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**KV DUO Insulated box fan EC**  
**KVK DUO Insulated box fan AC/EC**  
**KVK Insulated box fan AC/EC**  
**KVK Silent Insulated box fan AC/EC**  
**KVK Slim Insulated box fan AC/EC**



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# 1 Introduction

## 1.1 Product description

The product is an insulated box fan with an AC motor or an EC motor. The DUO versions have twin motors where one motor is a back-up if the other motor stops.

Products that have an EC motor are supplied with an integrated 0-10 V potentiometer installed in the terminal block. The casing has insulation for weather protection and noise reduction.

The product is not supplied with a safety switch, external speed control or FK fast clamps, these parts are available and recommended as accessories.

## 1.2 Intended use

The product is intended for transportation of clean or contaminated air in indoor environments or in outdoor

environments with weather protection. The applicable ambient temperature of the installation location is from -25 °C to +70 °C during constant operation. The product is used in ventilation systems with circular ducts.

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

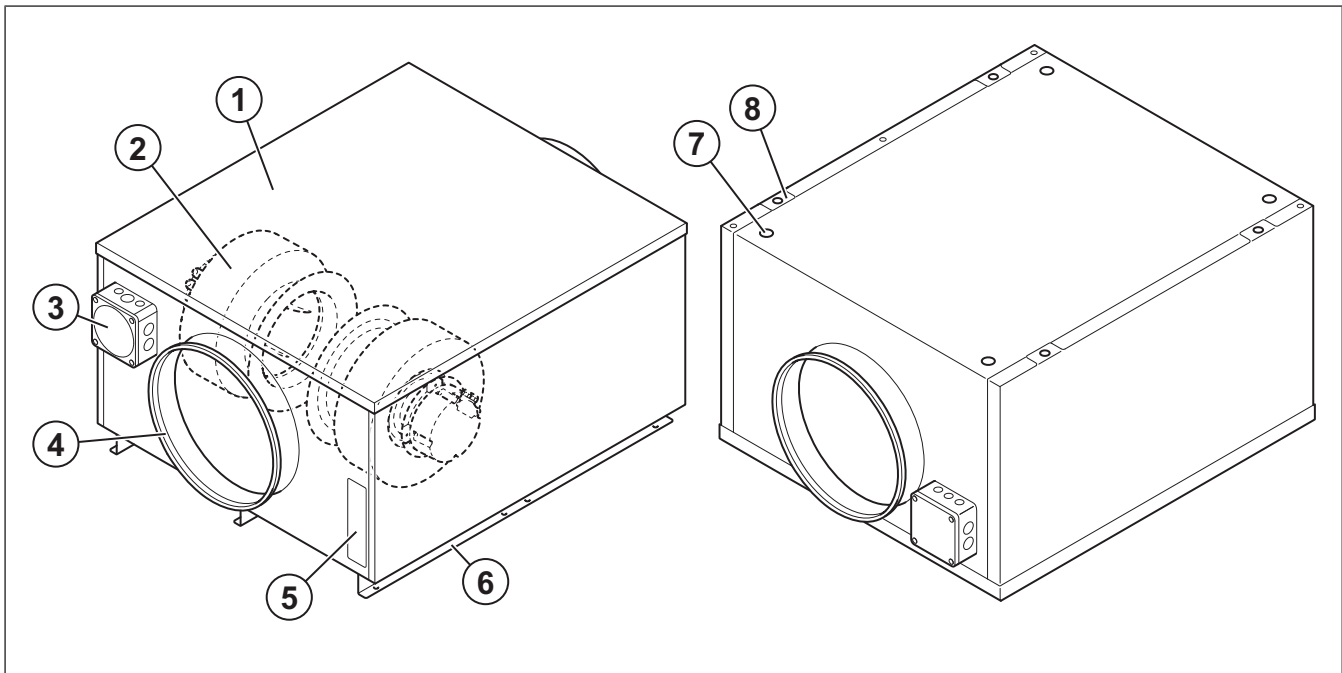
This document contains instructions for installation, operation and maintenance of the product. The procedures must be done by approved personnel only.

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

## 1.4 Product overview KV DUO EC and KVK DUO

### Note:

Parts such as the mounting bracket or the connection box are supplied loose in the casing on some models.

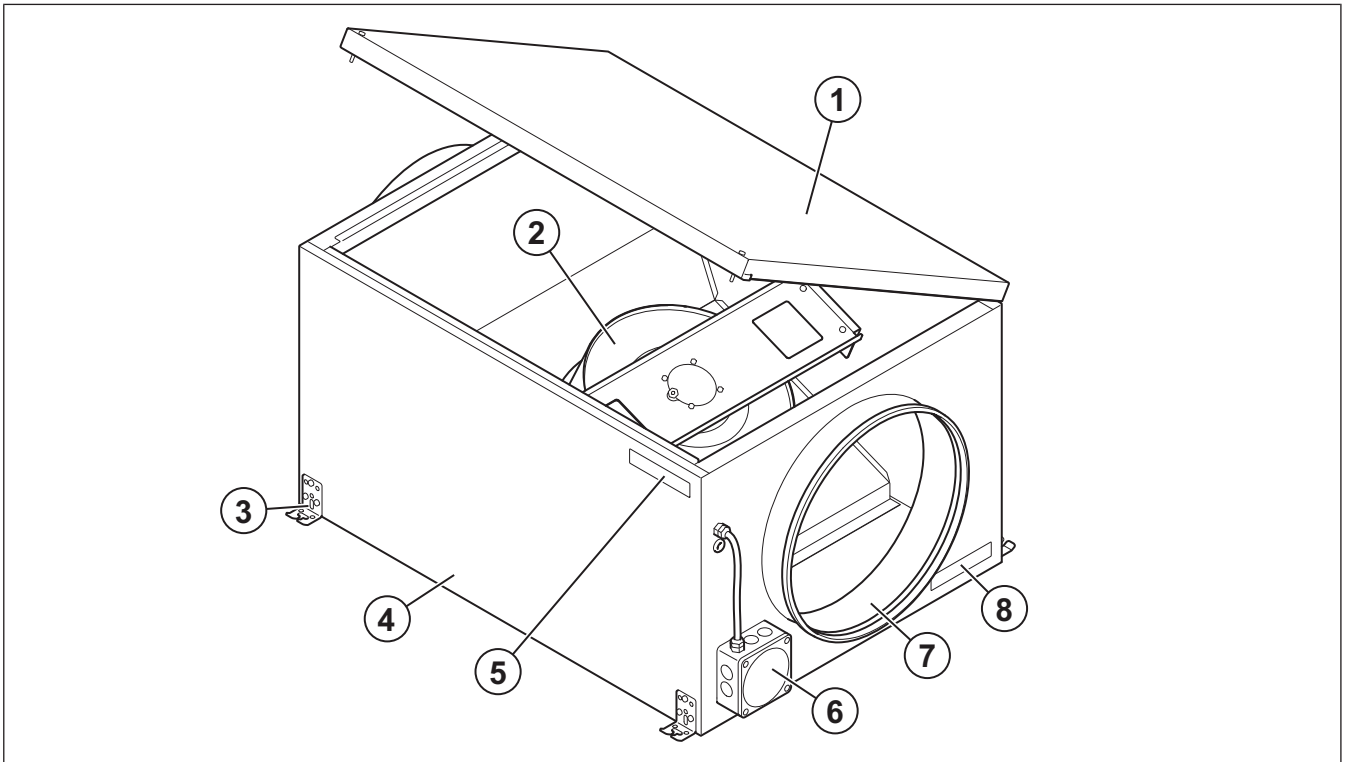


- |                    |   |
|--------------------|---|
| 1. Service lid     | 6. Mounting rails (KV DUO EC 400 – 630)                           |
| 2. Fan impeller    | 7. Mounting hole with press nut (KVK DUO and KV DUO EC 250 – 315) |
| 3. Connection box  | 8. Mounting flap (KV DUO EC 150)                                  |
| 4. Duct connection |   |
| 5. Name plate      |   |

## 1.5 Product overview KVK and KVK Silent

### Note:

Parts such as the mounting bracket or the connection box are supplied loose in the casing on some models.

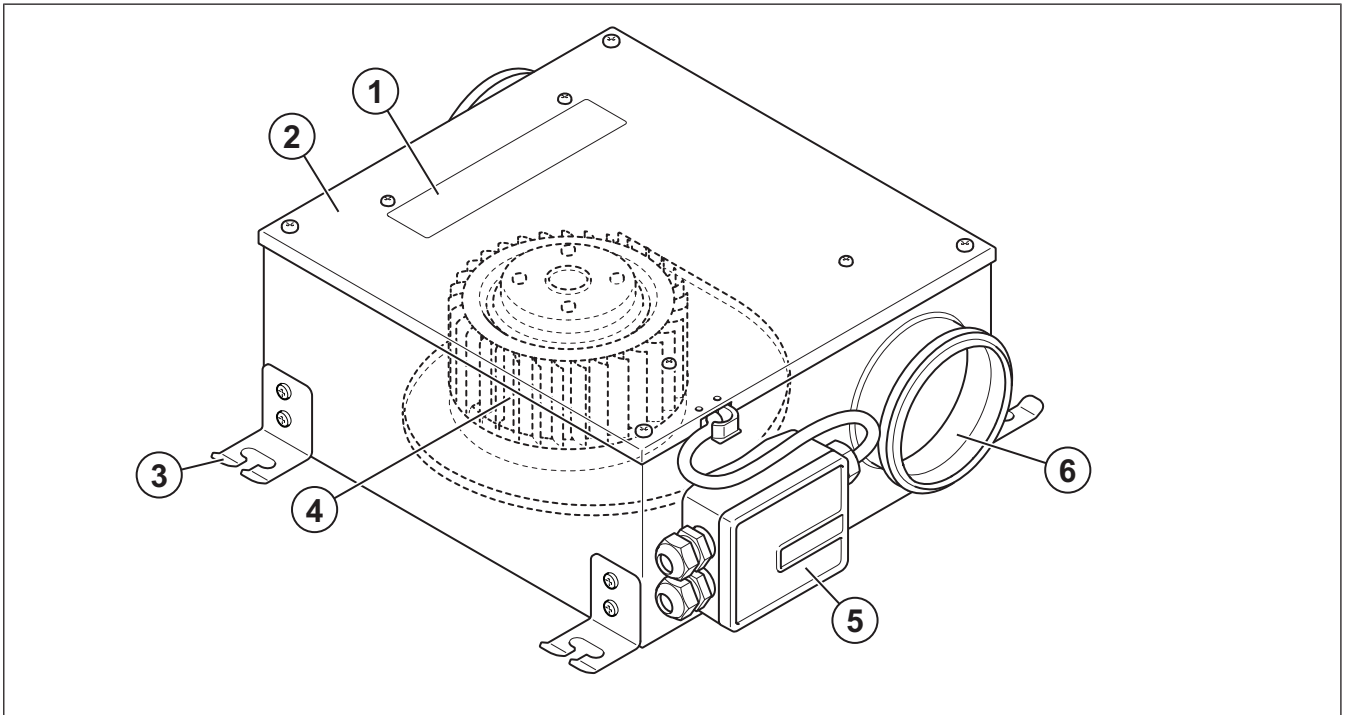


- |                     |                            |
|---------------------|----------------------------|
| 1. Service lid      | 5. Name plate <sup>1</sup> |
| 2. Fan impeller     | 6. Connection box          |
| 3. Mounting bracket | 7. Duct connection         |
| 4. Casing           | 8. Name plate <sup>1</sup> |

## 1.6 Product overview KVK Slim

### Note:

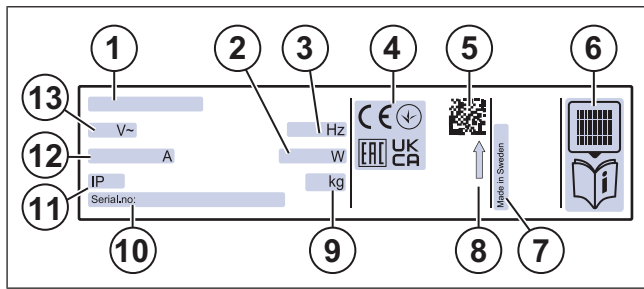
Parts such as the mounting bracket or the connection box are supplied loose in the casing on some models.



- |                     |                    |
|---------------------|--------------------|
| 1. Name plate       | 4. Fan impeller    |
| 2. Service lid      | 5. Connection box  |
| 3. Mounting bracket | 6. Duct connection |

1. The name plate can be put in either one of these two positions.

## 1.7 Name plate



1. Type designation: Product name, dimension and motor type. Refer to [1.7.1 Type designation](#).
2. Input power, W
3. Frequency, Hz
4. Certifications
5. Scannable code <sup>2</sup>
6. Find more information about the product on the Systemair documentation portal<sup>2</sup>
7. Country of production
8. Airflow direction arrow
9. Weight, kg
10. Serial number: part number/production number/production date
11. IP class, enclosure class
12. Current, A
13. Voltage, V

### Note:

The data on the name plate applies to “standard air” that is specified in the standard ISO5801.

## 1.7.1 Type designation

Product name	KV DUO EC	KVK DUO	KVK	KVK Silent	KVK Silent EC	KVK Slim	KVK Slim EC
<b>Dimension</b>	150	125	125	100	100	100	100
	250	160	160 L	125	125	125	125
	315	200	160 M	160	160	160	160
	400	250	200	200	200	200	200
	500	315 L**	250	250	250	250	250
	630M			315	315	315	315
	630			355	355	355	355
				400	400	400	400
			500	500	500	500	
<b>Motor type</b>	EC: Electronically commutated, 1-phase, 230 V	AC, 230 V, 1-phase	AC, 230 V, 1-phase	AC, 230 V, 1-phase	EC: Electronically commutated, 1-phase, 230 V	AC, 230 V, 1-phase	EC: Electronically commutated, 1-phase, 230 V
	EC: Electronically commutated, 3-phase, 400 V	AC, 400 V, 3-phase					

## 1.8 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.
- The product is used without motor protection.

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

## 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. Make sure that there is no voltage on the motor terminals.
- 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.
- Sound levels exceeding 70 dB(A) may occur depending on model and size. Visit [www.systemair.com](http://www.systemair.com) for more detailed information about your product.
- 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.

