



AIR COOLING AND HEATING

Fan cooler / heater LEO COOL



HOW LEO COOL WORKS?

The LEO COOL air cooler-heater creates a decentralised cooling / heating system. It is an universal device which effectively cooperates with thermal sources such as condensing gas boilers, chillers or reversible heat pumps.



REVERSIBLE
HEAT PUMP

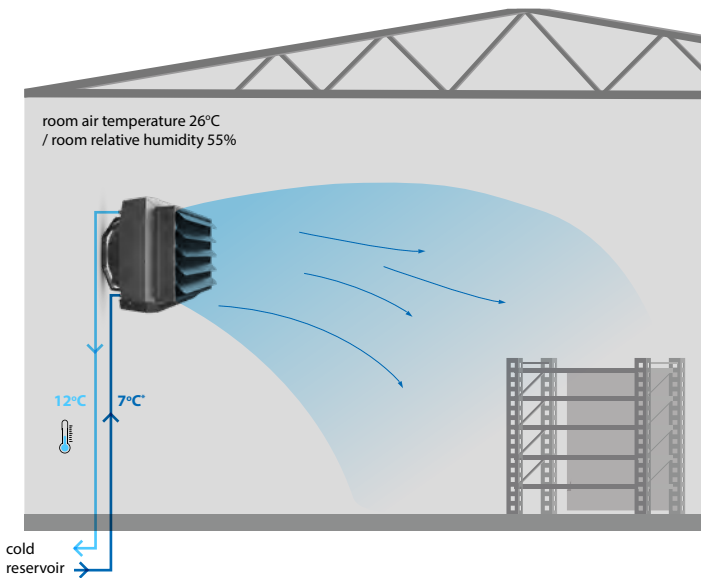


REVERSIBLE
HEAT PUMP



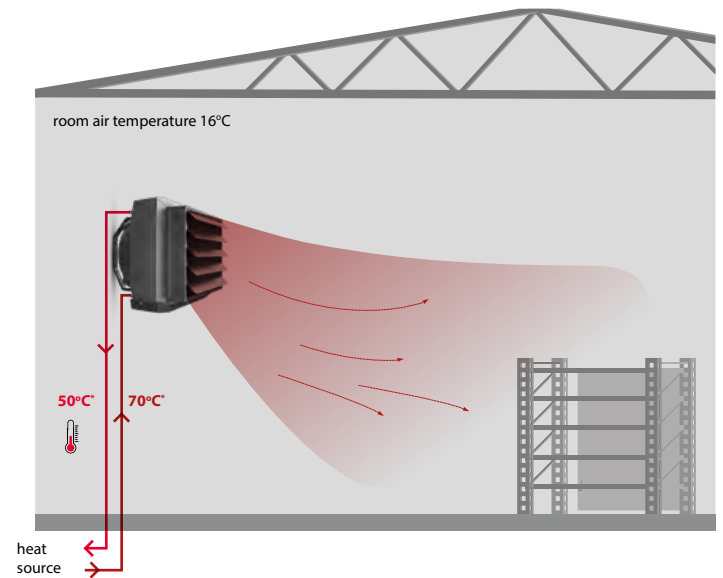
CHILLER

SUMMER



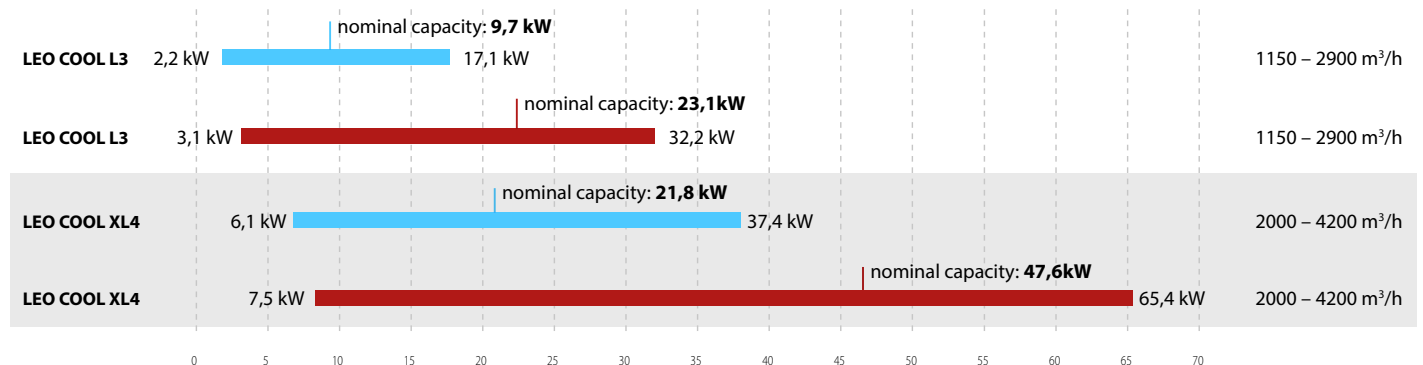
*cooling medium temperature and its flow direction

WINTER



*heating medium temperature and its flow direction

2 MODELS



Range of cooling capacity at given parameters:

min. – I step of fan, temperature of cooling medium 10/15°C, air temperature/relative humidity at the supply to the device 24°C/55%;
max. – III step of fan, temperature of cooling medium 3/8°C, air temperature/relative humidity at the supply to the device 32°C/40%

Nominal cooling capacity at given parameters:

III step of fan, temperature of cooling medium 7/12°C, air temperature/relative humidity at the supply to the device 26°C/55%;

Range of heating power at given parameters:

min. – I step of fan, temperature of heating medium 40/30°C, air temperature at the supply to the device 20°C;
max. – III step of fan, temperature of heating medium 70/50°C, air temperature at the supply to the device 0°C.

Nominal heating power at given parameters:

