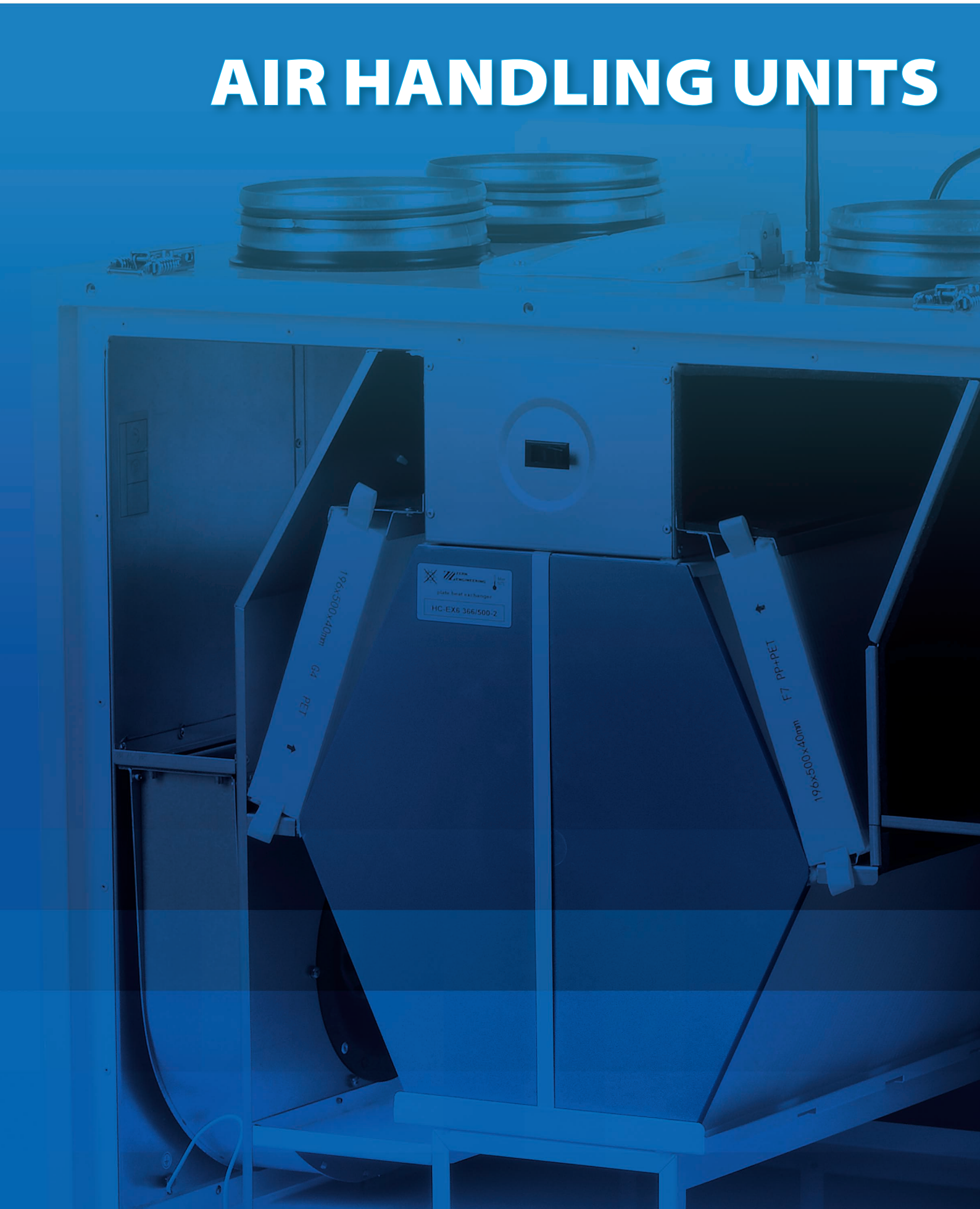
2024

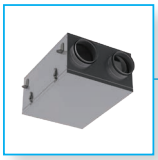
VENTS

# AIR HANDLING UNITS



# AIR HANDLING UNITS WITH HEAT RECOVERY

## COMPACT HEAT RECOVERY AIR HANDLING UNITS



**VENTS VUT 100 P mini/VENTS VUE 100 P mini**
**Air handling units with heat recovery**
Air flow – up to 100 m³/h

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**VENTS VUT/VUE 250 V mini/VUT/VUE 250 H mini**
**Air handling units with heat recovery**
Air flow – up to 250 m³/h

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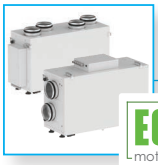


**VENTS VUT V2/H2 mini EC, VENTS VUE V2/H2 mini EC**
**Air handling unit with heat recovery and EC motor**
Air flow – up to 300 m³/h

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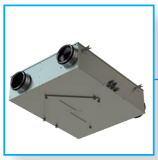
## HEAT RECOVERY AIR HANDLING UNITS IN EPP CASING



**VENTS VUE P3**
**Air handling units with heat recovery**
Air flow – up to 400 m³/h

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**VENTS VUE P3B EC**
**Air handling units with heat recovery**
Air flow – up to 400 m³/h

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**VENTS Enave-C 100 P A14**
**Air handling units with heat recovery**
Air flow – up to 136 m³/h

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**VENTS Enave P**
**Air handling units with heat recovery**
Air flow – up to 313 m³/h

page 30

## AIR HANDLING UNIT WITH HEAT RECOVERY

**VENTS VUT PB EC**
**Air handling unit with heat recovery and EC motor**

Air flow – up to 410 m³/h

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**VENTS VUT VB EC/VENTS VUE VB EC**
**Air handling unit with heat recovery and EC motor**

Air flow – up to 690 m³/h

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**VENTS VUT/VUE HB EC/VENTS VUT/VUE HBE EC**
**Air handling units with heat recovery**

Air flow – up to 830 m³/h

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**VENTS VUT PBE EC/VENTS VUT PBW EC**
**Air handling unit with heat recovery and EC motor**

Air flow – up to 4300 m³/h

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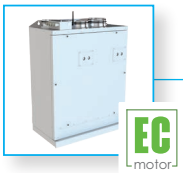
## AIR HANDLING UNITS WITH ROTARY HEAT EXCHANGER



**Vents VUTR 200 VK EC**
**Air handling units with heat recovery**
Air flow – up to 270 m³/h

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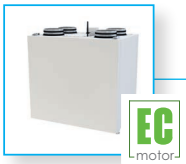

**VENTS VUTR VE EC**
**Air handling unit with heat recovery and EC motor**
Air flow – up to 670 m³/h

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**VENTS VUTR PE EC**
**Air handling unit with heat recovery and EC motor**
Air flow – up to 710 m³/h

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**VUTR EH EC/VUTR WH EC**
**Air handling unit with heat recovery and EC motor**
Air flow – up to 2250 m³/h

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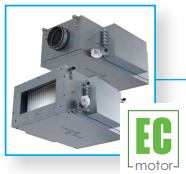
## SUPPLY UNITS, EXHAUST UNITS



**VENTS MPA 300-700 E EC A31,**
**VENTS MPA 1000-4000 E EC A31 series supply units**
Air flow – up to 5000 m³/h

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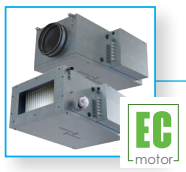

**VENTS MPA 700 W EC A31,**
**VENTS MPA 1000-4000 W EC A31 series supply units**
Air flow – up to 4950 m³/h

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## ACCESSORIES

# WELCOME TO THE WORLD OF VENTS!

- The company's product range includes over 50,000 items
- Over the years the company has produced 100 million fans
- The production facilities spread across 150,000 square meters of territory
- The company employs more than 3,500 professionals involved in the entire life cycle of creating ventilation equipment – from concept to high-tech product
- Among other assets the facilities include the climatic equipment research and development centre and a suite of state-of-the-art laboratories manned by 200 engineers
- The company utilises the latest metal and polymer processing technology
- 99 % of our products are made in-house
- We are the only company in the industry which develops and builds 85 % of its ventilation equipment components

Being the world's ventilation leader VENTS offers a wide range of cutting-edge ventilation equipment to satisfy most demanding customers. Since the inception, the company's products have become popular in more than 100 countries worldwide while the VENTS brand has earned a solid reputation for quality, reliability and innovation. Every tenth domestic fan in the world rolled off the assembly line of the VENTS factory. Every time you buy a product carrying the VENTS brand you can be confident that you have made the right choice. Thanks to a comprehensive range of ventilation equipment for home, commercial and industrial applications you can always find the necessary equipment and components to suit your needs. The climatic engineering and design solutions department is tasked with developing bespoke ventilation and air conditioning systems for even the most challenging projects.

## Technology of the future

The VENTS factory is not just about state-of-the-art production lines equipped with processing machines from the leading global suppliers. Today this is a full-on research and development facility spreading across 150,000 square metres of territory which includes a climatic equipment research and development centre and a comprehensive suite of state-of-the-art laboratories.

The full-time staff of more than 200 engineers are continuously seeking to improve the VENTS products. The company utilises cutting-edge metal and polymer processing technology manufacturing 99 % of its products in-house.

We are the only company in the industry which develops and builds 85 % of its ventilation equipment components including electric motors, heat exchangers as well as control and automation equipment.


## Getting better every day

The world of today is nothing but stable or permanent. Each day the market comes up with new expectations with regards to ventilation equipment quality and performance. Therefore, VENTS places a strong emphasis on constant development and improvement.

To this end the company has adopted a policy which includes continuous upgrades to its process equipment fleet, implementing the latest in manufacturing technology, and holding regular training workshops for its staff. Not only does this help us keep abreast with the times – these efforts help us to exceed our customers' expectations.

## Uncompromising quality

VENTS maintains a stringent quality control system to make sure that its products always meet most demanding international standards as confirmed by numerous certificates issued by the world's largest and most reputable organisations for quality control.The VENTS production process is certified according to ISO 9001:2015 international standard for quality management systems of organizations and enterprises. The company operates in accordance with all the applicable environmental standards and continuously implements new technology in order to ensure compliance with the latest environmental regulations.

## Energy efficiency and energy saving

Energy resources are finite and costly. This is why energy-saving is among the company's top priorities. We pay a special attention to using heat and electricity in the most efficient manner which helps us reduce the environmental footprint of the manufacturing process and develop more competitive products. The outstanding energy efficiency and low power consumption of our ventilation equipment are achieved by using high-performance EC motors and heat exchangers.

## Human resources: a valuable asset

Besides maintaining technical leadership and developing new technology the company also values the people that it owes its success to.

Today VENTS employs more than 3,500 professionals involved in the entire life cycle of ventilation equipment creation – from concept to high-tech product. The company strives to create a comfortable working environment for its employees to maximise their performance and encourage their professional and personal development.

## Responsible corporate citizen


Being a responsible corporate citizen VENTS takes an active part in various academic and charity initiatives. The company has a long history of cooperation with a number of educational establishments extending its support to talented youth.

The company takes an active part in student competitions and workshops sharing its wealth of practical knowledge and providing access to state-of-the-art ventilation equipment. The company employees participate in a range of charitable events and sporting competitions on a regular basis.

# Following the customer's lead

*VENTS uses its extensive research and technical capabilities to develop bespoke ventilation products and solutions for its customers from around the world.*

*Our products have earned a reputation for reliability being used in polar regions and in the Sahara desert, in the jungle of South-Eastern Asia and in the Pamir mountains.*

*Wherever our customers are they can always depend on prompt delivery thanks to our worldwide network of strategically located logistics centres.*

*The company's newest arrivals are presented by its engineers at numerous international exhibitions every year.*


***Welcome to the world of modern ventilation by VENTS!***

# VENTILATION IN OUR LIFE

## What Is Ventilation?

Ventilation is a set of actions and techniques used to arrange air exchange and to provide a specific air medium condition in the premises and in working places. Ventilation maintains desirable indoor climatic parameters in compliance with set hygienic norms and technology requirements.

## What Is Ventilation Required For?

We are surrounded with air and breathe in and out 20 000 litres of air every day. How much healthy is the air we breath in? There is a range of aspects to determine air quality.

- **Oxygen and carbon dioxide concentration in the air.** Oxygen decrease and carbon dioxide cause stuffiness in the premises.
- **Concentration of harmful substances and dust in the air.** High concentration of dust, tobacco smoke and other substances in the air is harmful for health and can cause various lung and skin diseases.
- **Odours.** Bad smell causes discomfort and irritates.
- **Air humidity.** Too high or low humidity makes us feel uncomfortable and even may provoke acute conditions. Air humidity is important also for inner climate. For instance, doors, window frames, furniture may shrink because of too low humidity in winter and get swollen in humid environments, e.g. in swimming-pools, bathrooms.
- **Air temperature.** The comfortable indoor temperature is within 21-23 °C. Higher or lower temperatures influence physical and mental activity and health condition.
- **Air motion.** Increased air motion in the premises causes drafts and low air motion causes air blanketing. Any of these factors influence our well-being.

## Ventilation system arrangement

Properly arranged ventilation system is the only solution in this situation. It provides supply of filtered air in summer and supply of filtered and warmed up air in winter as well as extract stale air removal from the premises.

Any ventilation system must include synchronous fresh air supply and extract air exhaust thus ensuring the ideal air balance in the room. In case of poor or unsufficient air intake from outside the oxygen content decreases, humidity and dustiness level increase. If exhaust ventilation is not provided or it is not efficient, polluted air, smells, humidity and harmful substances are not removed.

One more important factor for properly arranged ventilation system is joint operation of supply and exhaust air vents. If indoor ventilation is provided by air exhaust only, e.g. by an extract bathroom fan, the only possible air supply source is the gaps in windows, doors and construction elements. This uncontrollable air supply results in dust ingress, smells and draughts.

Ventilation grilles in the bathroom doors, wall or window vents, open windows are the only natural supply air sources that may compensate for air extraction. However mechanical ventilation is the only solution to provide central air supply in the rooms.

## Calculation of the required air exchange. Ventilation design recommendations

**Calculation of air exchange according to air exchange rate:**

Ventilation air volume is determined for each premise separately considering concentration of harmful substances. Alternatively, ventilation air volume calculated be set according to the research results. If the nature and concentration of harmful substances is not possible to determine, air exchanged is calculated as following:

$$L = V_{prem.} * Ach \quad [m^3/h],$$

where **V prem.** – premise volume [$m^3$];

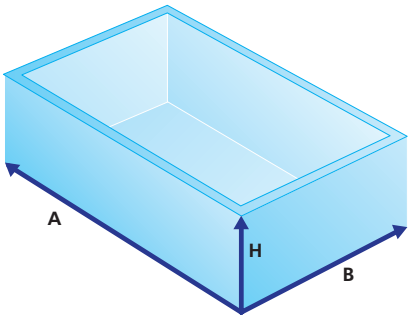
**Ach** – minimum air exchange per hour, refer air exchange table.

**How to determine a premise volume?**

Use a simple formula:

**length x width x height = volume of the premises in cubic meters**

**A x B x H = V [m³]**




Example: a premise with 7 m length, 4 m width and 2.8 m height. To determine the air volume required for ventilation of this premises, calculate the room volume 7x4x2.8=78.4 m³. After that determine the required efficiency of the fan using the following tables of recommended ventilation rate.

**Calculation of air exchange according to number of inhabitants:**

$$L = L_1 * N_L \quad [m^3/hour],$$

where $L_1$ – rated value for air volume per one person, m³/h*person;
$N_L$ – number of inhabitants in the premises

| |
|---|
| 20-25 m³/h per one person at low physical activity |
| 45 m³/h per one person at light physical activity |
| 60 m³/h per one person at heavy physical activity |

**Calculation of air exchange with vapor emission:**

$$L = \frac{D}{(d_v - d_n) * \rho} \quad [m^3/hour]$$

**D**: moisture, g/hour
$d_v$: moisture content in the exhaust air, gram of water/kg of air
$d_n$: moisture content in the intake air, gram of water/kg of air
**ρ**: air density, kg/m³ (at 20 °C = 1.205 kg/m³)

**Calculation of air exchange to remove excessive heat:**

$$L = \frac{Q}{\rho * C_p * (t_v - t_n)} \quad [m^3/hour]$$

**Q**: heat emission in the premises, kW
$t_v$: exhaust air temperature, °C
$t_n$: intake air temperature, °C
**ρ**: air density [kg/m³] at 20°C = 1.205 kg/m³
$C_p$: heat capacity of air [kJ/(kg.K)] at 20 °C; $C_p$=1.005 kJ/(kg.K)

**Air ventilation rate:**

| | Premise | Air exchange rate |
|---|---|---|
| Domestic premises | Living room of apartments or hostel residential premises | 3 m³/h for 1 m² in residential premises |
| | Kitchen in flat or hostel | 6-8 |
| | Bathroom | 7-9 |
| | Shower cabin | 7-9 |
| | WC | 8-10 |
| | Home laundry room | 7 |
| | Cloakroom | 1.5 |
| | Storeroom | 1 |
| | Garage | 4-8 |
| | Cellar | 4-6 |
| Industrial premises and large premises | Theatre, cinema, confrence hall | 20-40 m³ per each visitor |
| | Office | 5-7 |
| | Bank | 2-4 |
| | Restaurant | 8-10 |
| | Bar, café, pub, billiard room | 9-11 |
| | Professional kitchen | 10-15 |
| | Supermarket | 1.5-3 |
| | Chemist's | 3 |
| | Garages and vehicle repair shops | 6-8 |
| | Public WC | 10-12 (or 100 m³ per each WC pan) |
| | Dance halls and disco clubs | 8-10 |
| | Smoking rooms | 10 |
| | Server rooms | 5-10 |
| | Sport hall | 80 m³ or more for each sportsman and 20 m³ or more for each viewer |
| | Hair dresser's | |
| | Up to 5 working places | 2 |
| | More than 5 working places | 3 |
| | Warehouses | 1-2 |
| | Laundryroom | 10-13 |
| | Swimming pool | 10-20 |
| | Industrial painting shop | 25-40 |
| | Machine shop | 3-5 |
| | School classroom | 3-8 |

**Calculation of air exchange depending on maximum permissible concentration of aggressive substances in the air:**

$$L = \frac{G_{CO_2}}{U_{PDK} - U_P} \quad [m^3/hour]$$

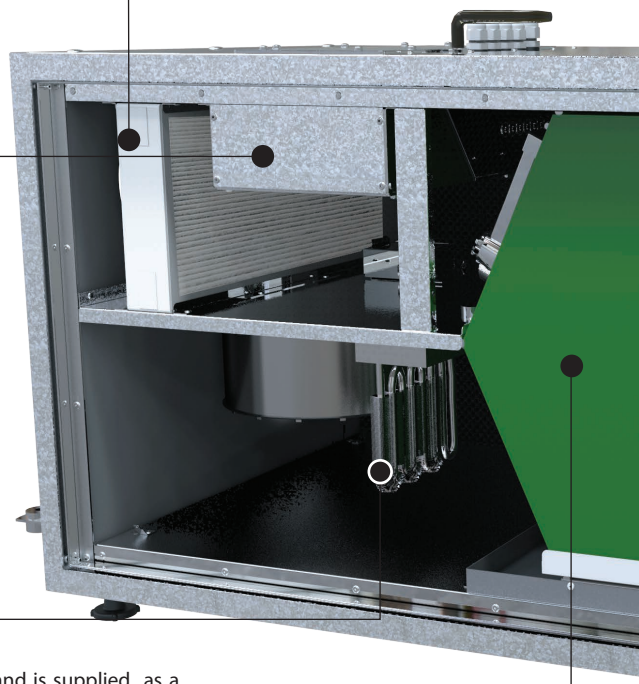
$G_{CO2}$: $CO_2$ release amount [l/hour]
$U_{PDK}$: $CO_2$ maximum permissible concentration, l/m³
$U_P$: gas concentration in the intake air, l/hour

**Automation**

The **VUT 300 EH EC A21** units are equipped with integrated control system. The A21 controller allows integrating the unit into the **Smart Home system** or **BMS (Building Management Systems)**.

**Filter**

High degree of air purification is achieved due to G4-F7 incorporated panel type filters on metal frames. Filter size match the European Norms and Standards. Filter clogging control by means of integrated automation system as well as filter easy removal and cleaning ensure their quality and durability.



**Heater:**

Electric heater is designed for air handling unit operation at low outside temperature and is supplied as a standard.

Electric heater is made of heat-resisting stainless steel ribbed to increase the heat exchange surface area and equipped with two overheating protecting thermostats.

**Heat exchanger (recuperator)**

Plate heat exchanger with a great surface area and high efficiency made of polystyrene. The extract air transfers heat to the plates and the plates transfer heat to supply air flow. The heat exchange efficiency is up to 95 % which allows reducing heating costs. The supply and extract air flows do not get mixed which ensures no contamination, odours, microbes transfer. By-pass damper provides switching to no heat recovery mode if required.

Heat recovery

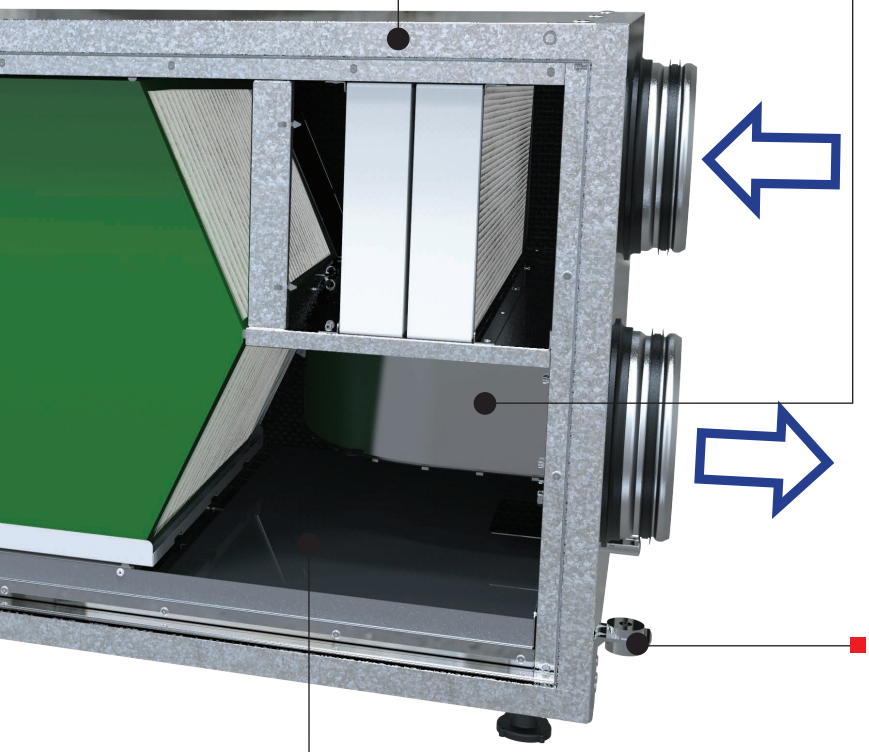
Control system

Effective insulation

**Photo:**
**VUT 300 EH EC A21**

**Casing**

The casing is made of two-layers aluminum-zinc compound internally filled with the mineral wool layer for heat and sound insulation. The internal sheet is made of aluminum-zinc steel plates with varnish coating to ensure long service life. The internal galvanized steel plate provides the surface hygienic purity of the unit and disables dirt accumulation on the panel. The side panels can be easily removed for inspection and service of all the unit elements.



**Fan with EC motor:**

BLAUBERG Motoren

- Air supply and exhaust is effected by means of two centrifugal single-inlet EC fans equipped with forward curved blades.
- EC motor is a synchronous brushless electronically commutated motor. EC motors have energy consumption by up to 50 % less as compared to standard motors of the same capacity. The operating costs for their maintenance are by 30 % less.
- Such fan design ensures minimum noise level combined with high capacity.

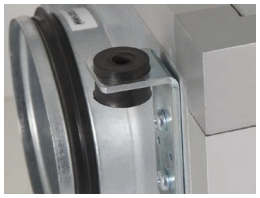
**Anti-vibration rubber mount:**

Mounting the unit onto the rubber anti-vibration mounts makes its operation totally quiet and vibration-free and disables vibration transfer to buildings.

**Drain pan:**

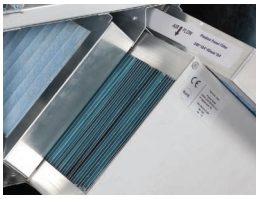
The unit is equipped with the drain pan of painted steel for condensate collection. Draining pipes for condensate drainage on the bottom are connected to the draining system.

Simple installation



Energy-saving EC motors

Easy maintenance



The issue of ventilation from the point of view of thermal energy saving (maintaining permanent temperature) is the most essential subject. The factors that influence the heat loss dynamics vary from wall thermal protection to heaters and heating system quality, density of wall panels joints and window joints as well as personal consumption habits.

In modern buildings ventilation demands up to 45 % of the total heat energy consumption. The reasons are as follows:

a) One half of air volume is exchanged through the open window within 30-60 min. During this process the heat losses grow tremendously;

b) Energy saving houses are equipped with all available facilities for sealing and thermal isolation of the buildings. Such houses are so well insulated that the heat loss through the walls makes only 30 to 40 % of the total amount.

Thus the heat losses caused by ventilation process remove 2/3 of the total heat. So we come to the point of providing air exchange with minimum heat losses. From 30 % to 70 % of heat loss is variously estimated for the traditional for residential houses exhaust ventilation. Controllable air exchange and heat recovery are the compulsory attributes in the modern construction that are ensured by means of air handling units. The forced ventilation allows recuperating up to 90 % of the exhaust air heat. Such effect is attained due to installation of the heat exchanger (recuperator).

The heat exchanger allows saving heat in winter period and contributes to better operation of air conditioners jointly with ventilation system in summer period. In addition the heat exchangers have heat- and soundinsulated casing that reduces the noise level produced by equipment in the room. As of today the ventilation systems based on heat exchangers are the most state-of-the-art and progressive solution for air exchange arranging in the premises.

Due to recuperation of the unit its owner can save good money for operation costs. Use of the ventilation units with heat recovery jointly with the air conditioning systems is not only the most effective way to arrange the required microclimate in the room but to cut costs as well. In winter the heat exchanger saves heat and in summer it saves cool.

The plate heat exchanger of cross-flow or counter-flow type is the simplest one and contains no movable parts and electrical connections; it separates the air streams fully; maintenance-free and requires no additional energy consumption.

Utilization of units with heat recovery in ventilation systems results in shortening of payback period and improving its ecological charactristics in view of low energy demand, low investment for heat energy generation and its distribution, careful attitude to environment.

New series of compact air handling units with EC (electronically commutated) motors provide energy consumption reducing up to 50 % as compared to traditional asynchronous motors. Operating costs will be by 30 % in general reduced.

Fans with EC motors have the folowing advantages:

- efficient operation at any rotation speed of fan impeller (up to zero) and significant winding electrical resistance;
- low heat generation that enables reducing performance losses of refrigeration equipment and compensate for heat generation of fan motors in case of utilization of EC motor fans in conditioning systems;
- fan overall dimensions can be reduced in case of the design with external rotor and EC motor advantages. Consequently the disadvantages related to large-scale overall dimensions that are typical for fans with standard motors are minimized;
- the maximum motor speed does not depend upon frequency (operation both at 50 Hz and 60 Hz is possible);
- high efficiency at low speed;
- design with external rotor to make it compact.

**Structure and operating principle of the plate heat exchangers**

The design of the plate heat exchangers is such as to exclude the transfer of contaminants, odours and microbes from the exhaust air flow to the supply air flow as both warm (exhaust) and cold (supply) air flows are divided by wall elements of heat exchanger plates made of aluminium or polystyrene. Thermal energy quantity that is transfered from the exhaust air to the supply air depends exclusively on the thermal conductivity of the applied materials and temperature difference between two flows. Concurrently the warm exhaust air is heated and the cold supply air is cooled.

Though there is no moisture exchange between the extract and supply air streams, a part of latent wet extract air energy is used for heat recovery. In case of low outside temperature and high extract air temperature the exhaust air temperature can drop down to dew point. Thus condensate is generated and the latent evaporation heat is released. During condensate generation the temperature difference between the warm and cold air streams in the heat exchanger is higher as compared to the process with no condensate. Thus that means higher heat energy extraction and higher heat recovery efficiency.

For that reason free condensate drainage shall be provided.

Use of plate heat exchangers in ventilation system results in shorter payback period and better ecological characteristics ensuring the further advantages:

- low energy demand;
- low investment for thermal energy generation and its distribution;
- no removable parts which means durability and long service life at continuous operation;
- high-efficient heat recovery and little investment result in high self-repayment;
- environmental protection.

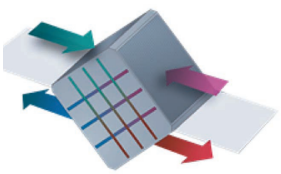


**Plate cross-flow heat exchanger operating logic**

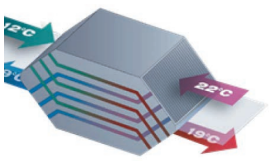



**Plate counter-flow heat exchanger operating logic**

Series

# VENTS VUT(E) 100 P mini

A3 speed switch

Air handling units with heat recovery in the compact sound- and heat-insulated casing. Air flow up to **100 m³/h.**
Heat recovery efficiency from 64 up to 76 %.

## Description

Compact ventilation unit VUE 100 P mini is a simple and effective energy-saving solution ventilation of apartments, cottages, single-family houses.
The unit is a fully-featured ventilation unit that provides air cleaning, fresh air supply to the premise and removal of extract air from the premise. Built-in heat exchanger prevents heat losses and saves operating costs for heating in winter and air conditioning in summer.

## Casing

The casing is made of corrosion-resistant alumozink and sound-insulated with 15 mm cellular polyethylene layer. For easy mounting the casing is fitted with mounting brackets. The unit is equipped with two backdraft dampers, one in the supply and the other in the exhaust air duct.

## Filter

Supply and extract air flows are purified through two filters with filtering class G4.

## Fans

The **VUT 100 P mini** is equipped with reliable supply and exhaust fans with forward curved blades that are powered by motors with low energy demand.

## Heat exchanger

The unit is equipped with a high-efficient cross-flow plastic heat exchanger and a drain pan for condensate drainage. The **VUE 100 P mini** is equipped with an enthalpy cros-flow heat exchanger.

## Control

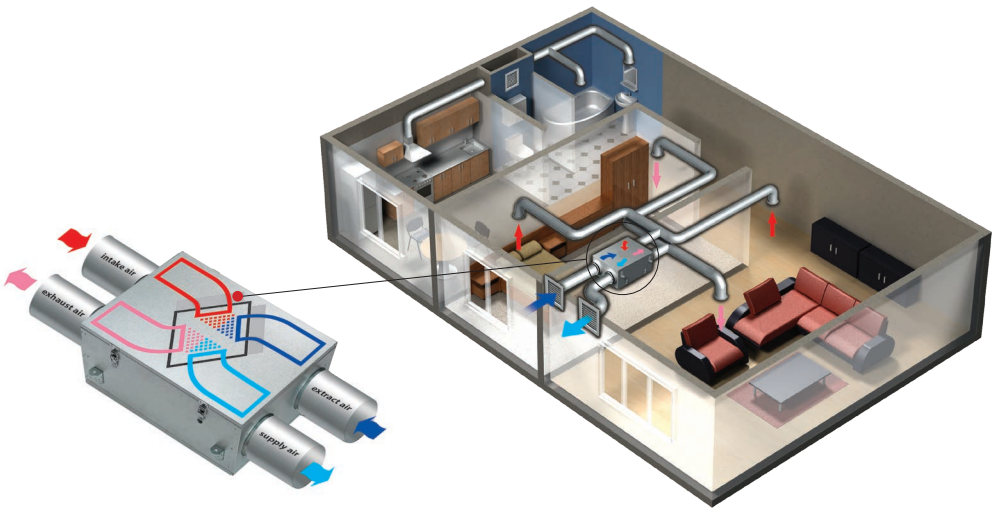
Air flow (speed) is regulated with A3 (P3-1-300) speed switch.

## Heat exchanger protection

For frost protection at low temperatures the unit is equipped with a thermostat inside the casing that switches the supply fan off in case of freezing danger to let extract air warm up the heat exchanger.

## Mounting

Due to the compact casing height the unit is designed for horizontal indoor installation behind suspended ceilings and connection to Ø 125 mm round air ducts.




**Accessories for air handling units**

| Model | G4 panel filter | Summer blocks | Silencers | | Back valves | Air dampers |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| VUT 100 P mini<br>VUE 100 P mini | SF 200x190x18 G4 | SB C4 200/190 | SR 125 600/900/1200 | SRF 125 600/900/1200 | KOM 125 | KR 125 |

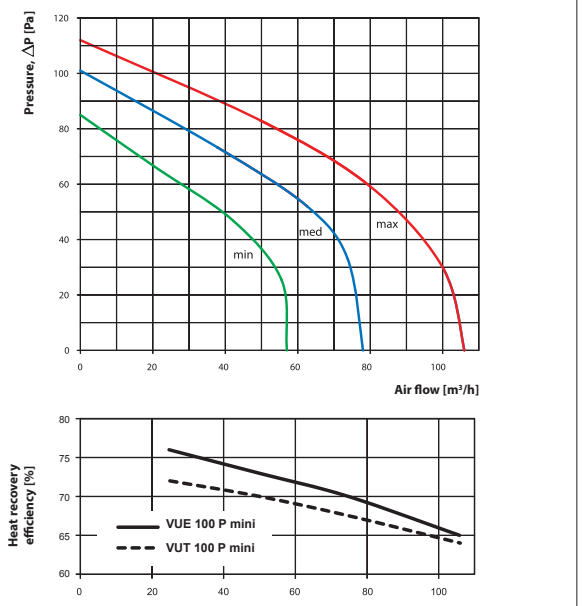
**Designation key**

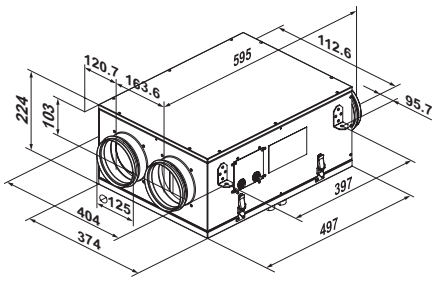
| Series | Rated air flow [m³/h] | Mounting type | Type |
|---|---|---|---|
| **VUT**: ventilation with heat recovery<br>**VUE**: ventilation with energy recovery | 100 | **P**: suspended | **mini** |

**Technical data**

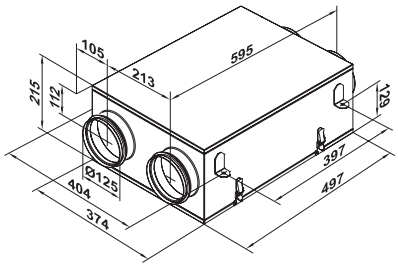
| | VUT 100 P mini | | | VUE 100 P mini | | |
|---|---|---|---|---|---|---|
| Speed | min. | med. | max. | min. | med. | max. |
| Voltage [V/Hz] | 1~230/50 | | | 1~230/50 | | |
| Unit power [W] | 30 | 38 | 56 | 30 | 38 | 56 |
| Unit current [A] | 0.18 | 0.23 | 0.34 | 0.18 | 0.23 | 0.34 |
| Air flow [m³/h] | 55 | 74 | 100 | 55 | 74 | 100 |
| Noise level at 3m [dBA] | 24 | 32 | 41 | 24 | 32 | 41 |
| Transported air temperature [°C] | -25...+40 | | | | | |
| Casing material | aluzinc | | | | | |
| Insulation | 15 mm cellular polyethylene | | | | | |
| Filter: extract /supply | G4/G4 | | | | | |
| Connected air duct diameter [mm] | Ø 125 | | | | | |
| Weight [kg] | 13 | | | 10 | | |
| Heat recovery efficiency | from 65 up to 76 % | | | from 64 up to 72 % | | |
| Heat exchanger type | cross-flow | | | | | |
| Heat exchanger material | plastic | | | enthalpy | | |

**VENTS VUT 100 P mini/VENTS VUE 100 P mini**




**VUT 100 P mini**




**VUE 100 P mini**

Series
## VENTS VUT/VUE 250 V mini

Air handling units in compact sound- and heat-insulated casing with vertical duct connections.
Maximum air flow – **260 m³/h**

Series
## VENTS VUT/VUE 250 H mini

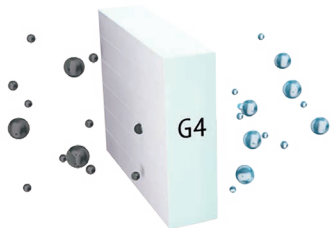
Air handling units in compact sound- and heat-insulated casing with horizontal duct connections.
Maximum air flow – **260 m³/h**

### Description
The **VUT/VUE 250 H/V mini A1** air handling units are the fully-featured ventilation units that ensure air filtration, fresh air supply and stale air extract. During the operation process the extract air heat is transferred to the supply air through the plate heat exchanger.

### Modifications
**VUT 250 V mini**: models with vertical duct connections, fans with AC motors with polystyrene heat exchanger.
**VUT 250 H mini**: models with horizontal duct connections, fans with AC motors with polystyrene heat exchanger.
**VUE 250 V mini**: models with vertical duct connections, fans with AC motors with a heat exchanger made of enthalpy.
**VUE 250 H mini**: models with horizontal duct connections, fans with AC motors with a heat exchanger made of enthalpy.

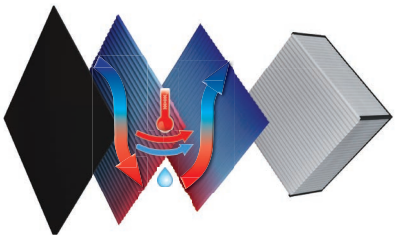
### Casing
The casing of the VUT/VUE 250 V/H unit is made of aluzinc steel, internally filled with 20 mm mineral wool heat- and sound-insulating layer.

### Filter
Two built-in filters with filtering class G4 provide efficient supply and extract air filtration. F8 filter is available as an option for supply air filtration.

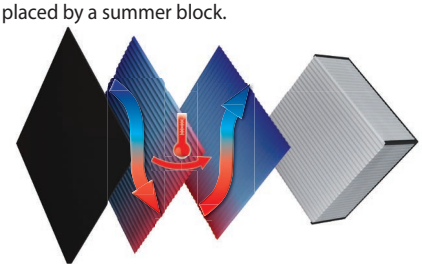



### Fans
The unit is equipped with a supply and exhaust centrifugal fan with backward curved blades and integrated overheating protection thermostat with automatic restart. The motors and the impellers are dynamically balanced.

### Heat exchanger
**VUE mini**: plate heat exchanger made of enthalpy with heat recovery efficiency up to 78 %. The applied heat exchanger enables not only heat but also humidity recovery, which helps maintaining a comfortable humidity level.



**VUT mini**: plate heat exchanger made of polystyrene. Whenever heat recovery is not required for unit operation, the heat exchanger block can be easily replaced by a summer block.



To prevent the heat exchanger freezing, electronic protection system is applied. It switches the supply fan off as the temperature sensor requires.

### Control
The unit is equipped with the A1 control panel. Speed and rotation control of the single-phase power-controlled motors allows turning the unit on/off and controlling its capacity.

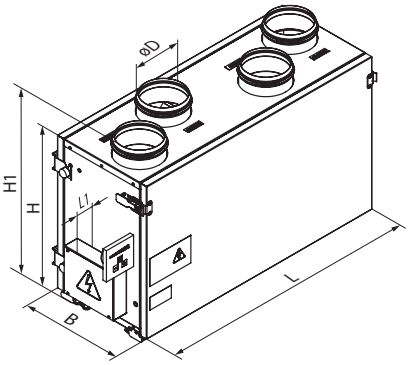
### Installation
Mounting to wall, floor or ceiling with fixing brackets. While mounting provide free access to the service panel for filter replacement and servicing. The correct mounted unit must provide condensate collecting and drainage.

**Designation key**

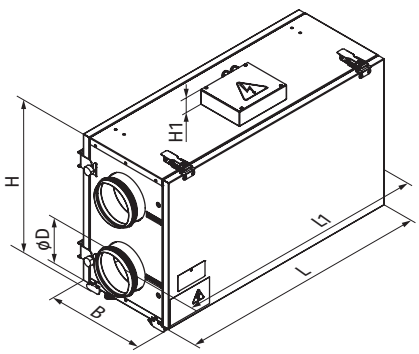
| Series | Rated air flow [m³/h] | Spigot modification | Model | Casing colour | Integrated automation system |
|---|---|---|---|---|---|
| **VUT**: ventilation with heat recovery<br>**VUE**: ventilation with energy recovery | 250 | **V**: vertical<br>**H**: horizontal | **mini** | _: aluzinc<br>**White**: white painted | **A1**: control panel |

### Overall dimensions of units

| Model | Dimensions [mm] | | | | | |
|---|---|---|---|---|---|---|
| | ØD | B | H | H1 | L | L1 |
| VUT/VUE 250 V mini | 125 | 300 | 443 | 490 | 713 | 43 |
| VUT/VUE 250 H mini | 125 | 300 | 443 | 43 | 713 | 810 |




VUT/VUE ... V mini

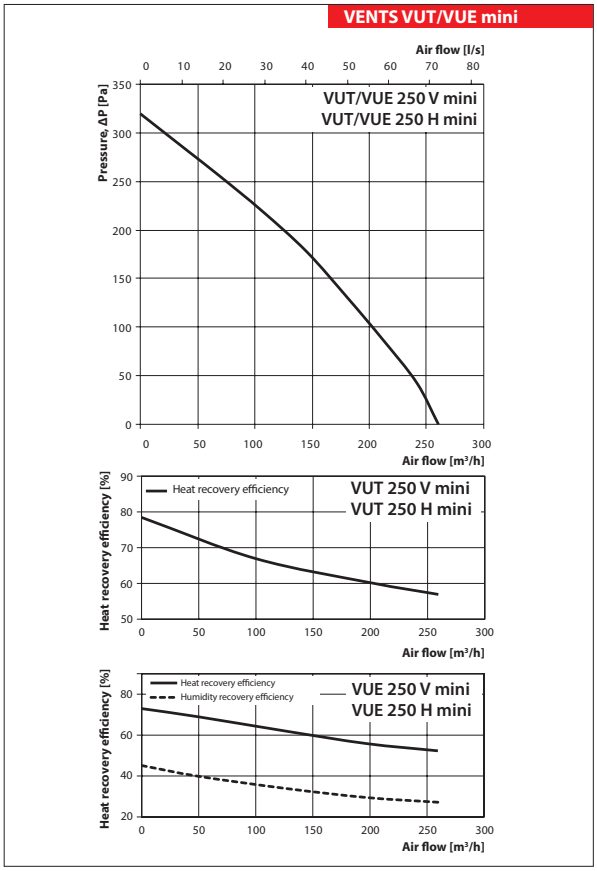



VUT/VUE ... H mini

### Technical data

| | VUT 250 V mini<br>VUT 250 H mini | VUE 250 V mini<br>VUE 250 H mini |
|---|---|---|
| Unit voltage [V/50 (60) Hz] | 1~230 | |
| Power [W] | 126 | |
| Current [A] | 0.6 | |
| Maximum air flow [m³/h] | 260 | |
| Sound pressure level at 3 m distance [dBA] | 28-47 | |
| Transported air temperature [°C] | -25...+40 | |
| Insulation | 20 mm mineral wool | |
| Filter: extract | G4 | |
| Filter: supply | G4 (F8 PM2.5 81 % – option) | |
| Connected air duct diameter [mm] | ⌀125 | |
| Heat recovery efficiency* [%] | 57-78 | 52-73 |
| Humidity recovery efficiency* [%] | - | 27-45 |
| Heat exchanger type | cross-flow | |
| Heat exchanger material | polystyrene | enthalpy |

*Heat recovery efficiency is specified in compliance with EN308 EU.




### Accessories for air handling units

| Model | G4 panel filter | F8 panel filter | Silencers | | Back valves | Air dampers |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| VUT 250 V mini A1<br>VUE 250 V mini A1<br>VUT 250 H mini A1<br>VUE 250 H mini A1 | SF 240x184x40 G4 | SF 240x184x40 F8 | SR 125 | SRF 125 | KOM 125 | KR 125 |

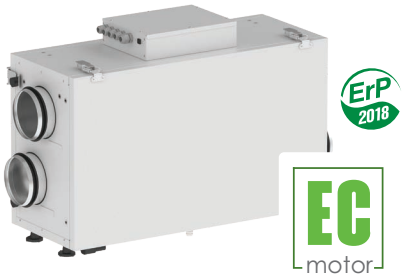
Series

## VENTS VUT/ VUE V2 mini EC


Air handling units with air flow up to **300 m³/h**.
Heat recovery efficiency up to **79 %**.

Series

## VENTS VUT/ VUE H2 mini EC




Air handling units with air flow up to **300 m³/h**.
Heat recovery efficiency up to **79 %**.

### Description

The air handling units are the fully featured ventilation units with heat recovery for air filtration, fresh air supply and stale air extract. During operation the extract air heat is transferred to the supply air stream by the highly efficient plate heat exchanger.

### Casing

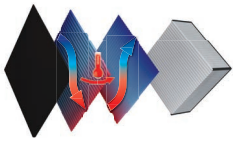
The casing of the VUT/VUE 300 V/H mini EC units is of aluzinc steel, internally filled with 20 mm mineral wool heat- and sound-insulating layer.

### Fans

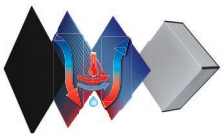
The units are equipped with high-efficient EC motors with an external rotor and forward curved blades.

### Heat exchanger

The **VUT V2/H2 mini EC** units are equipped with a cross-flow polystyrene heat exchanger.

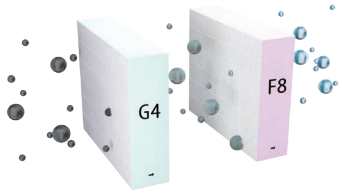


The **VUE V2/H2 mini EC** units are equipped with an enthalpy cross flow heat exchanger.



### Filter

Two built-in filters with filtration class G4 and F8 provide efficient supply air filtration. Extract air is cleaned by a built-in filter with filtration class G4.




### Control and automation

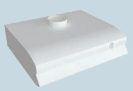
The VUT/VUE 300 H2/V2 mini EC A2 units are equipped with an A2 speed controller (R-1/010).
The VUT/VUE 300 H2/V2 mini EC A14 units are equipped with a remote control panel with touch buttons and LED indication.

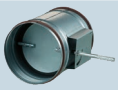

To prevent the heat exchanger freezing, electronic protection system is applied. It switches the supply fan off as the temperature sensor requires.

### Installation

Mounting to floor or wall with fixing brackets. The VUE 300 H2 mini EC can also be suspended to the ceiling. The VUT 300 H2 mini EC unit installation position must provide proper condensate drainage.

### Accessories

| Model | Panel filter G4 | Panel filter F8 | Indoor humidity sensor (0-10 V) | Outdoor $CO_2$ sensor with indication | Outdoor $CO_2$ sensor | Outdoor humidity sensor | Kitchen hood |
|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |
| VUT 300 V2/H2 mini EC A2<br>VUE 300 V2/H2 mini EC A2<br>VUT 300 V2/H2 mini EC A14<br>VUE 300 V2/H2 mini EC A14 | SF 240x184x40 G4 | SF 240x184x40 F8 | - | - | - | - | - |
| | | | HV-2 | CO2-1 | CO2-2 | HR-S | KH-1 |

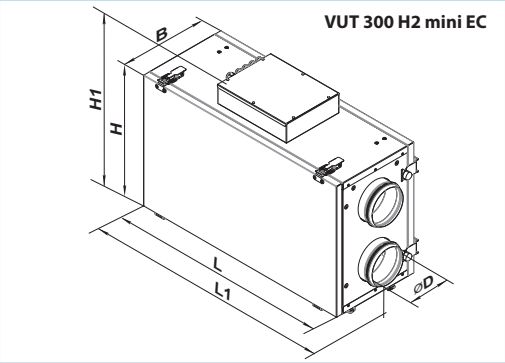
| Model | Silencers | | Back valves | Air dampers | Hydraulic U-trap | Electric actuator |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| VUT 300 V2/H2 mini EC A2<br>VUE 300 V2/H2 mini EC A2<br>VUT 300 V2/H2 mini EC A14<br>VUE 300 V2/H2 mini EC A14 | SR 125 | SRF 125 | KOM 125 | KRV 125 | SH-32 | -<br>LF230 |

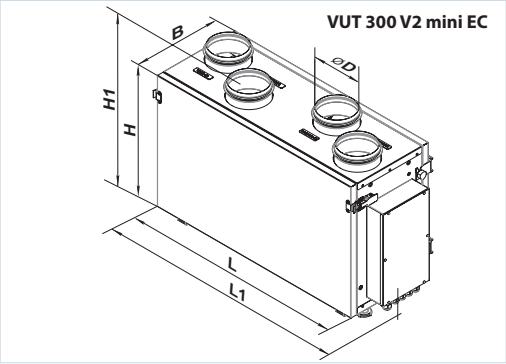
### Designation key

| Series | Rated air flow [m³/h] | Mounting type | Casing type | Model | Motor type | Casing colour | Control type |
|---|---|---|---|---|---|---|---|
| **VUT**: ventilation with heat recovery<br>**VUE**: ventilation with energy recovery | 300 | **V**: vertical installation<br>**H**: horizontal installation | **2**: 20 mm insulation | **mini** | **EC**: synchronous electronically commutated motor | _: aluzinc<br>**White**: white painted | **A2**: speed controller<br>**A14**: sensor control panel with LED indication |

## Overall dimensions

| Model | Dimensions [mm] | | | | | |
|---|---|---|---|---|---|---|
| | Ø D | B | H | H1 | L | L1 |
| VUT 300 V2 mini EC | 125 | 287 | 447 | 495 | 714 | 776 |
| VUT 300 H2 mini EC | | | | 510 | | 810 |

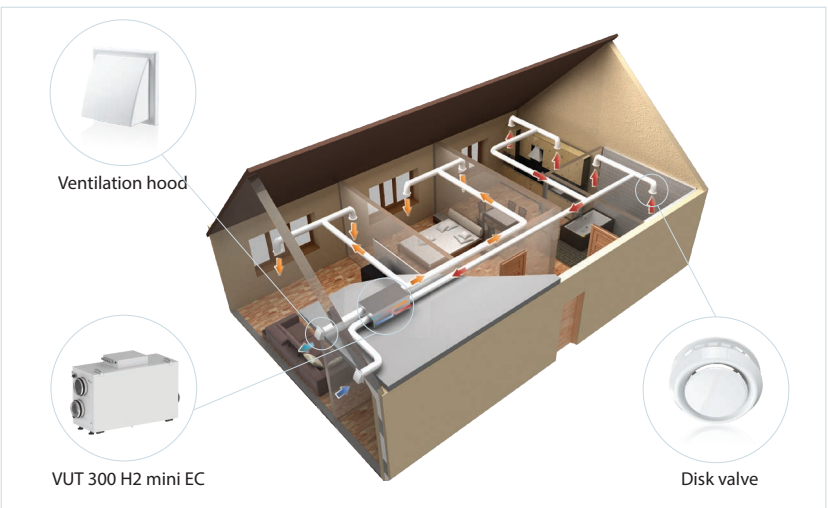


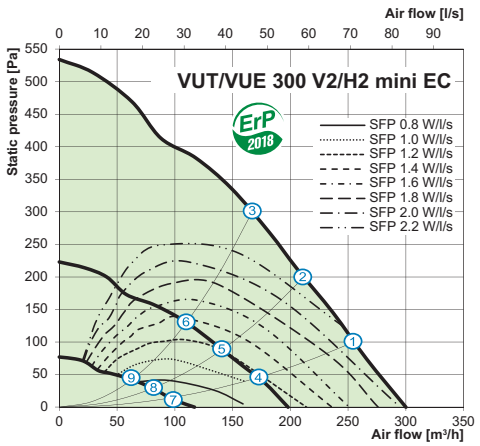

## Technical data

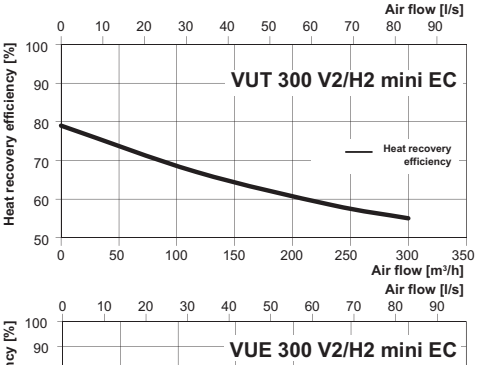
| | VUT 300 V2 mini EC<br>VUT 300 H2 mini EC | VUE 300 V2 mini EC<br>VUE 300 H2 mini EC |
|---|---|---|
| Voltage [V/Hz] | 1~230 | |
| Maximum unit power (without a heater) [W] | 165 | |
| Maximum unit current (without a heater) [A] | 1.3 | |
| Max. air flow [m³/h] | 300 | |
| Sound pressure level at a distance of 3 m [dBA] | 33 | |
| Transported air temperature [°C] | -25...+40 | |
| Insulation | 20 mm mineral wool | |
| Filter: extract filter | G4 | |
| Filter: supply filter | G4, F8 (PM2.5 87%) | |
| Connected air duct diameter [mm] | Ø125 | |
| Mass [kg] | 32 | 28 |
| Heat recovery efficiency [%] | from 55 up to 79 | from 51 up to 73 |
| Humidity recovery efficiency [%] | - | from 26 up to 45 |
| Heat exchanger type | cross-flow | |
| Heat exchanger material | polystyrene | enthalpy |
| SEC class (A2) | B | C |
| SEC class (A14) | A | A |

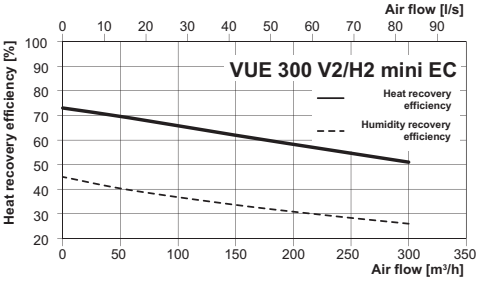
## Application options




**VENTS VUT/VUE V2/H2 MINI EC**

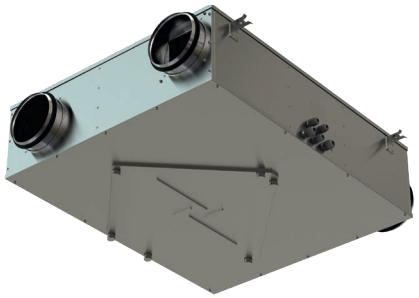



| A-weighted sound power level | | Gen. | Octave frequency band, Hz | | | | | | | | LpA, 3 m | LpA, 1 m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dBA | dBA |
| $L_{WA}$ to supply air inlet | dBA | 56 | 48 | 43 | 53 | 44 | 44 | 40 | 26 | 24 | | |
| $L_{WA}$ to supply air outlet | dBA | 71 | 53 | 53 | 68 | 65 | 60 | 59 | 52 | 51 | | |
| $L_{WA}$ to exhaust air inlet | dBA | 57 | 43 | 51 | 52 | 52 | 45 | 37 | 26 | 21 | | |
| $L_{WA}$ to exhaust air outlet | dBA | 72 | 53 | 60 | 66 | 67 | 61 | 62 | 55 | 48 | | |
| $L_{WA}$ surrounding | dBA | 53 | 33 | 44 | 47 | 50 | 44 | 38 | 29 | 24 | 33 | 43 |

Series
# VENTS VUE P3



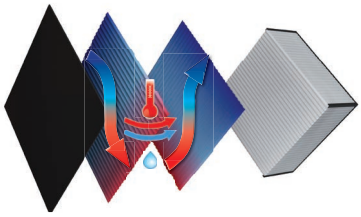
Heat recovery air handling units in heat- and sound-insulated casing with max. air flow **400 m³/h** and heat recovery efficiency **87 %**

## Application
The VUE P3 air-handling units are the fully featured ventilation units with heat recovery for air filtration, fresh air supply and stale air extract. Designed for application in various ventilation systems that require cost-saving and controllable ventilation.

