

SINGLE-ROOM REVERSIBLE UNIT WITH HEAT AND HUMIDITY RECOVERY



VENTO A50 VENTO A50-1 VENTO A50 S VENTO A50-1 S



OPERATION MANUAL



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We are happy to offer your attention a new high-quality single-room reversible unit with heat and humidity recovery **VENTO A50 / VENTO A50-1**. The solid team of high-qualified professionals with many years of working experience, technological innovations in design and production, high-quality components and materials from the top worldwide producers have become the precondition for the best energy saving unit in its class.

INTRODUCTION

The present operation manual contains technical description, technical data sheets, operation and mounting guidelines, safety precautions and warnings for safe and correct operation of the unit.

GENERAL

The single-room unit is designed for efficient energy saving supply and exhaust ventilation of flats, houses, cottages and other small premises.

The heat recovery technology is used to minimize ventilation heat losses.

The unit is equipped with a high-tech ceramic heat accumulator (regenerator) that provides utilization of extract air heat energy for warming up of filtered supply air flow. The heat regeneration efficiency is up to 91%.

The unit is designed for indoor application with the ambient temperature ranging from -20 °C up to +50 °C and relative humidity up to 80%.

The unit is designed for external through-the-wall installation.

The unit is designed for continuous operation always connected to power mains.

The unit is allowed for operation only after final mounting, that includes installation of protecting devices in compliance with DIN EN ISO 13875 (DIN EN OSI 12100) as well as other construction safety equipment.

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

SAFETY RULES

The unit complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

All operations related to the electrical connection of the unit, like servicing and repair works are allowed only after the disconnection from power mains.

All mounting and servicing operations are allowed for duly qualified electricians with valid electrical work permit for electric operations at the units up to 1000 V after careful study of the present operation manual.

The unit must be grounded!

Please follow the safety regulations and working instructions (DIN EN 50 110 , IEC 364).

Make sure the impeller and the casing are not damaged before connecting the unit to power mains. The casing internals must be free of any foreign objects which can damage the impeller blades.

Disconnect the unit from power mains prior to any operations related to the unit servicing and repair works.

Misuse of the unit or any unauthorized modification are not allowed.

The unit is designed for connection to AC single-phase power mains, see the Technical Data. The unit is rated for permanent operation during nonstop power supply.

Take steps to prevent ingress of smoke, carbon monoxide and other combustion products into the room through open chimney flues or other fire-protection devices. Sufficient air supply must be provided for proper

combustion and exhaust of gases through the chimney of fuel burning equipment to prevent back drafting. The maximum permitted pressure difference per living units is 4 Pa.

The transported air must not contain any dust or other solid impurities, sticky substances or fibrous materials.

The unit is not designed for use in an inflammable and explosive medium. Do not close or block the unit intake or exhaust vent not to disturb the normal air passage.

Do not sit on the unit and do not put objects on the unit.

In case of unusual sounds, smoke disconnect the unit from power supply and contact the service centre.

Follow the manual guidelines to ensure trouble-free operation and long service life of the product.

Hazardous parts access and water ingress protection standard IP24.

STORAGE AND TRANSPORTATION RULES

Transportation of the unit is allowed by any vehicle provided the unit is transported in the original package and is protected against weather and mechanical damages.

Use hoist machinery for handling and transportation to prevent possible mechanical damages of the unit. Fulfil the requirements for transportation of the specified cargo type during cargo-handling operations.

Store the unit in a dry and cool place in the original packing.

The storage environment must not be subjected to any aggressive and/ or chemical evaporations, admixtures, foreign objects that may provoke corrosion and damage connection tightness.

Store the unit in an environment with minimized risk of mechanical damages, temperature and humidity fluctuations.

Do not expose the unit to the temperatures below $+10^{\circ}\text{C}$ and above $+40^{\circ}\text{C}$. Connection of the unit to power mains is allowed after the unit has been kept indoor for minimum two hours.

MANUFACTURER'S WARRANTY

The product complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

We hereby declare that the following 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.

The manufacturer hereby warrants normal operation of the unit over the period of 2 years from the retail sale date provided observance of the installation and operation regulations.

In case of failure due to manufacturing fault during the warranty period the consumer has the right to exchange it.

If case of no confirmation of the sale date, the warranty period shall be calculated from the manufacturing date.

The replacement is offered by the Seller.

The manufacturer shall not be liable for any damage resulting from any misuse of or gross mechanical interference with the unit.

Fulfil the operation manual requirements to ensure a trouble-free and long service life of the unit.



ATTENTION

The product is not allowed for use by children and persons with reduced physical, mental or sensory capacities, without proper practical experience or expertise, unless they are controlled or instructed on the product operation by the person(s) responsible for their safety. Supervise the children and do not let them play with the product.

WARNING



Do not dispose in domestic waste.

The unit contains in part material that can be recycled and in part substances that should not end up as domestic waste.

Dispose of the unit once it has reached the end of its working life according to the regulations valid where you are.



