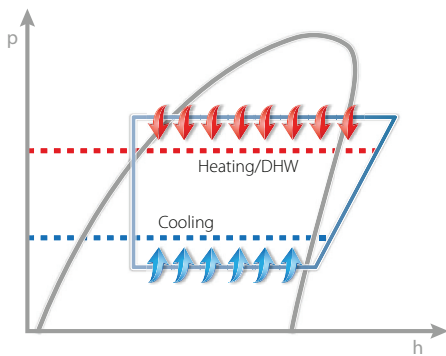




TOTAL HEAT RECOVERY MULTI-PURPOSE HEAT PUMPS



Energy saving thanks to a total recovery

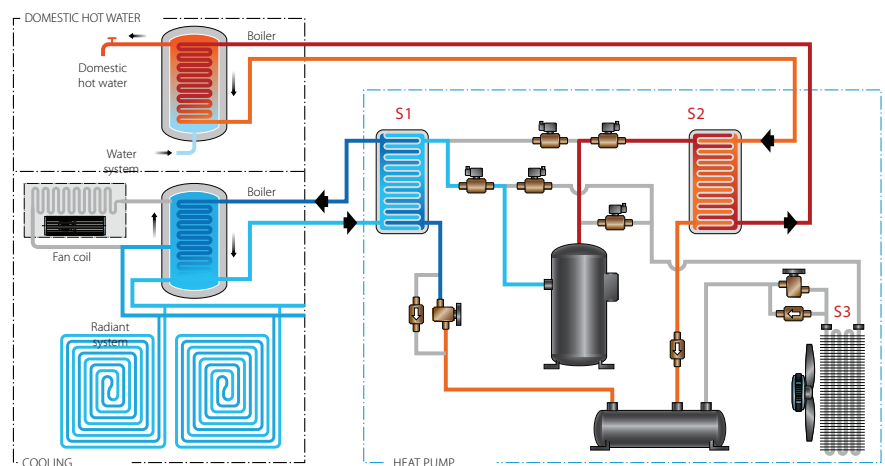
Galletti multi-purpose heat pumps are total recovery units used for a simultaneous hot and cold water production. Available for a 2-pipe system, DHW production under request, or a 4-pipe system, designed for service and residential sectors.

As well as winter heating and summer air conditioning, in case of a 2-pipe air-conditioning systems in which, thermal power for the DHW production is required, Galletti multi-purpose systems are equipped with a plate heat exchanger used for the DHW production.

Thanks to the advanced technology of these systems, they can satisfy this request in every season, also when there is no need of air-conditioning, but that's not all! They can do that efficiently by using the total recovery of condensation heat available during cooling phase.

Production of chilled water with total condensation heat recovery for DHW production

- LEGEND:**
S1: "user side" plate exchanger
S2: "DHW production side" plate exchanger
S3: Finned block heat exchanger



Partial load efficiency



It is necessary to guarantee that the generation system provides high values of COP/EER even in partial load efficiency which, often, corresponds to the greatest number of working hours in a seasonal cycle.

According to Galletti multi-purpose series, this purpose is achieved through a meticulous thermodynamic design of all main components.

As for the multi-purpose heat pumps which have one cooling circuit, it is possible to modulate the thermal power released through the variation of frequency in the single compressor activated by a BLDC motor.

When on-off compressors are used, high efficiency is guaranteed also for partial loads through different steps of operation due to compressors, divided in one or two thermodynamic circuits.

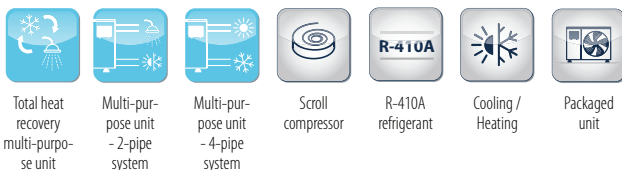
Additional total recovery heat pumps compared to traditional generation systems.

- ✓ High renewable energy availability can be obtained from the environment using different methods.
- ✓ Respect for the environment through energy efficiency due to the excellent COP and EER values
- ✓ Reduction in the consumption of fossil energy (ideal for photovoltaic systems combinations)
- ✓ Risks of explosion, fire and indoor burning materials poisoning prevented
- ✓ Totally programmable with the possibility of remote management and on line assistance
- ✓ Low maintenance due to the absence of wearing parts
- ✓ Low-Noise execution
- ✓ No CO₂ and local harmful emissions
- ✓ It does not pollute and it can be fueled by renewable energy sources
- ✓ Maximum savings on running costs combined with high environmental sustainability
- ✓ One unit substituting boilers and air-conditioning units



Outdoor packaged air-water unit

LCP 52 - 314 kW



PLUS

- ✓ Total heat recovery in two-pipe and four-pipe systems.
- ✓ High efficiency under part load conditions
- ✓ Production of chilled water up to an air temperature of 51 °C
- ✓ Smart Defrost System always able to guarantee continuity in operation.
- ✓ Built-in hydronic unit
- ✓ Access to the tax incentives provided for energy retrofiting

Heating, cooling, domestic hot water = one single system to meet all kinds of needs.

LCP multi-purpose units are air conditioning and domestic hot water (DHW) production units conceived for both residential and industrial use and designed to operate 24 hours a day. They cover a wide range of heating capacities, from 52 to 314 kW, guaranteeing a high thermodynamic efficiency and broad configurability, both in terms of accessories and cooling circuits.

All units of the LCP series, regardless of size, can be also made in a low-noise configuration "L", in which the compressors and compressor compartment are covered with sound-deadening material and the unit is specially dimensioned so as to be compatible with a reduced fan speed.

As for units with refrigerating capacity lower than 100 kW, LCP presents a solution with a double compressor divided into two independent thermodynamic circuits to always assure the unit operation.

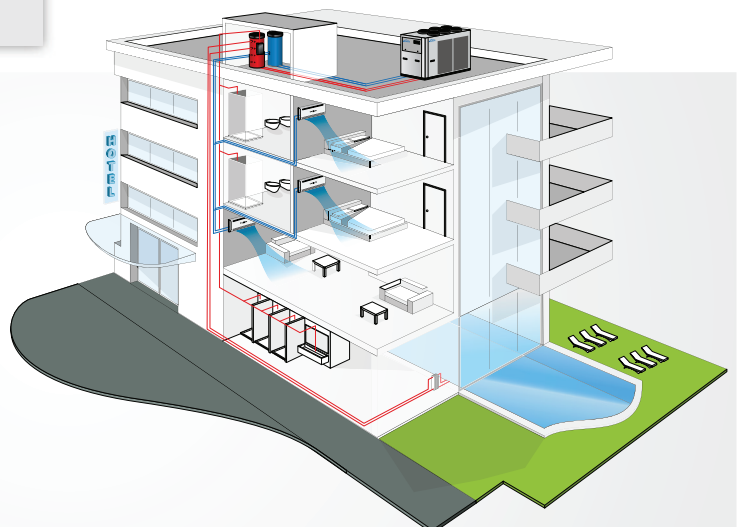
As for units with cooling power higher than 100 kW, 4 compressors divided in two thermodynamic circuits are available in order to supply the unit power in four steps, perfectly adjusting it to the actual heat load of the system and to reduce inrush current.

LCP units can be coupled with both 2- and 4-pipe systems, the letter "P" indicates heat pump for 4-pipe systems and the letter "M" indicates multifunctional heat pump for 2-pipe systems.

In both versions, the machine uses the total heat recovery, when a request for contemporary production of cold water (cooling) and hot water (heating/DHW production) is needed.

The unit recovers the condensation heat of the cooling system that would otherwise be ejected into the atmosphere.

The total recovery LCP heat pumps have been designed for the cooling and the heating of the water destined to air-conditioning and domestic systems in residential, commercial or industrial buildings.