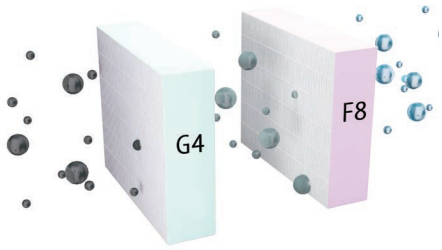
## Design
The casing is made of polymer coated steel panels, internally lined with 5 or 10 mm heat- and sound-insulating layer of cellular polyurethane.

## Fans
Single-phase external rotor motors with forward curved blades. The motors have overheating protection with automatic restart.

## Heat recovery
Enthalpy cross-flow heat exchanger with recovery efficiency to 87 %. The enthalpy heat exchanger enables not only heat, but also humidity recovery.



## Air filtration
Efficient supply air filtration with two built-in G4 and F8 panel filters. Extract air filtration with a panel G4 filter.



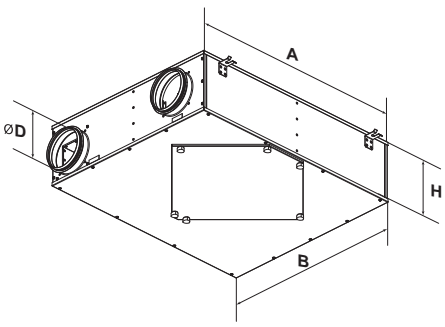

## Control and automation
The VUE P3 A1 unit is equipped with the speed controller RS-1-400.


## Frost protection
In case of freezing danger determined by the temperature sensor the supply fan is turned off to let extract air warm up the heat exchanger.

## Mounting
Due to low height of the casing the unit offers the optimum solution for the suspended ceiling installation in limited installation space.

**Overall dimensions [mm]**

| Model | A | B | H | ØD |
|---|---|---|---|---|
| VUE 150 P3 | 854 | 704 | 227 | 100 |
| VUE 250 P3 | 854 | 704 | 227 | 150 |
| VUE 350 P3 | 1024 | 754 | 277 | 150 |




**Accessories**

| Model | G4 panel filter | F8 panel filter |
|---|---|---|
| |  |  |
| VUE 150 P3 | SF 300 x 220 x 48 G4 | SF 300 x 220 x 48 F8 |
| VUE 250 P3 | | |
| VUE 350 P3 | SF 300 x 270 x 48 G4 | SF 300 x 270 x 48 F8 |

**Designation key**

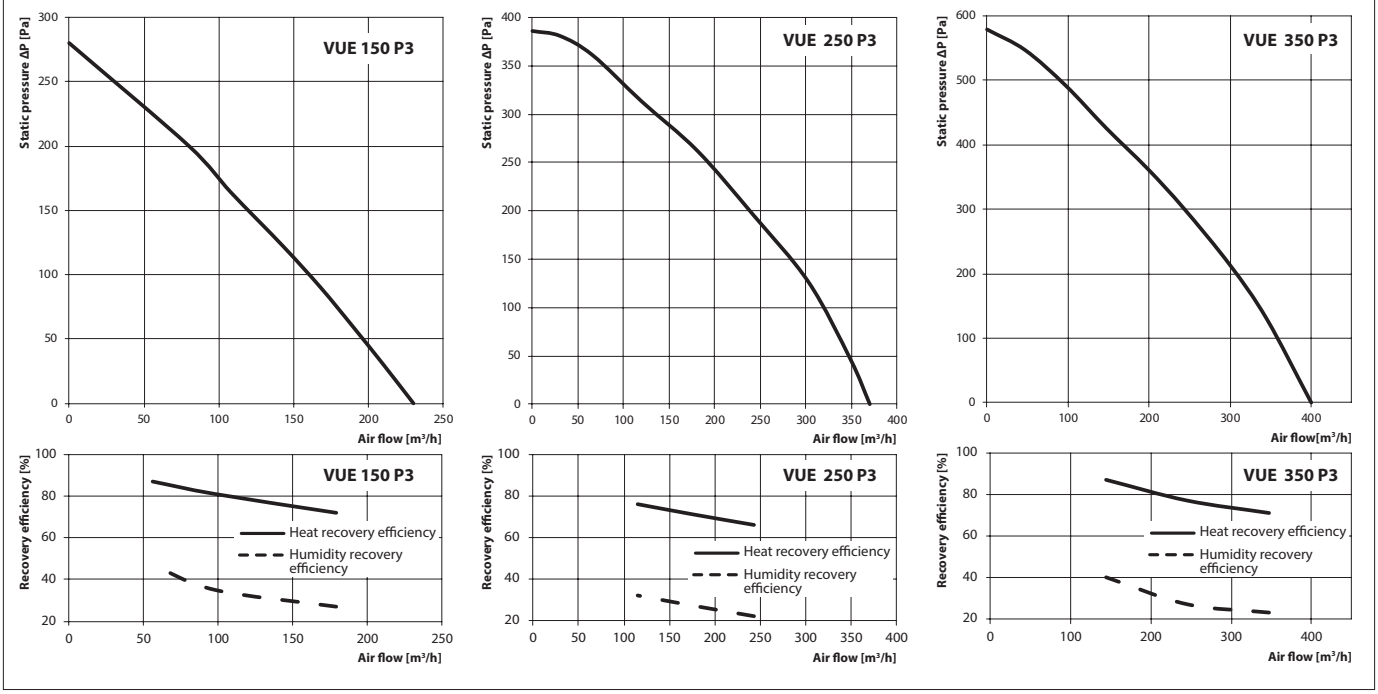
| Series | Rated air flow [m³/h] | Design features | Casing modification | Service side | Control panel |
|---|---|---|---|---|---|
| **VENTS VUE**: energy recovery ventilation | 150; 250; 350 | **P**: suspended mounting | **3**: low-profile unit | **L**: left<br>**R**: right | A1: speed switch RS-1-400 |

**Technical data**

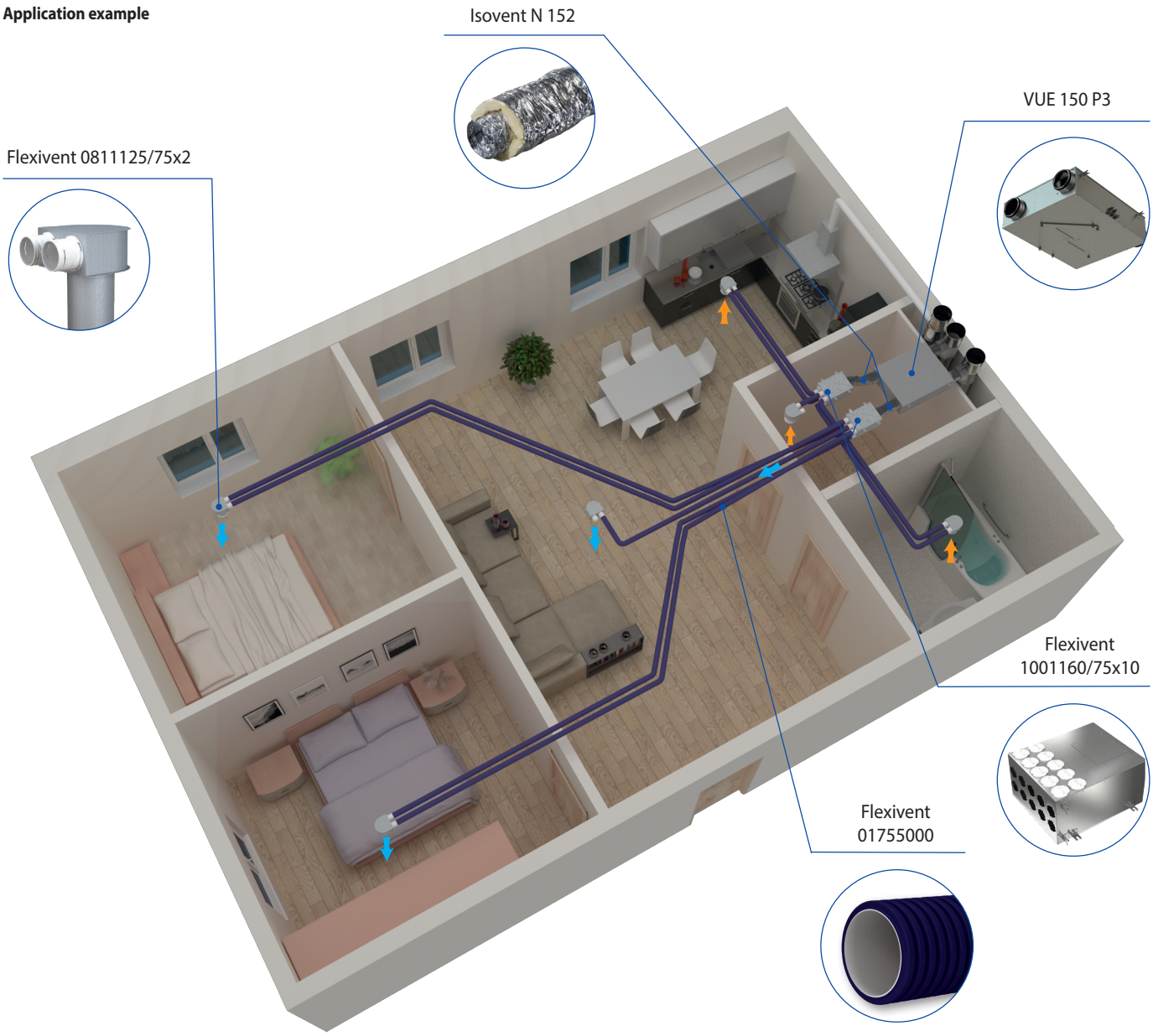
| | VUE 150 P3 | VUE 250 P3 | VUE 350 P3 |
|---|---|---|---|
| Unit supply [V/50 (60) Hz] | | 1~230 | |
| Power [W] | 125 | 250 | 310 |
| Current [A] | 0.6 | 1.1 | 1.4 |
| Max. air flow [m³/h] | 230 | 370 | 400 |
| Noise level at 3m [dBA] | 49 | 52 | 57 |
| Transported air temperature [˚C] | | -5...+40 | |
| Casing material | | polymer coated steel | |
| Insulation | | 5 mm, 10 mm polyurethane foam | |
| Extract filter | | G4 | |
| Supply filters | G4 and F8 (PM 2,5 93 %) | G4 and F8 (PM 2,5 83 %) | G4 and F8 (PM 2,5 87 %) |
| Connected air duct diameter [mm] | 100 | 150 | 150 |
| Heat recovery efficiency [%]* | 72 up to 87 | 66 up to 76 | 71 up to 87 |
| Humidity recovery efficiency [%] | 27 up to 47 | 22 up to 32 | 23 up to 40 |
| Heat exchanger type | | cross-flow | |
| Heat exchanger material | | enthalpy | |
| Mass [kg] | 26 | 29 | 42 |
| SEC class | D | E | E |

* Heat recovery efficiency is calculated in compliance with EN 13141-7

VENTS VUE P3



**Application example**



Series

# VENTS VUE P3B EC

Air handling units with air capacity up to **400 m³/h**. Heat recovery efficiency up to **85 %**

## Application

The air handling units VUE P3B EC are the fully-featured ventilation units that ensure air filtration, fresh air supply and stale air extract.

## Design

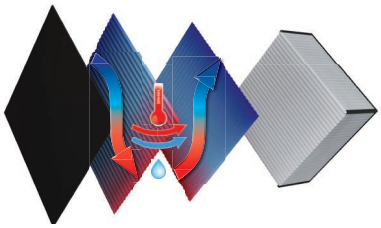
The casing is made of polymer-coated steel panels, internally filled with polyurethane foam layer 5 or 10 mm for heat- and sound-insulation.

## Fans

High-efficient electronically-commutated (EC) motors with an external motor. The VUE 100 P3B EC A14, VUE 150 P3B EC A14 and VUE 250 P3B EC A14 are equipped with centrifugal impellers with forward curved blades. The VUE 350 P3B EC A14 are equipped with centrifugal impellers with backward curved blades.

## Heat recovery

Enthalpy cross-flow heat exchanger made of polymerized cellulose with heat recovery efficiency up to 85 %. The applied heat exchanger enables not only heat but also humidity recovery.

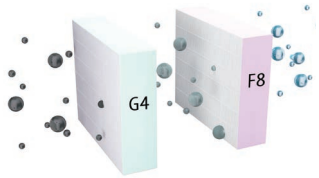


## Bypass

The units are equipped with a bypass for summer ventilation (air cooling by the cool air from outside).

## Air filtration

Two built-in panel filters with filtering class G4 and F8 provide efficient supply air filtration. Extract air is cleaned by the built-in G4 filter.




## Control and automation

The VENTS VUE P3B EC A14 units have an integrated automation system with a wall-mounted control panel A14 with a LED indication. The units are equipped with a USB connector (Type B) and can be connected to a PC for configuring the advanced settings in a special software.

The standard delivery set includes a 10 m cable for connection of the unit to the control panel.

**A14 automation functions:**

- Turning the unit on/off.
- Unit performance control (selection of Low, Medium or High speed).
- Bypass damper opening and closing for summer ventilation.
- Alarm indication.
- Filter replacement notification.

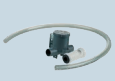
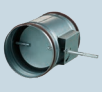
**Additional functions of the A14 automation with installed software**

- Fan speed adjustment from 0 to 100 %.
- Each speed is individually adjusted for the supply and the extract fans.
- Operation control on feedback from the HV-2 duct humidity sensor (to be ordered separately).
- Unit operation setting according to the external relay (to be ordered separately).
- Temperature setting for heat exchanger frost protection system activation.
- Control and operation adjustment of the filter maintenance timer.
- Error code indication.
- Software version upgrading.
- External relay, bypass and humidity control.

## Installation

Due to a low casing height the air handling units are a perfect solution for space-restricted installation above suspended ceilings.

**Accessories for air handling units**

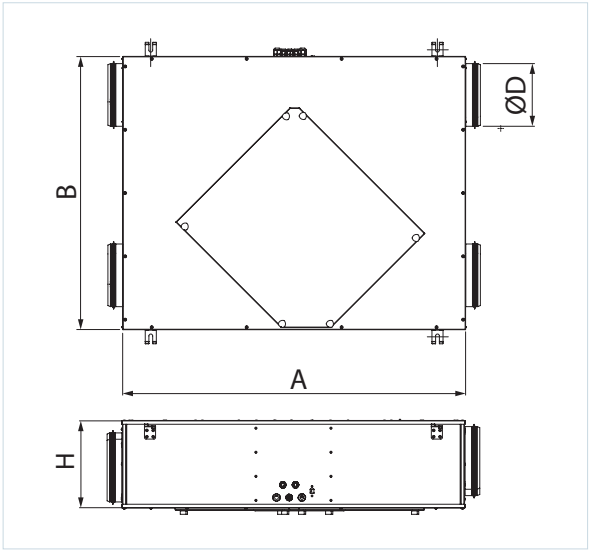
| Model | G4 panel filter | F8 panel filter | Internal humidity sensor (0-10 V) | External $CO_2$ sensor | External $CO_2$ sensor with indication | External humidity sensor | Hydraulic kit | Air dampers | Electric actuator |
|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |
| VUE 100 P3B EC A14 | SF 200x191x20 G4 | SF 200x191x20 F8 | HV-2 | CO2-1 | CO2-2 | HR-S | SH-32 | KRV 100 | LF230 |
| VUE 150 P3B EC A14 | SF 300x220x48 G4 | SF 300x220x48 F8 | | | | | | | |
| VUE 250 P3B EC A14 | | | | | | | | KRV 150 | |
| VUE 350 P3B EC A14 | SF 300x270x48 G4 | SF 300x270x48 F8 | | | | | | | |

**Designation key**

| Series | Rated air flow [m³/h] | Mounting type | Casing modification | Bypass | Motor type | Service side | Control panel |
|---|---|---|---|---|---|---|---|
| **VENTS VUE** | 100; 150; 250; 350 | **P**: suspended | **3:** low-profile unit | **B:** integrated bypass | **EC**: synchronous electronically commutated motor | **L**: left<br>**R**: right | **A14** |

**Overall dimensions**

| Model | Dimensions [mm] | | | |
|---|---|---|---|---|
| | Ø D | A | B | H |
| VUE 100 P3B EC A14 | 99 | 600 | 481 | 207 |
| VUE 150 P3B EC A14 | 99 | 854 | 704 | 222 |
| VUE 250 P3B EC A14 | 149 | 854 | 704 | 227 |
| VUE 350 P3B EC A14 | 149 | 1024 | 754 | 277 |

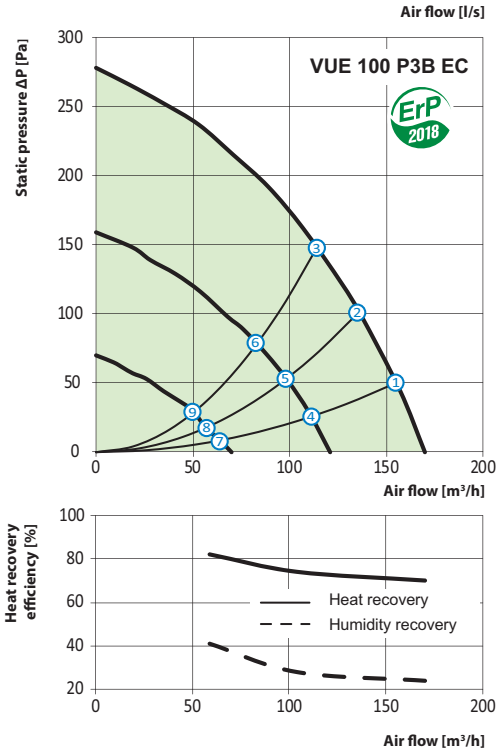



**Technical data**

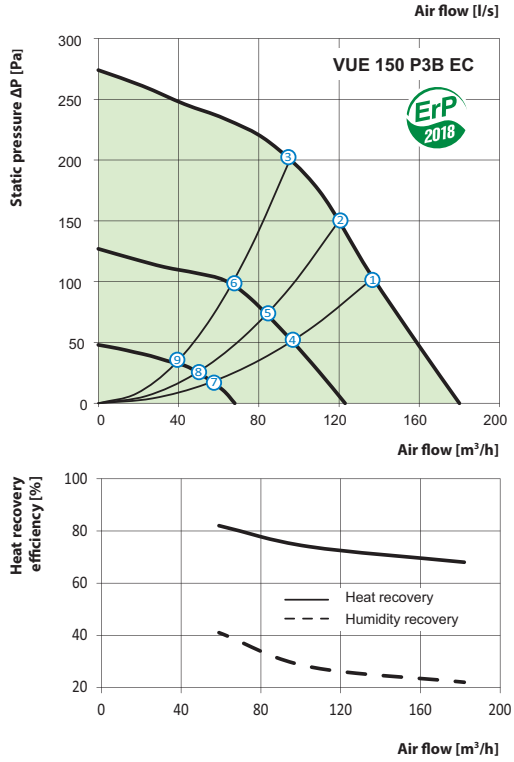
| Point | Unit power [W] | | | |
|---|---|---|---|---|
| | VUE 100 P3B EC A14 | VUE 150 P3B EC A14 | VUE 250 P3B EC A14 | VUE 350 P3B EC A14 |
| 1 | 62 | 75 | 80 | 147 |
| 2 | 55 | 70 | 67 | 145 |
| 3 | 48 | 53 | 59 | 144 |
| 4 | 30 | 37 | 43 | 75 |
| 5 | 27 | 33 | 34 | 73 |
| 6 | 25 | 28 | 28 | 70 |
| 7 | 13 | 14 | 23 | 21 |
| 8 | 13 | 13 | 22 | 21 |
| 9 | 12 | 12 | 19 | 20 |

| | VUE 100 P3B EC A14 | VUE 150 P3B EC A14 | VUE 250 P3B EC A14 | VUE 350 P3B EC A14 |
|---|---|---|---|---|
| Unit voltage [V /50(60) Hz] | 1~230 | | | |
| Maximum unit power [W] | 66 | 83 | 84 | 171 |
| Maximum unit current [A] | 0.5 | 0.7 | 0.7 | 1.3 |
| Maximum flow rate [m³/h] | 170 | 215 | 300 | 430 |
| Sound pressure level at 3 m distance [dBA] | 30 | 32 | 36 | 46 |
| Transported air temperature [°C] | -5...+40 | | | |
| Casing material | painted steel | | | |
| Insulation | foamed polyurethane, 5 and 10 mm | | | |
| Extract filter | G4 | | | |
| Supply filters | G4 and F8 (PM2.5 93 %) | G4 and F8 (PM2.5 93 %) | G4 and F8 (PM2.5 83 %) | G4 and F8 (PM2.5 87 %) |
| Connected air duct diameter [mm] | Ø 100 | Ø 100 | Ø 150 | Ø 150 |
| Heat recovery efficiency [%] | 70 – 82 | 68 – 82 | 63 – 73 | 68 – 85 |
| Humidity recovery efficiency [%] | 24 – 41 | 22 – 41 | 16 – 27 | 19 – 34 |
| Heat exchanger type | cross-flow | | | |
| Heat exchanger material | polymerized cellulose | | | |
| Weight [kg] | 17 | 26 | 29 | 42 |
| SEC class | A | A | A | A |

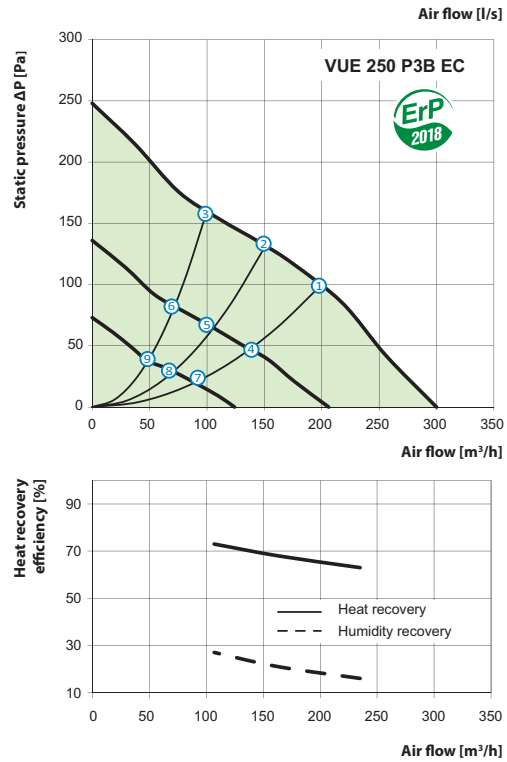
**VENTS VUE P3B EC**



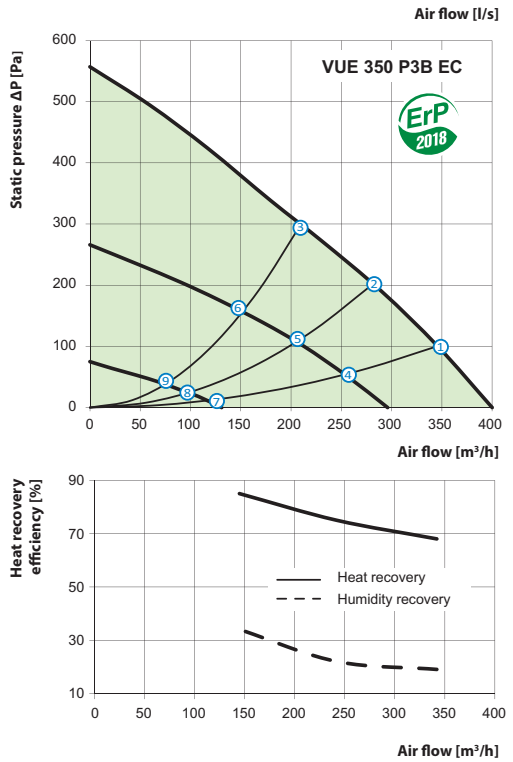

**VENTS VUE P3B EC**




**VENTS VUE P3B EC**




**VENTS VUE P3B EC**



**Application**

Series

# VENTS ENAVE-C 100 P A14

EC motor

Heat recovery air handling units
in sound- and heat-insulated casings.
Air flow up to **136 m³/h**.
Heat recovery efficiency up to **94 %**

## Description

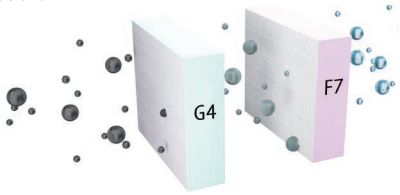
The air handling units are the fully featured ventilation units with heat recovery for air filtration, fresh air supply and stale air extract. The units offer energy-efficient ventilation for small appartments.

## Casing

The casing is made of expanded polypropylene (EPP) possessing high heat- and sound-insulating properties.

## Filter

Two built-in G4 and F7 filters provide efficient air filtration.

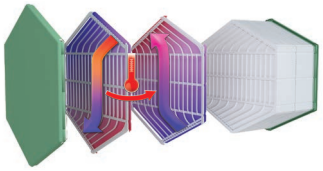



## Fans

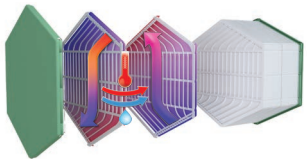
Efficient electronically commutated motors with external rotor and impeller with forward curved blades.

## Heat exchanger

**Enave-C** units are equipped with a counter-flow polystyrene heat exchanger.



**Enave-CT** units are equipped with an enthalpy heat exchanger.



## Automation

Enave-C 100 P A14 units are equipped with an integrated control system and an A14 wall-mounted control panel with LED indication.

## Freeze protection

In the Enave-C 100 P A14 units freeze protection is provided by the shutdown of the supply fan.

## Mounting

The unit is designed for suspended ceilling mounting. The mounting position of the unit must provide service access for maintenance and repair.

## Control and automation

| Functions | **A14** |
|---|---|
| Control via external wired control panel | A14  |
| Speed selection | + |
| Filter replacement indication | According to filter timer |
| Alarm indication | Alarm LED indication |
| Freeze protection | Cyclic shutdown of supply fan |
| Humidity control | Option |
| CO2 control | Option |
| Fire alarm connection | Option |

## Accessories for air handling units

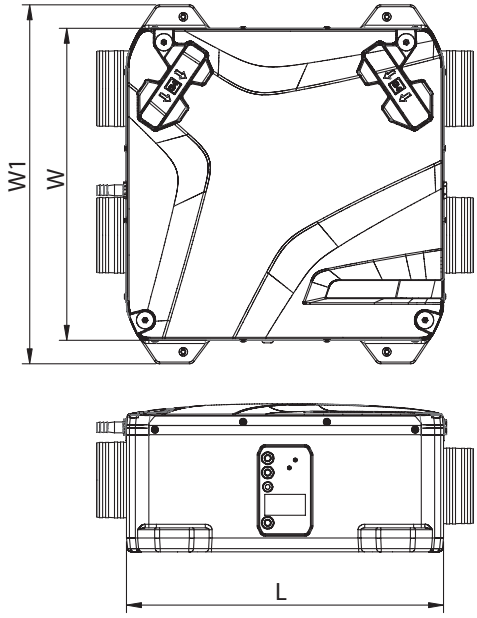
| Model | G4 panel filter | F7 panel filter | Internal humidity sensor | $CO_2$ sensor with indication | $CO_2$ sensor | Humidity sensor | U-trap kit | Air damper | Electric actuator |
|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |
| Enave-C 100 P A14 | SF 176x150x22 G4 | SF 176x150x22 F7 | HV2 | CO2-1 | CO2-2 | HR-S | SG-32 | KRV 125 | LF230 |
| Enave-CT 100 P A14 | | | | | | | | | |

## Designation key

| TM | Model | Casing modification | Heat exchanger type | Nominal size | Modification | Casing type | Heater | Controller | Service side |
|---|---|---|---|---|---|---|---|---|---|
| VENTS | Enave | C – Compact | _ – heat recovery<br>T – energy recovery | Air flow $m^3/h$ / 10 | 0 – standard | P – suspended | _ – w/o heater | A14 | _ – universal |

### Overall dimensions

| Model | Dimensions [mm] | | | | | | |
|---|---|---|---|---|---|---|---|
| | ØD | Ød | H | W | L | W1 | B |
| Enave-C 100 P | 125 | 104 | 247 | 522 | 530 | 600 | 630 |

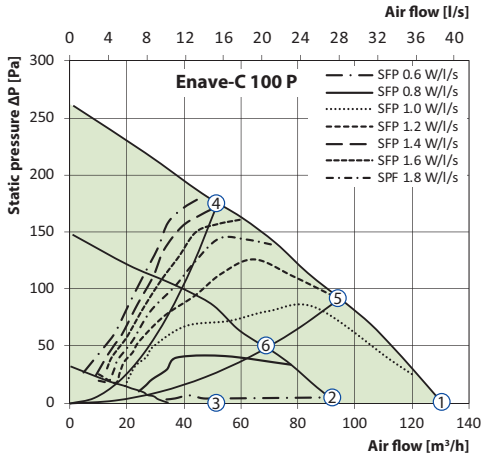


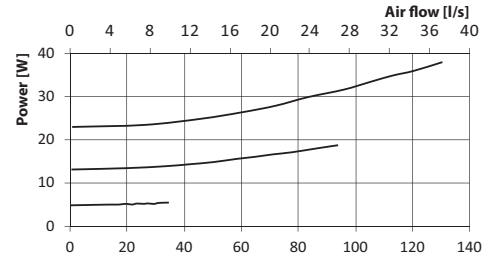

### Technical data

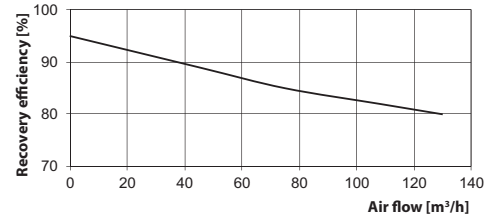
| | Enave-C 100 P | Enave-CT 100 P |
|---|---|---|
| Voltage [V/50-60 Hz] | 1~ 230 | |
| Max. unit power [W] | 38 | |
| Max. unit current [A] | 0.34 | |
| Max air flow [m³/h] | 130 | |
| Max. sound pressure level at 3 m distance (breakout) [dBA] | 32 | |
| Max. operating temperature [°C] | - 23...+40 | |
| Case material | EPP | |
| Insulation [mm] | 25 | |
| Extract filter | G4 / Coarse > 60% | |
| Supply filter | G4 / Coarse > 60% (option F7 / ePM1 60%) | |
| Connected air duct diameter [mm] | 100 / 125 | |
| Weight [kg] | 8 | |
| Heat recovery efficiency [%] | 82-94 | 73-88 |
| Heat exchanger type | Counter-flow | |
| Heat exchanger material | Polystyrene | Enthalpy |
| SEC class | A+ | A |

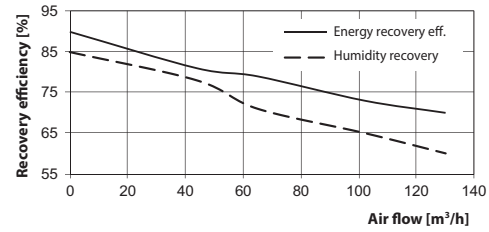
| Point | Air flow [m³h] (ls) | Total sound pressure level (breakout) at 3 m (1 m) distance [dBA] |
|---|---|---|
| | **Enave-C(T) 100 P** | **Enave-C(T) 100 P** |
| 1 | 130 (36) | 32 (42) |
| 2 | 91 (25) | 25 (35) |
| 3 | 52 (14) | 16 (26) |
| 4 | 52 (14) | 31 (41) |
| 5 | 96 (27) | 33 (42) |
| 6 | 68 (19) | 25 (34) |

**VENTS Enave-C 100 P**




| A-weighted sound power level (p.5 on the diagram) | | Gen. | Octave-frequency band [Hz] | | | | | | | LpA, 3 m | LpA, 1 m |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 200 | 400 | 800 | 1000 | 2000 | 4000 | 8000 | [dBA] | [dBA] |
| $L_{WA}$ to exhaust inlet | dBA | 59 | 44 | 45 | 49 | 51 | 44 | 37 | 38 | 38 | 48 |
| $L_{WA}$ to supply outlet | dBA | 47 | 41 | 36 | 33 | 31 | 29 | 22 | 24 | 27 | 36 |
| $L_{WA}$ to environment | dBA | 53 | 37 | 41 | 43 | 42 | 38 | 34 | 29 | 33 | 42 |

### Calculation of air temperature downstream of the heat exchanger:

$$t=t_{outd}+k_{hr}*(t_{extr}-t_{outd})/100,$$

**where**

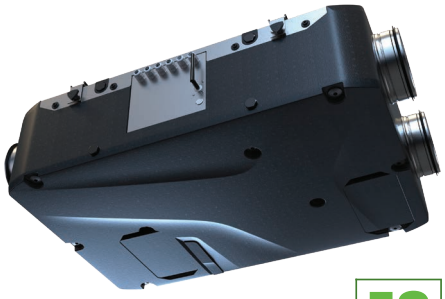
$t_{outd}$ is outdoor air temperature [°C]

$t_{extr}$ is extract air temperature [°C]

$k_{hr}$ is heat exchanger efficiency (according to the diagram) [%]

Series

# VENTS Enave P



Heat recovery air handling units in sound- and heat-insulated casings. Air flow up to **313 m³/h**. Heat recovery efficiency up to **91 %**

## Description

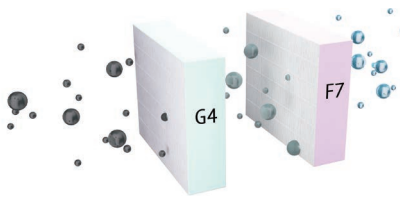
The air handling units are the fully featured ventilation units with heat recovery for air filtration, fresh air supply and stale air extraction. The units offer energy-efficient ventilation for small apartments.

## Casing

The casing is made of expanded polypropylene (**EPP**) possessing high heat- and sound-insulating properties.

## Filter

Two built-in **Coarse 90%** (**G4**) filters provide efficient air filtration. **ePM1 65% (F7)** supply filter can be installed as an option.

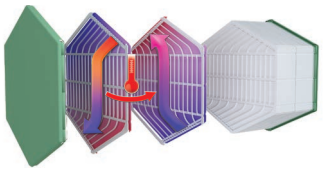



## Fans

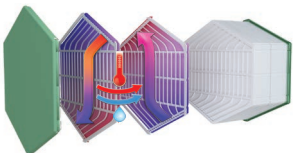
The units' fans are equipped with electronnicaly-commutated motors.

## Heat exchanger

**Enave** units are equipped with a counter-flow polystyrene heat exchanger.



**Enave-T** units are equipped with an enthalpy heat exchanger.



## Bypass

The units are equipped with a bypass for summer cooling.

## Automation

**Enave P A21** units are equipped with a built-in automation system. The **A21** controller allows to integrate the unit into the **Smart Home system** or **BMS (Building Management System)**. To control the unit via Wi-Fi, download the **Vents Home** smartphone app. **Enave P A14** units have an integrated control system with a wall-mounted control panel with a LED indication.

Google play

Download on the App Store

Modbus

## Frost protection

For **Enave P** units, the frost protection is implemented by shutting down the supply fan. Optional duct pre-heater is available for units with **A21** control system.

## Mounting

The unit is designed for suspended ceilling, wall and floor mounting. The mounting position of the unit must provide service access for maintenance and repair.

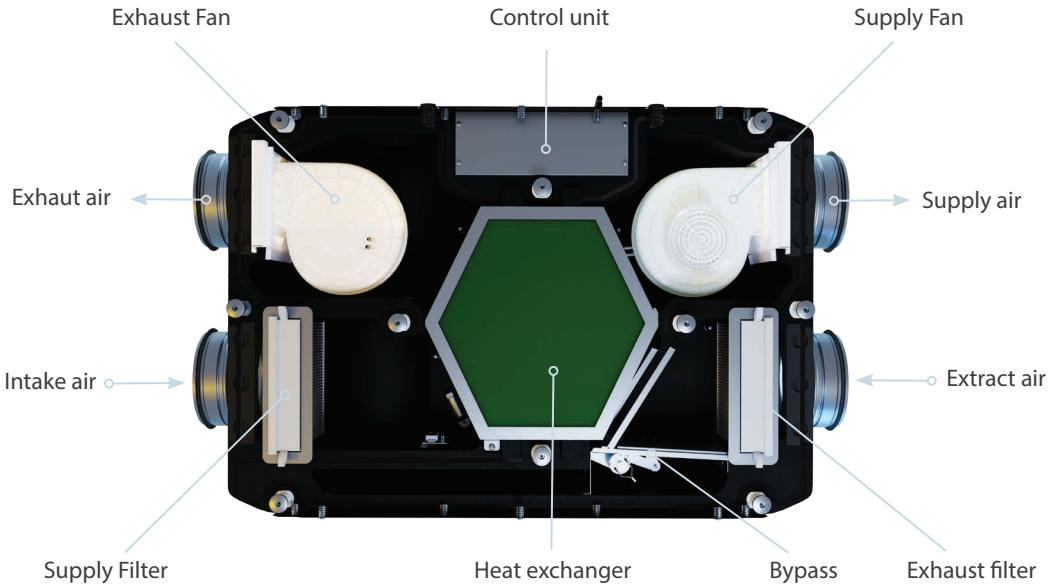
## Control and automation

| Functions | A14 | A21 |
|---|---|---|
| Wired remote control pane | A14 | A22 (option) |
| Control via a wired remote LCD control panel | - | A25 (option) |
| Wireless remote control panel | - | A22 Wi-Fi (option) |
| BMS | - | ModBus RTU (RS-485) ModBus TCP/IP (Wi-Fi, Ethernet) |
| Vents Cloud Server service | - | + |
| Control via Wi-Fi using a smartphone app | - | + |
| Frost protection | + | + |
| Bypass | Manual | Auto, manual |
| Week-scheduled operation | - | + |
| Filter replacement indication | + | Filter timer |
| Alarm indication | + | + |
| Speed selection | + | + |
| Timer | - | + |
| RH% sensor | Option | Option |
| $CO_2$ sensor | Option | Option |
| VOC sensor | Option | Option |
| PM2.5 sensor | Option | Option |
| Boost mode | - | + |
| Fireplace mode | - | + |
| Preheater connection | - | + |
| Reheater connection | - | + |
| Cooler connection | - | + |
| Fire alarm sensor connection | + | + |
| Minimum supply air temperature control | - | + |

## Designation key

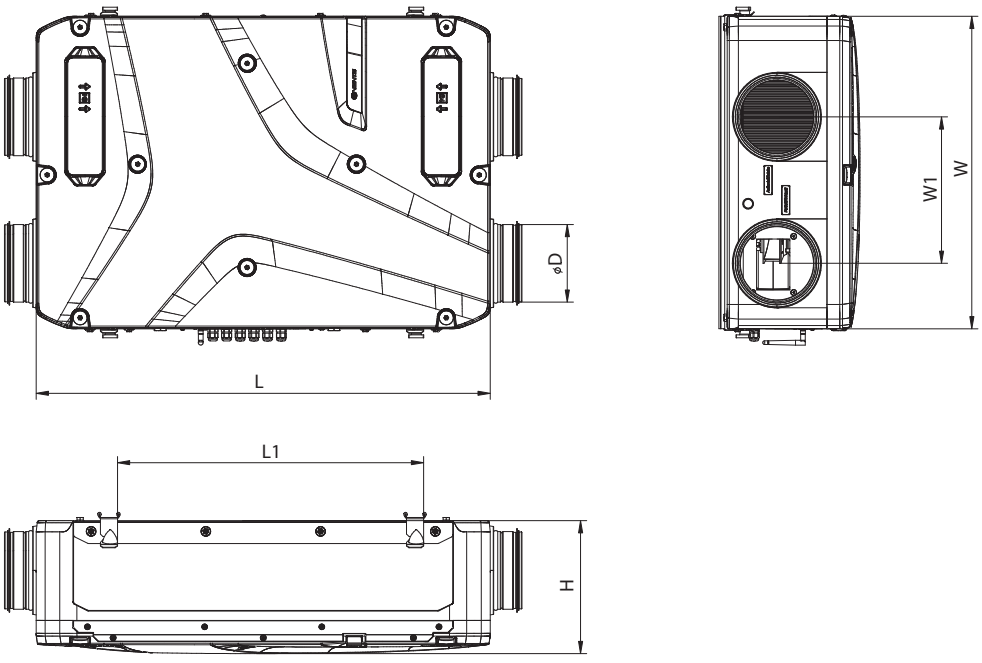
| TM | Model | Heat exchanger type | Nominal size | Modification | Casing type | Controller |
|---|---|---|---|---|---|---|
| VENTS | Enave | _ – heat recovery<br>T – energy recovery | Airflow m³/h /10 | 0 – standart<br>1 – flat service hatch suitable for decorative panel installation | P – suspended | A21, A14 |

**Unit design**




**Overall dimensions**

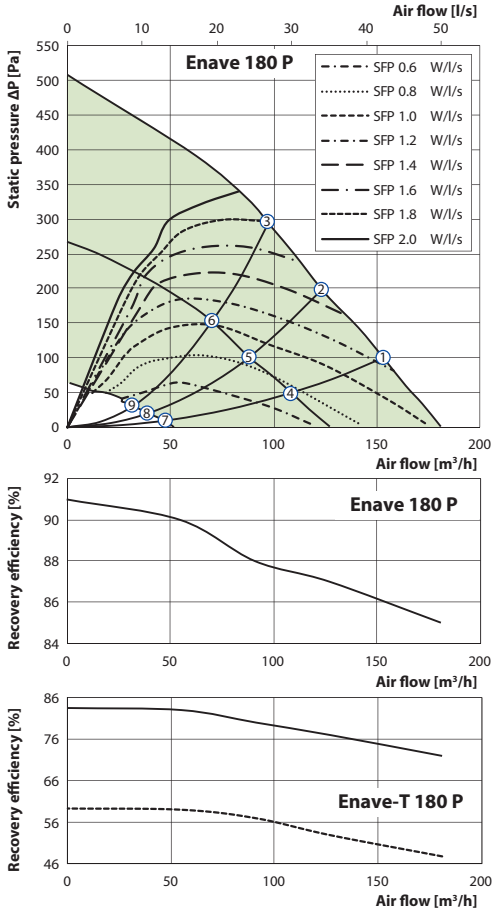
| Model | Dimensions [mm] | | | | | |
|---|---|---|---|---|---|---|
| | H | W | L | ØD | W1 | L1 |
| Vents Enave P | 272 | 640 | 930 | 160 | 300 | 627 |



## Technical data

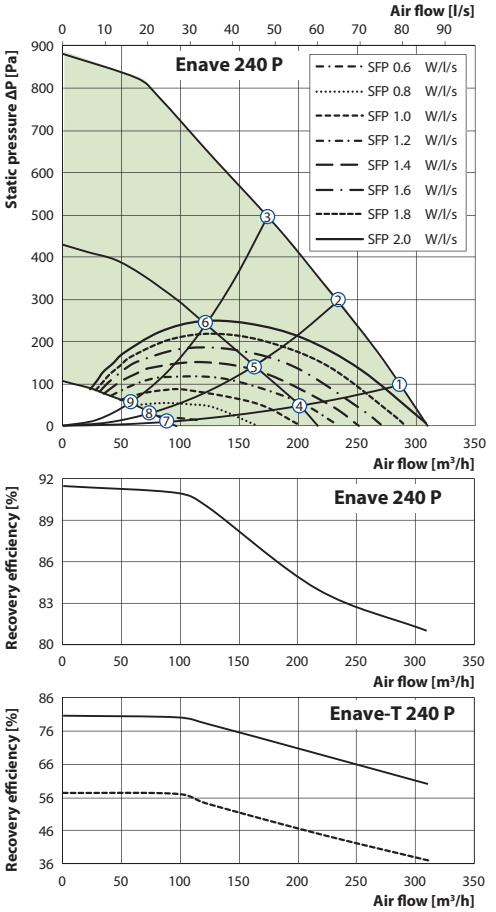
| | Vents Enave 180 P | Vents Enave-T 180 P | Vents Enave 240 P | Vents Enave-T 240 P |
|---|---|---|---|---|
| Voltage [V / 50-60 Hz] | 230 | 230 | 230 | 230 |
| Max. unit power [W] | 53 | 53 | 171 | 171 |
| Max. unit current [A] | 0.49 | 0.49 | 1.34 | 1.34 |
| Max air flow [$m^3$/h] | 181 | 181 | 310 | 310 |
| Sound pressure level at 3 m distance [dBA] | 29 | 29 | 33 | 33 |
| Max. operating temperature [°C] | 45 | 45 | 45 | 45 |
| Case material | EPP | EPP | EPP | EPP |
| Insulation | 25 mm | 25 mm | 25 mm | 25 mm |
| Extract filter | Coarse >60 % | Coarse >60 % | Coarse >60 % | Coarse >60 % |
| Supply filters | Coarse >60 % (option ePM1 60 %) | Coarse >60 % (option ePM1 60 %) | Coarse >60 % (option ePM1 60 %) | Coarse >60 % (option ePM1 60 %) |
| Connected air duct diameter [mm] | 160 | 160 | 160 | 160 |
| Weight [kg] | 12 | 15 | 13 | 16 |
| Heat recovery efficiency [%] | 91 | 84 | 91 | 81 |
| Heat exchanger type | Counterflow | Counterflow | Counterflow | Counterflow |
| Heat exchanger material | Polysterene | Enthalpy | Polysterene | Enthalpy |
| SEC class | A+ | A | A | A |

VENTS Enave P




| Vents Enave 180 P A-weighted sound power level (p.1 on the diagram) | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 66 | 37 | 40 | 44 | 61 | 57 | 52 | 53 | 46 | 46 | 55 |
| $L_{wA}$ to supply outlet | dBA | 69 | 39 | 42 | 46 | 64 | 60 | 55 | 56 | 48 | 49 | 58 |
| $L_{wA}$ to exhaust inlet | dBA | 52 | 27 | 30 | 34 | 45 | 42 | 39 | 31 | 27 | 32 | 41 |
| $L_{wA}$ to exhaust outlet | dBA | 49 | 26 | 29 | 32 | 43 | 40 | 37 | 29 | 26 | 29 | 39 |
| $L_{wA}$ to environment | dBA | 58 | 36 | 44 | 43 | 50 | 50 | 45 | 43 | 35 | 37 | 47 |

VENTS Enave P




| Vents Enave 240 P A-weighted sound power level (p.1 on the diagram) | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 71 | 48 | 50 | 54 | 58 | 59 | 60 | 58 | 58 | 51 | 61 |
| $L_{wA}$ to supply outlet | dBA | 75 | 50 | 53 | 57 | 61 | 62 | 63 | 61 | 61 | 54 | 64 |
| $L_{wA}$ to exhaust inlet | dBA | 54 | 37 | 40 | 44 | 45 | 43 | 37 | 32 | 26 | 33 | 43 |
| $L_{wA}$ to exhaust outlet | dBA | 51 | 35 | 38 | 42 | 43 | 41 | 35 | 30 | 25 | 31 | 41 |
| $L_{wA}$ to environment | dBA | 61 | 39 | 47 | 46 | 50 | 50 | 48 | 45 | 43 | 40 | 50 |

**Accessories for air handling units**

| | Filter G4 | Supply filter F7 | Decorative panel | Control panel | Control panel | WiFi Control panel | Internal humidity sensor | Internal $CO_2$ sensor |
|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |
| Enave 180 P A21 | SF 205x200x48 Coarse 90% G4 | SF 205x200x48 ePM1 60% F7 | - | A25 | A22 | A22 Wi-Fi | HV2 | CO2-3 |
| Enave-T 180 P A21 | | | PD-Enave 181 P | | | | | |
| Enave 181 P A21 | | | | | | | | |
| Enave-T 181 P A21 | | | | | | | | |
| Enave 240 P A21 | SF 205x200x48 Coarse 90% G4 | SF 205x200x48 ePM1 60% F7 | - | | | | | |
| Enave-T 240 P A21 | | | | | | | | |
| Enave 241 P A21 | | | PD-Enave 181 P | | | | | |
| Enave-T 241 P A21 | | | | | | | | |
| Enave 180 P A14 | SF 205x200x48 Coarse 90% G4 | SF 205x200x48 ePM1 60% F7 | - | - | - | - | HV2 | CO2-3 |
| Enave-T 180 P A14 | | | | | | | | |
| Enave 181 P A14 | | | PD-Enave 181 P | | | | | |
| Enave-T 181 P A14 | | | | | | | | |
| Enave 240 P A14 | SF 205x200x48 Coarse 90% G4 | SF 205x200x48 ePM1 60% F7 | - | | | | | |
| Enave-T 240 P A14 | | | | | | | | |
| Enave 241 P A14 | | | PD-Enave 181 P | | | | | |
| Enave-T 241 P A14 | | | | | | | | |

| | External $CO_2$ sensor with indication | External $CO_2$ sensor | External humidity sensor | Electrical preheater | Electrical reheater | Syphon kit | Silencer | Air damper | Electric actuator |
|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |
| Enave 180 P A21 | CO2-1 | CO2-2 | HR-S | NKP 160 A21 V.2 | NKD 160 A21 V.2 | SH-32 | SR 160 | KRV 160 | TF 230 |
| Enave-T 180 P A21 | | | | | | | | | |
| Enave 181 P A21 | | | | | | | | | |
| Enave-T 181 P A21 | | | | | | | | | |
| Enave 240 P A21 | | | | | | | | | |
| Enave-T 240 P A21 | | | | | | | | | |
| Enave 241 P A21 | | | | | | | | | |
| Enave-T 241 P A21 | | | | | | | | | |
| Enave 180 P A14 | CO2-1 | CO2-2 | HR-S | - | - | | | | |
| Enave-T 180 P A14 | | | | | | | | | |
| Enave 181 P A14 | | | | | | | | | |
| Enave-T 181 P A14 | | | | | | | | | |
| Enave 240 P A14 | | | | | | | | | |
| Enave-T 240 P A14 | | | | | | | | | |
| Enave 241 P A14 | | | | | | | | | |
| Enave-T 241 P A14 | | | | | | | | | |

Series

# VENTS VUT PB EC

Air handling units in heat- and sound-insulated casing.
Air flow up to 410 m³/h.
Heat recovery efficiency up to 94 %

## Description

The VUT PB EC air handling units are the fully-featured ventilation units that ensure air filtration, fresh air supply and stale air extract.

