AIR COOLED WATER CHILLERS AND HEAT PUMPS

LCA-C / LCA-H

54 models cooling only and heat pumps, standard and low noise versions.

Cooling capacity from 46 to 234 kW

Heating capacity from 48 to 245 kW

LCA-CS Air condensed water chiller, standard version

LCA-CL Air condensed water chiller, low noise version

LCA-HS Air-water heat pump, standard version

LCA-HL Air-water heat pump, low noise version

LCA-CF Air condensed water chiller, free-cooling version

Extremely reduced low noise emission even for the standard version.
Only 1,66 m height on all the range to minimize the visual impact
2 independent refrigerant circuits with 2 or 4 scroll compressors
Integrated hydraulic kit available in different versions
microprocessor contro with suitable for different BMS connections

Optionals available on request: integrated hydraulic kit, electronic expansion valve, partial heat recovery system, low ambient kit, anti-freeze kit, GSM modem provided with antenna, and many others.

Galletti
AIR CONDITIONING

Main Technical Features

The cooling only, the heat pumps and the Free-Cooling version of the **LCA** series are designed for residential and industrial applications being in operation 24 h/day

The innovative **LCA** chiller series replaces the classical industrial product and introduces instead a new design which is reflected in a separated compressor compartment and in the rounded shape of the cabinet. The new design and the low Height (1,66 m) of the entire series offers new architectural advantages.

Keeping it simple: different configurations and a wide range of integrated accessories makes the installation of the **LCA** series fast and easy.

High reliability: unit designed only with high value components in terms of efficiency, reliability and reduced noise level.

All units are provided with 2 independent refrigerant circuits which guarantees highest reliability and offers excellent possibilities of

- Cooling capacity redondancy
- Reduced in-rush current
- part loaded operation high efficiency

Low Noise Compressors

The **LCA** series are equipped exclusively with scroll compressors, which are guarantor for:

- Vibration-free operation
- Highest reliability and duration
- Best efficiency
- Lowest noise emission
- Reduced in-rush current

Environment Respect

Environmental protection is one of the most important challenges of today. All components are chosen in respect of lowest energy consumption and specifically designed to the use of R407C as refrigerant. The latter has no impact on the ozone layer and is in compliance with the regulation of the Montreal protocol from 1987. The **LCA** series is standard produced with R407C, optional the refrigerant R134a is also available.

Integrated Hydraulic Kit

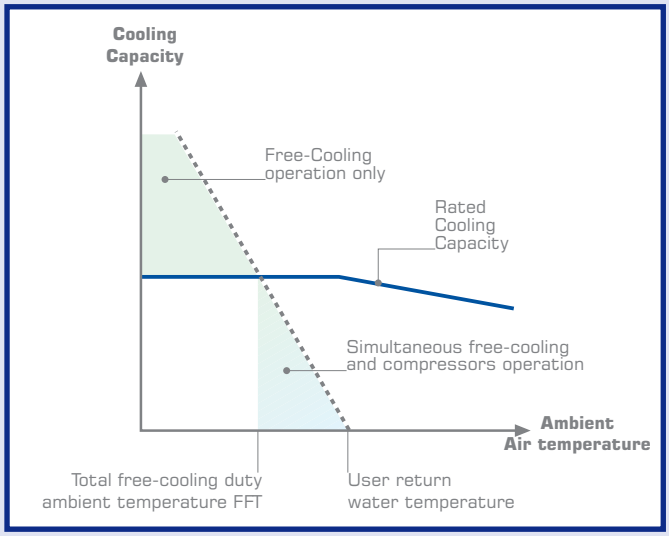
The **Galletti's** answer to the market requests is to offer different hydraulic kits, with all the components already integrated in the unit:

- Buffer tank (compatible with all the different unit versions)
- Single pump with low or high available pressure head
- Double pump group with low or high available pressure head, whoose operations are controlled by the microprocessor
- Expansion tank, safety valve and water/glycol filling devices

