Ilox 89 Energy Recovery Unit Installation



Location

Install the energy recovery unit in a warm room. Preferably the temperature should exceed +10°C. The Ilox 89 should be installed on the wall with a wall mount or attached to the ceiling with a ceiling mount.

Duct assembly

The air ducts of the Ilox 89 unit can be installed in the attic or the plenum space above a suspended ceiling, for example. In a cold room, the air ducts must be carefully insulated using 10 cm thick mineral wool or similar material. At room temperatures, the outdoor air and discharge air ducts must be insulated and equipped with condensate insulation – a plastic membrane or similar, for example. Exhaust and supply air ducts do not require insulation in warm rooms. Carefully guide the air ducts through the vapour barrier to the attic. Place sound absorbers on the supply and exhaust air ducts as close to the unit as possible.

The air duct connections in the top surface of the unit are pipe-sized, which means that connections to the unit are made with couplings or elbows. The duct connection is \emptyset 160 mm; also available with 125 mm duct outlets. The weight of the ducts must not burden the unit. The duct fastenings must be implemented in such a way that the weight is carried by other structures. The transfer of sound from the duct to the structures must also be prevented with an insulation piece installed between the roof truss and the pipe, and the pipe and the frame.

Please note! You should always use the vapour barrier lead-through plate if the air ducts are led to the attic directly from the top of the unit. Carefully guide the air ducts through the vapour barrier to the attic. The ducts on top of the unit are close together, and it is difficult the seal the vapour barrier without the separate lead-through plate. If the unit is located in a shower room or utility room, air leaks above the machine are particularly harmful due to the high humidity of the room.

Cut a hole 10–20 mm smaller in diameter in the plate's cellular plastic at the position of the pipe outlets to be led through the roof. Screw the plate to the ceiling through the holes on the sides. Tighten the vapour barrier plastic between the plate and structure or tape it tightly to the plate. When installing pipes, take the handedness of the unit into account, as the same plate can also be used on mirrored units.



Figure 2. Vapour barrier leadthrough plate



Figure 1.

There is a connection (1/2" internal thread) for condensate removal at the bottom of the unit. Use a 12 mm pipe or rigid hose for conveying the condensate to the floor trap, the drain ring in the washbasin, or the water trap above the water surface.

Do not connect the condensate pipe directly to the drain. Make a water trap to the pipe by bending it as shown in the illustration. The height of backwater in the water trap must be at least 50 mm. Make sure that there is only one water trap and no long horizontal passages in the pipe. The condensate pipe must either be placed in a warm room or it must be heated using an electric heating cable to ensure it will not freeze.

Please note! If there is no water in the water trap, the air flowing to the unit through the condensate connection will make a loud noise.

Screw the wall mounting rails (part 1) that come with the machine firmly to the wall structure, preferably to a brick, light concrete block or concrete wall. If the mounting surface is plasterboard or similar, the installation spot on the wall must be reinforced with mesh or plywood panel. Ensure the vertical and horizontal straightness with a spirit level. In the figure, the unit's outer dimensions are indicated with a dotted line.

Please note! Avoid installing the unit on a wall that is shared with a bedroom due to conveyed noise. Alternatively, the conveyance of noise must be prevented by using a ceiling mount, for example.

Remove the rear fastening screws (2 pcs) in the corners of the unit and lift the unit onto the bottom hitches by grabbing the rear corner. Then, lift the unit slightly upwards while leaning towards the wall until the fastening hitches at the top of the rails are guided into the holes in the back of the unit. Lower the unit to rest on the supports and lock the bottom corners to the rails with the screws that you removed earlier.



Figure 3.



Figure 4. Wall mounting

Ceiling mounting

Fasten the ceiling mount to the ceiling structure with four 8 mm threaded rods.

Install the mount in such a way that the fastening hooks face down and the ventilation ducts are as shown in the figure. The pipe outlets in the figure are for the right-handed unit (model R).