III step of fan, temperature of heating medium 70/50°C, air temperature at the supply to the device 16°C.

AIRFLOW RANGE

**COOLING / HEATING CAPACITY
IS A VARIABLE VALUE**

LEO COOL - MAIN FEATURES

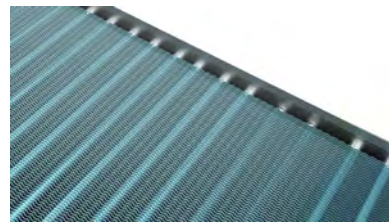
CONDENSATE DRAIN SYSTEM

Droplet eliminator equipped with outlet blades prevents condensate droplets from escaping with supply air stream. The water from the condensate drain pan is being removed by gravity. The drain pipe shall be connected to the drain pan.



HEAT EXCHANGER

A big heating and cooling capacity is provided thanks to a special hydrophilic layers, thin lamellas spacing and 4-row of heat exchanger in case of LEO COOL XL4 or 3-rows water heat exchanger in case of LEO COOL L3.



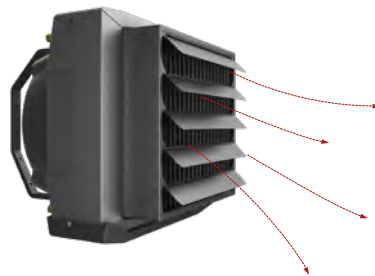
3-SPEED FAN

LEO COOL fan coolers-heaters are equipped with 3 speed fans. It's the simplest and the most effective way to control the fan cooler-heater's operation.



AIR BLADES

Adjustable outlet blades enable to set the direction of the supply air stream according to the needs.



EASY INSTALLATION

The rotary console ensures easy mounting to the wall. The device's casing is made of EPP which increases its mechanical strength, resistance to dirt and decreases its weight.







FLOWAIR SYSTEM / BMS


The devices can be optionally connected via the DRV control module. The DRV module manages the operation of devices according to control signals from T-box or directly from BMS.



