Galletti

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Water chillers and heat pumps

Water Chillers and Heat Pumps Catalogue

Galletti

AIR CONDITIONING

ONE HUNDRED YEARS OF HISTORY....

1906. Ugo Galletti settle down the first production facility.In the beginning the production was mainly devoted to the manufacture of ice mould and light carpentry.
1950. The production and technical evolution leads the company to become a supplier of important car and motor-bike manufacturers such as: Ferrari, Ducati ,Lamborghini, Morini.
1960. Galletti faces a big historical change: from manufacturing of components as a sub-supplier for other companies to own production of finished goods branded Galletti destined for end users. Galletti starts the manufacturing of heating units such as convector with copper/aluminium coils, and fan heaters for industrial application.
1975. Galletti starts the manufacturing of fan coil units; this is the first approach to the air conditioning field.
1986. Begin of a 15 years cooperation with a Japanese leading company in air conditionig. Galletti becomes the reference point of split systems in the Italian market.
1994. Galletti is one of the first companies in Europe to get the Eurovent certification.
1995. Galletti establish a new factory focused on the production of finned pack heat exchangers.First production of air condensed water chillers with cooling capacity from 6 to 180 kW.
1996. New production line of fan coils with a capacity of 700 units a day.
2001. Galletti founds a new company to approach the market of high technology air conditioning applications:HiRef.The represents another milestone towards the Galletti air conditioning globalisation.
2003. Extension of the Bentivoglio factory area with a new 7.000 m^2 building, including a new logistic centre and training facilities.
2006. A century of history for an enterprise that can today boast 3 manufacturing plants occupying a total area of over 45,000 m^2, more than 250 employees, 1,700,000 fan coils sold, over 250,000 split air conditioners installed, 10 years of Eurovent certification and a consolidated distribution in the whole Europe.

"FROM THE PRESIDENT"

One hundred years of history represent an important achievement in the life of a company, surely not one to be taken for guaranteed: an achievement that also induces us to reflect on how its identity has changed over time in response to market needs, with the advent of new technologies and generational transitions.
Starting off from this thought we have attempted to trace and capture Galletti's history, to understand whether and to what degree the company has remained loyal to its origins, to that "policy of small steps" introduced by Ugo Galletti and passed down, like an heirloom, through the DNA of three generations: a business philosophy that asserts a strong, well-defined philosophy with reasoned, solid, concrete steps.
We have confronted this history and have played our own, albeit small, part, year after year, through changes, the devastations of war, the desire to start anew and rebuild, economic booms and technological revolutions. Nearly a century in which we have not sat down to rest but rather to observe, explore new opportunities, define possibilities for dialogue and trace new paths. As participants in its growth and evolution, we have seen and renewed the principles and values underlying its birth, always feeling them to be alive.
All this today represents our identity, alive from the start and preserved over time; we have given it no name but believe in it unswervingly.
We have felt the need to defend it with constancy, adapting it to new realities, yes, but always remaining completely ourselves.
It thus seemed to us an important story that could not be relegated to the memory of a few individuals, with the risk of being lost; a story that should rightly be shared with all past, present and future stakeholders and passed down to the new generation, conveying the strength of our roots.
This story has therefore taken the form of a publication, which also represents a tangible acknowledgement and sincere thanks to all those who over the years have helped make Galletti what it is today: a reality that two eyes can hardly take in.
Luigi Galletti
President of Galletti Group

DICHIARAZIONE DI CONFORMITÀ CE

La Società Galletti S.p.A. con sede in Via Romagnoli 12/a Bentivoglio (Bologna) - Italia, dichiara, sotto la propria responsabilità, che i refrigeratori d'acqua e pompe di calore delle serie:
ECH2O, ECH2O H, MCA, MCA H, LCA, LCA H, MCC, MCC H, MCW, MCW-H, MPE,MPEH, MCE, MCEH, MFE, MXE apparecchi per impianti di condizionamento dell'aria destinati ad applicazioni per il condizionamento in ambito civile, sono conformi a quanto prescritto dalle Direttive **98/37/CE, 89/336/CEE, 92/31/CEE, 93/68/CEE, 2006/95/CE, 97/23/CE (PED).**
Tali apparecchi sono il risultato dell'assemblaggio di componenti [compressori, scambiatori di calore a piastre saldobrasate, ricevitori di liquido, tubazioni, valvole di regolazione e di sicurezza] singolarmente dotati, quando previsto, di certificazione ai sensi delle direttive vigenti: la determinazione della categoria d'appartenenza delle macchine è il frutto dell'analisi dei componenti soggetti alla **PED** e corrisponde alla categoria più alta fra i componenti utilizzati.
Per ogni serie di macchine, la conformità dell'assieme è stata valutata da organismi notificati ed in applicazione delle procedure di valutazione (moduli) ai sensi dell'allegato II della direttiva **97/23 PED,** come riportato nella tabella seguente:

DECLARATION OF CONFORMITY CE

Galletti S.p.A. with head office in Via Romagnoli 12/a Bentivoglio (Bologna) - Italia, declares herewith under its own responsibility that all water chillers and heat pumps series:
ECH2O, ECH2O H, MCA, MCA H, LCA, LCA H, MCC, MCC H, MCW, MCW-H, MPE,MPEH, MCE, MCEH, MFE, MXE units for air-conditioning systems for civil conditioning application, are produced in accordance with following directives: **98/37/CE, 89/336/CEE, 92/31/CEE, 93/68/CEE, 2006/95/CE, 97/23/CE (PED).**
These units are made by assembly of components (compressors, heat exchangers with braze welded plates, liquid receiver, pipelines , regulating and safety valves), each component, if requested by the law, has its own declaration in accordance with the directives in force: the determination of the units belonging category is the result of the analyse of all components subjected to the PED directive and correspond to the highest class between the used components.
For each unit series the conformity of the assembly has been evaluated by notified bodies through the application of procedure for evaluation (forms) according to the annex II of the **97/23 PED** directive, as reported in the following table:

Serie Range	Grandezza Size	Organismo Notificato Notified body	N° certificato certificate	Procedura di valutazione di conformità Conformity Compliance Module	Categoria PED PED category	Marcatura Marking
ECH_2O - ECH_2O H	4-5-6-7	1115	N°006 rev. 4 del 06/02/2008	Modulo D1	I	CE
MCA - MCA H	10-12-14	1115		Modulo D1	I	CE
MCA - MCA H	16-21-25-30-37-50-60	1115		Modulo D1	II	CE + PED
LCA - LCA H	045-050-060-070-080-090-105	1115		Modulo D1	II	CE + PED
MCC - MCC H	6-7-9-12-15	1115		Modulo D1	I	CE
MCC - MCC H	18-22-25-33-37	1115		Modulo D1	II	CE + PED
MCW - MCW / H	5-7-10-12-15	1115		Modulo D1	I	CE
MCW - MCW / H	18-20-22-27-31-39	1115		Modulo D1	II	CE + PED
MPE - MPEH - MCE - MCEH	4-5-7-8	1115		Modulo D1	I	CE
MPE - MPEH - MCE - MCEH	9-10-11-13-15-18	1115		Modulo D1	I	CE
MPE - MPEH - MCE - MCEH	19-20-21-23-24-26-27-28-31-32-34-35-39-40	1115		Modulo D1	II	CE + PED
MPE - MPEH - MCE - MCEH	T30-T34-T40-T45	1115		Modulo D1	II	CE + PED
MFE	5-6-8-11-13-16-17-20-23	1115		Modulo D1	I	CE
MXE	9-11-14-16	1115		Modulo D1	I	CE
MXE	19-21	1115		Modulo D1	II	CE + PED
LCA - LCA H	115-130-150-180-205-220-235-250-280-300	0398	B.05.0600AP-01 - 01-01-2005	Modulo D1	II	CE + PED

Gli apparecchi LCA ed LCA H (115-300) sono prodotti negli stabilimenti di Hiref S.p.A – Galletti Group, Via Spagna 31/33 Tribano (Padova)
Units LCA and LCA H (115-300) are manufactured by Hiref S.p.A – Galletti Group, Via Spagna 31/33 Tribano (Padova) Italy

Bentivoglio, 16/07/2008

Galletti S.p.A.
Luigi Galletti
Presidente / President

GALLETTI ADHERES TO THE EUROVENT CERTIFICATION PROGRAMME.
THE PRODUCTS CONCERNED APPEAR IN THE EUROVENT CERTIFIED PRODUCTS GUIDE.

EFFICIENT, SILENT, ADAPTABLE : IN ONE WORD COMFORT

- > **R410A**
- > **DEDICATED FINNED PACK COIL**
- > **EXTREMELY LOW SOUND LEVEL**
- > **AUTO ADAPTIVE SET POINT**
- > **OPERATION WITH LOW WATER CONTENT (BUFFER TANK NOT NEEDED)**

The chillers and heat pumps of the series MCE has been designed specifically for R410 A refrigerant, for the choice of the components, particularly for heat exchangers size and the logic of the operations.
Studies and bench tests give the possibility to develop an extremely silent range, with high efficiency.
11 models, only cooling and in heating pumps, compose the range, with cooling capacity from 9 to 39 kw and heating capacities from 10 to 44 Kw.

ADAPTABLE FOR ANY REQUEST

The wide possibility of configuration in terms of number of models available in the range, and in terms of options and accessories make the MCE series, the perfect product to be adapted to all type of plants and design requirements, reducing the time of installation.
All the options are available with no need to modify the dimensions of the unit.
Options

- Built in hydronic kit
- Electronic expansion valve which quickly adapt the operation of the unit to the load variation and maximize the partial loads efficiency
- Heat recovery for hot water production in the summer time to increase the effective efficiency of the system

PLUG&PLAY

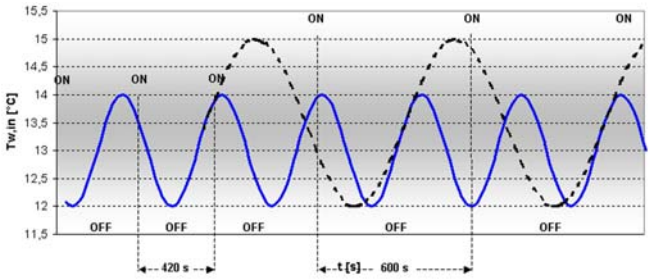
MCE allowed to incorporate the hydronic kit complete with circulation pump (body and rotor in inox), expansion vessel, buffer tank, safety valve, pressure gauge and water filter.
All the machines are bench tested in the end of the production cycle, to reduce the time of the start up.

EXTREMELY LOW SOUND LEVELS

The use of extremely silent fans installed in performed profile house, running with low pressure drops thanks to the presence of finned pack heat exchangers with 8mm diameter copper tube.
To the partial loads the condensing control (in pressure) decrease the sound level of the unit
Technical compartments and compressors could be acoustically insulated to obtain extremely low nose units.

AUTO ADAPTIVE SET POINT

The logic of the control allowed to use the MCE units with water contents extremely low , modifying the effective set point in function of the real instantaneous thermal loads.
The philosophy of the project allowed to combine the auto adaptive logic to the benefit of the built in inertial accumulation, maintaining the same dimensions of the units.



A sensor is measuring the outdoor air temperature modifying automatically the unit setpoint to adapt it to the plant' real needs.

CONSTRUCTIVE FEATURES

STRUCTURE
Structure and base built from galvanised sheet steel coated with corrosion-proof paint, RAL 9002 colour.
All bolts and screws and fastening devices are made of non-oxidisable 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 inspection.
The compressor compartment can be acoustically insulated on request in order to reduce the sound emission of the unit.

BUILT-IN HYDRONIC KIT
- High performance pump completely (body and rotor) made of stainless steel suitable ready to operate with glycol mix up to 35%.
  The pump motor is complete with internal thermal protection.
  The pump is located in the compressor comparment and is easely reachable thanks to the openable panels.
  The water pump is cooled by fresh air through a suitable grille.
- Expansion vessel.
- Safety valve.
- Filling valve.
- Automatic air purge.
- Differential pressure switch and antifreeze thermostat with probe on leaving water side.
- Buffer tank dowstream to the evaporator, best solution to reduce the chilled water variation due to the compressor ON/OFF operation.
- The Mechanical Y Filter is standard for all the versions to protect the plate evaporator.

REFRIGERANT CIRCUIT
- Scroll compressor.
- Heat exchanger with stainless steel braze-welded plates optimised for type of plate and distribution for R410A.
- Finned block condenser coil with 8 mm copper pipping and aluminium fins, characterized by large dimensions.
- Mechanical drier filter.
- Refrigerant sight glass with humidity indicator.
- Thermostatic valve with external equalization and integrated MOP function.
- 4-way reversing valve (heat pump only).
- Check valves (heat pump only).
- Liquid receiver (heat pump only).
- High and low pressure switches.
- Safety valve.
- Schrader valves for checks and/or maintenance.
- Refrigerant manometers (options).

FAN MOTOR ASSEMBLY
Fan of axial type with airfoil shapes blades provided with protection grille and housed in a nozzle with special shape that icrease its performance. Fans are housed in nozzles with special shape to increase performance. Fans are directly coupled with low speed (6/8 poles) motors, protected with a thermal cutout.
Fan motor assembly is connected to the unit through rubber vibration dampers and its supported by a deidicated frame.
The use of finned pack coils with 8mm diameter copper pipe reduce the pressur drop on air side decreasing the sound level.
The condensation control (on pressure base) adjust automatically the fan speed, reducing the noise emission of the unit in the night operation and when the unit runs at partial loads.

FINNED PACK
Finned pack heat exchangers with 8mm diameter copper tube, characterised by a large surfacce and specially designed to speed up the defrost cycle and to maximaze the integrate capacity of the unit.

ELECTRIC BOX
The electric box is built and wired according to the EEC 73/23 (LVD), to the 89/336 (EMCD) and related standards. Built with steel panels is protected by the unit's panels.

MICROPROCESSOR CONTROL


The control panel enables the complete control of MCE unit and can be easely accessed through a polycarbonate flap with IP 65 protection class.
The controller autoadaptive function allowed the unit operartion with low water content avoiding the use of the buffer tank.
The outdoor temperature measure allows to adjust atomatically the unit set point to the real thermoal load in cooling operaiton and to keep the unit operate even at the most critical condition in winter time.
The controller is complete with MODBUS for an immediate conneted to ERGO network.
Main functions:
- Control of the entering water temperature.
- Defrosting management (MCE-H)
- fan speed control on pressure base (opzionale)
- Complete alarm management
- Automatic set point adjustment depending on the outdoor air tenmperature
- Can be conneted to an RS485 serial line (optional) for supervision/ teleassisitance operation
- A remote terminal that reproduces the control functions is available as optional (not compatible with ERGO).

Controlled devices:
- Compressor
- Fans
- 4-way reversing valve (MCE-H)
- Water pump
- Antifreeze kit (optional)
- Alarm relay

AVAILABLE OPTIONS
Built in hydronic kit
Condensation control for low ambient temperature operation
Compressor compartment insulation
Refrigerant gauges
Antifreeze kit
Electronic expansion valve
Partial heat recovery system 25% complete with on/off contact for circulation pump (not supplied)
Special treatment on finned coil (copper/copper, cataphoresysl blygold)
Remote control panels
Dampers
Condensing coil protection grille

HOW TO PLACE AN ORDER

MCE water chillers and heat punmps can be configured in order to meet many possible installation requirements.

Code

Commercial name of the series	
MCE	Air condensed water chiller and reversible heat pumps
Model	
009	
011	
013	Give information on the cooling capacity of the standard model
015	
018	
019	
023	
026	
031	
034	
039	
Operation	
C	Cooling only
H	Heat pump
Power supply	
0	400V 3N 50 Hz
M	230V - 1 - 50Hz
2	400V 3N 50 Hz + magnetic breaker
4	230V - 1 - 50Hz + magnetic breaker

Options and unit configuration

13 digits which customise the unit complying with the customer's requirements

Digit	Name	Description
1	**Expansion valve**	
	0	Thermostatic
	A	Electronic
2	**Water pump**	
	0	Not present
	1	Pump, ex. vessel, water charge valve
3	**Buffer Tank**	
	0	Not present
	S	Present
4	**Heat recovery**	
	0	Not present
	D	Partial (25%) with auxiliary contact for pump (cooling only models)
5	**Condensing control**	
	0	Not present
	C	With modulating air flow
6	**Antifreeze kit**	
	0	Not present
	E	Present on standard unit
	P	Present, unit with pump and vessel
	S	Present, unit with pump, vessel and tank
7	**Acoustic insulation**	
	0	Not present
	1	Sound proofing insulation for compressor housing
8	**Refrigerant circuit accessories**	
	0	Not present
	M	Refrigerant gauges
9	**Remote control panel**	
	0	Not present
	2	RS485 port (Modbus + Carel protocol)
	S	Simplified
	M	BASE microprocessor (modbus excluded)
10	**Special coil**	
	0	Standard
	R	Copper / Copper
	C	Cataphoresis
	B	Blygold
11	**Protection grille**	
	0	Not present
	G	Present
12	**Compressor option**	
	0	Not present
	4	Low temperature air/water
13	**Control Panel**	
	1	BASE microprocessor

N.B. The choice of some options an prevent the choice of other options or oblige the selection of other digit. Please contacfr Galletti for verification

Technical data water chiller MCE													
MCE-C		**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
MCE CB 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
MCE CP CS Total power input	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 current absorption	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 absorbed current	A	99	50	65	65	68	75	104	104	132	166	161	163
n° 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
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
n° of axial fan		2	2	2	2	2	4	4	4	4	1	1	1
Air flow	m^3/h	6.686	6.686	6.686	5.986	5.986	9.304	9.304	8.450	9.861	15.255	15.255	14.973
Water flow	l/s	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 hydrualic 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
Water side pressure drop	kPa	33	33	53	60	37	51	49	45	61	51	40	43
Available pressure head	kPa	118	118	94	84	104	130	126	123	99	127	133	121
Water content escluding optionals	dm^3	3	3	3	3	3	4	4	4	4	5	5	5
Expansion tank	dm^3	5	5	5	5	5	5	5	5	5	8	8	8
Buffer tank	dm^3	30	30	30	30	30	50	50	50	50	125	125	125
Height	mm	1225	1225	1225	1225	1225	1275	1275	1275	1275	1300	1300	1300
Length	mm	1220	1220	1220	1220	1220	1565	1565	1565	1565	1665	1665	1665
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	227,5	227,5	227,5	234,5	234,5	306,3	306,3	327,3	332,3	432,0	453,0	453,0

* Weights referred to version including pump and buffer tank
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- 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).

Technical data heat pumps MCE

MCE-H		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
Total power input 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
Total power input including 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
Total power input 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
Total power input in heating mode including 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 current absorption	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 absorbed current	A	99	50	65	65	68	75	104	104	132	166	161	163
n° of scroll compressor / 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
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
n° of axial fan		2	2	2	2	2	4	4	4	4	1	1	1
Air flow	m^3/h	6.686	6.686	6.686	5.986	5.986	9.304	9.304	8.450	9.861	15.255	15.255	14.973
Water flow in cooling mode	l/s	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	l/s	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 hydrualic 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
Water pressure drop (cooling)	kPa	33	33	53	60	37	51	49	45	61	51	40	43
Water pressure drop (heating)	kPa	44	44	71	83	49	69	66	61	81	63	50	54
Available pressure head (cooling)	kPa	118	118	94	84	104	130	126	123	99	127	133	121
Available pressure head (heating)	kPa	148	148	144	141	138	174	168	159	151	171	164	154
Water content escluding optionals	dm^3	3	3	3	3	3	4	4	4	4	5	5	5
Expansion tank	dm^3	5	5	5	5	5	5	5	5	5	8	8	8
Buffer tank	dm^3	30	30	30	30	30	50	50	50	50	125	125	125
Height	mm	1225	1225	1225	1225	1225	1275	1275	1275	1275	1300	1300	1300
Length	mm	1220	1220	1220	1220	1220	1565	1565	1565	1565	1665	1665	1665
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	237,5	237,5	237,5	244,5	245,5	319,3	319,3	342,3	347,3	452	473	473

* 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 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).

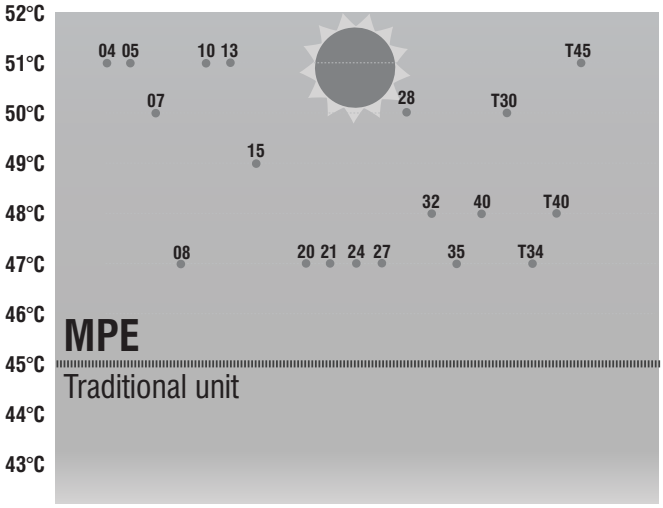
PERFORMA: EFFICIENCY OVER THE LIMITS

- > R410A
- > DEDICATED FINNED PACK COIL
- > EXTREMELY LOW SOUND LEVEL
- > HIGH EFFICIENCY
- > WIDE OPERATION RANGE
- > TANDEM EXECUTION VERSION
- > AUTO ADAPTIVE SET POINT
- > OPERATION WITH LOW WATER CONTENT (BUFFER TANK NOT NEEDED)
- > SMART DEFROST SYSTEM

PERFORMA MPE water chiller and air/water hea pumps are designed for refrigeratori e le pompe di calore della serie **PERFORMA (MPE)** sono progettati per l'installazione all'esterno, in impieghi residenziali e commerciali.
The use of R410A ensure high performance ond low power consuption. The range is made of 21 models for cooling-only and heat pump operation with capacity ranging from 4 to 66 kW (cooling mode) and with capacity ranging from 5 a 70 kW (heating mode).

EXTENDED WORKING LIMITS

Dedicated and oversized finned pack heat exchangers with 8mm pipe grant better heat exchange a low noise operation of the fans and enlarge the working temperature in summer season up to 51°C of outdoor temperature with an average EER of 2,95 and an average COP of 3,25 corresponding to Eurovent A Class of energy efficiency.

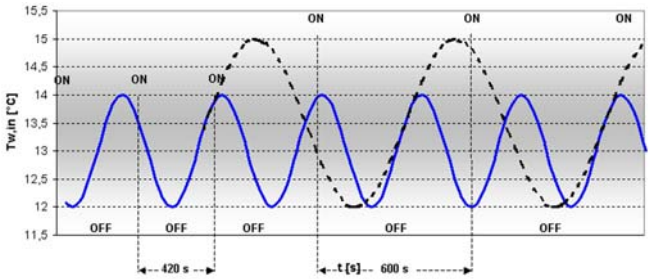


ALWAYS EFFICIENT

It is proved that the effective thermal load of the air conditioning plant on the 90% of the time, 60% lower than the nominal load.
MPET version, with 2 compressors on the same refrigerant circuit, offers high efficiency at partial load (ESEER > 4) and ensure the operation even at high temperature in the cooling operation.
In such condition the microprocessor control switch off one compressor doubling the condensing surface on which one compressor operates
Axial fans coupled to 6/8 poles motor and controlled by the condensation control grants low noise operation and optimal operation in each workng condition.

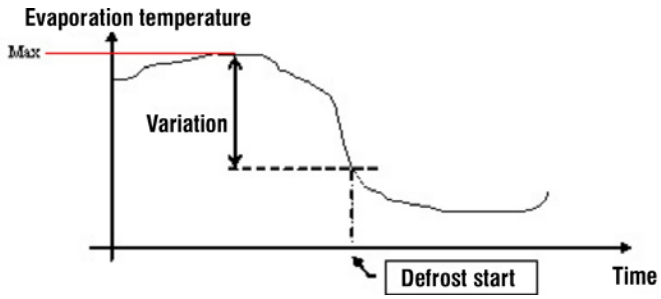
AUTO ADAPTIVE

The electronic control panel automatically adjusts the unit set point as a function of the outdoor temperature to reduce power consuption and enlarge the range of working temperature .
The operation in systems with low water content now is possible even without the buffer tank thanks to the microprocessor control logic that reduce the compressor start up numbers and increase its working time.



SMART DEFROST SYSTEM

The exclusive Smart Defrost System (available with advanced microprocessor controller) is able to detect the heat exchange reduction due to ice formation on finned pack coil and to adapt the defrost cicle time.



CONSTRUCTIVE FEATURES

STRUCTURES
Structure and base built from galvanised sheet steel coated with corrosion-proof paint, RAL 9002 colour.
All bolts and screws and fastening devices are made of non-oxidisable 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 inspection.
The compressor compartment can be acoustically insulated on request in order to reduce the sound emission of the unit.

BUILT-IN HYDRONIC KIT
- High performance pump completely (body and rotor) made of stainless steel suitable ready to operate with glycol mix up to 35%. The pump motor is complete with internal thermal protection. The pump is located in the compressor comparment and is easely reachable thanks to the openable panels. The water pump is cooled by fresh air through a suitable grille.
- Expansion vessel.
- Safety valve.
- Filling valve.
- Automatic air purge.
- Differential pressure switch and antifreeze thermostat with probe on leaving water side.
- Buffer tank dowstream to the evaporator, best solution to reduce the chilled water variation due to the compressor ON/OFF operation.
- The Mechanical Y Filter is standard for all the versions to protect the plate evaporator.

REFRIGERANT CIRCUIT
- Scroll compressor (rotary up to 7 kW).
- Heat exchanger with stainless steel braze-welded plates optimised for type of plate and distribution for R410A.
- Finned block condenser coil with 8 mm copper pipping and aluminium fins, characterized by large dimensions.
- Mechanical drier filter.
- Refrigerant sight glass with humidity indicator.
- Thermostatic valve with external equalization and integrated MOP function.
- 4-way reversing valve (heat pump only).
- Check valves (heat pump only).
- Liquid receiver (heat pump only).
- High and low pressure switches.
- Safety valve.
- Schrader valves for checks and/or maintenance.
- Refrigerant manometers (options).

FAN MOTOR ASSEMBLY
Fan of axial type with airfoil shapes blades provided with protection grille and housed in a nozzle with special shape that icrease its performance. Fans are housed in nozzles with special shape to increase performance. Fans are directly coupled with low speed (6/8 poles) motors, protected with a thermal cutout.
Fan motor assembly is connected to the unit through rubber vibration dampers and its supported by a deidicated frame.
The use of finned pack coils with 8mm diameter copper pipe reduce the pressur drop on air side decreasing the sound level.
The condensation control (on pressure base) adjust automatically the fan speed, reducing the noise emission of the unit in the night operation and when the unit runs at partial loads.

FINNED PACK
Finned pack heat exchangers with 8mm diameter copper tube, characterised by a large surfacce and specially designed to speed up the defrost cycle and to maximaze the integrate capacity of the unit.

ELECTRIC BOX
The electric box is built and wired according to the EEC 73/23 (LVD), to the 89/336 (EMCD) and related standards. Built with steel panels is protected by the unit's panels.

