

## Water chillers and heat pumps catalogue



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2 5 10 20 50 100 200 500 1 MW

water chillers - indicative cooling/heating capacities kW

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small systems	MPI DC
	MCE
	MPE
	MCC
	MCW
	MCR
	MSHRT
	MTE

## MPI DC WATER CHILLERS AND HEAT PUMPS INVERTER DC

- > R410A
- > CONTINUOUS MODULATION OF CAPACITY FROM 30% TO 100%
- > WATER PRODUCED UP TO 58°C
- > HEAT PUMP OPERATION UP TO 15°C
- > SCROLL OR TWIN ROTARY COMPRESSOR WITH PERMANENT MAGNETS ELECTRIC SYNCHRONOUS MOTOR
- > ELECTRONIC EXPANSION VALVE
- > MODULATING HYDRAULIC PUMP



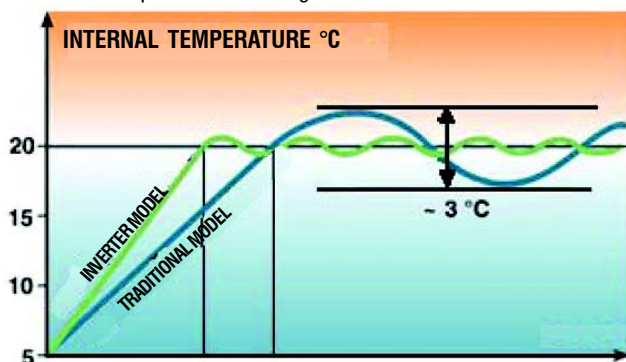
The actual thermal load of an air conditioning system is less than 60% of the rated load capacity 90% of the time.

In case of low power installations with a low number of indoor units and low water content, operation under partial load conditions is especially critical.

In order to ensure that the unit functions correctly the variation of the power delivered by the unit is necessary.

The inverter controller controls the compressor rpm through the modulation of the refrigerant rate, the cooling capacity and the electrical input.

The operating logic of MPI DC units allows an accurate adjustment of the outlet water temperature according to the thermal load conditions:



The PID control algorithm allows to adjust the water temperature within +/- 15%.

The inverter controller allows to adjust the capacity and the input of the compressor to the actual thermal load and makes it possible to considerably reduce electrical intakes at the compressor start-up (reduction of starting currents) and during the operation under partial loads.



The spinning airtight scroll compressors (from MPI014 DC to MPI029 DC) or Twin Rotary compressors (from MPI08 DC to MPI10 DC) are equipped with motor protection against overheating and overcurrents.

Mounted on anti-vibration supports, complete with oil charge, they are enclosed in a soundproofed compartment and equipped with an automatically controlled oil heating system to avoid oil dilution by the refrigerant when the compressor is stopped.

The compressor motor is a permanent magnets, brushless, alternating current motor controlled by a trapezoidal wave driver operating in the frequency field ranging from 30 to 20 Hz (BLDC "Brushless Direct Current" Technology).



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 adapts the fan rpm to the actual working conditions. This results in better working conditions, reduction of sound levels under partial load conditions and possibility of operating in cooling mode beyond conventional working limits (up to an outdoor air temperature of -10°C).

In heat pump operation the exclusive 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.

### 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 modulating 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

- BLDC-type compressor housed in a compartment that can be sound insulated.
- Brazed plate heat exchangers made of AISI 316 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 external equalisation and integrated MOP function.
- Cycle-reversing valve (MPI DC H).
- Single-acting valves (MPI DC H).
- Liquid receiver (MPI DC 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 MPI DC unit. It can be easily accessed through a polycarbonate flap with IP65 protection rating.



The modulation of capacity 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.

### MAIN FUNCTIONS:

- Continuous modulation of compressor capacity.
- Control of outlet temperature
- Control over the temperature of water entering the evaporator.
- Defrosting management (MPI DC-H)
- 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
- Control of pump speed

### DEVICES CONTROLLED:

- Compressor
- Fans
- Cycle-reversing valve (MPI DC H).
- Water circulation pump
- Antifreeze heating elements (optional)
- Alarm signalling relay

### ELECTRIC CONTROL BOARD

Electric control board constructed and wired in accordance with the Directive on electromagnetic compatibility and related standards. Made of steel sheet, it is also protected by the enclosing panels of the machine.

### OPTIONS

Water storage  
Low noise execution  
Refrigerant pressure gauges  
Antifreeze heating elements on the water circuit  
Special exchangers (hydrophilic treatment, copper-copper, cataphoresis, anti-corrosion)

### ACCESSORIES AVAILABLE

Remote control boards  
Base vibration dampers  
Metal grilles to protect exchangers  
EC fans



MPI DC - C		010 M	014	018	023	029
Power supply	V - ph - Hz	230-1-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50
Rated cooling capacity	kW	10,6	14,3	18,2	22,9	29,1
Total power input	kW	3,35	4,78	7,63	7,77	12,3
EER (rated capacity)		3,16	2,99	2,39	2,95	2,37
Total power input with pump	kW	3,6	5,3	8,2	8,3	12,9
Maximum power input	kW	5,6	7,1	10,7	10,8	21,9
Maximum electrical input	A	26,6	20,0	22,0	28,5	43,0
Starting current	A	10	10	10	10	10
No. of compressors / circuits		1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Refrigerant charge	kg	3,5	4,1	4,1	5,7	5,7
Low / high pressure switch	bar	42 / 2	42 / 2	42 / 2	42 / 2	42 / 2
No. of axial fans		2	2	2	4	4
Air flow rate	m <sup>3</sup> /h	6.939	6.939	6.939	11.438	11.438
Water flow	l/s	1826	2454	3132	3935	4992
Diameter of water connections	"	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Pressure drop, water side	kPa	23	35	35	36	36
Available head	kPa	130	120	120	98	98
Water content, excluding optionals	dm <sup>3</sup>	3,0	3,0	3,0	5,0	5,0
Expansion tank	dm <sup>3</sup>	5	5	5	5	5
Buffer tank	dm <sup>3</sup>	30	30	30	50	50
Height	mm	1250	1250	1250	1300	1300
Length	mm	1220	1220	1220	1565	1565
Depth	mm	560	560	560	600	600
Sound power level	dB(A)	70	71	71	74	74
Sound pressure level	dB(A)	42	43	43	46	46
Transport weight *	kg	210	210	210	285	285
Operating weight *	kg	235	235	235	335	335

\* Weights refer to model with pump and storage reservoir

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



MPI DC - H		008 M	010 M	014	018	023	029
Power supply	V-ph-Hz	230-1-50	230-1-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50
Rated cooling capacity	kW	7,96	10,4	14,0	17,9	22,5	28,5
Total power input	kW	2,62	3,35	4,78	7,63	7,77	12,3
EER (rated capacity)		3,04	3,10	2,93	2,35	2,90	2,32
Total power input with pump	kW	2,8	3,6	5,3	8,2	8,3	12,9
Rated heating capacity	kW	8,89	11,5	15,7	21,6	24,6	33,7
Total power input in heating mode	kW	2,81	3,56	4,96	7,48	7,86	11,7
COP ( rated power)		3,16	3,23	3,17	2,89	3,13	2,88
Total power input with pump in heating mode	kW	3,0	4,1	5,5	8,0	8,4	12,3
Maximum power input	kW	4,1	5,6	7,1	10,7	10,8	21,9
Maximum electrical input	A	16	26,6	20,0	22,0	28,5	43,0
Starting current	A	10	10	10	10	10	10
No. of compressors / circuits		1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Refrigerant charge	kg	2,1	4,1	4,4	4,4	6,0	6,0
Low / high pressure switch	bar	42 / 2	42 / 2	42 / 2	42 / 2	42 / 2	42 / 2
No. of axial fans		1	2	2	2	4	4
Air flow rate	m³/h	4680	6939	6.939	6.939	11.438	11.438
Water flow rate in cooling mode	l/s	1367	1.789	2.407	3.072	3.861	4.898
Water flow rate in heating mode	l/s	1545	1.974	2.727	3.752	4.273	5.853
Diameter of water connections	"	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Water pressure drop (cooling)	kPa	6	22	33	33	34	34
Water pressure drop (heating)	kPa	7	23	36	36	40	40
Available head (cooling)	kPa	93	130	120	120	98	98
Available head (heating)	kPa	95	120	110	110	80	80
Water content, excluding optionals	dm³	2	3	3	3	5	5
Expansion tank	dm³	1	5	5	5	5	5
Buffer tank	dm³	19,5	30	30	30	50	50
Height	mm	758	1250	1250	1250	1300	1300
Length	mm	1241	1220	1220	1220	1565	1565
Depth	mm	582	560	560	560	600	600
Sound power level	dB(A)	68	70	71	71	74	74
Sound pressure level	dB(A)	40	42	43	43	46	46
Transport weight *	kg	144	220	220	220	300	300
Operating weight *	kg	153	240	240	240	347	347

\* Weights refer to model with pump and storage reservoir

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

## 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.

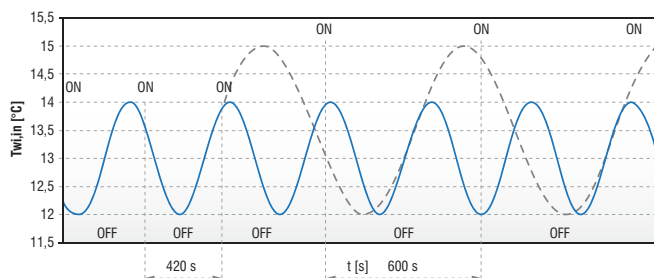
The technical compartment and compressor can also be sound insulated to obtain exceptionally quiet units.

### 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	m³/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	dm³	3	3	3	3	3	4	4	4	4	5	5	5
Expansion tank	dm³	5	5	5	5	5	5	5	5	5	8	8	8
Buffer tank	dm³	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	m³/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	dm³	3	3	3	3	3	4	4	4	4	5	5	5
Expansion tank	dm³	5	5	5	5	5	5	5	5	5	8	8	8
Buffer tank	dm³	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

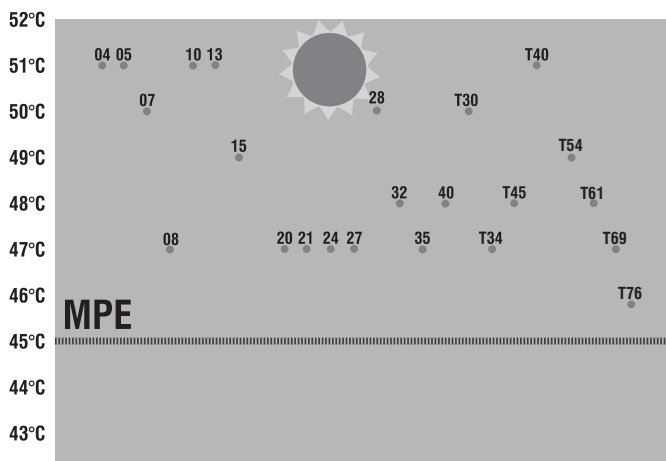
- > R410A
- > OPTIMISED FINNED BLOCK EXCHANGERS
- > QUIET OPERATION
- > HIGH EFFICIENCY
- > EXTENDED OPERATING LIMITS
- > TANDEM CONFIGURATION
- > DYNAMIC SETPOINT
- > OPERATION UNDER PARTIAL LOAD CONDITIONS WITHOUT NEED FOR WATER BUFFER TANK
- > SMART DEFROST SYSTEM
- > IN THE CONFIGURATION WITH AN 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 25 models in the chiller and heat pump version, with cooling capacities ranging from 4 to 76 kW and heating capacities from 5 to 85 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.