Install the flange nuts above the frame and the rubber cone, washer and locking screw (at the bottom) under it. Pre-tension the locking screw by hand by about two rotations (the rubber piece shortens by approximately 2 mm) (Figure 6).

Cut the threaded rods in such a way that the rod ends remain above the bottom edge of the frame.

Figure 5 shows the duct outlets of model R.

- 1. Outdoor air to unit
- 2. Supply air from unit to residence
- 3. Exhaust air to unit



6. Water connections



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Installation of water pipes for reheating coil (model llox 89 W)

Connect the water coil to the heating system of the residence in parallel with radiators, for example. Thanks to the high efficiency of the unit, the reheating coil requires so little power that it can also be connected directly to the same manifold of the floor heating system as the floor pipes. However, do not connect the coil directly to hot boiler water without a mixing valve.

Warning! Never connect the water coil to the household water system.

The connection pipes of the water coil are led from the unit with 15 mm plastic pipes. The length of the pipes from the top surface of the unit is approximately 80 cm. The inlet water is connected to the pipe with the coil valve (Figure 8).

Connect the heat pipes with compression couplings and support bushings above the unit. If the connections are in the plenum space above the dropped ceiling, create an inspection hatch at their location. Install a bleeding port at the highest point of the return pipe.

Before beginning operation, once the network has been filled and de-aired, ensure that water circulates in the coil. The bleeding status of the water pipes must be checked after commissioning once water has been circulating in the network for a few days. In the winter when freezing temperatures are possible, the air flow must be adjusted before filling the reheating coils with water (risk of freezing).

Warning! Do not stop the heat pump during the heating season or close the valves from the coil line.

The supply air temperature before the water coil is $+10^{\circ}C$ Corresponds to an outdoor temperature of approximately $-20...-30^{\circ}C$

Inlet wate	۱ ۲	Design conditions		
temperatu °C	 ıre Airflow L∕s	Water flow (L/h)	Power output (kW)	Supply air (°C)
	40	20	240	17
70	60	30	360	17
	80	40	480	17
	100	45	600	17
	40	30	240	17
50	60	45	360	17
	80	62	480	17
	100	81	600	17
	40	57	240	17
40	60	95	360	17
	80	126	480	17
	100	126	600	17



Figure 8.

Electrical connections



An authorised electrician should carry out the electrical installation of the Ilox 89 unit. The door switch serves as the maintenance switch of the unit. The unit is controlled using a range hood or a separate speed selection switch. Connect the control panel and range hood to the automation card behind the electrical cabinet lid as shown in the connection diagram. When connecting accessories, pull the interior of the electrical cabinet out of the unit.

Please note! Ensure that there is extra length in the cables so that the interior of the electrical cabinet can be pulled out sufficiently far for the installation.

The electrical connection diagrams are in a plastic folder inside the electrical cabinet lid.

Fine tuning fan speeds

The air exchange capacity of the Ilox 89 unit can be finetuned to various speeds by using the LED lights on the front edge of the electrical cabinet and the button and adjustment potentiometer next to them.

When adjusting the air flows of a house, please note that the correction set for the supply air fan affects all fan speeds equally.

The fan speed adjustment instructions are provided on the following page.

Operating situation

The LED lights on the front edge of the electrical cabinet show the selected air exchange rate (rates 1...4). LED no. 1 is illuminated at rate 1, LED 2 is illuminated at rate 2, and so on. If the cell thawing programme is activated, LED no. 6 is illuminated, and if the fireplace function is activated, LED no. 5 is illuminated. When the fan speed is checked or adjusted, the display automatically shows the selected speed.

Checking adjustment values:

- Keep pressing the button to the left of the LED lights, and the lights are illuminated in the order shown in Figure 9.
 When LED no. 1 is illuminated, press and hold the button for about 2 s but no more than 5 s. This illuminates the lights to show which control voltage has been set for rate 1 (Figure 11).
- 3. Keep pressing the button to the left of the LED lights.
- 4. When LED no. 2 is illuminated, press and hold the button for about 2 s but no more than 5 s. This illuminates the lights to show which control voltage has been set for rate 2 (Figure 11).