MICROPROCESSOR CONTROL


The control panel enables the complete control of MPE unit and can be easely accessed through a polycarbonate flap with IP 65 protection class.
The controller autoadaptive function allowed the unit operartion with low water content avoiding the use of the buffer tank.
The outdoor temperature measure allows to adjust atomatically the unit set point to the real thermoal load in cooling operaiton and to keep the unit operate even at the most critical condition in winter time.
The controller is complete with MODBUS for an immediate conneted to ERGO network.
Main functions:
- Control of the entering water temperature.
- Defrosting management (MPE-H)
- fan speed control on pressure base (opzionale)
- Complete alarm management
- Automatic set point adjustment depending on the outdoor air tenmperature
- Can be conneted to an RS485 serial line (optional) for supervision/ teleassisitance operation
- A remote terminal that reproduces the control functions is available as optional (not compatible with ERGO).

Controlled devices:
- Compressor
- Fans
- 4-way reversing valve (MPE-H)
- Water pump
- Antifreeze kit (optional)
- Alarm relay

Advanced controller available on request to carry out the following functions:
- LAN up to 4 units
- Smart Defrost System

AVAILABLE OPTIONS
Built in hydronic kit
Condensation control for low ambient temperature operation
Compressor compartment insulation
Refrigerant gauges
Antifreeze kit
Electronic expansion valve
Partial heat recovery system 25% complete with on/off contact for circulation pump (not supplied)
Special treatment on finned coil (copper/copper, cataphoresysl blygold)
Remote control panels
Dampers
Condensing coil protection grille

How to place an order

MPE water chillers and heat punmps can be configured in order to meet many possible installation requirements.

Code

Commercial name of the series	
MPE	
Model	
004	
005	
007	Give information on the cooling capacity of the standard model
008	
010	
013	
015	
018	
020	
024	
027	
028	
032	
035	
040	
T30	
T34	
T40	
T45	
Operation	
C	Cooling only
H	Heat pump
Power supply	
0	400V 3N 50 Hz
M	230V - 1 - 50Hz
2	400V 3N 50 Hz + magnetic breaker
4	230V - 1 - 50Hz + magnetic breaker

Options and unit configuration

13 digits which customise the unit complying with the customer's requirements

Digit	Name	Description
1	**Expansion valve**	
	0	Thermostatic
	A	Electronic
2	**Water pump**	
	0	Not present
	1	Pump, ex. vessel, water charge valve
	2	Double Pump, ex. vessel, water charge valve
3	**Buffer Tank**	
	0	Not present
	S	Present
4	**Heat recovery**	
	0	Not present
	D	Partial (25%) with auxiliary contact for pump (cooling only models)
5	**Condensation control**	
	0	Not present
	C	With modulating air flow
6	**Antifreeze kit**	
	0	Not present
	E	Present on standard unit
	P	Present, unit with pump and vessel
	S	Present, unit with pump, vessel and tank
7	**Acoustic insulation**	
	0	Not present
	1	Sound proofing insulation for compressor housing
8	**Refrigerant circuit accessories**	
	0	Not present
	M	Refrigerant gauges
9	**Remote control panel**	
	0	Not present
	2	RS485 port (Modbus + Carel protocol)
	S	Simplified
	M	BASE microprocessor (modbus excluded)
	X	ADVANCED microprocessor
10	**Special coil**	
	0	Standard
	R	Copper / Copper
	C	Cataphoresis
	B	Blygold
11	**Protection grille**	
	0	Not present
	G	Present
12	**Compressor option**	
	0	Not present
	1	Power factor correction capacitor
	2	Soft starter
	3	Power factor correction capacitor + soft starter
	4	Low temperature air/water
13	**Control Panel**	
	1	Base microprocessor
	2	Advanced microprocessor

N.B. **The choice of some options an prevent the choice of other options or oblige the selection of other digit. Please contacfr Galletti for verification**

Technical data water chiller MPE

MPE-C		004 M	005 M	007 M	008 M	008	010 M	010	013	015	018	020	024
Power supply	V - ph - Hz	230-1-50			230-1-50	400-3-50	230-1-50	400-3-50					
Cooling capacity	kW	4,11	5,10	6,66	8,40	8,40	9,25	9,25	12,90	14,98	17,20	19,61	23,80
MPE CB Total power input	kW	1,35	1,70	2,26	3,35	3,09	3,22	3,22	4,16	5,16	6,32	7,12	8,10
EER		3,06	3,01	2,95	2,51	2,72	2,87	2,87	3,10	2,90	2,72	2,75	2,94
ESEER		3,54	3,39	3,32	2,98	3,36	3,38	3,38	3,69	3,53	3,30	3,21	3,42
MPE CP CS Total power input	kW	1,49	1,84	2,40	3,49	3,23	3,59	3,59	4,53	5,53	6,69	7,49	8,47
Maximum power input	kW	2,0	2,3	3,0	5,0	5,0	5,1	7,2	8,9	10,5	12,5	13,6	14,5
Maximum current absorption	A	9,8	11,6	15,3	24,2	9,2	26,3	14,4	17,4	20,0	24,3	26,2	27,6
Starting absorbed current	A	38	44	63	98	49	99	50	65	68	75	104	158
n° of scroll compressors / circuits		1 / 1											
Refrigerant charge	kg	1,47	1,48	2,04	2,09	2,09	2,87	2,87	3,99	4,11	3,67	4,23	5,79
Low/high pressure switch	bar	2 / 42											
n° of axial fan		1	1	1	1	1	2	2	2	2	4	4	4
Air flow	m^3/h	3.635	3.635	3.406	3.406	3.406	7.385	7.385	6.939	6.939	9.990	9.990	9.307
Water flow	l/s	707	877	1.146	1.445	1.445	1.591	1.591	2.219	2.577	2.958	3.373	4.094
Diameter of hydraulic connections	"	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Water side pressure drop	kPa	2	4	6	6	6	34	34	61	38	51	51	49
Available pressure head	kPa	63	61	57	53	53	116	116	83	103	129	123	116
Water content escluding optionals	dm^3	2	2	2	2	2	3	3	3	3	4	4	4
Expansion tank	dm^3	1	1	1	1	1	5	5	5	5	5	5	5
Buffer tank	dm^3	n.d.	n.d.	n.d.	n.d.	n.d.	30	30	30	30	50	50	50
Height	mm	758	758	758	758	758	1250	1250	1250	1250	1300	1300	1300
Length	mm	960	960	960	960	960	1220	1220	1220	1220	1565	1565	1565
Depth	mm	450	450	450	450	450	560	560	560	560	600	600	600
Sound power level	dB(A)	66	66	67	67	67	69	69	69	69	71	71	72
Sound pressure level	dB(A)	38	38	39	39	39	41	41	41	41	43	43	44
Transport weight *	kg	98	100	107	110	110	202	202	209	209	260	260	280
Operating weight *	kg	92,3	94,3	101,3	104,3	104,3	227,5	227,5	234,5	234,5	306,3	296,3	327,3

MPE-C		027	028	032	035	040	054 **	066 **		T30	T34	T40	T45
Power supply	V - ph - Hz	400-3-50								400-3-50			
Cooling capacity	kW	26,60	28,10	31,52	35,00	39,67	51,4	66,1		30	34	40	45
MPE CB Total power input	kW	9,33	8,65	10,06	11,51	12,77	17,8	24,1		10	13	14	16
EER		2,85	3,25	3,13	3,04	3,11	3,04	2,74		3	3	3	3
ESEER		3,36	3,77	3,63	3,61	3,68	3,60	3,30		4	4	4	4
MPE CP CS Total power input	kW	9,70	9,20	10,61	12,06	13,32	18,7	25		11	13	14	17
Maximum power input	kW	18,0	18,3	18,9	21,8	22,4	22,7	23,3		21	24	27	31
Maximum current absorption	A	33,6	35,5	36,5	41,5	42,5	45,2	46,2		40	46	50	57
Starting absorbed current	A	132	133	166	161	163	163	165		86	96	127	130
n° of scroll compressors / circuits		1 / 1								2 / 1			
Refrigerant charge	kg	6,0	7,5	7,5	7,8	10,8	13,0	15,0		8	8	11	11
Low/high pressure switch	bar	2 / 42								2 / 42			
n° of axial fan		4	2	2	2	2	2	2		2	2	2	2
Air flow	m^3/h	9.307	16.276	16.276	16.276	15.776	20.000	20.000		16276	16276	15776	15776
Water flow	l/s	4.575	4.833	5.421	6.021	6.823	9.305	11.376		5160	5857	6806	7663
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		1	1	1	1
Water side pressure drop	kPa	34	40	51	41	43	60	60		30	38	45	57
Available pressure head	kPa	124	143	126	130	119	110	95		150	134	117	97
Water content escluding optionals	dm^3	4	6	6	6	6	7	8		6	6	6	6
Expansion tank	dm^3	5	8	8	8	8	8	8		8	8	8	8
Buffer tank	dm^3	50	125	125	125	125	125	125		125	125	125	125
Height	mm	1300	1485	1485	1485	1485	1.485	1.485		1485	1485	1485	1485
Length	mm	1565	1990	1990	1990	1990	1.990	1.990		1990	1990	1990	1990
Depth	mm	600	950	950	950	950	950	950		950	950	950	950
Sound power level	dB(A)	72	73	73	73	75	78	78		72	72	72	72
Sound pressure level	dB(A)	44	45	45	45	47	50	50		44	44	44	44
Transport weight *	kg	285	370	370	390	390	500	530		410	410	430	430
Operating weight *	kg	332,3	492	492	513	513	620	650		532	533	553	553

* Weights referred to version including pump and buffer tank

** Preliminary data

- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C
- 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).

Technical data heat pumps MPE

MPE-H		004 M	005 M	007 M	008 M	008	010 M	010	013	015	018	020	024
Power supply	V-ph-Hz	230-1-50			230-1-50	400-3-50	230-1-50	400-3-50					
Cooling capacity	kW	4,03	5,00	6,53	8,23	8,23	9,07	9,07	12,64	14,68	16,86	19,22	23,32
MPE HB Cooling power input	kW	1,35	1,70	2,26	3,35	3,09	3,22	3,22	4,16	5,16	6,32	7,12	8,10
EER		2,99	2,95	2,89	2,46	2,67	2,82	2,82	3,04	2,85	2,67	2,70	2,88
ESEER		3,47	3,32	3,26	2,92	3,29	3,31	3,31	3,62	3,46	3,23	3,15	3,35
MPE HP - HS Cooling power input	kW	1,49	1,84	2,40	3,49	3,23	3,59	3,59	4,53	5,53	6,69	7,49	8,47
Heating capacity	kW	4,72	5,86	7,77	10,21	9,95	10,87	10,87	15,09	17,60	20,03	22,96	27,15
MPE HB Heating power input	kW	1,46	1,81	2,41	3,59	3,25	3,62	3,62	4,70	5,49	6,63	7,16	8,11
COP		3,24	3,25	3,23	2,85	3,07	3,00	3,00	3,21	3,21	3,02	3,21	3,35
MPE HP - HS Heating power input	kW	1,60	1,95	2,55	3,73	3,39	3,99	3,99	5,07	5,86	7,00	7,53	8,48
Maximum power input	kW	2,0	2,3	3,0	5,0	5,0	5,1	7,2	8,9	10,5	12,5	13,6	14,50
Maximum current absorption	A	9,80	11,60	15,30	24,20	9,20	26,30	14,40	17,40	20,00	24,30	26,20	27,60
Starting absorbed current	A	38	44	63	98	49	99	50	65	68	75	104	158
n° of scroll compressor / circuits		1 / 1											
Refrigerant charge	kg	1,47	1,48	2,04	2,09	2,09	2,87	2,87	3,99	4,11	3,67	4,23	5,79
Low/high pressure switch	bar	2 / 42											
n° of axial fan		1	1	1	1	1	2	2	2	2	4	4	4
Air flow	m^3/h	3635	3635	3406	3406	3406	7385	7385	6939	6939	9990	9990	9307
Water flow in cooling mode	l/s	707	877	1146	1445	1445	1591	1591	2219	2577	2958	3373	4094
Water flow in heat pump	l/s	811	1008	1337	1755	1711	1869	1869	2595	3027	3445	3949	4670
Diameter of hydrualic connections	"	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1,25
Water pressure drop (cooling)	kPa	2	4	6	6	6	34	34	61	38	51	51	49
Water pressure drop (heating)	kPa	3	4	8	8	8	45	45	83	51	69	69	62
Available pressure head (cooling)	kPa	63	61	57	53	53	116	116	83	103	129	123	116
Available pressure head (heating)	kPa	62	59	53	48	48	102	102	57	86	104	97	95
Water content escluding optionals	dm^3	2	2	2	2	2	3	3	3	3	4	4	4
Expansion tank	dm^3	1	1	1	1	1	5	5	5	5	5	5	5
Buffer tank	dm^3	n.d.	n.d.	n.d.	n.d.	n.d.	30	30	30	30	50	50	50
Height	mm	758	758	758	758	758	1250	1250	1250	1250	1300	1300	1300
Length	mm	960	960	960	960	960	1220	1220	1220	1220	1565	1565	1565
Depth	mm	450	450	450	450	450	560	560	560	560	600	600	600
Sound power level	dB(A)	66	66	67	67	67	69	69	69	69	71	71	72
Sound pressure level	dB(A)	38	38	39	39	39	41	41	41	41	43	43	44
Transport weight *	kg	103	105	111,7	115	115	212	212	219	220	273	273	295
Operating weight *	kg	97,3	99,3	106	109,3	109,3	237,5	237,5	244,5	245,5	319,3	309,3	342

* 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 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).

Technical data heat pumps MPE

MPE-H		027	028	032	035	040	054 **	066 **	T30	T34	T40	T45
Power supply	V-ph-Hz	400-3-50							400-3-50			
Cooling capacity	kW	26,07	27,54	30,89	34,30	38,88	52	62,80	29,40	33,37	38,78	43,66
MPE HB Cooling power input	kW	9,33	8,65	10,06	11,51	12,77	17,8	24,1	10,43	12,59	13,64	16,38
EER		2,79	3,18	3,07	2,98	3,04	2,92	2,6	2,82	2,65	2,84	2,67
ESEER		3,29	3,70	3,56	3,54	3,61	3,5	3,2	4,09	4,03	4,06	3,96
MPE HP - HS Cooling power input	kW	9,70	9,20	10,61	12,06	13,32	18,7	25	10,98	13,14	14,19	16,93
Heating capacity	kW	29,98	31,37	35,58	39,28	45,17	60,8	75,30	34,51	39,41	46,49	52,72
MPE HB Heating power input	kW	8,89	9,14	10,42	11,57	13,14	18,3	23,1	10,86	12,80	13,97	16,26
COP		3,37	3,43	3,41	3,39	3,44	3,32	3,26	3,18	3,08	3,33	3,24
MPE HP - HS Heating power input	kW	9,26	9,69	10,97	12,12	13,69	19,2	24,00	11,41	13,35	14,52	16,81
Maximum power input	kW	18,0	18,3	18,9	21,8	22,4	22,7	23,3	20,9	24,4	26,6	30,8
Maximum current absorption	A	33,60	35,50	36,50	41,50	42,50	45,2	46,2	39,9	45,9	49,70	56,70
Starting absorbed current	A	132	133	166	161	163	163	165	86	96	127	130
n° of scroll compressor / circuits		1 / 1							2 / 1			
Refrigerant charge	kg	6,0	7,5	7,5	7,8	10,8	13	16,0	7,8	7,8	10,9	10,9
Low/high pressure switch	bar	2 / 42							2 / 42			
n° of axial fan		4	2	2	2	2	2	2	2	2	2	2
Air flow	m^3/h	9.307	16.276	16.276	16.276	15.776	20000	20000	16.276	16.276	15.776	15.776
Water flow in cooling mode	l/s	4.575	4.833	5.421	6.021	6.823	8944	10802	5.160	5.857	6.806	7.663
Water flow in heat pump	l/s	5.156	5.396	6.120	6.756	7.769	10456	12953	5.935	6.779	7.996	9.067
Diameter of hydrualic connections	"	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Water pressure drop (cooling)	kPa	34	40	51	41	43	60	60	30	38	45	57
Water pressure drop (heating)	kPa	43	49	63	50	54	80	80	39	51	57	73
Available pressure head (cooling)	kPa	124	143	126	130	119	112	99	150	134	117	97
Available pressure head (heating)	kPa	107	128	107	113	99	80	61	133	112	93	67
Water content escluding optionals	dm^3	4	6	6	6	6	7	8	6	6	6	6
Expansion tank	dm^3	5	8	8	8	8	8	8	8	8	8	8
Buffer tank	dm^3	50	125	125	125	125	125	125	125	125	125	125
Height	mm	1300	1485	1485	1485	1485	1485	1485	1485	1485	1485	1485
Length	mm	1565	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990
Depth	mm	600	950	950	950	950	950	950	950	950	950	950
Sound power level	dB(A)	72	73	73	73	75	78	78	72	72	72	72
Sound pressure level	dB(A)	44	45	45	45	47	50	50	44	44	44	44
Transport weight *	kg	300	400	400	420	420	530	560	430	430	430	450
Operating weight *	kg	347,3	522	522	543	543	650	680	552	552	553	573

* Weights referred to version including pump and buffer tank
** Preliminary data
- 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 level measured at a distance of 10 m and a height of 1.5 m above the ground in a free field (fan side).

EXCELIA: HIGH EFFICIENCY 365 DAYS/YEAR

- > **R410A**
- > **AIR OUTDOOR TEMPERATURE OPERATION UP TO -15°C**
- > **LOW NOISE**
- > **ELECTRONIC EXPANSION VALVE**
- > **CONDENSATION CONTROL**
- > **AUTO ADAPTIVE SET POINT**
- > **OPERATION WITH LOW WATER CONTENT (BUFFER TANK NOT NEEDED)**
- > **HYDRONIC PLUG&PLAY (PUMP AND VESSEL)**
- > **ANTIFREEZE KIT**

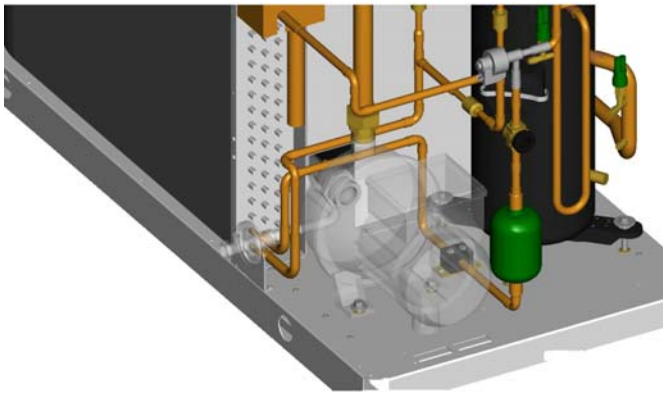
Galletti has developed this product for the hot water production for space heating and service purpose more and more requested by independent houses with the aim to reduce the primary energy consumption and the running costs comparing to the conventional gas or electrical systems , thanks to the high efficiency:

COP average 3,3 (A Class of Eurovent Energetic Efficiency)

EER average 3,23 (A Class of Eurovent Energetic Efficiency)

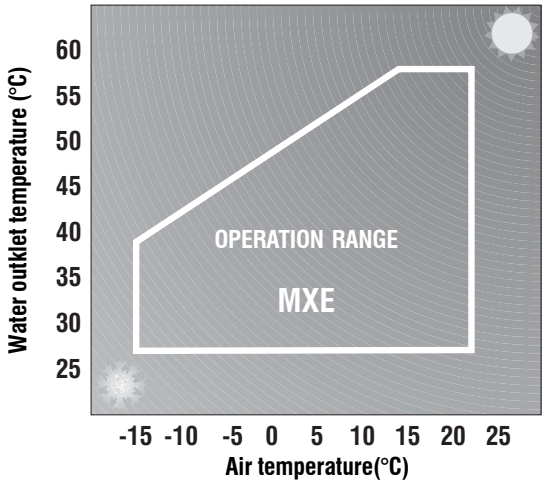
HEATING OPERATIONS OPTIMIZATION

- Counter flow heat exchanger on the heating model
- Finned coil with wide fin steps
- Desuperheating on the tubes present on the bottom side of the finned heat exchanger side
- Heating cable on the basement on the finned coil internal part
- Easy condensing draining



365 DAYS /YEAR WORKING OPERATIONS

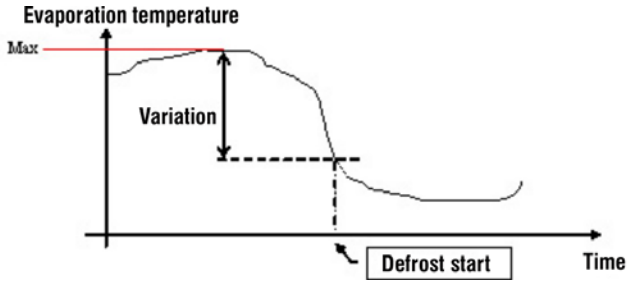
The MXE heat pumps has been designed to work , in heating mode, with outdoor air temperature from -15° to + 30°C, producing hot water up to 55°C, and in cooling mode with outdoor air temperature from -10°C to +45°C



The electronic expansion valve and the condensing control (on pressure base) contribute to enlarge the working (operation) field.

SMART DEFROST SYSTEM

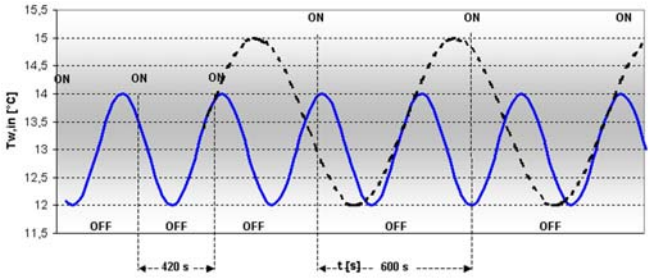
The exclusive Smart Defrost System (available with advanced microprocessor controller) is able to detect the heat exchange reduction due to ice formation on finned pack coil and to adapt the defrost cicle time.



AUTO ADAPTIVE

The electronic control panel automatically adjusts the unit set point as a function of the outdoor temperature to reduce power consuption and enlarge the range of working temperature .

The operation in systems with low water content now is possible even without the buffer tank thanks to the microprocessor control logic that reduce the compressor start up numbers and increase its working time.



CONSTRUCTIVE FEATURES

STRUCTURE
Structure and base built from galvanised sheet steel coated with corrosion-proof paint, RAL 9002 colour.
All bolts and screws and fastening devices are made of non-oxidisable 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 inspection.
The compressor compartment can be acoustically insulated on request in order to reduce the sound emission of the unit.

BUILT-IN HYDRONIC KIT
- High performance pump completely (body and rotor) made of stainless steel suitable ready to operate with glycol mix up to 35%. The pump motor is complete with internal thermal protection. The pump is located in the compressor comparment and is easely reachable thanks to the openable panels. The water pump is cooled by fresh air through a suitable grille.
- Expansion vessel.
- Safety valve.
- Filling valve.
- Automatic air purge.
- Differential pressure switch and antifreeze thermostat with probe on leaving water side.
- Buffer tank dowstream to the evaporator, best solution to reduce the chilled water variation due to the compressor ON/OFF operation.
- The Mechanical Y Filter is standard for all the versions to protect the plate evaporator.

REFRIGERANT CIRCUIT
- Scroll compressor.
- Heat exchanger with stainless steel braze-welded plates optimised for type of plate and distribution for R410A.
- Finned block condenser coil with 8 mm copper pipping and aluminium fins, characterized by large dimensions.
- Mechanical drier filter.
- Refrigerant sight glass with humidity indicator.
- Thermostatic valve with external equalization and integrated MOP function.
- 4-way reversing valve.
- Check valves.
- Liquid receiver.
- High and low pressure switches.
- Safety valve.
- Schrader valves for checks and/or maintenance.
- Refrigerant manometers (options).

FAN MOTOR ASSEMBLY
Fan of axial type with airfoil shapes blades provided with protection grille and housed in a nozzle with special shape that icrease its performance. Fans are housed in nozzles with special shape to increase performance. Fans are directly coupled with low speed (6/8 poles) motors, protected with a thermal cutout.
Fan motor assembly is connected to the unit through rubber vibration dampers and its supported by a deidicated frame.
The use of finned pack coils with 8mm diameter copper pipe reduce the pressur drop on air side decreasing the sound level.
The condensation control (on pressure base) adjust automatically the fan speed, reducing the noise emission of the unit in the night operation and when the unit runs at partial loads.

FINNED PACK
Finned pack heat exchangers with 8mm diameter copper tube, characterised by a large surfacce and specially designed to speed up the defrost cycle and to maximaze the integrate capacity of the unit.

ELECTRIC BOX
The electric box is built and wired according to the EEC 73/23 (LVD), to the 89/336 (EMCD) and related standards. Built with steel panels is protected by the unit's panels.

MICROPROCESSOR CONTROL


The control panel enables the complete control of MCE unit and can be easely accessed through a polycarbonate flap with IP 65 protection class.
The controller autoadaptive function allowed the unit operartion with low water content avoiding the use of the buffer tank.
The outdoor temperature measure allows to adjust atomatically the unit set point to the real thermoal load in cooling operaiton and to keep the unit operate even at the most critical condition in winter time.
The controller is complete with MODBUS for an immediate conneted to ERGO network.
Main functions:
- Control of the entering water temperature.
- Defrosting management
- fan speed control on pressure base
- Complete alarm management
- Automatic set point adjustment depending on the outdoor air tenmperature
- Can be conneted to an RS485 serial line (optional) for supervision/ teleassisitance operation
- A remote terminal that reproduces the control functions is available as optional (not compatible with ERGO).

Controlled devices:
- Compressor
- Fans
- 4-way reversing valve
- Water pump
- Antifreeze kit (optional)
- Alarm relay

Advanced controller available on request to carry out the following functions:
- LAN up to 4 units
- Smart Defrost System

AVAILABLE OPTIONS
Condensation control for low ambient temperature operation
Refrigerant gauges
Partial heat recovery system 25% complete with on/off contact for circulation pump (not supplied)
Special treatment on finned coil (copper/copper, cataphoresysl blygold)
Remote control panels
Dampers
Condensing coil protection grille

How to place an order

MXE heat punmps can be configured in order to meet many possible installation requirements.

