# Swegon **CASA**® R120

## Ventilation unit with rotary heat exchanger


- Ventilation unit for residential houses, multi-storey buidings and holiday cottages under 230 m$^2$. The unit is equipped with rotary heat exchanger. Suitable also for renovation projects.
- Maximum air volume: 120 l/s.
- Temperature efficiency: up to 80 %.
- Low sound level.
- For installation in a machine room, storage space, laundry room, etc.
- A separate extract air connection for the cooker hood, and the extract air does not pass the heat exchanger.
- The ventilation system can be controlled from a separate control panel or from the cooker hood.
- Premium control technique.

HOME VENTILATION

# Technical data

## General

The Swegon CASA R120 is an ideal ventilation unit for homes and similar premises. The unit has a RECOnomic rotary heat exchanger for high heat recovery performance.
The ventilation unit is designed to be mounted on a wall by means of the installation kit included in the supply. It is also possible to mount the unit against the ceiling with a ceiling mounting frame, available as optional equipment.

## Casing

The casing is made of double-skin sheet steel with an intervening layer of cellular polyethylene as insulation. The external surfaces of the ventilation unit have a powder-painted, baked finish in a white tone (RAL 9016), the hinged front panel likewise, which is easy to open for inspection and servicing.

*The Swegon CASA R120 with the front panel open.*

## Fans

The fans have low-energy, economical, type EC direct-current motors, whose power consumption is substantially lower than that of traditional fans driven by AC motors. The advantage of EC fans is that their speed is variably controllable and their efficiency is high even when they operate in the lower speed range. The power supply and control cables have quick-fit connectors and the fans can be easily removed from the unit, if required.

## Filters

The unit has a class F7 fine filter for the supply air and a class G3 wide-mesh filter for the extract air.

## Heat exchanger

The ventilation unit has Swegon's patented RECOnomic rotary heat exchanger. The heat exchanger rotor is composed of aluminium foil which forms a great number of passages through which the air flows. As the rotor rotates, heat is stored in the passages on the warm extract air side, and is emitted to the cold air on the supply air side. Even though the same surfaces are in contact with both the extract air and the supply air, there is very little risk that odour transfer will occur.
The temperature efficiency is approx. 80 %. A rotary heat exchanger normally never freezes; it maintains its high temperature efficiency regardless of the outdoor temperature. The heat exchanger is driven by a motor of its own.
The power supply and control cables have quick-fit connections and the heat exchanger package can be unfastened if required and withdrawn from the unit.

*The energy-efficient heat exchanger in the Swegon CASA R120.*

# Control System

## General

The ventilation unit is controlled from the Premium control panel, which is standard equipment and from which you can also read and change settings. You can also select three different fan speeds from the Premium cooker hood.

## Control from a Premium control panel

A Premium control panel can be installed at an optional location, recessed in a junction box or surface mounted on the wall. It can be located near the ventilation unit or somewhere else, and then must be connected to the unit via a 20 metre long modular cable. An extra control panel can also be connected, if it is desirable to control the ventilation unit from several places.


*The ventilation unit is controlled from the Premium control panel.*

### Selectable functions

- **Application.** The unit can be started and stopped.
- **Fan speed.** The ventilation unit fans can be set and controlled to operate at five different speeds. The display indicates the Away mode when the fans run on their lowest speed and indicates the Home mode when the fans are running at normal speed. The speed of the supply air fan can deviate from that of the extract air fan and the speed is controlled from the control panel.
- **Timer.** The 24-hour/weekly timer has four programs. You can set the desired times if you want the unit to activate a desired function. The unit runs in the economical minimum speed mode at other times (Away). Functions: Home, Away, Boost, Cool. You can also select the temperature of the supply air.
- **Temperature.** You can set the desired start temperature of the electric air heater for reheating (optional item) within a range of 13–20 °C. You can also shut off the reheating function.
- **Negative pressure compensation.** Negative pressure arises in the home when a separate cooker hood or central vacuum cleaner is used, since the extract airflow becomes higher than the supply airflow. This function compensates the negative pressure by automatically increasing the supply airflow. A signal from a contact in the cooker hood or the central vacuum cleaner is required.
- **Summer operation.** When certain limit values are met, the ventilation unit stops the heat exchanger (when heat recovery isn't needed).
- **Summer night cooling.** The function starts, if certain temperature conditions are complied with. The heat exchanger in the unit stops, the electric air heater is switched off and control system increases the speed of the fans. The cooler air at night, for instance, is then utilised for cooling the home. The fan speed can be selected.
- **Cooling energy recovery.** In the summer, when the indoor air is cooler than the outdoor air, the heat exchanger starts up.
- **Fireplace switch function.** The function generates excess pressure in the home and brings about an updraught in the chimney, which prevents smoke from entering the room when you light a fire.
- **Display of the operating speed.** The operating speed is continuously shown as text on the display screen.
- **Service reminder.** The service reminder interval can be set to a period ranging between 3–12 months.

### Automatic functions

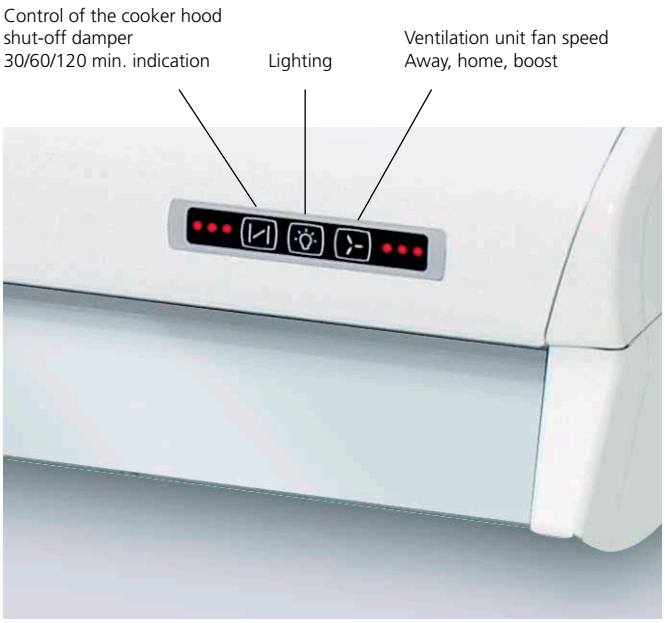
- **Alarms.** Indicate the need for filter change or servicing and a possible disruption in operation.
- **Heat exchanger.** Starts and stops in response to signals from the temperature sensor.
- **Overheating protection.** For the motors and the electric air heater.
- **Freeze protection.** Prevents freezing in the heat exchanger.

