of axial fans | | 6 | 6 | 6 | 6 | 6 | 6 | - | 6 | 6 | 6 | 8 | 8 | 8 |
| Air flow rate | $m^3/h$ | 35930 | 35930 | 35930 | 35930 | 35930 | 35930 | - | 35930 | 40953 | 40953 | 69835 | 69835 | 69835 |
| Water flow rate (cooling) | l/h | 20502 | 20514 | 21306 | 25609 | 25609 | 23686 | - | 27519,0 | 30461 | 33466 | 41098 | 44631 | 48237 |
| Pressure drop, water side (cooling) | kPa | 27 | 27 | 27 | 32 | 32 | 26 | - | 29,0 | 28 | 29 | 34 | 33 | 32 |
| Available head, standard pump (cooling) | kPa | 153 | 153 | 151 | 151 | 151 | 152 | - | 161 | 171 | 193 | 177 | 164 | 153 |
| Buffer tank | $dm^3$ | 600 | 600 | 600 | 600 | 600 | 600 | - | 600 | 600 | 600 | 600 | 600 | 600 |
| Expansion tank | $dm^3$ | 24 | 24 | 24 | 24 | 24 | 24 | - | 24 | 24 | 24 | 24 | 24 | 24 |
| Plumbing connections | | 3 | 3 | 3 | 3 | 3 | 3 | - | 3 | 4 | 4 | 4 | 4 | 4 |
| Height | mm | 1847 | 1847 | 1847 | 1847 | 1847 | 1847 | - | 1847 | 2247 | 2247 | 2330 | 2330 | 2330 |
| Length | mm | 3538 | 3538 | 3538 | 3538 | 3538 | 3538 | - | 3538 | 3538 | 3538 | 4206 | 4206 | 4206 |
| Depth | mm | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 | - | 1653 | 1653 | 1653 | 1653 | 1653 | 1653 |
| Sound power level | dB(A) | 77,0 | 77,0 | 73,0 | 77,0 | 77,0 | 73,0 | - | 78,0 | 78,0 | 78,0 | 80,0 | 80,0 | 80,0 |
| Sound pressure level | dB(A) | 49,0 | 49,0 | 45,0 | 49,0 | 49,0 | 45,0 | - | 50,0 | 50,0 | 50,0 | 52,0 | 52,0 | 52,0 |
| Base unit operating weight | kg | 1310 | 1310 | 1290 | 1330 | 1330 | 1440 | - | 1460 | 1510 | 1620 | 1880 | 1912 | 1947 |
| Unit with pump and full tank operating weight | kg | 2090 | 2090 | 2070 | 2110 | 2110 | 2220 | - | 2276 | 2326 | 2469 | 2894 | 2926 | 2961 |

Cooling mode: outdoor air temperature 35°C, water temperature 12°C / 7°C (EN 14511)
Heating mode: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C (EN 14511)
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field.

| Rated electrical data LCX QUIET version | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. cooling output (kW) | | 140 | | | 160 | | | 170 | 190 | 210 | 240 | 270 | 290 | 320 |
| **Efficiency pack** | | 1 | 2 | 2 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **LCX...HQ** | | **141** | **142** | **144** | **161** | **162** | **164** | **174** | **194** | **214** | **244** | **274** | **294** | **324** |
| Power supply | V-f-Hz | 400-3-50 | | | | | | | | | | | | |
| Max power input | kW | 64,1 | 64,1 | 65,7 | 75,0 | 75,0 | 73,5 | - | 86,5 | 99,5 | 111,8 | 124,09 | 134,93 | 145,77 |
| Max current absorption | A | 110,4 | 110,4 | 108,4 | 123,8 | 123,8 | 129,9 | - | 148,4 | 166,9 | 189,9 | 212,78 | 226,24 | 239,7 |
| Start up curret | A | 310,3 | 310,3 | 226,7 | 376,6 | 376,6 | 247,0 | - | 313,8 | 327,8 | 394,7 | 396,35 | 465,35 | 475,13 |
| Start up current with softstarter device | A | 245,3 | 245,3 | 167,7 | 293,6 | 293,6 | 195,0 | - | 251,8 | 265,8 | 329,7 | 331,35 | 382,35 | 392,13 |
| Fans number | n° | 6 | 6 | 6 | 6 | 6 | 6 | - | 6 | 6 | 6 | 8 | 8 | 8 |
| Fans rated power input | kW | 4,02 | 4,02 | 4,02 | 4,02 | 4,02 | 4,02 | - | 4,02 | 4,02 | 4,02 | 4 | 4 | 4 |
| Fans rated current absorption | A | 7,74 | 7,74 | 7,74 | 7,74 | 7,74 | 7,74 | - | 7,74 | 7,74 | 7,74 | 7,2 | 7,2 | 7,2 |
| Standard pump rated power input | kW | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 | - | 2,8 | 3,7 | 5,1 | 5,1 | 5,1 | 5,1 |
| Standard pump rated current absorption | A | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | - | 4,8 | 6,8 | 9,2 | 9,2 | 9,2 | 9,2 |
| Uprated pump rated power input | kW | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | - | 5,1 | 5,1 | 9,1 | 9,1 | 9,1 | 9,1 |
| Uprated pump rated current absorption | A | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | 5,6 | - | 9,2 | 9,2 | 15,5 | 15,5 | 15,5 | 15,5 |
| Standard AND pump rated power input | kW | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | 2,7 | - | 4,0 | 4,0 | 5,6 | 5,6 | 5,6 | 5,6 |
| Standard AND pump rated current absorption | A | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | - | 6,8 | 6,8 | 9,6 | 9,6 | 9,6 | 9,6 |
| Uprated AND pump rated power input | kW | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | 5,9 | - | 5,6 | 5,6 | 7,4 | 7,4 | 7,4 | 7,4 |
| Uprated AND pump rated current absorption | A | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | 9,6 | - | 9,6 | 9,6 | 13,6 | 13,6 | 13,6 | 13,6 |
| Auxiliary devices power supply | V-f-Hz | 24 | 24 | 24 | 24 | 24 | 24 | - | 24 | 24 | 24 | 24 | 24 | 24 |

- The maximum electrical input is the mains electricity that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

# 5 PERFORMANCE

## 5.1 COOLING CAPACITIES OF LCX CS WATER CHILLERS, STANDARD VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...CS | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 062 | 12 | 7 | 65,2 | 17,6 | 61,9 | 19,2 | **58,2** | **21,0** | 54,2 | 23,0 | 50,0 | 25,2 |
| | 23 | 18 | 88,8 | 19,6 | 84,2 | 21,3 | 79,1 | 23,1 | 73,9 | 25,2 | 68,6 | 27,2 |
| 072 | 12 | 7 | 75,6 | 19,6 | 71,2 | 21,5 | **66,5** | **23,6** | 61,5 | 26,0 | 56,3 | 28,6 |
| | 23 | 18 | 102,4 | 22,1 | 96,4 | 24,0 | 90,0 | 26,1 | 83,2 | 28,4 | 77,0 | 30,6 |
| 082 | 12 | 7 | 88,9 | 22,6 | 83,8 | 24,7 | **78,2** | **27,2** | 72,2 | 29,9 | 66,1 | 32,6 |
| | 23 | 18 | 121,0 | 25,3 | 113,7 | 27,6 | 106,0 | 30,1 | 98,5 | 32,5 | 90,6 | 35,0 |
| 091 | 12 | 7 | 99,9 | 26,0 | 94,6 | 28,5 | **88,6** | **31,3** | 82,2 | 34,6 | 75,5 | 38,1 |
| | 23 | 18 | 136,3 | 28,8 | 128,6 | 31,4 | 120,6 | 34,3 | 112,3 | 37,5 | 104,2 | 40,5 |
| 092 | 12 | 7 | 99,9 | 26,7 | 94,5 | 29,2 | **88,6** | **32,2** | 82,2 | 35,6 | 75,5 | 39,2 |
| | 23 | 18 | 136,3 | 29,6 | 128,6 | 32,2 | 120,6 | 35,3 | 112,3 | 38,6 | 104,2 | 41,6 |
| 101 | 12 | 7 | 115,4 | 29,7 | 108,6 | 32,8 | **101,6** | **36,1** | 94,1 | 39,9 | 86,3 | 43,8 |
| | 23 | 18 | 155,9 | 33,2 | 146,8 | 36,4 | 137,5 | 39,8 | 127,5 | 43,4 | 118,2 | 46,6 |
| 102 | 12 | 7 | 115,4 | 29,7 | 108,6 | 32,8 | **101,6** | **36,1** | 94,1 | 39,9 | 86,3 | 43,8 |
| | 23 | 18 | 155,9 | 33,2 | 146,8 | 36,4 | 137,5 | 39,8 | 127,5 | 43,4 | 118,2 | 46,6 |
| 121 | 12 | 7 | 126,2 | 33,8 | 119,6 | 37,0 | **112,8** | **40,5** | 105,4 | 44,4 | 97,8 | 48,9 |
| | 23 | 18 | 171,2 | 37,9 | 162,5 | 41,0 | 153,5 | 44,6 | 143,5 | 48,6 | 134,1 | 52,4 |
| 122 | 12 | 7 | 125,5 | 34,0 | 119,2 | 37,1 | **112,8** | **40,5** | 105,8 | 44,3 | 98,7 | 48,5 |
| | 23 | 18 | 170,0 | 38,1 | 161,5 | 41,2 | 153,0 | 44,8 | 143,6 | 48,7 | 134,9 | 52,4 |
| 124 | 12 | 7 | 133,4 | 35,3 | 126,3 | 38,5 | **119,0** | **42,1** | 110,8 | 46,0 | 102,2 | 50,4 |
| | 23 | 18 | 180,7 | 39,2 | 171,4 | 42,6 | 161,0 | 46,3 | 150,2 | 50,4 | 139,7 | 54,4 |
| 141 | 12 | 7 | 160,5 | 42,8 | 152,4 | 46,6 | **143,9** | **50,9** | 135,4 | 55,7 | 126,2 | 60,9 |
| | 23 | 18 | 216,8 | 48,5 | 206,6 | 52,3 | 195,3 | 56,6 | 183,9 | 61,3 | 172,5 | 65,9 |
| 142 | 12 | 7 | 160,4 | 42,9 | 152,3 | 46,7 | **143,9** | **50,9** | 135,4 | 55,7 | 126,2 | 60,7 |
| | 23 | 18 | 216,7 | 48,6 | 206,5 | 52,4 | 195,2 | 56,6 | 183,6 | 61,6 | 172,4 | 66,2 |
| 144 | 12 | 7 | 162,0 | 42,0 | 152,8 | 46,1 | **143,0** | **50,8** | 132,2 | 56,1 | 121,1 | 61,8 |
| | 23 | 18 | 219,1 | 47,1 | 206,8 | 51,2 | 193,5 | 55,8 | 179,5 | 61,0 | 166,0 | 65,7 |
| 161 | 12 | 7 | 181,5 | 49,4 | 171,2 | 53,9 | **159,6** | **58,9** | 147,2 | 64,7 | 134,9 | 70,3 |
| | 23 | 18 | 243,2 | 55,6 | 228,9 | 60,2 | 213,7 | 65,3 | 197,7 | 70,6 | 182,4 | 75,6 |
| 162 | 12 | 7 | 181,5 | 49,4 | 171,2 | 53,9 | **159,6** | **58,9** | 147,2 | 64,7 | 134,9 | 70,3 |
| | 23 | 18 | 243,2 | 55,6 | 228,9 | 60,2 | 213,7 | 65,3 | 197,7 | 70,6 | 182,4 | 75,6 |
| 164 | 12 | 7 | 172,2 | 46,8 | 162,3 | 51,2 | **151,9** | **56,4** | 140,2 | 62,2 | 128,4 | 68,1 |
| | 23 | 18 | 233,5 | 52,2 | 219,9 | 56,9 | 205,3 | 62,2 | 190,6 | 67,5 | 176,1 | 72,6 |

# 5 PERFORMANCE

## 5.1 COOLING CAPACITIES OF LCX CS WATER CHILLERS, STANDARD VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...CS | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 174 | 12 | 7 | 180,2 | 49,0 | 171,3 | 53,3 | **161,5** | **58,1** | 151,0 | 63,6 | 139,6 | 69,8 |
| | 23 | 18 | 250,1 | 52,9 | 237,3 | 57,3 | 223,9 | 62,3 | 209,6 | 67,8 | 194,7 | 73,8 |
| 194 | 12 | 7 | 205,3 | 54,8 | 194,3 | 59,9 | **182,6** | **65,6** | 170,0 | 72,3 | 156,8 | 79,5 |
| | 23 | 18 | 281,5 | 60,2 | 266,2 | 65,3 | 250,8 | 71,1 | 233,7 | 77,7 | 217,0 | 84,1 |
| 214 | 12 | 7 | 227,3 | 63,1 | 215,1 | 69,3 | **201,1** | **76,4** | 187,0 | 84,1 | 171,4 | 92,6 |
| | 23 | 18 | 309,0 | 70,2 | 291,6 | 76,3 | 273,7 | 83,2 | 254,6 | 90,9 | 235,6 | 98,2 |
| 244 | 12 | 7 | 272,1 | 80,1 | 258,6 | 87,6 | **244,5** | **95,8** | 229,2 | 104,8 | 213,6 | 114,7 |
| | 23 | 18 | 368,1 | 89,9 | 350,6 | 97,3 | 332,0 | 105,7 | 311,7 | 114,7 | 292,1 | 123,5 |
| 274 | 12 | 7 | 292,7 | 76,9 | 278,0 | 83,4 | **263,0** | **90,5** | 247,5 | 98,3 | 230,5 | 107,2 |
| | 23 | 18 | 396,6 | 86,5 | 377,6 | 92,6 | 358,3 | 99,8 | 337,3 | 107,7 | 317,0 | 115,6 |
| 294 | 12 | 7 | 325,4 | 88,3 | 310,1 | 95,7 | **293,1** | **104,3** | 275,5 | 113,6 | 256,3 | 124,1 |
| | 23 | 18 | 443,5 | 99,2 | 422,3 | 106,7 | 399,4 | 115,5 | 376,3 | 124,9 | 352,8 | 134,4 |
| 324 | 12 | 7 | 370,7 | 100,1 | 349,9 | 108,9 | **327,4** | **118,7** | 304,4 | 129,6 | 278,9 | 142,1 |
| | 23 | 18 | 501,2 | 111,0 | 473,5 | 120,1 | 443,4 | 130,3 | 411,1 | 141,5 | 381,0 | 151,7 |
| 364 | 12 | 7 | 402,0 | 111,9 | 378,8 | 124,1 | **353,6** | **138,2** | 327,8 | 154,0 | 298,3 | 172,2 |
| | 23 | 18 | 526,6 | 125,0 | 496,4 | 137,6 | 463,4 | 152,3 | 429,2 | 169,0 | 409,6 | 182,8 |

# 5 PERFORMANCE

## 5.2 COOLING CAPACITIES OF LCX CL WATER CHILLERS, LOW NOISE VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...CL | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 042 | 12 | 7 | 50,6 | 13,3 | 48,0 | 14,4 | **45,2** | **15,7** | 42,2 | 17,1 | 38,9 | 18,8 |
| | 23 | 18 | 69,2 | 15,1 | 65,3 | 16,3 | 61,2 | 17,6 | 56,9 | 19,0 | 52,5 | 20,4 |
| 052 | 12 | 7 | 50,6 | 13,3 | 48,0 | 14,4 | **45,2** | **15,7** | 42,2 | 17,1 | 38,9 | 18,8 |
| | 23 | 18 | 69,2 | 15,1 | 65,3 | 16,3 | 61,2 | 17,6 | 56,9 | 19,0 | 52,5 | 20,4 |
| 062 | 12 | 7 | 65,1 | 17,0 | 61,8 | 18,6 | **58,2** | **20,3** | 54,3 | 22,2 | 50,1 | 24,4 |
| | 23 | 18 | 88,9 | 18,9 | 84,3 | 20,5 | 79,4 | 22,3 | 74,0 | 24,4 | 68,8 | 26,4 |
| 072 | 12 | 7 | 75,5 | 19,0 | 71,2 | 20,9 | **66,6** | **22,9** | 61,7 | 25,3 | 56,4 | 27,9 |
| | 23 | 18 | 102,3 | 21,4 | 96,5 | 23,3 | 90,3 | 25,3 | 83,6 | 27,7 | 77,4 | 29,8 |
| 082 | 12 | 7 | 89,2 | 22,1 | 84,1 | 24,2 | **78,5** | **26,6** | 72,5 | 29,3 | 66,5 | 32,2 |
| | 23 | 18 | 121,4 | 24,8 | 114,3 | 27,0 | 106,7 | 29,4 | 99,0 | 32,0 | 91,5 | 34,5 |
| 091 | 12 | 7 | 100,0 | 24,8 | 94,6 | 27,4 | **88,6** | **30,2** | 82,3 | 33,4 | 75,7 | 36,9 |
| | 23 | 18 | 136,3 | 27,7 | 128,8 | 30,2 | 120,9 | 33,1 | 112,4 | 36,3 | 104,1 | 39,3 |
| 092 | 12 | 7 | 100,0 | 25,5 | 94,6 | 28,1 | **88,6** | **31,1** | 82,3 | 34,3 | 75,7 | 38,0 |
| | 23 | 18 | 136,3 | 28,5 | 128,8 | 31,1 | 120,9 | 34,0 | 112,4 | 37,4 | 104,1 | 40,5 |
| 094 | 12 | 7 | 101,1 | 26,5 | 96,0 | 28,8 | **90,3** | **31,5** | 84,4 | 34,4 | 77,7 | 37,7 |
| | 23 | 18 | 137,6 | 30,2 | 129,9 | 32,5 | 121,8 | 35,1 | 113,1 | 38,0 | 104,9 | 40,7 |
| 101 | 12 | 7 | 115,1 | 28,8 | 108,8 | 31,8 | **101,7** | **35,2** | 94,2 | 39,0 | 86,3 | 43,0 |
| | 23 | 18 | 155,8 | 32,4 | 146,6 | 35,5 | 137,3 | 38,9 | 127,4 | 42,5 | 118,0 | 45,9 |
| 102 | 12 | 7 | 115,1 | 28,8 | 108,8 | 31,8 | **101,7** | **35,2** | 94,2 | 39,0 | 86,3 | 43,0 |
| | 23 | 18 | 155,8 | 32,4 | 146,6 | 35,5 | 137,3 | 38,9 | 127,4 | 42,5 | 118,0 | 45,9 |
| 104 | 12 | 7 | 118,5 | 30,1 | 111,8 | 32,9 | **104,5** | **36,0** | 97,1 | 39,5 | 89,0 | 43,2 |
| | 23 | 18 | 160,3 | 34,1 | 151,1 | 37,0 | 141,0 | 40,2 | 131,1 | 43,5 | 121,5 | 46,6 |
| 121 | 12 | 7 | 126,2 | 33,8 | 119,8 | 36,8 | **112,9** | **40,2** | 105,7 | 43,8 | 98,1 | 48,1 |
| | 23 | 18 | 171,4 | 37,6 | 163,1 | 40,5 | 153,6 | 44,0 | 144,2 | 47,7 | 134,8 | 51,4 |
| 122 | 12 | 7 | 125,7 | 33,9 | 119,5 | 36,9 | **112,9** | **40,2** | 106,2 | 43,7 | 98,8 | 47,8 |
| | 23 | 18 | 170,6 | 37,7 | 162,1 | 40,7 | 153,2 | 44,1 | 144,3 | 47,8 | 135,6 | 51,4 |
| 124 | 12 | 7 | 130,5 | 34,8 | 123,7 | 37,8 | **116,4** | **41,0** | 108,7 | 44,8 | 100,2 | 48,9 |
| | 23 | 18 | 177,4 | 38,3 | 167,8 | 41,5 | 158,0 | 45,0 | 147,8 | 48,8 | 137,4 | 52,6 |
| 141 | 12 | 7 | 142,0 | 39,5 | 134,9 | 42,8 | **127,4** | **46,7** | 119,7 | 50,8 | 111,7 | 55,2 |
| | 23 | 18 | 191,9 | 44,5 | 182,5 | 47,9 | 172,9 | 51,5 | 162,5 | 55,8 | 152,6 | 59,6 |
| 142 | 12 | 7 | 141,9 | 39,6 | 134,9 | 42,9 | **127,4** | **46,7** | 119,9 | 50,7 | 111,5 | 55,2 |
| | 23 | 18 | 191,8 | 44,6 | 182,5 | 47,9 | 172,8 | 51,6 | 162,3 | 56,0 | 152,5 | 59,9 |
| 144 | 12 | 7 | 150,7 | 38,8 | 141,9 | 42,5 | **133,1** | **46,5** | 123,2 | 51,0 | 112,7 | 56,0 |
| | 23 | 18 | 203,8 | 43,3 | 192,1 | 46,9 | 179,8 | 50,9 | 166,6 | 55,4 | 154,2 | 59,4 |
| 161 | 12 | 7 | 182,4 | 49,2 | 171,8 | 53,6 | **160,0** | **58,5** | 147,9 | 63,9 | 135,5 | 69,3 |
| | 23 | 18 | 244,4 | 55,2 | 229,8 | 59,7 | 214,7 | 64,5 | 199,1 | 69,5 | 183,2 | 74,5 |

# 5 PERFORMANCE

## 5.2 COOLING CAPACITIES OF LCX CL WATER CHILLERS, LOW NOISE VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...CL | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 162 | 12 | 7 | 182,5 | 49,2 | 171,9 | 53,6 | **160,1** | **58,5** | 147,9 | 63,9 | 135,5 | 69,3 |
| | 23 | 18 | 244,5 | 55,2 | 229,8 | 59,7 | 214,8 | 64,5 | 199,1 | 69,5 | 183,3 | 74,5 |
| 164 | 12 | 7 | 172,7 | 46,7 | 162,5 | 51,1 | **152,0** | **56,1** | 140,3 | 61,6 | 129,0 | 67,1 |
| | 23 | 18 | 234,2 | 52,0 | 220,6 | 56,5 | 206,0 | 61,6 | 191,2 | 66,7 | 176,6 | 71,7 |
| 164 | 12 | 7 | 200,6 | 52,7 | 189,4 | 57,7 | **177,3** | **63,6** | 164,3 | 70,2 | 151,1 | 77,1 |
| | 23 | 18 | 272,7 | 58,5 | 257,8 | 63,7 | 241,2 | 69,5 | 224,2 | 75,9 | 207,4 | 82,0 |
| 214 | 12 | 7 | 222,1 | 61,0 | 209,6 | 67,2 | **196,8** | **74,2** | 182,6 | 82,1 | 167,5 | 90,7 |
| | 23 | 18 | 301,7 | 67,9 | 285,5 | 74,0 | 267,9 | 81,1 | 249,0 | 89,1 | 230,7 | 96,5 |
| 244 | 12 | 7 | 244,5 | 69,9 | 231,6 | 76,6 | **218,7** | **83,9** | 204,4 | 91,9 | 190,3 | 100,2 |
| | 23 | 18 | 329,2 | 79,3 | 311,7 | 86,1 | 294,2 | 93,5 | 276,5 | 101,2 | 258,5 | 108,6 |
| 274 | 12 | 7 | 284,8 | 76,1 | 270,7 | 82,5 | **255,3** | **90,0** | 239,6 | 98,1 | 223,4 | 106,6 |
| | 23 | 18 | 384,7 | 86,1 | 365,8 | 92,5 | 346,1 | 100,0 | 325,4 | 108,0 | 305,9 | 115,4 |
| 294 | 12 | 7 | 309,7 | 90,5 | 294,0 | 98,4 | **277,6** | **107,4** | 260,0 | 117,5 | 241,9 | 127,9 |
| | 23 | 18 | 419,3 | 102,5 | 397,9 | 110,7 | 376,5 | 119,9 | 353,1 | 129,9 | 330,7 | 139,2 |
| 324 | 12 | 7 | 359,0 | 102,4 | 338,0 | 111,6 | **315,3** | **122,0** | 290,9 | 133,8 | 266,7 | 145,6 |
| | 23 | 18 | 482,1 | 114,8 | 452,6 | 124,4 | 422,4 | 135,0 | 391,3 | 146,1 | 361,5 | 156,3 |
| 364 | 12 | 7 | 385,8 | 120,5 | 362,0 | 134,1 | **336,7** | **149,5** | 309,5 | 166,9 | 280,2 | 187,0 |
| | 23 | 18 | 500,4 | 136,3 | 468,7 | 150,9 | 436,4 | 167,4 | 402,5 | 185,6 | 403,9 | 188,4 |

# 5 PERFORMANCE

## 5.3 COOLING CAPACITIES OF LCX CQ WATER CHILLERS, QUITE (SUPER LOW NOISE) VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...CQ | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 042 | 12 | 7 | 48,5 | 13,4 | 45,8 | 14,5 | **43,0** | **15,8** | 40,0 | 17,3 | 36,8 | 18,9 |
| | 23 | 18 | 66,0 | 15,1 | 62,2 | 16,3 | 58,2 | 17,6 | 53,9 | 19,1 | 49,8 | 20,4 |
| 052 | 12 | 7 | 56,7 | 15,1 | 53,3 | 16,5 | **49,8** | **18,1** | 46,0 | 19,9 | 42,3 | 21,6 |
| | 23 | 18 | 76,8 | 17,1 | 72,3 | 18,5 | 67,4 | 20,1 | 62,4 | 21,8 | 57,6 | 23,4 |
| 062 | 12 | 7 | 62,4 | 17,0 | 59,1 | 18,5 | **55,5** | **20,3** | 51,7 | 22,3 | 47,6 | 24,5 |
| | 23 | 18 | 85,0 | 18,8 | 80,5 | 20,4 | 75,7 | 22,3 | 70,5 | 24,3 | 65,5 | 26,3 |
| 072 | 12 | 7 | 72,2 | 19,0 | 68,0 | 20,8 | **63,5** | **22,9** | 58,7 | 25,3 | 53,5 | 27,9 |
| | 23 | 18 | 97,8 | 21,3 | 92,0 | 23,2 | 85,9 | 25,3 | 79,5 | 27,6 | 73,4 | 29,6 |
| 082 | 12 | 7 | 85,4 | 21,9 | 80,3 | 24,1 | **74,9** | **26,5** | 69,0 | 29,3 | 63,2 | 32,0 |
| | 23 | 18 | 115,9 | 24,7 | 108,9 | 27,0 | 101,4 | 29,4 | 94,1 | 31,8 | 86,8 | 34,2 |
| 091 | 12 | 7 | 95,7 | 25,6 | 90,3 | 28,2 | **84,5** | **31,2** | 78,4 | 34,4 | 71,9 | 38,0 |
| | 23 | 18 | 130,2 | 28,3 | 123,1 | 31,0 | 115,1 | 34,0 | 106,9 | 37,3 | 98,8 | 40,4 |
| 092 | 12 | 7 | 95,7 | 25,6 | 90,3 | 28,2 | **84,5** | **31,2** | 78,4 | 34,4 | 71,9 | 38,0 |
| | 23 | 18 | 130,2 | 28,3 | 123,1 | 31,0 | 115,1 | 34,0 | 106,9 | 37,3 | 98,8 | 40,4 |
| 094 | 12 | 7 | 97,1 | 26,5 | 91,9 | 28,8 | **86,2** | **31,5** | 80,2 | 34,5 | 73,9 | 37,7 |
| | 23 | 18 | 131,5 | 30,0 | 124,2 | 32,4 | 115,8 | 35,1 | 107,6 | 37,9 | 99,6 | 40,5 |
| 101 | 12 | 7 | 110,3 | 28,8 | 103,6 | 31,9 | **96,9** | **35,3** | 89,2 | 39,1 | 81,8 | 43,0 |
| | 23 | 18 | 148,5 | 32,4 | 139,4 | 35,6 | 130,3 | 39,0 | 120,9 | 42,5 | 111,8 | 45,8 |
| 102 | 12 | 7 | 110,3 | 28,8 | 103,6 | 31,9 | **96,9** | **35,3** | 89,2 | 39,1 | 81,8 | 43,0 |
| | 23 | 18 | 148,5 | 32,4 | 139,4 | 35,6 | 130,3 | 39,0 | 120,9 | 42,5 | 111,8 | 45,8 |
| 104 | 12 | 7 | 113,7 | 30,0 | 107,1 | 32,7 | **99,9** | **36,0** | 92,3 | 39,5 | 84,8 | 43,0 |
| | 23 | 18 | 153,4 | 33,9 | 144,0 | 36,8 | 134,5 | 40,0 | 124,7 | 43,3 | 115,4 | 46,3 |
| 121 | 12 | 7 | 119,5 | 33,7 | 113,1 | 36,7 | **106,5** | **40,2** | 99,2 | 44,0 | 91,8 | 48,0 |
| | 23 | 18 | 161,9 | 37,6 | 153,1 | 40,7 | 144,1 | 44,2 | 134,4 | 47,9 | 125,4 | 51,3 |
| 122 | 12 | 7 | 118,9 | 33,8 | 112,9 | 36,8 | **106,6** | **40,2** | 99,7 | 43,8 | 92,6 | 47,7 |
| | 23 | 18 | 160,5 | 37,9 | 152,2 | 41,0 | 143,9 | 44,3 | 134,8 | 48,0 | 126,2 | 51,4 |
| 124 | 12 | 7 | 123,7 | 34,8 | 116,8 | 37,8 | **109,4** | **41,2** | 101,8 | 44,9 | 93,6 | 48,9 |
| | 23 | 18 | 166,6 | 38,6 | 157,7 | 41,7 | 147,6 | 45,3 | 137,5 | 49,0 | 127,5 | 52,6 |
| 141 | 12 | 7 | 134,4 | 39,8 | 127,1 | 43,3 | **119,7** | **47,1** | 112,2 | 51,3 | 104,4 | 55,5 |
| | 23 | 18 | 180,6 | 45,1 | 171,1 | 48,5 | 161,7 | 52,2 | 151,8 | 56,1 | 142,0 | 59,9 |
| 142 | 12 | 7 | 134,3 | 39,9 | 127,1 | 43,3 | **119,7** | **47,1** | 112,1 | 51,3 | 104,2 | 55,5 |
| | 23 | 18 | 180,5 | 45,1 | 171,0 | 48,5 | 161,6 | 52,3 | 151,7 | 56,3 | 141,9 | 60,1 |
| 144 | 12 | 7 | 140,8 | 39,1 | 132,2 | 42,7 | **123,2** | **46,9** | 113,4 | 51,6 | 103,6 | 56,2 |
| | 23 | 18 | 189,0 | 43,9 | 177,6 | 47,5 | 165,2 | 51,6 | 153,0 | 55,6 | 141,0 | 59,5 |
| 161 | 12 | 7 | 172,4 | 49,5 | 161,1 | 53,9 | **149,7** | **58,8** | 137,2 | 64,2 | 125,2 | 69,1 |
| | 23 | 18 | 227,9 | 56,0 | 213,3 | 60,5 | 198,1 | 65,2 | 183,5 | 69,6 | 176,7 | 72,9 |

# 5 PERFORMANCE

## 5.3 COOLING CAPACITIES OF LCX CQ WATER CHILLERS, QUITE (SUPER LOW NOISE) VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...CQ | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 162 | 12 | 7 | 172,4 | 49,5 | 161,1 | 53,9 | **149,7** | **58,8** | 137,2 | 64,2 | 125,2 | 69,1 |
| | 23 | 18 | 227,9 | 56,0 | 213,3 | 60,5 | 198,1 | 65,2 | 183,5 | 69,6 | 176,7 | 72,9 |
| 164 | 12 | 7 | 158,1 | 46,9 | 148,5 | 51,3 | **137,7** | **56,3** | 126,7 | 61,8 | 116,0 | 66,8 |
| | 23 | 18 | 212,2 | 52,7 | 198,7 | 57,3 | 185,0 | 62,1 | 171,1 | 66,7 | 115,9 | 70,4 |
| 194 | 12 | 7 | 185,8 | 57,7 | 173,3 | 63,5 | **160,0** | **69,9** | 146,7 | 76,1 | 133,5 | 82,1 |
| | 23 | 18 | 245,0 | 66,2 | 228,4 | 71,9 | 212,0 | 77,3 | 142,7 | 82,4 | 192,2 | 82,0 |
| 214 | 12 | 7 | 205,8 | 65,5 | 192,1 | 72,1 | **177,5** | **79,7** | 162,8 | 87,2 | 148,1 | 94,5 |
| | 23 | 18 | 271,3 | 75,4 | 253,0 | 82,0 | 235,2 | 88,4 | 217,6 | 94,7 | 220,1 | 95,7 |
| 244 | 12 | 7 | 223,4 | 73,5 | 209,3 | 80,4 | **195,0** | **87,9** | 180,9 | 94,9 | 170,2 | 100,1 |
| | 23 | 18 | 292,3 | 85,2 | 274,5 | 92,0 | 257,2 | 98,3 | 254,6 | 101,3 | 183,8 | 100,3 |
| 274 | 12 | 7 | 269,0 | 76,1 | 254,6 | 83,0 | **239,9** | **90,6** | 224,4 | 99,0 | 208,8 | 107,6 |
| | 23 | 18 | 360,8 | 87,1 | 341,5 | 94,0 | 322,6 | 101,7 | 302,6 | 109,6 | 283,3 | 117,1 |
| 294 | 12 | 7 | 293,6 | 90,8 | 277,4 | 99,1 | **260,5** | **108,2** | 242,9 | 118,2 | 225,8 | 127,9 |
| | 23 | 18 | 392,9 | 104,2 | 371,4 | 112,7 | 349,3 | 122,2 | 327,7 | 131,2 | 272,8 | 138,1 |
| 324 | 12 | 7 | 325,3 | 102,3 | 305,0 | 111,8 | **282,2** | **122,5** | 259,5 | 133,8 | 236,7 | 144,7 |
| | 23 | 18 | 430,7 | 116,7 | 402,7 | 126,5 | 374,2 | 136,6 | 345,9 | 146,4 | 318,6 | 152,2 |

