
VEF extract air fan



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1 Introduction

1.1 Product description

This product is a residential extract air fan that is supplied with a built-in potentiometer (0–10 V) for speed control. The product can also be controlled by external controllers or cooker hoods.

1.2 Intended use

The product is used for extraction of kitchen odour or air with a high moisture.

The product must be used together with the duct system and ducts must be always connected to the inlet and outlet side.

Rotating parts must not be accessible after installation.

The product is intended for installation in indoor environments with ambient temperatures of between 0-50 °C.

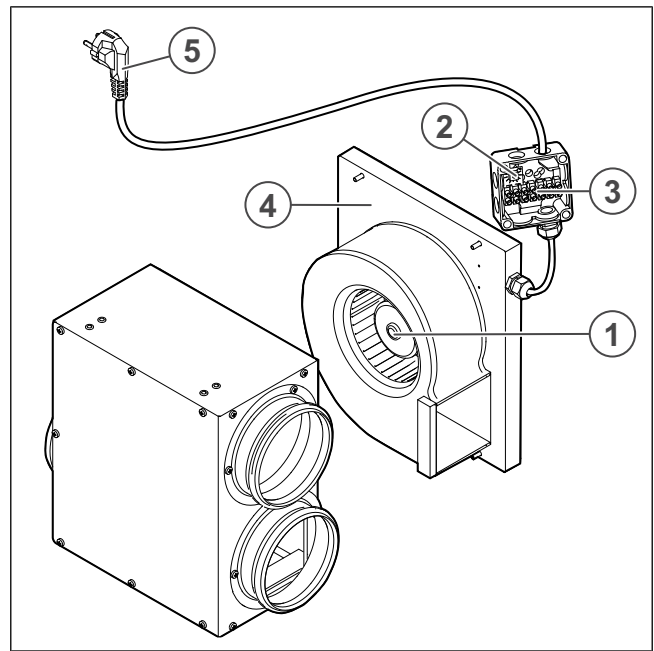
The product is not applicable for transportation of air that contains explosive, flammable or aggressive media. The product is not applicable for locations where there is a risk of explosion.

1.3 Document description

This document contains instructions for installation, operation and maintenance of the product. The procedures must be done by approved personnel only.

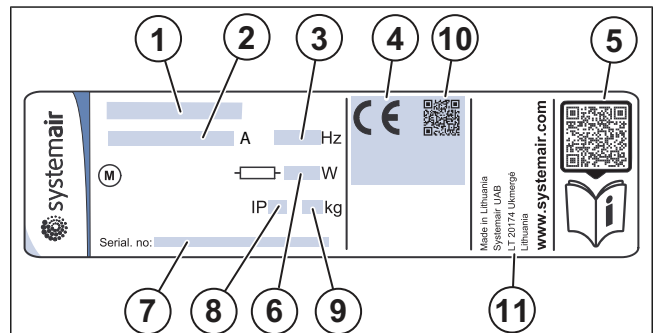
Speak to Systemair for more information on how to install the product in different installation locations.

1.4 Product overview



1. Fan motor
2. Potentiometer
3. Terminal block for electrical connections
4. Cover
5. Power plug 230 V~

1.5 Name plate



1. Product name
2. Electrical reset current, A
3. Frequency, Hz
4. Certifications
5. Scannable code for the spare parts list and documentation ¹
6. Total input power, W
7. Serial number: part number/production number/production date
8. IP code, enclosure class
9. Weight, kg
10. Scannable code for manufacturing order number (MO)
11. Country of production

1. Use a mobile device to scan the scannable code and go to the Systemair documentation portal for more documentation and document translations.

1.6 Product liability

Systemair is not liable for damages that the product causes in these conditions:

- The product is incorrectly installed, operated or maintained.
- The product is repaired with parts that are not original spare parts from Systemair.
- The product is used together with accessories that are not original accessories from Systemair.

2 Safety

2.1 Safety definitions

Warnings, cautions and notes are used to point out specially important parts of the manual.



Warning

If you do not obey these instructions, there is a risk of death or injury.



Caution

If you do not obey these instructions, there is a risk of damage to the product, other materials or the adjacent area.

Note:

Information that is necessary in a given situation.

2.2 Safety instructions



Warning

Read the warning instructions that follow before you do work on the product.

- Read this manual and make sure that you understand the instructions before you do work on the product.
- Obey local conditions and laws.
- The ventilation contractor and the operator are responsible for correct installation and intended use.
- Keep this manual at the location of the product.
- Do not install or operate the product if it is defective.
- Do not remove or disconnect safety devices.
- Make sure that you can read all warning signs and labels on the product when it is installed. Replace labels that have damage.
- Only permit approved personnel to work on the product and to be in the adjacent area during all work on the product.
- Make sure that you know how to stop the product quickly in an emergency.
- Use applicable safety devices and personal protective equipment during all work on the product.
- Before you do work on the product, stop the product and wait until the fan impeller stops.
- If the maintenance is not correctly and regularly done, there is risk of injury and damage to the product.
- Only do the maintenance as given in this manual. Speak to Systemair technical support if other servicing is necessary.
- Always use spare parts from Systemair.
- The product is not to be used by persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.
- Do not allow children to play with the device.

2.3 Personal protective equipment

Use personal protective equipment during all work on the product.

- Approved eye protection
- Approved protective helmet
- Approved hearing protection
- Approved protective gloves
- Approved protective shoes
- Approved work clothing

3 Transportation and storage



Warning

Make sure that the product does not become damaged or wet during transportation. A damaged or wet product can cause fire or electric shock.



Warning

Use protective gloves during transportation and unload. Sharp edges, nails, staples, splinters can cause injury.

- Before you move the product to the installation location, examine the packaging for damages.
- Do not move the product by the cables or the external connection box.
- If lifting equipment is used, make sure that the lifting equipment can hold the weight of the product. Refer to the name plate for information. Do not lift the product by the packaging.
- Load and unload the product carefully.
- Keep the product in a dry and clean location during storage. Make sure that the ambient temperature during storage is between -10 and $+30$ °C. A stable ambient temperature prevents damage from condensation.
- Make sure that the product has protection from condensation during storage. The person who receives the product must make sure that the protection from condensation is sufficient.

