

# USER'S MANUAL

## Micra 60



**Single-room heat recovery  
air handling unit**

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**SAFETY REQUIREMENTS**

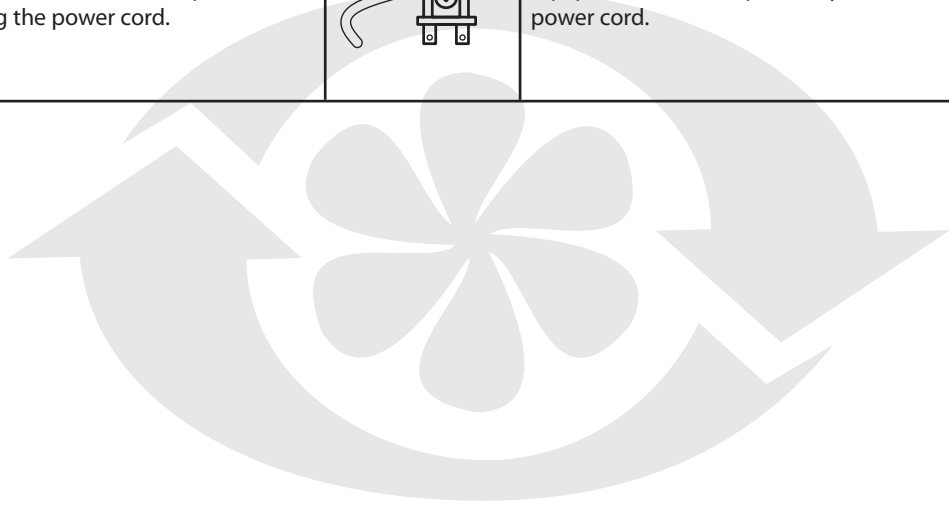
- Read the user’s manual carefully prior to the operation and installation of the single-room heat recovery unit, hereinafter the unit.
- Installation and operation of the unit shall be performed in accordance with the present user’s manual as well as the provisions of all the applicable local and national construction, electrical and technical codes and standards.
- The warnings contained in the present user’s manual must be considered most seriously since they contain vital personal safety information.
- Failure to follow the safety regulations may result in an injury or unit damage.
- Read the manual carefully and keep it as long as you use the unit.
- While transferring the unit control the user’s manual must be turned over to the receiving operator.

Symbol legend used in the manual:

	<b>WARNING!</b>
	<b>DO NOT!</b>

**UNIT MOUNTING SAFETY PRECAUTIONS**

	The unit must be disconnected from the power supply prior to every installation or repair operation.		The unit must be grounded!
	The unit must not be operated outside the temperature range stated in the user’s manual or in aggressive or explosive environments.		Do not use damaged equipment or conductors to connect the unit to power mains.
	While installing the unit follow the safety regulations specific to the use of electric tools.		Unpack the unit with care.
	Do not change the power cord length at your own discretion. Do not bend the power cord. Avoid damaging the power cord.		Do not position any heating devices or other equipment in close proximity to the unit power cord.



**UNIT OPERATING SAFETY PRECAUTIONS**

	Do not touch the controller or the remote control with wet hands. Do not carry out the unit maintenance with wet hands.		Do not wash the unit with water. Protect the unit electric parts from water ingress.
	Use the unit only as intended by the manufacturer. Do not connect clothes dryers or similar equipment to the unit or the ventilation system!		Do not put any containers with water, for example, vases on the unit.
	Do not sit on the unit and do not put any objects on it.		Disconnect the unit from power supply prior to maintenance.
	Do not let children operate the unit.		Do not damage the power cable while operating the unit. Do not put any objects on the power cable.
	Keep explosive and inflammable products away of the unit.		Do not open the operating unit.
	In case of unusual sounds, smoke disconnect the unit from power supply and contact the service centre.		In case of long lasting operation of the unit check the mounting reliability periodically.
	Do not block the air duct when the unit is on.		Do not let air flow from the unit be directed to the open flame devices or candles.

## INTRODUCTION

This user's manual includes technical description, operation, installation and mounting guidelines, technical data for the single-room heat recovery air handling unit VENTS Micra 60, hereinafter the unit.

## USE

The single-room heat recovery air handling unit is an energy saving appliance based on heat recovery technology. It is one of the energy saving components used in buildings and premises. The unit is a component part of a ventilation system and is not designed for stand-alone operation.

The unit is designed to arrange permanent controllable air exchange in flats, cottages, hotels, cafes and other domestic and public premises. The filtered air is warmed up by means of the recovered extract air heat energy.

The unit is designed for wall surface mounting.

The unit is rated for continuous operation.

Transported air must not contain any flammable or explosive mixtures, evaporation of chemicals, coarse dust, soot and oil particles, sticky substances, fibrous materials, pathogens or any other harmful substances.



**THE UNIT IS NOT INTENDED TO BE USED BY CHILDREN, PHYSICALLY OR MENTALLY DISABLED PERSONS, PERSONS WITH SENSORY DISORDER, PERSONS WITH NO APPROPRIATE QUALIFICATION.**

**INSTALLATION AND CONNECTION OPERATIONS MUST BE PERFORMED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE SAFETY BRIEFING.**

**THE UNIT INSTALLATION PLACE MUST PREVENT ACCESS BY UNATTENDED CHILDREN.**

## DELIVERY SET

- Micra 60 unit - 1 item
- Fastening set - 1 item
- User's manual - 1 item
- Master plate - 1 item
- Packing box - 1 item
- Sensor or mechanical speed switch - 1 item

## DESIGNATION KEY

### Micra 60-AX

**Unit name**

**Air capacity [m<sup>3</sup>/h]**

**Speed switch system**

**3 – mechanical speed switch P3-1-300**

**4 – sensor speed switch SP3-1**

**MAIN TECHNICAL PARAMETERS**

The unit is designed for indoor application with the ambient temperature ranging from +1 °C (+34 °F) up to +40 °C (+104 °F) and relative humidity up to 80%.

