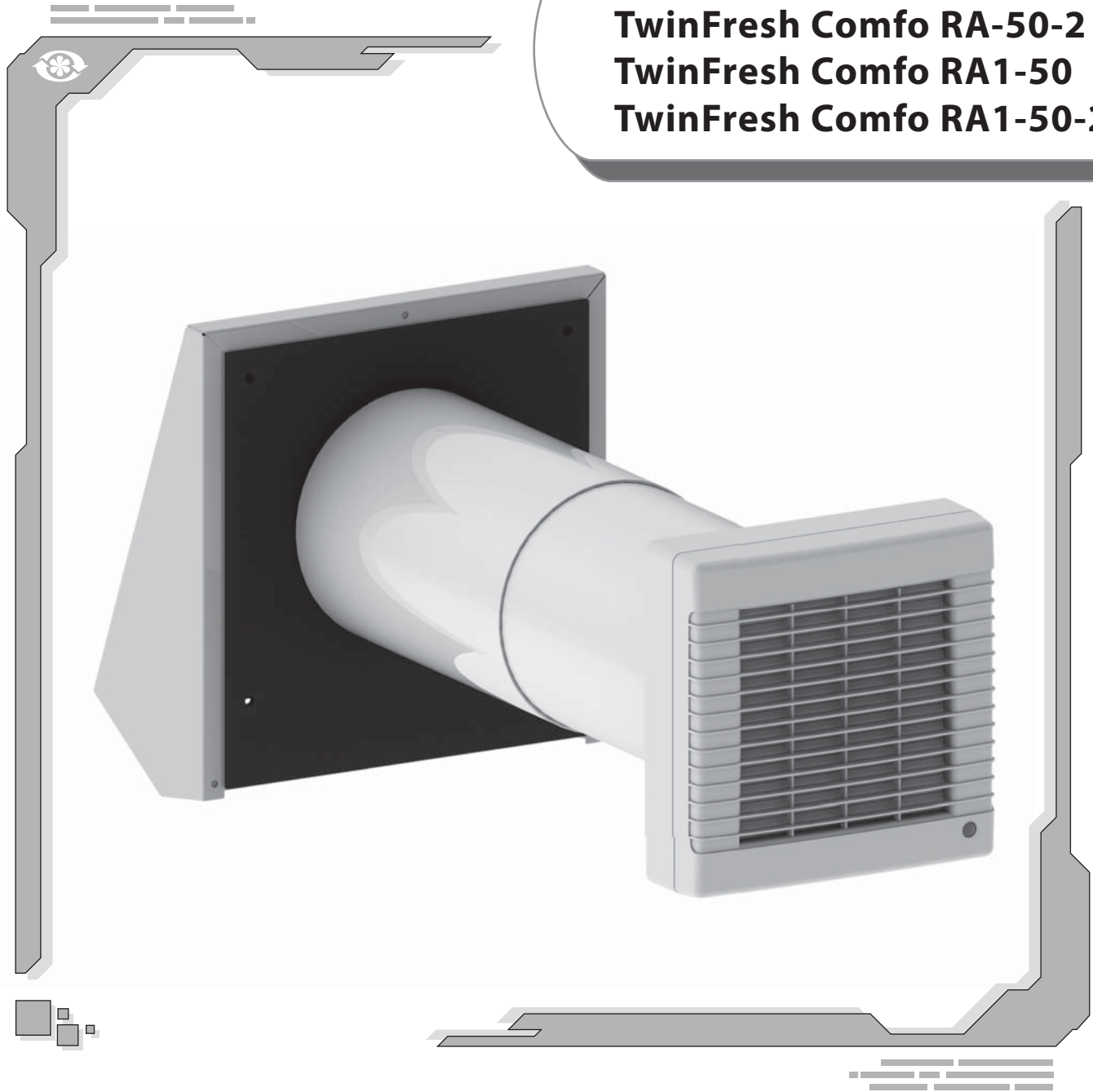


USER'S MANUAL

TwinFresh Comfo RA-50
TwinFresh Comfo RA-50-2
TwinFresh Comfo RA1-50
TwinFresh Comfo RA1-50-2



SINGLE-ROOM REVERSIBLE ENERGY REGENERATION VENTILATOR

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SAFETY REQUIREMENTS

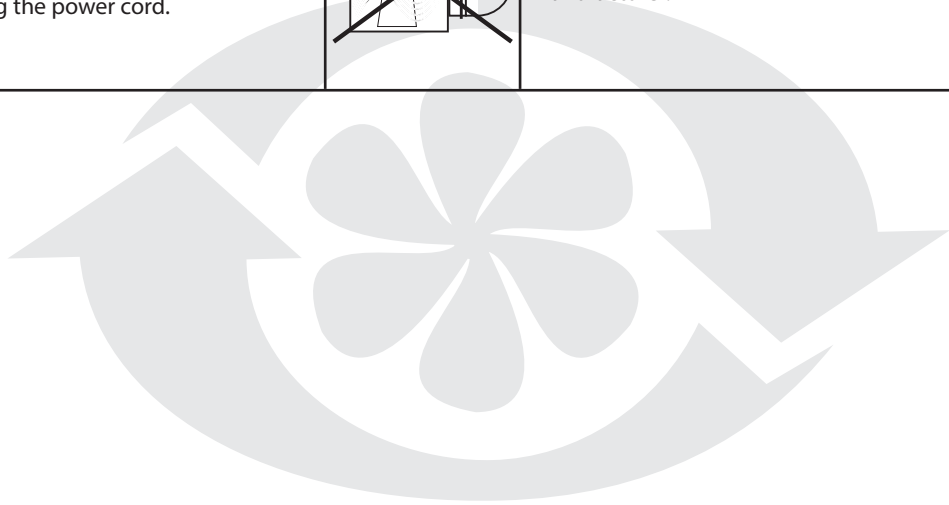
- Read the user's manual carefully prior to the operation and installation of the single-room reversible energy regeneration ventilator, hereinafter the ventilator.
- Installation and operation of the ventilator shall be performed in accordance with the present user's manual as well as the provisions 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 ventilator damage.
- Read the manual carefully and keep it as long as you use the ventilator.
- While transferring the ventilator control the user's manual must be turned over to the receiving operator.

Symbol legend used in the manual:

	WARNING!
	DO NOT!

VENTILATOR MOUNTING SAFETY PRECAUTIONS

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



VENTILATOR OPERATING SAFETY PRECAUTIONS

	Do not touch the controller or the remote control with wet hands. Do not carry out the ventilator maintenance with wet hands.		Do not wash the ventilator with water. Protect the ventilator electric parts from water ingress.
	Do not block the air duct when the ventilator is on.		Disconnect the ventilator from power supply before maintenance.
	Do not let children operate the ventilator.		Do not damage the power cable while operating the ventilator. Do not put any objects on the power cable.
	Keep explosive and inflammable products away of the ventilator.		Do not open the operating ventilator.
	In case of unusual sounds, smoke disconnect the ventilator from power supply and contact the service centre.		Do not let air flow from the ventilator 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 energy regeneration ventilator TwinFresh Comfo RA-50, hereinafter the ventilator.

USE

The ventilator is designed to arrange permanent controllable air exchange in flats, cottages, hotels, cafes and other domestic and public premises. The ventilator is equipped with a ceramic regenerator that enables supply of fresh air due to extract air heat energy regeneration.

The ventilator is designed for through-the-wall mounting. The telescopic ventilator design enables its installation in the walls from 250 mm (9 13/16") up to 470 mm (18 1/2") thick for the ventilator TwinFresh Comfo RA-50 and from 120 mm (4 3/4") up to 300 mm (11 13/16") thick for the ventilator TwinFresh Comfo RA-50-2.

The ventilator is rated for continuous operation always connected to power mains.

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 VENTILATOR 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 VENTILATOR INSTALLATION SITES MUST PREVENT ACCESS BY UNATTENDED CHILDREN.

DELIVERY SET

Ventilator	1 item
Fastening set	1 item
Remote controller	1 item

User's manual	1 item
Packing box	1 item

DESIGNATION KEY

TwinFresh Comfo RA X-50 XX

- **Ventilation hood type**
_ - ventilation hood for the wall thickness 250-470 mm (9 13/16"-18 1/2")
2 - ventilation hood for the wall thickness 120-300 mm (4 3/4"-11 13/16")
- **Air capacity [m³/h]**
- **Front panel type**
_ - grille
1 - panel with a flat front cover
- **Automation is included into the delivery set**
- **Round connecting air duct**
- **Unit name**
TwinFresh Comfo - single-room reversible energy regeneration ventilator

MAIN TECHNICAL PARAMETERS

The ventilator is designed for indoor application with the ambient temperature ranging from -20°C (-4 °F) up to +50°C (+122 °F) and relative humidity up to 80%.

