

LCE: Wide range and configuration

The use of R410A in units properly designed for this kind of refrigerant is giving many advantages thanks to the high heat exchange coefficient and to the lower pressure drop of the coils. This brings to an increase of the efficiency, reliability and energy saving.

LCE range is made of 17 models, in cooling and heating versions, with cooling capacity from 45 to 320 kW, characterized by a wide range of constructive versions and options.

♦ Versions

All the constructive versions are equipped with electronic expansion valve as standard, to maximise the efficiency at partial loads.

Cooling only

Free-Cooling

Heat pump

Thanks to the particular technical solutions the operation range of the heat pumps can be extended from -10°C to -15°C as external air temperature with water production at 40°C:

- Electronic Expansion Valve;
- Separation of the air section for condensing coil;
- Smart defrost system;
- Double cycle inversion (on refrigerant circuit side and on water circuit side);

Versions

The possibility to realize many refrigerant circuits for the same size allows you to personalize the efficiency levels both at full load and at partial load:

- Single circuit – double compressor up to the size 160 (Efficiency Pack Twin).
- Double circuit – double compressor from size 90 up to size 160.
- Double circuit – 4 compressors from size 90 up to size 320.

The solution with 2 compressors with one refrigerant circuit is giving an increase in the efficiency at partial loads reaching values for **ESEER higher than 4**.

The models with double circuit / double compressor are giving high values for the efficiency at full load (EER and COP).

Models with 4 compressors allow to the unit to supply the capacity on 4 different steps, adjusting it according to the real thermal load of the plant. This helps to reduce the start up current.

♦ Acoustic execution

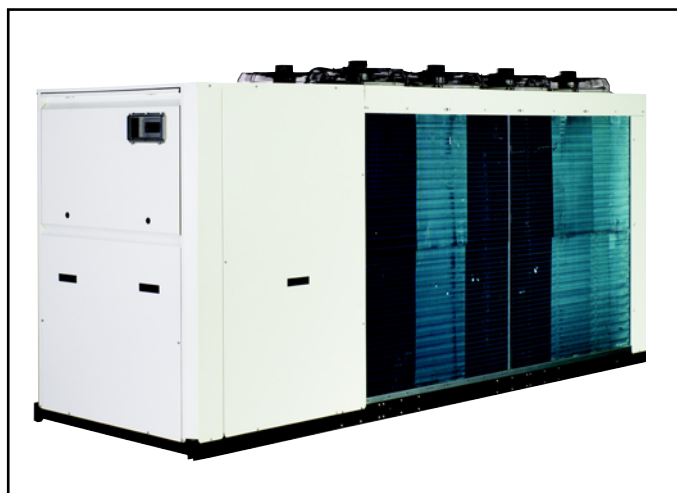
Standard **S**

Low Noise **L**

Quite **Q**

♦ Reduction of the unit dimensions/transport costs

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

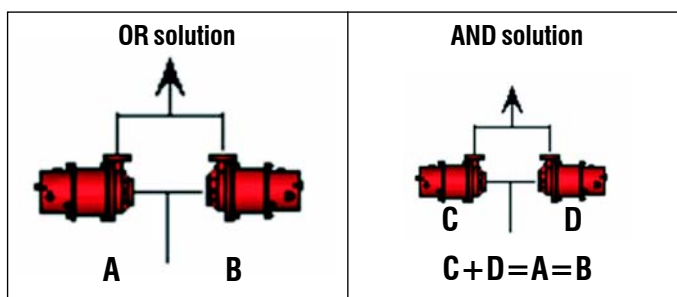


♦ Hydraulic options

A Complete hydraulic kit can be mounted inside the unit without changing the dimensions, with possibility to choose the water pump.

- Single pump, standard or up-rated head pressure.
- Double pump solution OR: standard or up-rated head pressure, single operation. The pumps can work alternatively on time/damage basis.
- Double pump solution AND.

Standard or up-rated head pressure, simultaneous operation. If the pumps are connected in parallel, they can supply the nominal water flow in the simultaneous operation.



In case of partial loads the operation is restricted to one only pump that reduces the value of the water flow to 1/3 of the nominal value with an average reduction of the pumping costs equal to 30%.

♦ Interconnectivity

Ergo Network as standard.

With advanced microprocessor:

- LAN network realization;
- GSM kit for data reading and setting from mobile phone;
- WEB kit for data reading and setting from remote PC through the access to the IP address of the unit or of the unit network.