- Before you move the product to the installation location, examine the packaging for damages.
- Do not move the product by the cables, terminal box, fan impeller, protection grille, inlet cone or silencer.
- 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.



### Warning

Do not walk below a lifted product.

- Keep the correct side of the packaging up during transportation. Refer to the arrows on 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.
- Keep the product in storage for maximum 1 year.

## 4 Installation

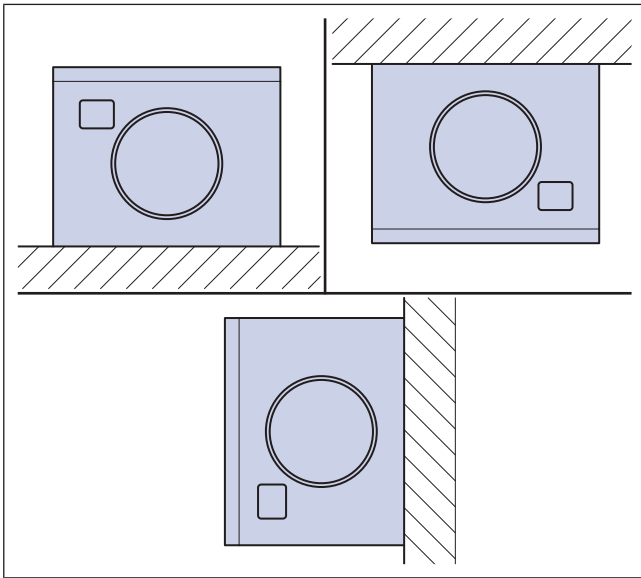
### 4.1 To do before the installation of the product

- Make sure that you have the necessary installation accessories:
  - Refer to [13 Accessory overview](#) for an overview of the accessories.
  - If you install the product outdoors, it is necessary to install a weather protection roof.
  - To decrease vibrations transmitted from the product to the duct system, Systemair recommends to install vibration dampers, fast clamps or flexible connections.
  - If you install the product with free suction or free discharge, it is necessary to install a protection grille. Make sure that the safety distance agrees with the standard DIN EN ISO 13857 and the standard DIN 24167-1.
- Use installation material with fire resistance rating for the installation location.
- 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 motor effect and the fan performance agrees with the expectations at the installation location.
- Make sure that the information on the name plate and the motor name plate agrees with the operation conditions.
- Install the product in a location where there is space for commissioning, troubleshooting and maintenance.
- Make sure that the installation location is clean and dry, for full safety during electrical work.
- Make sure that the installation surface has sufficient capacity to hold the weight of the product.
- Refer to the airflow direction arrows on the name plate or on the product to install the product in the correct position.
- Make sure that all cable glands are tight against the cables to prevent leaks.

### 4.2 To install the product

#### Note:

All fans can be installed in any angle.

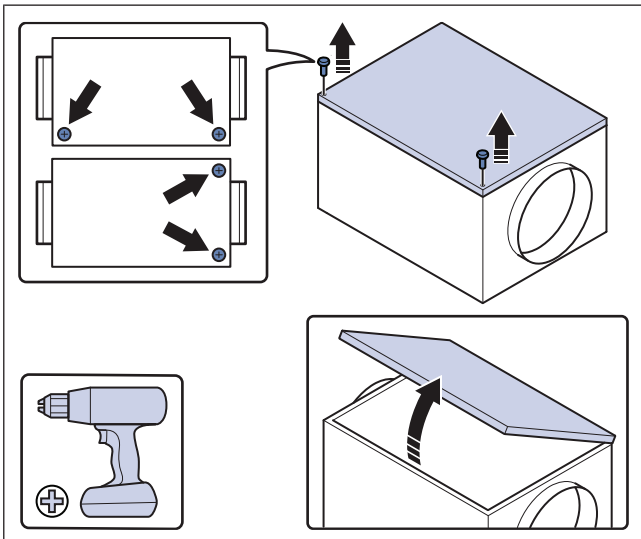


**Note:**

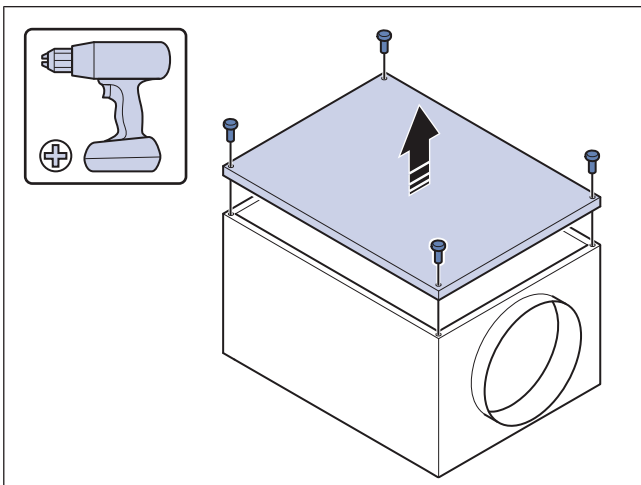
The arrow on the name plate shows the direction of the airflow.

**4.2.1 To open the product**

- 1 Loosen the screws on the lid that is connected to the fan.



The figure shows how to open the KVK Silent fans and KVK Slim fans.



The figure shows how to open the KV DUO fans, the KVK DUO fans and the KVK fans.

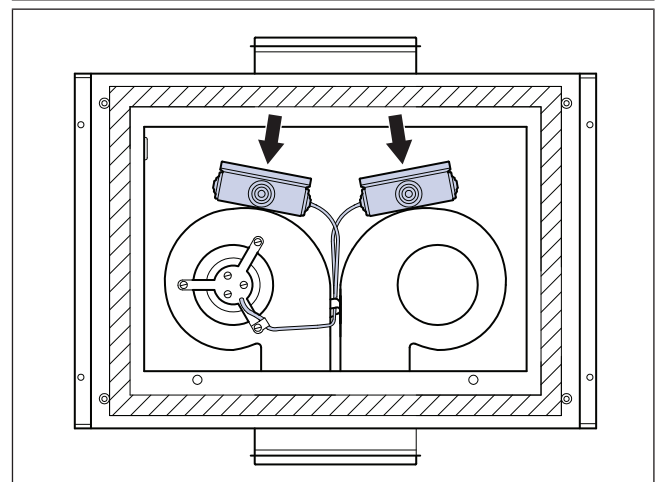
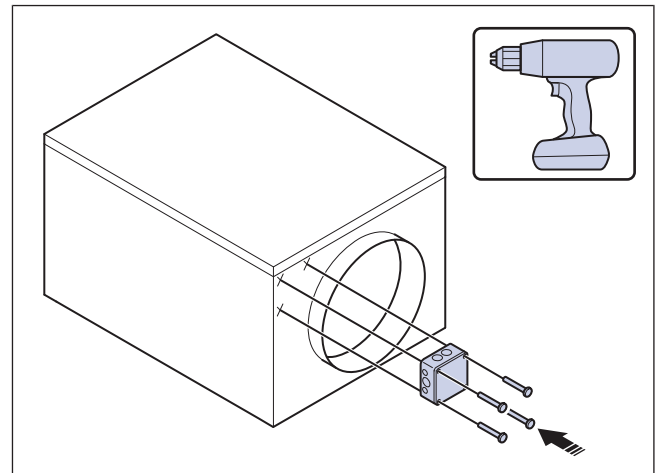
- 2 Open or remove the lid.

**4.2.2 To attach the connection box**

**Note:**

This procedure applies to products where the connection box is supplied loose inside the product.

- 1 Attach the connection box to the outlet side of the fan casing with the 4 supplied screws.

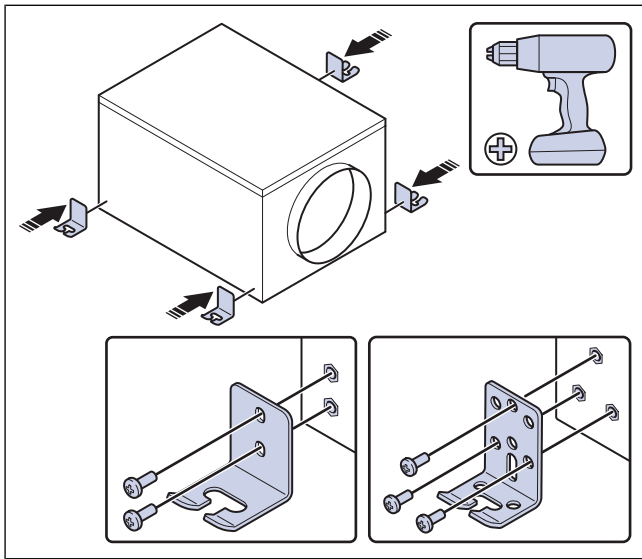


For the KV DUO and KVK DUO, the connection boxes are fixed to the fans inside the casing.

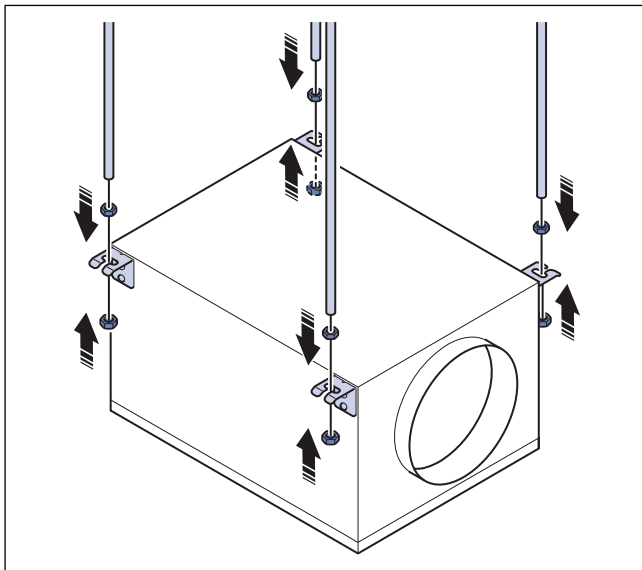
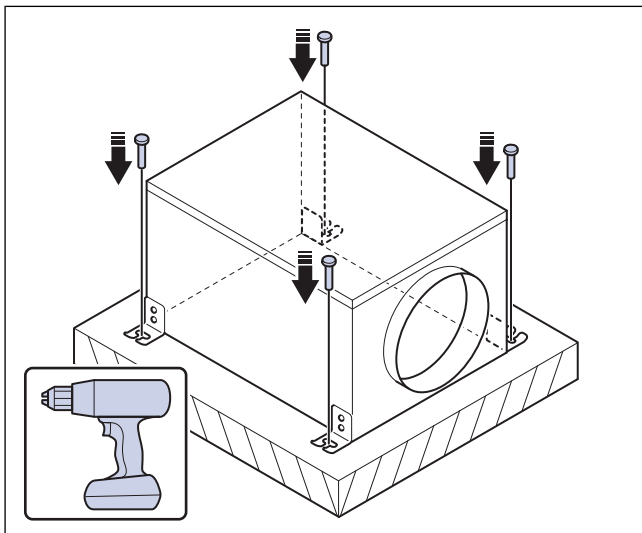


### 4.2.3 To install the KVK Silent fan and the KVK Slim fan

- 1 Attach the mounting bracket to the fan casing with the 4 supplied screws.

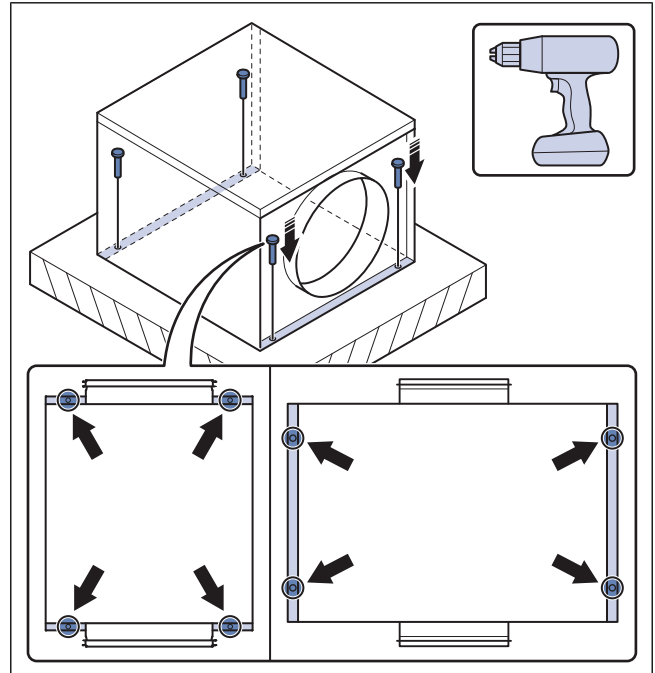


- 2 Attach the product to the floor, wall or the ceiling with 4 screws or 4 pendulum bars and screws.