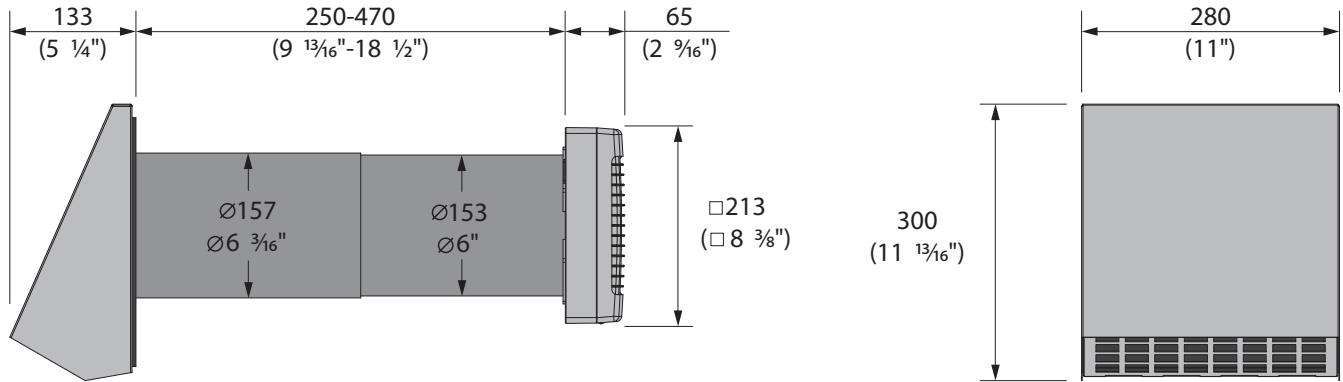
The ventilator is classified as a class I electric appliance.

Ingress Protection (IP) rating from solid objects and liquids IP 24.

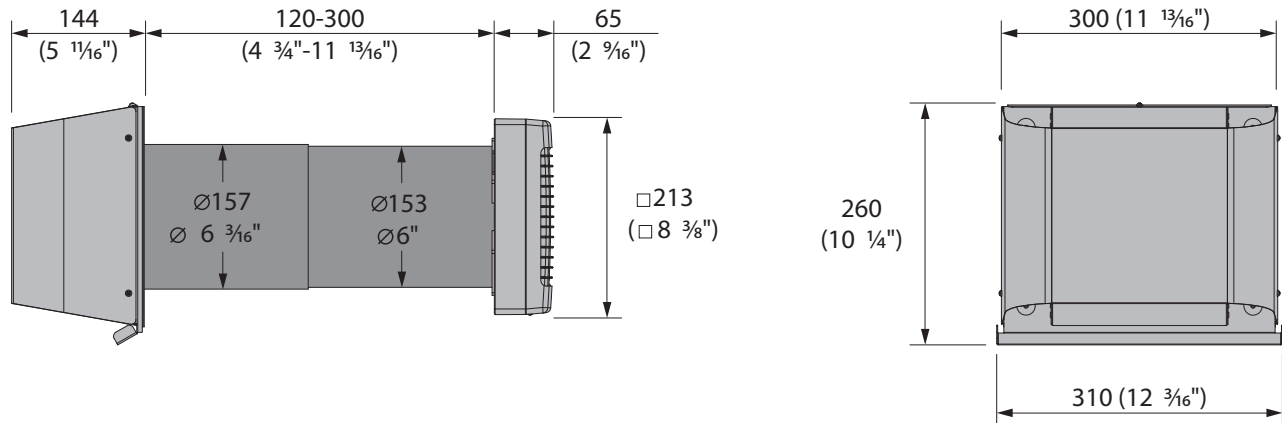
The ventilator design is regularly improved, so some models may slightly differ from those ones described in this manual.

VENTILATOR OVERALL DIMENSIONS, MM (INCHES)

- TwinFresh Comfo RA-50
- TwinFresh Comfo RA1-50



- TwinFresh Comfo RA-50-2
- TwinFresh Comfo RA1-50-2


VENTILATOR TECHNICAL DATA

Speed	I	II	III
Supply Voltage, 50-60 Hz [V]	1~100-230		
Ventilator Total Power [W]	3,80	3,96	5,61
Max. Ventilator Current [A]	0,024	0,026	0,039
Max. Air Capacity [m ³ /h] (CFM)	14 (8,2)	28 (16,5)	54 (31,8)
RPM [min ⁻¹]	610	800	1450
Noise Level, 3 m [dB(A)] (Sones)	19 (0,3)	22 (0,5)	29 (0,81)
Max. Transported Air Temperature [°C] / (°F)	-20 (-4) up to +50 (+122)		
Heat Regeneration Efficiency	up to 91%		
Regenerator Type	Ceramic		

DESIGN AND OPERATING LOGIC

The ventilator consists of the telescopic air duct with adjustable length regulated by position of the inner air duct inside the outer air duct, the ventilation unit and the ventilation hood.

Two filters and the ceramic regenerator are located inside the inner duct of the telescope.

The filters are designed to purify supply air and prevent foreign object ingress to the regenerator and the fan.

The ventilator generates a sound alarm reminding to clean or replace the filter every 90 days.

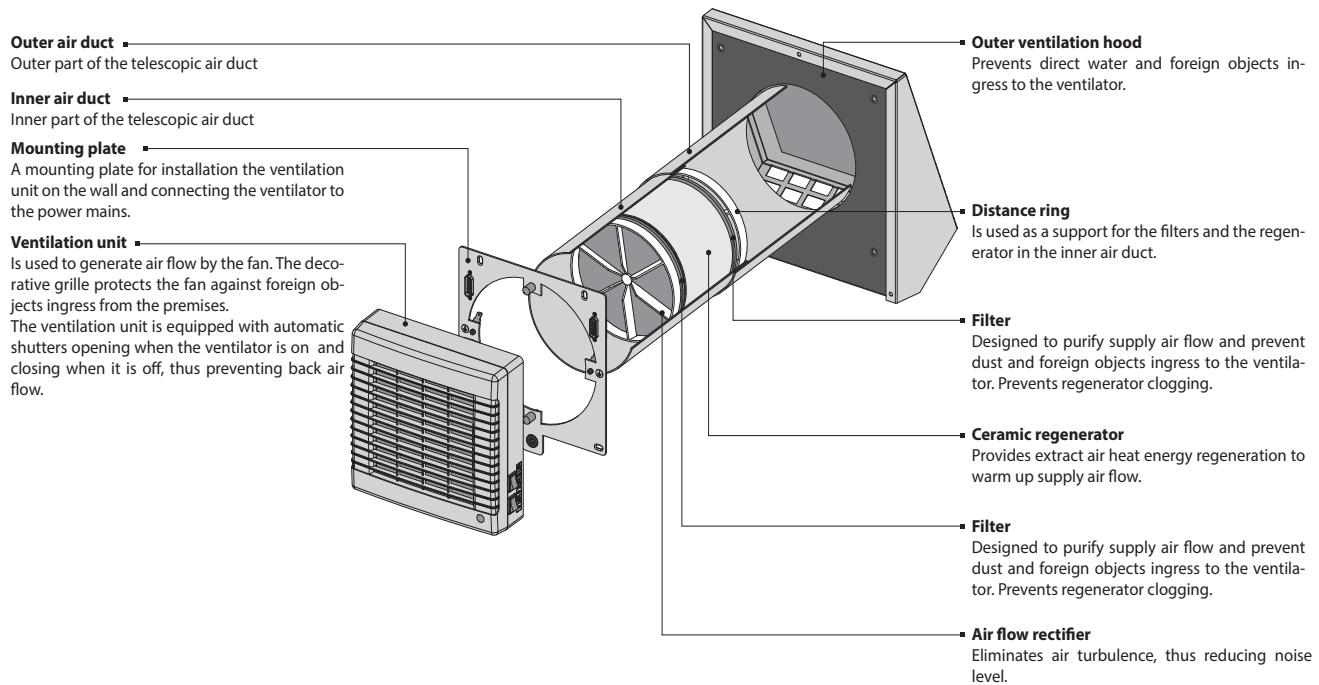
The ceramic regenerator uses extract air heat energy to warm up supply air flow.

The regenerator is equipped with a pull cord inside to facilitate its withdrawal from the ventilator. The regenerator is installed on an insulation material used as a sealant as well.

The ventilation unit must be installed on inner side of the wall. The ventilation unit is equipped with automatic shutters that shut the air duct off during the ventilator standby and prevent air back draft.

The ventilation hood must be installed on outer side of the wall to prevent ingress of water and other objects to the ventilator.

