Outdoor packaged air-water unit

LCP 52 - 314 kW

Scroll compressor | Refrigerant R-410A | Heating/ Cooling | Packaged execution | Total heat recovery multi-purpose unit | Multi-purpose 2 pipes system | Multi-purpose 4 pipes system

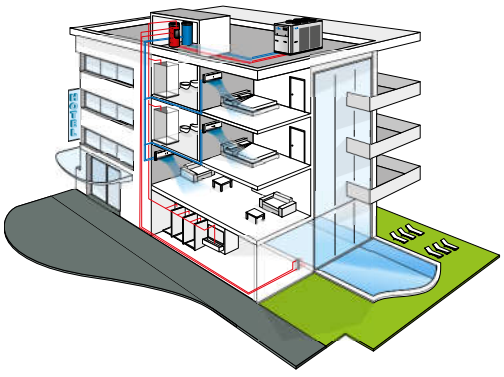
PLUS

- 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 45 °C
- Smart Defrost System always able to guarantee continuity in operation
- Built-in hydronic unit

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.

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

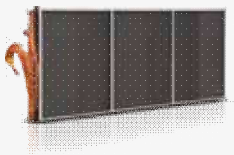
LCP multi-purpose units are air conditioning and domestic hot water (DHW) production units conceived for both residential and industrial use and designed to operate 24 hours a day. They cover a wide range of heating capacities, from 52 to 314 kW, guaranteeing a high thermodynamic efficiency and broad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



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 control
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.

CONFIGURATOR

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

Version	Field	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 pipes systems version

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

4 pipes systems version

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

CONFIGURATION OPTIONS

1 Power supply
- 0 400 V - 3 N - 50 Hz
- 1 400 V - 3 - 50 Hz
- 2 400 V - 3 N - 50 Hz + magnetic breakers
- 3 400 V - 3 - 50 Hz + magnetic breakers

2 Onboard controller and expansion valve
- B Advanced + electronic expansion valve (mandatory up to size 164 inclusive)
- C Advanced + mechanical expansion valve

3 User side water pump
- 0 Absent
- 1 LP pump + expansion vessel
- 2 HP pump + expansion vessel
- 3 Double pump LP parallel operation and expansion vessel (advanced controller required)
- 4 Double pump HP parallel operation and expansion vessel (advanced controller required)
- 5 LP run and standby double pump + expansion vessel
- 6 HP run and standby double pump + expansion vessel

4 Water buffer tank
- 0 Absent
- R Selected recovery side
- S Selected user side

5 Recovery water pump
- 0 Absent
- 1 LP pump + expansion vessel
- 2 HP pump + expansion vessel
- 3 Double pump LP parallel operation and expansion vessel (advanced controller required)
- 4 Double pump HP parallel operation and expansion vessel (advanced controller required)
- 5 LP run and standby double pump + expansion vessel
- 6 HP run and standby double pump + expansion vessel

6 Air flow modulation
- C Condensation control by phase-cut fans
- E Condensation control performed by EC fans

7 Antifreezing kit
- 0 Absent
- E Plate exchanger
- P Plate exchanger and water pump
- S Plate exchanger, water pump and inertial tank

8 Remote communication
- 0 Absent
- 1 RS485 serial board (Carel / Modbus protocol)
- 2 LON FTT10 serial board (advanced controller required)
- 3 GSM modem board (advanced controller required)
- 4 BACNET IP / PCOWEB serial board + supervision software Gweb (advanced controller required)
- 5 BACNET IP / PCOWEB serial board + clock board + supervision software Gweb (advanced controller required)

9 Special coils / Protective treatments
- 0 Standard
- B Pre-painted fins with polyester paint
- C Cataphoresis treatment on fins and coil carpentry
- R Copper-copper

10 Packing
- 0 Standard
- 1 Wooden cage
- 2 Wooden crate

11 Anti vibration shock mounts
- 0 Absent
- G Rubber anti vibration shock mounts
- M Spring anti vibration shock mounts

12 Remote control
- 0 Absent
- 3 Remote simplified user panel for advanced controller

ACCESSORIES

A	Power factor capacitors	**G**	Filter isolation valves kit (solenoid valve and isolation valve)
B	Soft starter	**H**	Directives reference other than "2014/68/UE - PED"
C	ON/OFF status of the compressors	**I**	Unit lifting pipes
D	Two pairs of Victaulic joints	**L**	Outdoor finned coil heat exchanger protection grille
E	Set point compensation outdoor temperature probe	**M**	Outdoor finned coil heat exchanger protection filters
F	Refrigerant pressure gauges	**N**	Couple of probes for buffer tank temperature regulation

AVAILABLE VERSIONS

LCP M - 2-pipe systems

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

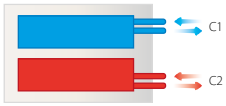
Operating modes available for an LCP P unit which interfaces with a 4-pipe air conditioning system.
In this kind of systems, it is possible to request air-conditioning and heating at the same time. For this reason, C1 and C2 hydraulic circuits respectively produce cold and hot water.
In case of simultaneous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



simultaneous

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.

simultaneous

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 and 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.

LCP MS RATED TECHNICAL DATA OF MODELS FOR 2-PIPE SYSTEMS + DHW

LCP MS			41	51	61	71	81	94	104	124
Power supply		V-ph-Hz	400 - 3N - 50							
Cooling mode operation										
Cooling capacity	(1)(E)	kW	51,5	56,2	67,6	74,1	82,7	102	111	134
Total power input	(1)(E)	kW	16,0	18,0	20,9	23,8	27,4	32,7	37,0	44,6
EER	(1)(E)		3,22	3,12	3,24	3,12	3,01	3,12	3,01	3,01
Water flow	(1)	l/h	8860	9666	11638	12758	14229	17596	19183	23119
Water pressure drop	(1)(E)	kPa	29	34	34	41	32	37	43	45
Cooling mode operation and DWH in total recovery										
Cooling capacity	(2)(E)	kW	46,2	50,6	60,1	66,1	78,8	92,5	101	119
Heating capacity	(3)(E)	kW	61,5	67,9	79,7	88,3	104	123	136	158
Total power input	(4)(E)	kW	16,1	18,1	20,6	23,3	26,0	32,1	36,2	41,4
COP HRE	(4)(E)		6,69	6,55	6,79	6,63	7,02	6,72	6,55	6,68
Water flow user side	(2)	l/h	8860	9666	11638	12758	14229	17596	19183	23119
Water pressure drop user side	(2)(E)	kPa	29	34	34	41	32	37	43	45
Water flow DHW side	(3)	l/h	9792	10770	13379	13978	15538	19242	21208	24901
Water pressure drop DHW side	(3)(E)	kPa	35	41	45	50	39	45	53	52
Heating or DHW operation										
Heating capacity	(5)(E)	kW	56,5	62,1	77,2	80,7	89,6	111	122	144
Total power input	(5)(E)	kW	16,6	18,8	21,8	24,5	26,3	33,6	37,2	45,0
COP	(5)(E)		3,40	3,30	3,55	3,29	3,40	3,30	3,28	3,19
Water flow	(5)	l/h	9792	10770	13379	13978	15538	19242	21208	24901
Water pressure drop	(5)(E)	kPa	35	41	45	50	39	45	53	52
General data										
Maximum current absorption		A	41,0	44,0	51,0	55,0	66,0	81,0	87,0	96,0
Start up current		A	159	162	185	183	191	194	198	220
Startup current with soft starter		A	88	101	111	124	139	122	137	146
Compressors / circuits			2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	4 / 2	4 / 2	4 / 2
Expansion vessel volume		dm^3	8	8	8	8	8	8	8	24
Buffer tank volume		dm^3	200	200	220	220	220	340	340	600
Sound power level	(6)(E)	dB(A)	81	81	82	82	83	83	83	84
Transport weight unit with pump and tank		kg	882	892	1030	1040	1080	1500	1520	1805
Operating weight unit with pump and full tank		kg	1082	1092	1250	1260	1300	1840	1860	2405