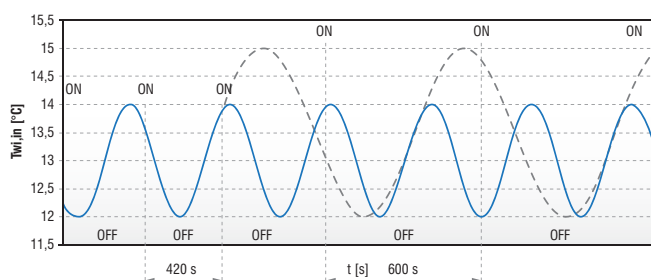
The axial-type fans with airfoil-shaped blades and 6- and 8-pole motors with electronic speed control (optional) guarantee quiet operation and optimal performance of the unit in all conditions.



### SELF-ADAPTIVE

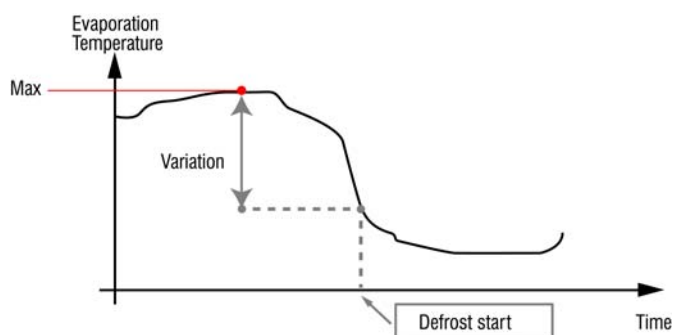
The electronic control system allows the setpoint to be adjusted automatically according to the outdoor temperature in order to reduce consumption and broaden the working temperature range.

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





MPE-C	004 M	005 M	007 M	008 M	008 M	010 M	010 M	013	015	018	020	024	027	028
Power supply	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50
Cooling capacity	4,11	5,10	6,66	8,40	8,40	9,25	9,25	12,90	14,98	17,20	19,61	23,80	26,60	28,10
MPE CB Total power input	1,35	1,70	2,26	3,35	3,09	3,22	3,22	4,16	5,16	6,32	7,12	8,10	9,33	8,65
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	2,85	3,25
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	3,36	3,77
MPE CP-OS Total power input	1,49	1,84	2,40	3,49	3,23	3,59	3,59	4,53	5,53	6,69	7,49	8,47	9,70	9,20
Maximum power input	2,0	2,3	3,0	5,0	5,0	5,1	7,2	8,9	10,5	12,5	13,6	14,5	18,0	18,3
Maximum current absorption	A	9,8	11,6	15,3	24,2	26,3	14,4	17,4	20,0	24,3	26,2	27,6	33,6	35,5
Starting absorbed current	A	38	44	63	98	99	50	65	68	75	104	158	132	133
n° of 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	1 / 1	1 / 1
Refrigerant charge	kg	1,47	1,48	2,04	2,09	2,87	2,87	3,99	4,11	3,67	4,23	5,8	6,0	7,5
Low/high pressure switch	bar	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42
n° of axial fan		1	1	1	1	2	2	2	2	4	4	4	4	2
Air flow	m³/h	3,635	3,406	3,406	3,406	7,385	7,385	6,939	6,939	9,990	9,990	9,307	9,307	16,276
Water flow	l/h	707	877	1,146	1,445	1,591	1,591	2,219	2,577	2,958	3,373	4,094	4,575	4,833
Diameter of hydraulic connections	pollici	1	1	1	1	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25
Water side pressure drop	kPa	2	4	6	6	34	34	61	38	51	51	49	34	40
Available pressure head	kPa	63	61	57	53	116	116	83	103	129	123	116	124	143
Water content excluding optionals	dm³	1,5	1,5	1,5	1,5	3,0	3,0	3,0	3,0	4,0	4,0	4,0	4,0	5,5
Expansion tank	dm³	1	1	1	1	5	5	5	5	5	5	5	5	8
Buffer tank	dm³	20	20	20	20	30	30	30	30	50	50	50	50	125
Height	mm	758	758	758	758	1250	1250	1250	1250	1300	1300	1300	1300	1485
Length	mm	960	960	960	960	1220	1220	1220	1220	1565	1565	1565	1565	1990
Depth	mm	450	450	450	450	560	560	560	560	600	600	600	600	950
Sound power level	dB(A)	66	66	67	67	69	69	69	69	71	71	72	72	73
Sound pressure level	dB(A)	38	38	39	39	41	41	41	41	43	43	44	44	45
Transport weight *	kg	98	100	107	110	202	202	209	209	260	260	280	285	370
Operating weight *	kg	92,3	94,3	101,3	104,3	227,5	227,5	234,5	234,5	306,3	296,3	327,3	332,3	492

- \* Weights referred to version including pump and buffer tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
  - Sound power level measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
  - Sound pressure level measured at a distance of 10 m and a height of 1.5 m above the ground in a free field (fan side).
  - The maximum electrical input is the mains electricity that must be available in order for the unit to work.
  - The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).



MPE-C		032	035	040	054	066		T30	T34	T40	T45	T54	T61	T69	T76
Power supply	V-ph-Hz	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50		400-3-50	400-3-50	400-3-50	400-3-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50
Cooling capacity	kW	31,52	35,00	39,67	51,4	66,1		30,00	34,05	39,57	44,55	54,6	61,9	69,8	76,1
MPE CB Total power input	kW	10,06	11,51	12,77	17,8	24,1		10,43	12,59	13,64	16,38	18,3	21,2	23,6	27,5
EER		3,13	3,04	3,11	3,04	2,74		2,88	2,70	2,90	2,72	2,98	2,92	2,96	2,77
ESEER		3,63	3,61	3,68	3,6	3,3		4,17	4,11	4,15	4,04	4,03	4,01	4,18	4,16
MPE CP CS Total power input	kW	10,61	12,06	13,32	18,7	25		10,98	13,14	14,19	16,93	19,6	22,5	24,9	28,8
Maximum power input	kW	18,9	21,8	22,4	22,7	23,3		20,9	24,4	26,6	30,8	27	29,9	32,3	39,4
Maximum current absorption	A	36,5	41,5	42,5	45,2	46,2		39,9	45,9	49,7	56,7	48	53	57	69
Starting absorbed current	A	166	161	163	163	165		86	96	127	130	177	187	202	229
n° of compressors / circuits		1 / 1	1 / 1	1 / 1	1 / 1	1 / 1		2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Refrigerant charge	kg	7,5	7,8	10,8	13	15,0		7,8	7,8	10,9	10,9	11	11	16	16
Low/high pressure switch	bar	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42		2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42
n° of axial fan		2	2	2	2	2		2	2	2	2	4	4	4	4
Air flow	m³/h	16,276	16,276	15,776	20000	20000		16,276	16,276	15,776	15,776	24930	24930	24354	24354
Water flow	l/h	5,421	6,021	6,823	9305	11376		5,160	5,857	6,806	7,663	9391	10647	12006	13089
Diameter of hydraulic connections	pollici	1,25	1,25	1,25	1,25	1,25		1,25	1,25	1,25	1,25	2	2	2	2
Water side pressure drop	kPa	51	41	43	60	60		30,01	38	45	57	56	69	55	64
Available pressure head	kPa	126	130	119	110	95		150	134	117	97	138	120	128	114
Water content excluding optionals	dm³	5,5	5,5	5,5	7	8		5,5	5,5	5,5	5,5	7	8	11	12
Expansion tank	dm³	8	8	8	8	8		8	8	8	8	8	8	8	8
Buffer tank	dm³	125	125	125	125	125		125	125	125	125	125	125	125	125
Height	mm	1485	1485	1485	1485	1485		1485	1485	1485	1485	1735	1735	1735	1735
Length	mm	1990	1990	1990	1990	1990		1990	1990	1990	1990	2091	2091	2091	2091
Depth	mm	950	950	950	950	950		950	950	950	950	1183	1183	1183	1183
Sound power level	dB(A)	73	73	75	78	78		72	72	72	72	81	81	81	81
Sound pressure level	dB(A)	45	45	47	50	50		44	44	44	44	53	53	53	53
Transport weight *	kg	370	390	390	500	530		410	410	430	430	557	692	692	786
Operating weight *	kg	492	513	513	620	650		532	533	553	553	665	800	800	894

- \* Weights referred to version including pump and buffer tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
  - Sound power level measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
  - Sound pressure level measured at a distance of 10 m and a height of 1.5 m above the ground in a free field (fan side).
  - The maximum electrical input is the mains electricity that must be available in order for the unit to work.
  - The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