4 Installation

4.1 To do before the installation of the product

- Examine the packaging for transportation damage and remove the packaging from the product carefully.
- Examine the product and all components for damage.
- Make sure that the information on the name plate agrees with the order confirmation.
- Make sure to open the product to see if no components are left inside.
- Make sure that you have the necessary installation accessories.
- Make sure that the installation location is clean and dry, for full safety during electrical work.
- Install the product in a location where there is space for commissioning, troubleshooting and maintenance.
- Make sure that the installation surface has sufficient capacity to hold the weight of the product.
- Make sure that the installation surface does not allow vibration noise to spread to other locations.
- Make sure that the product cable can reach the power outlet. The power supply cable length is approximately 2 m.

4.2 Duct connection overview

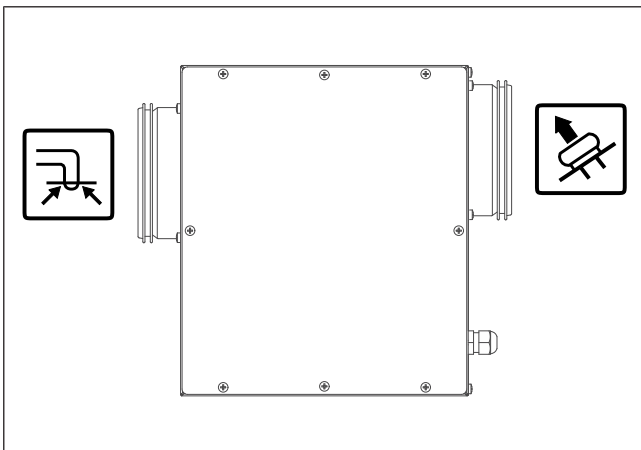


Fig. 1 VEF 1

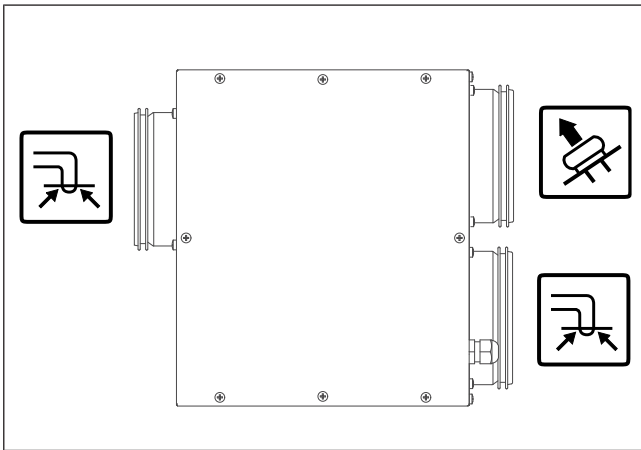


Fig. 2 VEF 2

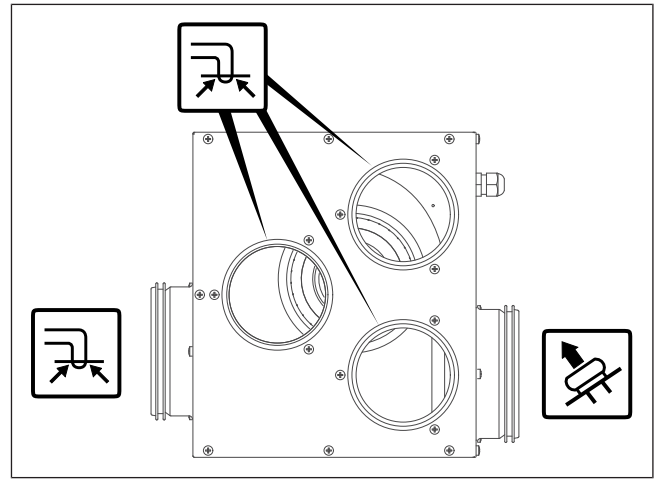


Fig. 3 VEF 4

Icon	Description
	Extract air
	Exhaust air

4.3 To install the product



Caution

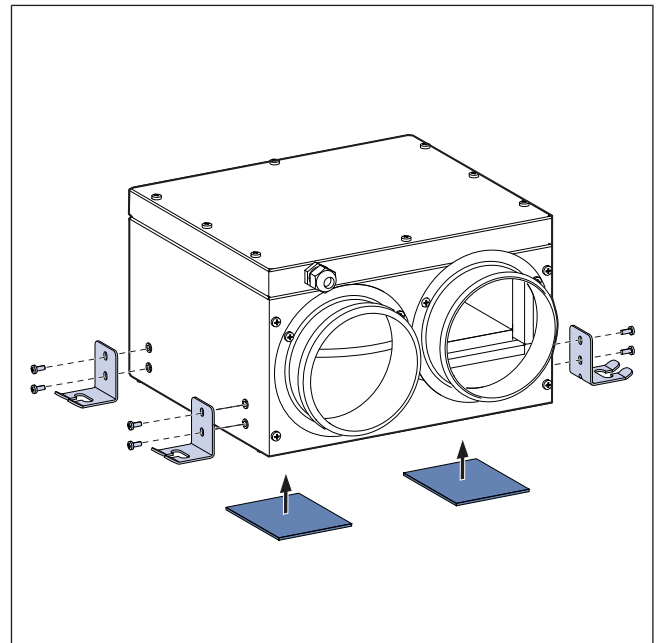
Use protective gloves during installation and maintenance. Sharp edges can cause injury.



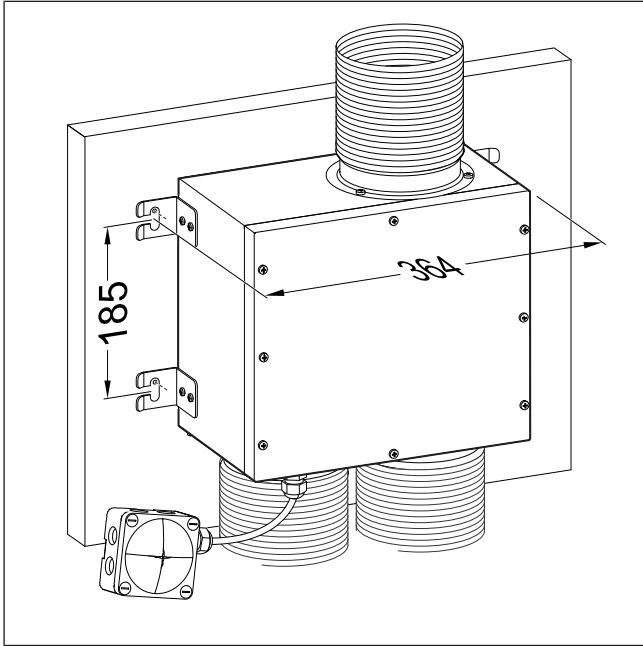
Caution

Make sure the rotating parts have come to a complete standstill before you do the maintenance.