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)
(2) Cooling water temperature 7°C, water flow rate same as in cooling mode
(3) Recovery water temperature 45°C, water flow rate same as in cooling mode
(4) Cooling water temperature 7°C, recovery water temperature 45°C
(5) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2022)
(6) Sound power level measured according to ISO 9614
(E) EUROVENT certified data

LCP MS RATED TECHNICAL DATA OF MODELS FOR 2-PIPE SYSTEMS + DHW

LCP MS			144	164	194	214	244	274	294	324
Power supply		V-ph-Hz	400 - 3N - 50							
Cooling mode operation										
Cooling capacity	(1)(E)	kW	148	166	193	220	239	265	298	313
Total power input	(1)(E)	kW	49,0	55,2	66,5	75,5	84,8	90,8	103	116
EER	(1)(E)		3,01	3,01	2,91	2,92	2,81	2,91	2,90	2,71
Water flow	(1)	l/h	25421	28613	33264	37866	41034	45500	51236	53879
Water pressure drop	(1)(E)	kPa	54	49	46	59	58	39	48	63
Cooling mode operation and DWH in total recovery										
Cooling capacity	(2)(E)	kW	130	150	185	208	230	253	287	304
Heating capacity	(3)(E)	kW	175	200	244	276	304	334	379	407
Total power input	(4)(E)	kW	46,8	52,6	61,5	72,2	78,4	85,2	96,2	108
COP HRE	(4)(E)		6,52	6,64	6,98	6,70	6,81	6,88	6,92	6,60
Water flow user side	(2)	l/h	25421	28613	33264	37866	41034	45500	51236	53879
Water pressure drop user side	(2)(E)	kPa	54	49	46	59	58	39	48	63
Water flow DHW side	(3)	l/h	27477	31411	36088	42772	45480	51293	57593	59208
Water pressure drop DHW side	(3)(E)	kPa	64	59	54	75	70	60	73	76
Heating or DHW operation										
Heating capacity	(5)(E)	kW	158	181	208	247	262	296	332	341
Total power input	(5)(E)	kW	51,3	56,8	65,2	75,0	79,8	89,7	97,9	111
COP	(5)(E)		3,09	3,19	3,19	3,29	3,29	3,29	3,39	3,09
Water flow	(5)	l/h	27477	31411	36088	42772	45480	51293	57593	59208
Water pressure drop	(5)(E)	kPa	64	59	54	75	70	60	73	76
General data										
Maximum current absorption		A	105	126	148	167	190	215	229	242
Start up current		A	222	241	307	318	382	398	464	472
Startup current with soft starter		A	163	189	245	256	317	333	381	389
Compressors / circuits			4 / 2							
Expansion vessel volume		dm^3	24	24	24	24	24	24	24	24
Buffer tank volume		dm^3	600	600	600	600	600	765	765	765
Sound power level	(6)(E)	dB(A)	84	86	86	87	87	87	88	88
Transport weight unit with pump and tank		kg	1825	1965	2198	2198	2260	2610	2640	2670
Operating weight unit with pump and full tank		kg	2425	2565	2798	2798	2860	3375	3405	3435

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)
(2) Cooling water temperature 7°C, water flow rate same as in cooling mode
(3) Recovery water temperature 45°C, water flow rate same as in cooling mode
(4) Cooling water temperature 7°C, recovery water temperature 45°C
(5) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2022)
(6) Sound power level measured according to ISO 9614
(E) EUROVENT certified data

LCP ML RATED TECHNICAL DATA OF MODELS FOR 2-PIPE SYSTEMS + DHW

LCP ML			41	51	61	71	81	94	104	124
Power supply		V-ph-Hz	400 - 3N - 50							
Cooling mode operation										
Cooling capacity	(1)(E)	kW	48,2	52,4	64,9	70,5	78,4	97,8	106	127
Total power input	(1)(E)	kW	16,5	18,5	20,8	24,2	27,9	33,6	39,0	45,3
EER	(1)(E)		2,92	2,83	3,12	2,92	2,81	2,91	2,71	2,80
Water flow	(1)	l/h	8302	9013	11168	12139	13491	16833	18204	21888
Water pressure drop	(1)(E)	kPa	25	30	32	38	29	34	39	41
Cooling mode operation and DWH in total recovery										
Cooling capacity	(2)(E)	kW	46,4	50,8	60,3	66,3	76,5	92,8	102	119
Heating capacity	(3)(E)	kW	61,6	68,0	79,9	88,5	101	123	136	158
Total power input	(4)(E)	kW	16,0	18,1	20,6	23,3	26,0	32,1	36,1	41,3
COP HRE	(4)(E)		6,75	6,56	6,81	6,65	6,83	6,73	6,58	6,72
Water flow user side	(2)	l/h	8302	9013	11168	12139	13491	16833	18204	21888
Water pressure drop user side	(2)(E)	kPa	25	30	32	38	29	34	39	41
Water flow DHW side	(3)	l/h	9593	10503	12438	13785	15400	18832	20596	24418
Water pressure drop DHW side	(3)(E)	kPa	33	39	40	48	38	43	50	51
Heating or DHW operation										
Heating capacity	(5)(E)	kW	55,3	60,6	71,8	79,6	88,8	109	119	141
Total power input	(5)(E)	kW	15,7	17,7	19,9	22,7	25,3	31,1	35,1	42,7
COP	(5)(E)		3,52	3,42	3,61	3,50	3,51	3,49	3,39	3,29
Water flow	(5)	l/h	9593	10503	12438	13785	15400	18832	20596	24418
Water pressure drop	(5)(E)	kPa	33	39	40	48	38	43	50	51
General data										
Maximum current absorption		A	41,0	44,0	51,0	55,0	66,0	81,0	87,0	96,0
Start up current		A	159	162	185	183	191	194	198	220
Startup current with soft starter		A	88	101	111	124	139	122	137	146
Compressors / circuits			2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	4 / 2	4 / 2	4 / 2
Expansion vessel volume		dm^3	8	8	8	8	8	8	8	24
Buffer tank volume		dm^3	200	200	220	220	220	340	340	600
Sound power level	(6)(E)	dB(A)	75	75	77	77	78	77	77	79
Transport weight unit with pump and tank		kg	892	902	1040	1050	1090	1520	1540	1825
Operating weight unit with pump and full tank		kg	1092	1102	1260	1270	1310	1860	1880	2425