## Control from a Premium cooker hood

### Selectable functions

The control panel of the cooker hood has three pushbuttons. Besides switching the cooker hood's lighting on and off, two control functions can be set as follows:

- **Fan speed.** The fans in the ventilation unit can be controlled to operate at three speeds: away/home/boost. The supply air fan can operate at a lower speed than that of the extract air fan. The period for operation in the boosted speed mode is preset to 60 minutes, after which the ventilation unit fans will decelerate to normal speed.
- **The shut-off damper of the cooker hood.** When preparing food or carrying out a similar activity, a 30, 60 or 120 minute damper-open period can be selected.




*The control panel of the Premium cooker hood.*

## Demand regulation (control)

Demand control is possible with the following optional equipment:

- **Timer.** 24-hour/weekly timer with settable times, for when you want the ventilation unit fans to run at normal speed. At other times, the unit runs in the economical minimum fan speed mode.
- **Boost timer.** A manual pushbutton switch that can be installed at an optional location. The pushbutton switch can be located in a laundry room or the like, for example.
- **Fireplace switch.** A manual pushbutton switch that can be installed at an optional location. The function generates excess pressure in the home and in this way causes an updraught in the chimney, which prevents smoke from entering the room when you light the log-fire.**Negative pressure compensation.** When the cooker hood is in use, negative pressure arises in the home since the extract airflow becomes substantially higher than the supply airflow. This function compensates the negative pressure by automatically increasing the supply airflow.
- **Home–Away switch.** Should be located close to the front door. When the button is pushed, the ventilation unit switches to operation in the Away mode and this saves energy.
- **Presence detector.** The sensor detects movement in the home and transmits a signal to the ventilation unit to increase the fan speed. This function is well-suited for use in premises not used around the clock, such as in schools, day nurseries, offices, etc.
- **Humidity sensor.** The sensor detects when the humidity rises and transmits a signal to the ventilation unit to increase the fan speed. It can be located in a sauna, a bathroom, a laundry room, etc.
- **Carbon dioxide sensor.** The sensor detects an increase in carbon dioxide and transmits a signal to the ventilation unit to increase the fan speed. It is suitable for use in rooms where the number of occupants varies.
- **DDC control**
- **Modbus gateway**

# Optional equipment

## Optional equipment for the ventilation unit

**Premium extra control panel**

The extra control panel can also be installed, if it is desirable to control the ventilation unit from various places. The second contact of the panel can be used for interconnecting two panels.

*Premium control panel*

**Reheating cassette**

The 800 W electric air heater for reheating the supply air downstream of the heat exchanger is a factory-fitted, optional item for equipment. The air heater is switched on when the temperature of the supply air is below a preset value. The heater is wired by means of quick-fit connectors.

*Reheating cassette*

**Roof mounting frame**

Facilitates mounting the ventilation unit on the ceiling.

**Mounting frame with moisture barrier**

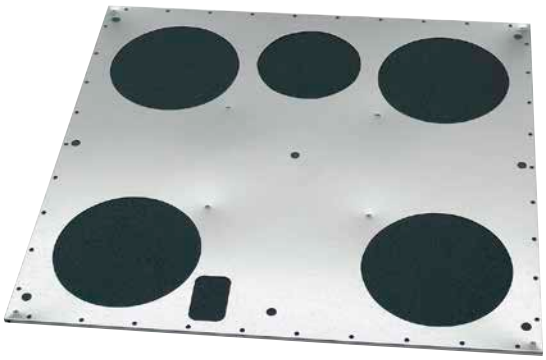
The mounting frame has a moisture barrier which prevents moisture from entering the insulation in the attic joist floor and stops the air from the loft from coming down into the rooms.

**Replacement filters**

The set of filters contains two class F7 fine filters and one class G3 wide-mesh filter.

*Replacement filters*

*Roof mounting frame*



*Mounting frame with moisture barrier*

# Optional equipment

## System products

The ventilation unit is a part of an economical and attractive ventilation system for homes. Swegon offers a complete series of products for home ventilation. In that all the components are supplied by the same subcontractor, you are assured that they operate reliably together and this enables you to select properly sized products. This makes it possible, for instance, to control the ventilation unit from the cooker hood.

### Cooker hoods

The elegant and practical cooker hoods are available in several alternative models and materials. If you do not want to connect the cooker hood to the ventilation unit, you can select a Design cooker hood and connect it to a power roof ventilator.

### Ceiling penetration seal for duct

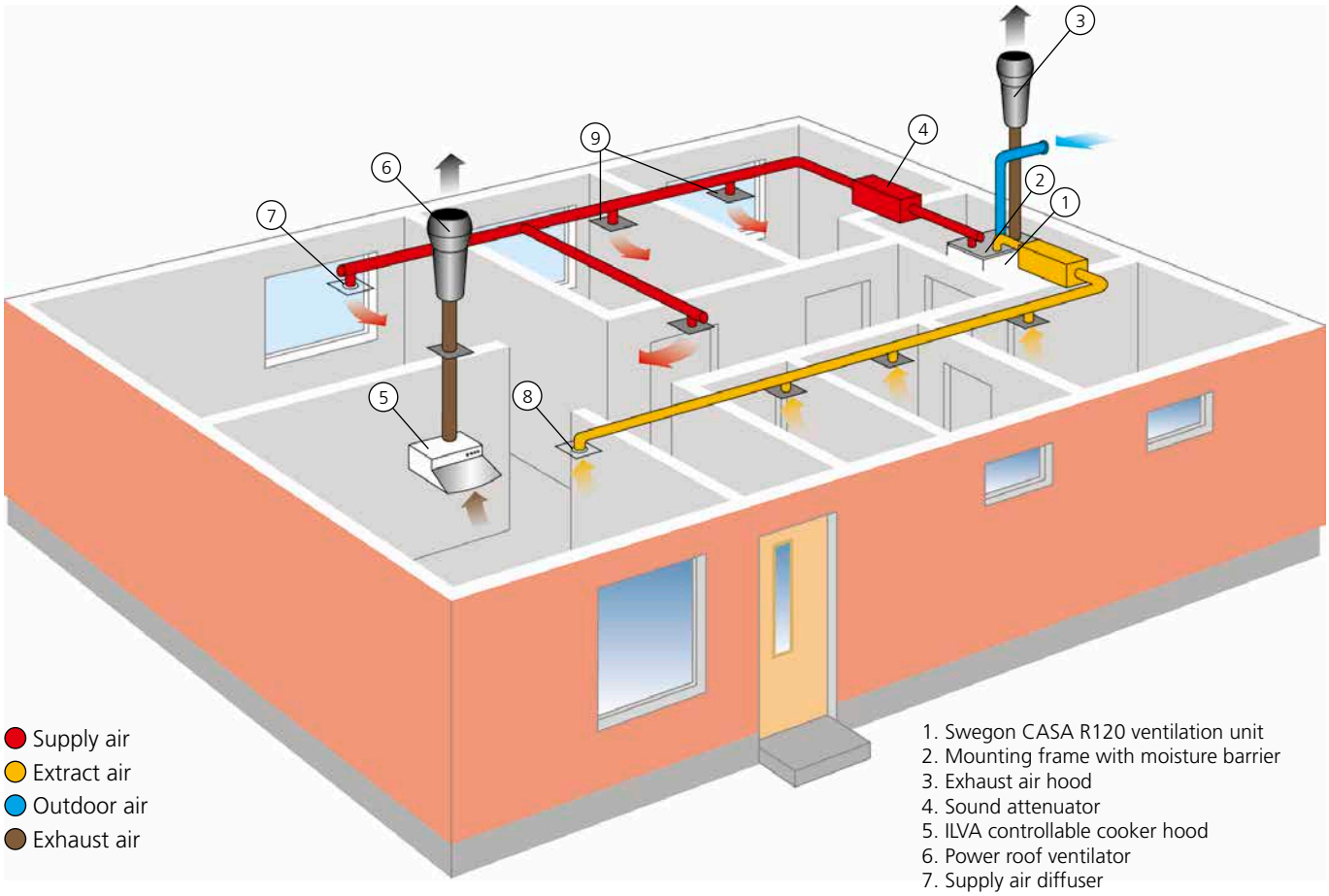
Provides a moisture-proof duct penetration point for supply air diffusers and extract air registers. Available in sets of 5 for size ∅ 100, 125 and 160 mm ducts.