LCE		045 ³	050 ³	060	070	080	090	100	120	140
Cooling capacity ¹	kW	47,9	52,9	63,3	69,2	76,5	92,2	102,7	124,1	138,4
Power input ¹	kW	16,2	18,2	21,4	24,2	27,8	31,3	37,7	40,8	45,9
Heating capacity ²	kW	55,3	61,0	70,5	78,1	86,0	103,2	116,3	136,0	155,7
Power input ²	kW	15,8	17,8	21,0	23,46	26,8	29,5	34,2	38,3	43,6
EER efficiency pack 1		n.d.	n.d.	n.d.	n.d.	n.d.	2,94	2,72	3,04	3,01
EER efficiency pack 2		2,95	2,91	2,96	2,86	2,75	2,94	2,72	3,04	3,01
EER efficiency pack 3		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3,01	3,00
ESEER efficiency pack 1		n.d.	n.d.	n.d.	n.d.	n.d.	3,45	3,40	3,88	3,93
ESEER efficiency pack 2		4,06	4,04	4,05	4,01	3,98	4,00	3,95	4,22	4,18
ESEER efficiency pack 3		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	4,09	4,10
COP efficiency pack 1		n.d.	n.d.	n.d.	n.d.	n.d.	3,31	3,23	3,34	3,39
COP efficiency pack 2		3,50	3,43	3,35	3,33	3,21	3,32	3,23	3,35	3,39
COP efficiency pack 3		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3,36	3,39
Expansion vessel	liters	8	8	8	8	8	12	12	12	12
Water tank	liters	200	200	200	200	200	300	300	415	415
Standard height	mm	n.d.	n.d.	1720	1720	1720	1720	1720	1720	1720
Standard leght	mm	n.d.	n.d.	2010	2010	2010	2360	2360	3190 ⁵	3190 ⁵
Standard width	mm	n.d.	n.d.	1185	1185	1185	1185	1185	1185	1185
Low Noise height	mm	1720	1720	1720	1720	1720	1720	1720	1720	1720
Low Noise leght	mm	2010	2010	2360	2360	2360	3190	3190	3540	3540
Low Noise width	mm	1185	1185	1185	1185	1185	1185	1185	1654	1654
Quite height	mm	1720	1720	1720	1720	1720	1720	1720	1720	1720
Quite leght	mm	2010	2010	2360	2360	2360	3190	3190	3540	3540
Quite width	mm	1185	1185	1185	1185	1185	1185	1185	1654	1654
Sound power levels S/L/Q	dB(A)	nd/42/39	nd/42/39	52/44/41	52/44/41	52/44/41	53,5/45/42	53,5/45/42	54/49/41	54/49/41
LCE		160	170 ⁴	190	210	240	270	290	320	
Cooling capacity ¹	kW	155,0	162,0	186,6	209,0	236,9	271,6	295,5	313,9	
Power input ¹	kW	56,3	50,5	64,4	77,0	86,6	95,8	104,4	111,8	
Heating capacity ²	kW	176,1	188,3	212,4	235,6	272,5	307,2	329,8	350,8	
Power input ¹	kW	51,3	55,6	65,2	73,0	85,12	95,86	104,2	112,6	
EER efficiency pack 1		2,75	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
EER efficiency pack 2		2,75	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
EER efficiency pack 3		2,76	3,21	2,90	2,71	2,74	2,84	2,83	2,81	
ESEER efficiency pack 1		3,61	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
ESEER efficiency pack 2		3,87	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
ESEER efficiency pack 3		3,75	4,16	4,04	4,00	4,01	4,10	4,12	4,18	
COP efficiency pack 1		3,29	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
COP efficiency pack 2		3,30	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
COP efficiency pack 3		3,26	3,39	3,26	3,23	3,20	3,20	3,17	3,12	
Expansion vessel	liters	12	25	25	25	25	25	25	25	
Water tank	liters	415	600	600	600	600	765	765	765	
Standard height	mm	1720	1720	1720	1720	2174	2174	2174	2174	
Standard leght	mm	3190 ⁵	3540	3540	3540	3540	4296	4296	4296	
Standard width	mm	1185	1654	1654	1654	1654	1654	1654	1654	
Low Noise height	mm	1720	n.d.	1720	2174	2174	2174	2174	2174	
Low Noise leght	mm	3540	n.d.	3540	3540	3540	4296	4296	4296	
Low Noise width	mm	1654	n.d.	1654	1654	1654	1654	1654	1654	
Quite height	mm	1720	n.d.	1720	2174	2174	2174	2174	2174	
Quite leght	mm	3540	n.d.	3540	3540	3540	4296	4296	4296	
Quite width	mm	1654	n.d.	1654	1654	1654	1654	1654	1654	
Sound power levels S/L/Q	dB(A)	54/49/41	55/nd/nd	55/49/41	55/49/41	55/50/41	56/51/42	56/51/42	56/51/42	

¹ = water temp. 12/7°C air temp. 35°C² = water temp. 40/45°C air 7°C U.R. 90%³ = Only available for L (low noise) and Q (quiet) version⁴ = L (low noise) e Q (quiet) version not available⁵ = "efficiency pack 3" version lenght = 3540 mm