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)
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(3) Recovery water temperature 45°C, water flow rate same as in cooling mode
(4) Cooling water temperature 7°C, recovery water temperature 45°C
(5) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2022)
(6) Sound power level measured according to ISO 9614
(E) EUROVENT certified data

LCP ML RATED TECHNICAL DATA OF MODELS FOR 2-PIPE SYSTEMS + DHW

LCP ML			144	164	194	214	244	274	294	324
Power supply		V-ph-Hz	400 - 3N - 50							
Cooling mode operation										
Cooling capacity	(1)(E)	kW	138	156	188	209	227	258	291	304
Total power input	(1)(E)	kW	51,1	57,7	66,8	77,3	86,9	92,0	104	117
EER	(1)(E)		2,71	2,70	2,81	2,70	2,61	2,81	2,81	2,61
Water flow	(1)	l/h	23827	26803	32247	35957	38970	44414	50096	52297
Water pressure drop	(1)(E)	kPa	48	44	44	54	53	37	46	59
Cooling mode operation and DWH in total recovery										
Cooling capacity	(2)(E)	kW	131	150	180	204	228	252	283	308
Heating capacity	(3)(E)	kW	175	200	238	272	303	334	375	411
Total power input	(4)(E)	kW	46,7	52,6	61,6	72,1	78,8	85,6	96,5	108
COP HRE	(4)(E)		6,55	6,64	6,79	6,6	6,73	6,85	6,82	6,68
Water flow user side	(2)	l/h	23827	26803	32247	35957	38970	44414	50096	52297
Water pressure drop user side	(2)(E)	kPa	48	44	44	54	53	37	46	59
Water flow DHW side	(3)	l/h	27090	30917	35728	41527	45375	51021	56790	60026
Water pressure drop DHW side	(3)(E)	kPa	62	57	53	71	70	59	71	78
Heating or DHW operation										
Heating capacity	(5)(E)	kW	156	178	206	239	262	294	327	346
Total power input	(5)(E)	kW	47,4	54,1	62,5	72,8	79,2	86,6	98,9	107
COP	(5)(E)		3,30	3,30	3,29	3,29	3,30	3,39	3,31	3,22
Water flow	(5)	l/h	27090	30917	35728	41527	45375	51021	56790	60026
Water pressure drop	(5)(E)	kPa	62	57	53	71	70	59	71	78
General data										
Maximum current absorption		A	105	126	148	167	190	215	229	242
Start up current		A	222	241	307	318	382	398	464	472
Startup current with soft starter		A	163	189	245	256	317	333	381	389
Compressors / circuits			4 / 2							
Expansion vessel volume		dm^3	24	24	24	24	24	24	24	24
Buffer tank volume		dm^3	600	600	600	600	600	765	765	765
Sound power level	(6)(E)	dB(A)	79	82	83	83	83	84	85	85
Transport weight unit with pump and tank		kg	1845	1985	2228	2228	2290	2640	2670	2700
Operating weight unit with pump and full tank		kg	2445	2585	2828	2828	2890	3405	3435	3465

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)
(2) Cooling water temperature 7°C, water flow rate same as in cooling mode
(3) Recovery water temperature 45°C, water flow rate same as in cooling mode
(4) Cooling water temperature 7°C, recovery water temperature 45°C
(5) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2022)
(6) Sound power level measured according to ISO 9614
(E) EUROVENT certified data

LCP PS RATED TECHNICAL DATA OF MODELS FOR 4-PIPE SYSTEMS

LCP PS			41	51	61	71	81	94	104	124
Power supply		V-ph-Hz	400 - 3N - 50							
Cooling mode operation										
Cooling capacity	(1)(E)	kW	51,5	56,2	67,6	74,0	82,7	102	111	134
Total power input	(1)(E)	kW	16,0	18,0	20,9	23,8	27,4	32,8	36,9	44,6
EER	(1)(E)		3,22	3,12	3,23	3,11	3,02	3,12	3,02	3,01
Water flow	(1)	l/h	8868	9667	11633	12751	14232	17596	19183	23110
Water pressure drop	(1)(E)	kPa	29	34	34	41	32	37	43	45
Cooling and heating mode in total heat recovery										
Cooling capacity	(2)(E)	kW	46,2	50,6	60,1	66,1	78,8	92,5	101	119
Heating capacity	(3)(E)	kW	61,5	67,9	79,7	88,3	104	123	136	158
Total power input	(4)(E)	kW	16,1	18,1	20,6	23,3	26,0	32,1	36,2	41,4
COP HRE	(4)(E)		6,69	6,55	6,79	6,63	7,02	6,72	6,55	6,68
Water flow cooling side	(2)	l/h	8868	9667	11633	12751	14232	17596	19183	23110
Water pressure cooling heating side	(2)(E)	kPa	29	34	34	41	32	37	43	45
Water flow heating side	(3)	l/h	9802	10775	13383	14009	15528	19238	21235	24926
Water pressure drop heating side	(3)(E)	kPa	35	41	45	50	39	45	53	52
Heating mode operation										
Heating capacity	(5)(E)	kW	56,5	62,2	77,2	80,9	89,6	111	123	144
Total power input	(5)(E)	kW	16,6	18,8	21,8	24,6	26,4	33,7	37,2	45,1
COP	(5)(E)		3,41	3,30	3,54	3,29	3,40	3,29	3,29	3,19
Water flow	(5)	l/h	9802	10775	13383	14009	15528	19238	21235	24926
Water pressure drop	(5)(E)	kPa	35	41	45	50	39	45	53	52
General data										
Maximum current absorption		A	41,0	44,0	51,0	55,0	66,0	81,0	87,0	96,0
Start up current		A	159	162	185	183	191	194	198	220
Startup current with soft starter		A	88	101	111	124	139	122	137	146
Compressors / circuits			2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	4 / 2	4 / 2	4 / 2
Expansion vessel volume		dm^3	8	8	8	8	8	8	8	24
Buffer tank volume		dm^3	200	200	220	220	220	340	340	600
Sound power level	(6)(E)	dB(A)	81	81	82	82	83	83	83	84
Transport weight unit with pump and tank		kg	882	892	1030	1040	1080	1500	1520	1805
Operating weight unit with pump and full tank		kg	1082	1092	1250	1260	1300	1840	1860	2405

