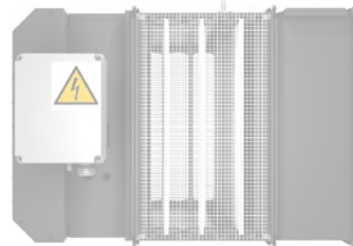
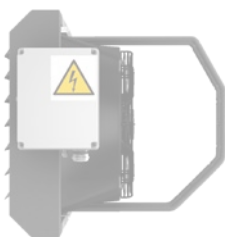


LEO EL 23 ELECTRIC FAN HEATERS

LEO EL 23



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## GENERAL CHARACTERISTICS



EL 23	
Heating capacity (kW)	9* or 16*/23
Air flow (m <sup>3</sup> /h)	3400*/4200
Weight (kg)	23,5
Colour	silver - grey
Casing	sheet steel

\* 1<sup>st</sup> step of heating capacity



LEO EL electric fan heaters are designed to operate indoors. They are used for heating rooms with a big cubic measure like industrial buildings, warehouses and department stores as well as smaller rooms like workshops or garages. Those heaters are commonly used in areas where other heat sources (e.g. gas, hot water) are not available.





## HEATING ELEMENTS

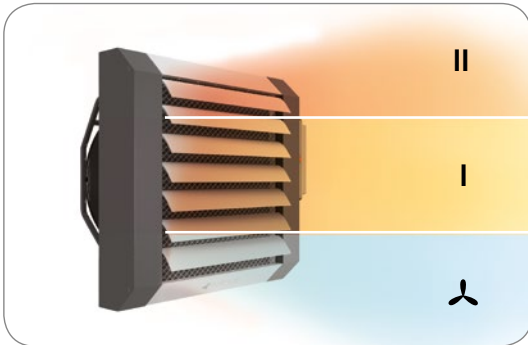
Heat exchanger consists of nine PTC heating elements, which adapt temperature to the air flow.

Their construction ensures maximum use of the heating capacity on each step of heating.



## CONTROL SYSTEM

Controlling equipment is delivered with fan heater in set. Unit has its standalone system which protects against overheating and controls proper air flow via pressure switch.



## THREE MODES

As a standard LEO EL is equipped with room thermostat with mode switch. There are available two steps of heating capacity and summer mode (without heating). First step of heating can be set (via dip switch in main control box) as 9 or 16 kW. With first step of heating an air flow is reduced (n/a when operating with mixing chamber).

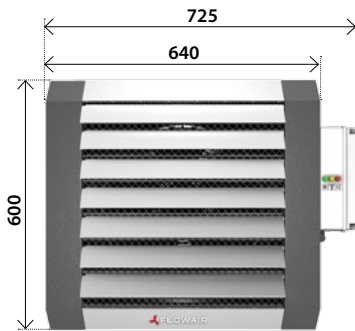


## SIGNAL LIGHTS

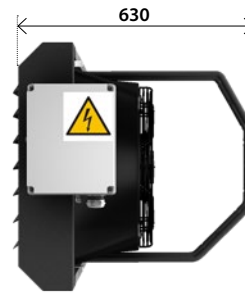
Signal lights placed at main control box show current status of the unit.