MPE-H	004 M	005 M	007 M	008 M	008	010 M	010	013	015	018	020	024	027	028
Power supply	230-1-50	230-1-50	230-1-50	230-1-50	400-3-50	230-1-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50
Cooling capacity	kW	4.03	5.00	6.53	8.23	8.23	9.07	12.64	14.68	16.86	19.22	23.32	26.07	27.54
MPE HB Cooling power input	kW	1.35	1.70	2.26	3.35	3.09	3.22	4.16	5.16	6.32	7.12	8.10	9.33	8.65
EER		2.99	2.95	2.89	2.46	2.67	2.82	3.04	2.85	2.67	2.70	2.88	2.79	3.18
ESEER		3.47	3.32	3.26	2.92	3.29	3.31	3.62	3.46	3.23	3.15	3.35	3.29	3.70
MPE HP - HS Cooling power input	kW	1.49	1.84	2.40	3.49	3.23	3.59	4.53	5.53	6.69	7.49	8.47	9.70	9.20
Heating capacity	kW	4.72	5.86	7.77	10.21	9.95	10.87	15.09	17.60	20.03	22.96	27.15	29.98	31.37
MPE HB Heating power input	kW	1.46	1.81	2.41	3.59	3.25	3.62	4.70	5.49	6.63	7.16	8.11	8.89	9.14
COP		3.24	3.25	3.23	2.85	3.07	3.00	3.21	3.21	3.02	3.21	3.35	3.37	3.43
MPE HP - HS Heating power input	kW	1.60	1.95	2.55	3.73	3.39	3.99	5.07	5.86	7.00	7.53	8.48	9.26	9.69
Maximum power input	kW	2.0	2.3	3.0	5.0	5.0	5.1	7.2	10.5	12.5	13.6	14.5	18.0	18.3
Maximum current absorption	A	9.80	11.60	15.30	24.20	9.20	26.30	14.40	20.00	24.30	26.20	27.6	33.60	35.50
Starting absorbed current	A	38	44	63	98	49	99	50	65	75	104	158	132	133
n° of 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	1 / 1
Refrigerant charge	kg	1.47	1.48	2.04	2.09	2.09	2.87	3.99	4.11	3.67	4.23	5.8	6.0	7.5
Low/high pressure switch	bar	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42
n° of axial fan		1	1	1	1	1	2	2	2	4	4	4	4	2
Air flow	m³/h	3.635	3.635	3.406	3.406	3.406	7.385	6.939	6.939	9.990	9.990	9.307	9.307	16.276
Water flow in cooling mode	l/h	707	877	1.146	1.445	1.445	1.591	2.219	2.577	2.958	3.373	4.094	4.575	4.833
Water flow in heat pump	l/h	811	1.008	1.337	1.755	1.711	1.869	2.595	3.027	3.445	3.949	4.670	5.156	5.396
Diameter of hydraulic connections	"	1	1	1	1	1	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Water pressure drop (cooling)	kPa	2	4	6	6	6	34	61	38	51	51	49	34	40
Water pressure drop (heating)	kPa	3	4	8	8	8	45	83	51	69	69	62	43	49
Available pressure head (cooling)	kPa	63	61	57	53	53	116	83	103	129	123	116	124	143
Available pressure head (heating)	kPa	62	59	53	48	48	102	57	86	104	97	95	107	128
Water content excluding optionals	dm³	1.5	1.5	1.5	1.5	1.5	3.0	3.0	3.0	4.0	4.0	4.0	4.0	5.5
Expansion tank	dm³	1	1	1	1	1	5	5	5	5	5	5	5	8
Buffer tank	dm³	n.d.	n.d.	n.d.	n.d.	n.d.	30	30	30	50	50	50	50	125
Height	mm	758	758	758	758	758	1250	1250	1250	1300	1300	1300	1300	1485
Length	mm	960	960	960	960	960	1220	1220	1220	1565	1565	1565	1565	1990
Depth	mm	450	450	450	450	450	560	560	560	600	600	600	600	950
Sound power level	dB(A)	66	66	67	67	67	69	69	69	71	71	72	72	73
Sound pressure level	dB(A)	38	38	39	39	39	41	41	41	43	43	44	44	45
Transport weight *	kg	103	105	111.7	115	115	212	212	220	273	273	295	300	400
Operating weight *	kg	97.3	99.3	106	109.3	109.3	237.5	244.5	245.5	319.3	309.3	342.3	347.3	522

- \* Weights referred to version including pump and buffer 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 power level measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
  - Sound pressure level measured at a distance of 10 m and a height of 1.5 m above the ground in a free field (fan side).
  - The maximum electrical input is the mains electricity that must be available in order for the unit to work.
  - The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

MPE-H		032	035	040	054	066		T30	T34	T40	T45	T54	T61	T69	T76
Power supply	V-ph-Hz	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50		400-3-50	400-3-50	400-3-50	400-3-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50
Cooling capacity	kW	30,89	34,30	38,88	52,00	62,80		29,40	33,37	38,78	43,66	53,5	60,7	68,5	74,6
MPE HB Cooling power input	kW	10,06	11,51	12,77	17,80	24,10		10,43	12,59	13,64	16,38	18,30	21,20	23,60	27,50
EER		3,07	2,98	3,04	2,92	2,60		2,82	2,65	2,84	2,67	2,91	2,86	2,9	2,71
ESEER		3,56	3,54	3,61	3,50	3,20		4,09	4,03	4,06	3,96	4,01	3,99	4,16	4,15
MPE HP - HS Cooling power input	kW	10,61	12,06	13,32	18,70	25,00		10,98	13,14	14,19	16,93	19,6	22,5	24,9	28,8
Heating capacity	kW	35,58	39,28	45,17	60,80	75,30		34,51	39,41	46,49	52,72	59,90	67,50	77,00	84,76
MPE HB Heating power input	kW	10,42	11,57	13,14	18,30	23,10		10,86	12,80	13,97	16,26	18,50	21,50	23,40	26,82
COP		3,41	3,39	3,44	3,32	3,26		3,18	3,08	3,33	3,24	3,24	3,14	3,29	3,16
MPE HP - HS Heating power input	kW	10,97	12,12	13,69	19,20	24,00		11,41	13,35	14,52	16,81	19,76	22,76	24,66	28,08
Maximum power input	kW	18,9	21,8	22,4	22,70	23,30		20,9	24,4	26,6	30,8	27,0	29,9	32,3	39,4
Maximum current absorption	A	36,50	41,50	42,50	45,20	46,20		39,9	45,9	49,70	56,70	48	53	57	69
Starting absorbed current	A	166	161	163	163	165		86	96	127	130	177	187	202	229
n° of compressors / circuits		1 / 1	1 / 1	1 / 1	1 / 1	1 / 1		2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Refrigerant charge	kg	7,5	7,8	10,8	13	16,0		7,8	7,8	10,9	10,9	12,8	12,8	16,3	16,3
Low/high pressure switch	bar	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42		2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42	2 / 42
n° of axial fan		2	2	2	2	2		2	2	2	2	4	4	4	4
Air flow	m³/h	16,276	16,276	15,776	20000	20000		16,276	16,276	15,776	15,776	24930	24930	24354	24354
Water flow in cooling mode	l/h	5,421	6,021	6,823	8944	10802		5,160	5,857	6,806	7,663	9202	10440	11782	12831
Water flow in heat pump	l/h	6,120	6,756	7,769	10456	12953		5,935	6,779	7,996	9,067	10303	11610	13244	14579
Diameter of hydraulic connections	"	1,25	1,25	1,25	1,25	1,25		1,25	1,25	1,25	1,25	2	2	2	2
Water pressure drop (cooling)	kPa	51	41	43	60	60		30	38	45	57	56	69	55	64
Water pressure drop (heating)	kPa	63	50	54	80	80		39	51	57	73	60	77	59	71
Available pressure head (cooling)	kPa	126	130	119	112	99		150	134	117	97	138	120	128	114
Available pressure head (heating)	kPa	107	113	99	80	61		133	112	93	67	130	120	110	100
Water content excluding optionals	dm³	5,5	5,5	5,5	7	8		5,5	5,5	5,5	5,5	7	8	11	12
Expansion tank	dm³	8	8	8	8	8		8	8	8	8	8	8	8	8
Buffer tank	dm³	125	125	125	125	125		125	125	125	125	125	125	125	125
Height	mm	1485	1485	1485	1485	1485		1485	1485	1485	1485	1735	1735	1735	1735
Length	mm	1990	1990	1990	1990	1990		1990	1990	1990	1990	2091	2091	2091	2091
Depth	mm	950	950	950	950	950		950	950	950	950	1183	1183	1183	1183
Sound power level	dB(A)	73	73	75	78	78		72	72	72	72	81	81	81	81
Sound pressure level	dB(A)	45	45	47	50	50		44	44	44	44	53	53	53	53
Transport weight *	kg	400	420	420	530	560		430	430	430	450	660	702	702	792
Operating weight *	kg	522	543	543	650	680		552	552	553	573	768	810	810	900

- \* Weights referred to version including pump and buffer 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 power level measured according to standards ISO 3741 - ISO 3744 and EN 29614-1
  - Sound pressure level measured at a distance of 10 m and a height of 1.5 m above the ground in a free field (fan side).
  - The maximum electrical input is the mains electricity that must be available in order for the unit to work.
  - The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units).

## MCC AIR CONDENSED WATER CHILLERS WITH CENTRIFUGAL 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	m³/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 hydraulic connections	"	1	1	1 1/4	1	1	1 1/4
Water content escluding optionals	dm³	2,5	2,8	3,3	2,5	2,8	3,3
Expansion tank	dm³	1	1	5	1	1	5
Buffer tank	dm³	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	m³/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 hydraulic 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	dm³	4	4	4	5	6	7	8
Expansion tank	dm³	5	5	5	5	8	8	8
Buffer tank	dm³	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 *	kq	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	m³/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 hydraulic connections	"	1	1	1 1/4	1	1	1 1/4
Water content excluding optionals	dm³	2,5	2,8	3,3	2,5	2,8	3,3
Expansion tank	dm³	1	1	5	1	1	5
Buffer tank	dm³	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	m³/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 hydraulic connections	"	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Water content excluding optionals	dm³	4	4	4	5	6	7	8
Expansion tank	dm³	5	5	5	5	8	8	8
Buffer tank	dm³	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.

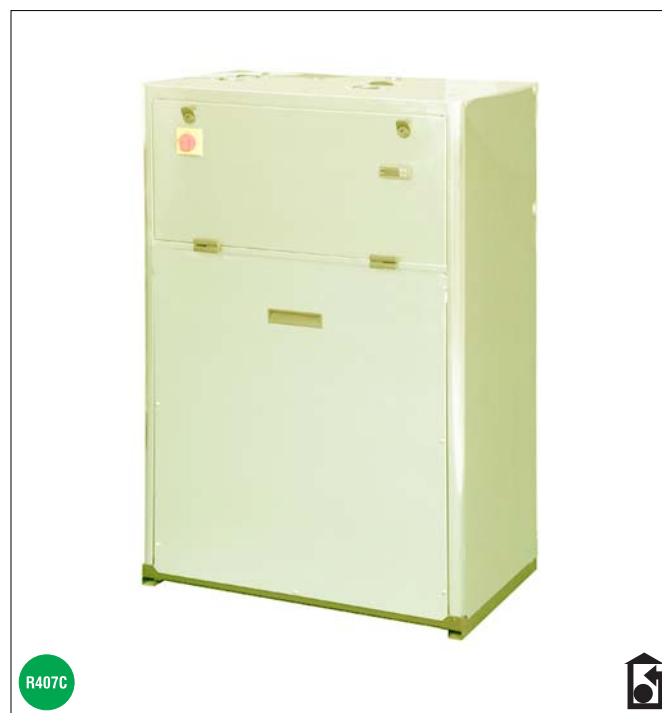
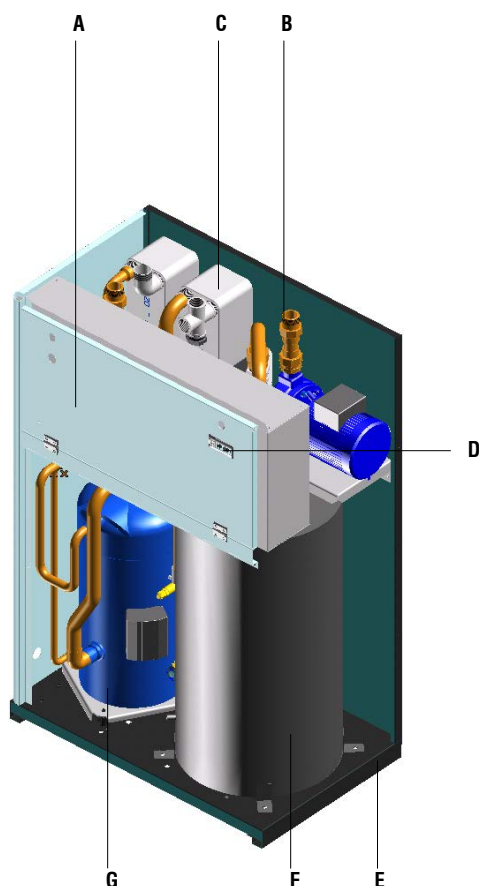
The design philosophy has favoured the development of units having a reduced height with water or cooling (**MCR**) connections from above and pre-assembled piping system, which reduce installation time and costs and the need for technical space.