Code

Commercial name of the series	
MXE	High efficiency air/water heat pump
Model	
009	
011	
014	Give information on the cooling capacity of the standard model
016	
019	
021	
Operation	
H	Heat punp
Power supply	
0	400V 3N 50 Hz
M	230V - 1 - 50Hz
2	400V 3N 50 Hz + magnetic breaker
4	230V - 1 - 50Hz + magnetic breaker

Options and unit configuration

13 digits which customise the unit complying with the customer's requirements

Digit	Name	Description
1	**Expansion valve**	
	A	Electronic
2	**Water pump**	
	1	Pump, ex. vessel, water charge valve
3	**Water tank**	
	0	Not present
	S	Present
4	**Heat recovery**	
	0	Not present
5	**Condensation control**	
	C	Modulating with fan speed control
6	**Antifreeze kit**	
	P	Present, unit with pump and vessel
	S	Present, unit with pump, vessel and tank
7	**Acoustic insulation**	
	1	Sound proofing insulation for compressor housing
8	**Refrigerant circuit accessories**	
	0	Not present
	M	Refrigerant gauges
9	**Remote control panel**	
	0	Not present
	2	RS485 port (Modbus + Carel protocol)
	S	Simplified
	M	BASE microprocessor (modbus excluded)
	X	ADVANCED microprocessor
10	**Special coil**	
	0	Standard
	R	Copper / Copper
	C	Cataphoresis
	B	Blygold
11	**Protection grille**	
	0	Not present
	G	Present
12	**Compressor option**	
	0	Not present
	1	Power factor correction capacitor
	2	Soft starter
	3	Power factor correction capacitor + soft starter
	4	Low temperature air/water
13	**Control Panel**	
	1	Base microprocessor
	2	Advanced microprocessor

N.B. **The choice of some options an prevent the choice of other options or oblige the selection of other digit. Please contacfr Galletti for verification**

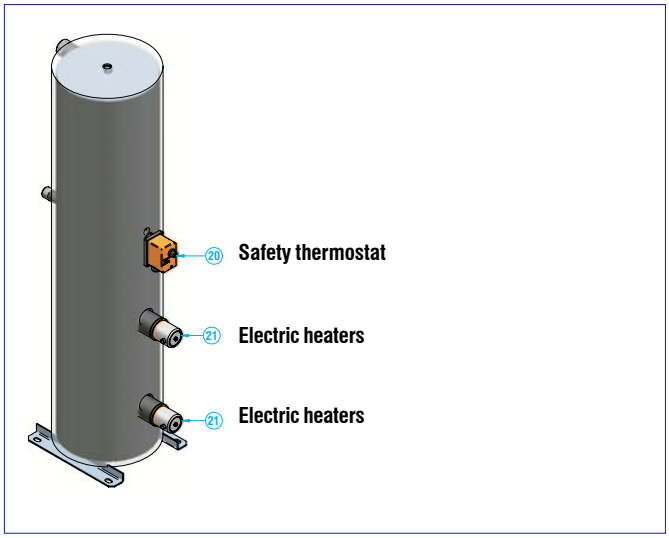
Technical data EXCELIA high efficiency heat pumps MXE series

MXE		009 M	009	011 M	011	014	016	019	021
Power supply	V-ph-Hz	230-1-50	400-3-50	230-1-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50
Cooling capacity	kW	7,33	7,46	9,34	9,34	12,20	14,40	16,05	18,50
Total power input	kW	2,83	2,71	3,58	3,38	4,30	5,24	5,54	6,21
EER		2,98	3,19	2,91	3,10	3,10	2,96	3,10	3,17
ESEER		3,92	3,62	3,73	3,31	3,77	3,59	3,67	3,79
Heating capacity	kW	8,54	8,46	10,82	10,51	13,66	15,84	18,53	20,64
Total power input in heating mode	kW	3,15	2,99	3,72	3,47	4,47	5,24	5,71	6,31
COP		3,07	3,21	3,23	3,39	3,33	3,25	3,47	3,47
Maximum current input	A	22,3	9,3	26,3	11,3	13,3	16,3	19,6	20,0
Starting absorbed current	A	84	37	98	50	66	72	77	103
n° of scroll compressor / circuits		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Low/high pressure switch	bar	0,7 / 42	0,7 / 42	0,7 / 42	0,7 / 42	0,7 / 42	0,7 / 42	0,7 / 42	0,7 / 42
n° of axial fan		2	2	2	2	2	2	4	4
Air flow	m^3/h	7.705	7.705	7.705	7.705	7.355	7.355	12.679	12.679
Water flow in cooling mode	l/h	1.261	1.283	1.606	1.606	2.098	2.477	2.761	3.182
Water flow in heat pump	l/h	1.469	1.454	1.861	1.821	2.442	2.853	3.211	3.605
Diameter of hydrualic connections	"	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Available pressure head (cooling)	kPa	130	130	132	132	115	111	154	157
Available pressure head (heating)	kPa	118	118	121	125	103	98	143	148
Expansion tank	dm^3	5	5	5	5	5	5	5	5
Buffer tank	dm^3	30	30	30	30	30	30	30	50
Height	mm	1250	1250	1250	1250	1250	1250	1275	1275
Length	mm	1220	1220	1220	1220	1220	1220	1590	1590
Depth	mm	550	550	550	550	550	550	600	600
Sound power level	dB(A)	69	69	69	69	69	69	72	72
Sound pressure level	dB(A)	41	41	41	41	41	41	44	44
Transport weight *	kg	212	212	215	215	219	220	273	273
Operating weight *	kg	237,5	237,5	240,5	240,5	244,5	245,5	309,3	309,3

* 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 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).

ELECTRIC HEATER INTEGRATION

The MXE series can be realized with incorporated buffer tank equipped with electric heaters to complete the operation in heat pump. Inside the water tank there are 2 electric heaters managed by the main board of the unit with two different steps.
These heaters activate in heat pump mode when the temperature of the outlet water is lower than the set threshold (parameter A08) and at the same time the external air temperature is lower than the threshold values of the two thermostats in the electric board (threshold can be regulated, and are preset at -5 °C and -10 °C). If air temperature is lower than -5 °C the first step activates, if it is lower than -10°C also the second step starts..
The integrative electric heaters work also as anti-freezing system and help also the defrosting.
In case of alarm (water flow, high pressure, low pressure, etc…) the main board switches them off automatically.



Code

Commercial name of the series	
MXE	Air/water high efficiency reversible heat pump
Model	
009	
011	
014	Gives information on the cooling capacity of the standard model
016	
019	
021	
Operation	
E	Heat pump with electric elements for heating integration
Power supply	
0	400V 3N 50 Hz
M	230V singlephase 50Hz
2	400V 3N 50 Hz + thermal magnetic breaker
4	230V singlephase 50Hz + thermal magnetic breaker

Options and unit configuration

13 digits which customize the unit complying wuth the customer's requirements

Digit	Name.	Description
1	**Expansion valve**	
	A	Electronic
2	**Water pump**	
	1	pump, exansion vessel, water charge valve
3	**Water tank**	
	B	Present, BASE electric heating element
	H	Present, HIGH electric heating element
4	**Heat recovery**	
	0	not present
5	**Condensation control**	
	C	modulating with fan speed control
6	**Antifreeze kit**	
	P	Present on evaporato and water pump
7	**Acustic insulation**	
	1	Sound proofing insulation for compressor housing
8	**Refrigerant circuit accessories**	
	0	not present
	M	Pressure gauges
9	**Remote control panel**	
	0	not present
	2	RS485 port (Modbus or Carel protocol)
	S	Simplified remote control panel
	M	BASE microprocessor remote control panel (Modbus excluded)
	X	ADVANCED microprocessor remote control panel
10	**Special finned pack heat exchanger**	
	0	Standard
	R	Copper/Copper
	C	Cataphoresis
	B	Fins protection treatment
11	**Protection grille**	
	0	not present
	G	present
12	**Compressor options**	
	0	Not present
	1	Power factor correction capacitor
	2	Soft starter
	3	Power factor correction capacitor + soft starter
13	**Control panel**	
	1	Base
	2	advanced

Technical data EXCELIA high efficiency heat pumps MXE E series

MXE E		009 M	009	011 M	011	014	016	019	021
Power supply	V-ph-Hz	230-1-50	400-3-50	230-1-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50
Cooling capacity	kW	7,33	7,46	9,34	9,34	12,20	14,40	16,05	18,50
Total power input **	kW	2,83	2,71	3,58	3,38	4,30	5,24	5,54	6,21
Max absorbed power – Version with integrative heaters BASIC	kW	8,0	7,9	8,9	8,6	10,0	10,6	13,3	14,2
Max absorbed power - Version with integrative heaters HI-POWER	kW	10,0	9,9	10,9	10,6	12,0	12,6	-	-
EER		2,98	3,19	2,91	3,10	3,10	2,96	3,10	3,17
ESEER		3,92	3,62	3,73	3,31	3,77	3,59	3,67	3,79
Heating capacity	kW	8,54	8,46	10,82	10,51	13,66	15,84	18,53	20,64
Total power input in heating mode	kW	3,15	2,99	3,72	3,47	4,47	5,24	5,71	6,31
COP		3,07	3,21	3,23	3,39	3,33	3,25	3,47	3,47
Maximum power input	A	22,3	9,3	26,3	11,3	13,3	16,3	19,6	20,0
Starting absorbed current	A	84	37	98	50	66	72	77	103
n° of scroll compressor / circuits		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Low/high pressure switch	bar	0,7 / 42	0,7 / 42	0,7 / 42	0,7 / 42	0,7 / 42	0,7 / 42	0,7 / 42	0,7 / 42
n° of axial fan		2	2	2	2	2	2	4	4
Air flow	m^3/h	7.705	7.705	7.705	7.705	7.355	7.355	12.679	12.679
Water flow in cooling mode	l/h	1.261	1.283	1.606	1.606	2.098	2.477	2.761	3.182
Water flow in heat pump	l/h	1.469	1.454	1.861	1.821	2.442	2.853	3.211	3.605
Diameter of hydrualic connections	"	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Available pressure head (cooling)	kPa	130	130	132	132	115	111	154	157
Available pressure head (heating)	kPa	118	118	121	125	103	98	143	148
Expansion tank	dm^3	5	5	5	5	5	5	5	5
Buffer tank	dm^3	30	30	30	30	30	30	30	50
Height	mm	1250	1250	1250	1250	1250	1250	1275	1275
Length	mm	1220	1220	1220	1220	1220	1220	1590	1590
Depth	mm	550	550	550	550	550	550	600	600
Sound power level	dB(A)	69	69	69	69	69	69	72	72
Sound pressure level	dB(A)	41	41	41	41	41	41	44	44
Transport weight *	kg	212	212	215	215	219	220	273	273
Operating weight *	kg	237,5	237,5	240,5	240,5	244,5	245,5	309,3	309,3

* Weights referred to the version with pump and tank.
** Absorbtions without electric heater integration.
- Cooling capacity: external air temperature 35°C, water temperature 12°C / 7°C
- Heating capacity: external air temperature with dry bulb 7°C and 6,2°C with wet bulb, water temperature 40°C / 45°C
- Sound pressure detected 10 m away and with a height of 1,5 m from the ground in a free space (fan side).

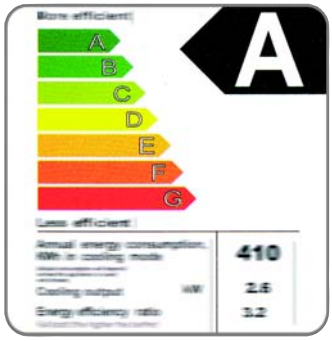
MXE E electric heating elements rated technical data

MXE E		009 M	009	011 M	011	014	016	019	021
Power supply	V/f/Hz	230-1-50	400-3N-50	230-1-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50
Power input of the BASE electric heating element first capacity step	kW	2,0	2,0	2,0	2,0	2,0	2,0	3,0	3,0
Current absorbed of the BASE electric heating element first capacity step	A	8,7	2,9	8,7	2,9	2,9	2,9	4,4	4,4
Power input of the BASE electric heating element second capacity step	kW	2,0	2,0	2,0	2,0	2,0	2,0	3,0	3,0
Current absorbed of the BASE electric heating element second capacity step	A	8,7	2,9	8,7	2,9	2,9	2,9	4,4	4,4
Total power input of the BASE electric heating element	kW	4,0	4,0	4,0	4,0	4,0	4,0	6,0	6,0
Total current absorbed of the BASE electric heating element	A	17,4	5,8	17,4	5,8	5,8	5,8	8,8	8,8
Power input of the HIGH electric heating element first capacity step	kW	2,0	2,0	2,0	2,0	2,0	2,0	-	-
Current absorbed of the HIGH electric heating element first capacity step	A	8,7	2,9	8,7	2,9	2,9	2,9	-	-
Power input of the HIGH electric heating element second capacity step	kW	4,0	4,0	4,0	4,0	4,0	4,0	-	-
Current absorbed of the HIGH electric heating element second capacity step	A	17,4	5,8	17,4	5,8	5,8	5,8	-	-
Total power input of the HIGH electric heating element	kW	6,0	6,0	6,0	6,0	6,0	6,0	-	-
Total current absorbed of the HIGH electric heating element	A	26,1	8,7	26,1	8,7	8,7	8,7	-	-

FLOOR: RADIANT COOLING AND HEATING

- > **R410A**
- > **COMPRESSOR**
- > **ELECTRONIC EXPANSION VALVE AS STANDARD**
- > **CONDENSATION CONTROL ON PRESSURE**
- > **AUTO ADAPTIVE SET POINT**
- > **OPERATION WITH LOW WATER CONTENT (BUFFER TANK NOT NEEDED)**
- > **EXTREMELY LOW SOUND LEVEL**
- > **HYDRAULIC PLUG&PLAY**
- > **SMART DEFROST SYSTEM**
- > **LAN AND ERGO INTERCONNECTIVITY**

MFE range is a specific product for the production of cold and hot water for radiant panels plants. It is made of 7 different models, available in cooling and heating versions.
The range is characterised by high efficiency level both in cooling mode and in heating mode:
Average EER 3,83 (Eurovent Energy Efficiency Class A)
Average COP 4,02



The oversized finned pack heat exchanger and the oversized electronic expansion valve give higher energy efficiency level also with high evaporating temperature;

Plate heat exchanger with counter current operation in the heating mode. The production of hot water for radiant systems with low temperature allows you to reach high energy efficiency values.

The electronic expansion valve and the condensing control, allow to the unit to work in heating mode, with external air temperature up to -10°C and in cooling mode up to + 45°C. In this way you can extend the operation range of the unit.

It is possibe to produce chilled water up to 20°C for radiant floor for sensible cooling thanks to the electronic expansion valve.
It is also possible to change the set point reducing, it for the dehumidification operation.

The electronic control panel automatically adjusts the unit set point as a function of the outdoor temperature to reduce power consuption and enlarge the range of working temperature .

The operation in systems with low water content now is possible even without the buffer tank thanks to the microprocessor control logic that reduce the compressor start up numbers and increase its working time.

CONSTRUCTIVE FEATURES

STRUCTURES
Structure and base built from galvanised sheet steel coated with corrosion-proof paint, RAL 9002 colour.
All bolts and screws and fastening devices are made of non-oxidisable 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 inspection.
The compressor compartment can be acoustically insulated on request in order to reduce the sound emission of the unit.

BUILT-IN HYDRONIC KIT
- High performance pump completely (body and rotor) made of stainless steel suitable ready to operate with glycol mix up to 35%. The pump motor is complete with internal thermal protection.
  The pump is located in the compressor comparment and is easely reachable thanks to the openable panels.
  The water pump is cooled by fresh air through a suitable grille.
- Expansion vessel.
- Safety valve.
- Filling valve.
- Automatic air purge.
- Differential pressure switch and antifreeze thermostat with probe on leaving water side.
- Buffer tank dowstream to the evaporator, best solution to reduce the chilled water variation due to the compressor ON/OFF operation.
- The Mechanical Y Filter is standard for all the versions to protect the plate evaporator.

REFRIGERANT CIRCUIT
- Scroll compressor (rotary up to 7 kW).
- Heat exchanger with stainless steel braze-welded plates optimised for type of plate and distribution for R410A.
- Finned block condenser coil with 8 mm copper pipping and aluminium fins, characterized by large dimensions.
- Mechanical drier filter.
- Refrigerant sight glass with humidity indicator.
- Thermostatic valve with external equalization and integrated MOP function.
- 4-way reversing valve (heat pump only).
- Check valves (heat pump only).
- Liquid receiver (heat pump only).
- High and low pressure switches.
- Safety valve.
- Schrader valves for checks and/or maintenance.
- Refrigerant manometers (options).

FAN MOTOR ASSEMBLY
Fan of axial type with airfoil shapes blades provided with protection grille and housed in a nozzle with special shape that icrease its performance.
Fans are housed in nozzles with special shape to increase performance.
Fans are directly coupled with low speed (6/8 poles) motors, protected with a thermal cutout.
Fan motor assembly is connected to the unit through rubber vibration dampers and its supported by a deidicated frame.
The use of finned pack coils with 8mm diameter copper pipe reduce the pressur drop on air side decreasing the sound level.
The condensation control (on pressure base) adjust automatically the fan speed, reducing the noise emission of the unit in the night operation and when the unit runs at partial loads.

FINNED PACK
Finned pack heat exchangers with 8mm diameter copper tube, characterised by a large surfacce and specially designed to speed up the defrost cycle and to maximaze the integrate capacity of the unit.

ELECTRIC BOX
The electric box is built and wired according to the EEC 73/23 (LVD), to the 89/336 (EMCD) and related standards. Built with steel panels is protected by the unit's panels.

MICROPROCESSOR CONTROL


The control panel enables the complete control of MFE unit and can be easely accessed through a polycarbonate flap with IP 65 protection class.
The controller autoadaptive function allowed the unit operartion with low water content avoiding the use of the buffer tank.
The outdoor temperature measure allows to adjust atomatically the unit set point to the real thermoal load in cooling operaiton and to keep the unit operate even at the most critical condition in winter time.
The controller is complete with MODBUS for an immediate conneted to ERGO network.
Main functions:
- Control of the entering water temperature.
- Defrosting management (MFE-H)
- fan speed control on pressure base (opzionale)
- Complete alarm management
- Automatic set point adjustment depending on the outdoor air tenmperature
- Can be conneted to an RS485 serial line (optional) for supervision/ teleassisitance operation
- A remote terminal that reproduces the control functions is available as optional (not compatible with ERGO).

Controlled devices:
- Compressor
- Fans
- 4-way reversing valve (MFE-H)
- Water pump
- Antifreeze kit (optional)
- Alarm relay

Advanced controller available on request to carry out the following functions:
- LAN up to 4 units
- Smart Defrost System

AVAILABLE OPTIONS
Compressor compartment insulation
Refrigerant gauges
Antifreeze kit
Partial heat recovery system 25% complete with on/off contact for circulation pump (not supplied)
Special treatment on finned coil (copper/copper, cataphoresysl blygold)
Remote control panels
Dampers
Condensing coil protection grille

How to place an order

MFE water chillers and heat punmps can be configured in order to meet many possible installation requirements.

Code

Commercial name of the series	
MFE	Air condensed water chiller and reversible heat pumps
Model	
005	
006	
008	Give information on the cooling capacity of the standard model
013	
017	
020	
023	
Operation	
C	Cooling only
H	Heat punp
Power supply	
0	400V 3N 50 Hz
M	230V - 1 - 50Hz
2	400V 3N 50 Hz + magnetic breaker
4	230V - 1 - 50Hz + magnetic breaker

Options and unit configuration

13 digits which customise the unit complying with the customer's requirements

Digit	Name	Description
1	**Expansion valve**	
	A	Electronic
2	**Water pump**	
	1	Pump, ex. vessel, water charge valve
3	**Water tank**	
	0	Not present
	S	Present
4	**Heat recovery**	
	0	Not present
	D	Partial (25%) with auxiliary contact for pump (cooling only models)
5	**Condensation control**	
	C	Modulating with fan speed control
6	**Antifreeze kit**	
	0	Not present
	P	Present, unit with pump and vessel
	S	Present, unit with pump, vessel and tank
7	**Acoustic insulation**	
	0	Not present
	1	Sound proofing insulation for compressor housing
8	**Refrigerant circuit accessories**	
	0	Not present
	M	Refrigerant gauges
9	**Remote control panel**	
	0	Not present
	2	RS485 port (Modbus + Carel protocol)
	S	Simplified
	M	BASE microprocessor (modbus excluded)
	X	ADVANCED microprocessor
10	**Special coil**	
	0	Standard
	R	Copper / Copper
	C	Cataphoresis
	B	Blygold
11	**Protection grille**	
	0	Not present
	G	Present
12	**Compressor option**	
	0	Not present
	1	Power factor correction capacitor
	2	Soft starter
	3	Power factor correction capacitor + soft starter
13	**Control Panel**	
	1	Base microprocessor
	2	Advanced microprocessor

N.B. The choice of some options an prevent the choice of other options or oblige the selection of other digit. Please contacfr Galletti for verification

Air condensed water chiller for radiant floor MFE C - Rated technical data

MFE C		005 M	006 M	008 M	011	011 M	013	013 M	016	017	020	023
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50	400-3-50	230-1-50	400-3-50	230-1-50	400-3-50	400-3-50	400-3-50	400-3-50
Cooling capacity	kW	5,24	6,62	8,62	11,15	11,10	12,46	12,48	16,00	17,10	19,78	23,16
Total power input	kW	1,52	1,84	2,49	3,23	3,39	3,54	3,55	4,58	4,72	5,90	6,95
EER		3,76	3,78	3,58	3,76	3,38	3,88	3,93	3,74	3,86	3,47	3,57
ESEER		3,39	3,36	3,16	3,61	3,19	3,38	3,40	3,49	3,59	3,35	3,40
Maximum current absorbed	A	9,79	11,62	15,30	13,00	24,86	14,40	26,28	16,88	17,38	21,26	25,26
Starting ampere	A	38	44	63	49	98	50	99	65	65	68	76
n° of scroll compressors / circuits		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
High/low pressure switch	bar	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 fans		1	1	1	2	2	2	2	2	2	4	4
Air flow	m^3/h	3.635	3.406	3.406	7.385	7.385	6.939	6.939	6.939	6.939	9.990	9.307
Water flow	l/h	901	1.139	1.483	1.918	1.909	2.150	2.150	2.752	2.941	3.402	3.984
Water connections	"	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Water pump available head	kPa	61	58	49	48	48	84	84	79	62	102	94
Expansion vessel	dm^3	1	1	1	5	5	5	5	5	5	5	5
Water tank	dm^3	n.d.	n.d.	n.d.	30	30	30	30	30	30	50	50
Height	mm	760	760	760	1220	1220	1220	1220	1220	1220	1275	1275
Lenght	mm	990	990	990	1250	1250	1250	1250	1250	1250	1590	1590
Width	mm	450	450	450	560	560	560	560	560	560	600	600
Sound power level	dB(A)	66	66	67	69	69	69	69	69	69	71	71
Sound pressure level	dB(A)	38	38	39	41	41	41	41	41	41	43	43
Transport weight *	kg	98	100	107	200	200	202	202	209	209	260	260
Operation weight *	kg	92	94	101	220	220	228	228	235	235	306	306

Air/water reversible heat pumps for radiant floor - Rated technical data

MFE H		005 M	006 M	008 M	011	011 M	013	013 M	016	017	020	023
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50	400-3-50	230-1-50	400-3-50	230-1-50	400-3-50	400-3-50	400-3-50	400-3-50
Cooling capacity	kW	5,10	6,40	8,30	10,94	10,88	12,23	12,23	15,49	16,64	19,14	22,57
Cooling operation total power input	kW	1,53	1,87	2,54	3,23	3,48	3,55	3,55	4,60	4,77	6,00	7,00
EER		3,76	3,78	3,58	3,76	3,38	3,88	3,93	3,74	3,86	3,47	3,57
ESEER		3,39	3,36	3,16	3,61	3,19	3,38	3,40	3,49	3,59	3,35	3,40
Heating capacity	kW	4,91	6,33	8,10	10,85	10,96	11,45	11,45	14,46	15,57	18,34	21,66
Heating operation total power input	kW	1,38	1,70	2,20	2,86	3,03	3,28	3,28	4,04	4,10	4,95	5,89
COP		4,00	4,06	3,93	4,00	3,64	3,93	3,93	4,02	4,17	3,95	4,06
Maximum current absorbed	A	9,79	11,62	15,30	13,00	24,86	14,40	26,28	16,88	17,38	21,26	25,26
Starting ampere	A	38	44	63	49	98	50	99	65	65	68	76
n° of scroll compressors / circuits		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
High/low pressure switch	bar	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 fans		1	1	1	2	2	2	2	2	2	4	4
Air flow	m^3/h	3.635	3.406	3.406	7.385	7.385	6.939	6.939	6.939	6.939	9.990	9.307
Cooling operation water flow	l/h	901	1.139	1.483	1.918	1.909	2.150	2.150	2.752	2.941	3.402	3.984
Heating operation water flow	l/h	845	1.088	1.393	1.865	1.885	1.969	1.969	2.487	2.679	3.154	3.726
Water connections	"	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Cooling operation available head	kPa	61	58	49	48	48	84	84	79	62	102	94
Heating operation available head	kPa	61	57	51	44	44	93	93	57	36	137	111
Expansion vessel	dm^3	1	1	1	5	5	5	5	5	5	5	5
Water tank	dm^3	n.d.	n.d.	n.d.	30	30	30	30	30	30	50	50
Height	mm	760	760	760	1220	1220	1220	1220	1220	1220	1275	1275
Lenght	mm	990	990	990	1250	1250	1250	1250	1250	1250	1590	1590
Width	mm	450	450	450	560	560	560	560	560	560	600	600
Sound power level	dB(A)	66	66	67	69	69	69	69	69	69	71	71
Sound pressure level	dB(A)	38	38	39	41	41	41	41	41	41	43	43
Transport weight *	kg	103	105	112	210	210	212	212	219	219	275	275
Operation weight *	kg	97	99	106	230	230	238	238	245	245	321	321

* Weights referred to the version with pump and tank
- Cooling capacity: external air temperature 35°C, water temperature 23°C / 18°C
- Heating capacity: external air temperature with dry bulb 7°C and 6,2°C with wet bulb, water temperature 30°C / 35°C
- Sound power detected according to ISO 3741 - ISO 3744 and EN 29614-1
- Sound pressure detected 10 m away and with a height of 1,5 m from the ground in a free space (fan side).

STANDARD FEATURES OF MPI

- > R410A
- > SCROLL COMPRESSORS WITH VARIABLE SPEED
- > CONTINUOUS MODULATION OF COOLING CAPACITY BETWEEN 30 AND 110 HZ (PEAK 120 HZ)
- > ELECTRONIC EXPANSION VALVE
- > ADVANCED MICROPROCESSOR CONTROL WITH LCD DISPLAY
- > REAL CONTROL OF THE TEMPERATURE OF OUTLET WATER TEMPERATURE (+/- 15%)
- > AT PARTIAL LOADS THERE IS NO NEED OF ACCUMULATION
- > DYNAMIC SETPOINT ACCORDING TO A SIGNAL OF THE EXTERNAL AIR TEMPERATURE PROBE
- > CONDENSING CONTROL
- > SMART DEFROST SYSTEM FOR HEAT PUMPS
- > CIRCULATING WATER PUMO AND EXPANSION VESSEL

The real thermal load in an air-conditioning system is 90% of the time lower than 60% of the nominal load.
In small-capacity installations without a lot of terminals and low content of water the working at partial loads is particularly critical. In order the system to work in the proper way the modulation of the power supplied from the unit is necessary.

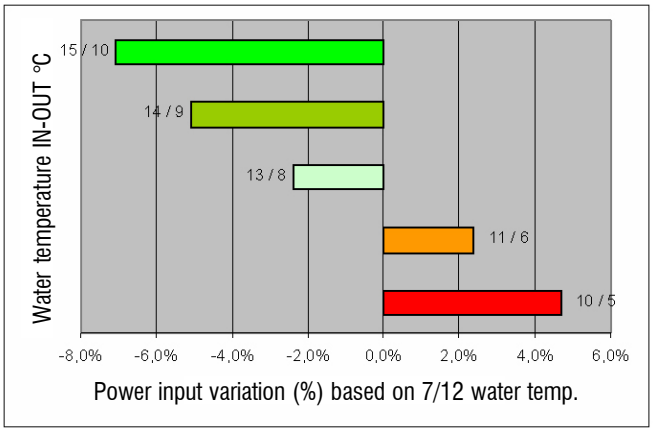
The control with inverter act on the number of rounds of the compressor modulating the mass flow of the refrigerant, the cooling capacity and the absorbed power.

The logic of the MPI series permit the user to regulate precisely the outlet water temperature adjusting it according to the thermal loads. With the control algorithm PID it is possible to regulate the water temperature between +/- 15%.

The control with inverter has two big different advantages: it adjusts the power given and absorbed from the compressor according to the real thermal load and moreover it allows the final user a very big reduction in the electrical absorption during the switching-on of the compressor itself.