FAN COOLER / HEATER LEO COOL

 Cooling capacity⁽¹⁾ [kW] **2,2–37,4**
 Heating capacity⁽²⁾ [kW] **3,1–65,4**
 Weight [kg] **23,1–36,0**

 Casing
EPP
 (expanded polypropylene)

 Airflow⁽³⁾ [m³/h]
1150–4200

 Colour⁽⁴⁾
Grey, black



⁽¹⁾ min. - 10/15/24°C, I step, relative humidity 55%; max - 3/8/32°C, III step, relative humidity 40%

⁽²⁾ min. - 40/30/20°C, I step; max. - 70/50/0°C, III step

⁽³⁾ min. for LEO COOL L3, I step; max. for LEO COOL XL4, III step

⁽⁴⁾ similar to RAL 9007

APPLICATION

Fan cooler-heaters are used for heating industrial halls, mid-size and large facilities for instance logistic centers, production halls, warehouses, shops, sports halls etc.

The devices are designed for indoor use where maximum air dustiness does not exceed 0,3 g/m³.

AVAILABLE TYPES OF UNITS:

- **LEO COOL L3**
- with 3-row water heat exchanger
- **LEO COOL XL4**
- with 4-row water heat exchanger

Fan cooler / heater LEO COOL

LEO COOL L3

LEO COOL XL4

	LEO COOL L3	LEO COOL XL4
Max. airflow [m³/h]	2900	4200
Nominal cooling capacity⁽¹⁾ (7/12/26°C, 55%, III fan step) [kW]	9,7	21,8
Nominal heating capacity (70/50/16°C, III fan step) [kW]	23,1	47,6
Power supply [V/Hz]	230/50	230/50
Max. current consumption [A]	1,5	2,4
Max. power consumption [W]	340	550
IP / Insulation class	54/F	54/F
Max. acoustic pressure level⁽²⁾ [dB(A)]	64,1	67,5
Max. acoustic power level⁽³⁾ [dB(A)]	79,2	82,6
Isothermal horizontal airflow range⁽⁴⁾ [m]	18,0	20,5
Max. heating medium temperature [°C]	70 water or 30% glycol solution	70 water or 30% glycol solution
Max. operating pressure [MPa]	1,6	1,6
Connection	¾"	¾"
Max. working temperature [°C]	55	55
Weight of device [kg]	23,1	36,0
Weight of device filled with water [kg]	25,8	41,4

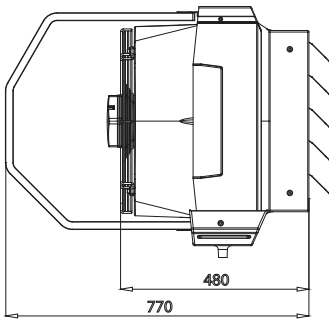
(1) relative humidity of the inlet air: 55%

(2) acoustic pressure level has been measured 5 m from the unit in a 1500 m³ space with a medium sound absorption coefficient

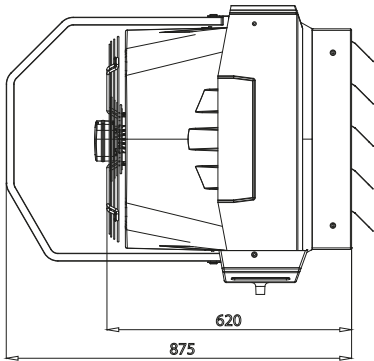
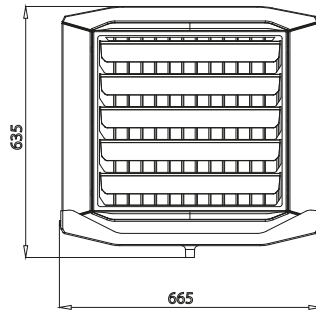
(3) acoustic power level according to PN-EN ISO 3744:2011