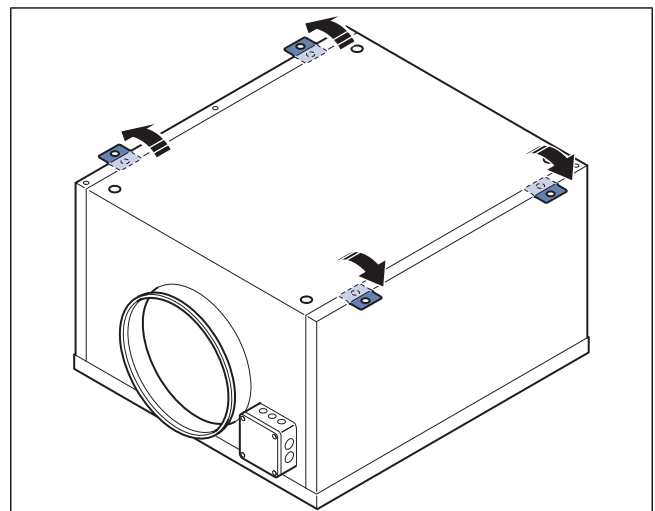
### 4.2.4 To install the KVK DUO fan and the KVK fan

- 1 Attach the product to the floor, the wall or the ceiling with screws.

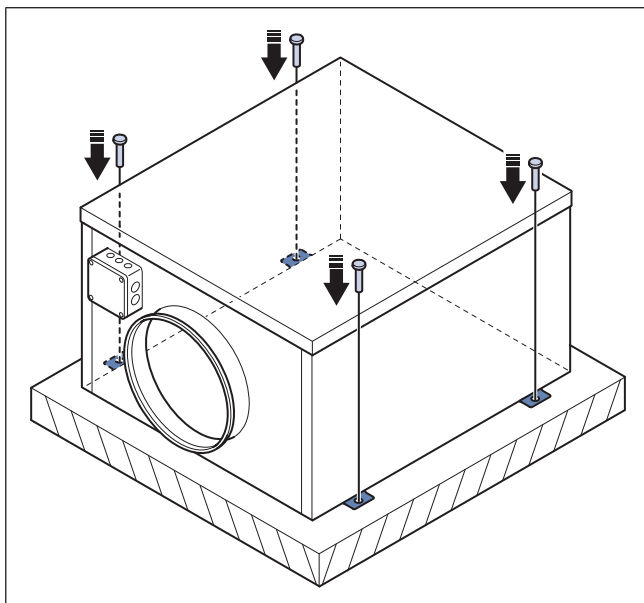


### 4.2.5 To install the KV DUO 150 EC fan

- 1 Fold out the 4 flaps from the fan casing.

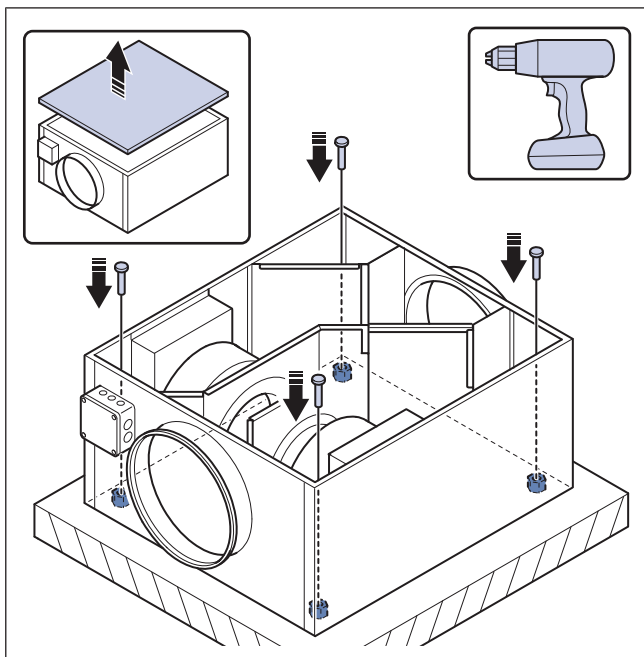


- 2 Attach the product to the floor, the wall or the ceiling with 4 washers and 4 screws.



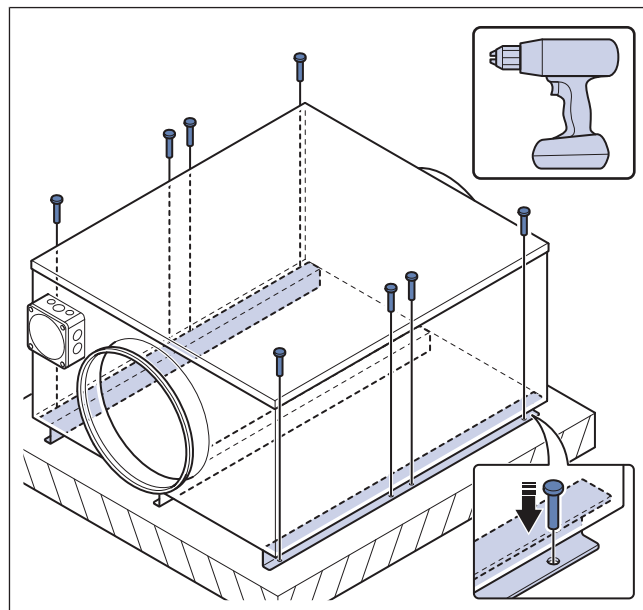
#### 4.2.6 To install the KV DUO 250 – 315 EC fan

- 1 Attach the product to the floor, the wall or the ceiling with 4 screws through the 4 press nuts in the bottom of the fan casing.



#### 4.2.7 To install the KV DUO 400 – 630 EC fan

- 1 Attach the product to the floor, the wall or the ceiling with screws through the outer mounting rails.

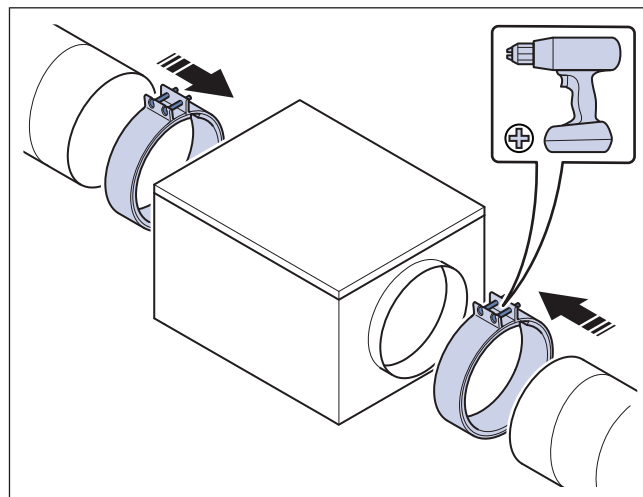


#### 4.2.8 To connect the ducts to the product

##### Note:

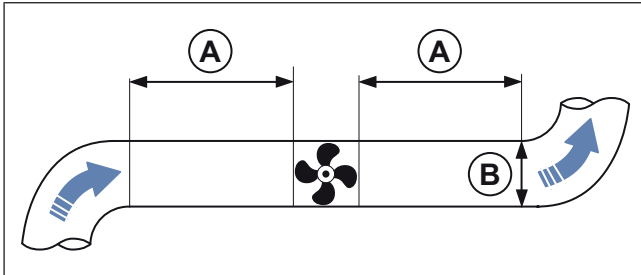
Systemair recommends to use flexible connections or FK fast clamps to attach the duct to the product. Flexible connections and FK fast clamps are available as accessories.

- 1 Put the ducts on each side of the product.
- 2 Use the fast clamps to attach the duct to the product.



- 3 Tighten the fast clamps around the duct and the product with the supplied screws. Make sure that there is a distance between the duct and the product to decrease vibrations transmitted from the product to the duct system.

- 4 If you install the product near a duct bend, do these steps to prevent vibrations, unwanted noise and decreased air pressure:
- Measure the distance (A) between the product and the duct bend.
  - Make sure that the distance (A) is a minimum of 2.5 x the diameter (B) of the duct system. For circular ducts, (B) is the nominal diameter. For rectangular ducts, (B) is the hydraulic diameter.



## 5 Electrical connection

### 5.1 To do before the electrical connection

- 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.
- Make sure that the wiring diagram that is included with the supply of the product agrees with the terminals in the connection box.

### 5.2 To connect the product to the power supply

- Complete the electrical connection for the motor. Refer to the motor wiring diagram that is included with the product.
- Make sure that the cross section of the protective earthing is equal to or larger than the cross section of the phase conductor.
- Install a circuit breaker in the permanent electrical installation, with a contact opening of a minimum 3 mm at each pole.
- If a residual current device (RCD) is installed, make sure that it is an all-current sensitive RCD. Consider if the product has a frequency converter, uninterruptible power supply (UPS), or an EC motor. EC motors have a leakage current to earth that is  $\leq 3.5$  mA.

### 5.3 Speed controller for EC motors

- EC motors are controlled through a stepless 0–10 V signal.
- Do not use power supply for the speed controller.
- Refer to [12.3 Wiring diagrams](#) and the instruction manual for the external speed controller.

### 5.4 Motor protection for EC motors

EC motors have an integrated motor protection. Reset the motor protection by disconnecting the fan from power supply for 60 seconds.

### 5.5 Speed controller for AC motors

#### Note:

The speed controller alternatives are different for different motor types. Make sure that your motor is compatible with the speed controller type before you use it.

The speed can be controlled by voltage reduction using a transformer. It is also possible to control the fan speed with frequency converter if the installed frequency converter has built in all-pole sine filter and shielded cables are not needed.

## 5.6 To install motor protection for AC motors

- If the product has an built in motor protection, reset by disconnecting the product from power for 60 seconds.
- If the motor has temperature monitors such as thermal contacts (TK) or thermistors lead out into the terminal box, these must always be connected in the control circuit using appropriate motor protection.
- Make sure that an overheated motor cannot start again automatically when it becomes cool.
- Install the motor cables and the temperature monitor apart.
- If the motor does not have temperature monitors, install a motor protection switch.

## 6 Commissioning



### Caution

- If strong vibrations occur during commissioning, immediately increase or decrease the fan speed until the vibrations are decreased. Continuous strong vibrations can cause damage to components.
- Do not increase the fan speed to a higher rpm value than the maximum value that is given on the name plate.

The commissioning report is found at [www.systemair.com](http://www.systemair.com).

### 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.

### 6.2 To do the commissioning

- 1 Set the installed safety switch in the OFF position.
- 2 If it is possible to get access to the fan impeller, do the steps that follows:
  - a. If it is necessary, remove parts of the installation.
  - b. Turn the fan impeller by hand and make sure that it turn easily.
  - c. Record the result in the commissioning report.
- 3 Make sure to turn the product in a direction that agrees with the related arrow on the product.
  - a. Record the result in the commissioning report.
- 4 If you removed parts of the installation to get access to the fan impeller, install the removed parts again.
- 5 Set the installed safety switch in the ON position.
- 6 Start the product.
- 7 Set the minimum operation speed.
- 8 Increase the operation speed gradually to the maximum operation speed.
  - a. Examine the vibrations in the casing and the bearing areas at all speed levels.
  - b. Make sure that the vibrations agree with the specifications in DIN ISO 14694.
  - c. Make sure that none of the speed levels cause unwanted noise in the product.
  - d. Record the result in the commissioning report.
- 9 Record the necessary data in the commissioning report.

## 7 Operation



### 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.

### 7.1 To start a product with an EC motor

- 1 Make sure that the 0–10 V signal is set to “0” with the speed controller.
- 2 Set the installed safety switch in the ON position and wait 5 seconds.
- 3 Adjust the fan speed with the 0–10 V signal speed controller. If an external speed controller is not installed, adjust the fan speed directly with the integrated potentiometer.

### 7.2 To start a product with an AC motor

- 1 Set the installed safety switch in the ON position.
- 2 Install the external speed controller. Refer to the instruction manual for the installed speed controller.

### 7.3 To stop the product

- 1 Set the installed speed controller in the OFF position. Refer to the instruction manual for the installed speed controller.
- 2 Set the installed safety switch in the OFF position.

#### 7.3.1 To stop the product in an emergency

- Set the installed safety switch in the OFF position.

## 8 Maintenance



### Warning

Set the installed safety switch in the OFF position before you do the maintenance unless the instructions tell you differently. Make sure that the safety switch is not accidentally set in the ON position.

### 8.1 Maintenance schedule

The intervals are calculated from continuous operation of the product.

Maintenance task	Usual operation conditions		Unusual operation conditions. <sup>1</sup>		
	Each 6 months	Each year	Each 3 months	Each 6 months	Each year
Visually examine the product and its components for damage, corrosion and dirt.		X		X	
Examine the fan impeller for damage and imbalance.		X		X	
Clean the product and the ventilation system.	X		X		
Do a check of all fasteners and make sure that they are fully tightened.		X			X
Make sure that the product and its components are correctly operated.	X			X	
Measure the power consumption and compare the result with the information on the name plate.		X		X	
If vibration dampers are installed, make sure that they operate correctly and examine them for damage and corrosion.		X			X
Make sure that the electrical protective equipment and the mechanical protective equipment operates correctly.		X			X
Make sure that you can read the name plates of the product.		X		X	
Examine all cable connections for damage. Make sure that the cable glands are tight against the cables.		X			X
If flexible connections are installed, examine them for damage.	X			X	

1. The unusual operation conditions are classified as follows: If a stable ambient temperature is higher than 30 °C or lower than -10° C, if the temperature changes are large or if very contaminated air is transported.

## 8.2 To clean the product



### Caution

- Do not clean the product with a high-pressure washer.
- Do not clean the product with steel brushes or sharp objects.
- Do not bend the fan impeller blades.
- Be careful not to move the balance weights on the fan impeller.

- Remove dirt from the fan and the duct.
- If access to the fan impeller is possible, clean the fan impeller with a moist cloth or soft brush.

## 8.3 Spare parts

- 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.