MAIN COMPONENTS

Refrigerating circuits

Thanks to the presence of two independent thermodynamic circuits, the LCP M is capable of producing hot water for heating while simultaneously carrying out a defrost cycle or guaranteeing the replenishment of domestic hot water.

Heat exchanger



Hydrophilic finned block heat exchangers are installed; these break down the drops of water into particles and reduce the obstruction of the space between one fin and another caused by ice build-up. Thanks to a lower surface tension, the water tends to slide and precipitate by gravity, preventing the formation of frost at low temperatures.

Fans

4/6/8-pole axial-type fans with airfoil-shaped blades made of hybrid plastic/aluminium material, statically and dynamically balanced in two planes, fitted with a protective grille and mounted with rubber vibration dampers placed in between.

Option to select the condensation pressure-switch control with variation of the air-flow rate through electronic switching operated fans, to operate in cooling mode at low temperatures (up to -15°C)

Compressors

The scroll compressor today represents the best solution in terms of reliability and efficiency in the range of capacities up to 200 kW per circuit and the best solution in terms of sound power emitted. The use of scroll compressors makes it possible to use low-viscosity oils which, compared to solutions with oil at a high viscosity level, reduce thermal resistance at the evaporator with increases in the evaporation temperature of over 1.5°C (more than a 5.5% gain in terms of EER) compared to alternative solutions.



Electronic microprocessor controller

LCP units are supplied with an Advanced microprocessor controller. In addition to the functions described below, this microprocessor offers the option of custom software features to ensure optimal satisfaction of all system requirements, including control of the unit with step-control or cascade logic. As regards remote communication options, the controls are configured for a connection to advanced BMS systems.

AVAILABLE VERSIONS

LCP M - 2-pipe systems

Cooling



Heating



DHW production



Cooling + DHW



Operating modes available for an LCP M unit which interfaces with a 2-pipe system. C1 Hydraulic circuit manages winter heating and summer air-conditioning while the C2 one is used for the production of DHW, ensuring this function 365 days per year. In case of simultaneous production of cold (C1) and high-temperature water for domestic use (C2), the machine is able to recover all the condensation heat on the refrigerant for the production of DHW.

LCP P - 4-pipe systems

Cooling



Heating




Cooling + Heating




Operating modes available for an LCP P unit which interfaces with a 4-pipe air conditioning system. In this kind of systems, it is possible to request air-conditioning and heating at the same time. For this reason, C1 and C2 hydraulic circuits respectively produce cold and hot water. In case of simultaneous operation of C1 and C2 hydraulic circuits, the condensation heat of the cooling system is totally recovered for the production of hot water.

Operating modes of the LCP M version




Cooling

In the "Chiller" mode the LCP M multifunctional unit chills water to cool a room on the user side, dissipating the condensation heat in air by means of a finned block condenser.




Heating

In the "Heat Pump" mode the LCP M unit heats the water in the condenser to provide heating on the user side, absorbing the evaporative cooling capacity in air by means of a finned block heat exchanger.




Hot water production (for sanitary use-DHW)

In the "Production of High-temperature Hot Water for sanitary use (DHW)" mode the LCP M multifunctional unit heats water in the second condenser, absorbing the evaporative cooling capacity in air by means of a finned block heat exchanger.



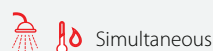
Cooling and hot water production through total recovery

In the "Chiller + DHW" mode the LCP M multifunctional unit can produce chilled water with the simultaneous production of high-temperature hot water for sanitary use, thanks to total heat recovery.

Hot water production (for example for sanitary use) simultaneously with heating

In the "Simultaneous DHW Production and Heating" mode the LCP M multifunctional unit heats water in parallel, optimally exploiting the complete independence of its thermodynamic circuits. Capacity is equally divided between the two circuits.



The solution to the problem of defrosting

During the wintertime period, especially with temperatures ranging between -3°C and +3°C, the high ambient relative humidity causes the formation of water condensation around the exchanger fins. Since the exchanger is at a lower temperature than the outdoor air, the water in contact with it ends up hindering the heat exchange necessary for the system to work correctly.

A defrost cycle is a temporary reversal of the thermodynamic cycle which switches the unit into the summer mode and melts the ice present between fins.

This phase is obviously problematic, since the cooling cycle warms up the exchanger by drawing heat from the room that was previously being heated. The circuit that is defrosting will draw heat on the user side (that is, not on the DHW side) if the unit is LCP M, and will heat on the hot water user side if the unit is LCP P.

Separate defrosting



The LCP unit reduces this problem with the following technical innovations:

- ✓ The two thermodynamic circuits in the LCP M LCP P are completely independent and while one defrosts, the other circuit is able to ensure continuity in the unit's operation, with practically no thermal discomfort for the user.
- ✓ Hydrophilic coils are installed; these break down the drops of water into particles and reduce the obstruction of the space between one fin and another caused by ice build-up. Thanks to a lower surface tension, the water tends to slide and precipitate by gravity, preventing the formation of frost at low temperatures.
- ✓ The software which manages the defrost cycle minimizes the time it takes to complete it and only acts when it is really necessary. The fans are pushed to their maximum capacity at just the right time, that is, when the ice is no longer stuck to the fins, and mechanically ejects it from the heat exchanger.



CONFIGURATION

The models are completely configurable by selecting the version and the options. To the right is shown an example of configuration.

Version	Fields▶	1	2	3	4	5	6	7	8	9	10	11	12
LCP144PL		0	C	1	0	1	C	P	1	0	0	G	3

To verify the compatibility of the options, use the selection software or the price list.

AVAILABLE VERSIONS

2-pipe system versions

- LCP..MS Standard execution
- LCP-ML Low noise execution

4-pipe system versions

- LCP..PS Standard execution
- LCP-PL Low noise execution

CONFIGURATION OPTIONS

1 - POWER SUPPLY

- 0 400/3/50 + N
- 1 400/3/50 with transformer
- 2 400/3/50 + N + Circuit breakers
- 3 400/3/50 with transformer+ Circuit breakers

2 - CONTROL MICROPROCESSOR AND THERMAL EXPANSION VALVE

- C Programmable (LCD 8x22 display) + mechanical expansion valve

3 - WATER PUMP ON USER SIDE

- 0 Absent
- 1 Single pump
- 2 Up-rated single pump
- 3 Dual pump for combined operation
- 4 Dual up-rated pump for combined operation
- 5 Dual pump with timed rotation
- 6 Dual up-rated pump with timed rotation

4 - BUFFER TANK

- 0 Absent
- S Buffer tank on user side
- R Buffer tank on recovery side

5 - WATER PUMP ON RECOVERY SIDE

- 0 Absent
- 1 Single pump
- 2 Up-rated single pump
- 3 Dual pump for combined operation
- 4 Dual up-rated pump for combined operation
- 5 Dual pump with timed rotation
- 6 Dual up-rated pump with timed rotation

6 - AIR FLOW MODULATION

- C Condensation control with fans adjusted by potentiometer
- E Condensation control, "EC brushless" electronically controlled fans

7 - ANTIFREEZE KIT

- 0 Absent
- E Present, basic unit (heating element only on exchangers)
- P Present, unit with pump/s and expansion tank
- S Present, unit with pump/s, expansion tank and tank

8 - REMOTE COMMUNICATION

- 0 Absent
- 1 RS485 Serial board (Modbus or Carel protocol)
- 2 Lonworks serial board
- 3 GSM modem kit
- 4 Ethernet card (SNMP or BACNET protocol) + clock card
- 5 Ethernet card + clock card + supervision software

9 - HEAT EXCHANGER CONSTRUCTION ON REQUEST

- 0 Standard
- R Copper / copper exchangers
- C Cataphoresis
- B Fins pre-coated with epoxy paint