(4) horizontal isothermal range for 0,5 m/s boundary air stream speed 0,5 m/s

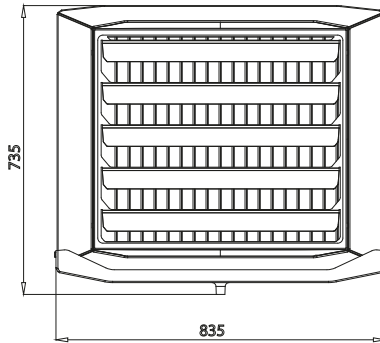
DIMENSIONS



LEO COOL L3



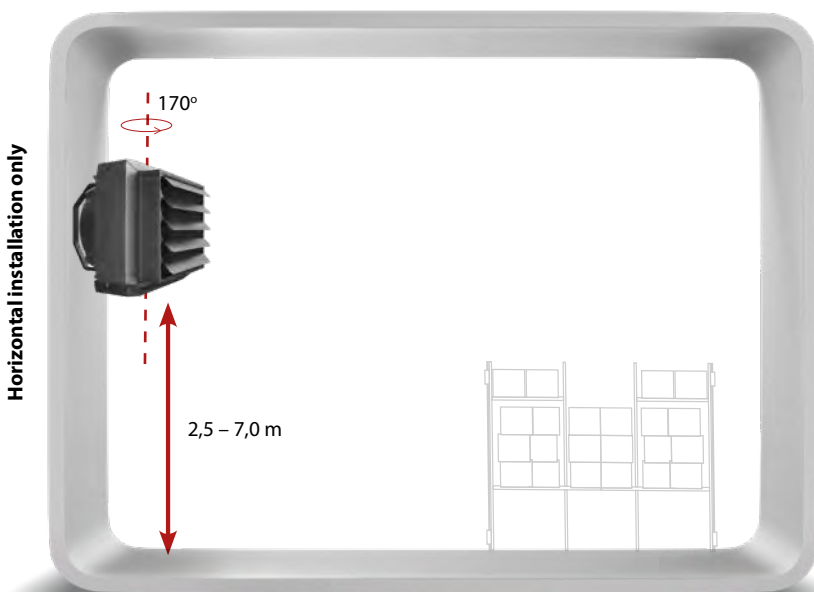
LEO COOL XL4



For CAD drawings and documentation of all available versions of LEO visit www.flowair.com



INSTALLATION



Rotary console enables installation on the wall and 170° rotation of the device.

CONTROL SYSTEMS



CONTROLLER TS basic version

3-step regulator with room thermostat.



CONTROLLER T-box BMS version

an intelligent control system tailored to your needs with T-box controller with touch screen.

FAN COOLER / HEATER LEO COOL



Controller TS



Controller T-box

Types of regulation/control

Manual 3-step air flow regulation
Automatic 3-step air flow regulation

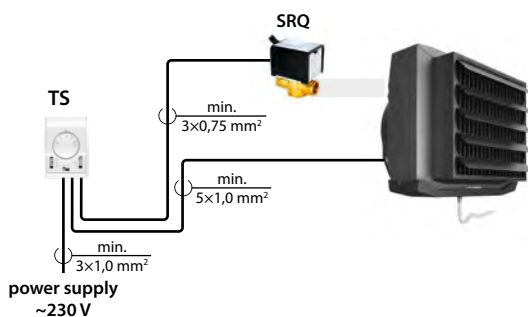
Modes

Heating / Cooling
Operation in continuous or thermostatic mode
Weekly programmer
BMS
Antifreeze
Integration with FLOWAIR SYSTEM

Manual 3-step air flow regulation	✓	✓
Automatic 3-step air flow regulation		✓
Heating / Cooling	✓	✓
Operation in continuous or thermostatic mode	✓	✓
Weekly programmer		✓
BMS		✓
Antifreeze		✓
Integration with FLOWAIR SYSTEM		✓

