

Cabinet

It consists of cold galvanised steel plate panels painted with oven-dried epoxy powders, colour RAL 9003. The side closures are made of plastic.

Fan assembly

LU/LU-ECM MODELS:

made up of plastic tangential fans installed on a rubber support with rolling bearing and coupled with the electric motor mounted on the structure side.

LC/LI MODELS:

it consists of double inlet centrifugal fans directly fitted on the motor shaft.

Electric motor

LU/LC/LI MODELS:

single-phase motor with capacitor inserted permanently, automatic reset internal thermal protection, class of protection IP 20. Power supply voltage 230V - 50Hz. Two speeds are available.

LU-ECM MODEL:

three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a BLAC sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phase frequency modulated, wave form power supply.

The electric power supply required for the machine is therefore single-phase with voltage of 230 - 240 V and frequency of 50 - 60 Hz.

Coil (**W** versions with hot water)

The "**W series**" units are complete with a water coil (for heating only), made with copper pipes with aluminium fins bonded to the pipes by mechanical expansion.

LU/LU-ECM models are equipped with 1 row coil, **LC/LI** models are equipped with 2 row coils. Maximum water temperature 80°C, maximum operating pressure 10 bar.

Electric resistance (**E** versions)

The "**E series**" units come with filament electric resistances supported by mica spacers, with external bearing structure made of galvanised sheet.

Selecting the correct door curtain

The quantity of air that passes through an open door depends on three main factors:

- the difference in pressure between the indoor environment and the outdoor
- the temperature difference
- the wind speed

Simplifying these phenomena, we can say that an air stream will pass through the door if the indoor conditions, in terms of temperature, pressure and air speed, are different from the outdoor conditions.

The air streams are therefore generated by the natural trend to make the pressure and temperature uniform between two joining environments.

In a heated environment, the hot air will leave the environment to be replaced by cold air.

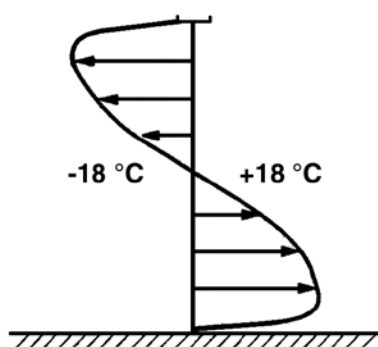
In the presence of wind, the currents of air through opening will be increased.

Indoor/Outdoor Pressure

The difference in pressure between the environment and the surrounding space can be eliminated by controlling the ventilation system that neutralises the difference between the indoor and outdoor pressure.

Air flow generated by differences in temperature (Q_T)

The hot air inside is less dense, and consequently lighter, than the cold outside air, and therefore a difference in pressure is created through an open door. The cold outdoor air flows through the bottom of the opening and pushes the hot air from the indoor environment to the outdoor, through the top of the opening.



The air flow varies according to the temperature difference between the inside and the outside.

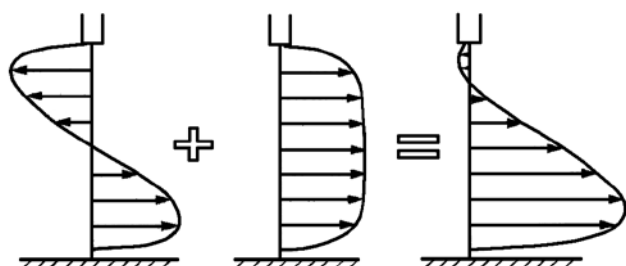
Air flow due to the force of the wind (Q_V)

When the wind blows against the door, air flows through the opening. The flow of air is distributed uniformly across the entire opening. The quantity of air that flows is therefore proportional to the component of the wind speed that is perpendicular to the door. (After a certain time, the environment will reach a value of overpressure such as to reduce the flow of air to just the level of the leakages from the room).

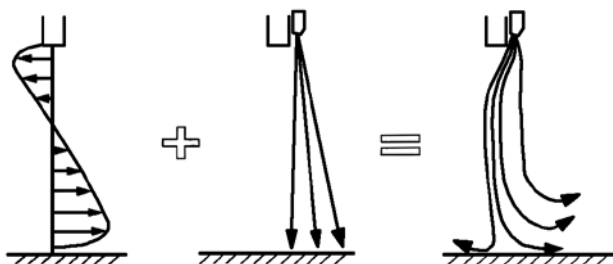
Total air flow (Q_{tot})

The total air flow through an opening is equal to the sum of the flows due to the temperature difference and the flow due to the force of the wind.

$$Q_{tot} = Q_T + Q_V$$



Operating principles of a door curtain



Door curtains are used to prevent cold air from entering an environment and the loss of hot air to the outside. They are also used to protect air conditioned rooms and cold stores against the entrance of hot air and losses of cold air.