## DIMENSIONS

LEO EL 23 dimensions



LEO EL 23 and installation console



## TECHNICAL DATA

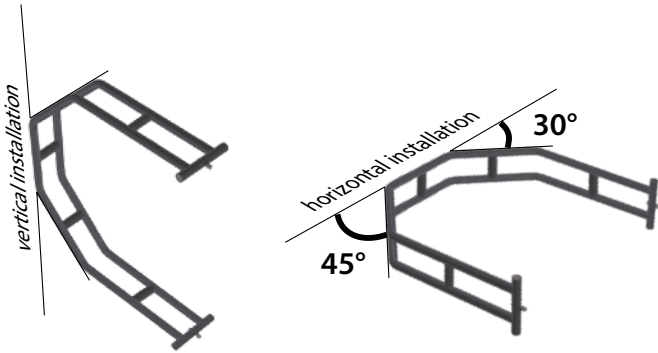
	LEO EL 23	
	1 <sup>st</sup> step	2 <sup>nd</sup> step
Heating capacity [kW]	9/16	23
Air temperature rise $\Delta T$ [°C]*	10/16	21
Power supply [V/Hz]	3×400/50	
Current consumption [A]	13/23	34
Max. air flow [m <sup>3</sup> /h]	3400	4200
Max. acoustic pressure level** [dB(A)]	51	
Max. air stream range *** [m]	18	23
IP / Protection degree	20	
Installation position	vertical, on the wall	
Max. ambient temperature [°C]	40	
Casing	powder painted steel	
Colour	silver - grey	
Weight [kg]	23,5	

\* At inlet air temperature 0°C.

\*\* Acoustic pressure level measured in the room with average sound absorption, capacity 1500 m<sup>3</sup>, at distance of 5 m from the unit.

\*\*\* Horizontal range of isothermal stream (at velocity boundary equal to 0,5 m/s).

## INSTALLATION

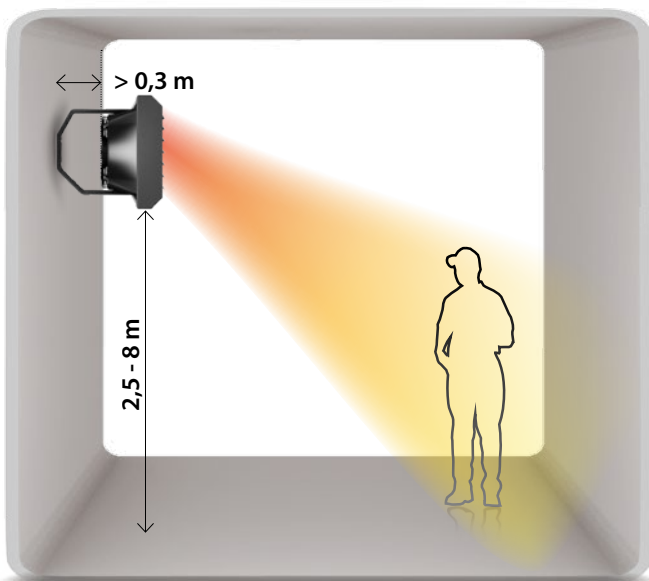


## BRACKET

The bracket can be mounted either vertically or horizontally in relation to the unit. There is also the possibility to install the unit at the 30° or 45° angle to the wall.

## INSTALLATION OPTIONS

Leo EL electric fan heaters can be mounted only vertically on the wall.



90°



45°



30°



Vertical bracket position.