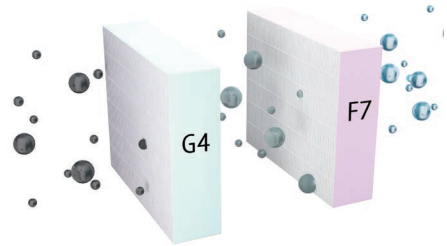
## Casing

Made of galvanised steel, internally filled with a 40 mm heat- and sound-insulating layer of mineral wool.

## Filter

Built-in panel filters with filtration class F7 provide efficient supply air filtration.

Panel filters with filtration class G4 provide extract air

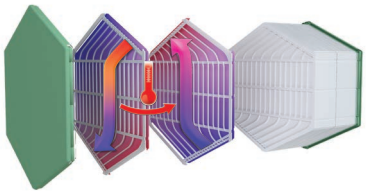



## Fans

High-efficient electronically-commutated motors with an external rotor and backward curved blades.

## Heat exchanger

The units are equipped with a high-efficient counter-flow polystyrene heat exchanger. In the cold season the extract air heat is captured and transferred to the supply air stream which reduces the ventilation-generated heat losses.



## Frost protection

To protect the heat exchanger from freezing in the cold season, the unit has a Frost Protection mode based on the temperature sensor readings. The Frost Protection mode is activated at an exhaust air temperature of +3 °C. After temperature increase the unit returns to the previous operation mode. In case of freezing danger, the supply fan is turned off in VUT 160/250/350 PB EC A14 units.

Three modes of frost protection are available in VUT 160/250/350 PB EC A21 models:

- gradual reduction of the supply fan speed
- with the bypass
- with the electric preheater (available as an accessory).

## Bypass

The units are equipped with a 100 % bypass which can be opened for summer cooling.

## Control and automation

The **VUT PB EC A21** units are equipped with an integrated automation system.

The A21 controller enables integration of the unit into the **Smart Home System** or **BMS (Building Management Systems)**.

To control the unit via Wi-Fi, download the VENTS Home mobile app.

Google play

Download on the App Store

Modbus

The **VUT PB EC A14** units are equipped with an integrated automation system and a wall-mounted control panel A14 with LED indication.

## Mounting

The units are designed for ceiling or wall mounting (horizontal spigot orientation) in a position allowing condensate collection and removal into a special drain pan. The access for filter maintenance and replacement is available from the bottom panel.

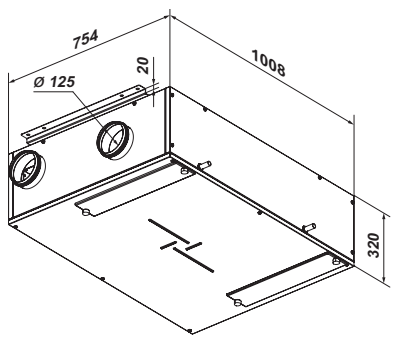
**Designation key**

| Series | Rated air flow [m³/h] | Installation type | Bypass | Motor type | Service side | Automation |
|---|---|---|---|---|---|---|
| **VENTS VUT** | 160; 250; 350 | **P**: suspended installation | **B**: bypass | **EC**: synchronous electronically commutated motor | **L**: left<br>**R**: right | **A14**<br>**A21** |

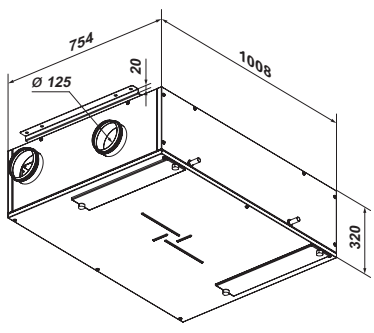
**Control and automation**

| Functions | A21 | A14 |
|---|---|---|
| Wired remote control panel | Option (A22)  | A14  |
| Control via a wired remote LCD control panel | Option (A25)  | - |
| Wireless remote control panel | Option (A22 Wi-Fi)  | - |
| BMS | RS-485<br>Wi-Fi<br>Ethernet<br>MODBUS (RTU, TCP) | - |
| Vents Cloud Server service | + | - |
| Control via Wi-Fi using a mobile application | + | - |
| Frost protection | + | + |
| Bypass | Auto + manual | Manual |
| Week-scheduled operation | + | - |
| Filter replacement indication | According to filter timer<br>According to filter clogging differential pressure switch readings | According to filter timer |
| Alarm indication | + | + |
| Speed selection | + | + |
| Timers | + | - |
| RH% sensor | Option | Option |
| $CO_2$ sensor | Option | Option |
| VOC sensor | Option | Option |
| PM2.5 sensor | Option | Option |
| Boost mode | + | - |
| Fireplace mode | + | - |
| Preheater connection | Option | - |
| Reheater connection | Option | - |
| Cooler connection | Option | - |
| Fire alarm sensor | Option | Option |
| Minimum supply air temperature control | + | - |

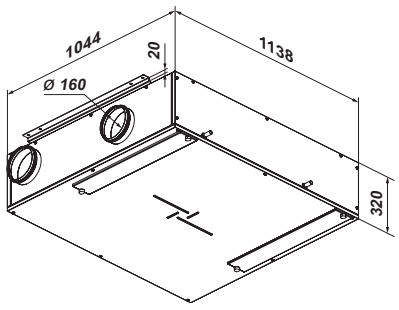
**Overall dimensions**




**VENTS VUT 160 PB EC**




**VENTS VUT 250 PB EC**

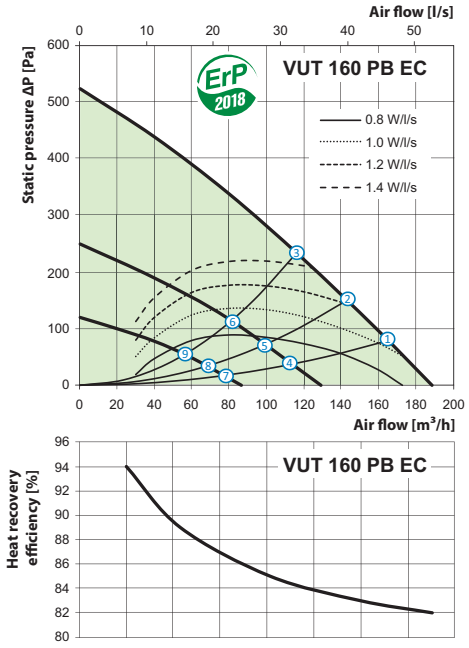



**VENTS VUT 350 PB EC**

**Technical data**

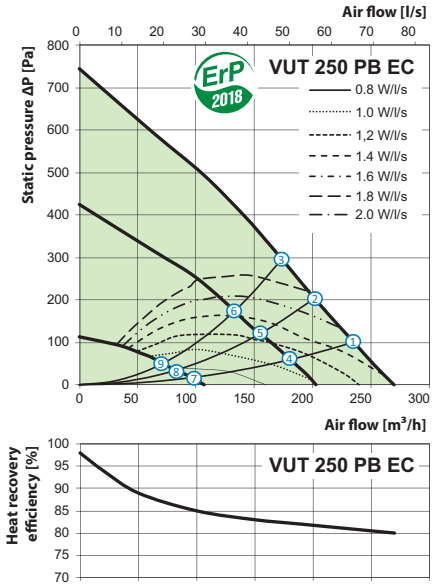
| | VUT 160 PB EC | VUT 250 PB EC | VUT 350 PB EC |
|---|---|---|---|
| Unit voltage [V/50 (60) Hz] | | 1~230 | |
| Maximum unit power [W] | 50 | 101 | 170 |
| Maximum unit current [A] | 0.4 | 0.8 | 1.3 |
| Maximum air flow [m³/h] | 190 | 270 | 410 |
| Sound pressure level at 3 m distance [dBA] | 26 | 28 | 34 |
| Transported air temperature [°C] | | -25...+40 | |
| Casing material | | Aluzinc steel | |
| Insulation | | 40 mm mineral wool | |
| Filter (extract/supply) | | G4/F7 | |
| Connected air duct diameter [mm] | Ø 125 | Ø 125 | Ø 160 |
| Weight [kg] | 48 | 48 | 70 |
| Heat recovery efficiency [%] | 82-94 | 80-98 | 80-91 |
| Heat exchanger type | | Counter-flow | |
| SEC class | A+ | A | A |
| Heat exchanger material | | Polystyrene | |

**VENTS VUT 160 PB EC**



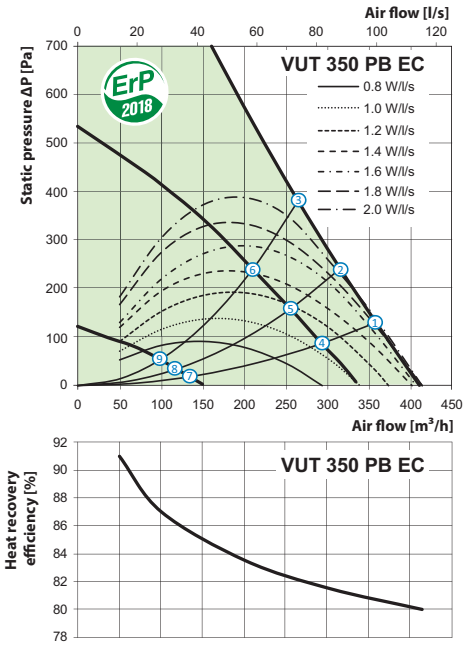

| A-weighted sound power level | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 53 | 32 | 45 | 50 | 45 | 38 | 34 | 36 | 29 | | |
| $L_{wA}$ to supply outlet | dBA | 61 | 36 | 51 | 60 | 52 | 38 | 39 | 41 | 33 | | |
| $L_{wA}$ to exhaust inlet | dBA | 53 | 33 | 45 | 50 | 45 | 38 | 34 | 35 | 31 | | |
| $L_{wA}$ to exhaust outlet | dBA | 61 | 37 | 51 | 59 | 54 | 41 | 40 | 41 | 33 | | |
| $L_{wA}$ to environment | dBA | 47 | 29 | 41 | 44 | 37 | 34 | 28 | 27 | 23 | 26 | 36 |

**VENTS VUT 250 PB EC**




| A-weighted sound power level | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 55 | 51 | 45 | 51 | 44 | 37 | 33 | 35 | 30 | | |
| $L_{wA}$ to supply outlet | dBA | 65 | 59 | 54 | 63 | 52 | 41 | 39 | 43 | 34 | | |
| $L_{wA}$ to exhaust inlet | dBA | 55 | 50 | 45 | 51 | 44 | 37 | 33 | 35 | 31 | | |
| $L_{wA}$ to exhaust outlet | dBA | 66 | 57 | 53 | 64 | 53 | 39 | 38 | 43 | 35 | | |
| $L_{wA}$ to environment | dBA | 49 | 45 | 40 | 44 | 38 | 33 | 29 | 27 | 22 | 28 | 38 |

**VENTS VUT 350 PB EC**




| A-weighted sound power level | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 60 | 46 | 54 | 58 | 50 | 46 | 40 | 40 | 31 | | |
| $L_{wA}$ to supply outlet | dBA | 63 | 52 | 58 | 60 | 54 | 46 | 40 | 41 | 35 | | |
| $L_{wA}$ to exhaust inlet | dBA | 61 | 47 | 54 | 58 | 50 | 47 | 41 | 41 | 32 | | |
| $L_{wA}$ to exhaust outlet | dBA | 63 | 51 | 58 | 59 | 56 | 46 | 40 | 41 | 35 | | |
| $L_{wA}$ to environment | dBA | 55 | 44 | 51 | 51 | 43 | 38 | 32 | 28 | 24 | 34 | 44 |

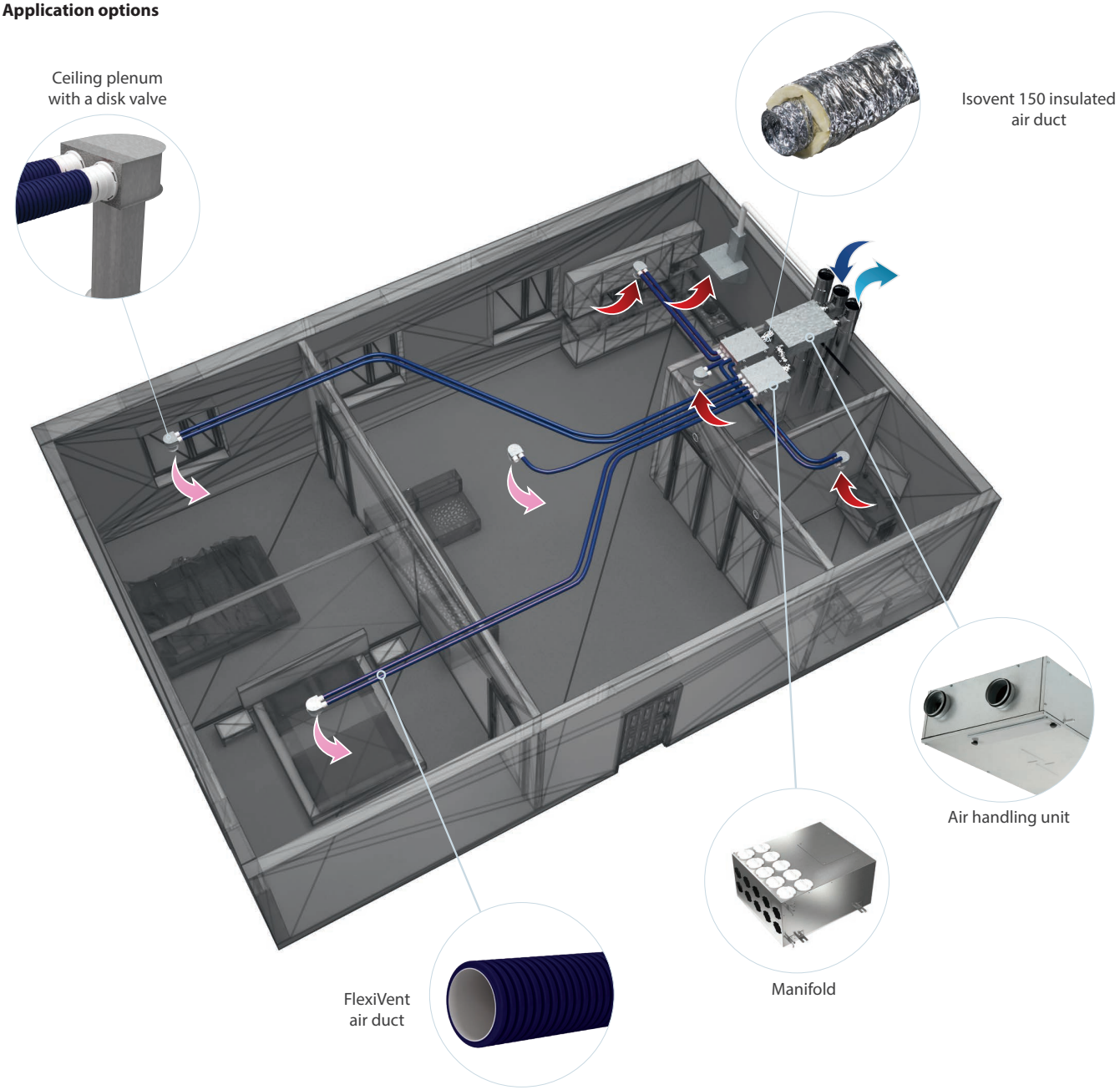
| Point | Power [W] | | | Sound pressure level at 3 m (1 m) distance [dBA] | | |
|---|---|---|---|---|---|---|
| | VUT 160 PB EC | VUT 250 PB EC | VUT 350 PB EC | VUT 160 PB EC | VUT 250 PB EC | VUT 350 PB EC |
| 1 | 49 | 100 | 169 | 26 (36) | 28 (38) | 34 (44) |
| 2 | 49 | 99 | 169 | 26 (36) | 27 (37) | 34 (44) |
| 3 | 48 | 98 | 169 | 25 (35) | 27 (37) | 33 (43) |
| 4 | 21 | 55 | 87 | 22 (32) | 23 (33) | 28 (38) |
| 5 | 21 | 54 | 86 | 22 (32) | 22 (32) | 28 (38) |
| 6 | 20 | 54 | 84 | 21 (31) | 22 (32) | 27 (37) |
| 7 | 8 | 17 | 20 | 19 (29) | 15 (25) | 22 (32) |
| 8 | 8 | 17 | 19 | 18 (28) | 14 (24) | 22 (32) |
| 9 | 8 | 16 | 19 | 18 (28) | 14 (24) | 21 (31) |

**Accessories for air handling units**

| Model | G4 panel filter | F7 panel filter | Control panel | Control panel with Wi-Fi | LCD control panel | Indoor humidity sensor | Outdoor $CO_2$ sensor with indication | Outdoor $CO_2$ sensor |
|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |
| VUT 160 PB EC A14 | SF 403x253x48 G4 | SF 403x253x48 F7 | - | - | - | HV2 | CO2-1 | CO2-2 |
| VUT 160 PB EC A21 | | | A22 | A22 WiFi | A25 | | | |
| VUT 250 PB EC A14 | | | - | - | - | | | |
| VUT 250 PB EC A21 | | | A22 | A22 WiFi | A25 | | | |
| VUT 350 PB EC A14 | SF 603x253x48 G4 | SF 603x253x48 F7 | - | - | - | | | |
| VUT 350 PB EC A21 | | | A22 | A22 WiFi | A25 | | | |

| Model | Outdoor humidity sensor | Electric heater for preheating | Electric reheater | Hydraulic U-trap | Air damper | Electric actuator |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| VUT 160 PB EC A14 | HR-S | - | - | SH-32 | KRV 125 | LF230 |
| VUT 160 PB EC A21 | | NKP 125 A21 V.2 | NKD 125 A21 V.2 | | | |
| VUT 250 PB EC A14 | | - | - | | | |
| VUT 250 PB EC A21 | | NKP 125 A21 V.2 | NKD 125 A21 V.2 | | | |
| VUT 350 PB EC A14 | | - | - | | KRV 160 | |
| VUT 350 PB EC A21 | | NKP 160 A21 V.2 | NKD 160 A21 V.2 | | | |

**Application options**



Series

# VENTS VUT/VUE VB EC

Air handling units in heat- and sound-insulated casing.
Air flow
up to **690 m³/h**.
Heat recovery efficiency
up to **93 %**

## Description

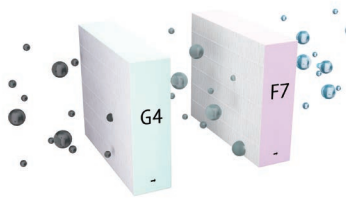
The air-handling units are the fully featured ventilation units with heat recovery for air filtration, fresh air supply and stale air extraction.

## Casing

Made of high-quality polymer coated steel, internally filled with mineral wool layer for heat and sound insulation.

## Filter

Supply and exhaust air flows are purified through panel filters with filtering class G4 and F7, respectively. Filters with G4 filtering class are used for supply and exhaust air purification in the **VUT/VUE 250 VB EC** units. F7 filter is available as an option for supply air filtration.

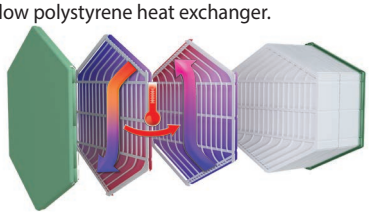



## Fans

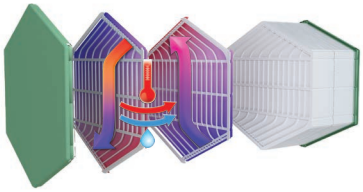
The units are equipped with high-efficient EC motors with an external rotor and a centrifugal impeller with backward curved blades.

## Heat exchanger

The **VUT V(B) EC** units are equipped with a counter-flow polystyrene heat exchanger.



The **VUE V(B) EC** units are equipped with a counter-flow enthalpy heat exchanger.



## Bypass

The **VUT/VUE VB EC** units are equipped with a bypass for summer cooling.

## Automation

The **VUT/VUE V(B) EC A21** units are equipped with a built-in automation system. The A21 controller allows integrating the unit into the Smart Home system or BMS (Building Management Systems). To control the unit via Wi-Fi, download the VENTS Home mobile app.

Google play

Download on the App Store

Modbus

The **VUT/VUE V(B) EC A14** units have an integrated control system with a wall-mounted control panel A14 with a LED indication.

## Frost protection

In the **VUT/VUE 160/350/550 VB EC A21** units it is possible to connect a preheater to protect the unit from freezing.

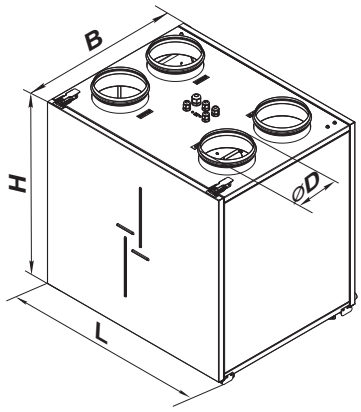
The **VUT 250 VBE EC A21** unit is equipped with a built-in preheater for frost protection.

## Mounting

The units are designed for wall or floor mounting. Access for maintenance of units and filters is possible from the right and left sides.

## Overall dimensions

| Model | Dimensions [mm] | | | |
|---|---|---|---|---|
| | Ø D | B | H | L |
| VUT/VUE 160 V EC | 125 | 330 | 550 | 600 |
| VUT/VUE 160 V1 EC | 125 | 370 | 590 | 640 |
| VUT/VUE 160 VB EC | 125 | 330 | 580 | 600 |
| VUT/VUE 160 V1B EC | 125 | 370 | 620 | 640 |
| VUT/VUE 250 VB EC L/R | 160 | 560 | 970 | 560 |
| VUT/VUE 350 VB EC | 160 | 583 | 675 | 730 |
| VUT/VUE 350 V1B EC | 160 | 470 | 675 | 730 |
| VUT/VUE 550 VB EC | 200 | 720 | 675 | 823 |




## Designation key

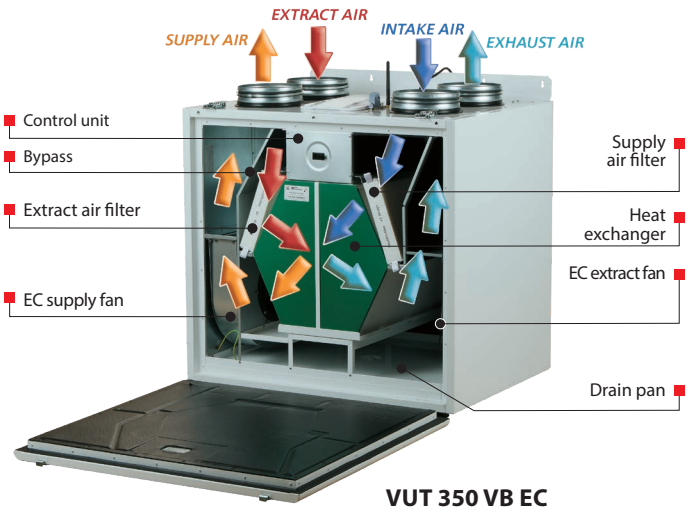
| Series | Rated air flow [m³/h] | Installation features | Casing design | Bypass | Motor type | Service side* | Control |
|---|---|---|---|---|---|---|---|
| **VUT**: ventilation with heat recovery<br>**VUE**: ventilation with energy recovery | 160, 250, 350, 550 | **V**: vertical | **–** by default<br>**1**: casing modification | **_** : without bypass<br>**B**: with bypass | **EC**: synchronous electronically commutated motor | **L**: left<br>**R**: right | **A14**<br>**A21** |

* Only for VUT 250 VB EC L/R

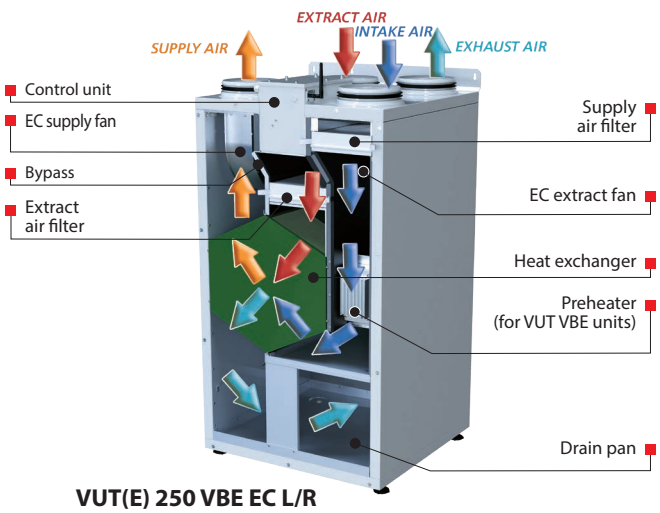
## Control and automation

| Functions | A21 | A14 |
|---|---|---|
| Wired remote control panel | Option (A22)  | A14  |
| Control via a wired remote LCD control panel | Option (A25)  | - |
| Wireless remote control panel | Option (A22 Wi-Fi)  | - |
| BMS | RS-485<br>Wi-Fi<br>Ethernet<br>MODBUS (RTU, TCP) | - |
| Vents Cloud Server service | + | - |
| Control via Wi-Fi using a mobile application | + | - |
| Frost protection | + | + |
| Bypass | Auto + manual | Manual |
| Week-scheduled operation | + | - |
| Filter replacement indication | By the filter timer<br>According to filter clogging differential pressure switch readings (only for VUT/VUE 550 VB EC A21) | By the filter timer |
| Alarm indication | + | + |
| Speed selection | + | + |
| Timer | + | - |
| RH% sensor | Option | Option |
| $CO_2$ sensor | Option | Option |
| VOC sensor | Option | Option |
| PM2.5 sensor | Option | Option |
| Boost mode | + | - |
| Fireplace mode | + | - |
| Preheater connection | Option<br>(built-in preheater in VUT 250 VBE EC units) | - |
| Reheater connection | Option | - |
| Cooler connection | Option | - |
| Fire alarm sensor | Option | Option |
| Minimum supply air temperature control | + | - |

## Unit design




**VUT 350 VB EC**

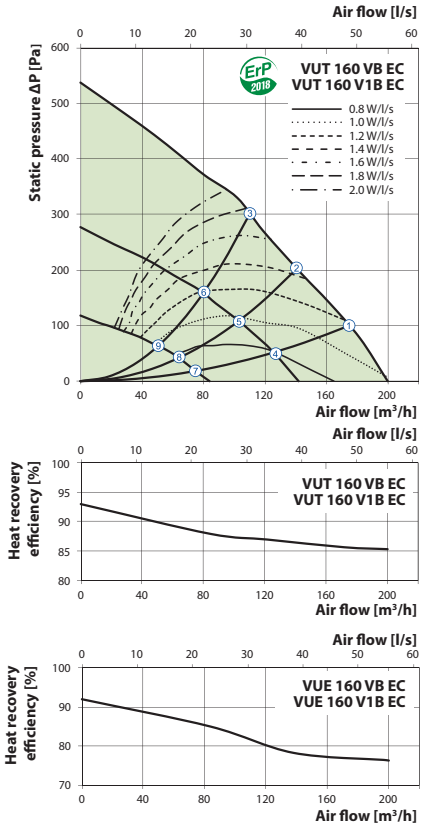



**VUT(E) 250 VBE EC L/R**

**Technical data**

| | VUT 160 VB EC | VUE 160 VB EC | VUT 160 V1B EC | VUE 160 V1B EC |
|---|---|---|---|---|
| Unit voltage [V/50 (60) Hz] | 1~230 | | | |
| Maximum power [W] | 57 | | | |
| Maximum current [A] | 0.5 | | | |
| Maximum air flow [m³/h] | 200 | | | |
| Sound pressure level at 3 m distance [dBA] | 24 | | 22 | |
| Transported air temperature [°C] | -25...+40 | | | |
| Casing material | painted steel | | | |
| Insulation | 20 mm mineral wool | | 40 mm mineral wool | |
| Extract filter | G4 | | | |
| Supply filter | F7 (G4 – option) | | | |
| Connected air duct diameter [mm] | Ø125 | | | |
| Weight [kg] | 36 | | 44 | |
| Heat recovery efficiency [%] | 85–93 | 76–92 | 85–93 | 76–92 |
| Heat exchanger type | counter-flow | | | |
| Heat exchanger material | polystyrene | enthalpy | polystyrene | enthalpy |
| Energy efficiency class for A14, A21 | A+ | A | A+ | A |

**VENTS VUT/VUE VB EC**




VUT 160 VB EC, VUE 160 VB EC

| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 52 | 28 | 46 | 49 | 41 | 35 | 33 | 36 | 29 | | |
| $L_{wA}$ to supply air outlet | dBA | 60 | 32 | 52 | 58 | 47 | 37 | 36 | 41 | 35 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 51 | 27 | 45 | 49 | 41 | 36 | 32 | 35 | 29 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 60 | 31 | 50 | 59 | 48 | 36 | 36 | 41 | 32 | | |
| $L_{wA}$ to environment | dBA | 45 | 25 | 41 | 42 | 34 | 31 | 28 | 27 | 22 | 24 | 34 |

VUT 160 V1 EC, VUE 160 V1 EC, VUT 160 V1B EC, VUE 160 V1B EC

| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 52 | 28 | 46 | 49 | 41 | 35 | 33 | 36 | 29 | | |
| $L_{wA}$ to supply air outlet | dBA | 60 | 32 | 52 | 58 | 47 | 37 | 36 | 41 | 35 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 51 | 27 | 45 | 49 | 41 | 36 | 32 | 35 | 29 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 60 | 31 | 50 | 59 | 48 | 36 | 36 | 41 | 32 | | |
| $L_{wA}$ to environment | dBA | 43 | 23 | 39 | 39 | 33 | 29 | 25 | 25 | 20 | 22 | 32 |

**Calculation of air temperature at heat exchanger outlet:**

$$t = t_{outd} + k_{hr} * (t_{extr} - t_{outd})/100,$$

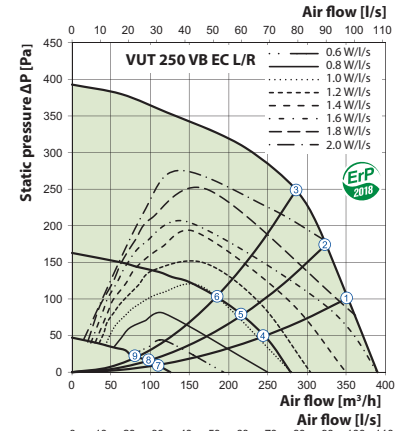
where

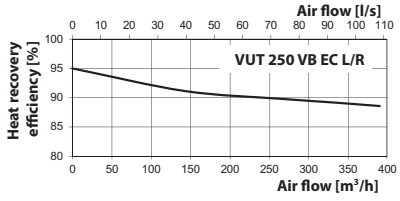
$t_{outd}$ is outdoor air temperature [°C]
$t_{extr}$ is extract air temperature [°C]
$k_{hr}$ is heat exchanger efficiency (according to the diagram) [%]

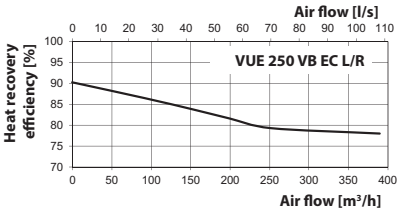
**Technical data**

| | VUT 250 VB EC L/R | VUE 250 VB EC L/R | VUT 250 VBE EC L/R | VUE 250 VBE EC L/R |
|---|---|---|---|---|
| Unit voltage [V/50 (60) Hz] | 1~230 | | | |
| Maximum power [W] | 180 | | | |
| Maximum current [A] | 1.37 | | | |
| Electric heater power [W] | - | | 1400 | |
| Electric heater current [A] | - | | 6.09 | |
| Maximum unit power with an electric heater [W] | 180 | | 1580 | |
| Maximum unit current (with an electric heater) [A] | 1.37 | | 7.46 | |
| Maximum air flow [m³/h] | 390 | | | |
| Sound pressure level at 3 m distance [dBA] | 35 | | | |
| Transported air temperature [°C] | -25...+40 | | | |
| Casing material | painted steel | | | |
| Insulation | 30 mm mineral wool | | | |
| Extract filter | G4 | | | |
| Supply filter | G4 (F7 – option) | | | |
| Connected air duct diameter [mm] | Ø160 | | | |
| Weight [kg] | 66 | | | |
| Heat recovery efficiency [%] | 88–95 | 78–90 | 88–95 | 78–90 |
| Heat exchanger type | counter-flow | | | |
| Heat exchanger material | polystyrene | enthalpy | polystyrene | enthalpy |
| Energy efficiency class for A14, A21 | A+ | A | A+ | A |

**VENTS VUT/VUE VB EC L/R**



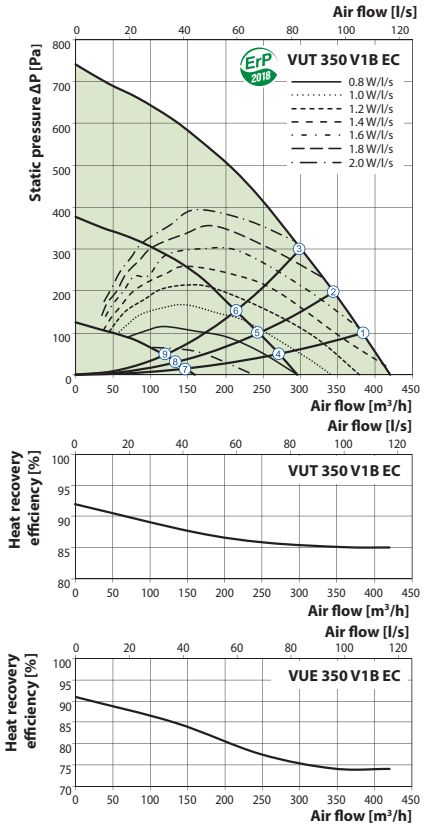




| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{WA}$ to supply air inlet | dBA | 70 | 51 | 55 | 59 | 64 | 65 | 63 | 54 | 49 | 59 |
| $L_{WA}$ to supply air outlet | dBA | 68 | 50 | 55 | 59 | 64 | 63 | 58 | 53 | 48 | 58 |
| $L_{WA}$ to exhaust air inlet | dBA | 76 | 28 | 58 | 66 | 70 | 68 | 69 | 62 | 55 | 65 |
| $L_{WA}$ to exhaust air outlet | dBA | 67 | 27 | 56 | 65 | 57 | 59 | 54 | 47 | 47 | 57 |
| $L_{WA}$ to environment | dBA | 56 | 24 | 50 | 49 | 47 | 45 | 48 | 45 | 35 | 45 |

**Technical data**

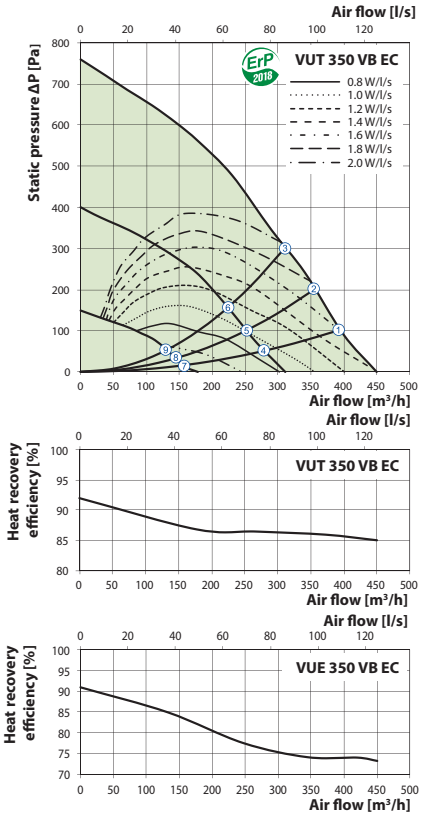
| | VUT 350 V1B EC | VUE 350 V1B EC | VUT 350 VB EC | VUE 350 VB EC |
|---|---|---|---|---|
| Unit voltage [V/50 (60) Hz] | 1~230 | | 1~230 | |
| Maximum power [W] | 169 | | 178 | |
| Maximum current [A] | 1.3 | | 1.4 | |
| Maximum air flow [m³/h] | 420 | | 450 | |
| Sound pressure level at 3 m distance [dBA] | 28 | | 28 | |
| Transported air temperature [°C] | -25...+40 | | -25...+40 | |
| Casing material | painted steel | | painted steel | |
| Insulation | 40 mm mineral wool | | 40 mm mineral wool | |
| Extract filter | G4 | | G4 | |
| Supply filter | F7 (G4 – option) | | F7 (G4 – option) | |
| Connected air duct diameter [mm] | Ø160 | | Ø160 | |
| Weight [kg] | 57 | | 64 | |
| Heat recovery efficiency [%] | 85–92 | 74–91 | 85–92 | 73–91 |
| Heat exchanger type | counter-flow | | counter-flow | |
| Heat exchanger material | polystyrene | enthalpy | polystyrene | enthalpy |
| Energy efficiency class for A14, A21 | A+ | A | A+ | A |

**VENTS VUT/VUE VB EC**




| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 55 | 51 | 45 | 51 | 44 | 37 | 33 | 35 | 30 | | |
| $L_{wA}$ to supply air outlet | dBA | 65 | 59 | 54 | 63 | 52 | 41 | 39 | 43 | 34 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 55 | 50 | 45 | 51 | 44 | 37 | 33 | 35 | 31 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 66 | 57 | 53 | 64 | 53 | 39 | 38 | 43 | 35 | | |
| $L_{wA}$ to environment | dBA | 49 | 45 | 40 | 44 | 38 | 33 | 29 | 27 | 22 | 28 | 38 |

**VENTS VUT/VUE VB EC**

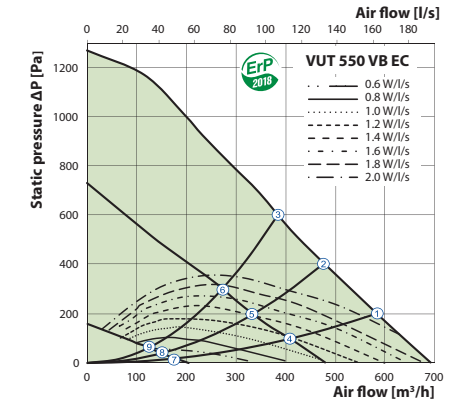


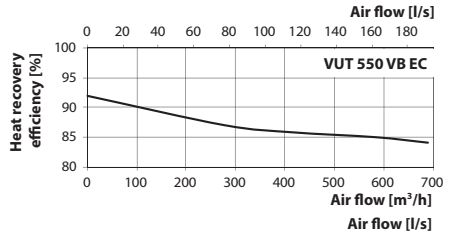

| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 56 | 50 | 46 | 53 | 45 | 39 | 34 | 36 | 32 | | |
| $L_{wA}$ to supply air outlet | dBA | 64 | 56 | 52 | 63 | 52 | 39 | 38 | 43 | 35 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 56 | 52 | 46 | 53 | 45 | 38 | 34 | 36 | 31 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 64 | 58 | 53 | 62 | 51 | 40 | 38 | 42 | 33 | | |
| $L_{wA}$ to environment | dBA | 49 | 45 | 40 | 44 | 38 | 33 | 29 | 27 | 22 | 28 | 38 |

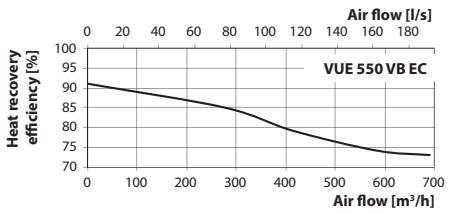
**Technical data**

| | VUT 550 VB EC | VUE 550 VB EC |
|---|---|---|
| Unit voltage [V/50 (60) Hz] | 1~230 | |
| Maximum power [W] | 350 | |
| Maximum current [A] | 2.4 | |
| Maximum air flow [m³/h] | 692 | |
| Sound pressure level at 3 m distance [dBA] | 38 | |
| Transported air temperature [°C] | -25...+40 | |
| Casing material | painted steel | |
| Insulation | 40 mm mineral wool | |
| Extract filter | G4 | |
| Supply filter | F7 (G4 – option) | |
| Connected air duct diameter [mm] | Ø200 | |
| Weight [kg] | 82 | |
| Heat recovery efficiency [%] | 84–92 | 73–91 |
| Heat exchanger type | counter-flow | |
| Heat exchanger material | polystyrene | enthalpy |
| Energy efficiency class for A14, A21 | A+ | A |

**VENTS VUT/VUE VB EC**




| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air outlet | dBA | 68 | 53 | 49 | 53 | 63 | 61 | 53 | 78 | 43 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 62 | 44 | 42 | 47 | 49 | 46 | 42 | 36 | 27 | | |
| $L_{wA}$ to environment | dBA | 56 | 41 | 37 | 39 | 43 | 45 | 45 | 38 | 35 | 38 | 48 |

**Technical data**

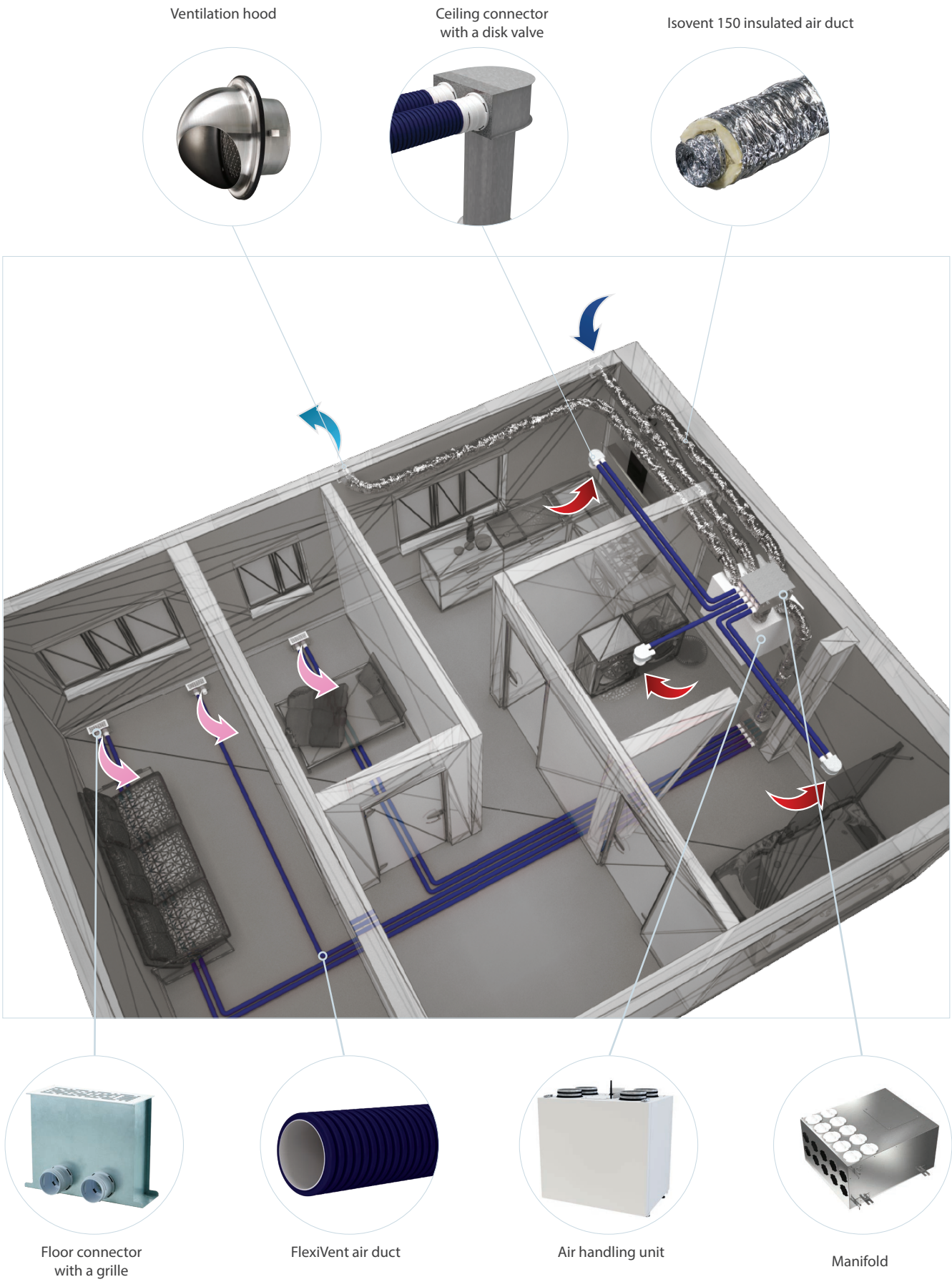
| VUT 350 VB EC | | | |
|---|---|---|---|
| Outlet spigot configuration | Air flow [l/s] | Specific power input [W/l/s] | Heat exchange efficiency [%] |
| Kitchen + 1 additional room with high level of humidity | 21 | 0.71 | 88 |
| Kitchen + 2 additional rooms with high levels of humidity | 29 | 0.64 | 88 |
| Kitchen + 3 additional rooms with high levels of humidity | 37 | 0.68 | 87 |
| Kitchen + 4 additional rooms with high levels of humidity | 45 | 0.76 | 86 |
| Kitchen + 5 additional rooms with high levels of humidity | 53 | 0.86 | 86 |
| Kitchen + 6 additional rooms with high levels of humidity | 61 | 1.07 | 85 |
| Kitchen + 7 additional rooms with high levels of humidity | 69 | 1.26 | 85 |

| VUT 550 VB EC | | | |
|---|---|---|---|
| Outlet spigot configuration | Air flow [l/s] | Specific power input [W/l/s] | Heat exchange efficiency [%] |
| Kitchen + 1 additional room with high level of humidity | 21 | 0.71 | 87 |
| Kitchen + 2 additional rooms with high levels of humidity | 29 | 0.63 | 88 |
| Kitchen + 3 additional rooms with high levels of humidity | 37 | 0.63 | 88 |
| Kitchen + 4 additional rooms with high levels of humidity | 45 | 0.72 | 88 |
| Kitchen + 5 additional rooms with high levels of humidity | 53 | 0.84 | 88 |
| Kitchen + 6 additional rooms with high levels of humidity | 61 | 0.98 | 87 |
| Kitchen + 7 additional rooms with high levels of humidity | 69 | 1.16 | 87 |

| Point | Power [W] | | | | |
|---|---|---|---|---|---|
| | VUT 160 VB EC<br>VUT 160 V1B EC<br>VUE 160 VB EC<br>VUE 160 V1B EC | VUT 250 VB EC L/R<br>VUE 250 VB EC L/R | VUT 350 V1B EC<br>VUE 350 V1B EC | VUT 350 VB EC<br>VUE 350 VB EC | VUT 550 VB EC<br>VUE 550 VB EC |
| 1 | 57 | 180 | 168 | 177 | 345 |
| 2 | 56 | 179 | 166 | 175 | 349 |
| 3 | 54 | 168 | 162 | 170 | 349 |
| 4 | 28 | 63 | 65 | 71 | 131 |
| 5 | 27 | 57 | 64 | 71 | 131 |
| 6 | 26 | 52 | 62 | 69 | 131 |
| 7 | 14 | 15 | 18 | 21 | 22 |
| 8 | 13 | 15 | 17 | 21 | 22 |
| 9 | 13 | 14 | 17 | 21 | 22 |

| Point | Sound pressure level at 3 m distance [dBA] | | | | |
|---|---|---|---|---|---|
| | VUT 160 VB EC<br>VUT 160 V1B EC<br>VUE 160 VB EC<br>VUE 160 V1B EC | VUT 250 VB EC L/R<br>VUE 250 VB EC L/R | VUT 350 V1B EC<br>VUE 350 V1B EC | VUT 350 VB EC<br>VUE 350 VB EC | VUT 550 VB EC<br>VUE 550 VB EC |
| 1 | 24 (34) | 35 (45) | 28 (38) | 28 (38) | 38 (48) |
| 2 | 23 (33) | 35 (45) | 27 (37) | 27 (37) | 36 (45) |
| 3 | 23 (33) | 35 (45) | 27 (37) | 27 (37) | 36 (45) |
| 4 | 20 (30) | 24 (34) | 23 (33) | 23 (33) | 27 (37) |
| 5 | 20 (30) | 24 (34) | 22 (32) | 22 (32) | 27 (37) |
| 6 | 20 (30) | 23 (33) | 22 (32) | 22 (32) | 27 (37) |
| 7 | 13 (23) | 18 (27) | 15 (25) | 15 (25) | 17 (26) |
| 8 | 13 (23) | 17 (27) | 14 (24) | 14 (24) | 17 (27) |
| 9 | 13 (23) | 17 (27) | 14 (24) | 14 (24) | 17 (27) |

**Application options**



**Accessories for air handling units**

| Model | G4 panel filter | F7 panel filter | LCD control panel | Control panel | Control panel with Wi-Fi | Indoor humidity sensor | $CO_2$ sensor with indication | $CO_2$ sensor | Humidity sensor |
|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |
| VUT 160 VB EC A21 | SF 285x195x10 G4 | SF 285x195x10 F7 | A25 | A22 | A22 Wi-Fi | HV2 | CO2-1 | CO2-2 | HR-S |
| VUT 160 VB EC A14 | | | - | - | - | | | | |
| VUE 160 VB EC A21 | | | A25 | A22 | A22 Wi-Fi | | | | |
| VUE 160 VB EC A14 | | | - | - | - | | | | |
| VUT 160 V1B EC A21 | | | A25 | A22 | A22 Wi-Fi | | | | |
| VUT 160 V1B EC A14 | | | - | - | - | | | | |
| VUE 160 V1B EC A21 | | | A25 | A22 | A22 Wi-Fi | | | | |
| VUE 160 V1B EC A14 | | | - | - | - | | | | |
| VUT 250 VB EC A21 | SF 340x170x48 G4 | SF 340x170x48 F7 | A25 | A22 | A22 Wi-Fi | | | | |
| VUT 250 VB EC A14 | | | - | - | - | | | | |
| VUE 250 VB EC A21 | | | A25 | A22 | A22 Wi-Fi | | | | |
| VUE 250 VB EC A14 | | | - | - | - | | | | |
| VUT 350 V1B EC A21 | SF 384x196x40 G4 | SF 384x196x40 F7 | A25 | A22 | A22 Wi-Fi | | | | |
| VUT 350 V1B EC A14 | | | - | - | - | | | | |
| VUE 350 V1B EC A21 | | | A25 | A22 | A22 Wi-Fi | | | | |
| VUE 350 V1B EC A14 | | | - | - | - | | | | |
| VUT 350 VB EC A21 | SF 500x196x40 G4 | SF 500x196x40 F7 | A25 | A22 | A22 Wi-Fi | | | | |
| VUT 350 VB EC A14 | | | - | - | - | | | | |
| VUE 350 VB EC A21 | | | A25 | A22 | A22 Wi-Fi | | | | |
| VUE 350 VB EC A14 | | | - | - | - | | | | |
| VUT 550 VB EC A21 | SF 630x198x40 G4 | SF 630x198x40 F7 | A25 | A22 | A22 Wi-Fi | | | | |
| VUT 550 VB EC A14 | | | - | - | - | | | | |
| VUE 550 VB EC A21 | | | A25 | A22 | A22 Wi-Fi | | | | |
| VUE 550 VB EC A14 | | | - | - | - | | | | |

| Model | Kitchen hood | Electric preheater | Electric reheater | Hydraulic U-trap | Air damper | Electric actuator |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| VUT 160 VB EC A21 | KH-1 | NKP-125 A21 V.2 | NKD-125 A21 V.2 | SH-32 | KRV 125 | LF230 |
| VUT 160 VB EC A14 | | - | - | | | |
| VUE 160 VB EC A21 | | NKP-125 A21 V.2 | NKD-125 A21 V.2 | - | | |
| VUE 160 VB EC A14 | | - | - | | | |
| VUT 160 V1B EC A21 | | NKP-125 A21 V.2 | NKD-125 A21 V.2 | SH-32 | | |
| VUT 160 V1B EC A14 | | - | - | | | |
| VUE 160 V1B EC A21 | | NKP-125 A21 V.2 | NKD-125 A21 V.2 | - | | |
| VUE 160 V1B EC A14 | | - | - | | | |
| VUT 250 VB EC A21 | | - | NKD-160 A21 V.2 | SH-32 | KRV 160 | |
| VUT 250 VB EC A14 | | - | - | | | |
| VUE 250 VB EC A21 | | - | NKD-160 A21 V.2 | - | | |
| VUE 250 VB EC A14 | | - | - | | | |
| VUT 350 V1B EC A21 | | NKP-160 A21 V.2 | NKD-160 A21 V.2 | SH-32 | | |
| VUT 350 V1B EC A14 | | - | - | | | |
| VUE 350 V1B EC A21 | | NKP-160 A21 V.2 | NKD-160 A21 V.2 | - | | |
| VUE 350 V1B EC A14 | | - | - | | | |
| VUT 350 VB EC A21 | | NKP-160 A21 V.2 | NKD-160 A21 V.2 | SH-32 | | |
| VUT 350 VB EC A14 | | - | - | | | |
| VUE 350 VB EC A21 | | NKP-160 A21 V.2 | NKD-160 A21 V.2 | - | | |
| VUE 350 VB EC A14 | | - | - | | | |
| VUT 550 VB EC A21 | | NKP-200 A21 V.2 | NKD-200 A21 V.2 | SH-32 | KRV 200 | |
| VUT 550 VB EC A14 | | - | - | | | |
| VUE 550 VB EC A21 | | NKP-200 A21 V.2 | NKD-200 A21 V.2 | - | | |
| VUE 550 VB EC A14 | | - | - | | | |

Series

# VENTS VUT/VUE HB EC
# VENTS VUT/VUE HBE EC


Heat recovery air handling units in sound- and heat-insulated casings
Air flow up to **830 m³/h**
Heat recovery efficiency up to **98 %**

## Description

The VUT/VUE HB EC and VUT/VUE HBE EC air handling units are the fully-featured ventilation units that ensure air filtration, fresh air supply and stale air extract. Used in ventilation and air conditioning systems in commercial, office and other public or industrial premises that require an economical solution and a controlled ventilation system.