A door curtain creates a barrier across the open door, preventing unwanted currents of air.

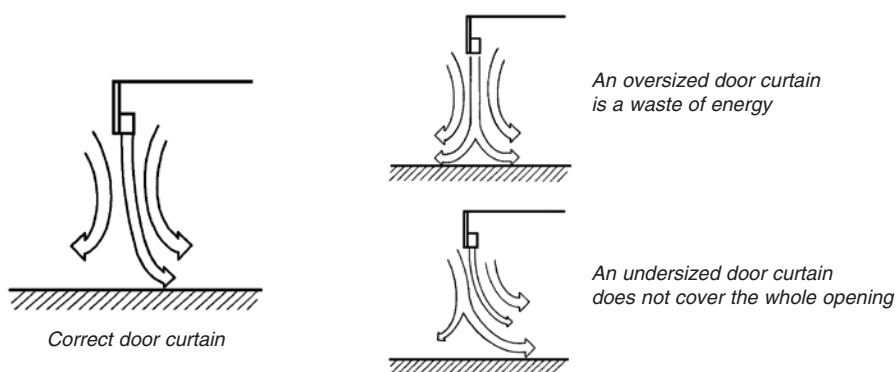
The speed of the air created by the door curtain must be high enough to force the resulting flow downwards.

The door curtain should be aimed so that only a small part of the air is lost to the outside, keeping the cold air on the outside, following the air barrier, while the hot air remains inside the environment.

Criteria for selecting a door curtain

It is important to choose the most appropriate model.

The height of the door is a critical factor, as is the correct setting of the air speed.

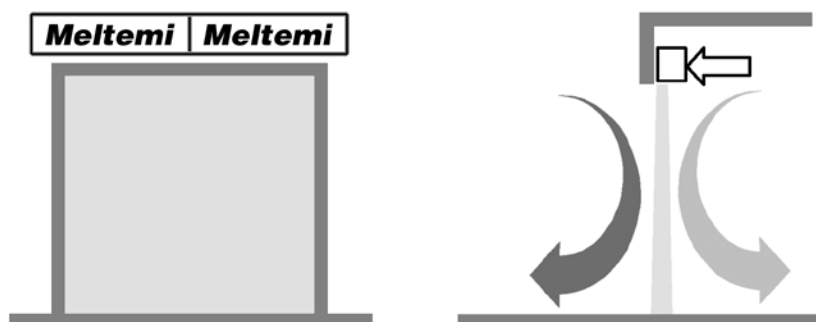


If there is a negative pressure inside the environment, the performance of the door curtain will be substantially reduced: the ventilation should be balanced.

In most cases, the door curtains must be installed on the inside of the opening that is being protected. Nonetheless, when having to protect a cold room, the curtain must be located on the warmer side, that is, the outside of the opening.