- 1 Install four mounting brackets and attach two anti-vibration pads.

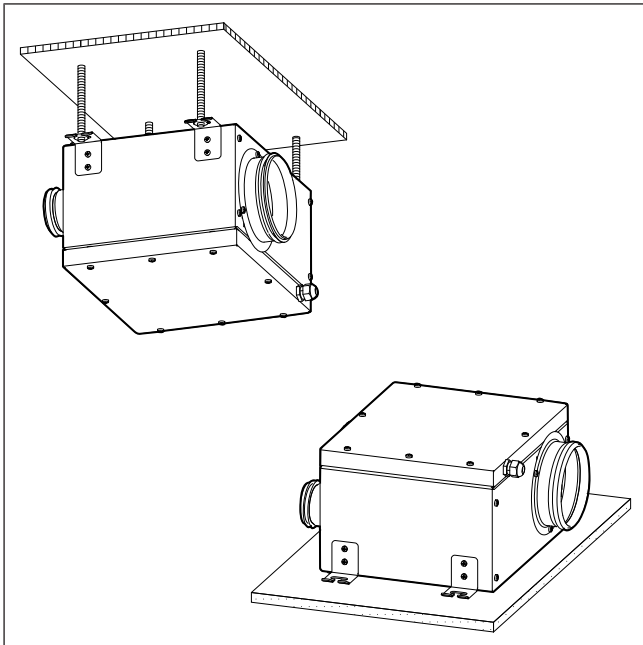


- 2 Mark the installation position on the wall. If the product is installed together with a cooker hood, make sure that the distance between the cooker hood and the product is minimum 120 mm.



- 3 Attach the product to the wall with screws.
4 Connect the ducts to the product.

The product can be installed on the wall, on the floor, or under the ceiling.



5 Electrical connection

5.1 To do before the electrical connection

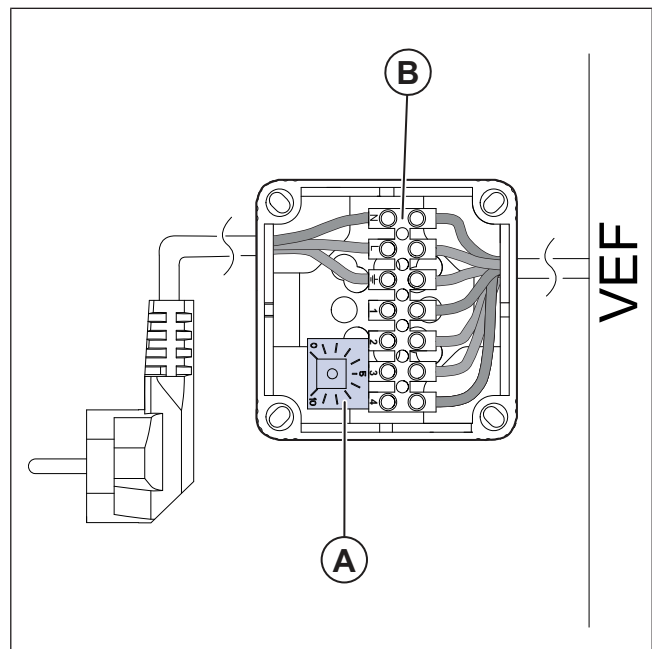


Warning

Remove the plug from the power outlet to disconnect the power before any maintenance or electrical work.

- Make sure that the electrical connection agrees with the product specification on the motor name plate.
- Make sure that the environment for electrical connection is clean and dry.

5.2 Overview of the connection box



- A. Potentiometer (0–10 V)
B. Terminal block
1. Unused
 2. Ground wire
 3. 0–10 V control
 4. 10 V supply

5.3 To connect the product to the power supply

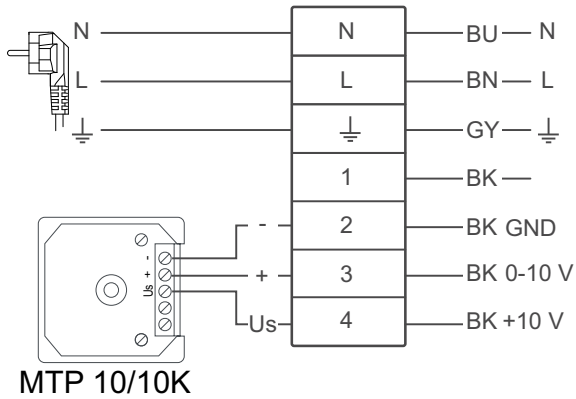
The product is supplied with a 2 m cable and plug for connection to a socket outlet.

5.4 To connect the external controller

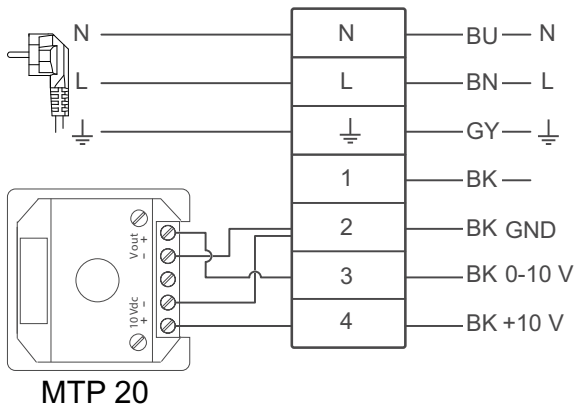
Note:

An internal potentiometer is installed on the terminal block from the factory. Remove the internal potentiometer when you use an external speed controller for the fan.