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)
(2) Cooling water temperature 7°C, water flow rate same as in cooling mode
(3) Recovery water temperature 45°C, water flow rate same as in cooling mode
(4) Cooling water temperature 7°C, recovery water temperature 45°C
(5) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2022)
(6) Sound power level measured according to ISO 9614
(E) EUROVENT certified data

LCP PS RATED TECHNICAL DATA OF MODELS FOR 4-PIPE SYSTEMS

LCP PS			144	164	194	214	244	274	294	324
Power supply		V-ph-Hz	400 - 3N - 50							
Cooling mode operation										
Cooling capacity	(1)(E)	kW	148	166	193	220	239	265	298	313
Total power input	(1)(E)	kW	49,0	55,2	66,5	75,5	84,8	90,8	103	116
EER	(1)(E)		3,01	3,01	2,91	2,91	2,81	2,91	2,90	2,71
Water flow	(1)	l/h	25418	28604	33261	37865	41030	45495	51244	53881
Water pressure drop	(1)(E)	kPa	54	49	46	59	58	39	48	63
Cooling and heating mode in total heat recovery										
Cooling capacity	(2)(E)	kW	130	150	185	208	230	253	287	304
Heating capacity	(3)(E)	kW	175	200	244	276	304	334	379	407
Total power input	(4)(E)	kW	46,8	52,6	61,5	72,2	78,4	85,2	96,2	108
COP HRE	(4)(E)		6,52	6,64	6,98	6,70	6,81	6,88	6,92	6,60
Water flow cooling side	(2)	l/h	25418	28604	33261	37865	41030	45495	51244	53881
Water pressure cooling heating side	(2)(E)	kPa	54	49	46	59	58	39	48	63
Water flow heating side	(3)	l/h	27484	31471	36077	42752	45582	51293	57598	59190
Water pressure drop heating side	(3)(E)	kPa	64	59	54	75	70	60	73	76
Heating mode operation										
Heating capacity	(5)(E)	kW	159	181	208	246	263	296	332	341
Total power input	(5)(E)	kW	51,3	56,8	65,2	75,1	79,8	89,7	97,9	111
COP	(5)(E)		3,09	3,19	3,19	3,28	3,29	3,29	3,39	3,09
Water flow	(5)	l/h	27484	31471	36077	42752	45582	51293	57598	59190
Water pressure drop	(5)(E)	kPa	64	59	54	75	70	60	73	76
General data										
Maximum current absorption		A	105	126	148	167	190	215	229	242
Start up current		A	222	241	307	318	382	398	464	472
Startup current with soft starter		A	163	189	245	256	317	333	381	389
Compressors / circuits			4 / 2							
Expansion vessel volume		dm^3	24	24	24	24	24	24	24	24
Buffer tank volume		dm^3	600	600	600	600	600	765	765	765
Sound power level	(6)(E)	dB(A)	84	86	86	87	87	87	88	88
Transport weight unit with pump and tank		kg	1825	1965	2198	2198	2260	2610	2640	2670
Operating weight unit with pump and full tank		kg	2425	2565	2798	2798	2860	3375	3405	3435

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)
(2) Cooling water temperature 7°C, water flow rate same as in cooling mode
(3) Recovery water temperature 45°C, water flow rate same as in cooling mode
(4) Cooling water temperature 7°C, recovery water temperature 45°C
(5) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2022)
(6) Sound power level measured according to ISO 9614
(E) EUROVENT certified data

LCP PL RATED TECHNICAL DATA OF MODELS FOR 4-PIPE SYSTEMS

LCP PL			41	51	61	71	81	94	104	124
Power supply		V-ph-Hz	400 - 3N - 50							
Cooling mode operation										
Cooling capacity	(1)(E)	kW	48,2	52,4	64,9	70,5	78,4	97,8	106	127
Total power input	(1)(E)	kW	16,5	18,5	20,8	24,2	27,9	33,6	39,0	45,3
EER	(1)(E)		2,92	2,83	3,13	2,91	2,81	2,91	2,71	2,80
Water flow	(1)	l/h	8294	9013	11168	12139	13491	16833	18204	21888
Water pressure drop	(1)(E)	kPa	25	30	32	38	29	34	39	41
Cooling and heating mode in total heat recovery										
Cooling capacity	(2)(E)	kW	46,4	50,8	60,3	66,3	76,5	92,8	102	119
Heating capacity	(3)(E)	kW	61,6	68,0	79,9	88,5	101	123	136	158
Total power input	(4)(E)	kW	16,0	18,1	20,6	23,3	26,0	32,1	36,1	41,3
COP HRE	(4)(E)		6,75	6,56	6,81	6,65	6,83	6,73	6,58	6,72
Water flow cooling side	(2)	l/h	8294	9013	11168	12139	13491	16833	18204	21888
Water pressure cooling heating side	(2)(E)	kPa	25	30	32	38	29	34	39	41
Water flow heating side	(3)	l/h	9556	10497	12441	13789	15384	18778	20581	24389
Water pressure drop heating side	(3)(E)	kPa	33	39	40	48	38	43	50	50
Heating mode operation										
Heating capacity	(5)(E)	kW	55,1	60,6	71,8	79,6	88,7	108	119	141
Total power input	(5)(E)	kW	15,7	17,8	20,0	22,8	25,4	31,1	35,0	42,8
COP	(5)(E)		3,50	3,41	3,60	3,50	3,50	3,49	3,39	3,29
Water flow	(5)	l/h	9556	10497	12441	13789	15384	18778	20581	24389
Water pressure drop	(5)(E)	kPa	33	39	40	48	38	43	50	50
General data										
Maximum current absorption		A	41,0	44,0	51,0	55,0	66,0	81,0	87,0	96,0
Start up current		A	159	162	185	183	191	194	198	220
Startup current with soft starter		A	88	101	111	124	139	122	137	146
Compressors / circuits			2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	4 / 2	4 / 2	4 / 2
Expansion vessel volume		dm^3	8	8	8	8	8	8	8	24
Buffer tank volume		dm^3	200	200	220	220	220	340	340	600
Sound power level	(6)(E)	dB(A)	75	75	77	77	78	77	77	79
Transport weight unit with pump and tank		kg	892	902	1040	1050	1090	1520	1540	1825
Operating weight unit with pump and full tank		kg	1092	1102	1260	1270	1310	1860	1880	2425

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)
(2) Cooling water temperature 7°C, water flow rate same as in cooling mode
(3) Recovery water temperature 45°C, water flow rate same as in cooling mode
(4) Cooling water temperature 7°C, recovery water temperature 45°C
(5) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2022)
(6) Sound power level measured according to ISO 9614
(E) EUROVENT certified data