# 5 PERFORMANCE

## 5.4 COOLING CAPACITIES OF LCX HS REVERSIBLE HEAT PUMPS, STANDARD VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...HS | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 062 | 12 | 7 | 64,3 | 17,6 | 61,0 | 19,2 | **57,4** | **20,9** | 53,4 | 22,9 | 49,3 | 25,1 |
| | 23 | 18 | 87,5 | 19,5 | 83,0 | 21,2 | 78,0 | 23,0 | 72,9 | 25,1 | 67,7 | 27,1 |
| 072 | 12 | 7 | 74,5 | 19,6 | 70,2 | 21,5 | **65,6** | **23,6** | 60,6 | 26,0 | 55,5 | 28,6 |
| | 23 | 18 | 100,9 | 22,0 | 95,0 | 23,9 | 88,7 | 26,0 | 82,0 | 28,4 | 75,9 | 30,5 |
| 082 | 12 | 7 | 87,6 | 22,5 | 82,6 | 24,7 | **77,1** | **27,1** | 71,2 | 29,8 | 65,2 | 32,6 |
| | 23 | 18 | 119,4 | 25,2 | 112,2 | 27,4 | 104,6 | 30,0 | 97,1 | 32,4 | 89,4 | 34,9 |
| 091 | 12 | 7 | 98,5 | 26,6 | 93,3 | 29,2 | **87,4** | **32,1** | 81,1 | 35,5 | 74,4 | 39,1 |
| | 23 | 18 | 134,5 | 29,4 | 126,9 | 32,1 | 119,0 | 35,1 | 110,8 | 38,5 | 102,8 | 41,5 |
| 092 | 12 | 7 | 98,5 | 26,6 | 93,3 | 29,2 | **87,4** | **32,1** | 81,1 | 35,5 | 74,4 | 39,1 |
| | 23 | 18 | 134,5 | 29,4 | 126,9 | 32,1 | 119,0 | 35,1 | 110,8 | 38,5 | 102,8 | 41,5 |
| 101 | 12 | 7 | 113,8 | 29,9 | 107,1 | 33,0 | **100,1** | **36,4** | 92,7 | 40,2 | 85,1 | 44,2 |
| | 23 | 18 | 153,7 | 33,5 | 144,8 | 36,6 | 135,6 | 40,1 | 125,8 | 43,7 | 116,5 | 47,0 |
| 102 | 12 | 7 | 113,8 | 29,9 | 107,1 | 33,0 | **100,1** | **36,4** | 92,7 | 40,2 | 85,1 | 44,2 |
| | 23 | 18 | 153,7 | 33,5 | 144,8 | 36,6 | 135,6 | 40,1 | 125,8 | 43,7 | 116,5 | 47,0 |
| 121 | 12 | 7 | 124,4 | 33,7 | 117,9 | 36,9 | **111,2** | **40,4** | 103,9 | 44,4 | 96,4 | 48,8 |
| | 23 | 18 | 168,8 | 37,8 | 160,2 | 40,9 | 151,4 | 44,4 | 141,5 | 48,5 | 132,2 | 52,3 |
| 122 | 12 | 7 | 123,7 | 33,9 | 117,5 | 37,0 | **111,2** | **40,4** | 104,3 | 44,2 | 97,3 | 48,5 |
| | 23 | 18 | 167,5 | 37,9 | 159,1 | 41,1 | 150,9 | 44,6 | 141,6 | 48,6 | 133,0 | 52,3 |
| 124 | 12 | 7 | 131,6 | 35,2 | 124,5 | 38,4 | **117,3** | **42,0** | 109,2 | 45,9 | 100,8 | 50,4 |
| | 23 | 18 | 178,2 | 39,0 | 168,9 | 42,4 | 158,8 | 46,1 | 148,2 | 50,3 | 137,8 | 54,2 |
| 141 | 12 | 7 | 158,2 | 42,7 | 150,2 | 46,5 | **141,9** | **50,8** | 133,5 | 55,6 | 124,4 | 60,8 |
| | 23 | 18 | 213,8 | 48,3 | 203,7 | 52,1 | 192,5 | 56,5 | 181,2 | 61,3 | 170,1 | 65,8 |
| 142 | 12 | 7 | 158,1 | 42,8 | 150,1 | 46,6 | **141,8** | **50,9** | 133,4 | 55,6 | 124,4 | 60,7 |
| | 23 | 18 | 213,7 | 48,4 | 203,6 | 52,2 | 192,4 | 56,5 | 181,0 | 61,5 | 169,9 | 66,1 |
| 144 | 12 | 7 | 159,6 | 42,0 | 150,6 | 46,0 | **141,0** | **50,7** | 130,3 | 56,0 | 119,4 | 61,8 |
| | 23 | 18 | 216,1 | 46,9 | 203,9 | 51,0 | 190,7 | 55,7 | 176,9 | 60,9 | 163,6 | 65,6 |
| 161 | 12 | 7 | 178,9 | 49,3 | 168,7 | 53,9 | **157,3** | **58,8** | 145,0 | 64,6 | 132,9 | 70,3 |
| | 23 | 18 | 239,8 | 55,4 | 225,7 | 60,1 | 210,6 | 65,2 | 194,8 | 70,6 | 179,8 | 75,6 |
| 162 | 12 | 7 | 178,9 | 49,3 | 168,7 | 53,9 | **157,3** | **58,8** | 145,0 | 64,6 | 132,9 | 70,3 |
| | 23 | 18 | 239,8 | 55,4 | 225,7 | 60,1 | 210,6 | 65,2 | 194,8 | 70,6 | 179,8 | 75,6 |
| 164 | 12 | 7 | 169,7 | 46,7 | 159,9 | 51,2 | **149,7** | **56,3** | 138,1 | 62,2 | 126,6 | 68,0 |
| | 23 | 18 | 230,2 | 52,0 | 216,8 | 56,8 | 202,4 | 62,1 | 187,8 | 67,5 | 173,6 | 72,6 |

# 5 PERFORMANCE

## 5.4 COOLING CAPACITIES OF LCX HS REVERSIBLE HEAT PUMPS, STANDARD VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...HS | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 174 | 12 | 7 | 177,6 | 48,9 | 168,8 | 53,3 | **159,1** | **58,1** | 148,8 | 63,6 | 137,6 | 69,8 |
| | 23 | 18 | 246,5 | 52,7 | 233,9 | 57,2 | 220,6 | 62,2 | 206,6 | 67,7 | 191,9 | 73,7 |
| 194 | 12 | 7 | 202,3 | 54,8 | 191,4 | 59,9 | **179,9** | **65,6** | 167,5 | 72,2 | 154,5 | 79,5 |
| | 23 | 18 | 277,4 | 60,1 | 262,4 | 65,2 | 247,1 | 71,0 | 230,3 | 77,6 | 213,7 | 84,1 |
| 214 | 12 | 7 | 223,9 | 63,1 | 212,0 | 69,3 | **198,2** | **76,3** | 184,3 | 84,0 | 168,9 | 92,5 |
| | 23 | 18 | 304,6 | 70,1 | 287,4 | 76,2 | 269,8 | 83,1 | 250,9 | 90,8 | 232,2 | 98,1 |
| 244 | 12 | 7 | 268,2 | 80,0 | 254,8 | 87,6 | **241,0** | **95,7** | 225,8 | 104,8 | 210,5 | 114,6 |
| | 23 | 18 | 362,8 | 89,8 | 345,6 | 97,2 | 327,2 | 105,5 | 307,2 | 114,6 | 287,8 | 123,4 |
| 274 | 12 | 7 | 288,5 | 76,8 | 274,0 | 83,3 | **259,2** | **90,4** | 243,9 | 98,2 | 227,1 | 107,1 |
| | 23 | 18 | 391,0 | 86,3 | 372,2 | 92,4 | 353,1 | 99,6 | 332,5 | 107,5 | 312,4 | 115,5 |
| 294 | 12 | 7 | 320,8 | 88,2 | 305,6 | 95,6 | **288,8** | **104,3** | 271,5 | 113,5 | 252,6 | 124,0 |
| | 23 | 18 | 437,2 | 98,9 | 416,3 | 106,4 | 393,7 | 115,2 | 370,9 | 124,7 | 347,8 | 134,3 |
| 324 | 12 | 7 | 365,3 | 99,9 | 344,8 | 108,8 | **322,7** | **118,7** | 299,9 | 129,6 | 274,8 | 142,0 |
| | 23 | 18 | 494,0 | 110,8 | 466,8 | 119,9 | 437,0 | 130,1 | 405,2 | 141,3 | 375,5 | 151,6 |
| 364 | 12 | 7 | 396,3 | 111,7 | 373,4 | 123,9 | **348,5** | **138,0** | 323,0 | 154,0 | 294,0 | 172,2 |
| | 23 | 18 | 519,2 | 124,6 | 489,3 | 137,3 | 456,9 | 152,0 | 423,1 | 168,8 | 403,8 | 182,6 |

# 5 PERFORMANCE

## 5.5 COOLING CAPACITIES OF LCX HL REVERSIBLE HEAT PUMPS, LOW NOISE VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...HL | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 042 | 12 | 7 | 49,9 | 13,3 | 47,4 | 14,4 | **44,6** | **15,7** | 41,6 | 17,1 | 38,3 | 18,8 |
| | 23 | 18 | 68,3 | 15,1 | 64,4 | 16,2 | 60,3 | 17,5 | 56,1 | 18,9 | 51,8 | 20,4 |
| 052 | 12 | 7 | 58,5 | 15,0 | 55,2 | 16,4 | **51,6** | **18,0** | 47,8 | 19,7 | 43,9 | 21,5 |
| | 23 | 18 | 79,4 | 17,0 | 74,8 | 18,4 | 70,0 | 20,0 | 64,9 | 21,7 | 60,0 | 23,3 |
| 062 | 12 | 7 | 64,2 | 17,0 | 60,9 | 18,5 | **57,3** | **20,3** | 53,5 | 22,2 | 49,3 | 24,4 |
| | 23 | 18 | 87,6 | 18,8 | 83,1 | 20,5 | 78,3 | 22,3 | 73,0 | 24,3 | 67,8 | 26,4 |
| 072 | 12 | 7 | 74,4 | 19,0 | 70,2 | 20,8 | **65,6** | **22,9** | 60,8 | 25,2 | 55,6 | 27,9 |
| | 23 | 18 | 100,9 | 21,3 | 95,1 | 23,2 | 89,0 | 25,2 | 82,4 | 27,6 | 76,3 | 29,8 |
| 082 | 12 | 7 | 87,9 | 22,0 | 82,9 | 24,1 | **77,4** | **26,5** | 71,5 | 29,3 | 65,6 | 32,1 |
| | 23 | 18 | 119,7 | 24,6 | 112,7 | 26,9 | 105,2 | 29,3 | 97,7 | 31,9 | 90,2 | 34,4 |
| 091 | 12 | 7 | 98,6 | 24,8 | 93,2 | 27,3 | **87,3** | **30,1** | 81,1 | 33,3 | 74,6 | 36,9 |
| | 23 | 18 | 134,4 | 27,6 | 127,0 | 30,1 | 119,3 | 33,0 | 110,8 | 36,2 | 102,7 | 39,2 |
| 092 | 12 | 7 | 98,6 | 25,5 | 93,2 | 28,1 | **87,3** | **31,0** | 81,1 | 34,3 | 74,6 | 37,9 |
| | 23 | 18 | 134,4 | 28,3 | 127,0 | 30,9 | 119,3 | 33,9 | 110,8 | 37,3 | 102,7 | 40,4 |
| 101 | 12 | 7 | 99,7 | 26,4 | 94,6 | 28,7 | **89,0** | **31,4** | 83,2 | 34,3 | 76,6 | 37,6 |
| | 23 | 18 | 135,7 | 30,0 | 128,1 | 32,4 | 120,1 | 35,0 | 111,5 | 37,9 | 103,4 | 40,6 |
| 102 | 12 | 7 | 113,5 | 28,8 | 107,2 | 31,8 | **100,2** | **35,1** | 92,8 | 39,0 | 85,1 | 42,9 |
| | 23 | 18 | 153,5 | 32,4 | 144,5 | 35,4 | 135,3 | 38,8 | 125,6 | 42,5 | 116,3 | 45,9 |
| 121 | 12 | 7 | 113,5 | 28,8 | 107,2 | 31,8 | **100,2** | **35,1** | 92,8 | 39,0 | 85,1 | 42,9 |
| | 23 | 18 | 153,5 | 32,4 | 144,5 | 35,4 | 135,3 | 38,8 | 125,6 | 42,5 | 116,3 | 45,9 |
| 122 | 12 | 7 | 116,8 | 30,0 | 110,2 | 32,9 | **103,0** | **36,0** | 95,7 | 39,4 | 87,8 | 43,2 |
| | 23 | 18 | 158,0 | 34,0 | 149,0 | 36,9 | 139,0 | 40,1 | 129,2 | 43,4 | 119,7 | 46,5 |
| 124 | 12 | 7 | 124,7 | 34,3 | 118,4 | 37,4 | **111,6** | **40,8** | 104,5 | 44,6 | 96,9 | 48,9 |
| | 23 | 18 | 169,4 | 38,1 | 161,1 | 41,1 | 151,8 | 44,6 | 142,5 | 48,4 | 133,2 | 52,2 |
| 141 | 12 | 7 | 124,2 | 34,2 | 118,0 | 37,2 | **111,5** | **40,6** | 104,9 | 44,2 | 97,6 | 48,3 |
| | 23 | 18 | 168,5 | 38,1 | 160,1 | 41,1 | 151,3 | 44,5 | 142,6 | 48,2 | 133,9 | 51,9 |
| 142 | 12 | 7 | 129,0 | 34,8 | 122,3 | 37,8 | **115,0** | **41,1** | 107,4 | 44,8 | 99,0 | 49,0 |
| | 23 | 18 | 175,3 | 38,3 | 165,8 | 41,5 | 156,2 | 45,0 | 146,1 | 48,8 | 135,8 | 52,6 |
| 144 | 12 | 7 | 140,5 | 39,5 | 133,5 | 42,9 | **126,0** | **46,7** | 118,5 | 50,9 | 110,5 | 55,3 |
| | 23 | 18 | 190,0 | 44,4 | 180,6 | 47,9 | 171,0 | 51,6 | 160,8 | 55,8 | 151,0 | 59,7 |
| 161 | 12 | 7 | 140,6 | 39,5 | 133,5 | 42,8 | **126,1** | **46,6** | 118,7 | 50,6 | 110,4 | 55,2 |
| | 23 | 18 | 190,0 | 44,4 | 180,7 | 47,9 | 171,0 | 51,5 | 160,8 | 55,9 | 151,0 | 59,8 |
| 162 | 12 | 7 | 149,7 | 38,9 | 141,0 | 42,6 | **132,2** | **46,6** | 122,4 | 51,2 | 112,0 | 56,3 |
| | 23 | 18 | 202,6 | 43,3 | 190,9 | 47,0 | 178,6 | 51,1 | 165,6 | 55,6 | 153,3 | 59,6 |

# 5 PERFORMANCE

## 5.5 COOLING CAPACITIES OF LCX HL REVERSIBLE HEAT PUMPS, LOW NOISE VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...HL | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 164 | 12 | 7 | 180,5 | 49,8 | 170,0 | 54,3 | **158,3** | **59,2** | 146,3 | 64,7 | 134,0 | 70,2 |
| | 23 | 18 | 241,9 | 55,8 | 227,4 | 60,4 | 212,5 | 65,3 | 196,9 | 70,4 | 181,3 | 75,4 |
| 174 | 12 | 7 | 180,5 | 49,8 | 170,0 | 54,3 | **158,3** | **59,2** | 146,3 | 64,7 | 134,0 | 70,2 |
| | 23 | 18 | 241,9 | 55,8 | 227,4 | 60,4 | 212,5 | 65,3 | 196,9 | 70,4 | 181,3 | 75,4 |
| 194 | 12 | 7 | 170,4 | 46,7 | 160,5 | 51,1 | **150,0** | **56,1** | 138,5 | 61,7 | 127,3 | 67,2 |
| | 23 | 18 | 231,3 | 51,9 | 217,8 | 56,5 | 203,4 | 61,6 | 188,6 | 66,8 | 174,3 | 71,7 |
| 214 | 12 | 7 | 198,9 | 52,6 | 187,9 | 57,7 | **175,9** | **63,6** | 163,0 | 70,2 | 149,9 | 77,1 |
| | 23 | 18 | 270,6 | 58,4 | 255,8 | 63,6 | 239,3 | 69,4 | 222,5 | 75,8 | 205,7 | 82,0 |
| 244 | 12 | 7 | 219,3 | 61,5 | 207,1 | 67,8 | **194,3** | **74,9** | 180,4 | 82,9 | 165,5 | 91,6 |
| | 23 | 18 | 298,0 | 68,3 | 282,0 | 74,6 | 264,6 | 81,8 | 245,9 | 89,9 | 227,8 | 97,4 |
| 274 | 12 | 7 | 241,7 | 70,1 | 229,0 | 76,8 | **216,2** | **84,2** | 202,1 | 92,2 | 188,2 | 100,5 |
| | 23 | 18 | 325,6 | 79,4 | 308,3 | 86,2 | 291,0 | 93,7 | 273,4 | 101,4 | 255,7 | 108,9 |
| 294 | 12 | 7 | 281,5 | 76,2 | 267,5 | 82,7 | **252,3** | **90,2** | 236,8 | 98,4 | 220,8 | 106,9 |
| | 23 | 18 | 380,3 | 86,2 | 361,6 | 92,6 | 342,1 | 100,1 | 321,6 | 108,2 | 302,4 | 115,6 |
| 324 | 12 | 7 | 306,0 | 90,8 | 290,4 | 98,8 | **274,1** | **107,9** | 256,8 | 118,0 | 239,0 | 128,5 |
| | 23 | 18 | 414,3 | 102,8 | 393,2 | 111,0 | 372,0 | 120,3 | 348,8 | 130,4 | 326,7 | 139,8 |

# 5 PERFORMANCE

## 5.6 COOLING CAPACITIES OF LCX HQ REVERSIBLE HEAT PUMPS, QUITE (SUPER LOW NOISE) VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...HQ | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 042 | 12 | 7 | 48,1 | 13,1 | 45,6 | 14,3 | **42,8** | **15,6** | 39,8 | 17,0 | 36,7 | 18,6 |
| | 23 | 18 | 65,4 | 15,0 | 61,7 | 16,2 | 57,7 | 17,4 | 53,5 | 20,2 | 49,4 | 20,2 |
| 052 | 12 | 7 | 56,3 | 15,0 | 52,9 | 16,4 | **49,5** | **17,9** | 45,7 | 19,6 | 42,0 | 21,4 |
| | 23 | 18 | 76,0 | 17,0 | 71,5 | 18,4 | 66,7 | 20,0 | 61,9 | 23,2 | 57,1 | 23,2 |
| 062 | 12 | 7 | 61,9 | 16,9 | 58,6 | 18,4 | **55,1** | **20,2** | 51,3 | 22,1 | 47,3 | 24,3 |
| | 23 | 18 | 84,1 | 18,8 | 79,6 | 20,4 | 75,0 | 22,2 | 69,8 | 26,2 | 64,9 | 26,2 |
| 072 | 12 | 7 | 71,5 | 19,0 | 67,4 | 20,8 | **62,9** | **22,9** | 58,2 | 25,2 | 53,1 | 27,8 |
| | 23 | 18 | 96,8 | 21,4 | 91,0 | 23,2 | 85,0 | 25,3 | 78,7 | 29,6 | 72,7 | 29,6 |
| 082 | 12 | 7 | 84,5 | 21,9 | 79,5 | 24,1 | **74,2** | **26,5** | 68,4 | 29,2 | 62,7 | 31,9 |
| | 23 | 18 | 114,8 | 24,7 | 107,8 | 26,9 | 100,4 | 29,4 | 93,1 | 34,2 | 85,9 | 34,2 |
| 091 | 12 | 7 | 94,8 | 24,8 | 89,4 | 27,3 | **83,7** | **30,2** | 77,6 | 33,4 | 71,2 | 36,8 |
| | 23 | 18 | 121,9 | 30,0 | 114,0 | 32,9 | 105,9 | 36,1 | 97,9 | 39,1 | 97,9 | 39,1 |
| 092 | 12 | 7 | 94,8 | 25,5 | 89,4 | 28,1 | **83,7** | **31,1** | 77,6 | 34,3 | 71,2 | 37,9 |
| | 23 | 18 | 121,9 | 30,9 | 114,0 | 33,8 | 105,9 | 37,1 | 97,9 | 40,3 | 0,0 | 0,0 |
| 094 | 12 | 7 | 96,1 | 26,4 | 91,0 | 28,8 | **85,4** | **31,4** | 79,4 | 34,4 | 73,1 | 37,7 |
| | 23 | 18 | 130,2 | 29,9 | 123,1 | 32,2 | 114,8 | 34,9 | 106,6 | 40,4 | 98,6 | 40,4 |
| 102 | 12 | 7 | 109,2 | 28,8 | 102,6 | 31,8 | **96,0** | **35,2** | 88,3 | 39,1 | 80,9 | 42,9 |
| | 23 | 18 | 147,0 | 32,4 | 138,1 | 35,5 | 129,0 | 38,9 | 119,7 | 45,7 | 110,6 | 45,7 |
| 104 | 12 | 7 | 112,6 | 30,0 | 106,0 | 32,7 | **98,9** | **36,0** | 91,3 | 39,5 | 83,9 | 43,0 |
| | 23 | 18 | 151,8 | 33,9 | 142,6 | 36,8 | 133,2 | 40,0 | 123,5 | 46,3 | 114,2 | 46,3 |
| 121 | 12 | 7 | 118,4 | 33,6 | 112,0 | 36,7 | **105,5** | **40,1** | 98,3 | 43,9 | 90,9 | 48,0 |
| | 23 | 18 | 160,5 | 37,5 | 151,7 | 40,6 | 142,9 | 44,0 | 133,2 | 51,2 | 124,3 | 51,2 |
| 122 | 12 | 7 | 117,9 | 33,8 | 111,9 | 36,8 | **105,6** | **40,1** | 98,8 | 43,8 | 91,8 | 47,6 |
| | 23 | 18 | 159,1 | 37,8 | 150,9 | 40,8 | 142,6 | 44,2 | 133,6 | 51,3 | 125,1 | 51,3 |
| 124 | 12 | 7 | 122,5 | 34,7 | 115,7 | 37,7 | **108,4** | **41,1** | 100,8 | 44,9 | 92,7 | 48,9 |
| | 23 | 18 | 165,1 | 38,5 | 156,2 | 41,6 | 146,2 | 45,2 | 136,2 | 52,5 | 126,3 | 52,5 |
| 141 | 12 | 7 | 133,0 | 39,7 | 125,8 | 43,2 | **118,4** | **47,0** | 111,0 | 51,2 | 103,3 | 55,4 |
| | 23 | 18 | 178,8 | 44,9 | 169,4 | 48,3 | 160,1 | 52,1 | 150,2 | 59,8 | 140,5 | 59,8 |
| 142 | 12 | 7 | 133,0 | 39,8 | 125,8 | 43,2 | **118,5** | **47,0** | 111,0 | 51,2 | 103,2 | 55,4 |
| | 23 | 18 | 178,8 | 44,9 | 169,4 | 48,4 | 160,1 | 52,2 | 150,2 | 60,0 | 140,5 | 60,0 |
| 144 | 12 | 7 | 140,7 | 39,0 | 132,1 | 42,6 | **123,1** | **46,8** | 113,3 | 51,5 | 103,5 | 56,2 |
| | 23 | 18 | 188,9 | 43,7 | 177,5 | 47,3 | 165,1 | 51,5 | 152,9 | 59,4 | 140,9 | 59,4 |
| 161 | 12 | 7 | 170,6 | 49,5 | 159,5 | 53,9 | **148,2** | **58,8** | 135,8 | 64,2 | 123,9 | 69,1 |
| | 23 | 18 | 225,6 | 55,9 | 211,2 | 60,4 | 196,1 | 65,1 | 181,6 | 72,8 | 174,9 | 72,8 |

# 5 PERFORMANCE

## 5.6 COOLING CAPACITIES OF LCX HQ REVERSIBLE HEAT PUMPS, QUITE (SUPER LOW NOISE) VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PF** Cooling capacity
**PA** Total power input including pump

| LCX...HQ | $Tbs_1$ (°C) | | 25 | | 30 | | 35 | | 40 | | 45 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PF | PA | PF | PA | PF | PA | PF | PA | PF | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 162 | 12 | 7 | 170,6 | 49,5 | 159,5 | 53,9 | **148,2** | **58,8** | 135,8 | 64,2 | 123,9 | 69,1 |
| | 23 | 18 | 225,6 | 55,9 | 211,2 | 60,4 | 196,1 | 65,1 | 181,6 | 72,8 | 174,9 | 72,8 |
| 164 | 12 | 7 | 157,4 | 46,8 | 147,8 | 51,2 | **137,0** | **56,3** | 126,1 | 61,7 | 115,4 | 66,8 |
| | 23 | 18 | 211,4 | 52,4 | 197,9 | 57,1 | 184,2 | 61,9 | 170,4 | 70,3 | 115,3 | 70,3 |
| 194 | 12 | 7 | 185,3 | 58,1 | 172,9 | 64,0 | **159,6** | **70,5** | 146,3 | 76,7 | 133,1 | 82,8 |
| | 23 | 18 | 244,5 | 66,5 | 228,0 | 72,3 | 211,5 | 77,8 | 142,4 | 82,6 | 191,8 | 82,6 |
| 214 | 12 | 7 | 204,6 | 65,3 | 191,0 | 72,0 | **176,4** | **79,6** | 161,9 | 87,2 | 147,2 | 94,4 |
| | 23 | 18 | 269,9 | 75,0 | 251,6 | 81,7 | 233,9 | 88,1 | 216,4 | 95,5 | 218,9 | 95,5 |
| 244 | 12 | 7 | 221,7 | 73,3 | 207,7 | 80,3 | **193,4** | **87,8** | 179,5 | 94,8 | 168,9 | 100,0 |
| | 23 | 18 | 290,1 | 84,9 | 272,4 | 91,7 | 255,2 | 98,1 | 252,7 | 100,2 | 182,3 | 100,2 |
| 274 | 12 | 7 | 266,7 | 76,1 | 252,5 | 83,0 | **237,8** | **90,5** | 222,5 | 99,0 | 207,0 | 107,6 |
| | 23 | 18 | 357,8 | 86,9 | 338,7 | 93,8 | 319,9 | 101,6 | 300,1 | 117,0 | 280,9 | 117,0 |
| 294 | 12 | 7 | 291,3 | 90,6 | 275,1 | 98,9 | **258,4** | **108,1** | 240,9 | 118,1 | 223,9 | 127,9 |
| | 23 | 18 | 389,9 | 103,9 | 368,5 | 112,4 | 346,6 | 122,0 | 325,1 | 137,9 | 270,6 | 137,9 |
| 324 | 12 | 7 | 322,1 | 102,1 | 302,0 | 111,7 | **279,4** | **122,4** | 256,9 | 133,7 | 234,3 | 144,6 |
| | 23 | 18 | 426,6 | 116,2 | 398,9 | 126,1 | 370,6 | 136,3 | 342,5 | 152,0 | 315,4 | 152,0 |

# 5 PERFORMANCE

## 5.7 HEATING CAPACITIES OF LCX HS REVERSIBLE HEAT PUMPS, STANDARD VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PT** Heating capacity
**PA** Total power input including pump
**RH** Relative humidity

| LCX...HS | $Tbs_1$ / RH | | -7 °C / 90 % | | -5 °C / 90 % | | 0 °C / 90 % | | 7 °C / 88 % | | 10 °C / 80 % | | 15 °C / 80 % | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 062 | 30 | 35 | 50,0 | 15,5 | 53,0 | 15,6 | 59,0 | 15,8 | 70,8 | 16,1 | 74,9 | 16,3 | 86,2 | 16,5 |
| | 40 | 45 | 49,3 | 18,6 | 52,1 | 18,7 | **57,6** | **19,1** | 68,5 | 19,4 | 72,9 | 19,6 | 82,6 | 19,8 |
| 072 | 30 | 35 | 57,3 | 17,2 | 58,5 | 17,2 | 67,8 | 17,4 | 81,5 | 17,8 | 85,6 | 17,8 | 96,9 | 18,0 |
| | 40 | 45 | 56,7 | 21,1 | 60,0 | 21,3 | **66,4** | **21,4** | 78,8 | 21,7 | 82,5 | 21,7 | 94,4 | 21,9 |
| 082 | 30 | 35 | 65,3 | 20,9 | 69,3 | 20,8 | 80,1 | 21,0 | 95,6 | 21,2 | 101,5 | 21,2 | 115,3 | 21,4 |
| | 40 | 45 | 67,4 | 25,5 | 68,0 | 25,5 | **78,4** | **25,6** | 93,5 | 25,7 | 98,0 | 25,7 | 110,5 | 25,9 |
| 091 | 30 | 35 | 76,4 | 24,1 | 80,6 | 24,1 | 89,8 | 24,3 | 108,3 | 24,6 | 115,8 | 24,9 | 131,4 | 25,2 |
| | 40 | 45 | 75,2 | 29,4 | 79,3 | 29,5 | **88,0** | **29,7** | 104,9 | 30,0 | 111,8 | 30,3 | 125,9 | 30,5 |
| 092 | 30 | 35 | 76,5 | 24,1 | 81,2 | 24,1 | 90,4 | 24,3 | 109,0 | 24,6 | 116,6 | 24,9 | 132,3 | 25,2 |
| | 40 | 45 | 75,4 | 29,3 | 79,8 | 29,5 | **88,6** | **29,7** | 105,7 | 30,0 | 112,6 | 30,3 | 126,7 | 30,5 |
| 101 | 30 | 35 | 87,0 | 27,0 | 91,8 | 27,1 | 101,9 | 27,4 | 122,8 | 27,9 | 131,4 | 28,0 | 148,8 | 28,5 |
| | 40 | 45 | 86,0 | 32,9 | 90,7 | 33,1 | **101,0** | **33,6** | 120,3 | 34,2 | 127,0 | 34,4 | 142,8 | 34,7 |
| 102 | 30 | 35 | 87,0 | 27,0 | 91,4 | 27,1 | 101,9 | 27,4 | 122,8 | 27,9 | 131,4 | 28,0 | 148,8 | 28,5 |
| | 40 | 45 | 86,0 | 32,9 | 91,1 | 33,2 | **101,0** | **33,6** | 120,3 | 34,2 | 127,0 | 34,4 | 144,2 | 34,7 |
| 121 | 30 | 35 | 96,9 | 30,2 | 102,7 | 30,4 | 114,4 | 30,8 | 137,4 | 31,6 | 147,1 | 31,8 | 166,3 | 32,6 |
| | 40 | 45 | 95,9 | 36,5 | 101,5 | 36,7 | **112,3** | **37,3** | 133,5 | 38,1 | 142,2 | 38,4 | 160,6 | 39,0 |
| 122 | 30 | 35 | 96,8 | 30,2 | 102,6 | 30,5 | 114,2 | 30,9 | 137,1 | 31,7 | 146,6 | 32,0 | 165,5 | 32,8 |
| | 40 | 45 | 96,1 | 36,5 | 101,6 | 36,6 | **112,4** | **37,2** | 133,5 | 38,1 | 142,2 | 38,4 | 159,7 | 39,1 |
| 124 | 30 | 35 | 107,0 | 32,9 | 112,9 | 33,2 | 126,2 | 33,7 | 151,6 | 34,7 | 161,1 | 35,2 | 183,0 | 35,8 |
| | 40 | 45 | 105,0 | 39,4 | 111,6 | 39,8 | **123,5** | **40,6** | 146,8 | 41,7 | 156,3 | 42,0 | 175,6 | 42,7 |
| 141 | 30 | 35 | 116,7 | 37,3 | 123,6 | 37,8 | 142,9 | 38,6 | 171,2 | 39,9 | 181,4 | 40,2 | 204,7 | 41,2 |
| | 40 | 45 | 115,9 | 44,8 | 122,4 | 45,3 | **140,3** | **46,3** | 166,4 | 47,6 | 174,8 | 48,1 | 197,1 | 49,0 |
| 142 | 30 | 35 | 116,7 | 37,3 | 123,6 | 37,8 | 142,9 | 38,6 | 171,3 | 39,9 | 181,4 | 40,2 | 204,8 | 41,3 |
| | 40 | 45 | 115,9 | 45,0 | 122,4 | 45,4 | **140,3** | **46,4** | 166,5 | 47,7 | 174,0 | 48,1 | 197,2 | 49,0 |
| 144 | 30 | 35 | 117,7 | 37,2 | 124,9 | 37,5 | 143,9 | 38,1 | 174,0 | 39,0 | 179,0 | 39,2 | 206,7 | 39,9 |
| | 40 | 45 | 116,2 | 45,4 | 122,8 | 45,7 | **140,9** | **46,7** | 167,4 | 47,3 | 175,9 | 47,6 | 199,1 | 48,3 |
| 161 | 30 | 35 | 130,5 | 42,3 | 138,3 | 42,5 | 160,0 | 43,2 | 192,2 | 44,1 | 197,9 | 44,2 | 227,7 | 45,3 |
| | 40 | 45 | 128,9 | 50,9 | 136,2 | 51,1 | **156,0** | **52,1** | 185,2 | 53,1 | 190,3 | 53,2 | 219,7 | 54,0 |
| 162 | 30 | 35 | 130,5 | 42,3 | 138,3 | 42,5 | 160,0 | 43,2 | 192,2 | 44,1 | 197,9 | 44,2 | 227,7 | 45,3 |
| | 40 | 45 | 128,9 | 50,9 | 136,2 | 51,1 | **156,0** | **52,1** | 185,2 | 53,1 | 190,3 | 53,2 | 219,7 | 54,0 |
| 164 | 30 | 35 | 126,1 | 41,0 | 132,8 | 41,2 | 153,0 | 41,3 | 184,3 | 41,8 | 191,8 | 41,8 | 221,8 | 42,4 |
| | 40 | 45 | 123,8 | 50,1 | 131,1 | 50,2 | **150,3** | **50,3** | 178,5 | 50,7 | 188,7 | 50,8 | 212,6 | 51,1 |

