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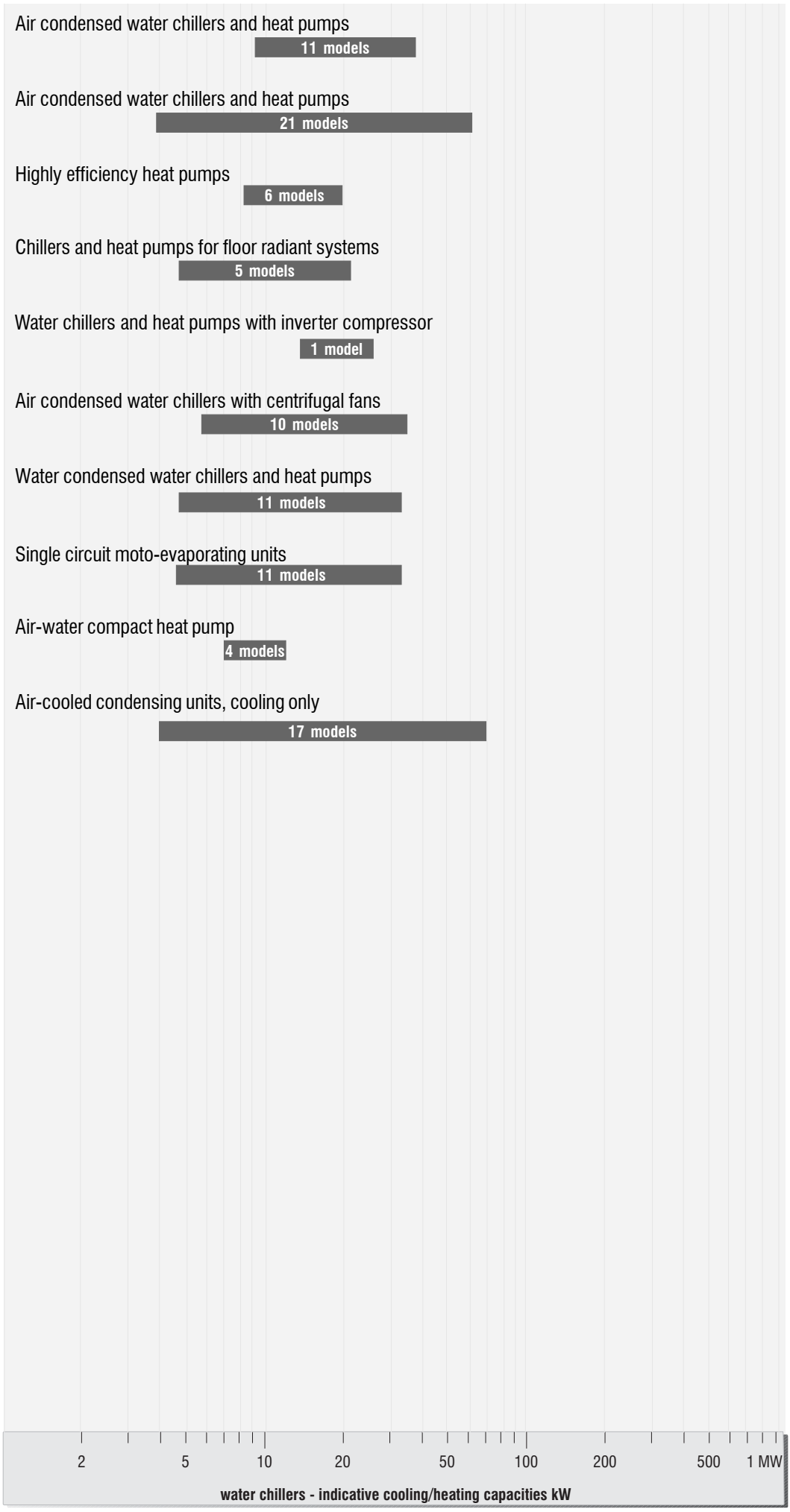
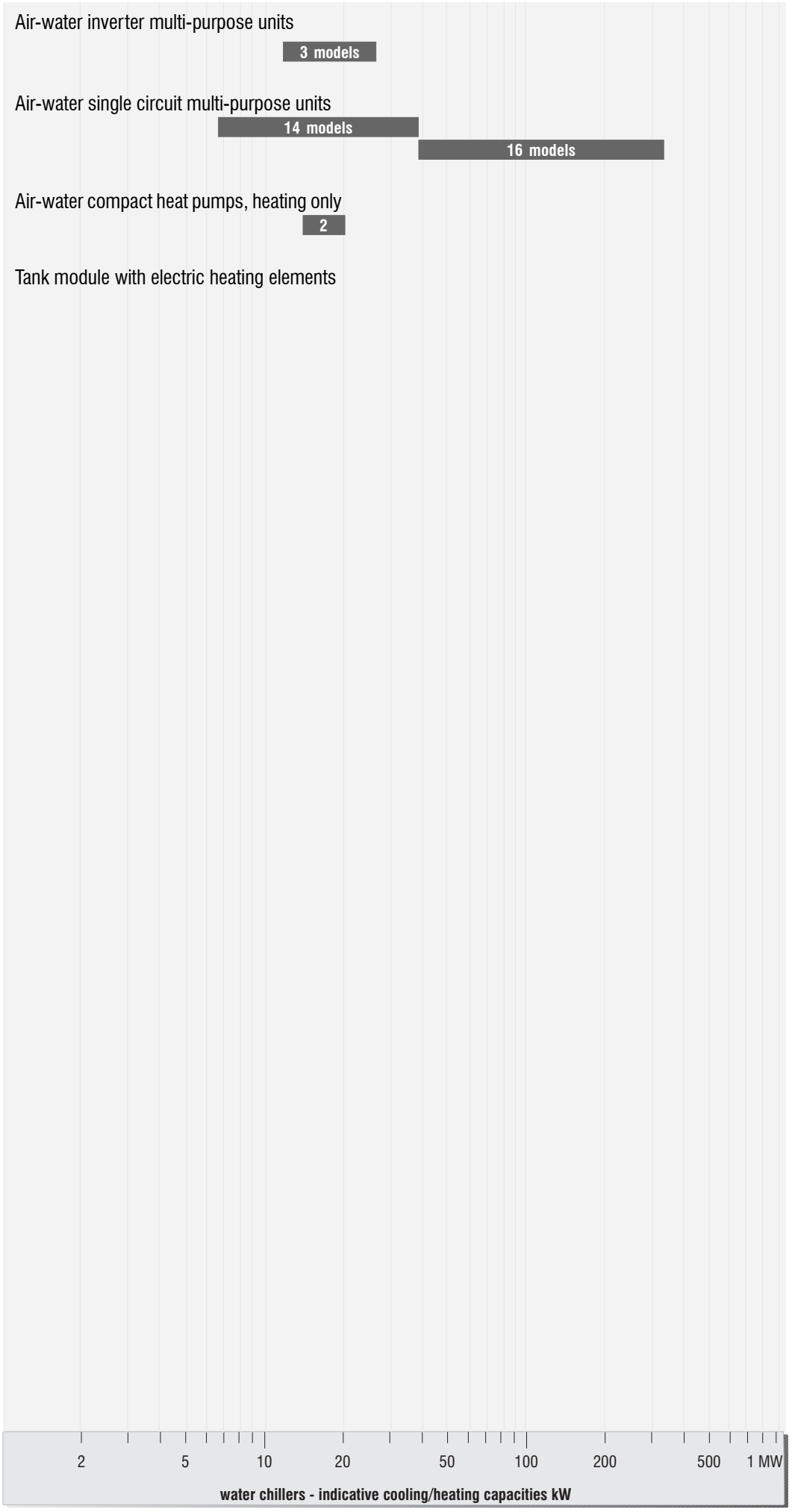
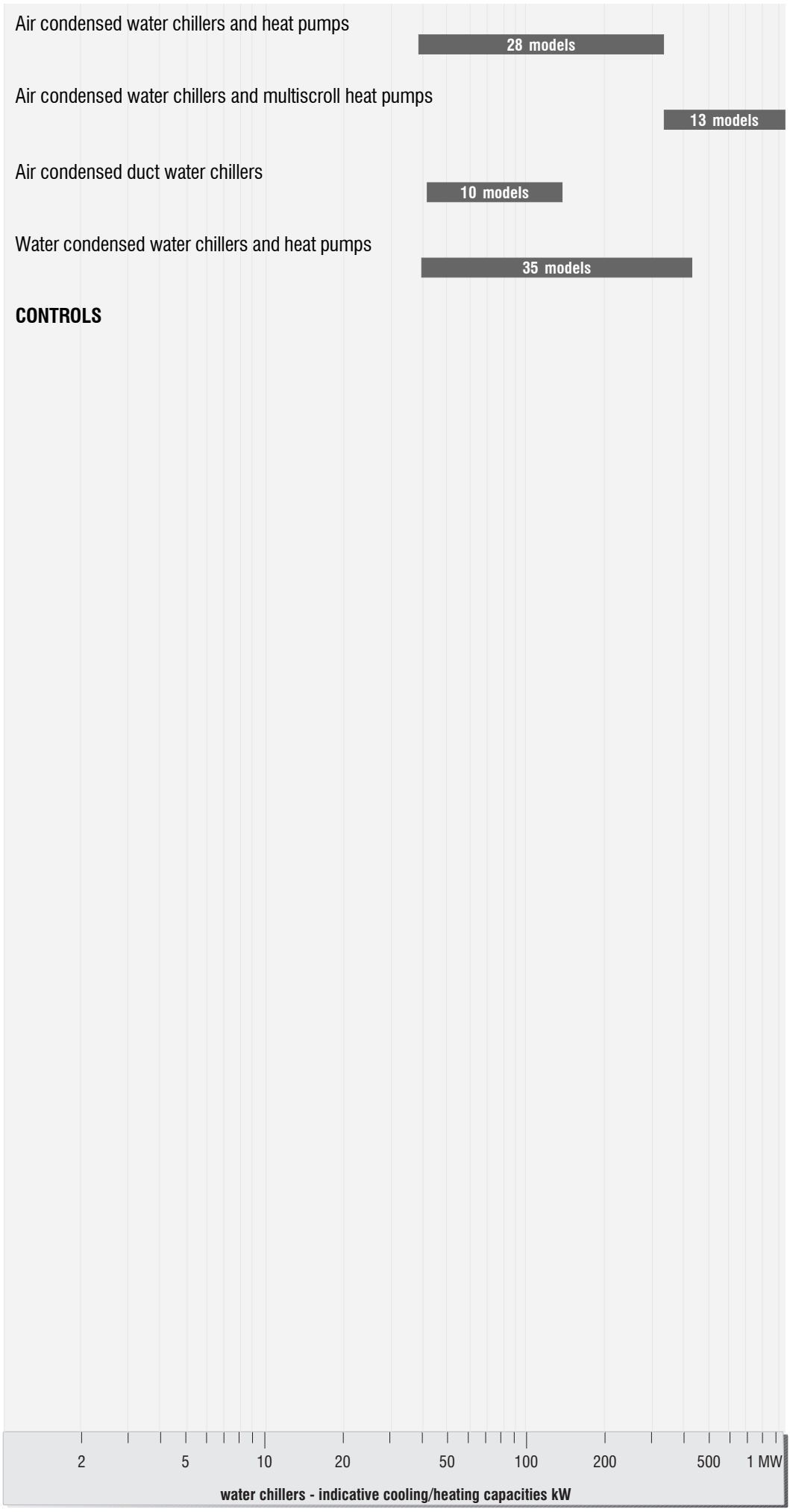
# Water chillers and heat pumps catalogue


Galletti
AIR CONDITIONING







small systems

MCE
MPE
MXE
MFE
MPI
MCC
MCW
MCR
MSHRT
MTE

## EFFICIENT, QUIET, ADAPTABLE: IN A WORD, COMFORT

- > **R410A**
- > **OPTIMISED FINNED BLOCK EXCHANGERS**
- > **QUIET OPERATION**
- > **DYNAMIC SETPOINT**
- > **OPERATION UNDER PARTIAL LOAD CONDITIONS WITHOUT NEED FOR WATER BUFFER TANK**

**MCE** water chillers and heat pumps are specifically designed to work with R410A refrigerant, in terms of the components used, and in particular insofar as the sizing of the heat exchangers and operating logics are concerned.
The studies and trials conducted have enabled us to develop a series of highly energy efficient, extremely quiet units.
The range includes 11 models with a cooling function only and equipped with a heat pump; the cooling capacity ranges from 9 to 39 kW and the heating capacity from 10 to 44 kW.

### ADAPTABLE TO EVERY NEED

The wide array of possible configurations - in terms both of the number of models (sizes) included in the range and the available options and accessories - make the MCE series an ideal solution for satisfying every design/installation need and reducing on-site installation times.
All optional features can be installed without modifying the overall unit dimensions.
Optionals include

Incorporated hydronic kits

- Electronic expansion valve, which quickly adapts the unit's operation according to variations in load and maximises efficiency under partial load conditions.
- Heat recovery, which enables hot water to be produced in the summer-time operating mode, thus enhancing the effective efficiency of the system.

### PLUG&PLAY

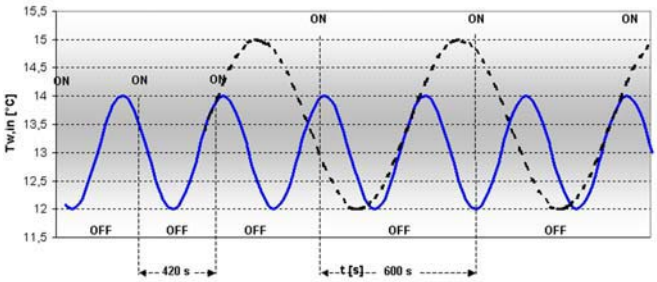
MCE offers the option of incorporating hydronic kits complete with circulation pump (stainless steel casing and rotor), expansion tank, inertial water storage reservoir, safety valve, pressure gauge and water filter.
All units are submitted to final testing at the end of the production process in order to limit the required startup operations.


### EXTREMELY LOW NOISE LEVELS

The use of extremely quiet fans, which are housed in compartments with an optimised profile and work with low pressure drops thanks to the use of finned block exchangers with 8mm diameter copper pipes, makes it possible to achieve extremely low-noise ventilation.
In partial load conditions, the condensation control function (under pressure) makes the unit run even more quietly.
The technical compartment and compressor can also be sound insulated to obtain exceptionally quiet units.

### SELF-ADAPTIVE

The control logic enables MCE units to be used even with extremely low volumes of water by adjusting the effective temperature setpoint according to actual instantaneous thermal loads.
The design philosophy enables the flexibility of self-adaptive logic to be combined with the benefits of an inertial water buffer tank, which may be incorporated without changing the unit's overall dimensions.
A sensor measures the outdoor air temperature and automatically changes the setpoint of the unit to adapt it to actual system requirements.



# CONSTRUCTIVE COMPONENTS

## STRUCTURE
Painted galvanised sheet steel structure (RAL9002) for an attractive look and 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.
Sound insulation, available on request, can further reduce the noise emissions of the unit.

## CUSTOMISED HYDRAULIC KIT
- High head pump made entirely of stainless steel, already configured for use with mixtures of water and ethylene glycol up to 35% and provided with internal thermal protection.
  It is housed in the compressor compartment and is easy to reach thanks to the removable perimeter panels.
- Expansion tank.
- Safety valve.
- Filling cock (included).
- Automatic vent valve.
- Water differential pressure switch and outlet water temperature probe with anti-freeze thermostat function.
- Mechanical Y filter supplied as a standard feature on all models to protect the evaporator (included).

## COOLING CIRCUIT
- Scroll-type compressor housed in a compartment that can be sound insulated.
- Brazed plate heat exchangers made of STAINLESS STEEL 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.
- Thermostatic valve with external equalisation and integrated MOP function.
- Cycle-reversing valve (MCE H).
- Single-acting valves (MCE H).
- Liquid receiver (MCE H)
- High and low pressure switches.
- Safety valve.
- Schrader valves for checks and/or maintenance.
- Refrigerant pressure gauges (optional).

## FAN DRIVE ASSEMBLY
Electric fan with 6-pole external rotor motor directly keyed to the axial fan, with internal thermal protection on the windings, complete with safety grille and dedicated supporting structure.
The fan is housed in a special compartment having a profile designed to optimise ventilation.
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 condensation control system continuously and automatically regulates the fan speed, further limiting the noise emissions of the unit during nighttime operation and under partial load conditions.

## FINNED BLOCK HEAT EXCHANGER
Made of 8mm diameter copper pipes and aluminium fins, generously sized.
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.

## ELECTRIC CONTROL BOARD
The electric control board is constructed and wired in accordance with EEC Directive 73/23, Directive 89/336 on electromagnetic compatibility and related standards. Made of steel sheet, it is also protected by the enclosing panels of the machine.

## ELECTRONIC MICROPROCESSOR CONTROL


The electronic control enables the complete control of the MCE 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 buffer tank.
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.
Main functions
- Control over the temperature of water entering the evaporator.
- Management of the defrosting function (MCE-H)
- Control of fan speed (optional)
- Complete alarm management.
- Dynamic control of the setpoint according to the outdoor air temperature
- Can be connected to an RS485 serial line for supervisory / teleassistance operation
- Option of connecting a remote terminal that duplicates the control functions.

Devices controlled:
- Compressor
- Fans
- Cycle-reversing valve (MCE-H).
- Water circulation pump
- Antifreeze heating elements (optional)
- Alarm signalling relay

## OPTIONS
Incorporable hydronic kits
Condensation control
Low noise execution
Refrigerant pressure gauges
Antifreeze heating elements on the water circuit
Electronic thermostatic valve
Heat recovery 25% (chiller)
Special exchangers (hydrophilic treatment, copper-copper, cataphoresis, anti-corrosion)

## ACCESSORIES AVAILABLE
Remote control boards
Base vibration dampers
Metal grilles to protect exchangers

| RATED TECHNICAL DATA of MCE-C water chillers | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MODEL** | | **009M** | **009** | **011** | **013** | **015** | **018** | **019** | **023** | **026** | **031** | **034** | **039** |
| Power supply | V-ph-Hz | 230-1-50 | 400-3N-50 | | | | | | | | | | |
| Cooling capacity | kW | 8,92 | 8,92 | 11,32 | 12,62 | 14,55 | 16,90 | 19,37 | 22,48 | 25,77 | 31,16 | 34,13 | 39,19 |
| Total power input | kW | 3,36 | 3,36 | 4,37 | 4,41 | 5,35 | 6,57 | 7,42 | 8,54 | 9,40 | 10,71 | 12,19 | 13,38 |
| EER | | 2,66 | 2,65 | 2,59 | 2,86 | 2,72 | 2,57 | 2,61 | 2,63 | 2,74 | 2,91 | 2,80 | 2,93 |
| ESEER | | 3,16 | 3,16 | 3,15 | 3,45 | 3,33 | 3,13 | 3,05 | 3,09 | 3,11 | 3,38 | 3,33 | 3,47 |
| Electrical input in cooling mode with pump | kW | 3,73 | 3,73 | 4,74 | 4,78 | 5,72 | 6,94 | 7,79 | 8,91 | 9,77 | 11,26 | 12,74 | 13,93 |
| Maximum power input | kW | 5,1 | 7,2 | 8,6 | 8,9 | 10,5 | 12,5 | 13,6 | 15,7 | 17,4 | 19,1 | 22,1 | 22,7 |
| Maximum absorbed current | A | 26,3 | 14,4 | 16,9 | 17,4 | 20,0 | 24,3 | 26,2 | 29,7 | 32,6 | 34,6 | 39,6 | 40,6 |
| Starting current | A | 99 | 50 | 65 | 65 | 68 | 75 | 104 | 104 | 132 | 166 | 161 | 163 |
| No. of scroll compressors / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| Refrigerant charge | kg | 2,3 | 2,3 | 2,3 | 3,0 | 3,1 | 3,1 | 3,7 | 4,8 | 5,0 | 6,4 | 6,6 | 9,1 |
| High / low pressure switch | bars | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 |
| No. of axial fans | | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 4 | 1 | 1 | 1 |
| Air flow | $m^3/h$ | 6.686 | 6.686 | 6.686 | 5.986 | 5.986 | 9.304 | 9.304 | 8.450 | 9.861 | 15.255 | 15.255 | 14.973 |
| Water flow | l/h | 1.534 | 1.534 | 1.948 | 2.170 | 2.502 | 2.906 | 3.331 | 3.866 | 4.432 | 5.360 | 5.870 | 6.740 |
| Diameter of water connections | inches | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Pressure drop, water side | kPa | 33 | 33 | 53 | 60 | 37 | 51 | 49 | 45 | 61 | 51 | 40 | 43 |
| Available head | kPa | 118 | 118 | 94 | 84 | 104 | 130 | 126 | 123 | 99 | 127 | 133 | 121 |
| Water content, excluding optionals | $dm^3$ | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 5 |
| Expansion tank | $dm^3$ | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 8 | 8 | 8 |
| Buffer tank | $dm^3$ | 30 | 30 | 30 | 30 | 30 | 50 | 50 | 50 | 50 | 125 | 125 | 125 |
| Height | mm | 1.225 | 1.225 | 1.225 | 1.225 | 1.225 | 1.275 | 1.275 | 1.275 | 1.275 | 1.300 | 1.300 | 1.300 |
| Length | mm | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.565 | 1.565 | 1.565 | 1.565 | 1.665 | 1.665 | 1.665 |
| Depth | mm | 550 | 550 | 550 | 550 | 550 | 601 | 601 | 601 | 601 | 950 | 950 | 950 |
| Sound power level | dB(A) | 69 | 69 | 69 | 69 | 71 | 71 | 71 | 71 | 73 | 77 | 77 | 77 |
| Sound pressure level | dB(A) | 41 | 41 | 41 | 41 | 43 | 43 | 43 | 43 | 45 | 49 | 49 | 49 |
| Transport weight* | kg | 202 | 202 | 202 | 209 | 209 | 260 | 260 | 280 | 285 | 310 | 330 | 330 |
| Operating weight* | kg | 228 | 228 | 228 | 235 | 235 | 306 | 306 | 327 | 332 | 432 | 453 | 453 |

* Weights refer to model with pump and tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- Heating capacity: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C
- Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field (fan side).

| RATED TECHNICAL DATA of MCE-H heat pumps | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MODEL** | | **009M** | **009** | **011** | **013** | **015** | **018** | **019** | **023** | **026** | **031** | **034** | **039** |
| Power supply | V-ph-Hz | 230-1-50 | 400-3N-50 | | | | | | | | | | |
| Cooling capacity | kW | 8,74 | 8,74 | 11,10 | 12,36 | 14,26 | 16,56 | 18,98 | 22,03 | 25,25 | 30,54 | 33,45 | 38,40 |
| Input power in cooling mode | kW | 3,36 | 3,36 | 4,37 | 4,41 | 5,35 | 6,57 | 7,42 | 8,54 | 9,40 | 10,71 | 12,19 | 13,38 |
| EER | | 2,60 | 2,60 | 2,54 | 2,80 | 2,67 | 2,52 | 2,56 | 2,58 | 2,69 | 2,85 | 2,74 | 2,87 |
| ESEER | | 3,09 | 3,09 | 3,09 | 3,38 | 3,27 | 3,07 | 2,99 | 3,03 | 3,05 | 3,31 | 3,26 | 3,40 |
| Input power in cooling mode with pump | kW | 3,73 | 3,73 | 4,74 | 4,78 | 5,72 | 6,94 | 7,79 | 8,91 | 9,77 | 11,26 | 12,74 | 13,93 |
| Heating capacity | kW | 10,52 | 10,52 | 13,19 | 14,50 | 16,69 | 19,67 | 22,43 | 26,24 | 29,47 | 35,15 | 38,62 | 44,05 |
| Input power in heating mode | kW | 3,64 | 3,64 | 4,46 | 4,60 | 5,50 | 6,68 | 7,23 | 8,32 | 9,01 | 10,69 | 11,93 | 13,50 |
| COP | | 2,89 | 2,89 | 2,96 | 3,15 | 3,04 | 2,95 | 3,10 | 3,16 | 3,27 | 3,29 | 3,24 | 3,26 |
| Input power in heating mode with pump | kW | 4,01 | 4,01 | 4,83 | 4,97 | 5,87 | 7,05 | 7,60 | 8,69 | 9,38 | 11,24 | 12,48 | 14,05 |
| Maximum power input | kW | 5,1 | 7,2 | 8,6 | 8,9 | 10,5 | 12,5 | 13,6 | 15,7 | 17,4 | 19,1 | 22,1 | 22,7 |
| Maximum absorbed current | A | 26,3 | 14,4 | 16,9 | 17,4 | 20,0 | 24,3 | 26,2 | 29,7 | 32,6 | 34,6 | 39,6 | 40,6 |
| Starting current | A | 99 | 50 | 65 | 65 | 68 | 75 | 104 | 104 | 132 | 166 | 161 | 163 |
| No. of scroll compressors / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| Refrigerant charge | kg | 2,3 | 2,3 | 2,3 | 3,0 | 3,1 | 3,1 | 3,7 | 4,8 | 5,0 | 6,4 | 6,6 | 9,1 |
| High / low pressure switch | bars | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 |
| No. of axial fans | | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 4 | 1 | 1 | 1 |
| Air flow | $m^3/h$ | 6.686 | 6.686 | 6.686 | 5.986 | 5.986 | 9.304 | 9.304 | 8.450 | 9.861 | 15.255 | 15.255 | 14.973 |
| Water flow cooling only | l/h | 1.534 | 1.534 | 1.948 | 2.170 | 2.502 | 2.906 | 3.331 | 3.866 | 4.432 | 5.360 | 5.870 | 6.740 |
| Water flow in heat pump operation | l/h | 1.809 | 1.809 | 2.269 | 2.495 | 2.871 | 3.383 | 3.859 | 4.514 | 5.069 | 6.045 | 6.643 | 7.576 |
| Diameter of water connections | " | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Pressure drop, water side (cooling) | kPa | 33 | 33 | 53 | 60 | 37 | 51 | 49 | 45 | 61 | 51 | 40 | 43 |
| Pressure drop, water side (heating) | kPa | 44 | 44 | 71 | 83 | 49 | 69 | 66 | 61 | 81 | 63 | 50 | 54 |
| Available head (cooling) | kPa | 118 | 118 | 94 | 84 | 104 | 130 | 126 | 123 | 99 | 127 | 133 | 121 |
| Available head, heat pump | kPa | 148 | 148 | 144 | 141 | 138 | 174 | 168 | 159 | 151 | 171 | 164 | 154 |
| Water content, excluding optionals | $dm^3$ | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 5 |
| Expansion tank | $dm^3$ | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 8 | 8 | 8 |
| Buffer tank | $dm^3$ | 30 | 30 | 30 | 30 | 30 | 50 | 50 | 50 | 50 | 125 | 125 | 125 |
| Height | mm | 1.225 | 1.225 | 1.225 | 1.225 | 1.225 | 1.275 | 1.275 | 1.275 | 1.275 | 1.300 | 1.300 | 1.300 |
| Length | mm | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.565 | 1.565 | 1.565 | 1.565 | 1.665 | 1.665 | 1.665 |
| Depth | mm | 550 | 550 | 550 | 550 | 550 | 601 | 601 | 601 | 601 | 950 | 950 | 950 |
| Sound power level | dB(A) | 69 | 69 | 69 | 69 | 71 | 71 | 71 | 71 | 73 | 77 | 77 | 77 |
| Sound pressure level | dB(A) | 41 | 41 | 41 | 41 | 43 | 43 | 43 | 43 | 45 | 49 | 49 | 49 |
| Transport weight* | kg | 212 | 212 | 212 | 219 | 220 | 273 | 273 | 295 | 300 | 330 | 350 | 350 |
| Operating weight* | kg | 238 | 238 | 238 | 245 | 246 | 319 | 319 | 342 | 347 | 452 | 473 | 473 |

* Weights refer to model with pump and tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- Heating capacity: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C
- Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field (fan side).

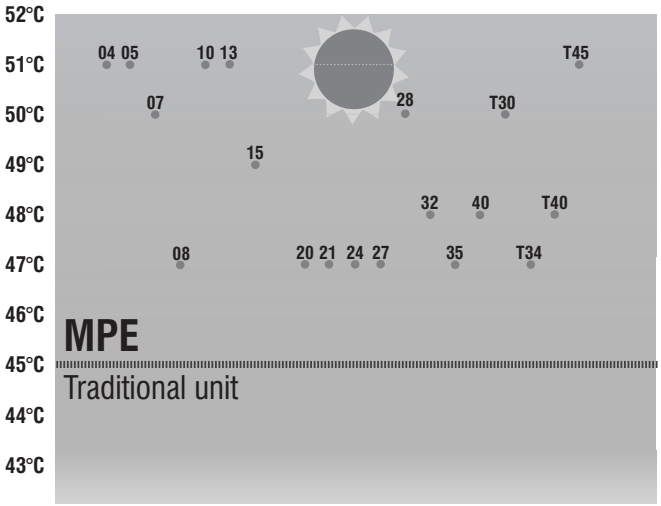
## PERFORMA: EFFICIENCY BEYOND EVERY LIMIT

- > R410A
- > OPTIMISED FINNED BLOCK EXCHANGERS
- > QUIET OPERATION
- > HIGH EFFICIENCY
- > EXTENDED OPERATING LIMITS
- > TANDEM CONFIGURATION
- > DYNAMIC SETPOINT
- > OPERATION UNDER PARTIAL LOAD CONDITIONS WITHOUT NEED FOR WATER BUFFER TANK
- > SMART DEFROST SYSTEM
- > IN THE CONFIGURATION WITH AN ELECTRONIC VALVE SUITABLE FOR RADIANT PANEL SYSTEMS.


**PERFORMA (MPE)** water chillers and heat pumps are designed for outdoor installation in both residential and industrial applications.
The range uses R410A refrigerant, which assures high levels of performance with relatively low energy consumption and features 21 models in the chiller and heat pump version, with cooling capacities ranging from 4 to 66 kW and heating capacities from 5 to 70 kW.

### BEYOND CONVENTIONAL WORKING LIMITS

The finned block heat exchangers have been optimised for R410A and use 8 mm copper pipes, which permit a better heat exchange and quiet operation of the fans.
Their generous sizing guarantees the production of chilled water even with outdoor air temperatures as high as 51°C and all models of the range assure an average energy efficiency ratio (EER) of 2.95 in the cooling mode and heating efficiency (COP) of 3.25, corresponding to the Eurovent Energy Efficiency Class A.

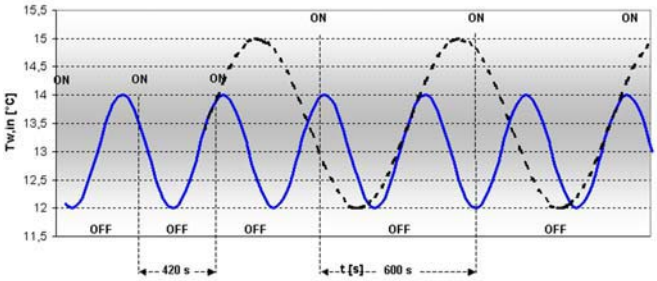



### EFFICIENCY IN ALL CONDITIONS

The actual thermal load of an air conditioning system is less than 60% of the rated load capacity 90% of the time; the MPE T version with single-circuit dual compressor answers this demand by offering high efficiency during operation under partial load conditions (ESEER>4) and also guarantees the unit's operation at the worst temperature conditions.
In such conditions the microprocessor controller activates the capacity control mode, doubling the condensing surface available to the single compressor.
The axial-type fans with airfoil-shaped blades and 6- and 8-pole motors with electronic speed control (optional) guarantee quiet operation and optimal performance of the unit in all conditions.

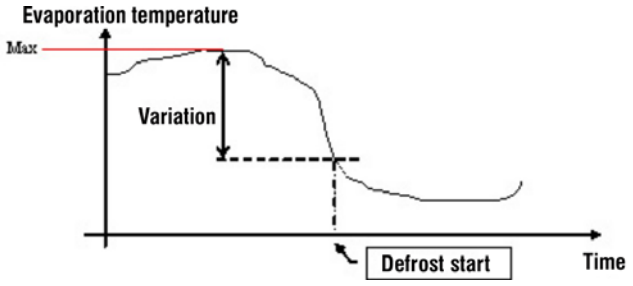
### SELF-ADAPTIVE

The electronic control system allows the setpoint to be adjusted automatically according to the outdoor temperature in order to reduce consumption and broaden the working temperature range.
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.



# CONSTRUCTIVE COMPONENTS

## STRUCTURE
Painted galvanised sheet steel structure (RAL9002) for an attractive look and 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.
Sound insulation, available on request, can further reduce the noise emissions of the unit.

## CUSTOMISED HYDRAULIC KIT
- High head pump made entirely of stainless steel, already configured for use with mixtures of water and ethylene glycol up to 35% and provided with internal thermal protection.
  It is housed in the compressor compartment and is easy to reach thanks to the removable perimeter panels.
- Expansion tank.
- Safety valve.
- Filling cock (included).
- Automatic vent valve.
- Water differential pressure switch and outlet water temperature probe with anti-freeze thermostat function.
- Mechanical Y filter supplied as a standard feature on all models to protect the evaporator (included).

## COOLING CIRCUIT
- Scroll-type compressor (rotary up to 7 kW) housed in a compartment that can be sound insulated.
- Brazed plate heat exchangers made of STAINLESS STEEL 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.
- Thermostatic valve with external equalisation and integrated MOP function.
- Cycle-reversing valve (MPE H).
- Single-acting valves (MPE H).
- Liquid receiver (MPE H)
- High and low pressure switches.
- Safety valve.
- Schrader valves for checks and/or maintenance.
- Refrigerant pressure gauges (optional).

## FAN DRIVE ASSEMBLY
Electric fan with 6/8-pole external rotor motor directly keyed to the axial fan, with internal thermal protection on the windings, complete with safety grille and dedicated supporting structure.
The fan is housed in a special compartment having a profile designed to optimise ventilation.
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 condensation control system continuously and automatically regulates the fan speed, further limiting the noise emissions of the unit during nighttime operation and under partial load conditions.

## FINNED BLOCK HEAT EXCHANGER
Made of 8mm diameter copper pipes and aluminium fins, generously sized.
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.

## ELECTRONIC MICROPROCESSOR CONTROL


The electronic control enables the complete control of the MPE 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 buffer tank. 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.
Main functions
- Control over the temperature of water entering the evaporator.
- Management of the defrosting function (MPE-H)
- Control of fan speed (optional)
- Complete alarm management.
- Dynamic control of the setpoint according to the outdoor air temperature
- Can be connected to an RS485 serial line for supervisory / teleassistance operation
- Option of connecting a remote terminal that duplicates the control functions.

Devices controlled:
- Compressor
- Fans
- Cycle-reversing valve (MPE-H).
- Water circulation pump
- Antifreeze heating elements (optional)
- Alarm signalling relay

On request, it is possible to install the advanced controller whose functions extend to:
- LAN networks
- Smart Defrost System

## ELECTRIC CONTROL BOARD
The electric control board is constructed and wired in accordance with EEC Directive 73/23, Directive 89/336 on electromagnetic compatibility and related standards. Made of steel sheet, it is also protected by the enclosing panels of the machine.