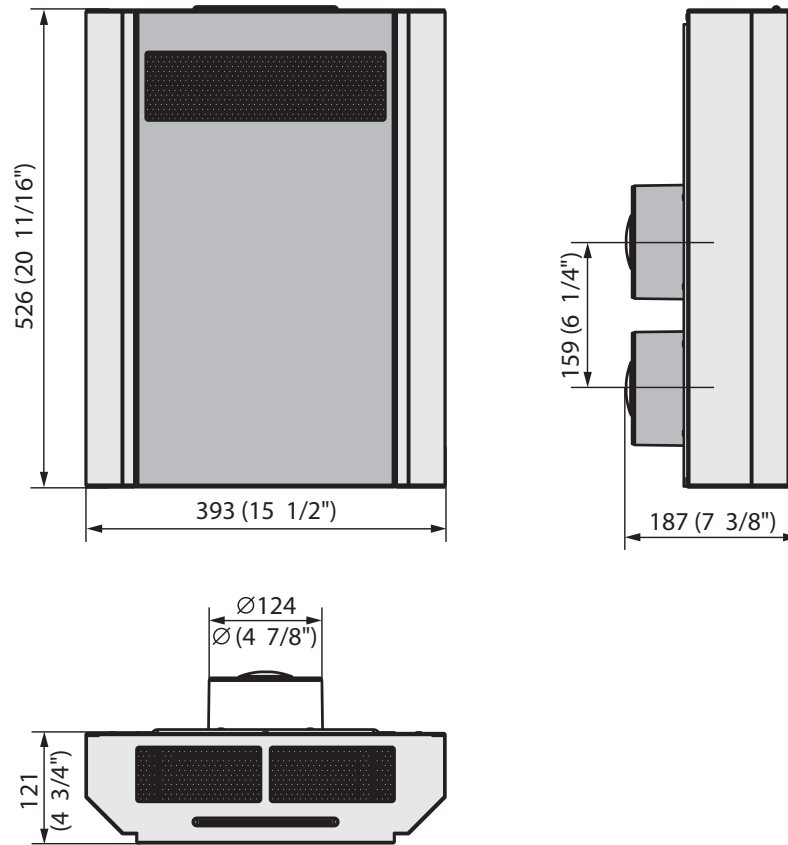
The transported air temperature must be from -20 °C (-4 °F) up to +50° C (+122° F).

The unit is classified as a class I electric appliance.

Ingress Protection (IP) rating from solid objects and liquids:

- IP 44 for the unit motors;
- IP 22 for the assembled unit integrated into air ductworks.

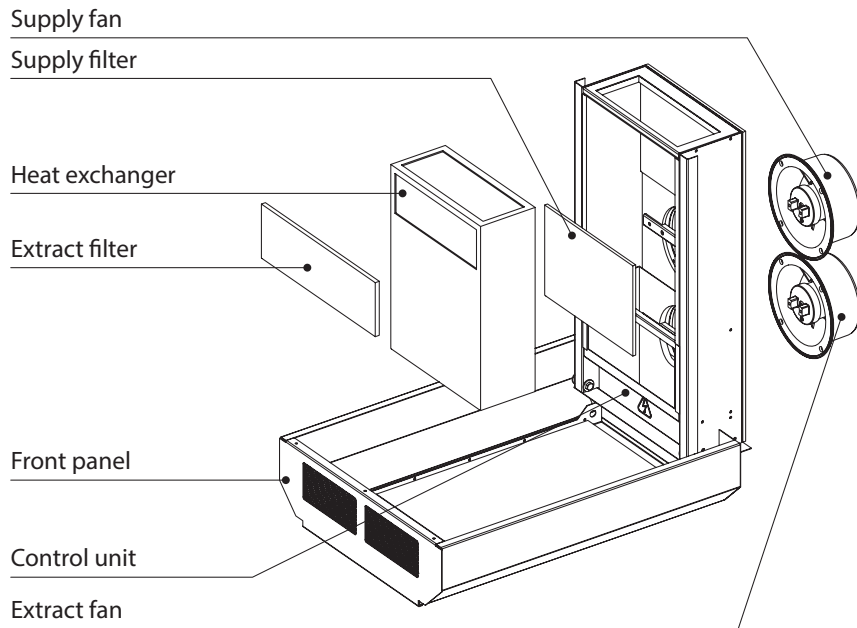
The unit design is regularly improved, so some models may slightly differ from those ones described in this manual.

**UNIT OVERALL DIMENSIONS, MM**

**UNIT TECHNICAL DATA**

	1	2	3
Speed			
Supply Voltage, 50-60 Hz [V]		1 ~ 100-240	
Power [W]	4.2	9.6	15.4
Total unit current [A]	0.02	0.04	0.07
Air capacity [m³/h] (CFM)	30 (17.7)	45 (26.5)	60 (35.3)
RPM [min <sup>-1</sup> ]	1165	1720	2685
Noise level [dB(A)] (Sones)	22 (0.38)	25 (0.42)	29 (1.0)
Max. transported air temperature [°C] (°F)	from -20 (-4) up to +50 (+122)		
Ingress Protection	IP22		
Casing material	Painted steel		
Insulation	PE foam		
Filter:	extract	G4	
	supply	G4	
Connected air duct diameter [mm]	Ø125 (5")		
Weight [kg]	10.3 (22.7)		
Heat recovery efficiency	79 %	74 %	70 %
Heat exchanger type	Counterflow		
Heat exchanger material	Plastic		

DESIGN AND OPERATING LOGIC

- The unit casing is made of painted steel, internally filled with a layer of heat- and sound-insulating material.
- The unit casing incorporates a plate heat exchanger, a supply fan and an extract fan.
- The front panel is installed on the rotating sleeves to enable quick access for the unit servicing.
- The casing bottom is equipped with a protecting service panel to enable service access to the automation unit.
- The G4 supply filter is installed between the fan and the heat exchanger to provide supply of filtered air to the room. The G4 extract filter is installed in the upper part of the front panel.