DESIGN AND OPERATING LOGIC

The unit consists of a telescopic duct with adjustable length, a ventilation unit and an outer ventilation hood.

Two filters and a ceramic heat accumulator (regenerator) are installed inside of the telescopic air duct. The round \emptyset 150 mm air duct is made of plastic and has an adjustable length:

- $-240~\mathrm{up}$ to 460 mm for the models VENTO A50 / A50-1;
- 120 up to 420 mm for the models VENTO A50 S / A50-1 S.

The unit is equipped with a high-tech ceramic heat accumulator with regenerating efficiency up to 91%. Due to the cellular structure is has larger contact surface and higher efficiency. The heat accumulator is featured with excellent heat-conducting properties and thermal energy storage capacity.

The ceramic heat accumulator is used for extract air heat energy recovery for warming up of supply air. The cord inside the regenerator facilitates its removal for maintenance. The regenerator is installed on the insulation material used as a sealer as well.

The ventilation unit must be installed on inner side of the wall. It is equipped with automatic shutters that close the air duct when the unit is off.

Air is supplied and extracted with an axial reversible EC-fan with low energy demand. The motor has overheating protection and ball bearings for longer service life. Two built-in filters with total filter class G3 are used for supply and extract air filtration and the regenerator anti-soiling protection.

The outer ventilation hood must be installed on outer side of the building to prevent ingress of large objects and water into the unit.

The integrated automation enables two-speed operation of the unit (minimum or maximum speed):

- ventilation mode (air supply or air extract);
- reversible operation mode with heat regeneration.

The external control and power unit SEA-T12 or the control panel SEA is used for operation mode control.

The delivery set of the units VENTO A50 Pro / A50-1 Pro / A50 S Pro / A50-1 S Pro includes the control and power unit SEA-T12 consisting of the control panel SEA and the 12W transformer AT-12.

The single control and power unit SEA-T12 enables connection up to 4 units and their integration into a central controlled ventilation system.

The following components are required to arrange a central controlled ventilation system consisting of from 4 up to 12 ventilation units:

- required number of VENTO A50 units (no control unit is included);
- control panel SEA;
- 40W power transformer AT-40.

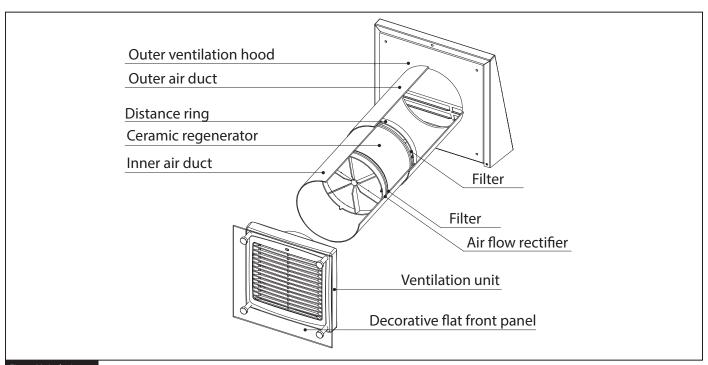


Fig. 1. Unit design

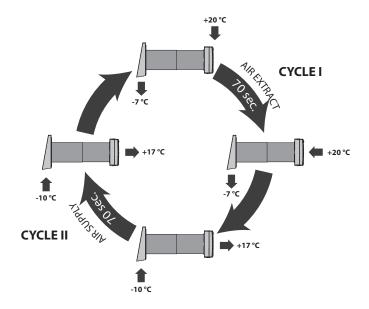
The unit has four ventilation modes:

- 1. Ventilation mode (air supply or air extract) at first speed.
- 2. Ventilation mode (air supply or air extract) at second speed.
- 3. Reversible mode (regeneration) at first speed.
- 4. Reversible mode (regeneration) at second speed.

In regeneration mode the unit operates in 2 cycles, 70 seconds each.

Cycle I. Warm stale air is extracted from the premise, flows through the ceramic regenerator and transfers its heat energy. In 70 seconds the ceramic regenerator gets warmed up and the unit is switched to the supply mode.

Cycle II. Clean cold intake air flows through the regenerator, absorbs humidity and is warmed up with the accumulated heat. In 70 seconds the ceramic regenerator is cooled down and the unit is switched to the extract air mode. The cycle begins anew.

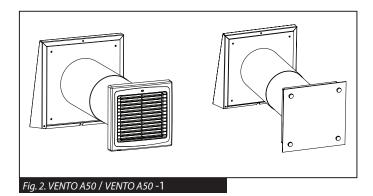




MODIFICATIONS AND OPTIONS

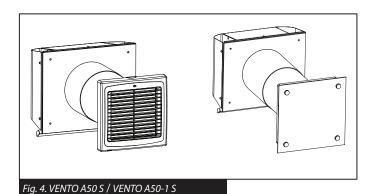
VENTO A50 / VENTO A50-1

The unit for the wall thickness from 240 up to 460 mm. The control panel and the power unit are available on separate order.