## 9 Troubleshooting

### Note:

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

Problem	Cause	Solution
The product does not operate smoothly.	The fan impeller is not correctly balanced.	Speak to Systemair technical support.
	There is dirt on the fan impeller.	Clean the fan impeller carefully. Refer to <a href="#">8.2 To clean the product</a> .
	The fan impeller has damages or deformations because the transported air contains aggressive media.	Speak to Systemair technical support.
	The fan impeller does not turn in the correct direction.	Make sure that the electrical connection is correctly done.
	The fan impeller has deformations because of too high temperatures.	<ul style="list-style-type: none"> <li>Replace the fan impeller.</li> <li>Make sure that the temperature of the transported air is not higher than the value on the name plate.</li> </ul>
	There are unusually strong vibrations in the product or the duct system.	Make sure that the product is correctly installed. Do a check of the duct system.
	The product is operated in a resonant frequency range.	Increase or decrease the fan speed until the product operates smoothly. Refer to <a href="#">6 Commissioning</a> .
The air output is not sufficient.	The fan impeller does not turn in the correct direction.	Make sure that the electrical connection is correctly done.
	The electrical connection is not correctly done.	Make sure that the electrical connection agrees with the wiring diagrams.
	The air pressure is too low because of incorrect installation.	Do the necessary changes in the duct system and installed components to increase the air pressure. Refer to <a href="#">6 Commissioning</a> .
	The airflow shutters are closed or not fully open.	Adjust the airflow shutters.
	There is blockage in the air inlet or the duct system.	Remove the blockage.
	The product is not applicable for the installation location.	Make sure that the product is applicable for the installation location.
	The motor power is decreased because of too high temperature in the motor.  <b>Note:</b> This is applicable for EC motors only.	<ul style="list-style-type: none"> <li>Do a check of the ambient temperature.</li> <li>Make sure that the space around the motor is sufficient to keep the temperature down.</li> </ul>
There is unusual noise when the product starts or operates.	Loosen the connections, align the parts of the duct system correctly and tighten the connections.	

Problem	Cause	Solution
Thermal contacts, PTC or resistors are released.	The fan impeller does not turn in the correct direction.	Make sure that the electrical connection is correctly done.
	A phase loss occurred.	If the motor is a 3-phase motor, make sure that no phase is missing.  <b>Note:</b> This is not applicable for EC motors.
	The motor is overheated.	<ul style="list-style-type: none"> <li>Do a check of the motor cooling impeller.</li> <li>If it is possible, measure the resistance to do a check of the motor winding.</li> </ul>
	The capacitor is not connected or not correctly connected.  <b>Note:</b> This is not applicable for EC motors or 3-phase AC motors.	Connect the capacitor correctly. Refer to the included motor wiring diagram.
	There is blockage in the motor.	Speak to Systemair technical support.
The fan speed does not get the nominal value.	Defective motor winding.	If it is possible, measure the resistance to do a check of the motor winding.
	The speed control is not correctly set.	Set the speed control correctly.
	The fan impeller cannot turn freely because of mechanical blockage.	Remove the blockage.
	Phase loss occurs.	If the motor is a 3-phase motor, make sure that no phase is missing.
The motor does not rotate.	A component in the power supply is defective.	Do a check of the power supply. Replace defective components and connect the power supply again.
	The electrical connection is not correctly done.	Make sure that the electrical connection agrees with the wiring diagrams.
	The motor protection is released because the motor is overheated.	Let the motor become cool. Reset the motor protection. Find the cause of the overheated motor.
	A phase loss occurred.	If the motor is a 3-phase motor, make sure that no phase is missing.
The electronic components or the motor is overheated.	The motor is overloaded or the ambient temperature is too high.	Let the motor become cool. Reset the motor protection. Find the cause of the overheated motor.
	The motor is overloaded.	Make sure that the product is applicable for the installation location.
	The ambient temperature is too high.	Make sure that the product is applicable for the installation location.
	The cooling of the product is not sufficient.	Make sure that the space around the motor is sufficient to keep the temperature down.



## 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.

## 11 Warranty

For warranty claims, send a written maintenance plan and the commissioning report to Systemair. The warranty is only applicable for these conditions:

- The product is correctly installed and operated.
- Motor protection is used.
- The instructions in the data sheets are obeyed.
- Maintenance instructions are obeyed.
- A product that is not operated continuously is operated for a minimum of 1 hour each month.

## 12 Technical data

### 12.1 Technical data overview

Maximum ambient temperature, °C	70
Maximum temperature of transported air, °C	Refer to the data sheet in the online catalogue at <a href="http://www.systemair.com">www.systemair.com</a> .
Sound pressure, dB	
Corrosion class	
IP class	
Voltage, current, frequency, enclosure class, weight	Refer to the name plate. Refer to <a href="#">1.7 Name plate</a> for more information.
Motor data	Refer to the motor name plate or the technical documentation from the motor manufacturer.

### 12.2 Product dimensions

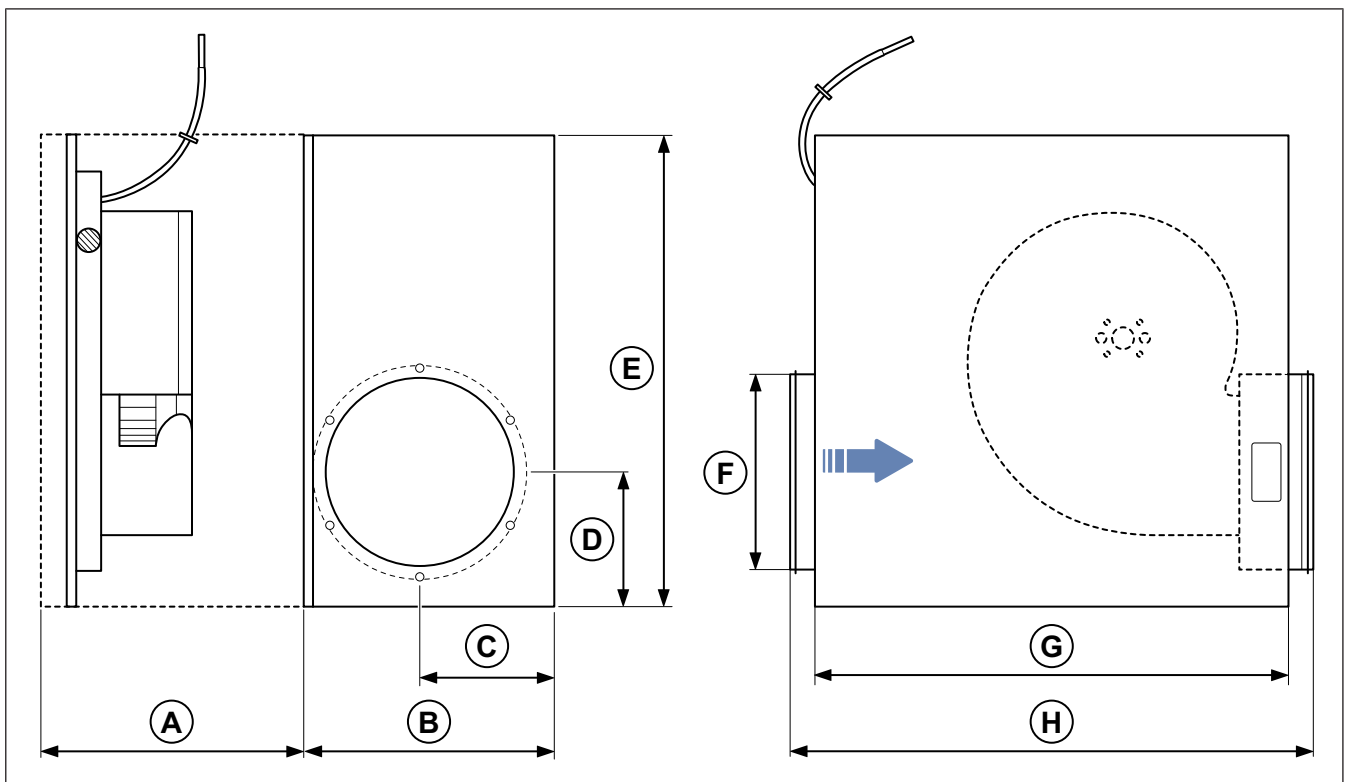
#### Note:

If the unit of measure is not specified, the dimensions are given in millimetres.

#### Note:

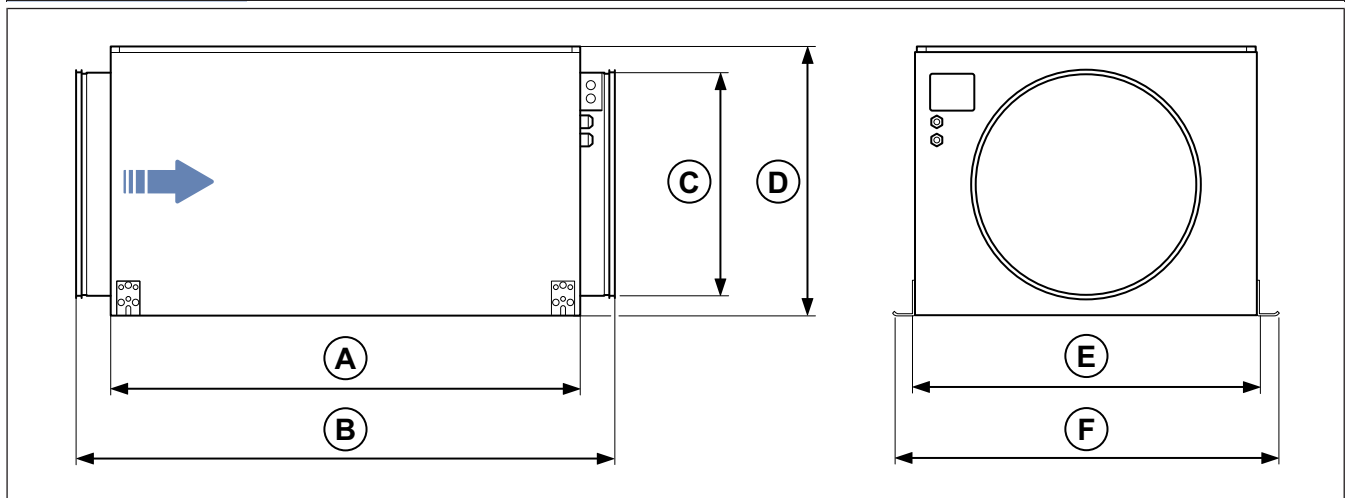
The arrow in the dimension drawing shows the direction of the airflow.

#### 12.2.1 Product dimensions KVK Slim, KVK Slim EC



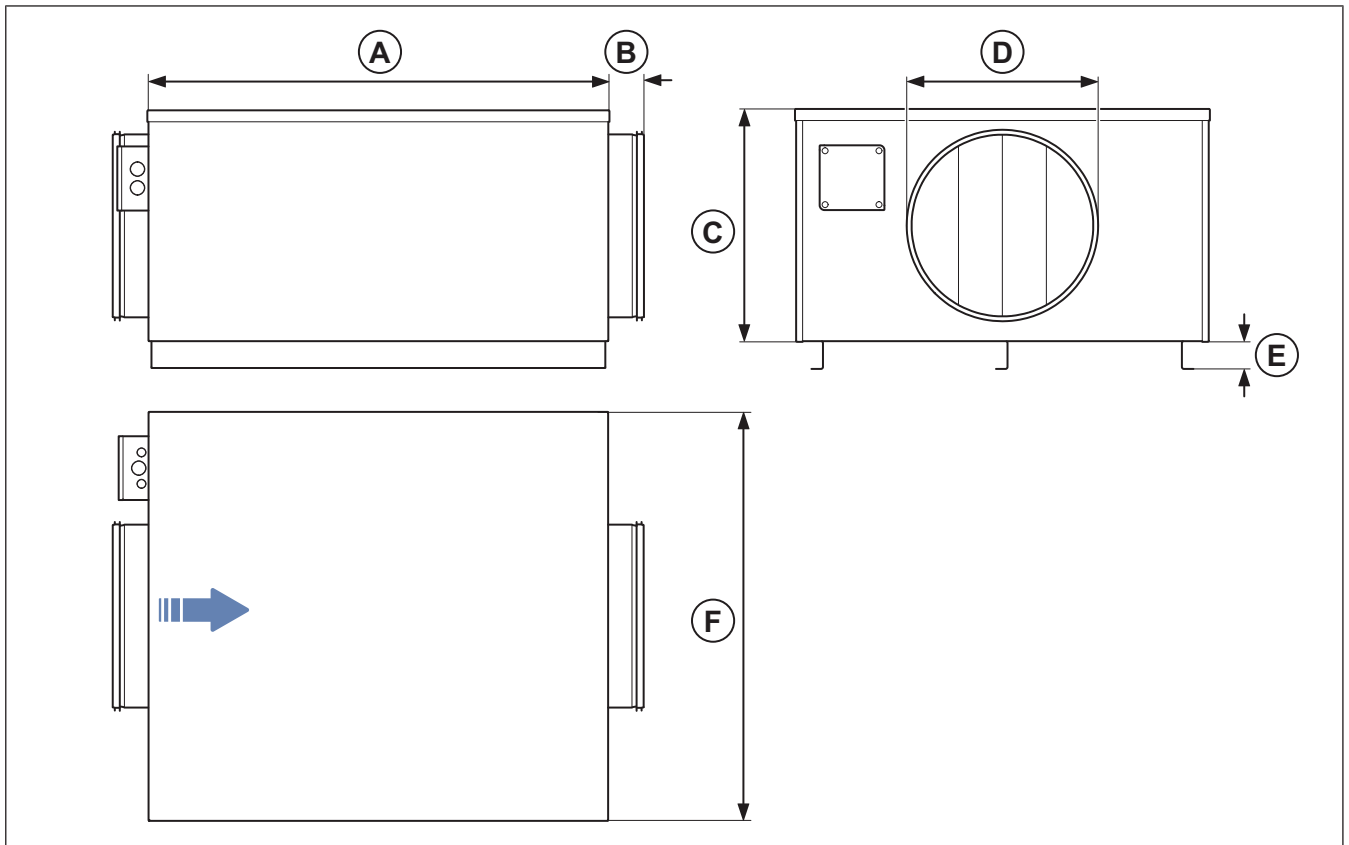
AC/EC	A	B	C	D	E	ØF	G	H
KVK Slim100	150	150	76	69	300	100	329	367
KVK Slim 125	150	150	72	84	300	125	329	367
KVK Slim 160	185	185	90	99	300	160	329	367