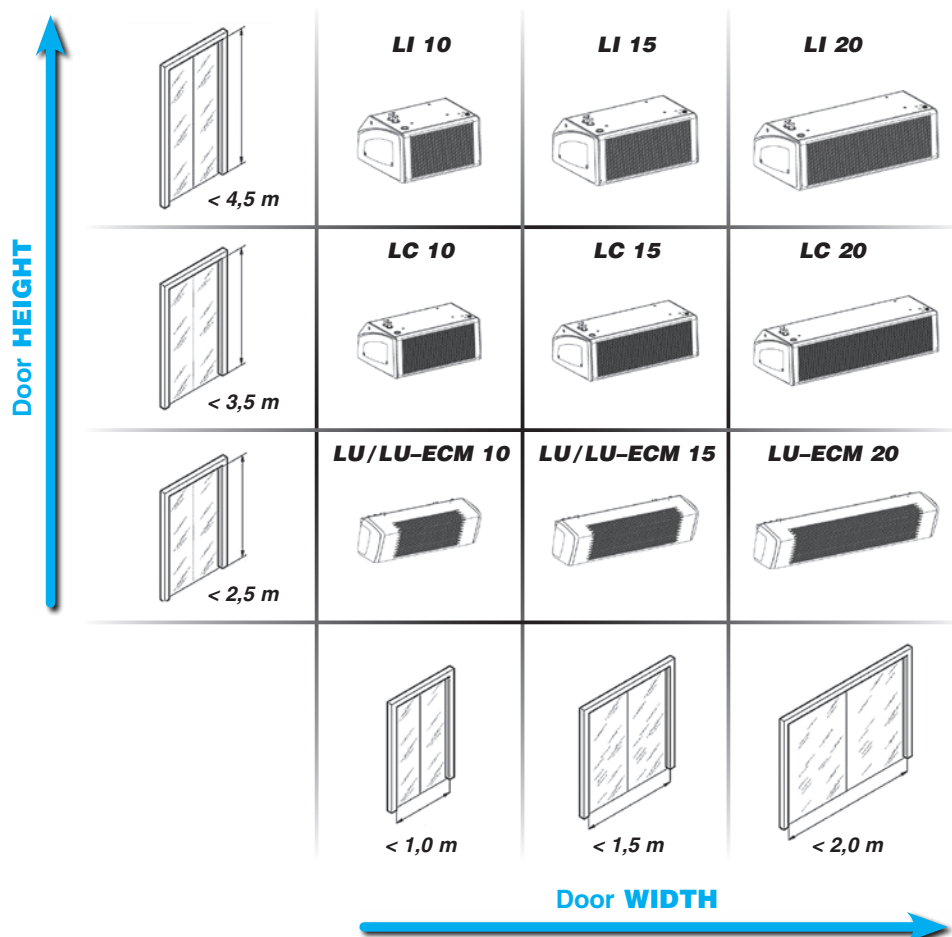
For best performance, the door curtain should be located as near as possible to the opening, and cover the entire width of the door.

The direction and speed of the air barrier should be adjusted according to the characteristics of the door compartment. The pressure generated by the wind tends to cancel the effect of the door curtain, forcing the curtain of air produced back inside the room. In these situations, the door curtain should be inclined towards the outside.



VERSIONS	Maximum installation height (m)	MODELS		
		Air	Water	Electric
LU	2,5	LU - 10A	LU - 10W	LU - 10E
		LU - 15A	LU - 15W	LU - 15E
LU-ECM	2,5	LU-ECM - 10A	LU-ECM - 10W	LU-ECM - 10E
		LU-ECM - 15A	LU-ECM - 15W	LU-ECM - 15E
		LU-ECM - 20A	LU-ECM - 20W	LU-ECM - 20E
LC	3,5	LC - 10A	LC - 10W	LC - 10E
		LC - 15A	LC - 15W	LC - 15E
		LC - 20A	LC - 20W	LC - 20E
		LC - 10AS	LC - 10WS	-
		LC - 15AS	LC - 15WS	-
		LC - 20AS	LC - 20WS	-
LI	4,5	LI - 10A	LI - 10W	LI - 10E
		LI - 15A	LI - 15W	LI - 15E
		LI - 20A	LI - 20W	LI - 20E
		LI - 10AS	LI - 10WS	-
		LI - 15AS	LI - 15WS	-
		LI - 20AS	LI - 20WS	-

Tips for choosing the unit



The **LU/LU-ECM** series door curtains have been designed for installation near small entrances of offices and commercial environments.

The unit comes with integrated control system specifically designed for every type of operation:

LU-A: air operation only, it is equipped with a control located on board, which can be easily accessed from the bottom. This includes a step-by-step control button to switch the device on and off and select the air speed.

LU-ECM-A: air ventilation only. It is equipped with a remote control system (supplied with the unit) or it can be combined with a wall mounted T-MB control with display (accessory).

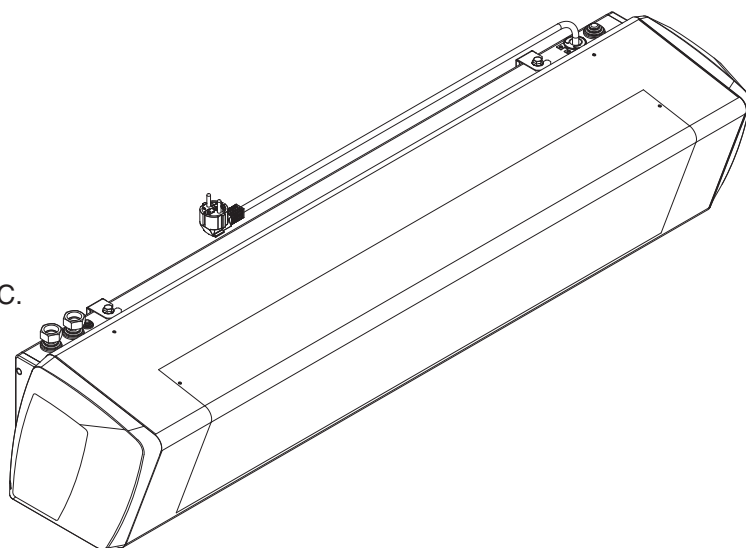
LU-W/E and LU-ECM-W/E: operation with hot water or electric coil. It is equipped with a remote control system (supplied with the unit) or it can be combined with a wall mounted T-MB control with display (accessory).