## OPTIONS
Incorporable hydronic kits
Condensation control
Low noise execution
Refrigerant pressure gauges
Antifreeze heating elements on the water circuit
Electronic thermostatic valve
Heat recovery 25% (chiller)
Special exchangers (hydrophilic treatment, copper-copper, cataphoresis, anti-corrosion)

## ACCESSORIES AVAILABLE
Remote control boards
Base vibration dampers
Metal grilles to protect exchangers

| RATED TECHNICAL DATA OF MPE WATER CHILLERS | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MPE-C** | | **004 M** | **005 M** | **007 M** | **008 M** | **008** | **010 M** | **010** | **013** | **015** | **018** | **020** | **024** |
| Power supply | V-ph-Hz | 230-1-50 | | | 230-1-50 | 400-3-50 | 230-1-50 | 400-3-50 | | | | | |
| Cooling capacity | kW | 4,11 | 5,10 | 6,66 | 8,40 | 8,40 | 9,25 | 9,25 | 12,90 | 14,98 | 17,20 | 19,61 | 23,80 |
| Total power input | kW | 1,35 | 1,70 | 2,26 | 3,35 | 3,09 | 3,22 | 3,22 | 4,16 | 5,16 | 6,32 | 7,12 | 8,10 |
| EER | | 3,06 | 3,01 | 2,95 | 2,51 | 2,72 | 2,87 | 2,87 | 3,10 | 2,90 | 2,72 | 2,75 | 2,94 |
| ESEER | | 3,54 | 3,39 | 3,32 | 2,98 | 3,36 | 3,38 | 3,38 | 3,69 | 3,53 | 3,30 | 3,21 | 3,42 |
| Total input power with pump | kW | 1,49 | 1,84 | 2,40 | 3,49 | 3,23 | 3,59 | 3,59 | 4,53 | 5,53 | 6,69 | 7,49 | 8,47 |
| Maximum power input | kW | 2,0 | 2,3 | 3,0 | 5,0 | 5,0 | 5,1 | 7,2 | 8,9 | 10,5 | 12,5 | 13,6 | 14,5 |
| Maximum absorbed current | A | 9,8 | 11,6 | 15,3 | 24,2 | 9,2 | 26,3 | 14,4 | 17,4 | 20,0 | 24,3 | 26,2 | 27,6 |
| Starting current | A | 38 | 44 | 63 | 98 | 49 | 99 | 50 | 65 | 68 | 75 | 104 | 158 |
| No. of scroll compressors / circuits | | 1 / 1 | | | | | | | | | | | |
| Refrigerant charge | kg | 1,47 | 1,48 | 2,04 | 2,09 | 2,09 | 2,87 | 2,87 | 3,99 | 4,11 | 3,67 | 4,23 | 5,79 |
| High / low pressure switch | bars | 2 / 42 | | | | | | | | | | | |
| No. of axial fans | | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 4 |
| Air flow | $m^3/h$ | 3.635 | 3.635 | 3.406 | 3.406 | 3.406 | 7.385 | 7.385 | 6.939 | 6.939 | 9.990 | 9.990 | 9.307 |
| Water flow | l/h | 707 | 877 | 1.146 | 1.445 | 1.445 | 1.591 | 1.591 | 2.219 | 2.577 | 2.958 | 3.373 | 4.094 |
| Diameter of water connections | inches | 1 | 1 | 1 | 1 | 1 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Pressure drop, water side | kPa | 2 | 4 | 6 | 6 | 6 | 34 | 34 | 61 | 38 | 51 | 51 | 49 |
| Available head | kPa | 63 | 61 | 57 | 53 | 53 | 116 | 116 | 83 | 103 | 129 | 123 | 116 |
| Water content, excluding optionals | $dm^3$ | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 |
| Expansion tank | $dm^3$ | 1 | 1 | 1 | 1 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Buffer tank | $dm^3$ | 20 | 20 | 20 | 20 | 20 | 30 | 30 | 30 | 30 | 50 | 50 | 50 |
| Height | mm | 758 | 758 | 758 | 758 | 758 | 1.250 | 1.250 | 1.250 | 1.250 | 1.300 | 1.300 | 1.300 |
| Length | mm | 960 | 960 | 960 | 960 | 960 | 1.220 | 1.220 | 1.220 | 1.220 | 1.565 | 1.565 | 1.565 |
| Depth | mm | 450 | 450 | 450 | 450 | 450 | 560 | 560 | 560 | 560 | 600 | 600 | 600 |
| Sound power level | dB(A) | 66 | 66 | 67 | 67 | 67 | 69 | 69 | 69 | 69 | 71 | 71 | 72 |
| Sound pressure level | dB(A) | 38 | 38 | 39 | 39 | 39 | 41 | 41 | 41 | 41 | 43 | 43 | 44 |
| Transport weight* | kg | 98 | 100 | 107 | 110 | 110 | 202 | 202 | 209 | 209 | 260 | 260 | 280 |
| Operating weight* | kg | 92 | 94 | 101 | 104 | 104 | 228 | 228 | 235 | 235 | 306 | 296 | 327 |

| RATED TECHNICAL DATA OF MPE WATER CHILLERS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MPE-C** | | **027** | **028** | **032** | **035** | **040** | **054** | **066** | **T30** | **T34** | **T40** | **T45** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | 400-3-50 | | | |
| Cooling capacity | kW | 26,60 | 28,10 | 31,52 | 35,00 | 39,67 | 51,4 | 66,1 | 30 | 34 | 40 | 45 |
| Total power input | kW | 9,33 | 8,65 | 10,06 | 11,51 | 12,77 | 17,8 | 24,1 | 10 | 13 | 14 | 16 |
| EER | | 2,85 | 3,25 | 3,13 | 3,04 | 3,11 | 3,04 | 2,74 | 3 | 3 | 3 | 3 |
| ESEER | | 3,36 | 3,77 | 3,63 | 3,61 | 3,68 | 3,60 | 3,30 | 4 | 4 | 4 | 4 |
| Total input power with pump | kW | 9,70 | 9,20 | 10,61 | 12,06 | 13,32 | 18,7 | 25 | 11 | 13 | 14 | 17 |
| Maximum power input | kW | 18,0 | 18,3 | 18,9 | 21,8 | 22,4 | 22,7 | 23,3 | 21 | 24 | 27 | 31 |
| Maximum absorbed current | A | 33,6 | 35,5 | 36,5 | 41,5 | 42,5 | 45,2 | 46,2 | 40 | 46 | 50 | 57 |
| Starting current | A | 132 | 133 | 166 | 161 | 163 | 163 | 165 | 86 | 96 | 127 | 130 |
| No. of scroll compressors / circuits | | 1 / 1 | | | | | | | 2 / 1 | | | |
| Refrigerant charge | kg | 6,0 | 7,5 | 7,5 | 7,8 | 10,8 | 13,0 | 15,0 | 8 | 8 | 11 | 11 |
| High / low pressure switch | bars | 2 / 42 | | | | | | | 2 / 42 | | | |
| No. of axial fans | | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Air flow | $m^3/h$ | 9.307 | 16.276 | 16.276 | 16.276 | 15.776 | 20.000 | 20.000 | 16.276 | 16.276 | 15.776 | 15.776 |
| Water flow | l/h | 4.575 | 4.833 | 5.421 | 6.021 | 6.823 | 9.305 | 11.376 | 5.160 | 5.857 | 6.806 | 7.663 |
| Diameter of water connections | inches | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 | 1 | 1 | 1 |
| Pressure drop, water side | kPa | 34 | 40 | 51 | 41 | 43 | 60 | 60 | 30 | 38 | 45 | 57 |
| Available head | kPa | 124 | 143 | 126 | 130 | 119 | 110 | 95 | 150 | 134 | 117 | 97 |
| Water content, excluding optionals | $dm^3$ | 4 | 6 | 6 | 6 | 6 | 7 | 8 | 6 | 6 | 6 | 6 |
| Expansion tank | $dm^3$ | 5 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Buffer tank | $dm^3$ | 50 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 |
| Height | mm | 1.300 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 |
| Length | mm | 1.565 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 |
| Depth | mm | 600 | 950 | 950 | 950 | 950 | 950 | 950 | 950 | 950 | 950 | 950 |
| Sound power level | dB(A) | 72 | 73 | 73 | 73 | 75 | 78 | 78 | 72 | 72 | 72 | 72 |
| Sound pressure level | dB(A) | 44 | 45 | 45 | 45 | 47 | 50 | 50 | 44 | 44 | 44 | 44 |
| Transport weight* | kg | 285 | 370 | 370 | 390 | 390 | 500 | 530 | 410 | 410 | 430 | 430 |
| Operating weight* | kg | 332 | 492 | 492 | 513 | 513 | 620 | 650 | 532 | 533 | 553 | 553 |

* Weights refer to model with pump and tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field (fan side).

| RATED TECHNICAL DATA of MPE heat pumps | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MPE-H** | | **004 M** | **005 M** | **007 M** | **008 M** | **008** | **010 M** | **010** | **013** | **015** | **018** | **020** | **024** |
| Power supply | V-ph-Hz | 230-1-50 | | | 230-1-50 | 400-3-50 | 230-1-50 | 400-3-50 | | | | | |
| Cooling capacity | kW | 4,03 | 5,00 | 6,53 | 8,23 | 8,23 | 9,07 | 9,07 | 12,64 | 14,68 | 16,86 | 19,22 | 23,32 |
| Total power input | kW | 1,35 | 1,70 | 2,26 | 3,35 | 3,09 | 3,22 | 3,22 | 4,16 | 5,16 | 6,32 | 7,12 | 8,10 |
| EER | | 2,99 | 2,95 | 2,89 | 2,46 | 2,67 | 2,82 | 2,82 | 3,04 | 2,85 | 2,67 | 2,70 | 2,88 |
| ESEER | | 3,47 | 3,32 | 3,26 | 2,92 | 3,29 | 3,31 | 3,31 | 3,62 | 3,46 | 3,23 | 3,15 | 3,35 |
| Total input power with pump | kW | 1,49 | 1,84 | 2,40 | 3,49 | 3,23 | 3,59 | 3,59 | 4,53 | 5,53 | 6,69 | 7,49 | 8,47 |
| Heating capacity | kW | 4,72 | 5,86 | 7,77 | 10,21 | 9,95 | 10,87 | 10,87 | 15,09 | 17,60 | 20,03 | 22,96 | 27,15 |
| Total power input in heating mode | kW | 1,46 | 1,81 | 2,41 | 3,59 | 3,25 | 3,62 | 3,62 | 4,70 | 5,49 | 6,63 | 7,16 | 8,11 |
| COP | | 3,24 | 3,25 | 3,23 | 2,85 | 3,07 | 3,00 | 3,00 | 3,21 | 3,21 | 3,02 | 3,21 | 3,35 |
| Total input power in heating mode with pump | kW | 1,60 | 1,95 | 2,55 | 3,73 | 3,39 | 3,99 | 3,99 | 5,07 | 5,86 | 7,00 | 7,53 | 8,48 |
| Maximum power input | kW | 2,0 | 2,3 | 3,0 | 5,0 | 5,0 | 5,1 | 7,2 | 8,9 | 10,5 | 12,5 | 13,6 | 14,50 |
| Maximum absorbed current | A | 9,80 | 11,60 | 15,30 | 24,20 | 9,20 | 26,30 | 14,40 | 17,40 | 20,00 | 24,30 | 26,20 | 27,60 |
| Starting current | A | 38 | 44 | 63 | 98 | 49 | 99 | 50 | 65 | 68 | 75 | 104 | 158 |
| No. of scroll compressors / circuits | | 1 / 1 | | | | | | | | | | | |
| Refrigerant charge | kg | 1,47 | 1,48 | 2,04 | 2,09 | 2,09 | 2,87 | 2,87 | 3,99 | 4,11 | 3,67 | 4,23 | 5,79 |
| High / low pressure switch | bars | 2 / 42 | | | | | | | | | | | |
| No. of axial fans | | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 4 | 4 | 4 |
| Air flow | $m^3/h$ | 3.635 | 3.635 | 3.406 | 3.406 | 3.406 | 7.385 | 7.385 | 6.939 | 6.939 | 9.990 | 9.990 | 9.307 |
| Water flow cooling only | l/h | 707 | 877 | 1.146 | 1.445 | 1.445 | 1.591 | 1.591 | 2.219 | 2.577 | 2.958 | 3.373 | 4.094 |
| Water flow in heat pump operation | l/h | 811 | 1.008 | 1.337 | 1.755 | 1.711 | 1.869 | 1.869 | 2.595 | 3.027 | 3.445 | 3.949 | 4.670 |
| Diameter of water connections | " | 1 | 1 | 1 | 1 | 1 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1,25 |
| Pressure drop, water side (cooling) | kPa | 2 | 4 | 6 | 6 | 6 | 34 | 34 | 61 | 38 | 51 | 51 | 49 |
| Pressure drop, water side (heating) | kPa | 3 | 4 | 8 | 8 | 8 | 45 | 45 | 83 | 51 | 69 | 69 | 62 |
| Available head (cooling) | kPa | 63 | 61 | 57 | 53 | 53 | 116 | 116 | 83 | 103 | 129 | 123 | 116 |
| Available head, heat pump | kPa | 62 | 59 | 53 | 48 | 48 | 102 | 102 | 57 | 86 | 104 | 97 | 95 |
| Water content, excluding optionals | $dm^3$ | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 |
| Expansion tank | $dm^3$ | 1 | 1 | 1 | 1 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Buffer tank | $dm^3$ | 20 | 20 | 20 | 20 | 20 | 30 | 30 | 30 | 30 | 50 | 50 | 50 |
| Height | mm | 758 | 758 | 758 | 758 | 758 | 1.250 | 1.250 | 1.250 | 1.250 | 1.300 | 1.300 | 1.300 |
| Length | mm | 960 | 960 | 960 | 960 | 960 | 1.220 | 1.220 | 1.220 | 1.220 | 1.565 | 1.565 | 1.565 |
| Depth | mm | 450 | 450 | 450 | 450 | 450 | 560 | 560 | 560 | 560 | 600 | 600 | 600 |
| Sound power level | dB(A) | 66 | 66 | 67 | 67 | 67 | 69 | 69 | 69 | 69 | 71 | 71 | 72 |
| Sound pressure level | dB(A) | 38 | 38 | 39 | 39 | 39 | 41 | 41 | 41 | 41 | 43 | 43 | 44 |
| Transport weight* | kg | 103 | 105 | 112 | 115 | 115 | 212 | 212 | 219 | 220 | 273 | 273 | 295 |
| Operating weight* | kg | 97 | 99 | 106 | 109 | 109 | 238 | 238 | 245 | 246 | 319 | 309 | 342 |

* Weights refer to model with pump and tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- Heating capacity: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C
- Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a open field (fan side).

| RATED TECHNICAL DATA of MPE heat pumps | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MPE-H** | | **027** | **028** | **032** | **035** | **040** | **054** | **066** | **T30** | **T34** | **T40** | **T45** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | |
| Cooling capacity | kW | 26,07 | 27,54 | 30,89 | 34,30 | 38,88 | 52,00 | 62,80 | 29,40 | 33,37 | 38,78 | 43,66 |
| Total power input | kW | 9,33 | 8,65 | 10,06 | 11,51 | 12,77 | 17,80 | 24,10 | 10,43 | 12,59 | 13,64 | 16,38 |
| EER | | 2,79 | 3,18 | 3,07 | 2,98 | 3,04 | 2,92 | 2,60 | 2,82 | 2,65 | 2,84 | 2,67 |
| ESEER | | 3,29 | 3,70 | 3,56 | 3,54 | 3,61 | 3,50 | 3,20 | 4,09 | 4,03 | 4,06 | 3,96 |
| Total input power with pump | kW | 9,70 | 9,20 | 10,61 | 12,06 | 13,32 | 18,70 | 25,00 | 10,98 | 13,14 | 14,19 | 16,93 |
| Heating capacity | kW | 29,98 | 31,37 | 35,58 | 39,28 | 45,17 | 60,80 | 75,30 | 34,51 | 39,41 | 46,49 | 52,72 |
| Total power input in heating mode | kW | 8,89 | 9,14 | 10,42 | 11,57 | 13,14 | 18,30 | 23,10 | 10,86 | 12,80 | 13,97 | 16,26 |
| COP | | 3,37 | 3,43 | 3,41 | 3,39 | 3,44 | 3,32 | 3,26 | 3,18 | 3,08 | 3,33 | 3,24 |
| Total input power in heating mode with pump | kW | 9,26 | 9,69 | 10,97 | 12,12 | 13,69 | 19,20 | 24,00 | 11,41 | 13,35 | 14,52 | 16,81 |
| Maximum power input | kW | 18,0 | 18,3 | 18,9 | 21,8 | 22,4 | 22,70 | 23,30 | 20,9 | 24,4 | 26,6 | 30,8 |
| Maximum absorbed current | A | 33,60 | 35,50 | 36,50 | 41,50 | 42,50 | 45,20 | 46,20 | 39,9 | 45,9 | 49,70 | 56,70 |
| Starting current | A | 132 | 133 | 166 | 161 | 163 | 163 | 165 | 86 | 96 | 127 | 130 |
| No. of scroll compressors / circuits | | 1 / 1 | | | | | | | 2 / 1 | | | |
| Refrigerant charge | kg | 6,0 | 7,5 | 7,5 | 7,8 | 10,8 | 13 | 16,0 | 7,8 | 7,8 | 10,9 | 10,9 |
| High / low pressure switch | bars | 2 / 42 | | | | | | | 2 / 42 | | | |
| No. of axial fans | | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Air flow | $m^3/h$ | 9.307 | 16.276 | 16.276 | 16.276 | 15.776 | 20.000 | 20.000 | 16.276 | 16.276 | 15.776 | 15.776 |
| Water flow cooling only | l/h | 4.575 | 4.833 | 5.421 | 6.021 | 6.823 | 8.944 | 10.802 | 5.160 | 5.857 | 6.806 | 7.663 |
| Water flow in heat pump operation | l/h | 5.156 | 5.396 | 6.120 | 6.756 | 7.769 | 10.456 | 12.953 | 5.935 | 6.779 | 7.996 | 9.067 |
| Diameter of water connections | " | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 2 | 2 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Pressure drop, water side (cooling) | kPa | 34 | 40 | 51 | 41 | 43 | 60 | 60 | 30 | 38 | 45 | 57 |
| Pressure drop, water side (heating) | kPa | 43 | 49 | 63 | 50 | 54 | 80 | 80 | 39 | 51 | 57 | 73 |
| Available head (cooling) | kPa | 124 | 143 | 126 | 130 | 119 | 112 | 99 | 150 | 134 | 117 | 97 |
| Available head, heat pump | kPa | 107 | 128 | 107 | 113 | 99 | 80 | 61 | 133 | 112 | 93 | 67 |
| Water content, excluding optionals | $dm^3$ | 4,0 | 5,5 | 5,5 | 5,5 | 5,5 | 7 | 8 | 5,5 | 5,5 | 5,5 | 5,5 |
| Expansion tank | $dm^3$ | 5 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Buffer tank | $dm^3$ | 50 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 |
| Height | mm | 1.300 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 | 1.485 |
| Length | mm | 1.565 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 | 1.990 |
| Depth | mm | 600 | 950 | 950 | 950 | 950 | 950 | 950 | 950 | 950 | 950 | 950 |
| Sound power level | dB(A) | 72 | 73 | 73 | 73 | 75 | 78 | 78 | 72 | 72 | 72 | 72 |
| Sound pressure level | dB(A) | 44 | 45 | 45 | 45 | 47 | 50 | 50 | 44 | 44 | 44 | 44 |
| Transport weight* | kg | 300 | 400 | 400 | 420 | 420 | 530 | 560 | 430 | 430 | 430 | 450 |
| Operating weight* | kg | 347 | 522 | 522 | 543 | 543 | 650 | 680 | 552 | 552 | 553 | 573 |

* Weights refer to model with pump and tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- Heating capacity: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C
- Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a open field (fan side).

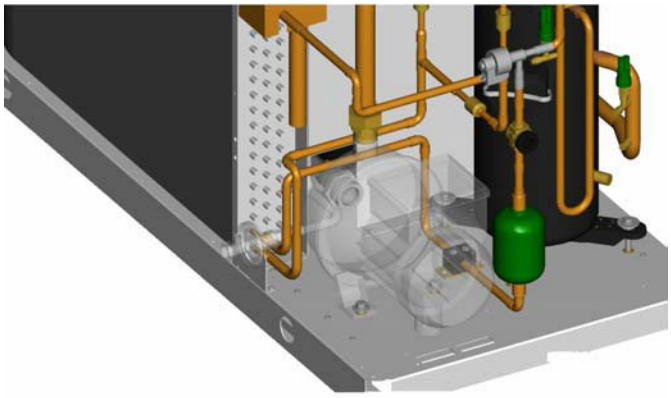
## EXCELIA: HIGH EFFICIENCY YEAR ROUND

- > R410A
- > HEAT PUMP OPERATION AT TEMPERATURES AS LOW AS -15°
- > QUIET OPERATION
- > COMPRESSOR
- > ELECTRONIC VALVE AS A STANDARD FEATURE
- > CONDENSATION CONTROL AS A STANDARD FEATURE
- > DYNAMIC SETPOINT
- > OPERATION UNDER PARTIAL LOAD CONDITIONS WITHOUT NEED FOR WATER BUFFER TANK
- > PLUG&PLAY HYDRONIC KIT (INCORPORATED PUMP AND EXPANSION TANK)
- > ANTIFREEZE KIT

Galletti has developed this product for the production of hot water for heating systems - especially in demand for independent homes - with the aim of reducing primary energy consumption and operating costs compared to conventional gas or electric systems, thanks to a high level of efficiency:
**average COP 3.33 (Eurovent Energy Efficiency Class A)**
**average EER 3.23 (Eurovent Energy Efficiency Class A)**

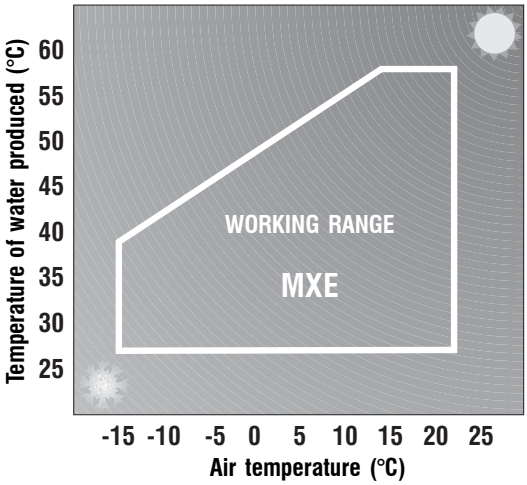
### OPTIMISED FOR OPERATION IN THE HEATING MODE

- Plate heat exchanger with reverse-flow operation in the heating mode (+7% increase in efficiency).
- Finned coil with wide fin spacing
- Desuperheater in the pipes at the base of the finned block heat exchanger.
- Heating cable on the base in the internal part of the finned coil.
- Facilitated condensate drainage



### YEAR-ROUND OPERATION

MXE heat pumps have been designed to work in the heating mode with outdoor air temperatures ranging from -15°C to + 30°C, producing hot water at temperatures of up to 55°C, and in the cooling mode with air temperatures ranging from -10 to +45°C.

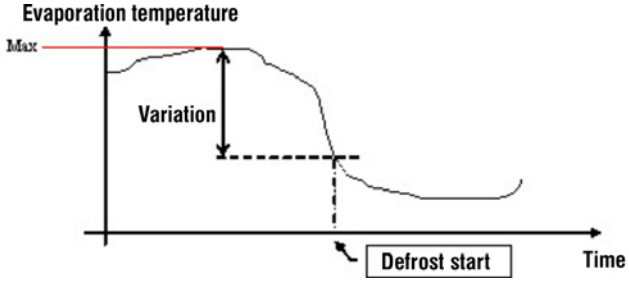




The electronic expansion valve and condensation control (under pressure) contribute to increasing the working range.
The electronic expansion valve and condensation control (under pressure) contribute to increasing the working range.

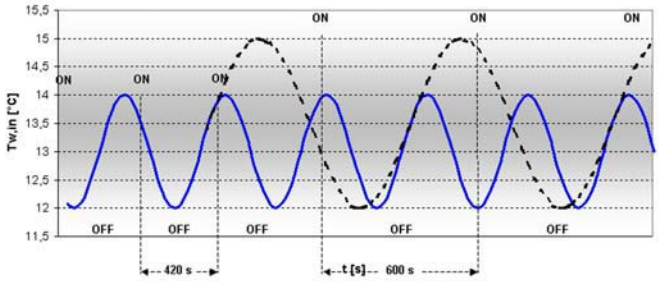
### SMART DEFROST SYSTEM

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.




### SELF-ADAPTIVE

The electronic control system allows the setpoint to be adjusted automatically according to the outdoor temperature in order to reduce consumption and broaden the working temperature range.
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.



## CONSTRUCTIVE COMPONENTS

### STRUCTURE
Painted galvanised sheet steel structure (RAL9002) for an attractive look and 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.
Sound insulation, available on request, can further reduce the noise emissions of the unit.

### CUSTOMISED HYDRAULIC KIT
- High head pump made entirely of stainless steel, already configured for use with mixtures of water and ethylene glycol up to 35% and provided with internal thermal protection.
  It is housed in the compressor compartment and is easy to reach thanks to the removable perimeter panels.
- Expansion tank.
- Safety valve.
- Filling cock (included).
- Automatic vent valve.
- Water differential pressure switch and outlet water temperature probe with anti-freeze thermostat function.
- Mechanical Y filter supplied as a standard feature on all models to protect the evaporator (included).
- Buffer tank available on request.

### COOLING CIRCUIT
- Scroll-type compressor housed in a compartment that can be sound insulated.
- Brazed plate heat exchangers made of STAINLESS STEEL 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 thermostatic valve with dedicated driver which controls opening according to the refrigerant pressure and temperature downstream from the evaporator.
- Reverse cycle valve.
- Single-acting valves.
- Liquid receiver.
- High and low pressure switches.
- Safety valve.
- Schrader valves for checks and/or maintenance.
- Refrigerant pressure gauges (optional).

### FAN DRIVE ASSEMBLY
Electric fan with 6-pole external rotor motor directly keyed to the axial fan, with internal thermal protection on the windings, complete with safety grille and dedicated supporting structure.
The fan is housed in a special compartment having a profile designed to optimise ventilation.
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 condensation control system continuously and automatically regulates the fan speed, further limiting the noise emissions of the unit during nighttime operation and under partial load conditions.

### FINNED BLOCK HEAT EXCHANGER
Made of 8mm diameter copper pipes and aluminium fins, generously sized.
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.

### ELECTRONIC MICROPROCESSOR CONTROL


The electronic control enables the complete control of the MXE 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 buffer tank.
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.
Main functions
- Control over the temperature of water entering the evaporator.
- Defrosting management
- Control of fan speed
- Complete alarm management.
- Dynamic control of the setpoint according to the outdoor air temperature
- Can be connected to an RS485 serial line for supervisory / teleassistance operation
- Option of connecting a remote terminal that duplicates the control functions.

Devices controlled:
- Compressor
- Fans
- Reverse cycle valve
- Water circulation pump
- Antifreeze heating elements
- Alarm signalling relay

On request, it is possible to install the advanced controller whose functions extend to:
- LAN networks
- Smart Defrost System

### ELECTRIC CONTROL BOARD
The electric control board is constructed and wired in accordance with EEC Directive 73/23, Directive 89/336 on electromagnetic compatibility and related standards. Made of steel sheet, it is also protected by the enclosing panels of the machine.

### OPTIONS
Incorporable buffer tank
Low noise execution
Refrigerant pressure gauges
Antifreeze heating elements on the tank
Heat recovery 25% (chiller)
Special exchangers (hydrophilic treatment, copper-copper, cataphoresis, anti-corrosion)

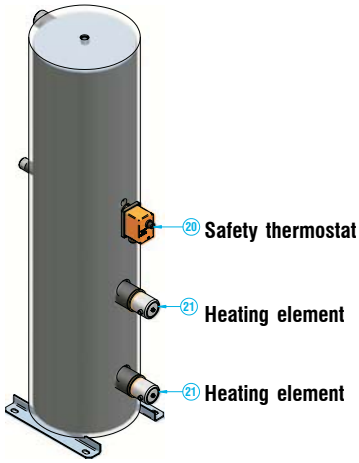
### ACCESSORIES AVAILABLE
Remote control boards
Base vibration dampers
Metal grilles to protect exchangers

| RATED TECHNICAL DATA of high efficiency heat pumps EXCELIA MXE series | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **MXE** | | **009 M** | **009** | **011 M** | **011** | **014** | **016** | **019** | **021** |
| Power supply | V-ph-Hz | 230-1-50 | 400-3-50 | 230-1-50 | 400-3-50 | 400-3-50 | 400-3-50 | 400-3-50 | 400-3-50 |
| Cooling capacity | kW | 7,33 | 7,46 | 9,34 | 9,34 | 12,20 | 14,40 | 16,05 | 18,50 |
| Total power input | kW | 2,83 | 2,71 | 3,58 | 3,38 | 4,30 | 5,24 | 5,54 | 6,21 |
| EER | | 2,98 | 3,19 | 2,91 | 3,10 | 3,10 | 2,96 | 3,10 | 3,17 |
| ESEER | | 3,92 | 3,62 | 3,73 | 3,31 | 3,77 | 3,59 | 3,67 | 3,79 |
| Heating capacity | kW | 8,54 | 8,46 | 10,82 | 10,51 | 13,66 | 15,84 | 18,53 | 20,64 |
| Total power input in heating mode | kW | 3,15 | 2,99 | 3,72 | 3,47 | 4,47 | 5,24 | 5,71 | 6,31 |
| COP | | 3,07 | 3,21 | 3,23 | 3,39 | 3,33 | 3,25 | 3,47 | 3,47 |
| Maximum absorbed current | A | 22,3 | 9,3 | 26,3 | 11,3 | 13,3 | 16,3 | 19,6 | 20,0 |
| Starting current | A | 84 | 37 | 98 | 50 | 66 | 72 | 77 | 103 |
| No. of scroll compressors / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| High / low pressure switch | bars | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 |
| No. of axial fans | | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 |
| Air flow | $m^3/h$ | 7.705 | 7.705 | 7.705 | 7.705 | 7.355 | 7.355 | 12.679 | 12.679 |
| Water flow cooling only | l/h | 1.261 | 1.283 | 1.606 | 1.606 | 2.098 | 2.477 | 2.761 | 3.182 |
| Water flow in heat pump operation | l/h | 1.469 | 1.454 | 1.861 | 1.821 | 2.442 | 2.853 | 3.211 | 3.605 |
| Diameter of water connections | " | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Available head (cooling) | kPa | 130 | 130 | 132 | 132 | 115 | 111 | 154 | 157 |
| Available head, heat pump | kPa | 118 | 118 | 121 | 125 | 103 | 98 | 143 | 148 |
| Expansion tank | $dm^3$ | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Buffer tank | $dm^3$ | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 50 |
| Height | mm | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 | 1.275 | 1.275 |
| Length | mm | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.590 | 1.590 |
| Depth | mm | 550 | 550 | 550 | 550 | 550 | 550 | 600 | 600 |
| Sound power level | dB(A) | 69 | 69 | 69 | 69 | 69 | 69 | 72 | 72 |
| Sound pressure level | dB(A) | 41 | 41 | 41 | 41 | 41 | 41 | 44 | 44 |
| Transport weight* | kg | 212 | 212 | 215 | 215 | 219 | 220 | 273 | 273 |
| Operating weight* | kg | 238 | 238 | 241 | 241 | 245 | 246 | 309 | 309 |

* Weights refer to model with pump and tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- Heating capacity: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C
- Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a open field (fan side).

## ELECTRIC HEATING ELEMENTS

MXE E series can be supplied with incorporated inertial tank equipped with heating element to supplement the operation in heat pump mode.
The 2 electric heating elements present inside the buffer tank are controlled by the unit controller, following two different steps.
The heating elements are switched on in the heating pump mode, when the water temperature falls below the set threshold (parameter A08) and the outdoor air temperature is lower than the set threshold values of the two thermostats present on the electrical control board (adjustable thresholds, preset at -5 °C and -10 °C). When the outdoor air temperature is below -5°C the first level is activated, if it is below -10°C the second level is activated as well.
The supplemental heating elements also perform an antifreeze function and act as a support in the defrost mode.
In case of alarm (water flow, high pressure, low pressure, etc.) the controller will automatically switch them off.




**RATED TECHNICAL DATA of high efficiency heat pumps EXCELIA MXE E series**

| MXE E | | 009 M | 009 | 011 M | 011 | 014 | 016 | 019 | 021 |
|---|---|---|---|---|---|---|---|---|---|
| Power supply | V-ph-Hz | 230-1-50 | 400-3-50 | 230-1-50 | 400-3-50 | 400-3-50 | 400-3-50 | 400-3-50 | 400-3-50 |
| Cooling capacity | kW | 7,33 | 7,46 | 9,34 | 9,34 | 12,20 | 14,40 | 16,05 | 18,50 |
| Total power input ** | kW | 2,83 | 2,71 | 3,58 | 3,38 | 4,30 | 5,24 | 5,54 | 6,21 |
| Maximum power input - version with BASE supplemental heating element | kW | 8,0 | 7,9 | 8,9 | 8,6 | 10,0 | 10,6 | 13,3 | 14,2 |
| Maximum power input - version with HI POT supplemental heating element | kW | 10,0 | 9,9 | 10,9 | 10,6 | 12,0 | 12,6 | - | - |
| EER | | 2,98 | 3,19 | 2,91 | 3,10 | 3,10 | 2,96 | 3,10 | 3,17 |
| ESEER | | 3,92 | 3,62 | 3,73 | 3,31 | 3,77 | 3,59 | 3,67 | 3,79 |
| Heating capacity | kW | 8,54 | 8,46 | 10,82 | 10,51 | 13,66 | 15,84 | 18,53 | 20,64 |
| Total power input in heating mode | kW | 3,15 | 2,99 | 3,72 | 3,47 | 4,47 | 5,24 | 5,71 | 6,31 |
| COP | | 3,07 | 3,21 | 3,23 | 3,39 | 3,33 | 3,25 | 3,47 | 3,47 |
| COP*** | | 3,78 | 4,05 | 3,93 | 4,26 | 4,30 | 4,17 | 4,18 | 4,35 |
| Maximum absorbed current | A | 22,3 | 9,3 | 26,3 | 11,3 | 13,3 | 16,3 | 19,6 | 20,0 |
| Starting current | A | 84 | 37 | 98 | 50 | 66 | 72 | 77 | 103 |
| No. of scroll compressors / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| High / low pressure switch | bars | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 |
| No. of axial fans | | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 |
| Air flow | $m^3/h$ | 7.705 | 7.705 | 7.705 | 7.705 | 7.355 | 7.355 | 12.679 | 12.679 |
| Water flow cooling only | l/h | 1.261 | 1.283 | 1.606 | 1.606 | 2.098 | 2.477 | 2.761 | 3.182 |
| Water flow in heat pump operation | l/h | 1.469 | 1.454 | 1.861 | 1.821 | 2.442 | 2.853 | 3.211 | 3.605 |
| Diameter of water connections | " | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Available head (cooling) | kPa | 130 | 130 | 132 | 132 | 115 | 111 | 154 | 157 |
| Available head, heat pump | kPa | 118 | 118 | 121 | 125 | 103 | 98 | 143 | 148 |
| Expansion tank | $dm^3$ | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Buffer tank | $dm^3$ | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 50 |
| Height | mm | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 | 1.275 | 1.275 |
| Length | mm | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.590 | 1.590 |
| Depth | mm | 550 | 550 | 550 | 550 | 550 | 550 | 600 | 600 |
| Sound power level | dB(A) | 69 | 69 | 69 | 69 | 69 | 69 | 72 | 72 |
| Sound pressure level | dB(A) | 41 | 41 | 41 | 41 | 41 | 41 | 44 | 44 |
| Transport weight* | kg | 212 | 212 | 215 | 215 | 219 | 220 | 273 | 273 |
| Operating weight* | kg | 238 | 238 | 241 | 241 | 245 | 246 | 309 | 309 |

* Weights refer to model with pump and tank
** Electrical input net of supplemental electricity.
*** Values refer to: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 30°C/35°C
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- Heating capacity: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C
- Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field (fan side).

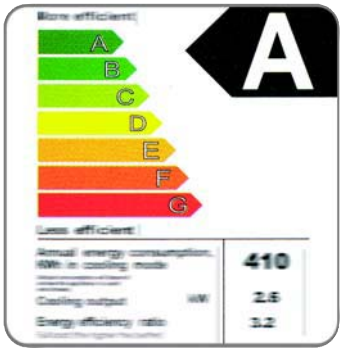
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Presostato baja/alta presión | bares | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 | 0,7 / 42 |
| N° de ventiladores axiales | | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 |
| Caudal aire | $m^3/h$ | 7.705 | 7.705 | 7.705 | 7.705 | 7.355 | 7.355 | 12.679 | 12.679 |
| Caudal agua sólo frío | l/h | 1.261 | 1.283 | 1.606 | 1.606 | 2.098 | 2.477 | 2.761 | 3.182 |
| Caudal agua en bomba de calor | l/h | 1.469 | 1.454 | 1.861 | 1.821 | 2.442 | 2.853 | 3.211 | 3.605 |
| Diámetro conexiones hidráulicas | " | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Impulsión útil (refrigeración) | kPa | 130 | 130 | 132 | 132 | 115 | 111 | 154 | 157 |
| Impulsión útil bomba de calor | kPa | 118 | 118 | 121 | 125 | 103 | 98 | 143 | 148 |
| Vaso de expansión | $dm^3$ | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Capacidad depósito | $dm^3$ | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 50 |
| Altura | mm | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 | 1.275 | 1.275 |
| Longitud | mm | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.590 | 1.590 |
| Profundidad | mm | 550 | 550 | 550 | 550 | 550 | 550 | 600 | 600 |
| Potencia sonora | dB(A) | 69 | 69 | 69 | 69 | 69 | 69 | 72 | 72 |
| Presión sonora | dB(A) | 41 | 41 | 41 | 41 | 41 | 41 | 44 | 44 |

**FLOOR: COOLING AND HEATING RADIANT SYSTEM**

- > **R410A**
- > **ELECTRONIC EXPANSION VALVE AS STANDARD FEATURES**
- > **CONDENSATION CONTROL UNDER PRESSURE**
- > **DYNAMIC SETPOINT**
- > **OPERATION UNDER PARTIAL LOAD CONDITIONS WITHOUT NEED FOR WATER BUFFER TANK**
- > **EXTREMELY LOW NOISE LEVELS**
- > **HYDRONIC PLUG&PLAY**
- > **SMART DEFROST LOGIC**
- > **ERGO AND LAN NETWORK INTERCONNECTIONS**


All **MFE** chillers and heat pumps of the **FLOOR** series are designed for outdoor installations in both residential and commercial applications and specifically studied for radiant floors.

The range comprises 7 models from 5 to 23 kW for cooling and heating, cooling-only or with heat pump. The whole range uses R410A refrigerant, which assures high levels of performance withy relatively low energy consumption.




The series features by high level of efficiency both in summer mode and winter mode operation with an average **EER** of **3.83 (EUROVENT Energy Efficiency Class A)** and an average **COP** of **4.02.**

The finned block heat exchangers are oversized in order to reach higher efficiency and extremely low noise level as required by residential applications. They use 8 mm copper pipes, in order to maximise fan performances and fully exploit the refrigerant characteristics.

The axial-type fans with airfoil-shaped blades and 6-pole motors with electronic speed control as a standard feature, guarantee quiet operation and optimal performance of the unit in all conditions.

The plate heat exchanger is connected in reverse flow in the heating mode, thus permitting to produce hot water for low temperature radiant systems and minimize energy consumption.

In summer it is possible to produce water up to 20°C to feed floor installations for sensible cooling only through the electronic valve supplied. It is also possible to enable a second setpoint for the dehumidification function, if required.

The electronic control system allows the setpoint to be adjusted automatically according to the outdoor temperature in order to reduce consumption and broaden the working temperature range.

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

## CONSTRUCTIVE COMPONENTS

### STRUCTURE
Painted galvanised sheet steel structure (RAL9002) for an attractive look and 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.
Sound insulation, available on request, can further reduce the noise emissions of the unit.

### CUSTOMISED HYDRAULIC KIT
- High head pump made entirely of stainless steel, already configured for use with mixtures of water and ethylene glycol up to 35% and provided with internal thermal protection.
  It is housed in the compressor compartment and is easy to reach thanks to the removable perimeter panels.
- Expansion tank.
- Safety valve.
- Filling cock (included).
- Automatic vent valve.
- Water differential pressure switch and outlet water temperature probe with anti-freeze thermostat function.
- Mechanical Y filter supplied as a standard feature on all models to protect the evaporator (included).
- Buffer tank available on request.

### COOLING CIRCUIT
- Scroll-type compressor housed in a compartment that can be sound insulated.
- Brazed plate heat exchangers made of STAINLESS STEEL 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 thermostatic valve with dedicated driver which controls opening according to the refrigerant pressure and temperature downstream from the evaporator.
- Cycle-reversing valve (MFE H).
- Single-acting valves (MFE H).
- Liquid receiver (MFE H)
- High and low pressure switches.
- Safety valve.
- Schrader valves for checks and/or maintenance.
- Refrigerant pressure gauges (optional).

### FAN DRIVE ASSEMBLY
Electric fan with 6-pole external rotor motor directly keyed to the axial fan, with internal thermal protection on the windings, complete with safety grille and dedicated supporting structure.
The fan is housed in a special compartment having a profile designed to optimise ventilation.
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 condensation control system continuously and automatically regulates the fan speed, further limiting the noise emissions of the unit during nighttime operation and under partial load conditions.

### FINNED BLOCK HEAT EXCHANGER
Made of 8mm diameter copper pipes and aluminium fins, generously sized.
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.

### ELECTRONIC MICROPROCESSOR CONTROL


The electronic control enables the complete control of the MFE 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 buffer tank. 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.
Main functions
- Control over the temperature of water entering the evaporator.
- Defrosting management
- Control of fan speed
- Complete alarm management.
- Dynamic control of the setpoint according to the outdoor air temperature
- Can be connected to an RS485 serial line for supervisory / teleassistance operation
- Option of connecting a remote terminal that duplicates the control functions.

Devices controlled:
- Compressor
- Fans
- Cycle-reversing valve (MFE H).
- Water circulation pump
- Antifreeze heating elements
- Alarm signalling relay

On request, it is possible to install the advanced controller whose functions extend to:
- LAN networks
- Smart Defrost System

### ELECTRIC CONTROL BOARD
The electric control board is constructed and wired in accordance with EEC Directive 73/23, Directive 89/336 on electromagnetic compatibility and related standards.
Made of steel sheet, it is also protected by the enclosing panels of the machine.