# 5 PERFORMANCE

## 5.7 HEATING CAPACITIES OF LCX HS REVERSIBLE HEAT PUMPS, STANDARD VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PT** Heating capacity
**PA** Total power input including pump
**RH** Relative humidity

| LCX...HS | $Tbs_1$ / RH | | -7 °C / 90 % | | -5 °C / 90 % | | 0 °C / 90 % | | 7 °C / 88 % | | 10 °C / 80 % | | 15 °C / 80 % | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 174 | 30 | 35 | 137,0 | 46,7 | 145,2 | 46,7 | 162,5 | 46,9 | 195,7 | 47,5 | 208,5 | 47,7 | 242,6 | 48,5 |
| | 40 | 45 | 134,5 | 56,3 | 141,8 | 56,1 | **162,4** | **56,5** | 188,2 | 56,9 | 202,8 | 56,8 | 229,7 | 57,2 |
| 194 | 30 | 35 | 154,6 | 52,2 | 163,3 | 52,2 | 182,9 | 52,5 | 220,0 | 53,3 | 234,4 | 53,6 | 266,9 | 54,5 |
| | 40 | 45 | 152,5 | 62,9 | 160,6 | 63,2 | **179,0** | **63,6** | 213,1 | 64,6 | 226,3 | 64,5 | 257,1 | 65,0 |
| 214 | 30 | 35 | 168,8 | 56,7 | 178,4 | 56,8 | 199,9 | 57,3 | 239,3 | 58,3 | 254,9 | 58,7 | 288,7 | 59,7 |
| | 40 | 45 | 167,0 | 68,5 | 175,9 | 69,0 | **196,1** | **69,7** | 233,2 | 71,0 | 246,5 | 71,1 | 279,8 | 71,8 |
| 244 | 30 | 35 | 203,8 | 68,2 | 209,9 | 68,3 | 240,6 | 69,5 | 288,3 | 71,4 | 305,1 | 72,0 | 344,5 | 73,7 |
| | 40 | 45 | 201,4 | 81,8 | 212,9 | 82,4 | **236,5** | **83,4** | 280,5 | 85,6 | 294,9 | 85,9 | 339,5 | 87,9 |
| 274 | 30 | 35 | 223,1 | 70,8 | 236,5 | 71,4 | 264,3 | 72,6 | 318,2 | 74,9 | 337,2 | 75,5 | 384,9 | 77,5 |
| | 40 | 45 | 220,0 | 84,5 | 231,5 | 84,9 | **258,1** | **86,4** | 306,3 | 88,6 | 326,2 | 89,4 | 369,9 | 91,3 |
| 294 | 30 | 35 | 248,0 | 79,9 | 254,2 | 80,0 | 292,6 | 81,4 | 352,8 | 84,0 | 372,1 | 84,5 | 421,0 | 86,4 |
| | 40 | 45 | 245,0 | 95,3 | 257,7 | 95,6 | **287,3** | **97,1** | 341,2 | 99,5 | 360,2 | 100,3 | 405,0 | 102,2 |
| 324 | 30 | 35 | 264,1 | 88,8 | 279,9 | 89,2 | 322,1 | 90,2 | 386,5 | 92,5 | 407,8 | 92,8 | 463,7 | 94,5 |
| | 40 | 45 | 269,1 | 106,6 | 275,3 | 106,7 | **314,0** | **108,2** | 372,6 | 110,3 | 393,2 | 111,0 | 441,6 | 112,5 |
| 364 | 30 | 35 | 294,4 | 101,0 | 311,5 | 101,4 | 359,4 | 102,7 | 431,5 | 104,2 | 456,1 | 104,7 | 522,3 | 106,0 |
| | 40 | 45 | 292,1 | 125,1 | 309,2 | 125,7 | **351,4** | **126,3** | 416,6 | 128,0 | 438,8 | 128,5 | 501,0 | 129,8 |

# 5 PERFORMANCE

## 5.8 HEATING CAPACITIES OF LCX HL REVERSIBLE HEAT PUMPS, LOW NOISE VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PT** Heating capacity
**PA** Total power input including pump
**RH** Relative humidity

| LCX...HL | $Tbs_1$ / RH | | -7 °C / 90 % | | -5 °C / 90 % | | 0 °C / 90 % | | 7 °C / 88 % | | 10 °C / 80 % | | 15 °C / 80 % | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 042 | 30 | 35 | 35,6 | 11,5 | 38,0 | 11,5 | 44,4 | 11,9 | 53,9 | 12,3 | 56,7 | 12,5 | 65,2 | 12,8 |
| | 40 | 45 | 37,1 | 14,0 | 38,0 | 14,0 | **43,8** | **14,4** | 53,9 | 12,3 | 58,4 | 12,6 | 68,4 | 13,0 |
| 052 | 30 | 35 | 41,3 | 13,1 | 43,9 | 13,1 | 51,3 | 13,6 | 62,1 | 14,0 | 64,0 | 14,1 | 74,1 | 14,5 |
| | 40 | 45 | 40,8 | 15,8 | 43,3 | 16,0 | **49,8** | **16,4** | 62,1 | 14,0 | 66,6 | 14,2 | 78,5 | 14,7 |
| 062 | 30 | 35 | 48,2 | 15,1 | 51,1 | 15,1 | 56,9 | 15,4 | 68,9 | 15,9 | 72,3 | 16,0 | 84,6 | 16,4 |
| | 40 | 45 | 47,3 | 18,1 | 49,8 | 18,2 | **55,6** | **18,6** | 68,9 | 15,9 | 75,1 | 16,1 | 86,5 | 16,4 |
| 072 | 30 | 35 | 55,3 | 16,8 | 56,4 | 16,8 | 65,4 | 17,1 | 79,5 | 17,5 | 82,7 | 17,6 | 94,6 | 17,9 |
| | 40 | 45 | 54,7 | 20,6 | 57,3 | 20,8 | **64,0** | **21,0** | 79,5 | 17,5 | 85,1 | 17,7 | 98,3 | 18,1 |
| 082 | 30 | 35 | 63,9 | 20,2 | 65,1 | 20,2 | 75,4 | 20,2 | 90,9 | 20,4 | 95,5 | 20,5 | 108,5 | 20,7 |
| | 40 | 45 | 62,8 | 24,7 | 64,3 | 24,8 | **73,7** | **24,8** | 90,9 | 20,4 | 97,4 | 20,5 | 114,8 | 20,9 |
| 091 | 30 | 35 | 74,3 | 22,8 | 76,2 | 22,8 | 88,3 | 23,1 | 106,4 | 23,4 | 111,7 | 23,5 | 128,0 | 23,8 |
| | 40 | 45 | 72,9 | 27,9 | 74,9 | 28,0 | **85,9** | **28,3** | 106,4 | 23,4 | 113,9 | 23,5 | 134,0 | 24,1 |
| 092 | 30 | 35 | 74,3 | 22,8 | 76,2 | 22,8 | 88,3 | 23,1 | 106,4 | 23,4 | 111,7 | 23,5 | 126,7 | 23,8 |
| | 40 | 45 | 73,6 | 27,9 | 74,9 | 28,0 | **86,3** | **28,3** | 106,4 | 23,4 | 115,1 | 23,5 | 134,0 | 24,1 |
| 094 | 30 | 35 | 74,0 | 23,1 | 76,0 | 23,1 | 88,3 | 23,8 | 107,7 | 24,7 | 113,3 | 24,9 | 128,9 | 25,6 |
| | 40 | 45 | 71,9 | 27,7 | 76,1 | 28,0 | **87,3** | **28,6** | 107,7 | 24,7 | 115,6 | 25,0 | 136,0 | 25,9 |
| 101 | 30 | 35 | 78,7 | 25,1 | 83,5 | 25,1 | 96,9 | 25,6 | 116,6 | 26,2 | 122,5 | 26,2 | 139,8 | 26,8 |
| | 40 | 45 | 78,2 | 30,8 | 82,4 | 31,1 | **94,9** | **31,6** | 116,6 | 26,2 | 124,8 | 26,3 | 147,6 | 26,9 |
| 102 | 30 | 35 | 78,7 | 25,1 | 83,5 | 25,1 | 96,9 | 25,6 | 116,6 | 26,2 | 122,5 | 26,2 | 139,8 | 26,8 |
| | 40 | 45 | 77,8 | 30,8 | 82,4 | 31,1 | **94,9** | **31,6** | 116,6 | 26,2 | 126,0 | 26,3 | 147,6 | 26,9 |
| 104 | 30 | 35 | 81,2 | 26,0 | 86,0 | 26,0 | 100,3 | 27,0 | 121,9 | 28,0 | 127,6 | 28,2 | 146,0 | 29,1 |
| | 40 | 45 | 80,4 | 31,5 | 85,2 | 31,9 | **98,0** | **32,7** | 121,9 | 28,0 | 131,3 | 28,4 | 154,2 | 29,3 |
| 121 | 30 | 35 | 97,8 | 30,7 | 103,2 | 30,7 | 114,9 | 31,3 | 139,4 | 32,2 | 147,8 | 32,3 | 168,7 | 33,1 |
| | 40 | 45 | 96,4 | 36,8 | 101,9 | 36,9 | **112,8** | **37,5** | 139,4 | 32,2 | 150,6 | 32,5 | 174,2 | 33,2 |
| 122 | 30 | 35 | 97,1 | 30,5 | 103,0 | 30,5 | 114,7 | 31,2 | 138,9 | 32,1 | 147,1 | 32,3 | 167,7 | 33,0 |
| | 40 | 45 | 96,5 | 36,5 | 102,0 | 36,6 | **112,8** | **37,2** | 138,9 | 32,1 | 151,3 | 32,5 | 173,9 | 33,2 |
| 124 | 30 | 35 | 100,8 | 31,4 | 106,9 | 31,4 | 118,9 | 32,2 | 142,8 | 33,1 | 152,6 | 33,6 | 172,5 | 34,2 |
| | 40 | 45 | 99,4 | 37,3 | 105,1 | 37,7 | **116,3** | **38,4** | 142,8 | 33,1 | 155,5 | 33,6 | 179,6 | 34,2 |
| 141 | 30 | 35 | 106,8 | 35,6 | 112,7 | 35,6 | 125,3 | 36,5 | 151,8 | 37,6 | 160,7 | 38,0 | 181,6 | 38,9 |
| | 40 | 45 | 147,5 | 44,7 | 123,2 | 43,4 | **111,5** | **42,7** | 105,6 | 42,3 | 155,7 | 45,1 | 181,3 | 46,2 |
| 142 | 30 | 35 | 106,3 | 35,6 | 112,7 | 35,6 | 125,3 | 36,5 | 151,8 | 37,6 | 160,7 | 38,0 | 183,1 | 38,9 |
| | 40 | 45 | 147,5 | 44,7 | 123,2 | 43,5 | **111,5** | **42,8** | 106,6 | 42,4 | 155,7 | 45,1 | 181,3 | 46,1 |
| 144 | 30 | 35 | 112,3 | 34,5 | 118,6 | 34,5 | 132,7 | 35,2 | 159,8 | 35,9 | 169,1 | 36,3 | 193,4 | 36,9 |
| | 40 | 45 | 154,6 | 43,4 | 130,1 | 42,6 | **117,7** | **42,0** | 111,3 | 41,7 | 163,9 | 43,6 | 191,5 | 44,3 |
| 161 | 30 | 35 | 128,9 | 42,3 | 136,6 | 42,3 | 158,0 | 43,2 | 189,8 | 44,1 | 195,4 | 44,2 | 224,9 | 45,2 |
| | 40 | 45 | 182,9 | 52,7 | 154,1 | 51,7 | **134,5** | **50,8** | 127,3 | 50,6 | 188,0 | 52,8 | 226,5 | 54,1 |

# 5 PERFORMANCE

## 5.8 HEATING CAPACITIES OF LCX HL REVERSIBLE HEAT PUMPS, LOW NOISE VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PT** Heating capacity
**PA** Total power input including pump
**RH** Relative humidity

| LCX...HL | $Tbs_1$ / RH | | -7 °C / 90 % | | -5 °C / 90 % | | 0 °C / 90 % | | 7 °C / 88 % | | 10 °C / 80 % | | 15 °C / 80 % | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 162 | 30 | 35 | 128,9 | 42,3 | 136,6 | 42,3 | 158,0 | 43,2 | 189,8 | 44,1 | 195,4 | 44,2 | 224,9 | 45,2 |
| | 40 | 45 | 182,9 | 52,7 | 154,1 | 51,7 | **134,5** | **50,8** | 127,3 | 50,6 | 189,7 | 52,8 | 226,5 | 54,1 |
| 164 | 30 | 35 | 122,0 | 41,3 | 128,5 | 41,3 | 148,0 | 41,5 | 180,1 | 42,0 | 185,5 | 42,0 | 214,6 | 42,6 |
| | 40 | 45 | 174,4 | 50,5 | 145,4 | 50,2 | **126,8** | **50,1** | 119,8 | 50,0 | 182,5 | 50,7 | 215,5 | 50,9 |
| 194 | 30 | 35 | 149,5 | 47,9 | 152,4 | 47,9 | 176,7 | 48,3 | 212,7 | 49,1 | 223,5 | 49,1 | 253,2 | 49,9 |
| | 40 | 45 | 206,0 | 59,9 | 173,1 | 58,9 | **150,2** | **58,3** | 147,4 | 58,3 | 215,7 | 59,8 | 254,1 | 60,6 |
| 214 | 30 | 35 | 164,3 | 53,0 | 173,5 | 53,0 | 200,3 | 53,8 | 241,1 | 54,5 | 252,8 | 55,1 | 298,6 | 56,0 |
| | 40 | 45 | 233,3 | 66,8 | 196,1 | 65,9 | **170,4** | **64,9** | 160,9 | 64,3 | 244,1 | 67,1 | 289,6 | 68,2 |
| 244 | 30 | 35 | 184,4 | 60,5 | 195,3 | 60,5 | 225,2 | 62,0 | 269,9 | 63,7 | 277,8 | 63,9 | 322,5 | 65,9 |
| | 40 | 45 | 262,6 | 76,8 | 220,5 | 74,7 | **193,0** | **73,4** | 182,6 | 72,8 | 274,8 | 77,1 | 325,1 | 79,5 |
| 274 | 30 | 35 | 214,8 | 67,9 | 221,7 | 67,9 | 253,2 | 69,7 | 305,2 | 71,8 | 321,6 | 72,5 | 369,8 | 74,6 |
| | 40 | 45 | 295,0 | 85,6 | 248,5 | 83,5 | **222,9** | **82,0** | 210,9 | 81,5 | 309,9 | 86,3 | 366,1 | 88,6 |
| 294 | 30 | 35 | 230,2 | 76,7 | 244,1 | 76,7 | 282,4 | 78,8 | 338,8 | 81,3 | 350,5 | 81,6 | 406,3 | 83,7 |
| | 40 | 45 | 329,3 | 96,8 | 276,1 | 94,4 | **242,0** | **92,7** | 229,1 | 92,0 | 339,7 | 97,4 | 409,3 | 100,0 |
| 324 | 30 | 35 | 257,0 | 86,9 | 272,3 | 86,9 | 314,9 | 88,3 | 377,9 | 90,6 | 389,1 | 90,8 | 449,0 | 92,5 |
| | 40 | 45 | 364,3 | 108,5 | 307,0 | 106,4 | **267,9** | **104,9** | 253,7 | 104,2 | 375,7 | 109,1 | 451,9 | 111,1 |

# 5 PERFORMANCE

## 5.9 HEATING CAPACITIES OF LCX HQ REVERSIBLE HEAT PUMPS, QUITE (SUPER LOW NOISE) VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PT** Heating capacity
**PA** Total power input including pump
**RH** Relative humidity

| LCX...HQ | $Tbs_1$ / RH | | -7 °C / 90 % | | -5 °C / 90 % | | 0 °C / 90 % | | 7 °C / 88 % | | 10 °C / 80 % | | 15 °C / 80 % | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 042 | 30 | 35 | 34,4 | 11,5 | 36,6 | 11,6 | 42,8 | 11,8 | 52,0 | 12,3 | 50,4 | 12,2 | 54,7 | 12,4 |
| | 40 | 45 | 34,4 | 13,8 | 36,5 | 13,9 | **42,0** | **14,3** | 50,2 | 14,7 | 48,8 | 14,6 | 53,0 | 14,8 |
| 052 | 30 | 35 | 39,9 | 13,0 | 42,0 | 13,1 | 49,0 | 13,5 | 59,4 | 13,9 | 57,9 | 13,9 | 62,9 | 12,7 |
| | 40 | 45 | 39,1 | 15,7 | 41,4 | 15,9 | **47,9** | **16,3** | 57,3 | 16,8 | 55,7 | 16,8 | 59,8 | 15,0 |
| 062 | 30 | 35 | 46,9 | 15,0 | 47,9 | 15,0 | 55,4 | 15,4 | 66,5 | 15,8 | 64,6 | 15,7 | 70,4 | 16,0 |
| | 40 | 45 | 45,8 | 18,0 | 47,1 | 18,1 | **54,1** | **18,5** | 64,3 | 19,0 | 63,2 | 18,9 | 67,9 | 19,1 |
| 072 | 30 | 35 | 51,5 | 16,7 | 54,6 | 16,7 | 63,3 | 17,0 | 76,3 | 17,4 | 74,1 | 17,3 | 80,1 | 17,5 |
| | 40 | 45 | 51,1 | 20,4 | 54,0 | 20,6 | **62,0** | **20,9** | 73,7 | 21,3 | 71,8 | 21,2 | 77,2 | 21,3 |
| 082 | 30 | 35 | 59,6 | 20,1 | 63,2 | 20,1 | 72,5 | 20,2 | 88,2 | 20,3 | 85,6 | 20,3 | 90,9 | 20,3 |
| | 40 | 45 | 58,6 | 24,6 | 62,1 | 24,7 | **71,6** | **24,7** | 85,4 | 24,8 | 83,1 | 24,7 | 89,5 | 24,8 |
| 091 | 30 | 35 | 68,9 | 22,1 | 73,1 | 22,1 | 84,2 | 22,4 | 102,0 | 22,7 | 99,6 | 22,6 | 107,7 | 22,8 |
| | 40 | 45 | 67,9 | 26,9 | 71,9 | 27,1 | **82,4** | **27,4** | 98,4 | 27,7 | 95,7 | 27,7 | 103,8 | 27,9 |
| 092 | 30 | 35 | 69,5 | 22,6 | 73,7 | 22,7 | 84,6 | 22,9 | 102,0 | 23,2 | 100,0 | 23,1 | 108,1 | 23,4 |
| | 40 | 45 | 68,5 | 27,7 | 72,2 | 27,8 | **82,8** | **28,1** | 98,8 | 28,4 | 96,0 | 28,4 | 104,3 | 28,6 |
| 094 | 30 | 35 | 69,0 | 22,9 | 73,5 | 23,1 | 85,4 | 23,7 | 103,6 | 24,6 | 101,6 | 24,4 | 109,6 | 24,8 |
| | 40 | 45 | 69,5 | 27,6 | 73,6 | 27,9 | **84,9** | **28,5** | 101,2 | 29,4 | 98,4 | 29,3 | 106,5 | 29,6 |
| 101 | 30 | 35 | 75,7 | 24,3 | 80,4 | 24,5 | 93,3 | 24,8 | 112,2 | 25,3 | 109,0 | 25,2 | 115,6 | 25,3 |
| | 40 | 45 | 74,9 | 29,8 | 79,4 | 30,1 | **91,4** | **30,6** | 108,7 | 31,2 | 105,9 | 31,1 | 111,8 | 31,2 |
| 102 | 30 | 35 | 76,3 | 25,2 | 81,0 | 25,5 | 94,0 | 25,7 | 113,1 | 26,2 | 109,9 | 26,1 | 116,5 | 26,3 |
| | 40 | 45 | 75,5 | 30,9 | 80,0 | 31,2 | **92,1** | **31,7** | 109,6 | 32,4 | 106,7 | 32,2 | 112,7 | 32,4 |
| 104 | 30 | 35 | 78,3 | 25,9 | 83,4 | 26,2 | 97,2 | 27,0 | 117,6 | 28,0 | 121,2 | 28,1 | 140,3 | 28,9 |
| | 40 | 45 | 77,5 | 31,5 | 82,2 | 31,9 | **95,0** | **32,7** | 113,7 | 33,7 | 117,3 | 34,0 | 135,4 | 34,7 |
| 121 | 30 | 35 | 90,6 | 30,0 | 95,6 | 30,2 | 110,8 | 30,7 | 133,7 | 31,5 | 138,3 | 31,6 | 160,0 | 32,4 |
| | 40 | 45 | 89,4 | 35,7 | 94,6 | 36,0 | **108,6** | **36,7** | 129,0 | 37,6 | 133,8 | 37,7 | 153,2 | 38,3 |
| 122 | 30 | 35 | 90,0 | 30,0 | 95,5 | 30,3 | 110,5 | 30,8 | 132,5 | 31,6 | 137,7 | 31,7 | 160,0 | 32,5 |
| | 40 | 45 | 89,5 | 35,7 | 94,6 | 36,0 | **108,6** | **36,6** | 129,0 | 37,5 | 133,6 | 37,7 | 152,9 | 38,4 |
| 124 | 30 | 35 | 94,1 | 30,8 | 99,9 | 31,0 | 115,6 | 31,7 | 138,8 | 32,5 | 143,9 | 32,9 | 165,9 | 33,5 |
| | 40 | 45 | 93,0 | 36,5 | 98,3 | 36,9 | **112,9** | **37,7** | 134,2 | 38,7 | 139,0 | 38,9 | 159,1 | 39,6 |
| 141 | 30 | 35 | 99,5 | 35,2 | 105,4 | 35,5 | 121,9 | 36,4 | 146,7 | 37,6 | 151,7 | 37,7 | 174,6 | 38,8 |
| | 40 | 45 | 98,8 | 42,0 | 104,4 | 42,4 | **119,7** | **43,3** | 142,0 | 44,5 | 147,1 | 44,8 | 168,2 | 45,8 |
| 142 | 30 | 35 | 99,5 | 35,2 | 105,5 | 35,5 | 121,8 | 36,4 | 147,4 | 37,6 | 151,7 | 37,7 | 174,6 | 38,8 |
| | 40 | 45 | 98,8 | 42,1 | 104,4 | 42,5 | **119,7** | **43,4** | 142,0 | 44,5 | 147,1 | 44,8 | 168,2 | 45,7 |
| 144 | 30 | 35 | 104,3 | 34,5 | 110,8 | 34,5 | 128,3 | 35,1 | 154,3 | 36,0 | 158,7 | 36,2 | 184,2 | 36,8 |
| | 40 | 45 | 103,6 | 41,6 | 109,5 | 41,9 | **125,6** | **42,7** | 149,2 | 43,3 | 153,9 | 43,5 | 176,7 | 44,2 |

# 5 PERFORMANCE

## 5.9 HEATING CAPACITIES OF LCX HQ REVERSIBLE HEAT PUMPS, QUITE (SUPER LOW NOISE) VERSION

**$Tbs_1$** Air inlet temperature (dry bulb)
**Tw 1/2** Water inlet/outlet temperature
**PT** Heating capacity
**PA** Total power input including pump
**RH** Relative humidity

| LCX...HQ | $Tbs_1$ / RH | | -7 °C / 90 % | | -5 °C / 90 % | | 0 °C / 90 % | | 7 °C / 88 % | | 10 °C / 80 % | | 15 °C / 80 % | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $Tw_1$ | $Tw_2$ | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA | PT | PA |
| | °C | °C | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW | kW |
| 161 | 30 | 35 | 123,5 | 42,2 | 130,9 | 42,4 | 151,4 | 42,9 | 181,8 | 44,0 | 187,2 | 44,1 | 215,4 | 45,1 |
| | 40 | 45 | 122,0 | 50,3 | 128,9 | 50,7 | **147,8** | **51,4** | 175,3 | 52,7 | 180,2 | 52,7 | 208,0 | 53,4 |
| 162 | 30 | 35 | 123,5 | 42,2 | 130,9 | 42,4 | 151,4 | 42,9 | 181,8 | 44,0 | 187,2 | 44,1 | 215,4 | 45,1 |
| | 40 | 45 | 122,0 | 50,3 | 128,9 | 50,7 | **147,8** | **51,4** | 175,3 | 52,7 | 180,2 | 52,7 | 208,0 | 53,4 |
| 164 | 30 | 35 | 118,2 | 41,1 | 125,2 | 41,1 | 143,4 | 41,3 | 172,9 | 41,6 | 179,7 | 41,8 | 208,1 | 42,2 |
| | 40 | 45 | 116,1 | 49,8 | 122,9 | 49,8 | **141,6** | **50,0** | 168,2 | 50,3 | 173,7 | 50,4 | 199,3 | 50,6 |
| 194 | 30 | 35 | 137,0 | 47,6 | 145,3 | 47,8 | 168,4 | 48,3 | 202,9 | 48,8 | 208,8 | 49,1 | 241,6 | 49,6 |
| | 40 | 45 | 136,6 | 57,8 | 144,7 | 58,2 | **165,1** | **58,8** | 196,9 | 59,5 | 204,1 | 59,7 | 234,0 | 60,2 |
| 214 | 30 | 35 | 151,7 | 52,3 | 161,8 | 52,8 | 191,6 | 53,3 | 230,4 | 54,3 | 239,5 | 54,6 | 276,5 | 55,6 |
| | 40 | 45 | 155,4 | 64,0 | 164,6 | 64,3 | **188,5** | **65,6** | 224,4 | 66,6 | 231,7 | 66,6 | 265,5 | 67,2 |
| 244 | 30 | 35 | 170,2 | 59,4 | 178,8 | 59,9 | 215,3 | 61,4 | 258,0 | 63,0 | 265,6 | 63,2 | 308,7 | 64,9 |
| | 40 | 45 | 175,5 | 72,0 | 184,7 | 72,6 | **211,9** | **74,0** | 251,5 | 75,7 | 260,6 | 76,2 | 298,1 | 77,7 |
| 274 | 30 | 35 | 200,0 | 66,4 | 211,0 | 67,0 | 244,0 | 68,4 | 292,7 | 70,5 | 303,9 | 71,1 | 350,4 | 73,1 |
| | 40 | 45 | 197,7 | 79,9 | 208,9 | 80,7 | **239,5** | **82,4** | 284,2 | 84,5 | 294,5 | 85,1 | 337,0 | 87,0 |
| 294 | 30 | 35 | 222,0 | 75,3 | 235,2 | 76,2 | 272,2 | 77,7 | 326,9 | 79,9 | 339,5 | 80,5 | 391,7 | 82,6 |
| | 40 | 45 | 221,0 | 91,0 | 233,4 | 91,8 | **267,4** | **93,5** | 317,5 | 95,9 | 329,1 | 96,5 | 376,9 | 98,6 |
| 324 | 30 | 35 | 247,7 | 86,0 | 262,3 | 86,8 | 303,4 | 87,8 | 364,1 | 90,0 | 374,9 | 90,2 | 432,6 | 92,0 |
| | 40 | 45 | 245,7 | 104,0 | 258,3 | 104,7 | **295,9** | **106,2** | 351,6 | 107,9 | 364,3 | 108,5 | 416,2 | 110,6 |

# 6 CALCULATION FACTORS

## 6.1 INTEGRATED HEATING CAPACITIES

In the heat pump operation (heating mode), the actual heating capacities of units may be lower than the values shown in the table, due to defrosting cycles. To obtain the actual heating capacity, multiply the capacity values by the corrective coefficients given below.

| Control | Air temperature- dry bulb (°C) | | | |
|---|---|---|---|---|
| | -5 | 0 | 5 | >5 |
| µchiller2 | 0,89 | 0,88 | 0,94 | 1 |
| PCO | 0,91 | 0,9 | 0,94 | 1 |

## 6.2 CHANGE IN OPERATING PARAMETERS WITH ΔT OTHER THAN 5°C

After identifying the unit's performance in the terms of the desired outlet water temperature, correct the value by multiplying it by the following corrective coefficients.

## 6.3 WATER AND GLYCOL MIXTURE

Based on the minimum outlet water temperature, you can derive the percentage of ethylene glycol and the corrective coefficient using the table below.

| WATER TEMPERATURE DIFFERENTIAL OTHER THAN 5 | | | | | | |
|---|---|---|---|---|---|---|
| Water temperature differential | 3 | 4 | 5 | 6 | 7 | 8 |
| Capacity correction factor | 0,975 | 0,990 | 1,000 | 1,015 | 1,030 | 1,040 |
| Power input correction factor | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |
| Water flow rate correction factor | 1,630 | 1,240 | 1,000 | 0,850 | 0,740 | 0,650 |
| Pressure drop correction factor | 2,640 | 1,530 | 1,000 | 0,720 | 0,540 | 0,420 |

**WARNING**: The use of propylene glycol is not admitted with standard pumps. For further information, contact the manufacturer.

| OPERATION WITH WATER-ETHYLENE GLYCOL MIXTURES | | | | | |
|---|---|---|---|---|---|
| Percentage of glycol | 0% | 10% | 20% | 30% | 40% |
| Minimum temperature of water produced | 5°C | 2°C | -5°C | -10°C | -15°C |
| Mixture freezing temperature (°C) | 0°C | -4°C | -14°C | -18°C | -24°C |
| Capacity correction factor | 1,000 | 0,998 | 0,994 | 0,989 | 0,983 |
| Water flow rate correction factor | 1,000 | 1,047 | 1,094 | 1,140 | 1,199 |
| Pressure drop correction factor | 1,000 | 1,157 | 1,352 | 1,585 | 1,860 |

## 7 SOUND LEVEL

**LEGEND:**

**$Lp_A$** Total sound pressure level, weighted A, measured in an open field, at a distance of 10 m, with a directivity factor of 2.
**Lw** Sound power level by octave band, not weighted
**$Lw_A$** Total sound power level, weighted A

| LCX Sound level, STANDARD version | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LCX CS | LW | | | | | | | LW A | LP A |
| | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | dB A | dB A |
| | dB | dB | dB | dB | dB | dB | dB | | |
| 062 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 072 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 082 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 091 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 092 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 101 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 102 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 121 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 122 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 124 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 141 | 82,7 | 86,5 | 80,5 | 79,9 | 73,0 | 66,7 | 65,2 | **84,0** | **56,0** |
| 142 | 82,7 | 86,5 | 80,5 | 79,9 | 73,0 | 66,7 | 65,2 | **84,0** | **56,0** |
| 144 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 161 | 82,7 | 86,5 | 80,5 | 79,9 | 73,0 | 66,7 | 65,2 | **84,0** | **56,0** |
| 162 | 82,7 | 86,5 | 80,5 | 79,9 | 73,0 | 66,7 | 65,2 | **84,0** | **56,0** |
| 164 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 174 | 83,7 | 87,5 | 81,5 | 80,9 | 74,0 | 67,7 | 66,2 | **85,0** | **57,0** |
| 194 | 83,7 | 87,5 | 81,5 | 80,9 | 74,0 | 67,7 | 66,2 | **85,0** | **57,0** |
| 214 | 84,7 | 88,5 | 82,5 | 81,9 | 75,0 | 68,7 | 67,2 | **86,0** | **58,0** |
| 244 | 84,7 | 88,5 | 82,5 | 81,9 | 75,0 | 68,7 | 67,2 | **86,0** | **58,0** |
| 274 | 84,7 | 88,5 | 82,5 | 81,9 | 75,0 | 68,7 | 67,2 | **86,0** | **58,0** |
| 294 | 84,7 | 88,5 | 82,5 | 81,9 | 75,0 | 68,7 | 67,2 | **86,0** | **58,0** |
| 324 | 84,7 | 88,5 | 82,5 | 81,9 | 75,0 | 68,7 | 67,2 | **86,0** | **58,0** |
| 364 | 85,7 | 89,5 | 83,5 | 82,9 | 76,0 | 69,7 | 68,2 | **87,0** | **59,0** |

## 7 SOUND LEVEL

**LEGEND:**
**$Lp_A$** Total sound pressure level, weighted A, measured in an open field, at a distance of 10 m, with a directivity factor of 2.
**Lw** Sound power level by octave band, not weighted
**$Lw_A$** Total sound power level, weighted A

| LCX Sound level, LOW NOISE version | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LCX CL | LW | | | | | | | LW A | LP A |
| | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | dB A | dB A |
| | dB | dB | dB | dB | dB | dB | dB | | |
| 042 | 72,0 | 77,6 | 72,0 | 68,0 | 60,7 | 57,6 | 56,6 | **74,0** | **46,0** |
| 052 | 72,0 | 77,6 | 72,0 | 68,0 | 60,7 | 57,6 | 56,6 | **74,0** | **46,0** |
| 062 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 072 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 082 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 091 | 76,0 | 81,6 | 76,0 | 72,0 | 64,7 | 61,6 | 60,6 | **78,0** | **50,0** |
| 092 | 76,0 | 81,6 | 76,0 | 72,0 | 64,7 | 61,6 | 60,6 | **78,0** | **50,0** |
| 094 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 101 | 76,0 | 81,6 | 76,0 | 72,0 | 64,7 | 61,6 | 60,6 | **78,0** | **50,0** |
| 102 | 76,0 | 81,6 | 76,0 | 72,0 | 64,7 | 61,6 | 60,6 | **78,0** | **50,0** |
| 104 | 79,0 | 84,6 | 79,0 | 75,0 | 67,7 | 64,6 | 63,6 | **77,0** | **53,0** |
| 121 | 78,0 | 83,6 | 78,0 | 74,0 | 66,7 | 63,6 | 62,6 | **80,0** | **52,0** |
| 122 | 78,0 | 83,6 | 78,0 | 74,0 | 66,7 | 63,6 | 62,6 | **80,0** | **52,0** |
| 124 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 141 | 79,0 | 84,6 | 79,0 | 75,0 | 67,7 | 64,6 | 63,6 | **81,0** | **53,0** |
| 142 | 79,0 | 84,6 | 79,0 | 75,0 | 67,7 | 64,6 | 63,6 | **81,0** | **53,0** |
| 144 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 161 | 79,0 | 84,6 | 79,0 | 75,0 | 67,7 | 64,6 | 63,6 | **81,0** | **53,0** |
| 162 | 79,0 | 84,6 | 79,0 | 75,0 | 67,7 | 64,6 | 63,6 | **81,0** | **53,0** |
| 164 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 194 | 80,0 | 85,6 | 80,0 | 76,0 | 68,7 | 65,6 | 64,6 | **82,0** | **54,0** |
| 214 | 80,0 | 85,6 | 80,0 | 76,0 | 68,7 | 65,6 | 64,6 | **82,0** | **54,0** |
| 244 | 80,0 | 85,6 | 80,0 | 76,0 | 68,7 | 65,6 | 64,6 | **82,0** | **54,0** |
| 274 | 82,0 | 87,6 | 82,0 | 78,0 | 70,7 | 67,6 | 66,6 | **84,0** | **56,0** |
| 294 | 82,0 | 87,6 | 82,0 | 78,0 | 70,7 | 67,6 | 66,6 | **84,0** | **56,0** |
| 324 | 82,0 | 87,6 | 82,0 | 78,0 | 70,7 | 67,6 | 66,6 | **84,0** | **56,0** |
| 364 | 83,0 | 88,6 | 83,0 | 79,0 | 71,7 | 68,6 | 67,6 | **85,0** | **57,0** |