10 - PACKING

- 0 Standard
- 1 Wooden crate
- 2 Wooden case

11 - VIBRATION ISOLATION

- 0 Absent
- G Rubber vibration dampers at the base of the unit
- M Spring vibration dampers at the base of the unit

12 - REMOTE CONTROL

- 0 Absent
- 3 Remote display for programmable microprocessor

ACCESSORIES

A Power factor correction capacitors

B Soft-starter kit

C ON/OFF status of the compressors

D Four Victaulic couplings for quick water IN-OUT connection

E Outdoor temperature probe for setpoint compensation

F Pressure gauges

G Regulating filter kit (solenoid and tap on the liquid line)

H Normative reference other than "97/23/CE - PED"

I Unit lifting kit

L Finned heat exchanger protective grille

M Metal filters for protecting finned heat exchanger

Rated technical data of models for 2-pipe systems + DHW

LCP MS		41	51	61	71	81	94	104	124
Cooling mode (1) (E)									
Cooling Capacity	kW	51,4	56,2	67,3	73,8	82,5	102	111	134
Total power input	kW	16,2	18,3	20,8	23,4	27,0	32,8	37,0	44,1
EER	-	3,18	3,08	3,24	3,15	3,05	3,11	3,00	3,04
ESEER	-	3,58	3,67	3,69	3,72	3,74	4,14	4,29	3,82
Eurovent Efficiency Class	-	A	B	A	A	B	A	B	B
User Water Pressure Drops	l/h	8874	9695	11616	12743	14227	17571	19157	23115
User side water pump available pressure head	kPa	29	34	34	41	32	37	43	45
Operation of the cooling and heating in total heat recovery (2)									
Cooling Capacity	kW	50,6	55,8	65,8	72,8	83,6	101	112	130
Heating Capacity	kW	65,6	72,7	85,0	94,4	108	131	145	169
Total power input	kW	15,8	17,7	20,2	22,7	25,4	31,5	35,3	40,4
Total COP	-	7,37	7,25	7,47	7,36	7,53	7,39	7,26	7,41
Cooling side Water Pressure Drops	l/h	8734	9635	11354	12568	14420	17500	19256	22499
Cooling side water pump available pressure head	kPa	28	33	33	40	33	37	44	43
Heating side Water Pressure Drops	l/h	11335	12548	14680	16294	18621	22704	25082	29172
Heating side water pump available pressure head	kPa	45	54	53	65	54	60	72	70
Heating mode (3) (E)									
Heating Capacity	kW	56,6	62,4	73,3	81,3	89,8	112	124	148
Total power input	kW	16,3	18,2	21,2	23,7	26,5	32,5	36,2	45,3
COP	-	3,48	3,43	3,46	3,43	3,39	3,45	3,42	3,26
Eurovent Efficiency Class	-	A	A	A	A	A	A	A	A
User Water Flow Rate	l/h	9776	10784	12668	14037	15534	19368	21389	25540
User Water Pressure Drops	kPa	34	41	41	50	39	45	54	55
General Data									
Maximum absorbed current	A	41	44	51	55	66	81	87	96
Startup current	A	159	162	185	183	191	194	198	220
Startup current with softstarter	A	104	105	121	119	124	126	129	143
n° of scroll compressor/ circuits	-	2/2	2/2	2/2	2/2	2/2	4/2	4/2	4/2
Buffer tank	dm ³	200	200	220	220	220	340	340	600
Sound power level (4) (E)	dB(A)	80	80	81	81	81	82	82	84
Weight with pump and tank	kg	680	690	800	810	850	1190	1210	1530

(1) Water temperature 12/7 °C, outdoor air temperature 35 °C (UNI EN 14511:2011)

(2) Chilled water temperature 12/7 °C, recovery water temperature 40/45 °C

(3) Water temperature 40/45 °C, outdoor air temperature 7 °C D.B. - 6 °C W.B. (UNI EN 14511:2011)

(4) Sound power level measured according to UNI EN ISO 9614



Rated technical data of models for 2-pipe systems + DHW

LCP MS		144	164	194	214	244	274	294	324
Cooling mode (1) (E)									
Cooling Capacity	kW	147	166	193	220	237	263	298	313
Total power input	kW	49,2	55,6	67,1	75,6	84,3	92,4	103	117
EER	-	2,99	2,98	2,87	2,9	2,81	2,85	2,89	2,68
ESEER	-	3,88	4,01	4,12	4,19	4,01	3,93	3,95	3,83
Eurovent Efficiency Class	-	B	B	C	B	C	C	C	D
User Water Pressure Drops	l/h	25411	28617	33237	37885	40949	45370	51321	53968
User side water pump available pressure head	kPa	54	49	46	59	58	39	48	63
Operation of the cooling and heating in total heat recovery (2)									
Cooling Capacity	kW	144	164	197	221	245	268	303	325
Heating Capacity	kW	188	213	254	288	318	347	393	426
Total power input	kW	45,6	51,3	60,2	70,4	77,0	83,6	94,6	106,1
Total COP	-	7,27	7,36	7,49	7,24	7,31	7,36	7,37	7,08
Cooling side Water Pressure Drops	l/h	24877	28350	33958	38164	42199	46159	52292	56090
Cooling side water pump available pressure head	kPa	52	48	48	60	61	40	49	67
Heating side Water Pressure Drops	l/h	32371	36806	43914	49724	54844	60025	67893	73463
Heating side water pump available pressure head	kPa	86	79	78	98	98	79	98	113
Heating mode (3) (E)									
Heating Capacity	kW	164	182	212	248	268	296	333	343
Total power input	kW	50,4	56,2	64,8	74,7	80,1	88,7	99,2	110,3
COP	-	3,24	3,23	3,28	3,32	3,35	3,34	3,35	3,11
Eurovent Efficiency Class	-	A	A	A	A	A	A	A	B
User Water Flow Rate	l/h	28269	31445	36720	42793	46342	51196	57519	59230
User Water Pressure Drops	kPa	67	59	56	75	72	60	73	76
General Data									
Maximum absorbed current	A	105	126	148	167	190	215	229	242
Startup current	A	222	241	307	318	382	398	464	472
Startup current with softstarter	A	145	157	200	207	248	259	301	307
n° of scroll compressor/ circuits	-	4/2	4/2	4/2	4/2	4/2	4/2	4/2	4/2
Buffer tank	dm ³	600	600	600	600	600	765	765	765
Sound power level (4) (E)	dB(A)	84	85	85	86	86	86	87	87
Weight with pump and tank	kg	1550	1690	1710	1890	1910	2260	2290	2320

(1) Water temperature 12/7 °C, outdoor air temperature 35 °C (UNI EN 14511:2011)

(2) Chilled water temperature 12/7 °C, recovery water temperature 40/45 °C

(3) Water temperature 40/45 °C, outdoor air temperature 7 °C D.B. - 6 °C W.B. (UNI EN 14511:2011)