CONNECTION DIAGRAMS

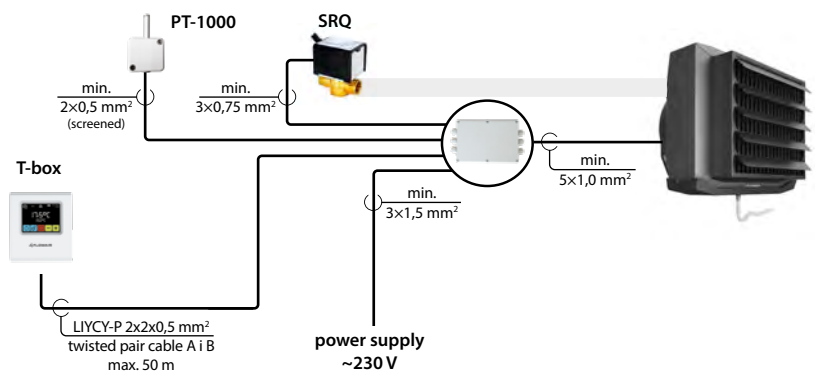
CONTROLLER TS



to 1 TS controller:

- max. 3 units LEO COOL L3
- max. 2 units LEO COOL XL4

CONTROLLER T-box



- max. 31 units compatible with FLOWAIR System to 1 T-box controller

COOLING / HEATING CAPACITIES

LEO COOL L3 – cooling*

Tp1	Fi1	PT	Qw	Δpw	Tp2	Fi2	W	SHR	PT	Qw	Δpw	Tp2	Fi2	W	SHR	PT	Qw	Δpw	Tp2	Fi2	W	SHR	PT	Qw	Δpw	Tp2	Fi2	W	SHR		
[°C]	[%]	[kW]	[l/h]	[kPa]	[°C]	[%]	[g/s]	[-]	[kW]	[l/h]	[kPa]	[°C]	[%]	[g/s]	[-]	[kW]	[l/h]	[kPa]	[°C]	[%]	[g/s]	[-]	[kW]	[l/h]	[kPa]	[°C]	[%]	[g/s]	[-]		
Tw1 / Tw2 = 3/8°C								Tw1 / Tw2 = 5/10°C								Tw1 / Tw2 = 7/12°C								Tw1 / Tw2 = 10/15°C							

V = 2900 m³/h

32	40	17,1	2931	36	19,5	66	2,3	0,66	15,4	2640	30	20,0	66	1,9	0,69	13,6	2333	24	21,0	67	1,4	0,74	10,8	1855	15	22,0	68	0,6	0,85
30	45	15,9	2721	32	18,5	70	2,3	0,64	14,2	2432	26	19,5	70	1,9	0,67	12,4	2126	20	20,0	70	1,4	0,71	9,6	1648	13	21,0	72	0,6	0,83
28	50	14,6	2494	27	18,0	73	2,2	0,69	12,9	2205	22	18,5	73	1,8	0,73	11,1	1900	16	19,5	73	1,3	0,80	8,3	1423	10	20,5	75	0,6	0,93
26	55	13,1	2251	23	17,0	76	2,0	0,61	11,4	1963	18	18,0	76	1,6	0,64	9,7	1658	13	18,5	76	1,2	0,69	6,9	1183	7	19,5	77	0,5	0,83
24	55	11,1	1905	17	16,0	77	1,5	0,66	9,4	1613	12	16,5	77	1,1	0,71	7,6	1307	9	17,0	77	0,6	0,79	5,0	867	4	18,5	76	0,1	0,97