AC/EC	A	B	C	D	E	ØF	G	H
KVK Slim EC 100	150	150	76	69	300	100	329	367
KVK Slim EC 125	150	150	72	84	300	125	329	367
KVK Slim EC 160	185	185	90	99	300	160	329	367

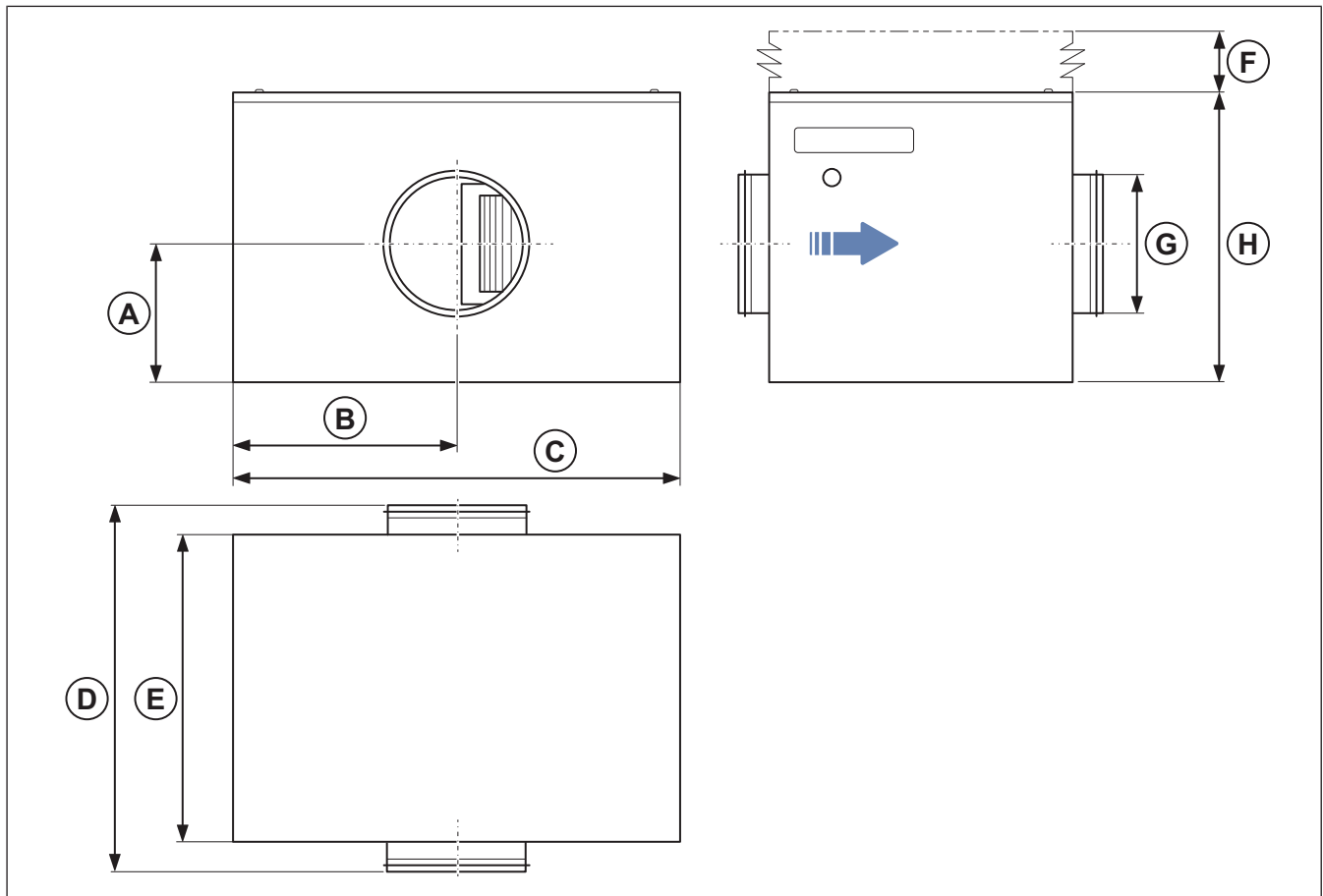


AC/EC	A	B	ØC	D	E	F
KVK Slim 200	542	620	200	270	415	513
KVK Slim 250	657	773	250	300	450	548
KVK Slim 315	825	945	315	451	590	694
KVK Slim 355	842	961	355	496	766	870
KVK Slim 400	842	1001	400	496	766	870
KVK Slim 500	1055	1213	500	605	768	873
KVK Slim EC 200	542	620	200	270	415	513
KVK Slim EC 250	657	773	250	300	450	548
KVK Slim EC 315	746	866	315	414	590	694
KVK Slim EC 355	842	976	355	459	666	770
KVK Slim EC 400	842	1001	400	459	666	770
KVK Slim EC 500	1055	1213	500	605	768	873

## 12.2.2 Product dimensions KV DUO EC, KVK DUO



	<b>A</b>	<b>B</b>	<b>C</b>	<b>ØD</b>	<b>E</b>	<b>F</b>
KV DUO 150 EC	500	40	280	150	40	360
KV DUO 250 EC	580	60	360	250	60	430
KV DUO 315 EC	740	60	425	315	60	650
KV DUO 400 EC	1000	65	505	400	65	895
KV DUO 500 EC	1265	80	605	500	80	940
KV DUO 630M EC	1383	80	884	630	80	1205
KV DUO 630 EC	1383	80	884	630	80	1205

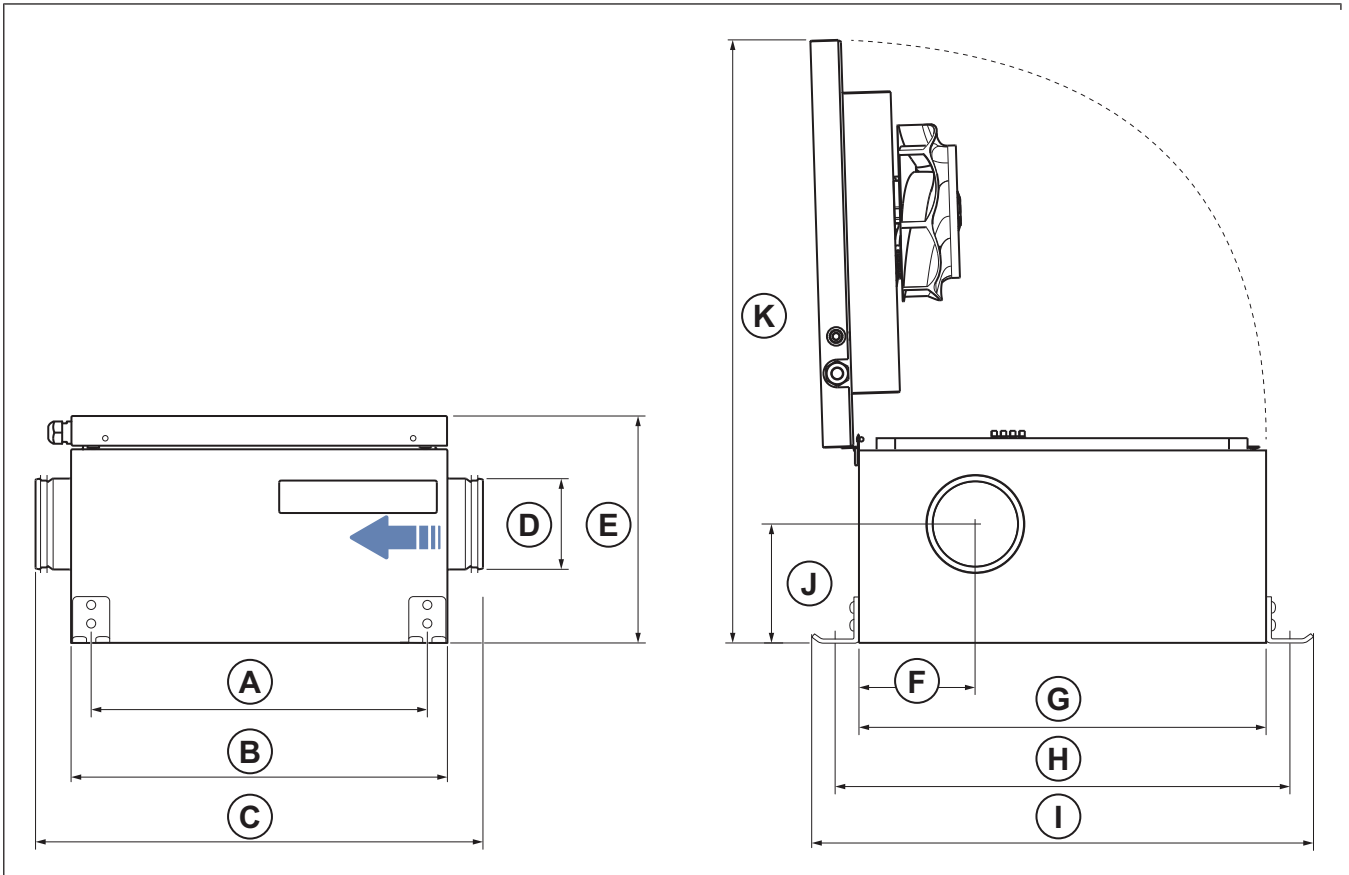


	A	B	C	D	E	F	ØG	H
KVK DUO 125	165	255	510	425	350	275	125	333
KVK DUO 160	165	255	510	425	350	275	160	333
KVK DUO 200	190	300	600	475	400	325	200	386
KVK DUO 250	207	360	720	615	500	400	250	460
KVK DUO 315 L**1	250	473	946	680	565	450	315	505

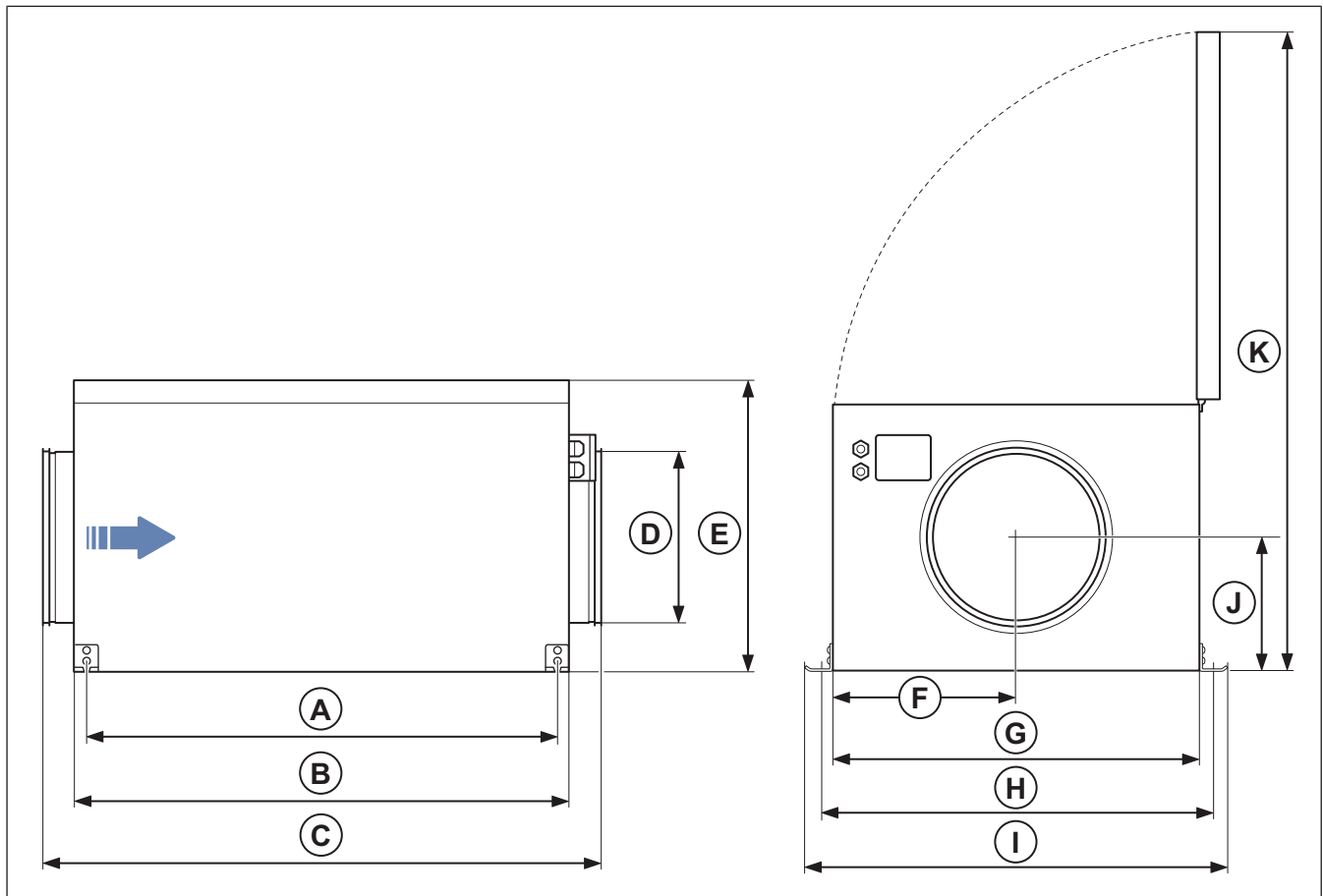
1. \*\* after the product name means that the product is sold outside EU.