VENTO A50 S / VENTO A50-1 S

The unit for the wall thickness from 120 up to 420 mm. The control panel and the power unit are available on separate order.



VENTO A50 Pro / VENTO A50-1 Pro

The unit for the wall thickness from 240 up to 460 mm. Equipped with the control panel and the control unit SEA-T12.

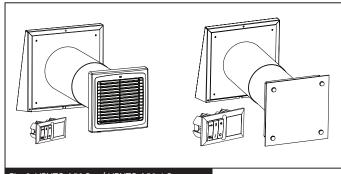


Fig. 3. VENTO A50 Pro / VENTO A50-1 Pro

VENTO A50 S Pro / VENTO A50-1 S Pro

The unit for the wall thickness from 120 up to 420 mm. Compatible with the control panel and the control unit SEA-T12.

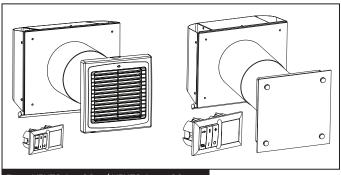


Fig. 5. VENTO A50 S Pro / VENTO A50-1 S Pro

DELIVERY SET

- ✓ Unit 1 item;
- ✓ Fixing set 1 item;
- \checkmark SEA-T12 control and power unit for Pro models 1 item;
- ✓ Cable Unitronic LIYY UL CSA 5xAWG/7 (5x0.25), 3 m long 1 item;
- ✓ Operation manual 1 item;
- ✓ Packing box 1 item.



ATTENTION

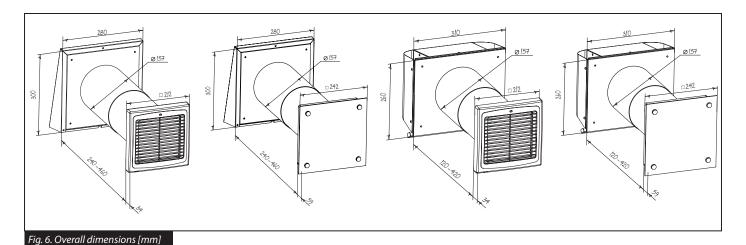
Make sure the unit has no visible transport damages while accepting the goods. Check the ordered and the delivered goods for compliance.



TECHNICAL DATA

Table 1. Technical data of the unit

Parameters	VENTO A50 / A50	VENTO A50 / A50-1 / A50 S / A50-1 S		
Supply Voltage / 50 Hz [V]	2	230		
Speed	1	2		
Total unit power [W]	3.68	4.83		
Total unit current [A]	0.021	0.026		
Max. air flow [m³/h]	26	53		
Sound pressure level at 3 m distance [dBA]	24	34		
Sound pressure level at 1 m distance [dBA]	14	24		
Transported air temperature [°C]	from -20	from -20 up to +50		
Total filtering class of 2 filters		G3		
Heat regeneration efficiency [%]	ир	up to 90		
Regenerator type	Ceramic en	Ceramic energy accumulator		
Ingress Protection Rating	II.	IP24		



MOUNTING



WARNING

Read the operation manual prior to any electric installations. Connection of the unit to power mains is allowed by qualified professionals.

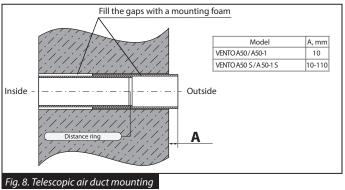
The unit is designed for through-the-wall mounting in the building outer wall.

Mounting sequence:

1. Prepare a round core hole through the outer wall. The size is shown in the figure 7. While mounting several connected in series units provide a recess for the cable layout during the hole preparation to enable series connection of several units.

Fill the gaps with a mounting for

Fig. 7. Size of the core hole



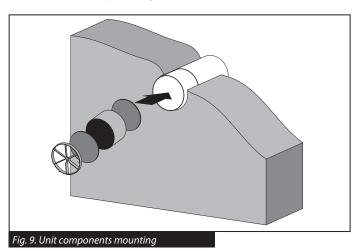
2. Install the telescopic air duct in the wall. The protruding telescopic air duct

3. Fill the gaps between the wall and the telescopic air duct with a mounting

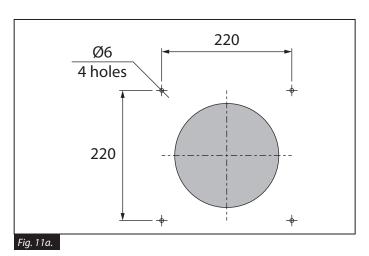
section on outer wall side must be equal to the distance A, fig. 8.



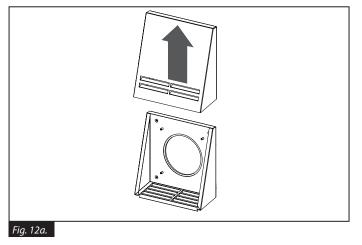
5. Install the ceramic regenerator with both filters, front and back, and the air flow rectifier in this sequence, fig. 9.