### OPTIONS
Incorporable buffer tank
Low noise execution
Refrigerant pressure gauges
Antifreeze Kit
Heat recovery 25% (chiller)
Special exchangers (hydrophilic treatment, copper-copper, cataphoresis, anti-corrosion)

### ACCESSORIES AVAILABLE
Remote control boards
Base vibration dampers
Metal grilles to protect exchangers

| RATED TECHNICAL DATA of chillers for FLOOR radiant systems; MFE C series | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MFE C** | | **005 M** | **006 M** | **008 M** | **011** | **011 M** | **013** | **013 M** | **016** | **017** | **020** | **023** |
| Power supply | V-ph-Hz | 230-1-50 | 230-1-50 | 230-1-50 | 400-3-50 | 230-1-50 | 400-3-50 | 230-1-50 | 400-3-50 | 400-3-50 | 400-3-50 | 400-3-50 |
| Cooling capacity | kW | 5,24 | 6,62 | 8,62 | 11,15 | 11,10 | 12,46 | 12,48 | 16,00 | 17,10 | 19,78 | 23,16 |
| Total power input | kW | 1,52 | 1,84 | 2,49 | 3,23 | 3,39 | 3,54 | 3,55 | 4,58 | 4,72 | 5,90 | 6,95 |
| EER | | 3,76 | 3,78 | 3,58 | 3,76 | 3,38 | 3,88 | 3,93 | 3,74 | 3,86 | 3,47 | 3,57 |
| ESEER | | 3,39 | 3,36 | 3,16 | 3,61 | 3,19 | 3,38 | 3,40 | 3,49 | 3,59 | 3,35 | 3,40 |
| Maximum absorbed current | A | 9,79 | 11,62 | 15,30 | 13,00 | 24,86 | 14,40 | 26,28 | 16,88 | 17,38 | 21,26 | 25,26 |
| Starting current | A | 38 | 44 | 63 | 49 | 98 | 50 | 99 | 65 | 65 | 68 | 76 |
| No. of scroll compressors / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| High / low pressure switch | bars | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 |
| No. of axial fans | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 |
| Air flow | $m^3/h$ | 3.635 | 3.406 | 3.406 | 7.385 | 7.385 | 6.939 | 6.939 | 6.939 | 6.939 | 9.990 | 9.307 |
| Water flow cooling only | l/h | 901 | 1.139 | 1.483 | 1.918 | 1.909 | 2.150 | 2.150 | 2.752 | 2.941 | 3.402 | 3.984 |
| Diameter of water connections | " | 1 | 1 | 1 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Available head (cooling) | kPa | 61 | 58 | 49 | 48 | 48 | 84 | 84 | 79 | 62 | 102 | 94 |
| Expansion tank | $dm^3$ | 1 | 1 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Buffer tank | $dm^3$ | n.d. | n.d. | n.d. | 30 | 30 | 30 | 30 | 30 | 30 | 50 | 50 |
| Height | mm | 760 | 760 | 760 | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.275 | 1.275 |
| Length | mm | 990 | 990 | 990 | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 | 1.590 | 1.590 |
| Depth | mm | 450 | 450 | 450 | 560 | 560 | 560 | 560 | 560 | 560 | 600 | 600 |
| Sound power level | dB(A) | 66 | 66 | 67 | 69 | 69 | 69 | 69 | 69 | 69 | 71 | 71 |
| Sound pressure level | dB(A) | 38 | 38 | 39 | 41 | 41 | 41 | 41 | 41 | 41 | 43 | 43 |
| Transport weight* | kg | 98 | 100 | 107 | 200 | 200 | 202 | 202 | 209 | 209 | 260 | 260 |
| Operating weight* | kg | 92 | 94 | 101 | 220 | 220 | 228 | 228 | 235 | 235 | 306 | 306 |
| **RATED TECHNICAL DATA of heat pumps for FLOOR radiant systems; MFE H series** | | | | | | | | | | | | |
| **MFE H** | | **005 M** | **006 M** | **008 M** | **011** | **011 M** | **013** | **013 M** | **016** | **017** | **020** | **023** |
| Power supply | V-ph-Hz | 230-1-50 | 230-1-50 | 230-1-50 | 400-3-50 | 230-1-50 | 400-3-50 | 230-1-50 | 400-3-50 | 400-3-50 | 400-3-50 | 400-3-50 |
| Cooling capacity | kW | 5,10 | 6,40 | 8,30 | 10,94 | 10,88 | 12,23 | 12,23 | 15,49 | 16,64 | 19,14 | 22,57 |
| Total power input | kW | 1,53 | 1,87 | 2,54 | 3,23 | 3,48 | 3,55 | 3,55 | 4,60 | 4,77 | 6,00 | 7,00 |
| EER | | 3,76 | 3,78 | 3,58 | 3,76 | 3,38 | 3,88 | 3,93 | 3,74 | 3,86 | 3,47 | 3,57 |
| ESEER | | 3,39 | 3,36 | 3,16 | 3,61 | 3,19 | 3,38 | 3,40 | 3,49 | 3,59 | 3,35 | 3,40 |
| Heating capacity | kW | 4,91 | 6,33 | 8,10 | 10,85 | 10,96 | 11,45 | 11,45 | 14,46 | 15,57 | 18,34 | 21,66 |
| Total power input in heating mode | kW | 1,38 | 1,70 | 2,20 | 2,86 | 3,03 | 3,28 | 3,28 | 4,04 | 4,10 | 4,95 | 5,89 |
| COP | | 4,00 | 4,06 | 3,93 | 4,00 | 3,64 | 3,93 | 3,93 | 4,02 | 4,17 | 3,95 | 4,06 |
| Maximum absorbed current | A | 9,79 | 11,62 | 15,30 | 13,00 | 24,86 | 14,40 | 26,28 | 16,88 | 17,38 | 21,26 | 25,26 |
| Starting current | A | 38 | 44 | 63 | 49 | 98 | 50 | 99 | 65 | 65 | 68 | 76 |
| No. of scroll compressors / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| High / low pressure switch | bars | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 | 2 / 42 |
| No. of axial fans | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 |
| Air flow | $m^3/h$ | 3.635 | 3.406 | 3.406 | 7.385 | 7.385 | 6.939 | 6.939 | 6.939 | 6.939 | 9.990 | 9.307 |
| Water flow cooling only | l/h | 901 | 1.139 | 1.483 | 1.918 | 1.909 | 2.150 | 2.150 | 2.752 | 2.941 | 3.402 | 3.984 |
| Water flow in heat pump operation | l/h | 845 | 1.088 | 1.393 | 1.865 | 1.885 | 1.969 | 1.969 | 2.487 | 2.679 | 3.154 | 3.726 |
| Diameter of water connections | " | 1 | 1 | 1 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Available head (cooling) | kPa | 61 | 58 | 49 | 48 | 48 | 84 | 84 | 79 | 62 | 102 | 94 |
| Available head, heat pump | kPa | 61 | 57 | 51 | 44 | 44 | 93 | 93 | 57 | 36 | 137 | 111 |
| Expansion tank | $dm^3$ | 1 | 1 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Buffer tank | $dm^3$ | n.a. | n.a. | n.a. | 30 | 30 | 30 | 30 | 30 | 30 | 50 | 50 |
| Height | mm | 760 | 760 | 760 | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 | 1.275 | 1.275 |
| Length | mm | 990 | 990 | 990 | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 | 1.250 | 1.590 | 1.590 |
| Depth | mm | 450 | 450 | 450 | 560 | 560 | 560 | 560 | 560 | 560 | 600 | 600 |
| Sound power level | dB(A) | 66 | 66 | 67 | 69 | 69 | 69 | 69 | 69 | 69 | 71 | 71 |
| Sound pressure level | dB(A) | 38 | 38 | 39 | 41 | 41 | 41 | 41 | 41 | 41 | 43 | 43 |
| Transport weight* | kg | 103 | 105 | 112 | 210 | 210 | 212 | 212 | 219 | 219 | 275 | 275 |
| Operating weight* | kg | 97 | 99 | 106 | 230 | 230 | 238 | 238 | 245 | 245 | 321 | 321 |

* Weights refer to model with pump and tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 23°C / 18°C
- Heating capacity: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 30°C/35°C
- 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 (fan side).

## INVERTER WATER CHILLERS AND HEAT PUMPS

- > **R410A**
- > **VARIABLE SPEED SCROLL COMPRESSOR**
- > **CONTINUOUS REGULATION OF COOLING CAPACITY BETWEEN 30 AND 110 HZ (120 HZ PEAK)**
- > **ELECTRONIC EXPANSION VALVE**
- > **ADVANCED MICROPROCESSOR CONTROL WITH LCD DISPLAY**
- > **ACTUAL CONTROL OF WATER OUTLET TEMPERATURE (+/- 15%)**
- > **OPERATION UNDER PARTIAL LOAD CONDITIONS WITHOUT NEED FOR WATER BUFFER TANK**
- > **DYNAMIC SETPOINT BASED ON OUTDOOR AIR TEMPERATURE**
- > **CONDENSATION CONTROL**
- > **SMART DEFROST SYSTEM ON HEAT PUMP**


The actual thermal load of an air conditioning system is less than 60% of the rated load capacity 90% of the time.
In low-powered installations with a small number of indoor units and a low water content, operation under partial load conditions is particularly critical.
In order to ensure that the system works correctly, it is thus necessary to vary the power output by the chiller.
The inverter controller acts on the compressor rpm by modulating the refrigerant mass, cooling capacity and input power.
The operating logic of the MPI series allows the water outlet temperature to be precisely regulated and adapted to thermal loads: The PID control algorithm makes it possible to regulate the water temperature within +/- 15%.


In addition to adapting the output and input power of the compressor to the actual thermal load, the inverter controller also enables a significant reduction in electrical input during compressor starts (reduction in start-up currents).

The electronically controlled throttle valve is a standard components of MPI units.
It makes it possible to regulate the superheating of the cooling fluid and to maximise efficiency under part load conditions.

The electronic control system allows the setpoint to be adjusted automatically according to the outdoor temperature in order to reduce consumption and broaden the working temperature range.
The condensation control adjusts fan speed to actual operating conditions.
The result is better operating conditions, a reduction in noise levels under partial loads and the possibility of operating beyond the conventional limits in the cooling mode (with outdoor air temperatures as low as -10°C).

During heat pump operation, the exclusive smart defrost system 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.

| RATED TECHNICAL DATA of water chillers and heat pumps with INVERTER compressor MPI series | | | | | | |
|---|---|---|---|---|---|---|
| **MODEL** | | **027** | | | | |
| Power supply | V-ph-Hz | 400-3N-50 | | | | |
| Inverter control | Hz | 30 | 60 | 90 | 110 | 120 |
| Cooling capacity | kW | 8,30 | 16,90 | 23,90 | 27,80 | 29,50 |
| Total power input in cooling mode | kW | 3,1 | 5,5 | 8,5 | 10,5 | 11,4 |
| EER | | 2,7 | 3,1 | 2,8 | 2,6 | 2,6 |
| Heating capacity | kW | 9,2 | 18,5 | 27,1 | 32,4 | 34,0 |
| Total power input in heating mode | kW | 3,40 | 5,50 | 8,40 | 10,80 | 11,80 |
| COP | | 2,70 | 3,40 | 3,20 | 3,00 | 2,90 |
| No. of scroll compressors / no. of cooling circuits | no. | 1 / 1 | | | | |
| Height | mm | 1275 | | | | |
| Length | mm | 1590 | | | | |
| Depth | mm | 600 | | | | |
| Sound power level | dB(A) | 67,5 | 69 | 71,5 | 73,5 | 74,5 |
| Sound pressure level | dB(A) | 39,5 | 41 | 43,5 | 45,5 | 46,5 |

- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- Heating capacity: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C
- Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a clear field (fan side).

## MCC AIR CONDENSED WATER CHILLERS WITH CETRIFUGAL FANS

The air-condensed packaged liquid chillers and cycle reversing heat pumps of the **MCC** series are designed to be installed indoors as part of residential or commercial duct systems.
**Designed and developed for R410A refrigerant, the MCC series achieves exceptional levels of energy efficiency thanks to the optimisation of the heat exchangers in terms of plate type and distribution.**
The design philosophy places a priority on compactness, "plug & play" solutions and easy access to all the components: the logic of the **PLUG&PLAY PLUMBING**, already in the **DNA** of the whole water line, is combined here with the innovative **PLUG&PLAY VENTILATION** philosophy: the continuously modulating adaptive control of the fan flow rate (pressostatic condensation control as a standard feature of all models making up the range) drastically reduces installation times.

### PLUG & PLAY VENTILATION SYSTEM:

Automatic air flow adaptation based on:
- pressure drops in channels
- intake air temperature

A standard feature of all units is pressostatic condensation control which modulates, by means of a phase cut device, the number of fan revolutions depending on the pressure drops on the air side and the inlet air temperature.
Air delivery can be configured vertically or horizontally (optional).

### PLUG & PLAY WATER SYSTEM

To enable immediate application of MCC to the system, 3 different hydronic kits are available:
- B Model: Units with evaporator only.
- P Model: Units equipped with evaporator, water pump and expansion tank
- S model Units equipped with evaporator, water pump, expansion tank and inertial buffer tank
- **Mechanical Y filter (COMPULSORY) supplied as a standard feature on all models to protect the evaporator.**

### SIMPLIFIED MAINTENANCE

Direct coupling of the centrifugal fans to the electric motor without any pulleys or belts.
The technical / cooling compartment is completely separated from the fan compartment so that checks can be performed while the chiller is operating.
Controller accessible from outside the machine.

### MICROPROCESSOR CONTROL AND REGULATION

New generation, allows connection with ERGO
Possibility of connecting / changing the set-point of the unit based on the outdoor air temperature read by an ambient probe (optional).
The series features 10 models in cooling only version, and cooling capacity ranging from 6 to 37 kW, and 10 models with reversible heat pump, and heating capacity ranging from 6 to 41 kW.


### AVAILABLE ACCESSORIES

- Refrigerant pressure gauges
- Antifreeze heating elements on the water circuit
- Electronic thermostatic valve
- Heat recovery 20% (cooling only models)
- Special heat exchangers (copper-copper, cataphoresis, Blygold)
- Remote microprocessor or simplified control
- Base vibration dampers
- Metal grilles to protect exchangers
- Outlet connectors

| WATER CHILLERS RATED TECHNICAL DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MCC-C** | | **06M** | **07M** | **09M** | **06** | **07** | **09** | |
| Power supply | V - ph - Hz | **230-1-50** | | | **400-3-50** | | | |
| Cooling capacity | kW | 5,70 | 6,90 | 9,20 | 5,70 | 6,95 | 9,25 | |
| MCC CB Total power input | kW | 2,61 | 3,18 | 4,83 | 2,58 | 3,04 | 4,63 | |
| MCC CP CS Total power input | kW | 2,75 | 3,32 | 5,20 | 2,72 | 3,18 | 5,00 | |
| Maximum power input | kW | 4 | 5 | 7 | 4 | 5 | 7 | |
| Maximum current absorption | A | 17,1 | 19,1 | 33,6 | 7,5 | 9,5 | 17,4 | |
| Starting absorbed current | A | 61,6 | 82,6 | 100,2 | 32,6 | 35,6 | 51,2 | |
| n° of scroll compressors / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | |
| n° of axial fan | | 1 | 1 | 1 | 1 | 1 | 1 | |
| Air flow | $m^3/h$ | 2.500 | 2.500 | 5.500 | 2.500 | 2.500 | 5.500 | |
| ASEP | Pa | 91 | 85 | 140 | 91 | 85 | 135 | |
| Water flow | l/s | 0,273 | 0,329 | 0,439 | 0,272 | 0,331 | 0,442 | |
| Water side pressure drop | kPa | 4 | 4 | 36 | 4 | 5 | 36 | |
| Available pressure head | kPa | 57 | 55 | 155 | 57 | 55 | 155 | |
| Diameter of hydrualic connections | " | 1 | 1 | 1 1/4 | 1 | 1 | 1 1/4 | |
| Water content escluding optionals | $dm^3$ | 2,5 | 2,8 | 3,3 | 2,5 | 2,8 | 3,3 | |
| Expansion tank | $dm^3$ | 1 | 1 | 5 | 1 | 1 | 5 | |
| Buffer tank | $dm^3$ | 20 | 20 | 36 | 20 | 20 | 36 | |
| Height | mm | 1.000 | 1.000 | 1.160 | 1.000 | 1.000 | 1.160 | |
| Length | mm | 1.050 | 1.050 | 1.250 | 1.050 | 1.050 | 1.250 | |
| Width | mm | 600 | 600 | 730 | 600 | 600 | 730 | |
| Sound power level | dB(A) | 70 | 70 | 78 | 70 | 70 | 78 | |
| Sound pressure level | dB(A) | 42 | 42 | 50 | 42 | 42 | 50 | |
| Transport weight * | kg | 160 | 165 | 220 | 160 | 165 | 220 | |
| Operating weight * | kg | 168 | 178 | 239 | 168 | 178 | 239 | |

| WATER CHILLERS RATED TECHNICAL DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MCC-C** | | **12** | **15** | **18** | **22** | **25** | **33** | **37** |
| Power supply | V - ph - Hz | **400-3-50** | | | | | | |
| Cooling capacity | kW | 12,00 | 14,60 | 18,00 | 22,30 | 25,50 | 33,10 | 36,70 |
| MCC CB Total power input | kW | 5,73 | 6,43 | 7,53 | 8,93 | 12,05 | 14,85 | 16,25 |
| MCC CP CS Total power input | kW | 6,10 | 6,80 | 7,90 | 9,30 | 12,60 | 15,40 | 16,80 |
| Maximum power input | kW | 9 | 9 | 11 | 13 | 17 | 19 | 21 |
| Maximum current absorption | A | 19,4 | 20,4 | 23,2 | 25,2 | 28,4 | 34,6 | 38,2 |
| Starting absorbed current | A | 67,2 | 77,2 | 104,2 | 114,2 | 134,6 | 162,6 | 199,6 |
| n° of scroll compressors / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| n° of axial fan | | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Air flow | $m^3/h$ | 5.500 | 5.500 | 6.500 | 6.500 | 11.000 | 13.000 | 13.000 |
| ASEP | Pa | 130 | 120 | 120 | 110 | 125 | 95 | 90 |
| Water flow | l/s | 0,573 | 0,698 | 0,860 | 1,065 | 1,218 | 1,582 | 1,753 |
| Water side pressure drop | kPa | 39 | 56 | 38 | 45 | 48 | 41 | 38 |
| Available pressure head | kPa | 148 | 125 | 136 | 118 | 123 | 123 | 121 |
| Diameter of hydrualic connections | " | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Water content escluding optionals | $dm^3$ | 4 | 4 | 4 | 5 | 6 | 7 | 8 |
| Expansion tank | $dm^3$ | 5 | 5 | 5 | 5 | 8 | 8 | 8 |
| Buffer tank | $dm^3$ | 36 | 36 | 96 | 96 | 155 | 155 | 155 |
| Height | mm | 1.160 | 1.160 | 1.210 | 1.210 | 1.400 | 1.400 | 1.400 |
| Length | mm | 1.250 | 1.250 | 1.650 | 1.650 | 2.250 | 2.250 | 2.250 |
| Width | mm | 730 | 730 | 800 | 800 | 800 | 800 | 800 |
| Sound power level | dB(A) | 78 | 78 | 79 | 79 | 80 | 82 | 82 |
| Sound pressure level | dB(A) | 50 | 50 | 51 | 51 | 52 | 54 | 54 |
| Transport weight * | kg | 228 | 240 | 295 | 301 | 405 | 430 | 440 |
| Operating weight * | kg | 248 | 260 | 375 | 381 | 546 | 572 | 583 |

* Weights refer to model with pump and tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- 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 open field (fan side).

| HEAT PUMPS RATED TECHNICAL DATA | | | | | | | |
|---|---|---|---|---|---|---|---|
| **MCC-H** | | **06M** | **07M** | **09M** | **06** | **07** | **09** |
| Power supply | V - ph - Hz | **230-1-50** | | | **400-3-50** | | |
| Cooling capacity | kW | 5,6 | 6,75 | 9 | 5,6 | 6,8 | 9,1 |
| MCC HB Cooling power input | kW | 2,61 | 3,18 | 4,83 | 2,58 | 3,04 | 4,63 |
| MCC HP - HS Cooling power input | kW | 2,75 | 3,32 | 5,2 | 2,72 | 3,18 | 5 |
| Heating capacity | kW | 6,4 | 7,75 | 10,2 | 6,4 | 7,65 | 9,95 |
| MCC HB Heating power input | kW | 2,86 | 3,38 | 5,2 | 2,94 | 3,23 | 4,9 |
| MCC HP - HS Heating power input | kW | 3 | 3,52 | 5,57 | 3,08 | 3,37 | 5,27 |
| Maximum power input | kW | 4 | 5 | 7 | 4 | 5 | 7 |
| Maximum current absorption | A | 17,1 | 19,1 | 33,6 | 7,5 | 9,5 | 17,4 |
| Starting absorbed current | A | 61,56 | 82,6 | 100,2 | 32,6 | 35,6 | 51,2 |
| n° of scroll compressor / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| n° of axial fan | | 1 | 1 | 1 | 1 | 1 | 1 |
| Air flow | $m^3/h$ | 2.500 | 2.500 | 5.500 | 2.500 | 2.500 | 5.500 |
| AESP | Pa | 91 | 85 | 140 | 91 | 85 | 135 |
| Water flow in cooling mode | l/s | 0,267 | 0,323 | 0,431 | 0,267 | 0,325 | 0,433 |
| Water flow in heat pump | l/s | 0,306 | 0,369 | 0,488 | 0,308 | 0,365 | 0,477 |
| Water pressure drop (cooling) | kPa | 4 | 4,3 | 34,6 | 4 | 4,3 | 34,9 |
| Water pressure drop (heating) | kPa | 5,1 | 5,4 | 42 | 5,1 | 5,4 | 42 |
| Available pressure head (cooling) | kPa | 57,4 | 55,5 | 156,7 | 57,4 | 55,4 | 156,4 |
| Available pressure head (heating) | kPa | 55,2 | 52,9 | 145,4 | 55 | 53,2 | 147,7 |
| Diameter of hydrualic connections | " | 1 | 1 | 1 1/4 | 1 | 1 | 1 1/4 |
| Water content escluding optionals | $dm^3$ | 2,5 | 2,8 | 3,3 | 2,5 | 2,8 | 3,3 |
| Expansion tank | $dm^3$ | 1 | 1 | 5 | 1 | 1 | 5 |
| Buffer tank | $dm^3$ | 20 | 20 | 36 | 20 | 20 | 36 |
| Height | mm | 1.000 | 1.000 | 1.160 | 1.000 | 1.000 | 1.160 |
| Length | mm | 1.050 | 1.050 | 1.250 | 1.050 | 1.050 | 1.250 |
| Width | mm | 600 | 600 | 730 | 600 | 600 | 730 |
| Sound power level | dB(A) | 70 | 70 | 78 | 70 | 70 | 78 |
| Sound pressure level | dB(A) | 42 | 42 | 50 | 42 | 42 | 50 |
| Transport weight * | kg | 170 | 180 | 240 | 170 | 180 | 240 |
| Operating weight * | kg | 173 | 183 | 260 | 173 | 183 | 260 |

| HEAT PUMPS RATED TECHNICAL DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MCC-H** | | **12** | **15** | **18** | **22** | **25** | **33** | **37** |
| Power supply | V - ph - Hz | **400-3-50** | | | | | | |
| Cooling capacity | kW | 11,70 | 14,30 | 17,60 | 21,80 | 25,00 | 32,40 | 35,90 |
| MCC HB Cooling power input | kW | 5,73 | 6,43 | 7,53 | 8,93 | 12,05 | 14,85 | 16,25 |
| MCC HP - HS Cooling power input | kW | 6,10 | 6,80 | 7,90 | 9,30 | 12,60 | 15,40 | 16,80 |
| Heating capacity | kW | 13,10 | 15,50 | 19,20 | 23,80 | 28,20 | 36,36 | 40,56 |
| MCC HB Heating power input | kW | 6,10 | 6,72 | 7,73 | 9,23 | 12,35 | 15,25 | 16,75 |
| MCC HP - HS Heating power input | kW | 6,47 | 7,09 | 8,12 | 9,57 | 12,85 | 15,75 | 17,25 |
| Maximum power input | kW | 9 | 9 | 11 | 13 | 17 | 19 | 21 |
| Maximum current absorption | A | 19,4 | 20,4 | 23,2 | 25,2 | 28,4 | 34,6 | 38,2 |
| Starting absorbed current | A | 67,2 | 77,2 | 104,2 | 114,2 | 134,6 | 162,6 | 199,6 |
| n° of scroll compressor / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| n° of axial fan | | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Air flow | $m^3/h$ | 5.500 | 5.500 | 6.500 | 6.500 | 11.000 | 13.000 | 13.000 |
| AESP | Pa | 130 | 120 | 120 | 110 | 125 | 95 | 90 |
| Water flow in cooling mode | l/s | 0,561 | 0,684 | 0,843 | 1,043 | 1,194 | 1,550 | 1,715 |
| Water flow in heat pump | l/s | 0,626 | 0,743 | 0,920 | 1,138 | 1,349 | 1,729 | 1,930 |
| Water pressure drop (cooling) | kPa | 37 | 54 | 37 | 44 | 46 | 39 | 37 |
| Water pressure drop (heating) | kPa | 46 | 63 | 44 | 51 | 58 | 48 | 46 |
| Available pressure head (cooling) | kPa | 150 | 128 | 138 | 121 | 125 | 125 | 124 |
| Available pressure head (heating) | kPa | 139 | 116 | 128 | 107 | 111 | 112 | 109 |
| Diameter of hydrualic connections | " | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Water content escluding optionals | $dm^3$ | 4 | 4 | 4 | 5 | 6 | 7 | 8 |
| Expansion tank | $dm^3$ | 5 | 5 | 5 | 5 | 8 | 8 | 8 |
| Buffer tank | $dm^3$ | 36 | 36 | 96 | 96 | 155 | 155 | 155 |
| Height | mm | 1.160 | 1.160 | 1.210 | 1.210 | 1.400 | 1.400 | 1.400 |
| Length | mm | 1.250 | 1.250 | 1.650 | 1.650 | 2.250 | 2.250 | 2.250 |
| Width | mm | 730 | 730 | 800 | 800 | 800 | 800 | 800 |
| Sound power level | dB(A) | 78 | 78 | 79 | 79 | 80 | 82 | 82 |
| Sound pressure level | dB(A) | 50 | 50 | 51 | 51 | 52 | 54 | 54 |
| Transport weight * | kg | 245 | 250 | 310 | 342 | 450 | 475 | 485 |
| Operating weight * | kg | 265 | 270 | 388 | 436 | 601 | 627 | 638 |

* Weights refer to model with pump and tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12-7°C
- Heating capacity: outdoor air temperature 7°C dry bulb and 6.2°C wet bulb, water temperature 40°C/45°C
- 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 (fan side).

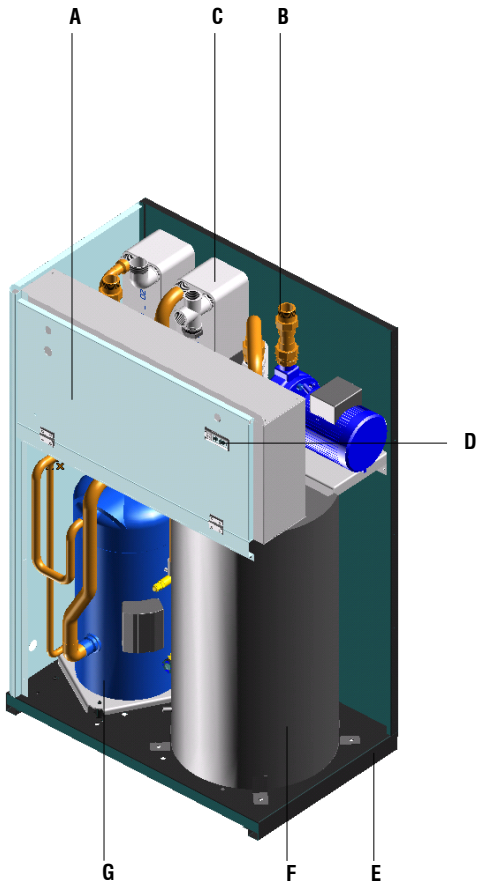
## MCW WATER CONDENSED WATER CHILLERS AND HEAT PUMPS

**MCW** chillers, heat pumps and motor driven evaporating units are designed for residential and light-duty commercial applications and in some cases for industrial applications with 24 h/day operation. **MCW** chillers are available in a completely enclosed version for a low noise operation, thanks to the use of scroll-type compressors.
Thanks to their compact dimensions, the pre-assembled hydraulic components and their attractive design, they are suitable for a variety of environments and do not need to be installed in dedicated rooms.
The design philosophy has favoured the development of units having a reduced height with water or cooling (**MCR**) connections from above and pre-assembled piping system, which reduce installation time and costs and the need for technical space.

The large number of sizes making up the series and the available accessories allow a broad range of possible configurations, which make the **MCW** series an ideal solution for speeding up installation on the building site.

Only top quality components are used for the cooling, hydraulic and electric systems guaranteeing high technical level of the **MCW** chillers in terms of efficiency, reliability and reduced noise levels.
All the units are available in single circuit configurations.

**The mechanical Y filter is COMPULSORY on all models to protect the heat exchangers (user side, dissipator side).**


**A** The electric control board is constructed and wired in accordance with EEC Directive 72/23, Directive 89/336 on electromagnetic compatibility and related standards.

**B** All the units have plumbing connections upwards, thus contributing to a considerable reduction of the minimum clearance for installation and maintenance operations. A water flow control device is available upon request. In addition to this device an outlet water temperature sensor is available, that performs the function of an antifreeze thermostat.

**C** Only heat exchangers with stainless steel braze-welded plates are used.

**D** Microprocessor control; the Basic version featured on standard models is a $\mu$Chiller controller.

**E** Painted galvanised sheet steel supporting base The enclosing panels made of galvanised sheet steel coated with epoxy polyester powder (RAL 7035) contribute to an attractive design suitable for installations in residential environments.

**F** On request the units can be equipped with an electric pump and buffer tank incorporated in the machine itself; the tank is installed at the plumbing outlet on the user side.

**G** Only Scroll-type compressors are used in all **MCW** units.

| RATED TECHNICAL DATA of MCW C water chillers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MCW - CS / CL** | | **005 M** | **005** | **007 M** | **007** | **010 M** | **010** | **012** |
| Cooling capacity | kW | 5,55 | 5,50 | 7,04 | 7,00 | 9,90 | 9,90 | 12,20 |
| Rated input power | kW | 1,32 | 1,30 | 1,74 | 1,70 | 2,34 | 2,30 | 2,75 |
| Rated current absorption | A | 6,26 | 3,17 | 8,27 | 3,47 | 11,21 | 4,71 | 6,70 |
| Power supply | V-ph-Hz | 230-1-50 | 400-3-50 + N | 230-1-50 | 400-3-50 + N | 230-1-50 | 400-3-50 + N | 400-3-50 + N |
| Maximum absorbed current | A | 12 | 4,2 | 15 | 5,1 | 23,1 | 7 | 10 |
| Inrush current | A | 47 | 24 | 61 | 32 | 100 | 46 | 50 |
| Evaporator water flow rate | l/h | 954 | 946 | 1.211 | 1.203 | 1.703 | 1.704 | 2.098 |
| Pressure drops, evaporator side | kPa | 28 | 27 | 31 | 31 | 27 | 27 | 31 |
| Condenser water flow rate | l/h | 390 | 386 | 498 | 494 | 695 | 693 | 849 |
| Pressure drops - condenser side | kPa | 4 | 4 | 6 | 6 | 5 | 5 | 7 |
| Scroll compressors / cooling circuits | No. | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 |
| Water content in user section | $dm^3$ | 2,1 | 2,1 | 2,1 | 2,1 | 2,6 | 2,6 | 2,6 |
| Pump available head (option) | kPa | 77 | 78 | 68 | 69 | 60 | 60 | 124 |
| Pump electrical output (option) | kW | 0,25 | 0,25 | 0,25 | 0,25 | 0,25 | 0,25 | 0,33 |
| Buffer tank (option) | $dm^3$ | 47 | 47 | 47 | 47 | 47 | 47 | 92 |
| Water connections GAS type | | 1" | 1" | 1" | 1" | 1" | 1" | 1" 1/2 |
| Height | mm | 830 | 830 | 830 | 830 | 830 | 830 | 1.270 |
| Length | mm | 705 | 705 | 705 | 705 | 705 | 705 | 812 |
| Depth | mm | 453 | 453 | 453 | 453 | 453 | 453 | 508 |
| Standard unit weight | kg | 103 | 103 | 106 | 106 | 108 | 108 | 118 |
| MCW-CS: Sound power level | dB(A) | 55 | 55 | 55 | 55 | 59 | 59 | 61 |
| MCW-CL: Sound power level | dB(A) | 53 | 53 | 53 | 53 | 57 | 57 | 59 |

| RATED TECHNICAL DATA of MCW C water chillers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MCW - CS / CL** | | **015** | **018** | **020** | **022** | **027** | **031** | **039** |
| Cooling capacity | kW | 14,90 | 17,80 | 20,20 | 21,90 | 26,90 | 31,20 | 38,70 |
| Rated input power | kW | 3,40 | 3,95 | 4,40 | 4,90 | 6,30 | 7,20 | 8,90 |
| Rated current absorption | A | 8,58 | 9,39 | 11,22 | 12,04 | 15,56 | 18,12 | 21,10 |
| Power supply | V-ph-Hz | 400-3-50 + N | | | | | | |
| Maximum absorbed current | A | 13 | 14 | 16 | 17 | 20 | 29 | 32 |
| Inrush current | A | 66 | 74 | 101 | 98 | 130 | 130 | 135 |
| Evaporator water flow rate | l/h | 2.562 | 3.062 | 3.458 | 3.766 | 4.627 | 5.367 | 6.656 |
| Pressure drops, evaporator side | kPa | 27 | 30 | 26 | 29 | 26 | 29 | 28 |
| Condenser water flow rate | l/h | 1.039 | 1.235 | 1.392 | 1.522 | 1.885 | 2.181 | 2.703 |
| Pressure drops - condenser side | kPa | 4 | 6 | 5 | 6 | 5 | 7 | 7 |
| Scroll compressors / cooling circuits | No. | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 |
| Water content in user section | $dm^3$ | 3,1 | 3,1 | 3,6 | 3,6 | 3,9 | 4,3 | 4,6 |
| Pump available head (option) | kPa | 113 | 92 | 135 | 125 | 106 | 82 | 129 |
| Pump electrical output (option) | kW | 0,33 | 0,33 | 0,45 | 0,45 | 0,45 | 0,45 | 0,75 |
| Buffer tank (option) | $dm^3$ | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Water connections GAS type | | 1" 1/2 | 1" 1/2 | 1" 1/2 | 1" 1/2 | 1" 1/2 | 1" 1/2 | 1" 1/2 |
| Height | mm | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 |
| Length | mm | 812 | 812 | 812 | 812 | 812 | 812 | 812 |
| Depth | mm | 508 | 508 | 508 | 508 | 508 | 508 | 508 |
| Standard unit weight | kg | 121 | 125 | 167 | 203 | 210 | 219 | 233 |
| MCW-CS: Sound power level | dB(A) | 61 | 61 | 61 | 62 | 62 | 65 | 65 |
| MCW-CL: Sound power level | dB(A) | 59 | 59 | 60 | 60 | 60 | 63 | 63 |

Cooling capacity refers to the following conditions: water temperature at evaporator 12/7°C – water temperature at condenser 15 - 30°C
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1

| RATED TECHNICAL DATA of MCW H heat pumps | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MCW - HS / HL** | | **005 M** | **005** | **007 M** | **007** | **010 M** | **010** | **012** |
| Cooling capacity | kW | 5,30 | 5,30 | 6,80 | 6,80 | 9,60 | 9,60 | 11,80 |
| Rated input power in cooling mode | kW | 1,32 | 1,30 | 1,74 | 1,70 | 2,34 | 2,30 | 2,75 |
| Rated current absorption in cooling mode | A | 6,26 | 2,62 | 8,27 | 3,47 | 11,21 | 4,71 | 5,63 |
| Evaporator water flow rate | l/h | 911 | 911 | 1.170 | 1.169 | 1.651 | 1.651 | 2.029 |
| Pressure drops, evaporator side | kPa | 25 | 25 | 29 | 29 | 25 | 25 | 29 |
| Condenser water flow rate | l/h | 376 | 375 | 485 | 482 | 678 | 675 | 826 |
| Pressure drops – condenser side | kPa | 4 | 4 | 6 | 6 | 4 | 4 | 6 |
| Heating capacity | kW | 6,02 | 5,9 | 7,75 | 7,6 | 10,8 | 10,6 | 13,1 |
| Rated input power in heating mode | kW | 1,67 | 1,64 | 2,19 | 2,14 | 2,96 | 2,9 | 3,47 |
| Rated current absorption in heating mode | A | 8,51 | 3,28 | 11,51 | 4,44 | 15,63 | 5,99 | 7,05 |
| Condenser water flow rate | l/h | 1.035 | 1.015 | 1.334 | 1.307 | 1.858 | 1.823 | 2.254 |
| Pressure drops – condenser side | kPa | 30 | 29 | 45 | 43 | 32 | 31 | 47 |
| Power supply | V-ph-Hz | 230-1-50 | 400-3-50 + N | 230-1-50 | 400-3-50 + N | 230-1-50 | 400-3-50 + N | 400-3-50 + N |
| Maximum absorbed current | A | 12 | 4,2 | 15 | 5,1 | 23,1 | 7 | 10 |
| Inrush current | A | 47 | 24 | 61 | 32 | 100 | 46 | 50 |
| Scroll compressors / cooling circuits | No. | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water content in user section | $dm^3$ | 2,1 | 2,1 | 2,1 | 2,1 | 2,6 | 2,6 | 2,6 |
| Pump available head (option) | kPa | 91 | 92 | 84 | 85 | 78 | 79 | 148 |
| Pump electrical output (option) | kW | 0,25 | 0,25 | 0,25 | 0,25 | 0,25 | 0,25 | 0,33 |
| Buffer tank (option) | $dm^3$ | 47 | 47 | 47 | 47 | 47 | 47 | 92 |
| GAS water connections | | 1" | 1" | 1" | 1" | 1" | 1" | 1" 1/2 |
| Height | mm | 830 | 830 | 830 | 830 | 830 | 830 | 1.270 |
| Length | mm | 705 | 705 | 705 | 705 | 705 | 705 | 812 |
| Depth | mm | 453 | 453 | 453 | 453 | 453 | 453 | 508 |
| Standard unit weight | kg | 106 | 106 | 109 | 109 | 112 | 112 | 123 |
| MCW-HS: Sound power level | dB(A) | 55 | 55 | 55 | 55 | 59 | 59 | 61 |
| MCW-HL: Sound power level | dB(A) | 53 | 53 | 53 | 53 | 57 | 57 | 59 |

| RATED TECHNICAL DATA of MCW H heat pumps | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MCW - HS / HL** | | **015** | **018** | **020** | **022** | **027** | **031** | **039** |
| Cooling capacity | kW | 14,50 | 17,30 | 20,10 | 21,20 | 26,10 | 30,30 | 37,50 |
| Rated input power in cooling mode | kW | 3,40 | 3,89 | 4,40 | 4,90 | 6,30 | 7,20 | 8,90 |
| Rated current absorption in cooling mode | A | 7,43 | 7,37 | 9,37 | 10,20 | 13,15 | 15,23 | 17,38 |
| Evaporator water flow rate | l/h | 2.494 | 2.976 | 3.458 | 3.647 | 4.489 | 5.212 | 6.450 |
| Pressure drops, evaporator side | kPa | 26 | 28 | 26 | 27 | 24 | 27 | 26 |
| Condenser water flow rate | l/h | 1.016 | 1.204 | 1.392 | 1.483 | 1.840 | 2.130 | 2.635 |
| Pressure drops – condenser side | kPa | 4 | 6 | 5 | 6 | 5 | 7 | 7 |
| Heating capacity | kW | 16 | 19,2 | 21,6 | 23,59 | 29 | 33,6 | 41,7 |
| Rated input power in heating mode | kW | 4,28 | 4,91 | 5,5 | 6,2 | 7,9 | 9,1 | 11,2 |
| Rated current absorption in heating mode | A | 8,95 | 9,88 | 11,89 | 12,63 | 16,34 | 19,04 | 22,34 |
| Condenser water flow rate | l/h | 2.751 | 3.303 | 3.715 | 4.058 | 4.989 | 5.779 | 5.343 |
| Pressure drops – condenser side | kPa | 13 | 46 | 37 | 46 | 38 | 50 | 18 |
| Power supply | V/Ph/Hz | 400-3-50 + N | | | | | | |
| Maximum absorbed current | A | 66 | 14 | 16 | 17 | 20 | 29 | 32 |
| Inrush current | A | 31 | 74 | 101 | 98 | 130 | 130 | 135 |
| Scroll compressors / cooling circuits | No. | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Plate evaporator | No. | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Plate condenser | No. | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water content in user section | $dm^3$ | 3,1 | 3,1 | 3,6 | 3,6 | 3,9 | 4,3 | 4,6 |
| Pump available head (option) | kPa | 148 | 140 | 122 | 158 | 151 | 139 | 149 |
| Pump electrical output (option) | kW | 0,33 | 0,33 | 0,45 | 0,45 | 0,45 | 0,45 | 0,75 |
| Buffer tank (option) | $dm^3$ | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Water connections GAS type | | 1" 1/2 | 1" 1/2 | 1" 1/2 | 1" 1/2 | 1" 1/2 | 1" 1/2 | 1" 1/2 |
| Height | mm | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 |
| Length | mm | 812 | 812 | 812 | 812 | 812 | 812 | 812 |
| Depth | mm | 508 | 508 | 508 | 508 | 508 | 508 | 508 |
| Standard unit weight | kg | 125 | 132 | 175 | 209 | 221 | 236 | 247 |
| MCW-HS: Sound power level | dB(A) | 55 | 55 | 55 | 55 | 59 | 59 | 61 |
| MCW-HL: Sound power level | dB(A) | 53 | 53 | 53 | 53 | 57 | 57 | 59 |

Cooling capacity refers to the following conditions: water temperature at evaporator 12/7°C – water temperature at condenser 15 - 30°C
Heating capacity: water temperature at evaporator 15°C, water temperature at condenser 40 - 45°C.
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1

## MCR MOTOR DRIVEN EVAPORATING UNITS IN STANDARD AND LOW NOISE EXECUTION

MCR condenserless units derive from the MCW range of water-condensed chillers and are offered in standard and low-noise versions for cooling only.