12.2.3

Product dimensions KVK Silent, KVK Silent EC

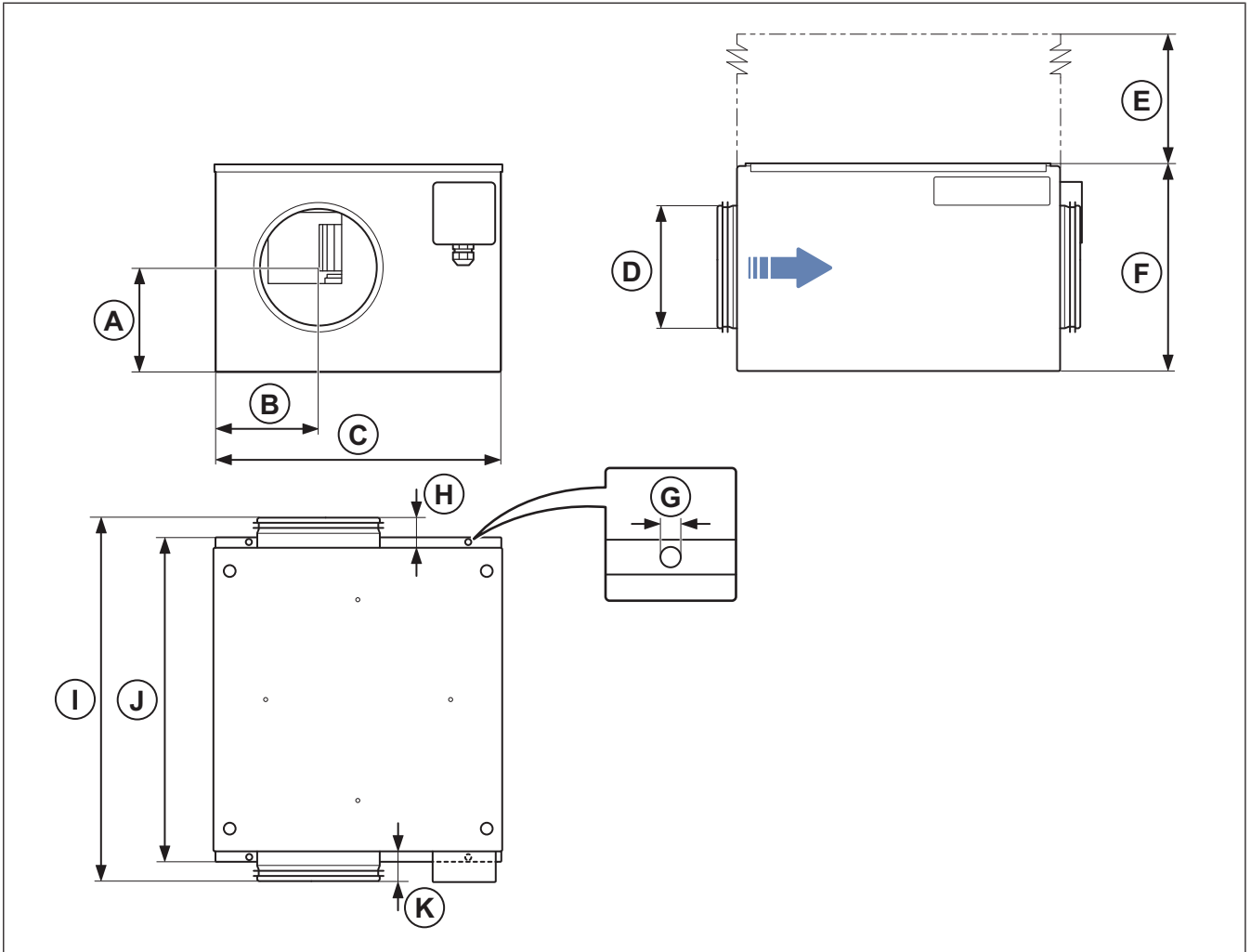


AC/EC	c-c A	B	C	ØD	E	F	G	c-c H	I	J	K
KVK Silent 100	363	405	482	98	245	125	443	490	535	128	650
KVK Silent 125	363	405	482	123	245	125	443	490	535	128	650
KVK Silent 160	412	455	531	158	265	146	506	553	598	132	720



AC/EC	c-c A	B	C	ØD	E	F	G	c-c H	I	J	K
KVK Silent 200	561	604	681	198	351	249	498	551	595	155	810
KVK Silent 250	678	720	836	249	381	267	533	584	629	170	872
KVK Silent 315	828	906	1025	312	532	336	672	726	777	246	1165
KVK Silent 355	844	922	1041	352	578	424	848	902	952	269	1383
KVK Silent 400	844	922	1098	400	577	424	848	902	952	269	1383
KVK Silent 500	1055	1133	1292	500	676	425	850	904	954	341	1486
KVK Silent 200 EC	561	604	681	198	351	249	498	551	595	155	810
KVK Silent 250 EC	678	720	836	249	381	267	533	584	629	170	872
KVK Silent 315 EC	828	906	1025	312	532	336	672	726	777	246	1165
KVK Silent 355 EC	844	922	1041	352	578	424	848	902	952	269	1383
KVK Silent 400 EC	844	922	1098	400	577	424	848	902	952	269	1383
KVK Silent 500 EC	1055	1133	1292	500	676	425	850	904	954	341	1486

## 12.2.4 Product dimensions KVK



	A	B	C	ØD	E	F	ØG	H	I	J	K
KVK 125	151	114	367	125	230	266	6	40	464	415	40
KVK 160 M	134	132	367	160	230	266	6	40	464	415	40
KVK 160 L	134	132	367	160	230	266	6	40	464	415	40
KVK 200	191	193	395	200	340	345	6	40	440	395	40
KVK 250	198	228	460	250	380	385	6	40	490	400	40

## 12.3 Wiring diagrams

Abbreviation in wiring diagram	Cable colour
RD	Red
YE	Yellow
BU	Blue
WH	White
GN	Green
BN	Brown
BK	Black
GR	Grey
GY	Green/Yellow



### 12.3.1 Wiring diagrams for AC fans

		1-phase 230 V
KVK DUO 125 <sup>1</sup>	KVK 200	
KVK DUO 160 <sup>1</sup>	KVK 250	
KVK DUO 200 <sup>1</sup>		
KVK DUO 250 <sup>1</sup>		
KVK DUO 315L <sup>**1 2</sup>		

1. The wiring diagram show one motor. Do not supply control signal to both motors at the same time.
2. \*\* after the product name means that the product is sold outside EU.

			1-phase 230 V
KVK 125	KVK Silent 100	KVK Slim 100	
KVK 160 L	KVK Silent 125	KVK Slim 125	
KVK 160 M	KVK Silent 160	KVK Slim 160	
KVK 200			
KVK 250			

		1-phase 230 V
KVK Slim 200	KVK Silent 200	
KVK Slim 250	KVK Silent 250	
KVK Slim 315	KVK Silent 315	

		1-phase 230 V
KVK Slim 355	KVK Silent 355	
KVK Slim 400	KVK Silent 400	
KVK Slim 500	KVK Silent 500	

### 12.3.2 Wiring diagrams for EC fans

		1-phase 230 V
KVK Silent 100 EC	KVK Slim 100 EC	
KVK Silent 125 EC	KVK Slim 125 EC	
KVK Silent 160 EC	KVK Slim 160 EC	

1-phase 230 V	
KV DUO 150 EC <sup>1</sup>	
KV DUO 250 EC <sup>1</sup>	
KV DUO 315 EC <sup>1</sup>	
KV DUO 400 EC <sup>1</sup>	

1. The wiring diagram show one motor. Do not supply control signal to both motors at the same time.

1-phase 230 V		
KVK Silent 200 EC	KVK Slim 200 EC	
KVK Silent 250 EC	KVK Slim 250 EC	

1-phase 230 V		
KVK Silent 315 EC	KVK Slim 315 EC	
KVK Silent 355 EC	KVK Slim 355 EC	
KVK Silent 400 EC	KVK Slim 400 EC	
KVK Silent 500 EC	KVK Slim 500 EC	

3-phase 400 V	
KV DUO 500 EC <sup>1</sup>	
KV DUO 630 EC <sup>1</sup>	
KV DUO 630M EC <sup>1</sup>	

1. The wiring diagram show one motor. Do not supply control signal to both motors at the same time.

A. 11 & 14 = Alarm

For operation: the relay is energized, connections 11 and 14 are bridged

For fault: the relay is de-energized (diagnostics/faults)

Contact rating maximum AC 250 V 2 A

B. External potentiometer

C. External input DC 0...10 V

D. External ON/OFF control through potential free contact

### 12.3.3 Wiring diagrams for speed controller for AC motors

#### Note:

The selection of electrical accessories must be done in line with the technical parameters of the product.

RE	
Manual 5-step transformer.	

- A. Relay connection. There is always 230 V between line and neutral when the transformer knob is in one of the positions 1–5.
- B. Supply voltage
- C. Earth
- D. Fan

REE — Thyristor	
<p>REE 1 and REE 2 - Surface mounting or with flush mounting casing included.</p>	
<p>REE 4 - Surface mounting.</p> <p><b>Note:</b> Starting currents must be considered when you select the speed controller type. Products that are used with this speed controller must have a built-in overheating protection and must be designed for thyristor speed control.</p>	

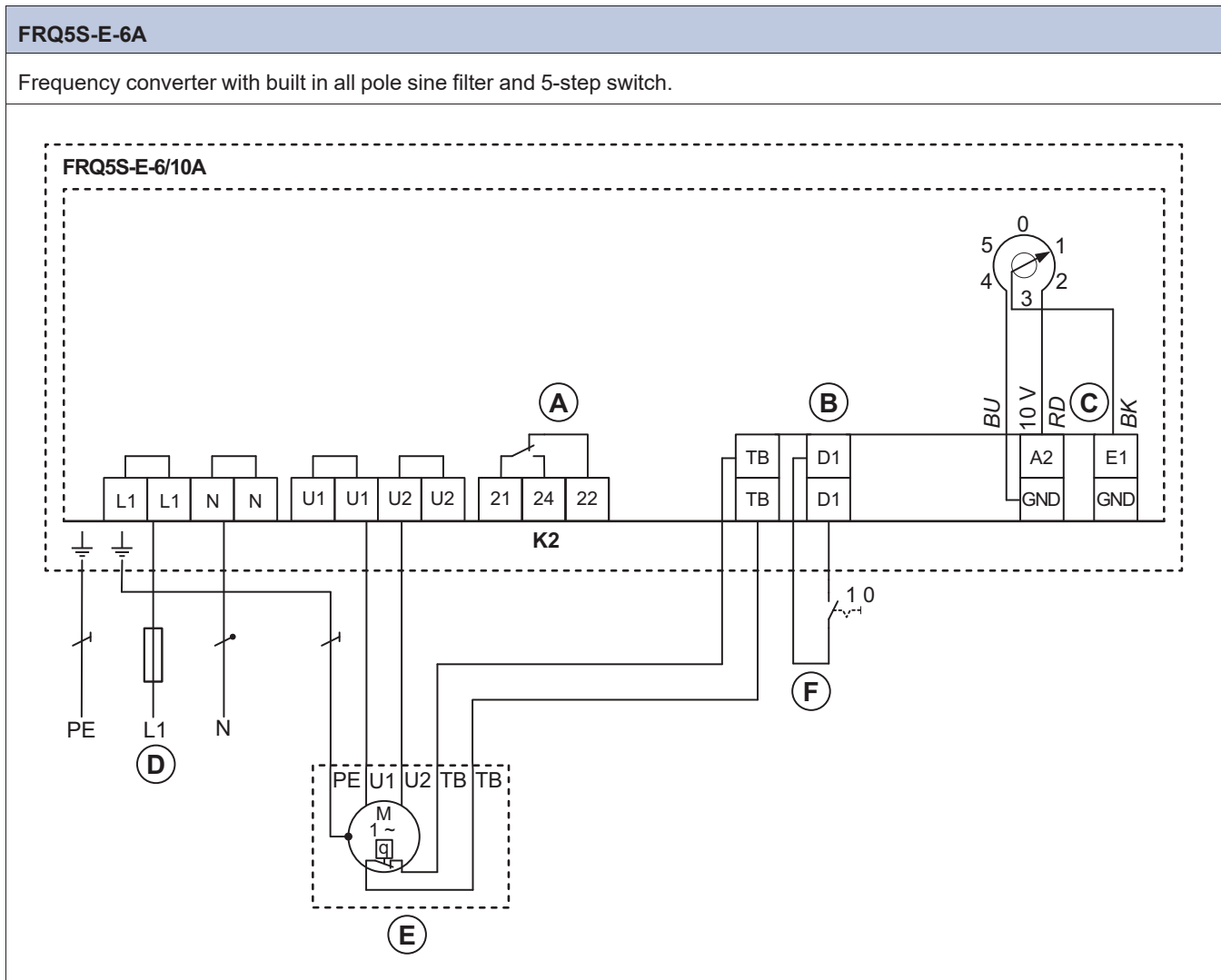
- L: the connection with cutting function on the speed control.
- (L): the connection without cutting function.

REU	
<p>Manual 5-step transformer for high/low speed operation. Used together with a change-over contact, for example a timer or a thermostat.</p>	<p><b>REU 1,5 REU 3 REU 5 REU 7</b></p>

1. External change-over contact
2. Left selector switch
3. Right selector switch

RTRE	
<p>Manual 5-step transformer with motor protection.</p>	<p><b>RTRE 1,5 RTRE 3 RTRE 5</b></p> <p><b>RTRE 7 RTRE 12</b></p>

- A. Relay connection. There is always 230 V between line and neutral when the transformer knob is in one of the positions 1–5.
- B. Mains supply
- C. Earth
- D. Fan
- E. Thermostat
- F. Motor protection. If the motor protection is not in use, Tk must be looped together.