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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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



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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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



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  
+ 43° C in cooling mode  
Maximum water outlet temperature +55° C in heating mode



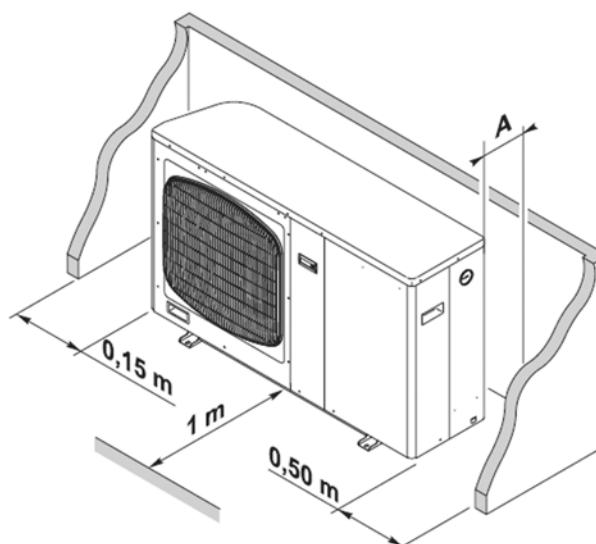
## TECHNICAL DATA of MSHRT heat pumps

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
	Rated input power	kW	2,65	3,19	3,62
	C.O.P	kW/kW	2,72	2,87	2,9
	Nominal water flow rate	m³/h	1,19	1,58	1,87
	Pump available head	kPa	57	47	66
	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
	Rated input power	kW	2,87	3,23	3,77
	C.O.P	kW/kW	1,6	1,55	1,56
	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
	Rated input power	kW	3,04	3,75	4,04
	C.O.P	kW/kW	1,97	2,17	2,32
	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
	Rated input power	kW	2,56	3,12	3,48
	C.O.P	kW/kW	2,83	2,96	3,06
	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
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
	Rated input power	kW	2,55	3,14	3,33
	E.E.R.	kW/kW	2,31	2,26	2,57
	Water flow rate	m³/h	1,01	1,22	1,48
	Pump available head	kPa	64	59	82
Type of refrigerant		R410A	R410A	R410A	R410A
Number of cooling circuits		no.	1	1	1
Nbr of compressors		no.	1	1	1
Starting current		A	40	33	34
Expansion tank		l	2	2	2
Diameter of male water connection		3/4"	3/4"	1"	1"
Sound power level		dB(A)	65	65	67
Min/max water content of system		l	30/60	40/90	50/90
Net dimensions (H/L/D)		mm	735x1190x340	735x1190x340	1235x1190x340
Net weight		kg	98	98	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	1,9	2,4	3,1	4,1	4,1	4,5	4,6	5,9	5,9	6,9
Maximum current absorbed	A	9,6	12,2	15,7	20,0	7,4	22,8	8,6	10,8	10,9	12,5
Starting 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	8,6	9,3	10,7	12,8	14,6	15,6	17,1	23,1	29	
Maximum current absorbed	A	16,9	18,0	20,4	26,2	29,2	31,0	32,3	45,8	54,3	
Starting 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					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

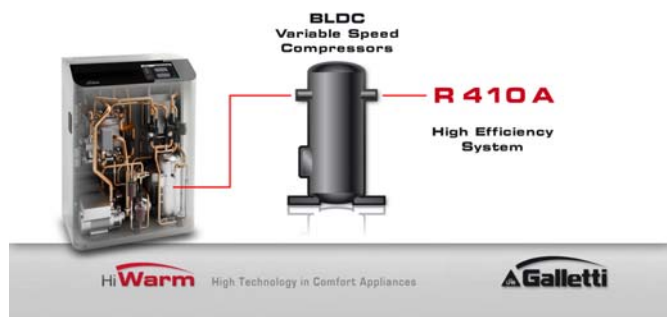
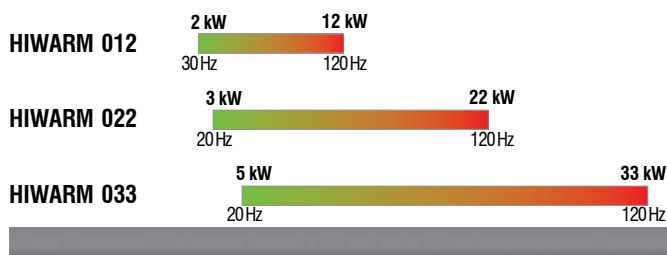
# MODULATING HIGH-PERFORMANCE MULTIFUNCTION SYSTEM WITH TOTAL HEAT RECOVERY

- > SPLIT EXECUTION
- > HEATING
- > COOLING
- > DEHUMIDIFYING
- > DOMESTIC HOT WATER
- > USE OF RENEWABLE HEAT SOURCES
- > MAXIMUM ENERGY EFFICIENCY
- > TOTAL HEAT RECOVERY
- > INTEGRATED HYDRONICS
- > FULL SAFETY

HiWarm is a split multifunction heat pump with total recovery of condensation heat.

Exchanging heat with outdoor air allows to air-condition the environment and to produce hot water for sanitary purposes without using electric resistances. During the summer cooling period, it is capable of producing hot water and cooled water simultaneously.

3 sizes can be chosen, classified based on the cooling capacity which can be supplied at the maximum power frequency of the compressor:



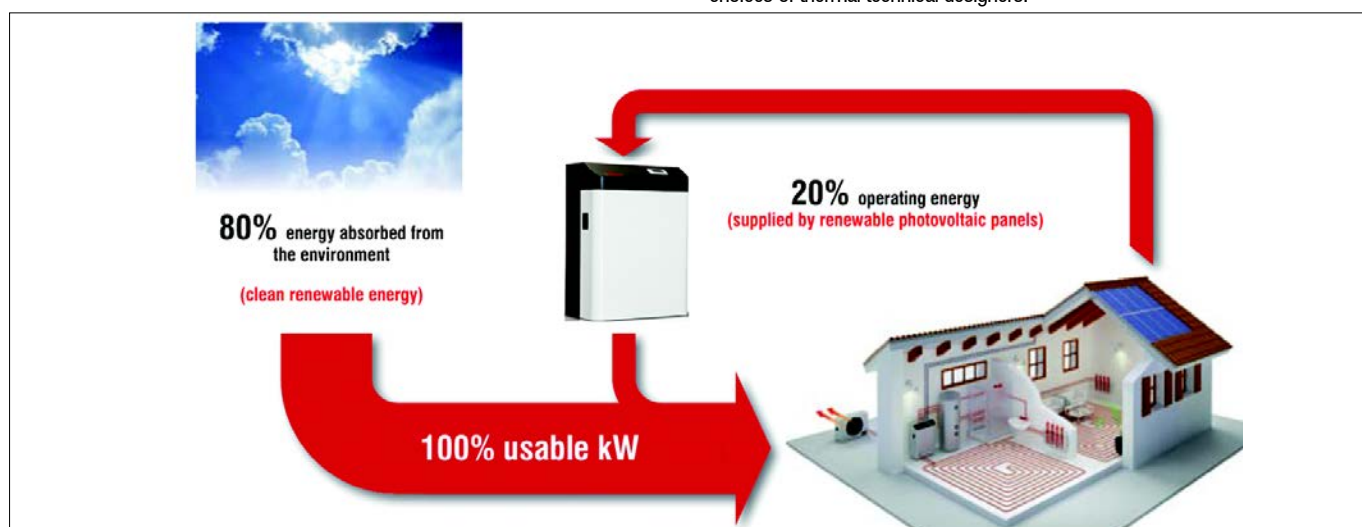
The features which are common to all 3 sizes of HiWarm units can thus be summarised:

- Split unit with compressor mounted inside, thus reducing external noise emission and implementing a lightweight outer unit, which can be positioned at a height simply using brackets.
- Remote heat sink unit housing the coil and fans. It is available in the outdoor installation version and in the indoor duct-type installation version.

The main HiWarm constructive features are:

- Dual hydraulic circuit.
- Air conditioning circuit with cooling circuit side and waterside reversibility and set-point variable between min/max with voltage-free contact or min/max with 0-10V or 4-20mA signal.
- DHW circuit with total heat recovery (with simultaneous cooling) or at least with priority. This circuit is separate and does not need, like similar products on the market, long heating/cooling stages of inertial storage which jeopardise energy efficiency during summer operation.
- Scroll or twin-rotary compressors with BLDC brushless technology.
- High-efficiency braced plate heat exchangers in AISI 316
- High-efficiency fans
- Expansion device: EEV (electronically-controlled expansion valve) to benefit from the possibility of generating thermodynamic cycles under reduced pressure jumps with considerable COP advantages.
- System side and DHW side integrated control of pumps: both pumps are modulating with permanent magnet synchronous electric motor.
- Advanced electronic control which allows to appropriately respond to load partialisation requirements.

These critical components guarantee ideal operation with partial loads, ever more subject of evaluation and a discriminating element in the technical choices of thermal technical designers.





<p><b>WINTER</b></p> <p>Heating + hot water</p> 	<p><b>DURING WINTER, HIWARM CAN PRODUCE HOT WATER FOR THE HEATING SYSTEM AND PRODUCE DOMESTIC HOT WATER WITH OUTSIDE TEMPERATURES AS LOW AS -15°C AND WATER TEMPERATURE UP TO 60°C.</b></p>
<p><b>MILD CLIMATES</b></p> <p>hot water only</p> 	<p><b>DURING INTERMEDIATE SEASONS, HIWARM CAN PRODUCE ONLY DOMESTIC HOT WATER WHILE SUMMER AND WINTER AIR CONDITIONING REMAINS OFF</b></p>
<p><b>SUMMER</b></p> <p>Hot water + cooling</p> 	<p><b>IN SUMMER MODE, DOMESTIC HOT WATER IS PRODUCED “FREE OF CHARGE” TOGETHER WITH COOLED WATER USE FOR REQUIREMENTS OF COOLING AND/OR DEHUMIDIFYING OF AMBIENT AIR</b></p>
<p><b>SUMMER</b></p> <p>Hot water + cooling and dehumidification</p> 	



## COMPONENTS OF STRUCTURE

### INDOOR UNIT

Sheet metal perimeter panelling galvanised and painted with epoxy powders and oven-polymerised at 180°C. Front cover in plexyglass even encompassing Display (LCD).