## 7 SOUND LEVEL

**LEGEND:**

$Lp_A$ Total sound pressure level, weighted A, measured in an open field, at a distance of 10 m, with a directivity factor of 2.
**Lw** Sound power level by octave band, not weighted
$Lw_A$ Total sound power level, weighted A

| LCX Sound level, QUIET (super low noise) version | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LCX CQ | LW | | | | | | | LW A | LP A |
| | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | dB A | dB A |
| | dB | dB | dB | dB | dB | dB | dB | | |
| 042 | 70,0 | 74,8 | 69,2 | 64,0 | 57,9 | 56,4 | 54,2 | **71,0** | **43,0** |
| 052 | 70,0 | 74,8 | 69,2 | 64,0 | 57,9 | 56,4 | 54,2 | **71,0** | **43,0** |
| 062 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | **73,0** | **45,0** |
| 072 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | **73,0** | **45,0** |
| 082 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | **73,0** | **45,0** |
| 091 | 74,0 | 78,8 | 73,2 | 68,0 | 61,9 | 60,4 | 58,2 | **75,0** | **47,0** |
| 092 | 74,0 | 78,8 | 73,2 | 68,0 | 61,9 | 60,4 | 58,2 | **75,0** | **47,0** |
| 094 | 73,0 | 77,8 | 72,2 | 67,0 | 60,9 | 59,4 | 57,2 | **74,0** | **46,0** |
| 101 | 74,0 | 78,8 | 73,2 | 68,0 | 61,9 | 60,4 | 58,2 | **75,0** | **47,0** |
| 102 | 74,0 | 78,8 | 73,2 | 68,0 | 61,9 | 60,4 | 58,2 | **75,0** | **47,0** |
| 104 | 73,0 | 77,8 | 72,2 | 67,0 | 60,9 | 59,4 | 57,2 | **74,0** | **46,0** |
| 121 | 75,0 | 79,8 | 74,2 | 69,0 | 62,9 | 61,4 | 59,2 | **76,0** | **48,0** |
| 122 | 75,0 | 79,8 | 74,2 | 69,0 | 62,9 | 61,4 | 59,2 | **76,0** | **48,0** |
| 124 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | **73,0** | **45,0** |
| 141 | 76,0 | 80,8 | 75,2 | 70,0 | 63,9 | 62,4 | 60,2 | **77,0** | **49,0** |
| 142 | 76,0 | 80,8 | 75,2 | 70,0 | 63,9 | 62,4 | 60,2 | **77,0** | **49,0** |
| 144 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | **73,0** | **45,0** |
| 161 | 76,0 | 80,8 | 75,2 | 70,0 | 63,9 | 62,4 | 60,2 | **77,0** | **49,0** |
| 162 | 76,0 | 80,8 | 75,2 | 70,0 | 63,9 | 62,4 | 60,2 | **77,0** | **49,0** |
| 164 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | **73,0** | **45,0** |
| 194 | 77,0 | 81,8 | 76,2 | 71,0 | 64,9 | 63,4 | 61,2 | **78,0** | **50,0** |
| 214 | 77,0 | 81,8 | 76,2 | 71,0 | 64,9 | 63,4 | 61,2 | **78,0** | **50,0** |
| 244 | 77,0 | 81,8 | 76,2 | 71,0 | 64,9 | 63,4 | 61,2 | **78,0** | **50,0** |
| 274 | 79,0 | 83,8 | 78,2 | 73,0 | 66,9 | 65,4 | 63,2 | **80,0** | **52,0** |
| 294 | 79,0 | 83,8 | 78,2 | 73,0 | 66,9 | 65,4 | 63,2 | **80,0** | **52,0** |
| 324 | 79,0 | 83,8 | 78,2 | 73,0 | 66,9 | 65,4 | 63,2 | **80,0** | **52,0** |

## 7 SOUND LEVEL

**LEGEND:**
**$Lp_A$** Total sound pressure level, weighted A, measured in an open field, at a distance of 10 m, with a directivity factor of 2.
**Lw** Sound power level by octave band, not weighted
**$Lw_A$** Total sound power level, weighted A

| LCX Sound level, STANDARD version | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LCX HS | LW | | | | | | | LW A | LP A |
| | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | dB A | dB A |
| | dB | dB | dB | dB | dB | dB | dB | | |
| 062 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 072 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 082 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 091 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 092 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 101 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 102 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 121 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 122 | 81,7 | 85,5 | 79,5 | 78,9 | 72,0 | 65,7 | 64,2 | **83,0** | **55,0** |
| 124 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 141 | 82,7 | 86,5 | 80,5 | 79,9 | 73,0 | 66,7 | 65,2 | **84,0** | **56,0** |
| 142 | 82,7 | 86,5 | 80,5 | 79,9 | 73,0 | 66,7 | 65,2 | **84,0** | **56,0** |
| 144 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 161 | 82,7 | 86,5 | 80,5 | 79,9 | 73,0 | 66,7 | 65,2 | **84,0** | **56,0** |
| 162 | 82,7 | 86,5 | 80,5 | 79,9 | 73,0 | 66,7 | 65,2 | **84,0** | **56,0** |
| 164 | 80,7 | 84,5 | 78,5 | 77,9 | 71,0 | 64,7 | 63,2 | **82,0** | **54,0** |
| 174 | 83,7 | 87,5 | 81,5 | 80,9 | 74,0 | 67,7 | 66,2 | **85,0** | **57,0** |
| 194 | 83,7 | 87,5 | 81,5 | 80,9 | 74,0 | 67,7 | 66,2 | **85,0** | **57,0** |
| 214 | 84,7 | 88,5 | 82,5 | 81,9 | 75,0 | 68,7 | 67,2 | **86,0** | **58,0** |
| 244 | 84,7 | 88,5 | 82,5 | 81,9 | 75,0 | 68,7 | 67,2 | **86,0** | **58,0** |
| 274 | 84,7 | 88,5 | 82,5 | 81,9 | 75,0 | 68,7 | 67,2 | **86,0** | **58,0** |
| 294 | 84,7 | 88,5 | 82,5 | 81,9 | 75,0 | 68,7 | 67,2 | **86,0** | **58,0** |
| 324 | 84,7 | 88,5 | 82,5 | 81,9 | 75,0 | 68,7 | 67,2 | **86,0** | **58,0** |
| 364 | 85,7 | 89,5 | 83,5 | 82,9 | 76,0 | 69,7 | 68,2 | **87,0** | **59,0** |

## 7 SOUND LEVEL

**LEGEND:**
$Lp_A$ Total sound pressure level, weighted A, measured in an open field, at a distance of 10 m, with a directivity factor of 2.
Lw Sound power level by octave band, not weighted
$Lw_A$ Total sound power level, weighted A

| LCX Sound level, LOW NOISE version | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LCX HL | LW | | | | | | | LW A | LP A |
| | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | dB A | dB A |
| | dB | dB | dB | dB | dB | dB | dB | | |
| 042 | 72,0 | 77,6 | 72,0 | 68,0 | 60,7 | 57,6 | 56,6 | **74,0** | **46,0** |
| 052 | 72,0 | 77,6 | 72,0 | 68,0 | 60,7 | 57,6 | 56,6 | **74,0** | **46,0** |
| 062 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 072 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 082 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 091 | 76,0 | 81,6 | 76,0 | 72,0 | 64,7 | 61,6 | 60,6 | **78,0** | **50,0** |
| 092 | 76,0 | 81,6 | 76,0 | 72,0 | 64,7 | 61,6 | 60,6 | **78,0** | **50,0** |
| 094 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 101 | 76,0 | 81,6 | 76,0 | 72,0 | 64,7 | 61,6 | 60,6 | **78,0** | **50,0** |
| 102 | 76,0 | 81,6 | 76,0 | 72,0 | 64,7 | 61,6 | 60,6 | **78,0** | **50,0** |
| 104 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 121 | 78,0 | 83,6 | 78,0 | 74,0 | 66,7 | 63,6 | 62,6 | **80,0** | **52,0** |
| 122 | 78,0 | 83,6 | 78,0 | 74,0 | 66,7 | 63,6 | 62,6 | **80,0** | **52,0** |
| 124 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 141 | 79,0 | 84,6 | 79,0 | 75,0 | 67,7 | 64,6 | 63,6 | **81,0** | **53,0** |
| 142 | 79,0 | 84,6 | 79,0 | 75,0 | 67,7 | 64,6 | 63,6 | **81,0** | **53,0** |
| 144 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 161 | 79,0 | 84,6 | 79,0 | 75,0 | 67,7 | 64,6 | 63,6 | **81,0** | **53,0** |
| 162 | 79,0 | 84,6 | 79,0 | 75,0 | 67,7 | 64,6 | 63,6 | **81,0** | **53,0** |
| 164 | 75,0 | 80,6 | 75,0 | 71,0 | 63,7 | 60,6 | 59,6 | **77,0** | **49,0** |
| 194 | 80,0 | 85,6 | 80,0 | 76,0 | 68,7 | 65,6 | 64,6 | **82,0** | **54,0** |
| 214 | 80,0 | 85,6 | 80,0 | 76,0 | 68,7 | 65,6 | 64,6 | **82,0** | **54,0** |
| 244 | 80,0 | 85,6 | 80,0 | 76,0 | 68,7 | 65,6 | 64,6 | **82,0** | **54,0** |
| 274 | 82,0 | 87,6 | 82,0 | 78,0 | 70,7 | 67,6 | 66,6 | **84,0** | **56,0** |
| 294 | 82,0 | 87,6 | 82,0 | 78,0 | 70,7 | 67,6 | 66,6 | **84,0** | **56,0** |
| 324 | 83,0 | 88,6 | 83,0 | 79,0 | 71,7 | 68,6 | 67,6 | **85,0** | **57,0** |

## 7 SOUND LEVEL

**LEGEND:**
**$Lp_A$** Total sound pressure level, weighted A, measured in an open field, at a distance of 10 m, with a directivity factor of 2.
**Lw** Sound power level by octave band, not weighted
**$Lw_A$** Total sound power level, weighted A

| LCX Sound level, QUIET (super low noise) version | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LCX HQ | LW | | | | | | | LW A | LP A |
| | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | dB A | dB A |
| | dB | dB | dB | dB | dB | dB | dB | | |
| 042 | 70,0 | 74,8 | 69,2 | 64,0 | 57,9 | 56,4 | 54,2 | 71,0 | 43,0 |
| 052 | 70,0 | 74,8 | 69,2 | 64,0 | 57,9 | 56,4 | 54,2 | 71,0 | 43,0 |
| 062 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | 73,0 | 45,0 |
| 072 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | 73,0 | 45,0 |
| 082 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | 73,0 | 45,0 |
| 091 | 74,0 | 78,8 | 73,2 | 68,0 | 61,9 | 60,4 | 58,2 | 75,0 | 47,0 |
| 092 | 74,0 | 78,8 | 73,2 | 68,0 | 61,9 | 60,4 | 58,2 | 75,0 | 47,0 |
| 094 | 73,0 | 77,8 | 72,2 | 67,0 | 60,9 | 59,4 | 57,2 | 74,0 | 46,0 |
| 101 | 74,0 | 78,8 | 73,2 | 68,0 | 61,9 | 60,4 | 58,2 | 75,0 | 47,0 |
| 102 | 74,0 | 78,8 | 73,2 | 68,0 | 61,9 | 60,4 | 58,2 | 75,0 | 47,0 |
| 104 | 73,0 | 77,8 | 72,2 | 67,0 | 60,9 | 59,4 | 57,2 | 74,0 | 46,0 |
| 121 | 75,0 | 79,8 | 74,2 | 69,0 | 62,9 | 61,4 | 59,2 | 76,0 | 48,0 |
| 122 | 75,0 | 79,8 | 74,2 | 69,0 | 62,9 | 61,4 | 59,2 | 76,0 | 48,0 |
| 124 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | 73,0 | 45,0 |
| 141 | 76,0 | 80,8 | 75,2 | 70,0 | 63,9 | 62,4 | 60,2 | 77,0 | 49,0 |
| 142 | 76,0 | 80,8 | 75,2 | 70,0 | 63,9 | 62,4 | 60,2 | 77,0 | 49,0 |
| 144 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | 73,0 | 45,0 |
| 161 | 76,0 | 80,8 | 75,2 | 70,0 | 63,9 | 62,4 | 60,2 | 77,0 | 49,0 |
| 162 | 76,0 | 80,8 | 75,2 | 70,0 | 63,9 | 62,4 | 60,2 | 77,0 | 49,0 |
| 164 | 72,0 | 76,8 | 71,2 | 66,0 | 59,9 | 58,4 | 56,2 | 73,0 | 45,0 |
| 194 | 77,0 | 81,8 | 76,2 | 71,0 | 64,9 | 63,4 | 61,2 | 78,0 | 50,0 |
| 214 | 77,0 | 81,8 | 76,2 | 71,0 | 64,9 | 63,4 | 61,2 | 78,0 | 50,0 |
| 244 | 77,0 | 81,8 | 76,2 | 71,0 | 64,9 | 63,4 | 61,2 | 78,0 | 50,0 |
| 274 | 79,0 | 83,8 | 78,2 | 73,0 | 66,9 | 65,4 | 63,2 | 80,0 | 52,0 |
| 294 | 79,0 | 83,8 | 78,2 | 73,0 | 66,9 | 65,4 | 63,2 | 80,0 | 52,0 |
| 324 | 79,0 | 83,8 | 78,2 | 73,0 | 66,9 | 65,4 | 63,2 | 80,0 | 52,0 |

# 8 OPERATING LIMITS

The graphs below illustrate the operating limits of the units (in the case of continuous operation) in relation to the outlet water temperature and outdoor air temperature.

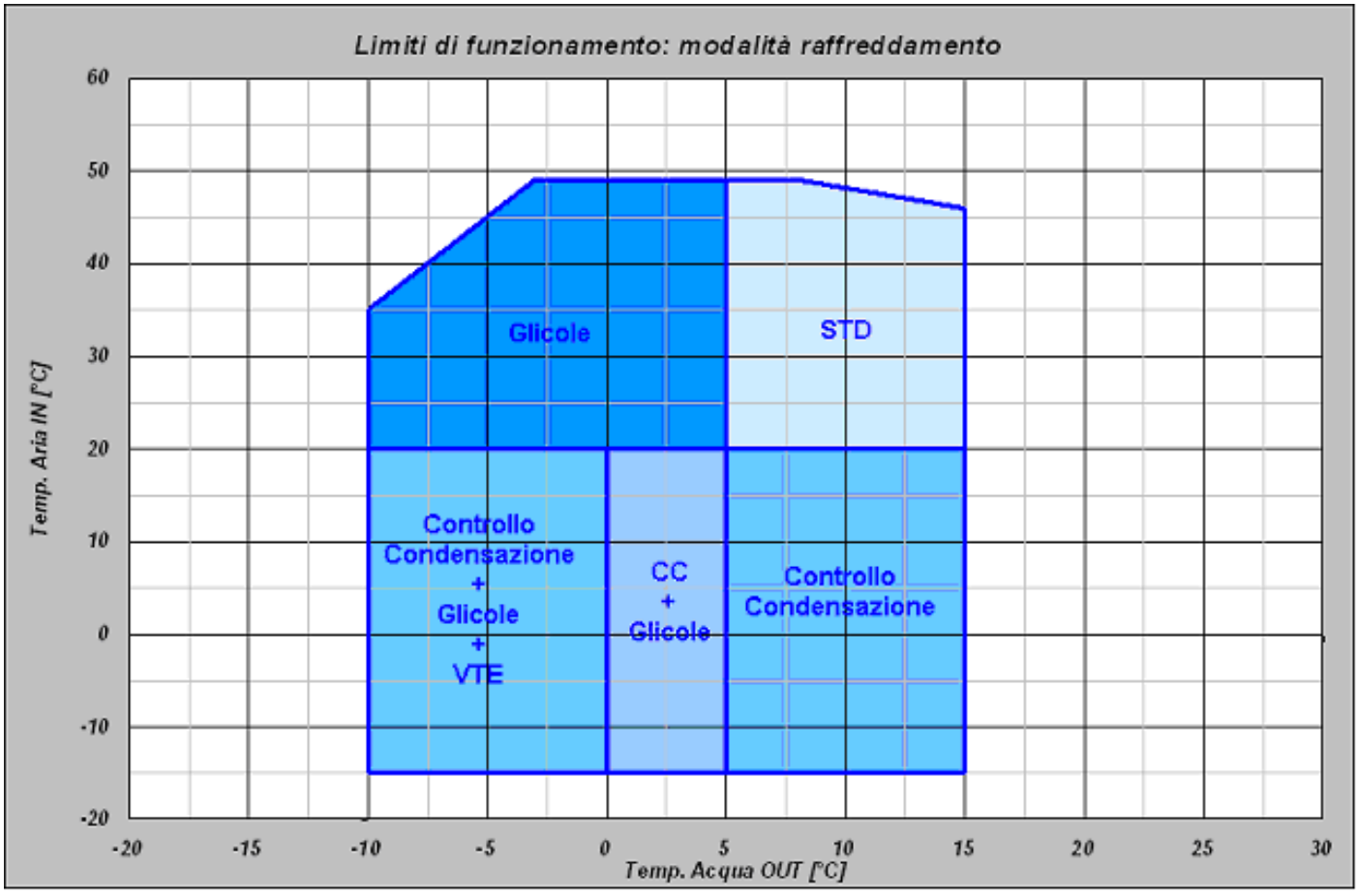
| OPERATING LIMITS | CHILLER | | HEAT PUMP | |
|---|---|---|---|---|
| | MIN | MAX | MIN | MAX |
| Inlet water temperature (°C) | 8 | 20 [1] | 25 | 42 |
| Outlet water temperature (°C) | 5 | 15 | 28 | 50 [2] |
| Thermal differential of water (°C) | 3 | 8 | 3 | 8 |
| Outdoor air temperature (°C) | 15 [3] | 45 | -5 | 20 |

**1** For transitory periods (e.g. equipment start up) values up to 25 °C are allowed.
**2** Value that may be reached only for outdoor air temperatures exceeding 0°C.
**3** With condensation control: Outdoor air T min -15 °C.

**Warning!**
The units are designed to work with water and air temperatures falling within the range defined by the operating limits. Attempting to operate the units beyond these limits could cause irreparable damage to the units themselves.

## 8.1 OPERATING LIMITS IN CHILLER MODE

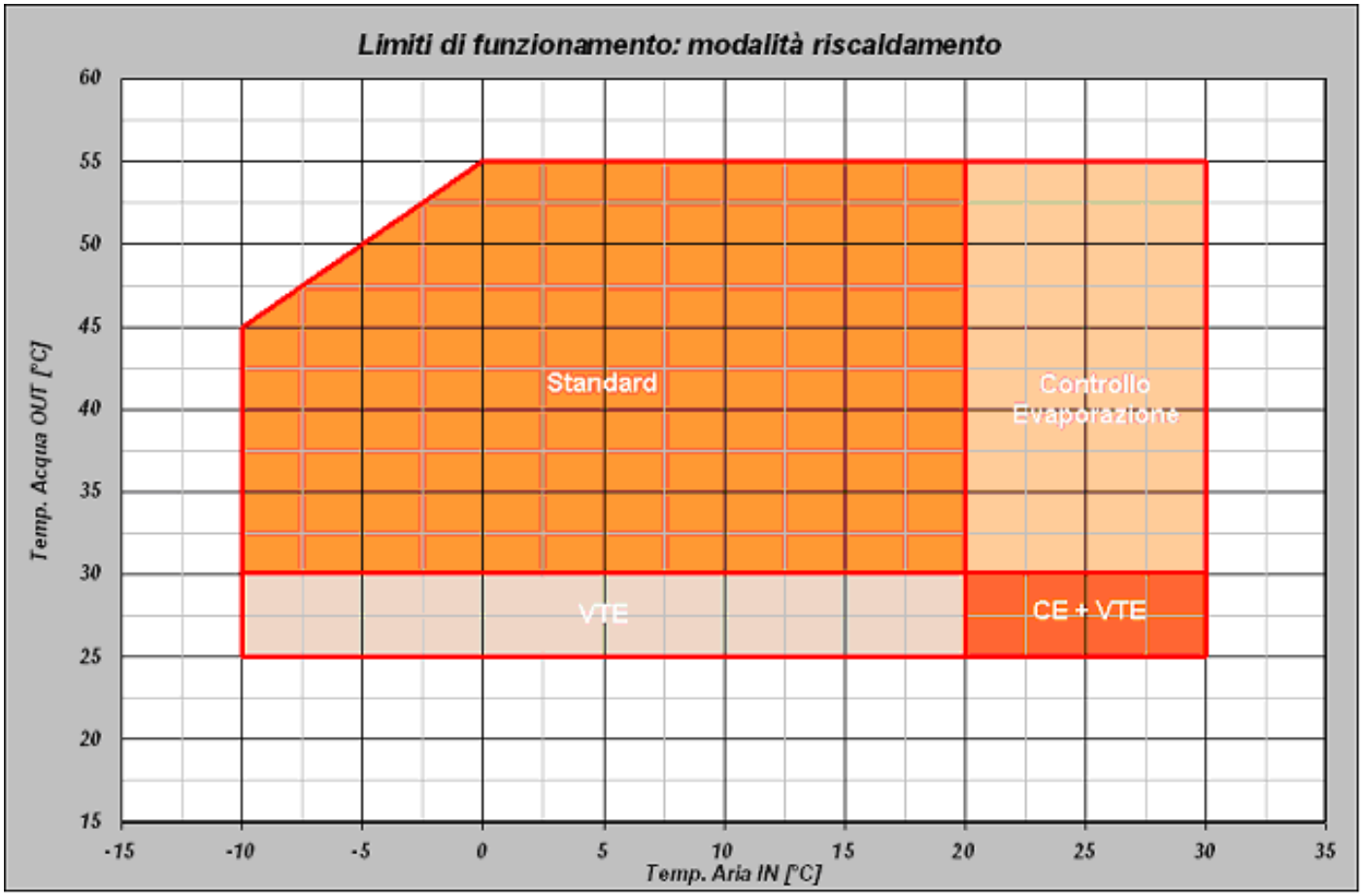
**CC** Condensation control
**VTE** Electronic valve
**STD** Standard



# 8 OPERATING LIMITS

## 8.2 OPERATING LIMITS IN HEAT PUMP MODE

**VTE** Electronic valve
**STD** Standard

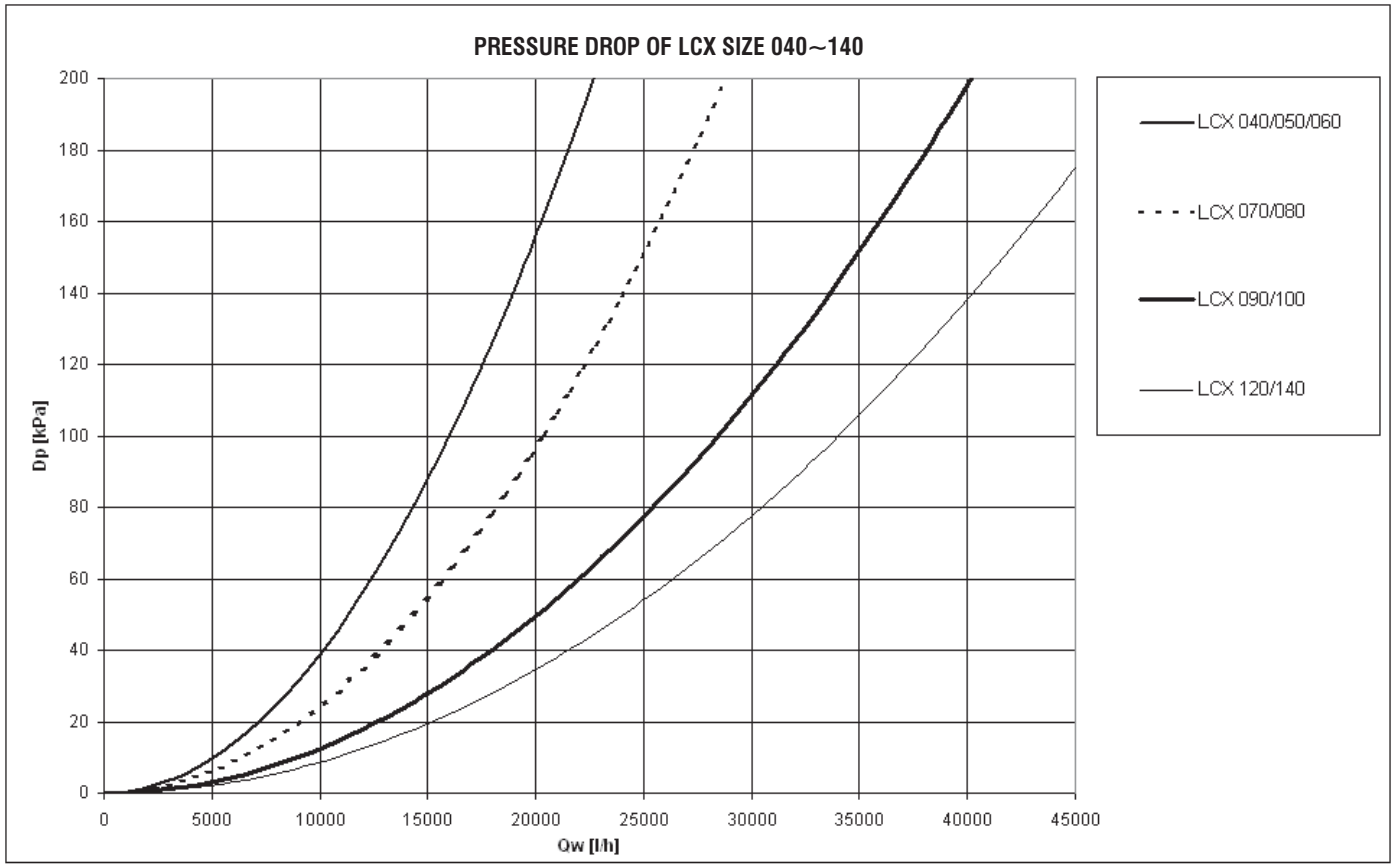


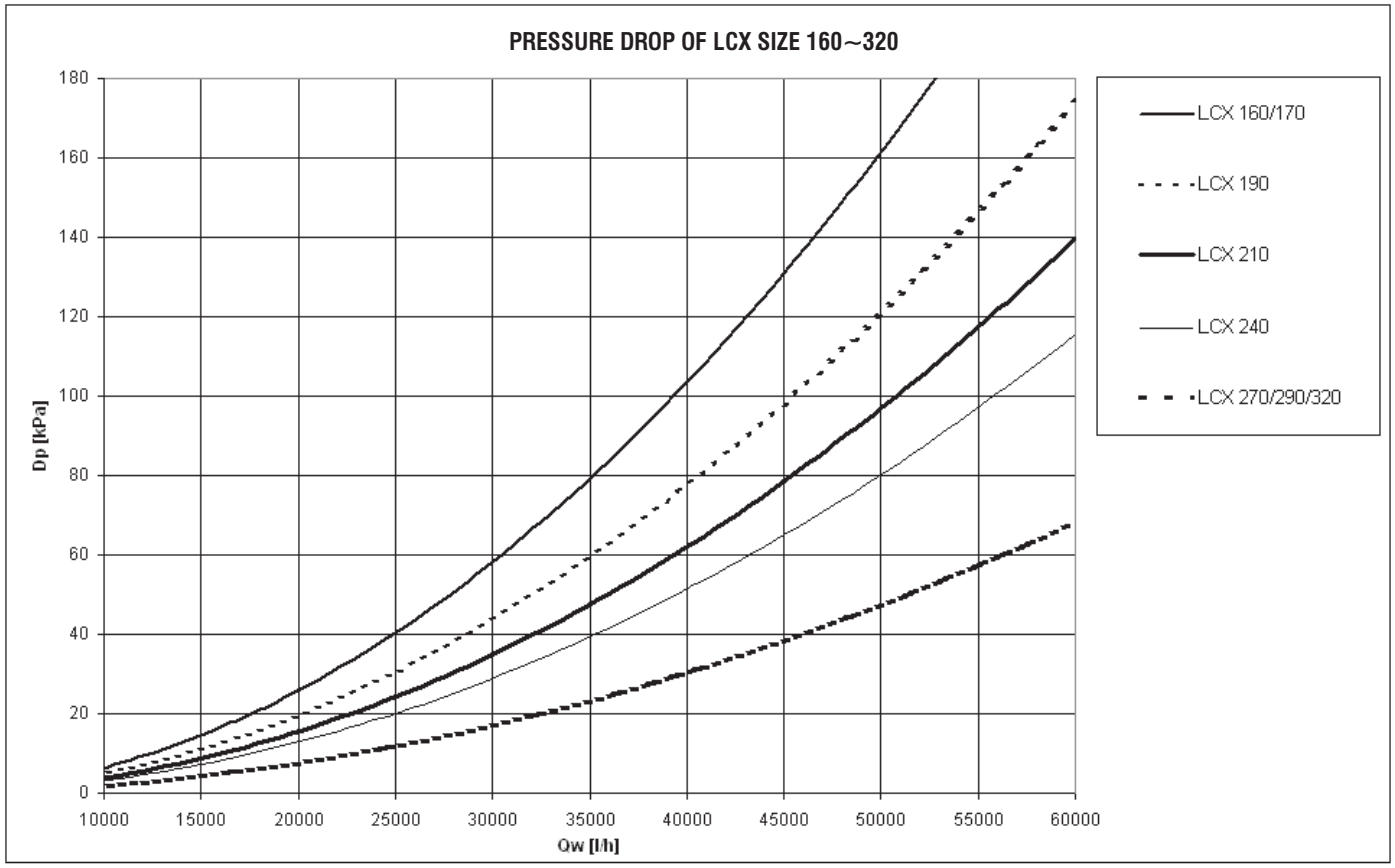

## 8.3 THERMAL CARRIER FLUID

The units belonging to the **LCX** series can work with mixtures of water and up to 35% ethylene glycol.

## 9 PRESSURE DROPS

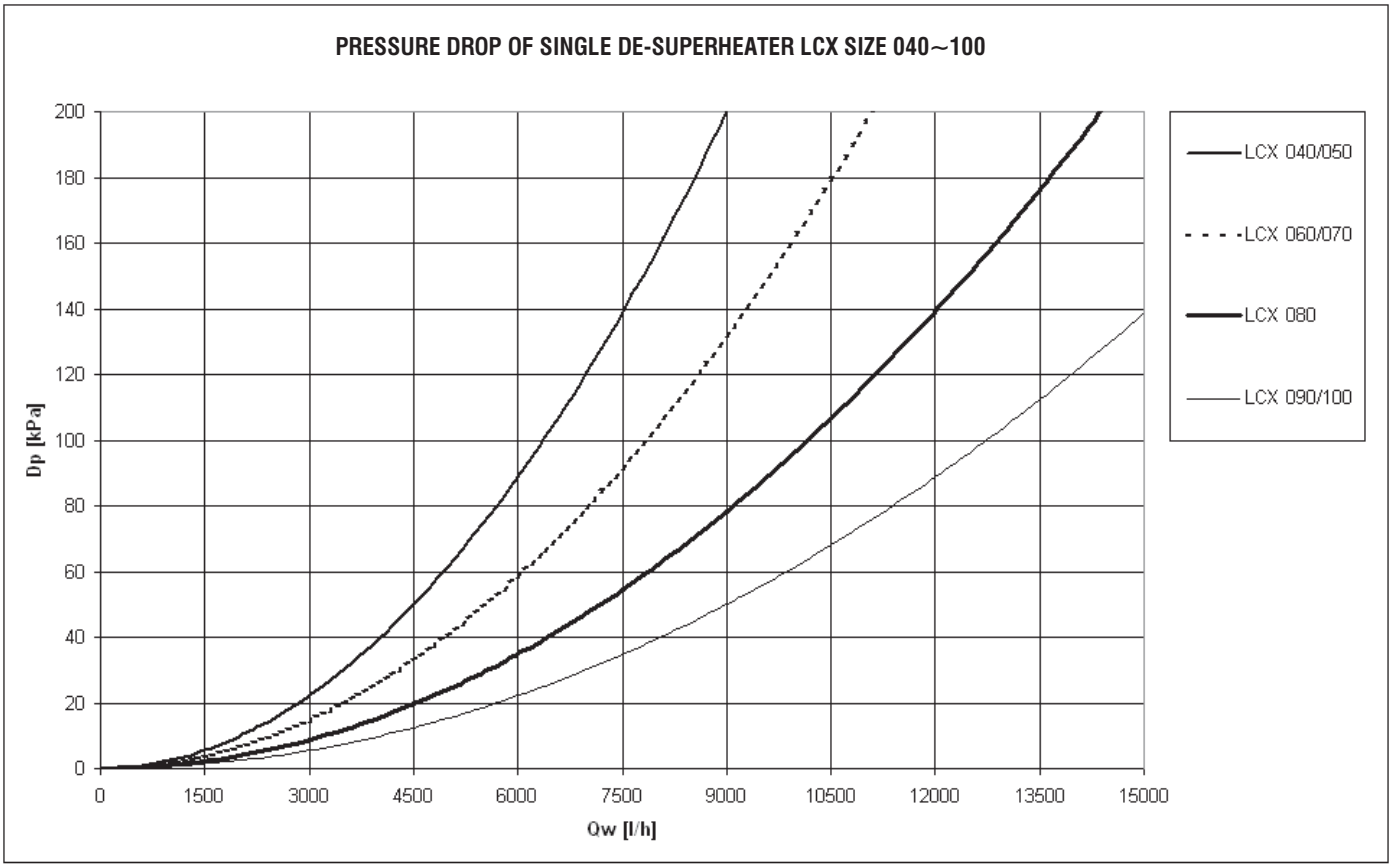
The diagram shows the evaporator pressure drops (**Dp**) as a function of the water flow rate (**Qw**), assuming an average water temperature of 10°C.