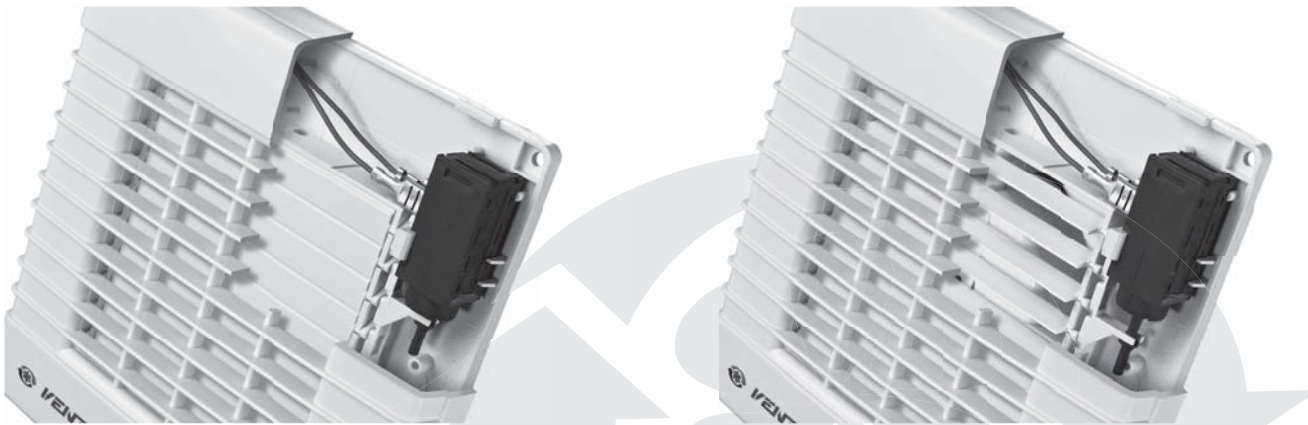
VENTILATOR DESIGN



SHUTTERS OPERATION LOGIC

Ventilator is off - shutters are closed

Ventilator is on - shutters are open



VENTILATOR OPERATING MODES

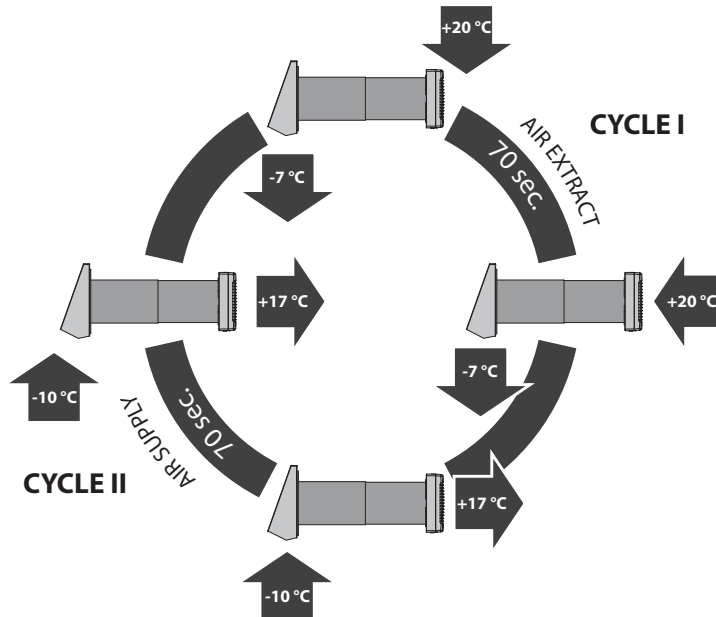
The ventilator has three ventilation modes:

- **Natural air supply** - the ventilator is used for natural ventilation, the fan is not activated.
- **Supply** - the ventilator supplies fresh air to the premise no matter of CN7 jumper position.
- **Ventilation** - the ventilator operates in permanent supply or extract mode at set speed depending on CN7 jumper position.
- **Regeneration** - the ventilator operates in reversible mode with heat and humidity regeneration.

In **Regeneration mode** the ventilator operates in two cycles, 70 seconds each.

Cycle I. Warm stale air is extracted from the room. As it flows through the regenerator, it heats and moisturizes the regenerator, transferring up to 91% heat energy. In 70 seconds as the ceramic regenerator gets warmed the ventilator is switched to supply mode.

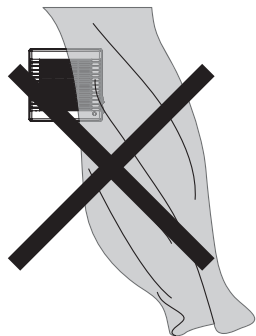
Cycle II. Fresh intake air from outside flows through the ceramic regenerator and absorbs accumulated moisture and heat up to the room temperature. In 70 seconds as the ceramic regenerator gets cooled down, the ventilator is switched into extract mode and the cycle is renewed.



MOUNTING AND SET-UP



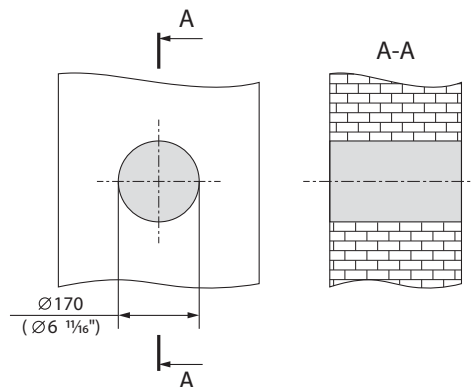
READ THE USER'S MANUAL PRIOR TO MOUNTING THE VENTILATOR.



CAUTION!
 THE VENTILATOR MUST NOT BE INSTALLED IN SITES WHERE THE AIR DUCT MAY BE CLOGGED BY THE BLINDS, CURTAINS, DRAPES, ETC., TO PREVENT THE ROOM DUST DEPOSITION AND ACCUMULATION. ALSO, CURTAINS MIGHT OBSTRUCT NORMAL AIRFLOW IN THE ROOM, THUS RENDERING VENTILATOR OPERATION NOT EFFICIENT.

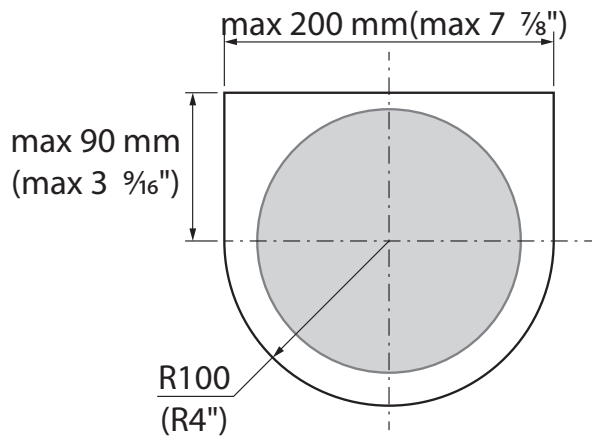
VENTILATOR MOUNTING

1. To mount the ventilator prepare a thorough round hole in the wall. The hole size is shown in the figure below.



VENTILATOR MOUNTING

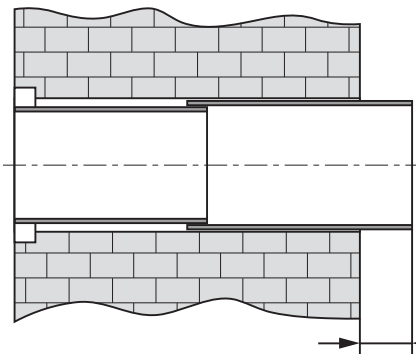
2. After preparing a through hole cut out a 25 mm (1") deep recess for laying of the cables and the contact sockets connected to the mounting plate.
The recommended recess profile is shown in the drawing on the right.



While mounting several connected in series ventilators provide a recess for the cable layout during the hole preparation to enable series connection of several ventilators.

3. Install a telescopic air duct inside the wall. The telescopic air duct end must protrude to the distance A stated below:

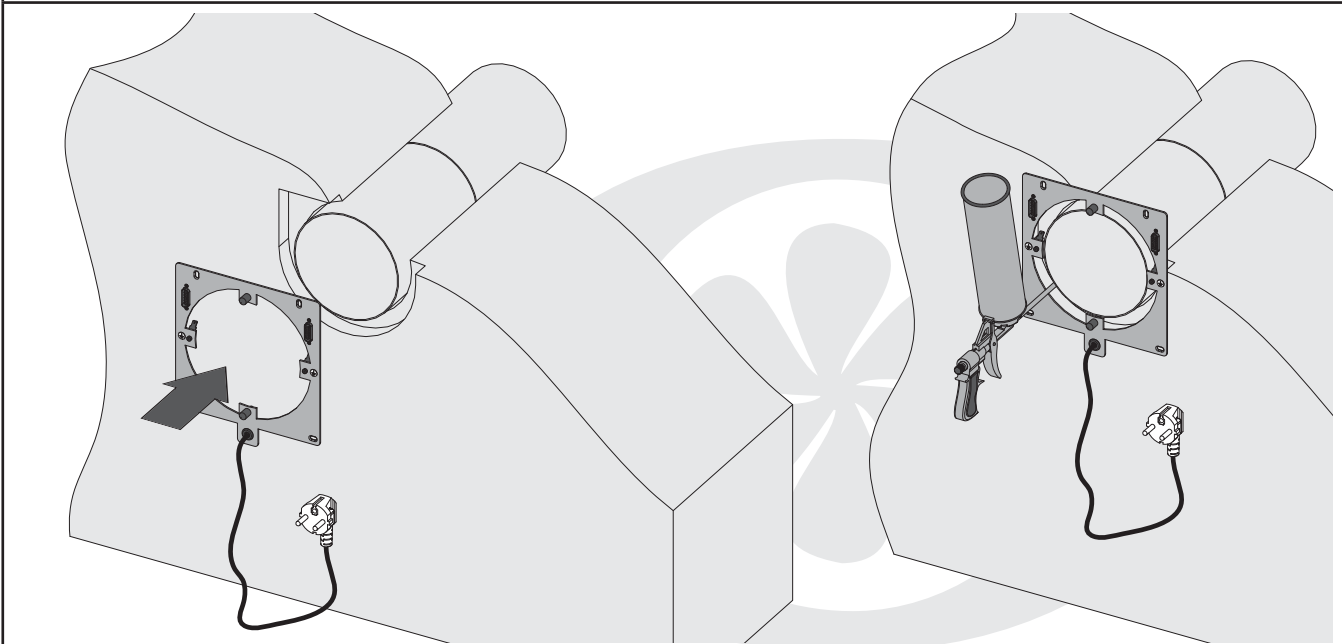
Inside



Outdoors

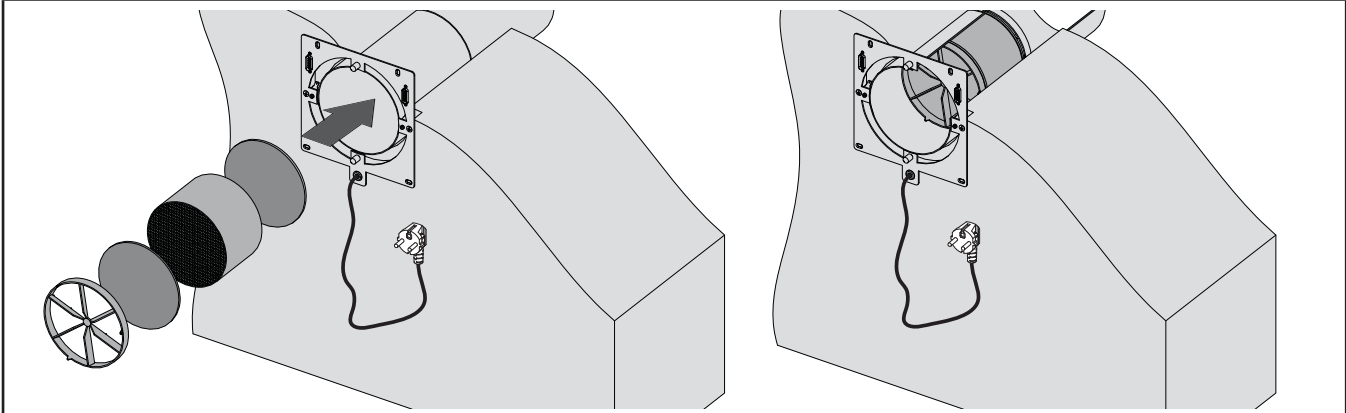
Ventilator model	A, mm
TwinFresh Comfo RA-50	10 (3/8")
TwinFresh Comfo RA1-50	10 (3/8")
TwinFresh Comfo RA-50-2	10 (3/8")-110(4 5/16")
TwinFresh Comfo RA1-50-2	10 (3/8")-110(4 5/16")

4. Connect the mounting plate following the wiring diagram, page 12.
Prepare four fastening holes and fix the mounting plate on the wall with four 4x40 screws and 6x40 dowels (included into the delivery set).
Align the telescopic air duct with respect to the mounting plate and fill the gaps between the wall and the telescopic air duct with a mounting foam. The telescopic air duct must not protrude from the mounting plate surface.

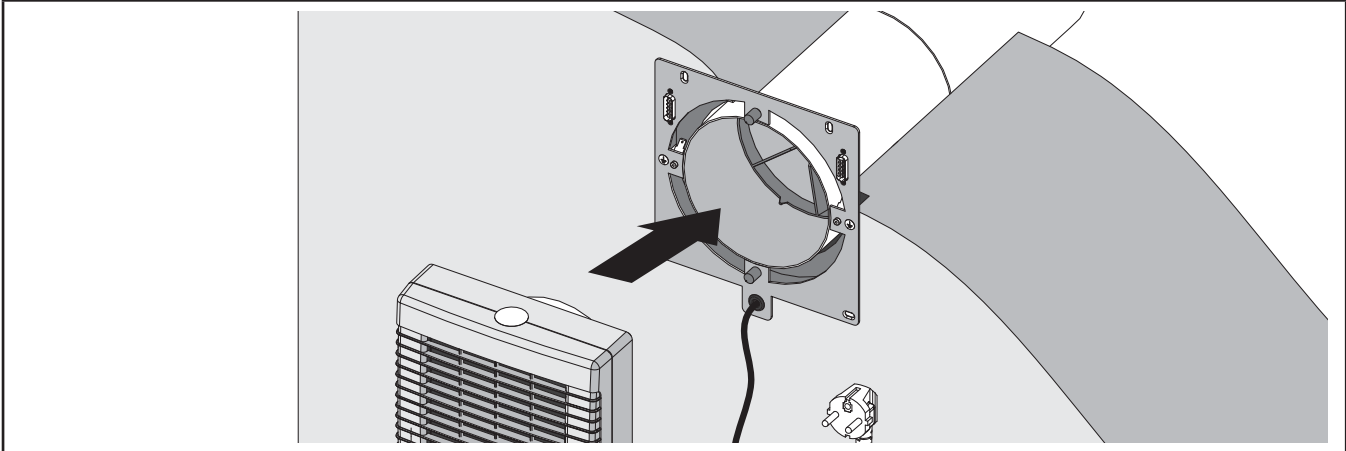


VENTILATOR MOUNTING

5. Install the filter, the ceramic regenerator, another filter and the air flow rectifier in the consecutive order inside the telescopic air duct.