*Premium Swing controllable cooker hood*

*Sound attenuator*

*Supply air diffusers and extract air registers*

*Ceiling penetration seal*



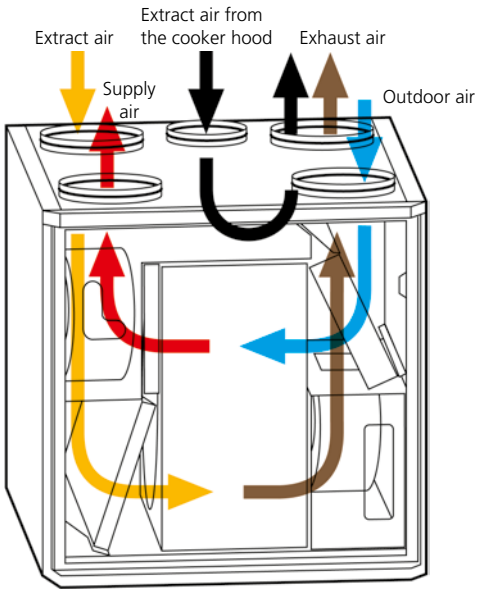

- Supply air
- Extract air
- Outdoor air
- Exhaust air

1. Swegon CASA R120 ventilation unit
2. Mounting frame with moisture barrier
3. Exhaust air hood
4. Sound attenuator
5. ILVA controllable cooker hood
6. Power roof ventilator
7. Supply air diffuser
8. Extract air register
9. Ceiling penetration seal

# Installation

Suitable installation locations are a laundry room, storage space, attic etc. If the ventilation unit is located in a cold space, it should be have thermal insulation, if required. Secure the ventilation unit vertically to the wall using the wall mounting bracket supplied with the unit. The wall structure must be able to support the weight of a 78 kg ventilation unit. It is also possible to mount the unit against the ceiling with a ceiling mounting frame, available as optional equipment.

The unit has an extra duct connection for extract air on its upper side. The extract air from the cooker hood flows directly out via the extract air fan of the unit and does not pass the heat exchanger. The connection not used should be blanked off by a cover or an end piece for spiral ducts (not included in the supply). The extract air from the kitchen should not be extracted via the cooker hood, since this airflow bypasses the heat exchanger.




*How the R120 operates.*

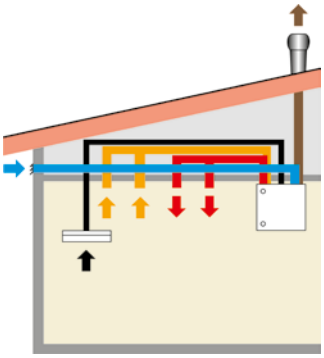
## Installation alternatives

**1. The Premium cooker hood connected via duct to the ventilation unit**

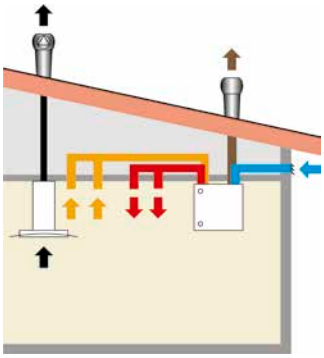
The extract air from the Premium cooker hood is conveyed via a duct to an extra duct connection on the top of the ventilation unit. The ventilation unit can be controlled from the control panel of the cooker hood or, if required, also from a separate control panel.

**2. Separate controllable cooker hood**

The extract air from the controllable cooker hood should be connected to a separate power roof ventilator. The ventilation unit is controlled from a separate control panel. The best way to control the power roof ventilator is from the cooker hood control panel.