MTP 10, 10K, Speed control — 32731

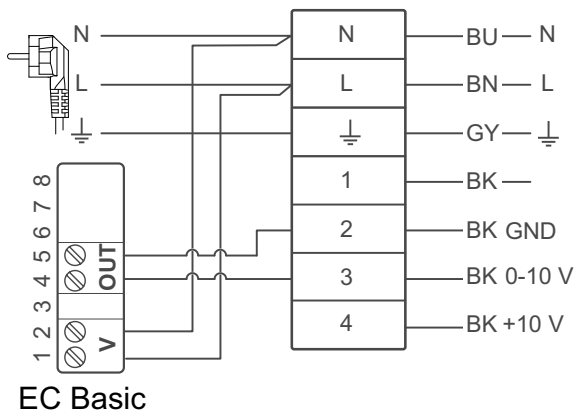


Potentiometer MTP 20, 0-10V — 310220



EC-Basic-H humidity — 24807

EC-Basic-CO2 and temperature — 24808



Symbol	Description
1	Not used Tachometer output, open collector, 1 pulse per revolution, max. 10 mA, SELV
2 (-)	Ground
3	0–10 V / PWM control input, $R_i = 100 \text{ k}\Omega$, SELV
4 (+)	Fixed voltage output 10 VDC $\pm 3 \%$, max. 10 mA, short-circuit-proof, power supply for external devices, SELV
GND	Ground
BU	Blue
BN	Brown
GY	Green/Yellow
BK	Black
RD	Red

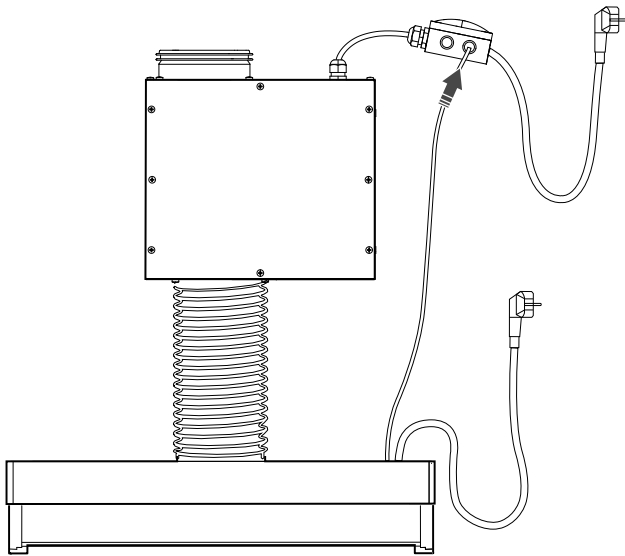
5.5 To connect the cooker hood

Note:

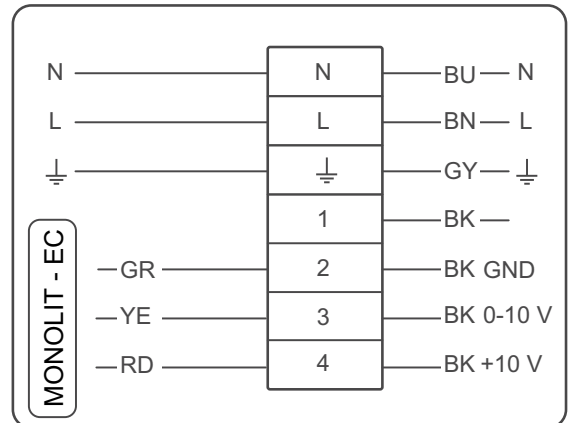
An internal potentiometer is installed on the terminal block from the factory. Remove the internal potentiometer when you connect the cooker hood to the fan.

MONOLIT - EC S.Steel — 326900

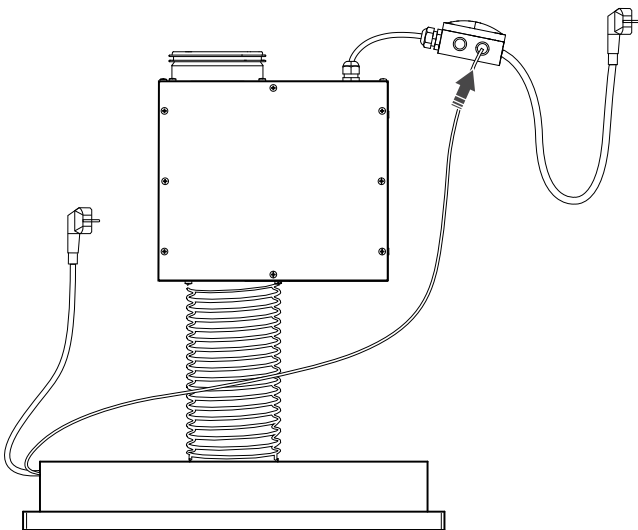
MONOLIT - EC White — 326901



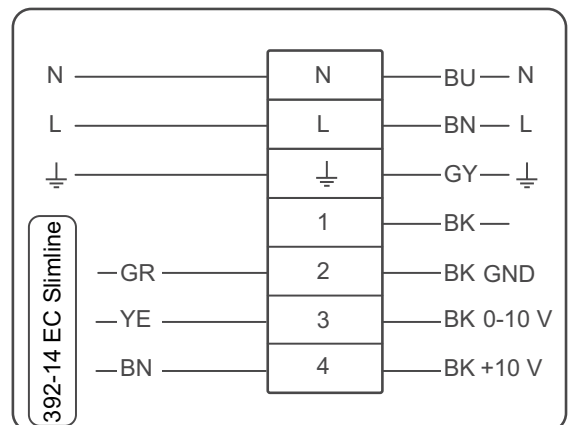
MONOLIT - EC



392-14 EC Slimline White — 96805



392-14 EC Slimline



Symbol	Description
1	Not used Tachometer output, open collector, 1 pulse per revolution, max. 10 mA, SELV
2 (-)	Ground
3	0-10 V / PWM control input, $R_i = 100 \text{ k}\Omega$, SELV
4 (+)	Fixed voltage output 10 VDC +/- 3 %, max. 10 mA, short-circuit-proof, power supply for external devices, SELV
GND	Ground
BU	Blue
BN	Brown

GY	Green/Yellow
YE	Yellow
GR	Green
RD	Red
BK	Black

6 Commissioning

6.1 To do before the commissioning

- Make sure that the installation and electrical connection are correctly done.
- Visually examine the product and accessories for damage.
- Make sure that the safety devices are correctly installed.
- Make sure that there are no blockages in the air inlet and the air outlet.
- Make sure that installation material and unwanted objects are removed from the product and the ducts.
- Make sure that ducts are sufficiently insulated and installed according to local rules and regulations.
- Make sure that the duct system is correctly connected to the product.