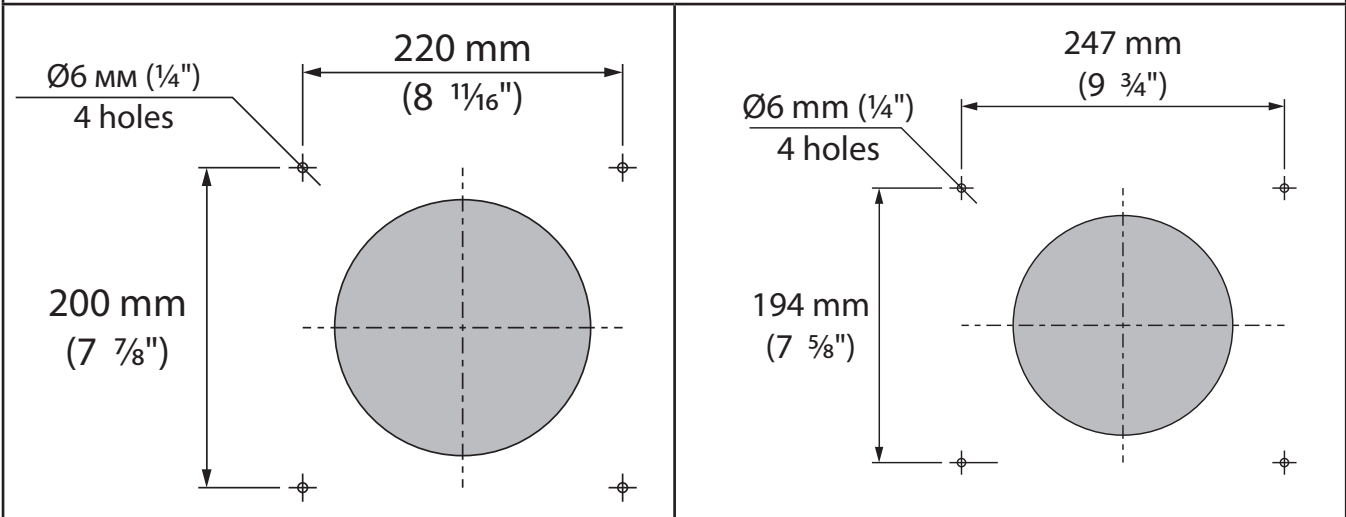


6. Install the ventilation unit on the mounting plate. The ventilation unit is fixed with magnets.


VENTILATION HOOD MOUNTING

TwinFresh Comfo RA-50 TwinFresh Comfo RA1-50	TwinFresh Comfo RA-50-2 TwinFresh Comfo RA1-50-2
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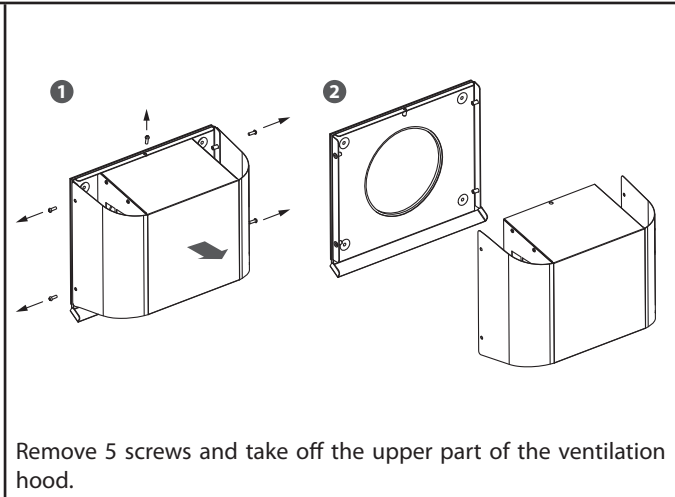
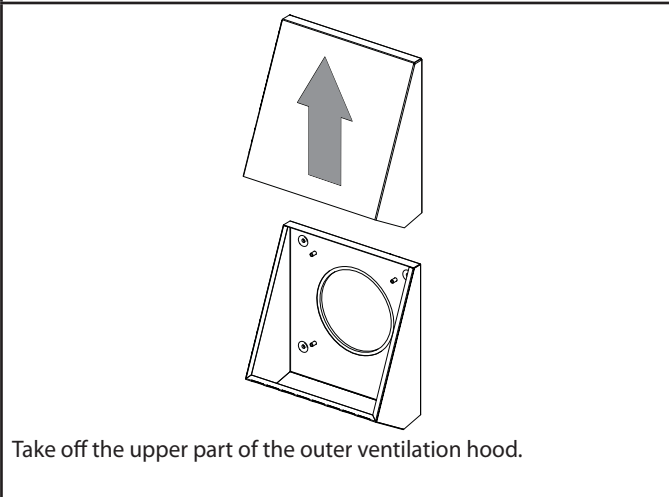
1. Mark the fastening holes for the outer ventilation hood and drill holes for the dowel 6x40. For marking convenience use the ventilation hood back part.



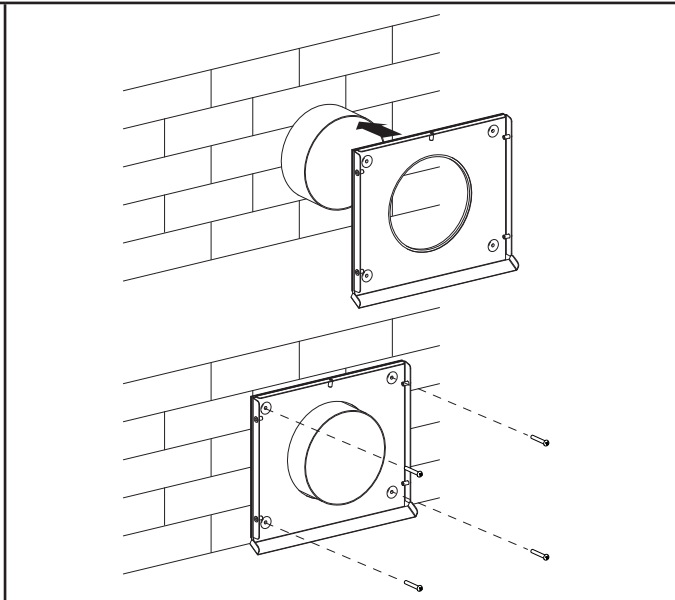
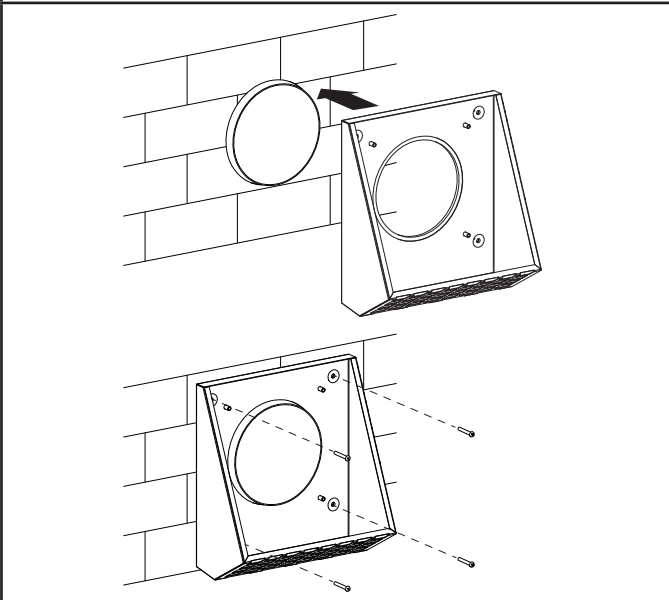
VENTILATION HOOD MOUNTING

2. Insert the dowels 6x40 (included into the delivery set) into the holes.

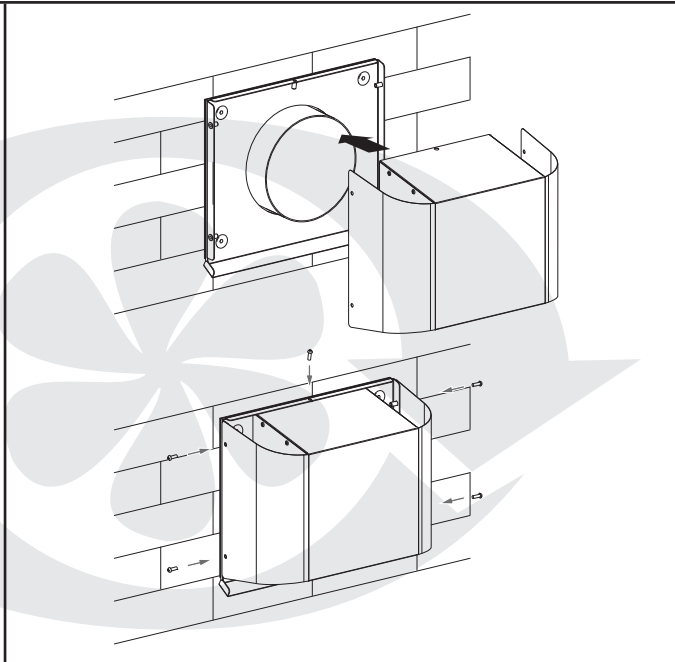
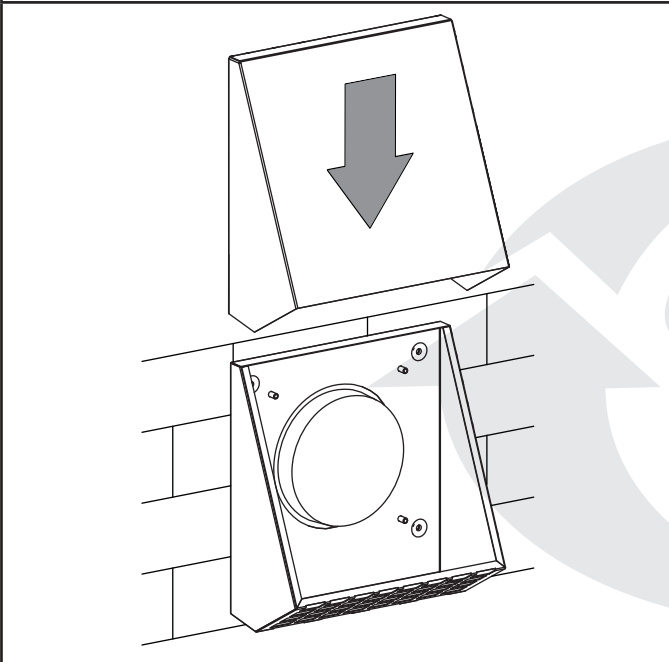
3. Disassemble the outer ventilation hood to enable access to the fastening holes.



4. Fix the back part of the ventilation hood on the wall with 4x40 screws from the delivery set.



5. Mount the upper part of the ventilation hood.



CONNECTION TO POWER MAINS


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

The ventilator is rated for connection to single-phase ac 1~100-230 V / 50-60 Hz power mains. For wireworks facilitation, the ventilator is supplied with a pre-wired power cord and a plug.

Connect the ventilator to power mains through the automatic circuit breaker with magnetic trip integrated into the fixed wiring system.