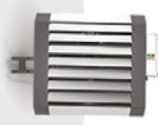
90°



45°

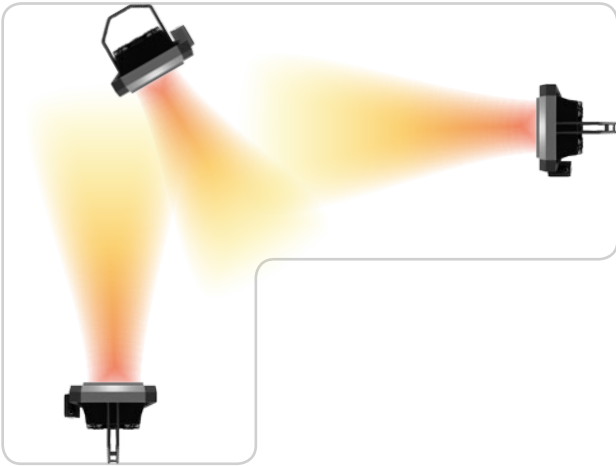


30°

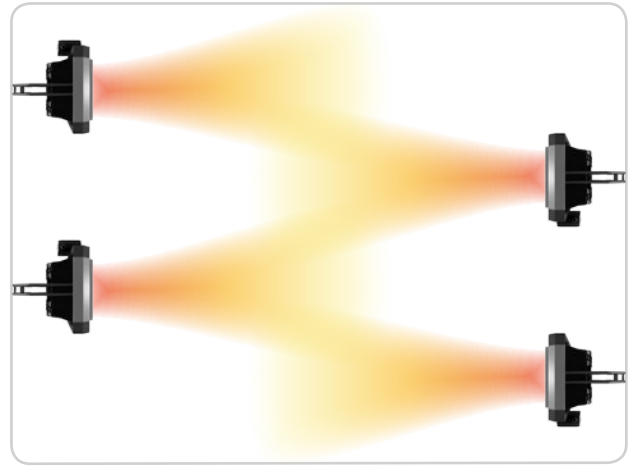


Horizontal bracket position.

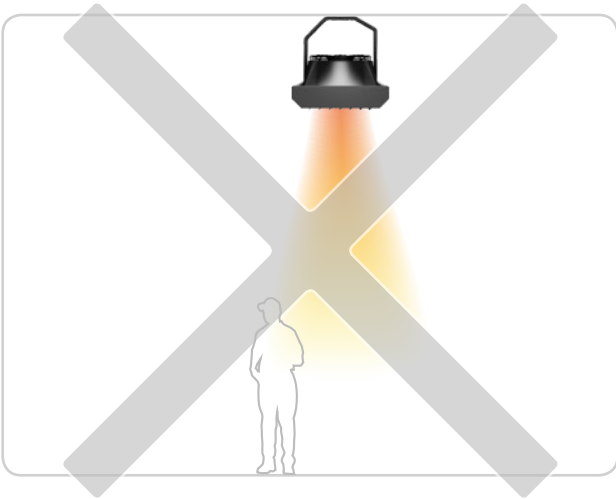
## INSTALLATION TIPS



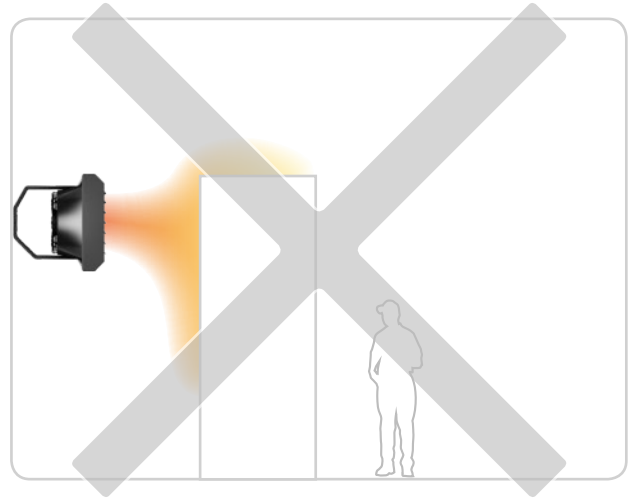
Steady air circulation should be provided in the entire room.



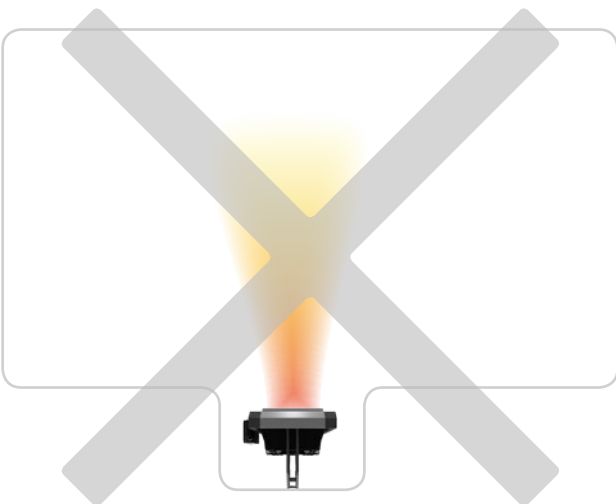
Heaters installed on the opposite walls should be overlapped.



Is not allowed to install fan heater under the ceiling.



Air flow stream should not be limited.