(4) Sound power level measured according to UNI EN ISO 9614

Rated technical data of models for 2-pipe systems + DHW

LCP ML		41	51	61	71	81	94	104	124
Cooling mode (1) (E)									
Cooling Capacity	kW	49,4	53,5	64,7	70,4	78,3	97,7	105	127
Total power input	kW	16,4	18,8	20,9	24,0	28,0	33,4	38,3	45,0
EER	-	3	2,84	3,09	2,94	2,79	2,92	2,75	2,82
ESEER	-	3,47	3,52	3,6	3,58	3,58	4,05	4,16	3,98
Eurovent Efficiency Class	-	B	C	B	B	C	B	C	C
User Water Pressure Drops	l/h	8522	9237	11172	12153	13513	16855	18189	21904
User side water pump available pressure head	kPa	27	31	32	38	30	34	39	41
Operation of the cooling and heating in total heat recovery (2)									
Cooling Capacity	kW	50,6	55,8	65,8	72,8	83,6	101	112	130
Heating Capacity	kW	65,6	72,7	85,0	94,4	108	131	145	169
Total power input	kW	15,8	17,7	20,2	22,7	25,4	31,5	35,3	40,4
Total COP	-	7,37	7,25	7,47	7,36	7,53	7,39	7,26	7,41
Cooling side Water Pressure Drops	l/h	8734	9635	11354	12568	14420	17500	19256	22499
Cooling side water pump available pressure head	kPa	28	33	33	40	33	37	44	43
Heating side Water Pressure Drops	l/h	11335	12548	14680	16294	18621	22704	25082	29172
Heating side water pump available pressure head	kPa	45	54	53	65	54	60	72	70
Heating mode (3) (E)									
Heating Capacity	kW	56,0	61,8	72,0	79,8	89,0	111	121	141
Total power input	kW	15,6	17,5	20,2	22,7	25,6	31,2	34,9	42,9
COP	-	3,59	3,52	3,56	3,51	3,48	3,54	3,48	3,29
Eurovent Efficiency Class	-	A	A	A	A	A	A	A	A
User Water Flow Rate	l/h	9684	10682	12436	13780	15388	19097	20986	24392
User Water Pressure Drops	kPa	34	40	40	48	38	44	52	50
General Data									
Maximum absorbed current	A	41	44	51	55	66	81	87	96
Startup current	A	159	162	185	183	191	194	198	220
Startup current with softstarter	A	104	105	121	119	124	126	129	143
n° of scroll compressor/ circuits	-	2/2	2/2	2/2	2/2	2/2	4/2	4/2	4/2
Buffer tank	dm ³	200	200	220	220	220	340	340	600
Sound power level (4) (E)	dB(A)	73	74	76	76	76	77	77	79
Weight with pump and tank	kg	690	700	810	820	860	1210	1230	1550

(1) Water temperature 12/7 °C, outdoor air temperature 35 °C (UNI EN 14511:2011)

(2) Chilled water temperature 12/7 °C, recovery water temperature 40/45 °C

(3) Water temperature 40/45 °C, outdoor air temperature 7 °C D.B. - 6 °C W.B. (UNI EN 14511:2011)

(4) Sound power level measured according to UNI EN ISO 9614



Rated technical data of models for 2-pipe systems + DHW

LCP ML		144	164	194	214	244	274	294	324
Cooling mode (1) (E)									
Cooling Capacity	kW	138	153	187	214	232	258	291	303
Total power input	kW	51,2	59,2	67,3	76,1	85,0	92,5	104,3	118,7
EER	-	2,69	2,59	2,78	2,82	2,73	2,79	2,79	2,55
ESEER	-	3,98	3,98	3,98	4,12	4,02	3,98	3,96	3,92
Eurovent Efficiency Class	-	D	D	C	C	C	C	C	D
User Water Pressure Drops	l/h	23786	26453	32255	36969	39985	44458	50140	52308
User side water pump available pressure head	kPa	48	42	44	57	55	38	46	60
Operation of the cooling and heating in total heat recovery (2)									
Cooling Capacity	kW	144	164	197	221	245	268	303	325
Heating Capacity	kW	188	213	254	288	318	347	393	426
Total power input	kW	45,6	51,3	60,2	70,4	77,0	83,6	94,6	106,1
Total COP	-	7,27	7,36	7,49	7,24	7,31	7,36	7,37	7,08
Cooling side Water Pressure Drops	l/h	24877	28350	33958	38164	42199	46159	52292	56090
Cooling side water pump available pressure head	kPa	52	48	48	60	61	40	49	67
Heating side Water Pressure Drops	l/h	32371	36806	43914	49724	54844	60025	67893	73463
Heating side water pump available pressure head	kPa	86	79	78	98	98	79	98	113
Heating mode (3) (E)									
Heating Capacity	kW	156	179	211	247	268	295	333	343
Total power input	kW	48,0	54,0	62,5	72,1	77,8	86,4	96,9	108
COP	-	3,26	3,30	3,38	3,42	3,45	3,41	3,43	3,17
Eurovent Efficiency Class	-	A	A	A	A	A	A	A	B
User Water Flow Rate	l/h	27027	30857	36549	42640	46342	50963	57519	59230
User Water Pressure Drops	kPa	62	57	56	75	72	59	73	76
General Data									
Maximum absorbed current	A	105	126	148	167	190	215	229	242
Startup current	A	222	241	307	318	382	398	464	472
Startup current with softstarter	A	145	157	200	207	248	259	301	307
n° of scroll compressor/ circuits	-	4/2	4/2	4/2	4/2	4/2	4/2	4/2	4/2
Buffer tank	dm ³	600	600	600	600	600	765	765	765
Sound power level (4) S(E)	dB(A)	79	80	81	82	82	83	83	83
Weight with pump and tank	kg	1570	1710	1730	1920	1940	2290	2320	2350

(1) Water temperature 12/7 °C, outdoor air temperature 35 °C (UNI EN 14511:2011)

(2) Chilled water temperature 12/7 °C, recovery water temperature 40/45 °C

(3) Water temperature 40/45 °C, outdoor air temperature 7 °C D.B. - 6 °C W.B. (UNI EN 14511:2011)

(4) Sound power level measured according to UNI EN ISO 9614

Rated technical data of models for 4-pipe systems

LCP PS		41	51	61	71	81	94	104	124
Cooling mode (1) (E)									
Cooling Capacity	kW	51,4	56,2	67,3	73,8	82,5	102	111	134
Total power input	kW	16,2	18,3	20,8	23,4	27,0	32,8	37,0	44,1
EER	-	3,18	3,08	3,24	3,15	3,05	3,11	3,00	3,04
ESEER	-	3,58	3,67	3,69	3,72	3,74	4,14	4,29	3,82
Eurovent Efficiency Class	-	A	B	A	A	B	A	B	B
User Water Pressure Drops	l/h	8874	9695	11616	12743	14227	17571	19157	23115
User side water pump available pressure head	kPa	29	34	34	41	32	37	43	45
Operation of the cooling and heating in total heat recovery (2)									
Cooling Capacity	kW	50,6	55,8	65,8	72,8	83,6	101	112	130
Heating Capacity	kW	65,6	72,7	85,0	94,4	108	131	145	169
Total power input	kW	15,8	17,7	20,2	22,7	25,4	31,5	35,3	40,4
Total COP	-	7,37	7,25	7,47	7,36	7,53	7,39	7,26	7,41
Cooling side Water Pressure Drops	l/h	8734	9635	11354	12568	14420	17500	19256	22499
Cooling side water pump available pressure head	kPa	28	33	33	40	33	37	44	43
Heating side Water Pressure Drops	l/h	11335	12548	14680	16294	18621	22704	25082	29172
Heating side water pump available pressure head	kPa	45	54	53	65	54	60	72	70
Heating mode (3) (E)									
Heating Capacity	kW	56,6	62,4	73,3	81,3	89,8	112	124	148
Total power input	kW	16,3	18,2	21,2	23,7	26,5	32,5	36,2	45,3
COP	-	3,48	3,43	3,46	3,43	3,39	3,45	3,42	3,26
Eurovent Efficiency Class	-	A	A	A	A	A	A	A	A
User Water Flow Rate	l/h	9776	10784	12668	14037	15534	19368	21389	25540
User Water Pressure Drops	kPa	34	41	41	50	39	45	54	55
General Data									
Maximum absorbed current	A	41	44	51	55	66	81	87	96
Startup current	A	159	162	185	183	191	194	198	220
Startup current with softstarter	A	104	105	121	119	124	126	129	143
n° of scroll compressor/ circuits	-	2/2	2/2	2/2	2/2	2/2	4/2	4/2	4/2
Buffer tank	dm ³	200	200	220	220	220	340	340	600
Sound power level (4) (E)	dB(A)	80	80	81	81	81	82	82	84
Weight with pump and tank	kg	680	690	800	810	850	1190	1210	1530