- 7. Mark the fastening holes for the outer ventilation hood:
 - Fig. 11a for the models VENTO A50 / A50-1;



- 8. Insert the dowels 6x40 from the delivery set into the holes.
- **9.** Disassemble the outer ventilation hood to enable access to the fastening holes:
 - Fig. 12a models VENTO A50 / A50-1. Remove the upper part of the outer ventilation hood.



6. Insert the dowels 5x25 in the wall and fix the ventilation unit to the wall with screws 3x25 from the delivery set, fig. 10.

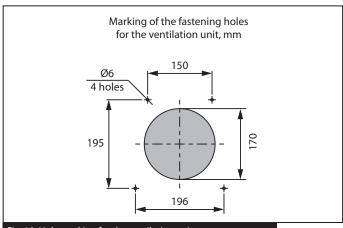


Fig. 10. Hole marking for the ventilation unit

• Fig. 11b – for the models VENTO A50 S / A50-1 S. Drill 40 mm holes for the dowels 6x40.

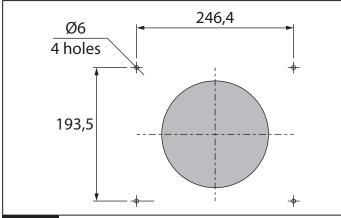


Fig. 11b.

 Fig. 12b - models VENTO A50 S / A50-1 S. Loosen these 5 screws and take off the upper part of the outer ventilation hood.

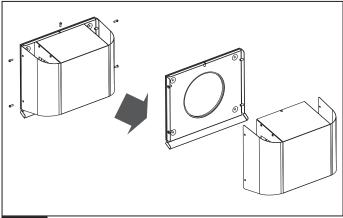
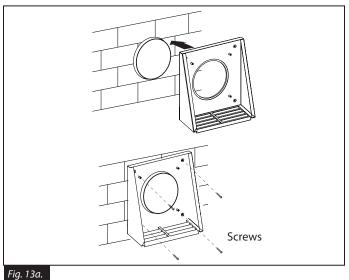
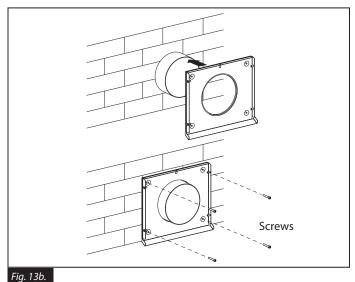


Fig. 12b.



- 10. Fix the back part of the outer hood on the wall.
- Fig. 13a models VENTO A50 / A50-1. Fix the back part of the outer ventilation hood to the wall with the screws 4x40 from the delivery set.
- Fig. 13b -models VENTO A50 S / A50-1 S. Fix the back part of the outer ventilation hood to the wall with the screws 4x40 from the delivery set.

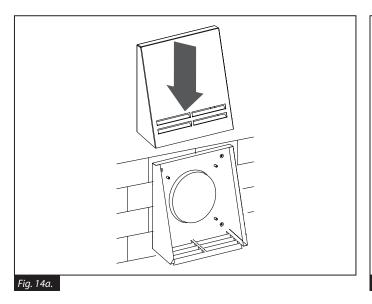


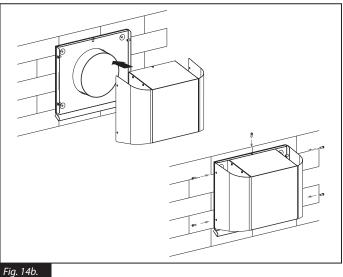


- -
- Fig. 14a for the model VENTO A50 / A50-1;

11. Install the upper part of the outer ventilation hood:

Fig. 14b – for the model VENTO A50 S / A50-1 S.





12. Install the control panel SEA-T12 with a power unit inside a prepared hole in the wall, see fig. 15. The control panel mounting place must be inaccessible for children. During selection of the control panel mounting place consider the

supplied cable length. A longer cable may be used if required, of Unitronic LIYY UL CSA 5xAWG/7 (5x0.25) type.

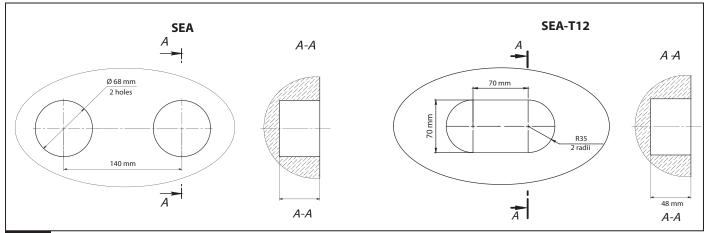


Fig. 15.



CONNECTION AND CONTROL



WARNING

Read the operation manual prior to any electric installations. Connection of the unit to power mains is allowed by a qualified electrician only.

The rated electrical parameter are stated on the rating plate. No modifications of internal connections are allowed and will result in void warranty.

Connect the fan only to power mains with valid electric standards. The unit must be connected to a correct mounted socket with a grounded terminal or connected to a fixed installed cable.