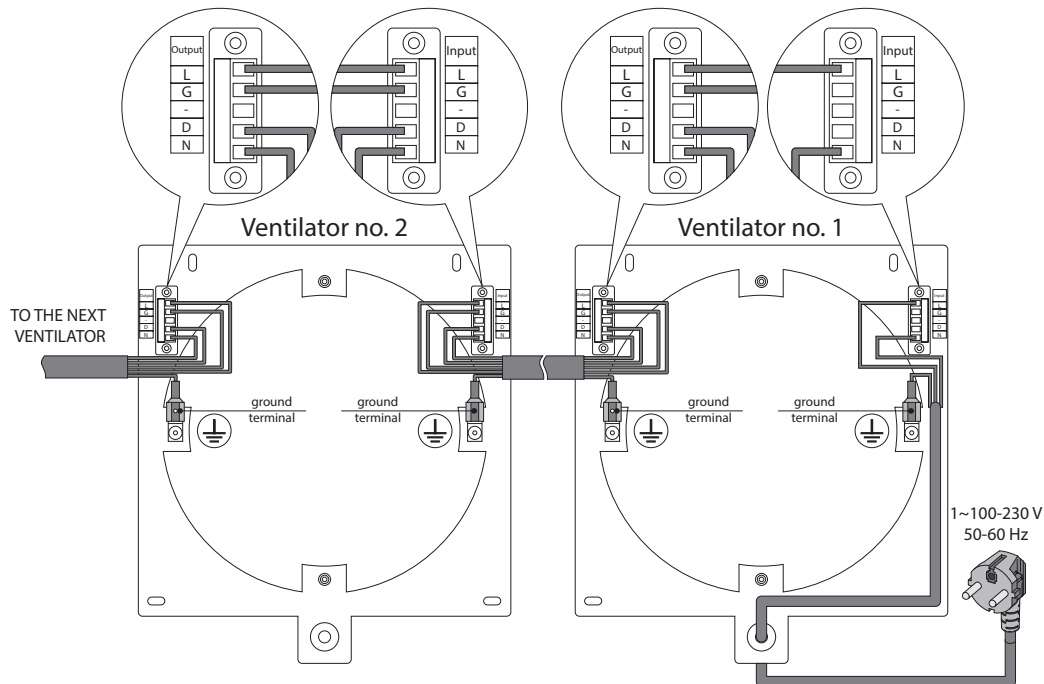
CONNECTION OF SEVERAL VENTILATORS IN SERIES

When the ventilators are connected in series, all the connected ventilators are controlled with the first ventilator and a common remote control. To connect the ventilators in series connect the Output contact socket of the first ventilator mounting plate with the Input contact socket of the second ventilator mounting plate.

Connect the second ventilator with the third ventilator in the same way, etc. Up to 10 ventilators may be connected in series.

For easy electric installations use a five-wire cable (not included into the delivery set) with the cable cross section not below 0.5 mm².

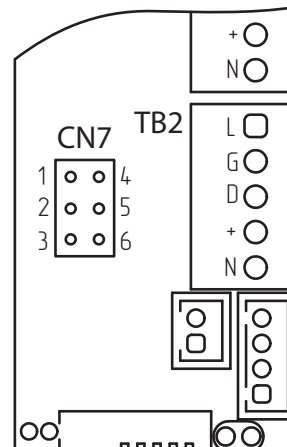
The cable must be rated for operation in an alternating current power supply with the country-specific mains voltage. Disconnect the power cord while connecting the second, third, etc. ventilator in series.

CONNECTION OF SEVERAL VENTILATORS IN SERIES (BACKSIDE VIEW)


The first ventilator controls all the connected ventilators. The jumper between the contacts 1 and 2 or 2 and 3 of CN7 socket connector determines a flow direction in **Ventilation mode**.

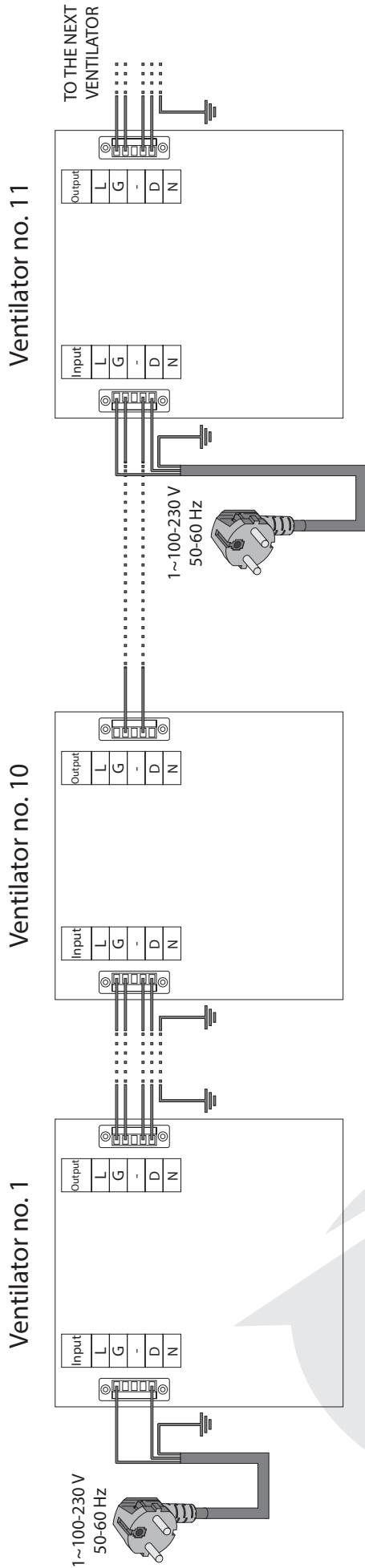
- If the jumper connects the contacts 1 and 2, air is extracted from the room in **Ventilation mode** (factory setting).
- If the jumper connects the contacts 2 and 3, air is supplied in **Ventilation mode**.

The jumper position at each connected in series ventilator determines a rotation direction in **Ventilation mode** and an operating phase in **Regeneration mode**. I.e. if the jumper at the first ventilator connects the contacts 2 and 3 and the jumper at the second ventilator connects the contacts 1 and 2, the ventilators operate in opposite directions in **Regeneration mode**.



Ventilator controller

Connection in series of above 10 ventilators



CONNECTION OF MORE THAN 10 VENTILATORS IN SERIES

In case of connection above 10 ventilators power is supplied to the 11th ventilator (L and N terminals) not from the previous ventilator but from power mains.

The control signals G and D from the 10th ventilator are transferred through the cable 2 x 0.5 mm².