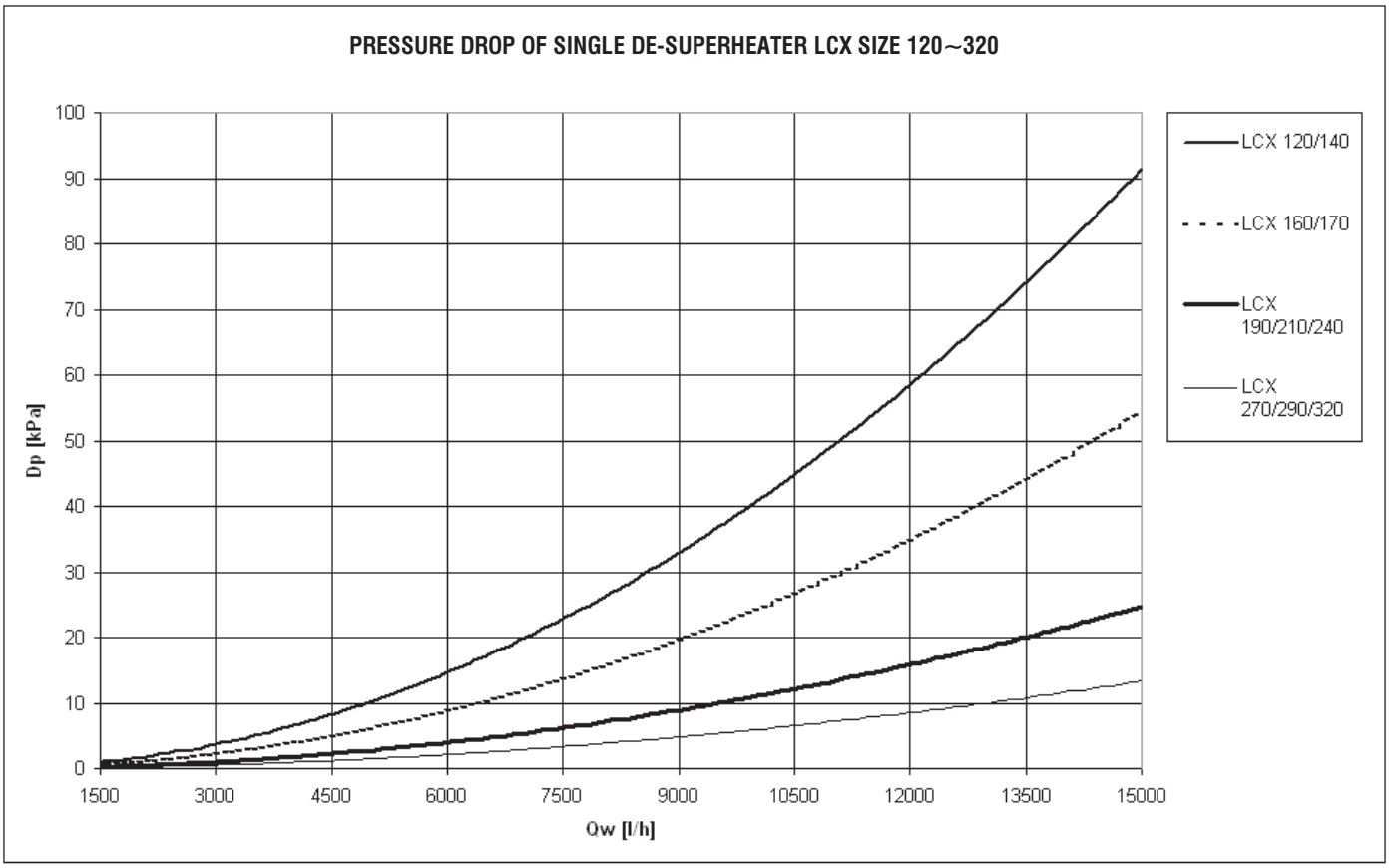


## 9 PRESSURE DROPS

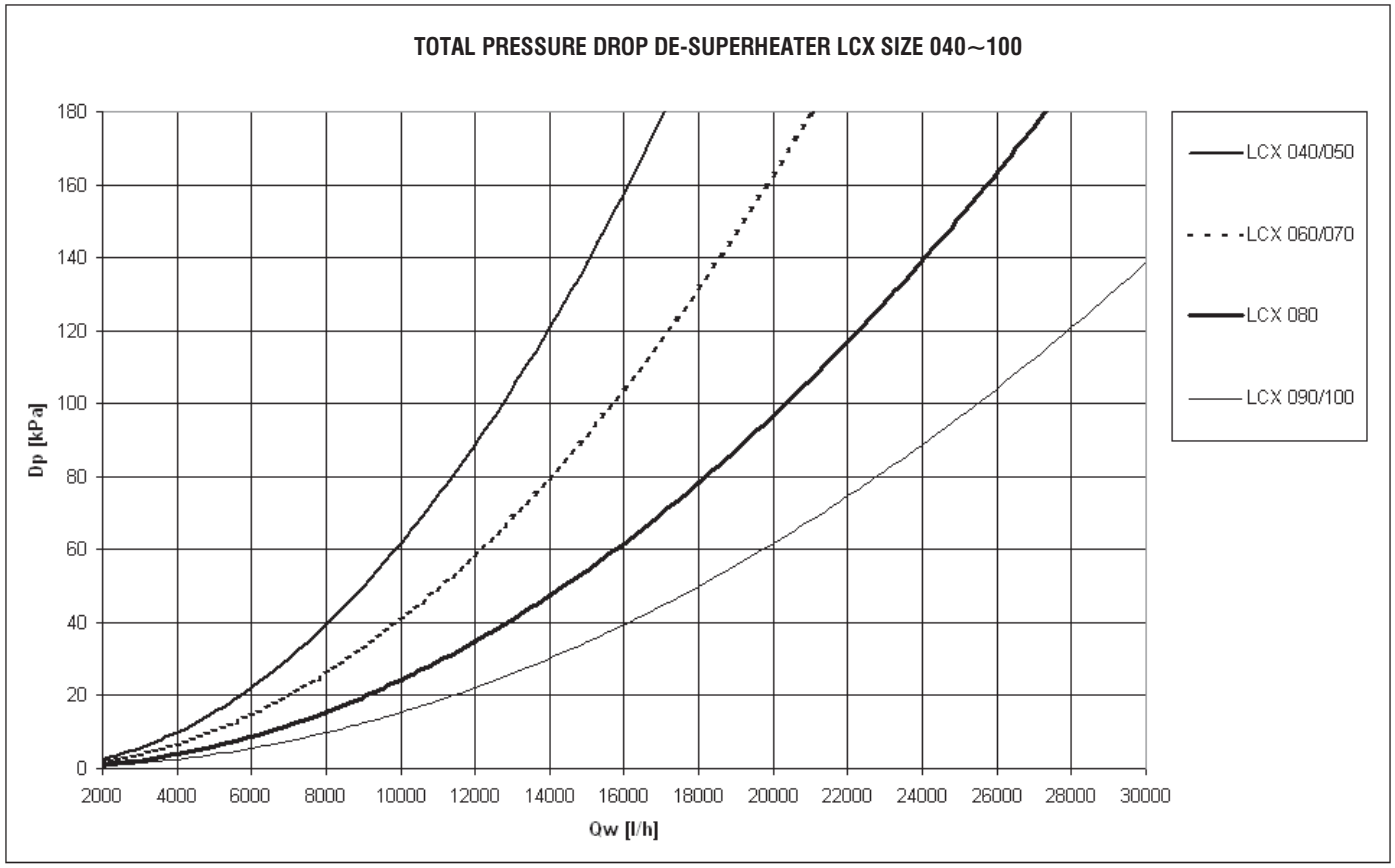
The diagram shows the evaporator pressure drops (**Dp**) as a function of the water flow rate (**Qw**), assuming an average water temperature of 10°C.

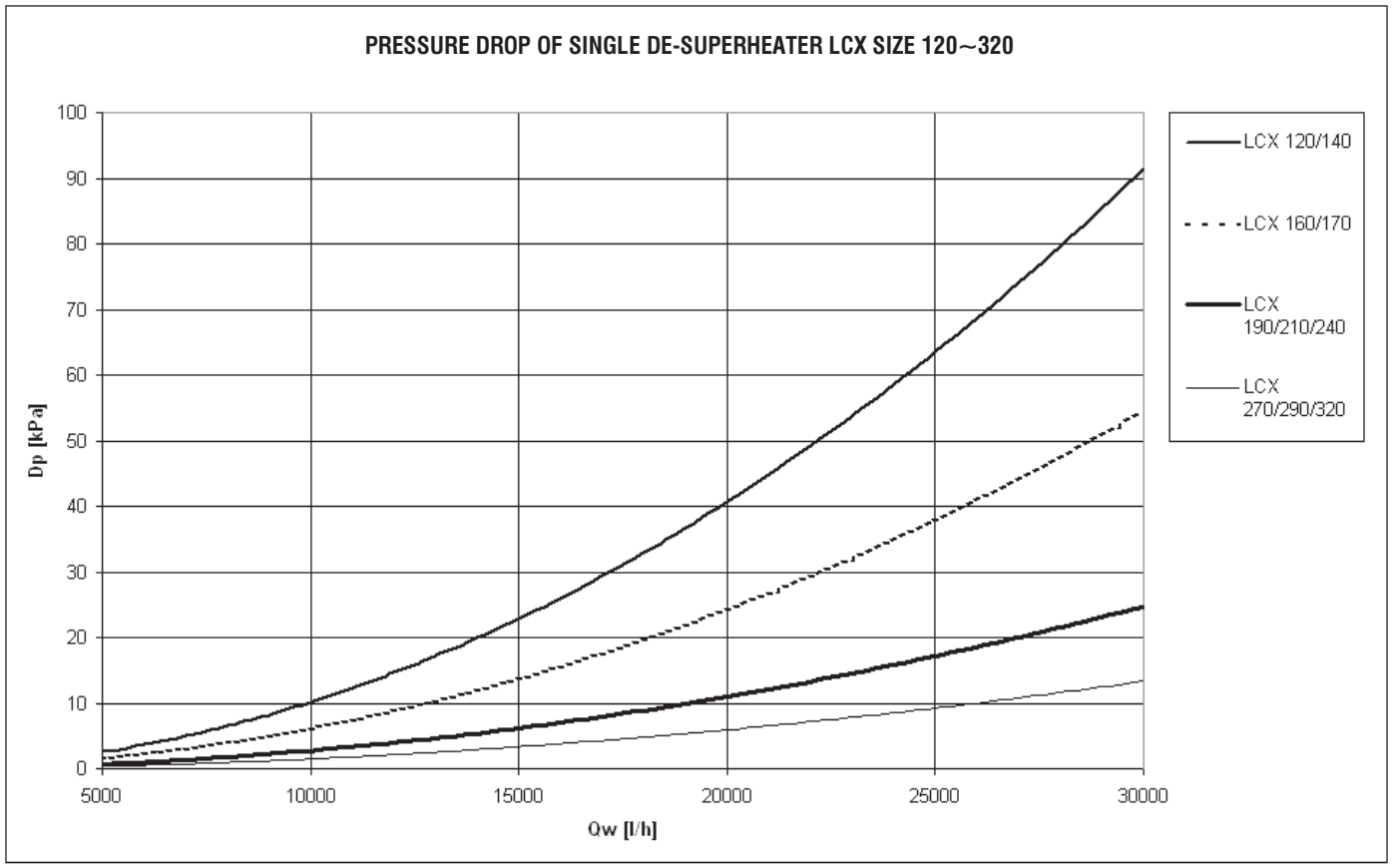


## 9 PRESSURE DROPS

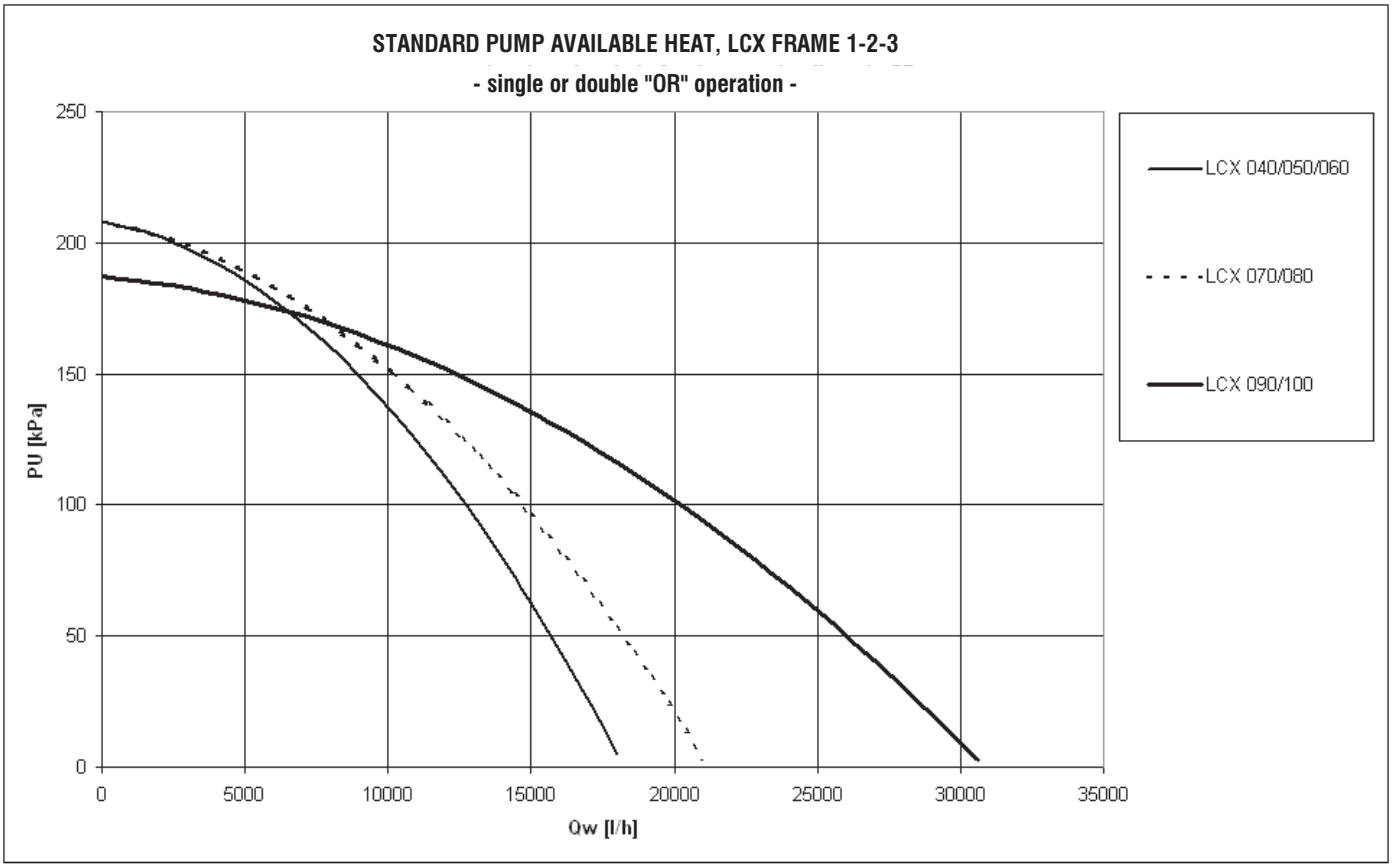
The diagram shows the evaporator pressure drops (**Dp**) as a function of the water flow rate (**Qw**), assuming an average water temperature of 10°C.

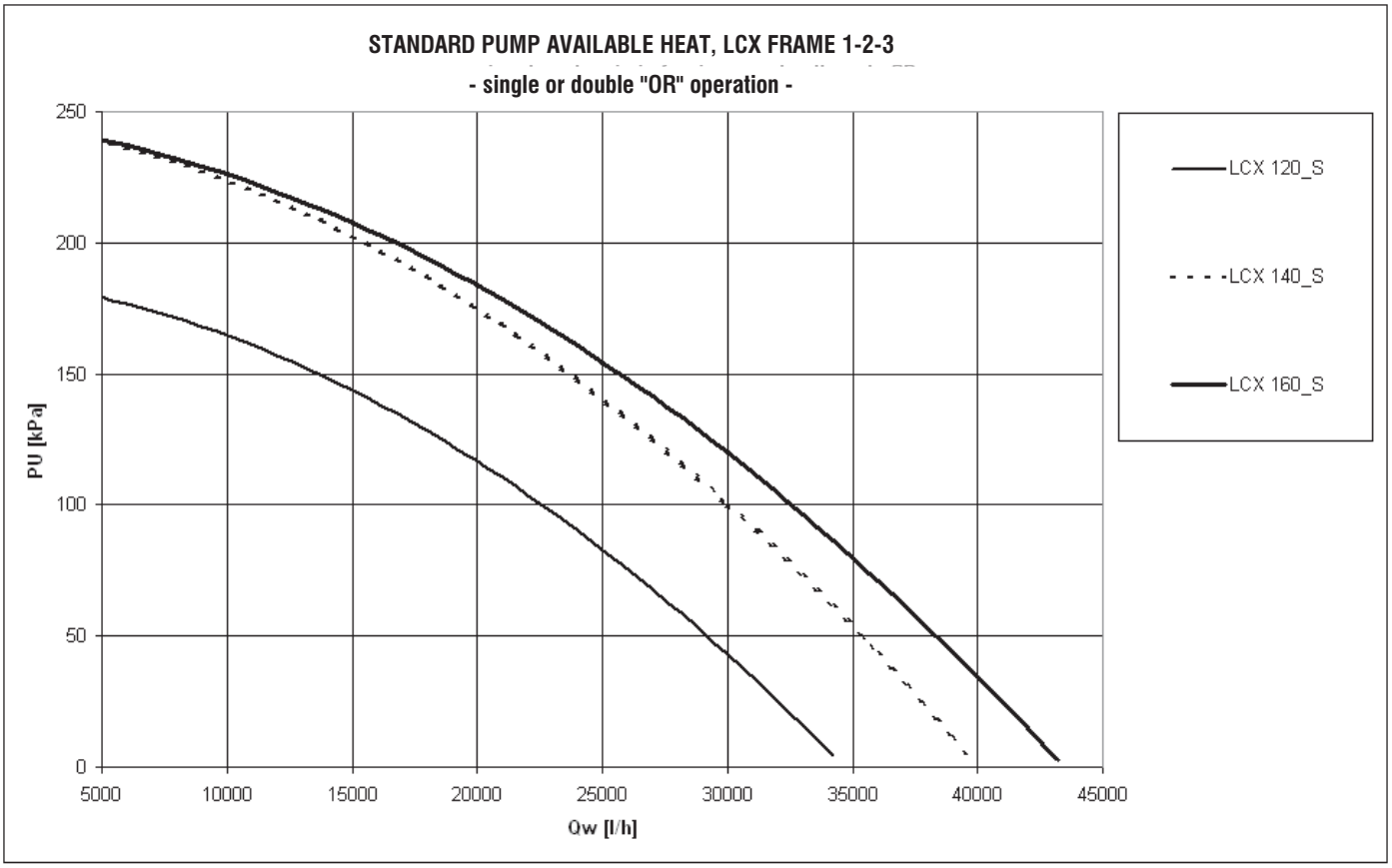


# 10 PUMPING SYSTEMS

## 10.1 STANDARD SINGLE OR DUAL PUMP WITH ALTERNATING OPERATION (“OR”)



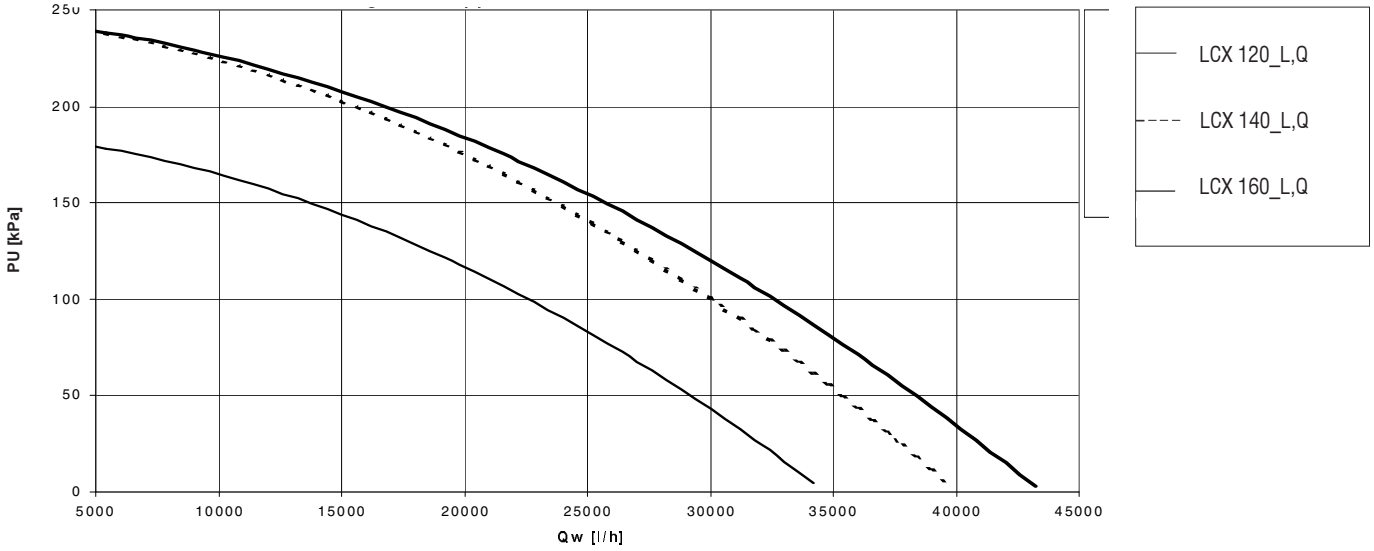



# 10 PUMPING SYSTEMS

## 10.1 STANDARD SINGLE OR DUAL PUMP WITH ALTERNATING OPERATION (“OR”)

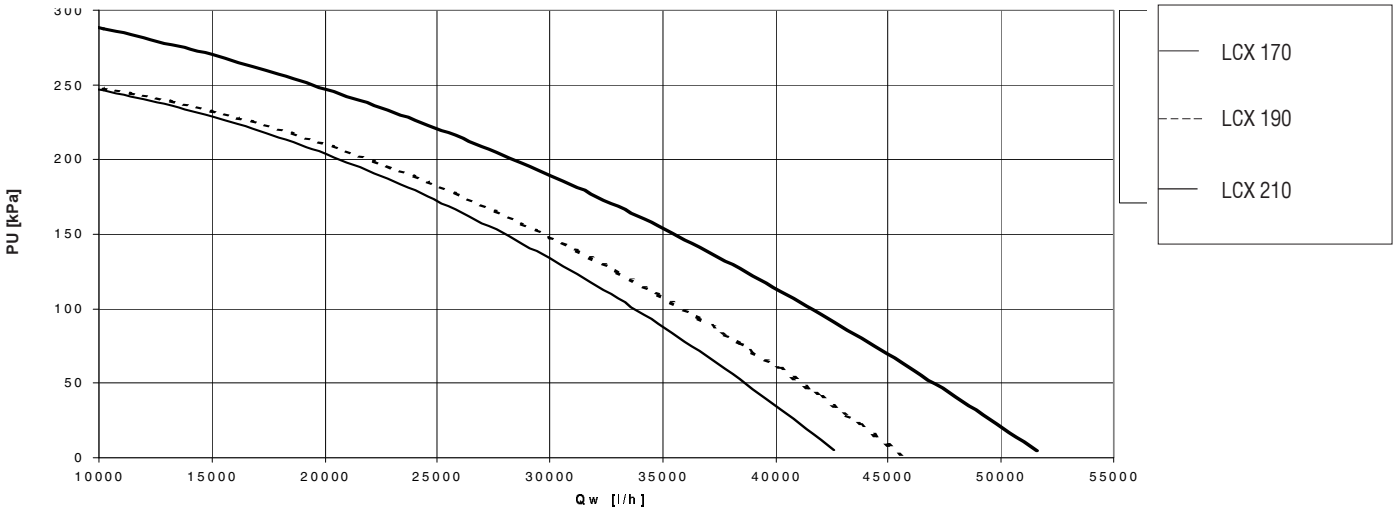
**STANDARD PUMP AVAILABLE HEAT, LCX FRAME 4**

**- single or double "OR" operation -**




**STANDARD PUMP AVAILABLE HEAT, LCX FRAME 1-2-3**

**- single or double "OR" operation -**

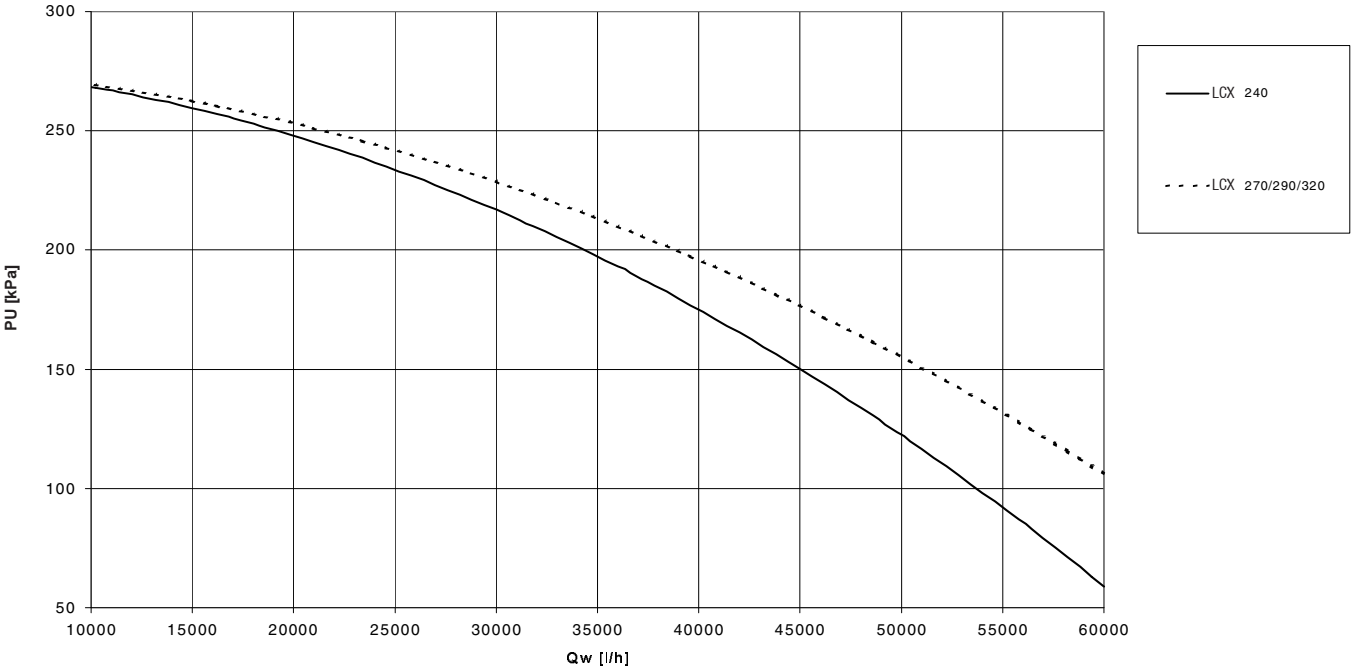


# 10 PUMPING SYSTEMS

## 10.1 STANDARD SINGLE OR DUAL PUMP WITH ALTERNATING OPERATION (“OR”)

**STANDARD PUMP AVAILABLE HEAT, LCX FRAME 5-6**

**- single or double "OR" operation -**

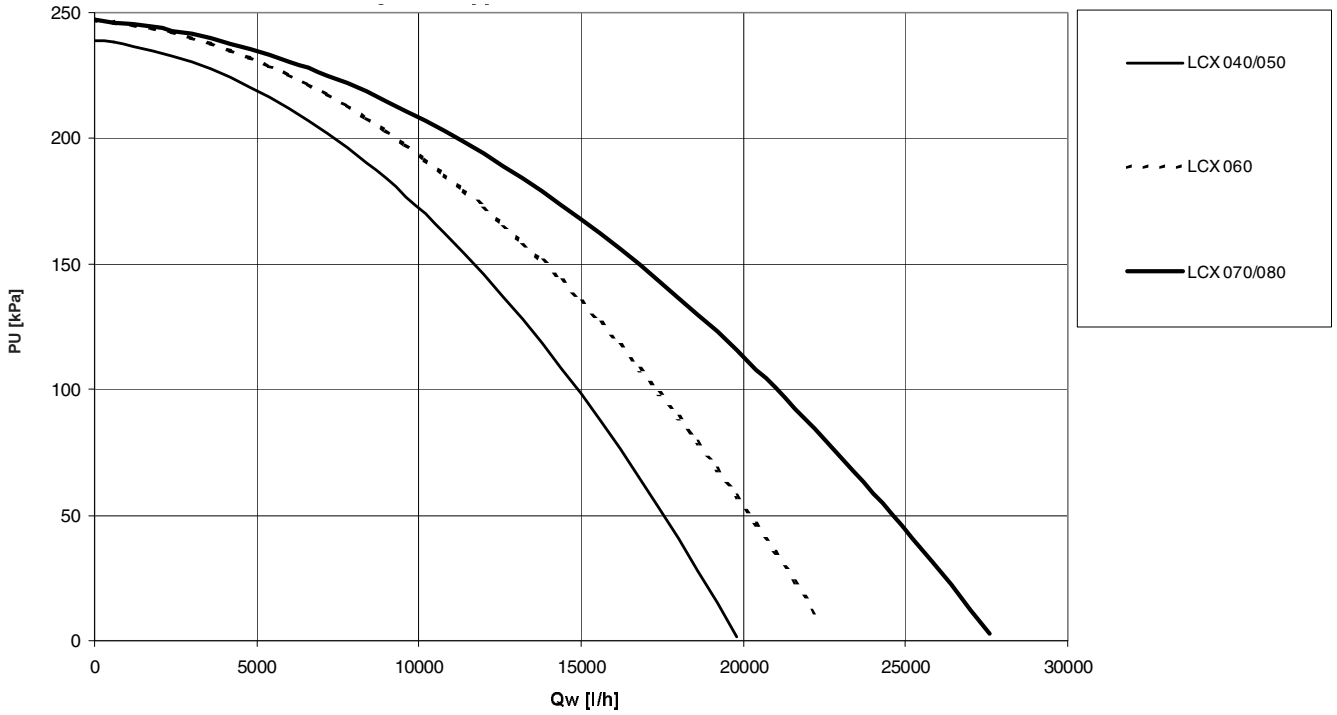


# 10 PUMPING SYSTEMS

## 10.2 UPRATED SINGLE OR DUAL PUMP WITH ALTERNATING OPERATION ("OR")

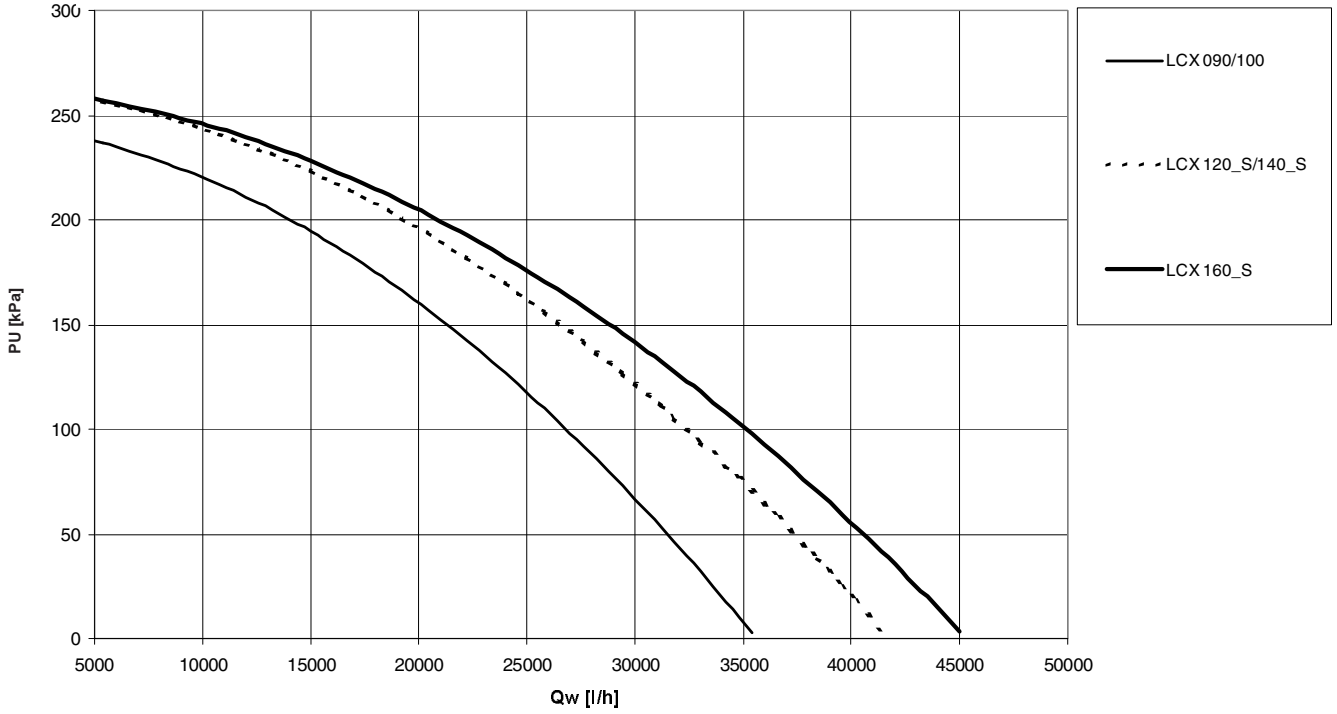
**UPRATED PUMP AVAILABLE HEAT, LCX FRAME 1-2-3**