Follow the respective electric standards, safety rules (DIN VDE 0100), TAB der EVUs. The house cabling system must be equipped with an automatic switch at the external input. Connect the unit to power mains through the automatic switch. The contact gap on all poles at least 3 mm (VDE 0700 T1 7.12.2 / EN 60335-1).

Install the automatic switch to ensure prompt access.

The unit is controlled with the external control panel SEA or the control and power unit SEA-T12. The control devices are available on separate order if not included into the delivery set of the unit model.

The control and power unit SEA-T12 consists of a control panel and a 12 W power transformer, fig. 16. In case of the control panel SEA either power transformer AT-12 or AT-40 are used and are available upon separate order.

The unit is rated for connection to single-phase alternating current power mains $230\,V/50\,Hz$ or $120\,V/60\,Hz$, depending on the used transformer type.

Separate power supply must be provided both to the control panel and to the ventilation unit to control the automatic shutters. The control and power unit modifications are customer selected depending on power mains voltage and transformer power in compliance with the table 2.

Table 2. Control panel technical data

	Transformer data				
Control and power unit name	Power [W]	Voltage [V]		Note	
		Input	Output		
Control and power unit SEA-T12	12	230 / 50 Hz	12 / 50 Hz	Rated for connection up to 4 units	
Control and power unit SEA-T12 (120 V / 60 Hz)	12	120 / 60 Hz	12 / 60 Hz	Rated for connection up to 4 units	
Control panel SEA + transformer AT-40	40	230 / 50 Hz	12 / 50 Hz	Dated for compaction we to 12 write	
Control panel SEA + transformer AT-40 (120 V / 60 Hz)	40	120 / 60 Hz	12 / 60 Hz	Rated for connection up to 12 units	
Control panel SEA + transformer AT-12	12	230 / 50 Hz	12 / 50 Hz	Dated for some action we to 4 write	
Control panel SEA + transformer AT-12 (120 V / 60 Hz)	12	120 / 60 Hz	12 / 60 Hz	Rated for connection up to 4 units	

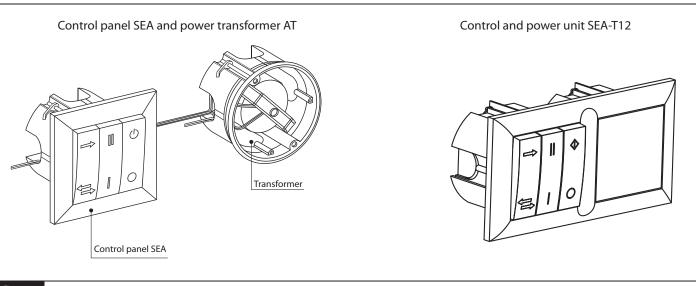


Fig. 16.



All electric connection to the control unit and the ventilator are performed with the socket connectors (detachable terminal blocks) for mounting and servicing facilitation. Each mating part of the socket connector has colour marking in compliance with marking on the circuit board to ensure correct and quick electric installation.

The control panel SEA is used to set one of four operation mode of the unit, fig. 17:

- 1. Ventilation mode (air extract / air supply)* at the first speed with air flow 26 m³/h.
- 2. Ventilation mode (air extract / air supply)* at the second speed with air capacity 53 m³/h.
- 3. Reversible (regeneration) operation at the first speed with air flow 26 m³/h. The unit changes air flow direction every 70 seconds.
- 4. Reversible (regeneration) operation at the second speed with air flow 53 m³/h. The unit changes air flow direction every 70 seconds.
- * air flow direction depends on position of the jumper JMP1 on the circuit board. The jumper is set to supply mode by default, fig. 18.

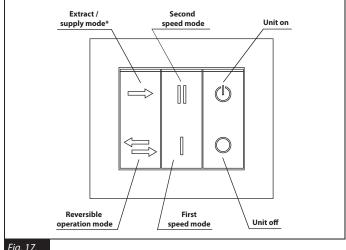


Fig. 17.

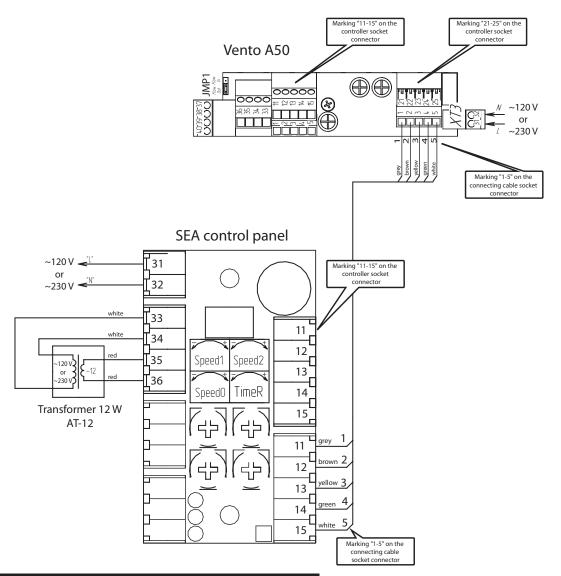


Fig. 18. General wiring diagram for connection of Vento A50 unit to the SEA control panel

Two control channels are used for connection of Vento A50 units to the control panel SEA. Such design solution provides flexibility during connection of several Vento A50 units.