6.2 To do the commissioning

1. Adjust the potentiometer as needed. Increase or decrease the default fan speed (0 V – off, 1 V – minimum speed, 10 V – maximum speed).

Make sure the cover of the product is on before the startup.

2. Connect the product to the power supply.
3. Make sure the product operates correctly, listen for unusual noises.

7 Operation

7.1 To start and stop the product



Caution

EC motors must be set to ON/OFF via the control input. To stop the product via mains supply decreases the life time of the motor. Systemair recommends to install external speed controller for easy access to control the input signal.

If the product is used together with a cooker hood:

- Start and stop the product with the cooker hood.

If the product is used together with an external controller:

- Start and stop the product with an external controller.

8 Maintenance



Warning

Make sure that the mains supply to the product is disconnected before performing any maintenance or electrical work.

- When you send an order for spare parts, include the serial number of the product. The serial number is found on the name plate.
- For more information about spare parts, contact technical support.
- Always use spare parts from Systemair.
- To find spare parts, refer to the scannable code on the name plate.

8.1 Maintenance schedule

Clean the product when necessary, but at least one time per year.

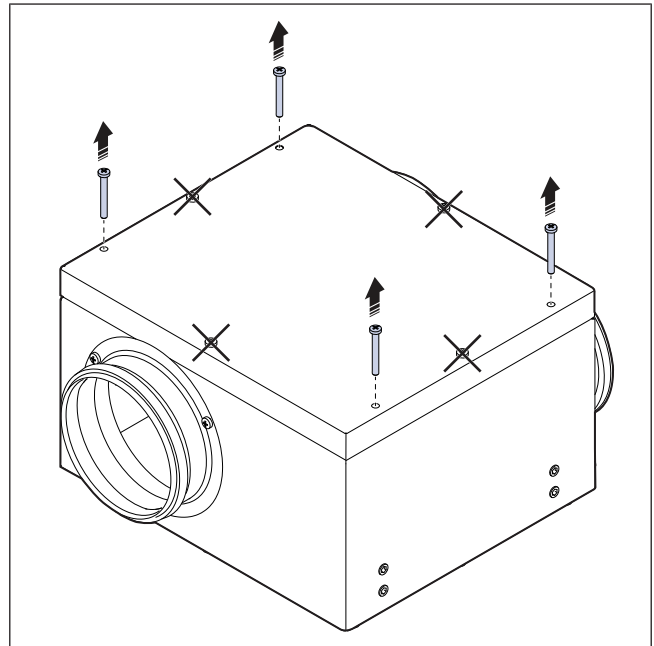
8.2 To clean the product



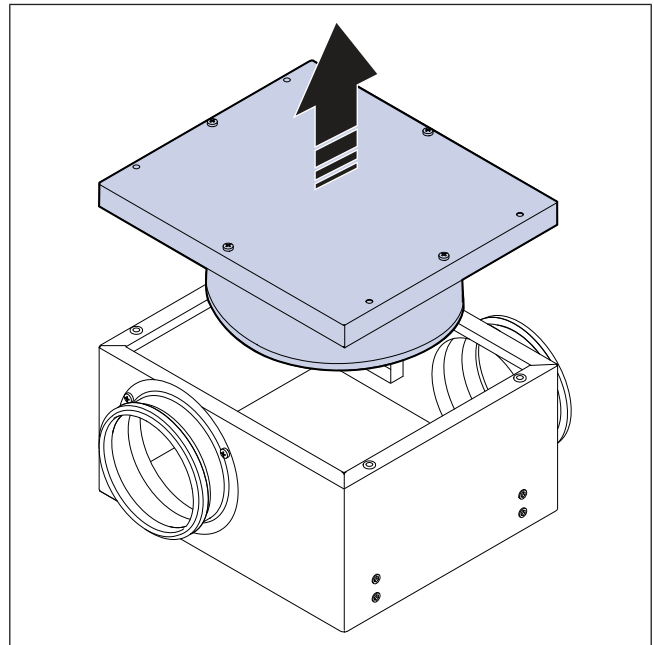
Warning

Use protective gloves during installation and maintenance. Sharp edges can cause injury.

1. Disconnect the product from the power supply.
2. Remove four screws near the corners.



3. Remove the cover.



4. Clean any dust or dirt. Use vacuum cleaner and moist cloth.
5. Use cloth or a soft brush to clean the fans. White spirit can be used to remove obstinate settlements. Make sure the fans are dry before installation.



Caution

Do not use water.

6. Let the product to dry.
7. Install the cover and previously removed screws.
8. Connect the product to the power supply.

9 Troubleshooting

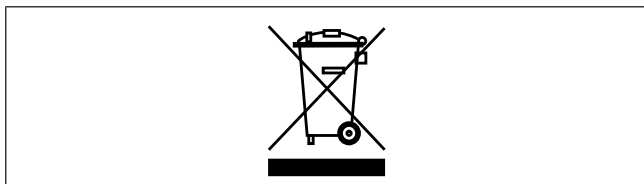
Note:

If you cannot find a solution to your problem, speak to Systemair technical support.

Problem	Cause	Solution
The fan does not work.	Power supply or control cables of the fan are disconnected.	Make sure the fan cables are connected. Speak to Systemair technical support.
The air output is low.	There is blockage in the air inlet or the duct system.	Remove the blockage.
	Incorrect potentiometer setting.	Make sure the potentiometer is set to the correct fan speed.
The product does not respond to control.	External controller is not connected correctly.	Make sure the cables are connected correctly.
There is unusual noise or vibration when the product starts or operates.	There is dirt on the fan impeller.	Clean the fan impeller carefully.
	The fan impeller is not correctly balanced.	Speak to Systemair technical support.
	The product is not correctly installed.	Make sure that the product is correctly installed. Do a check of the duct system.
	There is strain in the connections of the duct system.	Loosen the connections, align the parts of the duct system correctly and tighten the connections.