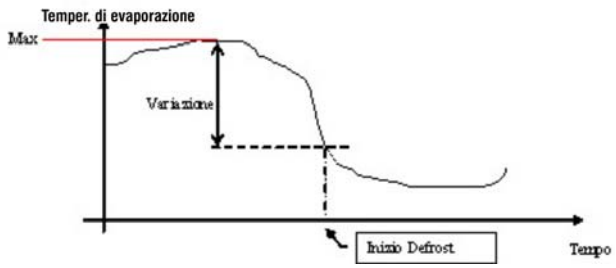
The electronic expansion valve is supplied as standard in the MPI units.

With the electronic expansion it is possible to regulate the refrigerant superheating and maximize the efficiency at partial loads.
With the electronic control it is possible to regulate automatically the setpoint according to external air temperature in order to reduce consumption and widen the working range.



The condensing control adjust the number of fan rounds to the real working conditions. The results of this are better working conditions, reduction in sound levels at partial loads and the possibility to work over the conventional limits in cooling mode (as far as -10°C of external air temperature).

In the heat pump models the exclusive defrosting system is able to identify correctly performance lacks in the external exchanger because of the presence of ice. Moreover with it, it is possible to minimize the time of this process.



Preliminary rated technical data inverter-driven water chillers and heat pumps MPI series

MODEL		015					027				
Power supply	V-ph-Hz	400-3N-50					400-3N-50				
Inverter control	Hz	30	60	90	110	120	30	60	90	110	120
Cooling capacity	kW	4,40	9,20	12,70	14,70	15,70	8,30	16,90	23,90	27,80	29,50
Cooling operation total power input	kW	1,6	2,6	4,2	5,3	5,7	3,1	5,5	8,5	10,5	11,4
EER		2,8	3,6	3,0	2,8	2,8	2,7	3,1	2,8	2,6	2,6
Heating capacity	kW	4,8	9,9	14,5	17,4	18,8	9,2	18,5	27,1	32,4	34,0
Heating operation total power input	kW	1,70	2,87	4,37	5,50	6,00	3,40	5,50	8,40	10,80	11,80
COP		2,80	3,40	3,30	3,20	3,10	2,70	3,40	3,20	3,00	2,90
N° of scroll compressors/ refrigerant circuit	n°	1 / 1					1 / 1				
Height	mm	1250					1275				
Length	mm	1220					1590				
Width	mm	550					600				
Sound power level	dB(A)	63,5	66	68,5	69	70	67,5	69	71,5	73,5	74,5
Sound pressure level	dB(A)	35,5	38	40,5	41	42	39,5	41	43,5	45,5	46,5

- Cooling capacity: external air temperature 35°C, water temperature 12°C / 7°C
- Heating capacity: external air temperature with dry bulb 7°C and 6,2°C with wet bulb, water temperature 40°C / 45°C
- Sound pressure detected 10 m away and with a height of 1,5 m from the ground in a free space (fan side).

ELECTRIC MODULES

The electric EMC modules have been designed to integrate the functioning of Galletti heat pumps, if necessary further to inevitable reduction of the heat capacity linked to the lowering of the external ait temperature.

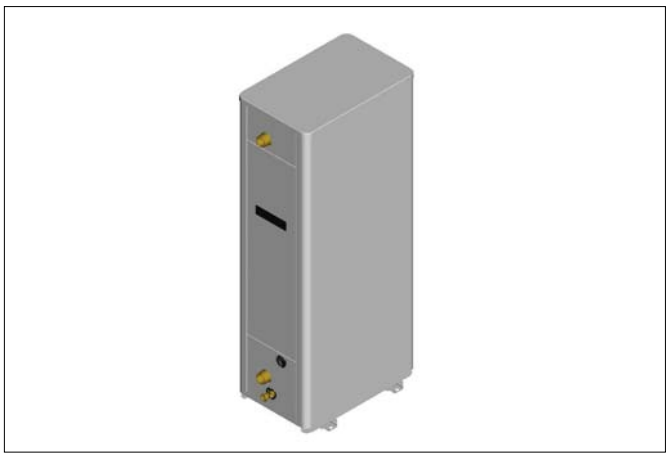
It is about water tanks inside of which two armoured electric heaters are inserted, activate dfrom the electric board, according to the logic of regulation as follows.

The two electric heaters inside of the tank are managed by the unit control main board.

They are activated in heat pump mode when the temperature of the outlet water produced by the condenser is lower the set threshold and at the same time the external air temperature is lower the values of the two thermostats in the electric board (the thresholds can be regulated and pre-set at -5°C and at -10°C).
If the air temperature is lower than -5°C the first step activates, if it is lower than -10°C the second steps activate as well.

The integrative electric heaters work also as anti-freezing system and help also the defrosting.
In case of alarm (water flow, high pressure, low pressure, etc…) the main board swithces them off automatically.

The EMC modules can be installed both inside and generally near the technical compartment. In this case the ait-temperature probes must be placed outside of the compartment where is located the module in order to measure correctly the external air temperature (no that of the technical compartment).



EMC modules can be used together with Galletti heat pumps in the following models/series.

Heat pump	from model	to model
• **MCE H**	009	026
• **MPE H**	004	027
• **MXE H**	011	021
• **MFE H**	005	023

EMC modules are NOT compatible with the MXE E heat pumps series as they are already equipped with electric heater in the incorporated tank.

EMC tank with electric heating elements – rated technical data

EMC		EMC22M0000A	EMC22T0000A	EMC24M0000A	EMC24T0000A	EMC33T0000A
Power supply	V/f/Hz	230-1-50	400-3N-50	230-1-50	400-3N-50	400-3N-50
n° of capacity steps		2	2	2	2	2
Power input of electric heating element 1° capacity steps	kW	2,0	2,0	2,0	2,0	3,0
Current absorbed of electric heating element 1° capacity steps	A	8,7	2,9	8,7	2,9	4,4
Power input of electric heating element 2° capacity steps	kW	2,0	2,0	4,0	4,0	3,0
Current absorbed of electric heating element 2° capacity steps	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	5,0
Total current absorbed of electric heating elements	A	17,4	5,8	26,1	8,7	8,8
Regulation range of the electric heating elements thermostat	°C	-10 °C / 20°C	-10 °C / 20°C	-10 °C / 20°C	-10 °C / 20°C	-10 °C / 20°C
Water tank	dm^3	30	30	30	30	50
Height	mm	1146	1146	1146	1146	1211
Length	mm	364	364	364	364	364
Width	mm	466	466	466	466	531
Hydraulic 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
Operation weight	kg	71	72	73	74	104

AIR-CONDENSED MOTO-CONDENSING UNITS

To be used in systems in two sections, the units of the MTE series can be joined to exchange batteries of air handling units.

The outdoor MTE moto-condensing units have been designed on the base of the MPE series; they offer a high efficiency with extremely low sound levels.

They are equipe with:
- > interception taps on liquid and gas sides ;
- > electric heater on compressor carter to obstacle the dilution of the oil during stops;
- > pre-load raised at steam with nitrogen;
- > schrader valvoles for the load operations with pressures control;
- > indicator for humidity and liquid flow located in order to be seen from the outside without removing panels;
- > electric board with control microprocessor accessbile from the outside and output in very low tension with the thermostatic control with clean unit contact, external sectionator, sequence/phase control, compressor protection, soft starter of the compressor when starting.

Code

Commercial name of the series	
MTE	Air condensed moto-condensing unit for outdoor installation
Model	
004	
005	
007	Gives information on the cooling capacity of the standard model
009	
010	
012	
013	
015	
018	
021	
024	
029	
033	
038	
042	
058	
071	
Operation	
C	Cooling only unit
Power supply	
0	400V 3N 50 Hz
M	230V singlephase 50Hz

Option and unit configuration

13 digits which customize the unit complying with the customer's requirements:

Digit	Name.	Description
1	**Thermal expansion device**	
	0	Not present
	T	Traditional
	A	Electronic230V
2	**Liquid receiver**	
	0	Not present
	2	Present with shut-off valve
3	**Liquid line accessory**	
	0	Not present
	S	Solenoide valve on liquid line
4	**Heat recovery**	
	0	Not present
5	**Condensation control**	
	0	Not present
	C	Modulating with fan speed control
6	**Phase sequenze relay**	
	1	Present
7	**Acoustic insulation**	
	0	Not present
	1	Sound proofing insulation for compressor
8	**Refrigerant circuit accessories**	
	0	Not present
	M	Refrigerant pressure gauges
9	**Remote control**	
	0	Not present
	2	RS 485 port (modbus or carel protocol)
	S	Simplified remote control
	M	Base microprocessor remote
10	**Special coil**	
	0	Standard
	R	Copper/Copper
	C	Cataphoresis
	B	Fins protection treatment
11	**Condenser protection grille**	
	0	Not present
	G	Present
12	**Compressor options**	
	1	Crackcase electric heater
	2	Soft starter
13	**Control panel**	
	1	Base

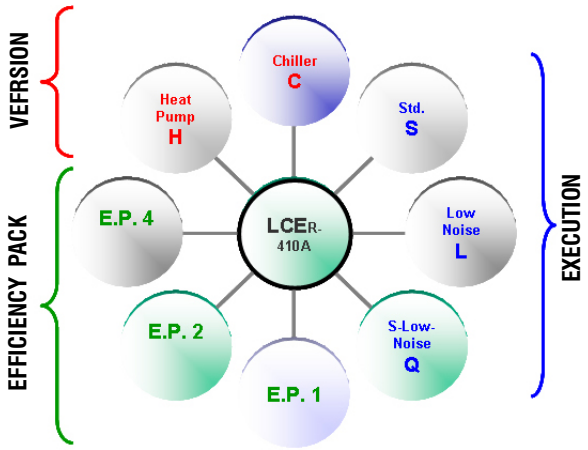
MTE air cooled moto-condensing units - PRELIMINARY technical data											
MTE-C		**004 M**	**005 M**	**007 M**	**009 M**	**009**	**010 M**	**010**	**012**	**013**	**015**
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50	230-1-50	400-3N-50	230-1-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50
Cooling capacity	kW	4,30	5,40	7,11	9,12	9,15	9,60	9,58	12,15	13,43	15,26
Total power input	kW	1,36	1,72	2,30	3,34	3,15	3,36	3,36	4,42	4,43	5,48
EER		3,17	3,15	3,10	2,73	2,91	2,86	2,85	2,75	3,03	2,78
Maximum power input	kW	2,3	2,8	2,9	3,0	3,0	4,8	6,8	8,3	8,6	10,1
Maximum current absorbed	A	11,7	14,2	14,7	14,7	7,5	24,3	12,4	14,9	15,4	18,0
Startying ampere	A	48	63	63	63	45	97	48	63	63	66
n° of scroll compressors / circuits		1 / 1									
Rated amount of refrigerant requested	kg	1,5	1,5	2	2	2	2,3	2,3	2,3	3	3
High/low pressure switch	bar	2 / 42									
n° of axial fans		1					2				
Air flow	m^3/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	1225	1225	1225	1225	1225
Lenght	mm	960	960	960	960	960	1220	1220	1220	1220	1220
Width	mm	450	450	450	450	450	550	550	550	550	550
Sound Power level	dB(A)	67	67	67	67	67	71	71	71	71	71
Sound pressure level	dB(A)	39	39	39	39	39	43	43	43	43	43
		018	**021**	**024**	**029**	**033**	**038**	**042**	**058**	**071**	
Power supply	V-ph-Hz	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	
Cooling capacity	kW	18,42	20,79	24,41	29,26	32,95	37,70	42,29	58,11	70,79	
Total power input	kW	6,65	7,50	8,42	9,88	11,45	12,27	13,45	17,87	24,21	
EER		2,77	2,77	2,90	2,96	2,88	3,07	3,14	3,25	2,92	
Maximum power input	kW	12,4	13,5	15,6	18,1	19,3	22,2	22,4	28,8	38,1	
Maximum current absorbed	A	23,3	25,2	28,7	35,2	37,2	42,2	41,3	56,3	70,3	
Startying ampere	A	73	102	102	130	163	158	160	215	260	
n° of scroll compressors / circuits		1 / 1									
Rated amount of refrigerant requested	kg	3,8	3,8	4,1	3,6	4,0	5,5	7,0	7,0	10	
High/low pressure switch	bar	2 / 42									
n° of axial fans		2			4			2			
Air flow	m^3/h	11.940	11.940	11.460	21.500	21.500	19.700	21.230	20.050	20050	
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	1225	1225	1225	1275	1275	1275	1485	1485	1485	
Lenght	mm	1220	1220	1220	1565	1565	1565	1990	1990	1990	
Width	mm	550	550	550	601	601	601	950	950	950	
Sound Power level	dB(A)	78	78	78	81	81	81	80	80	80	
Sound pressure level	dB(A)	50	50	50	53	53	53	52	52	52	

- Cooling capacity: external air temperature 35°C, evaporating temperature 5°C
- Sound pressure detected 10 m away and with a height of 1,5 m from the ground in a free space (fan side).

LCE: range and customization

The use of R410A in units specifically designed for this refrigerant is giving considerable performance advantages due to the high heat exchange coefficient and low pressure drops in the exchangers, which lead to an increase of efficiency and energy savings.

The LCE series involve a range of 17 sizes and, considering all the different versions and optionals, a total availability of 150 models in only cooling and heat pumps mode, with cooling/heating capacity among 40 and 320 kW, which allow to create "customized" solution, matching the different installations requests.



> **VERSION**
- **C** Chiller-Only cooling
- **H** Reversibile heat pump

> **EFFICIENCY PACK**

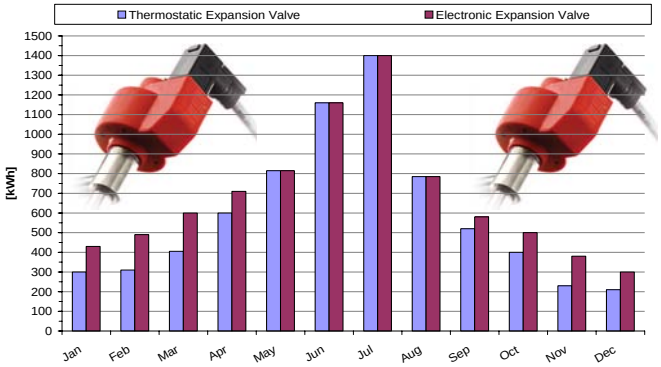
The possibility to realize different combination / refrigerant circuit/ compressors allows to personalize the efficiency levels at full load and/or at partial load operations

1. 2x circuit/2x compressors
   This solution is designed to give the best efficiency at full load (EER and COP)
2. 1x circuit/2x comrpessors
   This solution is designed to give the best efficiency at partial load, reaching an ESEER level of 4
4. 2x cirucit/ 4xcmpressors
   This solution allow toh ave 4 capacity steps, followiing the user load in a closet way and redeucing the number of compressors on/off

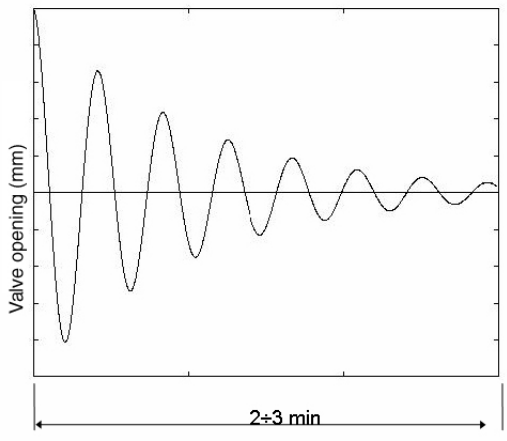
> **EXECUTION**
- **S** Esecuzione standard
- **L** Low Noise with reduced noise levels
- **Q** Super low noise with very low noise levels

ELECTRONIC EXPANSION VALVE

All the sizes/versions are equipped with an electronic expansion valve as standard, to have maintain the high efficiency at all the different working conditions



This component is able to adjust the unit operation according to the real time working conditions, keeping the efficiency at bets level.
In case of a sudden variation in the thermal load the traditional expansion valve before reaching the balance condition has 2-3 minute wait-time.
Proactive action of an electronic expansion valve.

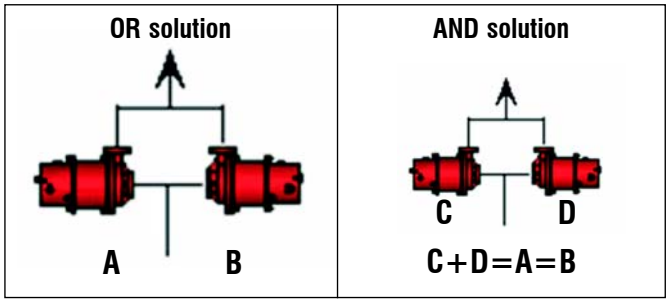


In case of compressors on/off request:
- The valve driver pre-set the valve opening very closet o the equilibrium point
- With small adjustments the valve reach shortly the optimum opening position
- The valve become a por-active component, of the refrigerant system
- The transitory perod become very short
- The system become more efficient during the continuos operation increasing the EER and therefore with energy saving

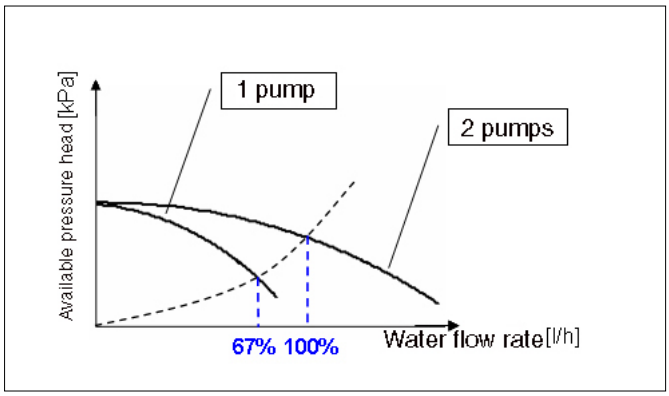
HYDRAULIC OPTIONS

A complete hydrulic kit can be mounted inside the unit without changing the basic dimensions and with the following possibiliies on the water pump side:

- single pump, with standard or up-rated pressure head
- double pump, with standard or up-rated pressure head in OR configuration: one working and one in stand by. The microprocessor control will automatically make the change over to have the same working hours
- double pump, with standard or up-rated pressure head in AND configuration: both pumps working in parallel

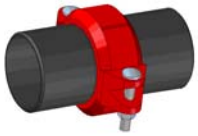


With parallel connection the water flow is splitted among the 2 pumps in the proportion $^1/_3$;
At part load operation onle 1 pump is working with an energy saving up to 30%.



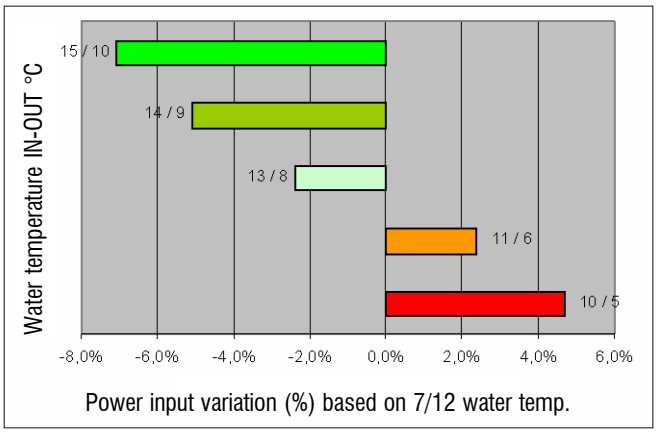
With the double pump in AND configuration, it is obligatory to have the advanced microprocessor control which has to manage the pumps on/off depending on real time part loading of the unit, which is statistically correspongin to the 97% of the unit life's operation

All the LCE units are provided with the water connections on the external side of the frame. Victaulic connections are available as optionals



CONTROL

The microprocessor Management allow to automatically control the set point in relation to the ambient temperature (air sensor available as option) to reduce the energy consumption and enlarge the working range. In the summer operation the set point adjustement starts with an ambient temperature of 30 °C



The patented defrosting systems (available only with advanced control), is able to check in real time the evaporator freezing starting and acting to reduce the defrosting timing.

INTERCONNECTIVITY

As standard with Ergo supervision system
With advanced control, it is possible to realize the following:

- Lan network
- Kit GSM for the reading and setting of parameter via mobile telephone
- WEB kit for the reading and setting of parameter via remote PC thorugh the IP address of the unit

REDUCTION OF THE OVERALL DIMENSIONS AND TRANSPORT COSTS

Reduction of the foot-print and increase in the power density (kW/m2). Thanks to the reduction of the depth (now 1180 mm as far as size 160) it is possible to lower the transport costs.

LCE package air condensed water chillers - STANDARD execution - Rated technical data															
Approximate thermal output (kW)		45	50	60	70	80	90			100			120		
Efficiency pack		2	2	2	2	2	1	2	4	1	2	4	1	2	4
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	ND	ND	63,30	69,20	76,50	92,20	92,20	ND	102,70	102,70	ND	124,10	124,10	126,43
Total power input	kW	ND	ND	22,57	25,36	28,97	33,05	33,05	ND	39,46	39,46	ND	43,13	43,14	42,99
EER		ND	ND	2,80	2,73	2,64	2,79	2,79	ND	2,60	2,60	ND	2,88	2,88	2,94
n° of scroll compressors / circuits		ND	ND	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	ND	2 / 2	2 / 1	ND	2 / 2	2 / 1	4 / 2
n° of axial fans		ND	ND	4,00	4,00	4,00	6,00	6,00	ND	6,00	6,00	ND	8,00	8,00	8,00
Air flow	m^3/h	ND	ND	21379	21379	21379	30913	30913	ND	30913	30913	ND	41340	41340	41340
Water flow	l/h	ND	ND	10887	11902	13158	15858	15858	ND	17665	17665	ND	21346	21346	21747
Water pressure drop	kPa	ND	ND	46	34	42	31	31	ND	38	38	ND	39	39	41
Water pump available head	kPa	ND	ND	126	133	119	130	130	ND	119	119	ND	108	108	106
Water tank	dm^3	ND	ND	200	200	200	220	220	ND	220	220	ND	340	340	340
Height	mm	ND	ND	1720	1720	1720	1720	1720	ND	1720	1720	ND	1720	1720	1720
Lenght	mm	ND	ND	2010	2010	2010	2360	2360	ND	2360	2360	ND	3190	3190	3540
Width	mm	ND	ND	1185	1185	1185	1185	1185	ND	1185	1185	ND	1185	1185	1185
Sound power level	dB(A)	ND	ND	80	80	80	82	82	ND	82	82	ND	82	82	82
Sound pressure level	dB(A)	ND	ND	52	52	52	54	54	ND	54	54	ND	54	54	54
Standard unit operating weight	kg	ND	ND	540	570	650	730	730	ND	730	730	ND	1010	1010	1050
Unit with pump and full tank operating weight	kg	ND	ND	8747	907	987	1138	1138	ND	1138	1138	ND	1581	1581	1641

LCE package air condensed water chillers - STANDARD execution - Rated technical data														
Approximate thermal output (kW)		140			160			170	190	210	240	270	290	320
Efficiency pack		1	2	2	1	2	4	4	4	4	4	4	4	4
LCE...CS		**141**	**142**	**144**	**161**	**162**	**164**	**174**	**194**	**214**	**244**	**274**	**294**	**324**
Power supply	V-ph-Hz	1 / 1												
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
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
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
n° 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
n° of axial fans		8	8	8	8	8	8	6	6	6	6	8	8	8
Air flow	m^3/h	39890	39890	39890	39890	39890	39890	67672	67672	67672	75478	103511	97902	97902
Water flow	l/h	23805	23805	24143	26660	26660	26378	27864	32095	35948	40747	46716	50827	53990
Water pressure drop	kPa	49	49	50	42	42	43	46	49	50	53	41	49	55
Water pump available head	kPa	150	150	147	147	147	148	155	133	147	171	170	152	137
Water tank	dm^3	340	340	340	340	340	340	600	600	600	600	600	600	600
Height	mm	1720	1720	1720	1720	1720	1720	1830	1830	1830	2174	2174	2174	2174
Lenght	mm	3190	3190	3540	3190	3190	3540	3540	3540	3540	3540	4296	4296	4296
Width	mm	1185	1185	1185	1185	1185	1185	1654	1654	1654	1654	1654	1654	1654
Sound power level	dB(A)	82	82	82	82	82	82	83	83	83	83	84	84	84
Sound pressure level	dB(A)	54	54	54	54	54	54	55	55	55	55	56	56	56
Standard unit operating weight	kg	1055	1055	1070	1085	1085	1220	1440	1460	1470	1620	1880	1912	1947
Unit with pump and full tank operating weight	kg	1626	1626	1661	1656	1656	1811	2208	2276	2286	2469	2894	2926	2961

Cooling capacity referred to the following conditions: water temperature 12 - 7°C, external air temperature 35°C
Sound pressure referred to the following conditions: 10 mt. away in a free space and directionality factor 2.

LCE package air condensed water chillers - LOW NOISE execution - Rated technical data															
Approximate thermal output (kW)		45	50	60	70	80	90			100			120		
Efficiency pack		2	2	2	2	2	1	2	4	1	2	4	1	2	4
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
n° of scroll compressors / circuits		2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	4 / 2	2 / 2	2 / 1	4 / 2	2 / 2	2 / 1	4 / 2
n° of axial fans		4	4	6	6	6	8	8	8	8	8	8	6	6	6
Air flow	m^3/h	15398	15398	21955	21955	21955	29393	29393	29393	29393	29393	29393	43434	43434	43434
Water flow	l/h	8261	8983	10956	12027	13313	15986	15986	16213	17778	17778	17582	21518	21518	21906
Water pressure drop	kPa	27	31	47	35	43	32	32	33	39	39	38	40	40	41
Water pump available head	kPa	157	149	125	131	117	129	129	128	118	118	119	107	107	105
Water tank	dm^3	200	200	220	220	220	340	340	340	340	340	340	600	600	600
Height	mm	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1705	1830	1830	1830
Lenght	mm	2010	2010	2360	2360	2360	3190	3190	3540	3190	3190	3540	3540	3540	3540
Width	mm	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1654	1654	1654
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
Standard unit operating weight	kg	525	525	630	635	700	905	905	980	915	915	980	1260	1260	1275
Unit with pump and full tank operating weight	kg	862	862	982	987	1067	1426	1426	1557	1436	1436	1557	2040	2040	2055

LCE package air condensed water chillers - LOW NOISE execution - Rated technical data														
Approximate thermal output (kW)		140			160			170	190	210	240	270	290	320
Efficiency pack		1	2	2	1	2	4	4	4	4	4	4	4	4
LCE...CL		**141**	**142**	**144**	**161**	**162**	**164**	ND	**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	ND	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	ND	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	ND	2,54	2,67	2,44	2,52	2,50	2,48
n° of scroll compressors / circuits		2 / 2	2 / 1	4 / 2	2 / 2	2 / 1	4 / 2	ND	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2
n° of axial fans		6	6	6	6	6	6	ND	6	6	6	8	8	8
Air flow	m^3/h	43434	43434	43434	40235	40235	40235	ND	55808	63261	63261	87186	81687	81687
Water flow	l/h	23655	23655	24043	26719	26719	26434	ND	31172	36451	36615	45628	49438	52350
Water pressure drop	kPa	48	48	50	43	43	43	ND	47	51	50	39	46	52
Water pump available head	kPa	151	151	148	147	147	148	ND	139	143	177	174	158	145
Water tank	dm^3	600	600	600	600	600	600	ND	600	600	600	600	600	600
Height	mm	1830	1830	1830	1830	1830	1830	ND	1830	2174	2174	2174	2174	2174
Lenght	mm	3540	3540	3540	3540	3540	3540	ND	3540	3540	3540	4296	4296	4296
Width	mm	1654	1654	1654	1654	1654	1654	ND	1654	1654	1654	1654	1654	1654
Sound power level	dB(A)	77	77	77	77	77	77	ND	77	77	78	79	79	79
Sound pressure level	dB(A)	49	49	49	49	49	49	ND	49	49	50	51	51	51
Standard unit operating weight	kg	1310	1310	1290	1330	1330	1440	ND	1460	1510	1620	1880	1912	1947
Unit with pump and full tank operating weight	kg	2090	2090	2070	2110	2110	2220	ND	2276	2326	2469	2894	2926	2961

Cooling capacity referred to the following conditions: water temperature 12 - 7°C, external air temperature 35°C
Sound pressure referred to the following conditions: 10 mt. away in a free space and directionality factor 2.