The numerous optional features available to complete the units include remote condensers with vertical or horizontal flow axial fans in standard and low-noise versions and a heat recovery system (40% desuperheater).

**The mechanical Y filter is COMPULSORY on all models to protect the heat exchangers (user side).**


| RATED TECHNICAL DATA OF MCR C MOTOR DRIVEN EVAPORATING UNITS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MCR - CS / CL** | | **005 M** | **005** | **007 M** | **007** | **010 M** | **010** | **012** |
| Cooling capacity | kW | 4,8 | 4,8 | 6,2 | 6,2 | 8,6 | 8,6 | 10,76 |
| Rated input power | kW | 1,63 | 1,6 | 2,16 | 2,1 | 2,96 | 2,9 | 3,5 |
| Rated current absorption | A | 7,63 | 2,96 | 9,99 | 3,77 | 13,84 | 5,36 | 6,3 |
| Power supply | V-ph-Hz | 230-1-50 | 400-3-50 + N | 230-1-50 | 400-3-50 + N | 230-1-50 | 400-3-50 + N | 400-3-50 + N |
| Maximum absorbed current | A | 12 | 4,2 | 15 | 5,1 | 23,1 | 7 | 10 |
| Inrush current | A | 47 | 24 | 61 | 32 | 100 | 46 | 50 |
| Evaporator water flow rate | l/h | 825 | 825 | 1.066 | 1.067 | 1.478 | 1.480 | 1.851 |
| Pressure drops, evaporator side | kPa | 26 | 26 | 30 | 30 | 26 | 26 | 30 |
| Scroll compressors / cooling circuits | No. | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 |
| Plate evaporator | No. | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water content in user section | $dm^3$ | 2,1 | 2,1 | 2,1 | 2,1 | 2,6 | 2,6 | 2,6 |
| Pump available head (option) | kPa | 81 | 81 | 72 | 72 | 67 | 67 | 133 |
| Pump electrical output (option) | kW | 0,25 | 0,25 | 0,25 | 0,25 | 0,25 | 0,25 | 0,33 |
| Buffer tank (option) | $dm^3$ | 47 | 47 | 47 | 47 | 47 | 47 | 92 |
| Height | mm | 830 | 830 | 830 | 830 | 830 | 830 | 1.270 |
| Length | mm | 705 | 705 | 705 | 705 | 705 | 705 | 812 |
| Depth | mm | 453 | 453 | 453 | 453 | 453 | 453 | 508 |
| MCR-CS: Sound power level | dB(A) | 55 | 55 | 55 | 55 | 59 | 59 | 61 |
| MCR-CL: Sound power level | dB(A) | 53 | 53 | 53 | 53 | 57 | 57 | 59 |

| RATED TECHNICAL DATA OF MCR C MOTOR DRIVEN EVAPORATING UNITS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MCR - CS / CL** | | **015** | **018** | **020** | **022** | **027** | **031** | **039** |
| Cooling capacity | kW | 13 | 15,6 | 17,6 | 19,2 | 23,5 | 27,3 | 33,9 |
| Rated input power | kW | 4,3 | 5 | 5,6 | 6,2 | 8 | 9,1 | 11,2 |
| Rated current absorption | A | 8,39 | 8,85 | 10,76 | 11,52 | 15,04 | 16,96 | 19,97 |
| Power supply | V-ph-Hz | 400-3-50 + N | | | | | | |
| Maximum absorbed current | A | 13 | 14 | 16 | 17 | 20 | 29 | 32 |
| Inrush current | A | 66 | 74 | 101 | 98 | 130 | 130 | 135 |
| Evaporator water flow rate | l/h | 2.236 | 2.683 | 3.028 | 3.302 | 4.042 | 4.695 | 5.831 |
| Pressure drops, evaporator side | kPa | 26 | 29 | 26 | 29 | 26 | 29 | 28 |
| Scroll compressors / cooling circuits | No. | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 | 1 / 1 |
| Plate evaporator | No. | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water content in user section | $dm^3$ | 3,1 | 3,1 | 3,6 | 3,6 | 3,9 | 4,3 | 4,6 |
| Pump available head (option) | kPa | 125 | 107 | 145 | 136 | 122 | 101 | 136 |
| Pump electrical output (option) | kW | 0,33 | 0,33 | 0,45 | 0,45 | 0,45 | 0,45 | 0,75 |
| Buffer tank (option) | $dm^3$ | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Height | mm | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 |
| Length | mm | 812 | 812 | 812 | 812 | 812 | 812 | 812 |
| Depth | mm | 508 | 508 | 508 | 508 | 508 | 508 | 508 |
| MCR-CS: Sound power level | dB(A) | 61 | 61 | 61 | 62 | 62 | 62 | 65 |
| MCR-CL: Sound power level | dB(A) | 59 | 59 | 59 | 60 | 60 | 60 | 63 |

Cooling capacity refers to the following conditions: water temperature at evaporator 12-7°C, air temperature at condenser 35°C
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1

## COMPACT REVERSIBLE AIR/WATER HEAT PUMPS

REFRIGERANT: R 410 A

EXTREMELY LOW NOISE LEVELS

LOW DIMENSIONS
- 1190 x 340 x 735 mm
- 1190 x 340 x 1235 mm

TOP QUALITY COMPONENTS

INTEGRATED HYDRONIC MODULE:
- 3 speed circulation pump
- Expansion tank
- Safety valve
- Air vent valves
- Pressure gauge
- Hydraulic filter

FUNCTIONS OF THE CONTROL SYSTEM
- Reduction in minimum volume of water in the system
- Condensation pressure regulation
- Automatic control of the circulation pump (antifreeze function, anti-seizure function)
- Defrost regulation according to the outdoor temperature
- Management of alarms with recording of events
- External communication via a serial interface (Modbus protocol)

OTHER ADVANTAGES
- Easy access to components
- Keypad/display on front panel
- Partition between the fan and technical compartment
- Removable control panel to permit a larger opening
- Rigorous control of production: Tightness test of the cooling circuit, electric, dielectric test, water circuit test, etc.

STANDARD EQUIPMENT:
- Single-phase start-up kit (MSHRT 7/9/12 single-phase)
- Water flow control
- Proportional “four-season” adjustment
- Low pressure switch
- High pressure switch
- Water filter (to be connected)
- Integrated hydronic module

R410A

**MSHRT 075**
**MSHRT 095**

**MSHRT 125**
**MSHRT 127**

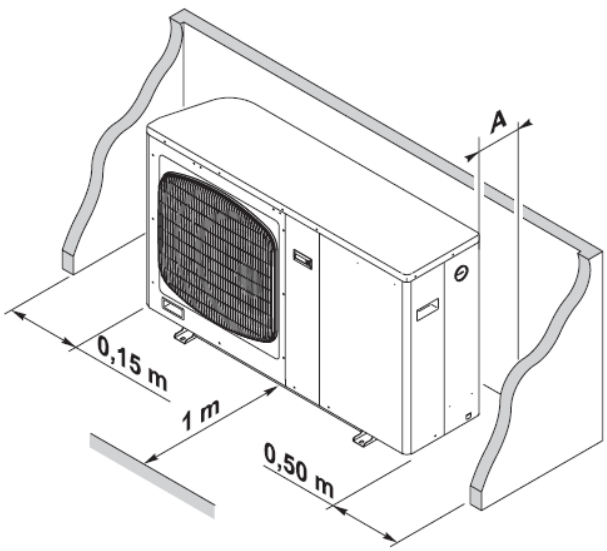
| **HEATING AND COOLING** | |
|---|---|
| Rated water temperature in heating mode | 40/45°C |
| Rated water temperature in cooling mode | 7/12°C |
| **OPERATING LIMITS** | |
| Outdoor air temperature | - 16° C in heating mode<br>+ 43°C in cooling mode |
| Maximum water outlet temperature | +55° C in heating mode |

| TECHNICAL DATA of MSHRT heat pumps | | | | | | |
|---|---|---|---|---|---|---|
| **MODEL** | | | **MSHRT 075** | **MSHRT 095** | **MSHRT 125** | **MSHRT 127** |
| **Power supply** | | | **230/1/50** | **230/1/50** | **230/1/50** | **400/3//50** |
| **HEATING** | **Conditions: inlet/outlet water temperature 40/45° C, inlet air temperature 7/6° C (D.B./W.B.); net values; EN 14511-2** | | | | | |
| | Rated heating capacity | kW | **7,2** | **9,17** | **10,5** | **12,4** |
| | Rated input power | kW | 2,65 | 3,19 | 3,62 | 4,06 |
| | C.O.P | kW/kW | 2,72 | 2,87 | 2,9 | 3,05 |
| | Nominal water flow rate | m³/h | 1,19 | 1,58 | 1,87 | 2,16 |
| | Pump available head | kPa | 57 | 47 | 66 | 53 |
| | **Conditions: inlet/outlet water temperature */45° C, inlet air temperature -7/-8° C (D.B./W.B.); net values; EN 14511-2** | | | | | |
| | Rated heating capacity | kW | **4,6** | **5** | **5,88** | **6,8** |
| | Rated input power | kW | 2,87 | 3,23 | 3,77 | 4,25 |
| | C.O.P | kW/kW | 1,6 | 1,55 | 1,56 | 1,6 |
| | **Conditions: inlet/outlet water temperature */55° C, inlet air temperature 7/6° C (D.B./W.B.); net values; EN 14511-2** | | | | | |
| | Rated heating capacity | kW | **6** | **8,25** | **9,38** | **11,7** |
| | Rated input power | kW | 3,04 | 3,75 | 4,04 | 4,73 |
| | C.O.P | kW/kW | 1,97 | 2,17 | 2,32 | 2,47 |
| | **Conditions: inlet/outlet water temperature 40/45° C, inlet air temperature 7/6° C (D.B./W.B.); gross values; Eurovent** | | | | | |
| | Rated heating capacity | kW | **7,25** | **9,24** | **10,65** | **12,5** |
| | Rated input power | kW | 2,56 | 3,12 | 3,48 | 4,1 |
| | C.O.P | kW/kW | 2,83 | 2,96 | 3,06 | 3,05 |
| | **Conditions: inlet/outlet water temperature 30/35° C, inlet air temperature 7/6° C (D.B./W.B.); net values; Ref.** | | | | | |
| | C.O.P | kW/kW | **3,42** | **3,41** | **3,66** | **3,84** |
| **COOLING** | **Conditions: inlet/outlet water temperature 12/7° C, inlet air temperature 35° C (D.B.); gross values; Eurovent** | | | | | |
| | Rated cooling capacity | kW | **5,90** | **7,10** | **8,56** | **9,00** |
| | Rated input power | kW | 2,55 | 3,14 | 3,33 | 3,73 |
| | E.E.R. | kW/kW | 2,31 | 2,26 | 2,57 | 2,41 |
| | Water flow rate | m³/h | 1,01 | 1,22 | 1,48 | 1,51 |
| | Pump available head | kPa | 64 | 59 | 82 | 80 |
| Type of refrigerant | | | R410A | R410A | R410A | R410A |
| Number of cooling circuits | | no. | 1 | 1 | 1 | 1 |
| Nbr of compressors | | no. | 1 | 1 | 1 | 1 |
| Starting current | | A | 40 | 33 | 34 | 56 |
| Expansion tank | | l | 2 | 2 | 2 | 2 |
| Diameter of male water connection | | | 3/4" | 3/4" | 1" | 1" |
| Sound power level | | dBA | 65 | 65 | 67 | 67 |
| Min/max water content of system | | l | 30/60 | 40/90 | 50/90 | 50/90 |
| Net dimensions (H/L/D) | | mm | 735x1190x340 | 735x1190x340 | 1235x1190x340 | 1235x1190x340 |
| Net weight | | kg | 98 | 98 | 128 | 128 |

## PROPER CLEARANCE

**A** 150 mm for models 075 and 095
250 mm for models 125 and 127

This dimension does not take into account configurations including the installation of a hydraulic filter with two isolation valves positioned straight behind the unit: allow for 0.30 metres.



## AIR-COOLED CONDENSING UNITS

To be used in systems in two sections, MTE units can be combined with exchanger coils of air handling units.

MTE outdoor condensing units were developed on the basis of the MPE series and offer a high level of efficiency combined with extremely low noise levels.

They are supplied complete with:
- > Shut-off valves on the liquid and gas line;
- > Heating element on the compressor crankcase to prevent oil from being diluted during off cycles;
- > Nitrogen precharge under pressure;
- > Schrader valves for pressure-controlled charging operations;
- > Humidity and liquid flow indicator mounted so as to be visible from the outside with no need to remove the panels;
- > Electrical control panel with microprocessor controller accessible from the outside and low-voltage output for dry-contact thermostatic control of the unit, external disconnect switch, phase sequence control, compressor protection, compressor start-up time delay device.


**MTE air cooled moto-condensing units - TECHNICAL DATA**

| MTE-C | | 004 M | 005 M | 007 M | 009 M | 009 | 010 M | 010 | 012 | 013 | 015 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Power supply | V-ph-Hz | 230-1-50 | 230-1-50 | 230-1-50 | 230-1-50 | 400-3N-50 | 230-1-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 |
| Cooling capacity | kW | 4,30 | 5,40 | 7,11 | 9,12 | 9,15 | 9,60 | 9,58 | 12,15 | 13,43 | 15,26 |
| Total power input | kW | 1,36 | 1,72 | 2,30 | 3,34 | 3,15 | 3,36 | 3,36 | 4,42 | 4,43 | 5,48 |
| EER | | 3,17 | 3,15 | 3,10 | 2,73 | 2,91 | 2,86 | 2,85 | 2,75 | 3,03 | 2,78 |
| Maximum power input | kW | 2,3 | 2,8 | 2,9 | 4,0 | 5,6 | 4,8 | 6,8 | 8,3 | 8,6 | 10,1 |
| Maximum current absorbed | A | 11,7 | 14,2 | 14,7 | 19,0 | 9,8 | 24,3 | 12,4 | 14,9 | 15,4 | 18,0 |
| Startying ampere | A | 48 | 63 | 63 | 63 | 45 | 97 | 48 | 63 | 63 | 66 |
| n° of scroll compressors / circuits | | 1 / 1 | | | | | | | | | |
| Rated amount of refrigerant requested | kg | 1,5 | 1,5 | 2 | 2 | 2 | 2,3 | 2,3 | 2,3 | 3 | 3 |
| High/low pressure switch | bar | 2 / 42 | | | | | | | | | |
| n° of axial fans | | 1 | | | | | 2 | | | | |
| Air flow | m³/h | 3.635 | 3.635 | 3.406 | 3.406 | 3.406 | 6.686 | 6.686 | 6.686 | 5.986 | 5.986 |
| Gas line connection | mm | 16 | 16 | 16 | 16 | 16 | 22 | 22 | 22 | 22 | 22 |
| Liquid line connection | mm | 10 | 10 | 10 | 10 | 10 | 12 | 12 | 12 | 12 | 12 |
| Height | mm | 758 | 758 | 758 | 758 | 758 | 1.225 | 1.225 | 1.225 | 1.225 | 1.225 |
| Lenght | mm | 960 | 960 | 960 | 960 | 960 | 1.220 | 1.220 | 1.220 | 1.220 | 1.220 |
| Width | mm | 450 | 450 | 450 | 450 | 450 | 550 | 550 | 550 | 550 | 550 |
| Sound Power level | dB(A) | 67 | 67 | 67 | 67 | 67 | 69 | 69 | 69 | 70 | 70 |
| Sound pressure level | dB(A) | 39 | 39 | 39 | 39 | 39 | 41 | 41 | 41 | 42 | 42 |

**MTE air cooled moto-condensing units - TECHNICAL DATA**

| MTE-C | | 018 | 021 | 024 | 029 | 033 | 038 | 042 | 058 | 071 |
|---|---|---|---|---|---|---|---|---|---|---|
| Power supply | V-ph-Hz | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 |
| Cooling capacity | kW | 18,42 | 20,79 | 24,41 | 29,26 | 32,95 | 37,70 | 42,29 | 58,11 | 70,79 |
| Total power input | kW | 6,65 | 7,50 | 8,42 | 9,88 | 11,45 | 12,27 | 13,45 | 17,87 | 24,21 |
| EER | | 2,77 | 2,77 | 2,90 | 2,96 | 2,88 | 3,07 | 3,14 | 3,25 | 2,92 |
| Maximum power input | kW | 12,4 | 13,5 | 15,6 | 18,1 | 19,3 | 22,2 | 22,4 | 28,8 | 38,1 |
| Maximum current absorbed | A | 23,3 | 25,2 | 28,7 | 35,2 | 37,2 | 42,2 | 41,3 | 56,3 | 70,3 |
| Startying ampere | A | 73 | 102 | 102 | 130 | 163 | 158 | 160 | 215 | 260 |
| n° of scroll compressors / circuits | | 1 / 1 | | | | | | | | |
| Rated amount of refrigerant requested | kg | 3,8 | 3,8 | 4,1 | 3,6 | 4,0 | 5,5 | 7,0 | 7,0 | 10 |
| High/low pressure switch | bar | 2 / 42 | | | | | | | | |
| n° of axial fans | | 2 | | | 4 | | | 2 | | |
| Air flow | m³/h | 11.940 | 11.940 | 11.460 | 21.500 | 21.500 | 19.700 | 21.230 | 20.050 | 20.050 |
| Gas line connection | mm | 28 | 28 | 28 | 32 | 32 | 32 | 35 | 42 | 42 |
| Liquid line connection | mm | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 22 | 22 |
| Height | mm | 1.225 | 1.225 | 1.225 | 1.275 | 1.275 | 1.275 | 1.485 | 1.485 | 1.485 |
| Lenght | mm | 1.220 | 1.220 | 1.220 | 1.565 | 1.565 | 1.565 | 1.990 | 1.990 | 1.990 |
| Width | mm | 550 | 550 | 550 | 601 | 601 | 601 | 950 | 950 | 950 |
| Sound Power level | dB(A) | 77 | 77 | 77 | 80 | 80 | 80 | 82 | 83 | 83 |
| Sound pressure level | dB(A) | 49 | 49 | 49 | 52 | 52 | 52 | 54 | 55 | 55 |

- Cooling capacity: outdoor air temperature 35°C, evaporation temperature 5°C
- Sound pressure measured at a distance of 10 m and a height of 1.5 m above the ground in a open field (fan side).

dedicated
heat pumps
solutions

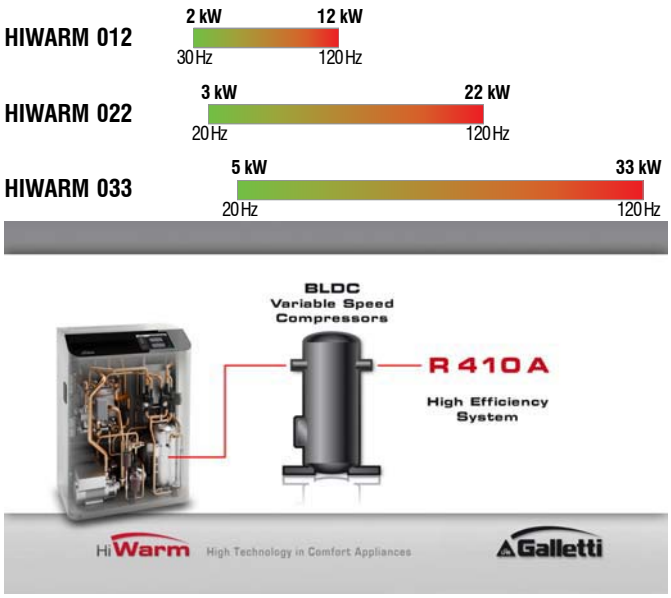
HIWARM
MCP / LCP
MSHTJ
EMC

**HIGH EFFICIENCY MODULATING MULTIFUNCTIONAL SYSTEM, WITH A LOW ENVIRONMENTAL IMPACT AND ZERO LOCAL EMISSIONS.**

- **HEATING**
- **AIR CONDITIONING**
- **COOLING**
- **DEHUMIDIFICATION**
- **SANITARY HOT WATER**
- **MAY BE COMPLETELY POWERED BY RENEWABLE ENERGY SOURCES**
- **MAXIMUM ENERGY EFFICIENCY**
- **TOTAL HEAT RECOVERY**
- **INTEGRATED HYDRONIC SYSTEM**
- **TOTAL SAFETY**

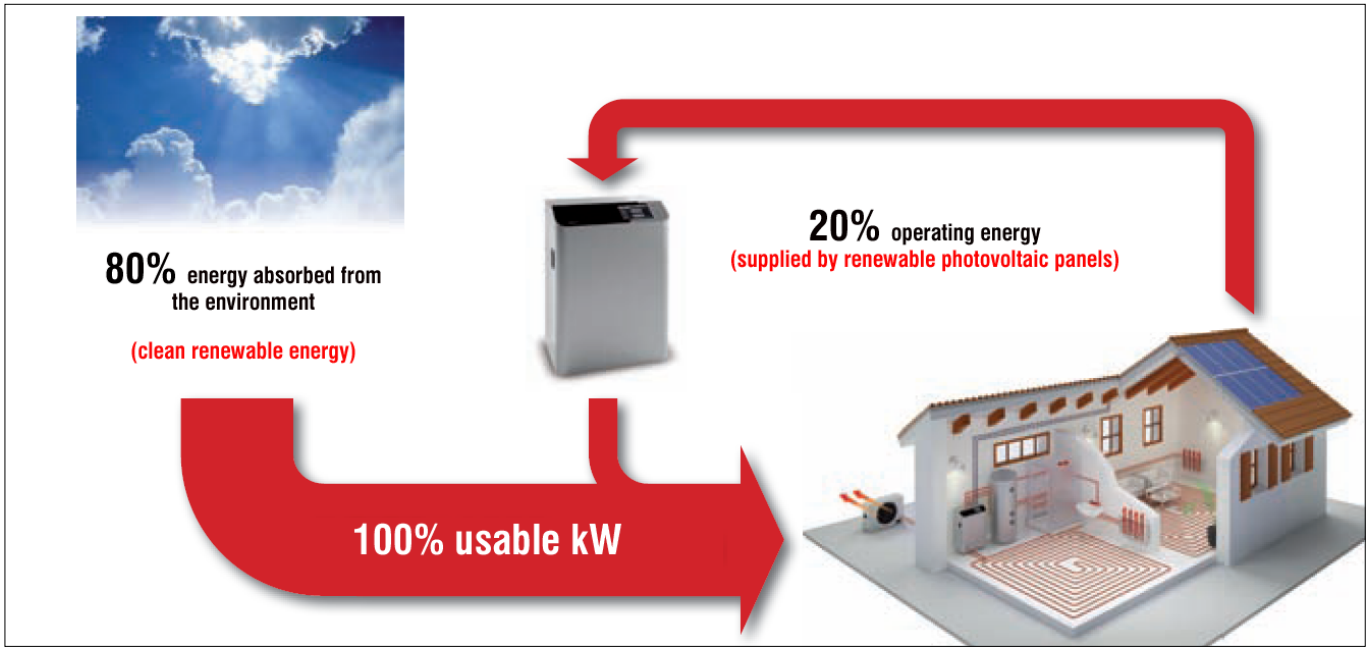

HiWarm is a residential modulating air-water heat pump which works by heat exchange with outdoor air and, without any type of combustion or flame, can heat or cool an entire home and produce domestic hot water in a totally autonomous manner.

There are 3 models to choose from, classified according to their maximum cooling capacity:




The characteristics shared by all 3 types of HiWarm units can be summed up as follows:

- SPLIT UNIT with compressor installed in the indoor unit so as both to reduce outdoor noise emissions and allow the construction of a lightweight outdoor unit that can be positioned above the ground with simple brackets.
- REMOTE UNIT: in an outdoor configuration with axial fans or a compact ductable indoor configuration with EC backward curved fans, intended for installation in attics.
- THROTTLE VALVE: EEV(electronically controlled electric thermal expansion valve) to take advantage from the possibility of generating thermodynamic cycles under reduced pressure let-downs, resulting in clear benefits in terms of COP.
- INTEGRATED CONTROL of pumps on the system side and the DHW side: both pumps can be directly controlled by the unit.
- DOUBLE WATER CIRCUIT:
  Air conditioning circuit with reversibility on the cooling circuit side and set-point adjustable between min/max with a voltage-free contact or between min/max with a 0-10V or 4-20mA signal.
  ACS circuit with total recovery (in the event of simultaneous cooling) or in any case with recovery as a priority. This circuit is separate and unlike in other similar products on the market it does not require long heating/cooling phases for inertial storage which impair energy efficiency, above all in summertime.



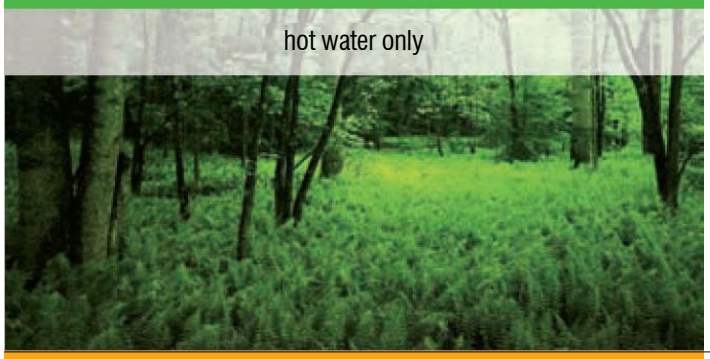
## WINTER

Heating + hot water

IN THE WINTER SEASON HIWARM CAN PRODUCE HOT WATER FOR THE HEATING SYSTEM AS WELL AS DOMESTIC HOT WATER, WITH OUTDOOR TEMPERATURES AS LOW AS -15°C AND WATER TEMPERATURES OF UP TO 60°C.

## MILD CLIMATES

hot water only



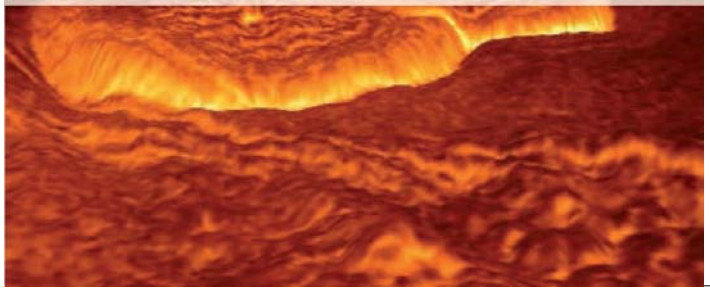
DURING IN-BETWEEN SEASONS HIWARM PRODUCES ONLY DOMESTIC HOT WATER, WHEREAS THE AIR CONDITIONING SYSTEM - SUMMER AND WINTER MODES - REMAINS OFF

## SUMMER

Hot water + cooling

## SUMMER

Hot water + cooling and dehumidification



IN THE COOLING MODE, DOMESTIC HOT WATER IS PRODUCED AT "ZERO COST" DURING THE PRODUCTION OF CHILLED WATER, WHICH CAN BE AT A LEVEL ABOVE OR BELOW THE DEW POINT.

## STRUCTURAL COMPONENTS

INDOOR UNIT
Galvanised steel perimeter enclosure panels with an epoxy polyester powder coating, oven cured at 180°C, and front plexiglass cover which also incorporates the display, on two levels, basic (LCD) and 10 inch Windows CE based Graphic Touch Screen.
The unit is completely enclosed but may be accessed on 3 sides thanks to easy-to-remove panels that greatly simplify maintenance and/or inspection. All routine maintenance operations are carried out from the front side of the unit.

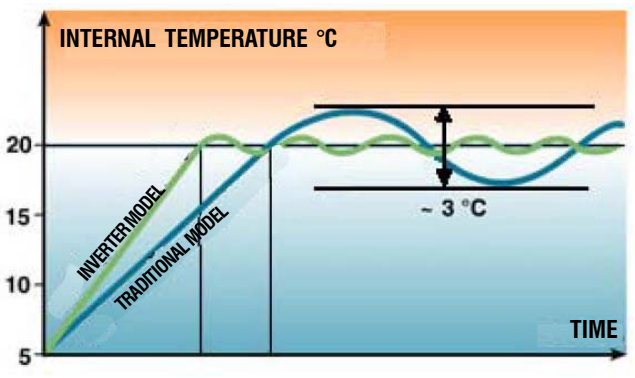
OUTDOOR UNIT
Panels coated with epoxy polyester powder paint oven cured at 180°C.
The unit is completely enclosed with panels and available in RAL9002 (Grey White).
6 pole fans with blades ensuring broad coverage, associated with external rotor asynchronous motors (or synchronous permanent magnets) and fan continuous speed modulation.

REMOTE UNIT FOR INDOOR INSTALLATION (ATTIC)
Galvanised sheet steel panelling, coated with epoxy polyester powder paint oven cured at 180°C;
The unit is completely enclosed with panels and available in RAL9002 (Grey White).
Centrifugal fans with reaction impellers and backward curved blades combined with brushless motors to ensure continuous efficient modulation. Maximum head available at 200 Pa.

COMPRESSORS

| Scroll | Twin Rotary |
|---|---|
|  |  |

Hermetic scroll compressors (respectively for the 22 DC and 33 DC) or twin rotary compressors (for the 12 DC), complete with motor protection against temperature and current overloads and excessive temperatures of the outgoing gas.
Mounted on rubber vibration dampers, complete with oil charge and housed in a compartment that is soundproofed with sound absorbing material. They are also equipped with an automatic oil heater to prevent the oil from being diluted by the refrigerant when the compressor stops.
Brushless permanent magnet AC compressor motor controlled by a trapezoidal wave driver within a speed range between 30 (20) and 120 Hz (BLDC “Brushless Direct Current” technology ).





INTERNAL EXCHANGERS
All units have heat exchangers with braze-welded AISI 316 austenitic stainless steel plates and connections made of AISI 304 L, characterised by a reduced carbon content to facilitate brazing.
Braze-welded plate exchangers represent the state of the art in terms of heat exchange efficiency and make it possible to significantly reduce the refrigerant charge compared to traditional solutions.
The high turbulence induced by the internal corrugation of the plates and the perfectly smooth surface of the plates themselves also hinders the build-up of dirt. The high thermal exchange coefficient on the refrigerant side, in combination with the new plate geometry, enables a much shorter approach to the T set-points, with clear benefits in terms of energy.

PUMPS

Use wet-rotor circulation pumps with EC motors, maintenance free, high efficiency (class A) and electronically controlled.
The pump casing is made of grey cast iron with a cataphoretic KTL coating, which provides optimal protection against corrosion. The thermal insulation is polypropylene, the shaft is stainless steel, the bearings are made of metal-impregnated carbon and the rotor, with a three-dimensional spiral is made of a synthetic material with a hermetic insulating coating of composite carbon fibre material.
They are supplied with a heat-insulating shell for heating applications and insulating preformed shells for cooling.

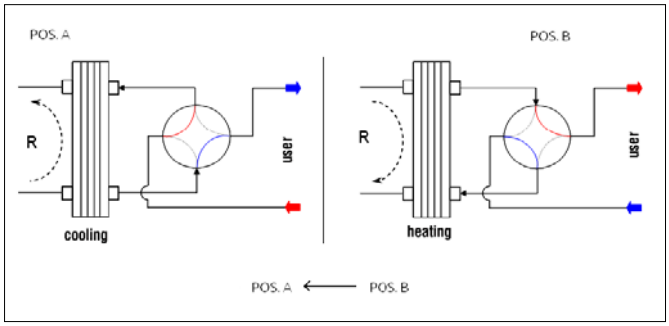
ELECTRONICALLY CONTROLLED ELECTRIC THROTTLE VALVE


An electronically controlled electronic expansion valve (EEV) is used instead of a classic mechanical thermostatic valve, which would have a lower modulation capacity.

The rod in the central part of the valve can always slide vertically with a wide range of movement to allow the orifice through which the fluid passes to be opened by varying degrees.
Using this valve makes it possible to reduce the amount of energy consumed by the compressor when the surrounding conditions allow the difference between the condensation and evaporation pressures to be reduced to values below 5 bar.

CYCLE REVERSING VALVE ON WATER SIDE

HiWarm units are reversible: when switched from the cooling to heat pump mode and vice versa, they carry out two cycle reversals. One on the refrigerant side and one on the water side.
The cycle reversing valve on the water side is switched from position A to position B (in less than 20 seconds) and vice versa by means of an electric driver, without changing the direction of flow for users; this allows the direction of flow to be reversed in the exchangers, so that it is always opposite the direction of flow of the refrigerant fluid.



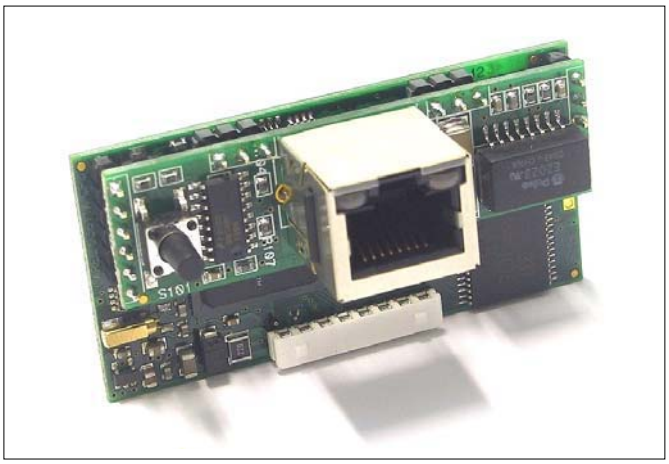

ONBOARD CONTROLLER
On HiWarm units there is the option of installing a 10.4" Display Touch Screen with the Windows CE® operating system.


Functions of on-board control system:
- Control of the different operating parameters;
- ON/OFF switching of the compressor to maintain the chiller inlet water temperature set point adjustment
- Management of alarms (high/low pressure, antifreeze, flow switch, pump alarm)
- Management of pumps;
- Display of operating parameters
- Antifreeze protection of heat exchangers;
- Management of the maximum number of compressor start-ups;
- Serial output management (optional);
- Interfaceability via WEB with the Webgate option; all it takes is a simple connection and any Internet browser can be used;
- Summer/winter and on/off switching through clean contact or on-board control.

MANAGEMENT OF ELECTRIC LOADS and automatic modulation of the unit to avoid going over any power limits.