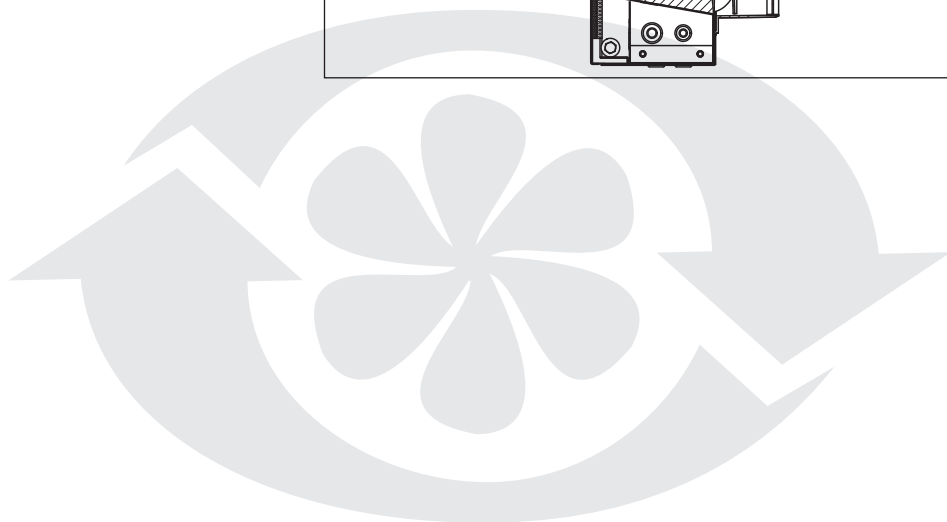
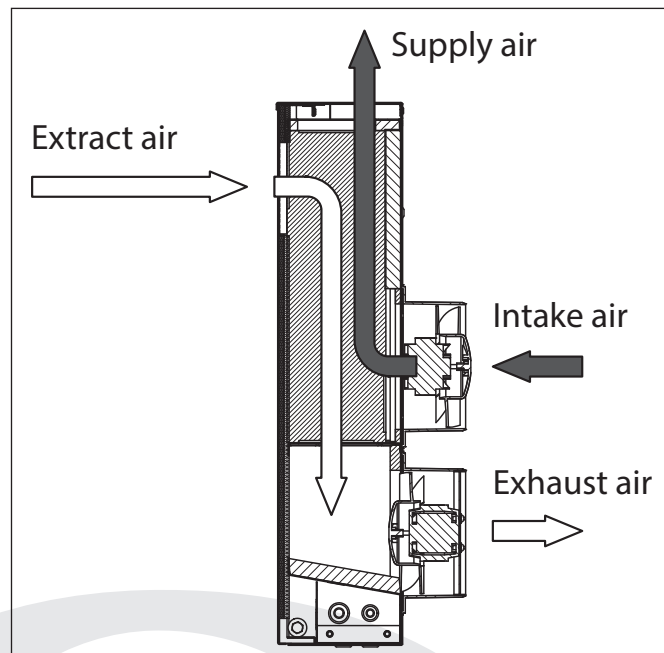


- The temperature sensor downstream of the heat exchanger in the exhaust air duct provides the heat exchanger freezing protection. If the exhaust air temperature drops down below +3 °C (+37.4 °F) the heat exchanger freezing danger is registered. In this case the supply fan is turned off and the unit operates in the extract mode only. After the heat exchanger is warmed up and the freezing danger is no longer imminent the unit reverts to the standard operation mode.

Unit operation logic.

Warm stale extract air from the room flows through the air ducts to the unit, is purified in the extract filter, then it is moved to the heat exchanger and exhausted outside by the extract fan. Clean cold air from outside is moved by supply fans to the unit where it is purified through the supply filter. Then clean air flows through the heat exchanger and is supplied to the room.

Heat energy contained in the warm extract air is transferred to the fresh intake inside of the heat exchanger. Heat recovery minimizes heat energy losses and operating heating costs.

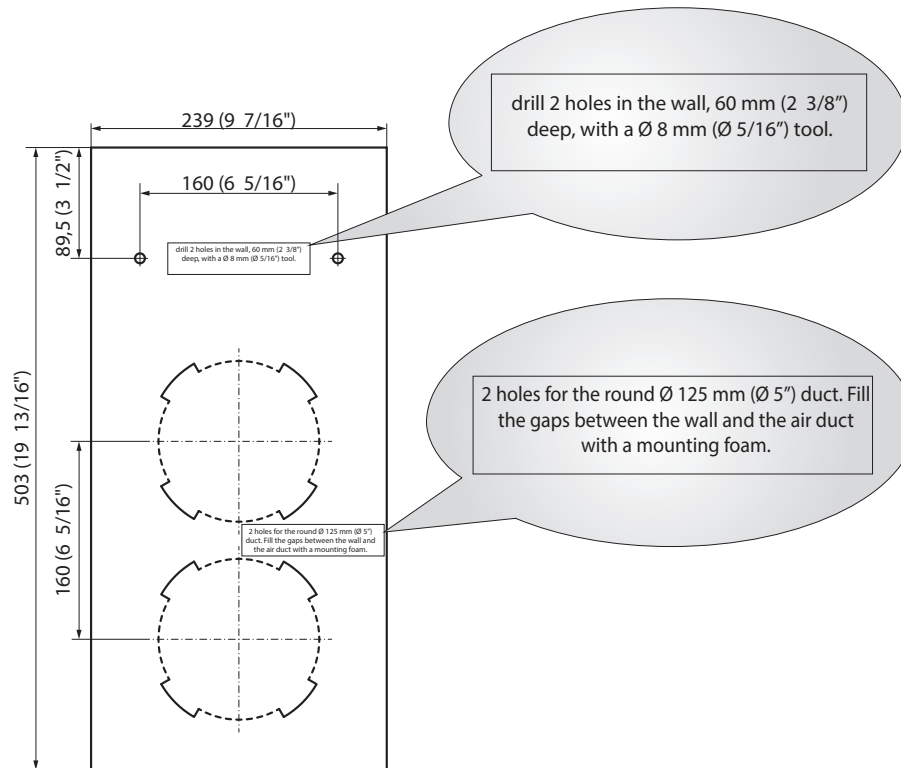


**MOUNTING AND SET-UP**

The unit mounting is carried out with the master plate from the delivery set and two air ducts of required length or any of the mounting kits, MK1 Micra 60 or MK2 Micra 60 (special accessories).

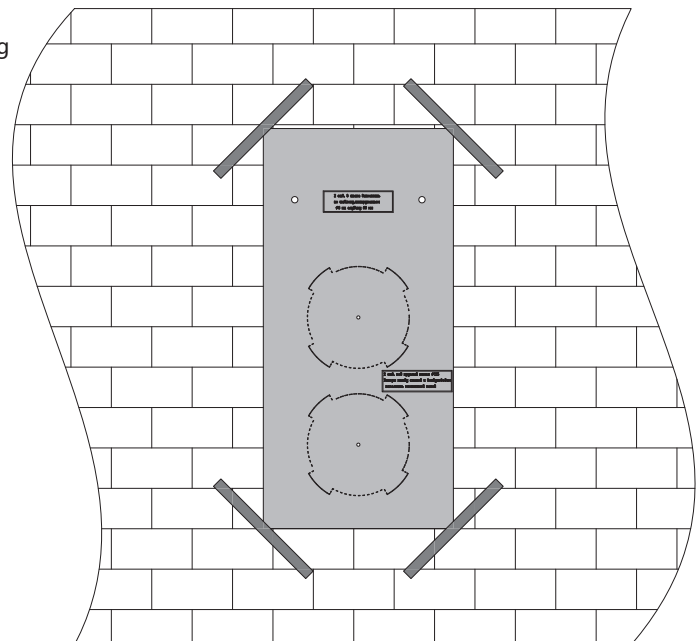
The mounting set MK1 Micra 60 is specially designed for mounting of the unit at general construction stage. It includes two plastic air ducts, 500 mm (19 11/16") long and two master plates for marking holes on inner and outer wall sides.