**- single or double "OR" operation -**




**UPRATED PUMP AVAILABLE HEAT, LCX FRAME 1-2-3**

**- single or double "OR" operation -**

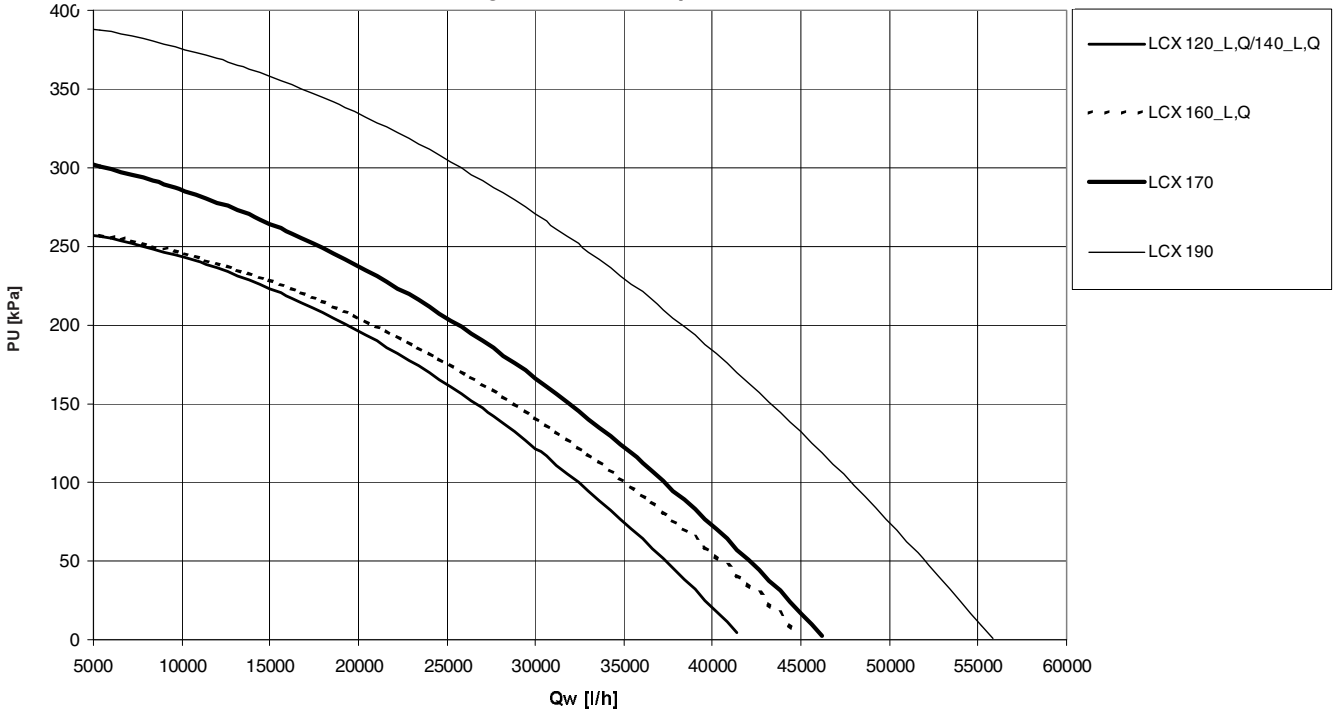


# 10 PUMPING SYSTEMS

## 10.2 UPRATED SINGLE OR DUAL PUMP WITH ALTERNATING OPERATION (“OR”)

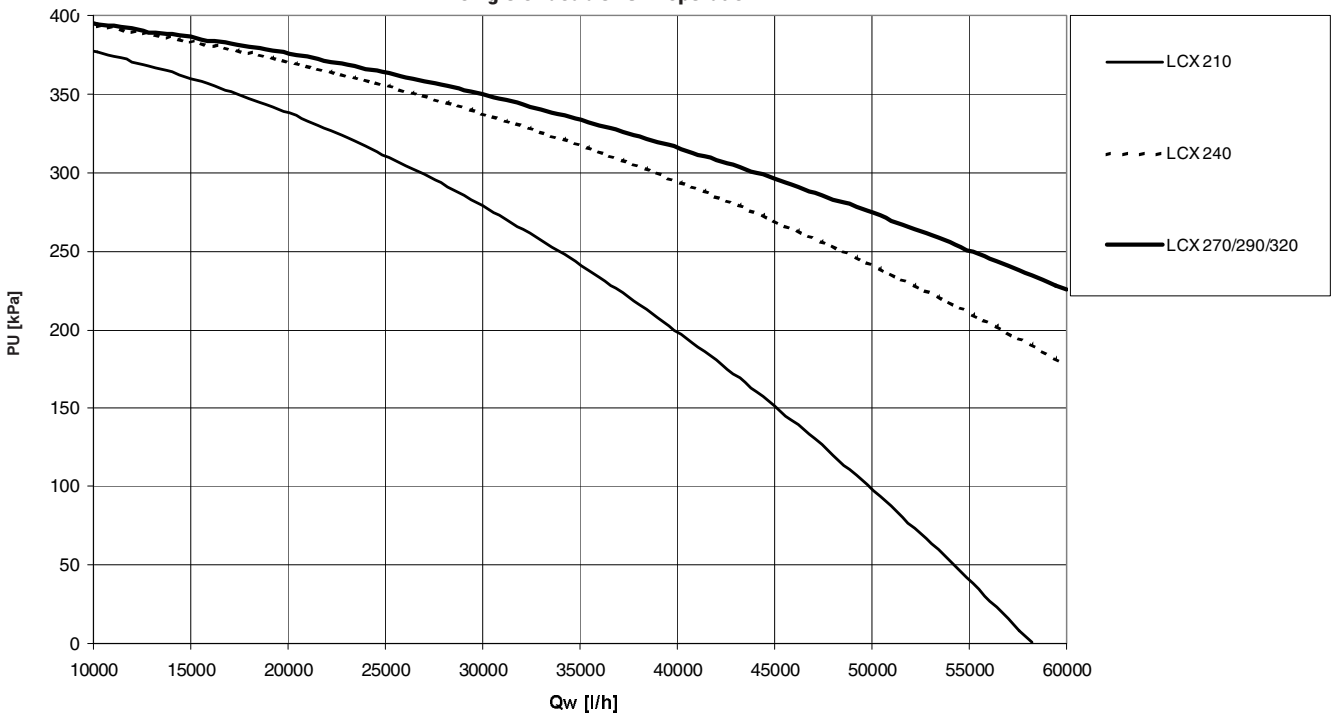
**UPRATED PUMP AVAILABLE HEAT, LCX FRAME 4**

**- single or double "OR" operation -**




**UPRATED PUMP AVAILABLE HEAT, LCX FRAME 4-5-6**

**- single or double "OR" operation -**

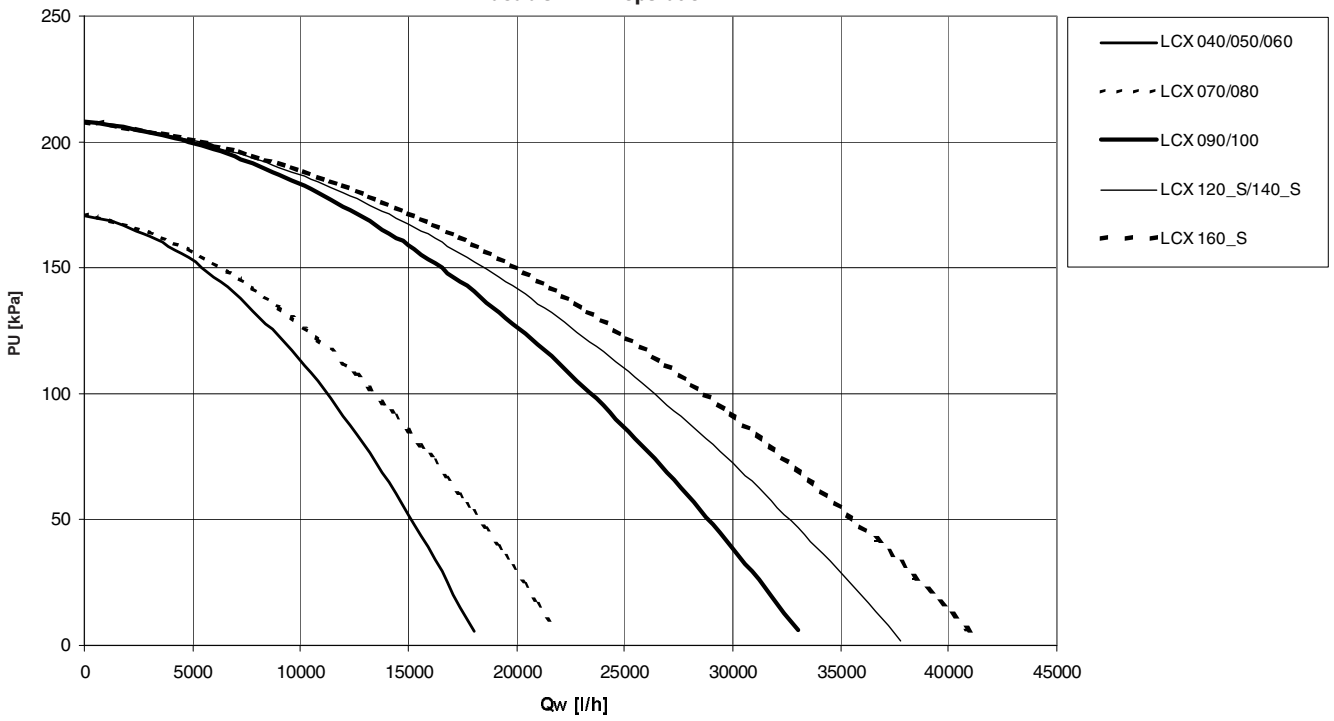


# 10 PUMPING SYSTEMS

## 10.3 STANDARD DUAL PUMP WITH SIMULTANEOUS OPERATION ("AND")

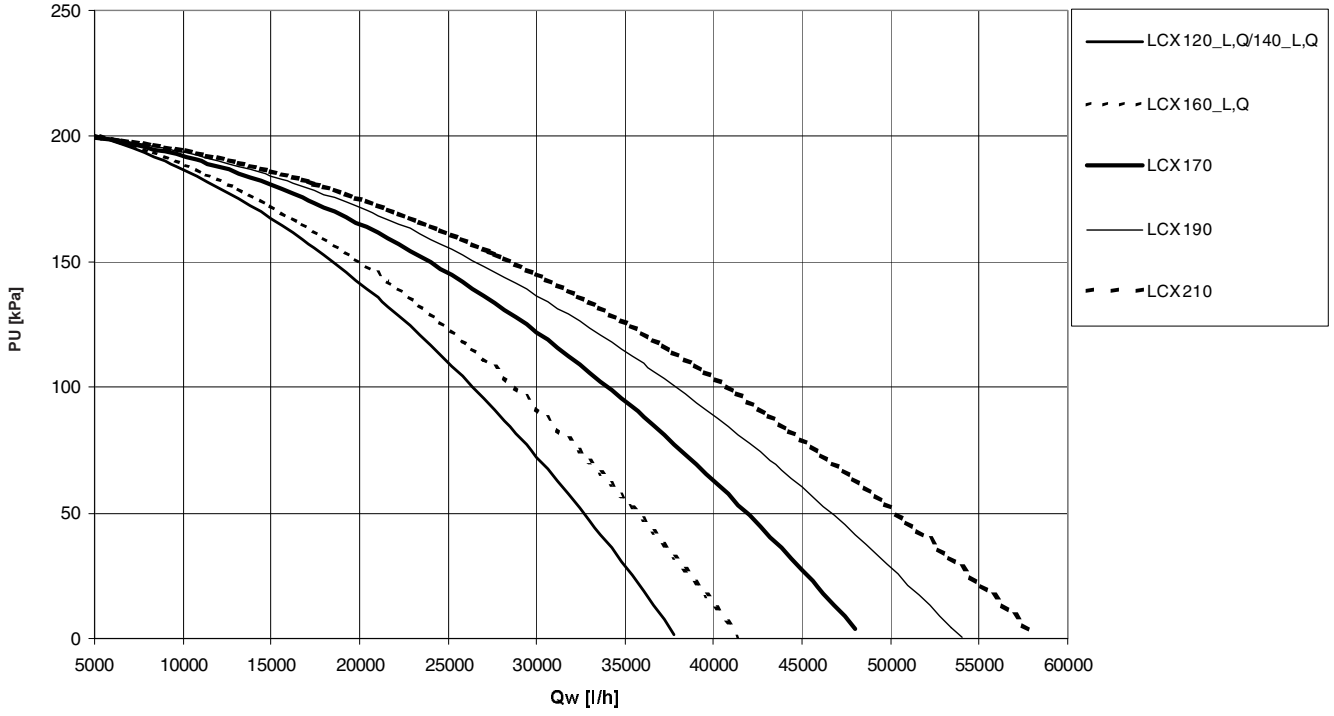
**STANDARD PUMP AVAILABLE HEAT, LCX FRAME 1-2-3**

**- double "AND" operation -**



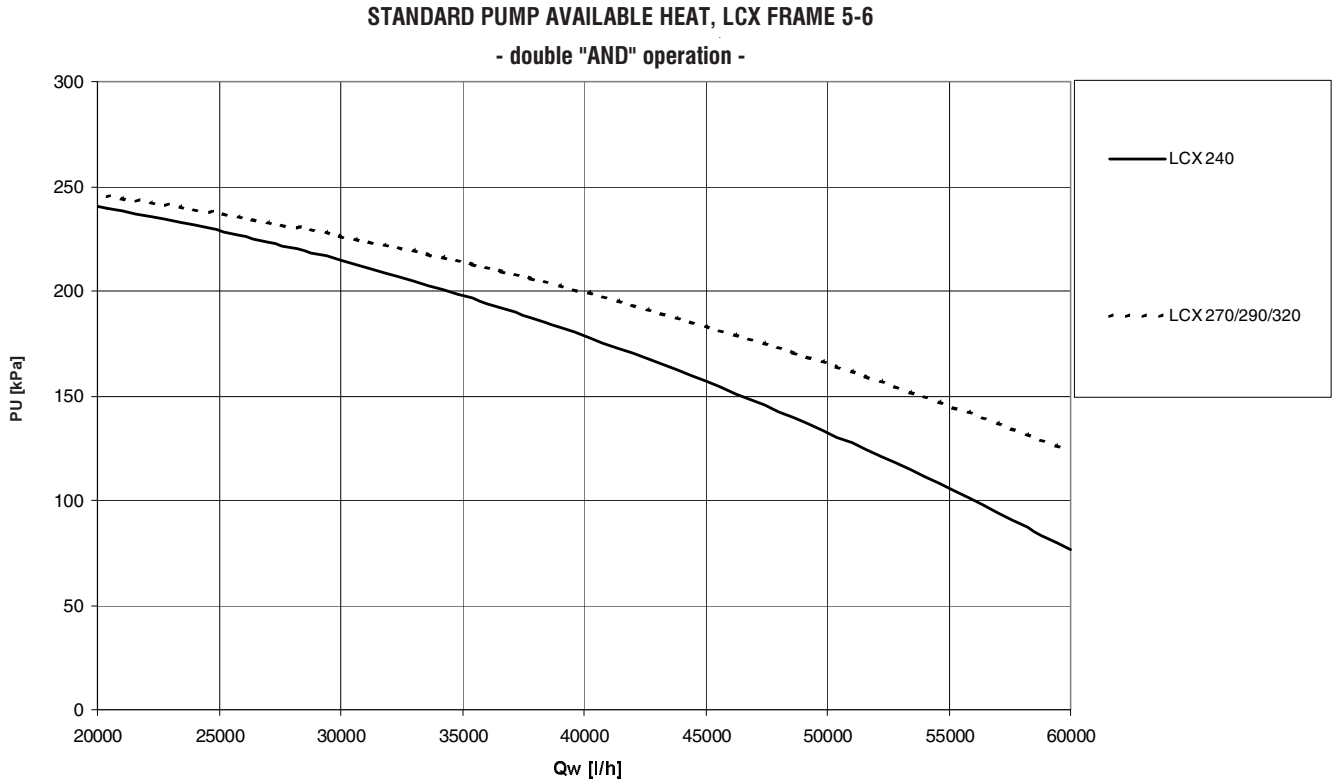

**STANDARD PUMP AVAILABLE HEAT, LCX FRAME 4**

**- double "AND" operation -**

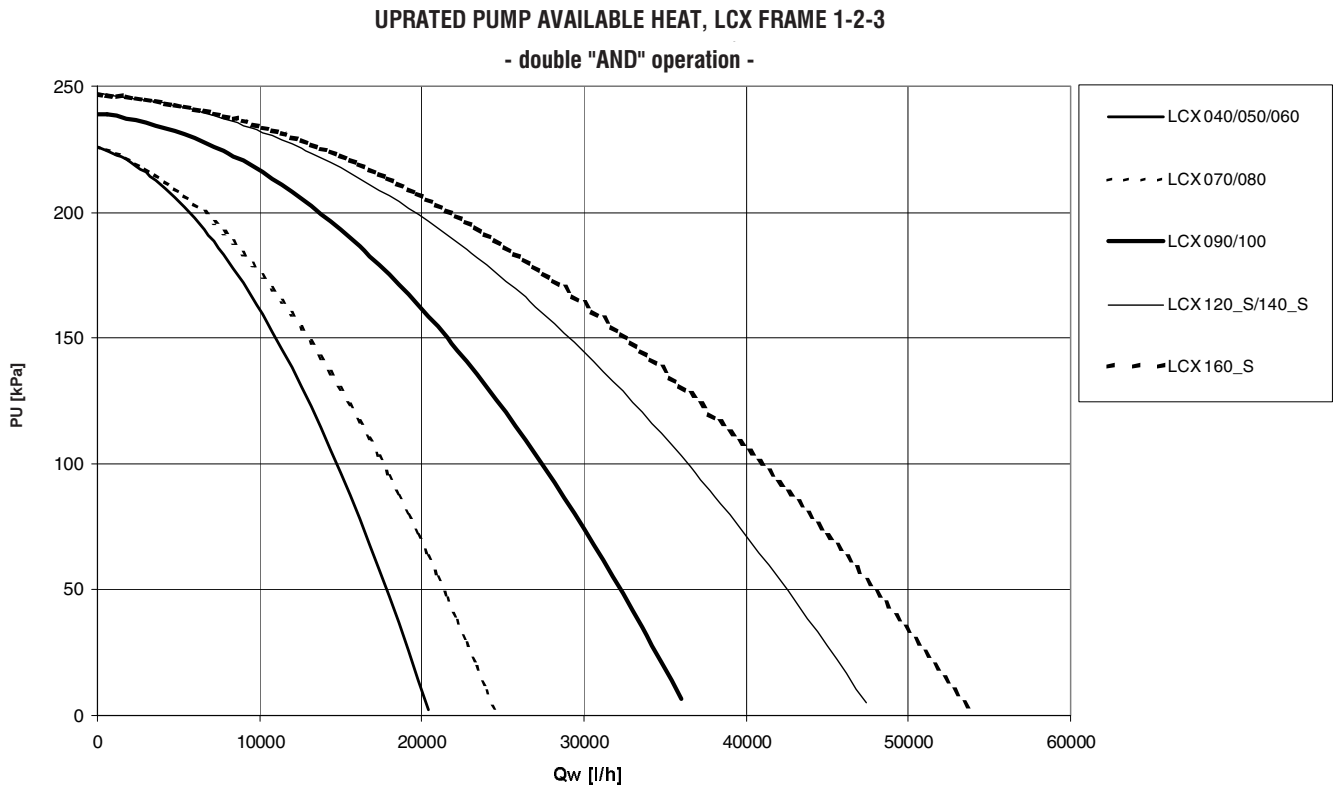


# 10 PUMPING SYSTEMS

## 10.3 STANDARD DUAL PUMP WITH SIMULTANEOUS OPERATION (“AND”)




## 10.4 UPRATED DUAL PUMP WITH SIMULTANEOUS OPERATION (“AND”)

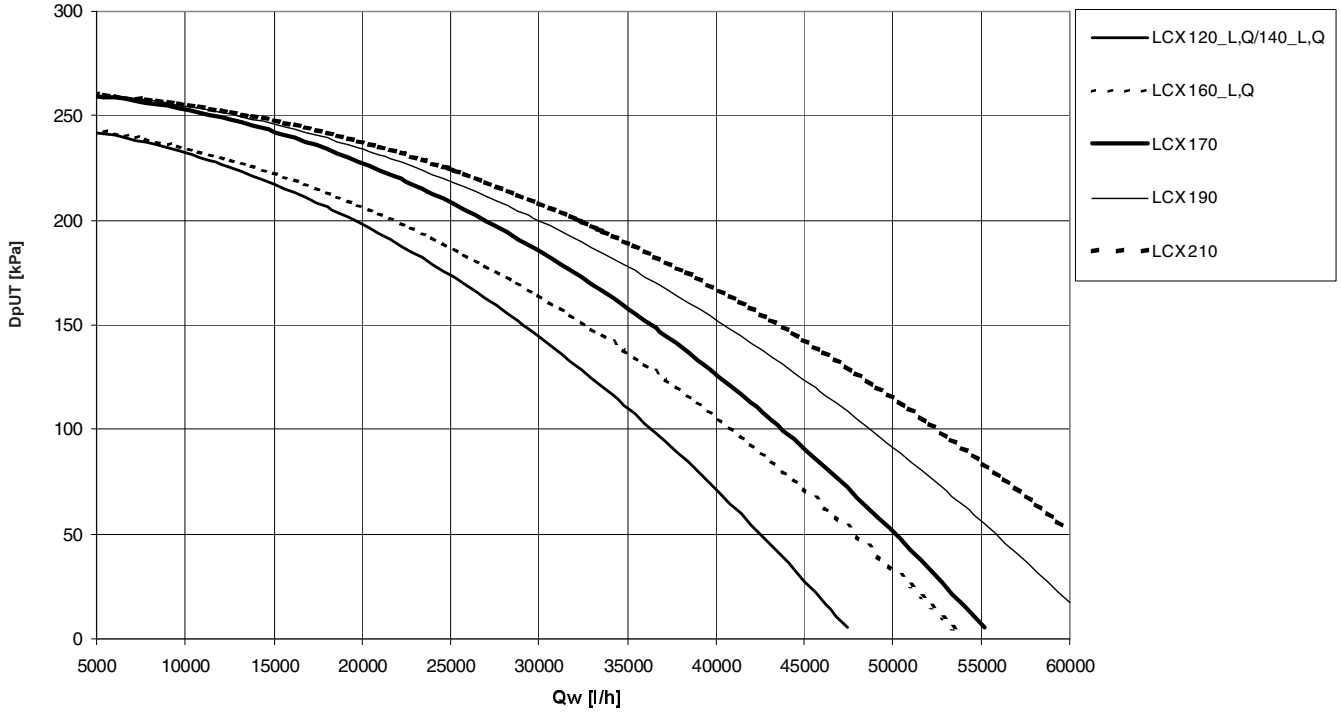


# 10 PUMPING SYSTEMS

## 10.4 UPRATED DUAL PUMP WITH SIMULTANEOUS OPERATION (“AND”)

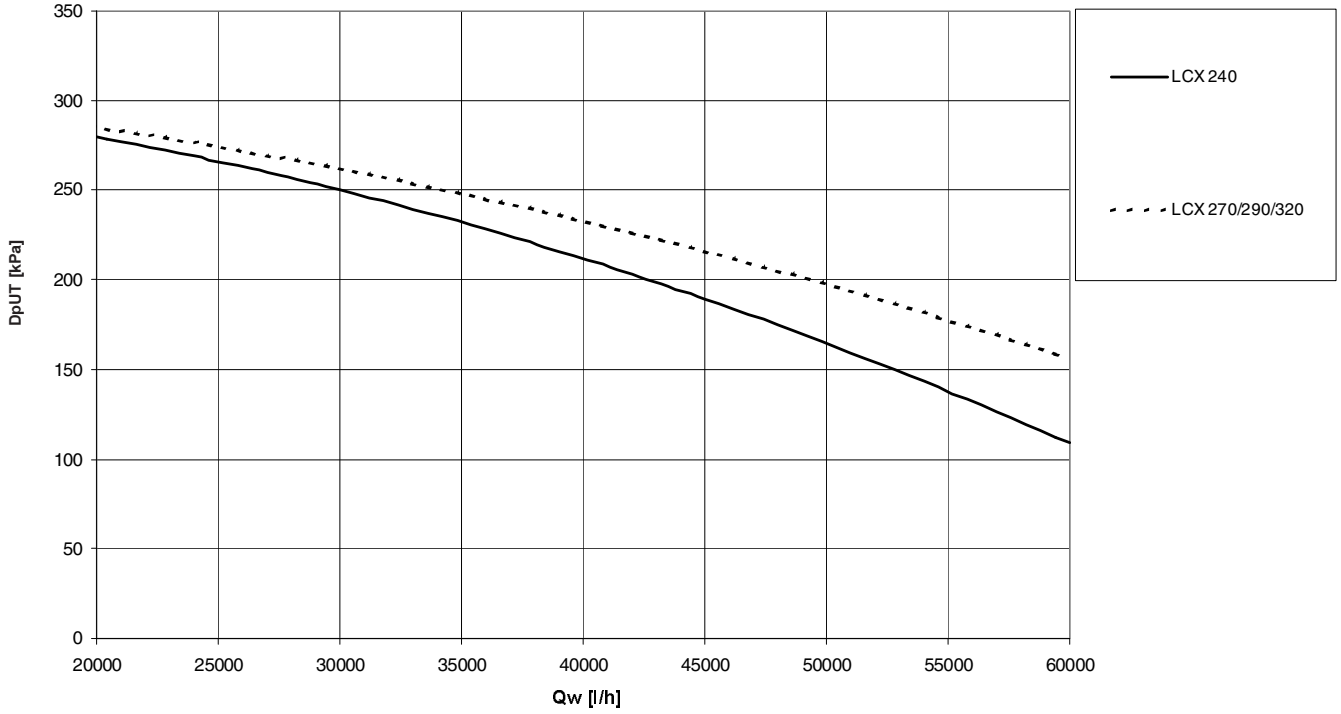
**UPRATED PUMP AVAILABLE HEAT, LCX FRAME 4**

**- double "AND" operation -**




**UPRATED PUMP AVAILABLE HEAT, LCX FRAME 5-6**

**- double "AND" operation -**



## 11 WATER CIRCUIT

When setting up the water circuit of the unit, it is advisable to follow the directions below and in any case comply with local or national regulations.

Connect the pipes to the chiller using flexible couplings to prevent the transmission of vibrations and to compensate thermal expansions.

It is recommended to install the following components on the pipes:
- pair of quick connect couplings with welding ring (optional selectable from the price list). They facilitate the operations of connecting the unit to the system and greatly speed up installation.
- Temperature and pressure indicators for routine maintenance and monitoring of the unit. Checking the pressure on the water side will enable you to verify whether the expansion tank is working efficiently and to promptly detect any water leaks within the equipment.
- Traps on incoming and outgoing pipes for temperature measurements, which can provide a direct reading of the operating temperatures. Temperature readings can in any case be obtained from the microprocessor installed on the unit.
- Regulating valves (gate valves) for isolating the unit from the water circuit.
- Metal mesh filter, with a mesh size no greater than 1 mm, to be fitted on the inlet pipe to protect the exchanger from scale or impurities present in the pipes.
- Air vent valves, to be placed at the highest points of the water circuit for the purpose of bleeding air. (The internal pipes of the unit are fitted with small air vent valves for bleeding the unit itself: this operation may only be carried out when the unit is disconnected from the power supply). Make sure that the circuit is completely full of water. Then carefully bleed out the air and check again that no air is present before starting the pump for the first time.
- Drainage valve and, where necessary, a drainage tank for emptying out the equipment for maintenance purposes or when the unit is taken out of service at the end of the season. (A 1" drainage valve is provided on the optional water buffer tank: this operation may only be carried out when the unit is disconnected from the power supply).

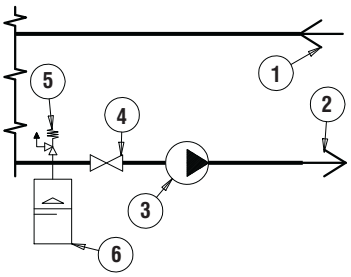
It is of fundamental importance that the incoming water supply is hooked up to the connection marked "Water Inlet".

Otherwise the evaporator would be exposed to the risk of freezing since the antifreeze thermostat would not be able to perform its function; moreover the reverse cycle would not be respected in the cooling mode, resulting in additional risks of malfunctioning.

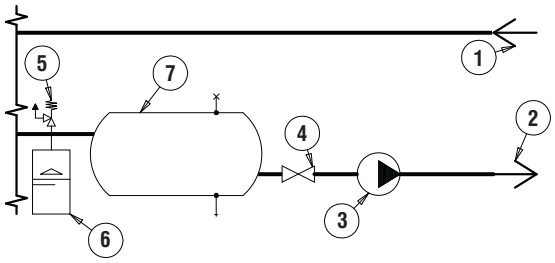
The dimensions and position of plumbing connections are shown in the dimension tables at the end of this manual.

The water circuit must be set up in such a way as to guarantee that the nominal flow rate of the water supplied to the evaporator remains constant (+/- 15%) in all operating conditions.
A standard feature of the units is a device for controlling the flow rate (flow switch) in the water circuit in the immediate vicinity of the evaporator.

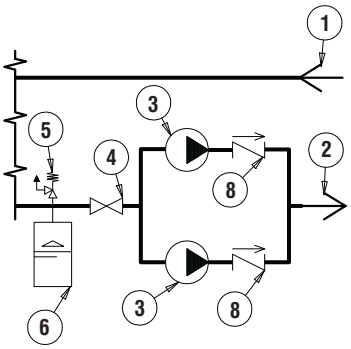
**INCORPORATED HYDRAULIC KITS - PUMP AND EXPANSION TANK**



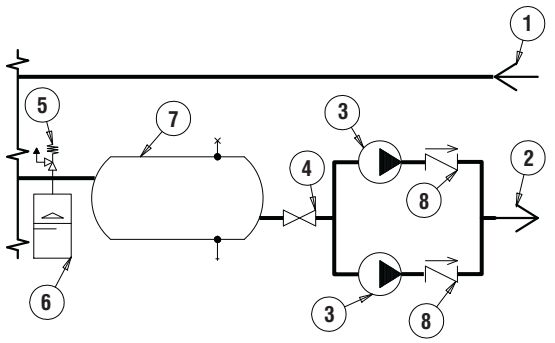

**INCORPORATED HYDRAULIC KITS - PUMP AND EXPANSION TANK BUFFER TANK**




**INCORPORATED HYDRAULIC KITS - DUAL PUMP AND EXPANSION TANK**




**INCORPORATED HYDRAULIC KITS - DUAL PUMP AND EXPANSION TANK BUFFER TANK**



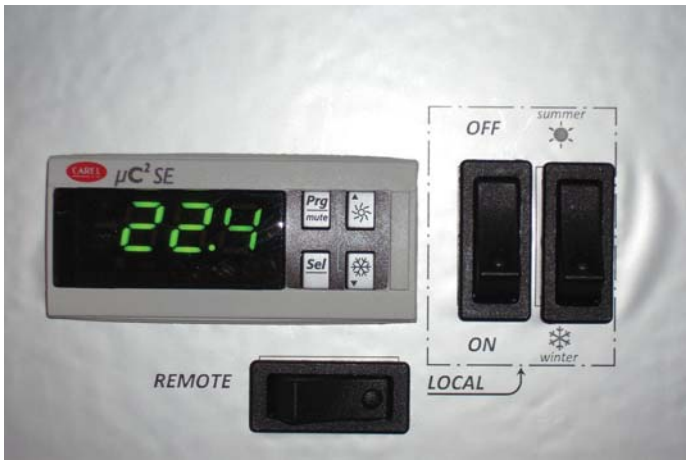

| LEGEND OF PLUMBING DIAGRAMS | |
|---|---|
| **1** | Water inlet |
| **2** | Water outlet |
| **3** | Circulation pump |
| **4** | Gate valve |

| LEGEND OF PLUMBING DIAGRAMS | |
|---|---|
| **5** | safety valve |
| **6** | expansion tank |
| **7** | inertial buffer tank |
| **8** | check valve |

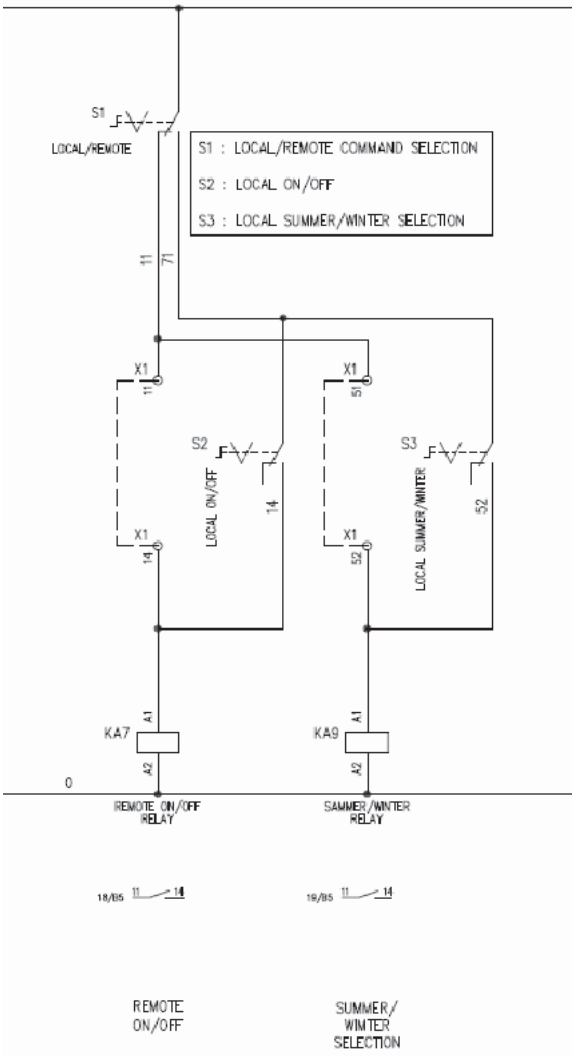
## 12 ELECTRICAL CONNECTIONS

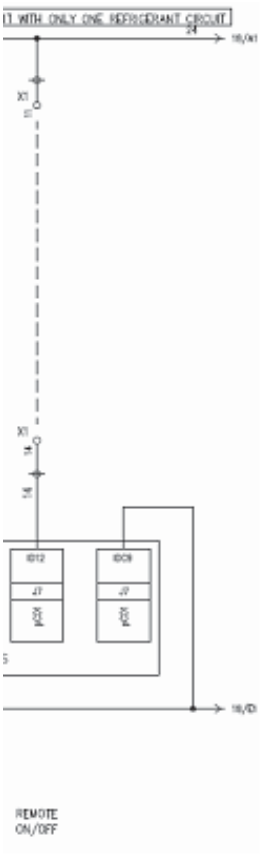
The electrical connections must be made in accordance with the information shown in the wiring diagram provided with the unit and current regulations.
A standard feature of all units is a phase sequence relay which verifies that the phase sequence is correct: this is necessary to ensure the complete functionality of the machine before enabling compressor start-up.
If you wish to include a remote control for switching the unit on and off, you must remove the bridge between the contacts indicated in the wiring diagram and connect the remote ON/OFF control to the terminals themselves.