The same principle can be used to adjust the third and fourth rates.

- 5. Keep pressing the button to the left of the LED lights.
- 6. When the four final LEDs are illuminated, press and hold the button for about 2 s but no more than 5 s. The lights will indicate how much lower or higher the control voltage of the supply air fan is than that of the exhaust air fan (Figure 12).
- 7. Write down the voltage values.

Please note! Do not keep the button pressed for longer than 5 s as this will change the setting!



Figure 9.



Figure 10.

Adjusting fan speeds:

Adjusting speed 1:

- 1. Press the button enough times to illuminate light no. 1.
- 2. Press the button and hold it down for the duration of the adjustment.
- 3. Use the adjustment screw (to the right of the LED lights) to set the voltage value to speed 1 when the lights begin to flash (Figure 11).

Adjusting speed 2:

- 1. Press the button enough times to illuminate light no. 2.
- 2. Press the button and hold it down for the duration of the adjustment.
- 3. Use the adjustment screw (to the right of the LED lights) to set the voltage value to speed 2 when the lights begin to flash (Figure 11). Do the same for speeds 3 and 4.

The control voltage of the fan can be freely adjusted between 3 and 10 V. The LED lights show the control voltage at an accuracy of 0.5 V. For example, if lights 2 and 3 are on at the same time, the set voltage is approximately 4.5 V.

Adjusting the correction of the supply air fan:

- 1. Press the button enough times to illuminate the last four lights.
- 2. Press the button and hold it down for the duration of the adjustment.
- 3. Use the adjustment screw (to the right of the LED lights) to set the desired correction for the supply air fan (Figure 12).

Please note! The correction is the same for all fan speeds.



Accessories

Humidity switch

Install the humidity switch, for example, on the ceiling or wall of the shower room, as far away from the shower as possible. Install the switch on the surface of the wall or ceiling without an enclosure. The protection class of the switch is IP 30.

Boost switch

A separate boost switch can be connected to the unit to increase the efficiency of air exchange where no control panel is available. The boost switch is installed in place of the humidity switch or connected in parallel.

Fireplace switch, (impulse switch)

A separate fireplace switch can be installed in the vicinity of a fireplace. When the fireplace switch is pressed, the supply air fan shifts to a higher speed and the exhaust air fan switches to speed 1. The speeds return to after 15 minutes. This function can also be used in connection with a cooker hood or central vacuum system, in which case it automatically reduces negative pressure during cooking or vacuuming.

All accessories are connected to the automation card in the electrical cabinet. A KLMA $2 \times 0.8 \times 0.8$ cable, for example, can be used for the connections.

Connecting a range hood with a heat recovery bypass

Sometimes there is a need to connect the range hood exhaust duct in such a way that, upon a temporary boost from the range hood, the air bypasses the heat recovery cell. (Models Ilox 89–125 - K and Ilox 89–160 - K)

In this case, the basic air flow of the range hood must be 0 l/s. The basic air flow of the kitchen must be handled through a separate exhaust duct, in which case the basic air flow goes through the heat recovery cell.

Please note! Ensure that the exhaust air flow through the heat recovery cell is equal to or greater than the supply air flow. The cell bypass is intended for short-term boosts only.



Humidity switch



Fireplace switch

Possible accessory combinations:

- 1. Fireplace switch -- Humidity switch
- 2. Fireplace switch -- Humidity switch -- Range hood/central vacuum system
- 3. Range h./central v. connected in place of fireplace switch or in parallel

Installing a Mosaik control switch



Technical specifications, Ilox 89 and Ilox 89 W					
		llox 89	llox 89 W		
Dimensions	mm (W x H x D)	598 x 515 x 570	598 x 515 x 570		
Electricity		230 V, 50 Hz	230 V, 50 Hz		
Electrical power		584 W, 2.6 A	234 W, 1 A		
Reheating	W	350 (electricity)	600 W (water)		
Weight	kg	50	50		
Air flow, max	dm³/s	125	125		
Duct diameter	mm	160	160		

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