Main Technical Features

Free-Cooling Version LCA-F

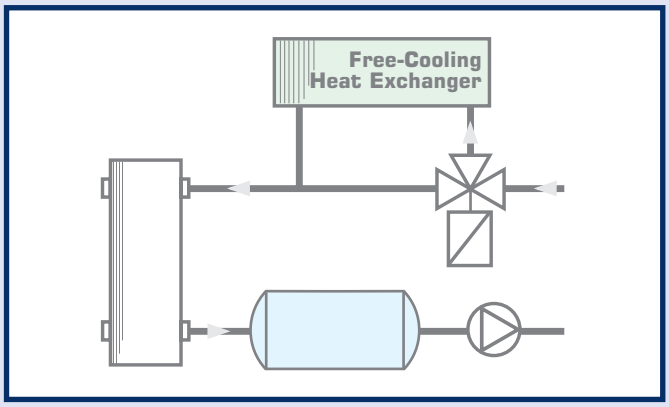
The Free-Cooling system offer an exceptional energy saving in all conditions in which the ambient temperature is lower than the water designed temperature (e.g. in industrial processes, Close control applications, Information technology, congress centres etc.). The free-cooling duty is proportional to the temperature difference between the above mentioned ambient temperature and designed water temperature.



The Free-Cooling version is provided with a 3-way-valve in order to divert the water flow into the Free-Cooling coils to take advantage of the low ambient temperature.

The valve is controlled by the Advanced Unit Microprocessor Control.

Where necessary, the Free-Cooling version can be equipped with integrated hydraulic kit provided with high available pressure head pumps.

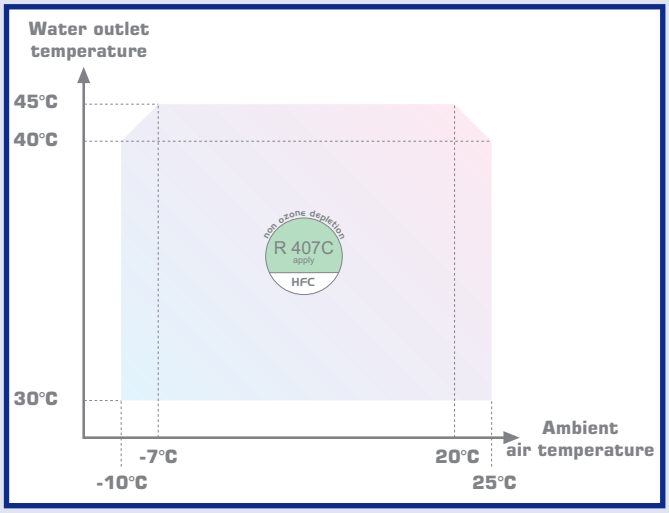


Reversible Heat Pumps LCA H version

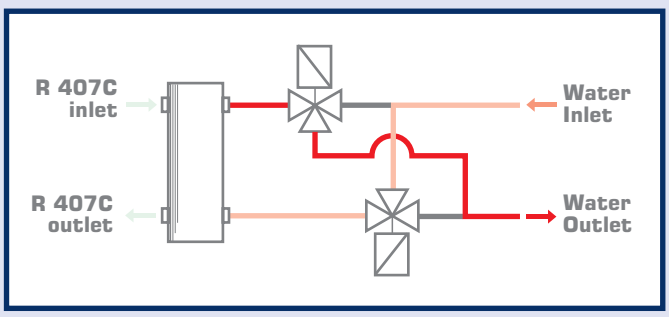
The reversible Heat Pumps are specially developed with a heat exchanger and a inverting valve which enables either cooling either heating operation.

Critical application where hot water temperature above 45°C is requested, can be satisfied using the following available alternatives:

- Exclusive system of inversion of the water circuit, which guarantees always the maximum heat exchange efficiency by keeping a countercurrent water flow in the plate heat exchanger also during heating operations.
- Refrigerant R134a. The use of this refrigerant can generate a higher condensing temperature due to the lower operating pressure present.



Heat pump standard application

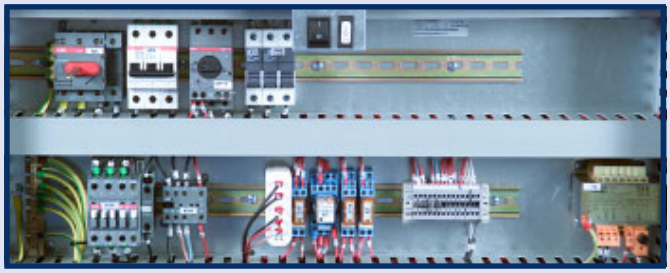


Water side reversing cicle

Main Options

Power supply

- **400V / 3ph + N / 50Hz**
- 400V / 3ph / 50Hz con trasformatore bordo macchina per alimentazione ausiliari 230V
- 400V-460V / 3ph / 60Hz



Microprocessor Control

- **Basic - µChiller**
- Advanced - pCO, standar on Free-Cooling version
- Touchscreen

pCO

Touchscreen

Water Buffer tank

Integrated in the unit in all the different unit version

Hydraulic Pumps

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

Anti-freeze Kit

Automatic self-regulating electrical heater, PTC type, maintaining the water temperature above 0°C

Electronic Expansion Valve

Low Ambient Kit

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 System

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
- R 22 on request for countries outside CE which complies to the Montreal protocol only

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 pCO Advanced control]
- Modbus® [With external gateway and Basic control]
- LonWorks® [Dedicated 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.