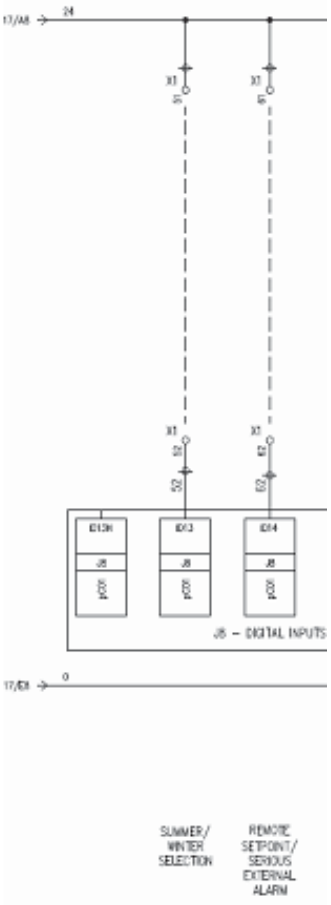
**BASE MICROPROCESSOR CONTROL**




**ADVANCED MICROPROCESSOR CONTROL**

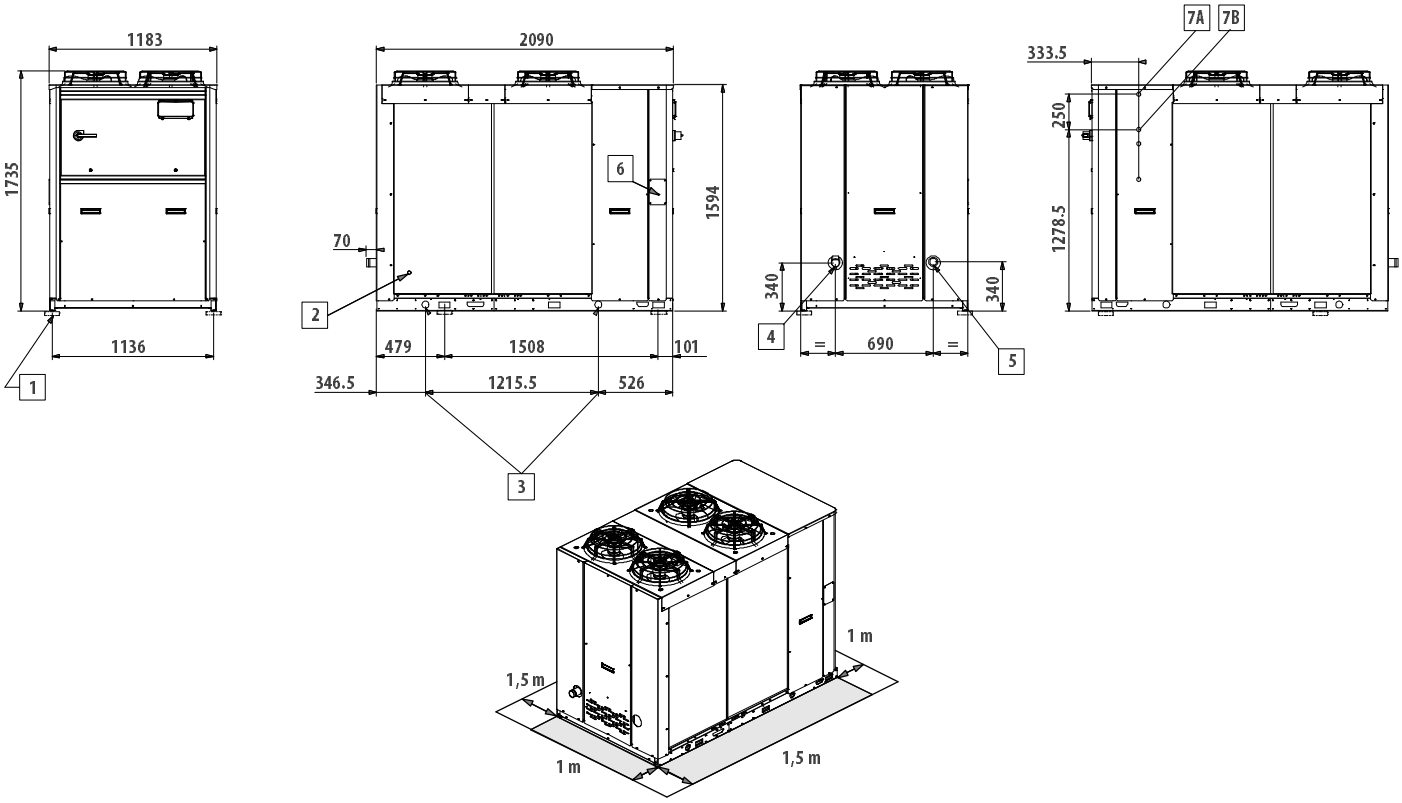



## 13 DIMENSIONAL DRAWINGS

### LCX FRAME 1



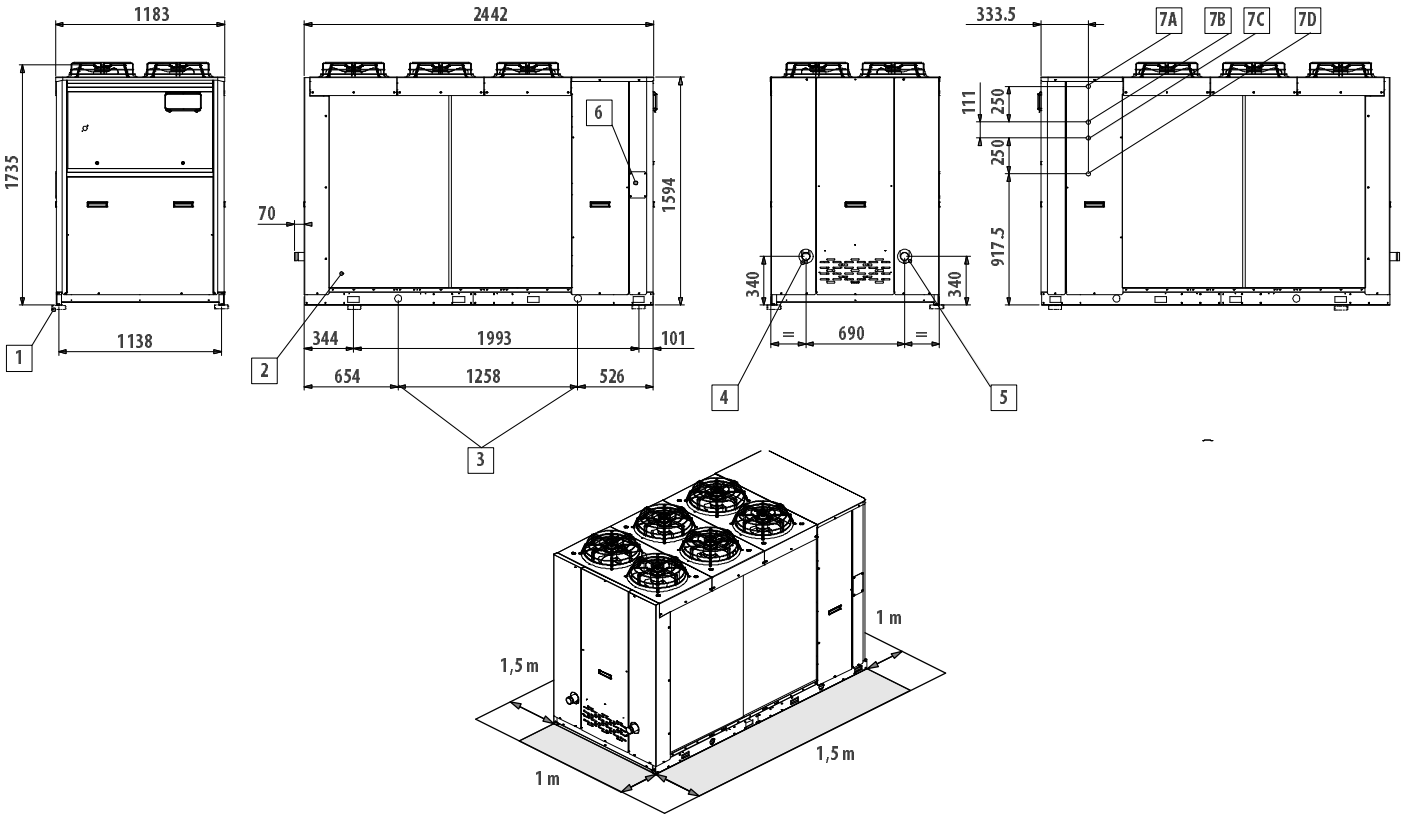

| MODEL | VERSION |
|---|---|
| LCX 42 | L - Q |
| LCX 52 | L - Q |
| LCX 62 | S |
| LCX 72 | S |
| LCX 82 | S |

KEY

| | |
|---|---|
| 1 | Vibration damping supports |
| 2 | Protection grill (optional) |
| 3 | Lifting points |
| 4 | Water inlet (Victaulic 2”) |
| 5 | Water outlet (Victaulic 2”) |
| 6 | Power supply cable inlet |
| 7A | Water outlet heat recovery (1”) |
| 7B | Water inlet heat recovery (1”) |

## 13 DIMENSIONAL DRAWINGS

### LCX FRAME 2



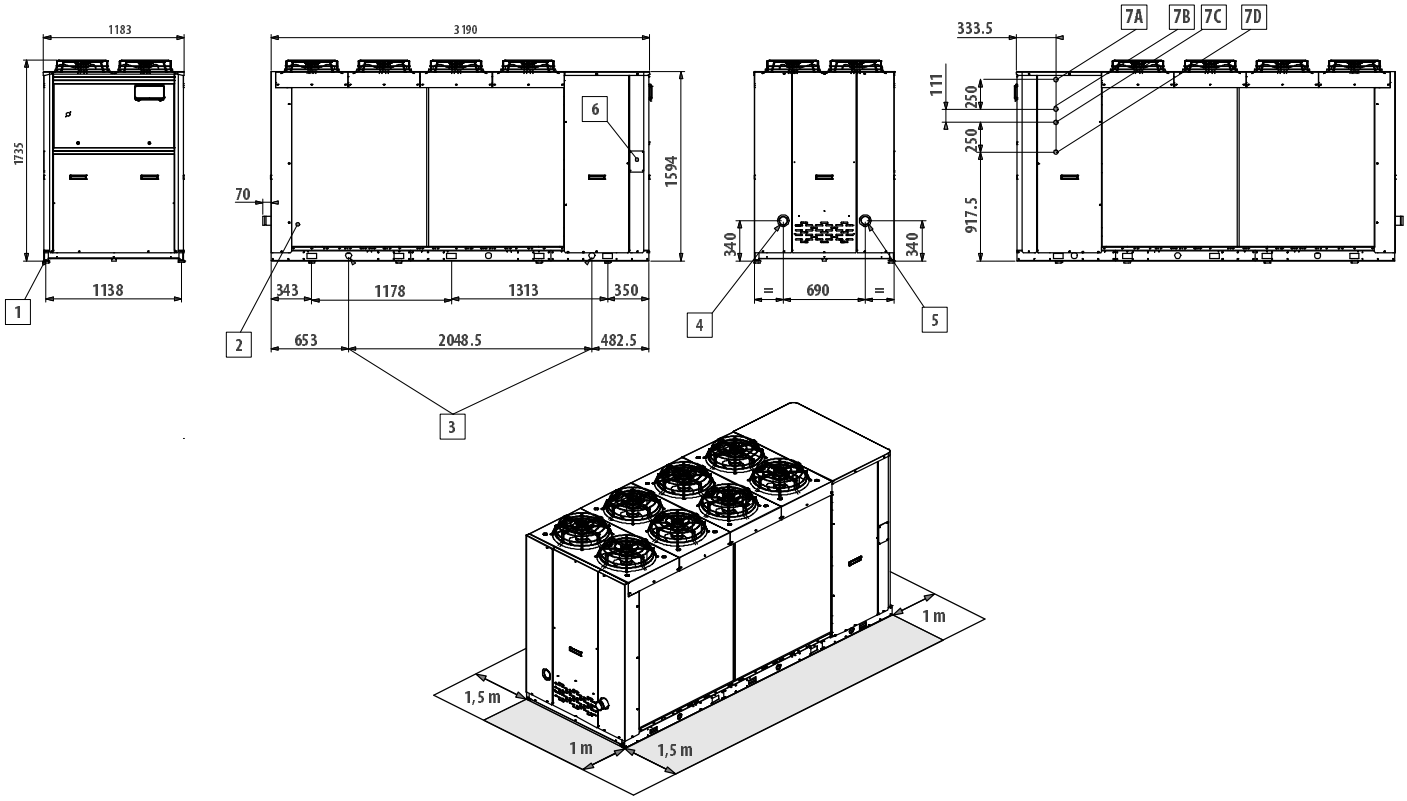

| MODEL | VERSION |
|---|---|
| **LCX 62** | L - Q |
| **LCX 72** | L - Q |
| **LCX 82** | L - Q |
| **LCX 91** | S |
| **LCX 92** | S |
| **LCX 101** | S |
| **LCX 102** | S |

KEY

| | |
|---|---|
| **1** | Vibration damping supports |
| **2** | Protection grill (optional) |
| **3** | Lifting points |
| **4** | Water inlet (Victaulic 2”) |
| **5** | Water outlet (Victaulic 2”) |
| **6** | Power supply cable inlet |
| **7A** | Water outlet heat recovery (1”) left circuit |
| **7B** | Water inlet heat recovery (1”) left circuit |
| **7C** | Water outlet heat recovery (1”) right circuit |
| **7D** | Water inlet heat recovery (1”) right circuit |

## 13 DIMENSIONAL DRAWINGS

### LCX FRAME 3

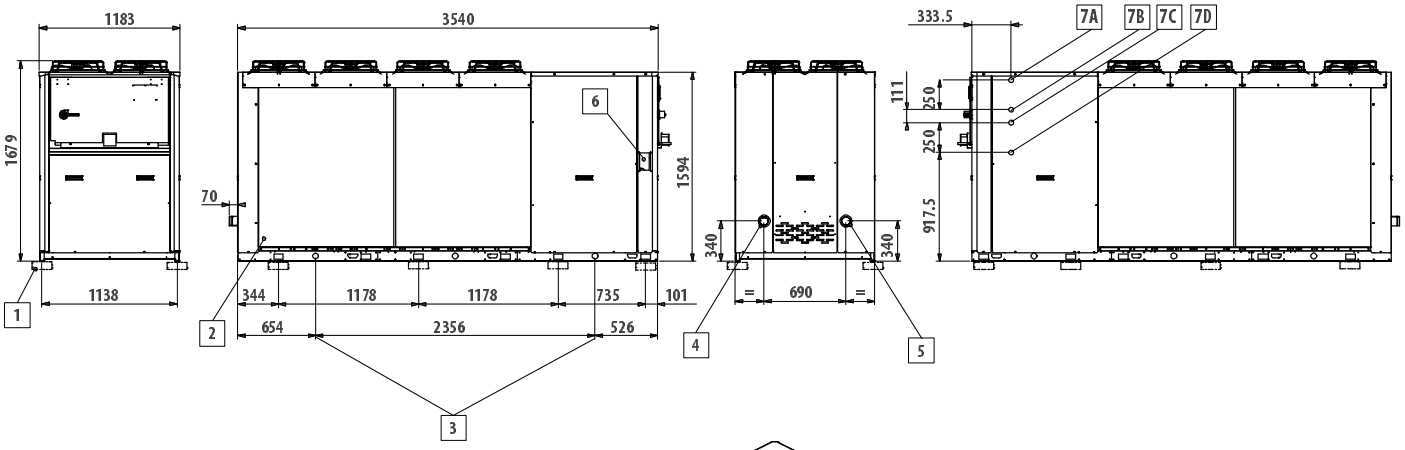


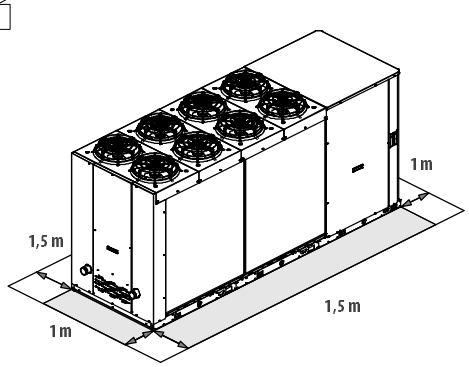

| MODEL | VERSION |
|---|---|
| **LCX 91** | L - Q |
| **LCX 92** | L - Q |
| **LCX 101** | L - Q |
| **LCX 102** | L - Q |
| **LCX 121** | S |
| **LCX 122** | S |
| **LCX 141** | S |
| **LCX 142** | S |
| **LCX 161** | S |
| **LCX 162** | S |

| KEY | |
|---|---|
| **1** | Vibration damping supports |
| **2** | Protection grill (optional) |
| **3** | Lifting points |
| **4** | Water inlet (Victaulic 2 1/2”) |
| **5** | Water outlet (Victaulic 2 1/2”) |
| **6** | Power supply cable inlet |
| **7A** | Water outlet heat recovery (1”) left circuit |
| **7B** | Water inlet heat recovery (1”) left circuit |
| **7C** | Water outlet heat recovery (1”) right circuit |
| **7D** | Water inlet heat recovery (1”) right circuit |

## 13 DIMENSIONAL DRAWINGS

### LCX FRAME 3+



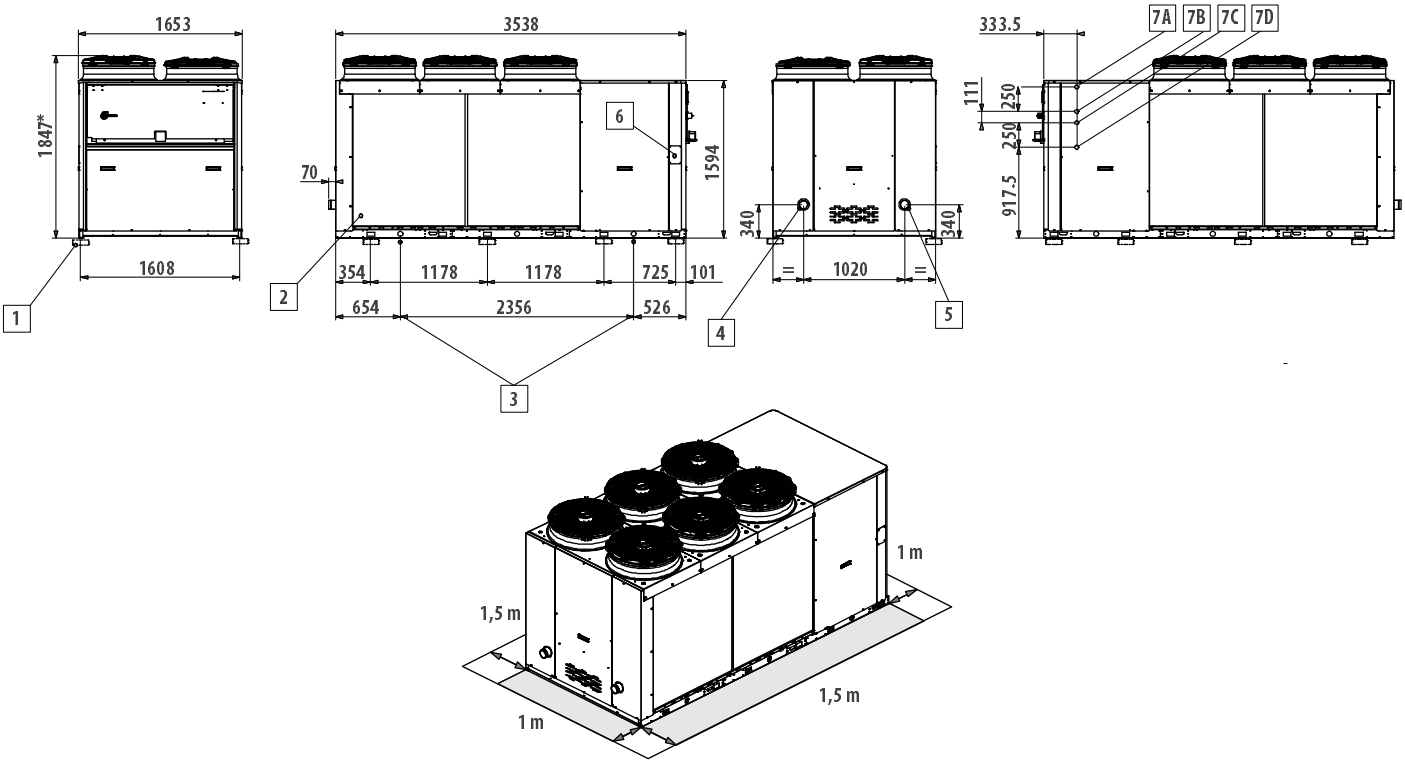

| MODEL | VERSION |
|---|---|
| LCX 94 | L - Q |
| LCX 104 | L - Q |
| LCX 124 | S |
| LCX 144 | S |
| LCX 164 | S |
| LCX 102 | S |

KEY

| | |
|---|---|
| 1 | Vibration damping supports |
| 2 | Protection grill (optional) |
| 3 | Lifting points |
| 4 | Water inlet (Victaulic 2 1/2”) |
| 5 | Water outlet (Victaulic 2 1/2”) |
| 6 | Power supply cable inlet |
| 7A | Water outlet heat recovery (1”) left circuit |
| 7B | Water inlet heat recovery (1”) left circuit |
| 7C | Water outlet heat recovery (1”) right circuit |
| 7D | Water inlet heat recovery (1”) right circuit |

## 13 DIMENSIONAL DRAWINGS

### LCX FRAME 4

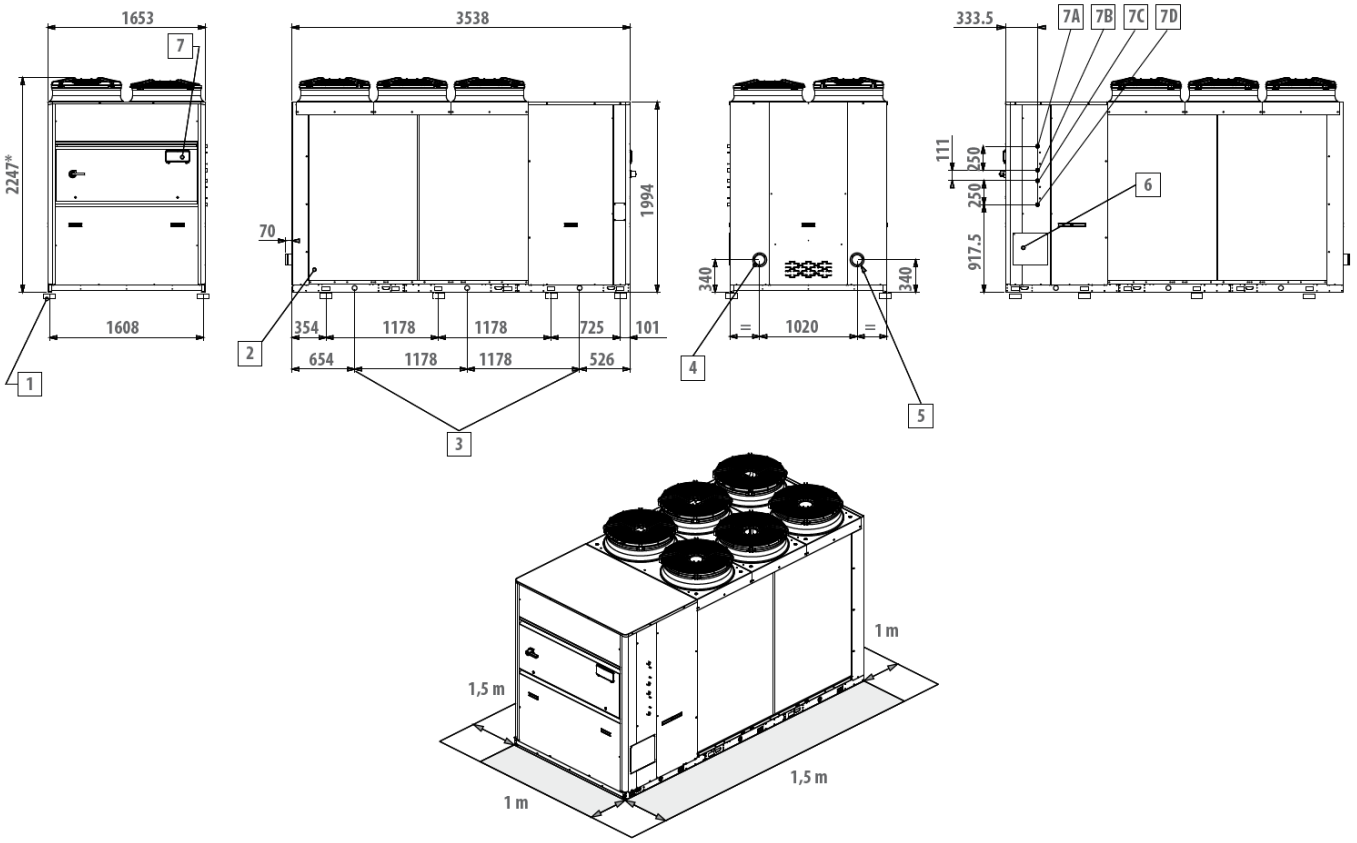



| MODEL | VERSION |
|---|---|
| **LCX 121** | L - Q |
| **LCX 122** | L - Q |
| **LCX 124** | L - Q |
| **LCX 141** | L - Q |
| **LCX 142** | L - Q |
| **LCX 144** | L - Q |
| **LCX 161** | L - Q |
| **LCX 162** | L - Q |
| **LCX 164** | L - Q |
| **LCX 174** | S |
| **LCX 194** | S - L - Q |
| **LCX 214** | S |

| KEY | |
|---|---|
| **1** | Vibration damping supports |
| **2** | Protection grill (optional) |
| **3** | Lifting points (optional) |
| **4** | Water inlet (Victaulic 3”) |
| **5** | Water outlet (Victaulic 3”) |
| **6** | Power supply cable inlet |
| **7A** | Water outlet heat recovery (1”) left circuit |
| **7B** | Water inlet heat recovery (1”) left circuit |
| **7C** | Water outlet heat recovery (1”) right circuit |
| **7D** | Water inlet heat recovery (1”) right circuit |
| * | With EC fans = 1884 |

## 13 DIMENSIONAL DRAWINGS

### LCX FRAME 5



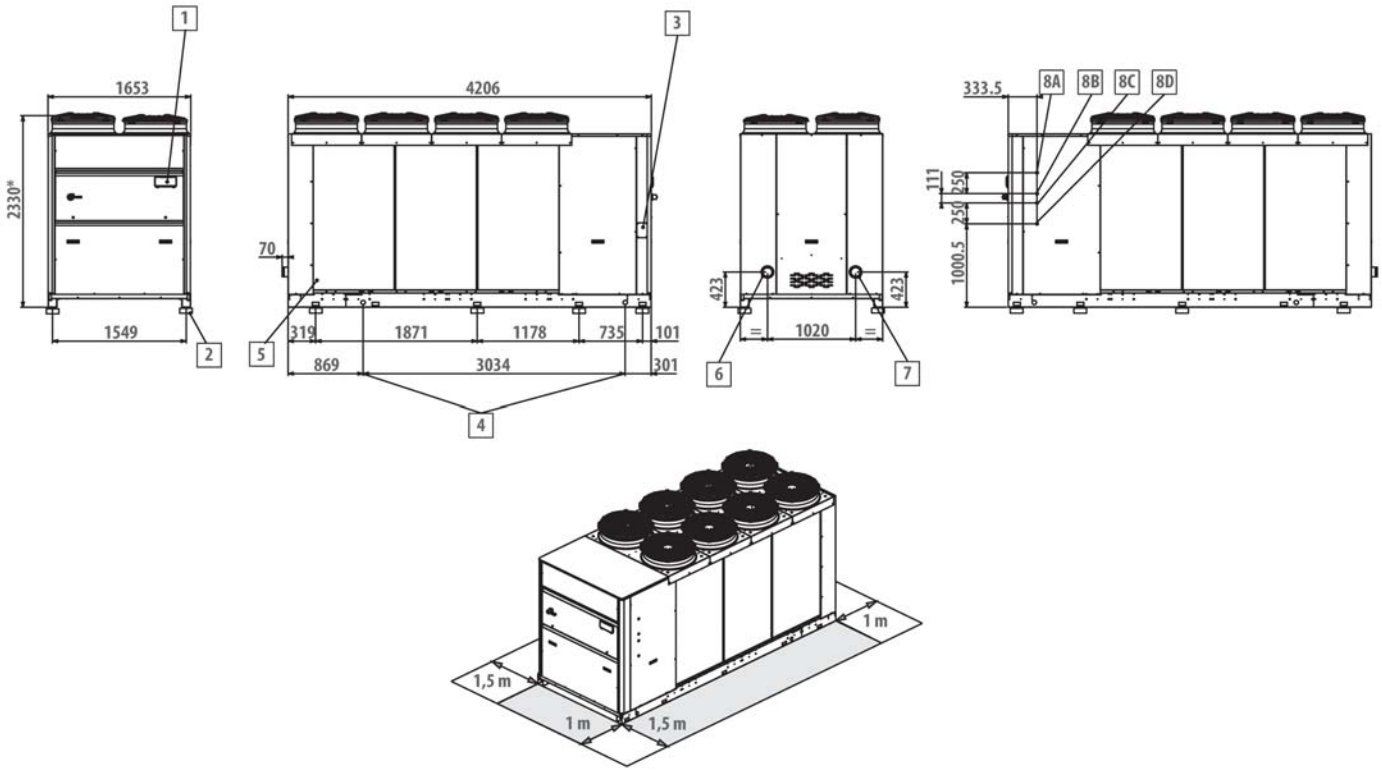

| MODEL | VERSION |
|---|---|
| LCX 214 | L - Q |
| LCX 244 | S - L - Q |

KEY

| | |
|---|---|
| 1 | Vibration damping supports |
| 2 | Protection grill (optional) |
| 3 | Lifting points (optional) |
| 4 | Water inlet (Victaulic 4”) |
| 5 | Water outlet (Victaulic 4”) |
| 6 | Power supply cable inlet |
| 7A | Water outlet heat recovery (1”) left circuit |
| 7B | Water inlet heat recovery (1”) left circuit |
| 7C | Water outlet heat recovery (1”) right circuit |
| 7D | Water inlet heat recovery (1”) right circuit |
| * | With EC fans =2284 |

## 13 DIMENSIONAL DRAWINGS

### LCX FRAME 6




| MODEL | VERSION |
|---|---|
| **LCX 274** | S - L - Q |
| **LCX 294** | S - L - Q |
| **LCX 324** | S - L - Q |
| **LCX 364** | S - L |

KEY

| | |
|---|---|
| **1** | Vibration damping supports |
| **2** | Protection grill (optional) |
| **3** | Lifting points (optional) |
| **4** | Water inlet (Victaulic 4”) |
| **5** | Water outlet (Victaulic 4”) |
| **6** | Power supply cable inlet |
| **7A** | Water outlet heat recovery (1”) left circuit |
| **7B** | Water inlet heat recovery (1”) left circuit |
| **7C** | Water outlet heat recovery (1”) right circuit |
| **7D** | Water inlet heat recovery (1”) right circuit |
| * | With EC fans =2367 |

## 14 INSTALLATION CLEARANCE REQUIREMENTS

You should bear in mind the following aspects when choosing the best site for installing the unit and the relative connections:
- size and origin of water pipes;
- location of power supply;
- accessibility for maintenance or repairs;
- solidity of the supporting surface;
- ventilation of the air-cooled condenser and necessary clearance;
- direction of prevalent winds: avoid positioning the unit in such a way that the prevalent winds favour the backflow of air to the condenser coils; a speed of 8 m/s (28.8 km/h) already generates a sufficient stagnation pressure to guarantee 60% of the nominal air flow rate. [In situations where the action of the wind is inevitable and there is a simultaneous presence of temperatures below –5°C, the control of condensation for low outdoor temperatures must be of the flooding type or with capacity control routine of the condensing exchanger -contact the technical department for further details].
- possible reverberation of sound waves.

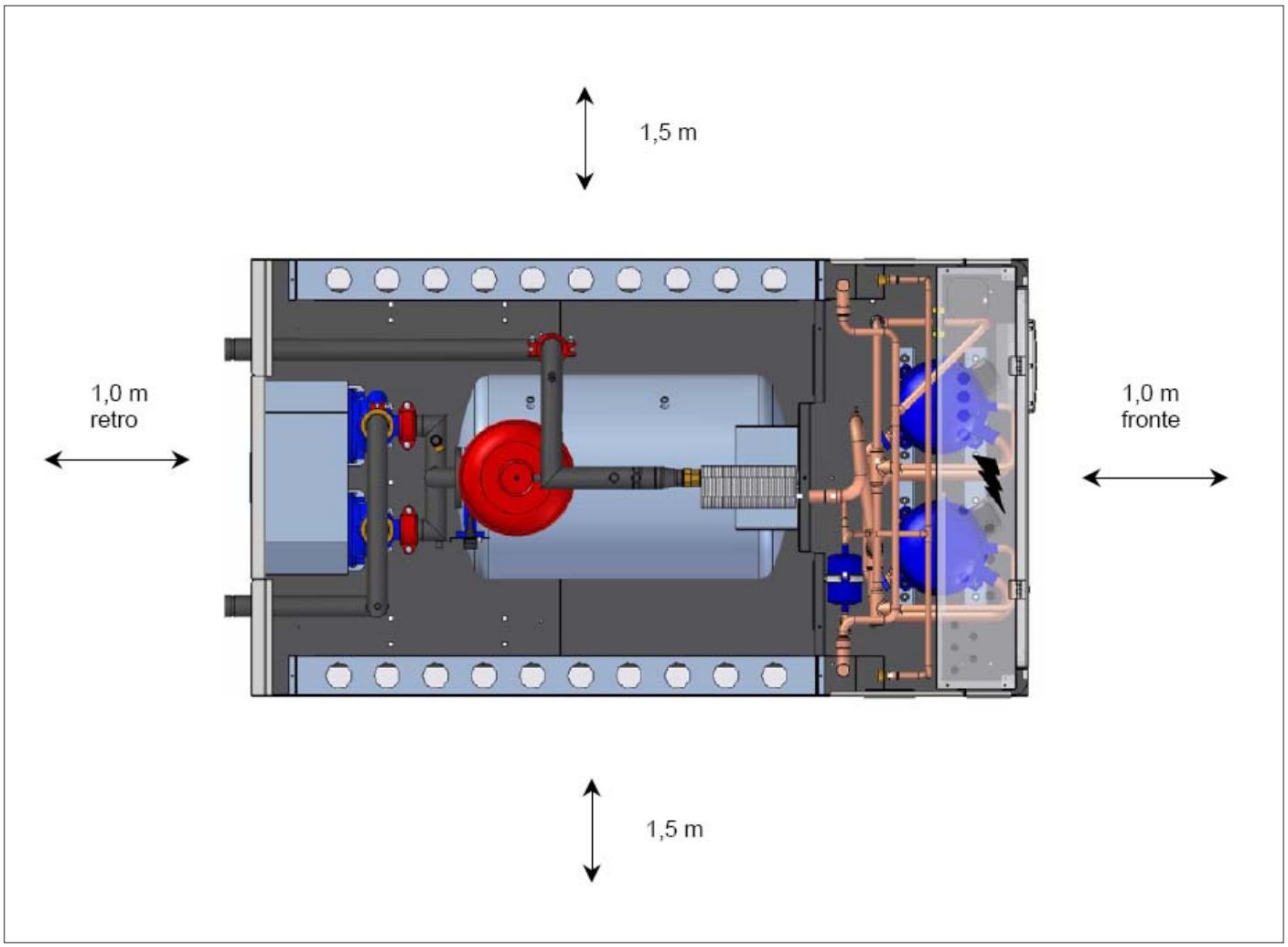
All models belonging to the LCX series are designed and built for outdoor installation: avoid covering them with roof structures or positioning them near plants (even if they only partly cover the unit) which may interfere with the regular ventilation of the unit condenser.
It is a good idea to provide a supporting base of adequate dimensions. This precaution becomes an imperative when the unit is to be sited on unstable ground (various types of soil, gardens, etc.).