All components can be accessed from the front of the unit by simply removing the front panel.

The indoor unit houses the BLDC compressor, the high-efficiency modulating pumps, the brased plate heat exchangers, the electronic expansion valve, the on-board controller, the water side cycle inversion valve and the solenoid valves.

### REMOTE UNIT FOR OUTDOOR INSTALLATION

Panelling painted with polyester powders and oven-polymerised at 180°C. The unit is totally faired and available in RAL9002 (Grey White). The outdoor unit houses the fans and the finned coil.

The fans have 6-poles, with blades having high degree of overlapping, combined with asynchronous motors with external impeller (or synchronous with permanent magnets) and continuous modulation of rotation speed. Fans with permanent magnet synchronous EC motor are available as an option.

### REMOTE UNIT FOR INDOOR INSTALLATION (ATTIC)

Sheet metal panelling galvanised and then painted with polyester epoxy powders and oven-polymerised at 180°C.

The unit is totally faired and available in RAL9002 (Grey White).

Centrifugal fans with backward-curved blades with strong degree of reaction combined with BLDC brushless motors for continuous and efficient modulation.

Maximum head available at 200 Pa.

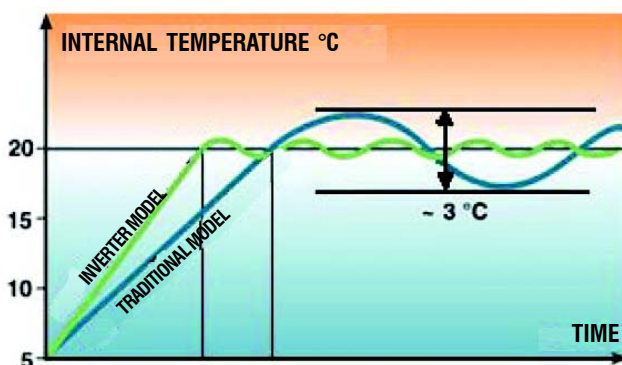
## COMPRESSORS



Hermetic orbiting Scroll compressors (for 22 DC and 33 DC respectively) or Twin Rotary (for 12 DC) complete with motor protection against overheating, overloads or excessive delivery gas temperatures.

Mounted on anti-vibration rubber, complete with oil charge and inserted in a soundproof compartment with sound-absorbing material. Also complete with automatic oil heater to prevent the oil from being diluted by the refrigerant when the compressor stops.

Compressor motors with permanent magnets, brushless, alternating current, piloted by trapezoidal wave driver at a speed rate between 30 (20) and 120 Hz (BLDC "Brush Less Direct Current" Technology). trapezoidal wave driver within a speed range between 30 (20) and 120 Hz (BLDC "Brushless Direct Current" technology ).



### INTERNAL HEAT EXCHANGERS

Only brazed plate heat exchangers are used, made of austenitic stainless steel AISI 316 with AISI 316L connections, featured by a reduced carbon content to simplify brazing operations.

The solution of the brazed plate heat exchanger represents the state-of-the-art in terms of thermal exchange efficiency and allows a strong reduction of refrigerant load compared to standard solutions.

The high degree of turbulence induced by the internal corrugation of the plates, together with their perfect smoothing features, makes it difficult for filth to deposit. The high thermal exchange coefficient on the refrigerant side, together with the new geometry of the plates, provides a much reduced Temperature approach with clear exergetic advantages.

### PUMPS

Maintenance-free high efficiency wet impeller circulation pumps are used with EC motors, electronically-controlled and class A energy.

The pump body is in grey cast iron, with a cataphoresis KTL finish, as an excellent protection against corrosion. The thermal insulation is in polypropylene, the shaft in stainless steel, the bearings in carbon permeated with metal, and the three-dimensional scroll impeller is made of synthetic material with a hermetic insulation cladding in composite carbon fibre.

They are supplied with a heat-insulation cover for heating applications and pre-formed insulation covers for cooling.



### ELECTRONICALLY CONTROLLED EXPANSION VALVE

An electronically controlled electric valve is used which, unlike the traditional mechanical thermostatic valve, is capable of managing transients very quickly and also of operating with very small P.

The shutter in the central part of the valve can always slide vertically with an ample stroke allowing variation of the degree of opening of the orifice of the fluid passage.

The use of this valve reduces compressor energy consumption when the surrounding conditions allow to bring the pressure difference between condensation and evaporation below 5 bar.

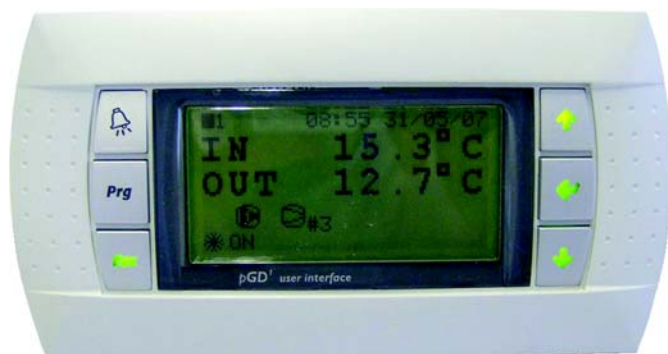
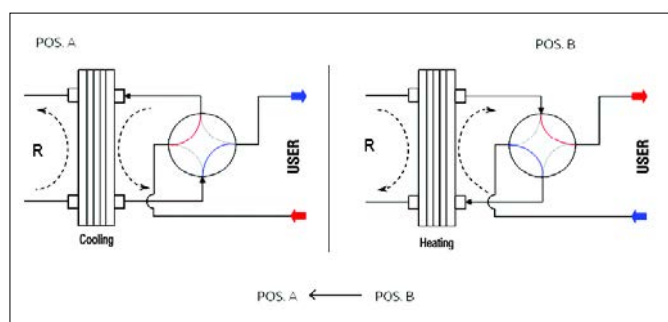


## WATER-SIDE CYCLE INVERSION VALVE

HiWarm units are reversible: when they switch from cooling to the heat pump and vice versa, they perform two cycle inversions. One refrigerant side and one water side. P

The inversion valve of the water-side cycle switches from position A to position B (in less than 20 seconds) and vice versa, by means of an electrical driver without changing the travel direction for the users. This allows to invert the flow direction in the heat exchangers, keeping them counter-current respect to the refrigerant fluid.

## ON BOARD CONTROLLER



The functions of the on-board controller are:

- Control of the different operational parameters;
- Modulation of the compressor to maintain the set-point of the heat pump's delivery temperature;
- Management of various alarms such as high/low pressure, antifreeze, flow switch, pump alarm;
- Pump management;
- Visualization of operating parameters;
- Antifreeze protection of heat exchangers;
- Management of the maximum number of compressor startups;
- Optional serial output management;
- Can be interfaced via WEB with Webgate option through a simple connection and use of any internet browser;
- Summer / Winter changeover and ON/OFF control with voltage-free contact or on-board machine;

GWEB SUPERVISION SOFTWARE is available, integrated in unit.

The WEB board allows to connect the controller on-board the machine with the RJ45 Ethernet network at 10 Mbps. The operative system used is Linux 2.4.21.

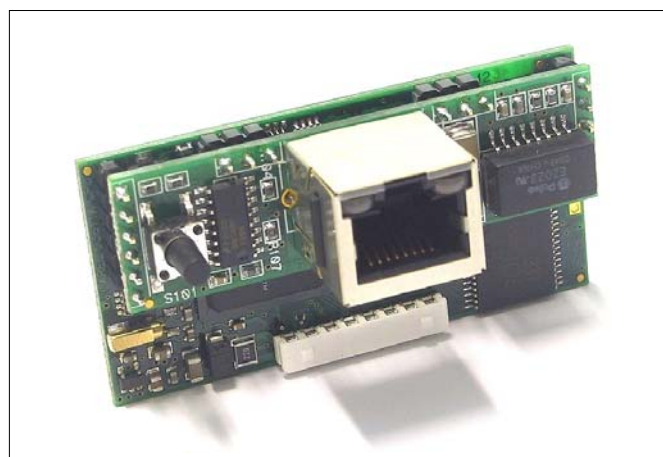
It is installed directly on the serial port of advanced control and is used as a static or dynamic IP address with DHCP function.

GWeb supervision software allows to do the following:

- Viewing unit status
- Viewing of active alarms and alarm history
- Recording data with 10 variables which can be set
- Download of all the data records from the web browser or via FTP
- Possibility of editing main parameters
- In case of alarm, sending e-mail to 5 different addressees

GWeb also makes it possible to perform a supervision monitoring with the following protocols:

- With SNMP v1 & v2c protocol
- With BACnet Ethernet or BACnet/IP protocol



## TECHNICAL DATA

The thermodynamic performance of HiWarm units supplied with electronic pumps (standard) and electronically controlled fans (optional) are provided according to the standard EN14511 of 2004; the ESEER values have been calculated according to the Eurovent standard. Performance is declared for a maximum gas line length of 10 m which connect the indoor unit to the remote unit (indoor or outdoor).