Air inlet should not be limited.

## CONTROL SYSTEM



Control box



Room thermostat with mode switch

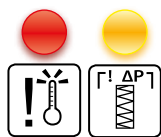
Leo EL is equipped with full control system which allows to start up unit just after montage and supplying it with current. Main control box has protective equipment which prevent damage of fan and heat exchanger in case of too high temperature.

Room thermostat is delivered in set with unit with 5 m long cable. It allow to adjust desired temperature and operating mode: I step heating, II step heating, summer mode.

Signal lamps:



Lamp signalizes too high temperature of heating element. Exchanger is switched off, fan operates.



Lamp signalizes too low air volume. Filters can be clogged or fan is not operating.



Lamp signalizes heating operation.

Operating modes:



SUMMER MODE



1<sup>st</sup> step of heating



2<sup>nd</sup> step of heating

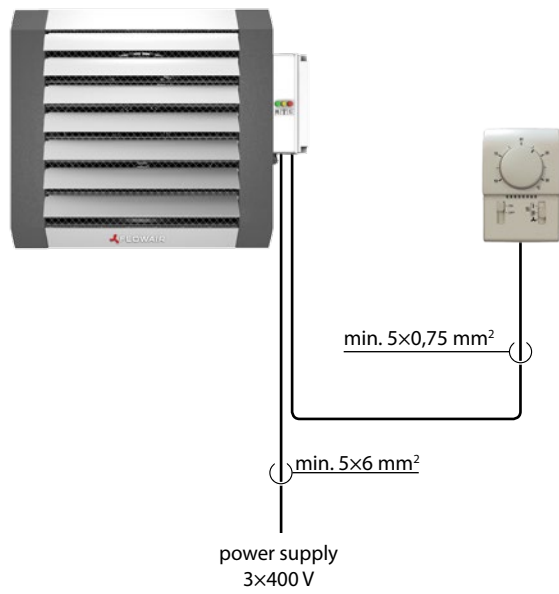
## AVAILABLE OPERATING MODES

	MODE		
	SUMMER MODE	1 <sup>st</sup> step of heating (9/16 kW)	2 <sup>nd</sup> step of heating (23 kW)
Description	Fan operates without heating - air circulation only	Heating mode - warm air supply $\Delta T$ (9 kW) = +10°C* $\Delta T$ (16 kW) = +16°C*	Heating mode - warm air supply $\Delta T$ (23 kW) = +21°C*
Thermostatic mode	n/a	After reaching temperature set on the room thermostat, exchanger and fan (with 30 seconds delay) will be switched off.	
Continuous mode	n/a	After reaching temperature set on the room thermostat, exchanger will be switched off. Fan is operating continuously to ensure air circulation.	

\* At inlet air temperature 0°C



## CONNECTION DIAGRAM



Room thermostat with mode switch is delivered with 5 m long cable. Cable can be extended.