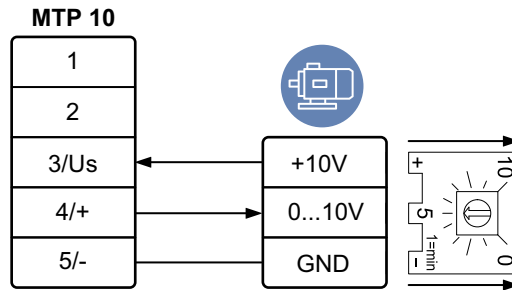
- A. Contact rating, maximum AC 250 V/2 A
- B. Mains supply, 1-phase 208...277 V, 50/60 Hz
- C. Motor with internal thermostats
- D. OFF/ON

### 12.3.4 Wiring diagrams for speed controllers for EC motors

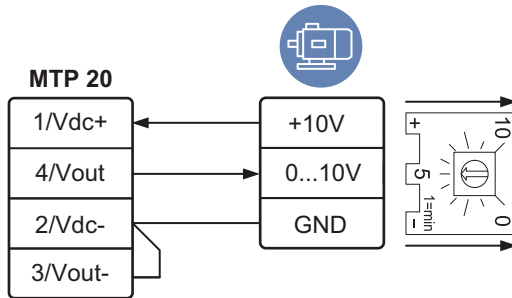
**Note:**

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 EC fan.

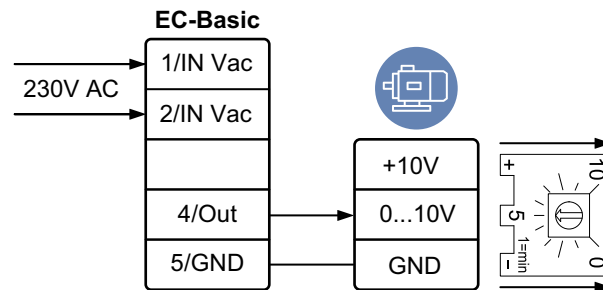
## MTP 10



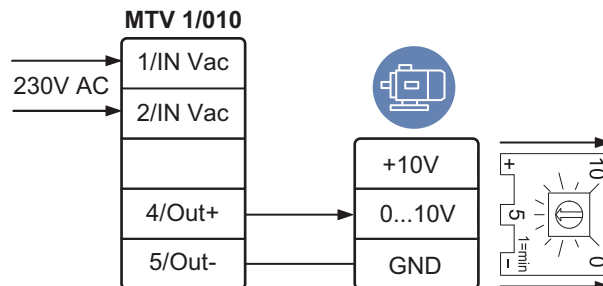
## MTP 20



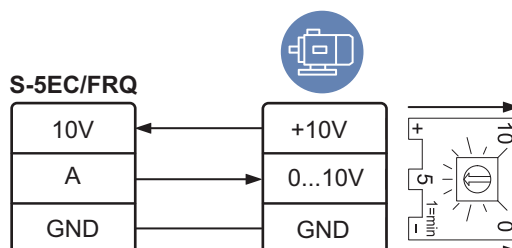
## EC-Basic



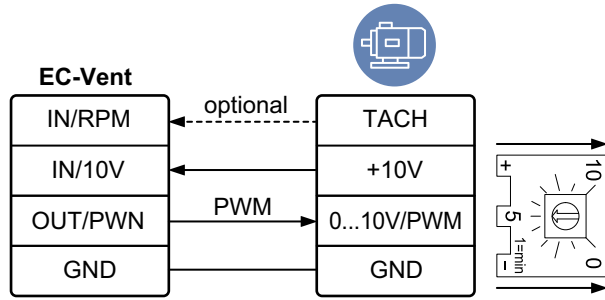
## MTV-1/10



## S-5EC/FRQ

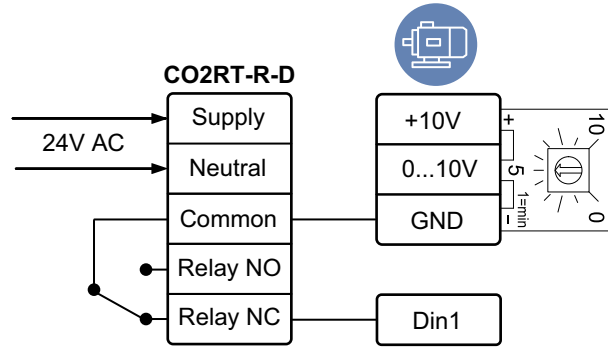


**EC-Vent**

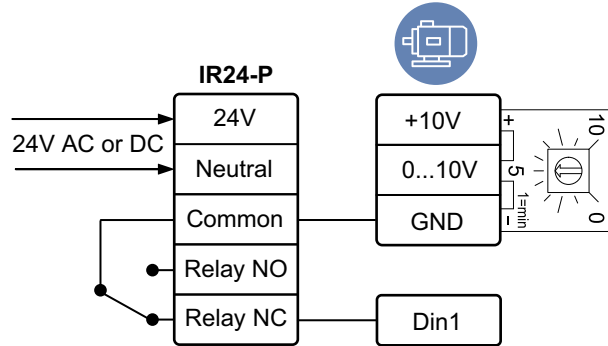


**12.3.5 Wiring diagrams for ON/OFF controls for EC motors**

**CO2RT-R(-D)**



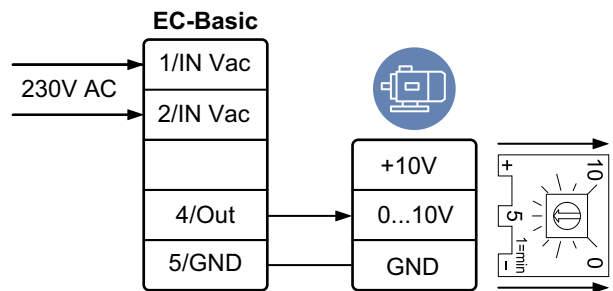
**IR24-P**

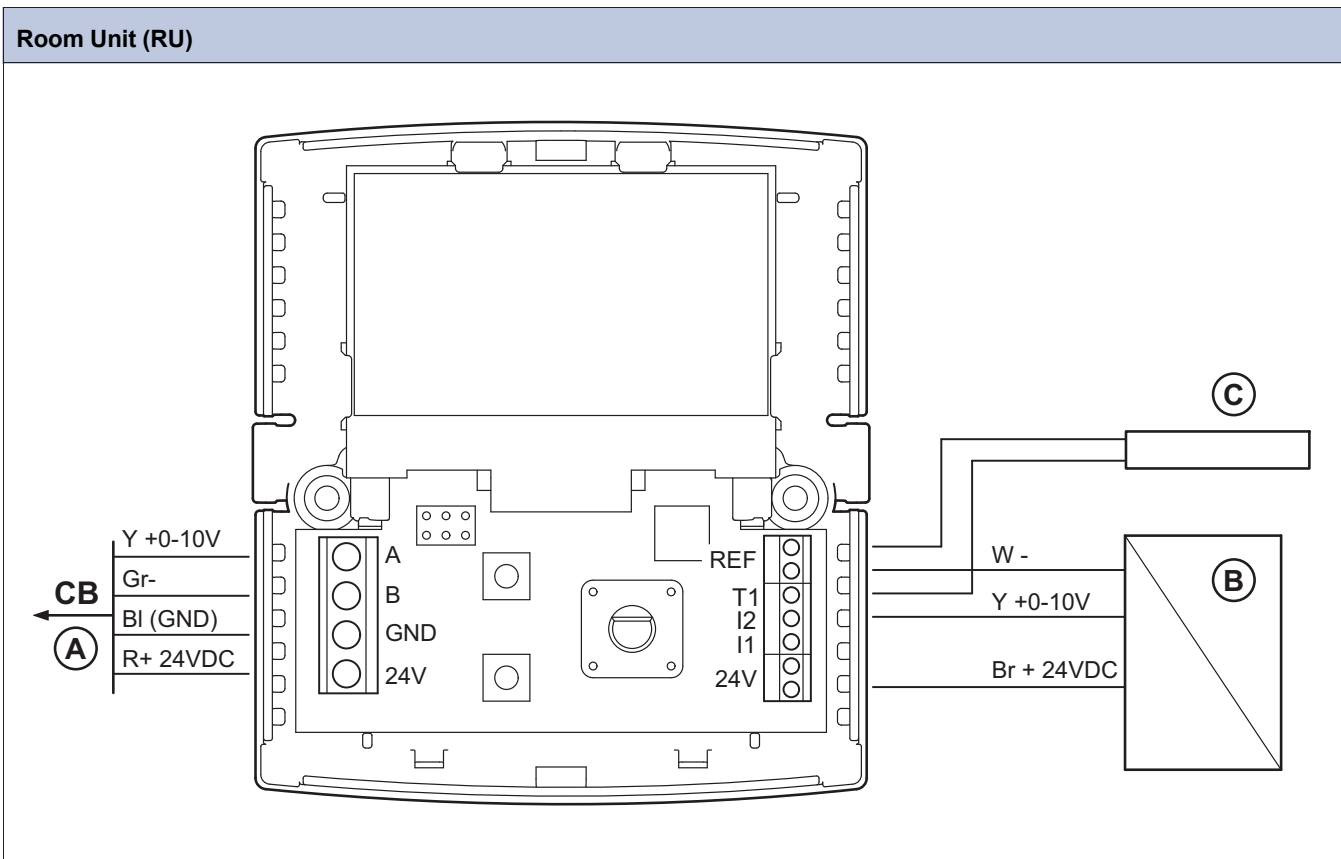
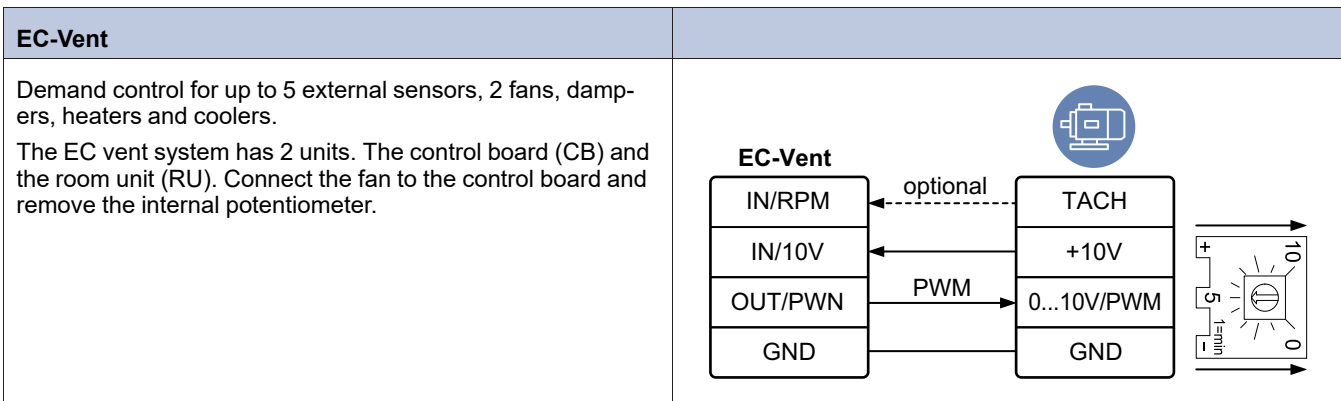
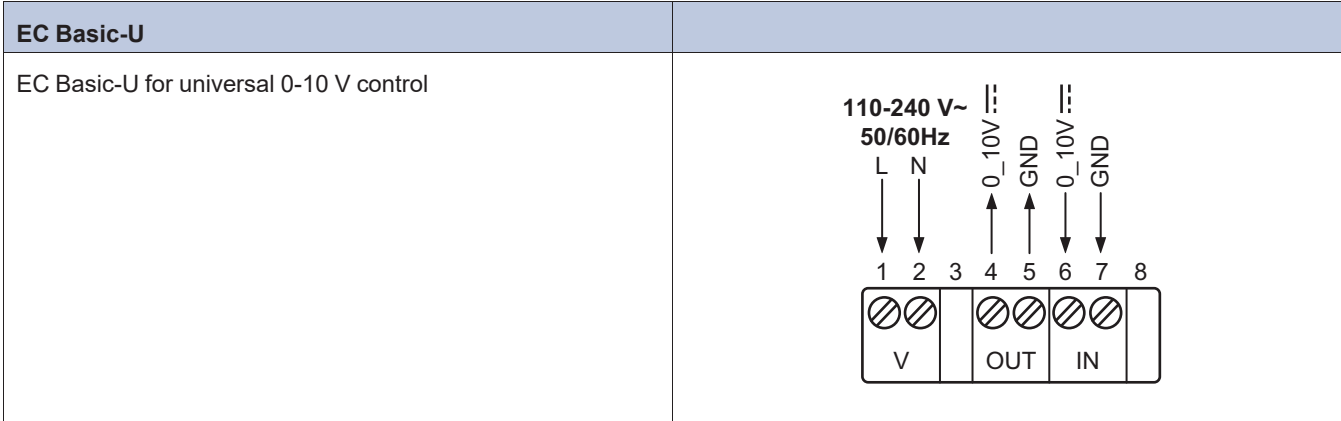