LCE package air condensed water chillers - QUITE (super low noise) execution - Rated technical data															
Approximate thermal output (kW)		45	50	60	70	80	90			100			120		
Efficiency pack		2	2	2	2	2	1	2	4	1	2	4	1	2	4
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
n° 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
n° of axial fans		4	4	6	6	6	8	8	8	8	8	8	6	6	6
Air flow	m^3/h	15398	15398	21955	21955	21955	29393	29393	29393	29393	29393	29393	35930	35930	35930
Water flow	l/h	8261	8983	10956	12027	13313	15986	15986	16213	17778	17778	17582	21259	21259	21623
Water pressure drop	kPa	27	31	47	35	43	32	32	33	39	39	38	39	39	40
Water pump available head	kPa	157	149	125	131	117	129	129	128	118	118	119	109	109	106
Water tank	dm^3	200	200	220	220	220	340	340	340	340	340	340	600	600	600
Height	mm	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1830	1830	1830
Lenght	mm	2010	2010	2360	2360	2360	3190	3190	3540	3190	3190	3540	3540	3540	3540
Width	mm	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1654	1654	1654
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
Standard unit operating weight	kg	525	525	630	635	700	905	905	980	915	915	980	1260	1260	1275
Unit with pump and full tank operating weight	kg	862	862	982	987	1067	1426	1426	1557	1436	1436	1557	2040	2040	2055

LCE package air condensed water chillers - QUITE (super low noise) execution - Rated technical data														
Approximate thermal output (kW)		140			160			170	190	210	240	270	290	320
Efficiency pack		1	2	2	1	2	4	4	4	4	4	4	4	4
LCE...CQ		**141**	**142**	**144**	**161**	**162**	**164**	ND	**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	ND	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	ND	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	ND	2,03	2,12	2,12	2,47	2,38	2,33
n° of scroll compressors / circuits		2 / 2	2 / 1	4 / 2	2 / 2	2 / 1	4 / 2	ND	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2
n° of axial fans		6	6	6	6	6	6	ND	6	6	6	8	8	8
Air flow	m^3/h	35930	35930	35930	35930	35930	35930	ND	35930	40953	40953	69835	69835	69835
Water flow	l/h	23303	23303	23667	26051	26051	25816	ND	28282	33135	36054	44837	47938	50535
Water pressure drop	kPa	47	47	48	41	41	40	ND	39	39	42	38	44	48
Water pump available head	kPa	153	153	151	151	151	152	ND	161	171	193	177	164	153
Water tank	dm^3	600	600	600	600	600	600	ND	600	600	600	600	600	600
Height	mm	1830	1830	1830	1830	1830	1830	ND	1830	2174	2174	2174	2174	2174
Lenght	mm	3540	3540	3540	3540	3540	3540	ND	3540	3540	3540	4296	4296	4296
Width	mm	1654	1654	1654	1654	1654	1654	ND	1654	1654	1654	1654	1654	1654
Sound power level	dB(A)	69	69	69	69	69	69	ND	69	69	69	70	70	70
Sound pressure level	dB(A)	41	41	41	41	41	41	ND	41	41	41	42	42	42
Standard unit operating weight	kg	1310	1310	1290	1330	1330	1440	ND	1460	1510	1620	1880	1912	1947
Unit with pump and full tank operating weight	kg	2090	2090	2070	2110	2110	2220	ND	2276	2326	2469	2894	2926	2961

Cooling capacity referred to the following conditions: water temperature 12 - 7°C, external air temperature 35°C
Sound pressure referred to the following conditions: 10 mt. away in a free space and directionality factor 2.

Air/water reversible heat pumps - STANDARD execution - Rated technical data															
Approximate thermal output (kW)		45	50	60	70	80	90			100			120		
Efficiency pack		2	2	2	2	2	1	2	4	1	2	4	1	2	4
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	ND	ND	63,30	69,20	76,50	92,20	92,20	ND	102,70	102,70	ND	124,10	124,10	126,43
Total power input	kW	ND	ND	22,57	25,36	28,97	33,05	33,05	ND	39,46	39,46	ND	43,13	43,14	42,99
EER		ND	ND	2,80	2,73	2,64	2,79	2,79	ND	2,60	2,60	ND	2,88	2,88	2,94
Heating capacity	kW	ND	ND	70,20	77,60	85,20	101,60	101,60	ND	118,20	118,20	ND	138,10	138,10	135,34
Heating mode total power input	kW	ND	ND	21,48	24,40	27,40	32,80	32,80	ND	37,80	37,80	ND	43,10	43,10	42,67
COP		ND	ND	3,27	3,18	3,11	3,10	3,10	ND	3,13	3,13	ND	3,20	3,20	3,17
n° of scroll compressors / circuits		ND	ND	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	ND	2 / 2	2 / 1	ND	2 / 2	2 / 1	4 / 2
n° of axial fans		ND	ND	4	4	4	6	6	ND	6	6	ND	8	8	8
Air flow	m^3/h	ND	ND	21379	21379	21379	30913	30913	ND	30913	30913	ND	41340	41340	41340
Cooling operation Water flow	l/h	ND	ND	10887	11902	13158	15858	15858	ND	17665	17665	ND	21346	21346	21747
Cooling operation water pressure drop	kPa	ND	ND	46	34	42	31	31	ND	38	38	ND	39	39	41
Water pump available head	kPa	ND	ND	126	133	119	130	130	ND	119	119	ND	108	108	106
Water tank	dm^3	ND	ND	200	200	200	220	220	ND	220	220	ND	340	340	340
Height	mm	ND	ND	1720	1720	1720	1720	1720	ND	1720	1720	ND	1720	1720	1720
Lenght	mm	ND	ND	2010	2010	2010	2360	2360	ND	2360	2360	ND	3190	3190	3540
Width	mm	ND	ND	1185	1185	1185	1185	1185	ND	1185	1185	ND	1185	1185	1185
Sound power elvel	dB(A)	ND	ND	80	80	80	82	82	ND	82	82	ND	82	82	82
Sound pressure level	dB(A)	ND	ND	52	52	52	54	54	ND	54	54	ND	54	54	54
Standard unit operating weight	kg	ND	ND	540	570	650	730	730	ND	730	730	ND	1010	1010	1050
Unit with pump and full tank operating weight	kg	ND	ND	8747	907	987	1138	1138	ND	1138	1138	ND	1581	1581	1641

Air/water reversible heat pumps - STANDARD execution - Rated technical data														
Approximate thermal output (kW)		140			160			170	190	210	240	270	290	320
Efficiency pack		1	2	2	1	2	4	4	4	4	4	4	4	4
LCE...HS		**141**	**142**	**144**	**161**	**162**	**164**	**174**	**194**	**214**	**244**	**274**	**294**	**324**
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
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
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
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
Heating mode total power input	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
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
n° 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
n° of axial fans		8	8	8	8	8	8	6	6	6	6	8	8	8
Air flow	m^3/h	39890	39890	39890	39890	39890	39890	67672	67672	67672	75478	103511	97902	97902
Cooling operation Water flow	l/h	23805	23805	24143	26660	26660	26378	27864	32095	35948	40747	46716	50827	53990
Cooling operation water pressure drop	kPa	49	49	50	42	42	43	46	49	50	53	41	49	55
Water pump available head	kPa	150	150	147	147	147	148	155	133	147	171	170	152	137
Water tank	dm^3	340	340	340	340	340	340	600	600	600	600	600	600	600
Height	mm	1720	1720	1720	1720	1720	1720	1830	1830	1830	2174	2174	2174	2174
Lenght	mm	3190	3190	3540	3190	3190	3540	3540	3540	3540	3540	4296	4296	4296
Width	mm	1185	1185	1185	1185	1185	1185	1654	1654	1654	1654	1654	1654	1654
Sound power elvel	dB(A)	82	82	82	82	82	82	83	83	83	83	84	84	84
Sound pressure level	dB(A)	54	54	54	54	54	54	55	55	55	55	56	56	56
Standard unit operating weight	kg	1055	1055	1070	1085	1085	1220	1440	1460	1470	1620	1880	1912	1947
Unit with pump and full tank operating weight	kg	1626	1626	1661	1656	1656	1811	2208	2276	2286	2469	2894	2926	2961

Cooling capacity referred to the following conditions: water temperature 12 - 7°C, external air temperature 35°C
Heat capacity referred to the following conditions: water temperature 40 - 45°C, external air temperature 7°C with dry bulb and 6°C with wet bulb
Sound pressure referred to the following conditions: 10 mt. away in a free space and directionality factor 2.

Air/water reversible heat pumps - LOW NOISE execution - Rated technical data															
Approximate thermal output (kW)		45	50	60	70	80	90			100			120		
Efficiency pack		2	2	2	2	2	1	2	4	1	2	4	1	2	4
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
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
Heating mode total power input	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
n° of scroll compressors / circuits		2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	4 / 2	2 / 2	2 / 1	4 / 2	2 / 2	2 / 1	4 / 2
n° of axial fans		4	4	6	6	6	8	8	8	8	8	8	6	6	6
Air flow	m^3/h	15398	15398	21955	21955	21955	29393	29393	29393	29393	29393	29393	43434	43434	43434
Cooling operation Water flow	l/h	8261	8983	10956	12027	13313	15986	15986	16213	17778	17778	17582	21518	21518	21906
Cooling operation water pressure drop	kPa	27	31	47	35	43	32	32	33	39	39	38	40	40	41
Water pump available head	kPa	157	149	125	131	117	129	129	128	118	118	119	107	107	105
Water tank	dm^3	200	200	220	220	220	340	340	340	340	340	340	600	600	600
Height	mm	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1705	1830	1830	1830
Lenght	mm	2010	2010	2360	2360	2360	3190	3190	3540	3190	3190	3540	3540	3540	3540
Width	mm	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1654	1654	1654
Sound power elvel	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
Standard unit operating weight	kg	525	525	630	635	700	905	905	980	915	915	980	1260	1260	1275
Unit with pump and full tank operating weight	kg	862	862	982	987	1067	1426	1426	1557	1436	1436	1557	2040	2040	2055

Air/water reversible heat pumps - LOW NOISE execution - Rated technical data														
Approximate thermal output (kW)		140			160			170	190	210	240	270	290	320
Efficiency pack		1	2	2	1	2	4	4	4	4	4	4	4	4
LCE...HL		**141**	**142**	**144**	**161**	**162**	**164**	ND	**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	ND	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	ND	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	ND	2,54	2,67	2,44	2,52	2,50	2,48
Heating capacity	kW	155,00	155,00	151,90	178,90	178,90	175,32	ND	211,34	234,42	271,14	305,66	328,15	349,04
Heating mode total power input	kW	48,10	48,10	47,62	56,10	56,10	55,54	ND	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	ND	3,21	3,18	3,16	3,16	3,12	3,07
n° of scroll compressors / circuits		2 / 2	2 / 1	4 / 2	2 / 2	2 / 1	4 / 2	ND	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2
n° of axial fans		6	6	6	6	6	6	ND	6	6	6	8	8	8
Air flow	m^3/h	43434	43434	43434	40235	40235	40235	ND	55808	63261	63261	87186	81687	81687
Cooling operation Water flow	l/h	23655	23655	24043	26719	26719	26434	ND	31172	36451	36615	45628	49438	52350
Cooling operation water pressure drop	kPa	48	48	50	43	43	43	ND	47	51	50	39	46	52
Water pump available head	kPa	151	151	148	147	147	148	ND	139	143	177	174	158	145
Water tank	dm^3	600	600	600	600	600	600	ND	600	600	600	600	600	600
Height	mm	1830	1830	1830	1830	1830	1830	ND	1830	2174	2174	2174	2174	2174
Lenght	mm	3540	3540	3540	3540	3540	3540	ND	3540	3540	3540	4296	4296	4296
Width	mm	1654	1654	1654	1654	1654	1654	ND	1654	1654	1654	1654	1654	1654
Sound power elvel	dB(A)	77	77	77	77	77	77	ND	77	77	78	79	79	79
Sound pressure level	dB(A)	49	49	49	49	49	49	ND	49	49	50	51	51	51
Standard unit operating weight	kg	1310	1310	1290	1330	1330	1440	ND	1460	1510	1620	1880	1912	1947
Unit with pump and full tank operating weight	kg	2090	2090	2070	2110	2110	2220	ND	2276	2326	2469	2894	2926	2961

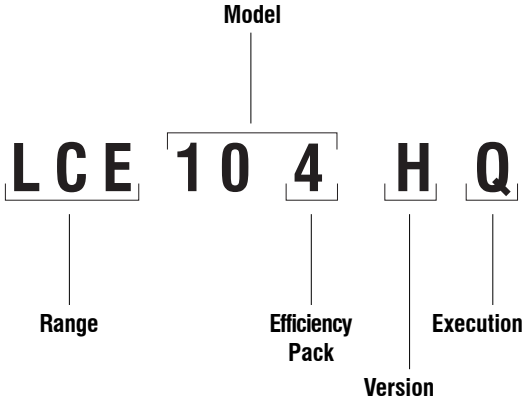
Cooling capacity referred to the following conditions: water temperature 12 - 7°C, external air temperature 35°C
Heat capacity referred to the following conditions: water temperature 40 - 45°C, external air temperature 7°C with dry bulb and 6°C with wet bulb
Sound pressure referred to the following conditions: 10 mt. away in a free space and directionality factor 2.

Air/water reversible heat pumps - QUITE (super low noise) execution - Rated technical data															
Approximate thermal output (kW)		45	50	60	70	80	90			100			120		
Efficiency pack		2	2	2	2	2	1	2	4	1	2	4	1	2	4
LCE...HQ		**042**	**052**	**062**	**072**	**082**	**091**	**092**	**094**	**101**	**102**	**104**	**121**	**122**	**124**
Power supply	V-ph-Hz	400-3-50													
Cooling capacity	kW	48,03	52,23	63,70	69,93	77,40	92,94	92,94	94,26	103,36	103,36	102,22	123,60	123,60	125,71
Total power input	kW	16,18	18,55	21,97	24,67	28,16	32,03	32,03	32,32	38,35	35,38	37,06	45,04	38,35	44,99
EER		2,97	2,82	2,90	2,83	2,75	2,90	2,90	2,92	2,70	2,92	2,76	2,74	3,22	2,79
Heating capacity	kW	53,25	61,00	71,12	78,84	86,82	104,89	104,89	102,79	118,25	118,25	115,89	136,20	136,20	133,48
Heating mode total power input	kW	15,52	18,30	20,09	22,73	26,04	30,59	30,59	30,28	35,38	35,38	35,03	42,70	42,70	42,27
COP		3,43	3,33	3,54	3,47	3,33	3,43	3,43	3,39	3,34	3,34	3,31	3,19	3,19	3,16
n° 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
n° of axial fans		4	4	6	6	6	8	8	8	8	8	8	6	6	6
Air flow	m^3/h	15398	15398	21955	21955	21955	29393	29393	29393	29393	29393	29393	35930	35930	35930
Cooling operation Water flow	l/h	8261	8983	10956	12027	13313	15986	15986	16213	17778	17778	17582	21259	21259	21623
Cooling operation water pressure drop	kPa	27	31	47	35	43	32	32	33	39	39	38	39	39	40
Water pump available head	kPa	157	149	125	131	117	129	129	128	118	118	119	109	109	106
Water tank	dm^3	200	200	220	220	220	340	340	340	340	340	340	600	600	600
Height	mm	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1830	1830	1830
Lenght	mm	2010	2010	2360	2360	2360	3190	3190	3540	3190	3190	3540	3540	3540	3540
Width	mm	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185	1654	1654	1654
Sound power elvel	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
Standard unit operating weight	kg	525	525	630	635	700	905	905	980	915	915	980	1260	1260	1275
Unit with pump and full tank operating weight	kg	862	862	982	987	1067	1426	1426	1557	1436	1436	1557	2040	2040	2055

Air/water reversible heat pumps - QUITE (super low noise) execution - Rated technical data													
Approximate thermal output (kW)		140			160			170	190	210	240	270	290	320
Efficiency pack		1	2	2	1	2	4	4	4	4	4	4	4	4
LCE...HQ		**141**	**142**	**144**	**161**	**162**	**164**	ND	**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	ND	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	ND	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	ND	2,03	2,12	2,12	2,47	2,38	2,33
Heating capacity	kW	151,20	151,20	148,18	174,10	174,10	170,62	ND	205,67	228,13	263,86	297,46	319,34	339,68
Heating mode total power input	kW	47,40	47,40	46,93	55,00	55,00	54,45	ND	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	ND	3,19	3,16	3,13	3,14	3,10	3,05
n° of scroll compressors / circuits		2 / 2	2 / 1	4 / 2	2 / 2	2 / 1	4 / 2	ND	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2
n° of axial fans		6	6	6	6	6	6	ND	6	6	6	8	8	8
Air flow	m^3/h	35930	35930	35930	35930	35930	35930	ND	35930	40953	40953	69835	69835	69835
Cooling operation Water flow	l/h	23303	23303	23667	26051	26051	25816	ND	28282	33135	36054	44837	47938	50535
Cooling operation water pressure drop	kPa	47	47	48	41	41	40	ND	39	39	42	38	44	48
Water pump available head	kPa	153	153	151	151	151	152	ND	161	171	193	177	164	153
Water tank	dm^3	600	600	600	600	600	600	ND	600	600	600	600	600	600
Height	mm	1830	1830	1830	1830	1830	1830	ND	1830	2174	2174	2174	2174	2174
Lenght	mm	3540	3540	3540	3540	3540	3540	ND	3540	3540	3540	4296	4296	4296
Width	mm	1654	1654	1654	1654	1654	1654	ND	1654	1654	1654	1654	1654	1654
Sound power elvel	dB(A)	69	69	69	69	69	69	ND	69	69	69	70	70	70
Sound pressure level	dB(A)	41	41	41	41	41	41	ND	41	41	41	42	42	42
Standard unit operating weight	kg	1310	1310	1290	1330	1330	1440	ND	1460	1510	1620	1880	1912	1947
Unit with pump and full tank operating weight	kg	2090	2090	2070	2110	2110	2220	ND	2276	2326	2469	2894	2926	2961

Cooling capacity referred to the following conditions: water temperature 12 - 7°C, external air temperature 35°C
Heat capacity referred to the following conditions: water temperature 40 - 45°C, external air temperature 7°C with dry bulb and 6°C with wet bulb
Sound pressure referred to the following conditions: 10 mt. away in a free space and directionality factor 2.

After decided which is the desired capacity in order to chose the right model it is necessary to define the version (CHILLER or HEAT PUMP), the structure of the refrigerant circuit (EFFICIENCY PACK) and the sound version (STANDARD, LOW NOISE or QUITE executions).
It is necessary start from the choice of options and accessories in order to define the unit..



> **EFFICIENCY PACK**
The possibility to realize different combination / refrigerant circuit/compressors allows to personalize the efficiency levels at full load and/or at partial load operations.
1 2x circuit/2x compressors
This solution is designed to give the best efficiency at full load (EER and COP)
2 1x circuit/2x comrpessors
This solution is designed to give the best efficiency at partial load, reaching an ESEER level of 4
4 2x cirucit/ 4xcmpressors
This solution allow toh ave 4 capacity steps, followiing the user load in a closet way and redeucing the number of compressors on/off

> **VERSION**
C Chiller-Only cooling
H Reversibile heat pump

> **ACOUSTIC EXECUTIONS**
S Standard executions
L Low noise excecutions
Q Superlow noise executions

POWER SUPPLY
- 400/3/50 + N
- 400/3/50 with transformer
- 400/3/50 + N with thermal magnetic breaker
- 400/3/50 with transformer and with thermal magnetic breaker

MICROPROCESSOR / EXPANSION DEVICES
- BASE + electronic expansion valve
- ADVANCED + electronic expansion valve

WATER PUMP
- Not present
- Single standard pump and expansion vessel
- Single uprated pump and expansion vessel
- Double standard pump for simultaneous operation (AND) and expansion vessel
- Double uprated pump for simultaneous operation (AND) and expansion vessel
- Double standard pump for alternate operation (OR) and expansion vessel
- Double uprated pump for alternate operation (OR) and expansion vessel

WATER TANK
- Not present
- Present

HEAT RECOVERY
- Not present
- partial (desuperheater 40%)

CONDENSATION CONTROL
- Not present
- with fan speed control

ANTIFREEZE KIT
- Not present
- present on evaporator
- present on evaporator and pump
- present on evaporator, tank and pump

REMOTE COMMUNICATION
- Not present
- RS485 serial card (Carel or Modbus protocol)
- Lonworks serial cards (only if digit 2 = B)

REFRIGERANT CIRCUIT ACCESSORIES
- Not present
- Pressure gauges

SPECIAL FINNED PACK HEAT EXCHANGER
- Standard
- Copper/copper
- Cataphoresis
- Fins protection treatment
- Special

PACKAGE
- Standard
- Wooden crate
- Wooden box

INSULATION
- Not present
- Rubber antivibration dampers
- Spring antivibration dampers

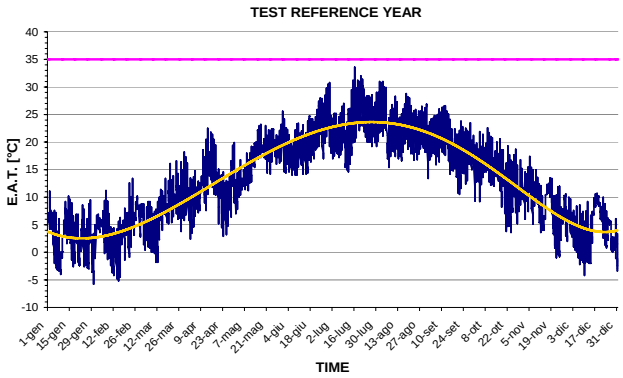
REMOTE CONTROL
- Not present
- Simplified
- BASE microprocessor
- ADVANCED microprocessor

UNIT INSTALLATION TOOLS
- Not present
- Pair of victaulic couplings for IN-OUT water connections
- Paddle flow switch
- Pair of victaulic couplings for IN-OUT water connections + paddle flow switch

ACCESSORIES
- Power factor correction capacitors
- Soft-starter kit
- Service kit (probes for a unit operation quick check)
- Clock card
- ON-OFF compressor control
- Remote control to limit compressor turning on
- Board for customizable digital alarms
- Outdoor air temperature probe for automatic adjustment of the set point
- Pressure gauges
- Kit for interception (solenoid and tap on the liquid line)
- Other reference standard than the 97/23 PED
- pipes for unit lifting up
- Finned pack heat exchanger protection grille

LSE: multi scroll solutions for high performance at partial loads

The real thermal load of an air-conditioning plant is 90% of the time lower than 60% of the nominal load, even if the choice of a chiller/heat pump depends on the maximal thermal load of the plant where it will work.



The LCE chiller/heat pumps range is made up of 12 models with capacities for 360 to 920 kW (620kW heat pump) and it uses only 2- or 4-circuit scroll refrigerant compressors.

HIGH EFFICIENCY AT PARTIAL LOADS

The number of compressors goes from 2 to 3 for each refrigerant circuit according to the sizes, multiplying the steps of partialization.
The high number of partialization steps allows the unit to adjust its capacity to the real needs of the plant with particular advantages in terms of efficiency at partial loads compared to the traditional screw compressors.
The control microprocessor distribute automatically the working of the compressor and it shares out their functioning with a consequent extension of the working length.
During partial load working the compressors work with overdimensioned exchange surfaces making better thermodynamic cycles thanks to the **electronic expansion vessel as standard on all the models**.

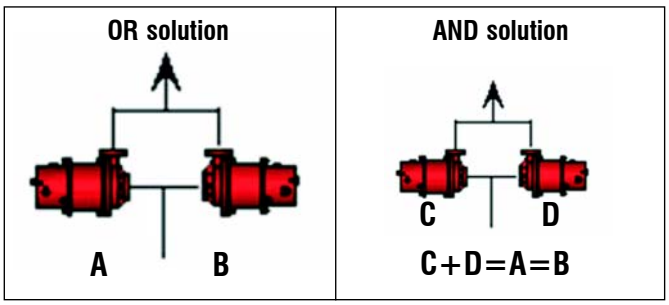
VERSIONS

- Only cooling
- Free-Cooling
- Heat pump as far as 620 kW

HYDRAULIC OPTIONS

Complete hydronic kit can be incorporated inside the unit without modifying the dimensions and with the possibility to chose the circulation water pump.

- Single pump, standard or rated prevalence.
- Double pump with OR solution: standard or rated prevalence, single functioning. The pumps work in turn according to time/anomaly.
- Double pump solution AND: standard or rated prevalence, simultaneous functioning.
  Hydraulically linked in parallel they deliver the nominal water flow in simultaneous functioning.
  At partial loads the functioning is limited with one single pump which decrease the flow value by $^1/_3$ than the nominal one with an average reduction of the pumping costs by about 30%.