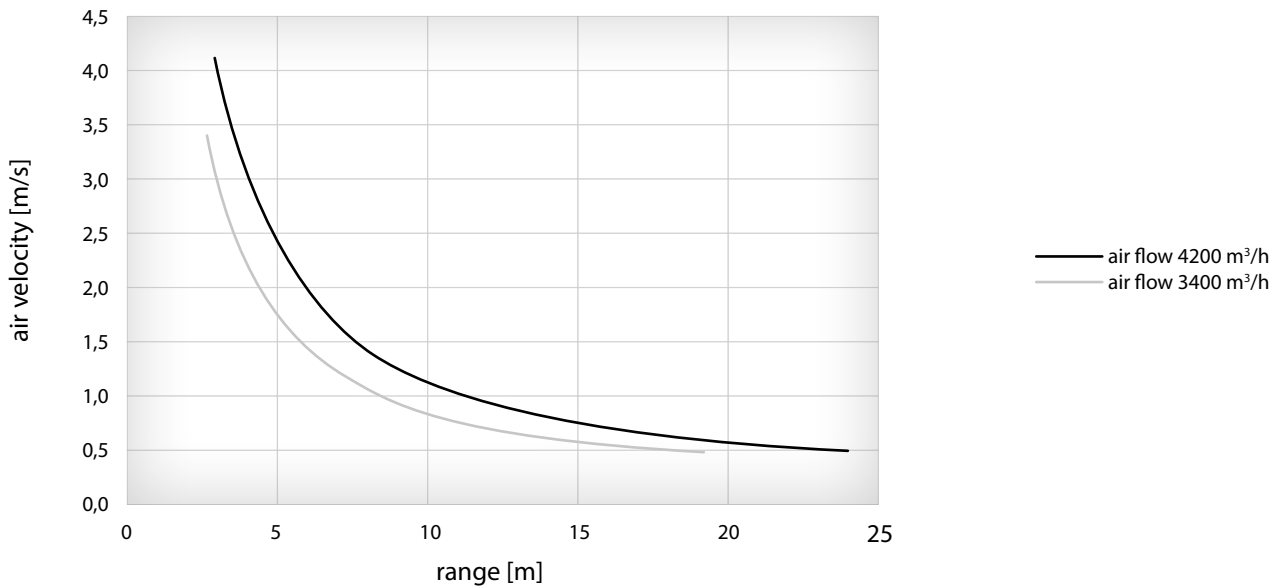
Max. length of thermostat cable 20 m.

Max. diameter of thermostat cable 2 mm<sup>2</sup>.

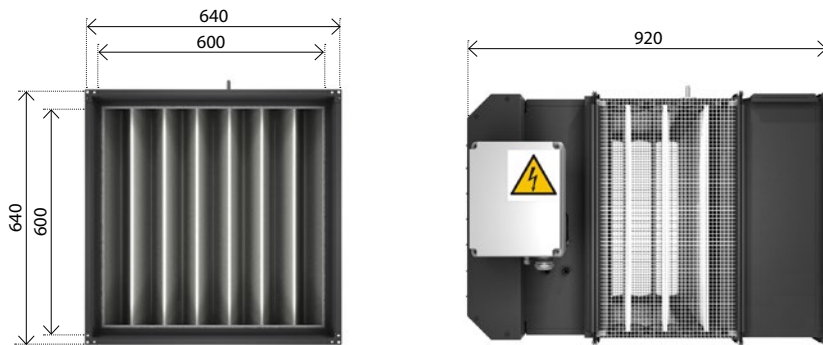
Max. diameter of supplying cable 10 mm<sup>2</sup>.

## VELOCITY OF THE AIR FLOW

LEO EL 23



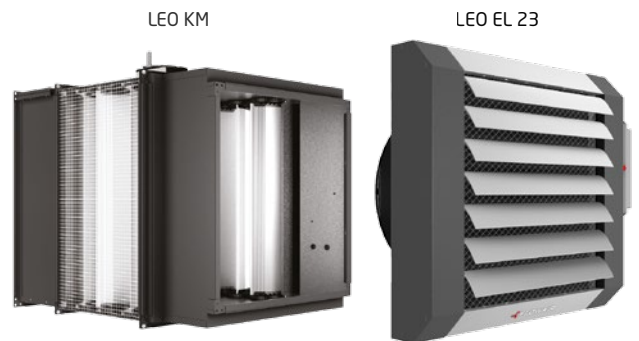
## MIXING CHAMBER



LEO EL 23 electric fan heater with KM mixing chamber form heating and ventilation unit. It is the easiest way to create the efficient mechanical ventilation without additional systems.

More information - LEO KM catalogue.

	KMEL 23	
	1 <sup>st</sup> step	2 <sup>nd</sup> step
Heating capacity (kW)	8,5/14,5	21
Current consumption (A)	12/20,5	30
Air temp. rise $\Delta T$ (°C)	12/19	25
Air flow (m <sup>3</sup> /h)	3200	
Weight (kg)	54,4	



LEO KM + LEO EL 23 = LEO KMEL 23

## VELOCITY OF THE AIR FLOW

### LEO KMEL