## Modifications

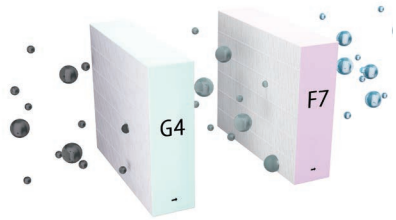
The **VUT HB EC** model is equipped with a counter-flow heat exchanger made of polystyrene.
The **VUT HBE EC** model is equipped with a counter-flow heat exchanger made of polystyrene and an electric heater.
The **VUE HB EC** model is equipped with with an enthalpy counter-flow heat exchanger.
The **VUE HBE EC** model is equipped with an enthalpy counter-flow heat exchanger and an electric heater.

## Casing

Made of aluzinc steel, internally filled with a 40 mm mineral wool heat- and sound-insulating layer.

## Filter

Two built-in panel filters with filtration class G4 and F7 provide efficient supply air filtration. The G4 panel filter is used for extract air cleaning.

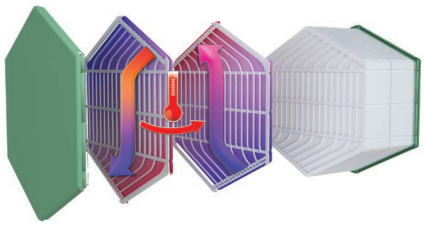



## Fans

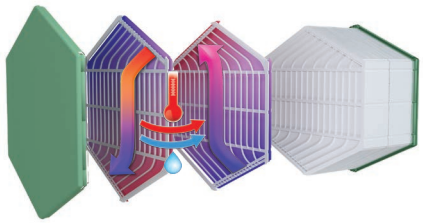
High-efficient electronically-commutated motors with external rotor. The 700 size units are equipped with fans with backward curved blades.

## Heat exchanger

The VUT units are equipped with a counter-flow polystyrene heat exchanger.



The VUE units are equipped with enthalpy counter-flow heat exchanger.



## Heater

The **VUT/VUE HBE EC** units are equipped with an electric heater for additional heating of supply air downstream of the heat exchanger.

## Bypass

The unit is equipped for summer cooling. If the unit is equipped with an electric heater, the bypass is used for frost protection of the heat exchanger.

## Automation

The **VUT/VUE HB(E) EC A21** units are equipped with an integrated control system. The A21 controller allows integrating the unit into the Smart Home system or BMS (Building Management Systems). To control the unit using a mobile application via Wi-Fi, you need to download the VENTS Home mobile application.

Google play

Download on the App Store

Modbus

## Frost protection

Frost protection in the **VUT/VUE HBE EC A21** units is achieved by a bypass. A preheater can be additionally installed in the **VUT/VUE HB EC A21** units for frost protection.

## Mounting

The unit is designed for suspended or floor mounting. Access for service and filter cleaning from the front panel. During mounting stage the front and the back panels can be reversed providing either left-handed or right-handed unit mounting.

**Designation key**

| Series | Rated air flow [m³/h] | Spigot orientation | Bypass | Heater type | Motor type | Automation |
|---|---|---|---|---|---|---|
| **VUT**: ventilation with heat recovery<br>**VUE**: ventilation with energy recovery | 300; 400; 700 | **H**: horizontal | **B**: bypass | _: without a heater<br>**E**: electric heater | **EC**: synchronous electronically commutated motor | **A21** |

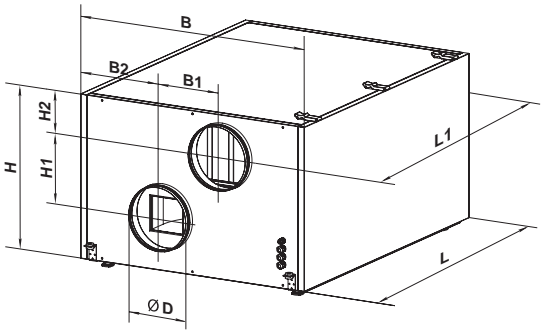
**Control and automation**

| Functions | A21 |
|---|---|
| Control via Wi-Fi using a mobile application | + |
| Control via a wired remote control panel | option (A22)  |
| Wired remote LCD control panel | option (A25)  |
| Control via a wireless remote control panel | option (A22 Wi-Fi)  |
| BMS | RS-485<br>WI-FI<br>Ethernet<br>MODBUS (RTU, TCP) |
| Service Vents Cloud Server | + |
| Speed selection | + |
| Filter replacement indication | according to hour meter readings |
| | according to filter clogging differential pressure switch readings |
| Alarm indication | full alarm description in the mobile application |
| Week-scheduled operation | + |
| Bypass | automatic |
| | manual |
| Timers | + |
| Boost mode | + |
| Fireplace mode | + |
| Frost protection | through cyclic stops of the supply fan |
| | through preheating (option) |
| | using a bypass |
| Reheater connection | option |
| Cooler connection | option |
| Minimum supply air temperature control | + |
| Humidity control | option |
| $CO_2$ controller | option |
| VOC controller | option |
| PM2.5 control | option |
| Fire alarm sensor connection | option |

**Option. The functionality is available when you purchase the appropriate accessory.*

**Overall dimensions**

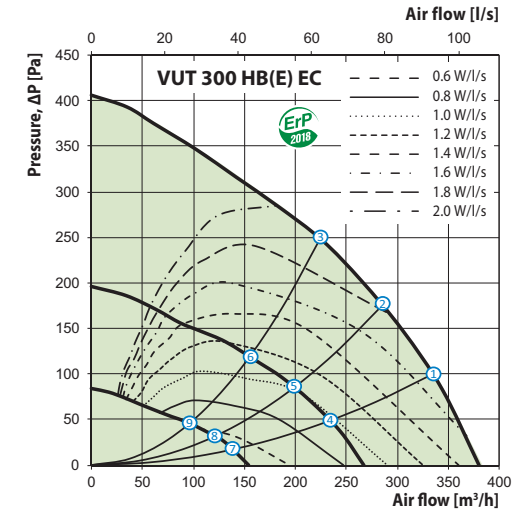
| Model | Dimensions [mm] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Ø D | B | B1 | B2 | H | H1 | H2 | L | L1 |
| VUT/VUE 300 HB(E) EC | 157 | 566 | 190 | 189 | 479 | 193 | 118 | 1083 | 1180 |
| VUT/VUE 400 HB(E) EC | 197 | 682 | 248 | 217 | 504 | 201 | 141 | 1094 | 1191 |
| VUT/VUE 700 HB(E) EC | 247 | 866 | 274 | 296 | 601 | 234 | 166 | 1282 | 1379 |

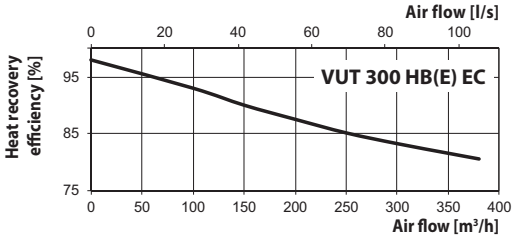


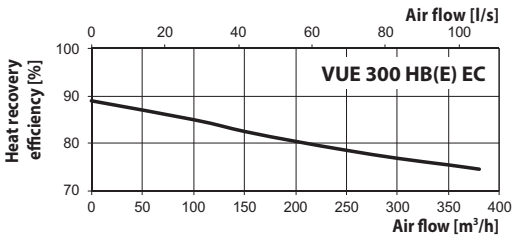
## Technical data

| | VUT 300 HB EC A21 | VUT 300 HBE EC A21 | VUE 300 HB EC A21 | VUE 300 HBE EC A21 |
|---|---|---|---|---|
| Unit voltage [V/50 (60) Hz] | 1~230 | | | |
| Maximum unit power (without a heater) [W] | 182 | | 182 | |
| Maximum unit current (without a heater) [A] | 1.4 | | 1.4 | |
| Electric heater power [W] | - | 2800 | - | 2800 |
| Electric heater current [A] | - | 12.2 | - | 12.2 |
| Maximum unit power with an electric heater [W] | 182 | 2982 | 182 | 2982 |
| Maximum unit current (with an electric heater) [A] | 1.4 | 13.6 | 1.4 | 13.6 |
| Maximum air flow [m³/h] | 380 | | 380 | |
| Sound pressure level at 3 m distance [dBA] | 24 | | 24 | |
| Maximum transported air temperature [°C] | -25...+40 | | | |
| Casing material | galvanized steel | | | |
| Insulation | 40 mm mineral wool | | | |
| Filter: extract | G4 | | | |
| Filter: supply | G4+F7 | | | |
| Connected air duct diameter [mm] | Ø160 | | Ø160 | |
| Weight [kg] | 63.1 | 64.3 | 63.1 | 64.3 |
| Heat recovery efficiency | from 80 up to 98 % | | from 74 up to 89 % | |
| Heat exchanger type | counter-flow | | | |
| Heat exchanger material | polystyrene | | enthalpy | |
| SEC class | A+ | A+ | A | A |

VENTS VUT/VUE HB(E) EC



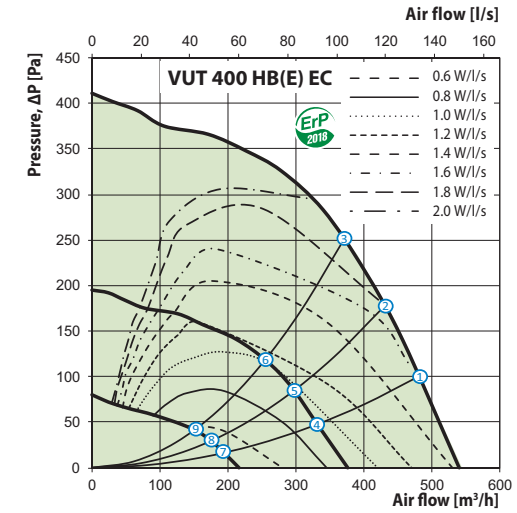



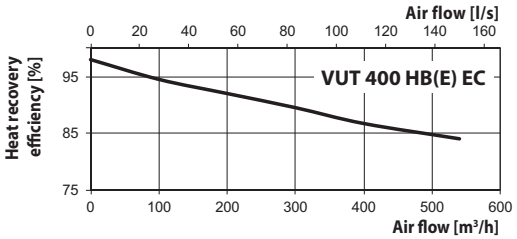

| Point | Unit power (without a heater) [W] | Sound pressure level at 3 m (1 m) distance [dBA] |
|---|---|---|
| | VUT/VUE 300 HB(E) EC | VUT/VUE 300 HB(E) EC |
| 1 | 155 | 24 (34) |
| 2 | 143 | 23 (33) |
| 3 | 119 | 23 (33) |
| 4 | 61 | 20 (30) |
| 5 | 56 | 20 (30) |
| 6 | 46 | 20 (30) |
| 7 | 20 | 13 (23) |
| 8 | 19 | 13 (23) |
| 9 | 18 | 13 (23) |

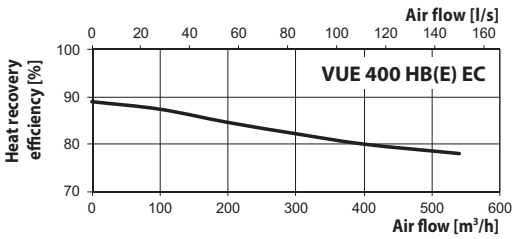
| A-weighted sound power level | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 67 | 50 | 55 | 56 | 62 | 60 | 62 | 56 | 50 | | |
| $L_{wA}$ to supply air outlet | dBA | 53 | 42 | 47 | 46 | 46 | 44 | 39 | 29 | 21 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 68 | 56 | 54 | 61 | 62 | 59 | 61 | 56 | 50 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 55 | 42 | 47 | 51 | 48 | 46 | 43 | 31 | 22 | | |
| $L_{wA}$ surrounding | dBA | 45 | 34 | 35 | 40 | 39 | 32 | 36 | 31 | 27 | 24 | 34 |

| | VUT 400 HB EC A21 | VUT 400 HBE EC A21 | VUE 400 HB EC A21 | VUE 400 HBE EC A21 |
|---|---|---|---|---|
| Unit voltage [V/50 (60) Hz] | 1~230 | | | |
| Maximum unit power (without a heater) [W] | 289 | | 289 | |
| Maximum unit current (without a heater) [A] | 2.1 | | 2.1 | |
| Electric heater power [W] | - | 2800 | - | 2800 |
| Electric heater current [A] | - | 12.2 | - | 12.2 |
| Maximum unit power with an electric heater [W] | 289 | 3089 | 289 | 3089 |
| Maximum unit current (with an electric heater) [A] | 2.1 | 14.3 | 2.1 | 14.3 |
| Maximum air flow [m³/h] | 540 | | 540 | |
| Sound pressure level at 3 m distance [dBA] | 27 | | 27 | |
| Maximum transported air temperature [°C] | -25...+40 | | | |
| Casing material | galvanized steel | | | |
| Insulation | 40 mm mineral wool | | | |
| Filter: extract | G4 | | | |
| Filter: supply | G4+F7 | | | |
| Connected air duct diameter [mm] | Ø200 | | Ø200 | |
| Weight [kg] | 74.8 | 76 | 74.8 | 76 |
| Heat recovery efficiency | from 84 up to 98 % | | from 78 up to 89 % | |
| Heat exchanger type | counter-flow | | | |
| Heat exchanger material | polystyrene | | enthalpy | |
| SEC class | A+ | A+ | A | A |

**VENTS VUT/VUE HB(E) EC**



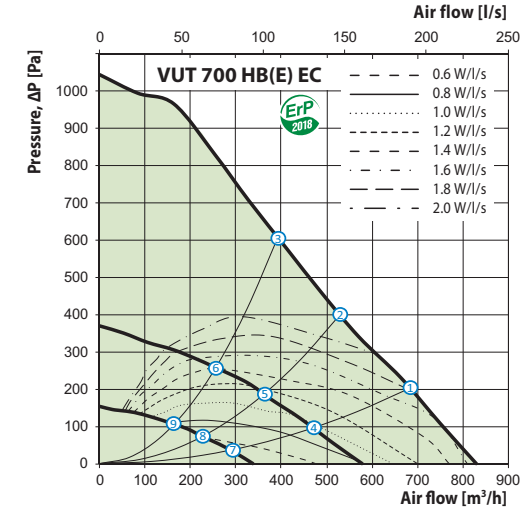

| Point | Unit power (without a heater) [W] | Sound pressure level at 3 m (1 m) distance [dBA] |
|---|---|---|
| | VUT/VUE 400 HB(E) EC | VUT/VUE 400 HB(E) EC |
| 1 | 240 | 27 (37) |
| 2 | 215 | 26 (36) |
| 3 | 196 | 26 (36) |
| 4 | 89 | 21 (31) |
| 5 | 80 | 21 (31) |
| 6 | 72 | 20 (30) |
| 7 | 27 | 19 (29) |
| 8 | 26 | 19 (29) |
| 9 | 24 | 17 (27) |

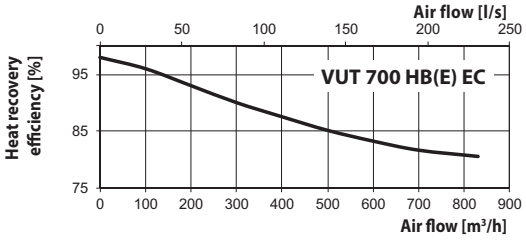
| A-weighted sound power level | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 71 | 52 | 57 | 57 | 68 | 64 | 64 | 59 | 53 | | |
| $L_{wA}$ to supply air outlet | dBA | 56 | 44 | 49 | 47 | 52 | 47 | 41 | 31 | 24 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 70 | 52 | 56 | 60 | 66 | 62 | 64 | 60 | 53 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 58 | 39 | 49 | 52 | 53 | 49 | 46 | 35 | 24 | | |
| $L_{wA}$ surrounding | dBA | 48 | 32 | 37 | 40 | 45 | 36 | 38 | 35 | 30 | 27 | 37 |

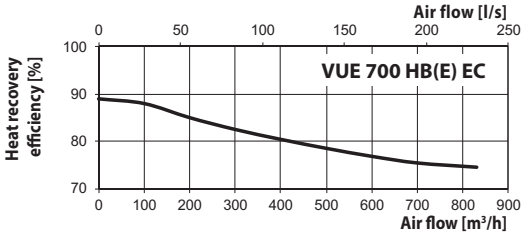
**Technical data**

| | VUT 700 HB EC A21 | VUT 700 HBE EC A21 | VUE 700 HB EC A21 | VUE 700 HBE EC A21 |
|---|---|---|---|---|
| Unit voltage [V/50 (60) Hz] | 1~230 | | | |
| Maximum unit power (without a heater) [W] | 336 | | 336 | |
| Maximum unit current (without a heater) [A] | 2.4 | | 2.4 | |
| Electric heater power [W] | - | 3600 | - | 3600 |
| Electric heater current [A] | - | 15.6 | - | 15.6 |
| Maximum unit power with an electric heater [W] | 336 | 3936 | 336 | 3936 |
| Maximum unit current (with an electric heater) [A] | 2.4 | 18.0 | 2.4 | 18.0 |
| Maximum air flow [m³/h] | 830 | | 830 | |
| Sound pressure level at 3 m distance [dBA] | 31 | | 31 | |
| Maximum transported air temperature [°C] | -25...+40 | | | |
| Casing material | galvanized steel | | | |
| Insulation | 40 mm mineral wool | | | |
| Filter: extract | G4 | | | |
| Filter: supply | G4+F7 | | | |
| Connected air duct diameter [mm] | Ø250 | | Ø250 | |
| Weight [kg] | 107 | 108.4 | 107 | 108.4 |
| Heat recovery efficiency | from 80 up to 98 % | | from 74 up to 89 % | |
| Heat exchanger type | counter-flow | | | |
| Heat exchanger material | polystyrene | | enthalpy | |
| SEC class | A+ | A+ | A | A |

VENTS VUT/VUE HB(E) EC




| Point | Unit power (without a heater) [W] | Sound pressure level at 3 m (1 m) distance [dBA] |
|---|---|---|
| | VUT/VUE 700 HB(E) EC | VUT/VUE 700 HB(E) EC |
| 1 | 336 | 31 (41) |
| 2 | 336 | 30 (40) |
| 3 | 336 | 29 (39) |
| 4 | 123 | 25 (35) |
| 5 | 115 | 25 (35) |
| 6 | 96 | 24 (34) |
| 7 | 41 | 23 (33) |
| 8 | 38 | 23 (33) |
| 9 | 36 | 20 (30) |

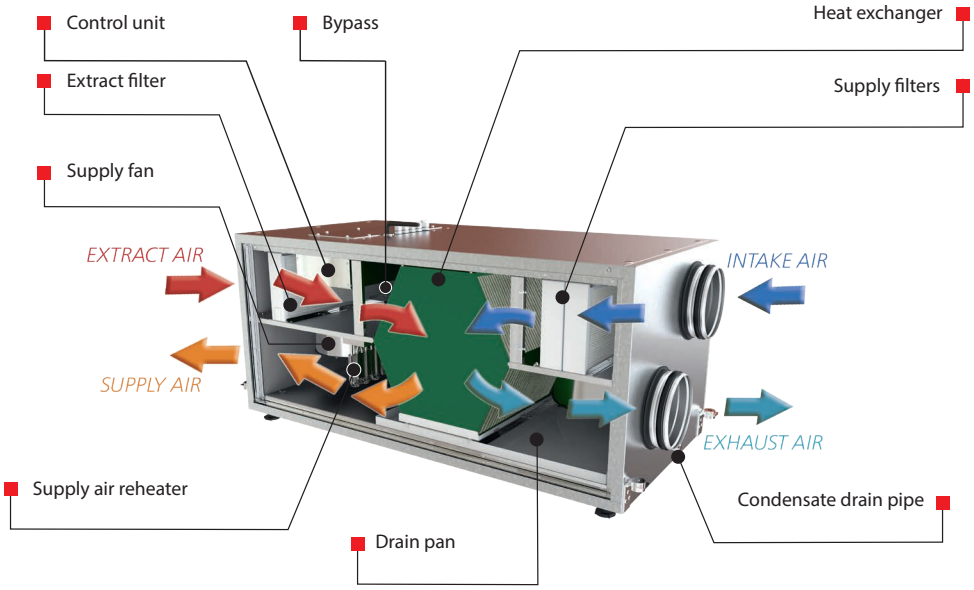
| A-weighted sound power level | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{WA}$ to supply air inlet | dBA | 76 | 56 | 61 | 61 | 73 | 69 | 69 | 64 | 57 | | |
| $L_{WA}$ to supply air outlet | dBA | 60 | 49 | 53 | 52 | 56 | 51 | 44 | 34 | 26 | | |
| $L_{WA}$ to exhaust air inlet | dBA | 74 | 56 | 60 | 65 | 70 | 66 | 68 | 64 | 56 | | |
| $L_{WA}$ to exhaust air outlet | dBA | 61 | 42 | 53 | 56 | 56 | 52 | 49 | 37 | 25 | | |
| $L_{WA}$ surrounding | dBA | 51 | 35 | 40 | 43 | 49 | 39 | 40 | 37 | 32 | 31 | 41 |

**Accessories for air handling units**

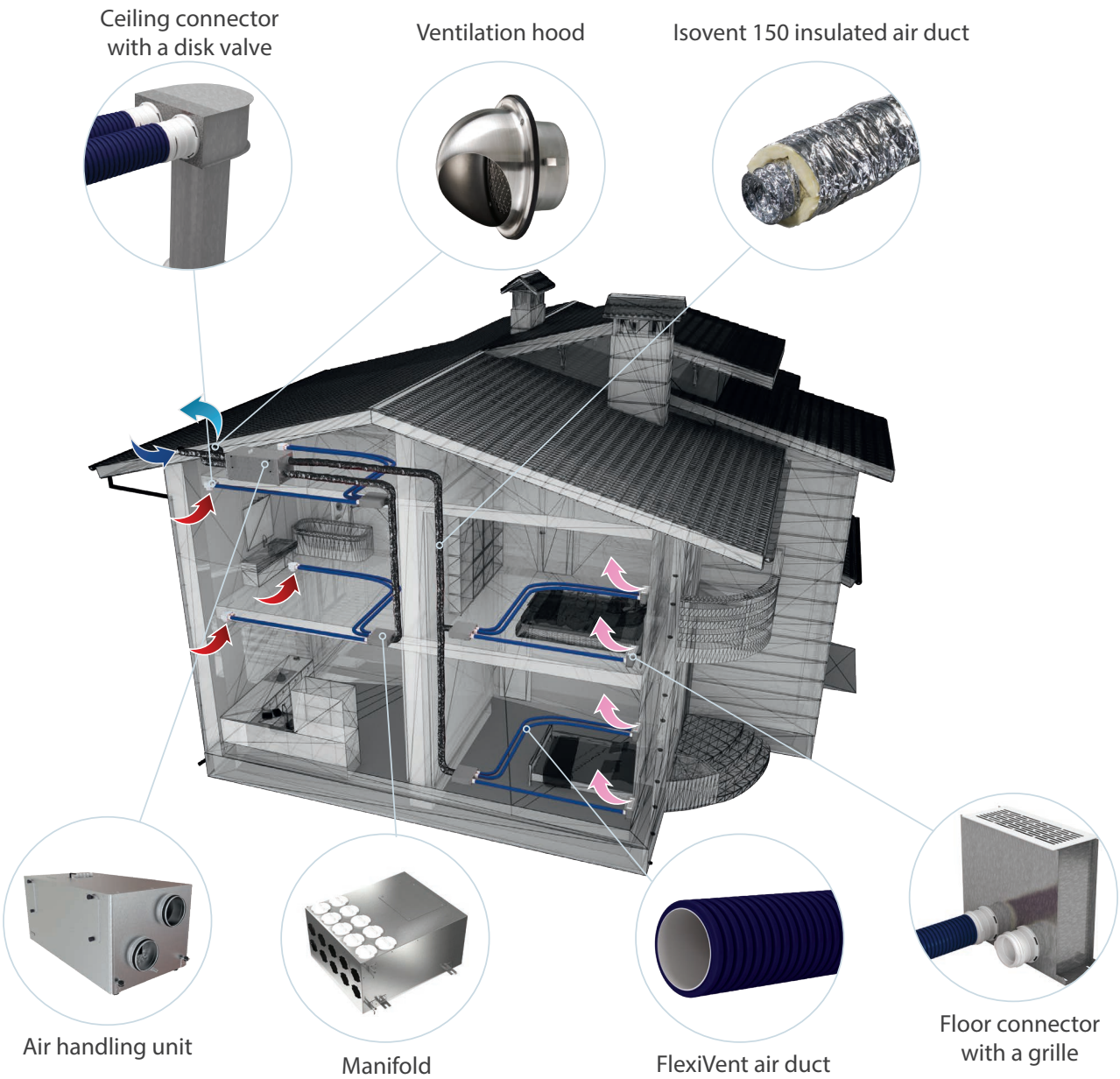
| Model | G4 panel filter | F7 panel filter | LCD control panel | Control panel | Wi-Fi controllable control | Humidity sensor (0-10 V) | $CO_2$ sensor | $CO_2$ sensor with indication | Humidity sensor |
|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |
| VUT/VUE 300 HB EC A21 | SF 484x178x48 G4 | SF 484x178x48 F7 | A25 | A22 | A22 Wi-Fi | HV2 | CO2-1 | CO2-2 | HR-S |
| VUT/VUE 300 HBE EC A21 | | | | | | | | | |
| VUT/VUE 400 HB EC A21 | SF 600x205x48 G4 | SF 600x205x48 F7 | A25 | A22 | A22 Wi-Fi | | | | |
| VUT/VUE 400 HBE EC A21 | | | | | | | | | |
| VUT/VUE 700 HB EC A21 | SF 784x253x48 G4 | SF 784x253x48 F7 | A25 | A22 | A22 Wi-Fi | | | | |
| VUT/VUE 700 HBE EC A21 | | | | | | | | | |

| Model | Electric reheater | Electric heater for preheating | Silencers | Back valves | Air dampers | Electric actuator |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| VUT/VUE 300 HB EC A21 | NKD 160 A21 V.2 | NKP 160 A21 V.2 | SR 160 600/900/1200 | KOM 160 | KRV 160 | TF230 |
| VUT/VUE 300 HBE EC A21 | - | NKP 160 A21 V.2 | | | | |
| VUT/VUE 400 HB EC A21 | NKD 200 A21 V.2 | NKP 200 A21 V.2 | SR 200 600/900/1200 | KOM 200 | KRV 200 | |
| VUT/VUE 400 HBE EC A21 | - | NKP 200 A21 V.2 | | | | |
| VUT/VUE 700 HB EC A21 | NKD 250 A21 V.2 | NKP 250 A21 V.2 | SR 250 600/900/1200 | KOM 250 | KRV 250 | |
| VUT/VUE 700 HBE EC A21 | - | NKP 250 A21 V.2 | | | | |

**Unit design**



**Application options**



Series

# VENTS VUT/VUE PBE EC
# VENTS VUT/VUE PBW EC

Ceiling mounted air handling units in compact heat- and sound-insulated casing with an electric heater.
Air flow up to **4300 m³/h**,
heat recovery efficiency up to **90 %**.

## Description

The VUT/VUE PBE EC air handling unit with an electric heater and the VUT/VUE PBW EC air handling unit with a water heater are the fully-featured ventilation units ensuring air filtration, fresh air supply and stale air extraction. The units are suitable for integration into various ventilation and air conditioning networks requiring cost-effective solutions and controllable ventilation.

## Modifications

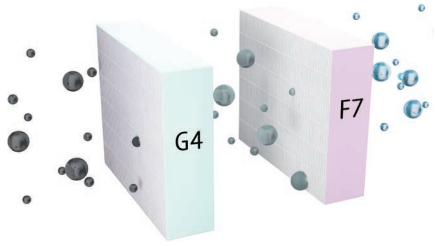
**VUT PBE EC** – models with an electric heater and a polystyrene or aluminium heat exchanger.
**VUE PBE EC** – models with an electric heater and an enthalpy heat exchanger.
**VUT PBW EC** – models with a water heater and a polystyrene or aluminium heat exchanger.
**VUE PBW EC** – models with a water heater and an enthalpy heat exchanger.

## Casing

The heat- and sound-insulated aluzinc casing is internally filled with mineral wool.

## Filter

To filter the supply and extract air, the unit has two built-in G4 filters. For the VUT/VUE 300/550/900 PBE/PBW EC models, a supply filter with an F7 degree of filtration can be installed as an option.

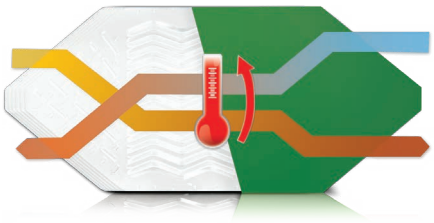



## Motor

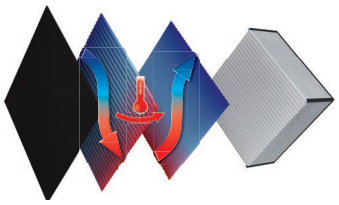
High-efficient electronically-commutated motors with external motor and impellers with backward curved blades.

## Heat exchanger

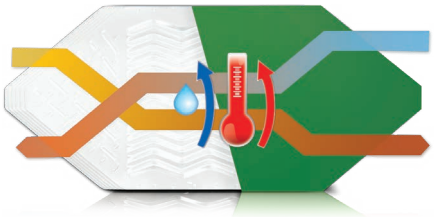
A plate counter-flow polystyrene heat exchanger which returns heat is used in the VUT 300/550/900 PBE/PBW EC units.



The VUT 2000/3000 PBE/PBW EC units are equipped with a cross-flow plate heat exchanger made of aluminium.



The VUE 300/550/900 PBE/PBW EC units are equipped with enthalpy counter-flow heat exchanger.



## Bypass

The units are equipped with a bypass for summer cooling.

## Heater

The electric heater (for the VUT/VUE PBE EC unit) or the water heater (for the VUT/VUE PBW EC unit), installed downstream of the heat exchanger. The water heaters are designed for max. operating pressure of 1.0 MPa (10 bar) and max. heat carrier operating temperature of +95 °C.

## Control and automation

The units are equipped with an integrated automation system. The A21 controller enables integration of the unit into the **Smart Home System** or **BMS (Building Management Systems)**. To control the unit via Wi-Fi, download the VENTS Home mobile app.

Google play
Download on the App Store

Modbus

## Mounting

The unit is designed for indoor mounting. While mounting the unit ensure its correct position to enable condensate collection and drainage.

**Designation key**

| Series | Rated air flow [m³/h] | Mounting modification | Bypass | Heater type | Motor type | Service side | Control | Accessories |
|---|---|---|---|---|---|---|---|---|
| **VUT**: ventilation with heat recovery<br>**VUE**: ventilation with energy recovery | 300; 550; 900; 2000; 3000 | **P**: suspended | **B**: Bypass | **E**: electric<br>**W**: water | **EC**: synchronous electronically commutated motor | **L**: left<br>**R**: right | **A21** | **DTV**: equipped with a differential pressure switch for controlling the contamination of filters |

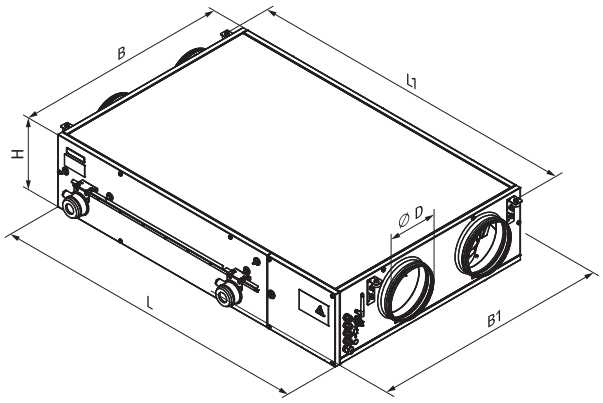
## Control and automation

| Functions | A21 |
|---|---|
| Wi-Fi control via mobile application | + |
| Control via wired remote control panel | option (A22)  |
| Control via wired remote LCD control panel | option (A25)  |
| Control via wireless remote control panel | option (A22 Wi-Fi)  |
| BMS | RS-485<br>WI-FI<br>Ethernet<br>MODBUS (RTU, TCP) |
| Service Vents Cloud Server | + |
| Speed selection | + |
| Filter replacement indication | according to a filter timer |
| | according to a pressure switch of filter clogging for the units with DTV |
| Alarm indication | full alarm description in the mobile application |
| Week-scheduled operation | + |
| Bypass | auto |
| | manual |
| Timer | + |
| Boost mode | + |
| Fireplace mode | + |
| Frost protection | cyclic shutdown of the supply fan |
| | through preheating (option) |
| | using a bypass |
| Cooler connection | option |
| Reheater connection | option |
| Control of minimum supply air temperature | + |
| Humidity control | option |
| $CO_2$ control | option |
| VOC control | option |
| PM2.5 control | option |
| Fire alarm sensor | option |

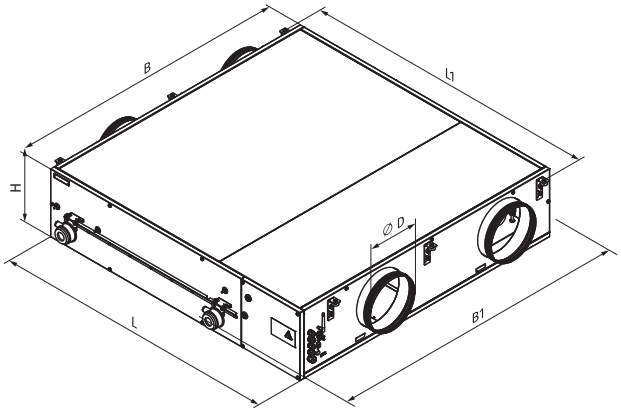
**Option. The functionality is available when you purchase the appropriate accessory.*

**Unit overall dimensions**

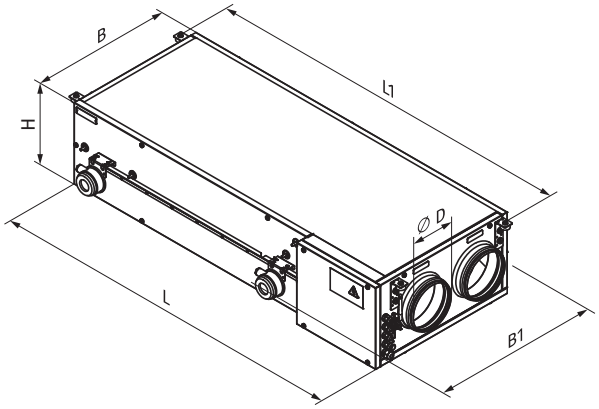
| Type | Dimensions [mm] | | | | | |
|---|---|---|---|---|---|---|
| | ØD | B | B1 | H | L | L1 |
| VUT/VUE 300 PBE EC | 160 | 485 | 577 | 280 | 1238 | 1291 |
| VUT/VUE 550 PBE/PBW EC | 200 | 827 | 960 | 280 | 1238 | 1291 |
| VUT/VUE 900 PBE/PBW EC | 250 | 1351 | 1485 | 318 | 1349 | 1402 |
| VUT 2000 PBE/PBW EC | 315 | 950 | - | 762 | 1400 | 1452 |
| VUT 3000 PBE/PBW EC | 400 | 1265 | - | 881 | 1835 | 1888 |



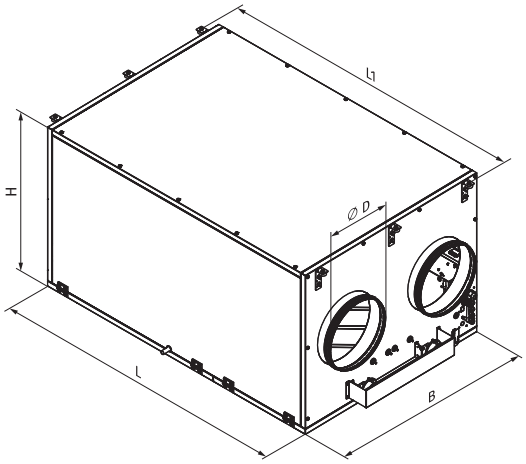

**VUT/VUE 550 PBE EC**
**VUT/VUE 550 PBW EC**




**VUT/VUE 900 PBE EC**
**VUT/VUE 900 PBW EC**




**VUT/VUE 300 PBE EC**

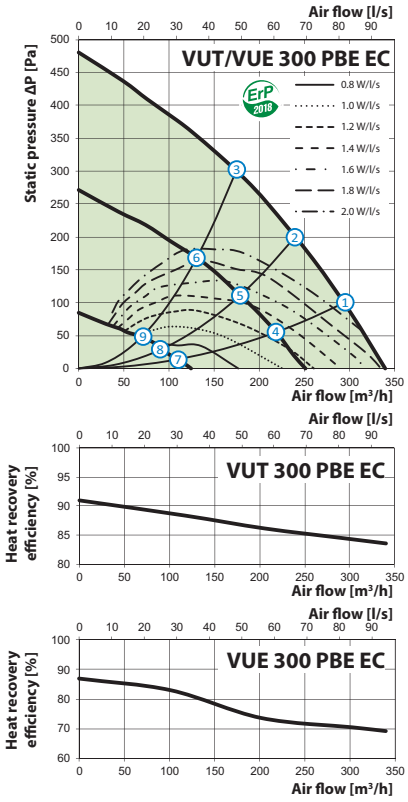



**VUT 2000(3000) PBE EC**
**VUT 2000(3000) PBW EC**

## Technical data

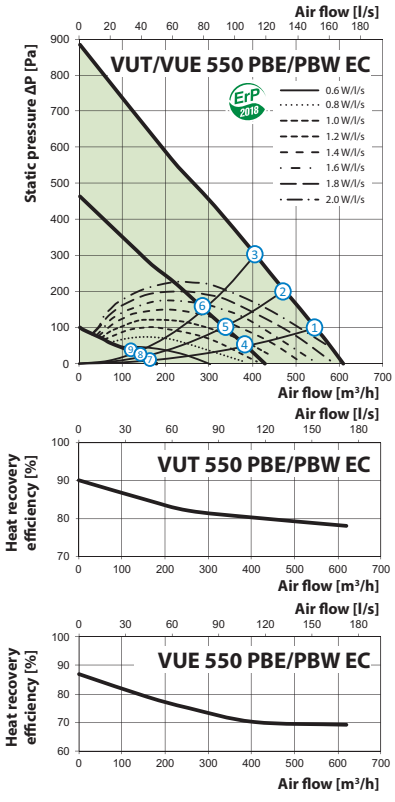
| | VUT 300 PBE EC | VUE 300 PBE EC | VUT 550 PBE EC | VUE 550 PBE EC | VUT 550 PBW EC | VUE 550 PBW EC |
|---|---|---|---|---|---|---|
| Voltage [V/50-60 Hz] | 1~230 | | 1~230 | | 1~230 | |
| Max. unit power without electric heater [W] | 180 | | 322 | | 322 | |
| Integrated electric heater power [W] | 1500 | | 2000 | | - | |
| Max. unit power with electric heater [W] | 1 680 | | 2 322 | | 322 | |
| Max. unit current without electric heater [A] | 1.4 | | 2.4 | | 2.4 | |
| Integrated electric heater current [A] | 6.5 | | 8.7 | | - | |
| Max. unit current with electric heater [A] | 7.9 | | 11.1 | | 2.4 | |
| Number of water (glycol) coil rows | - | | - | | 2 | |
| Max. air flow [m³/h] | 340 | | 608 | | 608 | |
| Sound pressure level at 3 m distance [dBA] | 27 | | 30 | | 30 | |
| Max. transported air temperature [°C] | -25...+40 | | | | | |
| Casing material | aluzinc | | | | | |
| Insulation | 20 mm, mineral wool | | | | | |
| Extract filter | G4 | | | | | |
| Supply filter | G4 (F7 option) | | | | | |
| Connected air duct diameter [mm] | 160 | | 200 | | 200 | |
| Weight [kg] | 44 | | 67 | | 68 | |
| Heat recovery efficiency [%] | 72-90 | 69-87 | 78-90 | 69-87 | 78-90 | 69-87 |
| Heat exchanger type | counter-flow | | | | | |
| Heat exchanger material | polystyrene | enthalpy | polystyrene | enthalpy | polystyrene | enthalpy |
| SEC class | A | | A | | A | |

**VENTS VUT/VUE PBE/PBW EC**




| A-weighted sound power level | | Gen. | Octave frequency band, Hz | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 66 | 13 | 51 | 65 | 54 | 51 | 47 | 37 | 28 | | |
| $L_{wA}$ to supply outlet | dBA | 75 | 14 | 53 | 68 | 65 | 67 | 69 | 64 | 64 | | |
| $L_{wA}$ to exhaust inlet | dBA | 62 | 11 | 45 | 61 | 52 | 51 | 48 | 38 | 34 | | |
| $L_{wA}$ to exhaust outlet | dBA | 71 | 12 | 47 | 62 | 66 | 61 | 64 | 55 | 61 | | |
| $L_{wA}$ to environment | dBA | 48 | 17 | 30 | 43 | 45 | 36 | 35 | 31 | 35 | 27 | 37 |

**VENTS VUT/VUE PBE/PBW EC**

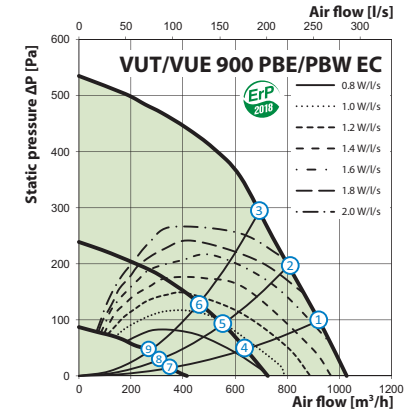


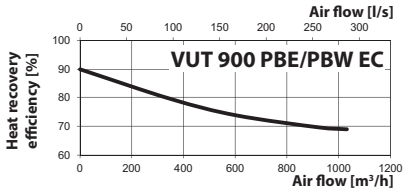

| A-weighted sound power level | | Gen. | Octave frequency band, Hz | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 69 | 26 | 60 | 68 | 54 | 53 | 48 | 40 | 29 | | |
| $L_{wA}$ to supply outlet | dBA | 76 | 27 | 62 | 71 | 66 | 68 | 68 | 66 | 64 | | |
| $L_{wA}$ to exhaust inlet | dBA | 66 | 24 | 55 | 65 | 53 | 53 | 49 | 41 | 35 | | |
| $L_{wA}$ to exhaust outlet | dBA | 69 | 26 | 60 | 68 | 54 | 53 | 48 | 40 | 29 | | |
| $L_{wA}$ to environment | dBA | 50 | 29 | 40 | 46 | 46 | 38 | 36 | 34 | 36 | 30 | 40 |

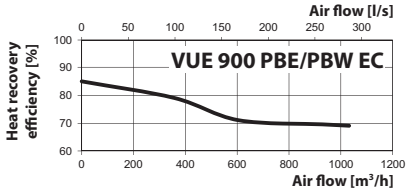
**Technical data**

| | VUT 900 PBE EC | VUE 900 PBE EC | VUT 900 PBW EC | VUE 900 PBW EC |
|---|---|---|---|---|
| Voltage [V/50-60 Hz] | 1~230 | | 1~230 | |
| Max. unit power without electric heater [W] | 442 | | 442 | |
| Integrated electric heater power [W] | 3300 | | - | |
| Max. unit power with electric heater [W] | 3742 | | 442 | |
| Max. unit current without electric heater [A] | 3.1 | | 3 | |
| Integrated electric heater current [A] | 14.3 | | - | |
| Max. unit current with electric heater [A] | 17.4 | | 3 | |
| Number of water (glycol) coil rows | - | | 2 | |
| Max. air flow [m³/h] | 1030 | | 1030 | |
| Sound pressure level at 3 m distance [dBA] | 33 | | 33 | |
| Max. transported air temperature [°C] | -25...+40 | | -25...+40 | |
| Casing material | aluzinc | | | |
| Insulation | 20 mm, mineral wool | | | |
| Extract filter | G4 | | | |
| Supply filter | G4 (F7 option) | | | |
| Connected air duct diameter [mm] | 250 | | 250 | |
| Weight [kg] | 111 | | 112 | |
| Heat recovery efficiency [%] | 75-88 | 69-85 | 75-88 | 69-85 |
| Heat exchanger type | counter-flow | | | |
| Heat exchanger material | polystyrene | enthalpy | polystyrene | enthalpy |
| SEC class | A | A | A | A |

**VENTS VUT/VUE PBE/PBW EC**



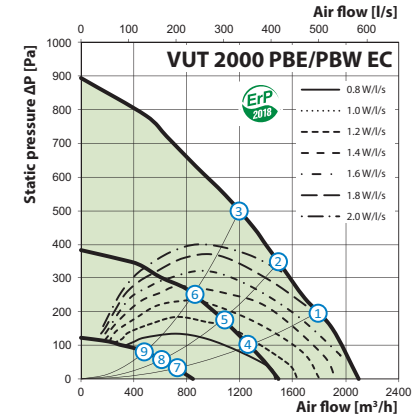



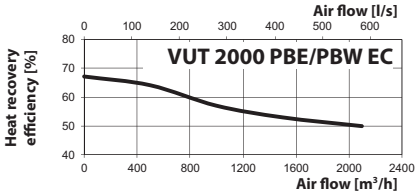

| A-weighted sound power level | | Gen. | Octave frequency band, Hz | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{WA}$ to supply inlet | dBA | 70 | 29 | 62 | 69 | 58 | 59 | 53 | 45 | 36 | | |
| $L_{WA}$ to supply outlet | dBA | 80 | 30 | 64 | 72 | 69 | 74 | 73 | 71 | 71 | | |
| $L_{WA}$ to exhaust inlet | dBA | 69 | 28 | 58 | 68 | 59 | 61 | 56 | 48 | 44 | | |
| $L_{WA}$ to exhaust outlet | dBA | 78 | 29 | 60 | 69 | 72 | 70 | 71 | 64 | 70 | | |
| $L_{WA}$ to environment | dBA | 53 | 33 | 42 | 47 | 49 | 44 | 41 | 39 | 43 | 33 | 43 |

**Technical data**

| | VUT 2000 PBE EC | VUT 2000 PBW EC | VUT 3000 PBE EC | VUT 3000 PBW EC |
|---|---|---|---|---|
| Voltage [V/50-60 Hz] | 3~400 | 1~230 | 3~400 | |
| Max. unit power without electric heater [W] | 1063 | | 2226 | |
| Integrated electric heater power [W] | 15000 | - | 21000 | - |
| Max. unit power with electric heater [W] | 16063 | 876 | 23226 | 2 226 |
| Max. unit current without electric heater [A] | 4.7 | | 3.5 | |
| Integrated electric heater current [A] | 21.7 | - | 30 | - |
| Max. unit current with electric heater [A] | 26.4 | 5.3 | 33.5 | 3.5 |
| Number of water (glycol) coil rows | - | 2 | - | 2 |
| Max. air flow [m³/h] | 2100 | | 4300 | |
| Sound pressure level at 3 m distance [dBA] | 36 | | 46 | |
| Max. transported air temperature [°C] | -25...+40 | | -25 ….+40 | |
| Casing material | aluzinc | | | |
| Insulation | 20 mm, mineral wool | | | |
| Extract filter | G4 | | | |
| Supply filter | G4 | | | |
| Connected air duct diameter [mm] | 315 | | 400 | |
| Weight [kg] | 140 | 281 | 268 | |
| Heat recovery efficiency [%] | 50-67 | | 59-72 | |
| Heat exchanger type | cross-flow type | | | |
| Heat exchanger material | aluminum | | | |
| SEC class | NRVU | | | |

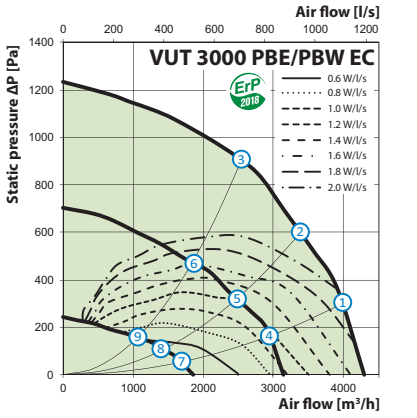
**VENTS VUT PBE/PBW EC**

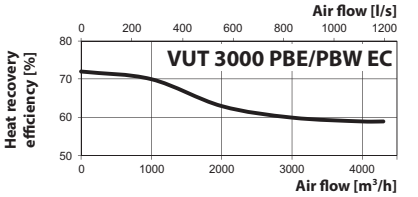



| A-weighted sound power level | | Gen. | Octave frequency band, Hz | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 75 | 37 | 68 | 74 | 61 | 58 | 51 | 43 | 31 | | |
| $L_{wA}$ to supply outlet | dBA | 82 | 38 | 70 | 77 | 73 | 75 | 73 | 70 | 68 | | |
| $L_{wA}$ to exhaust inlet | dBA | 72 | 33 | 61 | 71 | 60 | 58 | 53 | 45 | 40 | | |
| $L_{wA}$ to exhaust outlet | dBA | 78 | 34 | 63 | 72 | 74 | 68 | 69 | 62 | 67 | | |
| $L_{wA}$ to environment | dBA | 56 | 40 | 47 | 52 | 52 | 43 | 40 | 37 | 40 | 36 | 46 |