Component Description

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 to guarantee high standards of safety and, starting from model 090, a single circuit on the water side to ensure maximum energy efficiency under partial loads.

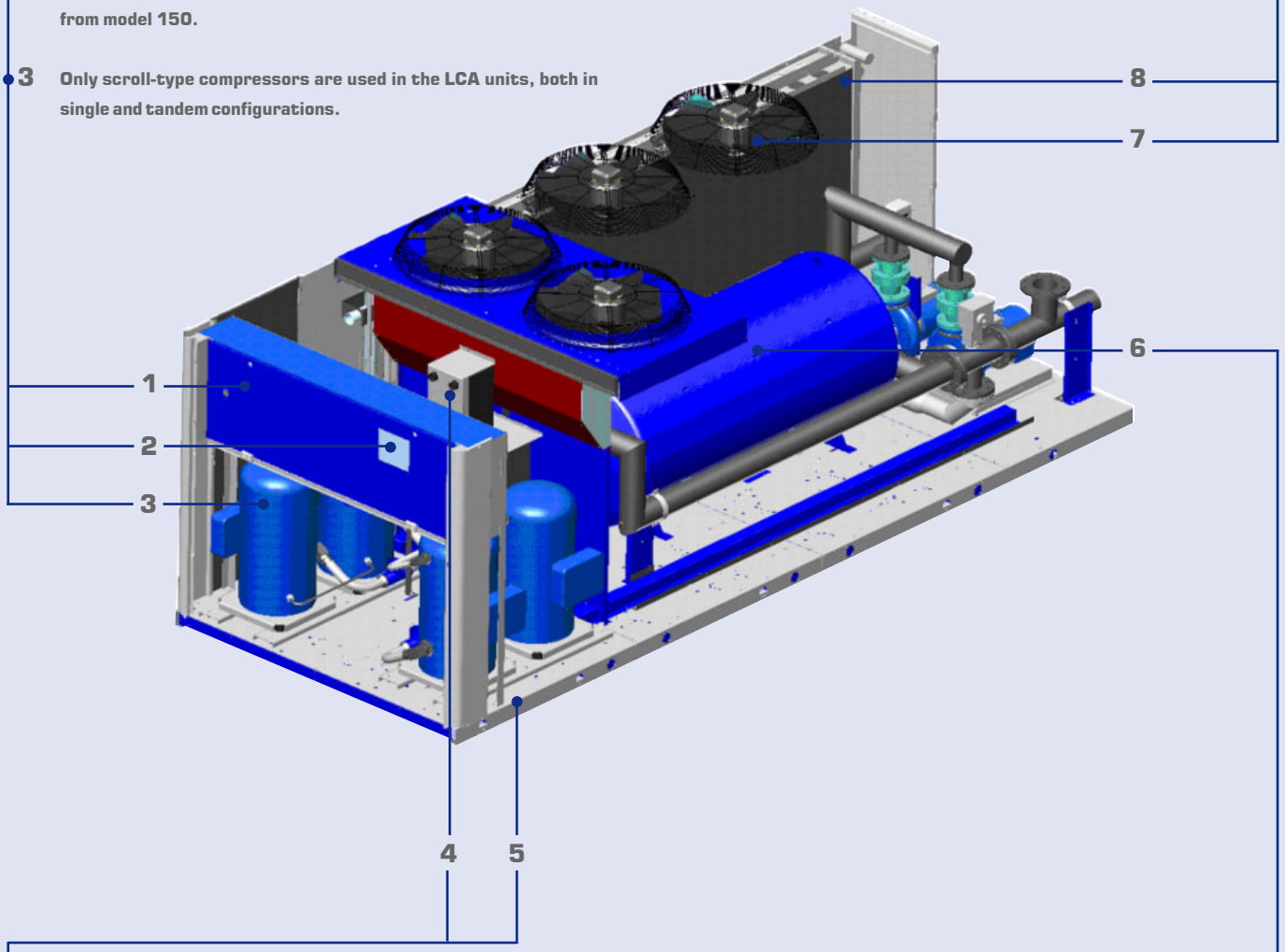
1 Electric control board constructed and wired in accordance with EEC Directive 73/23, Directive 89/336 on electromagnetic compatibility and related standards. It is equipped with an air circulation system that is active when the unit is running.