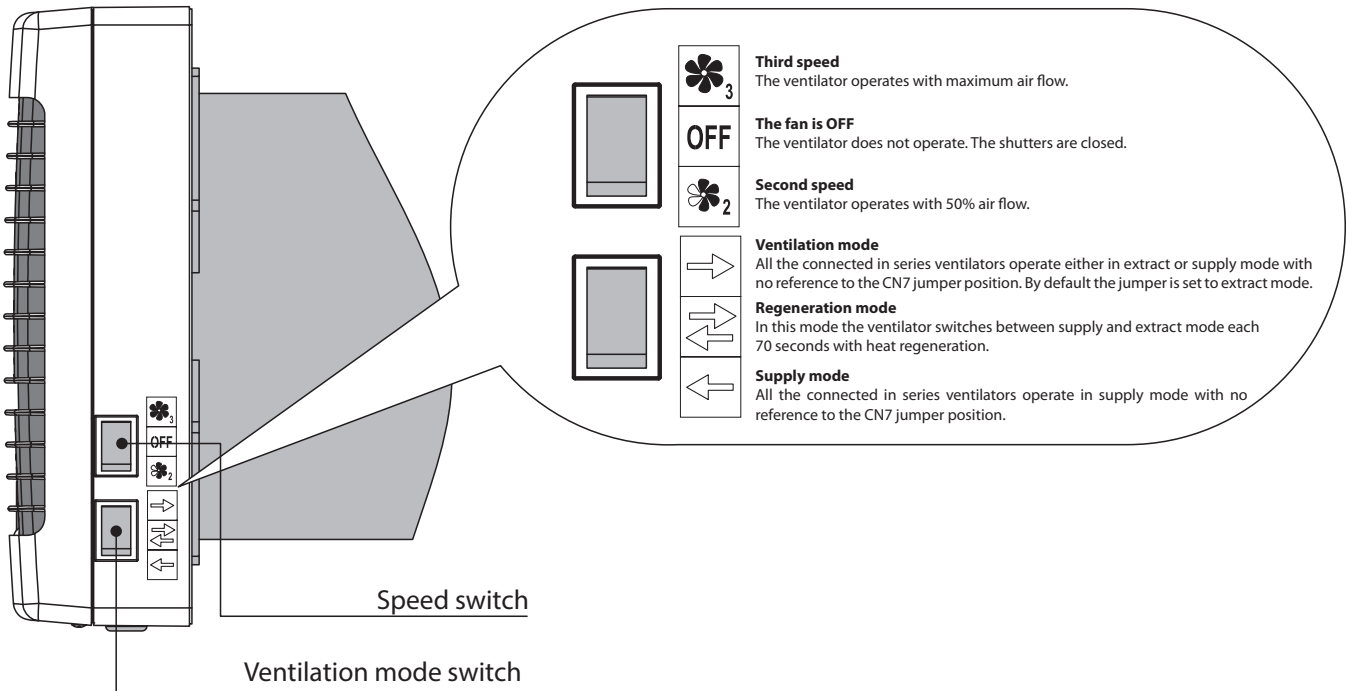
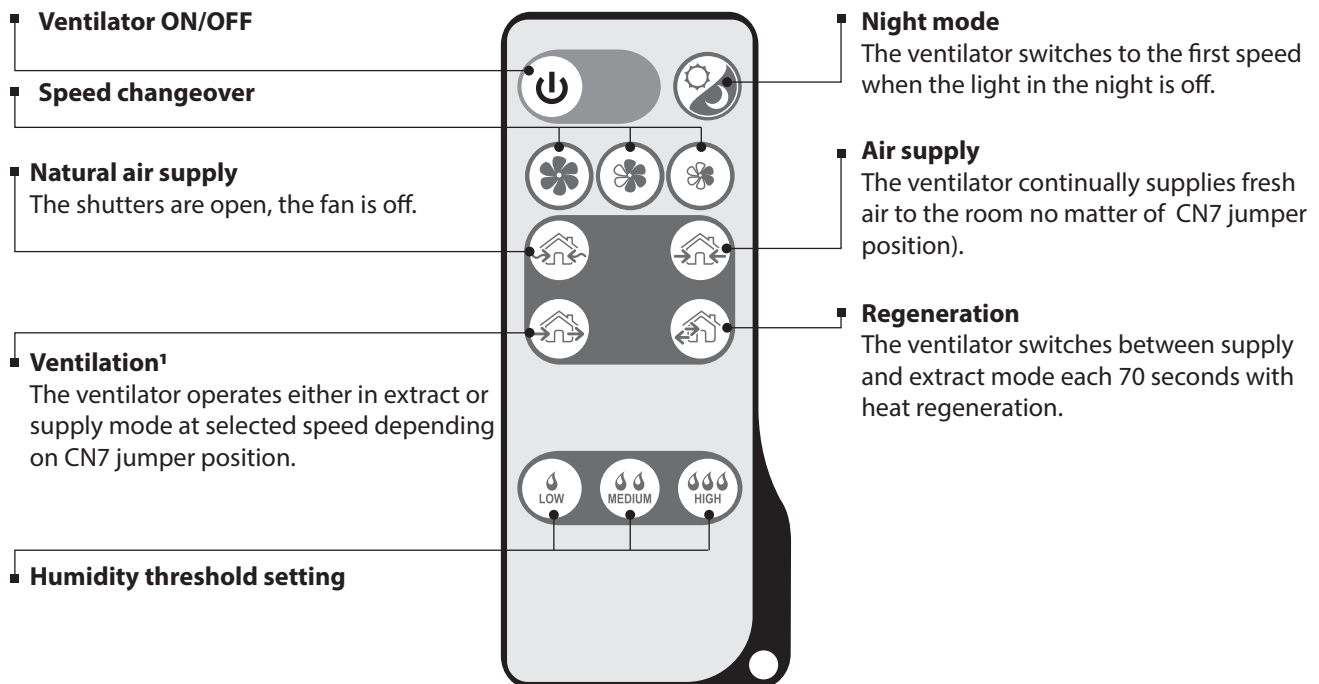
The ventilators no. 12...20 are connected to the ventilator no. 11 in the same way as the ventilators no. 1...10.

All the connected ventilators are controlled with the ventilator no. 1.

! ALL THE CONNECTED IN SERIES VENTILATORS MUST BE GROUNDED!




VENTILATOR CONTROL

The ventilator is operated with a remote controller or the buttons on the ventilator casing. The operation buttons on the ventilator casing have limited functionality and include activating the second and third speed and setting three of four ventilation modes. The remote controller has wider control capabilities.



CONTROL BUTTONS ON THE VENTILATOR CASING

REMOTE CONTROL


1 - operation of all the connected in series ventilators is determined by the CN7 jumper position.


OPERATION WITH THE CONTROL BUTTONS ON THE VENTILATOR CASING

1. Turning the ventilator ON. Setting operation speed.	
	second speed.
	third speed.
2. Turning the ventilator OFF.	
	Turning the ventilator OFF.

REMOTE CONTROL

Set the speed switch to  position and the ventilation mode switch to  position to enable remote control of the ventilator.

1. Turning ventilator ON/OFF.




	ON/OFF
---	--------

2. Night mode





	ON/OFF
---	--------

If **Night mode** is activated, the ventilator switches to the first speed in the night, when the light is turned off. Activation of the night mode is confirmed by a long sound signal. Exiting the night mode is confirmed by a short sound signal.

3. Speed setting

	First speed.
	Second speed.
	Third speed.

4. Operation mode

	Natural air supply mode. The room is ventilated in the natural way, the fan is off.
	Air supply mode. Air is supplied to the room at a set speed no matter of CN7 jumper.
	Ventilation mode. Air is extracted (factory setting) or supplied at a selected speed. All the ventilators connected in series ventilators operate depending on position of CN7 jumper.
	Regeneration mode. The ventilator operates 70 seconds in Supply mode and then 70 seconds in Extract mode with heat regeneration.

5. Humidity control. Humidity control is possible only in Regeneration mode.

	Setting humidity threshold - 45%
	Setting humidity threshold - 55%
	Setting humidity threshold - 65%

HUMIDITY CONTROL MAY BE ACTIVATED WITH THE REMOTE CONTROL ONLY!

MAINTENANCE



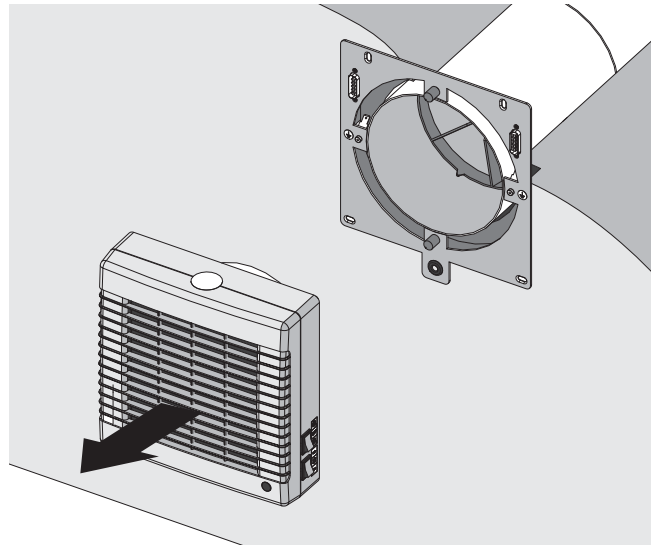
DISCONNECT THE VENTILATOR FROM POWER SUPPLY PRIOR TO ANY MAINTENANCE OPERATIONS.

Maintenance of the ventilator means regular cleaning of the ventilator surfaces of dust and cleaning or replacement of the filters.

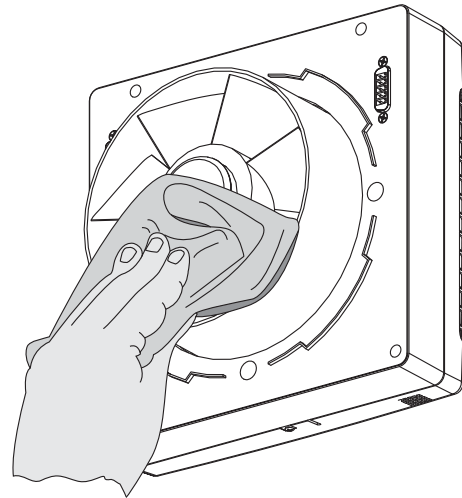
MAINTENANCE

1. Fan maintenance (once per year).

Pull the ventilator to remove.

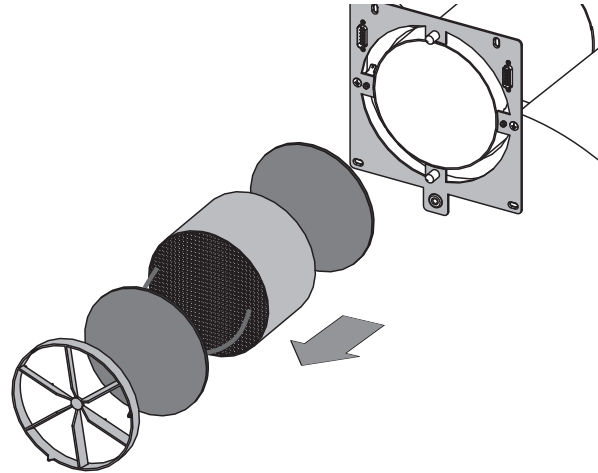


Clean the impeller blades. To remove dust use a soft brush, cloth or a vacuum cleaner. Do not use water, abrasive detergents, solvents, sharp objects. The impeller blades must be cleaned once in year.