*1. A Premium cooker hood connected via duct to the ventilation unit.*

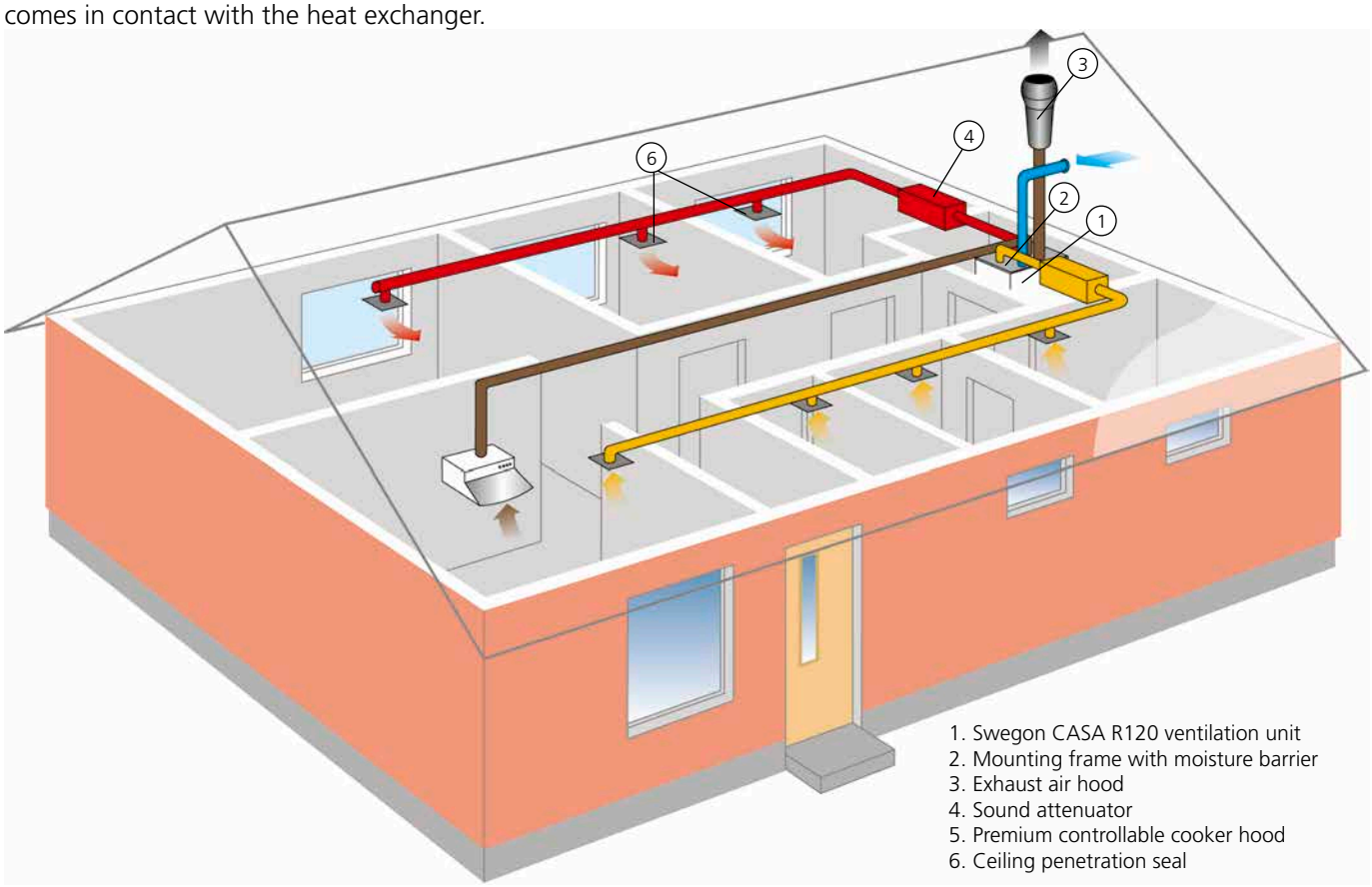


*2. Separate controllable cooker hood and power roof ventilator.*

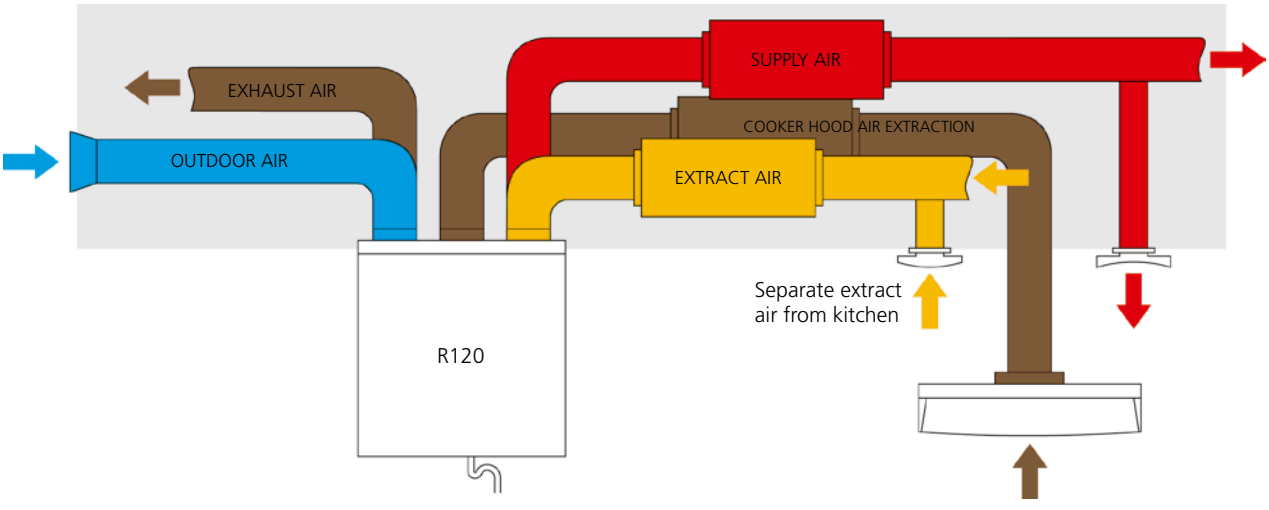
# Bypass for kitchen

The Swegon CASA R series ventilation units make it possible to install a so-called kitchen bypass. This is an effective way to remove cooking odours from the kitchen and ensures that it cannot return to the kitchen via other ventilation ducts. If the cooker hood outlet air duct is connected directly to the connection spigot on the ventilation unit, the extract air is conducted directly out via the unit's extract air fan, consequently the extract air never comes in contact with the heat exchanger.

- Adequate suction power from the cooker hood
- Fewer ducts and roof penetration collars
- Less need for servicing



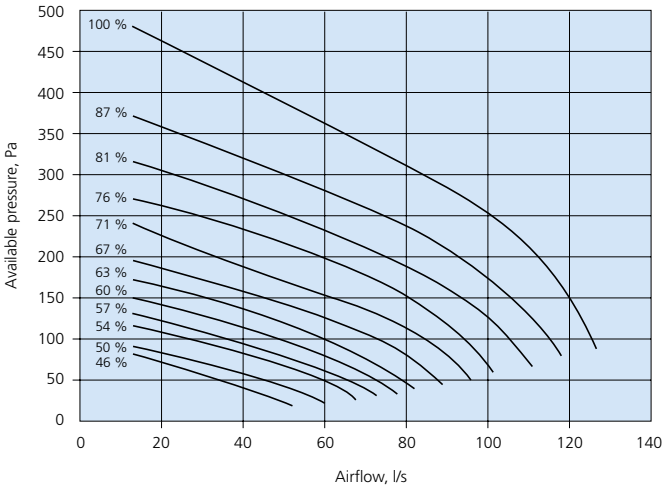

1. Swegon CASA R120 ventilation unit
2. Mounting frame with moisture barrier
3. Exhaust air hood
4. Sound attenuator
5. Premium controllable cooker hood
6. Ceiling penetration seal