			Hi Warm012		Hi Warm022		Hi Warm033	
Compressor status		[Hz]	30	110	30	120	30	120
ESEER Eurovent radiant panels (utility @ 23-18°C) *			8.61		6.69		6.52	
ESEER Eurovent fan-coils (utility @ 12-7°C)			5.65		5.30		5.24	
Cooling @ 35°C air 12/7°C water	Cooling Capacity	[kW]	3.0	11.2	6.0	20.4	9.6	31.9
	Compressor Absorbed Power	[kW]	0.6	3.1	1.3	7.0	2.1	11.0
	Compressor Absorbed Current	[A]	7.4	8.3	11.1	12.6	16.6	19.8
	Fan Absorbed Power	[kW]	0.08	0.30	0.07	0.45	0.06	0.60
	Fan Absorbed Current	[A]	0.40	1.40	0.10	0.80	0.10	1.10
	EER	[-]	4.41	3.26	4.38	2.71	4.50	2.72
	UTILITY Water Flow Rate	[kg/h]	519	1921	1026	3517	1646	5480
	UTILITY Water Pressure Drops	[kPa]	2.0	19.0	3.0	26.0	3.0	23.0
	DISSIPATION Water Flow Rate	[m³/h]	3500	7000	5250	10500	7000	14000
Cooling @ 35°C air 23/18°C water	Cooling Capacity	[kW]	4.2	15.7	8.5	28.1	8.6	44.0
	Compressor Absorbed Power	[kW]	0.6	3.2	1.3	7.5	1.2	11.8
	Compressor Absorbed Current	[A]	6.9	8.6	10.9	13.2	3.2	20.4
	Fan Absorbed Power	[kW]	0.08	0.30	0.06	0.45	0.05	0.60
	Fan Absorbed Current	[A]	0.40	1.40	0.10	0.80	0.10	1.10
	EER	[-]	6.27	4.41	6.34	3.46	6.80	3.47
	UTILITY Water Flow Rate	[kg/h]	714	2696	1458	4834	1472	7565
	UTILITY Water Pressure Drops	[kPa]	3.0	37.0	4.0	49.0	11.1	44.0
	DISSIPATION Water Flow Rate	[m³/h]	3500	7000	5250	10500	7000	14000
DHW @ 50/55°C and 30°C outdoor air	Heating Capacity	[kW]	3.3	16.6	7.6	32.3	11.8	51.7
	Compressor Absorbed Power	[kW]	0.9	4.3	2.1	9.5	3.2	14.2
	Compressor Absorbed Current	[A]	12.8	18.4	15.2	23.7	20.2	25.9
	Fan Absorbed Power	[kW]	0.08	0.30	0.06	0.45	0.05	0.60
	Fan Absorbed Current	[A]	0.40	1.40	0.10	0.80	0.10	1.10
	COP	[-]	3.46	3.54	3.58	3.14	3.63	3.37
	DHW Flow Rate	[kg/h]	714	2860	1307	5563	2169	8885
	DHW Pressure Drops	[kPa]	3.0	41.0	4.0	64.0	4.0	61.0
	DISSIPATION Water Flow Rate	[m³/h]	3500	7000	5250	10500	7000	14000
Cooling + DHW @ 50/55°C and 12/7°C	Cooling Capacity	[kW]	2.4	9.2	4.7	17.1	7.9	28.1
	Heating Capacity	[kW]	3.2	13.1	6.4	25.5	10.6	40.9
	Compressor Absorbed Power	[kW]	0.9	4.1	1.8	8.9	2.9	13.4
	Compressor Absorbed Current	[A]	10.6	11.0	14.8	15.3	22.7	23.7
	Fan Absorbed Power	[kW]	0.0	0.0	0.0	0.0	0.0	0.0
	Fan Absorbed Current	[A]	0.0	0.0	0.0	0.0	0.0	0.0
	COP	[-]	3.55	3.16	3.49	2.86	3.68	3.03
	UTILITY Water Flow Rate	[kg/h]	407	1580	806	2944	1357	4839
	UTILITY Water Pressure Drops	[kPa]	1.0	13.0	3.0	18.0	3.0	18.0
	DHW Flow Rate	[kg/h]	556	2252	1107	4393	1829	7026
	DHW Pressure Drops	[kPa]	2.0	26.0	4.0	40.0	4.0	38.0

\* Value calculated the same way as ESEER Eurovent Fan-coils (utility @ 12-7°C).

			Hi Warm012		Hi Warm022		Hi Warm033	
Compressor status		[Hz]	30	110	30	120	30	120
ESEER Eurovent radiant panels (utility @ 23-18°C) *			8.61		6.69		6.52	
ESEER Eurovent fan-coils (utility @ 12-7°C)			5.65		5.30		5.24	
LT Heating @ 40/45°C and 7°C outdoor air	Heating Capacity	[kW]	2.9	11.7	5.8	22.7	9.4	34.9
	Compressor Absorbed Power	[kW]	0.7	3.3	1.5	7.1	2.3	10.8
	Compressor Absorbed Current	[A]	8.6	8.9	12.3	12.7	18.9	19.6
	Fan Absorbed Power	[kW]	0.30	0.30	0.45	0.45	0.60	0.60
	Fan Absorbed Current	[A]	1.40	1.40	0.80	0.80	1.10	1.10
	COP	[-]	2.84	3.23	3.00	2.95	3.21	3.02
	UTILITY Water Flow Rate	[kg/h]	499	2014	1000	3903	1618	5998
	UTILITY Water Pressure Drops	[kPa]	2.0	21.0	4.0	32.0	4.0	28.0
	DISSIPATION Water Flow Rate	[m³/h]	7000	7000	10500	10500	14000	14000
LT Heating @ 30/35°C and 7°C outdoor air	Heating Capacity	[kW]	3.1	12.2	6.1	23.5	9.8	35.7
	Compressor Absorbed Power	[kW]	0.6	2.7	1.2	5.8	1.9	8.9
	Compressor Absorbed Current	[A]	7.2	7.5	10.6	11.0	15.8	16.5
	Fan Absorbed Power	[kW]	0.30	0.30	0.45	0.45	0.60	0.60
	Fan Absorbed Current	[A]	1.40	1.40	0.80	0.80	1.10	1.10
	COP	[-]	3.48	4.03	3.69	3.65	3.91	3.71
	UTILITY Water Flow Rate	[kg/h]	527	2093	1050	4034	1687	6147
	UTILITY Water Pressure Drops	[kPa]	2.0	22.0	4.0	34.0	4.0	29.0
	DISSIPATION Water Flow Rate	[m³/h]	7000	7000	10500	10500	14000	14000
Power absorption	Power supply		single-phase 230/1/50		three-phase 400/3/50		three-phase 400/3/50	
	FLA with fans with phase cut	[A]	21,8		23,0		33,2	
	FLA with EC electronic fans	[A]	21,2		22,0		31,8	
Noise emission	Lw indoor unit noise power level	[dBA]	54		55		57	
	Lp indoor unit noise pressure (10m Q=2)	[dBA]	26		27		29	
	Lw outdoor unit noise power level	[dBA]	65		66		69	
	Lp outdoor unit noise pressure (10m Q=2)	[dBA]	37		38		41	
Compressor	Type of compressor		Twin Rotary		Scroll		Scroll	
	Electric motor technology		BLDC		BLDC		BLDC	
	Oil charge for compressor	[l]	1.8		1.5		1.8	
	N. of cooling circuits		1		1		1	
Dimensional weights and connections	Indoor module dimensions (LxHxD)	[mm]	803x1120x501.5		803x1247x606		803x1247x606	
	Outdoor module dimensions (LxHxD)	[mm]	1120x1230x450		1410x1280x450		2000x1512x550	
	Indoor module weight	[kg]	190		260		270	
	Outdoor module weight	[kg]	50		100		123	
	Size of hydraulic connections	[mm]	28		35		35	
	Chiller connections		Rotalock		Rotalock		Rotalock	

\* Value calculated the same way as ESEER Eurovent Fan-coils (utility @ 12-7°C).

## 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.



**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

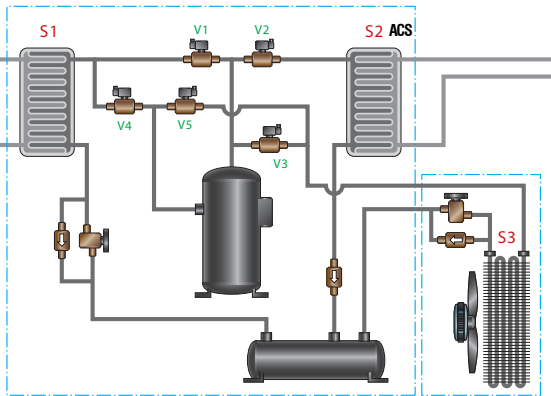
- d) Heating only: The system produces hot water on circuit “1” subtracting heat from the outdoor air that, together with the power absorbed by the compressors, is transferred to the water through the plate heat exchanger “S1”, the ventilation is adjusted to vary the airflow rate depending on the evaporation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



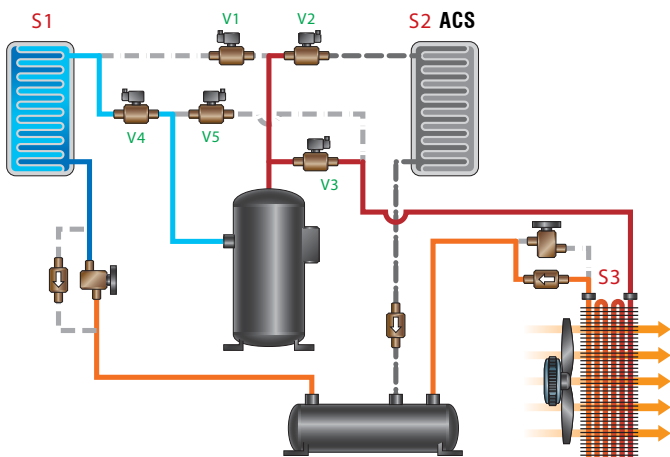
# OPERATION DESCRIPTION

The unit contains 3 distinct heat exchangers:

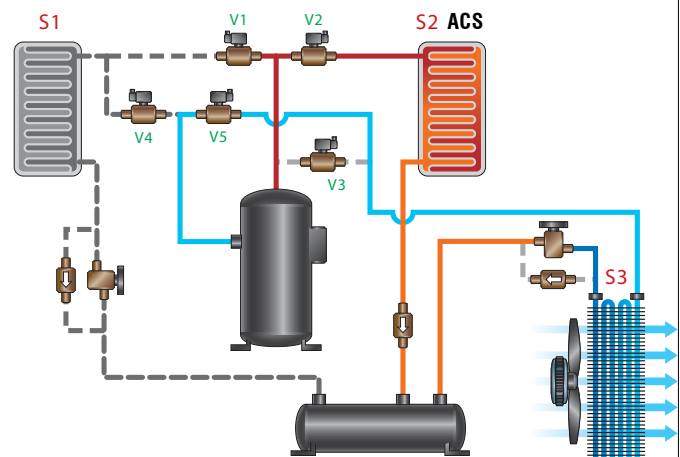
- “S3” finned heat exchanger with evaporating and condensing function for heat exchanging with heat source (outdoor air)
- “S1” plate heat exchanger designed for using unit with evaporating function in summer mode and condensing function in winter mode
- “S2” plate heat exchanger designed for the ACS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