**VENTS VUT PBE/PBW EC**




| A-weighted sound power level | | Gen. | Octave frequency band, Hz | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 90 | 48 | 83 | 89 | 72 | 69 | 60 | 50 | 37 | | |
| $L_{wA}$ to supply outlet | dBA | 96 | 49 | 85 | 93 | 87 | 88 | 86 | 83 | 81 | | |
| $L_{wA}$ to exhaust inlet | dBA | 86 | 44 | 75 | 85 | 71 | 69 | 62 | 53 | 47 | | |
| $L_{wA}$ to exhaust outlet | dBA | 92 | 45 | 78 | 86 | 88 | 81 | 82 | 73 | 80 | | |
| $L_{wA}$ to environment | dBA | 67 | 52 | 58 | 63 | 62 | 51 | 47 | 44 | 47 | 46 | 56 |

| Point | Unit power [W] | | | | |
|---|---|---|---|---|---|
| | **VUT/VUE 300 PBE EC** | **VUT/VUE 550 PBE/PBW EC** | **VUT 900 PBE/PBW EC** | **VUT 2000 PBE/PBW EC** | **VUT 3000 PBE/PBW EC** |
| 1 | 174 | 322 | 442 | 1061 | 2200 |
| 2 | 168 | 322 | 442 | 1061 | 2220 |
| 3 | 152 | 321 | 442 | 1062 | 2143 |
| 4 | 77 | 121 | 160 | 448 | 858 |
| 5 | 74 | 121 | 149 | 448 | 868 |
| 6 | 68 | 121 | 147 | 448 | 840 |
| 7 | 19 | 16 | 46 | 84 | 198 |
| 8 | 19 | 16 | 43 | 83 | 200 |
| 9 | 18 | 16 | 40 | 83 | 162 |

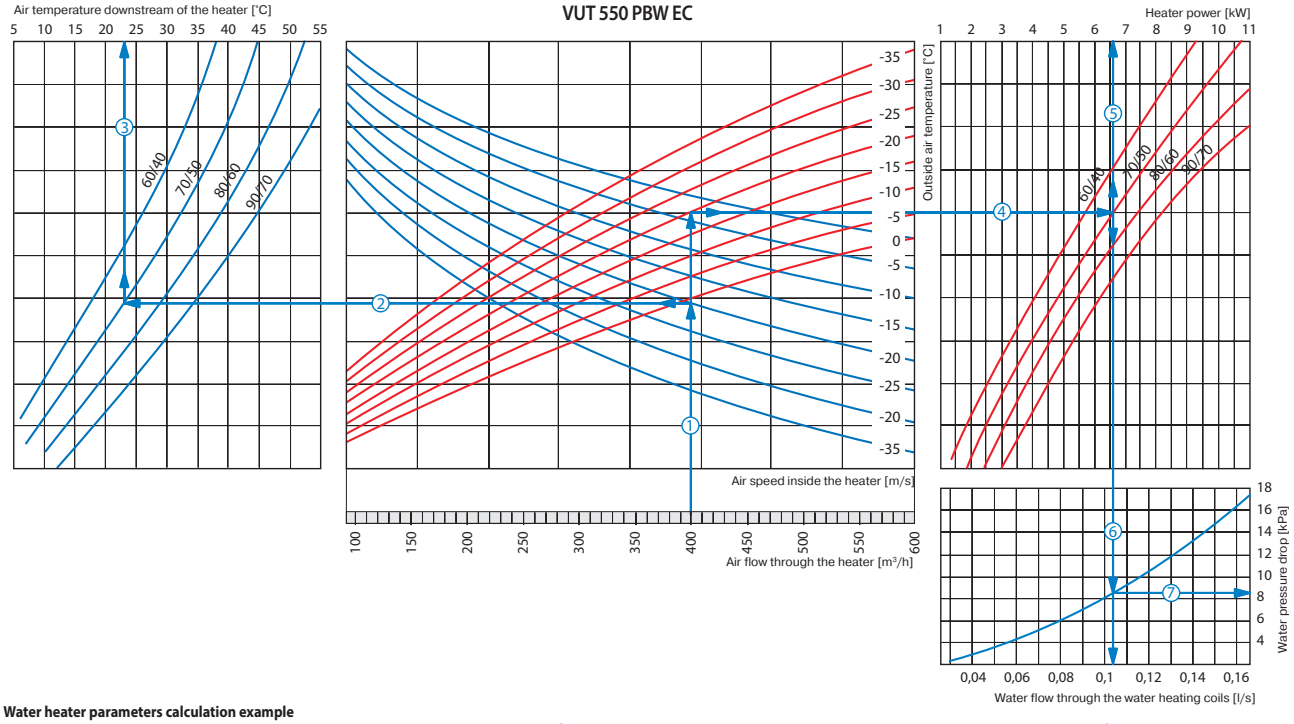
**Accessories for air handling units**

| Model | G4 pocket filter | F7 pocket filter | G4 panel filter | Control panel | Wi-Fi controllable control panel | LCD control panel | Humidity sensor (0-10 V) | $CO_2$ sensor | $CO_2$ sensor with indication | Humidity sensor | Electric heater for preheating |
|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |
| VUT 300 PBE EC A21 | SFK 208x236x27 G4 | SFK 208x236x27 F7 | SF 440x128x20 G4 | A22 | A22 WiFi | A25 | HV2 | CO2-1 | CO2-2 | HR-S | NKP A21 V.2 |
| VUT 550 PBE EC A21 | SFK 392x236x27 G4 | SFK 392x236x27 F7 | SF 782x128x20 G4 | | | | | | | | |
| VUT 900 PBE EC A21 | SFK 647x274x27 G4 | SFK 647x274x27 F7 | SF 647x274x20 G4 | | | | | | | | |
| VUE 300 PBE EC A21 | SFK 208x236x27 G4 | SFK 208x236x27 F7 | SF 440x128x20 G4 | | | | | | | | |
| VUE 550 PBE EC A21 | SFK 392x236x27 G4 | SFK 392x236x27 F7 | SF 782x128x20 G4 | | | | | | | | |
| VUE 900 PBE EC A21 | SFK 647x274x27 G4 | SFK 647x274x27 F7 | SF 647x274x20 G4 | | | | | | | | |
| VUT 2000 PBE EC A21 | - | - | SF 708x480x48 G4 | | | | | | | | |
| VUT 3000 PBE EC A21 | - | - | SF 827x741x48 G4 | | | | | | | | |
| VUT 550 PBW EC A21 | SFK 392x236x27 G4 | SFK 392x236x27 F7 | SF 782x128x20 G4 | | | | | | | | |
| VUT 900 PBW EC A21 | SFK 647x274x27 G4 | SFK 647x274x27 F7 | SF 647x274x20 G4 | | | | | | | | |
| VUE 550 PBW EC A21 | SFK 392x236x27 G4 | SFK 392x236x27 F7 | SF 782x128x20 G4 | | | | | | | | |
| VUE 900 PBW EC A21 | SFK 647x274x27 G4 | SFK 647x274x27 F7 | SF 647x274x20 G4 | | | | | | | | |
| VUT 2000 PBW EC A21 | - | - | SF 708x480x48 G4 | | | | | | | | |
| VUT 3000 PBW EC A21 | - | - | SF 827x741x48 G4 | | | | | | | | |

| Model | Hydraulic U-trap | Silencer | Backdraft damper | Air damper | Electric actuators | Mixing unit |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| VUT 300 PBE EC A21 | SH-32 | SR 160 600/900/1200 | KOM 160 | KRV 160 | TF230 | - |
| VUT 550 PBE EC A21 | | SR 200 600/900/1200 | KOM 200 | KRV 200 | | |
| VUT 900 PBE EC A21 | | SR 250 600/900/1200 | KOM 250 | KRV 250 | | |
| VUE 300 PBE EC A21 | - | SR 160 600/900/1200 | KOM 160 | KRV 160 | | |
| VUE 550 PBE EC A21 | | SR 200 600/900/1200 | KOM 200 | KRV 200 | | |
| VUE 900 PBE EC A21 | | SR 250 600/900/1200 | KOM 250 | KRV 250 | | |
| VUT 2000 PBE EC A21 | SH-32 | SR 315 600/900/1200 | KOM 315 | KRV 315 | | |
| VUT 3000 PBE EC A21 | | SR 400 600/900/1200 | KOM 400 | KRV 400 | | |
| VUT 550 PBW EC A21 | | SR 200 600/900/1200 | KOM 200 | KRV 200 | | USWK |
| VUT 900 PBW EC A21 | | SR 250 600/900/1200 | KOM 250 | KRV 250 | | |
| VUE 550 PBW EC A21 | - | SR 200 600/900/1200 | KOM 200 | KRV 200 | | |
| VUE 900 PBW EC A21 | | SR 250 600/900/1200 | KOM 250 | KRV 250 | | |
| VUT 2000 PBW EC A21 | SH-32 | SR 315 600/900/1200 | KOM 315 | KRV 315 | | |
| VUT 3000 PBW EC A21 | | SR 400 600/900/1200 | KOM 400 | KRV 400 | | |

## Water heater parameters calculation

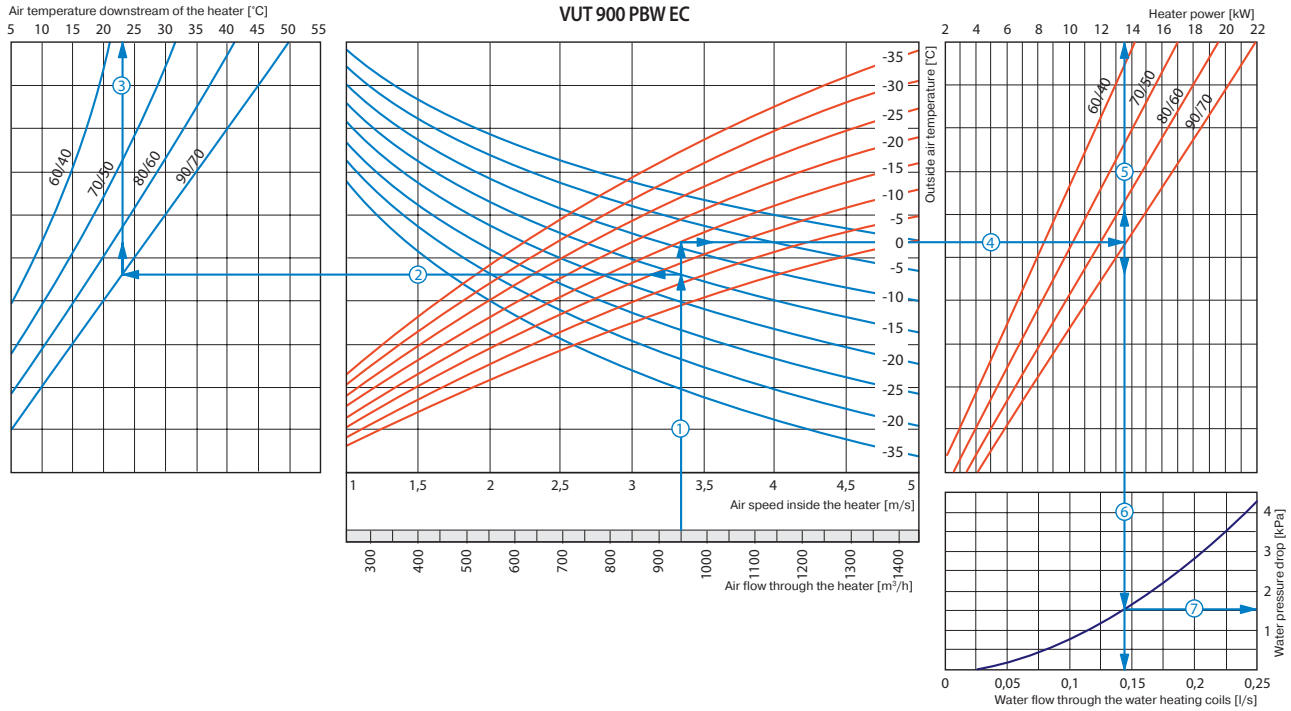
VUT PBW EC




**Water heater parameters calculation example**

- To calculate the maximum air temperature, find the intersection point of the air flow line ① with the rated winter temperature shown in blue line (e.g., 400 $m^3/h$) and draw the line ② to the left until it crosses the water in/out temperature curve (e.g. +70/+50). From this point draw a vertical line to the supply air temperature downstream of the heater (+23 °C) ③.
- To calculate the heater power, find the intersection point of the air flow ① with the rated winter temperature shown in red line (e.g., -20 °C) and draw the line ④ to the right until it crosses the water in/out temperature curve (e.g. +70/+50). From this point draw a vertical line to the heater power axis (6.6 kW) ⑤.
- To calculate the required water flow in the heater, prolong this line ⑥ downwards to the water flow axis (0,105 l/s).
- To calculate the water pressure drop in the heater, find the intersection point of the line ⑥ with the pressure loss curve and prolong the line ⑦ to the right on the water pressure drop axis (8.5 kPa).

VUT PBW EC



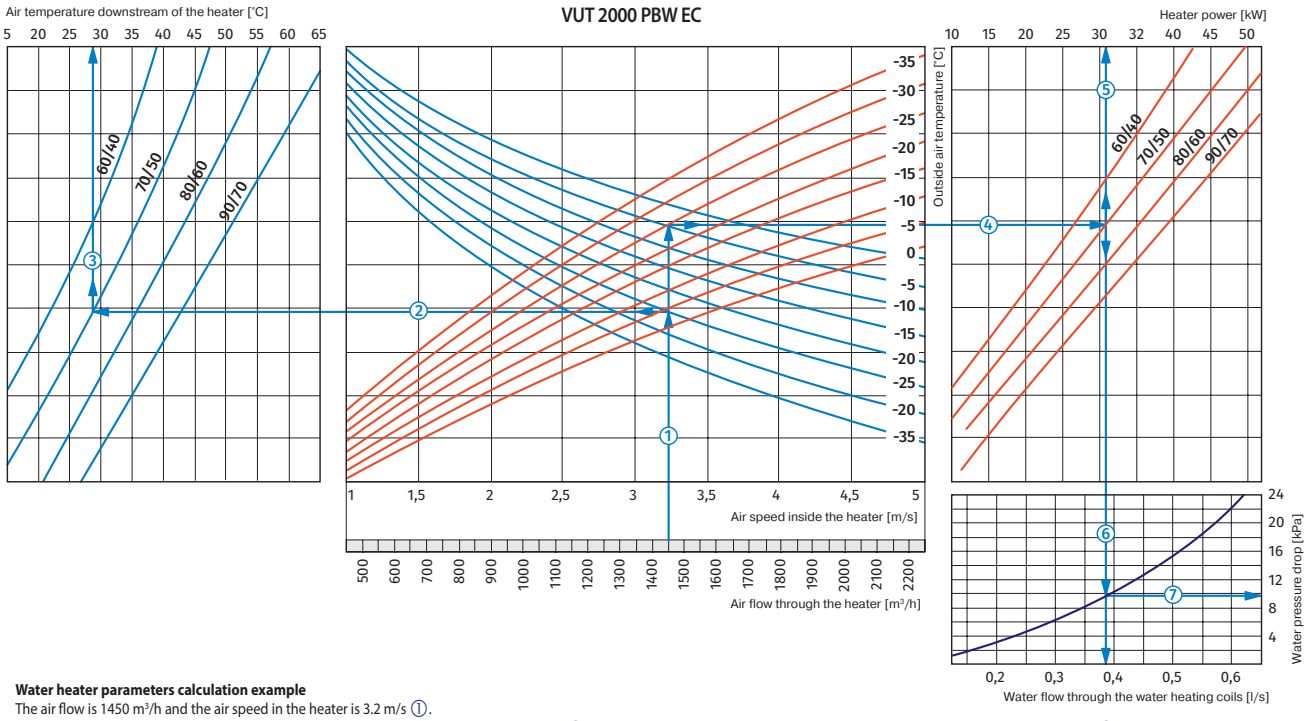

**Water heater parameters calculation example**

The air flow is 950 $m^3/h$ and the air speed in the heater is 3.35 m/s ①.

- To calculate the maximum air temperature, find the intersection point of the air flow line ① with the rated winter temperature shown in blue line (e.g., -15 °C) and draw the line ② to the left until it crosses the water in/out temperature curve (e.g. +90/+70). From this point draw a vertical line to the supply air temperature downstream of the heater (+23 °C) ③.
- To calculate the heater power, find the intersection point of the air flow ① with the rated winter temperature shown in red line (e.g., -20 °C) and draw the line ④ to the right until it crosses the water in/out temperature curve (e.g. +90/+70). From this point draw a vertical line to the heater power axis (13.5 kW) ⑤.
- To calculate the required water flow in the heater, prolong this line ⑥ downwards to the water flow axis (0,14 l/s).
- To calculate the water pressure drop in the heater, find the intersection point of the line ⑥ with the pressure loss curve and prolong the line ⑦ to the right on the water pressure drop axis (1.5 kPa).

## Water heater parameters calculation

VUT PBW EC

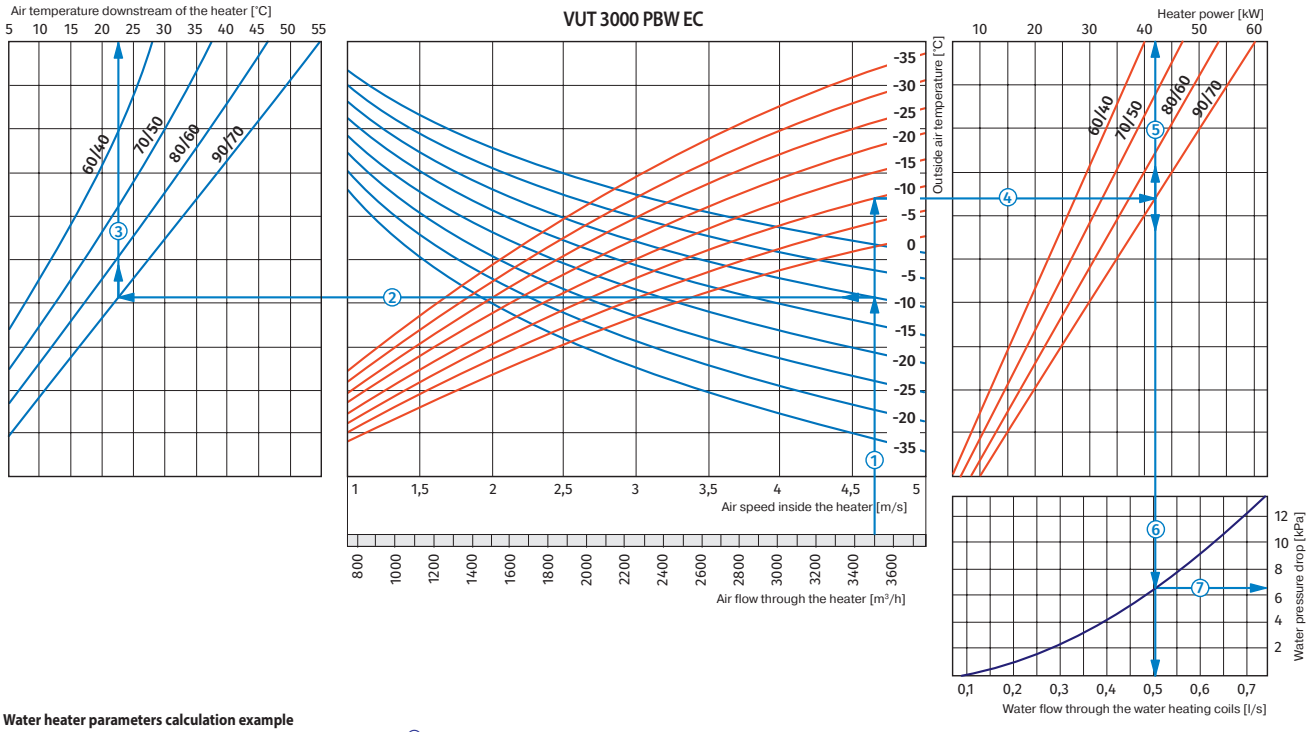



**Water heater parameters calculation example**

The air flow is 1450 m³/h and the air speed in the heater is 3.2 m/s ①.

- To calculate the maximum air temperature, find the intersection point of the air flow line ① with the rated winter temperature shown in blue line (e.g., -25 °C) and draw the line ② to the left until it crosses the water in/out temperature curve (e.g. +70/+50). From this point draw a vertical line to the supply air temperature downstream of the heater (+28 °C) ③.
- To calculate the heater power, find the intersection point of the air flow ① with the rated winter temperature shown in red line (e.g., -25 °C) and draw the line ④ to the right until it crosses the water in/out temperature curve (e.g. +70/+50). From this point draw a vertical line to the heater power axis (31 kW) ⑤.
- To calculate the required water flow in the heater, prolong this line ⑥ downwards to the water flow axis (0,38 l/s).
- To calculate the water pressure drop in the heater, find the intersection point of the line ⑥ with the pressure loss curve and prolong the line ⑦ to the right on the water pressure drop axis (9.8 kPa).

VUT PBW EC




**Water heater parameters calculation example**

The air flow is 3500 m³/h and the air speed in the heater is 4.65 m/s ①.

- To calculate the maximum air temperature, find the intersection point of the air flow line ① with the rated winter temperature shown in blue line (e.g., -10 °C) and draw the line ② to the left until it crosses the water in/out temperature curve (e.g. +90/+70). From this point draw a vertical line to the supply air temperature downstream of the heater (+22.5 °C) ③.
- To calculate the heater power, find the intersection point of the air flow ① with the rated winter temperature shown in red line (e.g., -10 °C) and draw the line ④ to the right until it crosses the water in/out temperature curve (e.g. +90/+70). From this point draw a vertical line to the heater power axis (42 kW) ⑤.
- To calculate the required water flow in the heater, prolong this line ⑥ downwards to the water flow axis (0,5 l/s).
- To calculate the water pressure drop in the heater, find the intersection point of the line ⑥ with the pressure loss curve and prolong the line ⑦ to the right on the water pressure drop axis (6.5 kPa).

Series

# VENTS VUTR 200 VK EC


Air handling units in heat- and sound-insulated casing.
Air flow up to **270 m³/h**.
Heat recovery efficiency up to **92%**

## Description

The VUTR VE EC air handling units are the fully-featured ventilation units that ensure air filtration, fresh air supply and stale air extraction.
Used in ventilation that requires an economical solution and a controlled ventilation system.

## Casing

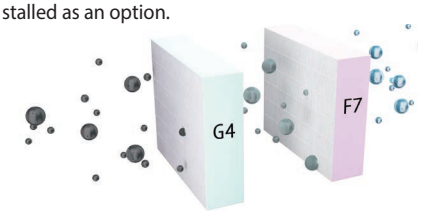
Made of polymer-coated steel, internally filled with a mineral wool heat- and sound-insulating layer.
**VUTR 200 VK EC L** – left-handed version.
**VUTR 200 VK EC R** – right-handed version.

## Kitchen hood

**VUTR 200 VK EC** is equipped with a white kitchen hood to extract contaminated air from the cooking surface. **VUTR 200 VKS EC** is equipped with a stainless steel kitchen hood.

## Filter

Two built-in **Coarse 90%** (**G4**) filters provide efficient air filtration. **ePM1 65% (F7)** supply filter can be installed as an option.

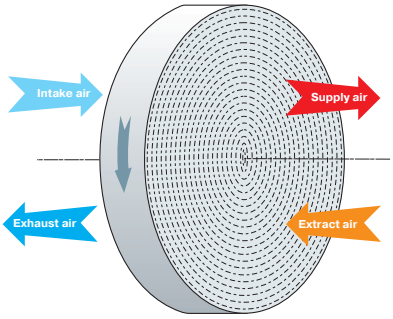



## Fans

The units are equipped with high-efficiency EC motors with an external rotor and a centrifugal impeller.

## Rotary heat exchanger

The units are equipped with a rotary heat exchanger. As compared to plate heat exchangers, the rotary heat exchangers are distinguished with no condensate forming, ability to maintain comfortable air humidity and extremely low freezing danger.




Rotary heat exchanger operation principle

## Heater

The units **VUTR 200 VEK** are equipped with an electric heater.

## Automation

The units are equipped with an integrated control system. The **A21** controller allows to integrate the unit into the **Smart Home system** or **BMS (Building Management System)**. To control the unit via Wi-Fi, download the **Vents Home** smartphone app.

Google play

Download on the App Store

Modbus

## Decorative panel

PD-VUTR 200 VEK N - stainless steel decorative panels for improving appearance of the products.

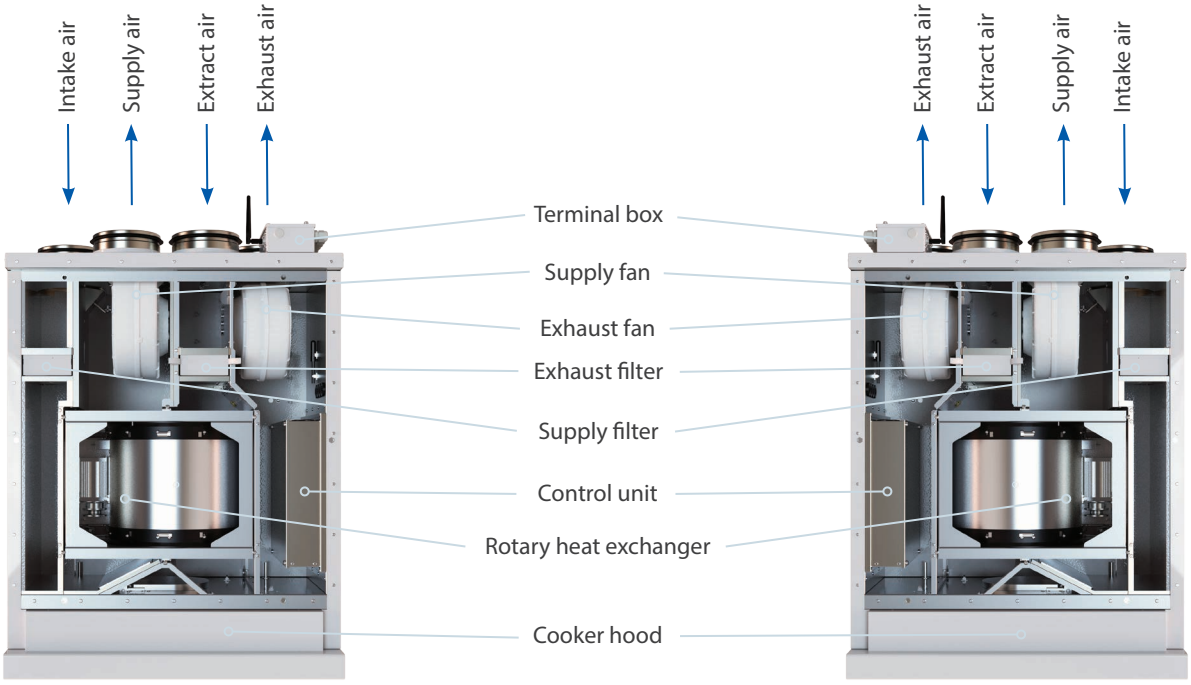
## Control and automation

| Functions | A21 |
|---|---|
| Wired remote control panel | A22 (option)  |
| Control via a wired remote LCD control panel | A25 (option)  |
| Wireless remote control panel | A22 Wi-Fi (option)  |
| BMS | ModBus RTU (RS-485) ModBus TCP/IP (Wi-Fi, Ethernet) |
| Vents Cloud Server service | + |
| Control via Wi-Fi using a smartphone app | + |
| Frost protection | + |
| Bypass | Auto, manual |
| Week-scheduled operation | + |
| Filter replacement indication | Filter timer |
| Alarm indication | + |
| Speed selection | + |
| Timer | + |
| RH% sensor | Option |
| $CO_2$ sensor | Option |
| VOC sensor | Option |
| PM2.5 sensor | Option |
| Boost mode | + |
| Fireplace mode | + |
| Cooler connection | + |
| Fire alarm sensor connection | + |
| Minimum supply air temperature control | + |

## Designation key

| TM | Model | Rated air flow [m³/h] | Casing type | Heater | Kitchen hood | Hood colour | Motor type | Control |
|---|---|---|---|---|---|---|---|---|
| **VENTS** | **VUTR:** unit with rotary heat exchanger | 200 | **V**: vertical | **E**: integrated reheater | **K**: integrated kitchen hood | _: white **S**: stainless steel | **EC**: synchronous electronically commutated motor | A21 |

**Unit design**

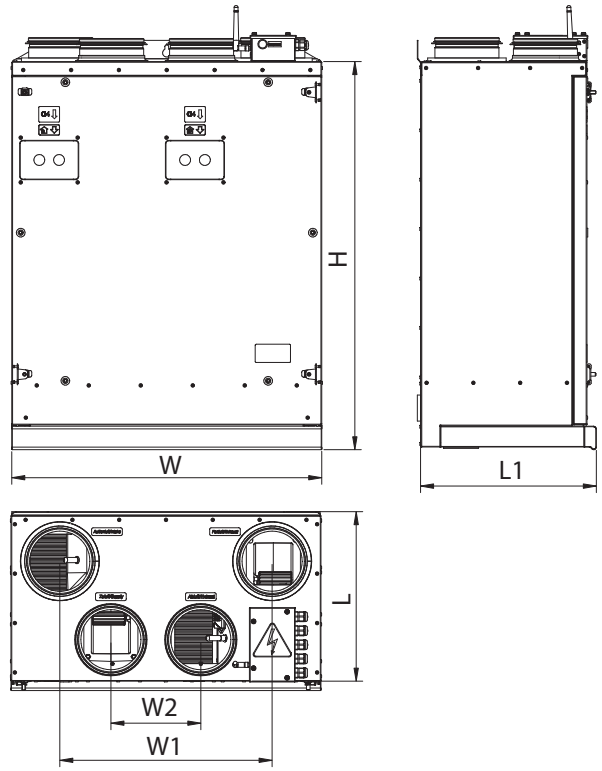



**VUTR 200 VK EC L**

**VUTR 200 VK EC R**

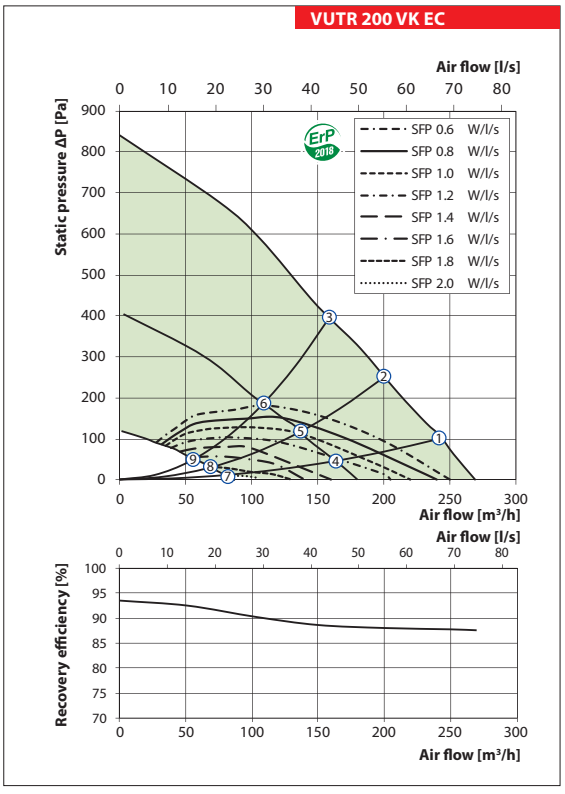
**Overall dimensions**

| Model | Dimensions [mm] | | | | | |
|---|---|---|---|---|---|---|
| | H | W | W1 | W2 | L | L1 |
| **VENTS VUTR 200 VK EC** | 746 | 596 | 408 | 173 | 326 | 338 |



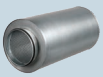
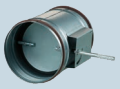
**Technical data**

| | VUTR 200 VK EC A21 | VUTR 200 VEK EC A21 |
|---|---|---|
| Voltage [V / 50-60 Hz] | 1~230 | |
| Max. unit power without electric heater [W] | 171 | |
| Integrated electric heater power [W] | - | 700 |
| Max. unit power [W] | 171 | 871 |
| Max. unit current without electric heater [A] | 1.31 | |
| Integrated electric heater current [A] | - | 3 |
| Max. unit current [A] | 1.31 | 4.31 |
| Max air flow [m³/h] | 270 | |
| Sound pressure level at 3 m distance [dBA] | 33 | |
| Max. operating temperature [°C] | - 25...+40 | |
| Case material | polymer coated steel | |
| Insulation [mm] | 25 mm, mineral wool | |
| Extract filter | G4 | |
| Supply filters | G4 (F7 optional) | |
| Connected air duct diameter [mm] | 125 | |
| Weight [kg] | 52 | 53 |
| Heat recovery efficiency [%] | 87...93 | |
| Heat exchanger type | rotary | |
| Heat exchanger material | aluminum | |
| SEC class | A | |



**Accessories for air handling units**

| Model | Decorative panel | Filter G4 | Filter F7 | Control panel | Control panel | Wi-Fi Control panel | External humidity sensor |
|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |
| VUTR 200 VK(S) EC L/R A21<br>VUTR 200 VEK(S) EC L/R A21 | PD-VUTR 200 VEK N | SF 261x86x48 G4 | SF 261x86x48 F7 | A25 | A22 | A22 Wi-Fi | HR-S |

| Model | External $CO_2$ sensor | Silencer | Backdraught damper | Air dampers | Electric actuator |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| VUTR 200 VK(S) EC L/R A21<br>VUTR 200 VEK(S) EC L/R A21 | CO2-1 | SR 125 | KOM 125 | KRV 125 | TF230 |

Series

# VENTS VUTR VE EC

Air handling units in heat- and sound-insulated casing.
Air flow up to **670 m³/h**.
Heat recovery efficiency up to **92 %**.

## Description

The VUTR VE EC air handling units are the fully-featured ventilation units that ensure air filtration, fresh air supply and stale air extraction.
Used in ventilation that require an economical solution and a controlled ventilation system.

## Casing

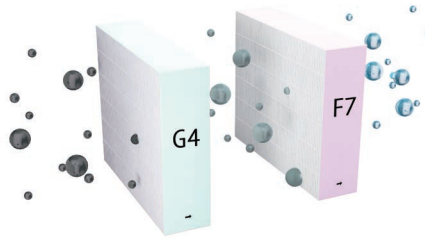
Made of polymer-coated steel, internally filled with a mineral wool heat- and sound-insulating layer.

## Kitchen hood

All units are equipped with a 5th spigot for connection of a kitchen hood (see the «Application options» section).

## Filter

The two integrated G4 and F7 filters ensure sufficient intake air purification.
Extract air is cleaned by the integrated G4 filter.

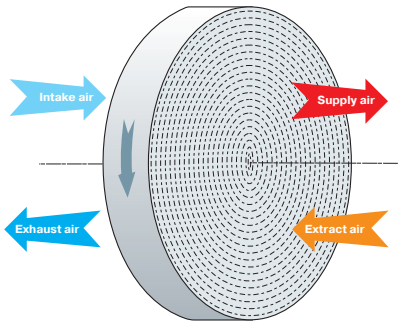



## Motor

The units are equipped with high-efficient EC motors with an external rotor and a centrifugal impeller.
These state-of-the-art motors offer the very best in energy efficiency today.

## Rotary heat exchanger

Unit equipped with a rotary heat exchanger. As compared to plate heat exchangers, the rotary heat exchangers are distinguished with no condensate forming, ability to maintain comfortable air humidity and extremely low freezing danger.




Rotary heat exchanger operation principle

## Heater

Units are equipped with an electric heater. The heaters are equipped with protecting devices to ensure safe and reliable operation of the unit.

## Automation

The **VUTR VE EC 21** units are equipped with an integrated control system. The A21 controller allows integrating the unit into the Smart Home system or BMS (Building Management Systems). To control the unit using a mobile application via Wi-Fi, you need to download the VENTS Home mobile application.

Google play
Download on the App Store

Modbus

## Mounting

The unit is designed for wall or floor mounting.
The access for unit and filter maintenance is available from the front panel.
The service and the back panels can be rearranged allowing connection both on the right and on the left side.

**Designation key**

| Series | Heat exchanger type | Rated air flow [m³/h] | Mounting type | Insulation thickness | Heater type | Motor type | Control panel |
|---|---|---|---|---|---|---|---|
| **VENTS VUT** | **R**: rotary | 280; 400; 600 | **V**: vertical | _: 40 mm | **E**: with an electric heater | **EC**: synchronous motor with electronic control | A21 |

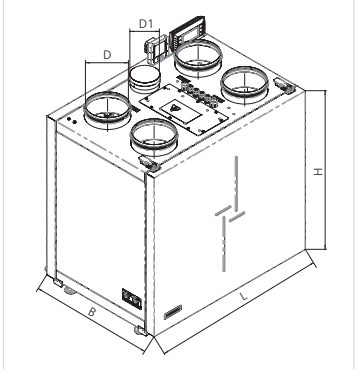
**Control and automation**

| Functions | A21 |
|---|---|
| Control via Wi-Fi using a mobile application | + |
| Control via a wired remote control panel | A22 (option)  |
| Control via a wireless remote control panel | A22 Wi-Fi (option)  |
| Control via a wired remote LCD control panel | A25 (option)  |
| BMS | RS-485 |
| | WI-FI |
| | Ethernet |
| | MODBUS (RTU, TCP) |
| Service Vents Cloud Server | + |
| Speed selection | + |
| Filter replacement indication | according to hour meter readings |
| Alarm indication | full alarm description in the mobile application |
| Week-scheduled operation | + |
| Timers | + |
| Boost mode | + |
| Fireplace mode | + |
| Reheater connection | integrated in E models, external reaheater cannot be connected |
| Cooler connection | option |
| Kitchen hood connection | option |
| Minimum supply air temperature control | + |
| Humidity control | option |
| $CO_2$ controller | option |
| VOC controller | option |
| Fire alarm sensor connection | option |

*Option. The functionality is available when you purchase the appropriate accessory.

**Overall dimensions**

| Model | Dimensions [mm] | | | | | |
|---|---|---|---|---|---|---|
| | Ø D | Ø D1 | B | L | H | H1 |
| VUTR 280 VE EC | 122 | - | 508 | 598 | 630 | 754 |
| VUTR 400 VE EC | 159 | 99 | 528 | 745 | 675 | 755 |
| VUTR 600 VE EC | 199 | 124 | 628 | 819 | 772 | 852 |




Calculation of air temperature downstream of the heat exchanger:
$t = t_{outd} + k_{hr} * (t_{extr} - t_{outd})/100$,

where
$t_{outd}$ : outdoor air temperature [°C]
$t_{extr}$ : extract air temperature [°C]
$k_{hr}$ : heat exchanger efficiency (according to the diagram) [%]

**Accessories**

| Model | G4 panel filter | F7 panel filter | LCD control panel | Control panel | Control panel with Wi-Fi | Humidity sensor NO |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| VUTR 280 VE EC A21 | SF 400x196x40 G4 | SF 400x196x40 F7 | A25 | A22 | A22 Wi-Fi | HR-S |
| VUTR 400 VE EC A21 | SF 436x196x40 G4 | SF 436x196x40 F7 | | | | |
| VUTR 600 VE EC A21 | SF 536x220x40 G4 | SF 536x220x40 F7 | | | | |

| Model | Humidity sensor 0-10 V | Kitchen hood | Silencers | | Back valves | Air dampers | Electric actuator |
|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |
| VUTR 280 VE EC A21 | HV-2 | KH-1 | SR 125 | SRF 125 | KOM 125 | KRV 125 | TF230 |
| VUTR 400 VE EC A21 | | | SR 160 | SRF 160 | KOM 160 | KRV 160 | |
| VUTR 600 VE EC A21 | | | SR 200 | SRF 200 | KOM 200 | KRV 200 | |

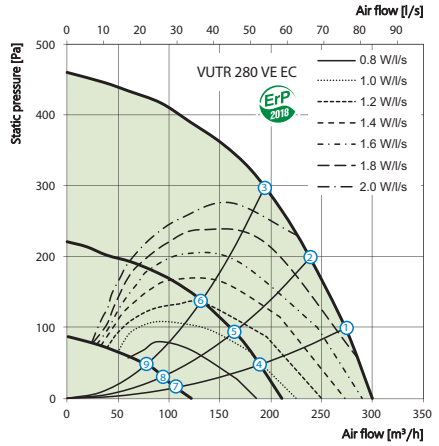
**Technical data**

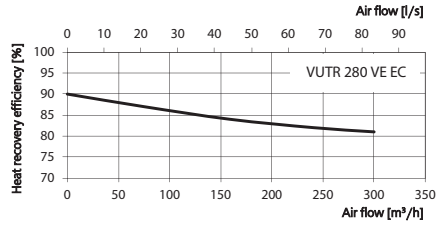
| | | VUTR 280 VE EC | VUTR 400 VE EC | VUTR 600 VE EC |
|---|---|---|---|---|
| Unit voltage [V/50 (60) Hz] | | | 1~230 | |
| Max. unit power without electric heater [W] | | 195 | 200 | 405 |
| Max. power of electric heater [W] | | 650 | 1400 | 2800 |
| Max. unit power [W] | | 845 | 1600 | 3205 |
| Max. unit current without electric heater [A] | | 1.9 | 1.4 | 2.6 |
| Max. unit current of electric heater [A] | | 2,8 | 6.1 | 12.2 |
| Max. unit current [A] | | 4.7 | 7.5 | 14.8 |
| Maximum air flow [m³/h] | | 300 | 440 | 670 |
| Sound pressure level at 3 m distance [dBA] | | 26 | 33 | 35 |
| Transported air temperature [°C] | | | -25...+40 | |
| Casing material | | | painted steel | |
| Insulation | | | 40 mm mineral wool | |
| Filter | Extract | | G4 | |
| | Intake | F7 | G4, F7 | |
| Connected air duct diameter [mm] | | 125 | 160 | 200 |
| Weight [kg] | | 64 | 82 | 92 |
| Heat recovery efficiency | | from 81 up to 90 | from 76 up to 85 | from 81 up to 89 |
| Heat exchanger type* | | | rotary | |
| Heat exchanger material | | | aluminium | |
| SEC class | | | A | |

*Heat recovery efficiency is specified in compliance with EN 13141-7

| Point | Total unit power [W] | | | Sound pressure level at 3 m (1 m) distance [dBA] | | |
|---|---|---|---|---|---|---|
| | VUTR 280 VE EC | VUTR 400 VE EC | VUTR 600 VE EC | VUTR 280 VE EC | VUTR 400 VE EC | VUTR 600 VE EC |
| 1 | 154 | 170 | 375 | 26 (36) | 33 (43) | 35 (45) |
| 2 | 132 | 170 | 375 | 26 (36) | 33 (43) | 35 (45) |
| 3 | 110 | 170 | 375 | 25 (35) | 32 (42) | 34 (44) |
| 4 | 55 | 68 | 163 | 24 (34) | 31 (41) | 30 (40) |
| 5 | 47 | 65 | 155 | 24 (34) | 28 (38) | 29 (39) |
| 6 | 38 | 59 | 151 | 22 (32) | 27 (37) | 28 (38) |
| 7 | 19 | 26 | 43 | 15 (25) | 23 (33) | 27 (37) |
| 8 | 18 | 25 | 42 | 14 (24) | 21 (31) | 23 (33) |
| 9 | 17 | 25 | 39 | 13 (23) | 19 (29) | 23 (33) |

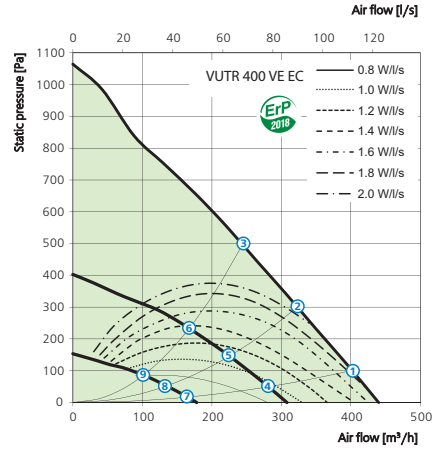
## VUTR V EC/VUTR VE EC

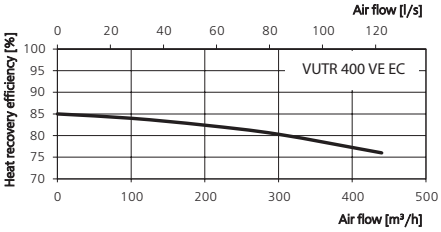



| A-weighted sound power level | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 54 | 47 | 42 | 50 | 44 | 41 | 39 | 39 | 31 | | |
| $L_{wA}$ to supply outlet | dBA | 69 | 63 | 56 | 65 | 59 | 55 | 50 | 52 | 46 | | |
| $L_{wA}$ to exhaust inlet | dBA | 54 | 47 | 41 | 41 | 43 | 33 | 31 | 34 | 30 | | |
| $L_{wA}$ to exhaust outlet | dBA | 65 | 61 | 50 | 61 | 55 | 46 | 43 | 46 | 40 | | |
| $L_{wA}$ to environment | dBA | 47 | 42 | 37 | 43 | 36 | 31 | 28 | 26 | 21 | 26 | 36 |

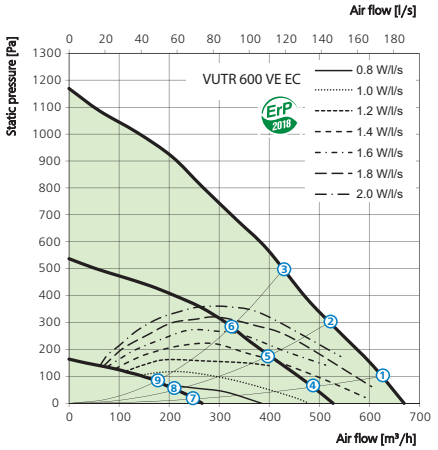
## VUTR V EC/VUTR VE EC

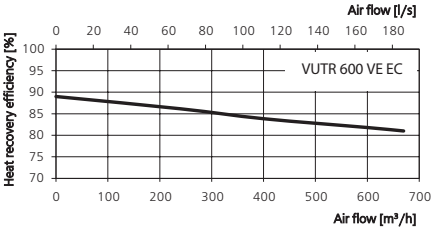



| A-weighted sound power level | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 59 | 27 | 46 | 54 | 55 | 53 | 48 | 44 | 35 | | |
| $L_{wA}$ to supply outlet | dBA | 60 | 27 | 46 | 54 | 55 | 53 | 49 | 44 | 35 | | |
| $L_{wA}$ to exhaust inlet | dBA | 55 | 25 | 41 | 50 | 51 | 44 | 42 | 39 | 30 | | |
| $L_{wA}$ to exhaust outlet | dBA | 55 | 26 | 41 | 51 | 51 | 44 | 42 | 39 | 31 | | |
| $L_{wA}$ to environment | dBA | 54 | 18 | 36 | 47 | 49 | 48 | 43 | 37 | 33 | 33 | 43 |

## VUTR V EC/VUTR VE EC



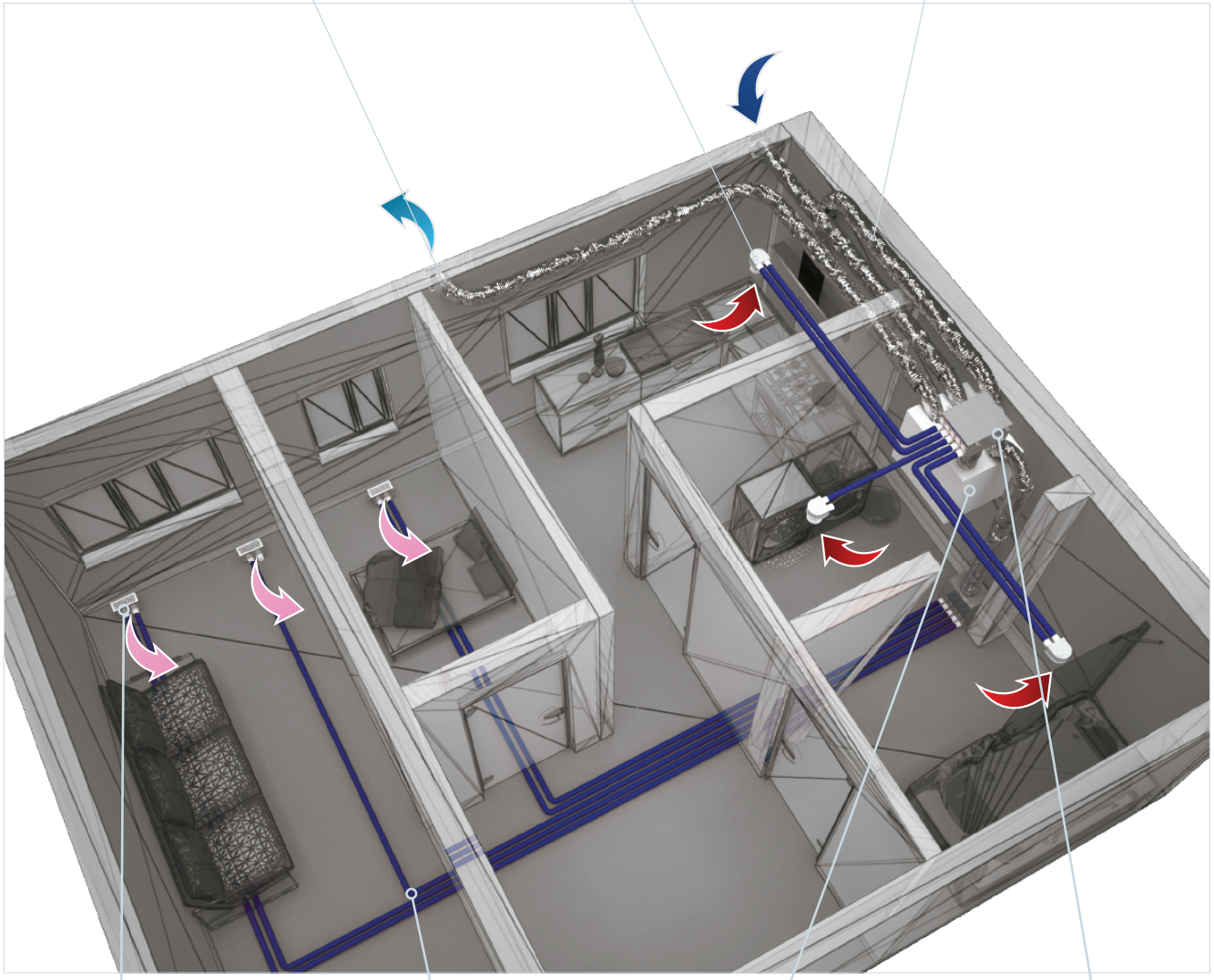

| A-weighted sound power level | | Gen. | Octave-frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply inlet | dBA | 82 | 65 | 63 | 65 | 80 | 74 | 74 | 68 | 64 | | |
| $L_{wA}$ to supply outlet | dBA | 66 | 60 | 56 | 55 | 63 | 58 | 49 | 40 | 33 | | |
| $L_{wA}$ to exhaust inlet | dBA | 82 | 64 | 67 | 71 | 81 | 77 | 79 | 75 | 67 | | |
| $L_{wA}$ to exhaust outlet | dBA | 70 | 51 | 64 | 62 | 68 | 60 | 60 | 50 | 42 | | |
| $L_{wA}$ to environment | dBA | 56 | 39 | 47 | 46 | 54 | 46 | 46 | 44 | 40 | 35 | 45 |

**Application options**

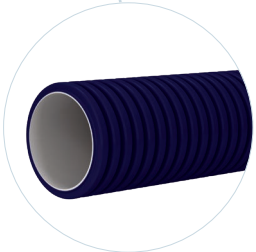
Ventilation hood

Ceiling connector with a disk valve

Isovent 150 insulated air duct



Floor connector with a grille



FlexiVent air duct

Air handling unit

Manifold

Series

# VENTS VUTR PE EC

Air handling units in heat- and sound-insulated casing.
Air flow up to **710 m³/h.**
Heat recovery efficiency up to **87 %.**

## Description

The air handling units VUTR PE EC are the fully-featured ventilation units that ensure air filtration, fresh air supply and stale air extract. The units are used in ventilation systems installed in various premises that require reasonable energy saving solutions and controllable ventilation systems.