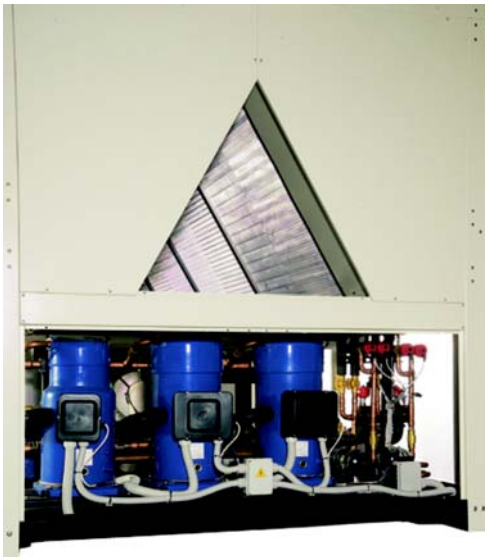
ACOUSTIC EXECUTION

S standard execution
L Low Noise (silent) execution for low sound levels
Q Quite (super-silent) execution for very sound levels

INTERCONNECTIVITY

The advances microprocessor, fitted as standard allow to realize:

- Lan network (up to 4 units)
- Kit GSM for the reading and setting of parameter via mobile telephone
- WEB kit for the reading and setting of parameter via remote PC thorugh the IP address of the unit
- Serial board for the connections with protocols:
  Carel / Modbus
  Lonworks / Trend
- HIWEB hardware with Ethernet board for protocols: Bacnet/SNMP
- HIWEB Software: Ethernet board for Web interface



RATED TECHNICAL DATA

LSE			366	406	446	476	548	588	628
Cooling capacity [1]		kW	355,5	394,4	439	468,2	539,1	586,1	622,1
Power input [1]		kW	132,4	149,4	163,6	176,4	189,6	210,8	229,2
Heating capacity [2]		kW	406,4	451,9	482	509,3	602	639,1	675
power input [2]		kW	127,7	142,4	157,5	169	193,5	208,8	224,2
EER			2,68	2,64	2,68	2,65	2,84	2,78	2,71
ESEER			3,79	3,75	3,8	3,76	4,1	4,01	3,85
COP			3,18	3,17	3,06	3,01	3,11	3,06	3,01
N° of scroll compressors / circuits			6 / 2	6 / 2	6 / 2	6 / 2	8 / 4	8 / 4	8 / 4
Water flow [1]		l/h	61141	67831	75508	80532	92731	100817	107005
Water pressure drop [1]		kPa	39	48	47	54	46	54	61
Expansion vessel		liters	25	25	25	25	50	50	50
Water tank		liters	600	600	800	800	1230	1230	1230
STANDARD Execution **S**	Height	mm	2350	2350	2350	2350	2350	2350	2350
	Lenght [3]	mm	3000	3000	4000	4000	5000	5000	5000
	Width	mm	2200	2200	2200	2200	2200	2200	2200
	Sound power level	dB(A)	90	90	91	91	92	92	92
LOW NOISE Execution **L**	Height	mm	2350	2350	2350	2350	2350	2350	2350
	Lenght [3]	mm	3000	4000	4000	5000	5000	5000	7000
	Width	mm	2200	2200	2200	2200	2200	2200	2200
	Sound power level	dB(A)	82	83	83	84	84	84	85
SQUITE Execution **Q**	Height	mm	2350	2350	2350	2350	2350	2350	2350
	Lenght [3]	mm	4000	4000	4000	5000	5000	7000	7000
	Width	mm	2200	2200	2200	2200	2200	2200	2200
	Sound power level	dB(A)	75	75	76	76	76	77	77

LSE			700	780	860	920
Cooling capacity [1]		kW	705,0	784,0	861,0	918,0
Power input [1]		kW	240,0	293,0	322,0	349,0
EER			2,94	2,68	2,67	2,63
ESEER			4,2	3,9	3,8	3,7
N° of scroll compressors / circuits			9 / 4	10 / 4	11 / 4	12 / 4
Water flow [1]		l/h	121177	134814	148106	157956
Water pressure drop [1]		kPa	42	52	63	72
Expansion vessel		liters	50	50	50	50
Water tank		liters	1230	1230	1230	1230
STANDARD Execution **S**	Height	mm	2350	2350	2350	2350
	Lenght [3]	mm	7000	7000	7000	7000
	Width	mm	2200	2200	2200	2200
	Sound power level	dB(A)	93	93	93	93
LOW NOISE Execution **L**	Height	mm	2350,0	2350,0	2350,0	2350,0
	Lenght [3]	mm	7000	7000	7000	7000
	Width	mm	2200	2200	2200	2200
	Sound power level	dB(A)	85	85	85	85
SQUITE Execution **Q**	Height	mm	2350	n.d.	n.d.	n.d.
	Lenght [3]	mm	7000	n.d.	n.d.	n.d.
	Width	mm	2200	n.d.	n.d.	n.d.
	Sound power level	dB(A)	77	ND	ND	ND

1 = performance referred to the standard version with water 12/7°C and air 35°C.
2 = performance referred to the standard version with water 40/45°C and air 7°C relative humidity 90%
3 = Free Cooling versions length + 300 mm

To ask for economical offers concerning the LSE series, you have to fill in all the blanks correspondent to the module of the offer request you find in the next page, and you have to send it to the sales agency.
Here below follows an explanation of the different option reported in the module.

MODEL
- You have to find the model in the table in the previous table, according to the required capacity.

OPERATION
- C only cooling
- H reversible heat pump

VERSION
It is possible to choose among 3 different acoustic version:
- **S** standard
- **L** Low Noise (silenced) for a low noise impact
- **Q** Quite (super silenced) for a very low noise impact

POWER SUPPLY
- 400/3/50 + N
- 400/3/50 230V with built in transformer
- 400/3/50 + N, automatic breakers
- 400/3/50 with built in transformer 230V , automatic breakers

MICROPROCESSOR / EXPANSION VALVE
- BASE (UP TO THE MODEL 476) + ELECTRONIC EXPANSION VALVE
- ADVANCED + ELECTRONIC EXPANSION VALVE
  The units are provided with electronic expansion valve as a standard; On request it is possible to realize also units with traditional expansion valve

WATER PUMP
- Not present
- Single pump and expansion vessel;
- Uprated single pump and expansion vessel;
- Double pump for operation in parallel (operation logic AND) + expansion vessel. The management of the logic AND needs the use of the advanced microprocessor control.
- Double uprated pump for operation in parallel (operation logic AND) + expansion vessel. The management of the logic AND needs the use of the advanced microprocessor control.
- Double pump in temporary rotation (operation logic OR) and expansion vessel;
- Double uprated pump pump in temporary rotation (operation logic OR) and expansion vessel;

WATER TANK
- Not present
- Present, integrated in the unit, without modifying the dimensions. It is positioned on the discharge line.

HEAT RECOVERY
- Not present
- Partial (desuperheater 40%). In this case it is compulsory the use of the condensing control.

CONDENSING CONTROL
- Not present
- Modulating control with phase cutting. The variation of the air flow is depending on the condensing pressure. The use of this option allows the operation of the unit in the cooling mode with external air temperature lower than 20°C up to -10°C.

ANTIFREEZE KIT
- Not present
- present, only evaporator
- present, evaporator, pump and expansion vessel
- present, evaporator, pump, expansion vessel and water tank

REMOTE COMMUNICATION
- Not present
- Serial Card RS485 (Carel or Modbus protocol) ;
- Serial Card Lonworks (available only with the advanced microprocessor control);
- Kit modem GSM for communication via SMS
- Ethernet pCOWEB card (SNMP o BACNET protocol)
- Ethernet pCOWEB card (protocollo SNMP o BACNET) + supervision software HIWEB;

REFRIGERATN ACCESSORIES
- Not present
- Refrigerant Pressure Gauges

EXECUTION OF COILS ON REQUEST
- Standard
- Copper / Copper coils
- Cataphoresis
- Coils with anti corrosion treatment
- Special

PACKAGE
- Standard
- Wooden crate
- Wooden box

INSULATION
- Not present
- Rubber vibration dampers
- Spring vibration dampers

REMOTE CONTROL
- Not present
- simplified
- BASE MICROPROCESSOR
- ADVANCED

INSTALLATION UNIT
- Not present
- Couple of joints for the fast connection water IN-OUT
- Paddle flow switch
- Couple of joints for the fast connection IN-OUT water + flow switch

ACCESSORIES
- Power factor corrector capacitors;
- Kit soft-starter
- Service kit (kit for the fast diagnostics)
- Clock Card;
- ON-OFF compressor status;
- Remote control for the limitation of the compressor start up;
- Card for configurable digital alarmi;
- Probe for the external air temperature for set-point compensation;
- Refrigerant Pressure Gauges;
- Filter Kit (solenoid valve and liquid line valve)
- Considered Norms different from "97/23/CE - PED"
- Lifting pipes of the unit;
- Condensing coil protection grill

Galletti

LSE WATER CHILLER AND HEAT PUMPS INQUIRY FORM

Date / /

Digit

Complete unit code L S E

CONFIGURATION DIGITS

1	2	3	4	5	6	7	8	9	10	11	12	13

ACCESSORIES

Name of the range L S E

Model

Operation
- Cooling only: C
- Heat pump: H

Version
- Standard: S
- Low Noise: L
- Super Low Noise: Q

DIGIT 1 - Refrigerant - Power supply
- R410A - 400/3/50 + N: 0
- R410A - 400/3/50 with transformer: 1
- R410A - 400/3/50 + N + thermal-magnetic breaker: 2
- R410A - 400/3/50 with transformer + thermal magnetic breaker: 3

DIGIT 2 - Microprocessor control and expansion device
- Base (µChiller) + electronic expansion valve: 0 *(available up to model "476" included)*
- Advanced (Pico+pGD) + electronic expansion valve: B

DIGIT 3 - Water circulation pump
- Not present: 0
- Single standard pump and expansion vessel: 1
- Single uprated pump and expansion vessel: 2
- Double standard pump for simultaneous operation (AND) and expansion vessel: 3 *(only if **DIGIT 2** = "**B**" o "**C**")*
- Double uprated pump for simultaneous operation (AND) and expansion vessel: 4 *(only if **DIGIT 2** = "**B**" o "**C**")*
- Double standard pump for alternate operation (OR) and expansion vessel: 5
- Double uprated pump for alternate operation (OR) and expansion vessel: 6

DIGIT 4 - Water tank
- Not present: 0
- Present: S

DIGIT 5 - Heat recovery *(condensation control in mandatory)*
- Not present: 0
- Partial (desupeheater, 40%): D

DIGIT 6 - Condensation controls
- Not present: 0
- Regulation of the fan speed with cutting phase device: C *(mandatyory if **DIGIT 5** = "**D**")*
- Regulation of the fan speed with EC brushless motor: E

DIGIT 7 - Antifreeze kit
- Not present: 0
- Present, standard unit (antifreeze kit only on plates evaporator): E
- Present, unit with pump and expansion vessel: P
- Present, unit with pump, buffer tank and expansion vessel: S

DIGIT 8 - Remote communication
- Not present: 0
- RS485 serial card (Carel o Modbus protocol): 1
- Lonworks serial card: 2 *(only if **DIGIT 2** = "**B**" o "**C**")*
- Modem GSM kit: 3 *(only if **DIGIT 2** = "**B**" o "**C**")*
- Ethernet pCOWEB (SNMP or BACNET protocol) card: 4 *(only if **DIGIT 2** = "**B**" o "**C**")*
- Ethernet pCOWEB (SNMP or BACNET protocol) card + "*HIWEB*" software: 5 *(only if **DIGIT 2** = "**B**" o "**C**")*

DIGIT 9 - Special execution for finned pack heat exchanger
- standard: 0
- Copper/copper: R
- Cataphoresis: C
- Fins protection treatment: B

DIGIT 10 - package
- standard: 0
- Wooden crate: 1
- Wooden box: 2

DIGIT 11 -Base insulation
- Not present: 0
- Rubber antivibraiton dampers: G
- Spring antivibration dampers: M

DIGIT 12 - Remote control
- Not present: 0
- Simplified remote control: 1
- Base microprocessor remote control panel: 2 *(only if **DIGIT 2** = "**0**" o "**A**")*
- Advanced microprocessor remote control panel: 3 *(only if **DIGIT 2** = "**B**" o "**C**")*

DIGIT 13 - Unit installation tools
- Not present: 0
- Pair of victaulic couplings for quick in-out water connection: V
- Paddle flow switch: F
- Pair of victaulic couplings for quick in-out water connection + paddle flow switch: T

ACCESSORIES

	A	power factor correctin capacitor	
(**)	B	Soft-starter kit	
(*)	C	Service kit (probe for a unit operation quick check)	
(*)	D	Clock card	
	E	ON-OFF compressor control	
(*)	F	Remote control to limit compressor turning ON	
(*)	G	Board for customizable digital alarms	
(*)	H	Outdoor air temperature probe for automatic adjustment set point	
	I	Pressure gauges	
	L	kit for filter interception (solenoid and tap on the liquid line)	
	M	Other reference standard than EEC 97/23 PED	
	N	Pipe for unit lifting up	
	P	Finned pack heat exchanger protection grille	

(*) = only if **DIGIT 2** = "**B**" o "**C**"
(**) = only if **DIGIT 1** = "**2**" o "**3**"

NOTE

DELIVERY TIME REQUESTED

Documentation linguage

Sales Agent

Reference

QUANTITY **N°**

Air cooled chillers with screw semihermetic compressors - LCS series

A PLUG&PLAY range, entirely with screw compressors of new generation and high efficiency brazed plate heat exchanger, innovative for some technical solutions which are unique on the market as the management of the FREE COOLING and the management of the electronic valve with control on delivery (patent **BO2002A000785**).

MAIN FEATURES OF THE LCS SERIES

CONFIGURABILITY.
Wide range of available options.

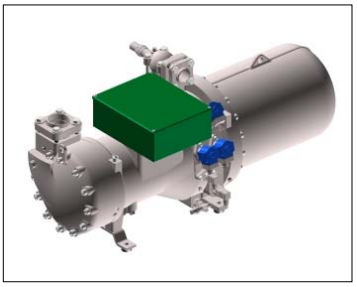
NOISE EMISSION.
The units are characterized by the lowest sound emission in the market and the closed execution of the compressor casing can decrease further the sound emission.

PROTECTION .
The unit is safe, but it can be supplied on request with painted grill for the protection of the coils.

IDRONIC .
All the range is available with a wide set of idronic options, supplied with the correspondent electrical connections, in order to reduce the time and the cost of the installation.
For the whole range it is possible to order the integrated tank
The Y mechanical filter is compulsory for all the versions to protect the evaporator.

ACCESSIBILITY/MAINTENANCE
The compressor is entirely accessible from the side and easily removable with the use of a mechanical arm.
The height is around 1,8 m up to the middle of the "V" of the coils. All the components are easily accessible from the perimeter. In the compressor casing it can be supplied (optional) a Plug connection RS485 for the connectivity of the display closet o the compressor.
The filters can be removed from the same side and can be easily mounted after the purchase of the product.

CONSTRUCTIVE FEATURES



UNIT STRUCTURE
Self-supporting frame made of galvanised steel protected with polyester powder paint enamel (stoved at 180°C) for resistance to atmospheric agents. Stainless steel screws and bolts.

COMPRESSORS
Semi-hermetic screw compressors, direct male rotor / female rotor drive, with crankcase heater. Lubrication ensured by delivery and intake pressure difference.
Integral electronic motor protection and temperature sensors inser ted directly in windings.
Part winding motor start-up and standard capacity step reduction.

CONDENSERS
High efficiency coils made with raw with copper pipes and aluminium fins.
The finned coils are made with holes for the drainage of the dirtiness. The bottom support of the coils have got a drainage too in order to allow the cleaning of the coils also in case of free-cooling unit: **unique** solution in the market.

FANS MOTOR
Axial fans directly coupled to the electrical motor - 3phases- 6 poles, with internal thermal protection with klixon. The protection is IP 54. The fans already includes a protection grill.

EVAPORATOR
Braze welded heat exchangers made of stainless steel AISI 316 (shell and tube only for the sizes 482 and 532). The insulation is made with material expanded material with closed cells.

REFRIGERANT CIRCUIT
It includes: discharge valve of the compressor, liquid valve, charge connection, sight glass, refrigerant filter, thermostatic expansion valve, pressure transducer for high/low pressure values correspondent to the evaporating / condensing temperature, solenoid valve on the liquid line.

ELECTICAL PANEL
The electrical panel in IP 55 execution includes:
- main switch;
- fuse for the protection of the auxiliary and main circuits;
- main switch for the compressor;
- main switch for the fans;
- microprocessor for the control of the following functions:
  regulation of the water temperature;
  antifreeze protection;
  compressor timing;
  automatic rotation of the start up sequence of the compressors;
  alarm signal.
  alarm reset.
  Remote signal for alarm;

DISPLAY :

- inlet outlet water temperature;;
- temperature set point setted;
- alarm description;
- counter for the hours of operation and for the number of the start up of the unit, compressors, pumps (if present);
- high/low pressure correspondent to the condensing end evaporating temperature.

CONTROL AND SAFETY DEVICES
- high pressure switch for hand reset;
- low pressure switch for automatic reset;
- mechanical paddle flow switch;
- high temperature protection for the compressors;

TEST
All the units are tested in the factory and are supplied with oil and refrigerant.

OPTIONS AVAILABLE

Power supply
- 400V / 3ph + N / 50Hz
- 400V / 3ph / 50Hz with built-in tranformer for 230V power supply auxiliary

Water buffer tank
Integrated in the unit in all the different unit version, it can be match with all
the other options.

Hydraulic pumps
Integrated single or in couple with standard or high pressure head, supplied
together with expansion vessel.

Integrated hydraulic kit
Complet with hydraulic pump, water buffer tank, expansion vessel, safety
valve and shut-off valve.

Antifreeze kit
Automatic self-regulating electrical heater, PTC type, maintaining the water
temperature above 0ºC

Electronic expansion valve
It increase the energetic efficienty of the unit, mostly on the part-loaded operation, up to 50%.

Condensation control
Pressostatic type, with the modulation of the condensing air flow. For application with ambient temperatura below -15°C the condensing coil flooding system is available on request.

Low noise version
Besides the standard version, the low noise one in availabel on the price list.
The super low noise one is available on request

Partial heat recovery
It allow To recover the 40% of the total condensing heating rejection.
On request it is possiblw to have the total recovery system.

Refrigerants
- R 407C
- R 134a for high ambient temperature applications or on customer's request.

Remote Communication / Supervision
Serial Ports available:
- RS232
- RS485
GSM modem with prepaid SIM card and related antenna on board of the unit.

Protocols:
- Carel Built-in
- Modbus Built-in with Advanced Control
- Modbus With external gateway and Basic control
- LonWorksDedicated Serial Port, to be requested with unit order
- BACnet With external gateway
- TCP-IP With external gateway
- TREND Dedicated Serial Port, to be requested with unit order

For the available Supervision systems and for other requests the Galletti
Technical Dept. is available to help integrating the controls into different existing systems and/or other SCADA standardized supervision systems.

Air cooled water chillers with screw compressors LCS technical data

LCS		201	261	272	301	322	351	372	422	482	532
Cooling capacity	kW	202	266	271	300	321	346	375	422	477	531
Rated electrical input	kW	79,9	93,6	104,9	109,7	118,7	121,9	138	158,4	174,3	185,7
Nominal absorbed current	A	129,6	159,3	179,2	186,0	201,2	207,5	234,4	261,7	12,2	314,2
Power supply	V / ph / Hz	400 / 3N / 50									
Maximum current absorption	A	170	202	238	238	278	276	318	354	378	394
Starting current	A	431	542	399	634	440	695	524	615	718	734
Compressor	type	Screw									
Number of compressors/circuits	n°	1/1	1/1	2/2	1/1	2/2	1/1	2/2	2/2	2/2	2/2
Step controls	%	4	4	8	4	8	4	8	8	8	8
Axial fans	n°	8	6	6	6	6	8	8	8	10	10
Air flow	m^3/h	68000	124000	124000	116000	116000	168000	168000	168000	192000	176000
Evaporator type		Plate								shell&tube	
Water flow	l/h	34753	45700	46600	51600	55200	59600	64500	72600	82000	91300
Pressure drops, water side	kPa	39	29	30,5	31	35	33	38	33	28	35
Water content, excluding optionals	dm^3	99	30	36	63	30	36	63	69	207	207
Type of hydraulic connection	inches	4	4	4	4	4	5	5	5	5	5
Power pump (option)	kW	4	5,5	5,5	5,5	5,5	7,5	7,5	7,5	9,2	9,2
Available pressure	kPa	199	179	176	172	164	212	204	199	195	182
Water tank (option)	liters	800	600	600	600	600	1230	1230	1230	1230	1230
Expansion vessel (option)	liters	25	25	25	25	25	25	50	50	50	50
Height	mm	1637	2350	2350	2350	2350	2350	2350	2350	2350	2350
Length	mm	4297	3290	3290	3290	3290	4976	4976	4976	4976	4976
Width	mm	1654	2250	2250	2250	2250	2250	2250	2250	2250	2250
Sound power level	dB A	88	90	90	90	90	92	92	92	93	93
Sound pressure level	dB A	60	62	62	62	62	64	64	64	65	65
Sound power level low noise version	dB A	82	84	84	84	84	86	86	86	87	87
Sound pressure level low noise version	dB A	54	56	56	56	56	58	58	58	59	59

-Cooling Capacity : water temperature 12 - 7°C, outdoor air temperature 35°C
-Sound pressure level; measured in free field, at a distance of 10m, directionality factor Q=2;

MODELS AND CONFIGURATIONS

The LCS series is made of 10 models, only cooling and FREE COOLING operation, standard and low noise version.
The number of constructive options can be selected using the configuration selector below .
The choice of some options can prevent the choice of others or render obligatory other fields. To contact the Galletti for verification

OPTION AND UNIT CONFIGURATION

16 fields which customise the unit complying with customer's requirements

Field	Name.	Description
1	**Versions**	
	A	Base(on/off)
	B	Base with modulating air flow with fan speed control
	C	Low noise version without modulating air flow with fan speed control
	M	Low noise version with modulating air flow with fan speed
	D	Partial heat recover including the modulating air flow with fan speed control
	E	Low noise version + partial heat recover including the modulating air flow with fan speed
2	**Microprocessor / expansions devices**	
	0	advanced (pCO)+ standard expansion valve
	1	advanced (pCO) + electronic expansion valve
3	**Refrigerant / Power supply**	
	0	R407C / 400V-3-50Hz+N
	1	R407C / 400V-3-50Hz with transformer for 230V
	2	R407C / 400V-3-50Hz+N with thermal-magnetic
	3	R407C / 400V-3-50Hz with transformer for 230V+thermal-magnetic
	4	R22 / 400V-3-50Hz+N
	5	R22 / 400V-3-50Hz with transformer for 230V
	6	R22 / 400V-3-50Hz+N with thermal-magnetic
	7	R22 / 400V-3-50Hz with transformer for 230V+thermal-magnetic
4	**Pumping units**	
	0	Not present (STD.)
	1	One Pump STD. (mod. 201...322)
	2	Double pump STD. (mod. 201...322)
	3	One Pump STD. (mod. 351...532)
	4	Double pump STD. (mod. 351...532)
	5	Uprated pump (mod. 201...322)
	6	Uprated double pump (mod. 201...322)
	7	Uprated pump (mod. 351...532)
	8	Uprated double pump (mod. 351...532)
5	**Water storage tank**	
	A	Not present (std.)
	B	only pump
	C	Tank type "1" (600 litres - mod. 201...322)
	D	Tank type "2" (1230 litres - mod. 351...532)
6	**Interface for supervision system**	
	0	Not present
	1	Serial port RS485
	2	Serial port RS232
7	**Documentation language**	
	0	Italian
	1	English
	2	German
	S	Other
8	**Sensors pressure**	
	0	Not present
	1	Refrigerant pressure gauges A/B
	2	Low pressure probes
	3	Low/high pressure probes
	4	Pressure gauges A/B + low pressure probes
	5	Pressure gauges A/B + low/high pressure probes
9	**Directives**	
	E	EUROPE directive (PED)
	W	Others
10	**Grille/filter options**	
	0	Not present
	1	Grille for coils
	2	Metallic filter for coils
	3	Lowed grilled panels
	4	Grilles for coils + lower grilled panels
	5	Metallic filter for coils + lower grilled panels

OPTION AND UNIT CONFIGURATION

Field	Name.	Description
11	**Antifreeze electric element options**	
	A	not present
	B	present on evaporator
	C	present on evaporator + pump
	D	present on evaporator + pump + tank
12	**Compressor options**	
	0	Not present
	1	Power factors correction capacitors
	2	Suction shut-off-valve
	3	SOFT-STARTER KIT
	4	Suction shut-off-valve + Power factors correction capacitors
	5	SOFT-STARTER KIT + Power factors correction capacitors
	6	SOFT-STARTER KIT + Suction shut-off-valve
	7	SOFT-STARTER KIT + Suction shut-off-valve + Power factors correction capacitors
13	**Package**	
	A	Standard package (squared timber + plastic foil)
	S	Other
14	**Remote control board**	
	0	not present
	S	semplified
	P	with pCO microprocessor
15	**Dampers**	
	0	Not present
	G	Rubber antivibration
	M	Spring antivibration
16	**Accessories**	
	0	Not present
	1	Pair of VIC-TAULIC couplings for IN-OUT water connection
	2	Paddle flow-switch (standard differential pressure switch)
	3	ANTI-PANIC button
	4	Paddle flow-switch + ANTI-PANIC button
	5	Paddle flow-switch + Pair of VIC-TAULIC couplings
	6	Pair of VIC-TAULIC couplings + ANTI-PANIC button
	7	Paddle flow-switch + Pair of VIC-TAULIC couplings + ANTI-PANIC button

CODE

It consists of 8 carachters, which show the range, the model, the operation mode and the power supply

	Commercial name of the series
LCS	Air condensed water chillers
	Model
201	Gives information on the heating capacity of the standard models
261	
272	
301	
322	
351	
372	
422	
482	
532	
	Operation
C	WATER CHILLER
	Version
S	STANDARD
L	LOW NOISE

Galletti

LCS WATER CHILLERS INQUIRY FORM

Date (/ /)

Digit — CONFIGURATION DIGITS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Complete unit code L C S

Operation mode	
Cooling only unit	C
Version	
Standarc	S
Low noise	L
DIGIT 1 - Version	
Base (on/off)	A
Base with modulating condensation control	B
Low noise **without** modulating condensation control	C
Low noise **with** modulating condensation control	M
Base with partial heat recovery **with** modulating condensation control	D
Low noise with partial heat reecovery **with** modulating condensation control	E
DIGIT 2 - Microprocessor control and expansion device	
Advanced + traditional expansion valve	0
Advanced + electronic expansion valve	1
DIGIT 3 - Refrigerant and power supply	
R407C / 400V-3-50Hz+N	0
R407C / 400V-3-50Hz with transformer	1
R407C / 400V-3-50Hz+N with thermal magnetic breakers	2
R407C / 400V-3-50Hz with transformer and thermal magnetic breakers	3
R22 / 400V-3-50Hz+N	4
R22 / 400V-3-50Hz with transformer	5
R22 / 400V-3-50Hz+N with thermal magnetic breakers	6
R22 / 400V-3-50Hz with transformer and thermal magnetic breakers	7
DIGIT 4 - water circulation pump	
No circulation pump	0
Single standard pump (model from 261 to 322)	1
Double standard pump (model from 261 to 322)	2
Single standard pump (model from 351 to 532)	3
Double standard pump (model from 351 to 532)	4
Single uprated pump (model from 261 to 322)	5
Double uprated pump (model from 261 to 322)	6
Single uprated pump (model from 351 to 532)	7
Double uprated pump (model from 351 to 532)	8
DIGIT 5 - Water tank	
NO PUMP - NO TAN	A
WITH PUMP/S - NO TANI	B
Tank type "1" (600 liters - models from 261 to 322)	C
Tank type "2" (1230 liters - models 351 to 532)	D
DIGIT 6 - Communication options	
Not present	0
RS485 serial card	1
RS232 serial card	2
DIGIT 7 - Documentation language	
Italian	0
Inglese	1
Germar	2
Other	S
Pressure probes	
Not present	0
high/low pressure gauges	1
Low pressure probe	2
High/low pressure probes	3
high/low pressure gauges and low pressure probe	4
high/low pressure gauges / probes	5
DIGIT 9 - Standard	
PED standarc	E
Other	W
DIGIT 10 - Condenser options	
Not present	0
Grille for coil	1
Metallic filter for coils	2
Lower grilled panels	3
Grille for coil + lower	4
Metallic filter for coils + lower grilled panels	5
DIGIT 11 - Antifreeze kit	
Not present	A
Present on evaporator	B
Present on evaporator and pump	C
Present on evaporator, pump and tank	D
DIGIT 12 - Compressor options	
Not present	0
Power factor correction capacitor	1
Suction shut-off valve	2
SOFT-STARTER k	3
Suction shut-off valve + power factor correction capacitors	4
SOFT-STARTER kit + power factor correction capacitor	5
SOFT-STARTER kit + suction shut-off valve	6
SOFT-STARTER kit + suction shut-off valve + power factor correction capacitor	7
DIGIT 13 - Package	
Standard (squared timber + plastic foil)	A
Other	S
DIGIT 14 - Remote control panel	
Not present	0
Simplified remote control panel	S
microprocessore remote control pane	P
DIGIT 15 - Dampers	
Not present	0
Rubber type	G
Spring type	M
DIGIT 16 - Accessories	
Not predent	0
Pair of VIC-TAULIC couplings for IN-OUT water connection	1
Paddle flow switch	2
Anti-panic button	3
Paddle flow switch + anti-panic button	4
Paddle flow switch + pair of victaulic couplings	5
Pair of VIC-TAULIC couplings + anti-panic button	6
Paddle flow switch + pair of victaulic couplings + anti-panic button	7

NOTE

Requested Delivery Time

Sales agency

Reference

QUANTITY N°

Air-condensed water chiller with centrifugal fans MCC

The package air-condensed chillers and heat pumps MCC series are engineered for indoor and ducted installations both residential and commercial.
The MCC series has been engineered and developed with R410A refrigerant and it reaches great high-efficiency levels thanks to the optimization of heat-exchangers, according to plate types and distribution.
The idea of this project gives advantages in terms of dimensions, "turn key" unit, easyness to access all the components in the unit. The logic of the **HYDRAULIC PLUG&PLAY** (already in the **DNA** of all the water-condensed series) here is supported by the innovative phylosophy **PLUG&PLAY ON THE FANS GROUP**: the auto-adaptive control of the continuous modulation flow of the fans (press static condensing control as standard on all the models of the range) reduces drastically the installation time.