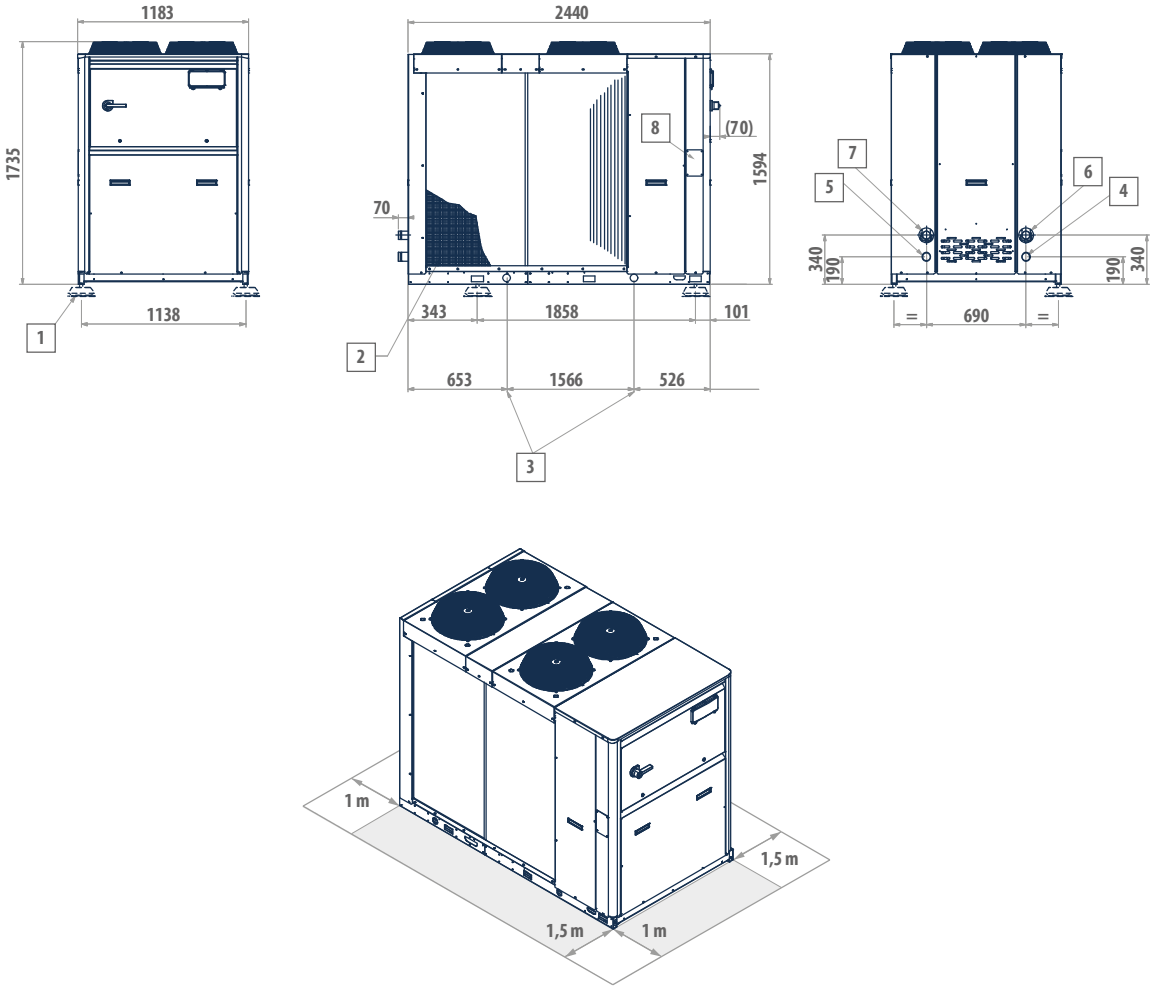
LCP PL RATED TECHNICAL DATA OF MODELS FOR 4-PIPE SYSTEMS

LCP PL			144	164	194	214	244	274	294	324
Power supply		V-ph-Hz	400 - 3N - 50							
Cooling mode operation										
Cooling capacity	(1)(E)	kW	138	156	188	209	227	258	291	304
Total power input	(1)(E)	kW	51,0	57,6	66,7	77,3	86,9	92,1	104	117
EER	(1)(E)		2,71	2,70	2,81	2,71	2,61	2,81	2,81	2,61
Water flow	(1)	l/h	23827	26803	32247	35970	38966	44414	50096	52297
Water pressure drop	(1)(E)	kPa	48	44	44	54	53	37	46	59
Cooling and heating mode in total heat recovery										
Cooling capacity	(2)(E)	kW	131	150	180	204	228	252	283	308
Heating capacity	(3)(E)	kW	175	200	238	272	303	334	375	411
Total power input	(4)(E)	kW	46,7	52,6	61,6	72,1	78,8	85,6	96,5	108
COP HRE	(4)(E)		6,55	6,64	6,79	6,6	6,73	6,85	6,82	6,68
Water flow cooling side	(2)	l/h	23827	26803	32247	35970	38966	44414	50096	52297
Water pressure cooling heating side	(2)(E)	kPa	48	44	44	54	53	37	46	59
Water flow heating side	(3)	l/h	27026	30837	35811	41533	45442	50892	56733	60118
Water pressure drop heating side	(3)(E)	kPa	62	57	54	71	70	59	71	78
Heating mode operation										
Heating capacity	(5)(E)	kW	156	178	206	239	262	293	327	346
Total power input	(5)(E)	kW	47,4	54,1	62,6	72,8	79,1	86,6	98,8	107
COP	(5)(E)		3,29	3,29	3,30	3,29	3,31	3,39	3,31	3,23
Water flow	(5)	l/h	27026	30837	35811	41533	45442	50892	56733	60118
Water pressure drop	(5)(E)	kPa	62	57	54	71	70	59	71	78
General data										
Maximum current absorption		A	105	126	148	167	190	215	229	242
Start up current		A	222	241	307	318	382	398	464	472
Startup current with soft starter		A	163	189	245	256	317	333	381	389
Compressors / circuits			4 / 2							
Expansion vessel volume		dm^3	24	24	24	24	24	24	24	24
Buffer tank volume		dm^3	600	600	600	600	600	765	765	765
Sound power level	(6)(E)	dB(A)	79	82	83	83	83	84	85	85
Transport weight unit with pump and tank		kg	1845	1985	2228	2228	2290	2640	2670	2700
Operating weight unit with pump and full tank		kg	2445	2585	2828	2828	2890	3405	3435	3465