The impeller rotation direction at start of the regeneration mode or in ventilation mode is determined by positioning the jumper JMP1 on the ventilation unit circuit board. The jumper positioned in «Flow In» position sets the unit to supply mode and the jumper positioned in «Flow Out» position sets the unit to extract mode.

The VENTO A50 is connected to the control panel SEA with a five-wire cable. The wire colour marking corresponds to the supplied cable. The minimum conductor cross section is 0.25 mm² (23 AWG).

Type and power of the step-down transformer T1 is selected to provide 12 V $alternating\, current\, voltage\, and\, 3\,W\, power\, consumption\, of\, each\, Vento\, A50\, unit.$ Separate power supply (230 V / 50 Hz or 120 V / 60 Hz) must be connected both to the control unit SEA (SEA-T) and to the ventilation unit to enable actuation of the automatic shutters (socket connectors 31-32 in each case).



Connection of the unit in compliance with the wiring diagram in fig. 19 enables synchronous connection of up to 4 units. In this very case the 12 W power transformer AT-12 is used.

Power supply 230 V / 50 Hz (or 120 V / 60 Hz) must be connected both to the control panel SEA (SEA-T) and to each ventilation unit to enable actuation of the automatic shutters (socket connectors 31-32 in each case).

The inputs on the controller socket connectors are marked 21 to 25. The outputs on the controller socket connectors are marked 11 to 15.

The socket connectors of the connecting cable supplied with the unit are marked 1 to 5 and must be connected to the controller socket connectors marked 11-15 for outputs or 21-25 for inputs.

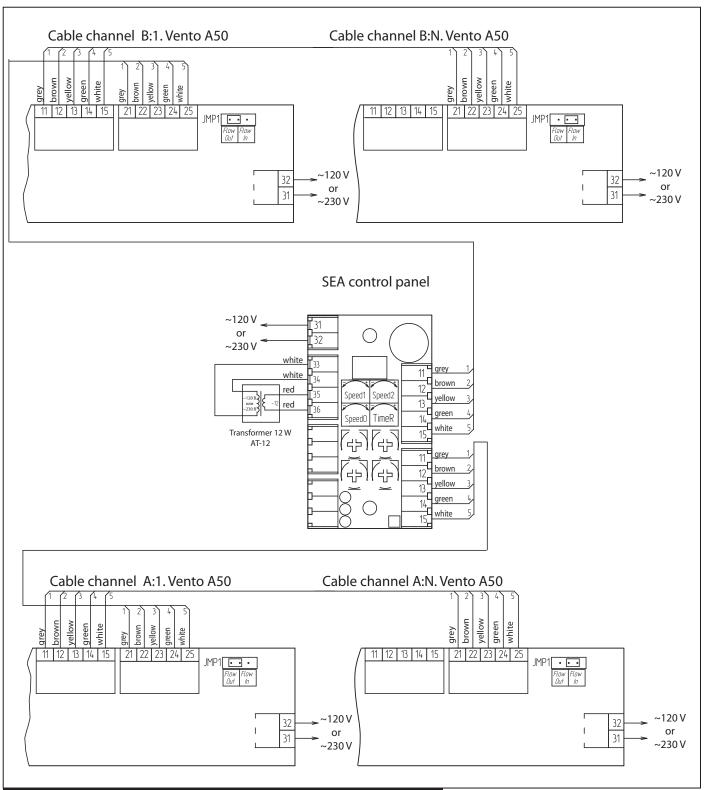


Fig. 19. General wiring diagram for connection of up to 4 Vento A50 units to a single SEA control panel



Up to 12 Vento A50 units may be connected to a single SEA control panel powered by the 40W power transformer AT-40, fig. 20.

First connect the 12W transformer wire leads to the contacts A1:35, 36 of the controller A1 (SEA) using the socket connector at the cable K2. The cable is included into delivery set of the 40W transformer model.

Then connect the first unit A3-No.1 to the contacts A1:11-15 of the controller SEA using the connecting cable supplied with the first unit. Connect the second unit A3-No.2 (contacts A2: 21-25) to the first unit (contacts A2: 11-15) using the connecting cable supplied with the second unit.

Connect all the other units, up to 12 items, in the same way.

Connect power supply (230 V / 50 Hz or 120 V / 60 Hz, depending on the unit model) to the contacts A2: 31,32 of each unit.

The fan impeller rotation direction is determined by position of the jumper JMP1 on the PCB of A2 unit: the leftmost position sets the unit to extract mode (Flow Out) and the rightmost position sets the unit to supply mode (Flow In). The jumper is used to set direction for each fan in the group. The transformer unit is connected to power mains through the power cable with a plug, which is prewired to the transformer unit terminal block by the manufacturer.