PLUG&PLAY ON THE FANS GROUP:
Air flow autoadaptative according to:
- canals pressure drops
- inlet air temperature

The units are equipped with press static condensing control which adjust the number of rounds of the fan (with a cut- phase device) according to air side pressure drops and according to suction air temperature. The air flow can be configured with vertical or horizontal air outlet (optional).

HYDRAULIC PLUG&PLAY
In order to make immediate the application of MCC in the plant, 3 different hydronic kits are available:
- version B: units with only evaporator.
- version P: units equipped with evaporator, electro pump and expansion vessel.
- version S: units equipped with evaporator, electro pump and expansion vessel and water tank.
- **Mechanical Y filter MANDATORY and as standard on all the versions to protect the evaporator**.

SIMPLIFIED MAINTENANCE
The centrifugal fans are coupled directly to the electric motor without pulleys and straps.
The technical / refrigerant compart is completely separated from the ventilation compartment in order to make inspection operations with the unit working.
Control accessible from the outside of the unit.

MICROPROCESSOR CONTROL AND REGULATION
It is brand new and with it it is possible the connection to ERGO
It is possible to connect / modify the unit set point according to external air temperature detected by ambient probe (optional).
The series is made up of 10 models only cooling with cooling capacity from 6 to 37 kW and 10 models in reversible heat pump with heating power from 6 to 41 kW.

AVAILABLE ACCESSORIES
- Refrigerant manometers.
- Antifreezing electric heaters on hydraulic circuit
- Electronic thermostatic valve
- 20% heat recovery (only cooling models)
- Special coils speciali (copper-copper, cataphoresis, Blygold)
- Microprocessor remote control or simplified
- Basic antivibration dampers
- Metallic grilles to protect the batteirs
- Outlet connections

HOW TO ORDER

The range is madde of 10 models cooling only, cwith cooling capacities from 6 to 37 kW and 10 models heat pump operation with heating capacity from 6 to 41 kW.
To simplify the way of making the order, Galletti offers 3 different solutions of hydraulic kit built in the unit, for only cooling only and heating pumps units.

In case the required unit has different components not present in the proposed versions, on pages 86 and 93 can be found the price list based on the scheme below indicated, for the configuration of the special unit.

The choice of some options can prevent the choice of some options or oblige the selection of other fields. To contact the Galletti for verification

CODE

Name	
MCC	air condensed water chillers and heat pumps with centrifugal fans
Model	
06	Gives information on the cooling capacity of the standard model
07	
09	
12	
15	
18	
22	
25	
33	
37	
Typology	
C	Water chiller
H	Heat pump
Power supply	
M	230V - 1 - 50 Hz
0	400V - 3 - 50 Hz
2	400V - 3 - 50 Hz + with thermal-magnetic

To be requested at the moment of the order

OPTION AND UNIT CONFIGURATION

12 fields which customise the unit complying with customer's requirements

Campo	Carat.	Descrizione
1	**Expansion valve**	
	0	Thermostatic
	A	Electronic
2	**Water pump**	
	0	Not present
	1	Pump and epansion vessel
3	**Water storage tank**	
	0	Not present
	S	Present
4	**Heat recover**	
	0	Not present
	D	Partial (desuperheater) 20%
5	**Condensing control**	
	C	Modulating air flow with fan speed control (standard in all models)
6	**Antifreeze kit**	
	0	Not present
	E	Present, standard unit
	P	Present, unit with pump and tank
	Q	present, unit with evaporator and tank
	S	Present, unit with pump, tank and vessel
7	**Remote control board**	
	0	Not present
	S	Simplified
	M	With microprocessor*
8	**Refrigerant circuit options**	
	0	Not present
	M	Gauges
9	**Remote control**	
	0	Not present
	2	RS 485 x ERGO (modbus built in)
10	**Special heat exchanger features**	
	0	standard
	R	Copper / copper heat exchanger
	C	Cataphoresis
	B	Blygold
11	**Coil special execution**	
	0	Not present
	R	Protection grille
	F	Metallic filter
12	**Compressor options**	
	0	Not present
	1	Power factor correction capacitors
	2	soft starter
	3	Power factor correction capacitors + Soft starter

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	17,10	19,10	33,60	7,50	9,50	17,40	
Starting absorbed current	A	61,56	82,60	100,20	32,60	35,60	51,20	
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	2500	2500	5500	2500	2500	5500	
ASEP	Pa	91	85	140	91	85	135	
Water flow	l/s	0,27	0,33	0,44	0,27	0,33	0,44	
Water side pressure drop	kPa	4,10	4,40	36,00	4,10	4,50	36,40	
Available pressure head	kPa	57,00	55,10	155,10	57,10	55,00	154,60	
Diameter of hydraulic connections	"	1	1	1 1/4	1	1	1 1/4	
Water content escluding optionals	dm3	2,50	2,80	3,30	2,50	2,80	3,30	
Expansion tank	dm3	1	1	5	1	1	5	
Buffer tank	dm3	20	20	36	20	20	36	
Height	mm	1000	1000	1160	1000	1000	1160	
Length	mm	1050	1050	1250	1050	1050	1250	
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	

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	9,0	9,0	11,0	13,0	17,0	19,0	21,0
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	5500	5500	6500	6500	11000	13000	13000
ASEP	Pa	130	120	120	110	125	95	90
Water flow	l/s	1	1	1	1	1	2	2
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	3,5	4,1	4,4	5,0	6,1	7,3	7,8
Expansion tank	dm3	5	5	5	5	8	8	8
Buffer tank	dm3	36	36	96	96	155	155	155
Height	mm	1160	1160	1210	1210	1400	1400	1400
Length	mm	1250	1250	1650	1650	2250	2250	2250
Width	mm	730	730	800	800	800	800	800
Sound power level	dB(A)	78	78	79	79	80	82	82
Sound pressure level	dB(A)	50	50	51	51	52	54	54
Transport weight *	kg	228	240	295	301	405	430	440
Operating weight *	kg	248	260	375	381	546	572	583

*** Weights 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).

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	2500	2500	5500	2500	2500	5500
AESP	Pa	91	85	140	91	85	135
Water flow in cooling mode	l/s	0,267	0,323	0,431	0,267	0,325	0,433
Water flow in heat pump	l/s	0,306	0,369	0,488	0,308	0,365	0,477
Water pressure drop (cooling)	kPa	4	4,3	34,6	4	4,3	34,9
Water pressure drop (heating)	kPa	5,1	5,4	42	5,1	5,4	42
Available pressure head (cooling)	kPa	57,4	55,5	156,7	57,4	55,4	156,4
Available pressure head (heating)	kPa	55,2	52,9	145,4	55	53,2	147,7
Diameter of hydrualic connections	"	1	1	1 1/4	1	1	1 1/4
Water content escluding optionals	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	1000	1000	1160	1000	1000	1160
Length	mm	1050	1050	1250	1050	1050	1250
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

MCC-H		12	15	18	22	25	33	37
Power supply	V - ph - Hz				400-3-50			
Cooling capacity	kW	11,7	14,3	17,6	21,8	25	32,4	35,9
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	6,1	6,8	7,9	9,3	12,6	15,4	16,8
Heating capacity	kW	13,1	15,5	19,2	23,8	28,2	36,36	40,56
MCC HB Heating power input	kW	6,1	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	5500	5500	6500	6500	11000	13000	13000
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	1,55	1,715
Water flow in heat pump	l/s	0,626	0,743	0,92	1,138	1,349	1,729	1,93
Water pressure drop (cooling)	kPa	37,2	54,2	36,9	43,7	46	39,41	36,8
Water pressure drop (heating)	kPa	46	63	44	51	58	48	46
Available pressure head (cooling)	kPa	149,8	128	138,2	120,5	125,3	124,9	123,6
Available pressure head (heating)	kPa	138,7	116,2	127,7	106,7	110,6	111,7	108,5
Diameter of hydrualic connections	"	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Water content escluding optionals	dm3	3,5	4,1	4,4	5	6,1	7,3	7,8
Expansion tank	dm3	5	5	5	5	8	8	8
Buffer tank	dm3	36	36	96	96	155	155	155
Height	mm	1160	1160	1210	1210	1400	1400	1400
Length	mm	1250	1250	1650	1650	2250	2250	2250
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 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).

Indoor Air cooled chillers LCC (ductable)

The indoor air condensed water chillers and heat pumps model LCC ,have been designed for domestic and industrial installations for 24 hours daily operations.

The range is made of 10 models only cooling and heat pumps, realized in standard and low noise version, with cooling capacity from 48 to 153 Kw and in heat mode from 54 to 168 Kw.

LCC CS only cooling , standard version
LCC CL only cooling , low noise version
LCC HS heat pump , standard version
LCC HL heat pump, low noise version
LCC FS free cooling , standard version
LCC FL free cooling , low noise version

CONSTRUCTIVE FEATURES

The design philosophy has favored the subjects of the compact dimensions, and the easy access to all the components inside the unit: The logic of the Plug & Play on the hydraulic side- already present (DNA) in all our water chillers models - here is going alongside with the Plug & Play on the fans group : Auto - adaptive control of the air flow and the constant fan speed modulations reduces the installation costs and timing..
The wide possible configurations of the Air flow, in terms of range of products available, or in terms of available accessories , makes the LCC range the perfect product for reducing the installation costs and timing on site.

PLUS of the LCC range

PLUG & PLAY ON THE FANS GROUP

- Innovative fan technology ,more efficient and reliable with the Backward profile centrifugal fans directly connected to the motor provided with external rotor.
- The Auto-adaptive control of the air flow and the constant fan speed modulations reduces the installation costs and timing
- Not requested Maintenance as per traditional belt/pulley transmission.
- Possibility to change the air discharge side even on site

PLUG & PLAY ON THE HYDRAULIC SIDE

- Only one hydraulic connection (In/Out) to the system
- Availability of " built in" hydraulic kit

STRUCTURE

- The same height and width for all sizes allowed a parallel installation even with different sizes
- Frontal access while the unit is running to all the components inside the unit by the means of easily removable doors and isolated technical compartment from the air flow.
- All Hydraulic and electric connection to the front side.

INTERCONNECTIVITY

- With BMS and even with Galletti new **ERGO** system
- Possibility of " parallel" operation up to 8 units(advanced microprocessor)

The **LCC** units are built with a monoblock supporting base and enclosing panels made with coated and painted galvanized sheet steel with RAL 7016.
The compressors compartment is completely sealed and may be accessed on the front side opening the door of the units: The door could be removed easily in order to simplify all the maintenance operations or /and controls.
All bolts, screws and fastening devices are made of non-oxidizable materials, inox or carbon steel has undergone surface - passivating treatments.

VENTILATION SECTION

The units comprise centrifugal fans with backward profile directly connected to the motor provided with external rotor.
The backward profile fan has high reaction grade (the main energy is transmitted as a pressure energy) witch allowed to realize working static efficiencies up to 5-6% comparing to solutions with standard Forward profile fans.
All the fans are statically and dynamically balanced ,with interposed rubber vibration dampers to reduce the propagation of vibrations during speed -modulating phases.
The fans are equipped with 4 poles motors provided with an external rotor. This solution allowed the power efficiency maximization, and the reduction of the magnetic sound level if the unit is provided with phase cutting devise (optional)
The layout of the fans , made in aluminum, allowed an easy vertical air discharge to the condenser side.

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

Only scroll-type compressors are used in the LCC units, both in single
and tandem configurations, with thermal protection on windings an
crankcase electric heater (heat pump models).

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, characterized 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

Built with " aluminum fins" and "copper expanded piping" to ensure the maximum contact. The condenser could be provided with a metallic filter easily removable from the two sides even if the units is ducted.

For the heating pump versions, all units are provided with an Inox dray trip panel for the water condensate collection and the possibility to duct it.

WATER CIRCUIT

All the units have a single plumbing connection to the outside. This feature is important
as it reduces the time necessary for making connections on the installation site..
A water flow control device is included as a standard feature of all units. In the event the water

MODELS AND CONFIGURATIONS

The LCC series is made of 10 models, cooling, heat pump and free cooling operation, standard and low noise version. The number of constructive options can be selected using the configuration selector below .

The choice of some options can prevent the choice of others or render obligatory other fields. To contact the Galletti for verification

Code

Commercial name of the series	
LCC	Air condensed water chiller and reversible heat pump
Model	
050	Gives information on the heating capacity of the standatd models
060	
070	
080	
090	
105	
115	
130	
145	
160	
Operation	
C	cooling only
H	heat pump
F	free cooling
Version	
S	standard with modulating condensing control
L	Low noise with modulating condensing control

OPTION AND UNIT CONFIGURATION

15 fields which customise the unit complying with customer's requirements

Field	Name.	Description
1	**Refrigerant / Power supply**	
	0	R407C - 400/3/50 with 230V built in transformer
	1	R22 - 400/3/50 with 230V built in transformer
	2	R407C - 400/3/50 with 230V built in transformer, thermal-magnetic protection in the EP
	3	R22 - 400/3/50 with 230V built in transformer, thermal-magnetic protection in the EP
2	**Microprocessor / expansions devices**	
	0	basic (μchiller) + traditional valve *
	A	basic (μchiller) + electronic valve *
	B	advanced (pCO) + traditional valve
	C	advanced (pCO) + electronic valve
3	**Water pump**	
	0	not present
	1	Pump and expansion vessel *
	2	Double pump and expansion vessel *
	3	Uprated pump and expansion vessel
	4	Double uprated pump and expansion vessel
4	**Water tank**	
	0	not present
	S	present *
5	**Heat Recover**	
	0	not present
	D	partial (desuperheater) 40%
6	**Condensing and air flow control**	
	R	Rear side air discharge
	H	Vertical air discharge
7	**Remote comunication**	
	0	not present
	1	RS232 (only for the pCO1 control)
	2	RS485
8	**Compressors options**	
	0	not present
	K	Power factor correction capacitors
	A	kit soft-starter
	M	Power factor correction capacitors + kit soft starter
9	**Condenser protection**	
	0	not present
	G	condenser protection grille
	F	air filter for condenser
10	**Remote control**	
	0	not present
	S	Semplified
	M	with μChiller microprocessor
	P	with pCO microprocessor
11	**Flanges**	
	0	not present
	M	Outlet flanges
	A	Inlet flanges
	T	Outlet and inlet flanges
12	**Package**	
	0	standard
	G	Wooden crate
	C	Wooden box
13	**Accessories**	
	0	not present
	A	Base vibration dampers
	M	Pressure gauges
	T	Base vibration dampers + Pressure gauges
14	**Documentation language**	
	0	italian
	1	english
	2	german
	S	other
15	**Special manufacture**	
	0	standard
	S	special

***** Not available for free cooling version

WATER CHILLERS RATED TECHNICAL DATA						
LCC - CS		**50**	**60**	**70**	**80**	**90**
Cooling capacity	kW	48,7	56	65,2	68,8	88,2
Rated electrical input	kW	22,4	25,9	28	32,8	38,5
Rated current absorption	A	41,2	46	49,2	58	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°	38750	38750	38750	38750	38750
Axial fans	n°	2	2	2	2	3
Air flow rate	m3/h	17500	19000	19000	19000	27000
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	8377	9631	11215	11833	15171
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	2020	2020	2020	2020	2020
Length	mm	2000	2000	2000	2000	2400
Width	mm	1100	1100	1100	1100	1100
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
LCC - CS		**105**	**115**	**130**	**145**	**160**
Cooling capacity	kW	98	109,1	125,9	143	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°	38750	38750	38750	38750	38750
Axial fans	n°	3	4	4	4	4
Air flow rate	m3/h	27000	36000	36000	40000	40000
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	16855	18765	21654	24596	26281
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	2020	2020	2020	2020	2020
Length	mm	2400	3090	3090	3090	3090
Width	mm	1100	1100	1100	1100	1100
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

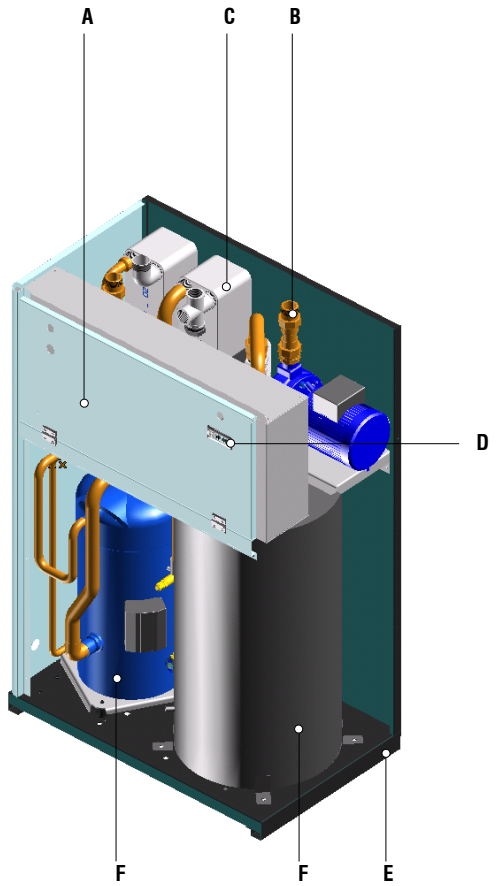
- Cooling capacity: outdoor air temperature 35°C, water temperature 12°C / 7°C, Sound power measured according to standards ISO 3741 - ISO 3744 and EN 29614-1, Sound pressure measured at a distance of 1 m and a height of 1.5 m above the ground in a open field, available static pressure 100 Pa

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	17500	19000	19000	19000	27000
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	8120	9342	10879	11478	14715
Pressure drops, water side in cooling mode	kPa	30	26	35	28	29
Water flow rate in heating mode	l/h	9288	10596	12418	13725	16719
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	2020	2020	2020	2020	2020
Length	mm	2000	2000	2000	2000	2400
Width	mm	1100	1100	1100	1100	1100
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
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	27000	36000	36000	40000	40000
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	16350	18202	21004	23857	25493
Pressure drops, water side in cooling mode	kPa	34	30	35	31	36
Water flow rate in heating mode	l/h	18576	22189	24046	26660	28896
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	2020	2020	2020	2020	2020
Length	mm	2400	3090	3090	3090	3090
Width	mm	1100	1100	1100	1100	1100
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: 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 1 m and a height of 1.5 m above the ground in a open field, available static pressure 100 Pa

MCW Package 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.



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 μChiller controller.

E Painted galvanised sheet steel supporting base. Panelling: 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 Upon request the units can be equipped with built-in water pump and water storage reservoir, the latter being placed on the water circuit outlet user side.

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

MODELS AND CONFIGURATIONS

The **MCW** series is composed by 11 models, in cooling and heating version.They are available both in models with a cooling function only and in models with heat pump operation.
The numerous constructive options may be selected using the configuration scheme illustrated below.
The choice of some options can prevent the choice of others or render obligatory other fields. To contact the Galletti for verification

CODE

It consists of 8 carachters, which show the range, the model, the operation mode and the power supply

	Commercial name of the series
MCW	water condensed water chiller and heat pump
	Model
005	provides general indications as to the cooling capacity of standard models
007	
010	
012	
015	
018	
020	
022	
027	
031	
039	
	Operation
C	cooling only
H	heat pump
	Version
S	standard
L	low noise

OPTION AND UNIT CONFIGURATION

15 fields which customise the unit complying with customer's requirements

Field	Name.	Description
1	**Refrigerant / Power supply**	
	0	R407C - 230/1/50
	1	R407C - 400/3/50 + N
	2	R407C- 400/3/50 with 230V built-in transformer for functions requiring 230V power supply
2	**Microprocessor / Exp. valve**	
	0	basic + traditional valve
	A	basic + electronic valve
3	**Condensation control**	
	0	not present
	C	with adjustment of water flow rate
4	**Pump and water tank**	
	0	not present
	1	pump only
	2	pump and tank
5	**Port for remote comunication**	
	0	not present
	2	RS485
6	**Cooling accessories**	
	0	not present
	M	Pressure gauges
7	**Compressor options**	
	0	not present
8	**Water condenser option**	
	0	Standard: oversized condenser for city water/dry cooler
9	**Remote control board**	
	0	not present
	S	simplified
	M	µChiller microprocessor
10	**Package**	
	0	standard
	1	wooden crate
	2	wooden box
11	**Dampers**	
	0	not present
	G	base vibration dampers (rubber type)
12	**Accessories**	
	0	not present
13	**Dry cooler / remote condenser**	
	0	not present
	A	Dry Cooler
	B	Dry Cooler with condensing control
14	**Dry cooler / remote condenser**	
	0	not present
	1	standard version: horizontal air flow
	2	standard version: vertical air flow
	3	low-noise version: horizontal air flow
	4	low-noise version: vertical air flow
15	**Execution**	
	0	standard
	S	special

WATER CHILLERS RATED TECHNICAL DATA								
MCW - CS / CL		**005 M**	**005**	**007 M**	**007**	**010 M**	**010**	**012**
Cooling capacity	kW	5,55	5,5	7,04	7	9,9	9,9	12,2
Rated power input	kW	1,32	1,3	1,74	1,7	2,34	2,3	2,75
Rated current absorbed	A	6,26	3,17	8,27	3,47	11,21	4,71	6,7
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 current absorbed	A	12	4,2	15	5,1	23,1	7	10
Starting ampere	A	47	24	61	32	100	46	50
Evaporator water flow	l/h	954	946	1211	1203	1703	1704	2098
Evaporator water pressure drop	kPa	28	27	31	31	27	27	31
Condenser water flow	l/h	390	386	498	494	695	693	849
Condenser water pressure drop	kPa	4	4	6	6	5	5	7
Scroll compressor / refrigerant circuit	Nr.	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Water content on user side	dm3	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 power supply	kW	0,25	0,25	0,25	0,25	0,25	0,25	0,33
Buffer tank water content (option)	dm3	47	47	47	47	47	47	92
Hydraulic connections		1"	1"	1"	1"	1"	1"	1" 1/2
Height	mm	830	830	830	830	830	830	1270
Length	mm	705	705	705	705	705	705	812
Width	mm	453	453	453	453	453	453	508
Weight of standard unit	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
MCW - CS / CL		**015**	**018**	**020**	**022**	**027**	**031**	**039**
Cooling capacity	kW	14,9	17,8	20,2	21,9	26,9	31,2	38,7
Rated power input	kW	3,4	3,95	4,4	4,9	6,3	7,2	8,9
Rated current absorbed	A	8,58	9,39	11,22	12,04	15,56	18,12	21,1
Power supply	V - ph - Hz				400-3-50 + N			
Maximum current absorbed	A	13	14	16	17	20	29	32
Starting ampere	A	66	74	101	98	130	130	135
Evaporator water flow	l/h	2562	3062	3458	3766	4627	5367	6656
Evaporator water pressure drop	kPa	27	30	26	29	26	29	28
Condenser water flow	l/h	1039	1235	1392	1522	1885	2181	2703
Condenser water pressure drop	kPa	4	6	5	6	5	7	7
Scroll compressor / refrigerant circuit	Nr.	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Water content on user side	dm3	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 power supply	kW	0,33	0,33	0,45	0,45	0,45	0,45	0,75
Buffer tank water content (option)	dm3	92	92	92	92	92	92	92
Hydraulic connections		1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2
Height	mm	1270	1270	1270	1270	1270	1270	1270
Length	mm	812	812	812	812	812	812	812
Width	mm	508	508	508	508	508	508	508
Weight of standard unit	kg	121	125	167	203	210	219	233
MCW-CS sound power level	dB(A)	61	61	61	62	62	65	65
MCW-CL sound power level	dB(A)	59	59	60	60	60	63	63

Cooling capacity: evaporator water temperature 12°C / 7°C, condenswer water temperature 15/30°C.

Sound pressure level referred to the following conditions: in free field, 1 m. distance, directional factor 2.

HEAT PUMP RATED TECHNICAL DATA								
MCW - HS / HL		**005 M**	**005**	**007 M**	**007**	**010 M**	**010**	**012**
Cooling capacity	kW	5,3	5,3	6,8	6,8	9,6	9,6	11,8
Rated power supply	kW	1,32	1,3	1,74	1,7	2,34	2,3	2,75
Rated current absorbed	A	6,26	2,62	8,27	3,47	11,21	4,71	5,63
Evaporator water flow	l/h	911	911	1170	1169	1651	1651	2029
Evaporator water pressure drop	kPa	25	25	29	29	25	25	29
Condenser water flow	l/h	376	375	485	482	678	675	826
Condenser water pressure drop	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 power input	kW	1,67	1,64	2,19	2,14	2,96	2,9	3,47
Rated current absorbed	A	8,51	3,28	11,51	4,44	15,63	5,99	7,05
Condenser water flow	l/h	1035	1015	1334	1307	1858	1823	2254
Condeser water pressure drop	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 current absorbed	A	12	4,2	15	5,1	23,1	7	10
Starting Ampere	A	47	24	61	32	100	46	50
Scroll compressor / refrigerant circuit	Nr.	1	1	1	1	1	1	1
Water content on user side	dm3	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 power supply	kW	0,25	0,25	0,25	0,25	0,25	0,25	0,33
Buffer tank water content (option)	dm3	47	47	47	47	47	47	92
GAS Hydraulic connections		1"	1"	1"	1"	1"	1"	1" 1/2
Height	mm	830	830	830	830	830	830	1270
Length	mm	705	705	705	705	705	705	812
Width	mm	453	453	453	453	453	453	508
Weight of standard unit	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
MCW - HS / HL		**015**	**018**	**020**	**022**	**027**	**031**	**039**
Cooling capacity	kW	14,5	17,3	20,1	21,2	26,1	30,3	37,5
Rated power supply	kW	3,4	3,89	4,4	4,9	6,3	7,2	8,9
Rated current absorbed	A	7,43	7,37	9,37	10,2	13,15	15,23	17,38
Evaporator water flow	l/h	2494	2976	3458	3647	4489	5212	6450
Evaporator water pressure drop	kPa	26	28	26	27	24	27	26
Condenser water flow	l/h	1016	1204	1392	1483	1840	2130	2635
Condenser water pressure drop	kPa	4	6	5	6	5	7	7
Heating capacity	kW	16	19,2	21,6	23,59	29	33,6	41,7
Rated power input	kW	4,28	4,91	5,5	6,2	7,9	9,1	11,2
Rated current absorbed	A	8,95	9,88	11,89	12,63	16,34	19,04	22,34
Condenser water flow	l/h	2751	3303	3715	4058	4989	5779	5343
Condeser water pressure drop	kPa	13	46	37	46	38	50	18
Power supply	V - ph - Hz				400-3-50 + N			
maximum current absorbed	A	66	14	16	17	20	29	32
Starting Ampere	A	31	74	101	98	130	130	135
Scroll compressor / refrigerant circuit	Nr.	1	1	1	1	1	1	1
Water content on user side	dm3	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 power supply	kW	0,33	0,33	0,45	0,45	0,45	0,45	0,75
Buffer tank water content (option)	dm3	92	92	92	92	92	92	92
GAS Hydraulic connections		1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2	1" 1/2
Height	mm	1270	1270	1270	1270	1270	1270	1270
Length	mm	812	812	812	812	812	812	812
Width	mm	508	508	508	508	508	508	508
Weight of standard unit	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: evaporator water temperature 12°C / 7°C, condenser water temperature 15/30°C.
Heating capacity: condenser water temperature 40/45°C, water temperature to the evaporator 15°C
Sound pressure level referred to the following conditions: in free field, 1 m. distance, directional factor 2.