ETHERNET GWEB WITH GWEB SUPERVISION SOFTWARE is integrated into the HiWarm unit.
The WEB circuit card allows a connection to be made between the onboard controller of the unit and the 10 Mbps Ethernet RJ45 network.
The operating system used is Linux 2.4.21.
Installation takes place directly on the serial port of the advanced controller and a static or dynamic IP address with DHCP function is used.
The GWeb supervision software permits the following:
- Display of unit status
- Display of current alarms and alarm history
- Recording of data with 10 settable variables
- Downloading of all data records via a web browser or FTP
- Possibility of editing the main parameters
- Sending of e-mails to 5 different recipients in case of alarm

With HiWeb it is also possible to perform supervisory monitoring using the following protocols:
- SNMP v1 & v2c
- BACnet Ethernet or BACnet/IP



| HIWARM RATED TECHNICAL DATA | | | | | | | |
|---|---|---|---|---|---|---|---|
| **HIWARM** | | **012** | **022** | **033** | **012** | **022** | **033** |
| **Compressor speed** | | **30 Hz** | **20 Hz** | | **120 Hz** | | |
| | | **Cooling + ACS** | | | | | |
| Cooling capacity @ 7°C/12°C | [kW] | 2,1 | 2,4 | 4,1 | 9,4 | 15,4 | 25,9 |
| DHW Heating capacity at @ 57°C/50°C | [kW] | 3,0 | 3,7 | 6,3 | 13,9 | 23,7 | 38,8 |
| Compressor input power | [kW] | 0,9 | 1,3 | 2,2 | 4,5 | 8,3 | 12,9 |
| Performance coefficient (total) | [-] | 5,7 | 4,7 | 4,7 | 5,2 | 4,7 | 5,0 |
| Water flow rate to the system (7°C/12°C) | [l/h] | 362 | 413 | 705 | 1.617 | 2.649 | 4.455 |
| Water pressure drops to system unit | [kPa] | 5 | 5 | 5 | 34 | 28,5 | 28,5 |
| Water flow rate to the DHW unit | [l/h] | 368 | 455 | 774 | 1.708 | 2.912 | 4.767 |
| Outdoor unit input power | [kW] | 0 | 0 | 0 | 0 | 0 | 0 |
| | | **Cooling** | | | | | |
| Cooling capacity @ 7°C/12°C -35°C outdoor | [kW] | 2,4 | 3 | 5,5 | 11,8 | 21,6 | 32,8 |
| DHW Heating capacity at @ 57°C/50°C | [kW] | 0 | 0 | 0 | 0 | 0 | 0 |
| Compressor input power | [kW] | 0,6 | 0,9 | 1,5 | 3,2 | 6,1 | 9,4 |
| Performance coefficient (total) | [-] | 4 | 3,3 | 3,7 | 3,7 | 3,5 | 3,5 |
| Water flow rate to the system (7°C/12°C) | [l/h] | 413 | 516 | 946 | 2.030 | 3.715 | 5.642 |
| Water pressure drops to system unit | [kPa] | 7 | 8 | 8 | 54 | 53,5 | 47,5 |
| Water flow rate to the DHW unit | [l/h] | - | - | - | - | - | - |
| Outdoor unit input power | [kW] | 0,29 | 0,29 | 0,35 | 0,29 | 0,29 | 0,68 |
| | | **Heat pump** | | | | | |
| **Heating capacity @ 35°C - 40°C** | **[kW]** | **2,1** | **2,9** | **4,8** | **10,1** | **18,2** | **28,9** |
| Compressor input power | [kW] | 0,6 | 0,9 | 1,5 | 3,2 | 6,1 | 9,2 |
| COP of thermodynamical cycle | [-] | 3,5 | 3,2 | 3,2 | 3,2 | 3,0 | 3,1 |
| Water flow rate to the unit | [l/h] | 361 | 499 | 826 | 1.738 | 3.130 | 4.971 |
| Water pressure drops to the unit | [kPa] | 5 | 7 | <5 | 38 | 38 | 35 |
| **Outdoor air temperature** | **[°C]** | **-5** | **-5** | **-5** | **-5** | **-5** | **-5** |
| Outdoor unit input power | [kW] | 0,29 | 0,29 | 0,35 | 0,29 | 0,29 | 0,68 |
| | | **Heat pump** | | | | | |
| **Heating capacity @ 35°C - 40°C** | **[kW]** | **2,7** | **3,8** | **6,2** | **13,7** | **24,6** | **38,9** |
| Compressor input power | [kW] | 0,6 | 0,9 | 1,5 | 3,3 | 6,1 | 9,4 |
| COP of thermodynamical cycle | [-] | 4,5 | 4,2 | 4,1 | 4,2 | 4,0 | 4,1 |
| Water flow rate to the unit | [l/h] | 464 | 654 | 1.066 | 2.356 | 4.231 | 6.691 |
| Water pressure drops to the unit | [kPa] | 7 | 13 | <5 | 61 | 69 | 61 |
| **Outdoor air temperature d.b/w.b.** | **[°C]** | **7/6** | **7/6** | **7/6** | **7/6** | **7/6** | **7/6** |
| Outdoor unit input power | [kW] | 0,29 | 0,29 | 0,35 | 0,29 | 0,29 | 0,68 |
| | | | | | | | |
| Maximum current FLA | [A] | 20 | 14 | 25 | 20 | 14 | 25 |
| Inrush current LRA | [A] | 20 | 14 | <25 | 20 | 14 | <25 |
| Lw Internal sound power level | [dB-A] | 53,0 | 54,5 | 54,5 | 53,0 | 54,5 | 56,5 |
| Lw External sound power level | [dB-A] | 65 | 66 | 65 | 65 | 66 | 69 |
| Compressor type | [-] | Twin Rotary | Scroll | Scroll | Twin Rotary | Scroll | Scroll |
| Motor type | | BLDC | BLDC | BLDC | BLDC | BLDC | BLDC |
| GAS water connections | [-] | 1" | 1" ¼ | 1" ¼ | 1" | 1" ¼ | 1" ¼ |
| Internal module dimensions (LxDxH) | [mm] | 800x1150x500 | 800x1250x500 | 800x1250x500 | 800x1150x500 | 800x1250x500 | 800x1250x500 |
| Outdoor unit dimensions, horizontal air flow (LxHxD) | [mm] | 1120x1220x380 | 1450x1280x380 | 2000x1500x380 | 1120x1220x380 | 1450x1280x380 | 2000x1500x380 |

## TOTAL HEAT RECOVERY REVERSIBLE AIR/WATER HEAT PUMPS

- > HEATING
- > AIR CONDITIONING
- > COOLING
- > COOLING
- > DEHUMIDIFICATION
- > SANITARY HOT WATER
- > 2 AND 4 PIPES SYSTEMS
- > MAXIMUM ENERGY EFFICIENCY
- > TOTAL HEAT RECOVERY
- > INTEGRATED HYDRONIC SYSTEM
- > TOTAL SAFETY
- > SMART DEFROST SYSTEM

The ever-increasing need to reduce energy consumption and increase production efficiency of chilled water for air conditioning and hot water for heating and the domestic water supply, combined with the need to make these processes independent of each other and the operating season, finds its full achievement in the new Galletti MCP and LCP series.

MCP total heat recovery reversible heat pumps, with R407C Scroll compressors, single-circuit, mono and dual compressor, cooling capacity from 7 to 41 kW, heating capacity from 9 to 48 kW, heating capacity-heat recovery from 9 to 52 kW for the production of hot water up to 60°C.

LCP total heat recovery reversible heat pumps, with R410A Scroll compressors, dual-circuit with 2 or 4 compressors, cooling capacity from 51 to 318 kW, heating capacity from 55 to 351 kW, heating capacity-heat recovery from 62 to 403 kW for the production of hot water up to 55°C.

R410A R407C

**The units are "real" multipurpose units, with 4 water collections, whose operating modes are described below:**

SUMMER MODE

a) Cooling Only: The system produces cold water on circuit "1" through the heat exchanger "S1" and the heat removed, together with the power absorbed by the compressors, is dissipated in the outdoor air through the finned coils that act as a condenser; the ventilation is modulated to vary the airflow depending on the condensing pressure.

b) Cooling + DHW: the system produces cold water on circuit "1" through the heat exchanger "S1" and hot water on circuit "2" through the heat exchanger "S2"; the heat removed by the heat exchanger "S1" together with the power absorbed by the compressor, is transferred to the hot water through the plate heat exchanger "S2".
Both circuits are of equal-priority, or rather both will be brought to set-point.
The finned heat exchangers are used to dispose/remove heat from the air only in cases where needs are not alike.
The ventilation in this mode is normally switched off. If the finned block heat exchanger is used, the ventilation is adjusted to independently vary the airflow on the two circuits depending on the condensation/evaporation pressure.

c) DHW only: The system produces hot water on circuit "2" subtracting heat from the outdoor air that, together with the power absorbed by the compressors, is transferred to the water through the plate heat exchanger "S1", the ventilation is adjusted to vary the airflow rate depending on the evaporation pressure.

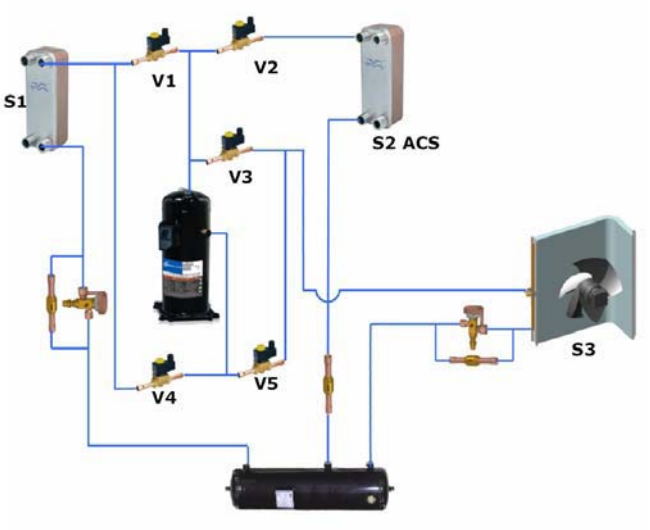
WINTER MODE

d) Heating only: The system produces hot water on circuit "1" subtracting heat from the outdoor air that, together with the power absorbed by the compressors, is transferred to the water through the plate heat exchanger "S1", the ventilation is adjusted to vary the airflow rate depending on the evaporation pressure.

e) DHW only: The system produces hot water on circuit "2" subtracting heat from the outdoor air that, together with the power absorbed by the compressors, is transferred to the water through the plate heat exchanger "S1", the ventilation is adjusted to vary the airflow rate depending on the evaporation pressure.

f) Partial heating + Partial DHW: The system simultaneously produces hot water on circuit "1" and on the circuit "2" up to a maximum of 50% for both requirements; if either of the requests exceed 50%, priority is given to the DHW circuit then "2". The heat is subtracted from the outdoor air that, together with the power absorbed by the compressor, is transferred to the user through the heat exchanger "S1" and the DHW through the plate heat exchanger "S2". LCP ONLY

g) Defrost cycle: The aim is to produce heat to warm up first and then melt the frost accumulated on the coils.
To do so the hot water is used as a source and therefore the heat exchanger "S1" or "S2" is used as an evaporator and the heat removed, combined with the power absorbed by the compressor, is used to the finned block heat exchangers.
The defrosting logic provides little impact on the user as the defrost takes place separately on 2 circuits, so while one circuit defrosts the other continues to supply heat to the user avoiding to extract heat from the system. LCP ONLY

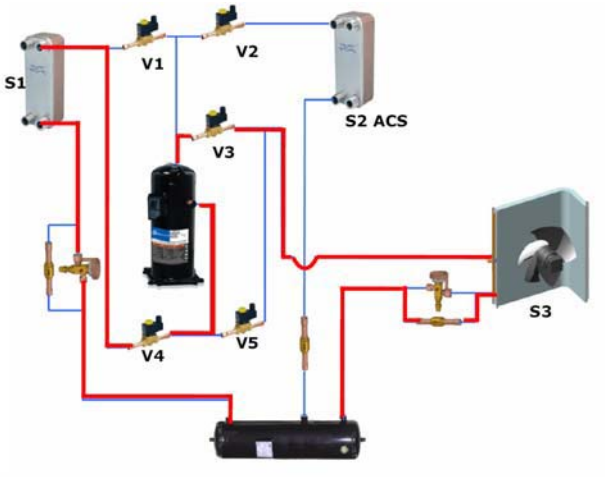



## OPERATION DESCRIPTION

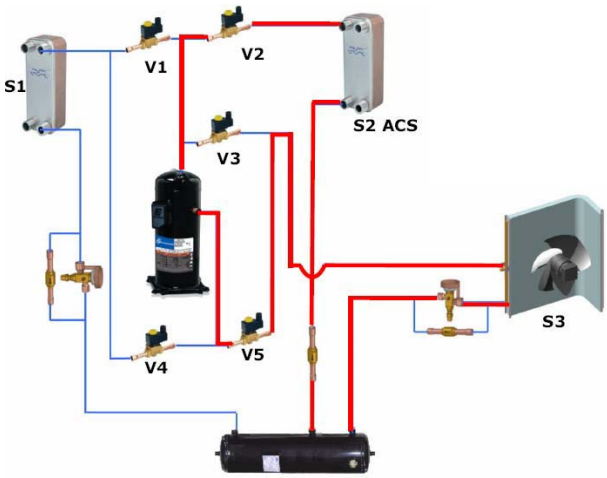
The unit contains 3 distinct heat exchangers:

- "S3" finned heat exchanger with evaporating and condensing function for heat exchanging with heat source (outdoor air)
- "S1" plate heat exchanger designed for using unit with evaporating function in summer mode and condensing function in winter mode
- "S2" plate heat exchanger designed for the ACS circuit with condensing function (usually) and evaporating function during defrost cycle only

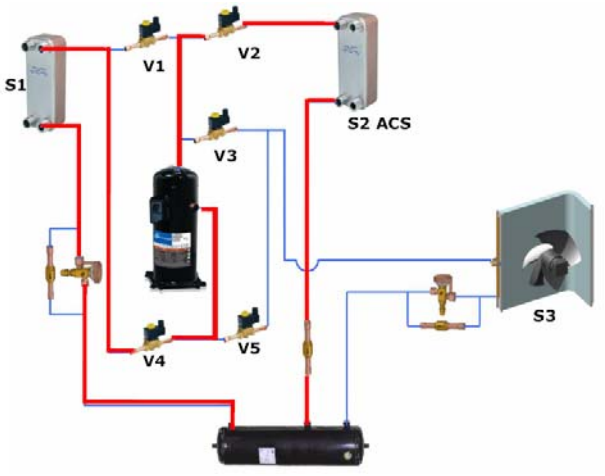
**A**



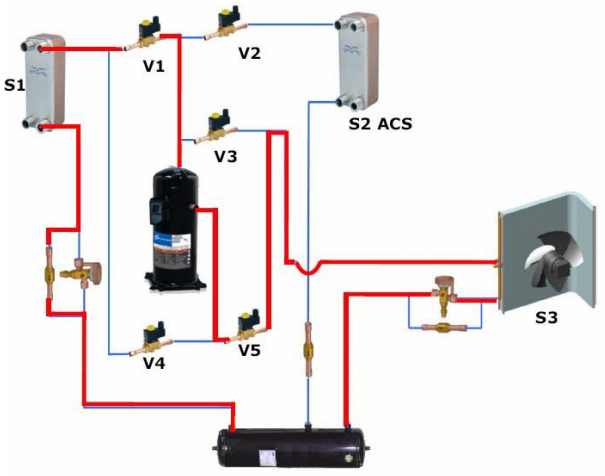

**C-E**




**B**




**D**



| RATED TECHNICAL DATA of MCP multi-purpose heat pumps | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **MCP** | | **007M** | **007** | **009M** | **009** | **010M** | **010** | **013M** | **013** | **015** | **018** |
| Power supply | V-ph-Hz | 230-1-50 | 400-3N-50 | 230-1-50 | 400-3N-50 | 230-1-50 | 400-3N-50 | 230-1-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 |
| **Cooling mode** | | | | | | | | | | | |
| Cooling capacity [1] | kW | 7,6 | 7,6 | 9,6 | 9,7 | 11,1 | 11,3 | 13,4 | 13,6 | 15,8 | 19,6 |
| Power input [1] | kW | 2,70 | 2,60 | 3,35 | 3,25 | 3,87 | 3,77 | 4,72 | 4,62 | 5,55 | 7,32 |
| EER | | 3,01 | 3,14 | 3,04 | 3,17 | 3,04 | 3,18 | 3,03 | 3,15 | 3,02 | 2,83 |
| **Cooling mode + DHW** | | | | | | | | | | | |
| Cooling capacity [1] | kW | 7,20 | 7,30 | 9,00 | 9,10 | 10,60 | 10,80 | 12,80 | 13,00 | 15,40 | 18,40 |
| Power input [1] | kW | 2,66 | 2,66 | 3,38 | 3,28 | 3,90 | 3,80 | 4,85 | 4,65 | 5,48 | 7,28 |
| Heating capacity ACS | kW | 9,48 | 9,58 | 11,95 | 11,95 | 14,02 | 14,13 | 16,98 | 16,99 | 20,15 | 24,77 |
| Total COP | | 6,18 | 6,26 | 6,14 | 6,35 | 6,27 | 6,51 | 6,07 | 6,37 | 6,41 | 5,88 |
| **Heating mode (system / DHW)** | | | | | | | | | | | |
| Heating capacity[2] | kW | 8,9 | 8,8 | 11,1 | 11,2 | 12,6 | 12,7 | 15,6 | 15,7 | 18,1 | 23,3 |
| Power input [2] | kW | 2,90 | 2,80 | 3,75 | 3,55 | 4,17 | 4,07 | 5,12 | 5,02 | 5,75 | 7,72 |
| COP | | 3,13 | 3,20 | 3,02 | 3,19 | 3,07 | 3,18 | 3,10 | 3,18 | 3,19 | 3,06 |
| Water flow - chiller mode | l/h | 1.307 | 1.307 | 1.651 | 1.668 | 1.909 | 1.944 | 2.305 | 2.339 | 2.718 | 3.371 |
| Water flow - heat pump mode | l/h | 1.527 | 1.510 | 1.916 | 1.918 | 2.171 | 2.189 | 2.680 | 2.698 | 3.105 | 4.002 |
| DHW water flow | l/h | 1.631 | 1.648 | 2.055 | 2.055 | 2.411 | 2.430 | 2.921 | 2.922 | 3.466 | 4.260 |
| Pump head, system side (chiller) | kPa | 142 | 142 | 125 | 124 | 121 | 119 | 142 | 140 | 128 | 129 |
| Pump head, DHW side | kPa | 123 | 122 | 98 | 98 | 88 | 86 | 109 | 108 | 79 | 94 |
| No. of scroll compressors / circuits | | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| Diameter of water connections | inches | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 |
| Buffer tank | $dm^3$ | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 50 |
| Height | mm | 1.224 | 1.224 | 1.224 | 1.224 | 1.224 | 1.224 | 1.224 | 1.224 | 1.224 | 1.273 |
| Length | mm | 1.324 | 1.324 | 1.324 | 1.324 | 1.324 | 1.324 | 1.324 | 1.324 | 1.324 | 1.665 |
| Depth | mm | 560 | 560 | 560 | 560 | 560 | 560 | 560 | 560 | 560 | 655 |
| Sound power level | dB(A) | 72 | 72 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 78 |

| RATED TECHNICAL DATA of MCP multi-purpose heat pumps | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **MCP** | | **027** | **032** | **040** | **T18M** | **T18** | **T22M** | **T22** | **T24M** | **T24** | **T30** |
| Power supply | V-ph-Hz | 400-3N-50 | 400-3N-50 | 400-3N-50 | 230-1-50 | 400-3N-50 | 230-1-50 | 400-3N-50 | 230-1-50 | 400-3N-50 | 400-3N-50 |
| **Cooling mode** | | | | | | | | | | | |
| Cooling capacity [1] | kW | 27,4 | 34,4 | 40,4 | 18,6 | 18,8 | 21,4 | 21,6 | 26,0 | 26,4 | 32,4 |
| Power input [1] | kW | 10,00 | 11,92 | 14,74 | 6,72 | 6,52 | 7,75 | 7,55 | 9,79 | 9,29 | 10,73 |
| EER | | 2,89 | 3,09 | 2,91 | 2,94 | 3,07 | 2,93 | 3,04 | 2,81 | 3,01 | 3,18 |
| **Cooling mode + DHW** | | | | | | | | | | | |
| Cooling capacity [1] | kW | 27,10 | 32,90 | 39,40 | 17,40 | 17,60 | 20,20 | 20,60 | 25,40 | 25,80 | 30,80 |
| Power input [1] | kW | 9,66 | 11,98 | 14,60 | 6,98 | 6,78 | 8,01 | 7,61 | 9,45 | 9,25 | 10,89 |
| DHW Heating capacity | kW | 35,65 | 43,45 | 52,42 | 23,48 | 23,49 | 27,23 | 27,25 | 33,76 | 33,97 | 40,49 |
| Total COP | | 6,48 | 6,40 | 6,33 | 5,81 | 6,01 | 5,89 | 6,25 | 6,26 | 6,45 | 6,54 |
| **Heating mode (system / DHW)** | | | | | | | | | | | |
| Heating capacity[2] | kW | 31,4 | 40,0 | 47,4 | 22,3 | 22,1 | 25,0 | 25,2 | 30,2 | 30,4 | 37,5 |
| Power input [2] | kW | 9,90 | 12,52 | 15,04 | 7,52 | 7,32 | 8,55 | 8,35 | 9,99 | 9,79 | 11,53 |
| COP | | 3,22 | 3,25 | 3,20 | 3,01 | 3,07 | 2,97 | 3,07 | 3,07 | 3,15 | 3,29 |
| Water flow - chiller mode | l/h | 4.713 | 5.917 | 6.949 | 3.199 | 3.234 | 3.681 | 3.715 | 4.472 | 4.541 | 5.573 |
| Water flow - heat pump mode | l/h | 5.395 | 6.871 | 8.157 | 3.832 | 3.799 | 4.305 | 4.341 | 5.188 | 5.224 | 6.448 |
| DHW water flow | l/h | 6.132 | 7.473 | 9.015 | 4.039 | 4.040 | 4.684 | 4.687 | 5.807 | 5.843 | 6.964 |
| Pump head, system side (chiller) | kPa | 119 | 144 | 131 | 136 | 135 | 133 | 132 | 127 | 125 | 106 |
| Pump head, DHW side | kPa | 72 | 115 | 89 | 105 | 105 | 99 | 99 | 85 | 84 | 60 |
| No. of scroll compressors / circuits | | 1/1 | 1/1 | 1/1 | 2/1 | 2/1 | 2/1 | 2/1 | 2/1 | 2/1 | 2/1 |
| Diameter of water connections | inches | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 | 1" 1/4 |
| Buffer tank | $dm^3$ | 50 | 125 | 125 | 50 | 50 | 50 | 50 | 50 | 50 | 125 |
| Height | mm | 1.273 | 1.489 | 1.489 | 1.273 | 1.273 | 1.273 | 1.273 | 1.273 | 1.273 | 1.489 |
| Length | mm | 1.665 | 2.065 | 2.065 | 1.665 | 1.665 | 1.665 | 1.665 | 1.665 | 1.665 | 2.065 |
| Depth | mm | 655 | 951 | 951 | 863 | 863 | 863 | 863 | 863 | 863 | 951 |
| Sound power level | dB(A) | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 |

**1** Water temperature 12°C - 7°C; outdoor air temperature 35°C
**2** Water temperature 40°C - 45°C, outdoor air temperature 7°C dry bulb, outdoor air temperature 6°C wet bulb
Performances measured according to standard EN 14511

| PRELIMINARY TECHNICAL DATA of LCP multi-purpose heat pumps | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **MODEL** | | **042** | **052** | **062** | **072** | **082** | **094** | **104** | **124** |
| Power supply | V-ph-Hz | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 |
| **SUMMER - Cooling mode** | | | | | | | | | |
| Cooling capacity [1] | kW | 51,4 | 56,5 | 66,4 | 74,1 | 81,6 | 99,2 | 108,4 | 130,2 |
| Power input [1] | kW | 15,90 | 18,00 | 20,40 | 23,00 | 26,60 | 32,00 | 36,30 | 43,40 |
| EER | | 3,2 | 3,1 | 3,3 | 3,2 | 3,1 | 3,1 | 3,0 | 3,0 |
| **SUMMER - Cooling mode + DHW** | | | | | | | | | |
| Cooling capacity [2] | kW | 46,90 | 51,70 | 59,30 | 67,20 | 75,10 | 90,70 | 99,60 | 116,70 |
| DHW Heating capacity[2] | kW | 62,10 | 68,80 | 79,10 | 89,20 | 100,20 | 121,10 | 133,90 | 156,00 |
| Power input [2] | kW | 16,80 | 19,00 | 22,00 | 24,40 | 27,90 | 33,80 | 38,10 | 43,70 |
| Total COP | | 6,5 | 6,3 | 6,3 | 6,4 | 6,3 | 6,3 | 6,1 | 6,2 |
| **SUMMER - DHW only** | | | | | | | | | |
| DHW Heating capacity[3] | kW | 73,1 | 81,2 | 93,4 | 104,4 | 117,3 | 144,3 | 159,4 | 188,2 |
| Power input [3] | kW | 18,40 | 20,40 | 24,10 | 26,40 | 29,60 | 37,00 | 41,20 | 50,60 |
| COP | | 4,0 | 4,0 | 3,9 | 4,0 | 4,0 | 3,9 | 3,9 | 3,7 |
| **WINTER - Cooling mode, version H** | | | | | | | | | |
| Heating capacity[4] | kW | 54,6 | 60,2 | 70,1 | 77,8 | 87,0 | 108,1 | 118,8 | 142,1 |
| Power input [4] | kW | 16,20 | 18,10 | 21,40 | 23,60 | 26,90 | 32,40 | 36,30 | 49,50 |
| COP | | 3,4 | 3,3 | 3,3 | 3,3 | 3,2 | 3,3 | 3,3 | 2,9 |
| **WINTER - DHW only** | | | | | | | | | |
| Heating capacity[5] | kW | 53,9 | 59,1 | 69,5 | 76,4 | 85,6 | 106,0 | 116,8 | 139,4 |
| Power input [5] | kW | 17,70 | 19,90 | 23,50 | 26,10 | 29,80 | 35,60 | 39,90 | 49,50 |
| COP | | 3,0 | 3,0 | 3,0 | 2,9 | 2,9 | 3,0 | 2,9 | 2,8 |
| Expansion tank | l/h | 8 | 8 | 8 | 8 | 8 | 12 | 12 | 25 |
| Buffer tank | $dm^3$ | 200 | 200 | 220 | 220 | 220 | 340 | 340 | 600 |
| Height | mm | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.830 |
| Length | mm | 2.010 | 2.010 | 2.360 | 2.360 | 2.360 | 3.540 | 3.540 | 3.540 |
| Depth | mm | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.654 |
| Sound power level | dB(A) | 80 | 80 | 81 | 81 | 81 | 82 | 82 | 82 |

| PRELIMINARY TECHNICAL DATA of LCP multi-purpose heat pumps | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **MODEL** | | **144** | **164** | **194** | **214** | **244** | **274** | **294** | **324** |
| Power supply | V-ph-Hz | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 | 400-3N-50 |
| **SUMMER - Cooling mode** | | | | | | | | | |
| Cooling capacity [1] | kW | 143,3 | 161,3 | 186,7 | 220,4 | 245,4 | 276,1 | 299,9 | 318,1 |
| Power input [1] | kW | 48,50 | 54,50 | 65,70 | 72,50 | 85,00 | 98,30 | 104,90 | 114,50 |
| EER | | 3,0 | 3,0 | 2,8 | 3,0 | 2,9 | 2,8 | 2,9 | 2,8 |
| **SUMMER - Cooling mode + DHW** | | | | | | | | | |
| Cooling capacity [2] | kW | 128,60 | 146,20 | 173,10 | 200,60 | 228,30 | 261,30 | 280,50 | 300,20 |
| DHW Heating capacity[2] | kW | 173,10 | 196,50 | 232,80 | 269,80 | 306,80 | 348,50 | 375,60 | 403,30 |
| Power input [2] | kW | 49,50 | 55,90 | 66,40 | 76,60 | 87,20 | 96,90 | 105,60 | 115,60 |
| Total COP | | 6,1 | 6,1 | 6,1 | 6,1 | 6,1 | 6,3 | 6,2 | 6,1 |
| **SUMMER - DHW only** | | | | | | | | | |
| DHW Heating capacity[3] | kW | 204,8 | 236 | 274,5 | 325 | 366,8 | 413 | 448 | 478,9 |
| Power input [3] | kW | 18,40 | 20,40 | 24,10 | 26,40 | 29,60 | 37,00 | 41,20 | 50,60 |
| COP | | 11,1 | 11,6 | 11,4 | 12,3 | 12,4 | 11,2 | 10,9 | 9,5 |
| **WINTER - Cooling mode, version H** | | | | | | | | | |
| Heating capacity[4] | kW | 157,7 | 172,2 | 201,5 | 237,9 | 268,1 | 302,2 | 326,5 | 350,8 |
| Power input [4] | kW | 50,50 | 56,50 | 65,50 | 74,30 | 84,60 | 95,40 | 103,10 | 110,90 |
| COP | | 3,1 | 3,0 | 3,1 | 3,2 | 3,2 | 3,2 | 3,2 | 3,2 |
| **WINTER - DHW only** | | | | | | | | | |
| Heating capacity[5] | kW | 154,7 | 172,2 | 201,5 | 237,9 | 368,1 | 302,2 | 326,5 | 350,8 |
| Power input [5] | kW | 55,70 | 62,10 | 72,20 | 82,90 | 93,30 | 105,00 | 113,10 | 122,00 |
| COP | | 2,8 | 2,8 | 2,8 | 2,9 | 3,9 | 2,9 | 2,9 | 2,9 |
| Expansion tank | l/h | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Buffer tank | $dm^3$ | 600 | 600 | 600 | 600 | 600 | 765 | 765 | 765 |
| Height | mm | 1.830 | 1.830 | 1.830 | 2.174 | 2.174 | 2.174 | 2.174 | 2.174 |
| Length | mm | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | 4.296 | 4.296 | 4.296 |
| Depth | mm | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 82 | 83 | 83 | 83 | 83 | 84 | 84 | 84 |

1 Summer mode for the production of chilled water only with S1 heat exchanger @ 12/7°C with outdoor air temperature 35°C
2 Summer mode for the simultaneous production of chilled water with S1 heat exchanger @ 12/7°C and hot water with S2 heat exchanger @ 40-45°C
3 Summer mode for the production of hot water only with S2 heat exchanger @ 45-50°C with outdoor air temperature 35°C
4 Winter mode for the production of hot water only with S1 heat exchanger @ 40-45°C with outdoor air temperature 7°C, RH 90% (version H only)
5 Winter mode for the production of hot water only with S2 heat exchanger @ 45-50°C with outdoor air temperature 7°C, RH 90%
Performances measured according to standard EN 14511

## HIGH TEMPERATURE HEAT PUMPS AS REPLACEMENT

CHARACTERISTICS

REFRIGERANT: R 407 C

QUITE OPERATION

COMPACT UNITS
- 1190 x 340 x 1235 mm

TOP QUALITY COMPONENTS

INTEGRATED HYDRONIC MODULE
- 3 speed circulation pump
- Air vent valves
- Pressure gauge
- Hydraulic filter

FUNCTIONS OF THE CONTROL SYSTEM
- Reduction in minimum volume of water in the system
- Automatic control of the circulation pump (antifreeze function, anti-seizure function)
- Defrost regulation according to the outdoor temperature
- Management of alarms with recording of events
- External communication via a serial interface (Modbus protocol)

OTHER ADVANTAGES:
- Easy access to components
- Keypad/display on front panel
- Partition between the fan and technical compartment
- Removable control panel to permit a larger opening
- Rigorous control of production: Tightness test of the cooling circuit, electric, dielectric test, water circuit test, etc.
- Base antifreeze protection by means of a heating element

R407C

**MSHTJ 145**
**MSHTJ 147**
**MSHTJ 197**

STANDARD EQUIPMENT:
- Single-phase start-up kit (MSHTJ 14 single-phase)
- Antifreeze heating element
- Water flow control
- Low pressure switch
- High pressure switch
- Water filter (to be connected)
- Integrated hydronic module

**HEATING**

**OPERATING LIMITS**

| | |
|---|---|
| Outdoor air temperature | -16° C in heating mode |
| Maximum water outlet temperature | +65° C in heating mode |

**SCROLL COMPRESSOR WITH INTERMEDIATE INJECTION**

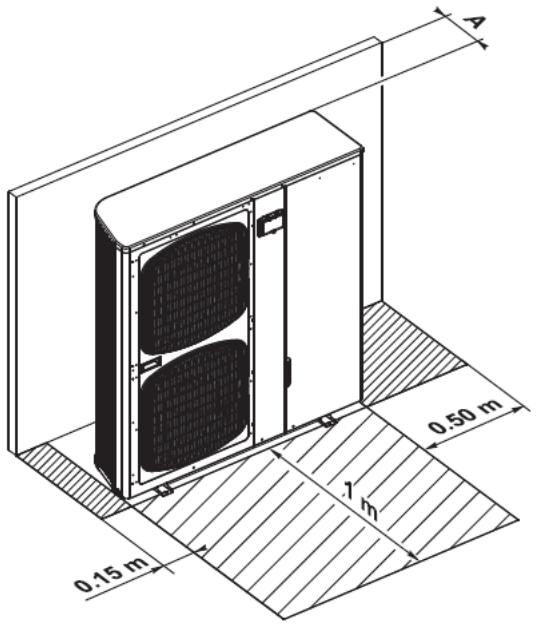
| TECHNICAL DATA of MSHTJ irreversible heat pumps | | | | | |
|---|---|---|---|---|---|
| **MODEL** | | | **MSHTJ 145** | **MSHTJ 147** | **MSHTJ 197** |
| **Power supply** | | | **230/1/50** | **400/3//50** | **400/3//50** |
| **HEATING** | **Conditions: inlet/outlet water temperature 40/45° C, inlet air temperature 7/6° C (D.B./W.B.); net values; EN 14511-2** | | | | |
| | Rated heating capacity | kW | **13,65** | **13,8** | **20,4** |
| | Rated input power | kW | 5,25 | 4,98 | 7,55 |
| | C.O.P | kW/kW | 2,60 | 2,77 | 2,70 |
| | Nominal water flow rate | m³/h | 1,55 | 1,55 | 2,3 |
| | Pump available head | kPa | 90 | 90 | 88 |
| | **Conditions: inlet/outlet water temperature */45° C, inlet air temperature -7/-8° C (D.B./W.B.); net values; EN 14511-2** | | | | |
| | Rated heating capacity | kW | **8,6** | **8,6** | **12,7** |
| | Rated input power | kW | 5,04 | 4,75 | 7,47 |
| | C.O.P | kW/kW | 1,71 | 1,82 | 1,7 |
| | **Conditions: inlet/outlet water temperature */55° C, inlet air temperature 7/6° C (D.B./W.B.); net values; EN 14511-2** | | | | |
| | Rated heating capacity | kW | **13** | **13,2** | **20,1** |
| | Rated input power | kW | 6,3 | 5,86 | 9 |
| | C.O.P | kW/kW | 2,06 | 1,51 | 2,2 |
| | **Conditions: inlet/outlet water temperature 40/45° C, inlet air temperature 7/6° C (D.B./W.B.); gross values; Eurovent** | | | | |
| | Rated heating capacity | kW | **8,55** | **8,5** | **12,6** |
| | Rated input power | kW | 5,96 | 5,63 | 9,1 |
| | C.O.P | kW/kW | 1,43 | 1,51 | 1,4 |
| | **Conditions: inlet/outlet water temperature 30/35° C, inlet air temperature 7/6° C (D.B./W.B.); net values** | | | | |
| | C.O.P | kW/kW | **3,41** | **4,02** | **3,41** |
| Type of refrigerant | | | R407C | R407C | R407C |
| Number of cooling circuits | | no. | 1 | 1 | 1 |
| Nbr of compressors | | no. | 1 | 1 | 1 |
| Starting current | | A | 44 | 42 | 59 |
| Expansion tank | | l | 2 | 2 | 2 |
| Diameter of male water connection | | | 1" | 1" | 1" |
| Sound power level | | dBA | 71,5 | 71,5 | 73,5 |
| Minimim water content of system | | l | 45 | 45 | 65 |
| Net dimensions (H/L/D) | | mm | 1235x1190x340 | 1235x1190x340 | 1235x1190x340 |
| Net weight | | kg | 141 | 141 | 145 |

## PROPER CLEARANCE

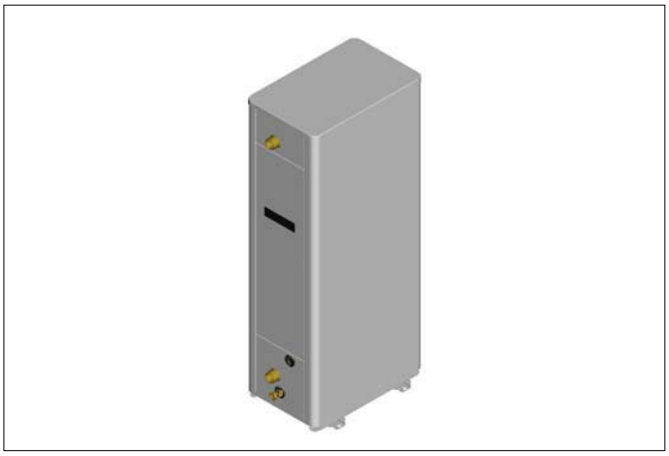
**A** 250 mm for models 145 - 147 - 197

This dimension does not take into account configurations including the installation of a hydraulic filter with two isolation valves positioned straight behind the unit: allow for 0.30 metres.

Minimum clearance above the unit: 0.70 metres



## ELECTRIC MODULES



EMC electric modules are designed to back up the operation of Galletti heat pumps when necessary following the inevitable reduction in heating capacity associated with decreases in outdoor air temperature.

They are buffer tanks fitted internally with two armoured electric heating elements, which are activated by the onboard electrical control board according to the control logic described below.

The 2 electric heating elements present inside the buffer tank are controlled by the unit controller.

They are switched on in the heat pump mode when the temperature of the water leaving the condenser falls below the set threshold and the outdoor air temperature is lower than the set threshold values of the two thermostats present on the electrical control board (adjustable thresholds, preset at -5 °C and -10 °C).
If the outdoor air temperature is below -5 °C the first level is activated, if it is below -10°C the second level is activated as well.

The supplemental heating elements also perform an antifreeze function and act as a support in the defrost mode.
In case of alarm (water flow, high pressure, low pressure, etc.) the controller will automatically switch them off.

EMC modules can be installed either externally as a rule in proximity to the heat pump, or inside an equipment enclosure. In the latter case, the air temperature probes must be positioned on the outside of the enclosure housing the module so as to correctly measure the outdoor air temperature (rather than the temperature inside the enclosure).