The controls are provided with door contact connection or with ON/OFF remote control.



Product specification:

- Integrated control (LU-A).
- Remote control (LU-W/E and LU-ECM-A/W/E).
- 2 speed fan.
- 2 stage electric coil.
- Wall brackets included.
- 230 V output to control an ON/OFF valve.
- Models with electric resistance are equipped with two safety thermostats; the first, with automatic reset, is set at 45°C, while the second, with manual reset, is set at 80°C.



Recommended installation height: 2.5 metres

Installation: horizontal

Lengths available: 1, 1.5 and 2 metres

Electric resistance:

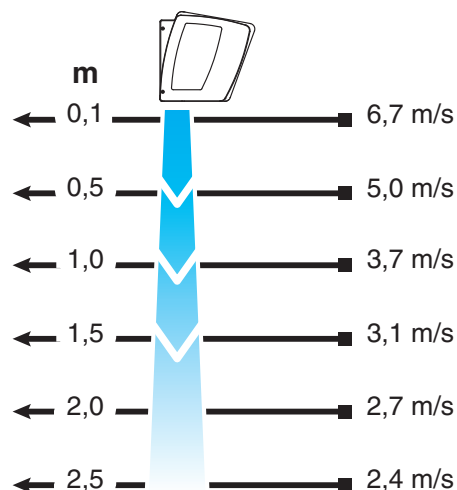
LU/LU-ECM-10E 3 kW 230V 1 Ph or 400V 3 Ph

LU/LU-ECM-15E 6 kW 400V 3Ph

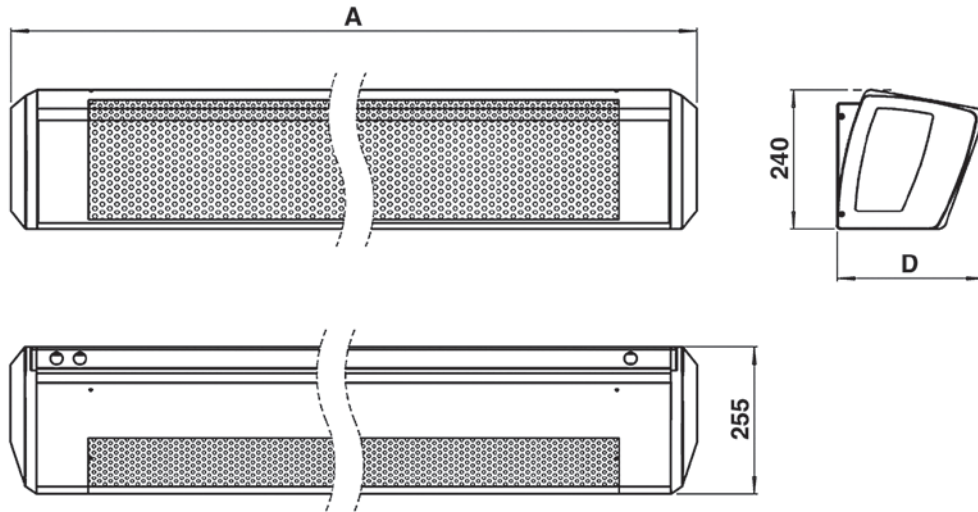
LU-ECM-20E 6 kW 400V 3Ph

1 row hot water coil

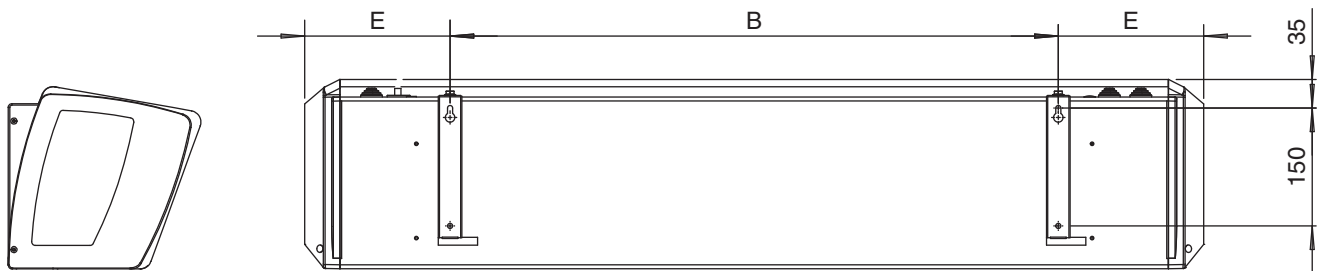
**Complete with electrical connection cable
with Schuko CEE 7/7 plug**