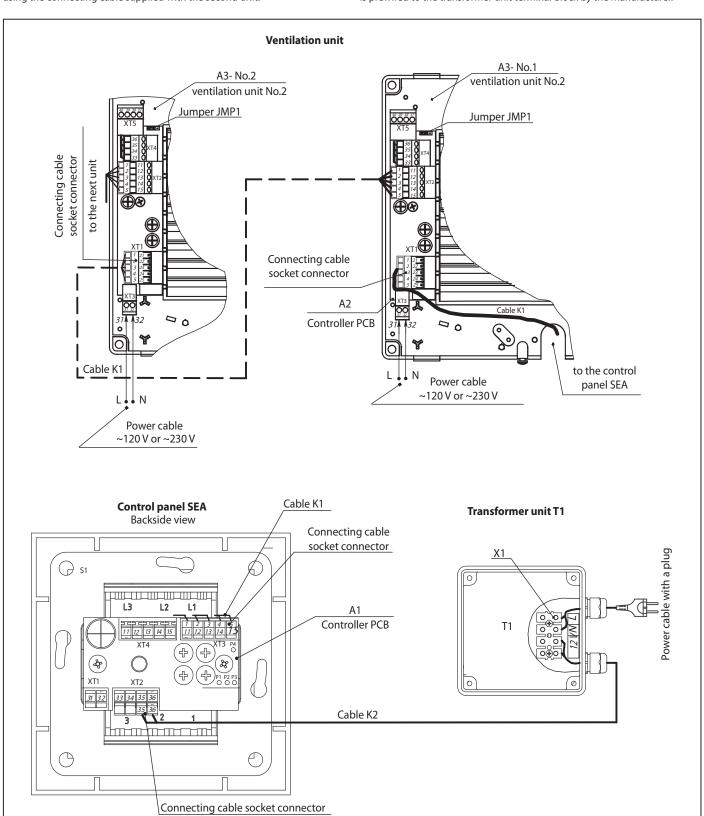


Fig. 20. Wiring diagram for connection up to 12 VENTO A50 units to SEA controller with AT-40 transformer



The control panel SEA is capable of controlling unlimited quantity of the connected units. In this case a required number of the transformers AT-12 or AT-40 must be used for power supply. Connection example with several transformers is shown in fig. 21.

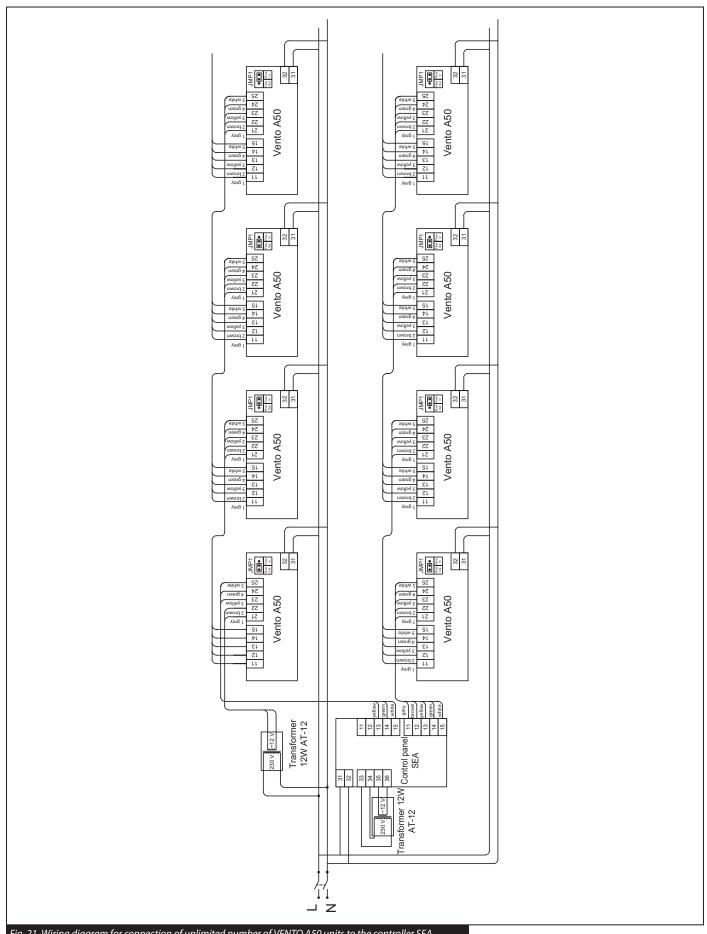


Fig. 21. Wiring diagram for connection of unlimited number of VENTO A50 units to the controller SEA



MAINTENANCE



WARNING!

Disconnect the unit from power mains prior to maintenance operations!

The unit technical maintenance consists in the periodic cleaning of the unit surfaces and cleaning or replacement of the filters.

Remove dust with a soft brush, cloth or compressed air. Do not use water, abrasive detergents, solvents, sharp objects.