## Modifications

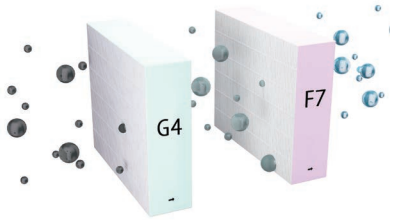
VUTR P(2)E EC models (with an electric heater).
VUTR P2E EC models with a low profile casing and 20 mm insulation.

## Casing

Made of galvanized steel, internally filled with a mineral wool heat- and sound-insulating layer. The insulation thickness is 40 mm for the VUTR PE EC models and 20 mm for the VUTR P2E EC models. Unit maintenance is performed from the bottom panel side. The distinctive feature of the VUTR P2E EC units is a low profile casing.


## Filter

Two built-in filters with filtering class G4 and F7 provide efficient supply air filtration. Extract air is cleaned by the integrated G4 filter.

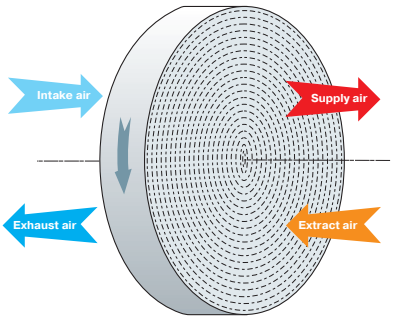



## Motor

The units are equipped with high-efficient EC motors with an external rotor and a centrifugal impeller.

## Rotary heat exchanger

Units equipped with a rotary heat exchanger.
As compared to plate heat exchangers, the rotary heat exchangers are distinguished with no condensate forming, ability to maintain comfortable air humidity and extremely low freezing danger.




Rotary heat exchanger operation principle

## Heater

The VUTR PE EC units are equipped (with an electric heater). If heat recovery is not sufficient to reach the set supply air temperature, the heater is activated to warm up supply air. The heaters are equipped with protecting devices to ensure safe and reliable operation of the unit.

## Automation

The **VUTR PE/P2E EC A21** units are equipped with an integrated control system. The **A21** controller allows integrating the unit into the **Smart Home system** or **BMS (Building Management Systems)**. To control the unit using a mobile application via Wi-Fi, you need to download the VENTS Home mobile application.

Google play
Download on the App Store

Modbus

## Mounting

The unit is designed for wall or floor mounting. The access for unit and filter maintenance is available from the front panel. The service and the back panels can be rearranged allowing connection both on the right and on the left side.

**Designation key**

| Series | Heat exchanger type | Rated air flow [m³/h] | Spigot orientation | Casing design | Heater type | Motor type | Control panel |
|---|---|---|---|---|---|---|---|
| **VENTS VUT** | **R**: rotary | 250; 350; 650 | **P**: suspended mounting | _: standard (insulation thickness 40 mm) **2**: low-profile (insulation thickness 20 mm) | **E**: (with an electric heater) | **EC**: synchronous electronically commutated motor | **A21** |

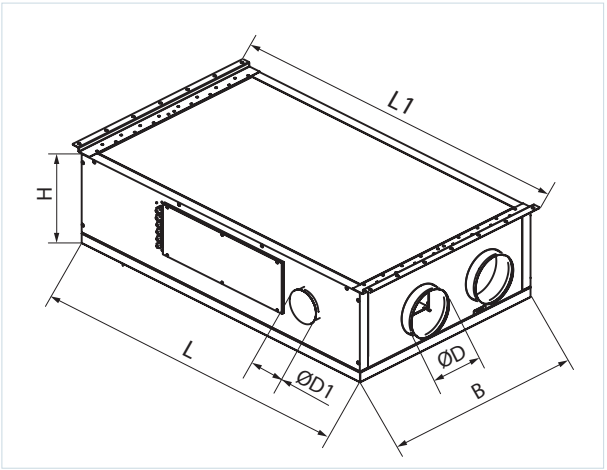
**Control and automation**

| Functions | A21 |
|---|---|
| Control via Wi-Fi using a mobile application | + |
| Control via a wired remote control panel | A22 (option)  |
| Control via a wireless remote control panel | A22 Wi-Fi (option)  |
| Control via a wired remote LCD control panel | A25 (option)  |
| BMS | RS-485 |
| | WI-FI |
| | Ethernet |
| | MODBUS (RTU, TCP) |
| Service Vents Cloud Server | + |
| Speed selection | + |
| Filter replacement indication | according to hour meter readings |
| Alarm indication | full alarm description in the mobile application |
| Week-scheduled operation | + |
| Timers | + |
| Boost mode | + |
| Fireplace mode | + |
| Reheater connection | integrated in E models, external reaheater cannot be connected |
| Cooler connection | option |
| Kitchen hood connection | option |
| Minimum supply air temperature control | + |
| Humidity control | option |
| $CO_2$ controller | option |
| VOC controller | option |
| Fire alarm sensor connection | option |

*Option. The functionality is available when you purchase the appropriate accessory.

**Overall dimensions**

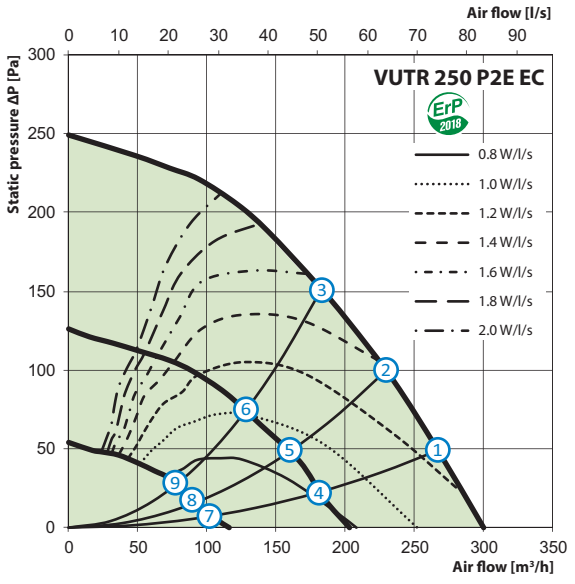
| Model | Dimensions [mm] | | | | | |
|---|---|---|---|---|---|---|
| | Ø D | Ø D1 | L1 | L | B | H |
| VUTR 250 PE EC | 160 | 125 | 1100 | 1003 | 688 | 345 |
| VUTR 250 P2E EC | 160 | 125 | 1097 | 1002 | 666 | 245 |
| VUTR 350 PE EC | 160 | 125 | 1365 | 1270 | 818 | 361 |
| VUTR 350 P2E EC | 160 | 125 | 1457 | 1362 | 847 | 245 |
| VUTR 650 PE EC | 200 | 125 | 1542 | 1445 | 932 | 422 |

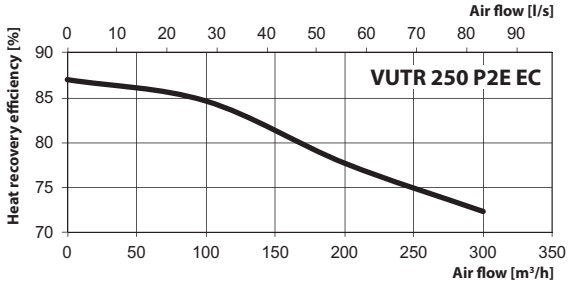


## Technical data

| | VUTR 250 P2E EC | VUTR 250 PE EC |
|---|---|---|
| Unit voltage [V/50 (60) Hz] | 1~220-240 | |
| Maximum unit power (without an electric heater) [W] | 128 | 135 |
| Maximum unit power (with an electric heater) [W] | 828 | 835 |
| Maximum unit current (without an electric heater) [A] | 0.9 | 1.0 |
| Maximum unit current (with an electric heater) [A] | 4.0 | 4.1 |
| Maximum air flow [m³/h] | 300 | 310 |
| Sound pressure level at 3 m distance [dBA] | 23 | 21 |
| Transported air temperature [°C] | -25...+40 | |
| Casing material | galvanized steel | |
| Insulation | 20 mm mineral wool | 40 mm mineral wool |
| Extract filter | G4 | |
| Supply filter | G4, F7 | |
| Connected air duct diameter [mm] | 160 | |
| Weight [kg] | 54 | 56 |
| Heat recovery efficiency [%] | from 76 up to 87 | from 71 up to 87 |
| Heat exchanger type | rotary | |
| Heat exchanger material | aluminium | |
| SEC class | A | |

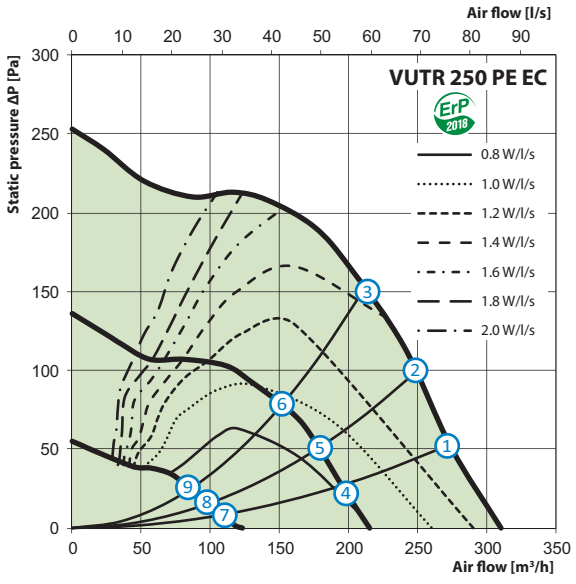
VENTS VUTR PE EC

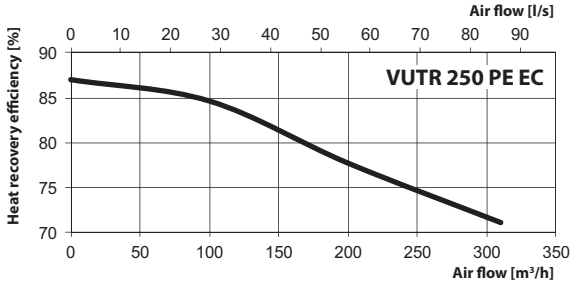



| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 55 | 18 | 39 | 42 | 53 | 50 | 40 | 30 | 19 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 50 | 17 | 34 | 39 | 49 | 41 | 34 | 27 | 17 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 65 | 30 | 41 | 55 | 64 | 57 | 52 | 51 | 40 | | |

VENTS VUTR PE EC

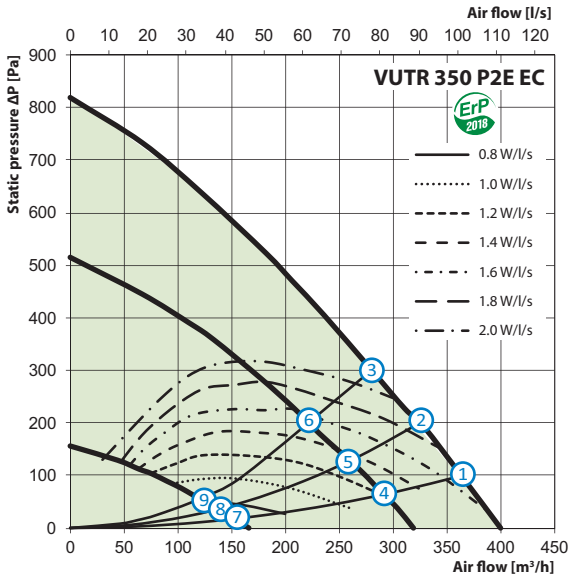


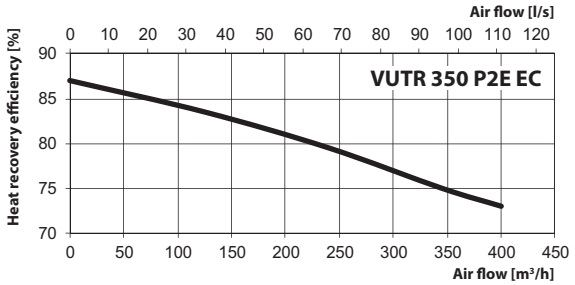




| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 58 | 21 | 42 | 45 | 56 | 53 | 42 | 32 | 21 | | |
| $L_{wA}$ to supply air outlet | dBA | 59 | 21 | 43 | 45 | 56 | 53 | 42 | 32 | 21 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 53 | 20 | 38 | 42 | 52 | 44 | 36 | 29 | 18 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 54 | 20 | 38 | 43 | 53 | 44 | 36 | 29 | 18 | | |
| $L_{wA}$ to environment | dBA | 43 | 10 | 28 | 39 | 38 | 35 | 32 | 31 | 29 | 23 | 33 |

| | VUTR 350 P2E EC | VUTR 350 PE EC |
|---|---|---|
| Unit voltage [V/50 (60) Hz] | 1~220-240 | |
| Maximum unit power (without an electric heater) [W] | 200 | 185 |
| Maximum unit power (with an electric heater) [W] | 1600 | 1585 |
| Maximum unit current (without an electric heater) [A] | 1.3 | |
| Maximum unit current (with an electric heater) [A] | 6.9 | 6.9 |
| Maximum air flow [m³/h] | 400 | 430 |
| Sound pressure level at 3 m distance [dBA] | 33 | 31 |
| Transported air temperature [°C] | -25...+40 | |
| Casing material | galvanized steel | |
| Insulation | 20 mm mineral wool | 40 mm mineral wool |
| Extract filter | G4 | |
| Supply filter | G4, F7 | |
| Connected air duct diameter [mm] | 160 | |
| Weight [kg] | 79 | 82 |
| Heat recovery efficiency [%] | from 73 up to 87 | from 72 up to 87 |
| Heat exchanger type | rotary | |
| Heat exchanger material | aluminium | |
| SEC class | A | |

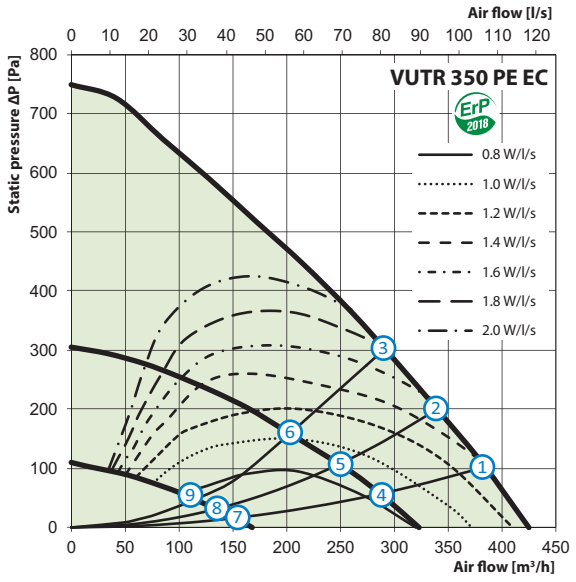
VENTS VUTR PE EC

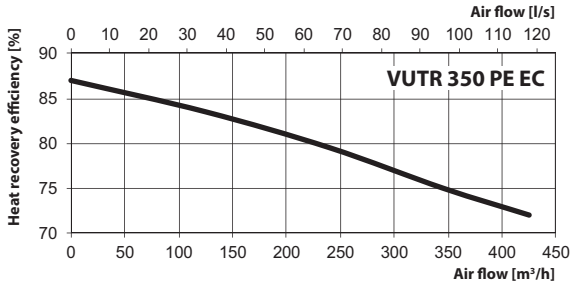



| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 59 | 26 | 45 | 53 | 54 | 52 | 48 | 43 | 34 | | |
| $L_{wA}$ to supply air outlet | dBA | 83 | 44 | 58 | 67 | 75 | 75 | 79 | 75 | 71 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 54 | 25 | 40 | 50 | 50 | 43 | 41 | 38 | 30 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 74 | 42 | 52 | 63 | 70 | 63 | 68 | 66 | 62 | | |
| $L_{wA}$ to environment | dBA | 53 | 18 | 35 | 46 | 49 | 48 | 43 | 37 | 33 | 33 | 43 |

VENTS VUTR PE EC



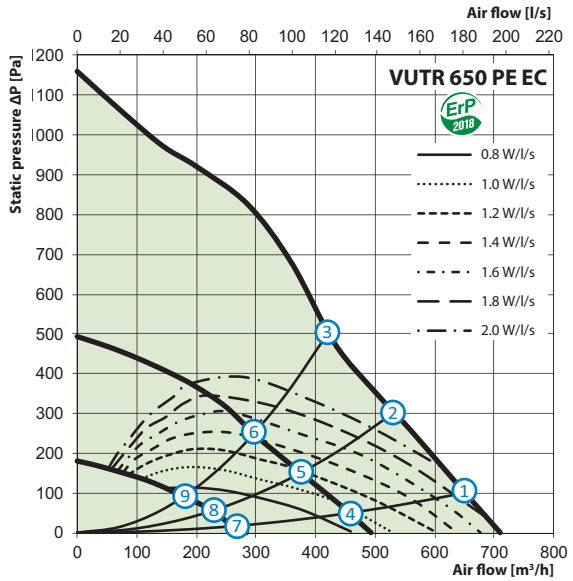



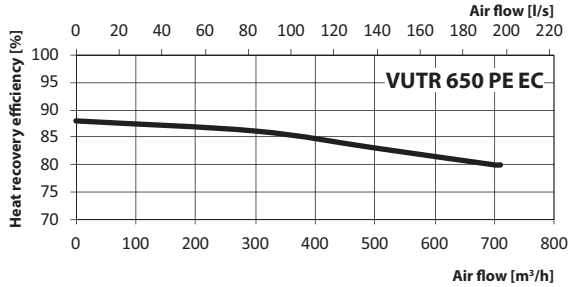

| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 56 | 24 | 43 | 51 | 52 | 50 | 46 | 42 | 33 | | |
| $L_{wA}$ to supply air outlet | dBA | 80 | 41 | 55 | 65 | 72 | 72 | 76 | 72 | 69 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 52 | 23 | 38 | 47 | 48 | 42 | 39 | 37 | 29 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 72 | 40 | 50 | 61 | 67 | 61 | 65 | 64 | 60 | | |
| $L_{wA}$ to environment | dBA | 51 | 16 | 33 | 44 | 47 | 46 | 41 | 36 | 32 | 31 | 41 |

**Technical data**

| | VUTR 650 PE EC |
|---|---|
| Unit voltage [V/50 (60) Hz] | 1~220-240 |
| Maximum unit power (without an electric heater) [W] | 367 |
| Maximum unit power (with an electric heater) [W] | 3167 |
| Maximum unit current (without an electric heater) [A] | 2.5 |
| Maximum unit current (with an electric heater) [A] | 13.7 |
| Maximum air flow [m³/h] | 710 |
| Sound pressure level at 3 m distance [dBA] | 36 |
| Transported air temperature [°C] | -25...+40 |
| Casing material | galvanized steel |
| Insulation | 40 mm mineral wool |
| Extract filter | G4 |
| Supply filter | G4, F7 |
| Connected air duct diameter [mm] | 200 |
| Weight [kg] | 104 |
| Heat recovery efficiency [%] | from 80 up to 87 |
| Heat exchanger type | rotary |
| Heat exchanger material | aluminium |
| SEC class | A |

**VENTS VUTR PE EC**




| A-weighted sound power level | | Gen. | Octave frequency band [Hz] | | | | | | | | LpA, 3 m dBA | LpA, 1 m dBA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | dBA | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| $L_{wA}$ to supply air inlet | dBA | 79 | 56 | 62 | 64 | 74 | 72 | 74 | 71 | 66 | | |
| $L_{wA}$ to supply air outlet | dBA | 68 | 48 | 51 | 57 | 67 | 52 | 49 | 42 | 30 | | |
| $L_{wA}$ to exhaust air inlet | dBA | 81 | 55 | 60 | 64 | 77 | 73 | 75 | 71 | 66 | | |
| $L_{wA}$ to exhaust air outlet | dBA | 67 | 47 | 51 | 58 | 65 | 58 | 57 | 48 | 39 | | |
| $L_{wA}$ to environment | dBA | 57 | 30 | 46 | 45 | 55 | 46 | 47 | 39 | 38 | 36 | 46 |

**Technical data**

| Point | Power [W] | | | | |
|---|---|---|---|---|---|
| | VUTR 250 P2E EC | VUTR 250 PE EC | VUTR 350 P2E EC | VUTR 350 PE EC | VUTR 650 PE EC |
| 1 | 93 | 101 | 172 | 154 | 342 |
| 2 | 89 | 115 | 171 | 151 | 342 |
| 3 | 77 | 80 | 167 | 149 | 342 |
| 4 | 41 | 45 | 125 | 116 | 122 |
| 5 | 39 | 42 | 124 | 116 | 122 |
| 6 | 38 | 40 | 122 | 115 | 122 |
| 7 | 17 | 17 | 98 | 76 | 34 |
| 8 | 17 | 17 | 97 | 75 | 33 |
| 9 | 16 | 16 | 97 | 63 | 33 |

| Sound pressure level at 3 m distance [dBA] | | | | |
|---|---|---|---|---|
| VUTR 250 P2E EC | VUTR 250 PE EC | VUTR 350 P2E EC | VUTR 350 PE EC | VUTR 650 PE EC |
| 23 (33) | 21 (31) | 33 (43) | 31 (41) | 36 (46) |
| 23 (33) | 21 (31) | 33 (43) | 31 (41) | 36 (46) |
| 22 (32) | 20 (30) | 32 (42) | 30 (40) | 35 (45) |
| 21 (31) | 18 (28) | 31 (41) | 27 (37) | 31 (41) |
| 19 (29) | 17 (27) | 28 (38) | 26 (36) | 29 (39) |
| 18 (28) | 17 (27) | 27 (37) | 26 (36) | 29 (39) |
| 18 (28) | 16 (26) | 27 (37) | 24 (34) | 27 (37) |
| 17 (27) | 16 (26) | 23 (33) | 21 (31) | 24 (34) |
| 17 (27) | 16 (26) | 23 (33) | 21 (31) | 24 (34) |

**Accessories**

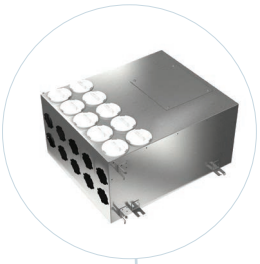
| Model | G4 panel filter | F7 panel filter | LCD control panel | Control panel | Control panel with Wi-Fi |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| VUTR 250 P2E EC A21 | SF 280x180x48 G4 | SF 280x180x48 F7 | A25 | A22 | A22 Wi-Fi |
| VUTR 250 PE EC A21 | SF 260x220x48 G4 | SF 260x220x48 F7 | | | |
| VUTR 350 P2E EC A21 | SF 372x180x48 G4 | SF 372x180x48 F7 | | | |
| VUTR 350 PE EC A21 | SF 320x235x48 G4 | SF 320x235x48 F7 | | | |
| VUTR 650 PE EC A21 | SF 378x295x48 G4 | SF 378x295x48 F7 | | | |

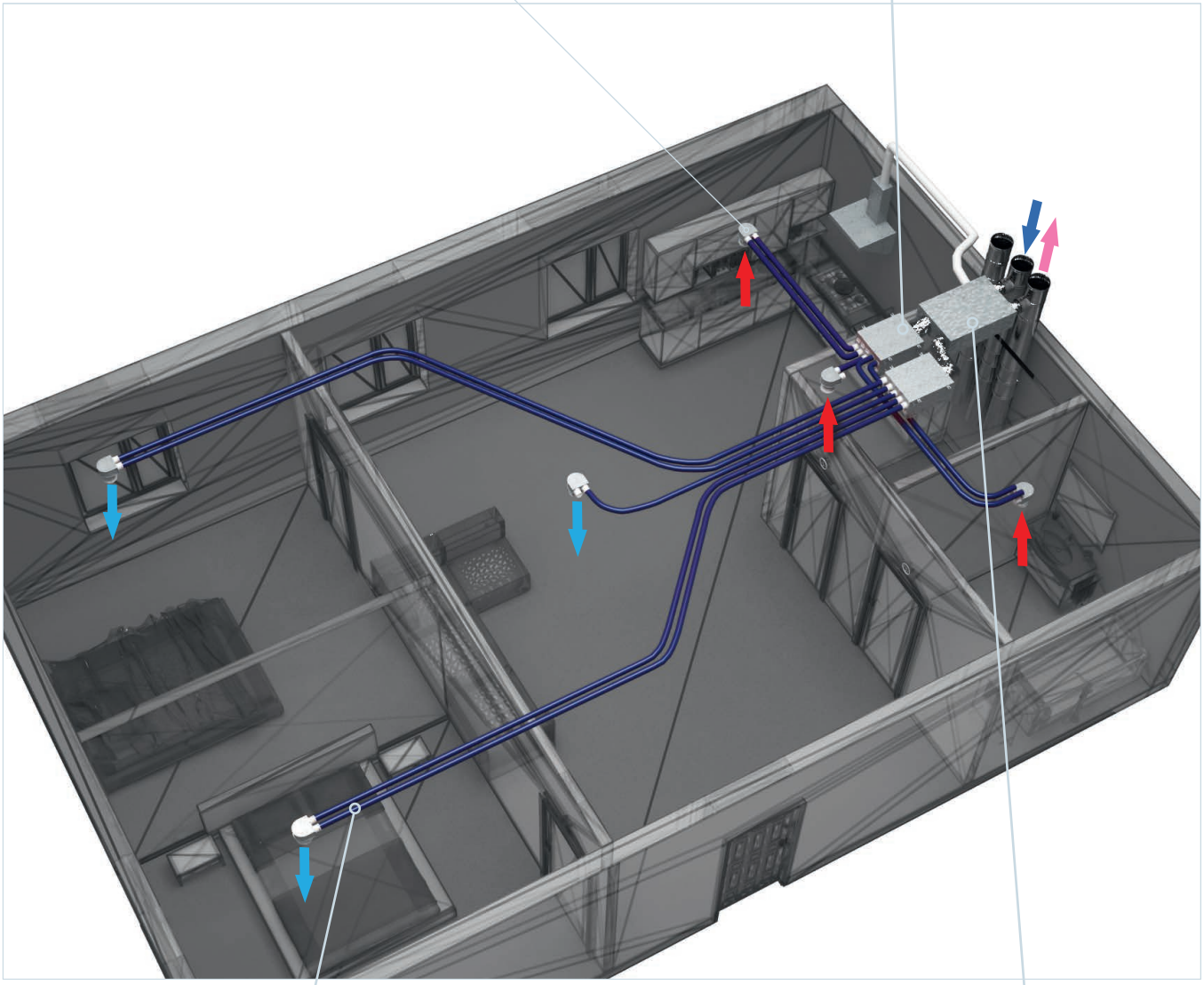
| Model | Humidity sensor (NO) | Humidity sensor (0-10 V) | Kitchen hood | Back valves | Air dampers | Electric actuator |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| VUTR 250 P2E EC A21 | HR-S | HV-2 | KH-1 | KOM 160 | KRV 160 | TF230 |
| VUTR 250 PE EC A21 | | | | | | |
| VUTR 350 P2E EC A21 | | | | | | |
| VUTR 350 PE EC A21 | | | | | | |
| VUTR 650 PE EC A21 | | | | KOM 200 | KRV 200 | |

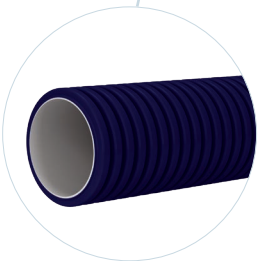
**Application options**

Ceiling connector with a disc valve

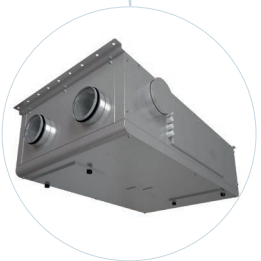
Manifold







FlexiVent air duct



Air handling unit

Series
## VUTR 400 EH EC/WH EC
## VUTR 700 EH EC/WH EC
## VUTR 900 EH EC/WH EC

Series
## VUTR 1200 EH EC/WH EC
## VUTR 1500 EH EC/WH EC

Series
## VUTR 2000 EH EC/WH EC

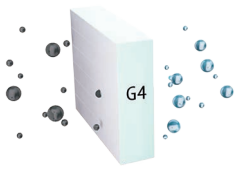
Air handling units in heat- and sound-insulated casing with an electric or a water heater.
Air flow up to **2250 m³/h**.
Heat recovery efficiency up to **95 %**

### Description
The air handling units VUTR EH EC with an electric heater and VUTR WH EC with a water heater are the fully-featured ventilation units that ensure air filtration, fresh air supply and stale air extract.
Used in ventilation and air conditioning systems in commercial, office and other public or industrial premises that require an economical solution and a controlled ventilation system.

### Modifications
**VUTR EH EC** models are equipped with an electric heater.
**VUTR WH EC** models are equipped with a water heater.

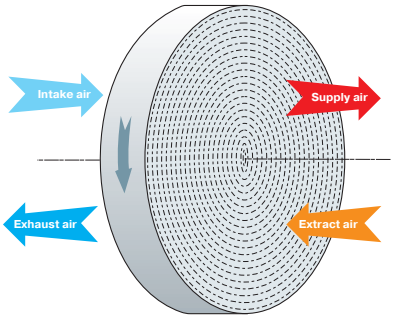
### Casing
The casing consists of a frame and three-layer 20 mm (VUTR 1500 and 2000 – 25 mm) thick panels made of zinc aluminium internally filled with mineral wool for reliable heat- and sound-insulation.

### Filter
The two integrated G4 filters ensure sufficient supply and extract air purification.




### Motor
The air handling units are equipped with high-efficiency electronically commutated (EC) direct current motors with an external rotor and backward-curved blades.

### Rotary heat exchanger
Units equipped with a rotary heat exchanger. As compared to plate heat exchangers, the rotary heat exchangers are distinguished with no condensate forming, ability to maintain comfortable air humidity and extremely low freezing danger.



Rotary heat exchanger operation principle

### Heater
The air handling units are equipped with electric heaters (VUTR EH EC models) or water heaters (VUTR WH EC models) to operate at low outside temperatures. The heaters are equipped with protecting devices to ensure safe and reliable operation of the unit.

### Control and automation
The VUTR EH EC A17 and VUTR WH EC A17 units are equipped with a th-Tune control panel.


The VUTR EH EC A18 and VUTR WH EC A18 units are equipped with a pGD1 control panel.


Modbus

**Designation key**

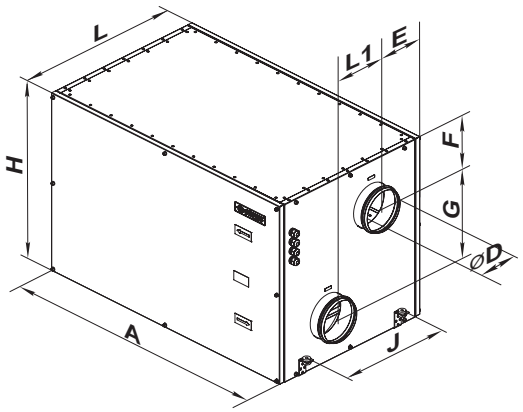
| Series | Heat exchanger type | Rated air flow [m³/h] | Heater type | Pipe modification | Motor type | Control panel |
|---|---|---|---|---|---|---|
| **VENTS VUT** | **R:** rotary heat exchanger | 400; 700; 900; 1200; 1500; 2000 | **E**: electric<br>**W**: water | **H**: horizontal | **EC**: synchronous motor with electronic control | **A17**: th-Tune<br>**A18**: pGD1 |

**Automation functions**

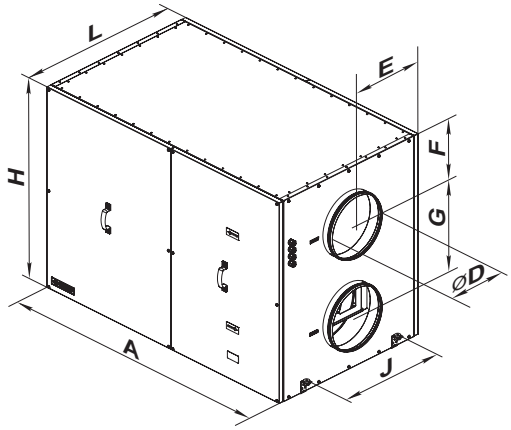
- Speed selection: low, medium, high.
- Speed is individually adjusted from 0 to 100 % for the supply and the extract fans.
- Filter maintenance indication.
- Alarm indication.
- Timer-based operation.
- Week-scheduled operation.
- Supply air temperature control.
- CCU control.
- Air damper actuator controlling.

**Overall dimensions**

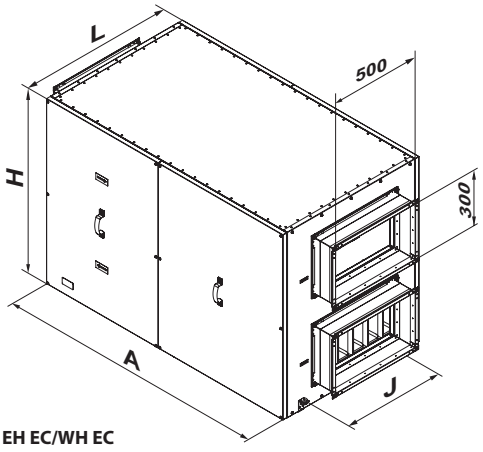
| Model | Dimensions [mm] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | øD | A | E | F | G | L | L1 | H | J |
| VUTR 400 EH EC/400 WH EC | 159 | 1050 | 225 | 167 | 333 | 648 | 200 | 670 | 440 |
| VUTR 700 EH EC/700 WH EC | 249 | 1210 | 243 | 180 | 340 | 745 | 260 | 700 | 580 |
| VUTR 900 EH EC/900 WH EC | 249 | 1210 | 243 | 180 | 340 | 745 | 260 | 700 | 580 |
| VUTR 1200 EH EC/1200 WH EC | 314 | 1335 | 373 | 220 | 438 | 745 | - | 880 | 460 |
| VUTR 1500 EH EC/1500 WH EC | 314 | 1430 | 427 | 275 | 460 | 855 | - | 1010 | 560 |
| VUTR 2000 EH EC/2000 WH EC | - | 1485 | - | - | - | 875 | - | 1010 | 630 |




**VENTS VUTR 400 EH EC/400 WH EC**
**VENTS VUTR 700 EH EC/700 WH EC**
**VENTS VUTR 900 EH EC/900 WH EC**




**VENTS VUTR 1200 EH EC/1200 WH EC**
**VENTS VUTR 1500 EH EC/1500 WH EC**

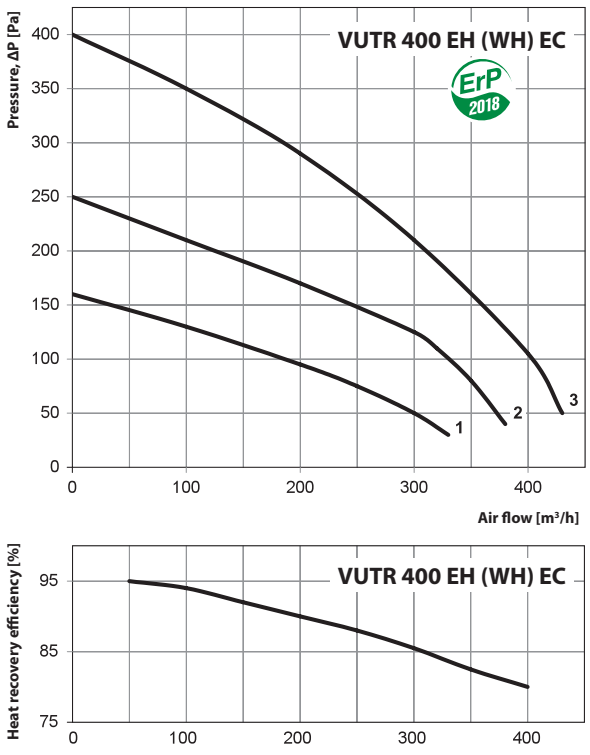



**VUTR 2000 EH EC/WH EC**

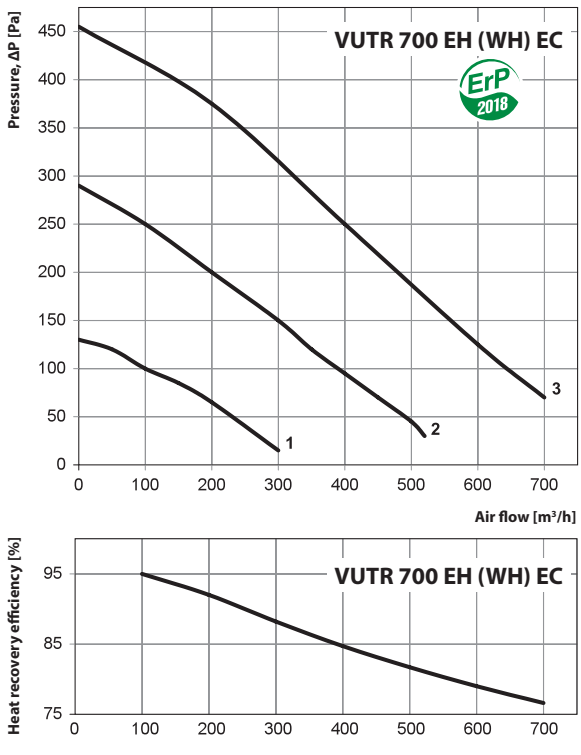
**Technical data**

| | VUTR 400 EH EC | VUTR 400 WH EC | VUTR 700 EH EC | VUTR 700 WH EC | VUTR 900 EH EC | VUTR 900 WH EC |
|---|---|---|---|---|---|---|
| Voltage [V] | 1~230 | | 1~230 | | 3~400 | 1~230 |
| Maximum fan power [W] | 200 | | 210 | | 270 | |
| Electric heater power [kW] | 2 | – | 3.3 | – | 4.5 | – |
| Total unit power [W] | 2290 | 290 | 3615 | 315 | 4940 | 440 |
| Total unit current [A] | 9.9 | 1.2 | 15.8 | 1.4 | 7.2 | 1.9 |
| Maximum air flow [m³/h] | 400 | | 700 | | 900 | |
| Sound pressure level at 3 m distance [dBA] | 45 | | 52 | | 58 | |
| Transported air temperature [°C] | -25...+40 | | | | | |
| Casing material | Aluzinc | | | | | |
| Insulation | 20 mm mineral wool | | | | | |
| Extract filter | G4 | | | | | |
| Supply filter | G4 | | | | | |
| Connected air duct diameter [mm] | Ø160 | | Ø250 | | Ø250 | |
| Mass [kg] | 112 | | 128 | | 130 | |
| Heat recovery efficiency [%] | 80-95 | | 76-95 | | 72-95 | |
| Heat exchanger type | rotary | | | | | |
| Heat exchanger material | aluminium | | | | | |
| SEC class | A | | | | | |

VENTS VUTR EH (WH) EC

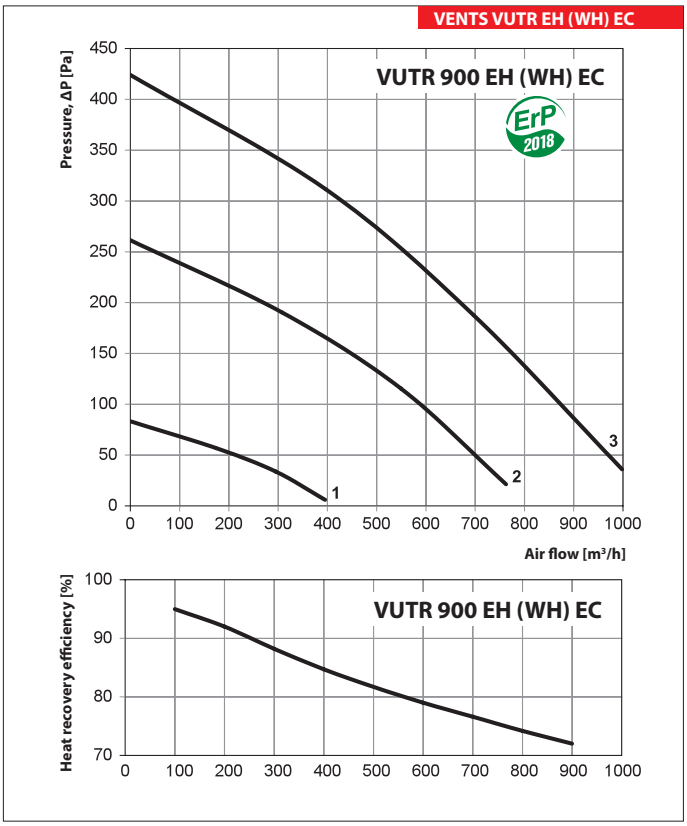


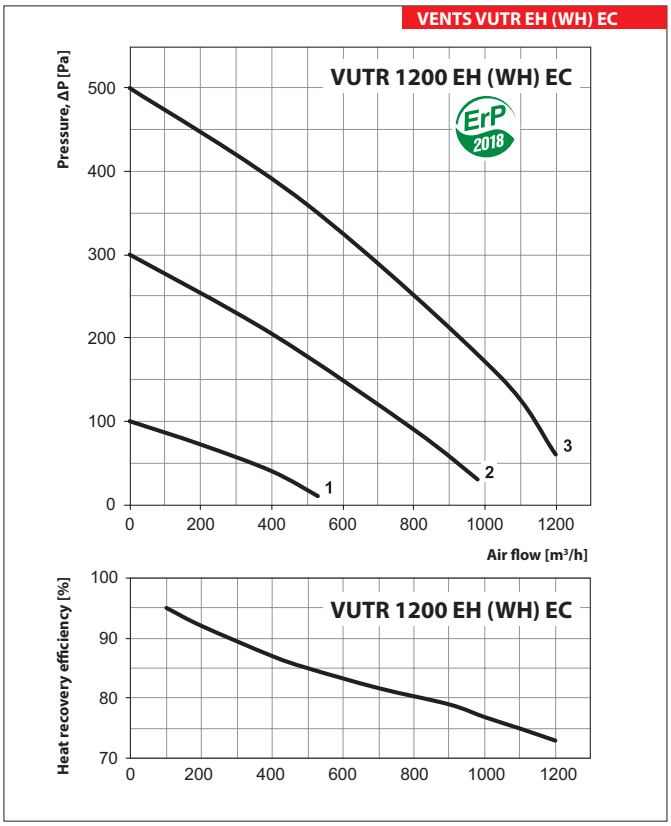

VENTS VUTR EH (WH) EC



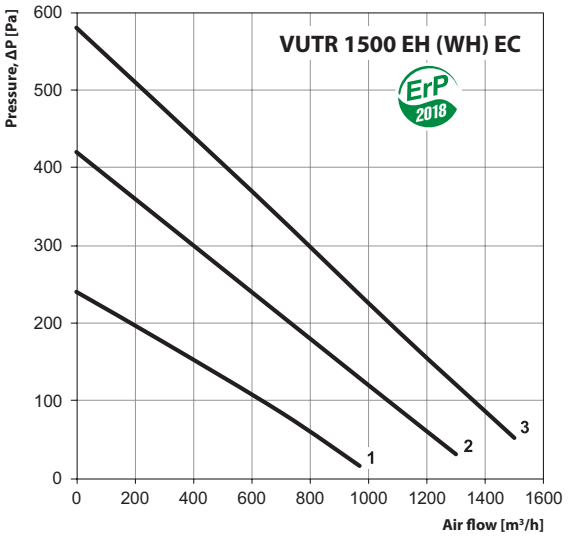
**Technical data**

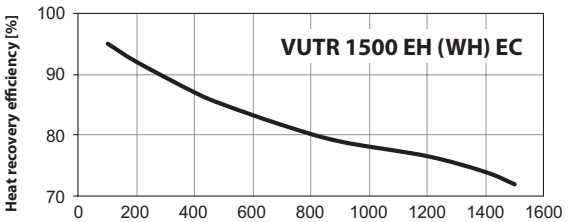
| | VUTR 1200 EH EC | VUTR 1200 WH EC | VUTR 1500 EH EC | VUTR 1500 WH EC | VUTR 2000 EH EC | VUTR 2000 WH EC |
|---|---|---|---|---|---|---|
| Voltage [V] | 3~400 | 1~230 | 3~400 | 1~230 | 3~400 | 1~230 |
| Maximum fan power [W] | 416 | | 444 | | 896 | |
| Electric heater power [kW] | 6 | – | 9 | – | 12 | - |
| Total unit power [W] | 6570 | 570 | 9750 | 750 | 13070 | 1070 |
| Total unit current [A] | 9.5 | 2.5 | 14.1 | 3.2 | 22.4 | 5 |
| Maximum air flow [m³/h] | 1200 | | 1500 | | 2250 | |
| Sound pressure level at 3 m distance [dBA] | 60 | | 62 | | 64 | |
| Transported air temperature [°C] | -25...+40 | | | | | |
| Casing material | Aluzinc | | | | | |
| Insulation | 20 mm mineral wool | | | | 25 mm mineral wool | |
| Extract filter | G4 | | | | | |
| Supply filter | G4 | | | | | |
| Connected air duct diameter [mm] | Ø315 | | Ø315 | | 500x300 | |
| Mass [kg] | 165 | | 175 | | 198 | |
| Heat recovery efficiency [%] | 73-95 | | 72-95 | | 68-93 | |
| Heat exchanger type | rotary | | | | | |
| Heat exchanger material | aluminium | | | | | |



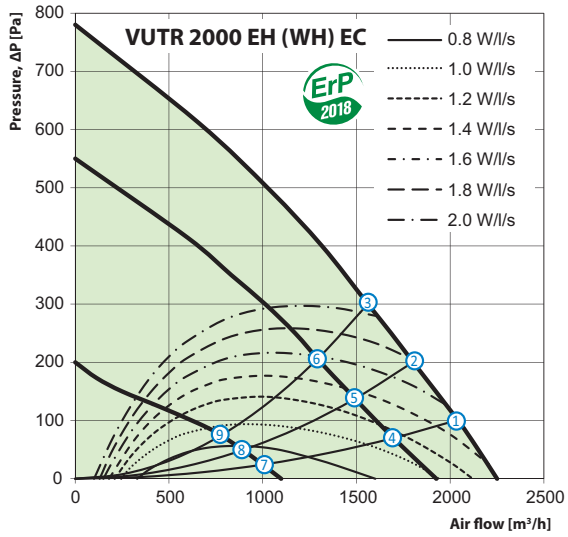



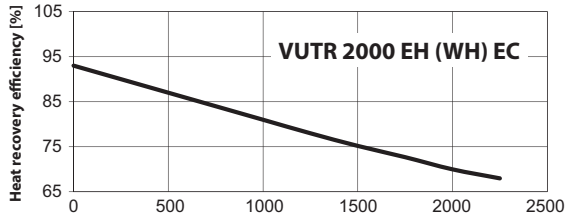
VENTS VUTR EH (WH) EC



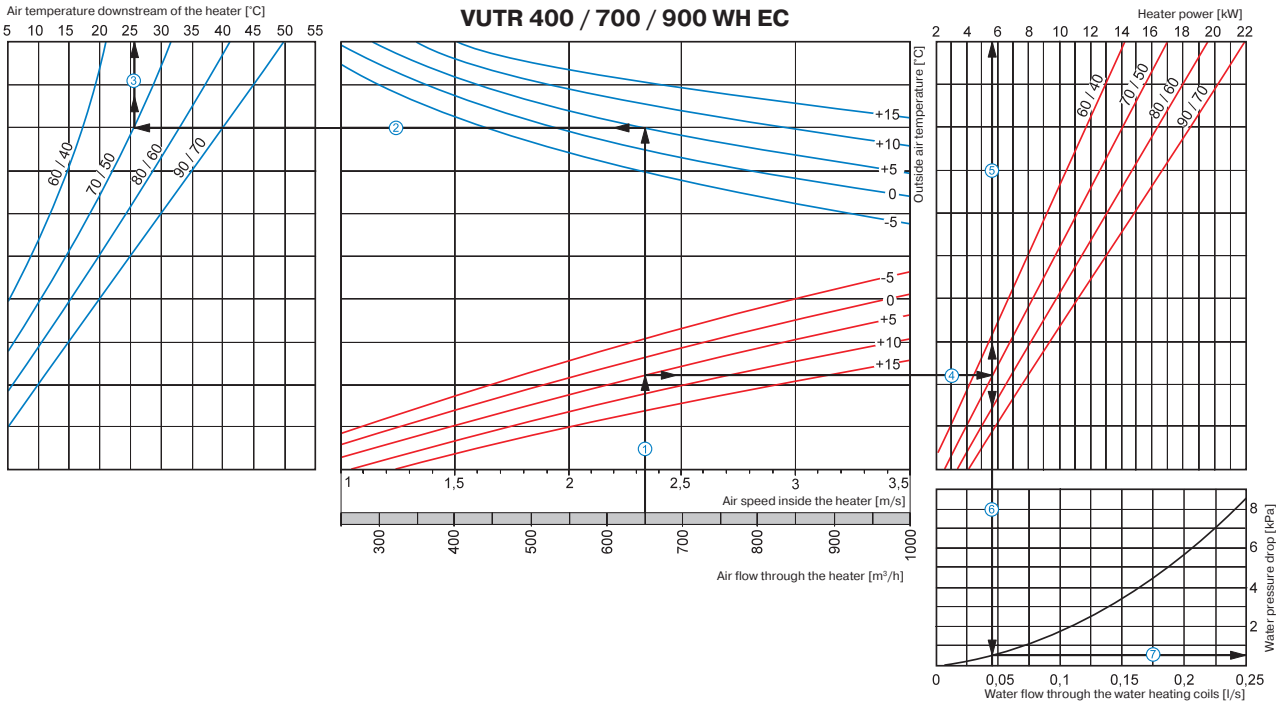

VENTS VUTR EH (WH) EC




## Water heater parameters calculation

VENTS VUTR WH EC



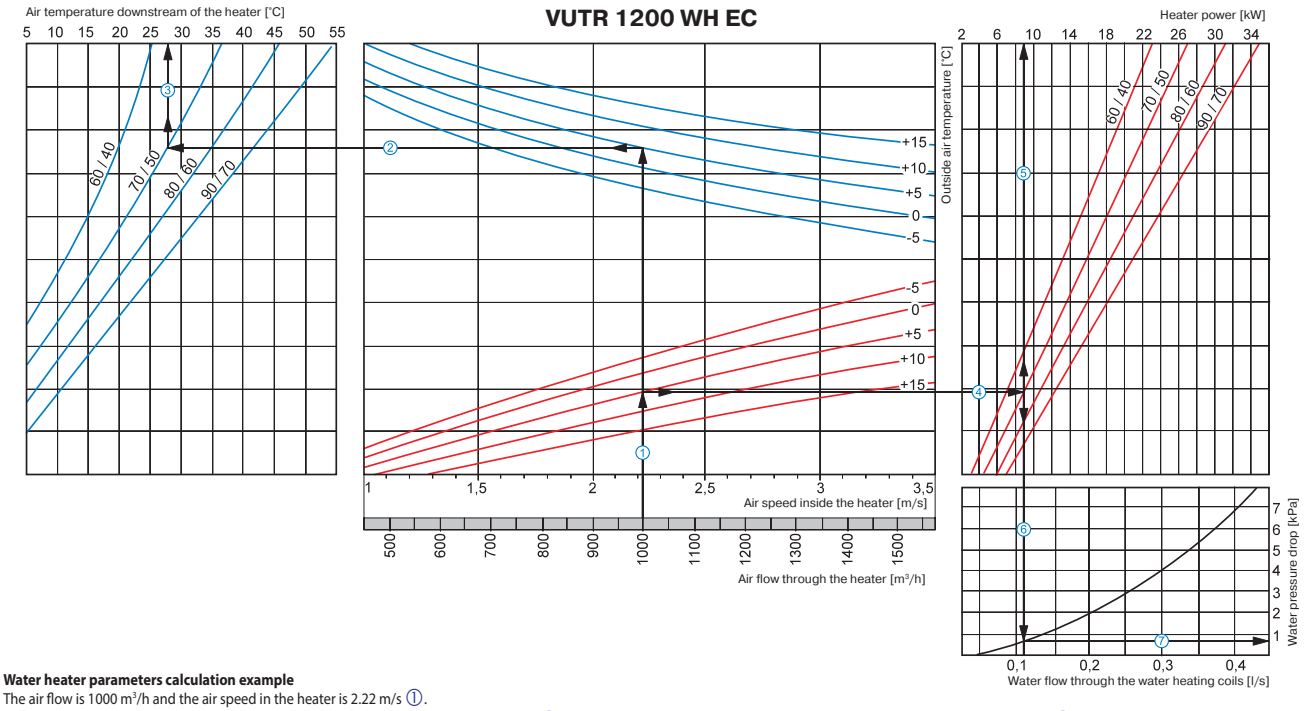

**Water heater parameters calculation example**

The air flow is 650 m³/h and the air speed in the heater is 2.35 m/s ①.