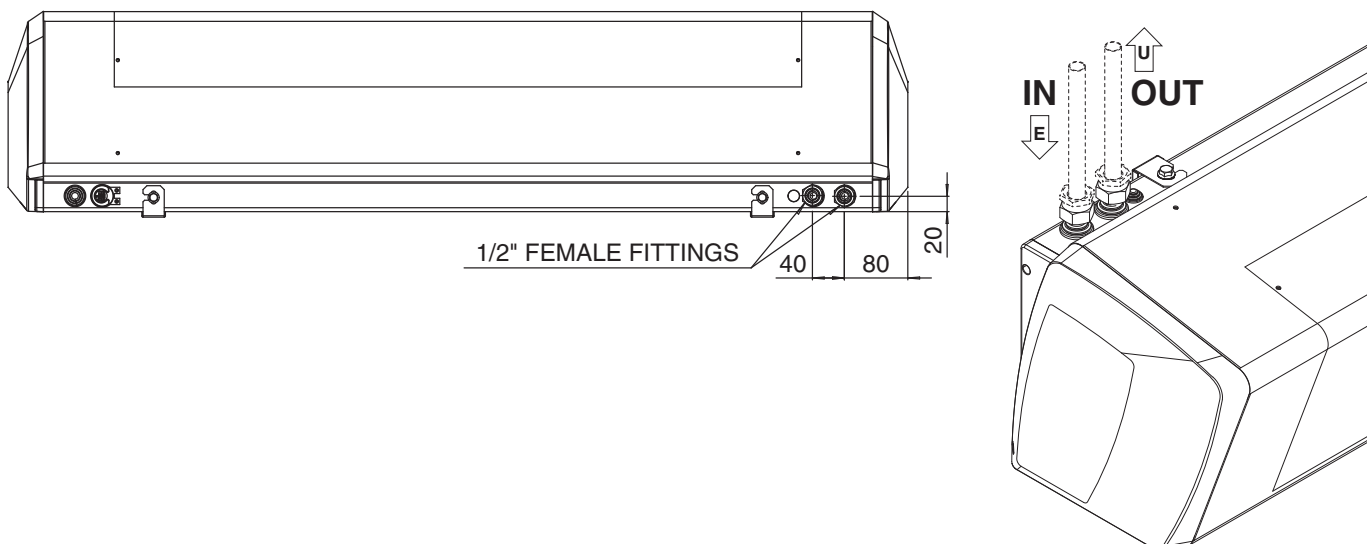
Dimensions and Weight



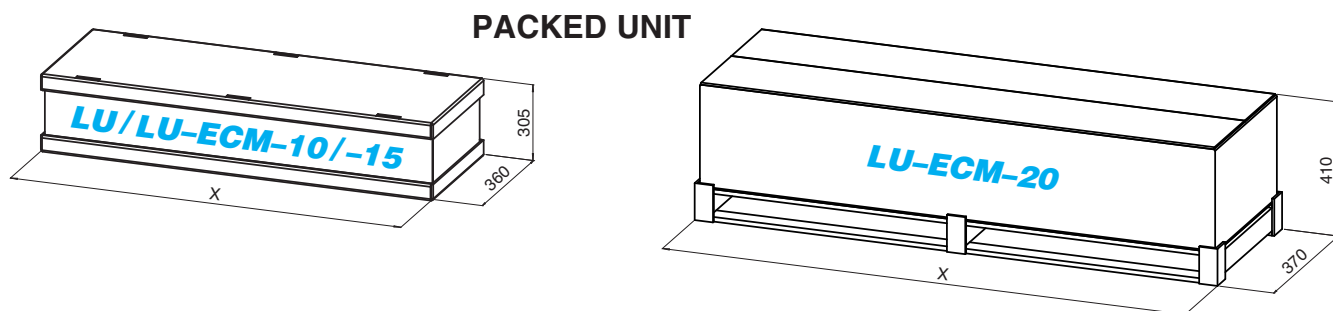
Suspension brackets



Water connection position



Dimensions, Weight, and Water content



Dimension (mm)