(1) Water temperature 12/7 °C, outdoor air temperature 35 °C (UNI EN 14511:2011)

(2) Chilled water temperature 12/7 °C, recovery water temperature 40/45 °C

(3) Water temperature 40/45 °C, outdoor air temperature 7 °C D.B. - 6 °C W.B. (UNI EN 14511:2011)

(4) Sound power level measured according to UNI EN ISO 9614



Rated technical data of models for 4-pipe systems

LCP PS		144	164	194	214	244	274	294	324
Cooling mode (1) (E)									
Cooling Capacity	kW	147	166	193	220	237	263	298	313
Total power input	kW	49,2	55,6	67,1	75,6	84,3	92,4	103	117
EER	-	2,99	2,98	2,87	2,9	2,81	2,85	2,89	2,68
ESEER	-	3,88	4,01	4,12	4,19	4,01	3,93	3,95	3,83
Eurovent Efficiency Class	-	B	B	C	B	C	C	C	D
User Water Pressure Drops	l/h	25411	28617	33237	37885	40949	45370	51321	53968
User side water pump available pressure head	kPa	54	49	46	59	58	39	48	63
Operation of the cooling and heating in total heat recovery (2)									
Cooling Capacity	kW	144	164	197	221	245	268	303	325
Heating Capacity	kW	188	213	254	288	318	347	393	426
Total power input	kW	45,6	51,3	60,2	70,4	77,0	83,6	94,6	106
Total COP	-	7,27	7,36	7,49	7,24	7,31	7,36	7,37	7,08
Cooling side Water Pressure Drops	l/h	24877	28350	33958	38164	42199	46159	52292	56090
Cooling side water pump available pressure head	kPa	52	48	48	60	61	40	49	67
Heating side Water Pressure Drops	l/h	32371	36806	43914	49724	54844	60025	67893	73463
Heating side water pump available pressure head	kPa	86	79	78	98	98	79	98	113
Heating mode (3) (E)									
Heating Capacity	kW	163,6	181,8	212,3	247,7	268,1	296	333	343
Total power input	kW	50,4	56,2	64,8	74,7	80,1	88,7	99,2	110
COP	-	3,24	3,23	3,28	3,32	3,35	3,34	3,35	3,11
Eurovent Efficiency Class	-	A	A	A	A	A	A	A	B
User Water Flow Rate	l/h	28269	31445	36720	42793	46342	51196	57519	59230
User Water Pressure Drops	kPa	67	59	56	75	72	60	73	76
General Data									
Maximum absorbed current	A	105	126	148	167	190	215	229	242
Startup current	A	222	241	307	318	382	398	464	472
Startup current with softstarter	A	145	157	200	207	248	259	301	307
n° of scroll compressor/ circuits	-	4/2	4/2	4/2	4/2	4/2	4/2	4/2	4/2
Buffer tank	dm ³	600	600	600	600	600	765	765	765
Sound power level (4) (E)	dB(A)	84	85	85	86	86	86	87	87
Weight with pump and tank	kg	1550	1690	1710	1890	1910	2260	2290	2320

(1) Water temperature 12/7 °C, outdoor air temperature 35 °C (UNI EN 14511:2011)

(2) Chilled water temperature 12/7 °C, recovery water temperature 40/45 °C

(3) Water temperature 40/45 °C, outdoor air temperature 7 °C D.B. - 6 °C W.B. (UNI EN 14511:2011)

(4) Sound power level measured according to UNI EN ISO 9614

Rated technical data of models for 4-pipe systems

LCP PL		41	51	61	71	81	94	104	124
Cooling mode (1) (E)									
Cooling Capacity	kW	49,4	53,5	64,7	70,4	78,3	97,7	105	127
Total power input	kW	16,4	18,8	20,9	24,0	28,0	33,4	38,3	45,0
EER	-	3,00	2,84	3,09	2,94	2,79	2,92	2,75	2,82
ESEER	-	3,47	3,52	3,6	3,58	3,58	4,05	4,16	3,98
Eurovent Efficiency Class	-	B	C	B	B	C	B	C	C
User Water Pressure Drops	l/h	8522	9237	11172	12153	13513	16855	18189	21904
User side water pump available pressure head	kPa	27	31	32	38	30	34	39	41
Operation of the cooling and heating in total heat recovery (2)									
Cooling Capacity	kW	50,6	55,8	65,8	72,8	83,6	101	112	130
Heating Capacity	kW	65,6	72,7	85,0	94,4	108	131	145	169
Total power input	kW	15,8	17,7	20,2	22,7	25,4	31,5	35,3	40,4
Total COP	-	7,37	7,25	7,47	7,36	7,53	7,39	7,26	7,41
Cooling side Water Pressure Drops	l/h	8734	9635	11354	12568	14420	17500	19256	22499
Cooling side water pump available pressure head	kPa	28	33	33	40	33	37	44	43
Heating side Water Pressure Drops	l/h	11335	12548	14680	16294	18621	22704	25082	29172
Heatin side water pump available pressure head	kPa	45	54	53	65	54	60	72	70
Heating mode (3) (E)									
Heating Capacity	kW	56,0	61,8	72,0	79,8	89,0	111	121	141
Total power input	kW	15,6	17,5	20,2	22,7	25,6	31,2	34,9	42,9
COP	-	3,59	3,52	3,56	3,51	3,48	3,54	3,48	3,29
Eurovent Efficiency Class	-	A	A	A	A	A	A	A	A
User Water Flow Rate	l/h	9684	10682	12436	13780	15388	19097	20986	24392
User Water Pressure Drops	kPa	34	40	40	48	38	44	52	50
General Data									
Maximum absorbed current	A	41	44	51	55	66	81	87	96
Startup current	A	159	162	185	183	191	194	198	220
Startup current with softstarter	A	104	105	121	119	124	126	129	143
n° of scroll compressor/ circuits	-	2/2	2/2	2/2	2/2	2/2	4/2	4/2	4/2
Buffer tank	dm ³	200	200	220	220	220	340	340	600
Sound power level (4) (E)	dB(A)	73	74	76	76	76	77	77	79
Weight with pump and tank	kg	690	700	810	820	860	1210	1230	1550

(1) Water temperature 12/7 °C, outdoor air temperature 35 °C (UNI EN 14511:2011)

(2) Chilled water temperature 12/7 °C, recovery water temperature 40/45 °C

(3) Water temperature 40/45 °C, outdoor air temperature 7 °C D.B. - 6 °C W.B. (UNI EN 14511:2011)