MCR package motoevaporating units

Derived from the **MCW** water-condensed chiller range the **MCR** motor-driven evaporating units are available in standard and low-noise version for cooling function only.

The many options that complete the unit include remote condensers with axial fans, vertical or horizontal air flow, in standard or low-noise version and heat recovery function (desuperheater 40%).

Mechanical water filter Y version, OBLIGATORY, on all the versions to protect the exchangers (either user and source side).

MCR C TECHNICAL DATA

MCR - CS / CL		005 M	005	007 M	007	010 M	010
Cooling capacity	kW	4,8	4,8	6,2	6,2	8,6	8,6
Rated power input	kW	1,63	1,6	2,16	2,1	2,96	2,9
Rated current absorbed	A	7,63	2,96	9,99	3,77	13,84	5,36
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
Maximum current absorbed	A	12	4,2	15	5,1	23,1	7
Starting ampere	A	47	24	61	32	100	46
Evaporator water flow	l/h	825	825	1066	1067	1478	1480
Evaporator water pressure drop	kPa	26	26	30	30	26	26
Scroll compressor / refrigerant circuit	Nr.	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Plates evaporator	Nr.	1	1	1	1	1	1
Water content on user side	dm3	2,1	2,1	2,1	2,1	2,6	2,6
Pump available head (option)	kPa	81	81	72	72	67	67
Pump power supply	kW	0,25	0,25	0,25	0,25	0,25	0,25
Buffer tank water content (option)	dm3	47	47	47	47	47	47
Height	mm	830	830	830	830	830	830
Length	mm	705	705	705	705	705	705
Width	mm	453	453	453	453	453	453
MCR-CS sound power level	dB(A)	55	55	55	55	59	59
MCR-CL sound power level	dB(A)	53	53	53	53	57	57

MCR - CS / CL		015	018	020	022	027	031
Cooling capacity	kW	13	15,6	17,6	19,2	23,5	27,3
Rated power input	kW	4,3	5	5,6	6,2	8	9,1
Rated current absorbed	A	8,39	8,85	10,76	11,52	15,04	16,96
Power supply	V - ph - Hz			400-3-50 + N			0
Maximum current absorbed	A	13	14	16	17	20	29
Starting ampere	A	66	74	101	98	130	130
Evaporator water flow	l/h	2236	2683	3028	3302	4042	4695
Evaporator water pressure drop	kPa	26	29	26	29	26	29
Scroll compressor / refrigerant circuit	Nr.	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Plates evaporator	Nr.	1	1	1	1	1	1
Water content on user side	dm3	3,1	3,1	3,6	3,6	3,9	4,3
Pump available head (option)	kPa	125	107	145	136	122	101
Pump power supply	kW	0,33	0,33	0,45	0,45	0,45	0,45
Buffer tank water content (option)	dm3	92	92	92	92	92	92
Height	mm	1270	1270	1270	1270	1270	1270
Length	mm	812	812	812	812	812	812
Width	mm	508	508	508	508	508	508
MCR-CS sound power level	dB(A)	61	61	61	62	62	62
MCR-CL sound power level	dB(A)	59	59	59	60	60	60

Cooling power referring to the following conditions: water temperature at the evaporator 12-7°C, air temperature at condenser 35°C
Sound power level measured in conformity with standard: ISO 3741 - ISO 3744 e EN 29614-1

MODELS AND CONFIGURATIONS

The **MCR** series comprises 11 models.
They are available both in models with a cooling function only.
The numerous constructive options may be selected using the configuration scheme illustrated below.
The choice of some options can prevent the choice of others or render obligatory other fields. To contact the Galletti for verification

Code

It consists of 8 carachters, which show the range, the model, the operation mode and the power supply

Name of the series	
MCR	motoevaporating units
Model	
005	provides general indications as to the cooling capacity of standard models
007	
010	
012	
015	
018	
020	
022	
027	
031	
039	
Operation	
C	Water chiller
Version	
S	standard
L	low noise

OPTION AND UNIT CONFIGURATION

15 fields which customise the unit complying with customer's requirements

Field	Name.	Description
1	**Refrigerant / Power supply**	
	0	R407C - 230/1/50
	1	R407C - 400/3/50 + N
	2	R407C- 400/3/50 with 230V built-in transformer for functions requiring 230V power supply
2	**Microprocessor / expansion valve**	
	0	basic (µChiller) + traditional valve
	A	basic (µChiller) + electronic valve
3	**Condensation control**	
	0	not present
4	**Pump and water tank**	
	0	not present
	1	only pump
	2	pump + tank
5	**Remote communication**	
	0	not present
	2	RS485
6	**Cooling accessories**	
	0	not present
	M	Pressure gauges
7	**Compressor options**	
	0	not present
8	**Water condenser option**	
	0	not present
9	**Remote control board**	
	0	not present
	S	simplified *
	M	µChiller microprocessor
10	**Package**	
	0	standard
	1	Wooden crate
	2	Wooden case
11	**Dampers**	
	0	not present
	G	base vibration dampers (rubber type)
12	**Accessories**	
	0	not present
13	**Dry cooler / remote condenser**	
	0	not present
	A	Dry Cooler
	B	Dry Cooler with condensing control
	C	Remote condenser
	D	Remote condenser with condensing control
14	**Dry cooler / remote condenser**	
	0	not present
	1	standard version: horizontal air flow
	2	standard version: vertical air flow
	3	low-noise version: horizontal air flow
	4	low-noise version: vertical air flow
15	**Execution**	
	0	standard
	S	special

* **In a Gewiss box with ON indicator light, low-priority alarm (e.g. pump breakdown), serious alarm (e.g. unit stopped) and ON-OFF switch. All powered at 24 Vac through an insulating transformer**

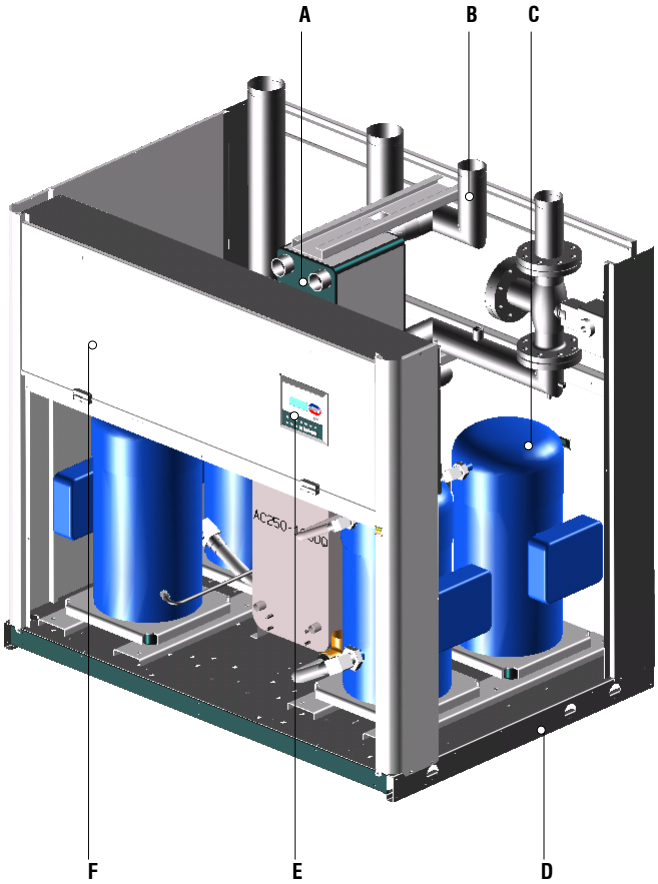
LCW Package water cooled chillers and heat pumps

LCW water chillers and heat pumps are designed for indoor installation in both residential and industrial applications with 24 h/day operation.
They are developed in a completely careened execution for an absolute noisless of the assembly.
The range is made of 15 models cooling onnly and heat pumps, realized in standrad and low noise version, with heating capacity from 56 to 334 kW and cooling capacity from 50 to 296 kW:

- LCW CS water chillers, standard version
- LCW CL water chillers, low noise version
- LCW HS heat pumps, standard version
- LCW HL heat pumps, low noise version

The innovative design philosophy drawn to the creation of a unit with very reduced height (1,5 m for all the range) and water connection to the top of the unit, where together with an already preassembled internal piping means a reduction of installation costs and of technical space. All the sites are provided with refrigerant circuit and, starting from site 180, the units are provided with 4 compressors in tandem configuration with a very flexibility in the capacity modulation, reduced in rush currents and higher at the part loaded operation.

Mechanical water filter Y version, OBLIGATORY, on all the versions to protect the exchangers (either user and source side).



A Only heat exchangers with stainless steel braze-welded plates are used. Starting from model 105, all units have "cross flow" type dual circuit exchangers on the refrigerant side and a single circuit exchanger on the water side.

B All the units have a single plumbing connection to the outside, whether they are equipped with a dual heat exchanger (up to model LCW090) or a single dual circuit heat exchanger on the refrigerant side. A water flow control device is included as a standard feature.
In addition to said device, the units are fitted with an outlet water temperature sensor performing the function of an antifreeze thermostat.

C Only scroll-type compressors are used in the LCW units, both in single and tandem configurations.

D Painted galvanised sheet steel supporting base and enclosing panels made of Peraluman to ensure effective protection against corrosive agents.

E Microprocessor control; the Basic version featured on standard models is a mChiller controller. On request, the units can be equipped with Advanced microprocessor control (pCO controller), which in addition to the functions described, offers the possibility of customized software features and of managing the 4 reduction steps for units starting from model 180.

F Electric control board constructed and wired in accordance with EEC Directive 73/23, Directive 89/336 on electromagnetic compatibility and related standards. It is equipped with an air circulation system that is active when the unit is running.

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.

MODELS AND CONFIGURATIONS

The LCW series comprises 15 models with heating capacities ranging from 56 to 334 kW. They are available both in models with a cooling function only and in models with heat pump operation. The numerous constructive options may be selected using the configuration scheme illustrated below.
The choice of some options can prevent the choice of others or render obligatory other fields. To contact the Galletti for verification

Code

It consists of 8 carachters, which show the range, the model, the operation mode and the power supply

Brand name of series	
LCW	Water condensing chilling units and reversible water/water heat pumps
Model	
055	provides general indications as to the cooling capacity of standard models
060	
070	
080	
090	
105	
115	
130	
150	
180	
205	
235	
250	
275	
300	
Operation	
C	Water Chiller
H	Heat pump
Version	
S	standard
L	Low Noise

OPTION AND UNIT CONFIGURATION

15 fields which customise the unit complying with customer's requirements

Field	Name.	Description
1	**Refrigerant / Power supply**	
	2	R407C - 400/3/50 with 230V built in transformer
2	**Microprocessor / expansion valve**	
	0	basic (μChiller2) + traditional valve
	A	basic (μChiller2) + electronic valve
	B	advanced (pCO) + traditional valve
	C	advanced (pCO) + electronic valve
3	**Condensation control**	
	0	Not present
	C	Pressure switch modulating with adjustment of water flow rate (mounted on the unit)
4	**Heat recover**	
	0	Not present
5	**Remote comunication**	
	0	Not present
	1	RS232
	2	RS485
6	**Cooling accessories**	
	0	Not present
	M	Pressure gauges
7	**Compressor options**	
	0	Not present
	1	power factor correction capacitors
	2	Soft-starter
	3	power factor correction capacitors + Soft-starter
8	**Water condenser option**	
	P	Condenser for well/city water (mod. 045...115)
	R	Condenser for well/city water (mod. 130...300)
	T	Oversized condenser for dry cooler application
9	**Remote control board**	
	0	Not present
	S	simplified *
	M	μChiller2 microprocessor
	P	pCO microprocessor
10	**Package**	
	0	standard
	1	Wooden crate
	2	Wooden box
11	**Dampers**	
	0	Not present
	G	base vibration dampers (rubber type)
12	**Accessories**	
	0	Not present
	1	Pair of VIC-TAULIC couplings (for in-out water connection)
	2	Paddle flow switch (standard differential pressure switch)
	3	Paddle flow switch + Pair of VIC-TAULIC couplings
13	**Dry cooler / remote condenser**	
	0	Not present
	A	dry cooler
	B	dry cooler with condensing control
	C	remote condenser
	D	remote condenser with condensing control
14	**Dry cooler / remote condenser**	
	0	not present
	1	standard version: horizontal air flow
	2	standard version: vertical air flow
	3	low-noise version: horizontal air flow
	4	low-noise version: vertical air flow
15	**Execution**	
	0	standard
	1	special

* **In a Gewiss box with ON indicator light, low-priority alarm (e.g. pump breakdown), serious alarm (e.g. unit stopped) and ON-OFF switch. All powered at 24 Vac through an insulating transformer**

WATER CHILLERS RATED TECHNICAL DATA

LCW - CS / CL		55	60	70	80	90	105	115	130
		Operation with municipality-well water (15-30°C)							
Cooling capacity	kW	50	58,1	67,2	76,13	89,6	102,6	115,7	132,6
Rated power input	kW	11,9	13,8	16	18,2	21,2	25,1	29	32,2
Rated current absorbed	A	24,99	29,18	32,36	35,54	41,71	47,49	53,49	59,72
Evaporator water flow	l/h	8600	9993	11559	13094	15412	17648	19900	22807
Evaporator water pressure drop	kPa	27	34	48	48	52	31	30	31
Condenser water flow	l/h	3515	4083	4725	5356	6292	7250	8213	9356
Condenser water pressure drop	kPa	8	8	8	8	9	4	5	4
Power supply	V - ph - Hz	400-3-50							
Maximum current absorbed	A	50,5	62,5	70,2	76,2	76,2	93	108	123,2
Starting ampere	A	146	152	198	203	206	247	252	307
Scroll compressor / refrigerant circuit	Nr.	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Plates evaporator	Nr.	2	2	2	2	2	1	1	1
Plates condenser	Nr.	2	2	2	2	2	1	1	1
Water content on user side	dm3	5,5	6,1	6,6	7,1	7,9	8,2	8,8	9,5
GAS Hydraulic connections		2"	2"	2"	2"	2"	2"	2"	3"
Height	mm	1492	1492	1492	1492	1492	1492	1492	1492
Length	mm	1204	1204	1204	1204	1204	1204	1204	1654
Width	mm	788	788	788	788	788	788	788	1168
Weight	kg	395	417	434	445	462	582	610	710
LCW-CS sound power level	dB(A)	71	71	72	72	72	73	73	75
LCW-CL sound power level	dB(A)	69	69	70	70	70	71	71	73

LCW - CS / CL		150	180	205	235	250	275	300
		Operation with municipality-well water (15-30°C)						
Cooling capacity	kW	148,1	172,2	203,2	234,2	247	259,9	296,2
Rated power input	kW	35,2	42	50,1	58,18	61,3	64,4	70,4
Rated current absorbed	A	65,62	83,15	95,15	107,32	113,51	119,43	131,57
Evaporator water flow	l/h	25474	29618	34950	40282	42483	44703	50947
Evaporator water pressure drop	kPa	36	34	34	34	38	31	38
Condenser water flow	l/h	10408	12160	14379	16596	17500	18409	20817
Condenser water pressure drop	kPa	5	5	5	10	10	9	13
Power supply	V/Ph/Hz	400-3-50						
Maximum current absorbed	A	141,2	144,2	165,6	205,6	228	246	260
Starting ampere	A	325,3	248	301	318	377	384	384
Scroll compressor / refrigerant circuit	Nr.	2/2	2/4	2/4	2/4	2/4	2/4	2/4
Plates evaporator		1	1	1	1	1	1	1
Plates condenser	Nr.	1	1	1	1	1	1	1
Water content on user side	dm3	10,5	10,5	11,5	12,4	12,4	13,6	14,4
GAS Hydraulic connections		3"	3"	4"	4"	4"	4"	4"
Height	mm	1492	1492	1492	1492	1492	1712	1712
Length	mm	1654	1654	1654	1654	1654	1654	1654
Width	mm	1168	1168	1168	1168	1168	1168	1168
Weight	kg	783	956	1042	1075	1097	1134	1160
LCW-CS sound power level	dB(A)	75	75	75	75	75	75	75
LCW-CL sound power level	dB(A)	73	73	73	73	73	73	73

Cooling capacity: evaporatore water temperatures: 12/7°C
Sound power level measured in conformity with standard: ISO 3741 - ISO 3744 e EN 29614-1

HEAT PUMPS RATED TECHNICAL DATA

LCW - HS / HL		55	60	70	80	90	105	115	130
		Operation with municipality-well water (15-30°C)							
Cooling capacity	kW	47,3	55,2	64	72,7	83,2	98,1	113	125,6
Rated power input	kW	11,9	13,8	16	18,7	21,1	25	29	32,1
Rated current absorbed	A	24,99	29,18	32,36	35,54	41,39	47,19	53,11	55,1
Evaporator water flow	l/h	8136	9495	11009	12505	14310	16837	19437	21603
Evaporator water pressure drop	kPa	46	54	37	47	45	24	32	19
		Operation with municipality-well water (15-10°C)							
Heating capacity	kW	56,4	65,8	76,5	87,2	99,3	117,4	135,4	151,2
Rated power input	kW	15,7	18,3	21,1	24	27,6	32,4	37,3	41,5
Rated current absorbed	A	30,27	37,46	40,67	46,3	54,04	61,03	70,08	76,49
Condenser water flow	l/h	9701	11318	13158	14999	17080	20193	23290	26006
Condenser water pressure drop	kPa	20	28	37	48	19	27	35	32
Power supply	V - ph - Hz	400-3-50							
Scroll compressor / refrigerant circuit	Nr.	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Water content on user side	dm3	5,5	6,1	6,6	7,1	7,9	8,2	8,8	9,5
GAS Hydraulic connections		2"	2"	2"	2"	2"	2"	2"	3"
Height	mm	1492	1492	1492	1492	1492	1492	1492	1492
Length	mm	1204	1204	1204	1204	1204	1204	1204	1654
Width	mm	788	788	788	788	788	788	788	1168
Unit weight	kg	412	434	452	463	481	613	635	710
LCW-HS sound power level	dB(A)	71	71	72	72	72	73	73	75
LCW-HL sound power level	dB(A)	69	69	70	70	70	71	71	73

LCW - HS / HL		150	180	205	235	250	275	300
		Operation with municipality-well water (15-30°C)						
Cooling capacity	kW	138,2	166,5	196,3	222,7	235	247,4	276,3
Rated power input	kW	35,2	42,5	50,1	57,9	61	64,2	70,3
Rated current absorbed	A	65,62	82,65	93,98	106,4	112,16	119,05	131,37
Evaporator water flow	l/h	23770	28638	33764	38304	40420	42553	47524
Evaporator water pressure drop	kPa	39	39	45	49	32	36	45
		Operation with municipality-well water (15-10°C)						
Heating capacity	kW	166,9	198,7	234,8	267,8	283,4	299	333,7
Rated power input	kW	45,6	55,2	64,9	74,6	78,8	82,9	91,3
Rated current absorbed	A	88,73	108,86	122,55	138,55	146,25	154,02	171,6
Condenser water flow	l/h	28707	34176	40386	46062	48744	51428	57396
Condenser water pressure drop	kPa	16	42	34	45	49	36	45
Power supply	V/Ph/Hz	400-3-50						
Scroll compressor / refrigerant circuit	Nr.	2/2	4/4	4/4	4/4	4/4	4/4	4/4
Water content on user side	dm3	10,5	10,5	11,5	12,4	12,4	13,6	14,4
GAS Hydraulic connections		3"	3"	4"	4"	4"	4"	4"
Height	mm	1492	1492	1712	1712	1712	1712	1712
Length	mm	1654	1654	1654	1654	1654	1654	1654
Width	mm	1168	1168	1168	1168	1168	1168	1168
Unit weight	kg	783	956	1042	1075	1097	1134	1160
LCW-HS sound power level	dB(A)	75	75	75	75	75	75	75
LCW-HL sound power level	dB(A)	73	73	73	73	73	73	73

Cooling capacity: evaporatore water temperatures: 12/7°C
Heating capacity: condenser water termperature: 40 /45°C; evaporatore inlet water temperature: 15 °C
Sound power level measured in conformity with standard: ISO 3741 - ISO 3744 e EN 29614-1

LCR standard and low noise package motoevaporating units

Derived from the **LCR** water-condensed chiller range the **LCR** motor-driven evaporating units are available in standard and low-noise version for cooling function only.

The many options that complete the unit include remote condensers with axial fans, vertical or horizontal air flow, in standard or low-noise version and heat recovery function (desuperheater 40%).

Mechanical water filter Y version, OBLIGATORY, on all the versions to protect the exchangers (either user and source side)

CONDENSERLESS UNIT RATED TECHNICAL DATA

LCR - CS/CL		055	060	070	080	090	105	115	130
Cooling capacity	kW	43,49	51,07	58,63	66,97	76,39	90,82	105,47	117,58
Power supply	V - ph - Hz				400-3-50				
Rated power input	kW	14,74	16,73	20,18	22,51	25,89	30,95	34,83	38,95
Rated current absorbed	A	27,31	31,38	36,19	39,56	46,48	53,7	59,39	66,47
Maximum current absorbed	A	50,5	62,5	70,2	76,2	76,2	93	108	123,2
Starting ampere	A	146	152	198	203	206	247	252	307
Evaporator water flow	l/h	7480	8784	10084	11519	13139	15622	18141	20223
Evaporator water pressure drop	kPa	20	26	37	37	38	24	25	24
Scroll compressor / refrigerant circuit	Nr.	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Plates evaporator	Nr.	2	2	2	2	2	1	1	1
Dimensions: height	mm	1534	1534	1534	1534	1534	1534	1534	1594
Dimensions: length	mm	1204	1204	1204	1204	1204	1204	1204	1654
Dimensions: depth	mm	788	788	788	788	788	788	788	1168
LCR-CS sound power level	dB(A)	71	71	72	72	72	73	73	75
LCR-CS sound pressure level	dB(A)	63	63	64	64	64	65	65	67
LCR-CL sound power level	dB(A)	69	69	70	70	70	71	71	73
LCR-CL sound pressure level	dB(A)	61	61	62	62	62	63	63	65
LCR - CS/CL		**150**	**180**	**205**	**235**	**250**	**275**	**300**	
Cooling capacity	kW	129,11	151,2	181,37	205,3	220,16	235,46	257,26	
Power supply	V - ph - Hz				400-3-50				
Rated power input	kW	42,62	51,82	61,43	72,69	73,94	77,14	85,24	
Rated current absorbed	A	72,98	92,9	106,8	122,76	126,08	132,01	145,98	
Maximum current absorbed	A	141,2	144,2	165,6	205,6	228	246	260	
Starting ampere	A	325,3	248	301	318	377	384	384	
Evaporator water flow	l/h	22208	26006	31195	35312	37867	40499	44248	
Evaporator water pressure drop	kPa	27	26	27	26	31	26	28	
Scroll compressor / refrigerant circuit	Nr.	2/2	2/4	2/4	2/4	2/4	2/4	2/4	
Plates evaporator	Nr.	1	1	1	1	1	1	1	
Dimensions: height	mm	1594	1594	1594	1594	1594	1594	1594	
Dimensions: length	mm	1654	1654	1654	1654	1654	1654	1654	
Dimensions: depth	mm	1168	1168	1168	1168	1168	1168	1168	
LCR-CS sound power level	dB(A)	75	75	75	75	75	75	75	
LCR-CS sound pressure level	dB(A)	67	67	67	67	67	67	67	
LCR-CL sound power level	dB(A)	73	73	73	73	73	73	73	
LCR-CL sound pressure level	dB(A)	65	65	65	65	65	65	65	

-cooling capacity in combination with remote condense ras reported in thetechnical manual: evaporator water temperatures: 12/7°C; ambient tempature 35°C

-Sound opressure level referring to the following working conditions: free filed, distance from unit 1 m, dirteetivity factor Q=2.

-Sound power level measured in conformity with standard: ISO 3741 - ISO 3744 e EN 29614-1

Models and configuration

The **LCR** series comprises 15 models, only in the cooling version.
The numerous constructive options may be selected using the configuration scheme illustrated below.
The choice of some options can prevent the choice of others or render obligatory other fields. To contact the Galletti for verification

Code

It consists of 8 carachters, which show the range, the model, the operation mode and the power supply

Series identification name	
LCR	moto-evaporanting
Model	
055	provides general indications as to the cooling capacity of standard models
060	
070	
080	
090	
105	
115	
130	
150	
180	
205	
235	
250	
275	
300	
Operation	
C	cooling
Version	
S	standard
L	low noise

OPTION AND UNIT CONFIGURATION

15 fields which customise the unit complying with customer's requirements

Field	Name.	Description
1	**Refrigerant / Power supply**	
	2	R407C - 400/3/50 with 230V built in transformer
2	**Microprocessore / valvola espansione**	
	0	basic (μChiller2) + traditional valve
	A	basic (μChiller2) + electronic valve
	B	advanced (pCO) + traditional valve
	C	advanced (pCO) + electronic valve
3	**Condensation control**	
	0	Not present
4	**Heat recover**	
	0	Not present
5	**Remote communication**	
	0	Not present
	1	RS232
	2	RS485
6	**Cooling accessories**	
	0	Not present
	M	Pressure gauges
7	**Compressor options**	
	0	Not present
	1	Power factor correction capacitors
	2	Soft starter
	3	Power factor correction capacitors + Soft starter
8	**Water condenser options**	
	0	Not present
9	**Remote control board**	
	0	Not present
	S	simplified *
	M	μChiller2 microprocessor
	P	pCO microprocessor
10	**Package**	
	0	standard
	1	Wooden crate
	2	Wooden box
11	**Dampers**	
	0	Not present
	G	base vibration dampers (rubber type)
12	**Accessories**	
	0	Not present
	1	Pair of VIC-TAULIC couplings (for in-out water connection)
	2	Paddle flow switch (standard differential pressure switch)
	3	Paddle flow switch + Pair of VIC-TAULIC couplings
13	**Dry Cooler / Remote condenser**	
	0	Not present
	A	dry cooler
	B	dry cooler with condensing control
	C	Remote condenser
	D	Remote condenser with condensing control
14	**Dry Cooler / Remote condenser**	
	0	Not present
	1	standard version: horizontal air flow
	2	standard version: vertical air flow
	3	low-noise version: horizontal air flow
	4	low-noise version: vertical air flow
15	**Execution**	
	0	standard
	1	special

* **In a Gewiss box with ON indicator light, low-priority alarm (e.g. pump breakdown), serious alarm (e.g. unit stopped) and ON-OFF switch. All powered at 24 Vac through an insulating transformer**

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