The mounting set MK2 Micra 60 is specially designed for mounting of the unit in a ready-built premise. It includes two plastic air ducts, 500 mm (19 11/16") long, a master plate for marking holes and an outer ventilation hood NB Micra 60 that prevents ingress of foreign objects inside the unit. If the building's wall thickness is above 500 mm (19 11/16") prepare two extra  $\varnothing 125$  mm ( $\varnothing 5$ ") air ducts of required length.

**PAPER MASTER PLATE FOR HOLE MARKING [MM] (INCHES)**

**UNIT MOUNTING**

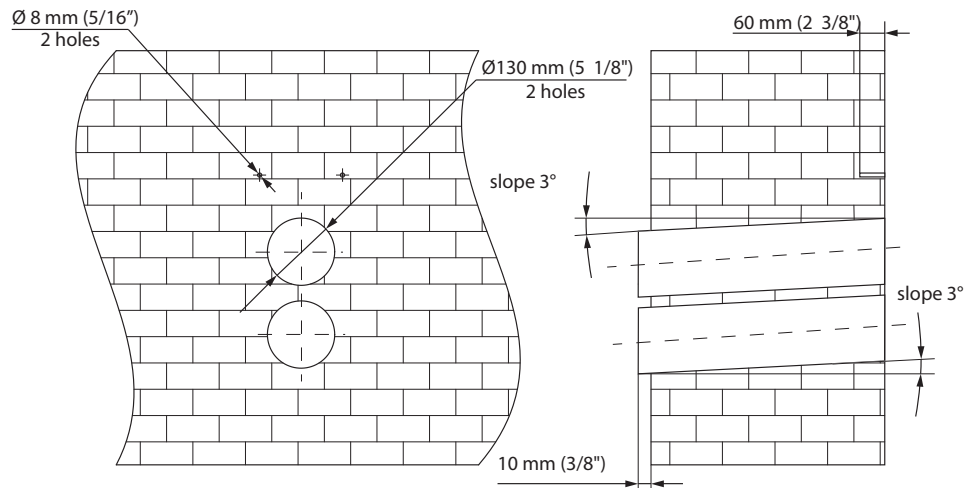
The unit is mounted as follows:

1. Fix the master plate from the delivery set on the wall with a sealing tape on a required level.





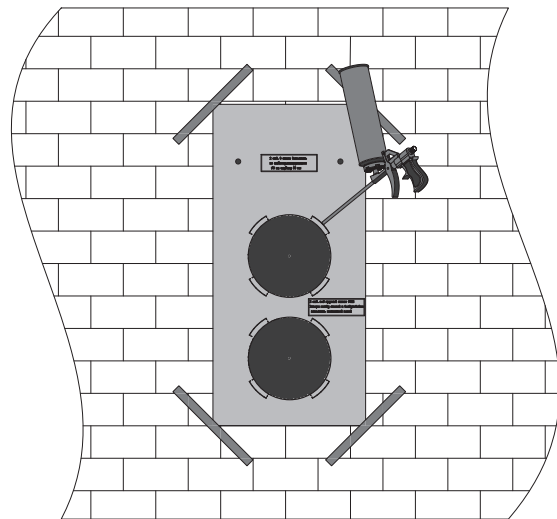
2. Use a master plate to mark two  $\varnothing 130$  mm (5 1/8") holes for the air ducts and two  $\varnothing 8$  mm (5/16") holes for the dowels.
3. Remove the master plate and drill through holes for the air ducts and the 60 mm (2 3/8") deep holes for the dowels. Drill the holes for the air ducts sloped down by 2-3°. Then insert the dowels (included into delivery set) into respective holes.



4. Re-install the master plate with a sealing tape back. Fix the master plate from the MK1 Micra 60 or MK2 Micra 60 mounting kit on outer wall side to align the air ducts with respect to each other. Fix the master plate from the mounting kit somewhat lower to ensure the minimum required slope 3°. Before mounting the master plate press the perforated holes to remove the master plate fragments and prepare holes for the air ducts.

5. Insert the air ducts inside the holes in the master plate designed for the air ducts and seal those with a mounting foam through the holes in the master plate. Install the air ducts sloped down by 2-3° to ensure the condensate drainage from the unit.

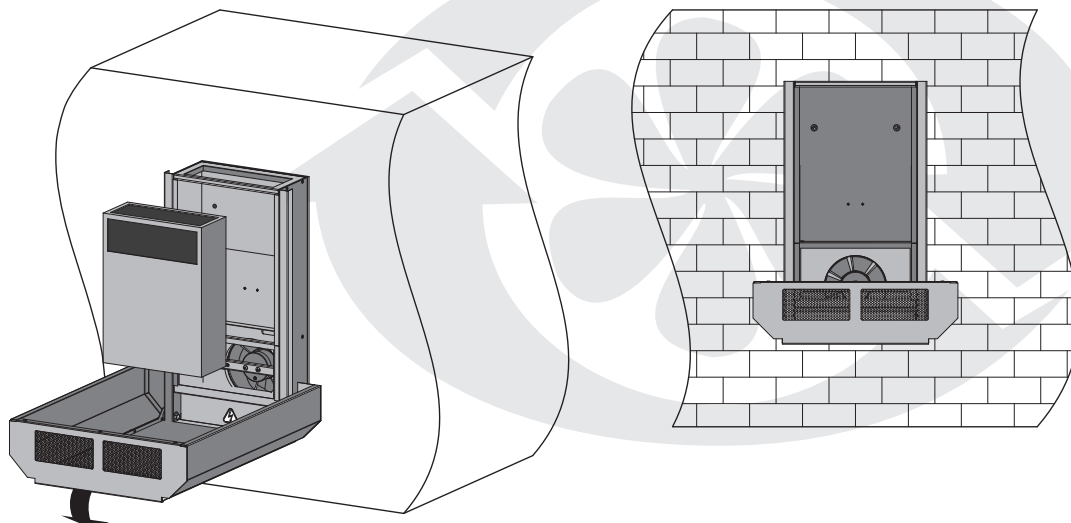
6. After the mounting foam gets hard (see the solidification time in the product specification) remove the master plate and cut off the protruding parts of the air ducts to be flush with the inner wall. On outer wall side, the air ducts must protrude for 10 mm (3/8") to prevent condensate dropping on the wall.