LEO COOL XL4 – cooling*

Tp1	Fi1	PT	Qw	Δpw	Tp2	Fi2	W	SHR	PT	Qw	Δpw	Tp2	Fi2	W	SHR	PT	Qw	Δpw	Tp2	Fi2	W	SHR	PT	Qw	Δpw	Tp2	Fi2	W	SHR		
[°C]	[%]	[kW]	[l/h]	[kPa]	[°C]	[%]	[g/s]	[-]	[kW]	[l/h]	[kPa]	[°C]	[%]	[g/s]	[-]	[kW]	[l/h]	[kPa]	[°C]	[%]	[g/s]	[-]	[kW]	[l/h]	[kPa]	[°C]	[%]	[g/s]	[-]		
Tw1 / Tw2 = 3/8°C								Tw1 / Tw2 = 5/10°C								Tw1 / Tw2 = 7/12°C								Tw1 / Tw2 = 10/15°C							

V = 4200 m³/h

32	40	37,4	6403	45	13,5	82	5,1	0,65	33,7	5777	37	14,5	82	4,3	0,68	29,8	5116	29	16,0	83	3,3	0,71	23,8	4087	19	17,5	84	1,8	0,80
30	45	35,0	5991	40	13,0	84	5,0	0,63	31,3	5366	32	14,5	84	4,3	0,65	27,4	4707	25	15,5	84	3,3	0,69	21,4	3674	16	17,5	85	1,8	0,78
28	50	32,3	5530	34	13,0	86	4,9	0,67	28,6	4905	27	14,0	86	4,1	0,71	24,7	4246	21	15,0	86	3,1	0,76	18,7	3213	13	17,0	87	1,7	0,88
26	55	29,4	5030	29	12,5	88	4,6	0,60	25,7	4405	23	14,0	87	3,8	0,62	21,8	3744	17	15,0	88	2,9	0,66	15,8	2713	9	16,5	88	1,4	0,78
24	55	24,9	4264	22	11,5	88	3,5	0,65	21,2	3633	16	13,0	88	2,6	0,69	17,3	2977	11	14,0	88	1,7	0,75	11,6	1990	5	16,0	88	0,4	0,91

LEO COOL L3 – heating*

Tp1	PT	Qw	Δpw	Tp2	PT	Qw	Δpw	Tp2
[°C]	[kW]	[l/h]	[kPa]	[°C]	[kW]	[l/h]	[kPa]	[°C]
Tw1 / Tw2 = 70/50°C				Tw1 / Tw2 = 60/40°C				

V = 2900 m³/h

0	32,2	1409	8	36,5	25,9	1131	5	29,5
10	26,5	1161	6	40,0	20,2	879	4	33,0
15	23,7	1035	5	41,5	17,2	749	3	34,5
20	20,7	907	4	43,0	14,1	616	2	36,0
25	17,7	776	3	45,0	10,9	477	1	37,0

LEO COOL XL4 – heating*

Tp1	PT	Qw	Δpw	Tp2	PT	Qw	Δpw	Tp2
[°C]	[kW]	[l/h]	[kPa]	[°C]	[kW]	[l/h]	[kPa]	[°C]
Tw1 / Tw2 = 70/50°C				Tw1 / Tw2 = 60/40°C				

V = 4200 m³/h

0	65,4	2862	8	50,5	53,1	2313	6	41,0
10	54,2	2373	6	51,5	41,8	1820	4	42,0
15	48,5	2123	5	52,0	35,9	1563	3	42,0
20	42,8	1871	4	52,5	29,8	1299	2	42,5
25	36,9	1612	3	53,0	23,4	1021	2	43,0

*heating / cooling medium water

V – air flow

PT – total heating / cooling capacity

Tp1 – inlet air temperature

Tp2 – outlet air temperature

Fi1 – inlet air relative humidity

Fi2 – outlet air relative humidity

Tw1 – inlet heating / cooling medium temperature

Tw2 – outlet heating / cooling medium temperature

Qw – heating/cooling medium flow rate in heat exchanger

Δpw – heating / cooling medium pressure drop in heat exchanger

SHR – Sensible Heat Ratio - the ratio of sensible cooling capacity to total cooling capacity



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