**RATED TECHNICAL DATA of EMC tank module with electric heating elements**

| EMC | | EMC22M0000A | EMC22T0000A | EMC24M0000A | EMC24T0000A | EMC33T0000A |
|---|---|---|---|---|---|---|
| Power supply | V/Ph/Hz | 230-1-50 | 400-3N-50 | 230-1-50 | 400-3N-50 | 400-3N-50 |
| No. of reduction steps | | 2 | 2 | 2 | 2 | 2 |
| Power input of electric heating element - 1st reduction step | kW | 2,0 | 2,0 | 2,0 | 2,0 | 3,0 |
| Electrical input of heating element - 1st reduction step | A | 8,7 | 2,9 | 8,7 | 2,9 | 4,4 |
| Power input of electric heating element - 2nd reduction step | kW | 2,0 | 2,0 | 4,0 | 4,0 | 3,0 |
| Electrical input of heating element - 2nd reduction step | A | 8,7 | 2,9 | 17,4 | 5,8 | 4,4 |
| Total power input of electric heating elements | kW | 4,0 | 4,0 | 6,0 | 6,0 | 6,0 |
| Total absorbed current of heating elements | A | 17,4 | 5,8 | 26,1 | 8,7 | 8,8 |
| Regulation range of electric heating element thermostat | °C | -10 °C / 20°C | -10 °C / 20°C | -10 °C / 20°C | -10 °C / 20°C | -10 °C / 20°C |
| Buffer tank capacity | $dm^3$ | 30 | 30 | 30 | 30 | 50 |
| Height | mm | 1.146 | 1.146 | 1.146 | 1.146 | 1.211 |
| Length | mm | 364 | 364 | 364 | 364 | 364 |
| Depth | mm | 466 | 466 | 466 | 466 | 531 |
| Water connections | inches | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/4 |
| Transport weight | kg | 45 | 46 | 47 | 48 | 58 |
| Operating weight | kg | 71 | 72 | 73 | 74 | 104 |

## NOTES

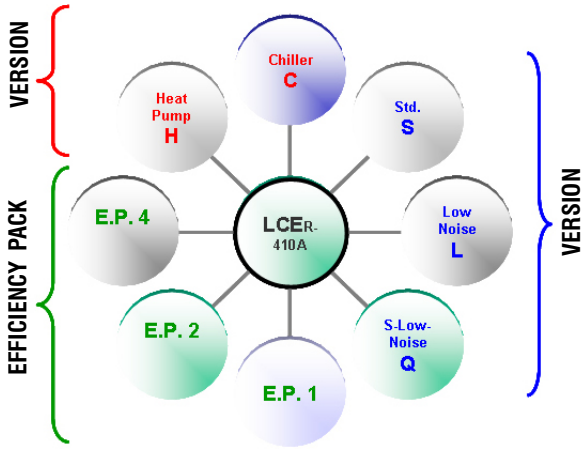
large systems

LCE
LSE
LCC
LEW

## LCE: WIDE RANGE OF MODELS AND CONFIGURABILITY

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 LCE project has enabled a range to be developed which, starting off from 18 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 360 kW. A vast array of options and accessories allows you to build "dedicated" solutions tailored to numerous design and installation requirements.


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

> **EFFICIENCY PACK**

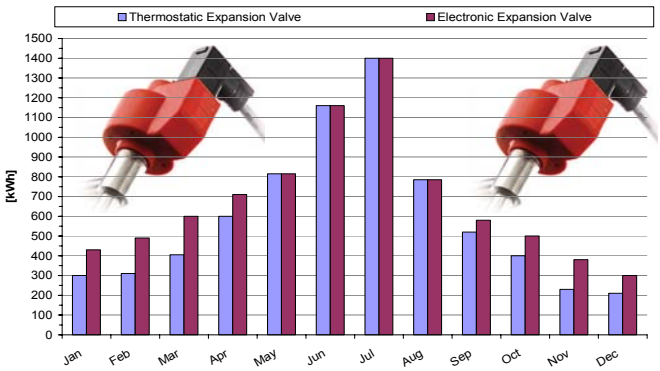
The possibility of setting up different cooling circuits in units of the same power means being able to personalise efficiency levels under full or part load conditions.

- **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.

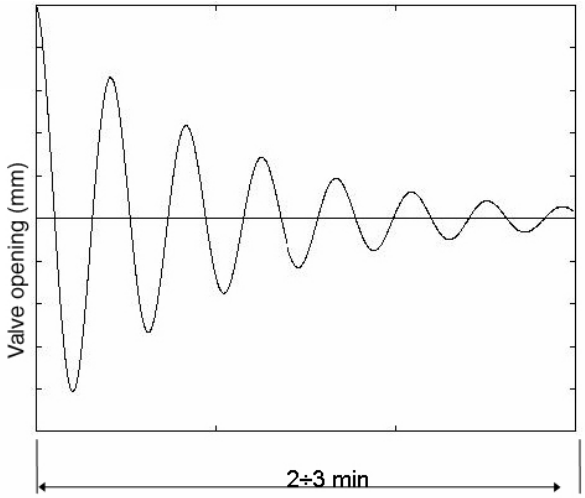
> **VERSION**
- **S** Standard version
- **L** Low-Noise version for a low noise impact
- **Q** Quiet version for a super low noise impact

### 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:

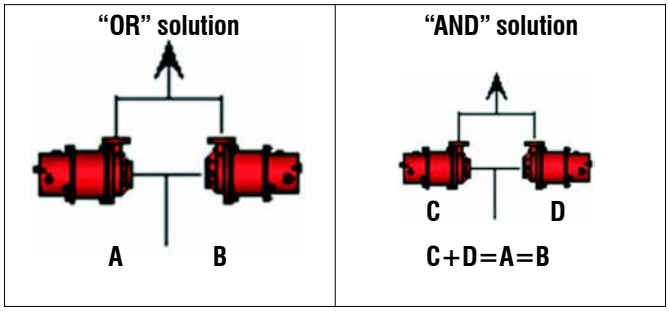
The electronic driver pre-positions the valve at a point very near the final equilibrium point.

- 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.

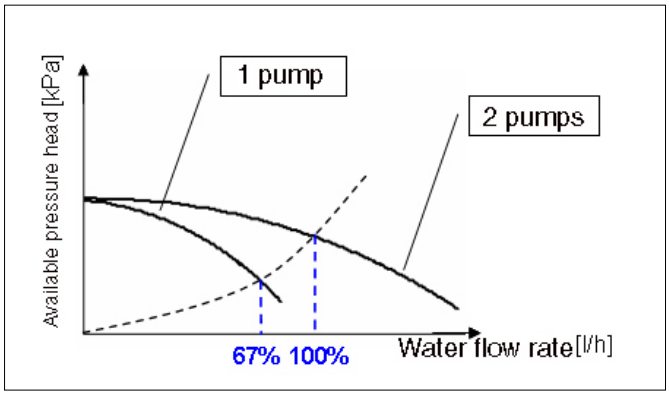
## WATER PUMP OPTIONS

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.

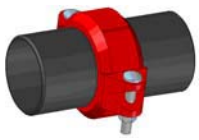



Under part load conditions operation is limited to a single pump, reducing the capacity by $^1/_3$ compared to the rated value and resulting in average savings of about 30% in pumping costs.



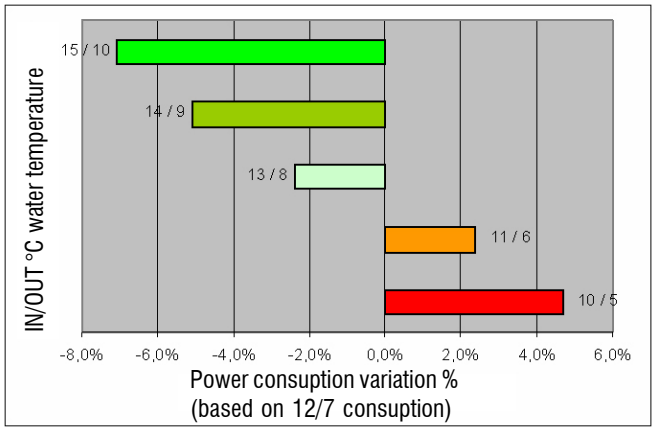

In the case of two pumps in combination, the advanced microprocessor is mandatory because it controls the on/off switching of the second pump according to the number of capacity steps required at every instant. This makes operation of the unit cost-effective for most of its life since, based on well-known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

All LCE 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.



## 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.




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 networks 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.

## 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.

| RATED TECHNICAL DATA of LCE 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 |
| **LCE...CS** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | |
| Cooling capacity | kW | NA | NA | 63,30 | 69,20 | 76,50 | 92,20 | 92,20 | NA | 102,70 | 102,70 | NA | 124,10 | 124,10 | 126,43 |
| Total power input | kW | NA | NA | 22,57 | 25,36 | 28,97 | 33,05 | 33,05 | NA | 39,46 | 39,46 | NA | 43,13 | 43,14 | 42,99 |
| EER | | NA | NA | 2,80 | 2,73 | 2,64 | 2,79 | 2,79 | NA | 2,60 | 2,60 | NA | 2,88 | 2,88 | 2,94 |
| ESEER | | NA | NA | 4,05 | 4,01 | 3,98 | 3,45 | 4,00 | NA | 3,40 | 3,95 | NA | 3,88 | 4,22 | 4,09 |
| No. of scroll compressors / circuits | | NA | NA | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 2 | 2 / 1 | NA | 2 / 2 | 2 / 1 | NA | 2 / 2 | 2 / 1 | 4 / 2 |
| No. of axial fans | | NA | NA | 4 | 4 | 4 | 6 | 6 | NA | 6 | 6 | NA | 8 | 8 | 8 |
| Air flow | $m^3/h$ | NA | NA | 21.379 | 21.379 | 21.379 | 30.913 | 30.913 | NA | 30.913 | 30.913 | NA | 41.340 | 41.340 | 41.340 |
| Water flow | l/h | NA | NA | 10.887 | 11.902 | 13.158 | 15.858 | 15.858 | NA | 17.665 | 17.665 | NA | 21.346 | 21.346 | 21.747 |
| Pressure drop, water side | kPa | NA | NA | 46 | 34 | 42 | 31 | 31 | NA | 38 | 38 | NA | 39 | 39 | 41 |
| Available head, standard pump | kPa | NA | NA | 126 | 133 | 119 | 130 | 130 | NA | 119 | 119 | NA | 108 | 108 | 106 |
| Buffer tank | $dm^3$ | NA | NA | 200 | 200 | 200 | 220 | 220 | NA | 220 | 220 | NA | 340 | 340 | 340 |
| Height | mm | NA | NA | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | NA | 1.720 | 1.720 | NA | 1.720 | 1.720 | 1.720 |
| Length | mm | NA | NA | 2.010 | 2.010 | 2.010 | 2.360 | 2.360 | NA | 2.360 | 2.360 | NA | 3.190 | 3.190 | 3.540 |
| Depth | mm | NA | NA | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | NA | 1.185 | 1.185 | NA | 1.185 | 1.185 | 1.185 |
| Sound power level | dB(A) | NA | NA | 80 | 80 | 80 | 82 | 82 | NA | 82 | 82 | NA | 82 | 82 | 82 |
| Sound pressure level | dB(A) | NA | NA | 52 | 52 | 52 | 54 | 54 | NA | 54 | 54 | NA | 54 | 54 | 54 |
| Base unit operating weight | kg | NA | NA | 540 | 570 | 650 | 730 | 730 | NA | 730 | 730 | NA | 1.010 | 1.010 | 1.050 |
| Unit with pump and full tank operating weight | kg | NA | NA | 8.747 | 907 | 987 | 1.138 | 1.138 | NA | 1.138 | 1.138 | NA | 1.581 | 1.581 | 1.641 |

| RATED TECHNICAL DATA of LCE water chillers, STANDARD version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (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 |
| **LCE...CS** | | **141** | **142** | **144** | **161** | **162** | **164** | **174** | **194** | **214** | **244** | **274** | **294** | **324** | **364** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | |
| Cooling capacity | kW | 138,40 | 138,40 | 140,37 | 155,00 | 155,00 | 153,36 | 162,00 | 186,60 | 209,00 | 236,90 | 271,60 | 295,50 | 313,90 | 354,5 |
| Total power input | kW | 48,24 | 48,24 | 47,79 | 58,63 | 58,63 | 56,04 | 56,80 | 70,70 | 83,30 | 92,90 | 104,21 | 112,79 | 120,20 | 125,2 |
| EER | | 2,87 | 2,87 | 2,94 | 2,64 | 2,64 | 2,74 | 2,85 | 2,64 | 2,51 | 2,55 | 2,61 | 2,62 | 2,61 | 2,83 |
| ESEER | | 3,93 | 4,18 | 4,10 | 3,61 | 3,87 | 3,75 | 4,16 | 4,04 | 4,00 | 4,01 | 4,10 | 4,12 | 4,18 | 4,15 |
| 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 | $m^3/h$ | 39.890 | 39.890 | 39.890 | 39.890 | 39.890 | 39.890 | 67.672 | 67.672 | 67.672 | 75.478 | 103.511 | 97.902 | 97.902 | 93.550 |
| Water flow | l/h | 23.805 | 23.805 | 24.143 | 26.660 | 26.660 | 26.378 | 27.864 | 32.095 | 35.948 | 40.747 | 46.716 | 50.827 | 53.990 | 60.956 |
| Pressure drop, water side | kPa | 49 | 49 | 50 | 42 | 42 | 43 | 46 | 49 | 50 | 53 | 41 | 49 | 55 | 48 |
| Available head, standard pump | kPa | 150 | 150 | 147 | 147 | 147 | 148 | 155 | 133 | 147 | 171 | 170 | 152 | 137 | 131 |
| Buffer tank | $dm^3$ | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 | 600 | 765 | 765 | 765 | 765 |
| Height | mm | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.830 | 1.830 | 1.830 | 2.174 | 2.330 | 2.330 | 2.330 | 233 |
| Length | mm | 3.190 | 3.190 | 3.540 | 3.190 | 3.190 | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | 4.296 | 4.296 | 4.296 | 4.206 |
| Depth | mm | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 82 | 82 | 82 | 82 | 82 | 82 | 83 | 83 | 83 | 83 | 84 | 84 | 84 | 84 |
| Sound pressure level | dB(A) | 54 | 54 | 54 | 54 | 54 | 54 | 55 | 55 | 55 | 55 | 56 | 56 | 56 | 56 |
| Base unit operating weight | kg | 1.055 | 1.055 | 1.070 | 1.085 | 1.085 | 1.220 | 1.440 | 1.460 | 1.470 | 1.620 | 1.880 | 1.912 | 1.947 | 2.060 |
| Unit with pump and full tank operating weight | kg | 1.626 | 1.626 | 1.661 | 1.656 | 1.656 | 1.811 | 2.208 | 2.276 | 2.286 | 2.469 | 2.894 | 2.926 | 2.961 | 3.074 |

Cooling capacity refers to the following conditions: water temperature 12-7°C; outdoor air temperature 35°C
Sound pressure level refers to the following conditions: measured in an open field, at a distance of 10 m, with a directivity factor of 2.

| RATED TECHNICAL DATA of LCE 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 |
| **LCE...CL** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | |
| Cooling capacity | kW | 48,03 | 52,23 | 63,70 | 69,93 | 77,40 | 92,94 | 92,94 | 94,26 | 103,36 | 103,36 | 102,22 | 125,11 | 125,11 | 127,36 |
| Total power input | kW | 16,18 | 18,55 | 21,97 | 24,67 | 28,16 | 32,03 | 32,03 | 32,32 | 38,35 | 38,35 | 37,06 | 44,38 | 44,38 | 44,16 |
| EER | | 2,97 | 2,82 | 2,90 | 2,83 | 2,75 | 2,90 | 2,90 | 2,92 | 2,70 | 2,70 | 2,76 | 2,82 | 2,82 | 2,88 |
| ESEER | | 4,06 | 4,04 | 4,05 | 4,01 | 3,98 | 3,45 | 4,00 | 3,90 | 3,40 | 3,95 | 3,85 | 3,88 | 4,22 | 4,09 |
| 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 | $m^3/h$ | 15.398 | 15.398 | 21.955 | 21.955 | 21.955 | 29.393 | 29.393 | 29.393 | 29.393 | 29.393 | 29.393 | 43.434 | 43.434 | 43.434 |
| Water flow | l/h | 8.261 | 8.983 | 10.956 | 12.027 | 13.313 | 15.986 | 15.986 | 16.213 | 17.778 | 17.778 | 17.582 | 21.518 | 21.518 | 21.906 |
| Pressure drop, water side | kPa | 27 | 31 | 47 | 35 | 43 | 32 | 32 | 33 | 39 | 39 | 38 | 40 | 40 | 41 |
| Available head, standard pump | kPa | 157 | 149 | 125 | 131 | 117 | 129 | 129 | 128 | 118 | 118 | 119 | 107 | 107 | 105 |
| Buffer tank | $dm^3$ | 200 | 200 | 220 | 220 | 220 | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 |
| Height | mm | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.705 | 1.830 | 1.830 | 1.830 |
| Length | mm | 2.010 | 2.010 | 2.360 | 2.360 | 2.360 | 3.190 | 3.190 | 3.540 | 3.190 | 3.190 | 3.540 | 3.540 | 3.540 | 3.540 |
| Depth | mm | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 70 | 70 | 72 | 72 | 72 | 73 | 73 | 73 | 73 | 73 | 73 | 77 | 77 | 77 |
| Sound pressure level | dB(A) | 42 | 42 | 44 | 44 | 44 | 45 | 45 | 45 | 45 | 45 | 45 | 49 | 49 | 49 |
| Base unit operating weight | kg | 525 | 525 | 630 | 635 | 700 | 905 | 905 | 980 | 915 | 915 | 980 | 1.260 | 1.260 | 1.275 |
| Unit with pump and full tank operating weight | kg | 862 | 862 | 982 | 987 | 1.067 | 1.426 | 1.426 | 1.557 | 1.436 | 1.436 | 1.557 | 2.040 | 2.040 | 2.055 |

| RATED TECHNICAL DATA of LCE water chillers, LOW NOISE version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (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 |
| **LCE...CL** | | **141** | **142** | **144** | **161** | **162** | **164** | NA | **194** | **214** | **244** | **274** | **294** | **324** | **364** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | |
| Cooling capacity | kW | 137,53 | 137,53 | 139,79 | 155,35 | 155,35 | 153,68 | NA | 181,23 | 211,92 | 230,32 | 265,28 | 287,43 | 304,36 | 343,3 |
| Total power input | kW | 50,28 | 50,28 | 49,73 | 60,17 | 60,17 | 57,57 | NA | 71,36 | 79,49 | 94,45 | 105,18 | 114,89 | 122,91 | 128,1 |
| EER | | 2,74 | 2,74 | 2,81 | 2,58 | 2,58 | 2,67 | NA | 2,54 | 2,67 | 2,44 | 2,52 | 2,50 | 2,48 | 2,68 |
| ESEER | | 3,93 | 4,18 | 4,10 | 3,61 | 3,87 | 3,75 | NA | 4,04 | 4,00 | 4,01 | 4,10 | 4,12 | 4,18 | 4,09 |
| No. of scroll compressors / circuits | | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | NA | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| No. of axial fans | | 6 | 6 | 6 | 6 | 6 | 6 | NA | 6 | 6 | 6 | 8 | 8 | 8 | 8 |
| Air flow | $m^3/h$ | 43.434 | 43.434 | 43.434 | 40.235 | 40.235 | 40.235 | NA | 55.808 | 63.261 | 63.261 | 87.186 | 81.687 | 81.687 | 81.687 |
| Water flow | l/h | 23.655 | 23.655 | 24.043 | 26.719 | 26.719 | 26.434 | NA | 31.172 | 36.451 | 36.615 | 45.628 | 49.438 | 52.350 | 59.099 |
| Pressure drop, water side | kPa | 48 | 48 | 50 | 43 | 43 | 43 | NA | 47 | 51 | 50 | 39 | 46 | 52 | 48 |
| Available head, standard pump | kPa | 151 | 151 | 148 | 147 | 147 | 148 | NA | 139 | 143 | 177 | 174 | 158 | 145 | 131 |
| Buffer tank | $dm^3$ | 600 | 600 | 600 | 600 | 600 | 600 | NA | 600 | 600 | 600 | 765 | 765 | 765 | 765 |
| Height | mm | 1.830 | 1.830 | 1.830 | 1.830 | 1.830 | 1.830 | NA | 1.830 | 2.174 | 2.174 | 2.174 | 2.174 | 2.174 | 2.330 |
| Length | mm | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | NA | 3.540 | 3.540 | 3.540 | 4.296 | 4.296 | 4.296 | 4.206 |
| Depth | mm | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | NA | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 77 | 77 | 77 | 77 | 77 | 77 | NA | 77 | 77 | 78 | 79 | 79 | 79 | 79 |
| Sound pressure level | dB(A) | 49 | 49 | 49 | 49 | 49 | 49 | NA | 49 | 49 | 50 | 51 | 51 | 51 | 51 |
| Base unit operating weight | kg | 1.310 | 1.310 | 1.290 | 1.330 | 1.330 | 1.440 | NA | 1.460 | 1.510 | 1.620 | 1.880 | 1.912 | 1.947 | 2.060 |
| Unit with pump and full tank operating weight | kg | 2.090 | 2.090 | 2.070 | 2.110 | 2.110 | 2.220 | NA | 2.276 | 2.326 | 2.469 | 2.894 | 2.926 | 2.961 | 3.074 |

Cooling capacity refers to the following conditions: water temperature 12-7°C; outdoor air temperature 35°C
Sound pressure level refers to the following conditions: measured in an open field, at a distance of 10 m, with a directivity factor of 2.

| RATED TECHNICAL DATA of LCE 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 |
| **LCE...CQ** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | |
| Cooling capacity | kW | 48,03 | 52,23 | 63,70 | 69,93 | 77,40 | 92,94 | 92,94 | 94,26 | 103,36 | 103,36 | 102,22 | 123,60 | 123,60 | 125,71 |
| Total power input | kW | 16,18 | 18,55 | 21,97 | 24,67 | 28,16 | 32,03 | 32,03 | 32,32 | 38,35 | 35,38 | 37,06 | 45,04 | 38,35 | 44,99 |
| EER | | 2,97 | 2,82 | 2,90 | 2,83 | 2,75 | 2,90 | 2,90 | 2,92 | 2,70 | 2,92 | 2,76 | 2,74 | 3,22 | 2,79 |
| ESEER | | 4,06 | 4,04 | 4,05 | 4,01 | 3,98 | 3,45 | 4,00 | 3,90 | 3,40 | 3,95 | 3,85 | 3,88 | 4,22 | 4,09 |
| 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 | $m^3/h$ | 15.398 | 15.398 | 21.955 | 21.955 | 21.955 | 29.393 | 29.393 | 29.393 | 29.393 | 29.393 | 29.393 | 35.930 | 35.930 | 35.930 |
| Water flow | l/h | 8.261 | 8.983 | 10.956 | 12.027 | 13.313 | 15.986 | 15.986 | 16.213 | 17.778 | 17.778 | 17.582 | 21.259 | 21.259 | 21.623 |
| Pressure drop, water side | kPa | 27 | 31 | 47 | 35 | 43 | 32 | 32 | 33 | 39 | 39 | 38 | 39 | 39 | 40 |
| Available head, standard pump | kPa | 157 | 149 | 125 | 131 | 117 | 129 | 129 | 128 | 118 | 118 | 119 | 109 | 109 | 106 |
| Buffer tank | $dm^3$ | 200 | 200 | 220 | 220 | 220 | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 |
| Height | mm | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.830 | 1.830 | 1.830 |
| Length | mm | 2.010 | 2.010 | 2.360 | 2.360 | 2.360 | 3.190 | 3.190 | 3.540 | 3.190 | 3.190 | 3.540 | 3.540 | 3.540 | 3.540 |
| Depth | mm | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 67 | 67 | 69 | 69 | 69 | 70 | 70 | 70 | 70 | 70 | 70 | 69 | 69 | 69 |
| Sound pressure level | dB(A) | 39 | 39 | 41 | 41 | 41 | 42 | 42 | 42 | 42 | 42 | 42 | 41 | 41 | 41 |
| Base unit operating weight | kg | 525 | 525 | 630 | 635 | 700 | 905 | 905 | 980 | 915 | 915 | 980 | 1.260 | 1.260 | 1.275 |
| Unit with pump and full tank operating weight | kg | 862 | 862 | 982 | 987 | 1.067 | 1.426 | 1.426 | 1.557 | 1.436 | 1.436 | 1.557 | 2.040 | 2.040 | 2.055 |

| RATED TECHNICAL DATA of LCE water chillers, QUIET (super low noise) version | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (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 |
| **LCE...CQ** | | **141** | **142** | **144** | **161** | **162** | **164** | NA | **194** | **214** | **244** | **274** | **294** | **324** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | |
| Cooling capacity | kW | 135,48 | 135,48 | 137,60 | 151,46 | 151,46 | 150,10 | NA | 164,43 | 192,65 | 209,62 | 260,68 | 278,71 | 293,81 |
| Total power input | kW | 51,14 | 51,14 | 50,82 | 61,96 | 61,96 | 59,37 | NA | 81,13 | 90,77 | 98,73 | 105,56 | 117,26 | 126,09 |
| EER | | 2,65 | 2,65 | 2,71 | 2,44 | 2,44 | 2,53 | NA | 2,03 | 2,12 | 2,12 | 2,47 | 2,38 | 2,33 |
| ESEER | | 3,93 | 4,18 | 4,10 | 3,61 | 3,87 | 3,75 | NA | 4,04 | 4,00 | 4,01 | 4,10 | 4,12 | 4,18 |
| No. of scroll compressors / circuits | | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | NA | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| No. of axial fans | | 6 | 6 | 6 | 6 | 6 | 6 | NA | 6 | 6 | 6 | 8 | 8 | 8 |
| Air flow | $m^3/h$ | 35.930 | 35.930 | 35.930 | 35.930 | 35.930 | 35.930 | NA | 35.930 | 40.953 | 40.953 | 69.835 | 69.835 | 69.835 |
| Water flow | l/h | 23.303 | 23.303 | 23.667 | 26.051 | 26.051 | 25.816 | NA | 28.282 | 33.135 | 36.054 | 44.837 | 47.938 | 50.535 |
| Pressure drop, water side | kPa | 47 | 47 | 48 | 41 | 41 | 40 | NA | 39 | 39 | 42 | 38 | 44 | 48 |
| Available head, standard pump | kPa | 153 | 153 | 151 | 151 | 151 | 152 | NA | 161 | 171 | 193 | 177 | 164 | 153 |
| Buffer tank | $dm^3$ | 600 | 600 | 600 | 600 | 600 | 600 | NA | 600 | 600 | 600 | 600 | 600 | 600 |
| Height | mm | 1.830 | 1.830 | 1.830 | 1.830 | 1.830 | 1.830 | NA | 1.830 | 2.174 | 2.174 | 2.174 | 2.174 | 2.174 |
| Length | mm | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | NA | 3.540 | 3.540 | 3.540 | 4.296 | 4.296 | 4.296 |
| Depth | mm | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | NA | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 69 | 69 | 69 | 69 | 69 | 69 | NA | 69 | 69 | 69 | 70 | 70 | 70 |
| Sound pressure level | dB(A) | 41 | 41 | 41 | 41 | 41 | 41 | NA | 41 | 41 | 41 | 42 | 42 | 42 |
| Base unit operating weight | kg | 1.310 | 1.310 | 1.290 | 1.330 | 1.330 | 1.440 | NA | 1.460 | 1.510 | 1.620 | 1.880 | 1.912 | 1.947 |
| Unit with pump and full tank operating weight | kg | 2.090 | 2.090 | 2.070 | 2.110 | 2.110 | 2.220 | NA | 2.276 | 2.326 | 2.469 | 2.894 | 2.926 | 2.961 |

Cooling capacity refers to the following conditions: water temperature 12-7°C; outdoor air temperature 35°C
Sound pressure level refers to the following conditions: measured in an open field, at a distance of 10 m, with a directivity factor of 2.

| RATED TECHNICAL DATA of LCE 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 |
| **LCE..HS** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | |
| Cooling capacity | kW | NA | NA | 63,30 | 69,20 | 76,50 | 92,20 | 92,20 | NA | 102,70 | 102,70 | NA | 124,10 | 124,10 | 126,43 |
| Total power input in cooling mode | kW | NA | NA | 22,57 | 25,36 | 28,97 | 33,05 | 33,05 | NA | 39,46 | 39,46 | NA | 43,13 | 43,14 | 42,99 |
| EER | | NA | NA | 2,80 | 2,73 | 2,64 | 2,79 | 2,79 | NA | 2,60 | 2,60 | NA | 2,88 | 2,88 | 2,94 |
| ESEER | | NA | NA | 4,05 | 4,01 | 3,98 | 3,45 | 4,00 | NA | 3,40 | 3,95 | NA | 3,88 | 4,22 | 4,09 |
| Heating capacity | kW | NA | NA | 70,20 | 77,60 | 85,20 | 101,60 | 101,60 | NA | 118,20 | 118,20 | NA | 138,10 | 138,10 | 135,34 |
| Total power input in heating mode | kW | NA | NA | 21,48 | 24,40 | 27,40 | 32,80 | 32,80 | NA | 37,80 | 37,80 | NA | 43,10 | 43,10 | 42,67 |
| COP | | NA | NA | 3,27 | 3,18 | 3,11 | 3,10 | 3,10 | NA | 3,13 | 3,13 | NA | 3,20 | 3,20 | 3,17 |
| No. of scroll compressors / circuits | | NA | NA | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 2 | 2 / 1 | NA | 2 / 2 | 2 / 1 | NA | 2 / 2 | 2 / 1 | 4 / 2 |
| No. of axial fans | | NA | NA | 4 | 4 | 4 | 6 | 6 | NA | 6 | 6 | NA | 8 | 8 | 8 |
| Air flow | $m^3/h$ | NA | NA | 21.379 | 21.379 | 21.379 | 30.913 | 30.913 | NA | 30.913 | 30.913 | NA | 41.340 | 41.340 | 41.340 |
| Water flow rate in cooling mode | l/h | NA | NA | 10.887 | 11.902 | 13.158 | 15.858 | 15.858 | NA | 17.665 | 17.665 | NA | 21.346 | 21.346 | 21.747 |
| Pressure drop, water side (cooling) | kPa | NA | NA | 46 | 34 | 42 | 31 | 31 | NA | 38 | 38 | NA | 39 | 39 | 41 |
| Available head, standard pump | kPa | NA | NA | 126 | 133 | 119 | 130 | 130 | NA | 119 | 119 | NA | 108 | 108 | 106 |
| Buffer tank | $dm^3$ | NA | NA | 200 | 200 | 200 | 220 | 220 | NA | 220 | 220 | NA | 340 | 340 | 340 |
| Height | mm | NA | NA | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | NA | 1.720 | 1.720 | NA | 1.720 | 1.720 | 1.720 |
| Length | mm | NA | NA | 2.010 | 2.010 | 2.010 | 2.360 | 2.360 | NA | 2.360 | 2.360 | NA | 3.190 | 3.190 | 3.540 |
| Depth | mm | NA | NA | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | NA | 1.185 | 1.185 | NA | 1.185 | 1.185 | 1.185 |
| Sound power level | dB(A) | NA | NA | 80 | 80 | 80 | 82 | 82 | NA | 82 | 82 | NA | 82 | 82 | 82 |
| Sound pressure level | dB(A) | NA | NA | 52 | 52 | 52 | 54 | 54 | NA | 54 | 54 | NA | 54 | 54 | 54 |
| Base unit operating weight | kg | NA | NA | 540 | 570 | 650 | 730 | 730 | NA | 730 | 730 | NA | 1010 | 1010 | 1050 |
| Unit with pump and full tank operating weight | kg | NA | NA | 8747 | 907 | 987 | 1138 | 1138 | NA | 1138 | 1138 | NA | 1581 | 1581 | 1641 |

| RATED TECHNICAL DATA of LCE heat pumps, STANDARD version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (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 |
| **LCE..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 | kW | 138,40 | 138,40 | 140,37 | 155,00 | 155,00 | 153,36 | 162,00 | 186,60 | 209,00 | 236,90 | 271,60 | 295,50 | 313,90 | 354,50 |
| Total power input | kW | 48,24 | 48,24 | 47,79 | 58,63 | 58,63 | 56,04 | 56,80 | 70,70 | 83,30 | 92,90 | 104,21 | 112,79 | 120,20 | 125,20 |
| EER | | 2,87 | 2,87 | 2,94 | 2,64 | 2,64 | 2,74 | 2,85 | 2,64 | 2,51 | 2,55 | 2,61 | 2,62 | 2,61 | 2,83 |
| ESEER | | 3,93 | 4,18 | 4,10 | 3,61 | 3,87 | 3,75 | 4,16 | 4,04 | 4,00 | 4,01 | 4,10 | 4,12 | 4,18 | 4,18 |
| Heating capacity | kW | 153,30 | 153,30 | 150,23 | 179,80 | 179,80 | 176,20 | 188,30 | 212,40 | 235,60 | 272,50 | 307,20 | 329,80 | 350,80 | 385,20 |
| Total power input in heating mode | kW | 46,80 | 46,80 | 46,33 | 55,60 | 55,60 | 55,04 | 55,60 | 65,20 | 73,00 | 85,12 | 95,86 | 104,20 | 112,60 | 119,20 |
| COP | | 3,28 | 3,28 | 3,24 | 3,23 | 3,23 | 3,20 | 3,39 | 3,26 | 3,23 | 3,20 | 3,20 | 3,17 | 3,12 | 3,23 |
| 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 | $m^3/h$ | 39.890 | 39.890 | 39.890 | 39.890 | 39.890 | 39.890 | 67.672 | 67.672 | 67.672 | 75.478 | 103.511 | 97.902 | 97.902 | 93.550 |
| Water flow rate in cooling mode | l/h | 23.805 | 23.805 | 24.143 | 26.660 | 26.660 | 26.378 | 27.864 | 32.095 | 35.948 | 40.747 | 46.716 | 50.827 | 53.990 | 60.956 |
| Pressure drop, water side (cooling) | kPa | 49 | 49 | 50 | 42 | 42 | 43 | 46 | 49 | 50 | 53 | 41 | 49 | 55 | 48 |
| Available head, standard pump | kPa | 150 | 150 | 147 | 147 | 147 | 148 | 155 | 133 | 147 | 171 | 170 | 152 | 137 | 131 |
| Buffer tank | $dm^3$ | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 | 600 | 765 | 765 | 765 | 765 |
| Height | mm | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.830 | 1.830 | 1.830 | 2.174 | 2.174 | 2.174 | 2.174 | 2.330 |
| Length | mm | 3.190 | 3.190 | 3.540 | 3.190 | 3.190 | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | 4.296 | 4.296 | 4.296 | 4.296 |
| Depth | mm | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 82 | 82 | 82 | 82 | 82 | 82 | 83 | 83 | 83 | 83 | 84 | 84 | 84 | 84 |
| Sound pressure level | dB(A) | 54 | 54 | 54 | 54 | 54 | 54 | 55 | 55 | 55 | 55 | 56 | 56 | 56 | 56 |
| Base unit operating weight | kg | 1.055 | 1.055 | 1.070 | 1.085 | 1.085 | 1.220 | 1.440 | 1.460 | 1.470 | 1.620 | 1.880 | 1.912 | 1.947 | 2.191 |
| Unit with pump and full tank operating weight | kg | 1.626 | 1.626 | 1.661 | 1.656 | 1.656 | 1.811 | 2.208 | 2.276 | 2.286 | 2.469 | 2.894 | 2.926 | 2.961 | 3.205 |

Cooling capacity refers to the following conditions: water temperature 12-7°C; outdoor air temperature 35°C
Heating capacity refers to the following conditions: water temperature 40-45°C, outdoor air temperature 7°C dry bulb and 6°C wet bulb
Sound pressure level refers to the following conditions: measured in an open field, at a distance of 10 m, with a directivity factor of 2.

| RATED TECHNICAL DATA of LCE heat pumps, 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 |
| **LCE...HL** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | |
| Cooling capacity | kW | 48,03 | 52,23 | 63,70 | 69,93 | 77,40 | 92,94 | 92,94 | 94,26 | 103,36 | 103,36 | 102,22 | 125,11 | 125,11 | 127,36 |
| Total power input | kW | 16,18 | 18,55 | 21,97 | 24,67 | 28,16 | 32,03 | 32,03 | 32,32 | 38,35 | 38,35 | 37,06 | 44,38 | 44,38 | 44,16 |
| EER | | 2,97 | 2,82 | 2,90 | 2,83 | 2,75 | 2,90 | 2,90 | 2,92 | 2,70 | 2,70 | 2,76 | 2,82 | 2,82 | 2,88 |
| ESEER | | 4,06 | 4,04 | 4,05 | 4,01 | 3,98 | 3,45 | 4,00 | 3,90 | 3,40 | 3,95 | 3,85 | 3,88 | 4,22 | 4,09 |
| Heating capacity | kW | 53,25 | 61,00 | 71,12 | 78,84 | 86,82 | 104,89 | 104,89 | 102,79 | 118,25 | 118,25 | 115,89 | 139,85 | 139,85 | 137,05 |
| Total power input in heating mode | kW | 15,52 | 18,30 | 20,09 | 22,73 | 26,04 | 30,59 | 30,59 | 30,28 | 35,38 | 35,38 | 35,03 | 44,00 | 44,00 | 43,56 |
| COP | | 3,43 | 3,33 | 3,54 | 3,47 | 3,33 | 3,43 | 3,43 | 3,39 | 3,34 | 3,34 | 3,31 | 3,18 | 3,18 | 3,15 |
| 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 | $m^3/h$ | 15.398 | 15.398 | 21.955 | 21.955 | 21.955 | 29.393 | 29.393 | 29.393 | 29.393 | 29.393 | 29.393 | 43.434 | 43.434 | 43.434 |
| Water flow rate in cooling mode | l/h | 8.261 | 8.983 | 10.956 | 12.027 | 13.313 | 15.986 | 15.986 | 16.213 | 17.778 | 17.778 | 17.582 | 21.518 | 21.518 | 21.906 |
| Pressure drop, water side (cooling) | kPa | 27 | 31 | 47 | 35 | 43 | 32 | 32 | 33 | 39 | 39 | 38 | 40 | 40 | 41 |
| Available head, standard pump | kPa | 157 | 149 | 125 | 131 | 117 | 129 | 129 | 128 | 118 | 118 | 119 | 107 | 107 | 105 |
| Buffer tank | $dm^3$ | 200 | 200 | 220 | 220 | 220 | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 |
| Height | mm | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.705 | 1.830 | 1.830 | 1.830 |
| Length | mm | 2.010 | 2.010 | 2.360 | 2.360 | 2.360 | 3.190 | 3.190 | 3.540 | 3.190 | 3.190 | 3.540 | 3.540 | 3.540 | 3.540 |
| Depth | mm | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 70 | 70 | 72 | 72 | 72 | 73 | 73 | 73 | 73 | 73 | 73 | 77 | 77 | 77 |
| Sound pressure level | dB(A) | 42 | 42 | 44 | 44 | 44 | 45 | 45 | 45 | 45 | 45 | 45 | 49 | 49 | 49 |
| Base unit operating weight | kg | 525 | 525 | 630 | 635 | 700 | 905 | 905 | 980 | 915 | 915 | 980 | 1.260 | 1.260 | 1.275 |
| Unit with pump and full tank operating weight | kg | 862 | 862 | 982 | 987 | 1.067 | 1.426 | 1.426 | 1.557 | 1.436 | 1.436 | 1.557 | 2.040 | 2.040 | 2.055 |

| RATED TECHNICAL DATA of LCE heat pumps, LOW NOISE version | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (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 |
| **LCE...HL** | | **141** | **142** | **144** | **161** | **162** | **164** | NA | **194** | **214** | **244** | **274** | **294** | **324** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | |
| Cooling capacity | kW | 137,53 | 137,53 | 139,79 | 155,35 | 155,35 | 153,68 | NA | 181,23 | 211,92 | 230,32 | 265,28 | 287,43 | 304,36 |
| Total power input | kW | 50,28 | 50,28 | 49,73 | 60,17 | 60,17 | 57,57 | NA | 71,36 | 79,49 | 94,45 | 105,18 | 114,89 | 122,91 |
| EER | | 2,74 | 2,74 | 2,81 | 2,58 | 2,58 | 2,67 | NA | 2,54 | 2,67 | 2,44 | 2,52 | 2,50 | 2,48 |
| ESEER | | 3,93 | 4,18 | 4,10 | 3,61 | 3,87 | 3,75 | NA | 4,04 | 4,00 | 4,01 | 4,10 | 4,12 | 4,18 |
| Heating capacity | kW | 155,00 | 155,00 | 151,90 | 178,90 | 178,90 | 175,32 | NA | 211,34 | 234,42 | 271,14 | 305,66 | 328,15 | 349,04 |
| Total power input in heating mode | kW | 48,10 | 48,10 | 47,62 | 56,10 | 56,10 | 55,54 | NA | 65,79 | 73,66 | 85,89 | 96,72 | 105,14 | 113,61 |
| COP | | 3,22 | 3,22 | 3,19 | 3,19 | 3,19 | 3,16 | NA | 3,21 | 3,18 | 3,16 | 3,16 | 3,12 | 3,07 |
| No. of scroll compressors / circuits | | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | NA | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| No. of axial fans | | 6 | 6 | 6 | 6 | 6 | 6 | NA | 6 | 6 | 6 | 8 | 8 | 8 |
| Air flow | $m^3/h$ | 43.434 | 43.434 | 43.434 | 40.235 | 40.235 | 40.235 | NA | 55.808 | 63.261 | 63.261 | 87.186 | 81.687 | 81.687 |
| Water flow rate in cooling mode | l/h | 23.655 | 23.655 | 24.043 | 26.719 | 26.719 | 26.434 | NA | 31.172 | 36.451 | 36.615 | 45.628 | 49.438 | 52.350 |
| Pressure drop, water side (cooling) | kPa | 48 | 48 | 50 | 43 | 43 | 43 | NA | 47 | 51 | 50 | 39 | 46 | 52 |
| Available head, standard pump | kPa | 151 | 151 | 148 | 147 | 147 | 148 | NA | 139 | 143 | 177 | 174 | 158 | 145 |
| Buffer tank | $dm^3$ | 600 | 600 | 600 | 600 | 600 | 600 | NA | 600 | 600 | 600 | 765 | 765 | 765 |
| Height | mm | 1.830 | 1.830 | 1.830 | 1.830 | 1.830 | 1.830 | NA | 1.830 | 2.174 | 2.174 | 2.330 | 2.330 | 2.330 |
| Length | mm | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | NA | 3.540 | 3.540 | 3.540 | 4.296 | 4.296 | 4.296 |
| Depth | mm | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | NA | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 77 | 77 | 77 | 77 | 77 | 77 | NA | 77 | 77 | 78 | 79 | 79 | 79 |
| Sound pressure level | dB(A) | 49 | 49 | 49 | 49 | 49 | 49 | NA | 49 | 49 | 50 | 51 | 51 | 51 |
| Base unit operating weight | kg | 1.310 | 1.310 | 1.290 | 1.330 | 1.330 | 1.440 | NA | 1.460 | 1.510 | 1.620 | 1.880 | 1.912 | 1.947 |
| Unit with pump and full tank operating weight | kg | 2.090 | 2.090 | 2.070 | 2.110 | 2.110 | 2.220 | NA | 2.276 | 2.326 | 2.469 | 2.894 | 2.926 | 2.961 |

Cooling capacity refers to the following conditions: water temperature 12-7°C; outdoor air temperature 35°C
Heating capacity refers to the following conditions: water temperature 40-45°C, outdoor air temperature 7°C dry bulb and 6°C wet bulb
Sound pressure level refers to the following conditions: measured in an open field, at a distance of 10 m, with a directivity factor of 2.