(4) Sound power level measured according to UNI EN ISO 9614



Rated technical data of models for 4-pipe systems

LCP PL		144	164	194	214	244	274	294	324
Cooling mode (1) (E)									
Cooling Capacity	kW	138	153	187	214	232	258	291	303
Total power input	kW	51,2	59,2	67,3	76,1	85,0	92,5	104	119
EER	-	2,69	2,59	2,78	2,82	2,73	2,79	2,79	2,55
ESEER	-	3,98	3,98	3,98	4,12	4,02	3,98	3,96	3,92
Eurovent Efficiency Class	-	D	D	C	C	C	C	C	D
User Water Pressure Drops	l/h	23786	26453	32255	36969	39985	44458	50140	52308
User side water pump available pressure head	kPa	48	42	44	57	55	38	46	60
Operation of the cooling and heating in total heat recovery (2)									
Cooling Capacity	kW	144	164	197	221	245	268	303	325
Heating Capacity	kW	188	213	254	288	318	347	393	426
Total power input	kW	45,6	51,3	60,2	70,4	77,0	83,6	94,6	106
Total COP	-	7,27	7,36	7,49	7,24	7,31	7,36	7,37	7,08
Cooling side Water Pressure Drops	l/h	24877	28350	33958	38164	42199	46159	52292	56090
Cooling side water pump available pressure head	kPa	52	48	48	60	61	40	49	67
Heating side Water Pressure Drops	l/h	32371	36806	43914	49724	54844	60025	67893	73463
Heating side water pump available pressure head	kPa	86	79	78	98	98	79	98	113
Heating mode (3) (E)									
Heating Capacity	kW	156	179	211	247	268	295	333	343
Total power input	kW	48,0	54,0	62,5	72,1	77,8	86,4	96,9	108
COP	-	3,26	3,3	3,38	3,42	3,45	3,41	3,43	3,17
Eurovent Efficiency Class	-	A	A	A	A	A	A	A	B
User Water Flow Rate	l/h	27027	30857	36549	42640	46342	50963	57519	59230
User Water Pressure Drops	kPa	62	57	56	75	72	59	73	76
General Data									
Maximum absorbed current	A	105	126	148	167	190	215	229	242
Startup current	A	222	241	307	318	382	398	464	472
Startup current with softstarter	A	145	157	200	207	248	259	301	307
n° of scroll compressor/ circuits	-	4/2	4/2	4/2	4/2	4/2	4/2	4/2	4/2
Buffer tank	dm ³	600	600	600	600	600	765	765	765
Sound power level (4) (E)	dB(A)	79	80	81	82	82	83	83	83
Weight with pump and tank	kg	1570	1710	1730	1920	1940	2290	2320	2350

(1) Water temperature 12/7 °C, outdoor air temperature 35 °C (UNI EN 14511:2011)

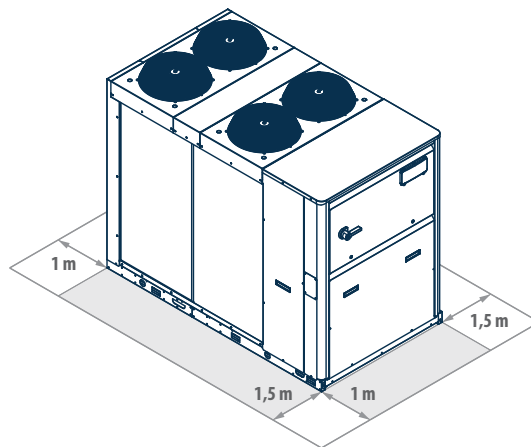
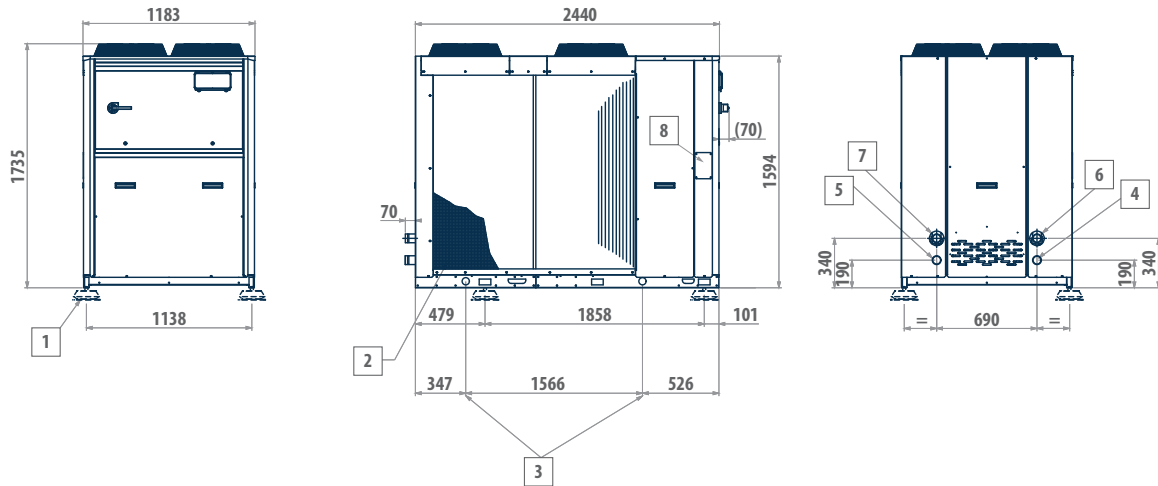
(2) Chilled water temperature 12/7 °C, recovery water temperature 40/45 °C

(3) Water temperature 40/45 °C, outdoor air temperature 7 °C D.B. - 6 °C W.B. (UNI EN 14511:2011)

(4) Sound power level measured according to UNI EN ISO 9614

Dimensional drawings

LCP 41 - 51



LEGEND

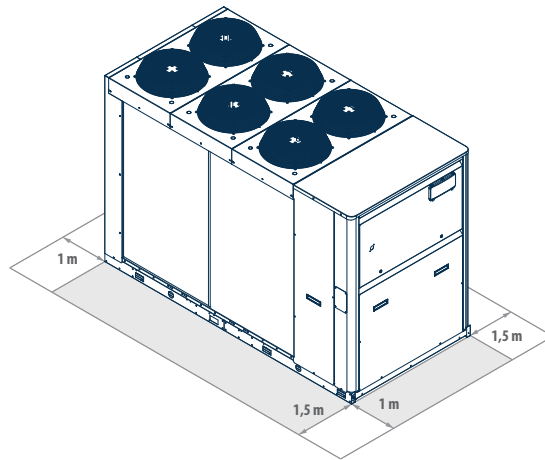
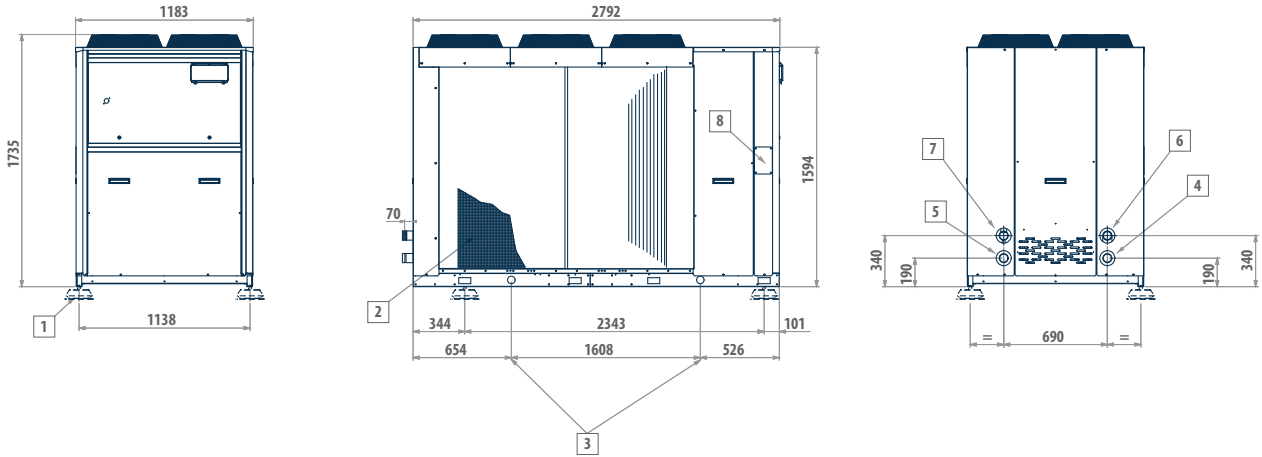
1	Vibration dampers
2	Protective grille (optional)
3	Fastening points
4	Hot water inlet (Victaulic 2")
5	Cold water inlet (Victaulic 2")
6	Hot water outlet (Victaulic 2")
7	Cold water outlet (Victaulic 2")
8	Power supply input