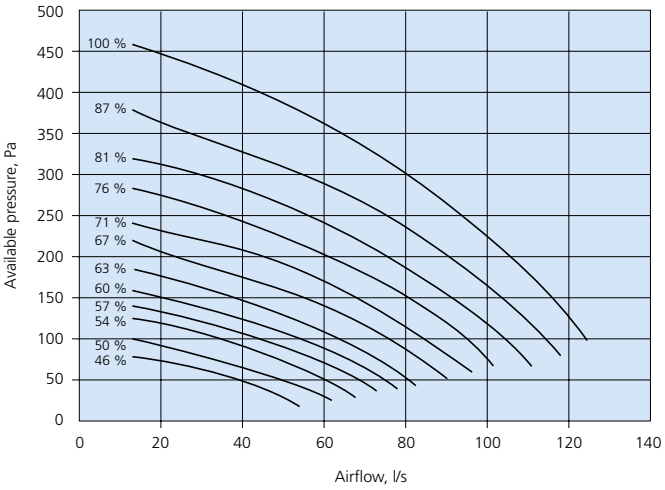

**Boosted extract air, up to 50 l/s**

# Sizing

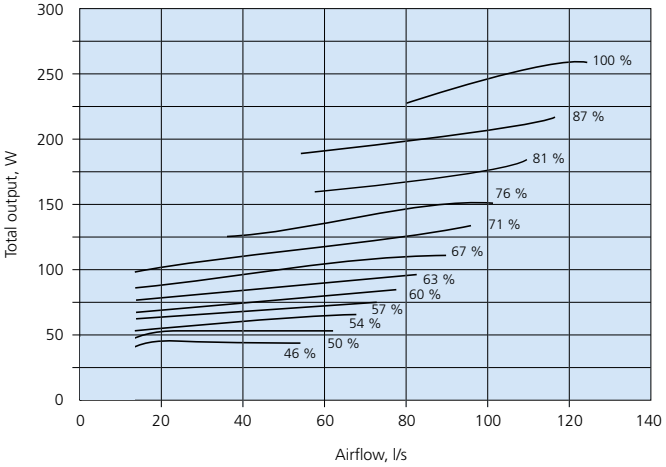
## Supply airflow




## Extract air flow




## Power consumption




## Extract air from the cooker hood

| **Setting in %** | 65 | 73 | 85 | 100 |
|---|---|---|---|---|
| **Airflow, l/s** | 28 | 32 | 39 | 43 |

## Connection power

| | **R120** | **R120-L** |
|---|---|---|
| Connection | 230 V, 50 Hz, 1.1 A | 230 V, 50 Hz, 4.6 A |
| Fans | 238 W | 238 W |
| Rotor motor | 10 W | 10 W |
| Air heater, reheat | - | 800 W |
| Total output | 250 W | 1050 W |

# Acoustic data

### Sound emitted to supply air duct

| Fan setting % | Sound power level broken down into octave bands, $L_{wokt}$, dB | | | | | | | | Weighted sound power level $L_{WA}$, dB(A) |
|---|---|---|---|---|---|---|---|---|---|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | |
| 54 | 67 | 60 | 55 | 50 | 48 | 42 | 36 | 22 | 54 |
| 57 | 67 | 63 | 57 | 52 | 51 | 45 | 39 | 27 | 56 |
| 60 | 67 | 63 | 58 | 53 | 52 | 46 | 41 | 29 | 57 |
| 63 | 67 | 65 | 60 | 54 | 53 | 48 | 43 | 32 | 58 |
| 67 | 71 | 66 | 61 | 56 | 55 | 50 | 45 | 35 | 60 |
| 71 | 72 | 68 | 62 | 57 | 56 | 52 | 46 | 36 | 61 |
| 76 | 74 | 70 | 64 | 59 | 57 | 54 | 48 | 38 | 63 |
| 81 | 75 | 71 | 65 | 59 | 57 | 54 | 48 | 40 | 64 |
| 87 | 77 | 73 | 67 | 61 | 59 | 56 | 50 | 42 | 65 |
| 100 | 78 | 75 | 69 | 63 | 60 | 58 | 52 | 44 | 67 |

### Sound emitted to extract air duct

| Fan setting % | Sound power level broken down into octave bands, $L_{wokt}$, dB | | | | | | | | Weighted sound power level $L_{WA}$, dB(A) |
|---|---|---|---|---|---|---|---|---|---|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | |
| 54 | 64 | 46 | 48 | 43 | 37 | 33 | 23 | 8 | 45 |
| 57 | 64 | 48 | 49 | 45 | 38 | 34 | 24 | 9 | 46 |
| 60 | 62 | 58 | 51 | 46 | 39 | 35 | 26 | 11 | 49 |
| 63 | 64 | 61 | 51 | 48 | 40 | 36 | 27 | 13 | 50 |
| 67 | 63 | 63 | 53 | 49 | 41 | 38 | 29 | 15 | 52 |
| 71 | 63 | 63 | 55 | 50 | 43 | 40 | 31 | 17 | 53 |
| 76 | 66 | 66 | 56 | 52 | 44 | 41 | 32 | 19 | 55 |
| 81 | 63 | 66 | 57 | 54 | 45 | 42 | 33 | 20 | 55 |
| 87 | 66 | 68 | 58 | 55 | 46 | 43 | 35 | 22 | 57 |
| 100 | 66 | 68 | 59 | 55 | 46 | 43 | 35 | 22 | 57 |

### Sound emitted to extract air duct of the cooker hood

| Fan setting % | Sound power level broken down into octave bands, $L_{wokt}$, dB | | | | | | | | Weighted sound power level $L_{WA}$, dB(A) |
|---|---|---|---|---|---|---|---|---|---|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | |
| 54 | 63 | - | 49 | 44 | 33 | 31 | 25 | 13 | 45 |
| 57 | 65 | - | 51 | 45 | 34 | 32 | 27 | 15 | 47 |
| 60 | 63 | 53 | 53 | 46 | 35 | 33 | 28 | 17 | 48 |
| 63 | 59 | 47 | 53 | 47 | 37 | 35 | 30 | 18 | 48 |
| 67 | 61 | 59 | 55 | 48 | 37 | 36 | 31 | 20 | 50 |
| 71 | 64 | 57 | 56 | 49 | 39 | 37 | 32 | 22 | 51 |
| 76 | 69 | 59 | 57 | 51 | 40 | 39 | 34 | 24 | 53 |
| 81 | 68 | 61 | 59 | 52 | 41 | 40 | 36 | 26 | 54 |
| 87 | 66 | 64 | 60 | 52 | 43 | 41 | 37 | 27 | 55 |
| 100 | 67 | 65 | 61 | 53 | 43 | 42 | 38 | 29 | 56 |