1. Fan maintenance (once a year).

- Pull out the decorative fan grille and clean it.
- Disconnect the wires from the ventilation unit by using the connectros.
- Clean the impeller blades, fig. 22. Remove dust with a soft brush, cloth or compressed air. Cleaning with water, abrasive detergents, solvents, sharp objects is not allowed. Clean the impeller blades at least once a year.

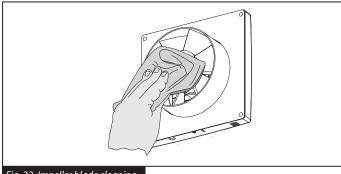


Fig. 22. Impeller blade cleaning

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

- Remove the air flow rectifier. Pull the cord to remove the regenerator and the filters from the air duct. Do not let the regenerator fall down, fig. 23.
- Clean the filters as often as required, but at least once in three months.
 To clean the filters flush those under running water or use a vacuum cleaner, fig. 24 Let the filters dry and install the dry filters inside the air duct.
- Contact a local distributor for the filters stated above in the section "Technical data".
- Even regular filter maintenance may not completely prevent the dust ingress into the regenerating unit. Clean the regenerator with a vacuum cleaner at least once a year.

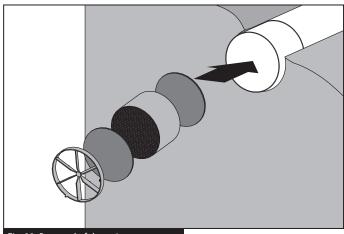


Fig. 23. Removal of the unit components

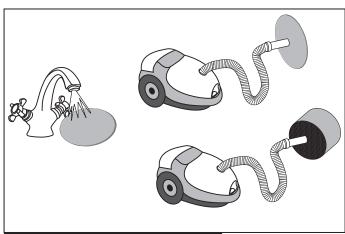


Fig. 24. Cleaning of the filters and the regenerator

3. Outer ventilation hood maintenance (once a year).

The outer ventilation hood may get clogged with leaves and other objects that reduce the unit air capacity.

Check the outer ventilation hood twice a year and clean it as often as required.

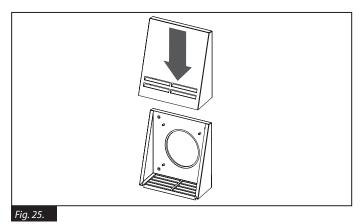
Cleaning of the outer ventilation hood:

• remove the upper part of the outer ventilation hood:

Fig. 25 – for the model VENTO A50 / A50-1;

Fig. 26 - for the model VENTO A50 S / A50-1 S.

• clean the outer ventilation hood and the air duct.



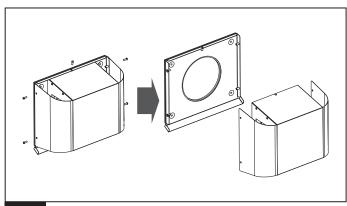


Fig. 26



TROUBLESHOOTING

Fault	Possible reasons	Fault handling
	No power supply.	Make sure of correct power supply, otherwise troubleshoot the connection error.
The fan does not start when the unit is on.	Jammed motor, soiled impeller blades.	 Turn the unit off. Troubleshoot the motor jam and the impeller clogging. Clean the blades. Restart the unit.
Automatic switch tripping during the unit start.	Short circuit in power grid as a result of short circuit.	Turn the unit off.Contact the seller.
	Low set fan speed.	Set higher speed.
Low air flow.	The filters, the fan or the regenerator are soiled.	 Clean or replace the filter. Clean the fan and the regenerator. For the regenerator and the filter maintenance, refer page 15.
	The impeller is soiled.	Clean the impeller.
Noise, vibration.	Loose screw connection of the unit casing or the outer ventilation hood.	Tighten the screws of the unit or the outer ventilation hood.



ACCEPTANCE CERTIFICATE

Single-room reversible unit with heat and humidity recovery

VENTO A50 Pro	VENTO A50	VENTO A50-1 Pro	VENTO A50-1	
VENTO A50 S Pro	VENTO A50 S	VENTO A50 -1 S Pro	VENTO A50 -1 S	

is recognizes as serviceable.

The unit complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

We hereby declare that the following 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.

oproval mark	Manufacturing date		
CONNECTION CERTIFICATE			
	The single-room reversible	unit with heat and humidity recov	very
VENTO A50 Pro	VENTO A50	VENTO A50-1 Pro	VENTO A50-1
VENTO A50 S Pro	VENTO A50 S	VENTO A50 -1 S Pro	VENTO A50 -1 S
WARRANTY CARD			
VENTO A50 Pro	VENTO A50	VENTO A50-1 Pro	VENTO A50-1
VENTO A50 S Pro	VENTO A50 S	VENTO A50 -1 S Pro	VENTO A50 -1 S
SELLER SALES DATE			
REPRESENTATIVE IN EU			
Blauberg Ventilatoren GmbH Aidenbachstr. 52a, D-81379 München.			



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