MODEL	LU/LU-ECM		LU-ECM
	10	15	20
A	1144	1644	2150
B	774	1274	1274
D	255	255	275
E	185	185	438
X	1230	1730	2250

Weight (kg)

MODEL	Weight with packaging			Weight without packaging		
	LU/LU-ECM 10	LU/LU-ECM 15	LU-ECM 20	LU/LU-ECM 10	LU/LU-ECM 15	LU-ECM 20
LU/LU-ECM-A	16,4	23,1	33	14	20	29
LU/LU-ECM-W	18,4	26,1	36	16	23	32
LU/LU-ECM-E	18,4	26,1	37	16	23	33

Water content (litres)

MODEL	LU/LU-ECM		LU-ECM
	10	15	20
Litres	0,65	0,95	1,30

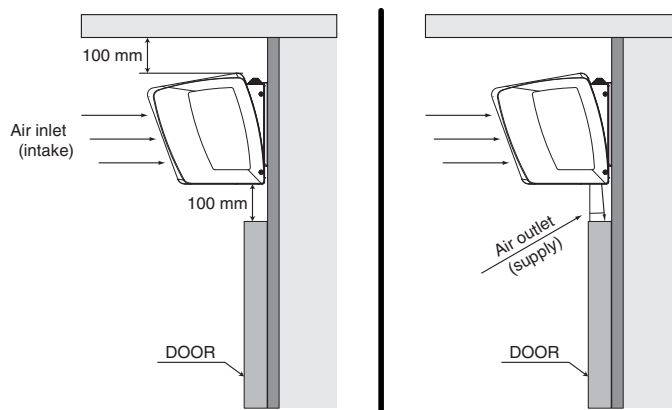
Installation notes



In order to allow suitable space for maintenance, but above all to guarantee the correct operation of the door curtain, the distance indicated must be observed.

The product, in addition, must not be installed in plenums or false ceilings without adequate air intake.

Distance that must be guaranteed for the correct operation of the door curtain



Technical specifications

VENTILATION only

MODEL		LU-10A		LU-15A	
Speed		max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1644	1644
Air flow	m³/h	1260	760	1900	1090
Sound pressure (***)	dB(A)	49	39	50	39
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	86	63	134	86
	A	0,37	0,27	0,58	0,39
Weight	kg	14	14	20	20

with WATER COIL

MODEL		LU-10W		LU-15W	
Speed		max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1644	1644
Air flow	m³/h	1150	740	1750	1050
Heating (*)	kW	5,87	4,56	8,94	6,65
Heating (**)	kW	3,36	2,63	5,06	3,79
Sound pressure (***)	dB(A)	49	39	50	39
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	86	63	134	86
	A	0,37	0,27	0,58	0,39
Weight	kg	16	16	23	23

with ELECTRIC RESISTANCE

MODEL		LU-10E-230		LU-10E-400		LU-15E	
Speed		max	min	max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1144	1144	1644	1644
Air flow	m³/h	1260	760	1260	760	1900	1090
Electric resistance - 1 st stage	kW	2	2	2	2	3	3
Electric resistance - 2 nd stage	kW	3	3	3	3	6	6
Sound pressure (***)	dB(A)	49	39	49	39	50	39
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Electric resistance voltage	V	230 V ~	230 V ~	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph
Motor absorption	W	86	63	86	63	134	86
	A	0,37	0,27	0,37	0,27	0,58	0,39
Electric resistance absorption – 1 st stage	A	8,7	8,7	3,0	3,0	4,5	4,5
Electric resistance absorption – 2 nd stage	A	13,1	13,1	4,5	4,5	9,0	9,0
Weight	kg	16	16	16	16	23	23

(*) = Air temperature 18°C – Water temperature 80/60°C.

(**) = Air temperature 18°C – Water temperature 60/40°C.

(***) = The sound pressure levels dB(A) are measured at a distance of 3m, directional factor Q=2, according to EN 3744.