**12.3.6 Wiring diagrams for demand control for EC motors**

**EC Basic**

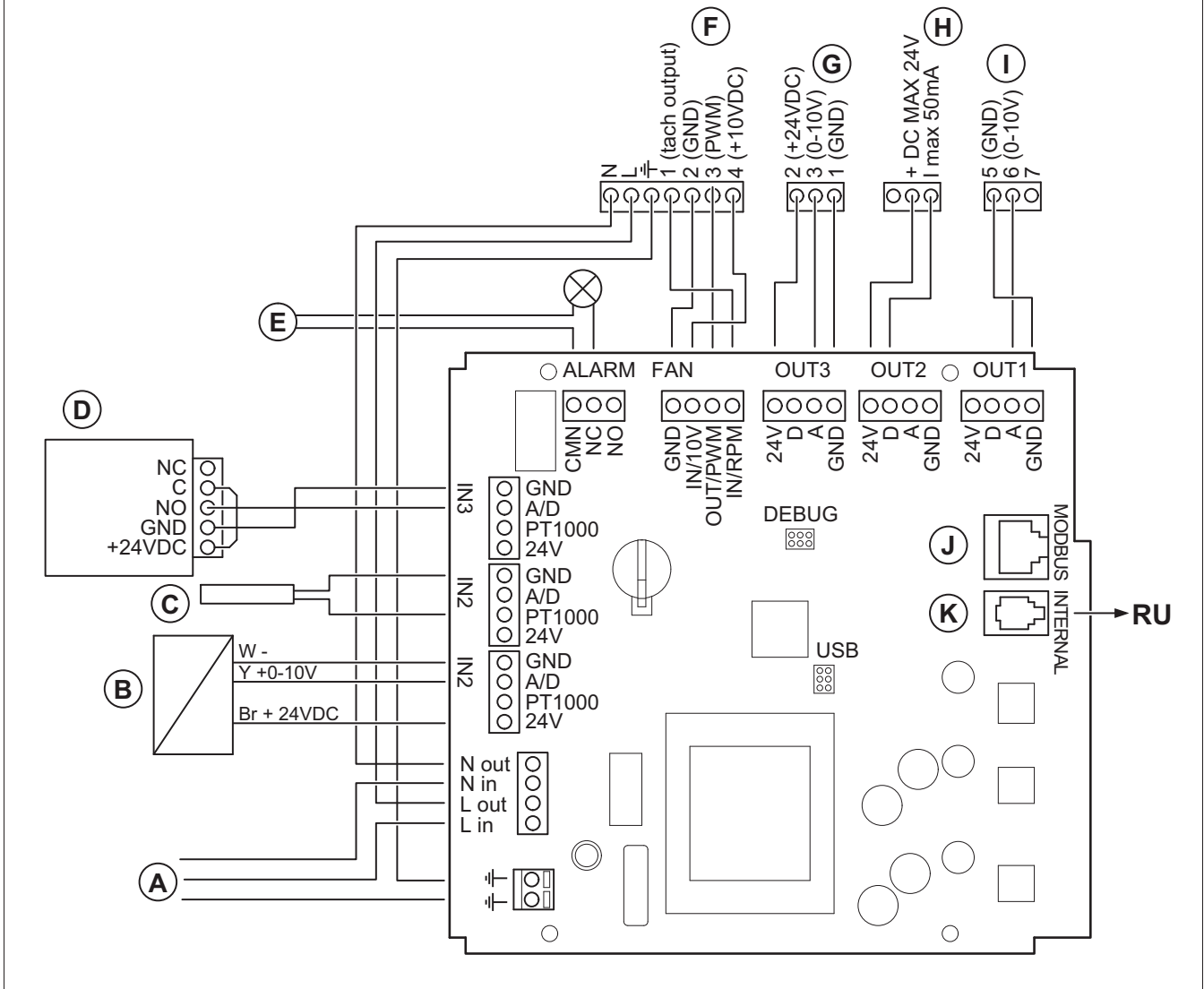
- EC Basic-T for temperature control
- EC Basic-CO2/T for temperature and CO<sub>2</sub> control
- EC Basic-H for humidity control







## Control Board (CB)



- A. Mains supply, 230 V 1~AC (10 A)
- B. Analogue sensor (for example, pressure sensor)
- C. Analogue sensor (for example, pressure sensor type PT1000)
- D. Digital sensor (for example, IR presence detector)
- E. Alarm output (maximum 24 V AC/DC, maximum 500 mA  $\text{Cos}\phi > 0.95$ )
- F. Output to EC fan
- G. Output to analogue actuator with 24 V DC supply
- H. Output to digital signal (DC, maximum 24 V, 1 maximum 50 mA)
- I. Output to analogue actuator (for example, heat regulator)
- J. Connection to Modbus
- K. Connection to room unit (RU)

MM6-24/D output signal selector		
Compares signals from connected inputs and transfers the signal to the control output.		
1	Input 1 0...10 V	
2	Input 2 0...10 V	
3	Input 3 0...10 V	
4	Input 4 0...10 V	
5	Input 5 0...10 V	
6	Input 6 0...10 V	
7	System neutral	Mains supply
8	24 V AC	
9	Signal neutral	
10	Signal neutral	
11	Output minimum 0...10V	
12	Output maximum 0...10V	

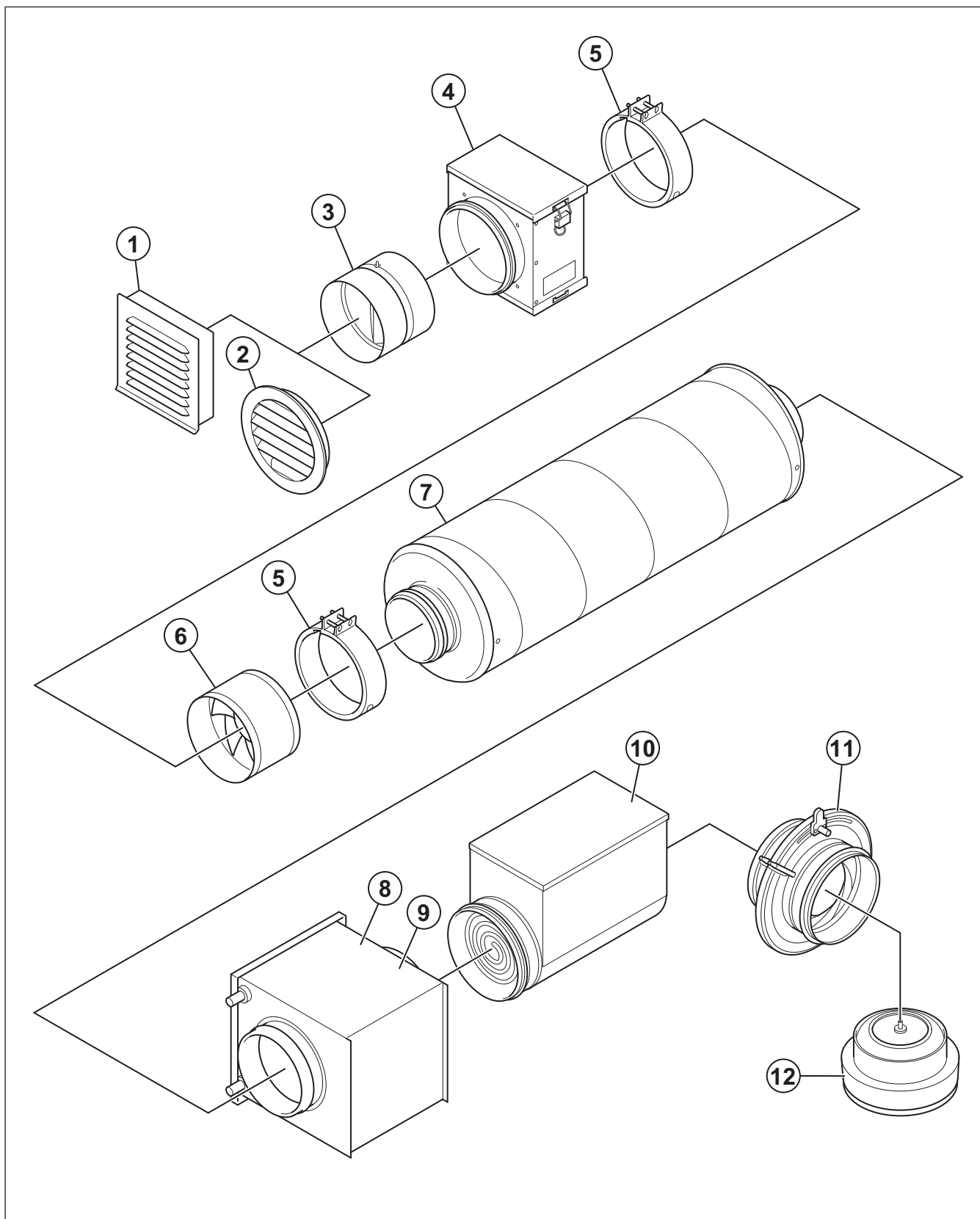
PCA 1000D2 Pressure controller	
For constant air volume control (CAV) or variable air volume control (VAV).	

1. Mains supply 10...24 V DC
2. Output 0...10 V
3. Pressure connections
4. Voltage input for switch on Setpoint 1/Setpoint 2

## 13 Accessory overview

### Note:

The selection of accessories shown are not supplied with the product. For more information and other available accessories, refer to [www.systemair.com](http://www.systemair.com) or speak to Systemair technical support.



- |                             |   |
|-----------------------------|---|
| 1. IGK: inlet louvre        | 7. LDC: Silencer                        |
| 2. IGC: inlet louvre        | 8. CWK: Water cooling battery           |
| 3. RSK: Back draft damper   | 9. VBC: Water heating battery           |
| 4. FGR/FFR: Filter cassette | 10. CB and CBM: Electrical duct heaters |
| 5. FK fast clamp            | 11. SPI: Iris damper                    |
| 6. Fan                      | 12. Balance S supply air diffuser       |

**Note:**

The selection of accessories shown are not supplied with the product. For more information and other available accessories, refer to [www.systemair.com](http://www.systemair.com) or speak to Systemair technical support.

# 14 EU Declaration of Conformity

We, the manufacturer

<b>Manufacturer</b>	Systemair Sverige AB
<b>Address</b>	Industrivägen 3 739 30 Skinnskatteberg Sweden

declare under our sole responsibility that the products

<b>Machine</b>	Insulated box fan
<b>Type/Model</b>	KV DUO, KVK DUO, KVK, KVK Slim, KVK Silent

fulfils the relevant provisions of following directives and standards

**Machinery Directive 2006/42/EC**

**EN ISO 12100:2010**

Safety of machinery – General principles for design - Risk assessment and risk reduction

**EN ISO 13857:2019**

Safety of machinery – Safety distances to prevent hazard zones being reached by upper or lower limbs

**EN 60204-1:2018**

Safety of machinery – Electrical equipment of machines – Part 1: General requirements

**EN 60335-1:2012**

Household and similar electrical appliances – Safety Part 1: General requirements.

**EN 60 335-2-80:2003**

Household and similar electrical appliances – Safety – Part 2-80: Particular requirements for fans.

**EN 50106:2008**

Safety of household and similar appliances – Particular rules for routine tests referring to appliances under the scope of EN 60 335-1.

**EN 60529:2014**

Degrees of protection provided by enclosures (IP Code).

**Directive electromagnetic compatibility (EMC) 2014/30/EU**

**EN 62233:2008**

Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure

**EN 61000-6-2:2005**

Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments.

**RoHS Directive 2011/65/EU**

**EN 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**

327/2011 Requirements for fans above 125W

1253/2014 Requirements for ventilation units above 30W

1254/2014 Requirements for energy labelling of residential ventilation units

**EN ISO 5801:2017**

Fans – Performance testing using standardized airways.

**EN 13142:2021**

Ventilation for buildings – Components/Products for residential ventilation – required and optional performance characteristics.

Persons authorized to compile the technical file:



**Stefan Lindberg**

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 or operations carried out subsequently by the final user.

Skinnskatteberg, Sweden 2023-04-12



**Sofia Rask**

Managing Director

# 15 UK Declaration of Conformity

We, the manufacturer

<b>Manufacturer</b>	Systemair Sverige AB
<b>Address</b>	Industrivägen 3 SE-73930 Skinskatteberg Sweden

declare under our sole responsibility that the products

<b>Machine</b>	Insulated box fan
<b>Type/Model</b>	KV DUO, KVK DUO, KVK, KVK Slim, KVK Silent

fulfils the relevant provisions of following directives and standards

### Supply of Machinery (Safety) Regulations 2008

#### **EN ISO 12100:2010**

Safety of machinery – General principles for design - Risk assessment and risk reduction

#### **EN ISO 13857:2019**

Safety of machinery – Safety distances to prevent hazard zones being reached by upper or lower limbs

#### **EN 60204-1:2018**

Safety of machinery – Electrical equipment of machines – Part 1: General requirements

#### **EN 60335-1:2012**

Household and similar electrical appliances – Safety Part 1: General requirements.

#### **EN 60 335-2-80:2003**

Household and similar electrical appliances – Safety – Part 2-80: Particular requirements for fans.

#### **EN 50106:2008**

Safety of household and similar appliances – Particular rules for routine tests referring to appliances under the scope of EN 60 335-1.

#### **EN 60529:2014**

Degrees of protection provided by enclosures (IP Code).

### Electromagnetic Compatibility Regulations 2016

#### **EN 62233:2008**

Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure

#### **EN 61000-6-2:2005**

Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments.

### The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

#### **EN IEC 63000:2018**

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

### The Ecodesign for Energy-Related Products and Energy Information (Amendment) (EU Exit) Regulations 2019

327/2011 Requirements for fans above 125W

1253/2014 Requirements for ventilation units above 30W

1254/2014 Requirements for energy labelling of residential ventilation units

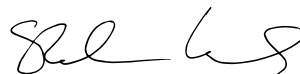
#### **EN ISO 5801:2017**

Fans – Performance testing using standardized airways.

#### **EN 13142:2021**

Ventilation for buildings – Components/Products for residential ventilation – required and optional performance characteristics.

Persons authorized to compile the technical file:



#### **Stefan Lindberg**

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 or operations carried out subsequently by the final user.

Skinskatteberg, Sweden 2023-04-12



#### **Sofia Rask**

Managing Director



Systemair Sverige AB  
Industrivägen 3  
SE-739 30 Skinnskatteberg

+46 222 440 00  
mailbox@systemair.com  
www.systemair.com

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