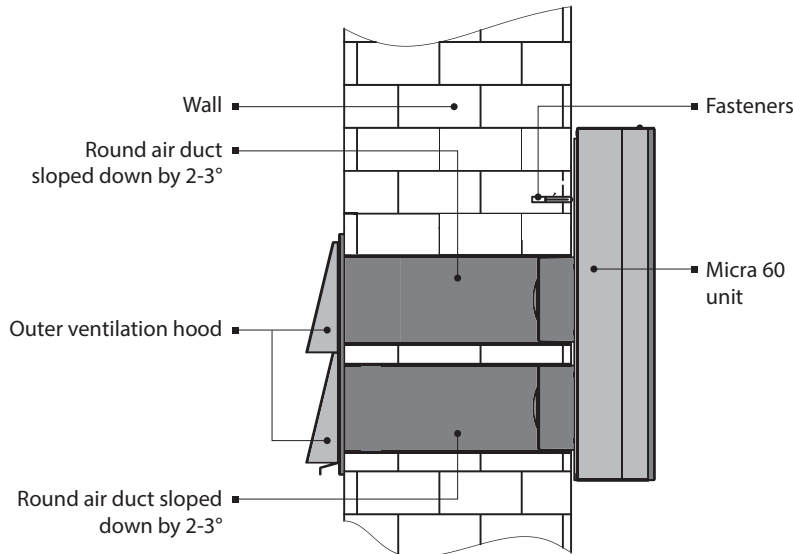


#### 7. Unit installation sequence:

- Open the front panel and remove the heat exchanger.
- Connect the unit spigots to the plastic air ducts.
- Fix the unit to the wall with the screws 5,0x50 from the delivery set by inserting those to the  $\varnothing 8$  mm (5/16") holes.
- Install the heat exchanger and close the front panel.
- Install the NB Micra 60 outer ventilation hood on outer side of the building to prevent ingress of large foreign objects into the air ducts.

**Attention! The round plastic air ducts and the outer ventilation hood are not included into the delivery set and are available on separate order. You may use other ventilation grilles and hoods of the matching size.**





### UNIT MOUNTING WITH THE MK1 MICRA 60 MOUNTING SET

The MK1 Micra 60 mounting set is designed to prepare a mounting site for installation of the Micra 60 unit at general construction stage. The set is not included into the delivery and is available on separate order. The MK1 Micra 60 mounting set includes:

- plastic air duct  $\varnothing$  125 mm ( $\varnothing$  5"), 500 mm (19 11/16") long - 2 items;
- paper master plate - 2 items.

Mounting sequence of the MK1 Micra 60 set:

1. Fix the first master plate on the inner wall side with a sealing tape at a required height.
2. Use the master plate to mark two  $\varnothing$  130 (5 1/8") mm holes for the air ducts and two  $\varnothing$  8 mm (5/16") holes for the fixing dowels of the unit.
3. Remove the master plate and drill through holes for the air ducts and the holes, 60 mm (2 3/8") deep for the dowels.
4. Re-install the first master plate with a sealing

tape back. Fix the second master plate on the outer wall side to align the air ducts with respect to each other. Fix the second master plate somewhat lower to ensure the minimum slope  $3^\circ$  for the air ducts. Before installation of the master plate press the marked perforated opening on the master plate and remove the master plate cut-outs.

5. Install the air ducts into the master plate holes and seal those with a mounting foam through the openings in the master plate. Install the air ducts sloped down by  $2-3^\circ$  to enable the condensate drainage.

6. After the mounting foam gets hard (see the solidification time in the product specification) remove the master plate and cut the protruding parts of the air ducts to be flush with the inner wall. On the outer wall side, the air ducts must protrude by 10 mm (3/8") to prevent condensate dropping on the wall.

### UNIT MOUNTING WITH THE MK2 MICRA 60 MOUNTING SET

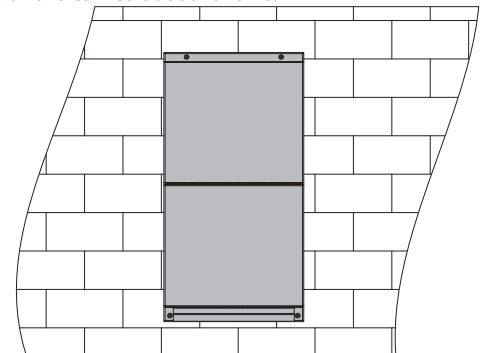
The MK2 Micra 60 mounting set is designed for the Micra 60 unit mounting and is available upon separate order. The MK2 Micra 60 mounting set includes:

- plastic air duct  $\varnothing$  125 mm ( $\varnothing$  5"), 500 mm (19 11/16") long - 2 items;
- paper master plate - 1 item;
- NB Micra 60 outer ventilation hood - 1 item;
- 8x40 screw and dowel - 4 items.

Mounting sequence of the MK2 Micra 60 set:

1. Fix the master plate from the delivery set on the inner wall side with a sealing tape at the required height.
2. Use a master plate to mark two  $\varnothing$  130 (5 1/8") mm holes for the air ducts and two  $\varnothing$  8 mm (5/16") holes for the fixing dowels of the unit.
3. Remove the master plate and drill through holes for the air ducts and the holes, 60 mm (2 3/8") deep for the dowels.
4. Re-install the master plate with a sealing tape back. Fix the master plate from the mounting set on the outer wall side to align the air ducts with respect to each other. Before installation of the master plate press the marked perforated opening on the master plate and remove the master plate cut-out.
5. Install the air ducts into the master plate holes and seal those with a mounting foam through the openings in the master plate. Install the air ducts sloped down by  $2-3^\circ$  to enable the condensate drainage.
6. After the mounting foam gets hard (see the solidification time in the product specification) remove the master plate and cut off the protruding parts of the air ducts to be flush with the inner wall. On the outer wall side, the air ducts must protrude by 10 mm (3/8") to prevent condensate dropping on the wall.
7. Install the outer ventilation hood NB Micra 60 on the outer wall side to prevent ingress of large foreign objects into the air ducts. Installation of the NB Micra 60 outer hood is carried out with four 8x40 screws and dowels and is carries out as follows:

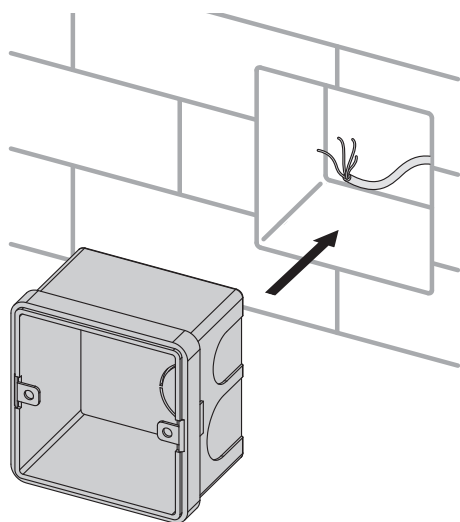
- lean the NB Micra 60 outer ventilation hood against the wall;
- mark fastening holes;
- drill four  $\varnothing$  8 mm ( $\varnothing$  5/16") holes, 40 mm (1 9/16") deep;
- install 8x40 dowels;
- install the NB Micra 60 ventilation outer hood;
- fix the NB Micra 60 outer hood with screws.