2 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 custom software features and of managing the 4 reduction steps for units starting from model 150.

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

8 Finned block condenser with 3/8" copper piping and aluminium fins. The condenser coil can be fitted with a metal air filter that may be easily removed from the side panels of the unit and/or a protective outlet grille.

7 Axial-type fans with airfoil-shaped blades, statically and dynamically balanced on two levels, provided with a protective outlet grille and interposed rubber vibration dampers.
All the fans have 6-pole motors (900 rpm) to reduce noise levels.



4 Only heat exchangers with stainless steel braze-welded plates are used. Starting from model 090, all units have "cross flow" type dual circuit exchangers on the refrigerant side and a single circuit exchanger on the water side.

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

6 All the units have a single plumbing connection to the outside, whether they are equipped with a dual heat exchanger (up to model LCA080) 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. A broad range of single or dual pumps and inertial storage reservoirs are available on request: the storage reservoir is placed on the water circuit outlet and helps attenuate the inevitable temperature fluctuations occurring as a result of the switching on and off of the compressors.

Water chillers rated technical data

LCA-CS Water Chillers standard version		045	050	060	070	080	090	105
Cooling capacity	kW	46,2	51,2	58,8	69,7	76,9	88,2	103,7
Power input	kW	15,8	19,2	20,6	24,2	29,4	33,4	39,8
Partial heat recovery capacity	kW	18,0	20,5	23,6	27,5	30,4	34,5	40,7
Number of compressors/refrigerant circuits		2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Evaporator pressure drop	kPa	36	36	36	35	31	24	29
Standard pump available pressure head	kPa	80	70	120	120	120	160	140
High pressure pump available pressure head	kPa	180	180	140	220	220	230	220
Buffer tank water content	liters	218	218	315	315	315	485	485
Sound pressure	dB A	44	44	46	46	46	47	47

LCA-CS Water Chillers standard version		115	130	150	180	205	220	235
Cooling capacity	kW	116,6	127,1	151,7	179,6	205,8	218,4	234,2
Power input	kW	46,1	49,5	57,2	70,6	78,1	85,9	90,9
Partial heat recovery capacity	kW	46,2	56,2	58,2	69,1	78,5	83,7	91,2
Number of compressors/refrigerant circuits		2 / 2	2 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2
Evaporator pressure drop	kPa	31	32	42	28	27	27	32
Standard pump available pressure head	kPa	130	130	140	140	150	140	130
High pressure pump available pressure head	kPa	260	260	240	280	280	280	260
Buffer tank water content	liters	600	600	600	600	850	850	850
Sound pressure	dB A	55	55	56	56	58	58	58

LCA-CL Water chiller low noise version		045	050	060	070	080	090	105
Cooling capacity	kW	46,2	51,2	58,8	69,7	76,9	88,2	103,7
Power input	kW	15,8	19,2	20,6	24,2	29,4	33,4	39,8
Partial heat recovery capacity	kW	18,0	20,5	23,6	27,5	30,4	34,5	40,7
Number of compressors/refrigerant circuits		2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Evaporator pressure drop	kPa	36	36	36	35	31	24	29
Standard pump available pressure head	kPa	80	70	120	120	120	160	140
High pressure pump available pressure head	kPa	180	180	140	220	220	230	220
Buffer tank water content	liters	218	218	315	315	315	485	485
Sound pressure	dB A	42	42	44	44	44	46	46

LCA-CL Water chiller low noise version		115	130	150	180	205	220	235
Cooling capacity	kW	11 7,6	129,2	148,1	180,6	200,6	210,5	221,6
Power input	kW	45,0	49,5	58,0	70,3	78,7	86,6	93,2
Partial heat recovery capacity	kW	45,8	55,2	57,2	69,5	79,2	85,6	93,2
Number of compressors/refrigerant circuits		2 / 2	2 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2
Evaporator pressure drop	kPa	31	32	40	28	26	27	29
Standard pump available pressure head	kPa	130	130	140	140	150	140	140
High pressure pump available pressure head	kPa	260	260	240	280	280	280	260
Buffer tank water content	liters	600	600	600	600	850	850	850
Sound pressure	dB A	51	51	51	54	54	54	54

Cooling capacity: water temperature 12 / 7°C, outdoor air temperature 35°C
Heat recovery capacity: water temp. to the recovery heat exchanger 40 / 45°C, chilled water temp. 12 / 7°C, outdoor air temperature 35°C
Sound pressure: free field, 10 m distance, 1,5 metri height from the ground, directionally factor equal to 2.