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)
(2) Cooling water temperature 7°C, water flow rate same as in cooling mode
(3) Recovery water temperature 45°C, water flow rate same as in cooling mode
(4) Cooling water temperature 7°C, recovery water temperature 45°C
(5) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2022)
(6) Sound power level measured according to ISO 9614
(E) EUROVENT certified data

DIMENSIONAL DRAWINGS

LCP 41 - 51

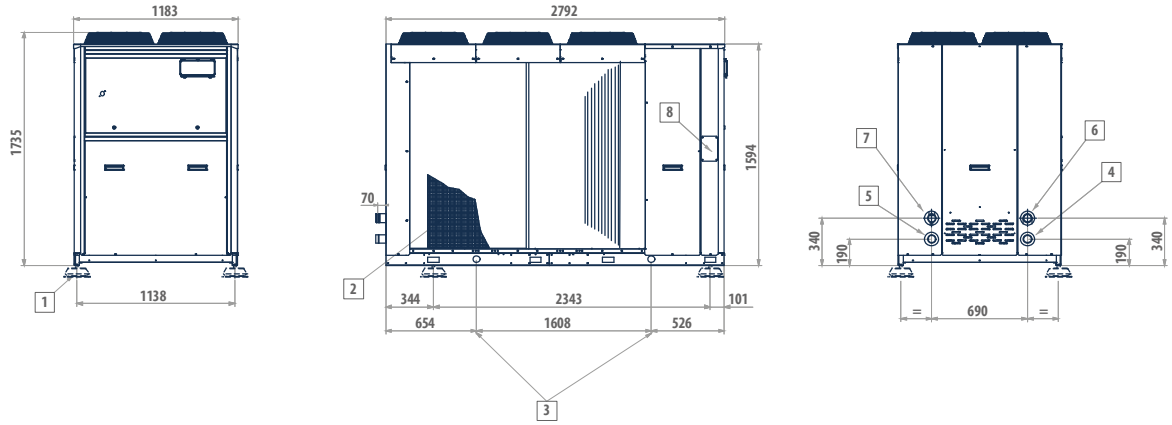


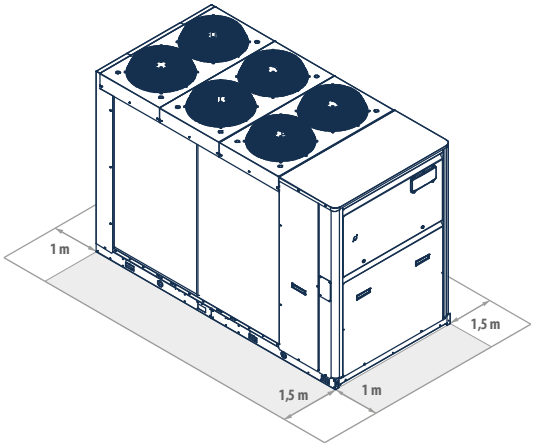
LEGEND	
1	Vibration dampers
2	Protection grill (optional)
3	Lifting points
4	Hot water inlet (Victaulic 2")
5	Cold water inlet (Victaulic 2")
6	Hot water outlet (Victaulic 2")
7	Cold water outlet (Victaulic 2")
8	Power supply input

MODEL	VERSION	
LCP 41	M-P	S-L
LCP 51	M-P	S-L

DIMENSIONAL DRAWINGS

LCP 61 - 81



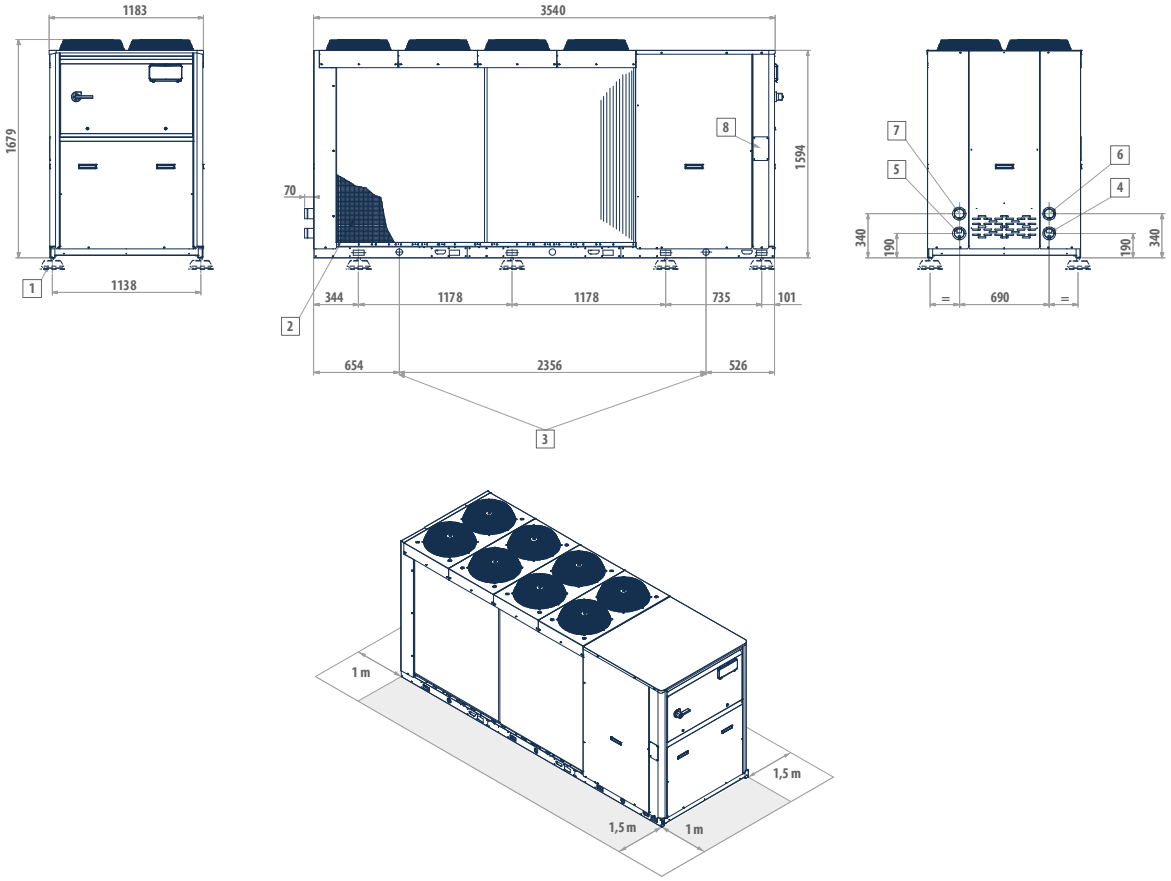


LEGEND	
1	Vibration dampers
2	Protection grill (optional)
3	Lifting points
4	Hot water inlet (Victaulic 2")
5	Cold water inlet (Victaulic 2")
6	Hot water outlet (Victaulic 2")
7	Cold water outlet (Victaulic 2")
8	Power supply input