It is advisable to place a rigid rubber strip between the base frame and the supporting surface.

Whenever more effective insulation is required, it is recommended to use vibrating-damping spring supports.

In the case of installation on roofs or intermediate storeys, the unit and pipes must be insulated from walls and ceilings by placing rigid rubber joints in between and using supports that are not rigidly anchored to the walls.
If the unit is to be installed in proximity to private offices, bedrooms or areas where noise levels must be kept down, it is advisable to conduct a thorough analysis of the sound field generated and verify its compatibility with the local laws in force.
It is of fundamental importance to ensure an adequate volume of air both on the intake and outlet sides of the condenser/evaporating finned coils; it is highly important to prevent the air delivered from being re-aspirated as this may impair the performance of the unit or even cause an interruption in normal operation.
For this reason it is necessary to guarantee the following clearances (see figure on this page):

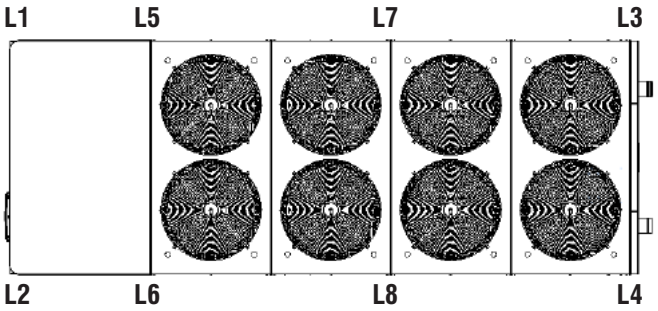
- rear side/plumbing connections: min. 1,0 metres to guarantee access to plumbing connections and/or for any necessary maintenance on the pumps, tank, expansion tank and flow switch.
- electric control board side: min. 1.0 metres to guarantee access for inspection and/or maintenance of cooling components.
- finned block exchanger side: min. 1.5 metres to ensure proper air circulation and access to the compressor compartment, also from the side.
- top side: there must be no obstacle to air outlet.



## 15 WEIGHTS

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.

**Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).**
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit (especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.




| FRAME | LENGHT | WIDTH | HEIGHT | tank water content [Kg] |
|---|---|---|---|---|
| 1 | 2090 | 1183 | 1735 | 200 |
| 2 | 2442 | 1183 | 1735 | 220 |
| 3 | 3190 | 1183 | 1735 | 340 |
| 3+ | 3540 | 1183 | 1679 | 340 |
| 4 | 3538 | 1653 | 1847 | 600 |
| 5 | 3538 | 1653 | 2247 | 600 |
| 6 | 4206 | 1653 | 2330 | 765 |

## OPERATING WEIGHT OF LCX-C WATER CHILLER WITHOUT HYDRAULIC OPTIONS

| Model | | 042 | 052 | 062 | 062 | 072 | 072 | 082 | 082 | 091-092 | 091-092 | 101-102 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | CS-CL-CQ | CS-CL-CQ | CS | CL-CQ | CS | CL-CQ | CS | CL-CQ | CS | CL-CQ | CS |
| Frame | | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 3 | 2 |
| Total (kg) | | 525 | 525 | 540 | 630 | 570 | 635 | 650 | 700 | 730 | 905 | 730 |
| Distribution on resting points (kg) | L1 | 197 | 197 | 203 | 236 | 214 | 238 | 244 | 263 | 274 | 170 | 274 |
| | L2 | 197 | 197 | 203 | 236 | 214 | 238 | 244 | 263 | 274 | 170 | 274 |
| | L3 | 66 | 66 | 68 | 79 | 71 | 79 | 81 | 88 | 91 | 113 | 91 |
| | L4 | 66 | 66 | 68 | 79 | 71 | 79 | 81 | 88 | 91 | 113 | 91 |
| | L5 | - | - | - | - | - | - | - | - | - | 170 | - |
| | L6 | - | - | - | - | - | - | - | - | - | 170 | - |
| | L7 | - | - | - | - | - | - | - | - | - | - | - |
| | L8 | - | - | - | - | - | - | - | - | - | - | - |

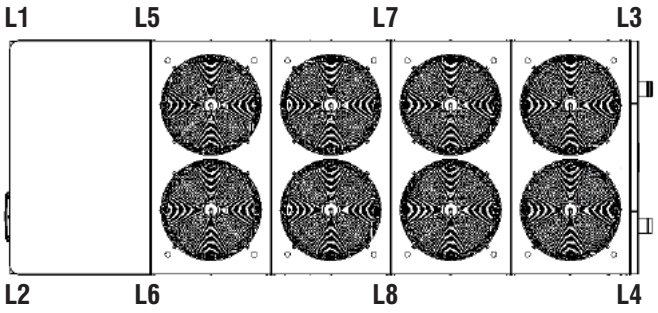
| Model | | 101-102 | 121-122 | 141-142 | 161-162 | 094-104 | 124 | 144 | 164 | 121-122 | 124 | 141-142 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | CL-CQ | CS | CS | CS | CL-CQ | CS | CS | CS | CL-CQ | CL-CQ | CL-CQ |
| Frame | | 3 | 3 | 3 | 3 | 3+ | 3+ | 3+ | 3+ | 4 | 4 | 4 |
| Total (kg) | | 915 | 1010 | 1055 | 1085 | 980 | 1050 | 1070 | 1220 | 1260 | 1275 | 1310 |
| Distribution on resting points (kg) | L1 | 172 | 189 | 198 | 203 | 147 | 158 | 161 | 183 | 189 | 191 | 197 |
| | L2 | 172 | 189 | 198 | 203 | 147 | 158 | 161 | 183 | 189 | 191 | 197 |
| | L3 | 114 | 126 | 132 | 136 | 98 | 105 | 107 | 122 | 126 | 128 | 131 |
| | L4 | 114 | 126 | 132 | 136 | 98 | 105 | 107 | 122 | 126 | 128 | 131 |
| | L5 | 172 | 189 | 198 | 203 | 147 | 158 | 161 | 183 | 189 | 191 | 197 |
| | L6 | 172 | 189 | 198 | 203 | 147 | 158 | 161 | 183 | 189 | 191 | 197 |
| | L7 | - | - | - | - | 98 | 105 | 107 | 122 | 126 | 128 | 131 |
| | L8 | - | - | - | - | 98 | 105 | 107 | 122 | 126 | 128 | 131 |

| Model | | 144 | 161-162 | 164 | 174 | 194 | 214 | 214 | 244 | 274 | 294 | 324 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | CL-CQ | CL-CQ | CL-CQ | CS | CS-CL-CQ | CS | CL-CQ | CS-CL-CQ | CS-CL-CQ | CS-CL-CQ | CS-CL-CQ |
| Frame | | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 | 6 |
| Total (kg) | | 1290 | 1330 | 1440 | 1440 | 1460 | 1470 | 1510 | 1620 | 1943 | 1975 | 2010 |
| Distribution on resting points (kg) | L1 | 194 | 200 | 216 | 216 | 219 | 221 | 227 | 243 | 303 | 303 | 312 |
| | L2 | 194 | 200 | 216 | 216 | 219 | 221 | 227 | 243 | 303 | 303 | 312 |
| | L3 | 129 | 133 | 144 | 144 | 146 | 147 | 151 | 162 | 217,5 | 220 | 223 |
| | L4 | 129 | 133 | 144 | 144 | 146 | 147 | 151 | 162 | 217,5 | 220 | 223 |
| | L5 | 194 | 200 | 216 | 216 | 219 | 221 | 227 | 243 | 268 | 279 | 285 |
| | L6 | 194 | 200 | 216 | 216 | 219 | 221 | 227 | 243 | 268 | 280 | 285 |
| | L7 | 129 | 133 | 144 | 144 | 146 | 147 | 151 | 162 | 183 | 185 | 185 |
| | L8 | 129 | 133 | 144 | 144 | 146 | 147 | 151 | 162 | 183 | 185 | 185 |

## 15 WEIGHTS

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.

**Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).**
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit (especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.




| FRAME | LENGHT | WIDTH | HEIGHT | tank water content [Kg] |
|---|---|---|---|---|
| 1 | 2090 | 1183 | 1735 | 200 |
| 2 | 2442 | 1183 | 1735 | 220 |
| 3 | 3190 | 1183 | 1735 | 340 |
| 3+ | 3540 | 1183 | 1679 | 340 |
| 4 | 3538 | 1653 | 1847 | 600 |
| 5 | 3538 | 1653 | 2247 | 600 |
| 6 | 4206 | 1653 | 2330 | 765 |

## OPERATING WEIGHT OF LCX-H HEAT PUMPS WITHOUT HYDRAULIC OPTIONS

| Model | | 042 | 052 | 062 | 062 | 072 | 072 | 082 | 082 | 091-092 | 091-092 | 101-102 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | HS-HL-HQ | HS-HL-HQ | HS | HL-HQ | HS | HL-HQ | HS | HL-HQ | HS | HL-HQ | HS |
| Frame | | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 3 | 2 |
| Total (kg) | | 545 | 545 | 585 | 650 | 585 | 655 | 675 | 735 | 755 | 940 | 760 |
| Distribution on resting points (kg) | L1 | 204 | 204 | 219 | 244 | 219 | 246 | 253 | 276 | 283 | 176 | 285 |
| | L2 | 204 | 204 | 219 | 244 | 219 | 246 | 253 | 276 | 283 | 176 | 285 |
| | L3 | 68 | 68 | 73 | 81 | 73 | 82 | 84 | 92 | 94 | 118 | 95 |
| | L4 | 68 | 68 | 73 | 81 | 73 | 82 | 84 | 92 | 94 | 118 | 95 |
| | L5 | - | - | - | - | - | - | - | - | - | 176 | - |
| | L6 | - | - | - | - | - | - | - | - | - | 176 | - |
| | L7 | - | - | - | - | - | - | - | - | - | - | - |
| | L8 | - | - | - | - | - | - | - | - | - | - | - |

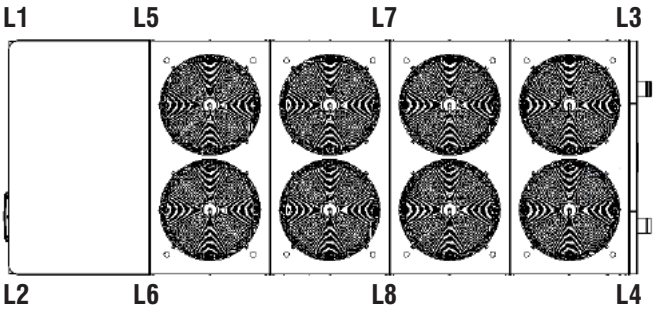
| Model | | 101-102 | 121-122 | 141-142 | 161-162 | 094-104 | 124 | 144 | 164 | 121-122 | 124 | 141-142 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | HL-HQ | HS | HS | HS | HL-HQ | HS | HS | HS | HL-HQ | HL-HQ | HL-HQ |
| Frame | | 3 | 3 | 3 | 3 | 3+ | 3+ | 3+ | 3+ | 4 | 4 | 4 |
| Total (kg) | | 945 | 1050 | 1100 | 1155 | 1020 | 1090 | 1120 | 1270 | 1305 | 1315 | 1350 |
| Distribution on resting points (kg) | L1 | 177 | 197 | 206 | 217 | 153 | 164 | 168 | 191 | 196 | 197 | 203 |
| | L2 | 177 | 197 | 206 | 217 | 153 | 164 | 168 | 191 | 196 | 197 | 203 |
| | L3 | 118 | 131 | 138 | 144 | 102 | 109 | 112 | 127 | 131 | 132 | 135 |
| | L4 | 118 | 131 | 138 | 144 | 102 | 109 | 112 | 127 | 131 | 132 | 135 |
| | L5 | 177 | 197 | 206 | 217 | 153 | 164 | 168 | 191 | 196 | 197 | 203 |
| | L6 | 177 | 197 | 206 | 217 | 153 | 164 | 168 | 191 | 196 | 197 | 203 |
| | L7 | - | - | - | - | 102 | 109 | 112 | 127 | 131 | 132 | 135 |
| | L8 | - | - | - | - | 102 | 109 | 112 | 127 | 131 | 132 | 135 |

| Model | | 144 | 161-162 | 164 | 174 | 194 | 214 | 214 | 244 | 274 | 294 | 324 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | HL-HQ | HL-HQ | HL-HQ | HS | HS-HL-HQ | HS | HL-HQ | HS-HL-HQ | HS-HL-HQ | HS-HL-HQ | HS-HL-HQ |
| Frame | | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 | 6 |
| Total (kg) | | 1345 | 1375 | 1495 | 1495 | 1515 | 1530 | 1590 | 1690 | 2015 | 2050 | 2101 |
| Distribution on resting points (kg) | L1 | 202 | 206 | 224 | 224 | 227 | 230 | 239 | 254 | 323 | 323 | 333 |
| | L2 | 202 | 206 | 224 | 224 | 227 | 230 | 239 | 254 | 323 | 323 | 333 |
| | L3 | 135 | 138 | 150 | 150 | 152 | 153 | 159 | 169 | 222,5 | 224 | 224 |
| | L4 | 135 | 138 | 150 | 150 | 152 | 153 | 159 | 169 | 222,5 | 224 | 224 |
| | L5 | 202 | 206 | 224 | 224 | 227 | 230 | 239 | 254 | 278 | 294 | 308 |
| | L6 | 202 | 206 | 224 | 224 | 227 | 230 | 239 | 254 | 278 | 294 | 308 |
| | L7 | 135 | 138 | 150 | 150 | 152 | 153 | 159 | 169 | 184 | 184 | 185 |
| | L8 | 135 | 138 | 150 | 150 | 152 | 153 | 159 | 169 | 184 | 184 | 185 |

## 15 WEIGHTS

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.

**Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).**
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit (especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.




| FRAME | LENGHT | WIDTH | HEIGHT | tank water content [Kg] |
|---|---|---|---|---|
| 1 | 2090 | 1183 | 1735 | 200 |
| 2 | 2442 | 1183 | 1735 | 220 |
| 3 | 3190 | 1183 | 1735 | 340 |
| 3+ | 3540 | 1183 | 1679 | 340 |
| 4 | 3538 | 1653 | 1847 | 600 |
| 5 | 3538 | 1653 | 2247 | 600 |
| 6 | 4206 | 1653 | 2330 | 765 |

### WEIGHT OF HYDRONIC MODULES: 1 PUMP (ADD TO WEIGHT OF UNIT)

| Model | | 042 | 052 | 062 | 062 | 072 | 072 | 082 | 082 | 091-092 | 091-092 | 101-102 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | S-L-Q | S-L-Q | S | L-Q | S | L-Q | S | L-Q | S | L-Q | S |
| Frame | | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 3 | 2 |
| Total (kg) | | 116 | 116 | 116 | 148 | 116 | 148 | 116 | 134 | 143 | 159 | 143 |
| Distribution on resting points (kg) | L1 | 29 | 29 | 29 | 37 | 29 | 37 | 29 | 33 | 36 | 8 | 36 |
| | L2 | 29 | 29 | 29 | 37 | 29 | 37 | 29 | 33 | 36 | 8 | 36 |
| | L3 | 29 | 29 | 29 | 37 | 29 | 37 | 29 | 33 | 36 | 36 | 36 |
| | L4 | 29 | 29 | 29 | 37 | 29 | 37 | 29 | 33 | 36 | 36 | 36 |
| | L5 | - | - | - | - | - | - | - | - | - | 36 | - |
| | L6 | - | - | - | - | - | - | - | - | - | 36 | - |
| | L7 | - | - | - | - | - | - | - | - | - | - | - |
| | L8 | - | - | - | - | - | - | - | - | - | - | - |

| Model | | 101-102 | 121-122 | 141-142 | 161-162 | 094-104 | 124 | 144 | 164 | 121-122 | 124 | 141-142 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | L-Q | S | S | S | L-Q | S | S | S | L-Q | L-Q | L-Q |
| Frame | | 3 | 3 | 3 | 3 | 3+ | 3+ | 3+ | 3+ | 4 | 4 | 4 |
| Total (kg) | | 159 | 159 | 159 | 159 | 142.5 | 159 | 159 | 159 | 165 | 165 | 165 |
| Distribution on resting points (kg) | L1 | 8 | 8 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | L2 | 8 | 8 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | L3 | 36 | 36 | 36 | 36 | 21 | 24 | 24 | 24 | 25 | 25 | 25 |
| | L4 | 36 | 36 | 36 | 36 | 21 | 24 | 24 | 24 | 25 | 25 | 25 |
| | L5 | 36 | 36 | 36 | 36 | 21 | 24 | 24 | 24 | 25 | 25 | 25 |
| | L6 | 36 | 36 | 36 | 36 | 21 | 24 | 24 | 24 | 25 | 25 | 25 |
| | L7 | - | - | - | - | 29 | 32 | 32 | 32 | 33 | 33 | 33 |
| | L8 | - | - | - | - | 29 | 32 | 32 | 32 | 33 | 33 | 33 |

| Model | | 144 | 161-162 | 164 | 174 | 194 | 214 | 214 | 244 | 274 | 294 | 324 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | L-Q | L-Q | L-Q | S | S-L-Q | S | L-Q | S-L-Q | S-L-Q | S-L-Q | S-L-Q |
| Frame | | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 | 6 |
| Total (kg) | | 165 | 165 | 165 | 177 | 177 | 177 | 177 | 186 | 186 | 186 | 186 |
| Distribution on resting points (kg) | L1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | L2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | L3 | 25 | 25 | 25 | 27 | 27 | 27 | 27 | 28 | 31 | 31 | 31 |
| | L4 | 25 | 25 | 25 | 27 | 27 | 27 | 27 | 28 | 31 | 31 | 31 |
| | L5 | 25 | 25 | 25 | 27 | 27 | 27 | 27 | 28 | 31 | 31 | 31 |
| | L6 | 25 | 25 | 25 | 27 | 27 | 27 | 27 | 28 | 31 | 31 | 31 |
| | L7 | 33 | 33 | 33 | 35 | 35 | 35 | 35 | 37 | 31 | 31 | 31 |
| | L8 | 33 | 33 | 33 | 35 | 35 | 35 | 35 | 37 | 31 | 31 | 31 |

## 15 WEIGHTS

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.

**Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).**
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit (especially in the presence of a tank).
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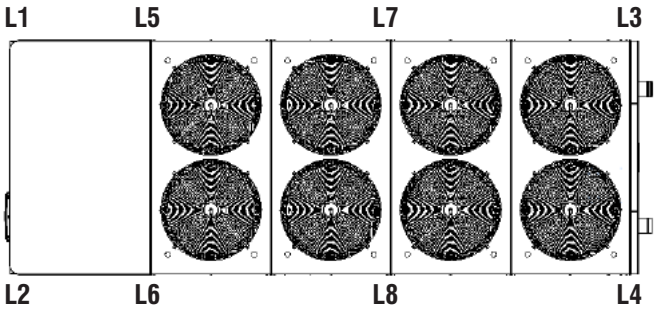



| FRAME | LENGHT | WIDTH | HEIGHT | tank water content [Kg] |
|---|---|---|---|---|
| 1 | 2090 | 1183 | 1735 | 200 |
| 2 | 2442 | 1183 | 1735 | 220 |
| 3 | 3190 | 1183 | 1735 | 340 |
| 3+ | 3540 | 1183 | 1679 | 340 |
| 4 | 3538 | 1653 | 1847 | 600 |
| 5 | 3538 | 1653 | 2247 | 600 |
| 6 | 4206 | 1653 | 2330 | 765 |

## WEIGHT OF HYDRONIC MODULES: 2 PUMPS (ADD TO WEIGHT OF UNIT)

| Model | | 042 | 052 | 062 | 062 | 072 | 072 | 082 | 082 | 091-092 | 091-092 | 101-102 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | S-L-Q | S-L-Q | S | L-Q | S | L-Q | S | L-Q | S | L-Q | S |
| Frame | | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 3 | 2 |
| Total (kg) | | 154 | 154 | 154 | 197 | 154 | 197 | 154 | 178 | 190 | 212 | 190 |
| Distribution on resting points (kg) | L1 | 39 | 39 | 39 | 49 | 39 | 49 | 39 | 45 | 48 | 11 | 48 |
| | L2 | 39 | 39 | 39 | 49 | 39 | 49 | 39 | 45 | 48 | 11 | 48 |
| | L3 | 39 | 39 | 39 | 49 | 39 | 49 | 39 | 45 | 48 | 48 | 48 |
| | L4 | 39 | 39 | 39 | 49 | 39 | 49 | 39 | 45 | 48 | 48 | 48 |
| | L5 | - | - | - | - | - | - | - | - | - | 48 | - |
| | L6 | - | - | - | - | - | - | - | - | - | 48 | - |
| | L7 | - | - | - | - | - | - | - | - | - | - | - |
| | L8 | - | - | - | - | - | - | - | - | - | - | - |

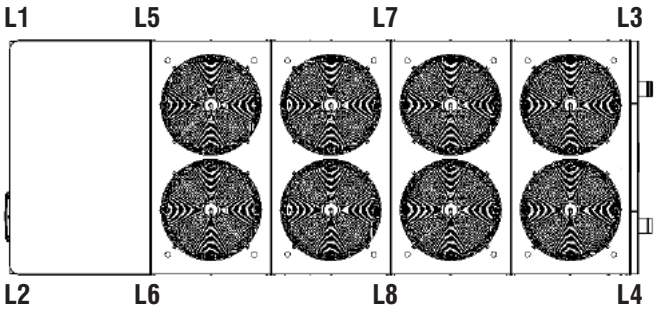
| Model | | 101-102 | 121-122 | 141-142 | 161-162 | 094-104 | 124 | 144 | 164 | 121-122 | 124 | 141-142 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | L-Q | S | S | S | L-Q | S | S | S | L-Q | L-Q | L-Q |
| Frame | | 3 | 3 | 3 | 3 | 3 + | 3 + | 3 + | 3 + | 4 | 4 | 4 |
| Total (kg) | | 212 | 212 | 212 | 212 | 190 | 212 | 212 | 212 | 220 | 220 | 220 |
| Distribution on resting points (kg) | L1 | 11 | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | L2 | 11 | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | L3 | 48 | 48 | 48 | 48 | 29 | 32 | 32 | 32 | 33 | 33 | 33 |
| | L4 | 48 | 48 | 48 | 48 | 29 | 32 | 32 | 32 | 33 | 33 | 33 |
| | L5 | 48 | 48 | 48 | 48 | 29 | 32 | 32 | 32 | 33 | 33 | 33 |
| | L6 | 48 | 48 | 48 | 48 | 29 | 32 | 32 | 32 | 33 | 33 | 33 |
| | L7 | - | - | - | - | 38 | 42 | 42 | 42 | 44 | 44 | 44 |
| | L8 | - | - | - | - | 38 | 42 | 42 | 42 | 44 | 44 | 44 |

| Model | | 144 | 161-162 | 164 | 174 | 194 | 214 | 214 | 244 | 274 | 294 | 324 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | L-Q | L-Q | L-Q | S | S-L-Q | S | L-Q | S-L-Q | S-L-Q | S-L-Q | S-L-Q |
| Frame | | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 | 6 |
| Total (kg) | | 220 | 220 | 220 | 236 | 236 | 236 | 236 | 248 | 248 | 248 | 248 |
| Distribution on resting points (kg) | L1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | L2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | L3 | 33 | 33 | 33 | 35 | 35 | 35 | 35 | 37 | 41 | 41 | 41 |
| | L4 | 33 | 33 | 33 | 35 | 35 | 35 | 35 | 37 | 41 | 41 | 41 |
| | L5 | 33 | 33 | 33 | 35 | 35 | 35 | 35 | 37 | 41 | 41 | 41 |
| | L6 | 33 | 33 | 33 | 35 | 35 | 35 | 35 | 37 | 41 | 41 | 41 |
| | L7 | 44 | 44 | 44 | 47 | 47 | 47 | 47 | 50 | 41 | 41 | 41 |
| | L8 | 44 | 44 | 44 | 47 | 47 | 47 | 47 | 50 | 41 | 41 | 41 |

## 15 WEIGHTS

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.

**Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).**
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit (especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.




| FRAME | LENGHT | WIDTH | HEIGHT | tank water content [Kg] |
|---|---|---|---|---|
| 1 | 2090 | 1183 | 1735 | 200 |
| 2 | 2442 | 1183 | 1735 | 220 |
| 3 | 3190 | 1183 | 1735 | 340 |
| 3+ | 3540 | 1183 | 1679 | 340 |
| 4 | 3538 | 1653 | 1847 | 600 |
| 5 | 3538 | 1653 | 2247 | 600 |
| 6 | 4206 | 1653 | 2330 | 765 |

## WEIGHT OF HYDRONIC MODULES: 1 PUMP + FULL BUFFER TANK (ADD TO WEIGHT OF UNIT)

| Model | | 042 | 052 | 062 | 062 | 072 | 072 | 082 | 082 | 091-092 | 091-092 | 101-102 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | S-L-Q | S-L-Q | S | L-Q | S | L-Q | S | L-Q | S | L-Q | S |
| Frame | | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 3 | 2 |
| Total (kg) | | 337 | 337 | 337 | 352 | 337 | 352 | 337 | 367 | 408 | 521 | 408 |
| Distribution on resting points (kg) | L1 | 84 | 84 | 84 | 88 | 84 | 88 | 84 | 92 | 102 | 26 | 102 |
| | L2 | 84 | 84 | 84 | 88 | 84 | 88 | 84 | 92 | 102 | 26 | 102 |
| | L3 | 84 | 84 | 84 | 88 | 84 | 88 | 84 | 92 | 102 | 117 | 102 |
| | L4 | 84 | 84 | 84 | 88 | 84 | 88 | 84 | 92 | 102 | 117 | 102 |
| | L5 | - | - | - | - | - | - | - | - | - | 117 | - |
| | L6 | - | - | - | - | - | - | - | - | - | 117 | - |
| | L7 | - | - | - | - | - | - | - | - | - | - | - |
| | L8 | - | - | - | - | - | - | - | - | - | - | - |

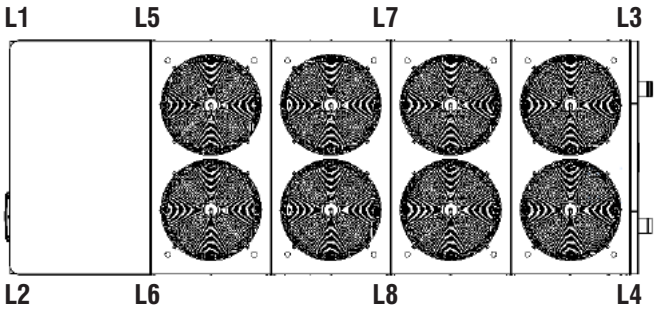
| Model | | 101-102 | 121-122 | 141-142 | 161-162 | 094-104 | 124 | 144 | 164 | 121-122 | 124 | 141-142 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | L-Q | S | S | S | L-Q | S | S | S | L-Q | L-Q | L-Q |
| Frame | | 3 | 3 | 3 | 3 | 3 + | 3 + | 3 + | 3 + | 4 | 4 | 4 |
| Total (kg) | | 521 | 571 | 571 | 571 | 577,5 | 591 | 591 | 591 | 780 | 780 | 780 |
| Distribution on resting points (kg) | L1 | 26 | 29 | 29 | 29 | - | - | - | - | - | - | - |
| | L2 | 26 | 29 | 29 | 29 | - | - | - | - | - | - | - |
| | L3 | 117 | 128 | 128 | 128 | 87 | 89 | 89 | 89 | 117 | 117 | 117 |
| | L4 | 117 | 128 | 128 | 128 | 87 | 89 | 89 | 89 | 117 | 117 | 117 |
| | L5 | 117 | 128 | 128 | 128 | 87 | 89 | 89 | 89 | 117 | 117 | 117 |
| | L6 | 117 | 128 | 128 | 128 | 87 | 89 | 89 | 89 | 117 | 117 | 117 |
| | L7 | - | - | - | - | 116 | 118 | 118 | 118 | 156 | 156 | 156 |
| | L8 | - | - | - | - | 116 | 118 | 118 | 118 | 156 | 156 | 156 |

| Model | | 144 | 161-162 | 164 | 174 | 194 | 214 | 214 | 244 | 274 | 294 | 324 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | L-Q | L-Q | L-Q | S | S-L-Q | S | L-Q | S-L-Q | S-L-Q | S-L-Q | S-L-Q |
| Frame | | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 | 6 |
| Total (kg) | | 780 | 780 | 780 | 768 | 816 | 816 | 816 | 849 | 1014 | 1014 | 1014 |
| Distribution on resting points (kg) | L1 | - | - | - | - | - | - | - | - | - | - | - |
| | L2 | - | - | - | - | - | - | - | - | - | - | - |
| | L3 | 117 | 117 | 117 | 115 | 122 | 122 | 122 | 127 | 169 | 169 | 169 |
| | L4 | 117 | 117 | 117 | 115 | 122 | 122 | 122 | 127 | 169 | 169 | 169 |
| | L5 | 117 | 117 | 117 | 115 | 122 | 122 | 122 | 127 | 169 | 169 | 169 |
| | L6 | 117 | 117 | 117 | 115 | 122 | 122 | 122 | 127 | 169 | 169 | 169 |
| | L7 | 156 | 156 | 156 | 154 | 163 | 163 | 163 | 170 | 169 | 169 | 169 |
| | L8 | 156 | 156 | 156 | 154 | 163 | 163 | 163 | 170 | 169 | 169 | 169 |

## 15 WEIGHTS

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.

**Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).**
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit (especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.




| FRAME | LENGHT | WIDTH | HEIGHT | tank water content [Kg] |
|---|---|---|---|---|
| 1 | 2090 | 1183 | 1735 | 200 |
| 2 | 2442 | 1183 | 1735 | 220 |
| 3 | 3190 | 1183 | 1735 | 340 |
| 3+ | 3540 | 1183 | 1679 | 340 |
| 4 | 3538 | 1653 | 1847 | 600 |
| 5 | 3538 | 1653 | 2247 | 600 |
| 6 | 4206 | 1653 | 2330 | 765 |

## WEIGHT OF HYDRONIC MODULES: 2 PUMPS + FULL BUFFER TANK (ADD TO WEIGHT OF UNIT)

| Model | | 042 | 052 | 062 | 062 | 072 | 072 | 082 | 082 | 91-92 | 91-92 | 101-102 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | S-L-Q | S-L-Q | S | L-Q | S | L-Q | S | L-Q | S | L-Q | S |
| Frame | | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 3 | 2 |
| Total (kg) | | 402 | 402 | 402 | 450 | 402 | 450 | 402 | 450 | 500 | 630 | 500 |
| Distribution on resting points (kg) | L1 | 101 | 101 | 101 | 113 | 101 | 113 | 101 | 113 | 125 | 32 | 125 |
| | L2 | 101 | 101 | 101 | 113 | 101 | 113 | 101 | 113 | 125 | 32 | 125 |
| | L3 | 101 | 101 | 101 | 113 | 101 | 113 | 101 | 113 | 125 | 142 | 125 |
| | L4 | 101 | 101 | 101 | 113 | 101 | 113 | 101 | 113 | 125 | 142 | 125 |
| | L5 | - | - | - | - | - | - | - | - | - | 142 | - |
| | L6 | - | - | - | - | - | - | - | - | - | 142 | - |
| | L7 | - | - | - | - | - | - | - | - | - | - | - |
| | L8 | - | - | - | - | - | - | - | - | - | - | - |

| Model | | 101-102 | 121-122 | 141-142 | 161-162 | 094-104 | 124 | 144 | 164 | 121-122 | 124 | 141-142 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | L-Q | S | S | S | L-Q | S | S | S | L-Q | L-Q | L-Q |
| Frame | | 3 | 3 | 3 | 3 | 3+ | 3+ | 3+ | 3+ | 4 | 4 | 4 |
| Total (kg) | | 630 | 660 | 660 | 660 | 650 | 680 | 680 | 680 | 875 | 875 | 875 |
| Distribution on resting points (kg) | L1 | 32 | 33 | 33 | 33 | - | - | - | - | - | - | - |
| | L2 | 32 | 33 | 33 | 33 | - | - | - | - | - | - | - |
| | L3 | 142 | 149 | 149 | 149 | 98 | 102 | 102 | 102 | 131 | 131 | 131 |
| | L4 | 142 | 149 | 149 | 149 | 98 | 102 | 102 | 102 | 131 | 131 | 131 |
| | L5 | 142 | 149 | 149 | 149 | 98 | 102 | 102 | 102 | 131 | 131 | 131 |
| | L6 | 142 | 149 | 149 | 149 | 98 | 102 | 102 | 102 | 131 | 131 | 131 |
| | L7 | - | - | - | - | 130 | 136 | 136 | 136 | 175 | 175 | 175 |
| | L8 | - | - | - | - | 130 | 136 | 136 | 136 | 175 | 175 | 175 |

| Model | | 144 | 161-162 | 164 | 174 | 194 | 214 | 214 | 244 | 274 | 294 | 324 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Version | | L-Q | L-Q | L-Q | S | S-L-Q | S | L-Q | S-L-Q | S-L-Q | S-L-Q | S-L-Q |
| Frame | | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 | 6 |
| Total (kg) | | 875 | 875 | 875 | 875 | 908 | 908 | 908 | 950 | 1115 | 1115 | 1115 |
| Distribution on resting points (kg) | L1 | - | - | - | - | - | - | - | - | - | - | - |
| | L2 | - | - | - | - | - | - | - | - | - | - | - |
| | L3 | 131 | 131 | 131 | 131 | 136 | 136 | 136 | 143 | 186 | 186 | 186 |
| | L4 | 131 | 131 | 131 | 131 | 136 | 136 | 136 | 143 | 186 | 186 | 186 |
| | L5 | 131 | 131 | 131 | 131 | 136 | 136 | 136 | 143 | 186 | 186 | 186 |
| | L6 | 131 | 131 | 131 | 131 | 136 | 136 | 136 | 143 | 186 | 186 | 186 |
| | L7 | 175 | 175 | 175 | 175 | 182 | 182 | 182 | 190 | 186 | 186 | 186 |
| | L8 | 175 | 175 | 175 | 175 | 182 | 182 | 182 | 190 | 186 | 186 | 186 |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