10 Disposal

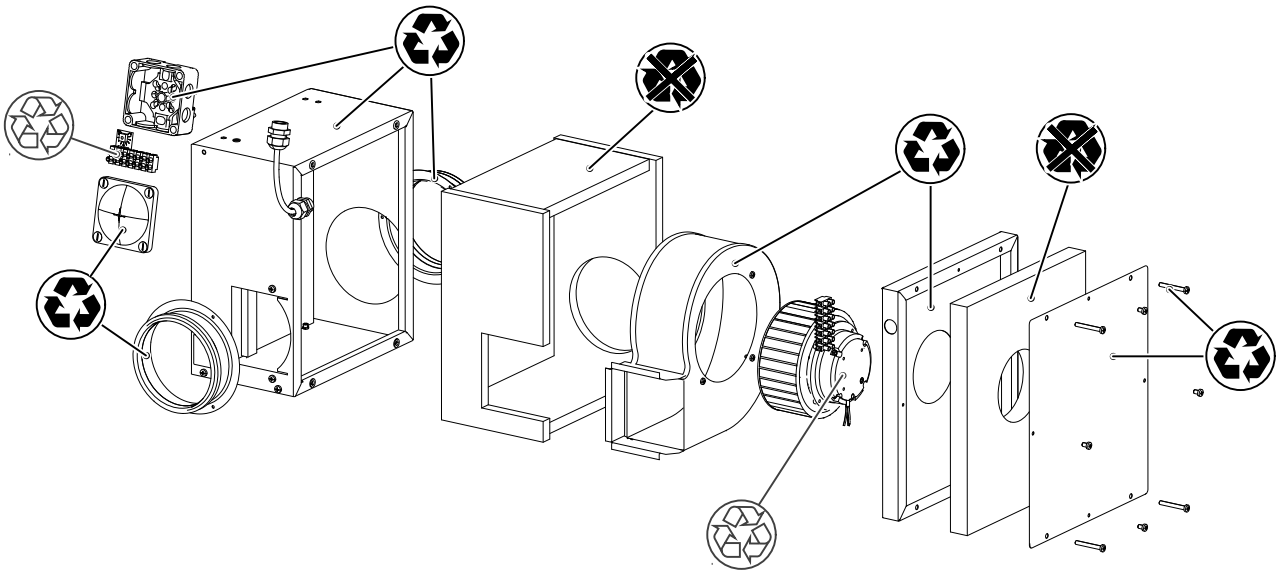
The product follows the WEEE directive. This symbol on the product or the packaging of the product shows that this product is not domestic waste. The product must be recycled at an approved disposal location for electrical and electronic equipment.



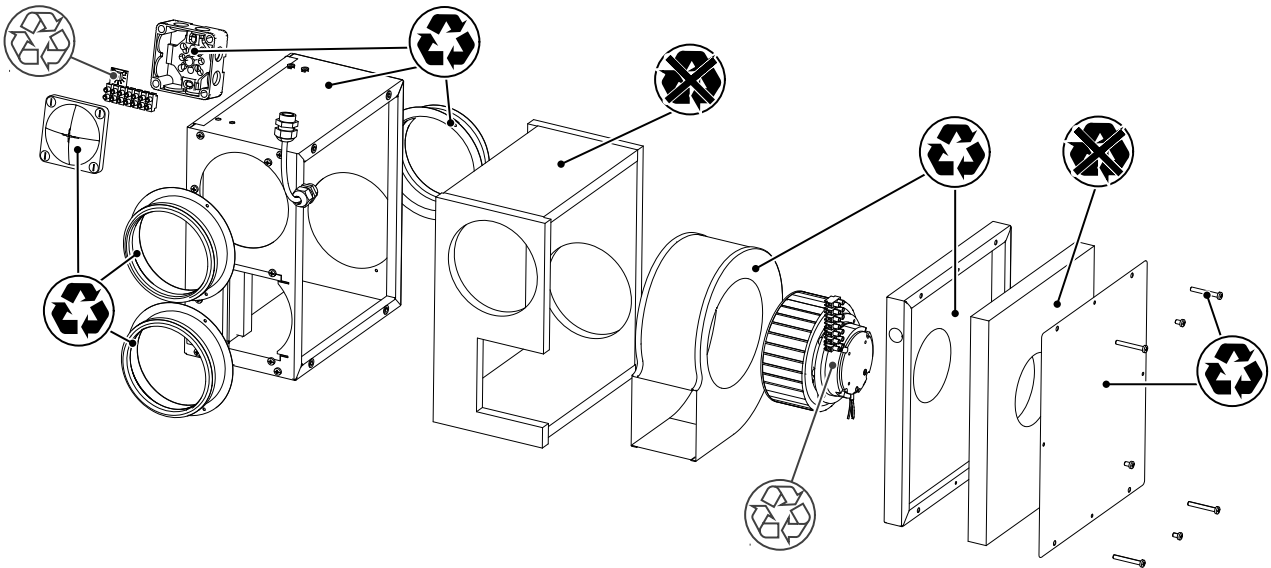
10.1 To disassemble and discard the parts of the product

- 1 Disconnect and disassemble the product in the opposite sequence of electrical connection and installation.
- 2 Recycle the product parts and the packaging at an applicable disposal location.
- 3 Obey the local and national requirements for disposal.