Model	Version	
LCP 41	M-P	S-L
LCP 51	M-P	S-L



Dimensional drawings

LCP 61 - 81



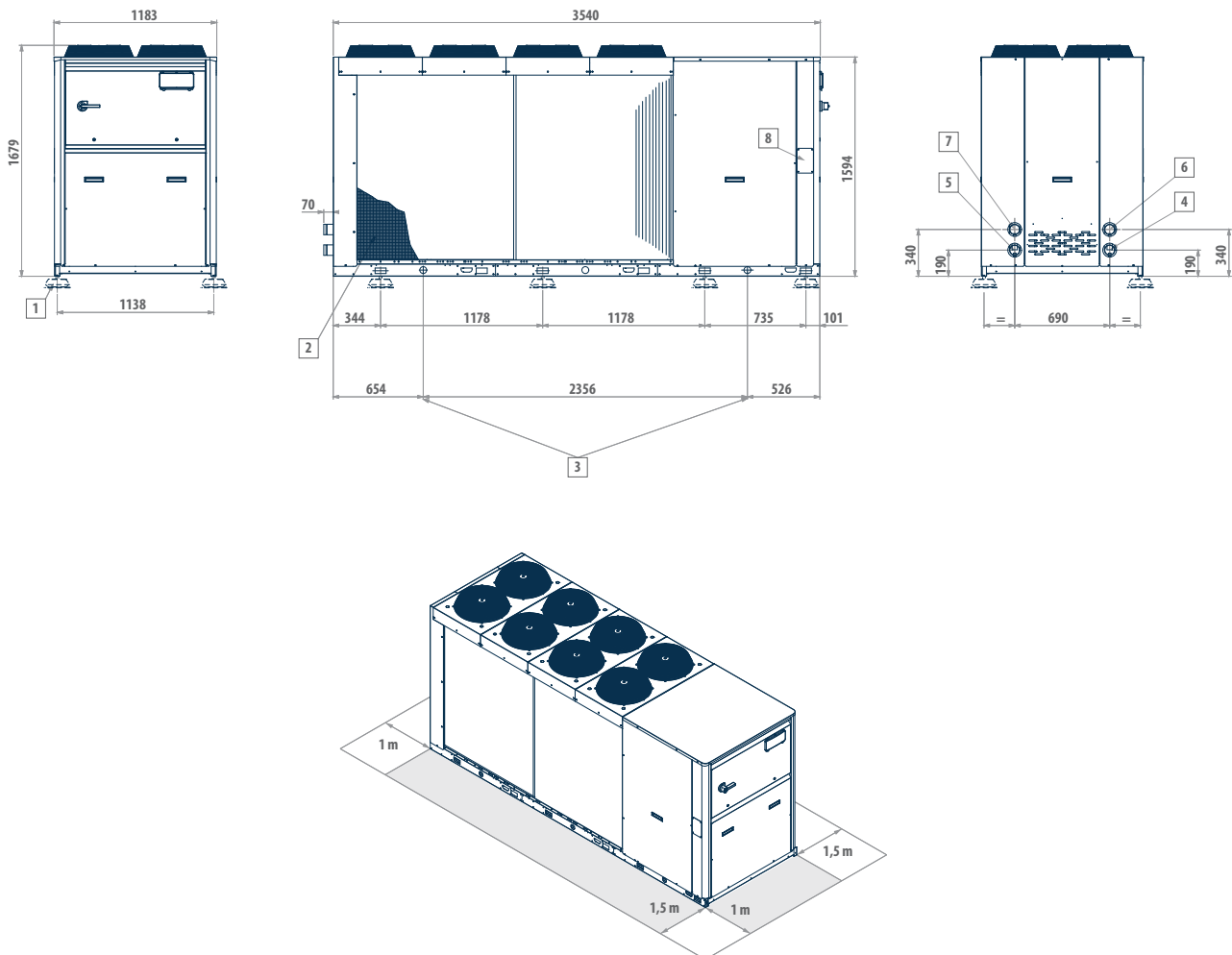
LEGEND

1	Vibration dampers
2	Protective grille (optional)
3	Fastening points
4	Hot water inlet (Victaulic 2")
5	Cold water inlet (Victaulic 2")
6	Hot water outlet (Victaulic 2")
7	Cold water outlet (Victaulic 2")
8	Power supply input

Model	Version	
LCP 61	M-P	S-L
LCP 71	M-P	S-L
LCP 81	M-P	S-L

Dimensional drawings

LCP 94 - 104



LEGEND

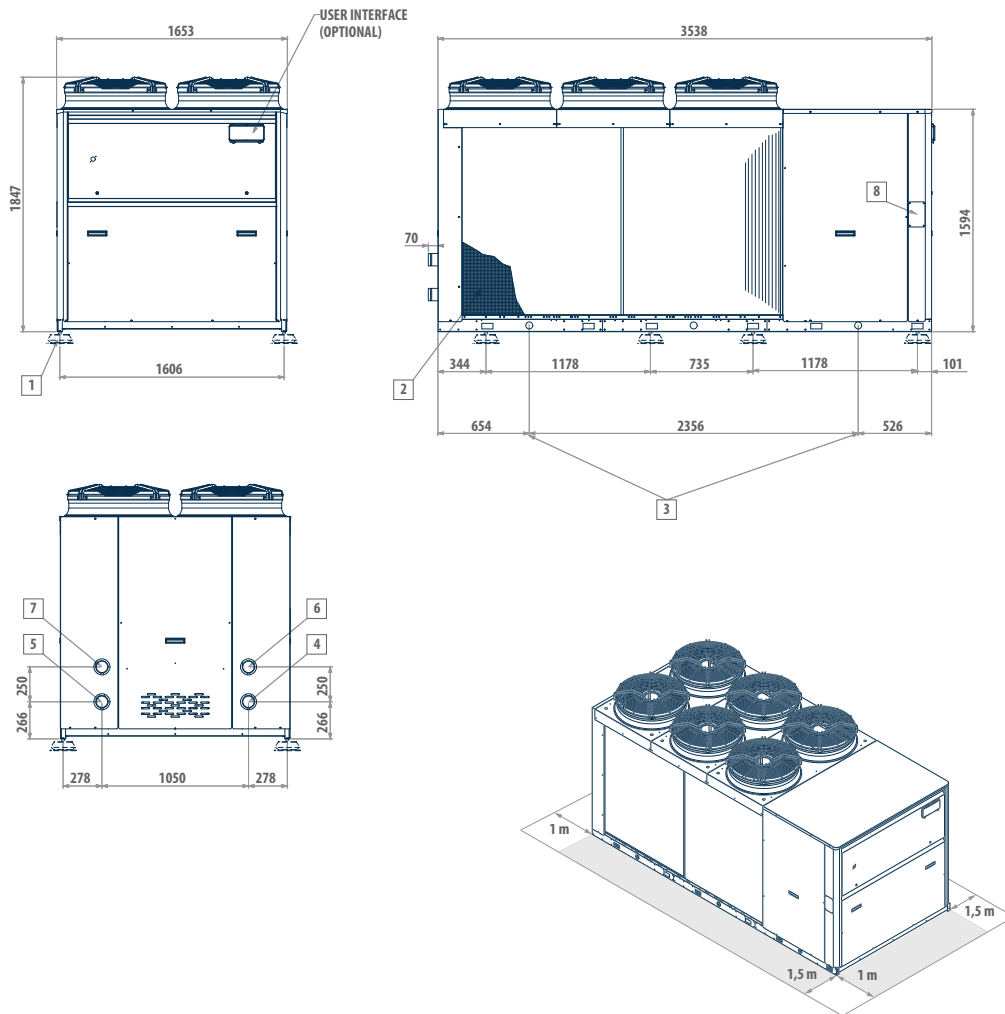
1	Vibration dampers
2	Protective grille (optional)
3	Fastening points
4	Hot water inlet (Victaulic 2 1/2")
5	Cold water inlet (Victaulic 2 1/2")
6	Hot water outlet (Victaulic 2 1/2")
7	Cold water outlet (Victaulic 2 1/2")
8	Power supply input