Technical specifications

VENTILATION only

MODEL		LU-ECM-10A		LU-ECM-15A		LU-ECM-20A	
Speed		max	min	max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1644	1644	2150	2150
Air flow	m³/h	1260	760	1900	1090	2560	1450
Sound pressure (***)	dB(A)	49	39	50	39	52	41
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	64,8	25,5	113	49,8	165	53,5
	A	0,55	0,22	0,92	0,42	1,3	0,46
Weight	kg	14	14	20	20	29	29

with WATER COIL

MODEL		LU-ECM-10W		LU-ECM-15W		LU-ECM-20W	
Speed		max	min	max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1644	1644	2150	2150
Air flow	m³/h	1150	740	1750	1050	2250	1310
Heating (*)	kW	5,87	4,56	8,94	6,65	12,19	8,81
Heating (**)	kW	3,36	2,63	5,06	3,79	7,02	5,11
Sound pressure (***)	dB(A)	49	39	50	39	52	41
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Motor absorption	W	46,9	19,8	81,2	36,4	120,5	38,5
	A	0,39	0,18	0,69	0,32	0,97	0,35
Weight	kg	16	16	23	23	32	32

with ELECTRIC RESISTANCE

MODEL		LU-ECM 10E-230		LU-ECM 10E-400		LU-ECM 15E		LU-ECM 20E	
Speed		max	min	max	min	max	min	max	min
Installation height	m	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
Length	mm	1144	1144	1144	1144	1644	1644	2150	2150
Air flow	m³/h	1260	760	1260	760	1900	1090	2310	1305
Electric resistance - 1 st stage	kW	2	2	2	2	3	3	3	3
Electric resistance - 2 nd stage	kW	3	3	3	3	6	6	6	6
Sound pressure (***)	dB(A)	49	39	49	39	50	39	52	41
Motor voltage	V	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~	230 V ~
Electric resistance voltage	V	230 V ~	230 V ~	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph	400 V 3 Ph
Motor absorption	W	52	22	52	22	89	40	132	42,4
	A	0,43	0,19	0,43	0,19	0,75	0,35	1,06	0,39
Electric resistance absorption - 1 st stage	A	8,7	8,7	3,0	3,0	4,5	4,5	4,5	4,5
Electric resistance absorption - 2 nd stage	A	13,1	13,1	4,5	4,5	9,0	9,0	9,0	9,0
Weight	kg	16	16	16	16	23	23	33	33

(*) = Air temperature 18°C – Water temperature 80/60°C.

(**) = Air temperature 18°C – Water temperature 60/40°C.

(***) = The sound pressure levels dB(A) are measured at a distance of 3m, directional factor Q=2, according to EN 3744.

Thermal emissions – W series with hot water coil

Entering AIR Temperature 18°C

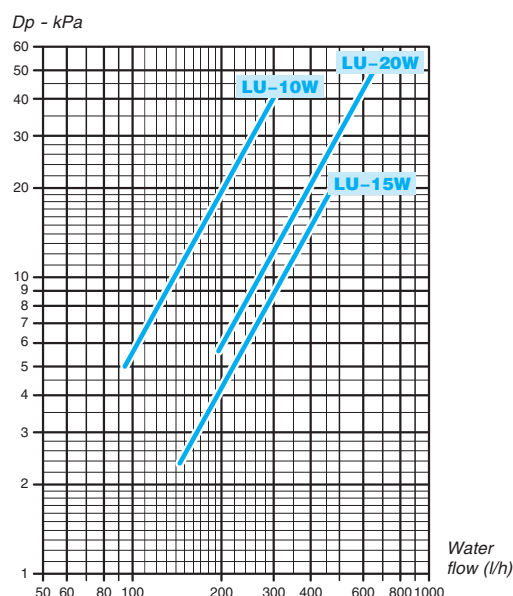
		Water temperature: 80/60°C					Water temperature: 60/40°C			
LU/LU-ECM MODEL	Speed	Air flow	Emission	Leaving air temp.	Water flow	Pressure drop	Emission	Leaving air temp.	Water flow	Pressure drop
		m³/h	kW	°C	l/h	kPa	kW	°C	l/h	kPa
10W	MAX	1150	5,87	33,0	252	28	3,36	26,6	144	11
	MIN	740	4,56	36,2	196	18	2,63	28,5	113	7
15W	MAX	1750	8,94	33,1	385	14	5,06	26,6	217	5
	MIN	1050	6,65	36,7	286	8	3,79	28,7	163	3
20W (****)	MAX	2250	12,19	34,0	524	29	7,03	27,2	302	12
	MIN	1310	8,82	37,9	379	16	5,12	29,5	220	7

		Water temperature: 50/30°C					Water temperature: 50/40°C			
LU/LU-ECM MODEL	Speed	Air flow	Emission	Leaving air temp.	Water flow	Pressure drop	Emission	Leaving air temp.	Water flow	Pressure drop
		m³/h	kW	°C	l/h	kPa	kW	°C	l/h	kPa
10W	MAX	1150	2,07	24,5	89	5	3,00	27,3	258	32
	MIN	740	1,63	23,3	70	3	2,34	25,7	201	20
15W	MAX	1750	3,06	24,5	132	2	4,56	27,6	392	16
	MIN	1050	2,32	23,2	100	1	3,39	25,7	292	9
20W (****)	MAX	2250	4,38	23,8	188	5	6,25	26,2	537	26
	MIN	1310	3,22	25,3	138	3	4,52	28,2	388	28