- To calculate the maximum air temperature find the intersection point of the air flow line ① with the rated winter temperature shown in blue line (e.g., +5 °C) and draw the line ② to the left until it crosses the water in/out temperature curve (e.g. 70/50). From this point draw a vertical line to the supply air temperature downstream of the heater (+26 °C) ③.
- To calculate the heater power find the intersection point of the air flow ① with the rated winter temperature shown in red line (e.g., +5 °C) and draw the line ④ to the right until it crosses the water in/out temperature curve (e.g. 70/50). From this point draw a vertical line to the heater power axis (5.8 kW) ⑤.
- To calculate the required water flow in the heater prolong this line ⑥ downwards to the water flow axis (0,04 l/s).
- To calculate the water pressure drop in the heater find the intersection point of the line ⑥ with the pressure loss curve and prolong the line ⑦ to the right on the water pressure drop axis (0.5 kPa).

## Water heater parameters calculation

**VENTS VUTR WH EC**

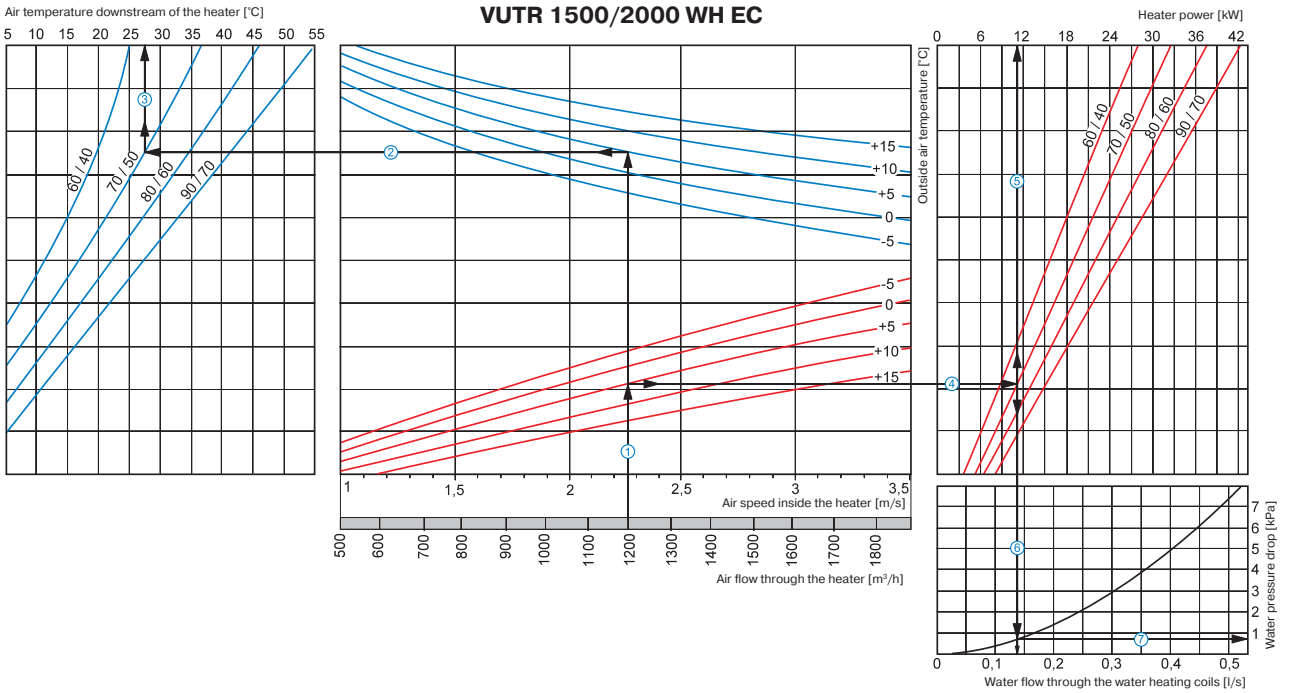



**Water heater parameters calculation example**

The air flow is 1000 m³/h and the air speed in the heater is 2.22 m/s ①.

- To calculate the maximum air temperature find the intersection point of the air flow line ① with the rated winter temperature shown in blue line (e.g., +5 °C) and draw the line ② to the left until it crosses the water in/out temperature curve (e.g. 70/50). From this point draw a vertical line to the supply air temperature downstream of the heater (28 °C) ③.
- To calculate the heater power find the intersection point of the air flow ① with the rated winter temperature shown in red line (e.g., +5 °C) and draw the line ④ to the right until it crosses the water in/out temperature curve (e.g. 70/50). From this point draw a vertical line to the heater power axis (9.0 kW) ⑤.
- To calculate the required water flow in the heater prolong this line ⑥ downwards to the water flow axis (0,11 l/s).
- To calculate the water pressure drop in the heater find the intersection point of the line ⑥ with the pressure loss curve and prolong the line ⑦ to the right on the water pressure drop axis (0.8 kPa).

**VENTS VUTR WH EC**




**Water heater parameters calculation example**

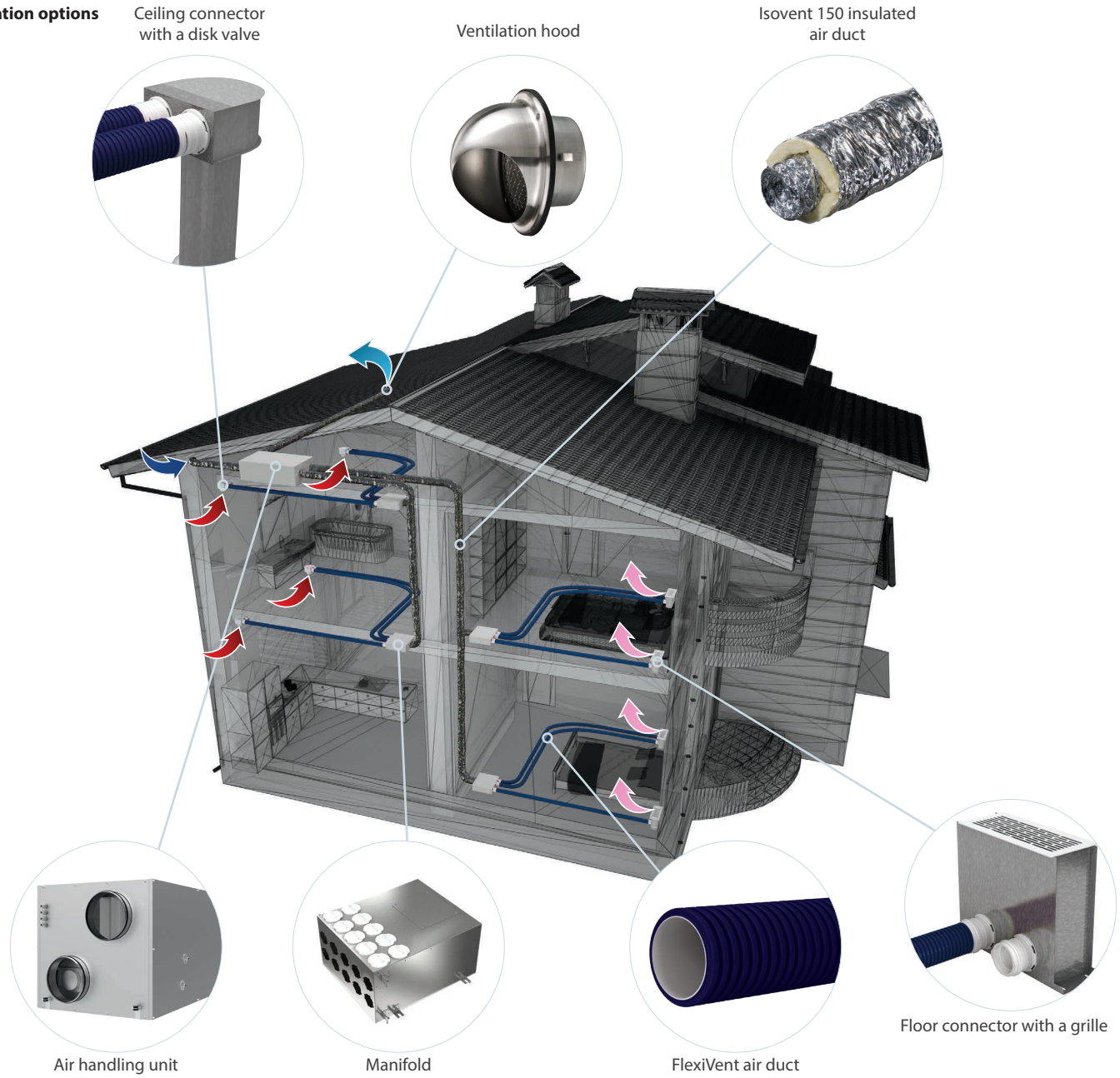
The air flow is 1200 m³/h and the air speed in the heater is 2.25 m/s ①.

- To calculate the maximum air temperature find the intersection point of the air flow line ① with the rated winter temperature shown in blue line (e.g., +5 °C) and draw the line ② to the left until it crosses the water in/out temperature curve (e.g. 70/50). From this point draw a vertical line to the supply air temperature downstream of the heater (27 °C) ③.
- To calculate the heater power find the intersection point of the air flow ① with the rated winter temperature shown in red line (e.g., +5 °C) and draw the line ④ to the right until it crosses the water in/out temperature curve (e.g. 70/50). From this point draw a vertical line to the heater power axis (11.0 kW) ⑤.
- To calculate the required water flow in the heater prolong this line ⑥ downwards to the water flow axis (0,13 l/s).
- To calculate the water pressure drop in the heater find the intersection point of the line ⑥ with the pressure loss curve and prolong the line ⑦ to the right on the water pressure drop axis (0.8 kPa).

## Accessories for air handling units

| Model | G4 supply pocket filter | G4 extract panel filter | Module Modbus-RS485 | Outdoor air quality sensor | Outdoor $CO_2$ sensor | Outdoor humidity sensor | Outdoor humidity sensor | Indoor humidity sensor (0-10 V) | Mixing unit | Back valves | Air damper | Electric actuator |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VUTR 400 EH EC | SFK 393x235x27 G4 | SF 600x324x48 G4 | PCOS004850 | DPWQ 30600 | DRWQ 40200 | DPWC 11200 | HR-S | HV-2 | - | KOM 160 | KRV 160 | CM230 |
| VUTR 400 WH EC | | | | | | | | | USVK 3/4-4 | | | TF230 |
| VUTR 700 EH EC | SFK 700x333x27 G4 | SF 700x332x48 G4 | | | | | | | - | KOM 250 | KRV 250 | CM230 |
| VUTR 700 WH EC | | | | | | | | | USVK 3/4-4 | | | TF230 |
| VUTR 900 EH EC | | | | | | | | | - | | | CM230 |
| VUTR 900 WH EC | | | | | | | | | USVK 3/4-4 | | | TF230 |
| VUTR 1200 EH EC | SFK 700x423x27 G4 | SF 700x410x48 G4 | | | | | | | - | KOM 315 | KRV 315 | CM230 |
| VUTR 1200 WH EC | | | | | | | | | USVK 3/4-4 | | | TF230 |
| VUTR 1500 EH EC | SFK 800x477x27 G4 | SF 800x477x47 G4 | | | | | | | - | | | CM230 |
| VUTR 1500 WH EC | | | | | | | | | USVK 1-6 | | | TF230 |
| VUTR 2000 EH EC | | | | | | | | | - | KOM1 500x300 | KR 500x300 | CM230 |
| VUTR 2000 WH EC | | | | | | | | | USVK 1-6 | | | TF230 |

## Application options



Series
## VENTS MPA 300-700 E EC A31

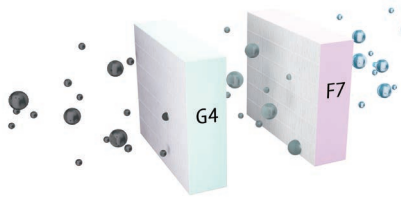
Series
## VENTS MPA 1000-4000 E EC A31

Air supply units with the air flow up to **5000 m³/h** in the sound- and heat-insulated casing

### Description
Air supply MPA EC unit is a complete ventilation unit for air filtration, air heating and supply to premises.

### Casing
Steel casing covered with aluzinc coating internally filled with 30 mm heat- and sound-insulating layer made of mineral wool.

### Filter
The unit is equipped with a Coarse 60%/G4 filter. An ePM10 90%/F7 class filter is optionally available.




### Heater
Electric heater is used for heating of supply air in cold season.

### Fans
The units are equipped with high-efficient EC-motors with an external rotor and a centrifugal impeller.

### Mounting
The air handling unit is mounted on the floor, suspended to the ceiling or mounted on the wall using brackets.
The unit can be mounted either in service spaces or in main premises (above a false ceiling, in a niche or on a surface).
All electrical connections are made through the terminal block located in the junction box.
It is necessary to provide access to the unit for service and filter cleaning.

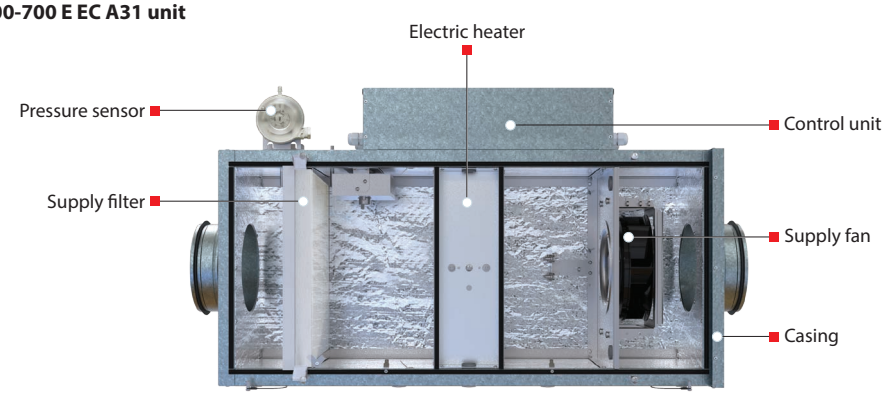
### Control and automation
The **MPA E EC** units are equipped with integrated control system. The A31 controller allows integrating the unit into the **Building Management System (BMS)**. Remote control panel is not included in the delivery set and is available as specially ardered accessory.

| Functions | A31 |
|---|---|
| Wired control panel | A30  |
| Wired control panel | A32  |
| Unit on / off | + |
| Fan speed control and setting | + |
| Filter clogging indication and control | Pressure sensor |
| Week schedule | + |
| Electric heater protection with auto restart | + |
| Electric heater protection with manual restart | + |
| Supply temperature control | + |
| Outer temperature sensor | + |
| Water heater frost protection | + |
| Return temperature sensor | + |
| Air damper control | + |
| Alarm indication | + |
| BMS Connection | ModBUS (RTU) |
| Humidity sensor | 0-10 V or NO |
| $CO_2$ Sensor | 0-10 V or NO |
| Exhaust fan control | on / off |
| Three-way valve control | + |
| Circulation pump control | + |
| Condensing unit control | 0-10 V |

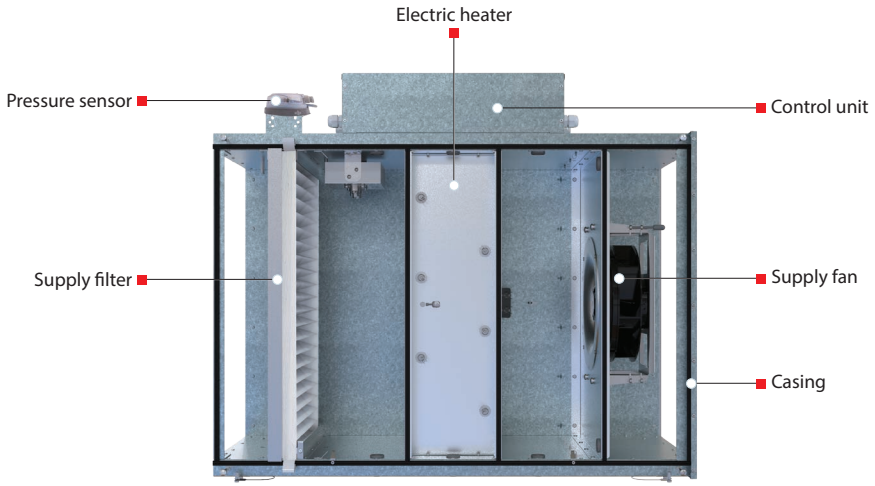
**Designation key**

| Series | Rated air flow [m³/h] | Heater | Heater power [kW] | Motor type | Modification | Controller type |
|---|---|---|---|---|---|---|
| **MPA**: air handling unit | 300; 400; 700; 1000; 1500; 2000; 3000; 4000 | **E**: electric | 1,7; 2; 3; 5,1; 6; 9; 12; 14; 15; 18; 24; 27; 45; 54 | **EC**: electronnicaly-commutated motor | **L**: left<br>**R**: right | **A31** |

**Design of the MPA 300-700 E EC A31 unit**

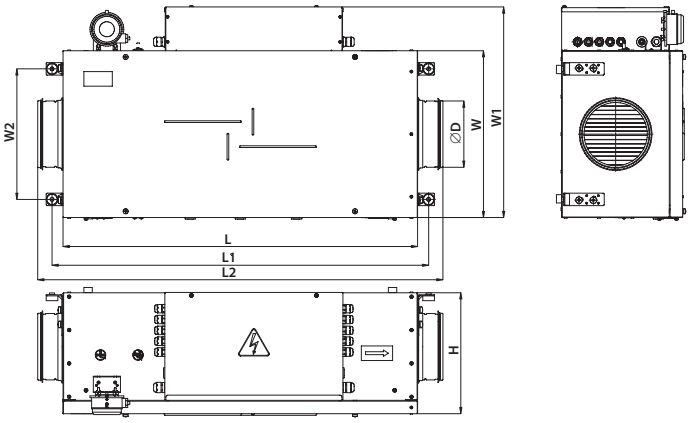



**Design of the MPA 1000-4000 EC A31 unit**

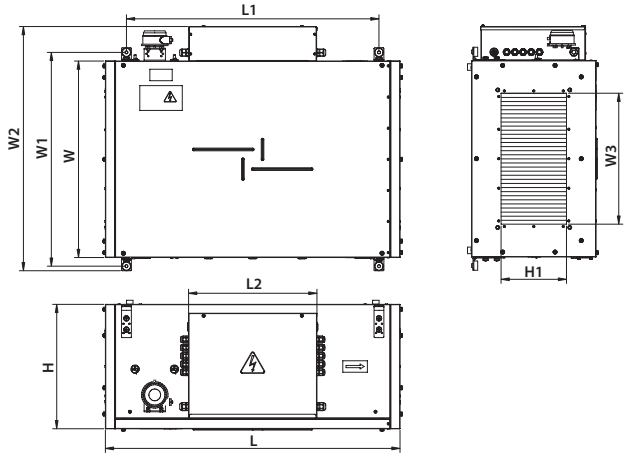



**Overall dimensions**

| Model | Dimensions [mm] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ØD | L | W | H | L1 | L2 | W1 | W2 |
| MPA 300 E EC A31 | 160 | 850 | 400 | 290 | 903 | 950 | 514 | 313 |
| MPA 400 E EC A31 | 200 | 850 | 400 | 350 | 903 | 972 | 514 | 313 |
| MPA 700 E EC A31 | 250 | 850 | 460 | 350 | 903 | 972 | 565 | 353 |



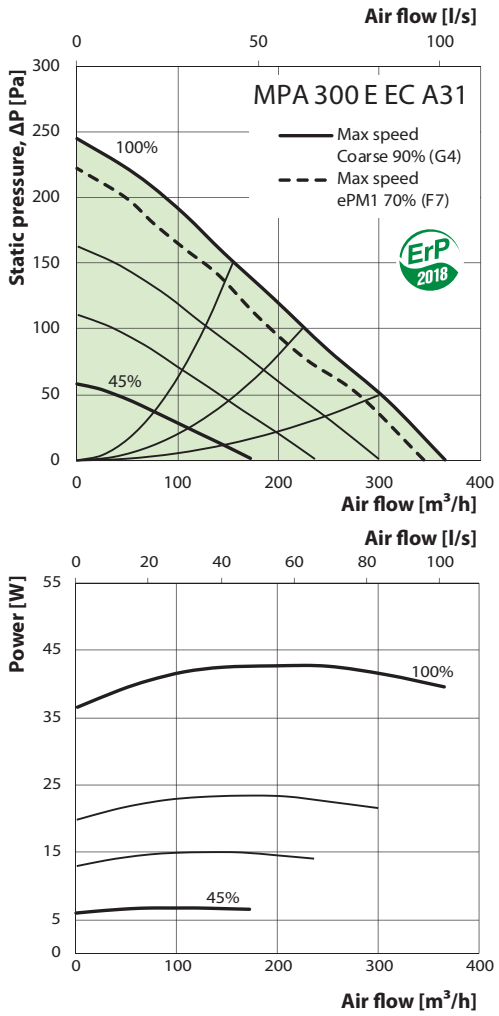

| Model | Dimensions [mm] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | L | W | H | H1 | L1 | W1 | W2 | W3 |
| MPA 1000 E EC A31 | 900 | 600 | 380 | 200 | 770 | 653 | 746 | 400 |
| MPA 1500 E EC A31 | 900 | 700 | 440 | 250 | 770 | 754 | 847 | 500 |
| MPA 2000 E EC A31 | 900 | 700 | 440 | 300 | 770 | 754 | 847 | 500 |
| MPA 3000 E EC A31 | 1200 | 800 | 500 | 300 | 1070 | 853 | 944 | 600 |
| MPA 4000 E EC A31 | 1200 | 940 | 550 | 400 | 1070 | 993 | 1087 | 700 |



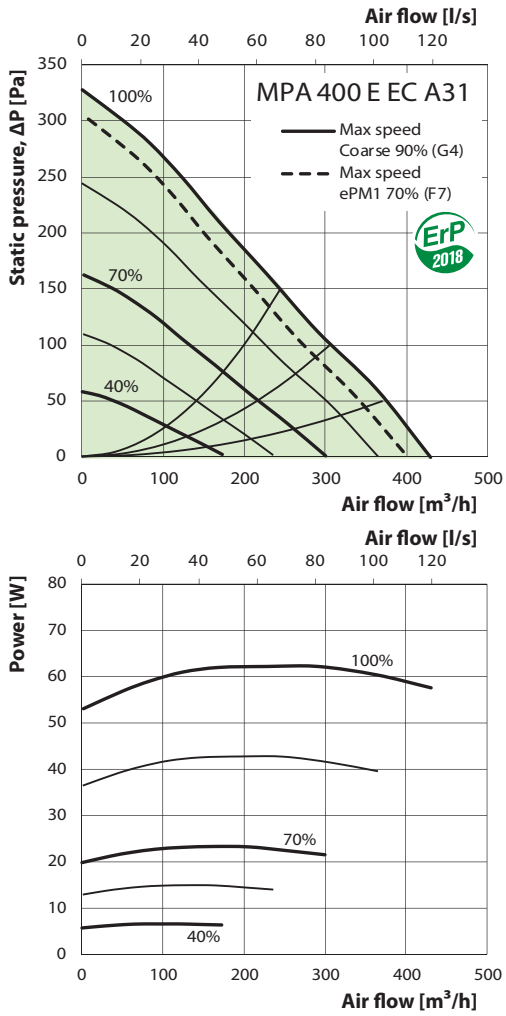
**Technical data**

| | MPA 300 E-1.7 EC A31 | MPA 300 E-5.1 EC A31 | MPA 400 E-2.4 EC A31 | MPA 400 E-3.3 EC A31 | MPA 400 E-6.0 EC A31 |
|---|---|---|---|---|---|
| Supply voltage [V/50 Hz] | 1~230 | 3~400 | 1~230 | 3~400 | 3~400 |
| Maximum fan power [kW] | 0.064 | 0.064 | 0.062 | 0.062 | 0.062 |
| Maximum electric heater power [kW] | 1.7 | 5.1 | 2.4 | 3.3 | 6.0 |
| Maximum power total [kW] | 1.764 | 5.164 | 2.462 | 3.362 | 6.062 |
| Maximum fan current [A] | 0.3 | 0.3 | 0.5 | 0.5 | 0.5 |
| Maximum current total [A] | 7.7 | 7.4 | 12 | 5.4 | 9.7 |
| Maximum air flow [m³/h] | 365 | 354 | 430 | 430 | 430 |
| Sound pressure level through the casing, 3 m, maximum air flow [dBA] | 35 | 35 | 31 | 31 | 31 |
| Transported air temperature [°C] | -30...+40 | | | | |
| Casing material | Aluzinc | | | | |
| Insulation | 30 mm, mineral wool | | | | |
| Filter | Coarce 90% / G4 (option ePM1 70% / F7) | | | | |
| Air duct diameter [mm] | 160 | 160 | 200 | 200 | 200 |
| Weight [kg] | 24 | 24 | 25 | 25 | 25 |

VENTS MPA E EC

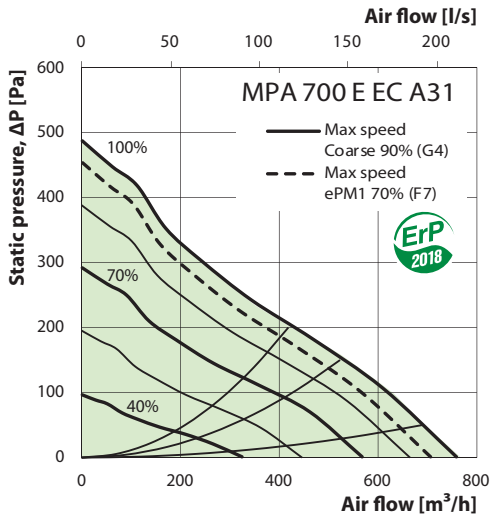


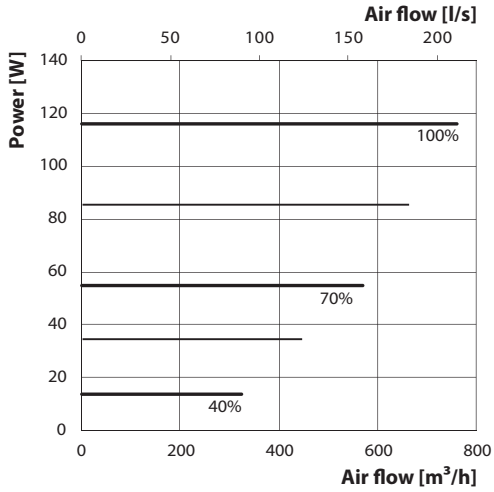

VENTS MPA E EC



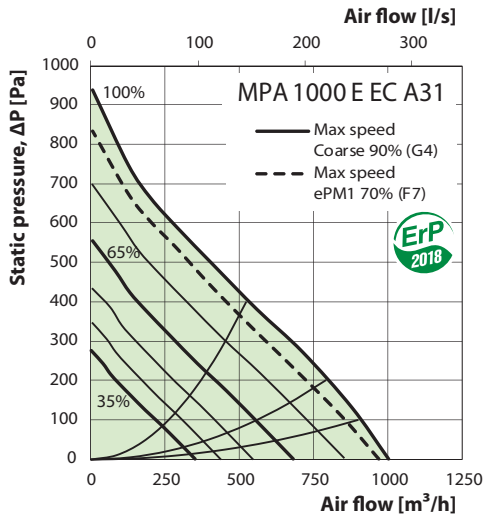
| | MPA 700 E-3.0 EC A31 | MPA 700 E-6.0 EC A31 | MPA 700 E-9.0 EC A31 | MPA 1000 E-6.0 EC A31 | MPA 1000 E-12.0 EC A31 | MPA 1000 E-15.0 EC A31 |
|---|---|---|---|---|---|---|
| Supply voltage [V/50 Hz] | 3~400 | 3~400 | 3~400 | 3~400 | 3~400 | 3~400 |
| Maximum fan power [kW] | 0.116 | 0.116 | 0.116 | 0.165 | 0.165 | 0.165 |
| Maximum electric heater power [kW] | 3.0 | 6.0 | 9.0 | 6.0 | 12.0 | 15.0 |
| Maximum power total [kW] | 3.116 | 6.116 | 9.116 | 6.165 | 12.165 | 15.165 |
| Maximum fan current [A] | 0.5 | 0.5 | 0.5 | 1.3 | 1.3 | 1.3 |
| Maximum current total [A] | 5 | 10 | 14.6 | 11 | 19.5 | 24.3 |
| Maximum air flow [m³/h] | 760 | 760 | 760 | 1000 | 1000 | 1000 |
| Sound pressure level through the casing, 3 m, maximum air flow [dBA] | 41 | 41 | 41 | 45 | 45 | 45 |
| Transported air temperature [°C] | -30...+40 | | | | | |
| Casing material | Aluzinc | | | | | |
| Insulation | 30 mm, mineral wool | | | | | |
| Filter | Coarce 90% / G4 (option ePM1 70% / F7) | | | | | |
| Air duct diameter [mm] | 250 | 250 | 250 | 400 x 200 | 400 x 200 | 400 x 200 |
| Weight [kg] | 27 | 27 | 27 | 30 | 30 | 30 |

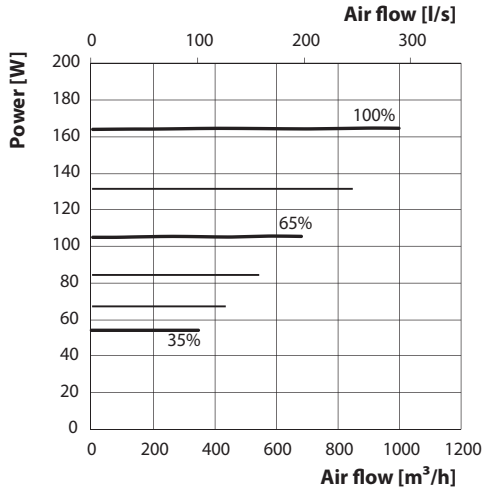
VENTS MPA E EC



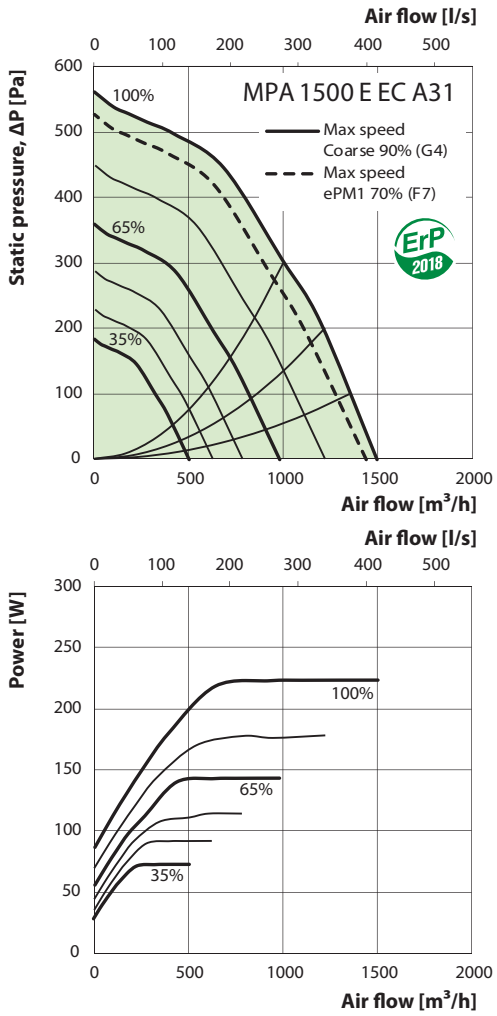

VENTS MPA E EC



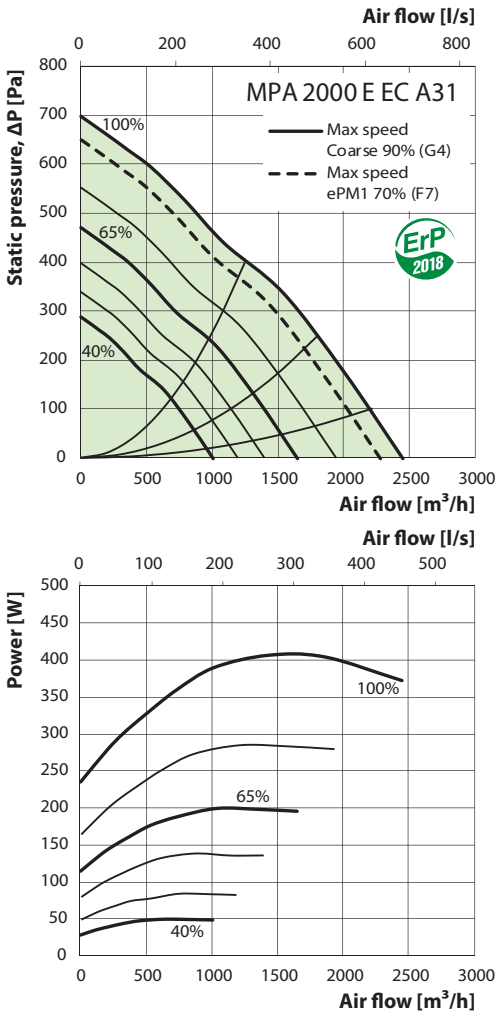



| | MPA 1500 E-9.0 EC A31 | MPA 1500 E-15.0 EC A31 | MPA 1500 E-18.0 EC A31 | MPA 2000 E-12.0 EC A31 | MPA 2000 E-18.0 EC A31 | MPA 2000 E-24.0 EC A31 |
|---|---|---|---|---|---|---|
| Supply voltage [V/50 Hz] | 3~400 | 3~400 | 3~400 | 3~400 | 3~400 | 3~400 |
| Maximum fan power [kW] | 0.223 | 0.223 | 0.223 | 0.406 | 0.406 | 0.406 |
| Maximum electric heater power [kW] | 9.0 | 15.0 | 18.0 | 12.0 | 18.0 | 24.0 |
| Maximum power total [kW] | 9.223 | 15.223 | 18.223 | 12.406 | 18.406 | 24.406 |
| Maximum fan current [A] | 1.7 | 1.7 | 1.7 | 1.8 | 1.8 | 1.8 |
| Maximum current total [A] | 14.8 | 24.9 | 29.2 | 19.9 | 29.5 | 39.1 |
| Maximum air flow [m³/h] | 1500 | 1500 | 1500 | 2450 | 2450 | 2450 |
| Sound pressure level through the casing, 3 m, maximum air flow [dBA] | 46 | 46 | 46 | 48 | 48 | 48 |
| Transported air temperature [°C] | -30...+40 | | | | | |
| Casing material | Aluzinc | | | | | |
| Insulation | 30 mm, mineral wool | | | | | |
| Filter | Coarce 90% / G4 (option ePM1 70% / F7) | | | | | |
| Air duct diameter [mm] | 500 x 250 | 500 x 250 | 500 x 250 | 500 x 300 | 500 x 300 | 500 x 300 |
| Weight [kg] | 35 | 35 | 35 | 40 | 40 | 40 |

VENTS MPA E EC

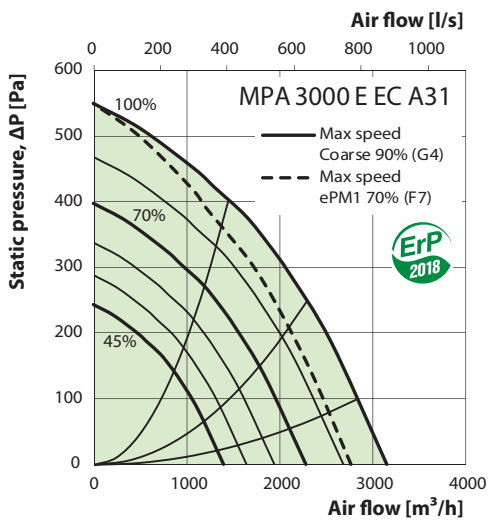


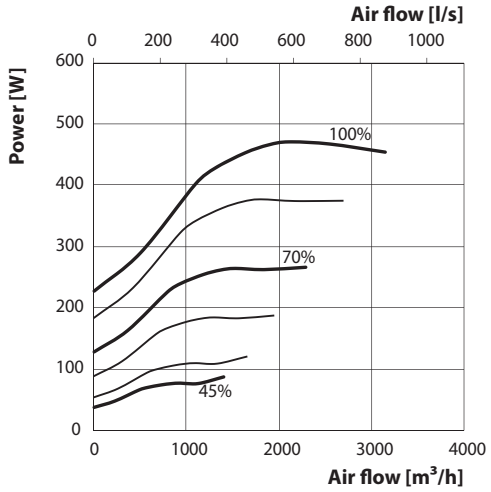

VENTS MPA E EC



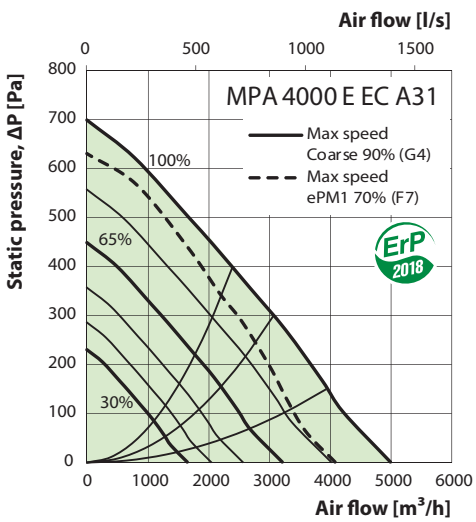
| | MPA 3000 E-18.0 EC A31 | MPA 3000 E-27.0 EC A31 | MPA 3000 E-45.0 EC A31 | MPA 4000 E-24.0 EC A31 | MPA 4000 E-45.0 EC A31 | MPA 4000 E-54.0 EC A31 |
|---|---|---|---|---|---|---|
| Supply voltage [V/50 Hz] | 3~400 | 3~400 | 3~400 | 3~400 | 3~400 | 3~400 |
| Maximum fan power [kW] | 0.472 | 0.472 | 0.472 | 0.717 | 0.717 | 0.717 |
| Maximum electric heater power [kW] | 18.0 | 27.0 | 45.0 | 24.0 | 45.0 | 54.0 |
| Maximum power total [kW] | 18.472 | 27.472 | 45.472 | 24.717 | 45.717 | 54.717 |
| Maximum fan current [A] | 2.1 | 2.1 | 2.1 | 1.1 | 1.1 | 1.1 |
| Maximum current total [A] | 29.6 | 44 | 72.8 | 42.9 | 73.2 | 87.6 |
| Maximum air flow [m³/h] | 3150 | 3150 | 3150 | 5000 | 5000 | 5000 |
| Sound pressure level through the casing, 3 m, maximum air flow [dBA] | 47 | 47 | 47 | 49 | 49 | 49 |
| Transported air temperature [°C] | -30...+40 | | | | | |
| Casing material | Aluzinc | | | | | |
| Insulation | 30 mm, mineral wool | | | | | |
| Filter | Coarce 90% / G4 (option ePM1 70% / F7) | | | | | |
| Air duct diameter [mm] | 600 x 300 | 600 x 300 | 600 x 300 | 700 x 400 | 700 x 400 | 700 x 400 |
| Weight [kg] | 50 | 50 | 50 | 60 | 60 | 60 |

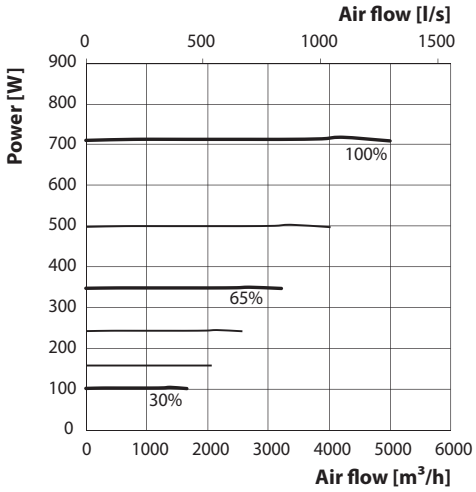
VENTS MPA E EC



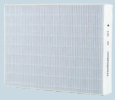
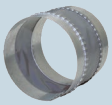
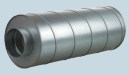




VENTS MPA E EC



**Accessories for air handling units**

| Model | Filter Coarce/G4 | Filter ePM1/F7 | Flexible connector | Silencer | Air Damper | Electric actuator | |
|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |
| MPA 300 E EC A31 | SF 334x226x48 Coarse 90% / G4 | SF 334x226x48 ePM1 70% / F7 | VVG 125 | SR 125 | KRV 125 | TF230 | TF24 |
| MPA 400 E EC A31 | SF 334x287x48 Coarse 90% / G4 | SF 334x287x48 ePM1 70% / F7 | VVG 200 | SR 200 | KRV 200 | | |
| MPA 700 E EC A31 | SF 384x287x48 Coarse 90% / G4 | SF 384x287x48 ePM1 70% / F7 | VVG 250 | SR 250 | KRV 250 | | |
| MPA 1000 E EC A31 | SF 536x316x48 Coarse 90% / G4 | SF 536x316x48 ePM1 70% / F7 | VVG 400x200 | SR 400x200 | RRV 400x200 | | |
| MPA 1500 E EC A31 | SF 636x376x48 Coarse 90% / G4 | SF 636x376x48 ePM1 70% / F7 | VVG 500x250 | SR 500x250 | RRV 500x250 | | |
| MPA 2000 E EC A31 | SF 636x376x48 Coarse 90% / G4 | SF 636x376x48 ePM1 70% / F7 | VVG 500x300 | SR 500x300 | RRV 500x300 | | |
| MPA 3000 E EC A31 | SF 734x435x80 Coarse 90% / G4 | SF 734x435x80 ePM1 70% / F7 | VVG 600x300 | SR 600x300 | RRV 600x300 | | |
| MPA 4000 E EC A31 | SF 874x485x80 Coarse 90% / G4 | SF 874x485x80 ePM1 70% / F7 | VVG 700x400 | SR 700x400 | RRV 700x400 | | |

Series
## VENTS MPA 700 W EC A31

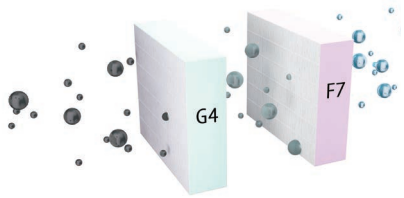
Series
## VENTS MPA 1000-4000 W EC A31

Air supply units with the air flow up to **4950 m³/h** in the sound- and heat-insulated casing

### Description
Air supply MPA EC unit is a complete ventilation unit for air filtration, air heating and supply to premises.

### Casing
Steel casing covered with aluzinc coating internally filled with 30 mm heat- and sound-insulating layer made of mineral wool.

### Filter
The unit is equipped with a Coarse 60%/G4 filter. An ePM10 90%/F7 class filter is optionally available.




### Heater
Water heater is used for heating of supply air in cold season.

### Fans
The units are equipped with high-efficient EC-motors with an external rotor and a centrifugal impeller.

### Mounting
The air handling unit is mounted on the floor, suspended to the ceiling or mounted on the wall using brackets.
The unit can be mounted either in service spaces or in main premises (above a false ceiling, in a niche or on a surface).
All electrical connections are made through the terminal block located in the junction box.
It is necessary to provide access to the unit for service and filter cleaning.

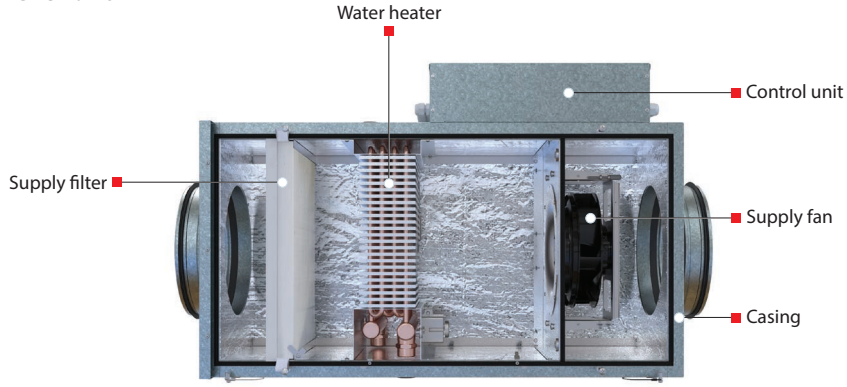
### Control and automation
The **MPA W EC** units are equipped with integrated control system. The A31 controller allows integrating the unit into the **Building Management System (BMS)**. Remote control panel is not included in the delivery set and is available as specially ardered accessory.

| Functions | A31 |
|---|---|
| Wired control panel | A30  |
| Wired control panel | A32  |
| Unit on / off | + |
| Fan speed control and setting | + |
| Filter clogging indication and control | Pressure sensor |
| Week schedule | + |
| Electric heater protection with auto restart | + |
| Electric heater protection with manual restart | + |
| Supply temperature control | + |
| Outer temperature sensor | + |
| Water heater frost protection | + |
| Return temperature sensor | + |
| Air damper control | + |
| Alarm indication | + |
| BMS Connection | ModBUS (RTU) |
| Humidity sensor | 0-10 V or NO |
| $CO_2$ Sensor | 0-10 V or NO |
| Exhaust fan control | on / off |
| Three-way valve control | + |
| Circulation pump control | + |
| Condensing unit control | 0-10 V |

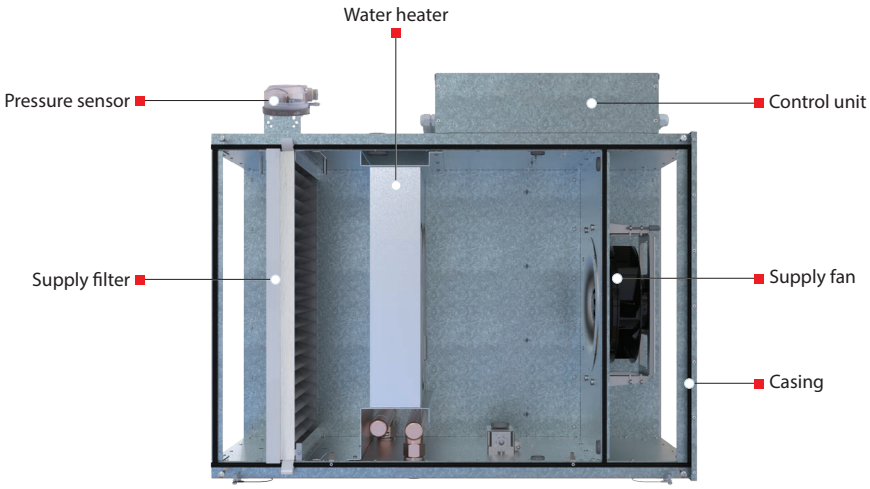
**Designation key**

| Series | Rated air flow [m³/h] | Heater | Motor type | Modification | Controller type |
|---|---|---|---|---|---|
| **MPA**: air handling unit | 700; 1000; 1500; 2000; 3000; 4000 | **W**: water | **EC**: electronnicaly-commutated motor | **L**: left<br>**R**: right | **A31** |

**Design of the MPA 700 W EC A31 unit**

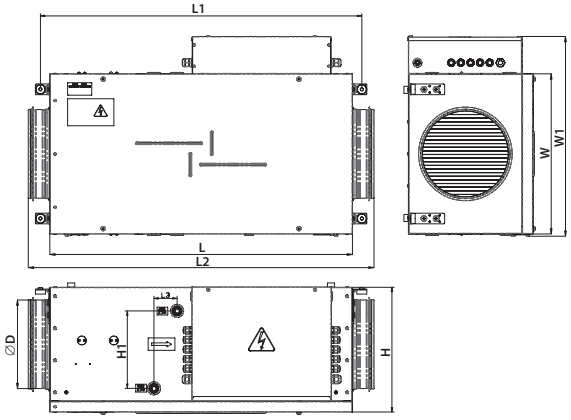



**Design of the MPA 1000-4000 EC A31 unit**

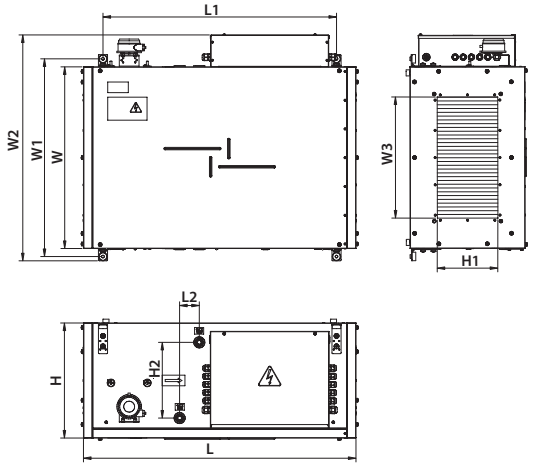



**Overall dimensions**

| Model | Dimensions [mm] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ØD | L | W | H | L1 | L2 | L3 | W1 | H1 |
| MPA 700 W EC A31 | 250 | 850 | 460 | 350 | 903 | 972 | 65 | 565 | 218 |



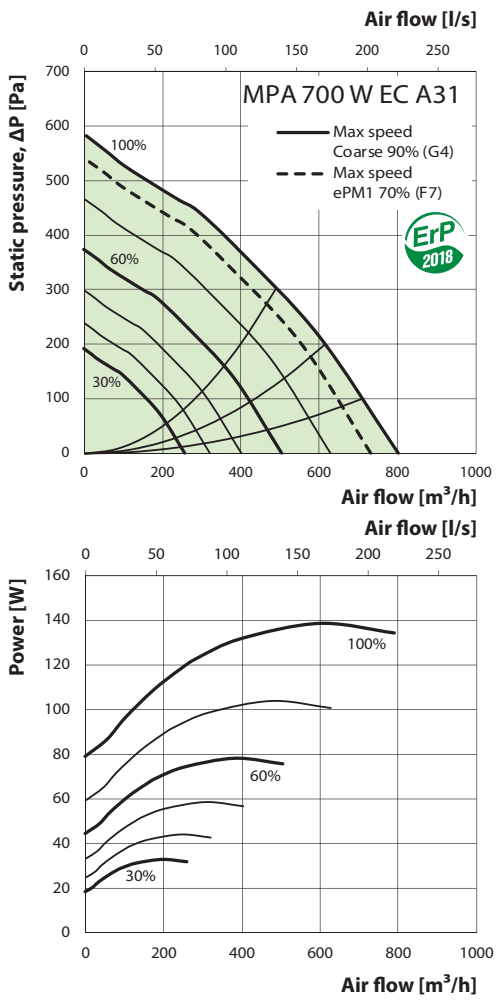

| Model | Dimensions [mm] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | L | W | H | L1 | L2 | W1 | W2 | W3 | H1 | H2 |
| MPA 1000 W EC A31 | 900 | 600 | 380 | 770 | 65 | 653 | 746 | 400 | 200 | 250 |
| MPA 1500 W EC A31 | 900 | 700 | 440 | 770 | 65 | 754 | 847 | 500 | 250 | 318 |
| MPA 2000 W EC A31 | 900 | 700 | 440 | 770 | 65 | 754 | 847 | 500 | 300 | 318 |
| MPA 3000 W EC A31 | 1200 | 800 | 500 | 1070 | 65 | 853 | 944 | 600 | 300 | 368 |
| MPA 4000 W EC A31 | 1200 | 940 | 550 | 1070 | 65 | 993 | 1087 | 700 | 400 | 380 |