Model	Version	
LCP 94	M-P	S-L
LCP 104	M-P	S-L



Dimensional drawings

LCP 124 - 194



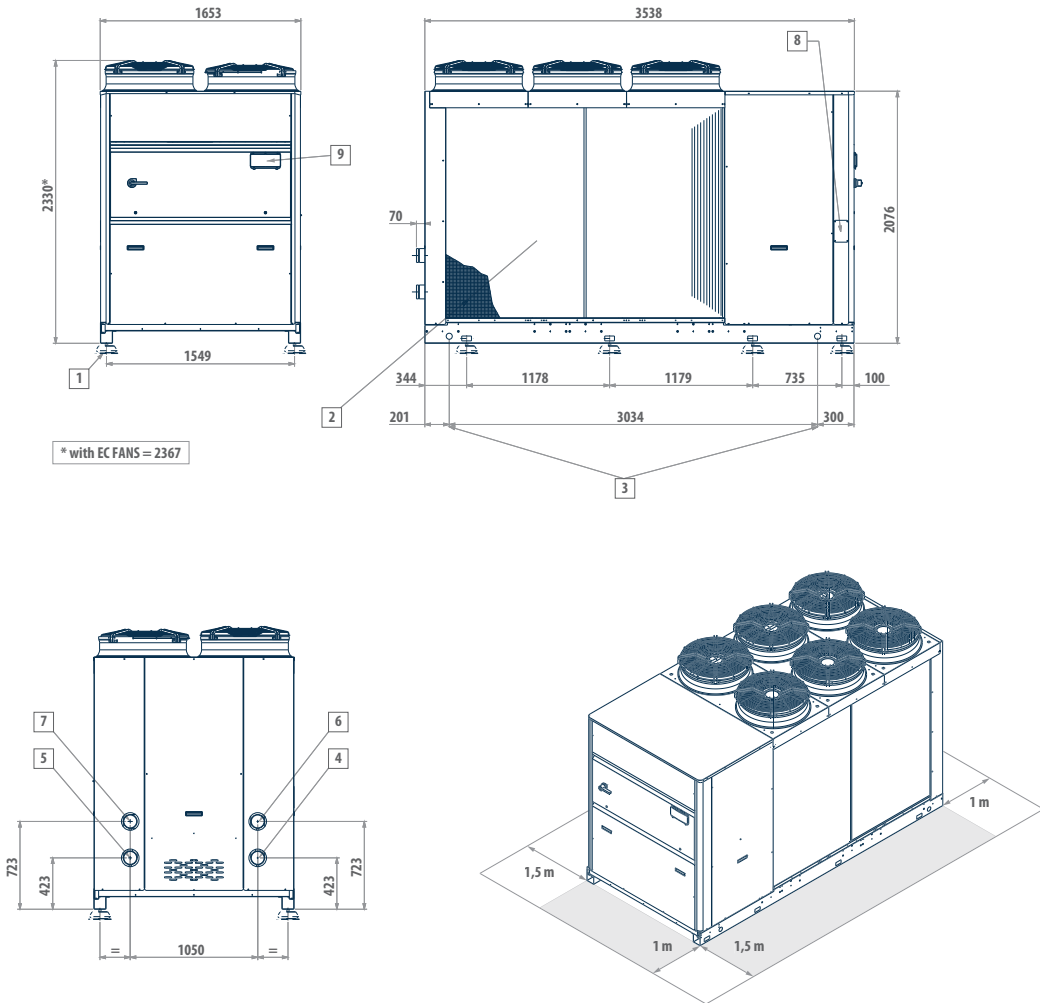
LEGEND

1	Vibration dampers
2	Protective grille (optional)
3	Fastening points
4	Hot water inlet (Victaulic 3")
5	Cold water inlet (Victaulic 3")
6	Hot water outlet (Victaulic 3")
7	Cold water outlet (Victaulic 3")
8	Power supply input

Model	Version	
LCP 124	M-P	S-L
LCP 144	M-P	S-L
LCP 164	M-P	S-L
LCP 194	M-P	S-L

Dimensional drawings

LCP 214 - 244



LEGEND

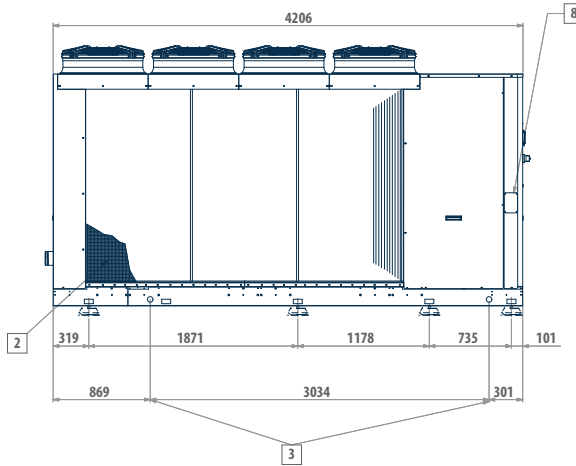
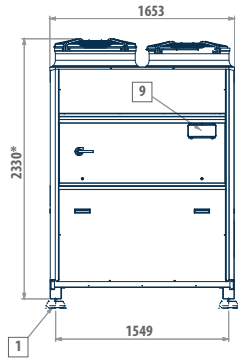
1	Vibration dampers
2	Protective grille (optional)
3	Fastening points
4	Hot water inlet (Victaulic 4")
5	Cold water inlet (Victaulic 4")
6	Hot water outlet (Victaulic 4")
7	Cold water outlet (Victaulic 4")
8	Power supply input
9	User interface (optional)

Model	Version	
LCP 214	M-P	S-L
LCP 244	M-P	S-L

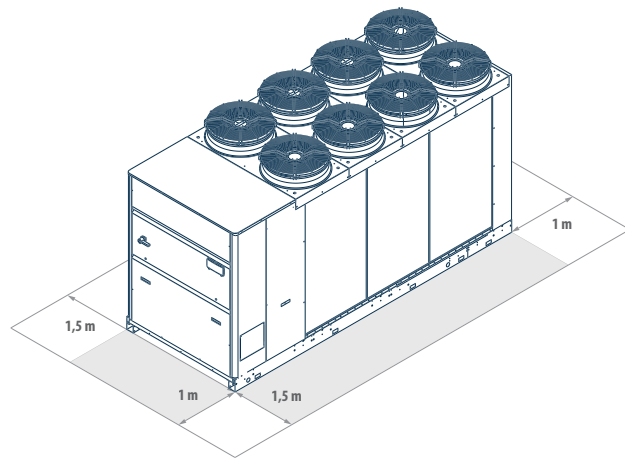
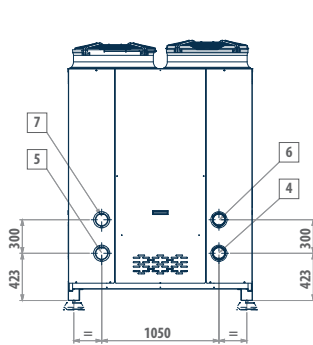


Dimensional drawings

LCP 274 - 324



* with EC FANS = 2367



LEGEND

1	Vibration dampers
2	Protective grille (optional)
3	Fastening points
4	Hot water inlet (Victaulic 4")
5	Cold water inlet (Victaulic 4")
6	Hot water outlet (Victaulic 4")
7	Cold water outlet (Victaulic 4")
8	Power supply input
9	User interface (optional)

Model	Version	
LCP 274	M-P	S-L
LCP 294	M-P	S-L
LCP 324	M-P	S-L