		Water temperature: 45/35°C					Water temperature: 40/30°C			
LU/LU-ECM MODEL	Speed	Air flow	Emission	Leaving air temp.	Water flow	Pressure drop	Emission	Leaving air temp.	Water flow	Pressure drop
		m³/h	kW	°C	l/h	kPa	kW	°C	l/h	kPa
10W	MAX	1150	2,39	25,4	205	22	1,76	22,5	152	13
	MIN	740	1,86	24,1	160	14	1,38	23,5	119	8
15W	MAX	1750	3,61	25,6	310	11	2,65	22,5	228	6
	MIN	1050	2,69	24,1	232	6	1,98	23,6	171	4
20W (****)	MAX	2250	4,98	24,5	428	23	3,70	22,9	318	14
	MIN	1310	3,61	26,2	311	13	2,70	24,1	232	8

(****) = LU-ECM only.

Water side pressure drop – W series with hot water coil



The water pressure drop figures refer to a mean water temperature of **50°C**; for different temperatures, multiply the pressure drop figures by the correction factors **K**.

°C	35	40	50	60	70
K	1,09	1,06	1,00	0,94	0,88

Controls supplied as standard

Control system **LU-A**

The units are equipped, as standard, with electronic board to manage:

- High/Low speed ON button.
- ON indication and failure LED.
- Terminals for "Door Contact" external connection.
- Terminals for connecting a remote ON/OFF switch.
- Dip switch to set the post-ventilation delay time of the door closure fan.



Control system **LU-W/E** and **LU-ECM-A/W/E**

The units are equipped, as standard, with electronic board, receiver unit for remote control and RR03-LU remote control to manage:

- ON/OFF unit.
- Fan speed selection.
- Water valve ON/OFF actuator ("W" version).
- Activation of the electric resistance 1st and 2nd stage ("E" version).
- Door interlock.
- Remote ON/OFF interlock.

Several units can be controlled in Master/Slave mode.

The units can be managed by the T-MB control (accessory).



RR03-LU infra-red remote control

The infra-red remote control allows you to set the door curtain operation parameters from a remote position. The **RR03-LU** infra-red remote control features the following functions:

- Switch the appliance ON and OFF.
- Temperature set.
- Set the fan speed (low or high).
- Set the operation mode (fan only, heating or 1st - 2nd stage for the model with electric resistance).
- Time setting.
- 24 hours ON/OFF program.



Accessories

T-MB wall control

Wall control with display that allows controlling one or more units in Master/Slave mode. The control is equipped with internal sensor to detect the room temperature, which can be defined as a priority compared to the return air sensor on the door curtain. The **T-MB** control features the following functions:

- Switch the appliance ON and OFF.
- Temperature set.
- Set the fan speed (low or high).
- Set the operation mode (fan only, heating or 1st - 2nd stage for the model with electric resistance).
- Time setting.
- Weekly ON/OFF program.

IDENTIFICATION	CODE
T-MB	9066331E



Door contact sensor kit

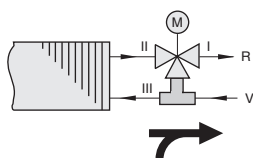
As soon as the door is open, the DSC door switch provides the consent for the air curtain operation (ventilation, valve opening, internal resistance supply) and denies it as soon as the door is closed. In order to prevent the product from continuous start-stops and motor stress, you can set post-ventilation of 30, 60 or 90 seconds with specific DIP switches in rooms with frequent door opening-closing operations.



IDENTIFICATION	CODE
DSC	9042090

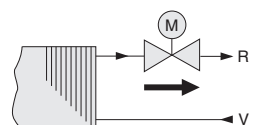


Three way ON-OFF valves with electric control



CODE	DN (Ø)	Kvs	ΔP max operating KPa	ΔP close off KPa
9039030	15 (1/2")	1,6	50	150
9039031	20 (3/4")	2,5	50	50
9039032	20 (3/4")	4,0	50	50

Two way ON-OFF valves with electric control



CODE	DN (Ø)	Kvs	ΔP max operating KPa	ΔP close off KPa
9039033	15 (1/2")	1,7	50	250
9039034	20 (3/4")	2,8	50	150
9039035	25 (1")	5,2	60	80