## SPEED SWITCH MOUNTING



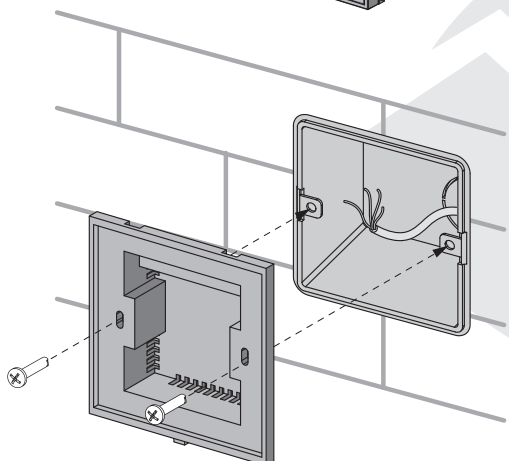
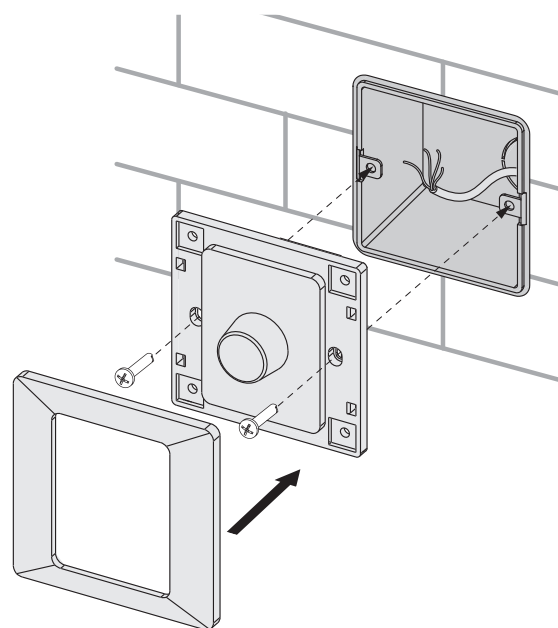
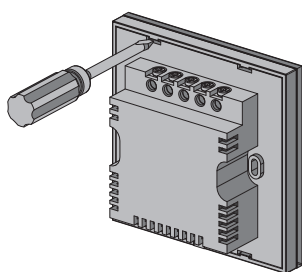
**MAKE SURE THAT THE SPEED SWITCH IS NOT DAMAGED. DO NOT OPERATE A DAMAGED SPEED SWITCH! DO NOT INSTALL THE SPEED SWITCH ON AN UNEVEN SURFACE! DO NOT APPLY EXCESSIVE FORCES WHILE TIGHTENING THE SCREWS TO AVOID THE SPEED SWITCH CASING DEFORMATION.**



- Route all the required cables and wires to the speed switch installation place.
- Insert the junction box from the delivery set inside the wall.

**P3-1-300 mechanical speed switch mounting:**

- Connect the executive element according to the wiring diagram in page 12 and insert it into the junction box.
- Fasten the executive element with two screws from the delivery set.
- Cover the executive element of the speed switch with a decorative panel and press the latches to fix the panel.

**SP3-1 sensor speed switch mounting:**

- Undo gently the switch front panel latches.
- Remove the back panel.
- Fix the back panel to the wall through the fastening openings.
- Connect the control cable to the sensor speed switch following the wiring diagram, page 12.
- Install the front panel of the speed switch on the latches.