Heat Pump Rated Technical Data

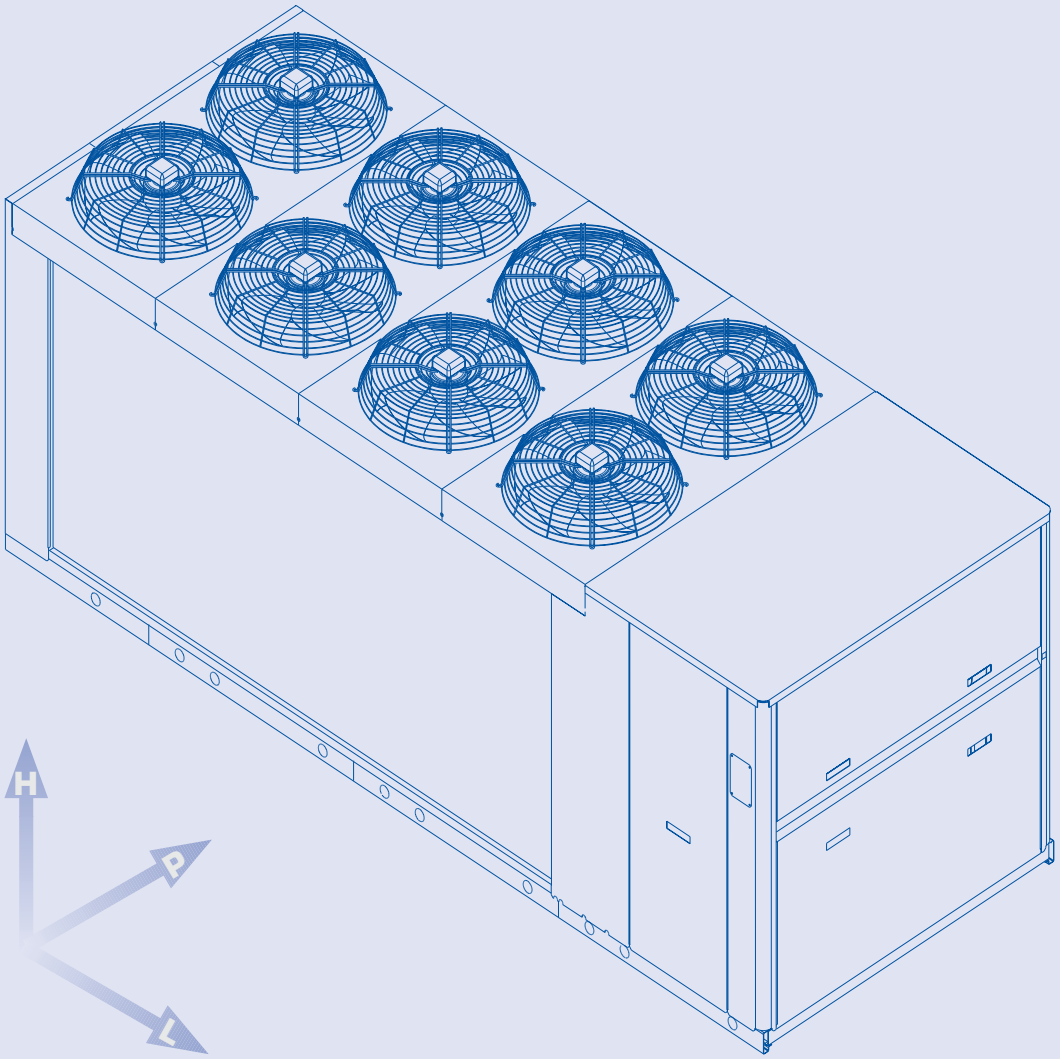
LCA-HS Heat pump Standard version		045	050	060	070	080	090	105
Potenza frigorifera raffreddamento	kW	44,8	49,8	57,0	67,6	74,6	85,6	100,6
Power input during cooling mode	kW	15,8	19,2	20,6	24,2	29,4	33,4	39,8
Heating capacity	kW	48,4	53,7	61,6	73,0	80,5	92,4	107,5
Power input during heating mode	kW	15,3	18,6	20,0	23,4	28,5	32,4	38,6
Number of compressors/refrigerant circuits		2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Evaporator pressure drop	kPa	36	36	36	35	31	24	29
Standard pump available pressure head	kPa	80	70	120	120	120	160	140
High pressure pump available pressure head	kPa	180	180	140	220	220	230	220
Buffer tank water content	liters	218	218	315	315	315	485	485
Sound pressure	dB A	44	44	46	46	46	47	47