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

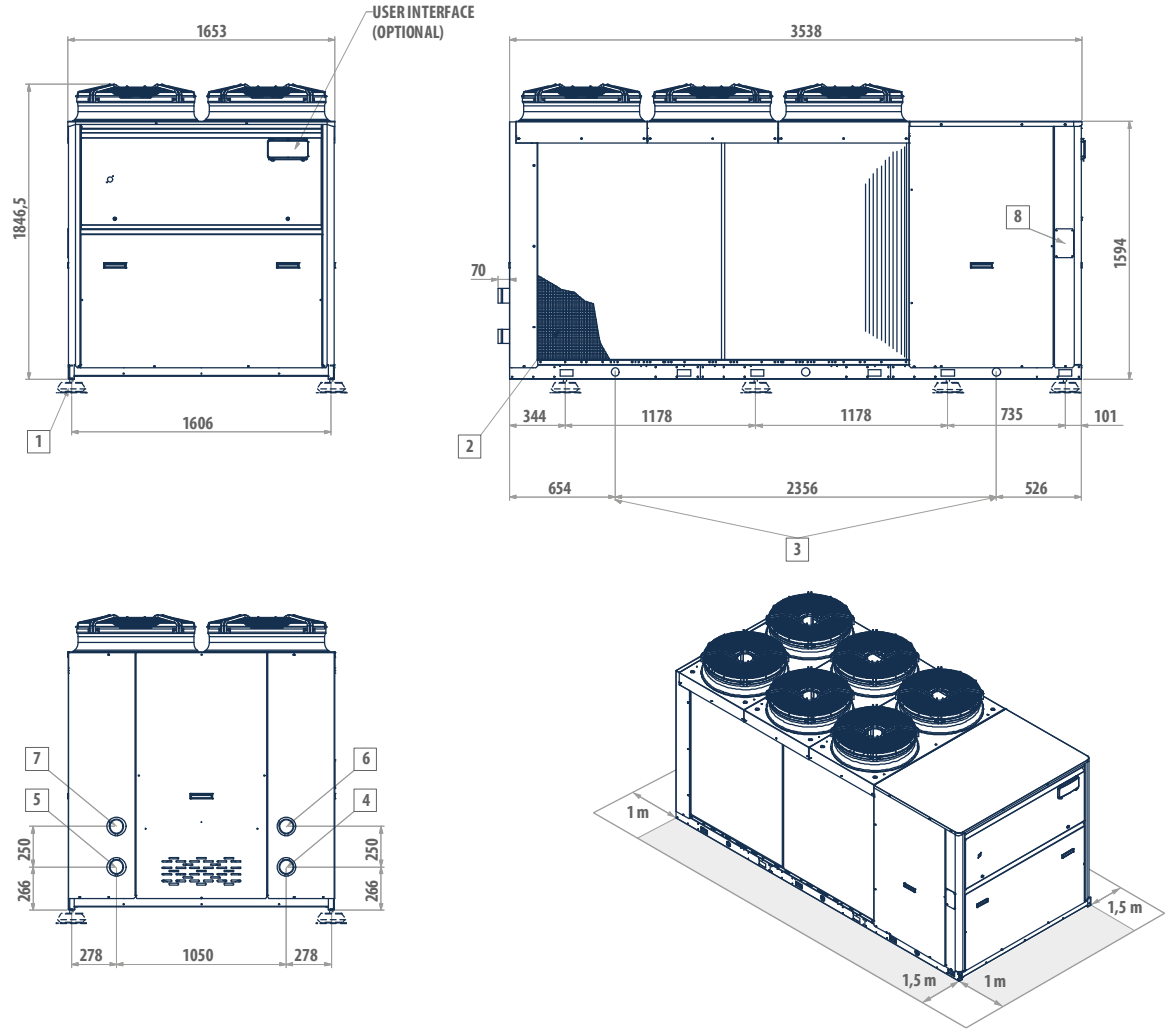


LEGEND	
1	Vibration dampers
2	Protection grill (optional)
3	Lifting points
4	Hot water inlet (Victaulic 2 1/2")
5	Cold water inlet (Victaulic 2 1/2")
6	Hot water outlet (Victaulic 2 1/2")
7	Cold water outlet (Victaulic 2 1/2")
8	Power supply input