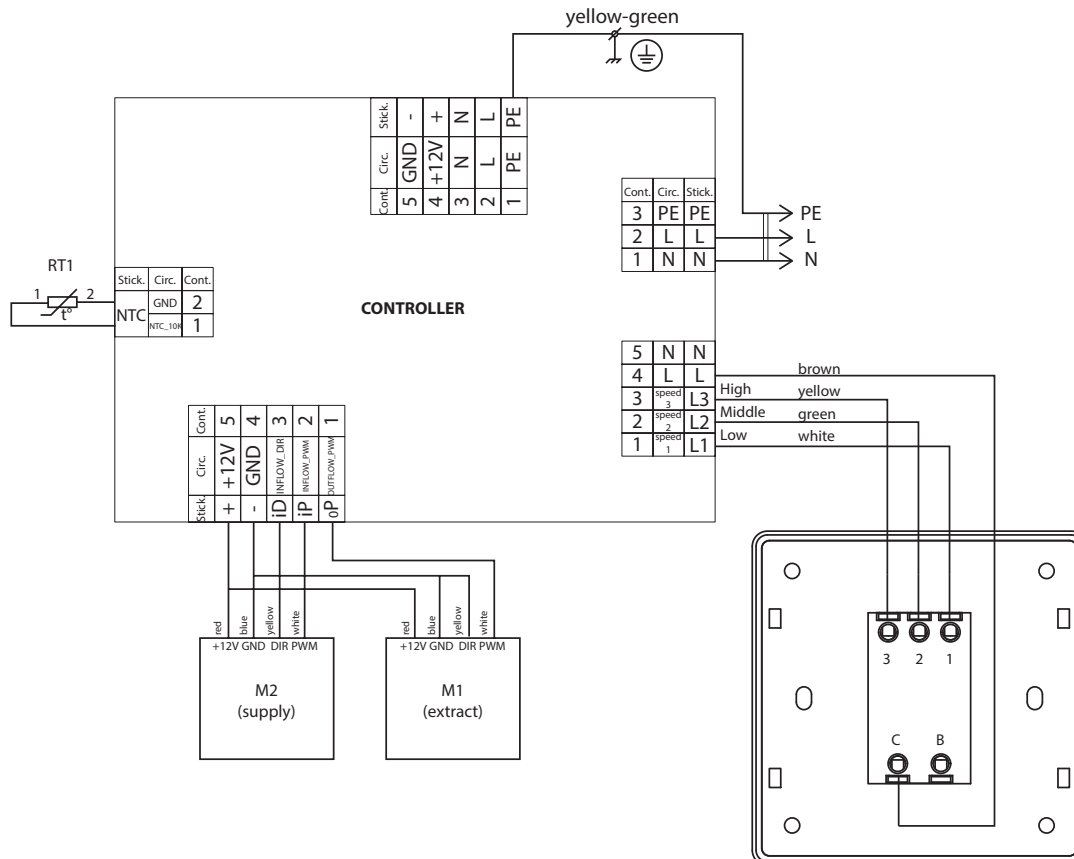
CONNECTION TO POWER MAINS



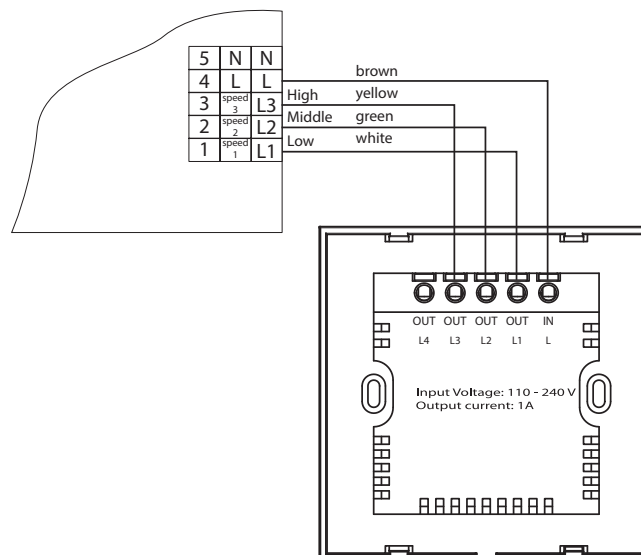
**DISCONNECT THE UNIT FROM POWER MAINS PRIOR TO ANY ELECTRIC INSTALLATION OPERATIONS. CONNECT THE UNIT TO A CORRECT INSTALLED SOCKET WITH A GROUNDED TERMINAL. ANY INTERNAL CONNECTION MODIFICATIONS ARE NOT ALLOWED AND RESULT IN WARRANTY LOSS.**

- The unit is rated for connection to single-phase ac 1~100-240 V/ 50-60 Hz power mains.
- The control unit is installed under the unit protecting panel.
- The unit is connected to the control unit via a 3 m long four-wire cable from the delivery set.
- Each wire cross section is min. 0.25 mm<sup>2</sup>.
- The maximum length of the cable from the unit to the control unit is 30 m.

WIRING DIAGRAM FOR THE UNIT WITH P3-1-300 MECHANICAL SPEED SWITCH



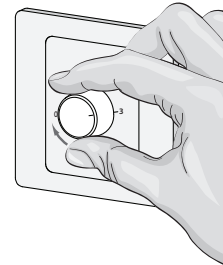
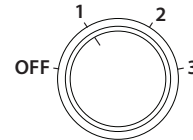
WIRING DIAGRAM FOR THE UNIT WITH SP3-1 SENSOR SPEED SWITCH



**UNIT CONTROL**

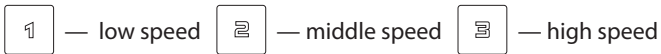
**P3-1-300 MECHANICAL SPEED SWITCH**

- To activate a required unit speed rotate the speed knob clockwise and select one of three speed settings:  
 1 - low speed  
 2 - middle speed  
 3 - high speed
- To turn the unit off rotate the speed knob counter clockwise and set it to OFF position.

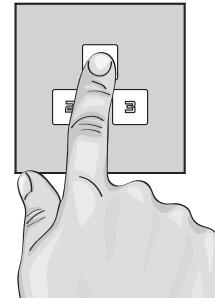


**SP3-1 SENSOR SPEED SWITCH**

- To activate a required unit speed touch a respective speed button on the sensor panel.



- For speed changeover, touch a respective speed button. The active speed button glows blue.
- To turn the unit off touch a respective current speed button again. The sensor switch panel is not lighted when the unit is off.
- The speed switch generates a sound signal each time the sensor panel is touched.



**MAINTENANCE**

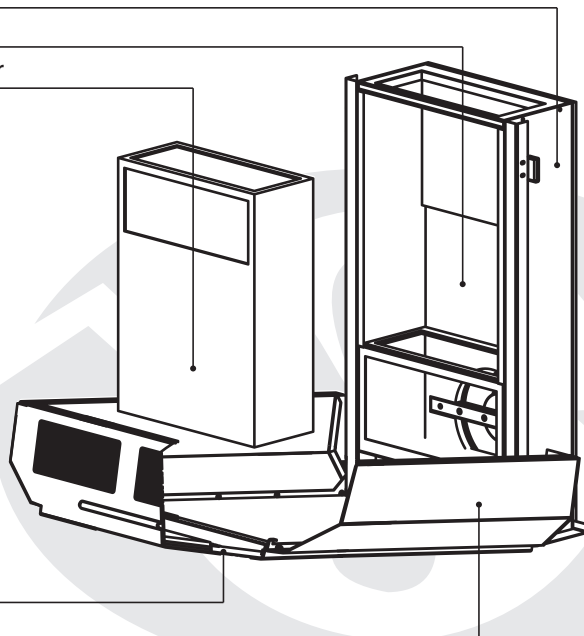
**DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATION WITH THE UNIT.**

The recommended unit maintenance periodicity is 3-4 times per year. Maintenance of the unit means regular cleaning of the surfaces of dust and cleaning or replacement of the filters. To remove dust use a soft brush, cloth or a vacuum cleaner. Do not use water, abrasive detergents, solvents, sharp objects. The impeller blades must be cleaned once in year. Clogged filters increase air resistance and impair the unit air capacity. Clean the filters with a vacuum cleaner or flush under running water. The filters must be cleaned at least 3-4 times per year.

Casing

Supply filter

Heat exchanger



Extract filter

Front panel

Clean the heat exchanger regularly to maintain its high heat recovery efficiency. Remove the heat exchanger of the unit prior to the cleaning operation. Clean the heat exchanger with a vacuum cleaner or flush it under running water.