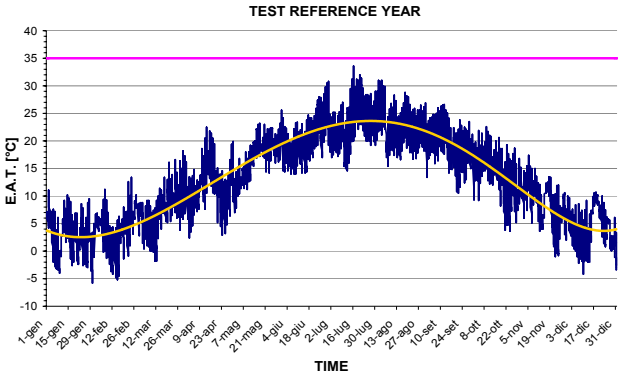
| RATED TECHNICAL DATA of LCE heat pumps, QUIET (super low noise) version | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 45 | 50 | 60 | 70 | 80 | 90 | | | 100 | | | 120 | | |
| **Efficiency Pack** | | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LCE..HQ** | | **042** | **052** | **062** | **072** | **082** | **091** | **092** | **094** | **101** | **102** | **104** | **121** | **122** | **124** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | |
| Cooling capacity | kW | 48,03 | 52,23 | 63,70 | 69,93 | 77,40 | 92,94 | 92,94 | 94,26 | 103,36 | 103,36 | 102,22 | 123,60 | 123,60 | 125,71 |
| Total power input | kW | 16,18 | 18,55 | 21,97 | 24,67 | 28,16 | 32,03 | 32,03 | 32,32 | 38,35 | 35,38 | 37,06 | 45,04 | 38,35 | 44,99 |
| EER | | 2,97 | 2,82 | 2,90 | 2,83 | 2,75 | 2,90 | 2,90 | 2,92 | 2,70 | 2,92 | 2,76 | 2,74 | 3,22 | 2,79 |
| ESEER | | 4,06 | 4,04 | 4,05 | 4,01 | 3,98 | 3,45 | 4,00 | 3,90 | 3,40 | 3,95 | 3,85 | 3,88 | 4,22 | 4,09 |
| Heating capacity | kW | 53,25 | 61,00 | 71,12 | 78,84 | 86,82 | 104,89 | 104,89 | 102,79 | 118,25 | 118,25 | 115,89 | 136,20 | 136,20 | 133,48 |
| Total power input in heating mode | kW | 15,52 | 18,30 | 20,09 | 22,73 | 26,04 | 30,59 | 30,59 | 30,28 | 35,38 | 35,38 | 35,03 | 42,70 | 42,70 | 42,27 |
| COP | | 3,43 | 3,33 | 3,54 | 3,47 | 3,33 | 3,43 | 3,43 | 3,39 | 3,34 | 3,34 | 3,31 | 3,19 | 3,19 | 3,16 |
| 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 | $m^3/h$ | 15.398 | 15.398 | 21.955 | 21.955 | 21.955 | 29.393 | 29.393 | 29.393 | 29.393 | 29.393 | 29.393 | 35.930 | 35.930 | 35.930 |
| Water flow rate in cooling mode | l/h | 8.261 | 8.983 | 10.956 | 12.027 | 13.313 | 15.986 | 15.986 | 16.213 | 17.778 | 17.778 | 17.582 | 21.259 | 21.259 | 21.623 |
| Pressure drop, water side (cooling) | kPa | 27 | 31 | 47 | 35 | 43 | 32 | 32 | 33 | 39 | 39 | 38 | 39 | 39 | 40 |
| Available head, standard pump | kPa | 157 | 149 | 125 | 131 | 117 | 129 | 129 | 128 | 118 | 118 | 119 | 109 | 109 | 106 |
| Buffer tank | $dm^3$ | 200 | 200 | 220 | 220 | 220 | 340 | 340 | 340 | 340 | 340 | 340 | 600 | 600 | 600 |
| Height | mm | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.720 | 1.830 | 1.830 | 1.830 |
| Length | mm | 2.010 | 2.010 | 2.360 | 2.360 | 2.360 | 3.190 | 3.190 | 3.540 | 3.190 | 3.190 | 3.540 | 3.540 | 3.540 | 3.540 |
| Depth | mm | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.185 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 67 | 67 | 69 | 69 | 69 | 70 | 70 | 70 | 70 | 70 | 70 | 69 | 69 | 69 |
| Sound pressure level | dB(A) | 39 | 39 | 41 | 41 | 41 | 42 | 42 | 42 | 42 | 42 | 42 | 41 | 41 | 41 |
| Base unit operating weight | kg | 525 | 525 | 630 | 635 | 700 | 905 | 905 | 980 | 915 | 915 | 980 | 1.260 | 1.260 | 1.275 |
| Unit with pump and full tank operating weight | kg | 862 | 862 | 982 | 987 | 1.067 | 1.426 | 1.426 | 1.557 | 1.436 | 1.436 | 1.557 | 2.040 | 2.040 | 2.055 |

| RATED TECHNICAL DATA of LCE heat pumps, QUIET (super low noise) execution | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (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 |
| **LCE..HQ** | | **141** | **142** | **144** | **161** | **162** | **164** | NA | **194** | **214** | **244** | **274** | **294** | **324** |
| Power supply | V-ph-Hz | 400-3-50 | | | | | | | | | | | | |
| Cooling capacity | kW | 135,48 | 135,48 | 137,60 | 151,46 | 151,46 | 150,10 | NA | 164,43 | 192,65 | 209,62 | 260,68 | 278,71 | 293,81 |
| Total power input | kW | 51,14 | 51,14 | 50,82 | 61,96 | 61,96 | 59,37 | NA | 81,13 | 90,77 | 98,73 | 105,56 | 117,26 | 126,09 |
| EER | | 2,65 | 2,65 | 2,71 | 2,44 | 2,44 | 2,53 | NA | 2,03 | 2,12 | 2,12 | 2,47 | 2,38 | 2,33 |
| ESEER | | 3,93 | 4,18 | 4,10 | 3,61 | 3,87 | 3,75 | - | 4,04 | 4,00 | 4,01 | 4,10 | 4,12 | 4,18 |
| Heating capacity | kW | 151,20 | 151,20 | 148,18 | 174,10 | 174,10 | 170,62 | NA | 205,67 | 228,13 | 263,86 | 297,46 | 319,34 | 339,68 |
| Total power input in heating mode | kW | 47,40 | 47,40 | 46,93 | 55,00 | 55,00 | 54,45 | NA | 64,50 | 72,21 | 84,20 | 94,83 | 103,08 | 111,38 |
| COP | | 3,19 | 3,19 | 3,16 | 3,17 | 3,17 | 3,13 | NA | 3,19 | 3,16 | 3,13 | 3,14 | 3,10 | 3,05 |
| No. of scroll compressors / circuits | | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 | NA | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| No. of axial fans | | 6 | 6 | 6 | 6 | 6 | 6 | NA | 6 | 6 | 6 | 8 | 8 | 8 |
| Air flow | $m^3/h$ | 35.930 | 35.930 | 35.930 | 35.930 | 35.930 | 35.930 | NA | 35.930 | 40.953 | 40.953 | 69.835 | 69.835 | 69.835 |
| Water flow rate in cooling mode | l/h | 23.303 | 23.303 | 23.667 | 26.051 | 26.051 | 25.816 | NA | 28.282 | 33.135 | 36.054 | 44.837 | 47.938 | 50.535 |
| Pressure drop, water side (cooling) | kPa | 47 | 47 | 48 | 41 | 41 | 40 | NA | 39 | 39 | 42 | 38 | 44 | 48 |
| Available head, standard pump | kPa | 153 | 153 | 151 | 151 | 151 | 152 | NA | 161 | 171 | 193 | 177 | 164 | 153 |
| Buffer tank | $dm^3$ | 600 | 600 | 600 | 600 | 600 | 600 | NA | 600 | 600 | 600 | 600 | 600 | 600 |
| Height | mm | 1.830 | 1.830 | 1.830 | 1.830 | 1.830 | 1.830 | NA | 1.830 | 2.174 | 2.174 | 2.174 | 2.174 | 2.174 |
| Length | mm | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | 3.540 | NA | 3.540 | 3.540 | 3.540 | 4.296 | 4.296 | 4.296 |
| Depth | mm | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | NA | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 | 1.654 |
| Sound power level | dB(A) | 69 | 69 | 69 | 69 | 69 | 69 | NA | 69 | 69 | 69 | 70 | 70 | 70 |
| Sound pressure level | dB(A) | 41 | 41 | 41 | 41 | 41 | 41 | NA | 41 | 41 | 41 | 42 | 42 | 42 |
| Base unit operating weight | kg | 1310 | 1.310 | 1.290 | 1.330 | 1.330 | 1.440 | NA | 1.460 | 1.510 | 1.620 | 1.880 | 1.912 | 1.947 |
| Unit with pump and full tank operating weight | kg | 2090 | 2.090 | 2.070 | 2.110 | 2.110 | 2.220 | NA | 2.276 | 2.326 | 2.469 | 2.894 | 2.926 | 2.961 |

Cooling capacity refers to the following conditions: water temperature 12-7°C; outdoor air temperature 35°C
Heating capacity refers to the following conditions: water temperature 40-45°C, outdoor air temperature 7°C dry bulb and 6°C wet bulb
Sound pressure level refers to the following conditions: measured in an open field, at a distance of 10 m, with a directivity factor of 2.

## LSE MULTI-SCROLL SOLUTIONS FOR HIGH PERFORMANCE UNDER PART LOAD CONDITIONS

Though a water chiller or heat pump is chosen on the basis of the maximum load of the system it is intended to serve, the actual thermal load of an air conditioning system is less than 60% of the rated load capacity 90% of the time.




The **LSE** range of chillers and heat pumps includes 13 models with powers from 370 to 1060 kW (650kW in heat pump mode) and uses only scroll compressors on 2 or 4 cooling circuits.

## HIGH EFFICIENCY UNDER PART LOAD CONDITIONS

The number of compressors, according to size, is 2 or 3 per cooling circuit, multiplying the capacity control steps.
The high number of capacity control steps enables the unit to adapt its power to the actual needs of the system, with particular gains in efficiency under partial load conditions compared to traditional screw compressors.
The control microprocessor automatically distributes the workload among the compressors, thus increasing their lifespan.
During operation under part load conditions, the compressors work with oversized exchange surfaces so as to achieve more advantageous thermodynamic cycles, thanks also to the use of an **electronic expansion valve, a standard feature of all models.**

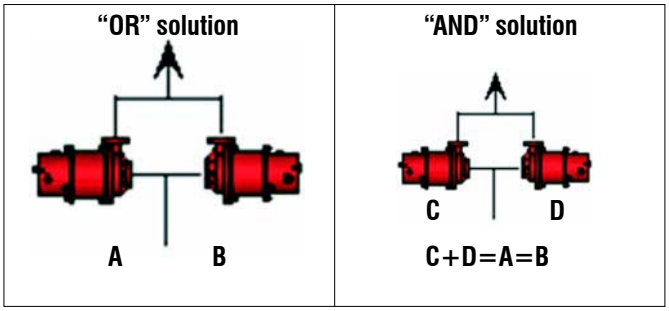
## VERSIONS

- Cooling Only
- Free-cooling
- Heat pump, up to 650 kW.

## 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.
- 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.





## ACOUSTIC VERSIONS

**S** standard version
**L** Low-Noise version for a low noise impact

## INTERCONNECTIVITY

With advanced microprocessor control it is possible to implement:

- LAN networks (up to 4 units)
- 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.
- Serial cards for protocols:
  Carel / Modbus
  Lonworks / Trend
- HIWEB Hardware: Ethernet card for protocols:
  Bacnet / SNMP
- HIWEB Software: Ethernet card for Web interface

To request tenders for LSE chillers, fill in all the fields in the tender request form provided on the opposite page and send it to your local dealer
Below is a brief explanation of the items included in the form

**MODEL**
- Identify the model on the table of the previous page depending on the required power

**OPERATION**
- C - cooling only
- H reversible heat pump

**VERSION**
It is possible to choose from among 3 different acoustic configurations:
- **S** standard version
- **L** Low-Noise version for a low noise impact

**POWER SUPPLY**
- 400/3/50 + N
- 400/3/50 with 230V transformer for the auxiliary circuits
- 400/3/50 + N, circuit breakers
- 400/3/50 with 230V transformer 230V, circuit breakers

**MICROPROCESSOR / EXPANSION VALVE**
- ADVANCED + electronic valve
  The chillers are designed to be equipped with an electronic expansion valve as a standard component. Chillers with traditional expansion valves can also be supplied on request.

**WATER PUMP**
- Absent
- Single pump and expansion tank
- Uprated single pump and expansion tank
- Dual pump for combined operation (AND operating logic) + expansion tank The management of AND logic requires the use of an ADVANCED microprocessor controller
- Uprated dual pump for combined operation (AND operating logic) + expansion tank The management of AND logic requires the use of an ADVANCED microprocessor controller
- Dual pump with rotation on a time basis (OR logic) and expansion tank (rotation on a time basis)
- Dual uprated pump in time sequence (OR operating sequence) and expansion tank.

**BUFFER TANK**
- Absent
- Integrated into the machine without modifying its overall dimensions, located on the outlet side in standard configurations.

**HEAT RECOVERY**
- Absent
- Partial (desuperheater) 40% In that case, the presence of a condensation control system is mandatory.

**CONDENSATION CONTROL**
- Absent
- Phase cut modulating control with adjustment of air flow rate depending on the condensation pressure. The use of this option enables the unit to work in the cooling mode with air temperatures below 20°C and as low as -10°C.

**ANTIFREEZE KIT**
- Absent
- Present, units with evaporator only
- Present, units with evaporator, pump and expansion tank
- Present, units with evaporator, pump, expansion tank and buffer tank

**REMOTE COMMUNICATION**
- Absent
- RS485 Serial board (Modbus or Carel protocol)
- Lonworks serial care (option available only if an ADVANCED microprocessor controller is used)
- GSM modem kit for communication via SMS messages
- Ethernet pCOWEB board (SNMP or BACNET protocol)
- Ethernet pCOWEB board (SNMP or BACNET protocol) + HIWEB supervision software

**COOLING ACCESSORIES**
- Absent
- Pressure gauges

**SPECIAL HEAT EXCHANGER CONFIGURATION (ON REQUEST)**
- Standard
- Copper / copper heat exchangers
- Coils with cataphoresis
- Coils with corrosion-proof treatment
- Special

**PACKING**
- Standard
- Wooden crate
- Wooden case

**INSULATION**
- Absent
- Base rubber vibration dumpers
- Base spring vibration dumpers

**REMOTE CONTROLLER**
- Absent
- Simplified
- BASE microprocessor control
- ADVANCED microprocessor control

**INSTALLATION OF THE UNIT**
- Absent
- Pair of quick couplings for water IN-OUT

**ACCESSORIES**
- Power factor correction capacitors
- Soft-starter kit
- Service kit (kit of sensors for quick diagnosis)
- Clock board
- ON/OFF status of the compressors
- Remote control for limiting compressor starts
- Configurable digital alarm card
- Outdoor air temperature probe for setpoint compensation
- Pressure gauges
- Regulating filter kit (solenoid and tap on the liquid line)
- Normative reference other than “97/23/EC - PED”
- Condenser protection grille

| RATED TECHNICAL DATA of LSE water chillers, CS version | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LSE...CS** | | **374** | **416** | **456** | **486** | **536** | **558** | **618** | **658** | **748** | **800** | **900** | **942** | **1072** |
| Power supply | V-ph-Hz | 400V / 3 Ph / 50 Hz | | | | | | | | | | | | |
| Cooling capacity | kW | 366,80 | 413,02 | 454,74 | 488,19 | 532,46 | 562,83 | 615,96 | 657,31 | 734,91 | 799,89 | 898,06 | 950,95 | 1.062,94 |
| Total power input | kW | 124,55 | 149,91 | 158,31 | 173,24 | 192,65 | 194,22 | 212,14 | 229,64 | 248,56 | 291,73 | 310,07 | 345,30 | 382,66 |
| EER | | 2,95 | 2,75 | 2,87 | 2,82 | 2,76 | 2,90 | 2,90 | 2,86 | 2,96 | 2,74 | 2,90 | 2,75 | 2,78 |
| ESEER | | 4,26 | 4,18 | 4,32 | 4,25 | 4,23 | 4,15 | 4,15 | 4,09 | 4,15 | 4,19 | 4,33 | 4,34 | 4,29 |
| Total absorbed current | A | 221,32 | 278,17 | 289,93 | 305,96 | 338,46 | 368,53 | 386,89 | 404,79 | 441,86 | 511,81 | 549,74 | 606,69 | 669,51 |
| FLA Maximum absorbed current (without accessories) | A | 270 | 333 | 362 | 382 | 400 | 453 | 480 | 506 | 540 | 631 | 670 | 755 | 792 |
| LRA Inrush current (without accessories) | A | 432 | 476 | 550 | 558 | 518 | 569 | 637 | 648 | 613 | 738 | 699 | 828 | 777 |
| No. of scroll compressors / circuits | | 4/2 | 6/2 | 6/2 | 6/2 | 6/2 | 8/4 | 8/4 | 8/4 | 8/4 | 10/4 | 10/4 | 12/4 | 12/4 |
| No. of axial fans | | 6 | | 8 | | | 10 | | | 12 | | 14 | | |
| Air flow | $m^3/h$ | 118.913 | | 159.453 | | | 209.054 | | 199.974 | 251.304 | 245.895 | 280.994 | | |
| Water flow | l/h | 63.090 | 71.039 | 78.215 | 83.968 | 91.584 | 96.807 | 105.944 | 113.057 | 126.404 | 137.581 | 154.467 | 163.564 | 182.825 |
| Pressure drop, water side | kPa | 54 | 56 | 57 | 51 | 52 | 46 | 50 | 52 | 53 | 63 | 55 | 61 | 51 |
| Head available - Pumps (OR) LP (option) | kPa | 154 | 125 | 176 | 160 | 128 | 151 | 125 | 191 | 155 | 114 | 180 | 162 | 147 |
| Head available - Pumps (OR) HP (option) | kPa | 252 | 236 | 262 | 257 | 241 | 235 | 234 | 227 | 253 | 234 | 276 | 259 | 244 |
| Head available - Pumps (AND) LP (option) | kPa | 164 | 143 | 124 | 114 | 92 | 160 | 144 | 133 | 153 | 126 | 181 | 158 | 130 |
| Head available - Pumps (AND) HP (option) | kPa | 237 | 226 | 217 | 216 | 205 | 280 | 263 | 252 | 230 | 233 | 266 | 251 | 242 |
| Buffer tank | $dm^3$ | 600 | | | | | 1040 | | | | | | | |
| Expansion tank | $dm^3$ | 50 | | | | | | | | | | | | |
| Vic Taulic water connections | inches | 4 | | | | | 5 | | | 6 | | | | |
| Height | mm | 2.650 | | 2.650 | | | 2.650 | | | 2.650 | | 2.650 | | |
| Length | mm | 3.065 | | 4.065 | | | 5.065 | | | 6.065 | | 7.065 | | |
| Depth | mm | 2.250 | | 2.250 | | | 2.250 | | | 2.250 | | 2.250 | | |
| Sound power level Lw | dB(A) | 90 | | 91 | | | 92 | | | 92 | | 93 | | |
| Sound pressure level Lp | dB(A) | 62 | | 63 | | | 64 | | | 64 | | 65 | | |
| Weight without accessories | kg | 2.545 | 2.990 | 3.361 | 3.385 | 3.386 | 4.132 | 4.217 | 4.482 | 4.891 | 5.090 | 5.688 | 5.926 | 6.066 |

| RATED TECHNICAL DATA of LSE water chillers, CL version (low-noise) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LSE...CL** | | **374** | **416** | **456** | **486** | **536** | **558** | **618** | **658** | **748** | **800** | **900** | **942** | **1072** |
| Power supply | V-ph-Hz | 400V / 3 Ph / 50 Hz | | | | | | | | | | | | |
| Cooling capacity | kW | 354,49 | 394,97 | 440,09 | 470,82 | 512,49 | 546,51 | 593,81 | 632,01 | 712,75 | 765,47 | 868,05 | 912,48 | 1.018,58 |
| Total power input | kW | 126,95 | 154,67 | 160,50 | 176,58 | 197,61 | 196,17 | 216,16 | 235,28 | 252,28 | 300,85 | 317,33 | 356,02 | 396,71 |
| EER | | 2,79 | 2,55 | 2,74 | 2,67 | 2,59 | 2,79 | 2,75 | 2,69 | 2,82 | 2,54 | 2,73 | 2,56 | 2,57 |
| ESEER | | 4,19 | 4,11 | 4,25 | 4,18 | 4,16 | 4,07 | 4,08 | 4,02 | 4,08 | 4,12 | 4,26 | 4,27 | 4,22 |
| Total absorbed current | A | 218,86 | 277,84 | 284,61 | 302,87 | 337,52 | 360,1 | 382,08 | 403 | 435,43 | 513,16 | 546,3 | 608,18 | 675,32 |
| FLA Maximum absorbed current (without accessories) | A | 259 | 322 | 347 | 368 | 386 | 435 | 462 | 488 | 518 | 518 | 645 | 730 | 767 |
| LRA Inrush current (without accessories) | A | 421 | 465 | 545 | 543 | 504 | 551 | 619 | 630 | 592 | 592 | 674 | 803 | 752 |
| No. of scroll compressors / circuits | | 4/2 | 6/2 | 6/2 | 6/2 | 6/2 | 8/4 | 8/4 | 8/4 | 8/4 | 10/4 | 10/4 | 12/4 | 12/4 |
| No. of axial fans | | 4 / 2 | 6 / 2 | 6 / 2 | 6 / 2 | 6 / 2 | 8 / 4 | 8 / 4 | 8 / 4 | 8 / 4 | 10 / 2 | 10 / 2 | 12 / 2 | 12 / 2 |
| Air flow | $m^3/h$ | 94.300 | | 126.557 | | | 167.300 | 163.050 | 158.800 | 201.182 | 196.109 | 223.266 | | 213.120 |
| Water flow | l/h | 60.972 | 67.935 | 75.696 | 80.981 | 88.148 | 94.000 | 102.135 | 108.706 | 122.594 | 131.662 | 149.304 | 156.947 | 175.195 |
| Pressure drop, water side | kPa | 50 | 51 | 53 | 48 | 47 | 44 | 47 | 48 | 51 | 57 | 51 | 56 | 47 |
| Head available - Pumps (OR) BP (option) | kPa | 164 | 140 | 189 | 175 | 147 | 160 | 138 | 206 | 168 | 136 | 190 | 176 | 161 |
| Head available - Pumps (OR) HP (option) | kPa | 259 | 246 | 271 | 266 | 252 | 244 | 241 | 234 | 259 | 245 | 285 | 271 | 258 |
| Head available - Pumps (AND) LP (option) | kPa | 172 | 155 | 134 | 126 | 106 | 167 | 153 | 143 | 162 | 141 | 194 | 175 | 149 |
| Head available - Pumps (AND) HP (option) | kPa | 243 | 234 | 224 | 223 | 214 | 286 | 272 | 262 | 239 | 244 | 274 | 262 | 254 |
| Buffer tank | $dm^3$ | 600 | | | | | 1.040 | | | | | | | |
| Expansion tank | $dm^3$ | 50 | | | | | | | | | | | | |
| Vic Taulic water connections | inches | 4 | | | | | 5 | | | 6 | | | | |
| Height | mm | 2.650 | | 2.650 | | | 2.650 | | | 2.650 | | 2.650 | | |
| Length | mm | 3.065 | | 4.065 | | | 5.065 | | | 6.065 | | 7.065 | | |
| Depth | mm | 2.250 | | 2.250 | | | 2.250 | | | 2.250 | | 2.250 | | |
| Sound power level Lw | dB(A) | 82 | | 83 | | | 84 | | | 85 | | 85 | | |
| Sound pressure level Lp | dB(A) | 54 | | 55 | | | 56 | | | 57 | | 57 | | |
| Weight without accessories | kg | 2650 | 3110 | 3481 | 3525 | 3526 | 4312 | 4397 | 4662 | 4996 | 5195 | 5928 | 6.166 | 6.406 |

Cooling: outdoor air temperature 35°C, evaporator water temperature 12°C / 7°C
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure level measured at a distance of 10 m with a directivity factor of 2

| RATED TECHNICAL DATA of LSE heat pumps, HS version (standard) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **LSE...HS** | | **374** | **416** | **456** | **486** | **536** | **558** | **618** | **658** |
| Power supply | V-ph-Hz | 400V / 3 Ph / 50 Hz | | | | | | | |
| Cooling capacity | kW | 366,8 | 413,02 | 454,74 | 488,19 | 532,46 | 562,83 | 615,96 | 657,31 |
| Total power input | kW | 124,55 | 149,91 | 158,31 | 173,24 | 192,65 | 194,22 | 212,14 | 229,64 |
| EER | | 2,95 | 2,75 | 2,87 | 2,82 | 2,76 | 2,9 | 2,9 | 2,86 |
| ESEER | | 4,26 | 4,18 | 4,32 | 4,25 | 4,23 | 4,15 | 4,15 | 4,09 |
| Total absorbed current | A | 221,32 | 278,17 | 289,93 | 305,96 | 338,46 | 368,53 | 386,89 | 404,79 |
| Heating capacity | kW | 410,18 | 470,15 | 513,77 | 550,81 | 602,15 | 647,83 | 695,88 | 743,92 |
| Total power input | kW | 119,44 | 139,77 | 153,63 | 163,39 | 175,67 | 189,49 | 203,84 | 218,18 |
| COP | | 3,43 | 3,36 | 3,34 | 3,37 | 3,43 | 3,42 | 3,41 | 3,41 |
| Total absorbed current | A | 214,13 | 265,77 | 284,07 | 292,93 | 314,21 | 325,1 | 348,63 | 372,15 |
| FLA Maximum absorbed current (without accessories) | A | 270 | 333 | 362 | 382 | 400 | 453 | 480 | 506 |
| LRA Inrush current (without accessories) | A | 432 | 476 | 550 | 558 | 518 | 569 | 637 | 648 |
| No. of scroll compressors / circuits | | 4/2 | 6/2 | 6/2 | 6/2 | 6/2 | 8/4 | 8/4 | 8/4 |
| No. of axial fans | | 6 | | 8 | | | 10 | | |
| Air flow | $m^3/h$ | 118.913 | | 159.453 | | | 209.054 | | 199.974 |
| Water flow rate in cooling mode | l/h | 63.090 | 71.039 | 78.215 | 83.969 | 91.583 | 96.807 | 105.945 | 113.057 |
| Pressure drop, water side (cooling) | kPa | 54 | 56 | 57 | 51 | 52 | 46 | 50 | 52 |
| Head available (cooling) - Pumps (OR) LP | kPa | 154 | 125 | 176 | 160 | 128 | 151 | 125 | 191 |
| Head available (cooling) - Pumps (OR) HP | kPa | 252 | 236 | 262 | 257 | 241 | 235 | 234 | 227 |
| Head available (cooling) - Pumps (AND) LP | kPa | 164 | 143 | 124 | 114 | 92 | 160 | 144 | 133 |
| Head available (cooling) - Pumps (AND) HP | kPa | 237 | 226 | 217 | 216 | 205 | 280 | 263 | 252 |
| Buffer tank | $dm^3$ | 600 | | | | | 1040 | | |
| Expansion tank | $dm^3$ | 50 | | | | | | | |
| Vic Taulic water connections | inches | 4 | | | | | 5 | | |
| Height | mm | 2.650 | | 2.650 | | | 2.650 | | |
| Length | mm | 3.065 | | 4.065 | | | 5.065 | | |
| Depth | mm | 2.250 | | 2.250 | | | 2.250 | | |
| Sound power level Lw | dB(A) | 82 | | 83 | | | 84 | | |
| Sound pressure level Lp | dB(A) | 62 | | 63 | | | 64 | | |
| Weight without accessories | kg | 2.685 | 3.130 | 3.501 | 3.545 | 3.546 | 4.382 | 4.467 | 4.682 |

Cooling: outdoor air temperature 35°C, evaporator water temperature 12°C / 7°C
Heating: outdoor air temperature 7°C, condenser water temperature 40°C / 45°C
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure level measured at a distance of 10 m with a directivity factor of 2

| RATED TECHNICAL DATA of LSE heat pumps, HL version (low-noise) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **LSE...HL** | | **374** | **416** | **456** | **486** | **536** | **558** | **618** | **658** |
| Power supply | V-ph-Hz | 400V / 3 Ph / 50 Hz | | | | | | | |
| Cooling capacity | kW | 354,49 | 394,97 | 440,09 | 470,82 | 512,49 | 546,51 | 593,81 | 632,01 |
| Total power input | kW | 126,95 | 154,67 | 160,5 | 176,58 | 197,61 | 196,17 | 216,16 | 235,28 |
| EER | | 2,79 | 2,55 | 2,74 | 2,67 | 2,59 | 2,79 | 2,75 | 2,69 |
| ESEER | | 4,19 | 4,11 | 4,25 | 4,18 | 4,16 | 4,07 | 4,08 | 4,02 |
| Total absorbed current | A | 218,86 | 277,84 | 284,61 | 302,87 | 337,52 | 360,1 | 382,08 | 403 |
| Heating capacity | kW | 408,39 | 467,43 | 510,81 | 547,78 | 598,87 | 644,83 | 692,34 | 739,86 |
| Total power input | kW | 115,88 | 136,23 | 148,9 | 158,52 | 170,91 | 183,59 | 197,83 | 212,08 |
| COP | | 3,52 | 3,43 | 3,43 | 3,46 | 3,5 | 3,51 | 3,5 | 3,49 |
| Total absorbed current | A | 203,3 | 254,97 | 269,67 | 278,34 | 299,74 | 307,1 | 330,45 | 353,83 |
| FLA Maximum absorbed current (without accessories) | A | 259 | 322 | 347 | 368 | 386 | 435 | 462 | 488 |
| LRA Inrush current (without accessories) | A | 421 | 465 | 545 | 543 | 504 | 551 | 619 | 630 |
| No. of scroll compressors / circuits | | 4/2 | 6/2 | 6/2 | 6/2 | 6/2 | 8/4 | 8/4 | 8/4 |
| No. of axial fans | | 6 | | 8 | | | 10 | | |
| Air flow | $m^3/h$ | 94.300 | | 126.557 | | | 167.300 | 163.050 | 158.800 |
| Water flow rate in cooling mode | l/h | 60.972 | 67.935 | 75.696 | 80.981 | 88.148 | 94.000 | 102.135 | 108.706 |
| Pressure drop, water side | kPa | 50 | 51 | 53 | 48 | 47 | 44 | 47 | 48 |
| Head available (cooling) - Pumps (OR) LP | kPa | 164 | 140 | 189 | 175 | 147 | 160 | 138 | 206 |
| Head available (cooling) - Pumps (OR) HP | kPa | 259 | 246 | 271 | 266 | 252 | 244 | 241 | 234 |
| Head available (cooling) - Pumps (AND) LP | kPa | 172 | 155 | 134 | 126 | 106 | 167 | 153 | 143 |
| Head available (cooling) - Pumps (AND) HP | kPa | 243 | 234 | 224 | 223 | 214 | 286 | 272 | 262 |
| Buffer tank | $dm^3$ | 600 | | | | | 1.040 | | |
| Expansion tank | $dm^3$ | 50 | | | | | | | |
| Vic Taulic water connections | inches | 4 | | | | | 5 | | |
| Height | mm | 2.650 | | 2.650 | | | 2.650 | | |
| Length | mm | 3.065 | | 4.065 | | | 5.065 | | |
| Depth | mm | 2.250 | | 2.250 | | | 2.250 | | |
| Sound power level Lw | dB(A) | 82 | | 83 | | | 84 | | |
| Sound pressure level Lp | dB(A) | 54 | | 55 | | | 56 | | |
| Weight without accessories | kg | 2.790 | 3.250 | 3.621 | 3.665 | 3.666 | 4.562 | 4.647 | 4.912 |

Cooling: outdoor air temperature 35°C, evaporator water temperature 12°C / 7°C
Heating: outdoor air temperature 7°C, condenser water temperature 40°C / 45°C
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure level measured at a distance of 10 m with a directivity factor of 2

## AIR CONDENSED DUCT WATER CHILLERS, LCC SERIES

The air-condensed packaged liquid chillers and cycle reversing heat pumps of the **LCC** series are designed to installed indoors as part of residential or industrial systems operating 24 h/day.

The series features 10 models in cooling only version and heat pump version including standard and low-noise configuration, the cooling capacity ranges from 48 to 153 kW and the heating capacity ranges from 54 to 168 kW:

**LCC CS** Water chillers, standard version
**LCC CL** Water chillers, low-noise version
**LCC HS** Heat pumps, standard version
**LCC HL** Heat pumps, low-noise version
**LCC FS** FREE-COOLING, standard version
**LCC FL** FREE-COOLING, low-noise version


## CONSTRUCTIVE FEATURES

The design philosophy places a priority on compactness, "plug & play" solutions and easy **access** to all the components: the logic of the **PLUG&PLAY PLUMBING**, already in the **DNA** of the whole water line, is combined here with the **innovative PLUG&PLAY VENTILATION philosophy: The adaptive control of the flow rate** and continuous modulation of the fans drastically reduce installation times.
The large number of **air delivery system** making up the series and the available accessories allow a broad range of possible configurations, which make the LCC series an ideal solution for speeding up installation on the building site.

### STRENGTHS OF THE LCC RANGE

PLUG & PLAY VENTILATION
- innovative technology that is more efficient and reliable thanks to the backward curved centrifugal fans directly coupled to an external rotor electric motor.
- auto-adaptive control of the flow rate and continuous modulation of the fans drastically reduce installation times.
- maintenance free as opposed to a traditional belt-driven system
- configurability of air flow

PLUG & PLAY PLUMBING
- Only one connection (IN+OUT) toward the system
- option of an incorporated hydronic unit

STRUCTURE
- all models are of the same height and depth, allowing units with different power ratings to be installed side by side
- The components can be accessed from the front even while the chiller is running, thanks to hinged doors providing access to the inside and technical compartments separate from the air flow
- electrical and plumbing connections from the front

INTERCONNECTIVITY
- to external supervisors and of course with ERGO
- possibility of controlling several chillers in parallel as a single multi-step unit (advanced microprocessor controller)

STRUCTURE

The **LCC** series is constructed with a monoblock supporting base and galvanised sheet steel panelling coated with RAL 7016 paint.
The compressor compartment is completely closed off and can be **accessed from the front** simply by opening the doors of the unit: the doors can moreover be easily removed, which simplifies maintenance and/or inspections to the utmost.
All bolts and screws and fastening devices are made of non-oxidizable materials, stainless steel or carbon steel that has undergone surface-passivating treatments.

VENTILATION SECTION
The fans used are of the centrifugal type with backward curved blades and connected to a high efficiency external rotor motor.
Fans with backward curved blades are characterised by a high degree of reaction (most of the energy is transmitted in the form of pressure energy), which makes it possible to achieve static efficiencies as much as 5-6 % greater than in the case of fans with forward curved blades and volute.
Fans are statically and dynamically balanced provided with rubber vibration dampers to reduce the propagation of vibrations during speed-modulating phases.
The fans are equipped with 4-pole motors of the external rotor type, which ensure maximum energy efficiency and reduced magnetic noise in the event they are controlled with a potentiometer (optional).
The arrangement of the fans, made of aluminium, greatly facilitates upward discharge, toward the exchanger coil.