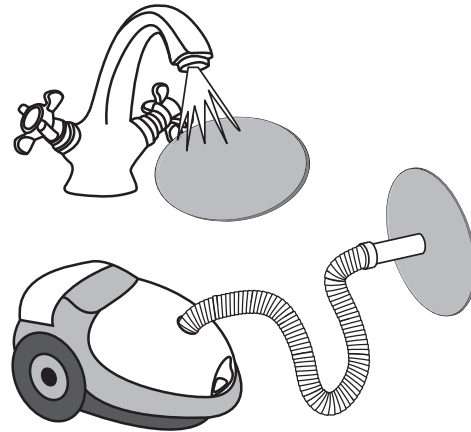


2. Regenerator and filter maintenance (4 times per year).

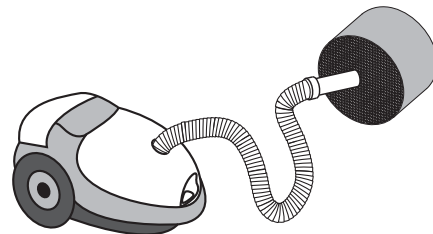
Remove the air flow rectifier.
 Remove the filter in front of the regenerator.
 Pull the regenerator cord to remove the regenerator from the air duct.
 Be careful while pulling the regenerator to avoid its damage.
 Remove the filter after the regenerator.




Clean the filter as often as it gets soiled, but at least 3-4 times a year.
 Once a 90 day period of operation expires, the ventilator generates a sound signal as a reminder of the need to replace or clean the filter. The signal is repeated every 5 minutes until the filter maintenance has been completed.
 Clean the filters, let those get dry and install the dry filters inside the air duct.
 Vacuum cleaning is allowed.
 The filter rated service life is 3 years.
 Contact the Seller for spare filters.



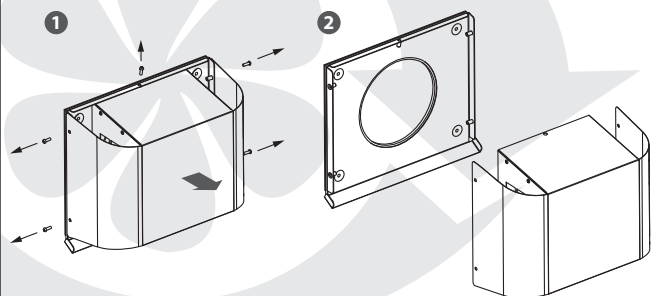
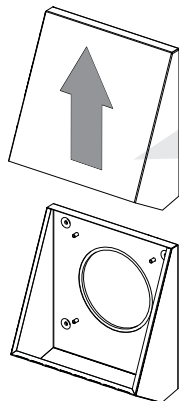
Even regular technical maintenance may not completely prevent dirt accumulation on the regenerator assemblies.
 Subject the regenerator to regular cleaning to ensure high heat exchange efficiency.
 Clean the regenerator with a vacuum cleaner at least once in a year.



To reset the operating time meter indication, install the filters and the regenerator into the ventilator and then press and hold the  button for 10 sec. until a long sound signal.

3. Ventilation hood maintenance (once per year).

The ventilation hood grill may get clogged with leaves and other objects which impairs the unit performance.
 Check the ventilation hood twice per year and clean it as often as required.
 To clean the ventilation hood disassemble it, then clean the ventilation hood and the air duct.



TROUBLESHOOTING
Possible faults and troubleshooting

Fault	Possible reasons	Fault handling
The fan does not start up during the ventilator start-up.	No power supply.	Make sure that the ventilator is properly connected to the power mains and make any corrections, if necessary.
	Motor is jammed, the impeller are clogged.	Turn the ventilator off. Troubleshoot the motor jam and the impeller clogging. Clean the blades. Restart the ventilator.
Automatic switch tripping following the ventilator turning on.	Overcurrent resulted from short circuit in the electric circuit.	Turn the ventilator off. Contact the service centre.
Low air flow.	Low set fan speed.	Set higher speed.
	The filter, the fan or the regenerator are dirty.	Clean or replace the filter, clean the fan and the regenerator. For the regenerator and the filter maintenance, refer to page 17.
The ventilator generates sound signals.	The operating time meter for filter replacement is activated.	For the regenerator and the filter maintenance, refer to page 17.
High noise, vibration.	The impeller is soiled.	Clean the impeller.
	Loose screw connection of the ventilator casing or the ventilation hood.	Tighten the screws of the ventilator or the outer ventilation hood.

STORAGE AND TRANSPORTATION RULES

Store the ventilator 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 ventilator 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 ventilator 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 ventilator 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 ventilator 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 ventilator 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;
- Ventilator installation / dismantling;
- Ventilator 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 ventilator model must comply with the one stated in the user's manual.

Contact your Seller for warranty service.

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

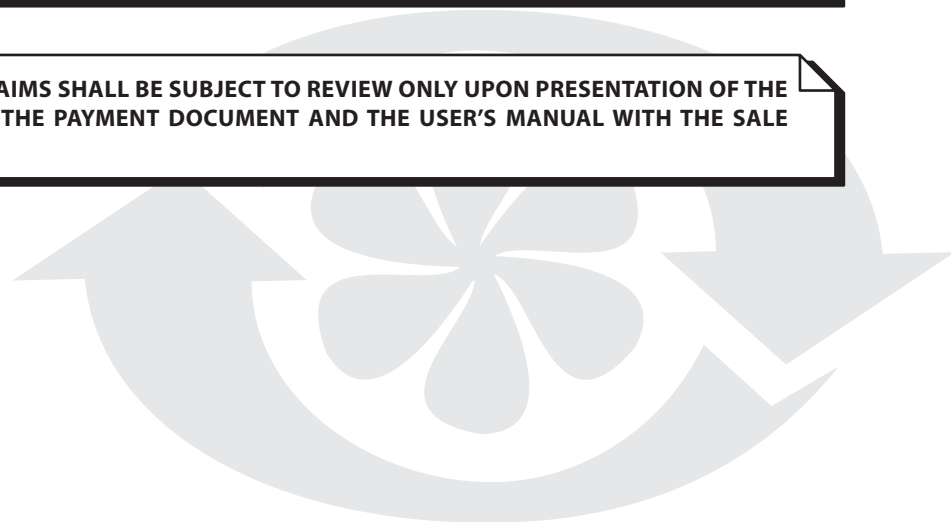
- User's failure to provide the ventilator with the entire delivery package as stated in the user's manual or with missing component parts previously dismantled by the user;
- Mismatch of the ventilator model and make with the respective details stated on the ventilator packing and in the user's manual;
- User's failure to ensure timely technical maintenance of the ventilator;
- External damage to the casing (excluding external modifications of the ventilator as required for its installation) and the internal components of the ventilator;
- Alteration of the ventilator design or engineering changes of the ventilator;
- Replacement and use of the ventilator assemblies, parts and components not approved by the manufacturer;
- Ventilator misuse;
- User's violation of the unit installation regulations;
- User's violation of the ventilator management regulations;
- Ventilator 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 ventilator;
- Ventilator 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 ventilator transportation;
- User's violation of the ventilator storage regulations;
- Wrongful acts against the ventilator committed by third persons;
- Ventilator 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 ventilator purchase.



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



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

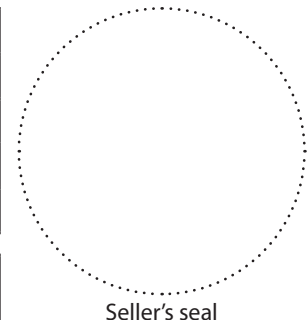


ACCEPTANCE CERTIFICATE

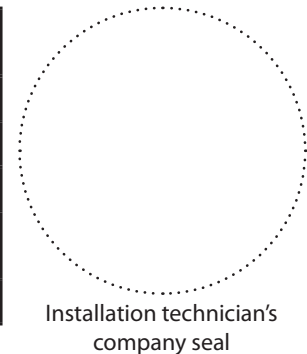
Product Type	The single-room reversible energy regeneration ventilator
Model	TwinFresh Comfo RA __-50
Serial Number	
Manufacturing Date	
Is recognized as serviceable. We hereby declare that the product complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 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.	
Quality Inspector's Stamp	

SELLER'S INFORMATION

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

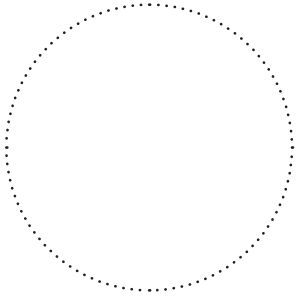

MOUNTING CERTIFICATE

The single-room reversible energy regeneration ventilator TwinFresh Comfo RA __-50 has been connected to power mains pursuant to the requirements stated in the present user's manual.	
Company name	
Address	
Telephone	
Installation technician's full name	
Installation date:	Signature:
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 ventilator operates normally as intended by the manufacturer.	
Signature:	



WARRANTY CARD

Product type	Single-room reversible energy regeneration ventilator
Model	TwinFresh Comfo RA __-50
Serial number	
Manufacturing date	
Sales date	
Warranty period	
Sales company	



Seller's seal

Large rectangular area with horizontal lines for text entry.