## Sound emitted to the surroundings

| Fan setting % | Sound power level broken down into octave bands, $L_{wokt}$, dB | | | | | | | | Weighted sound power level $L_{WA}$, dB(A) | Sound pressure level 10 m² sound absorption $L_p(10)$, dB(A)*) |
|---|---|---|---|---|---|---|---|---|---|---|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | | |
| 54 | 44 | 46 | 37 | 28 | 23 | 12 | - | - | 30 | 26 |
| 57 | 46 | 46 | 38 | 29 | 24 | 13 | - | - | 35 | 31 |
| 60 | 46 | 46 | 39 | 30 | 25 | 14 | - | - | 35 | 31 |
| 63 | 44 | 47 | 40 | 30 | 26 | 14 | - | - | 36 | 32 |
| 67 | 45 | 47 | 42 | 33 | 28 | 17 | - | - | 37 | 33 |
| 71 | 44 | 48 | 43 | 34 | 29 | 19 | 10 | - | 38 | 34 |
| 76 | 46 | 49 | 44 | 34 | 29 | 20 | 11 | - | 39 | 35 |
| 81 | 47 | 50 | 45 | 36 | 32 | 21 | 12 | - | 40 | 36 |
| 87 | 49 | 52 | 46 | 37 | 33 | 22 | 14 | - | 42 | 38 |
| 100 | 51 | 54 | 48 | 39 | 34 | 24 | 15 | - | 43 | 39 |

**) Equivalent to a normally insulated room.*

# Power connection

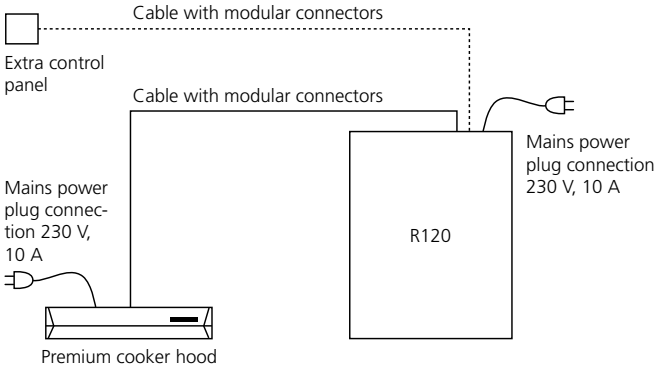
The unit has a 230 V, 10 A mains plug connection.

**Total power consumption**
Excl. air heater for reheat: 250 W, 1.1 A
Incl. air heater for reheat: 1050 W, 4.6 A

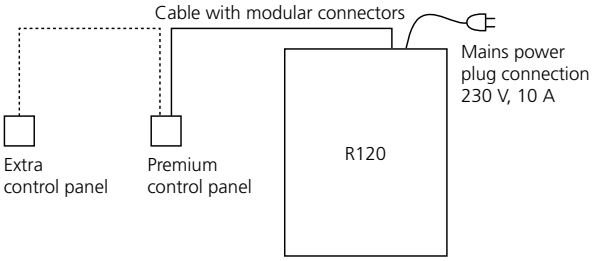
**Control from a Premium cooker hood**
The supply includes two 3 m long cables with modular contacts, which are used for connecting the ventilation unit, cooker hood, control panel and the Modbus Gateway adaptor. The modular cable should be installed in a min. ∅ 20 mm conduit.

**Control from a Premium control panel**
The control panel can be placed at an optional location. It can be supplemented with e.g. an extra control panel or a Modbus gateway, if you want the ventilation unit to be controllable from several places.