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.
All the units are built with a dual independent cooling circuit.

COMPRESSORS
**LCC** units are equipped exclusively with scroll-type compressors, whether single or in a tandem configuration, with thermal protection over the windings and an electric crankcase heater (heat pump).

HEAT EXCHANGERS, WATER SIDE
All units have heat exchangers with braze-welded **AISI** 304 austenitic stainless steel plates and connections made of **AISI** 304 L, characterised by a reduced carbon content to facilitate brazing.
All units have a "cross flow" type dual circuit exchanger on the refrigerant side and a single circuit exchanger on the water side to ensure maximum energy efficiency when the system is operating under partial loads.

FINNED BLOCK CONDENSER
Consisting of aluminium fins and copper tubes expanded into the latter to guarantee complete contact.
The condenser coil can be fitted with a metal filter that is easily removed from the machine side panels in case of ducted air intake.
In the case of heat pumps, a stainless steel drip tray is provided to collect condensate and allow it to be channelled for drainage.

WATER CIRCUIT

All chillers have a single (in + out) plumbing connection to the outside. This aspect is important in that it speeds up connection times on the installation site.
A water flow control device is included as a standard feature of all units. In the event the water flow is cut off, it immediately interrupts operation to prevent freezing and the damage that would be caused to the plate exchanger.
In addition to said device, the units are fitted with an outlet water temperature sensor performing the function of an antifreeze thermostat.
A wide range of configurations are available for all models in terms of single or dual pumps and buffer tanks installed on the plumbing inlet side; this contributes to attenuating the inevitable temperature fluctuations caused by compressor on/off switching.
**The mechanical Y filter IS COMPULSORY on all models to protect the evaporator.**

| WATER CHILLERS RATED TECHNICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| **LCC - CS** | | **50** | **60** | **70** | **80** | **90** |
| Cooling capacity | kW | 48,7 | 56,0 | 65,2 | 68,8 | 88,2 |
| Rated electrical input | kW | 22,4 | 25,9 | 28,0 | 32,8 | 38,5 |
| Rated current absorption | A | 41,2 | 46,0 | 49,2 | 58,0 | 67,3 |
| Power supply | V - ph - Hz | 400-3-50 + N | | | | |
| Maximum current absorption | A | 65 | 69 | 73 | 79 | 98 |
| Starting current | A | 163 | 171 | 190 | 214 | 269 |
| Number of scroll compressors/circuits | n° | 38.750 | 38.750 | 38.750 | 38.750 | 38.750 |
| Axial fans | n° | 2 | 2 | 2 | 2 | 3 |
| Air flow rate | m3/h | 17.500 | 19.000 | 19.000 | 19.000 | 27.000 |
| Available static pressure | Pa | 400 | 310 | 250 | 250 | 290 |
| Front surface of condenser coils | m2 | 2,3 | 2,3 | 2,3 | 2,3 | 2,8 |
| Evaporator | n° | 1 | 1 | 1 | 1 | 1 |
| Water flow rate | l/h | 8.377 | 9.631 | 11.215 | 11.833 | 15.171 |
| Pressure drops, water side | kPa | 30 | 26 | 35 | 28 | 29 |
| Water content, excluding optionals | dm3 | 6,1 | 6,6 | 7,1 | 7,9 | 32 |
| Buffer tank (optional) | dm3 | 340 | 340 | 340 | 340 | 340 |
| Hidraulic connection type | | GAS | GAS | GAS | GAS | GAS |
| Plumbing connections | inches | 2" | 2" | 2" | 2" | 2" |
| Height | mm | 2.020 | 2.020 | 2.020 | 2.020 | 2.020 |
| Length | mm | 2.000 | 2.000 | 2.000 | 2.000 | 2.400 |
| Width | mm | 1.100 | 1.100 | 1.100 | 1.100 | 1.100 |
| Sound power level | dB A | 79 | 81 | 81 | 81 | 82 |
| Sound pressure level | dB A | 71 | 73 | 73 | 73 | 74 |
| Sound power level low noise version | dB A | 75 | 77 | 77 | 77 | 78 |
| Sound pressure level low noise version | dB A | 67 | 69 | 69 | 69 | 70 |

| WATER CHILLERS RATED TECHNICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| **LCC - CS** | | **105** | **115** | **130** | **145** | **160** |
| Cooling capacity | kW | 98,0 | 109,1 | 125,9 | 143,0 | 152,8 |
| Rated electrical input | kW | 44,8 | 51,1 | 56,2 | 63,9 | 71,4 |
| Rated current absorption | A | 76,6 | 86,9 | 94,6 | 106,1 | 117,4 |
| Power supply | V - ph - Hz | 400-3-50 + N | | | | |
| Maximum current absorption | A | 113 | 142 | 160 | 178 | 192 |
| Starting current | A | 291 | 346 | 378 | 415 | 446 |
| Number of scroll compressors/circuits | n° | 38.750 | 38.750 | 38.750 | 38.750 | 38.750 |
| Axial fans | n° | 3 | 4 | 4 | 4 | 4 |
| Air flow rate | m3/h | 27.000 | 36.000 | 36.000 | 40.000 | 40.000 |
| Available static pressure | Pa | 290 | 250 | 250 | 150 | 150 |
| Front surface of condenser coils | m2 | 2,8 | 3,6 | 3,6 | 3,6 | 3,6 |
| Evaporator | n° | 1 | 1 | 1 | 1 | 1 |
| Water flow rate | l/h | 16.855 | 18.765 | 21.654 | 24.596 | 26.281 |
| Pressure drops, water side | kPa | 34 | 30 | 35 | 31 | 36 |
| Water content, excluding optionals | dm3 | 33,5 | 34,1 | 36,2 | 38,1 | 40,2 |
| Buffer tank (optional) | dm3 | 340 | 340 | 340 | 340 | 340 |
| Hidraulic connection type | | GAS | Victaulic | Victaulic | Victaulic | Victaulic |
| Plumbing connections | inches | 2" | 3" | 3" | 3" | 3" |
| Height | mm | 2.020 | 2.020 | 2.020 | 2.020 | 2.020 |
| Length | mm | 2.400 | 3.090 | 3.090 | 3.090 | 3.090 |
| Width | mm | 1.100 | 1.100 | 1.100 | 1.100 | 1.100 |
| Sound power level | dB A | 82 | 86 | 86 | 89 | 89 |
| Sound pressure level | dB A | 74 | 78 | 78 | 81 | 81 |
| Sound power level low noise version | dB A | 78 | 79 | 79 | 83 | 83 |
| Sound pressure level low noise version | dB A | 70 | 71 | 71 | 75 | 75 |

Cooling capacity: outdoor air temperature 35°C, water temperature 12-7°C
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 1 m and a height of 1.5 m above the ground in a clear field, available pressure head 100Pa

| HEAT PUMPS RATED TECHNICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| **LCC - HS** | | **50** | **60** | **70** | **80** | **90** |
| Cooling capacity | kW | 47,2 | 54,3 | 63,2 | 66,7 | 85,6 |
| Rated electrical input in cooling mode | kW | 22,4 | 25,9 | 28 | 32,8 | 38,5 |
| Rated current absorption in cooling mode | A | 41,2 | 46 | 49,2 | 58,1 | 67,3 |
| Heating capacity | kW | 54 | 61,6 | 72,2 | 79,8 | 97,2 |
| Rated electrical input in heating mode | kW | 22 | 24,6 | 27,6 | 30,8 | 37,5 |
| Rated current absorption in heating mode | A | 40,7 | 44,4 | 48,7 | 55,3 | 66,1 |
| Power supply | V - ph - Hz | 400-3-50 + N | | | | |
| Max current absorbed | A | 65 | 69 | 73 | 79 | 98 |
| Starting current | A | 163 | 171 | 190 | 214 | 269 |
| Number of compressors/circuits | n° | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 |
| Axial fans | n° | 2 | 2 | 2 | 2 | 3 |
| Air flow rate | m3/h | 17.500 | 19.000 | 19.000 | 19.000 | 27.000 |
| Available static pressure | Pa | 400 | 310 | 250 | 250 | 290 |
| Front surface of condenser coils | m2 | 2,3 | 2,3 | 2,3 | 2,3 | 2,8 |
| R407C/water exchanger | n° | 1 | 1 | 1 | 1 | 1 |
| Water flow rate in cooling mode | l/h | 8.120 | 9.342 | 10.879 | 11.478 | 14.715 |
| Pressure drops, water side in cooling mode | kPa | 30 | 26 | 35 | 28 | 29 |
| Water flow rate in heating mode | l/h | 9.288 | 10.596 | 12.418 | 13.725 | 16.719 |
| Pressure drops, water side in heating mode | kPa | 34 | 32 | 40 | 35 | 32 |
| Water content, excluding optionals | dm3 | 6,1 | 6,6 | 7,1 | 7,9 | 32 |
| Buffer tank (optional) | dm3 | 340 | 340 | 340 | 340 | 340 |
| Plumbing connections | inches | 2" | 2" | 2" | 2" | 2" |
| Height | mm | 2.020 | 2.020 | 2.020 | 2.020 | 2.020 |
| Length | mm | 2.000 | 2.000 | 2.000 | 2.000 | 2.400 |
| Width | mm | 1.100 | 1.100 | 1.100 | 1.100 | 1.100 |
| Sound power level | dB A | 79 | 81 | 81 | 81 | 82 |
| Sound pressure level | dB A | 71 | 73 | 73 | 73 | 74 |
| Sound power level low noise version | dB A | 75 | 77 | 77 | 77 | 78 |
| Sound pressure level low noise version | dB A | 67 | 69 | 69 | 69 | 70 |

| HEAT PUMPS RATED TECHNICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| **LCC - HS** | | **105** | **115** | **130** | **145** | **160** |
| Cooling capacity | kW | 95,1 | 105,8 | 122,1 | 138,7 | 148,2 |
| Rated electrical input in cooling mode | kW | 44,8 | 51,1 | 56,2 | 63,9 | 71,4 |
| Rated current absorption in cooling mode | A | 76,3 | 86,3 | 94,6 | 106,1 | 117,4 |
| Heating capacity | kW | 108 | 129 | 139,8 | 155 | 168 |
| Rated electrical input in heating mode | kW | 42,3 | 50,7 | 54,9 | 59,6 | 64,9 |
| Rated current absorption in heating mode | A | 73 | 85,8 | 93 | 100,4 | 108,6 |
| Power supply | V - ph - Hz | 400-3-50 + N | | | | |
| Max current absorbed | A | 113 | 142 | 160 | 178 | 192 |
| Starting current | A | 291 | 346 | 378 | 415 | 446 |
| Number of compressors/circuits | n° | 2/2 | 2/2 | 2/2 | 2/2 | 2/2 |
| Axial fans | n° | 3 | 4 | 4 | 4 | 4 |
| Air flow rate | m3/h | 27.000 | 36.000 | 36.000 | 40.000 | 40.000 |
| Available static pressure | Pa | 290 | 250 | 250 | 150 | 150 |
| Front surface of condenser coils | m2 | 2,8 | 3,6 | 3,6 | 3,6 | 3,6 |
| R407C/water exchanger | n° | 1 | 1 | 1 | 1 | 1 |
| Water flow rate in cooling mode | l/h | 16.350 | 18.202 | 21.004 | 23.857 | 25.493 |
| Pressure drops, water side in cooling mode | kPa | 34 | 30 | 35 | 31 | 36 |
| Water flow rate in heating mode | l/h | 18.576 | 22.189 | 24.046 | 26.660 | 28.896 |
| Pressure drops, water side in heating mode | kPa | 39 | 36 | 42 | 35 | 40 |
| Water content, excluding optionals | dm3 | 33,5 | 34,1 | 36,2 | 38,1 | 40,2 |
| Buffer tank (optional) | dm3 | 340 | 340 | 340 | 340 | 340 |
| Plumbing connections | inches | 2" | 3" | 3" | 4" | 4" |
| Height | mm | 2.020 | 2.020 | 2.020 | 2.020 | 2.020 |
| Length | mm | 2.400 | 3.090 | 3.090 | 3.090 | 3.090 |
| Width | mm | 1.100 | 1.100 | 1.100 | 1.100 | 1.100 |
| Sound power level | dB A | 82 | 86 | 86 | 89 | 89 |
| Sound pressure level | dB A | 74 | 78 | 78 | 81 | 81 |
| Sound power level low noise version | dB A | 78 | 79 | 79 | 83 | 83 |
| Sound pressure level low noise version | dB A | 70 | 71 | 71 | 75 | 75 |

Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
Heating capacity: air temperature 7°C dry bulb and 6°C wet bulb, water temperature 40 - 45°C

Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
Sound pressure measured at a distance of 1 m and a height of 1.5 m above the ground in a clear field, available pressure head 100Pa

## WATER/WATER CHILLERS AND HEAT PUMPS

- > **LEW C-H WATER-CONDENSING UNITS**
- > **OCCUPY A SMALL SURFACE AREA**
- > **NO NEED TO ADD GLYCOL TO THE WATER IN THE USER CIRCUIT**
- > **HIGH COP OF THE THERMODYNAMICAL CYCLE**
- > **NO NOISE OUTSIDE**
- > **REDUCED REFRIGERANT CHARGE.**
- > **INNOVATIVE AESTHETICS AND TOTAL SAFETY, GIVEN THAT THE CHILLERS ARE COMPLETELY ENCLOSED**
- > **OPTION OF INSTALLING AN OUTDOOR DRY COOLER WHERE IT IS NOT POSSIBLE TO USE A NON-RECIRCULATING WATER SUPPLY TO COOL THE CONDENSER**
- > **HEAT PUMP VERSION WITH CYCLE REVERSIBILITY AT THE COOLING SIDE**
- > **CONDENSING CONTROL OPTION ON THE HEAT PUMP VERSIONS POSSIBLE**

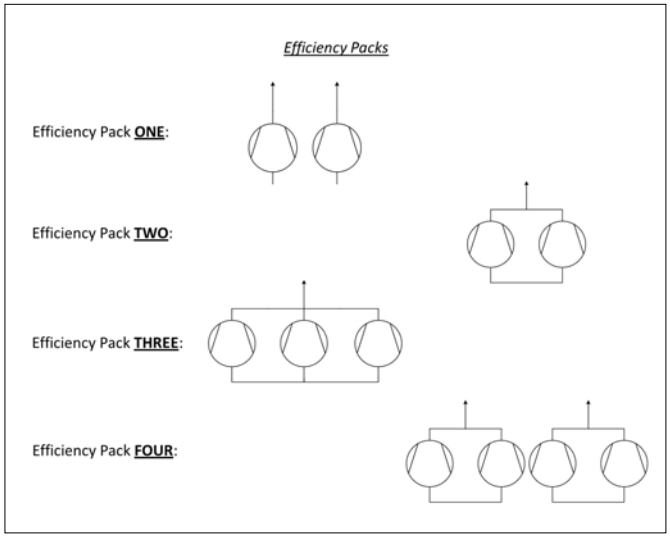

### > VERSION

- **C** Chiller Cooling only, dissipation with well or mains water
- **D** Chiller Cooling only, dissipation with cooling tower water or dry cooler
- **H** Reversible heat pump
- **W** Irreversible 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.
- **2** Single circuit / three compressors
  the best solution for applications demanding cost-effectiveness and efficiency under part load conditions
- **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. The redundancy of cooling circuits and compressors is a guarantee of reliability.




### > VERSION

- S Standard version
- **L** Low-Noise version for a low noise impact

## GENERALITIES

The LEW series of water-condensing chillers includes a range of models capable of satisfying every need.

The LEW units are designed to cool-heat water and solutions containing up to 30% glycol (percentage by weight) in civil, industrial and technological air-conditioning systems.

In buildings with large surface areas, the air conditioning system can be expanded step by step as new floors or areas are sold/leased, by installing an LEW unit for every floor in a small control room. This allows you to spread your investment over time..

The possibility of keeping the evaporator indoors means there is no need to add glycol to the water inside the system. In addition, you can keep all components requiring maintenance in an easily accessible room.

## STRUCTURE

All LEW units are built with a galvanised sheet steel supporting base and enclosing panels coated with epoxy polyester powder paint oven cured at 180°C.
The machine features an exclusive design that contributes to an attractive design and assures completely inaccessibility of internal components when the unit is closed. this characteristic, together with the extensive use of soundproofing material inside the compartment – an optional feature of low-noise models – reduces noise to exceptionally low levels [sound pressure level Lp < 66 dB-A 1 metre].
The plumbing connections are provided on the side of the unit.
All panels are removable to permit full access to the unit components even though only the front access is required for maintenance operations.

## COOLING CIRCUIT

The entire cooling circuit is built using only components of the finest quality brands and processes conforming to the specifications of Directive 97/23 for brazing .

The chillers are built with a single or dual cooling circuit using only components supplied by leading international manufacturers.

## COMPRESSORS

Only Scroll-type compressors of leading international manufacturers are used in the LEW units.

Today Scroll compressors represent the best solution capable of ensuring reliability and efficiency in the range of powers up to 182 kW per circuit and the best solution for keeping down noise levels.

## HEAT EXCHANGERS

All units have heat exchangers with braze-welded AISI 316 austenitic stainless steel plates and connections made of AISI 316 L, characterised by a reduced carbon content to facilitate brazing.

Braze-welded plate exchangers represent the state of the art in terms of heat exchange efficiency and make it possible to significantly reduce the refrigerant charge compared to traditional solutions.

The high turbulence induced by the internal corrugation of the plates combined with their perfectly smooth surface also helps prevent dirt build-up and the formation of scale on the condenser side.

## COOLING COMPONENTS

- Molecular mesh activated-alumina filter dryer
- Flow indicator with humidity indicator. Indications are provided directly on the sight glass.
- Electronically controlled electric expansion valve
- Electric thermostatic valve with stepper motor and dedicated electronic driver designed to maximise the efficiency of the cooling circuit and optimise the operating parameters.
- Reverse cycle valve (heat pump only)
- Unidirectional valve (heat pump only)
- High and low pressure switches
- Schrader valves for checks, access and/or maintenance
- Safety valve, refrigerant side

## ELECTRIC CONTROL BOARD

The electric control board is constructed and wired in accordance with Directives 73/23/EEC and 89/336/EEC and related standards.
The board may be accessed through a door after the main switch has been put off.
All the remote controls use 24 V signals powered by an insulating transformer situated on the electric control board.
A temperature control kit comprising a thermostat and an auxiliary fan is available on request.
The protection rating of the unit is IP 43.

## CONTROL MICROPROCESSOR

Available in a basic and advanced version, the onboard microprocessor of the chiller allows the various operating parameters to be controlled via a keypad on the electrical control board:

- Switching on/off of compressor to maintain the temperature set point of the chiller inlet water temperature
- Alarm management
  High / low pressure
  Antifreeze
  Flow switch
  Pump alarm
- Alarm signalling
- Display of operating parameters
- Antifreeze protection of evaporator
- Management of maximum number of compressor start-ups
- RS232, RS485 serial output management (optional)
- Phase sequence error [Not displayed by the $\mu$P, but prevents the compressor from starting up]

| LEW WATER CHILLERS RATED TECHNICAL DATA | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 50 | | 60 | | 70 | | 80 | | 90 | | 100 | |
| Efficiency Pack | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| **LEW CS / CL** | | **041** | **042** | **051** | **052** | **061** | **062** | **071** | **072** | **081** | **082** | **091** | **092** |
| Cooling capacity | kW | 51,94 | 51,11 | 60,23 | 60,14 | 69,12 | 69,17 | 77,94 | 77,91 | 89,13 | 89,11 | 99,27 | 99,28 |
| Rated input power | kW | 9,27 | 8,65 | 11,18 | 11,19 | 12,37 | 12,37 | 14,27 | 14,28 | 15,86 | 15,86 | 18,03 | 18,04 |
| EER | | 5,60 | 5,91 | 5,39 | 5,37 | 5,59 | 5,59 | 5,46 | 5,46 | 5,62 | 5,62 | 5,51 | 5,50 |
| Pressure drops, evaporator side | kPa | 38 | 37 | 51 | 51 | 40 | 40 | 50 | 50 | 39 | 39 | 48 | 48 |
| Pressure drops - condenser side | kPa | 7 | 7 | 9 | 9 | 12 | 12 | 15 | 15 | 18 | 18 | 22 | 22 |
| Power supply | V-ph-Hz | 400 - 3N - 50Hz | | | | | | | | | | | |
| Scroll compressors / cooling circuits | No. | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 |
| Water connections VIC-TAULIC type | inches | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 |
| Height | mm | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 |
| Length | mm | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 |
| Depth | mm | 772 | 772 | 772 | 772 | 772 | 772 | 772 | 772 | 772 | 772 | 772 | 772 |
| LEW-CS: Sound power level | dB(A) | 69 | 69 | 69 | 69 | 69 | 69 | 70 | 70 | 70 | 70 | 70 | 70 |
| LEW-CL: Sound power level | dB(A) | 67 | 67 | 67 | 67 | 67 | 67 | 68 | 68 | 68 | 68 | 68 | 68 |

| LEW WATER CHILLERS RATED TECHNICAL DATA | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 120 | | 130 | | 150 | | | 170 | | |
| Efficiency Pack | | 1 | 2 | 1 | 2 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LEW CS / CL** | | **111** | **112** | **131** | **132** | **141** | **142** | **144** | **161** | **162** | **164** |
| Cooling capacity | kW | 118,88 | 118,92 | 135,62 | 135,52 | 157,2 | 157,33 | 156,88 | 174,86 | 175,08 | 176,18 |
| Rated input power | kW | 21,33 | 21,34 | 24,64 | 24,64 | 27,9 | 27,86 | 28,81 | 32,05 | 32,05 | 31,89 |
| EER | | 5,57 | 5,57 | 5,50 | 5,50 | 5,63 | 5,65 | 5,45 | 5,46 | 5,46 | 5,52 |
| Pressure drops, evaporator side | kPa | 39 | 39 | 50 | 50 | 47 | 47 | 47 | 51 | 51 | 52 |
| Pressure drops - condenser side | kPa | 30 | 30 | 38 | 38 | 19 | 19 | 19 | 23 | 23 | 23 |
| Power supply | V-ph-Hz | 400 - 3N - 50Hz | | | | | | | | | |
| Scroll compressors / cooling circuits | No. | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 |
| Water connections VIC-TAULIC type | inches | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 |
| Height | mm | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.854 | 1.594 | 1.594 | 1.854 |
| Length | mm | 1.674 | 1.674 | 1.674 | 1.674 | 1.674 | 1.674 | 2.374 | 1.674 | 1.674 | 2.374 |
| Depth | mm | 772 | 772 | 772 | 772 | 772 | 772 | 877 | 772 | 772 | 877 |
| LEW-CS: Sound power level | dB(A) | 71 | 71 | 71 | 71 | 73 | 73 | 73 | 73 | 73 | 73 |
| LEW-CL: Sound power level | dB(A) | 69 | 69 | 69 | 69 | 71 | 71 | 71 | 71 | 71 | 71 |

| LEW WATER CHILLERS RATED TECHNICAL DATA | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 200 | | | 220 | 230 | 270 | | 310 | | 350 | 370 | 410 | 450 |
| Efficiency Pack | | 1 | 2 | 4 | 4 | 4 | 3 | 4 | 3 | 4 | 4 | 4 | 4 | 4 |
| **LEW CS / CL** | | **181** | **182** | **184** | **204** | **214** | **243** | **244** | **283** | **284** | **314** | **344** | **374** | **424** |
| Cooling capacity | kW | 204,53 | 204,76 | 198,9 | 219,07 | 235,14 | 267,91 | 278,95 | 312,96 | 316,39 | 349,67 | 377,36 | 410,6 | 453,5 |
| Rated input power | kW | 37,85 | 37,88 | 36,4 | 39,34 | 42,66 | 47,75 | 47,88 | 56,44 | 56,32 | 64,69 | 70,4 | 74,47 | 81,62 |
| EER | | 5,40 | 5,41 | 5,46 | 5,57 | 5,51 | 5,61 | 5,83 | 5,55 | 5,62 | 5,41 | 5,36 | 5,51 | 5,56 |
| Pressure drops, evaporator side | kPa | 54 | 54 | 51 | 51 | 57 | 51 | 55 | 40 | 41 | 49 | 56 | 54 | 56 |
| Pressure drops - condenser side | kPa | 30 | 31 | 29 | 28 | 33 | 21 | 23 | 28 | 28 | 35 | 36 | 33 | 33 |
| Power supply | V-ph-Hz | 400 - 3N - 50Hz | | | | | | | | | | | | |
| Scroll compressors / cooling circuits | No. | 2 / 2 | 2 / 1 | 4 / 2 | 4 / 2 | 4 / 2 | 3 / 1 | 4 / 2 | 3 / 1 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| Water connections VIC-TAULIC type | inches | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 3 | 3 | 3 | 3 | 3 | 3 |
| Height | mm | 1.594 | 1.594 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 |
| Length | mm | 1.674 | 1.674 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 |
| Depth | mm | 772 | 772 | 877 | 877 | 877 | 877 | 877 | 877 | 877 | 877 | 877 | 877 | 877 |
| LEW-CS: Sound power level | dB(A) | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 75 | 75 | 75 |
| LEW-CL: Sound power level | dB(A) | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 73 | 73 | 73 |

Cooling capacity refers to the following conditions: water temperature at evaporator 12/7°C – water temperature at condenser 15 - 30°C
Heating capacity: water temperature at evaporator 15-10°C, water temperature at condenser 40 - 45°C.
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1

| LEW HEAT PUMPS RATED TECHNICAL DATA | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 50 | | 60 | | 70 | | 80 | | 90 | | 100 | |
| Efficiency Pack | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| **LEW HS / HL** | | **041** | **042** | **051** | **052** | **061** | **062** | **071** | **072** | **081** | **082** | **091** | **092** |
| Cooling capacity | kW | 51,94 | 51,11 | 60,23 | 60,14 | 69,72 | 69,73 | 78,34 | 78,51 | 90,38 | 90,45 | 100,82 | 100,97 |
| Rated input power | kW | 9,27 | 8,65 | 11,18 | 11,19 | 12,17 | 12,17 | 14,06 | 14,04 | 15,34 | 15,34 | 17,42 | 17,41 |
| EER | | 5,60 | 5,91 | 5,39 | 5,37 | 5,73 | 5,73 | 5,57 | 5,59 | 5,89 | 5,90 | 5,79 | 5,80 |
| Pressure drops, user side | kPa | 37 | 36 | 50 | 50 | 52 | 52 | 49 | 49 | 39 | 39 | 49 | 49 |
| Pressure drops, dissipator side | kPa | 5 | 5 | 7 | 7 | 6 | 6 | 7 | 7 | 5 | 5 | 7 | 7 |
| Heating capacity | kW | 60,17 | 59 | 70,91 | 70,9 | 80,5 | 80,52 | 91,69 | 91,72 | 104,38 | 104,38 | 140,29 | 140,31 |
| Rated input power | kW | 12,8 | 12,13 | 15,29 | 15,3 | 16,85 | 16,85 | 19,46 | 19,47 | 21,42 | 21,43 | 28,56 | 28,55 |
| COP | | 4,70 | 4,86 | 4,64 | 4,63 | 4,78 | 4,78 | 4,71 | 4,71 | 4,87 | 4,87 | 4,91 | 4,91 |
| Pressure drops, user side | kPa | 47 | 45 | 65 | 65 | 49 | 49 | 64 | 64 | 49 | 49 | 61 | 61 |
| Pressure drops, dissipator side | kPa | 32 | 31 | 44 | 44 | 44 | 44 | 43 | 43 | 33 | 33 | 42 | 42 |
| Power supply | V-ph-Hz | 400 - 3N - 50Hz | | | | | | | | | | | |
| Scroll compressors / cooling circuits | No. | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 |
| Water connections VIC-TAULIC type | inches | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 |
| Height | mm | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 |
| Length | mm | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 | 1.174 |
| Depth | mm | 772 | 772 | 772 | 772 | 772 | 772 | 772 | 772 | 772 | 772 | 772 | 772 |
| LEW-HS: Sound power level | dB(A) | 69 | 69 | 69 | 69 | 69 | 69 | 70 | 70 | 70 | 70 | 70 | 70 |
| LEW-HL: Sound power level | dB(A) | 67 | 67 | 67 | 67 | 67 | 67 | 68 | 68 | 68 | 68 | 68 | 68 |

| LEW HEAT PUMPS RATED TECHNICAL DATA | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 120 | | 130 | | 150 | | | 170 | | |
| Efficiency Pack | | 1 | 2 | 1 | 2 | 1 | 2 | 4 | 1 | 2 | 4 |
| **LEW HS / HL** | | **111** | **112** | **131** | **132** | **141** | **142** | **144** | **161** | **162** | **164** |
| Cooling capacity | kW | 122,01 | 122,07 | 139,04 | 139,22 | 155,73 | 159,54 | 159,28 | 177,95 | 177,84 | 179,33 |
| Rated input power | kW | 20,17 | 20,16 | 23,24 | 23,22 | 27,01 | 27,01 | 27,92 | 30,93 | 30,95 | 30,76 |
| EER | | 6,05 | 6,06 | 5,98 | 6,00 | 5,77 | 5,91 | 5,70 | 5,75 | 5,75 | 5,83 |
| Pressure drops, user side | kPa | 42 | 42 | 52 | 52 | 49 | 49 | 48 | 54 | 54 | 54 |
| Pressure drops, dissipator side | kPa | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 |
| Heating capacity | kW | 140,29 | 140,31 | 160,24 | 160,28 | 184,3 | 184,18 | 185,49 | 206,27 | 206,37 | 207,12 |
| Rated input power | kW | 28,56 | 28,55 | 33,19 | 33,16 | 37,89 | 37,87 | 38,71 | 42,83 | 42,82 | 43,08 |
| COP | | 4,91 | 4,91 | 4,83 | 4,83 | 4,86 | 4,86 | 4,79 | 4,82 | 4,82 | 4,81 |
| Pressure drops, user side | kPa | 50 | 50 | 64 | 64 | 60 | 60 | 61 | 66 | 66 | 67 |
| Pressure drops, dissipator side | kPa | 36 | 36 | 44 | 44 | 42 | 42 | 42 | 46 | 46 | 46 |
| Power supply | V-ph-Hz | 400 - 3N - 50Hz | | | | | | | | | |
| Scroll compressors / cooling circuits | No. | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 2 / 2 | 2 / 1 | 4 / 2 | 2 / 2 | 2 / 1 | 4 / 2 |
| Water connections VIC-TAULIC type | inches | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 |
| Height | mm | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.594 | 1.854 | 1.594 | 1.594 | 1.854 |
| Length | mm | 1.674 | 1.674 | 1.674 | 1.674 | 1.674 | 1.674 | 2.374 | 1.674 | 1.674 | 2.374 |
| Depth | mm | 772 | 772 | 772 | 772 | 772 | 772 | 877 | 772 | 772 | 877 |
| LEW-HS: Sound power level | dB(A) | 71 | 71 | 71 | 71 | 73 | 73 | 73 | 73 | 73 | 73 |
| LEW-HL: Sound power level | dB(A) | 69 | 69 | 69 | 69 | 71 | 71 | 71 | 71 | 71 | 71 |

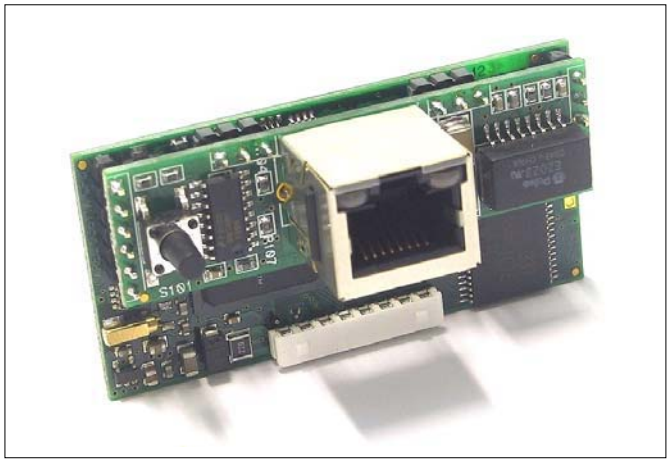
| LEW HEAT PUMPS RATED TECHNICAL DATA | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approx. capacity (kW) | | 200 | | | 220 | 230 | 270 | | 310 | | 350 | 370 | 410 | 450 |
| Efficiency Pack | | 1 | 2 | 4 | 4 | 4 | 3 | 4 | 3 | 4 | 4 | 4 | 4 | 4 |
| **LEW HS / HL** | | **181** | **182** | **184** | **204** | **214** | **243** | **244** | **283** | **284** | **314** | **344** | **374** | **424** |
| Cooling capacity | kW | 212,16 | 212,16 | 206,42 | 223,93 | 244,76 | 276,41 | 288,36 | 319,45 | 322,97 | 357,45 | 390,41 | 422,28 | 470,49 |
| Rated input power | kW | 35,9 | 35,9 | 34,44 | 37,51 | 40,28 | 45,77 | 45,8 | 53,85 | 53,78 | 61,87 | 66,85 | 72,03 | 78,21 |
| EER | | 5,91 | 5,91 | 5,99 | 5,97 | 6,08 | 6,04 | 6,30 | 5,93 | 6,01 | 5,78 | 5,84 | 5,86 | 6,02 |
| Pressure drops, user side | kPa | 48 | 48 | 46 | 53 | 50 | 53 | 35 | 41 | 42 | 51 | 50 | 49 | 48 |
| Pressure drops, dissipator side | kPa | 7 | 7 | 6 | 7 | 7 | 8 | 4 | 6 | 6 | 7 | 7 | 7 | 7 |
| Heating capacity | kW | 244,39 | 244,28 | 237,95 | 257,95 | 281,31 | 318,04 | 329,52 | 367,61 | 371,69 | 413,83 | 451,62 | 487,71 | 538,48 |
| Rated input power | kW | 49,94 | 49,95 | 48,24 | 52,89 | 57 | 63,37 | 65,38 | 75,13 | 75,62 | 85,81 | 93,13 | 100,44 | 109,69 |
| COP | | 4,89 | 4,89 | 4,93 | 4,88 | 4,94 | 5,02 | 5,04 | 4,89 | 4,92 | 4,82 | 4,85 | 4,86 | 4,91 |
| Pressure drops, user side | kPa | 58 | 58 | 56 | 66 | 63 | 67 | 39 | 49 | 51 | 63 | 61 | 60 | 58 |
| Pressure drops, dissipator side | kPa | 41 | 41 | 40 | 45 | 43 | 47 | 30 | 36 | 37 | 44 | 43 | 42 | 41 |
| Power supply | V-ph-Hz | 400 - 3N - 50Hz | | | | | | | | | | | | |
| Scroll compressors / cooling circuits | No. | 2 / 2 | 2 / 1 | 4 / 2 | 4 / 2 | 4 / 2 | 3 / 1 | 4 / 2 | 3 / 1 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 | 4 / 2 |
| Water connections VIC-TAULIC type | inches | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Height | mm | 1.594 | 1.594 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 | 1.854 |
| Length | mm | 1.674 | 1.674 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 | 2.374 |
| Depth | mm | 772 | 772 | 877 | 877 | 877 | 877 | 877 | 877 | 877 | 877 | 877 | 877 | 877 |
| LEW-HS: Sound power level | dB(A) | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 73 | 75 | 75 | 75 |
| LEW-HL: Sound power level | dB(A) | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 71 | 73 | 73 | 73 |

Cooling capacity refers to the following conditions: water temperature at evaporator 12/7°C – water temperature at condenser 15 - 30°C
Heating capacity: water temperature at evaporator 15-10°C, water temperature at condenser 40 - 45°C.
Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1

## NOTES

dedicated controls solutions | GWEB MYCHILLER

**GWEB INTERFACE**



TECHNICAL CHARACTERISTICS
- Ethernet Connection RJ45 10Mbps
- Linux operating system 2.4.21

INSTALLATION
- Direct installation on the serial port of the advanced controller
- Static or dynamic IP address with DHCP function

WEB SERVER FUNCTION
- Display of unit status
- Display of current alarms and alarm history
- Data recording 10 settable variables
- Record download via web browser or FTP
- Editing of main parameters
- Sending of e-mail to 5 recipients in case of alarm

CONNECTION IN SUPERVISION SYSTEM
- With SNMP v1 & v2c protocol
- With BACnet Ethernet or BACnet/IP protocol

TOUCH SCREEN GRAPHIC DISPLAY

TECHNICAL FEATURES
- 1/4 VGA colour Display
- 5.7" Touch screen
- 320x240 pixel Resolution
- Buzzer alarm

VERSIONS
- Board installation model
- Wall-mounted model with separate kit

FUNCTIONALITY
- Connection of multiple units in a LAN
- Display of system status
- Display of individual connected units
- Display of temperature and humidity graphs
- Editing of main parameters in local mode (for individual units) or in global mode (for all units)

COMMUNICATION PROTOCOLS
- CAREL PROPRIETARY
- MODBUS®
- LONWORKS
- BACNET
- SNMP
- TREND
- OPC

APPLICABLE TO
- MPE
- MXE
- MCP
- LCE
- LCP
- LSE
- LCC
- LEW

## REMOTE CONTROL PANEL FOR CHILLER

MYCHILLER is the new remote control for Galletti water chillers and heat pumps that simplifies and improves management thanks to the large LCD display and the possibility to view and edit the main operating parameters.

Designed to complement the controls for MYCOMFORT hydronic units and available in two BASIC and LARGE versions, MYCHILLER is the natural aesthetic and functional development and allows the remote management of the Carel σchiller2, σchiller2 SE, pCO1 and pCOXS electronic panels.
It can therefore be applied to all air condensing and water condensing, outdoor or indoor, water chillers.

SIMPLE INSTALLATION
ALL that is needed is a bus connection with AWG24 cable to ensure communication between the machine and the control.

ACCESSING THE REGULATION FUNCTIONS
MYCHILLER makes it possible to change the temperature of cold water production (hot water in case of heat pumps) without using the controller installed in the unit whose access is sometimes difficult.

THE SEASONS AT HAND
The transition from heating to cooling only requires the push of a button and the display is ensured by special icons on the LCD display panel.

SIMPLIFIED MAINTENANCE
With its large display, MYCHILLER can also monitor the advanced parameters characteristic of the cooling cycle and thus facilitates diagnostics in case of malfunctions.

ALARMS UNDER CONTROL
The rapid detection of the alarm code is essential to optimize and speed up the service interventions: MYCHILLER immediately make this information available, which are normally accessible only on the machine.

ENERGY SAVING
The ECONOMY function makes it possible to correct the set-point in order to reduce the consumption of energy. This function can be activated directly from the keyboard, or through the closing of the contact by means of a digital input.

PROGRAMMABLE
Through the weekly clock incorporated in the LARGE version it is possible to set for every day of the week the unit status or the operating temperature level.

| COMPARATIVE CHARACTERISTICS | BASE | LARGE |
|---|---|---|
| Reading and changing of unit parameters | X | X |
| Alarm reading | X | X |
| Configurable ON/OFF digital input | X | X |
| Configurable ON/OFF digital input | X | X |
| Incorporated clock | | X |
| ON/OFF setpoint by time slots | | X |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