MODEL	VERSION	
LCP 94	M-P	S-L
LCP 104	M-P	S-L

DIMENSIONAL DRAWINGS

LCP 124 - 164

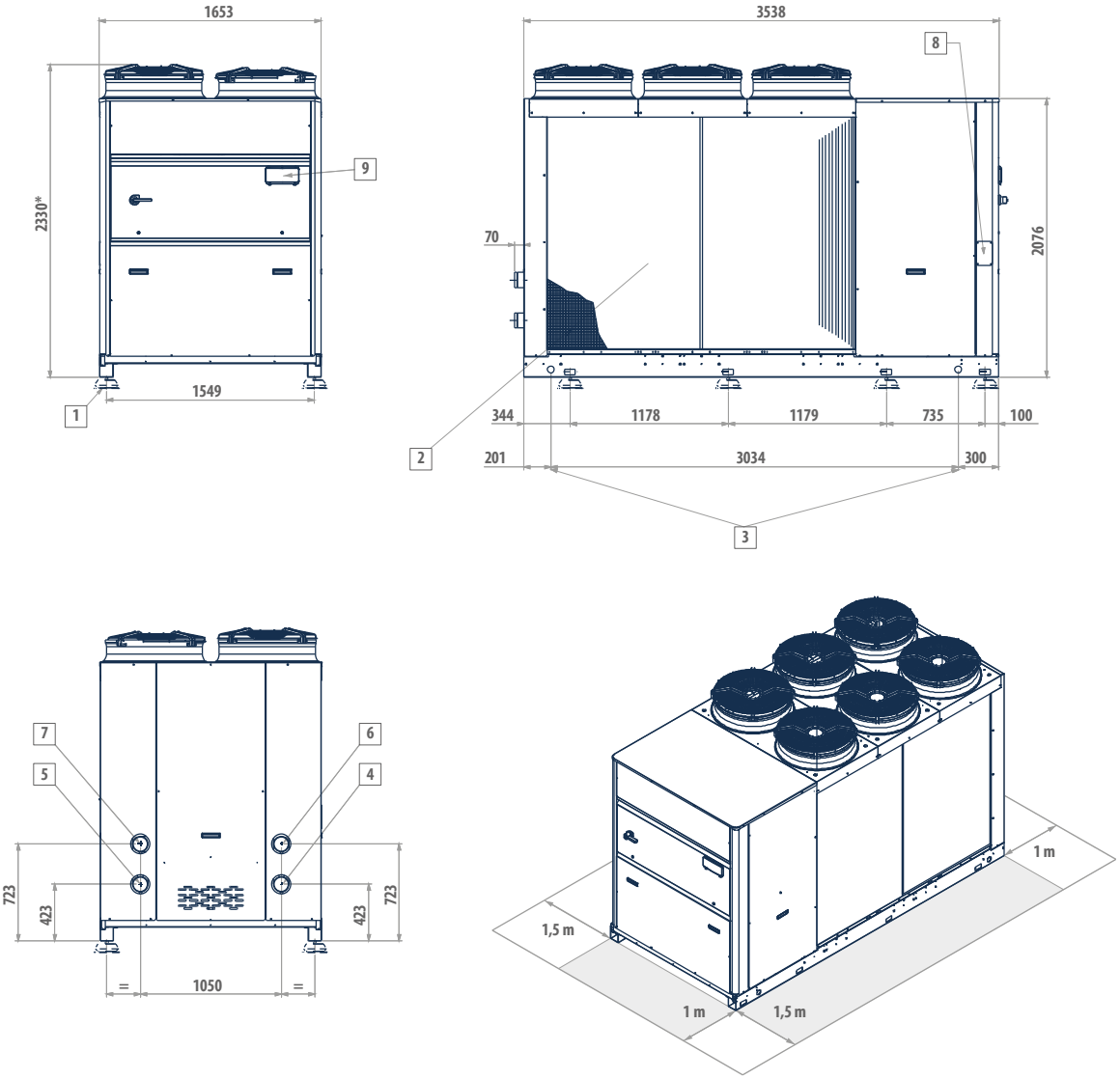


LEGEND	
1	Vibration dampers
2	Protection grill (optional)
3	Lifting points
4	Ingresso acqua calda (Victaulic 3")
5	Cold water inlet (Victaulic 3")
6	Hot water outlet (Victaulic 3")
7	Cold water outlet (Victaulic 3")
8	Power supply input

MODEL	VERSION	
LCP 124	M-P	S-L
LCP 144	M-P	S-L
LCP 164	M-P	S-L

DIMENSIONAL DRAWINGS

LCP 194 - 244

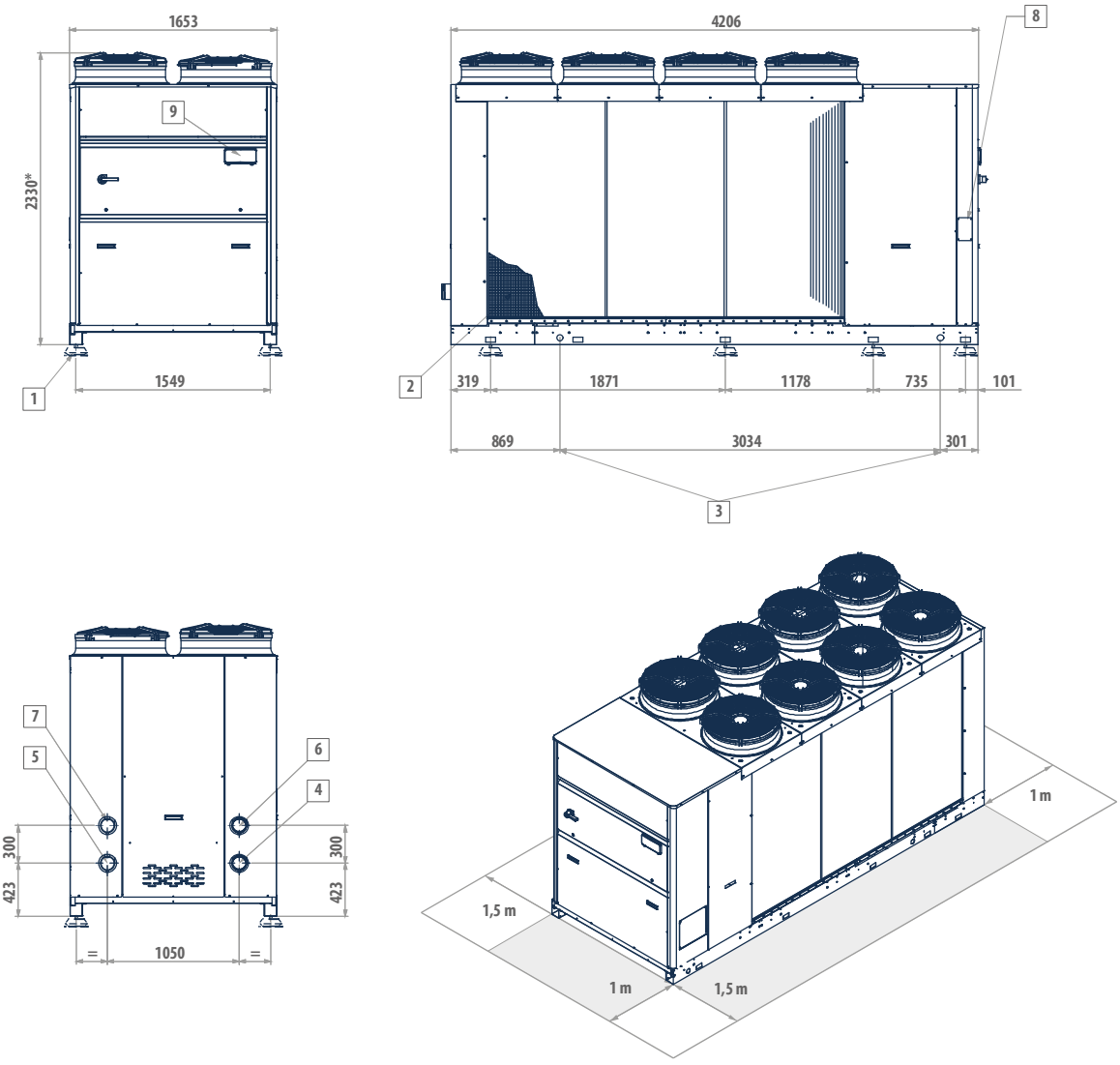


LEGEND	
1	Vibration dampers
2	Protection grill (optional)
3	Lifting points
4	Hot water inlet (Victaulic 4")
5	Cold water inlet (Victaulic 4")
6	Hot water outlet (Victaulic 4")
7	Cold water outlet (Victaulic 4")
8	Power supply input
9	User interface (optional)
WITH EC=2367 FANS	

MODEL	VERSION	
LCP 194	M-P	S-L
LCP 214	M-P	S-L
LCP 244	M-P	S-L

DIMENSIONAL DRAWINGS

LCP 274 - 324



LEGEND	
1	Vibration dampers
2	Protection grill (optional)
3	Lifting 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)
WITH EC=2367 FANS	

MODEL	VERSION	
LCP 274	M-P	S-L
LCP 294	M-P	S-L
LCP 324	M-P	S-L