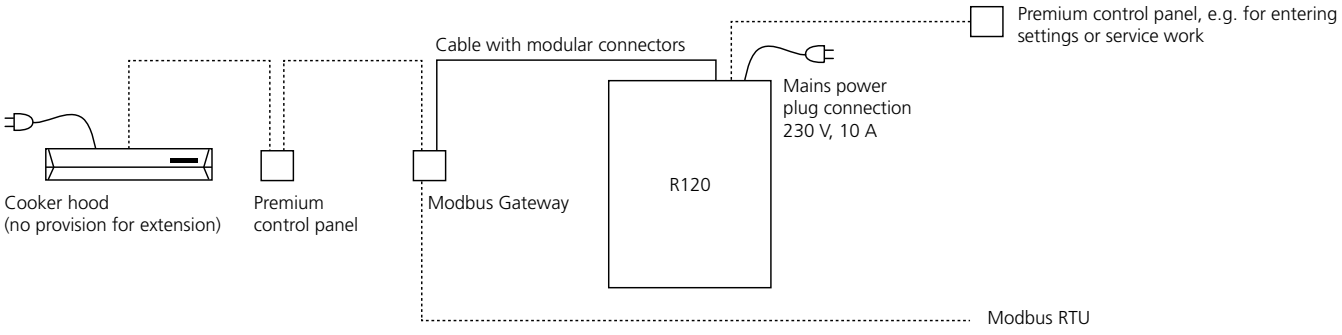
**Control from a Premium cooker hood**




**Control from a Premium control panel**

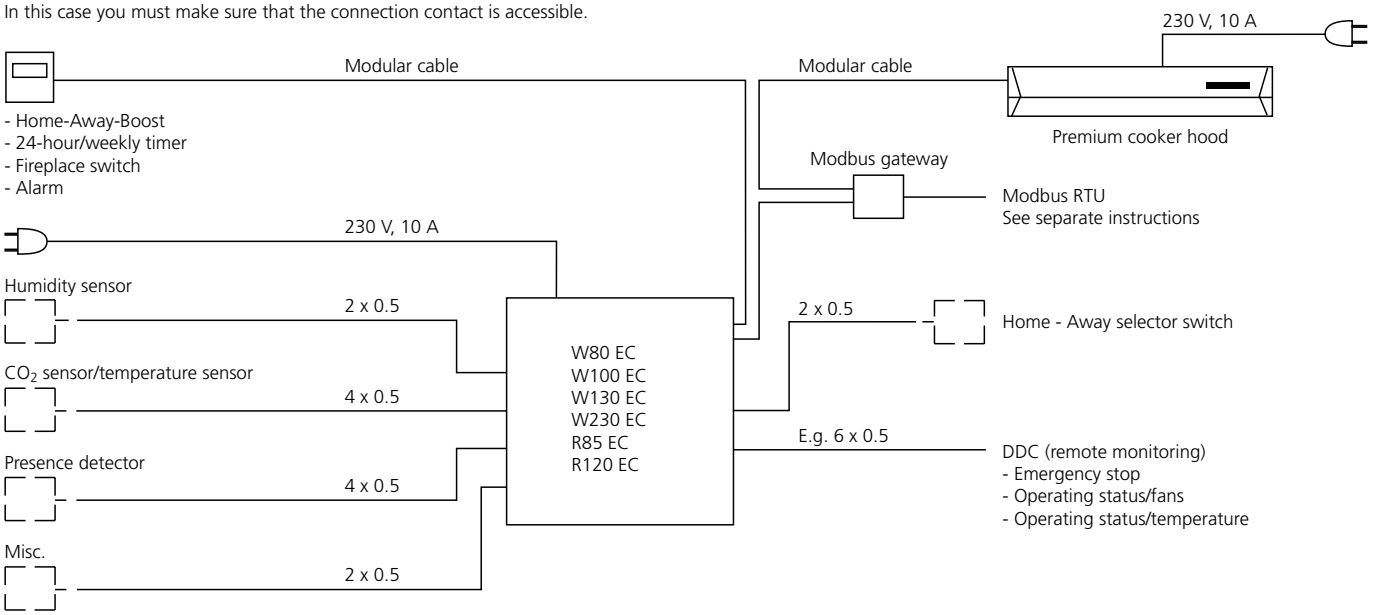



**Premium control via Modbus Gateway**

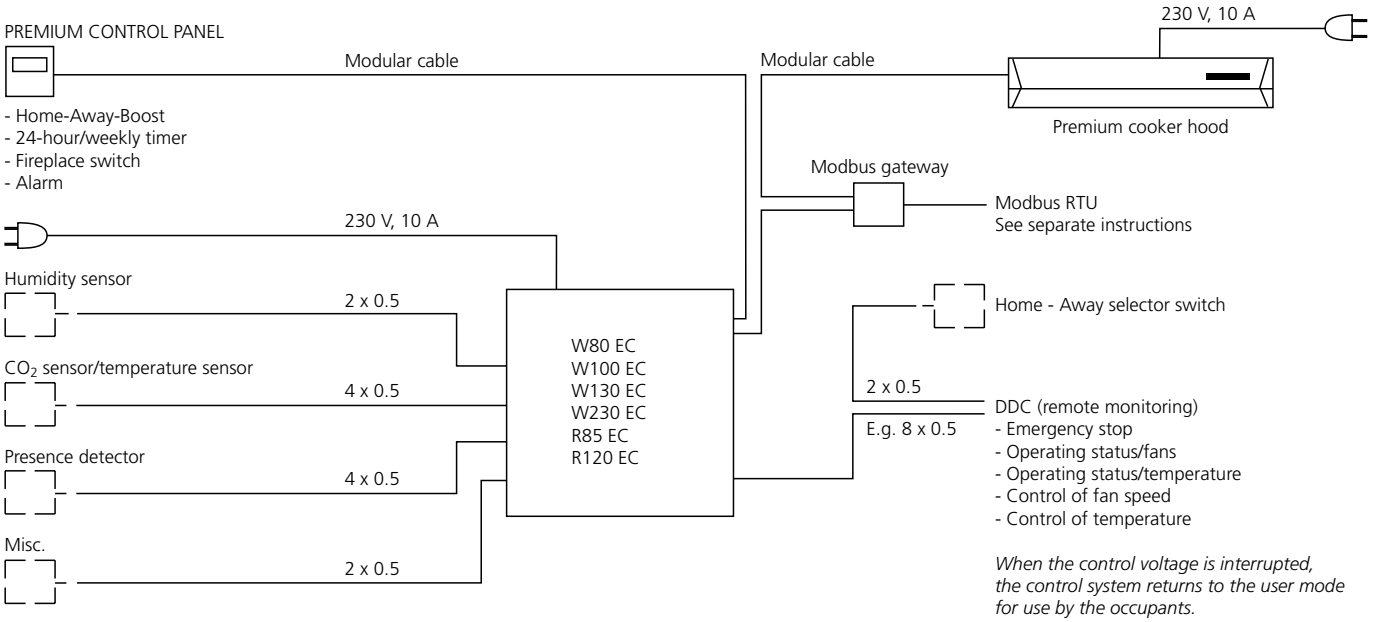


## Example diagram 1

PREMIUM CONTROL PANEL
If the installation is not fixed, the control panel can serve as a pure hand-held terminal for entering settings or carrying out service work.
In this case you must make sure that the connection contact is accessible.

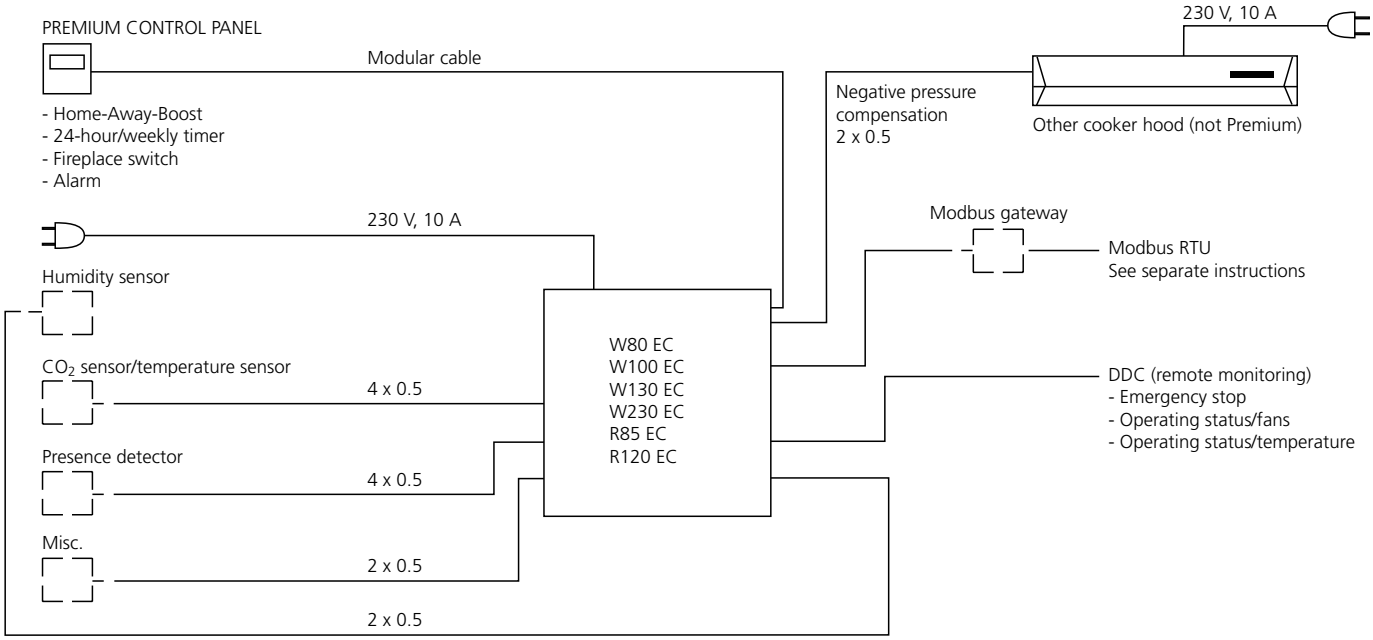



## Example diagram 2




*When the control voltage is interrupted, the control system returns to the user mode for use by the occupants.*