**FAULT HANDLING**
**FAULTS AND FAULT HANDLING**

Problem	Possible reasons	Fault handling
The fan does not start up.	No power supply.	•Make sure that the unit is properly connected to the power mains and make any corrections, if required.
	The motor is jammed, the impeller blades are clogged.	•Turn the unit off. Troubleshoot the motor jam. •Clean the blades. •Restart the unit.
Automatic switch tripping.	Overcurrent resulted from short circuit in the electric circuit.	•Turn the unit off. •Contact the service centre.
Low supply air temperature.	The extract filter is clogged.	Clean or replace the extract filter.
	The heat exchanger is frozen.	•Check the heat exchanger for icing. •Turn the unit off and let ice melt.
Low air flow.	Low set fan speed.	Set higher speed.
	The filters, the fans or the heat exchanger is (are) soiled.	•Clean or replace the filters. •Clean the fan and the heat exchanger.
High noise, vibration.	The impeller is soiled.	Clean the impeller(s).
	Loose screw connection.	Tighten the screws.
	No anti-vibration connectors are installed.	Install the anti-vibration connectors (not included into the delivery set).

**STORAGE AND TRANSPORTATION RULES**

Store the unit in the manufacturer's original packing box in a dry ventilated premise at the temperatures from +5°C (5 °F) up to +40°C (104°F).

Storage environment must not contain aggressive vapours and chemical mixtures provoking corrosion, insulation and sealing deformation.

Use hoist machinery for handling and storage operations to prevent the unit damage in consequence of falling or excessive oscillation. Fulfil the handling requirements applicable for the applicable freight type.

Transportation with any vehicle type is allowed provided that the unit is protected against mechanical and weather damage.

Avoid any mechanical shocks and strokes during handling operations.

**MANUFACTURER'S WARRANTY**

The manufacturer hereby warrants normal operation of the unit over the period of 24 months from the retail sale date provided the user's observance of the transportation, storage, installation and operation regulations.

Should any malfunctions occur during the unit operation through the manufacturer's fault during the warranty period the user is entitled to elimination of faults by means of warranty repair performed by the manufacturer.

The warranty repair includes work specific to elimination of faults in the unit operation to ensure its intended use by the user within the warranty period. The faults are eliminated by means of replacement or repair of the complete unit or the faulty part thereof.

**The warranty repair does not include:**

- Routine maintenance;
- unit installation / dismantling;
- unit setup.

To benefit from warranty repair the user must provide the unit, the user's manual with stamped sale date and the payment document certifying the purchase.

The unit model must comply with the one stated in the user's manual.

Contact your Seller for warranty service of the unit.

**The manufacturer's warranty does not apply to the following cases:**

- User's failure to provide the unit with the entire delivery package as stated in the user's manual or with missing component parts previously dismounted by the user;
- Mismatch of the unit model and make with the respective details stated on the unit packing and in the user's manual;
- User's failure to ensure timely technical maintenance of the unit;
- External damage to the casing (excluding external modifications of the unit as required for its installation) and the internal components of the unit;
- Alteration of the unit design or engineering changes of the unit;
- Replacement and use of the unit assemblies, parts and components not approved by the manufacturer;
- Unit misuse;
- User's violation of the unit installation regulations;
- User's violation of the unit control regulations;
- Unit connection to the power mains with a voltage different from the one stated in the user's manual;
- Unit breakdown due to voltage surges in the power mains;
- User's discretionary repair of the unit;
- Unit repair performed by any persons without the manufacturer's authorization;
- Expiry of the unit warranty period;
- User's violation of the established regulations specific to the unit transportation;
- User's violation of the unit storage regulations;
- Wrongful acts against the unit committed by third persons;
- Unit breakdown due to circumstances of insuperable force (fire, flood, earthquake, war, hostilities of any kind, or blockade);
- Missing seals if provided by the user's manual;
- Failure to provide the user's manual with the sale date stamp;
- Missing payment document certifying the unit purchase.



**FOLLOWING THE REGULATIONS STIPULATED HEREIN WILL ENSURE A LONG AND TROUBLE-FREE OPERATION OF THE UNIT.**



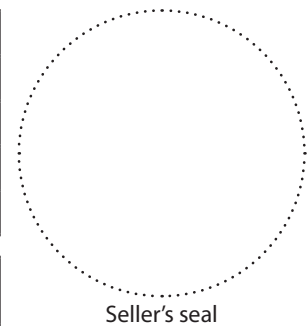
**USERS' CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE SALE DATE STAMP.**

**ACCEPTANCE CERTIFICATE**

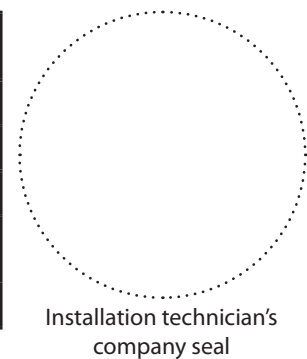
<b>Product Type</b>	The single-room heat recovery air handling unit
<b>Model</b>	Micra 60-A_____
<b>Serial Number</b>	
<b>Manufacturing Date</b>	
The unit is recognized as serviceable. We hereby declare that the product complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 89/336/EEC and Low Voltage Directive 2006/95/EC, 73/23/EEC and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. This certificate is issued following test carried out on samples of the product referred to above.	
<b>Quality Inspector's Stamp</b>	

**SELLER'S INFORMATION**

<b>Shop name</b>	
<b>Address</b>	
<b>Telephone</b>	
<b>E-mail</b>	
<b>Sales date</b>	
This is to certify delivery of the complete unit with the user's manual. The warranty terms are acknowledged and accepted.	
<b>Customer's signature</b>	


**MOUNTING CERTIFICATE**

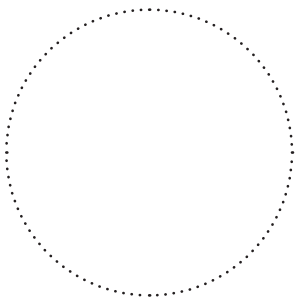
The heat recovery air handling unit Micra 60 has been connected to power mains pursuant to the requirements stated in the present user's manual.	
<b>Company name</b>	
<b>Address</b>	
<b>Telephone</b>	
<b>Installation technician's full name</b>	
<b>Installation date:</b>	<b>Signature:</b>
This is to certify that the works specific to the unit installation have been performed in accordance with all the applicable provisions of local and national construction, electrical and technical codes and standards. The unit operates normally as intended by the manufacturer.	
<b>Signature:</b>	





**WARRANTY CARD**

<b>Product type</b>	The single-room heat recovery air handling unit
<b>Model</b>	Micra 60-A_____
<b>Serial number</b>	
<b>Manufacturing date</b>	
<b>Sales date</b>	
<b>Warranty period</b>	
<b>Sales company</b>	



Seller's seal

Large rectangular area with horizontal lines for text entry.