LCA-HS Heat pump Standard version		115	130	150	180	205	220	235
Cooling capacity	kW	112,4	123,9	148,1	173,3	199,7	210,8	225,2
Power input during cooling mode	kW	44,5	49,2	58,8	70,2	78,9	85,9	90,9
Heating capacity	kW	120,5	134,3	157,1	187,2	213,3	227,7	245,3
Power input during heating mode	kW	43,5	47,8	56,7	68,1	76,9	85,9	88,2
Number of compressors/refrigerant circuits		2 / 2	2 / 2	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2
Evaporator pressure drop	kPa	31	32	42	28	27	27	32
Standard pump available pressure head	kPa	130	130	140	140	150	140	130
High pressure pump available pressure head	kPa	260	260	240	280	280	280	260
Buffer tank water content	liters	600	600	600	600	850	850	850
Sound pressure	dB A	55	55	56	56	58	58	58

LCA-HL Het Pump Low Noise Version		045	050	060	070	080	090	105
Cooling capacity	kW	44,8	49,8	57,0	67,6	74,6	85,6	100,6
Power input during cooling mode	kW	15,8	19,2	20,6	24,2	29,4	33,4	39,8
Heating capacity	kW	48,4	53,7	61,6	73,0	80,5	92,4	107,5
Power input during heating mode	kW	15,3	18,6	20,0	23,4	28,5	32,4	38,6
Number of compressors/refrigerant circuits		2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Evaporator pressure drop	kPa	36	36	36	35	31	24	29
Standard pump available pressure head	kPa	80	70	120	120	120	160	140
High pressure pump available pressure head	kPa	180	180	140	220	220	230	220
Buffer tank water content	liters	218	218	315	315	315	485	485
Sound pressure	dB A	42	42	44	44	44	46	46

LCA-HL Het Pump Low Noise Version		115	130	150	180	205
Cooling capacity	kW	114,0	125,3	143,6	174,2	195,3
Power input during cooling mode	kW	45,0	49,5	58,0	70,3	78,7
Heating capacity	kW	123,1	135,3	155,1	188,2	211,3
Power input during heating mode	kW	43,7	48,0	56,3	68,2	76,4
Number of compressors/refrigerant circuits		2 / 2	2 / 2	4 / 2	4 / 2	4 / 2
Evaporator pressure drop	kPa	31	32	40	28	26
Standard pump available pressure head	kPa	130	130	140	140	150
High pressure pump available pressure head	kPa	260	260	240	280	280
Buffer tank water content	liters	600	600	600	850	850
Sound pressure	dB A	51	51	51	54	54

Cooling capacity: water temperature 12 / 7°C, outdoor air temperature 35°C
Heating capacity: water temp. 40 / 45°C, outdoor air temp. 7°C D.B. and 6°C W.B.
Sound pressure: free field, 10 m distance, 1,5 metri height from the ground, directionally factor equal to 2.



Model	Standard Version			Low Noise Version		
	H	L	P	H	L	P
045	1580	1960	1197	1580	1960	1197
050	1580	1960	1197	1580	1960	1197
060	1580	2360	1197	1580	2360	1197
070	1580	2360	1197	1580	2360	1197
080	1580	2360	1197	1580	2360	1197
090	1580	3140	1197	1580	3140	1197
105	1580	3140	1197	1580	3140	1197
115	1660	3480	1650	1660	3480	1650
130	1660	3480	1650	1660	3480	1650
150	1660	3480	1650	1660	3480	1650
180	1660	3480	1650	1660	4295	1650
205	1660	4295	1650	1660	4295	1650
220	1660	4295	1650	1660	4295	1650
235	1660	4295	1650	1660	4295	1650

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Galletti is partecipating to the Eurovent certification programme

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV
=ISO 9001/2000=

CE 1115