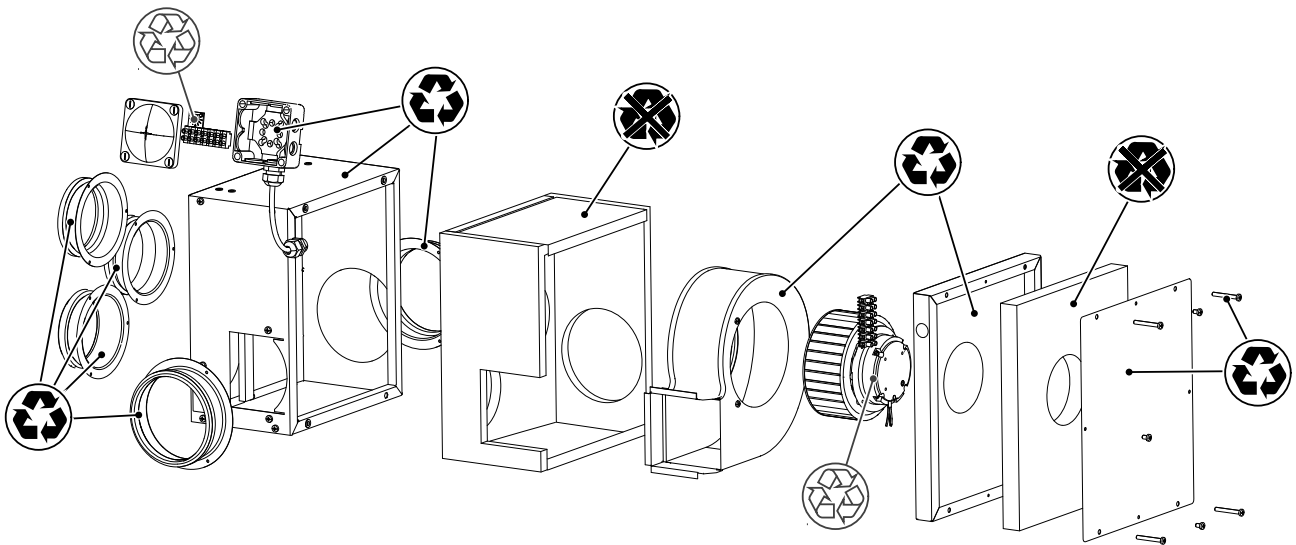
VEF 1



VEF 2



VEF 4





Recyclable



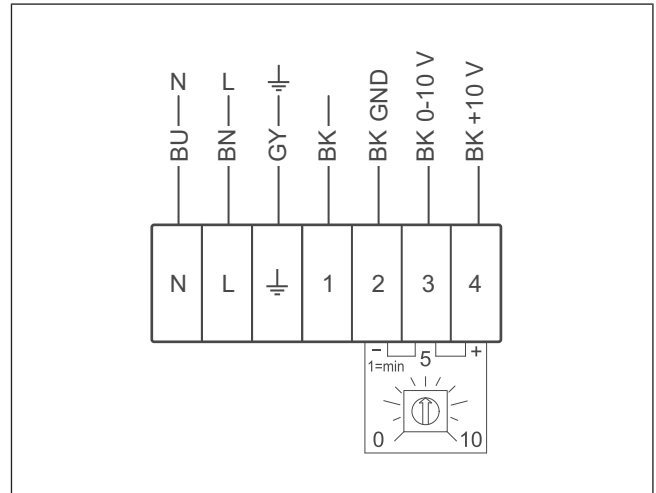
WEEE



Non-recyclable

11 Technical data

11.1 Wiring diagram



Symbol	Description
1	Not used Tachometer output, open collector, 1 pulse per revolution, max. 10 mA, SELV
2 (-)	Ground
3	0–10 V / PWM control input, $R_i = 100 \text{ k}\Omega$, SELV
4 (+)	Fixed voltage output 10 VDC $\pm 3 \%$, max. 10 mA, short-circuit-proof, power supply for external devices, SELV
GND	Ground
BU	Blue
BN	Brown
GY	Green/Yellow
BK	Black
RD	Red