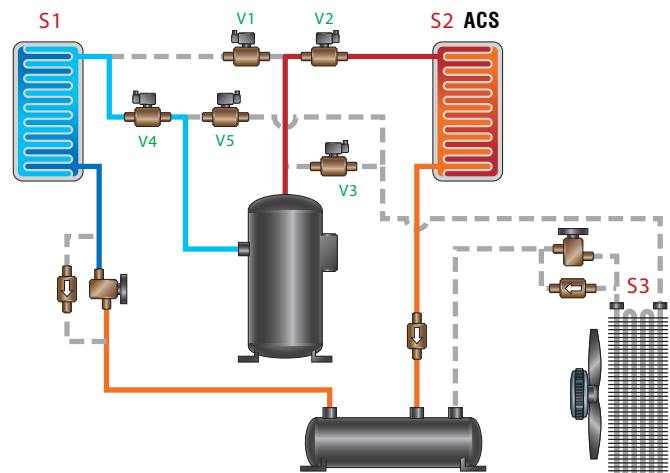
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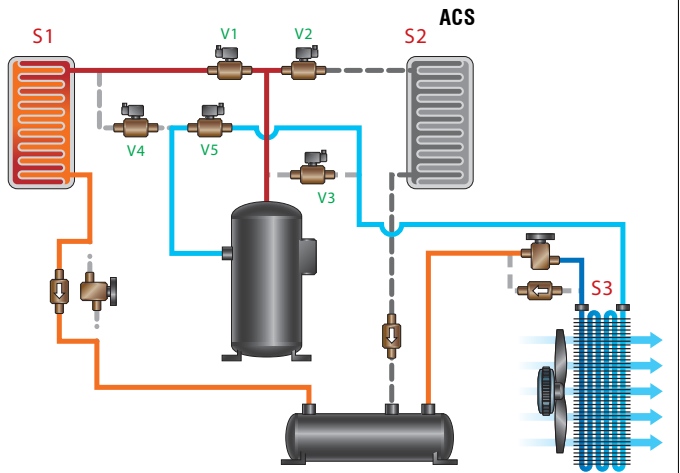
C-E



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
<b>Cooling mode</b>											
Cooling capacity <sup>1</sup>	kW	7,6	7,6	9,6	9,7	11,1	11,3	13,4	13,6	15,8	19,6
Power input <sup>1</sup>	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
<b>Cooling mode + DHW</b>											
Cooling capacity <sup>1</sup>	kW	7,20	7,30	9,00	9,10	10,60	10,80	12,80	13,00	15,40	18,40
Power input <sup>1</sup>	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
<b>Heating mode (system / DHW)</b>											
Heating capacity <sup>2</sup>	kW	8,9	8,8	11,1	11,2	12,6	12,7	15,6	15,7	18,1	23,3
Power input <sup>2</sup>	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 <sup>3</sup>	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
Ref. R407C	(kg)	6,3	6,3	6,3	6,3	6,5	6,5	7,4	7,4	8,3	10,8

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
<b>Cooling mode</b>											
Cooling capacity <sup>1</sup>	kW	27,4	34,4	40,4	18,6	18,8	21,4	21,6	26,0	26,4	32,4
Power input <sup>1</sup>	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
<b>Cooling mode + DHW</b>											
Cooling capacity <sup>1</sup>	kW	27,10	32,90	39,40	17,40	17,60	20,20	20,60	25,40	25,80	30,80
Power input <sup>1</sup>	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
<b>Heating mode (system / DHW)</b>											
Heating capacity <sup>2</sup>	kW	31,4	40,0	47,4	22,3	22,1	25,0	25,2	30,2	30,4	37,5
Power input <sup>2</sup>	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 <sup>3</sup>	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
Ref. R407C	(kg)	11,5	16,0	18,0	11,5	11,5	11,5	11,5	11,5	11,5	14,0

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		041	051	061	071	081	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 <sup>1</sup>	kW	51,4	56,5	66,4	74,1	81,6	99,2	108,4	130,2
Power input <sup>1</sup>	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 <sup>2</sup>	kW	46,90	51,70	59,30	67,20	75,10	90,70	99,60	116,70
DHW Heating capacity <sup>2</sup>	kW	62,10	68,80	79,10	89,20	100,20	121,10	133,90	156,00
Power input <sup>2</sup>	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 <sup>3</sup>	kW	73,1	81,2	93,4	104,4	117,3	144,3	159,4	188,2
Power input <sup>3</sup>	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 <sup>4</sup>	kW	54,6	60,2	70,1	77,8	87,0	108,1	118,8	142,1
Power input <sup>4</sup>	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 <sup>5</sup>	kW	53,9	59,1	69,5	76,4	85,6	106,0	116,8	139,4
Power input <sup>5</sup>	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 <sup>3</sup>	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 <sup>1</sup>	kW	143,3	161,3	186,7	220,4	245,4	276,1	299,9	318,1
Power input <sup>1</sup>	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 <sup>2</sup>	kW	128,60	146,20	173,10	200,60	228,30	261,30	280,50	300,20
DHW Heating capacity <sup>2</sup>	kW	173,10	196,50	232,80	269,80	306,80	348,50	375,60	403,30
Power input <sup>2</sup>	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 <sup>3</sup>	kW	204,8	236	274,5	325	366,8	413	448	478,9
Power input <sup>3</sup>	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 <sup>4</sup>	kW	157,7	172,2	201,5	237,9	268,1	302,2	326,5	350,8
Power input <sup>4</sup>	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 <sup>5</sup>	kW	154,7	172,2	201,5	237,9	268,1	302,2	326,5	350,8
Power input <sup>5</sup>	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	2,9	2,9	2,9	2,9
Expansion tank	l/h	25	25	25	25	25	25	25	25
Buffer tank	dm <sup>3</sup>	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



### 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**

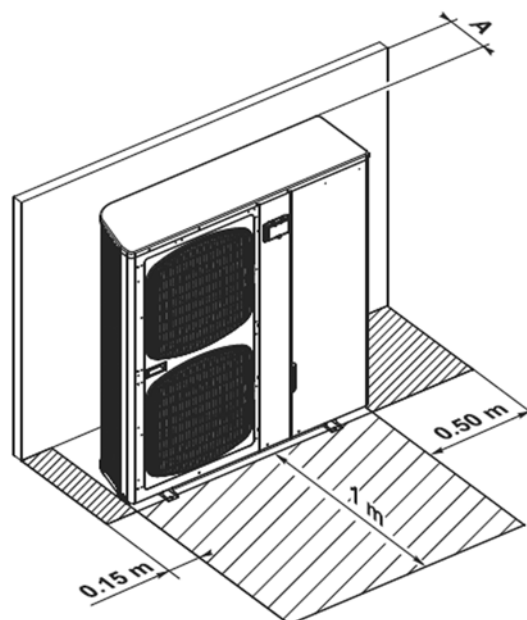
MODEL		MSHTJ 145	MSHTJ 147	MSHTJ 197
Power supply		230/1/50	400/3/50	400/3/50
HEATING	Conditions: inlet/outlet water temperature 40/45° C, inlet air temperature 7/6° C (D.B./W.B.); net values; EN 14511-2			
	Rated heating capacity	kW	13,65	13,8
	Rated input power	kW	5,25	4,98
	C.O.P	kW/kW	2,60	2,77
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

**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).



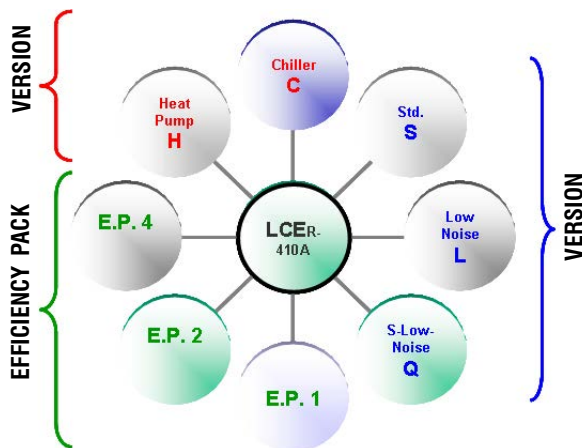
RATED TECHNICAL DATA of EMC tank module with electric heating elements						
EMC		EMC22M0000A	EMC22T0000A	EMC24M0000A	EMC24T0000A	EMC33T0000A
Power supply	V/Ph/Hz	230-1-50	400-3N-50	230-1-50	400-3N-50	400-3N-50
No. of reduction steps		2	2	2	2	2
Power input of electric heating element - 1st reduction 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 <sup>3</sup>	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

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.

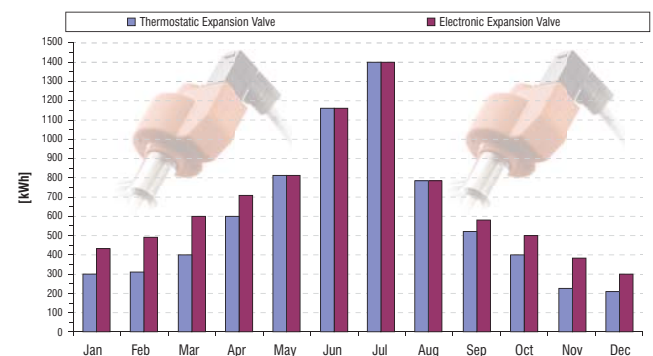
### > VERSION

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



## ELECTRONIC EXPANSION VALVES

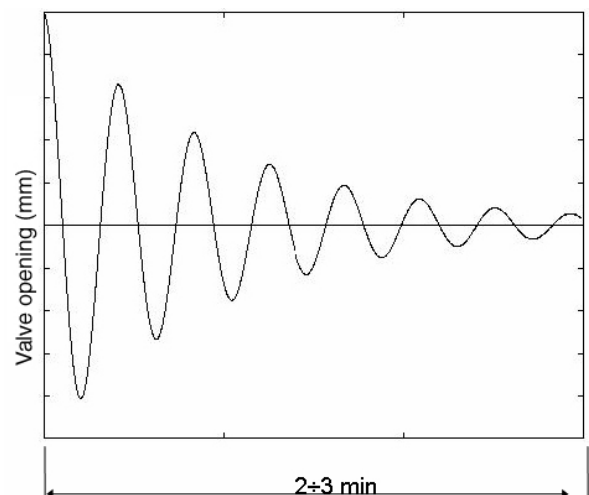
All units, irrespective of type of construction, are equipped with electronic expansion valves to maximise efficiency under part load conditions.



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:

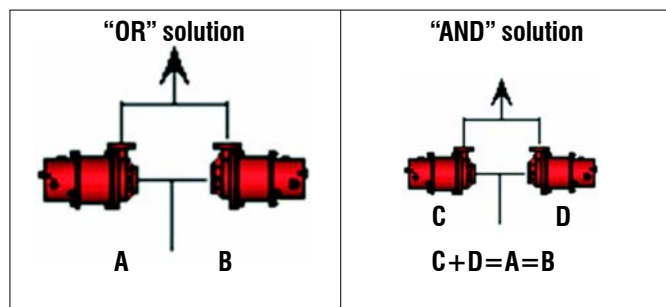
The electronic driver pre-positions the valve at a point very near the final equilibrium point.

- 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.