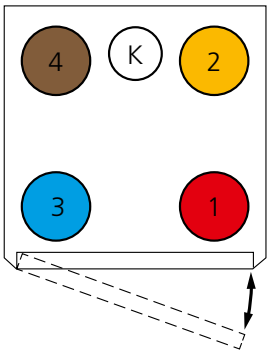
### Example diagram 3



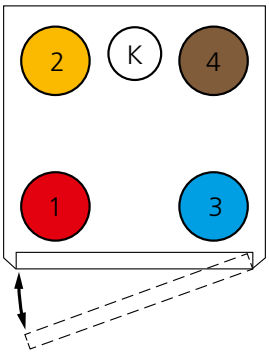

# Variants

## Right-hand or left-hand version

In order to facilitate the installation the ventilation unit is available in a right-hand (R) or left-hand (L) version. They are mirror images of one another. This way you can select a variant that offers the simplest possible system for arranging the ducting. This is important, since extra bends in the ducting increase the pressure and the fans have to overcome a heavier load.




*Swegon CASA R120 L*

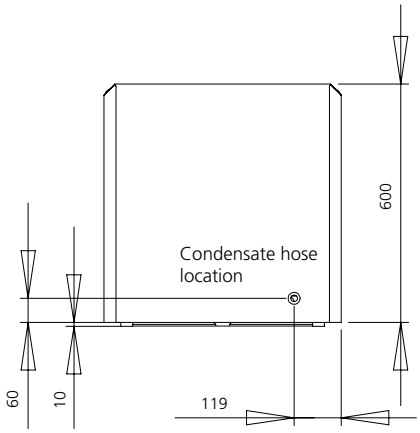


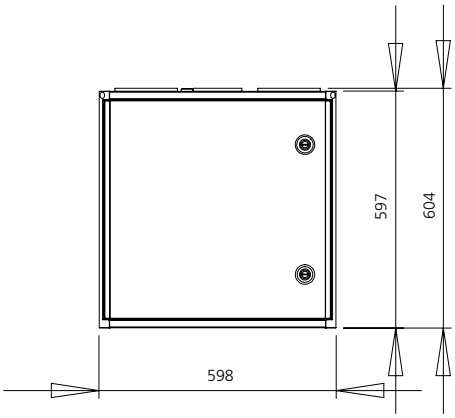

*Swegon CASA R120 R*

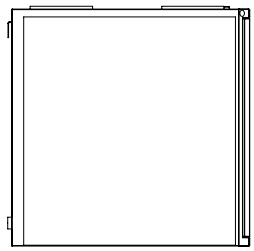
- Supply air 1
- Extract air 2
- Outdoor air 3
- Exhaust air 4
- Extract air from cooker hood K

# Dimensions

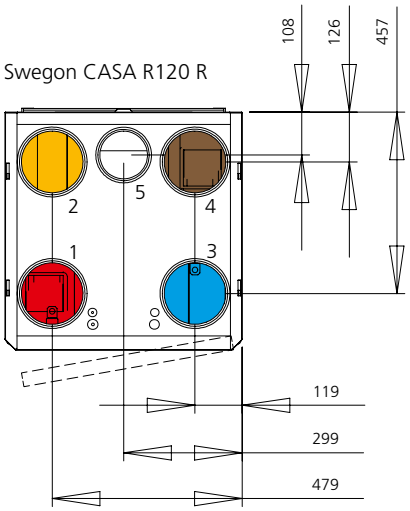
## Swegon CASA R120



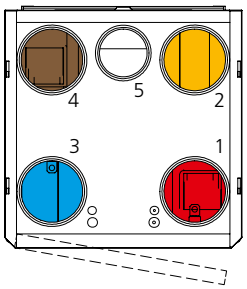



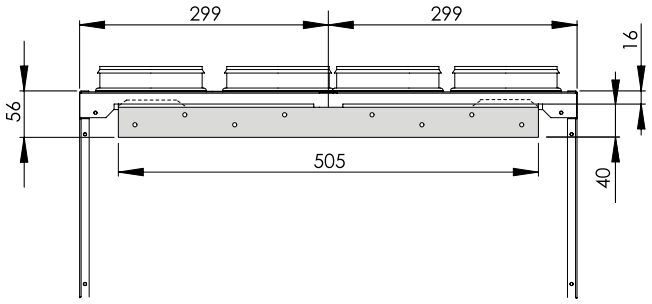
Swegon CASA R120 R




Swegon CASA R120 L




## Wall mounting bracket




| Duct Connections | | | | |
|---|---|---|---|---|
| **1** | **2** | **3** | **4** | **5** |
| Supply air ∅ 160 | Extract air ∅ 160 | Outdoor air ∅ 160 | Exhaust air ∅ 160 | Cooker hood's exhaust air ∅ 125 |

**Weight:** 78 kg.

# Ordering key

## Ventilation unit

| | |
|---|---|
| Ventilation unit Swegon CASA R120 Premium EC | |
| R right-hand version | 10212RRE |
| L left-hand version | 10212RLE |
| | |
| Ventilation unit Swegon CASA R120 Premium EC (with electric reheating) | |
| R right-hand version | 10212RREL |
| L left-hand version | 10212RLEL |

## Control

| | |
|---|---|
| Premium control panel, EN, SE, FI, NO, DE, FR (incl. 20 m long modular cable) | PSP148 |

## Optional equipment

| | |
|---|---|
| Humidity sensor | 117KKH |
| Carbon dioxide sensor | 117HDL |
| Temperature thermostat | 117T |
| Presence detector | 102LT |
| Fireplace switch | 102TKC |
| Weekly timer/24-hour timer | 105A1 |
| Boost switch with timer | 105TK |
| Modbus gateway | PMB |
| Room temperature sensor | PRTG |
| 20 m modular cable with RJ9 connector | PMK20 |
| Reheating cassette (R/L) | 10212RVM |
| Filter set, 1 pc. G3 + 2 pcs. F7 | 10212RSS |
| Ceiling mounting frame (R/L) | 10212KA |
| Mounting frame with moisture barrier | 10212YP |
| Water trap | UVL |

## System products

- Cooker hoods
- Supply air diffusers and extract air registers
- Sound attenuator
- Ceiling penetration seal for duct, set of 5 pcs.

| | |
|---|---|
| ∅ 100 mm | 102LT10 |
| ∅ 125 mm | 102LT12 |
| ∅ 160 mm | 102LT16 |