11.2 Product dimensions

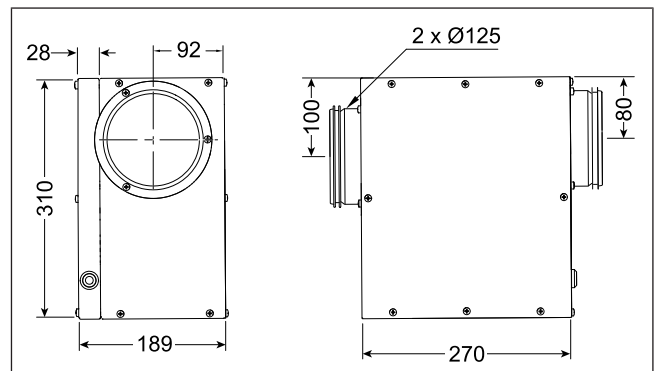


Fig. 4 VEF 1

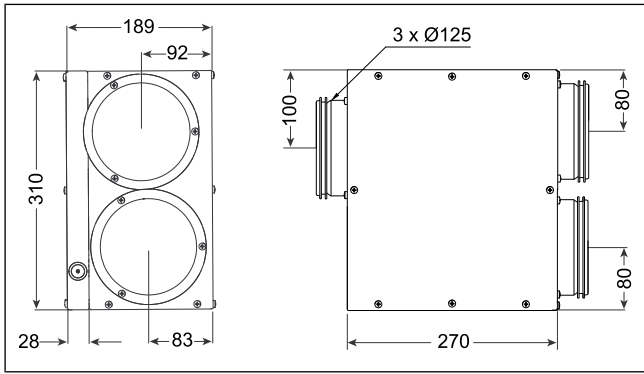


Fig. 5 VEF 2

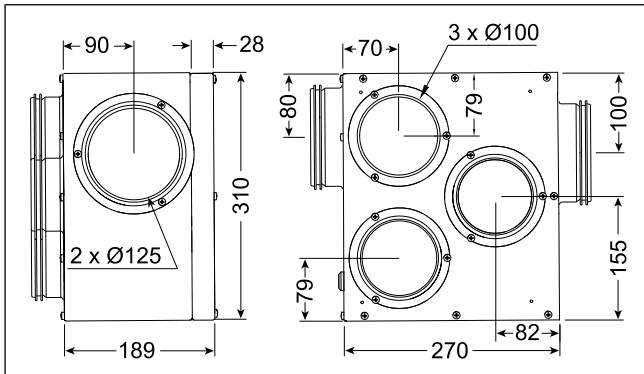


Fig. 6 VEF 4

11.3 Performance curves

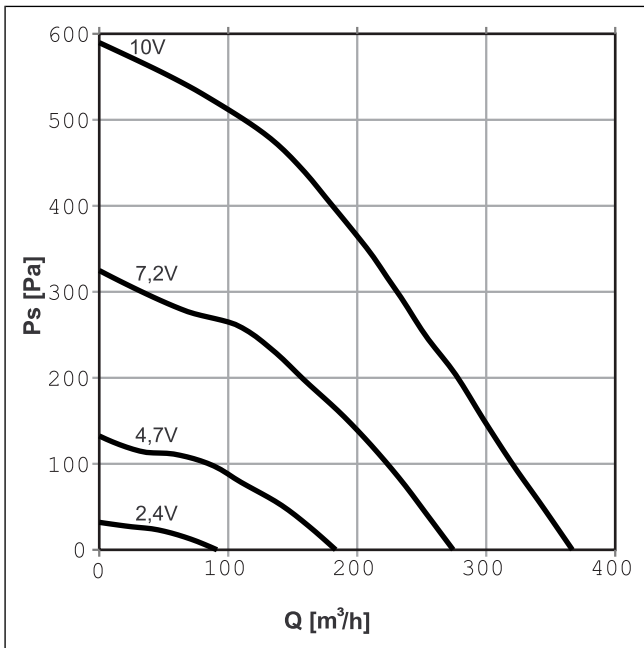


Fig. 7 VEF 1

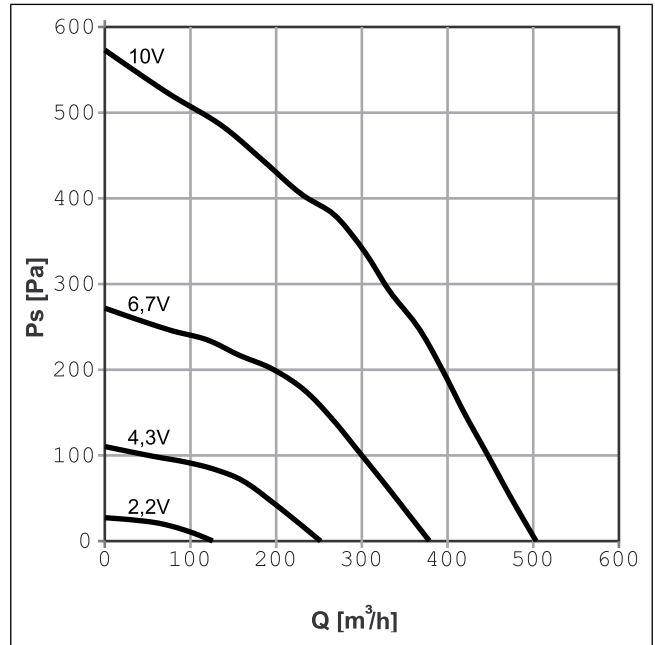


Fig. 8 VEF 2

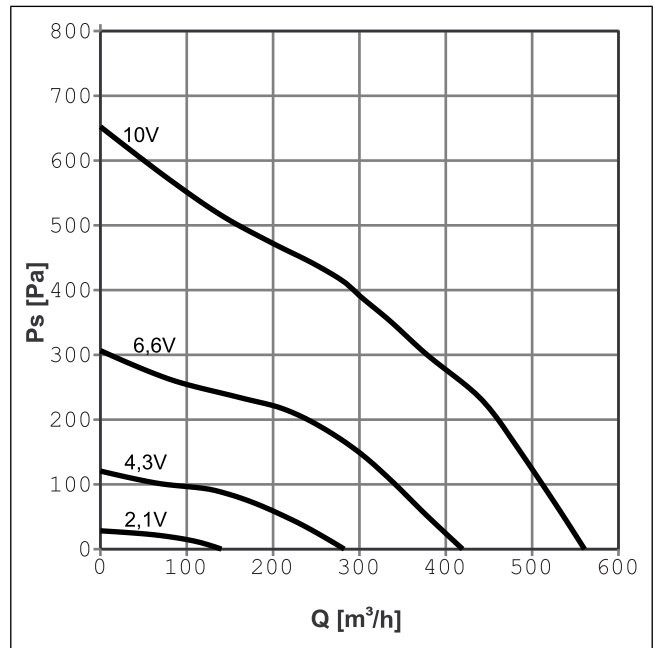


Fig. 9 VEF 4

12 EU Declaration of conformity

We, the manufacturer

Company	Systemair UAB
Address	Linų g. 101 LT-20174 Ukmergė LITHUANIA

declare under our sole responsibility that the product

Product designation	Extract fan
Type/Model	VEF 1, VEF 2, VEF 4

fulfils the relevant provisions of following directives and standards

Machinery directive 2006/42/EC	<p>EN ISO 12100:2013 Safety of machinery - General principles for design Risk assessment and risk reduction</p> <p>EN 60204-1:2019-06 Safety of machinery - Electrical equipment of machines - Part 1: General requirements</p> <p>EN 13857:2019 Safety of machinery – Safety distances to prevent hazard zones being reached by upper or lower limbs.</p>
Low Voltage Directive 2014/35/EU	<p>EN 60335-1:2012 Household and similar electrical appliances – Safety Part 1: General requirements.</p> <p>EN 60335-2-40 Safety of household and similar electrical appliances - Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers.</p> <p>EN 50106 Safety of household and similar appliances – Particular rules for routine tests referring to appliances under the scope of EN 60 335-1.</p> <p>EN 62233 Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure.</p>
Directive electromagnetic compatibility (EMC) 2014/30/EU	<p>DIN EN IEC 61000-6-2:2019 Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments.</p> <p>DIN EN IEC 61000-6-3:2020 Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standards for residential, commercial and light-industrial environments.</p>

RoHS directive 2011/65/EU, 2015/863/EU	IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
Ecodesign Directive 2009/125/EC	2009/125/EC 1253/2014 Requirements for ventilation units 1254/2014 Energy labelling of residential ventilation units EN 13142 Ventilation for buildings. Components/products for residential ventilation. Required and optional performance characteristics

Person authorized to compile the technical file:



Nerijus Lapackas
Technical Manager

This declaration relates exclusively to the machinery in the state in which it was placed on the market and excludes components which are added and/or operations carried out subsequently by the final user.

Ukmergė, Lithuania



Mindaugas Martišius
Managing Director



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