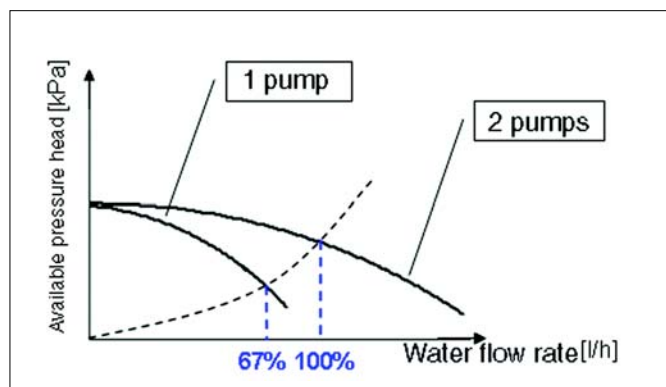
### WATER PUMP OPTIONS

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.

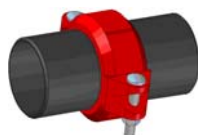


Under part load conditions operation is limited to a single pump, reducing the capacity by  $\frac{1}{3}$  compared to the rated value and resulting in average savings of about 30% in pumping costs.



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.

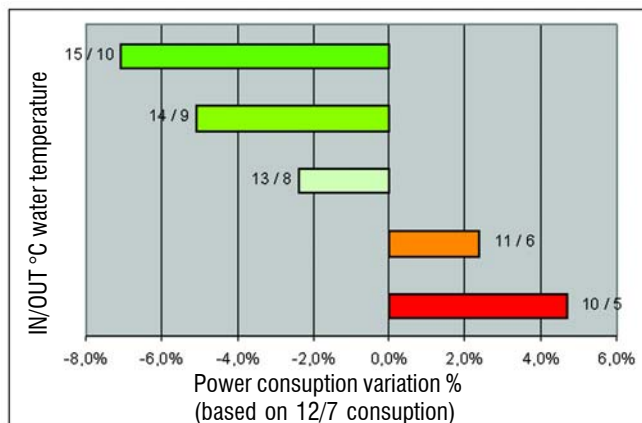


### REGULATION

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<sup>2</sup>). 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	m³/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	dm³	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	m³/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	dm³	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	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	2.060
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	m³/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	dm³	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	m³/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	dm³	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	m³/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	dm³	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	m³/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	dm³	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	m³/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	dm³	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	m³/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	dm³	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	m³/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	dm³	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	m³/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	dm³	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	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	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	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	4,09
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	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	42,27
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	3,16
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	4 / 2
No. of axial fans		4	4	6	6	6	8	8	8	8	8	6	6	6
Air flow	m³/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
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	21.623
Pressure drop, water side (cooling)	kPa	27	31	47	35	43	32	32	33	39	39	38	39	40
Available head, standard pump	kPa	157	149	125	131	117	129	129	128	118	118	119	109	106
Buffer tank	dm³	200	200	220	220	220	340	340	340	340	340	340	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
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
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
Sound power level	dB(A)	67	67	69	69	69	70	70	70	70	70	70	69	69
Sound pressure level	dB(A)	39	39	41	41	41	42	42	42	42	42	42	41	41
Base unit operating weight	kg	525	525	630	635	700	905	905	980	915	915	980	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	2.055

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	m³/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	dm³	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

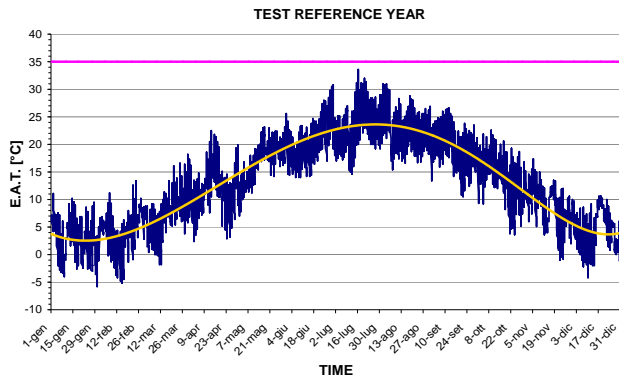
Heating capacity refers to the following conditions: water temperature 40-45°C, outdoor air temperature 7°C dry bulb and 6°C wet bulb

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.

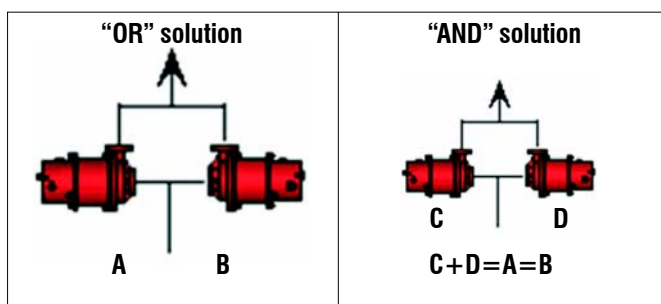
### WATER PUMP OPTIONS

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  $\frac{1}{3}$  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
- Up-rated 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
- Up-rated 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 up-rated 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	m³/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	dm³	600					1040								
Expansion tank	dm³	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	m³/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	dm³	600					1.040								
Expansion tank	dm³	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	m³/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	dm³	600					1040		
Expansion tank	dm³	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	m³/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	dm³	600					1.040		
Expansion tank	dm³	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 be 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:

<b>LCC CS</b>	Water chillers, standard version
<b>LCC CL</b>	Water chillers, low-noise version
<b>LCC HS</b>	Heat pumps, standard version
<b>LCC HL</b>	Heat pumps, low-noise version
<b>LCC FS</b>	FREE-COOLING, standard version
<b>LCC FL</b>	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

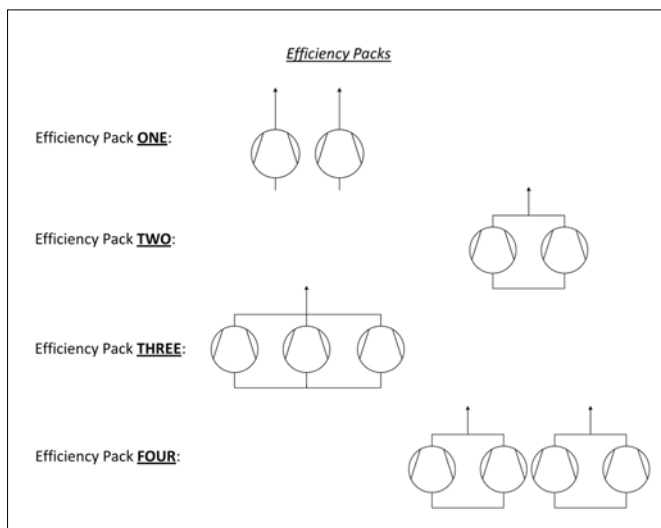
### > VERSION

- 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 complete 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  $L_p < 66$  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
<b>LEW CS / CL</b>	<b>041</b>	<b>042</b>	<b>051</b>	<b>052</b>	<b>061</b>	<b>062</b>	<b>071</b>	<b>072</b>	<b>081</b>	<b>082</b>	<b>091</b>	<b>092</b>
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
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
EER		5,60	5,91	5,39	5,37	5,59	5,59	5,46	5,46	5,62	5,62	5,51
Pressure drops, evaporator side	kPa	38	37	51	51	40	40	50	50	39	39	48
Pressure drops - condenser side	kPa	7	7	9	9	12	12	15	15	18	18	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
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
Height	mm	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
Depth	mm	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
LEW-CL: Sound power level	dB(A)	67	67	67	67	67	67	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	
<b>LEW CS / CL</b>	<b>111</b>	<b>112</b>	<b>131</b>	<b>132</b>	<b>141</b>	<b>142</b>	<b>144</b>	<b>161</b>	<b>162</b>	<b>164</b>	
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
<b>LEW CS / CL</b>	<b>181</b>	<b>182</b>	<b>184</b>	<b>204</b>	<b>214</b>	<b>243</b>	<b>244</b>	<b>283</b>	<b>284</b>	<b>314</b>	<b>344</b>	<b>374</b>	<b>424</b>
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	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	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	5,56
Pressure drops, evaporator side	kPa	54	54	51	51	57	51	55	40	41	49	56	56
Pressure drops - condenser side	kPa	30	31	29	28	33	21	23	28	28	35	36	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
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
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
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
Depth	mm	772	772	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
LEW-CL: Sound power level	dB(A)	71	71	71	71	71	71	71	71	71	71	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	100,97
Rated input power	kW	9,27	8,65	11,18	11,19	12,17	12,17	14,06	14,04	15,34	15,34	17,41
EER		5,60	5,91	5,39	5,37	5,73	5,73	5,57	5,59	5,89	5,90	5,80
Pressure drops, user side	kPa	37	36	50	50	52	52	49	49	39	39	49
Pressure drops, dissipator side	kPa	5	5	7	7	6	6	7	7	5	5	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
Rated input power	kW	12,8	12,13	15,29	15,3	16,85	16,85	19,46	19,47	21,42	21,43	28,55
COP		4,70	4,86	4,64	4,63	4,78	4,78	4,71	4,71	4,87	4,87	4,91
Pressure drops, user side	kPa	47	45	65	65	49	49	64	64	49	49	61
Pressure drops, dissipator side	kPa	32	31	44	44	44	44	43	43	33	33	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
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
Height	mm	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
Depth	mm	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
LEW-HL: Sound power level	dB(A)	67	67	67	67	67	67	68	68	68	68	68

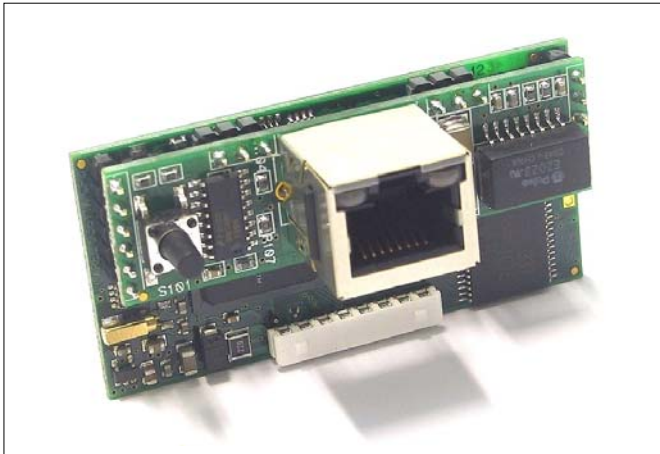
LEW HEAT PUMPS RATED TECHNICAL DATA											
Approx. capacity (kW)		120		130		150			170		
Efficiency Pack		1	2	1	2	1	2	4	1	2	4
LEW HS / HL		111	112	131	132	141	142	144	161	162	164
Cooling capacity	kW	122,01	122,07	139,04	139,22	155,73	159,54	159,28	177,95	177,84	179,33
Rated input power	kW	20,17	20,16	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		73	73	73	73	73	73	73	73	73	73	75	75	75
LEW-HL: Sound power level		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

dedicated controls | GWEB  
solutions 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  $\mu$ chiller2,  $\mu$ chiller2 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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