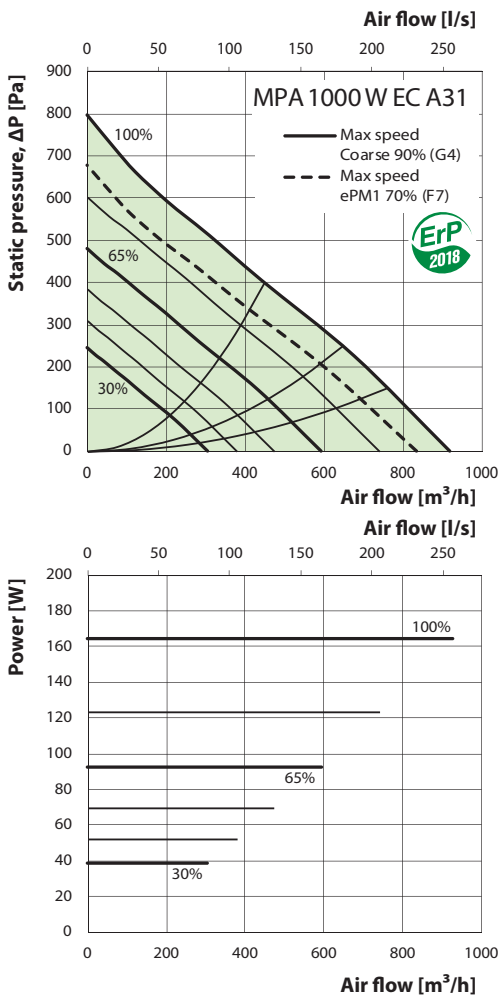
**Technical data**

| | MPA 700 W EC A31 | MPA 1000 W EC A31 |
|---|---|---|
| Supply voltage [V/50 Hz] | 1~230 | |
| The number of water heater rows | 4 | |
| Connection diameter of the heat exchanger [in] | 3/4 | 1 |
| Maximum fan power [kW] | 0.139 | 0.165 |
| Maximum fan current [A] | 1.05 | 1.23 |
| Maximum air flow [m³/h] | 800 | 920 |
| Maximum water temperature [°C] | 150 | 150 |
| Sound pressure level through the casing at a distance 3 m [dBA] | 44 | 48 |
| Transported air temperature [°C] | -30...+40 | |
| Casing material | Aluzinc | |
| Insulation | 30 mm, mineral wool | |
| Filter | Coarce 90% / G4 (option ePM1 70% / F7) | |
| Air duct connection dimensions [mm] | 250 | 400 x 200 |
| Weight [kg] | 27 | 35 |

VENTS MPA W EC

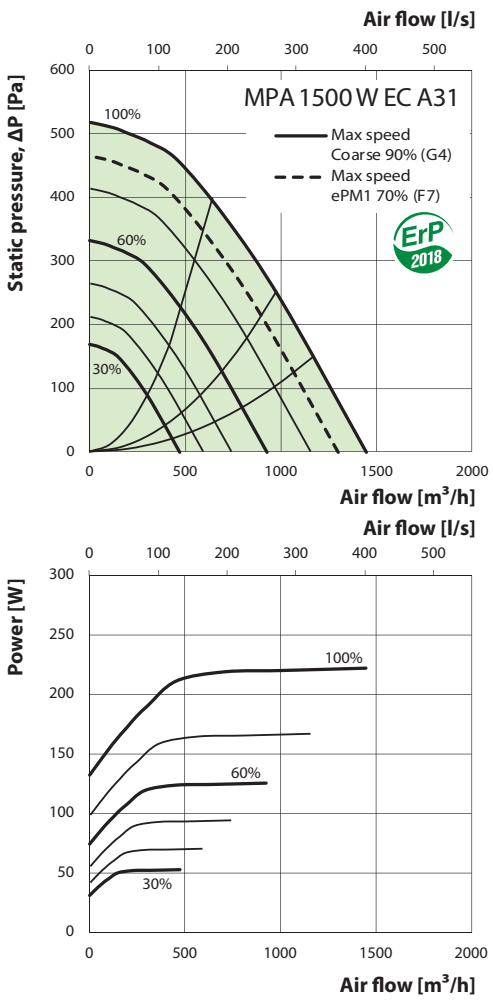



VENTS MPA W EC

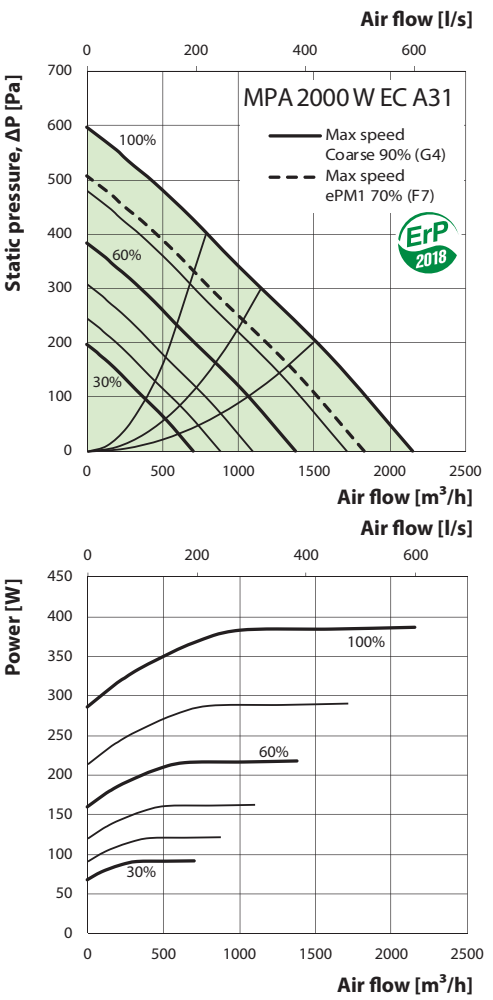


| | MPA 1500 W EC A31 | MPA 2000 W EC A31 |
|---|---|---|
| Supply voltage [V/50 Hz] | 1~230 | 1~230 |
| The number of water heater rows | 4 | 4 |
| Connection diameter of the heat exchanger [in] | 1 | 1 |
| Maximum fan power [kW] | 0.222 | 0.387 |
| Maximum fan current [A] | 1.6 | 1.7 |
| Maximum air flow [m³/h] | 1445 | 2150 |
| Maximum water temperature [°C] | 150 | 150 |
| Sound pressure level through the casing at a distance 3 m [dBA] | 49 | 53 |
| Transported air temperature [°C] | -30...+40 | |
| Casing material | Aluzinc | |
| Insulation | 30 mm, mineral wool | |
| Filter | Coarce 90% / G4 (option ePM1 70% / F7) | |
| Air duct connection dimensions [mm] | 500 x 250 | 500 x 300 |
| Weight [kg] | 49 | 45 |

VENTS MPA W EC



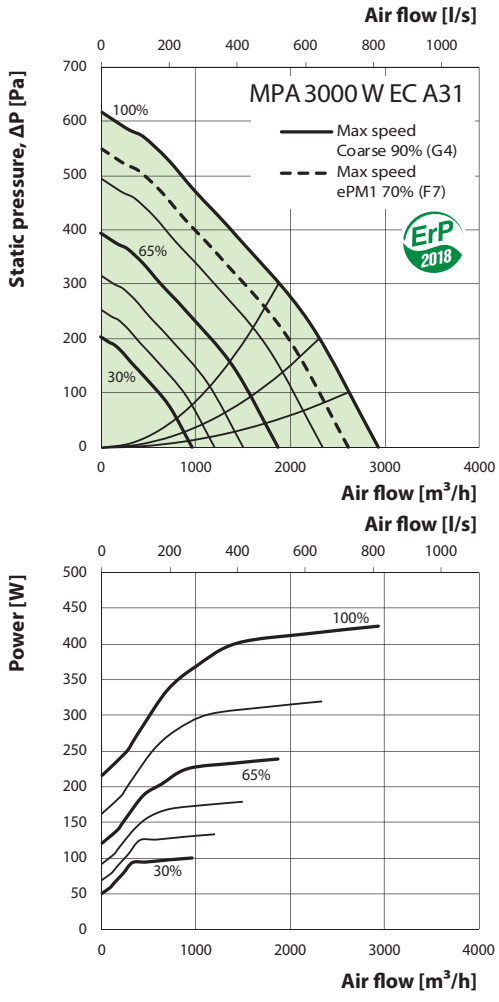

VENTS MPA W EC



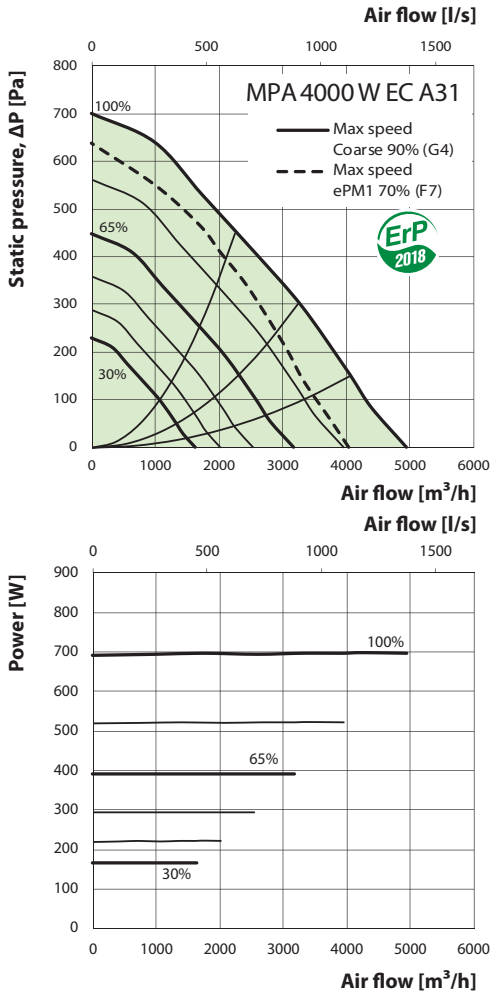
**Technical data**

| | MPA 3000 W EC A31 | MPA 4000 W EC A31 |
|---|---|---|
| Supply voltage [V/50 Hz] | 1~230 | 1~230 |
| The number of water heater rows | 4 | 4 |
| Connection diameter of the heat exchanger [in] | 1 1/8 | 1 3/8 |
| Maximum fan power [kW] | 0.425 | 0.698 |
| Maximum fan current [A] | 1.8 | 1.06 |
| Maximum air flow [m³/h] | 2930 | 4950 |
| Maximum water temperature [°C] | 150 | 150 |
| Sound pressure level through the casing at a distance 3 m [dBA] | 52 | 54 |
| Transported air temperature [°C] | -30...+40 | |
| Casing material | Aluzinc | |
| Insulation | 30 mm, mineral wool | |
| Filter | Coarce 90% / G4 (option ePM1 70% / F7) | |
| Air duct connection dimensions [mm] | 600 x 300 | 700 x 400 |
| Weight [kg] | 50 | 58 |

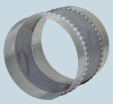
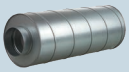
VENTS MPA W EC




VENTS MPA W EC

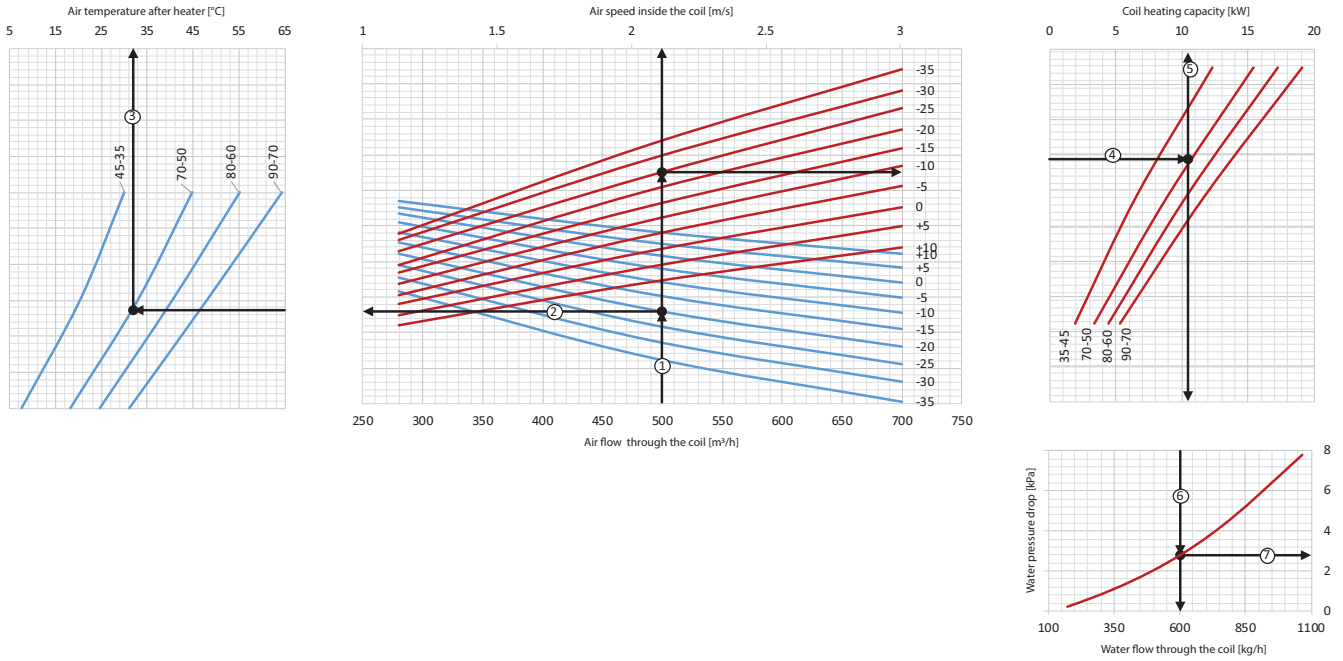


## Accessories for air handling units

| Model | Filter Coarce/G4 | Filter ePM1/F7 | Flexible connector | Silencer | Air Damper | Electric actuator | |
|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |
| MPA 700 W EC A31 | SF 384x287x48 Coarse 90% / G4 | SF 384x287x48 ePM1 70% / F7 | VVG 250 | SR 250 | KRV 250 | TF230 | TF24 |
| MPA 1000 W EC A31 | SF 536x316x48 Coarse 90% / G4 | SF 536x316x48 ePM1 70% / F7 | VVG 400x200 | SR 400x200 | RRV 400x200 | | |
| MPA 1500 W EC A31 | SF 636x376x48 Coarse 90% / G4 | SF 636x376x48 ePM1 70% / F7 | VVG 500x250 | SR 500x250 | RRV 500x250 | | |
| MPA 2000 W EC A31 | SF 636x376x48 Coarse 90% / G4 | SF 636x376x48 ePM1 70% / F7 | VVG 500x300 | SR 500x300 | RRV 500x300 | | |
| MPA 3000 W EC A31 | SF 734x435x80 Coarse 90% / G4 | SF 734x435x80 ePM1 70% / F7 | VVG 600x300 | SR 600x300 | RRV 600x300 | | |
| MPA 4000 W EC A31 | SF 874x485x80 Coarse 90% / G4 | SF 874x485x80 ePM1 70% / F7 | VVG 700x400 | SR 700x400 | RRV 700x400 | | |

## Hot water coil parameters MPA 700 W EC A31

**VENTS MPA...W EC**

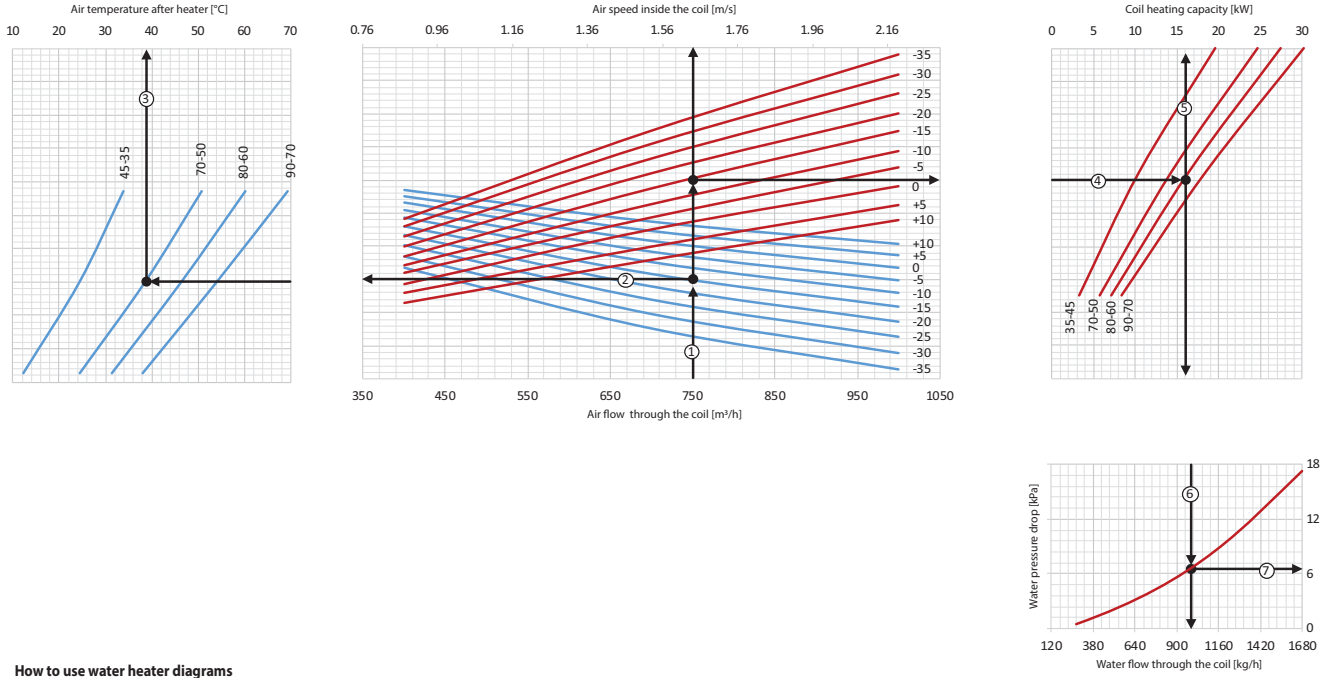



**How to use water heater diagrams**

- Air Speed. Starting from 500 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 2.1 m/s.
- Supply air temperature. Prolong the line ① up to the point where it crosses the outside air temperature (blue curve), e.g. -20 °C; then draw a horizontal line ② from this point to the left till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+31 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -20 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (11 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (600 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (3 kPa).

## Hot water coil parameters MPA 1000 W EC A31

VENTS MPA...W EC

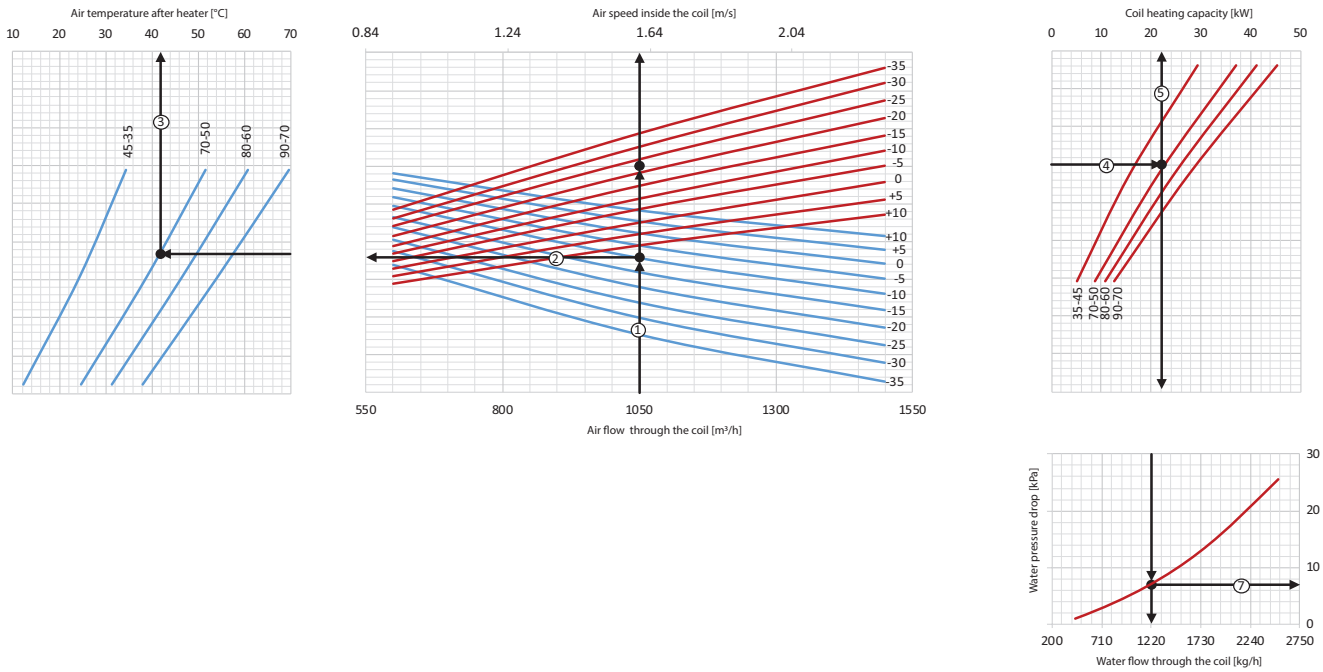



**How to use water heater diagrams**

- Air Speed. Starting from 750 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 1.6 m/s.
- Supply air temperature. Prolong the line ① up to the point where it crosses the outside air temperature (blue curve), e.g. -15 °C; then draw a horizontal line ② from this point to the left till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+39 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -15 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (16 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (1000 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (6 kPa).

## Hot water coil parameters MPA 1500 W EC A31

VENTS MPA...W EC

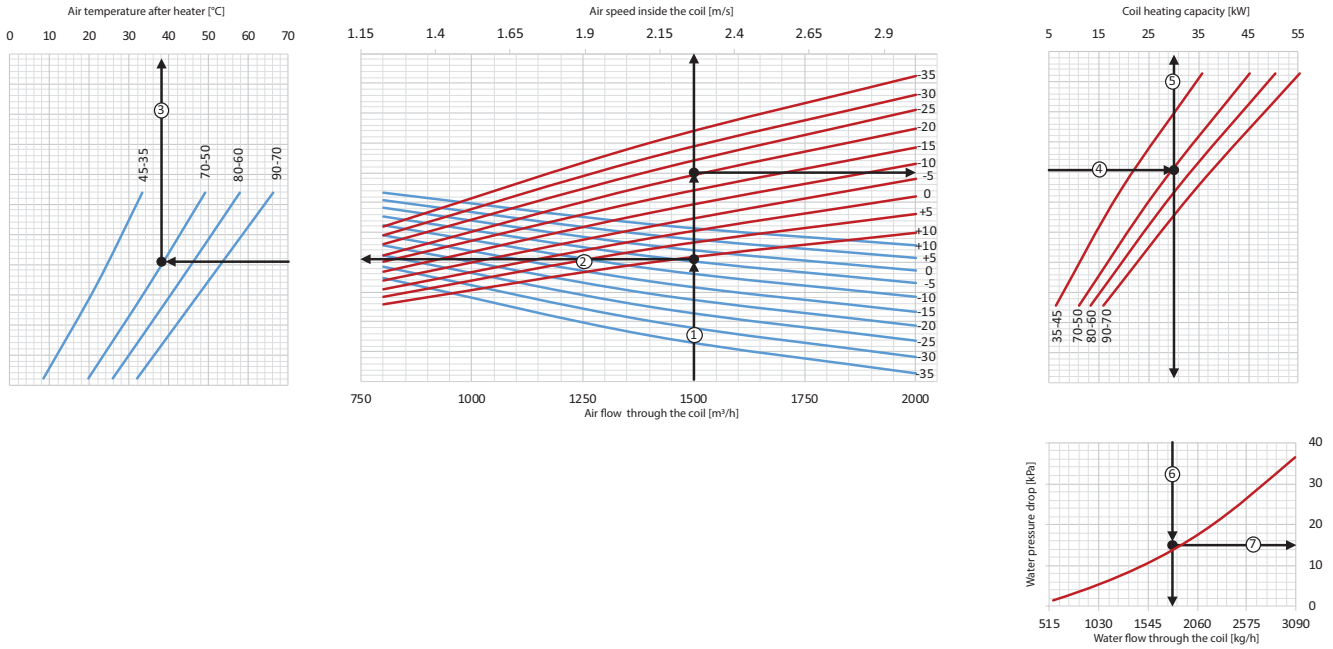



**How to use water heater diagrams**

- Air Speed. Starting from 1050 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 1.6 m/s.
- Supply air temperature. Prolong the line ① up to the point where it crosses the outside air temperature (blue curve), e.g. -10 °C; then draw a horizontal line ② from this point to the left till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+41 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -15 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (22 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (1220 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (8.5 kPa).

## Hot water coil parameters MPA 2000 W EC A31

VENTS MPA...W EC

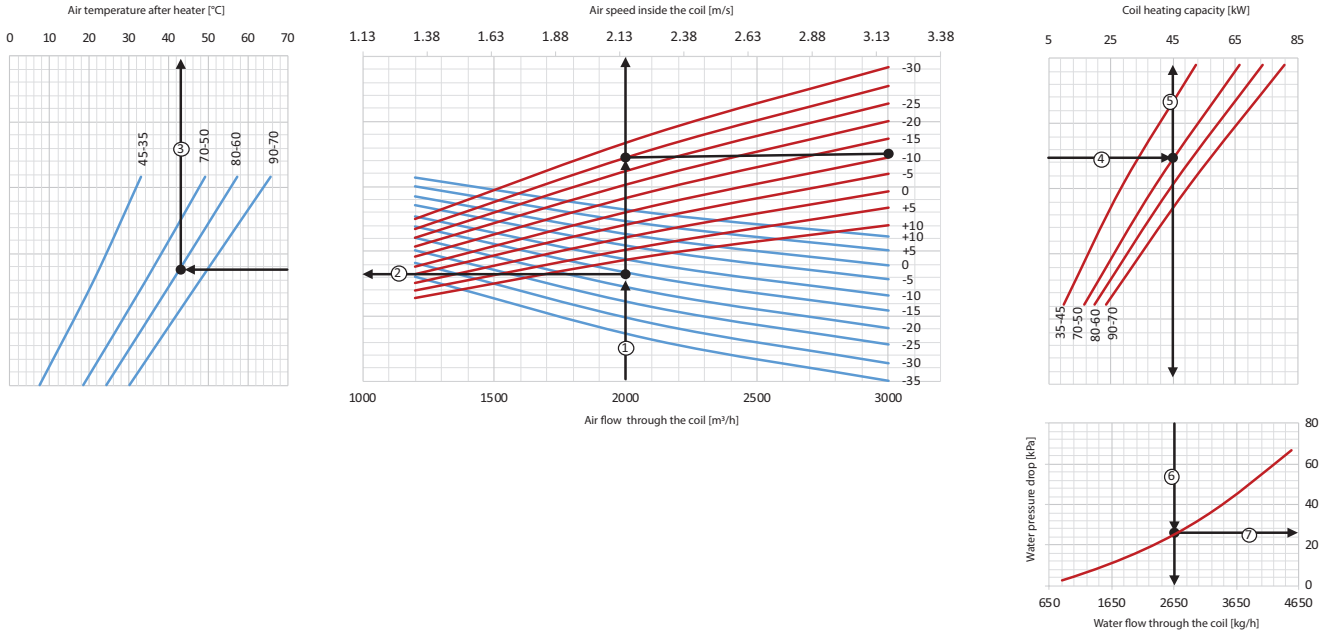



**How to use water heater diagrams**

- Air Speed. Starting from 1500 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 2.25 m/s.
- Supply air temperature. Prolong the line ① up to the point where it crosses the outside air temperature (blue curve), e.g. -5 °C; then draw a horizontal line ② from this point to the left till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+38 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -15 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (30 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (1750 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (15 kPa).

## Hot water coil parameters MPA 3000 W EC A31

VENTS MPA...W EC

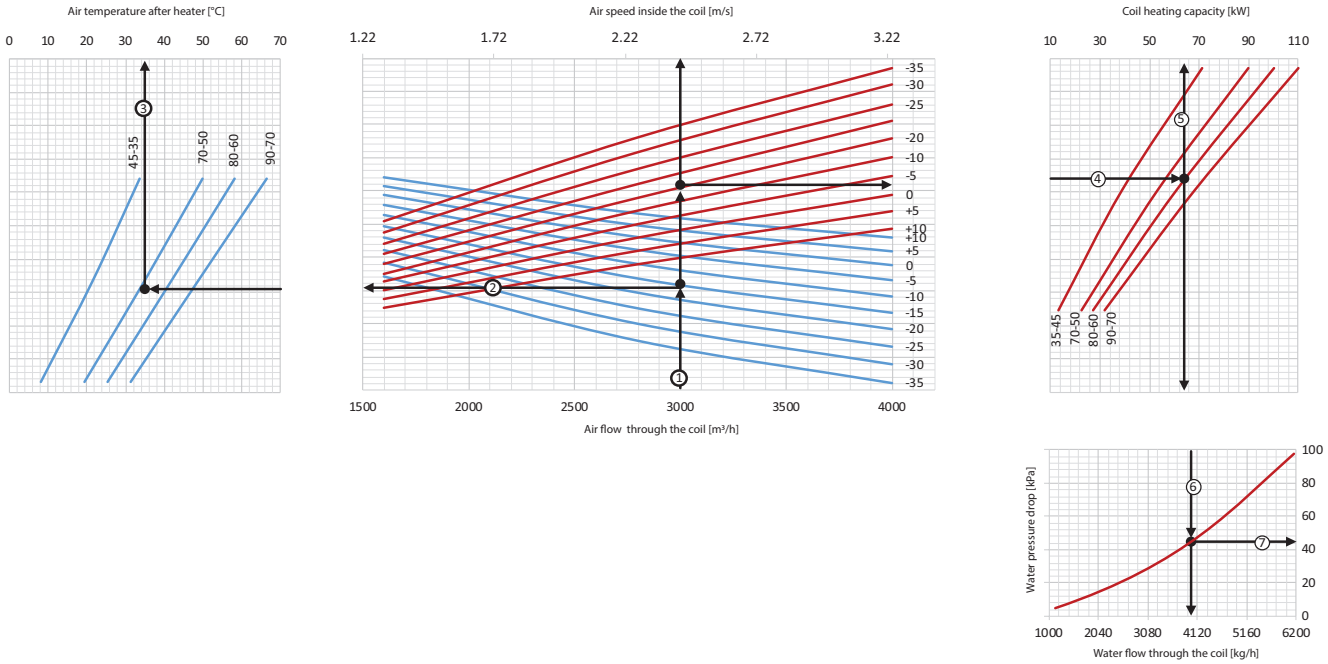



**How to use water heater diagrams**

- Air Speed. Starting from 2000 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 2.2 m/s.
- Supply air temperature. Prolong the line ① up to the point where it crosses the outside air temperature (blue curve), e.g. -15 °C; then draw a horizontal line ② from this point to the left till crossing water in/out temperature curve (80/60 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+43 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -15 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (45 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (2650 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (24 kPa).

## Hot water coil parameters MPA 4000 W EC A31

VENTS MPA...W EC




**How to use water heater diagrams**

- Air Speed. Starting from 3000 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 2.5 m/s.
- Supply air temperature. Prolong the line ① up to the point where it crosses the outside air temperature (blue curve), e.g. -15 °C; then draw a horizontal line ② from this point to the left till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+35 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -20 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (80/60 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (65 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (4100 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (45 kPa).

Series
**SR**

Series
**SRF**

**Applications**

Silencer is applied for noise absorption produced during the ventilating equipment operation and spread along the ducting systems. Suitable for installation into round ducts. The silencer reduces the noise level in the air duct significantly (refer the diagram «Noise level reduction»). For designing a ventilation system with low level of noise emission into the environment silencers should be used together with insulated fans.

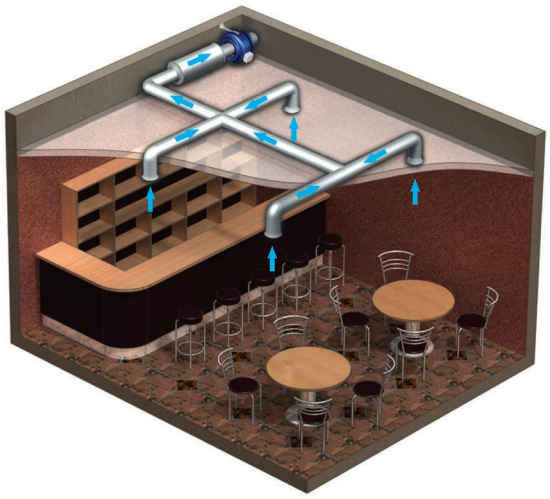
**Design**

The galvanized steel casing of the SR silencer is filled with flameproof sound insulating material and equipped with protecting covering against fiber blowing-out. The SRF silencer casing consists of internal and external aluminium-alloy spiral seam tubes filled with flameproof sound insulating material. The casing inner surface is perforated and has the protecting over to prevent the fiber blowing-out. The minimum bending radius of the silencer is up to 2 diameters. Each standards size has several length modifications.

The SR and SRF silencers are equipped with connecting flanges with rubber sealing for airtight connection to the air ducts.

**Mounting**

The silencers can be mounted in any position. Installing several silencers in series is preferable to improve sound absorption effect. To prevent the flexible silencer sagging it should be fixed not only at the ends but also in the middle.



**Application of silencer in ventilating exhaust system**

**Designation key**

| Series | Air duct diameter [mm] | / | Length |
|---|---|---|---|
| **SR**<br>**SRF** | 100; 125; 150; 160; 200; 250; 315; 355; 400 | | 600; 900; 1200; 2000 |

| | Noise level reduction, dB (Octave-frequency band [Hz]) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz |
| SR 100/600 | 4 | 8 | 10 | 20 | 34 | 30 | 13 | 14 |
| SR 100/900 | 5 | 10 | 15 | 23 | 44 | 30 | 16 | 15 |
| SR 100/1200 | 6 | 11 | 19 | 28 | 50 | 34 | 20 | 18 |
| SR 125/600 | 3 | 5 | 6 | 15 | 28 | 17 | 10 | 9 |
| SR 125/900 | 4 | 9 | 12 | 22 | 43 | 22 | 16 | 12 |
| SR 125/1200 | 4 | 9 | 16 | 27 | 48 | 27 | 21 | 17 |
| SR 150/600 | 2 | 4 | 8 | 16 | 32 | 11 | 7 | 7 |
| SR 150/900 | 3 | 5 | 9 | 18 | 36 | 25 | 13 | 14 |
| SR 150/1200 | 4 | 8 | 14 | 25 | 43 | 30 | 18 | 19 |
| SR 160/600 | 2 | 4 | 8 | 17 | 33 | 11 | 7 | 7 |
| SR 160/900 | 2 | 5 | 10 | 19 | 37 | 25 | 13 | 15 |
| SR 160/1200 | 4 | 10 | 14 | 24 | 42 | 30 | 19 | 20 |
| SR 200/600 | 2 | 4 | 6 | 10 | 27 | 13 | 7 | 7 |
| SR 200/900 | 3 | 7 | 11 | 20 | 39 | 23 | 8 | 7 |
| SR 200/1200 | 4 | 10 | 14 | 23 | 40 | 26 | 13 | 12 |
| SR 250/600 | 4 | 5 | 6 | 11 | 22 | 12 | 7 | 6 |
| SR 250/900 | 4 | 5 | 7 | 16 | 32 | 20 | 12 | 10 |
| SR 250/1200 | 4 | 6 | 8 | 17 | 34 | 22 | 14 | 12 |
| SR 315/600 | 2 | 4 | 5 | 10 | 17 | 9 | 6 | 5 |
| SR 315/900 | 3 | 5 | 8 | 17 | 30 | 14 | 10 | 8 |
| SR 315/1200 | 4 | 7 | 11 | 22 | 36 | 18 | 14 | 10 |

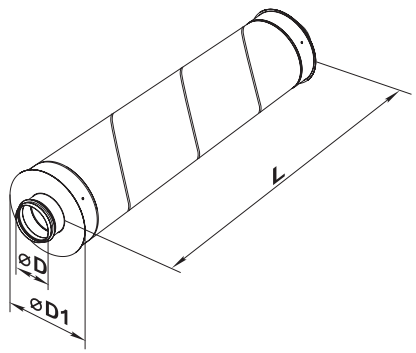
| | Noise level reduction, dB (Octave-frequency band [Hz]) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz |
| SRF 100/600 | 6 | 8 | 13 | 22 | 28 | 34 | 17 | 20 |
| SRF 100/900 | 8 | 10 | 15 | 25 | 33 | 40 | 21 | 23 |
| SRF 100/2000 | 10 | 15 | 24 | 48 | 53 | 51 | 39 | 36 |
| SRF 125/600 | 4 | 7 | 14 | 20 | 31 | 31 | 13 | 12 |
| SRF 125/900 | 5 | 9 | 16 | 23 | 36 | 37 | 17 | 16 |
| SRF 125/2000 | 7 | 15 | 23 | 47 | 55 | 50 | 28 | 25 |
| SRF 150/600 | 3 | 7 | 12 | 32 | 40 | 40 | 19 | 20 |
| SRF 150/900 | 4 | 8 | 14 | 40 | 48 | 49 | 26 | 25 |
| SRF 150/2000 | 5 | 10 | 21 | 42 | 50 | 48 | 26 | 25 |
| SRF 160/600 | 3 | 7 | 12 | 20 | 25 | 24 | 10 | 12 |
| SRF 160/900 | 3 | 8 | 13 | 21 | 28 | 28 | 13 | 16 |
| SRF 160/2000 | 5 | 11 | 20 | 40 | 48 | 48 | 25 | 25 |
| SRF 200/600 | 2 | 5 | 12 | 20 | 26 | 21 | 10 | 10 |
| SRF 200/900 | 3 | 6 | 12 | 22 | 28 | 24 | 12 | 13 |
| SRF 200/2000 | 4 | 11 | 22 | 42 | 51 | 34 | 19 | 23 |
| SRF 250/600 | 2 | 3 | 8 | 16 | 22 | 13 | 10 | 10 |
| SRF 250/900 | 2 | 4 | 9 | 18 | 25 | 16 | 11 | 12 |
| SRF 250/2000 | 3 | 6 | 16 | 30 | 39 | 27 | 17 | 22 |
| SRF 315/600 | 2 | 4 | 9 | 18 | 21 | 12 | 7 | 9 |
| SRF 315/900 | 2 | 5 | 11 | 21 | 24 | 14 | 8 | 10 |
| SRF 315/2000 | 4 | 7 | 17 | 34 | 39 | 24 | 14 | 18 |

**Overall dimensions**

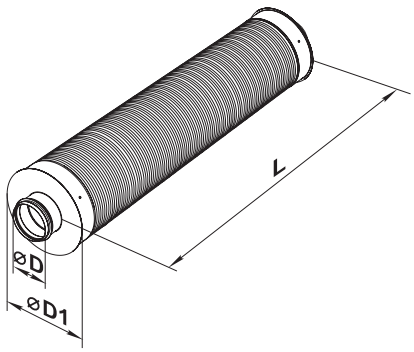
| Type | Dimensions [mm] | | | Weight [kg] |
|---|---|---|---|---|
| | ØD | ØD1 | L | |
| SR 100/600 | 99 | 202 | 600 | 2.9 |
| SR 100/900 | 99 | 202 | 900 | 4.0 |
| SR 100/1200 | 99 | 202 | 1200 | 5.2 |
| SR 125/600 | 125 | 225 | 600 | 3.3 |
| SR 125/900 | 125 | 225 | 900 | 4.6 |
| SR 125/1200 | 125 | 225 | 1200 | 5.9 |
| SR 150/600 | 149 | 252 | 600 | 3.7 |
| SR 150/900 | 149 | 252 | 900 | 5.1 |
| SR 150/1200 | 149 | 252 | 1200 | 6.5 |
| SR 160/600 | 159 | 252 | 600 | 3.7 |
| SR 160/900 | 159 | 252 | 900 | 5.1 |
| SR 160/1200 | 159 | 252 | 1200 | 6.5 |
| SR 200/600 | 198 | 318 | 600 | 4.65 |
| SR 200/900 | 198 | 318 | 900 | 6.45 |
| SR 200/1200 | 198 | 318 | 1200 | 8.1 |
| SR 250/600 | 248 | 358 | 600 | 5.6 |
| SR 250/900 | 248 | 358 | 900 | 7.8 |
| SR 250/1200 | 248 | 358 | 1200 | 10 |
| SR 315/600 | 313 | 403 | 600 | 7.1 |
| SR 315/900 | 313 | 403 | 900 | 10.1 |
| SR 315/1200 | 313 | 403 | 1200 | 13 |
| SR 355/600 | 353 | 453 | 600 | 8.3 |
| SR 355/900 | 353 | 453 | 900 | 11.6 |
| SR 355/1200 | 353 | 453 | 1200 | 14.9 |
| SR 400/600 | 398 | 503 | 600 | 10,75 |
| SR 400/900 | 398 | 503 | 900 | 14.5 |
| SR 400/1200 | 398 | 503 | 1200 | 18.2 |

| Type | Dimensions [mm] | | | Weight [kg] |
|---|---|---|---|---|
| | ØD | ØD1 | L | |
| SRF 100/600 | 99 | 220 | 600 | 1.6 |
| SRF 100/900 | 99 | 220 | 900 | 2.4 |
| SRF 100/2000 | 99 | 220 | 2000 | 5.2 |
| SRF 125/600 | 124 | 270 | 600 | 2.0 |
| SRF 125/900 | 124 | 270 | 900 | 3.0 |
| SRF 125/2000 | 124 | 270 | 2000 | 6.6 |
| SRF 150/600 | 149 | 270 | 600 | 2.1 |
| SRF 150/900 | 149 | 270 | 900 | 3.1 |
| SRF 150/2000 | 149 | 270 | 2000 | 6.8 |
| SRF 160/600 | 159 | 270 | 600 | 2.1 |
| SRF 160/900 | 159 | 270 | 900 | 3.2 |
| SRF 160/2000 | 159 | 270 | 2000 | 7.0 |
| SRF 200/600 | 199 | 320 | 600 | 2.6 |
| SRF 200/900 | 199 | 320 | 900 | 3.9 |
| SRF 200/2000 | 199 | 320 | 2000 | 8.6 |
| SRF 250/600 | 249 | 370 | 600 | 3.0 |
| SRF 250/900 | 249 | 370 | 900 | 4.5 |
| SRF 250/2000 | 249 | 370 | 2000 | 10.1 |
| SRF 315/600 | 314 | 420 | 600 | 3.4 |
| SRF 315/900 | 314 | 420 | 900 | 5.1 |
| SRF 315/2000 | 314 | 420 | 2000 | 11.4 |

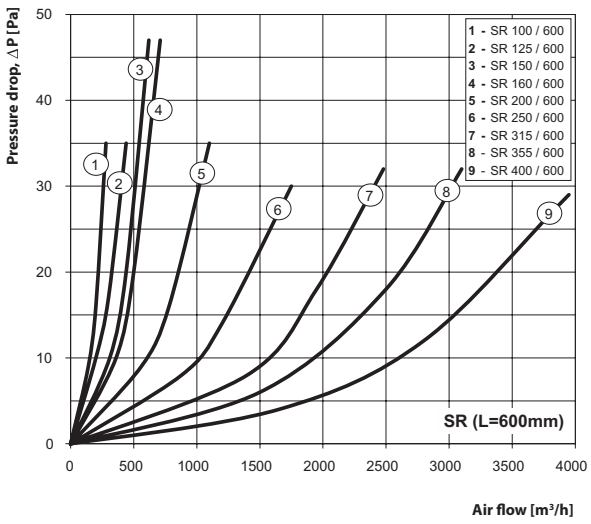
SR



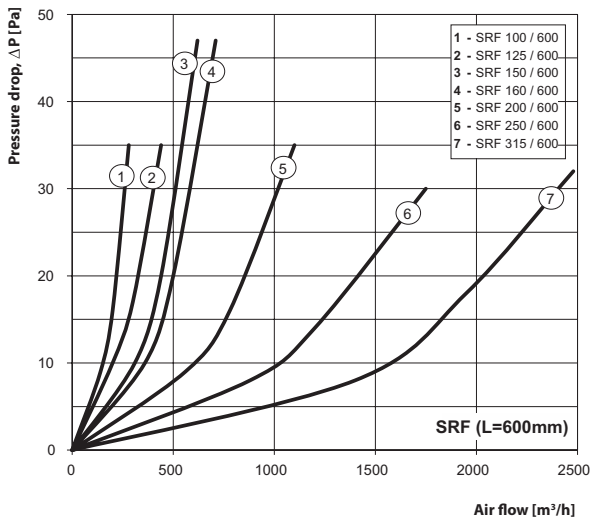

SRF



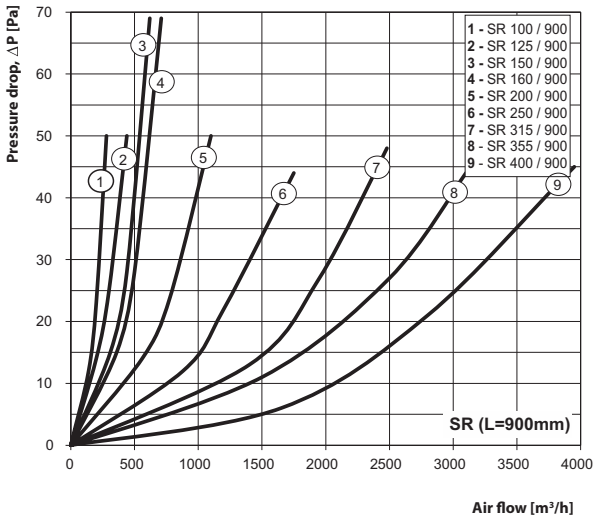
**SR**



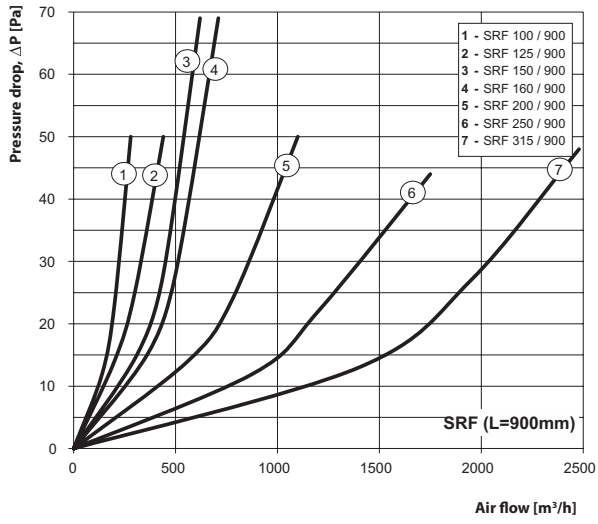

**SRF**



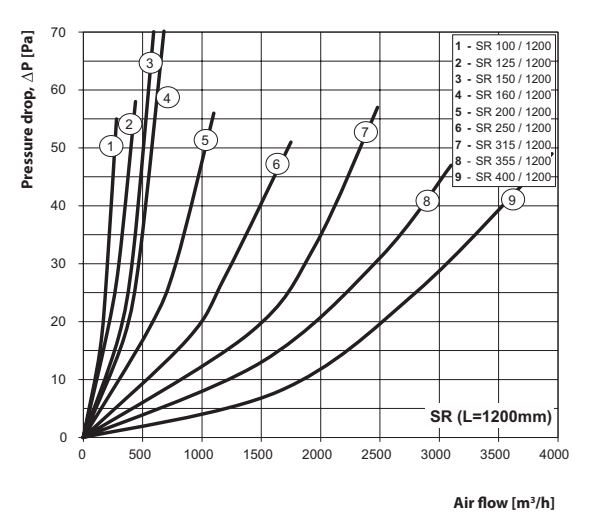

**SR**



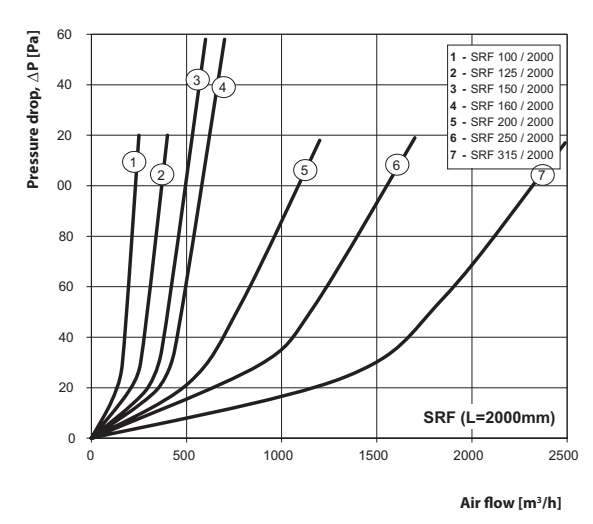

**SRF**



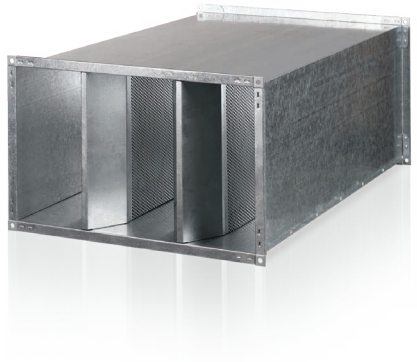

**SR**




**SRF**



Series
# SR



## Applications

The plate silencer is applied for noise absorption produced during the ventilating equipment operation and spread along the ducting systems. Suitable for installation into rectangular ducts. The silencer reduces the noise level in the air duct significantly (refer the diagram «Noise level reduction»). The silencer is applied jointly with the sound-insulated fan in case of high noise level requirements not only to the air duct but to the equipment in general.

## Design

Silencer casing and plate shells are made of galvanized steel. The plates are filled with flameproof sound insulating material with protecting covering to prevent the fiber blowing-out.

## Mounting

The mounting is performed by means of flange connection with respect to air flow direction (indicated with an arror on the casing). The straight portion of at least 1 m long before the silencer is recommended to provide the peak efficiency. Installation in series is preferable to attain the better effect.

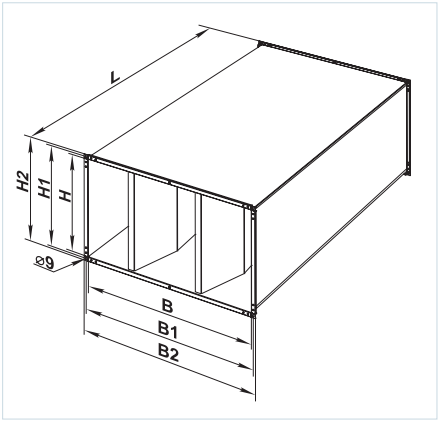
| | Noise level reduction, dB (Octave-frequency band [Hz]) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz |
| SR 400x200 | 3 | 7 | 10 | 23 | 27 | 30 | 25 | 22 |
| SR 500x250 | 3 | 6 | 11 | 22 | 26 | 25 | 27 | 22 |
| SR 500x300 | 3 | 6 | 10 | 23 | 24 | 25 | 23 | 18 |
| SR 600x300 | 3 | 6 | 10 | 21 | 24 | 30 | 24 | 17 |
| SR 600x350 | 3 | 5 | 11 | 22 | 25 | 29 | 24 | 21 |
| SR 700x400 | 4 | 7 | 10 | 15 | 22 | 19 | 21 | 18 |
| SR 800x500 | 5 | 6 | 11 | 17 | 21 | 20 | 22 | 20 |
| SR 900x500 | 3 | 6 | 10 | 16 | 20 | 20 | 21 | 15 |
| SR 1000x500 | 4 | 6 | 11 | 16 | 21 | 21 | 23 | 17 |

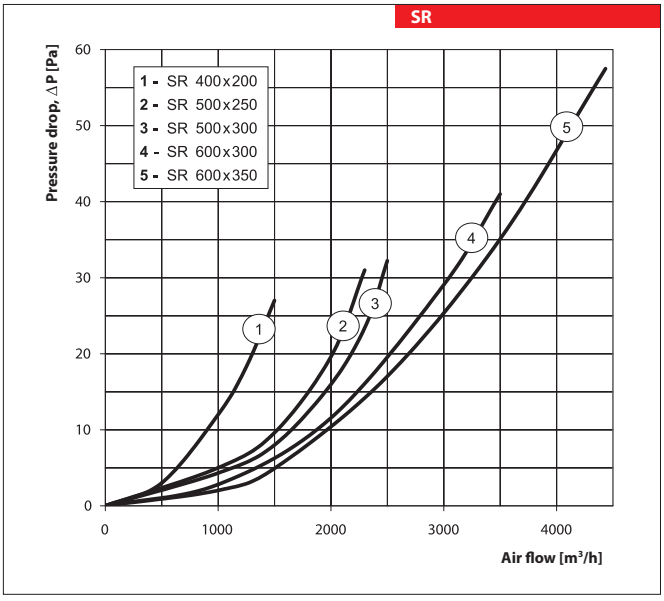
**Designation key**

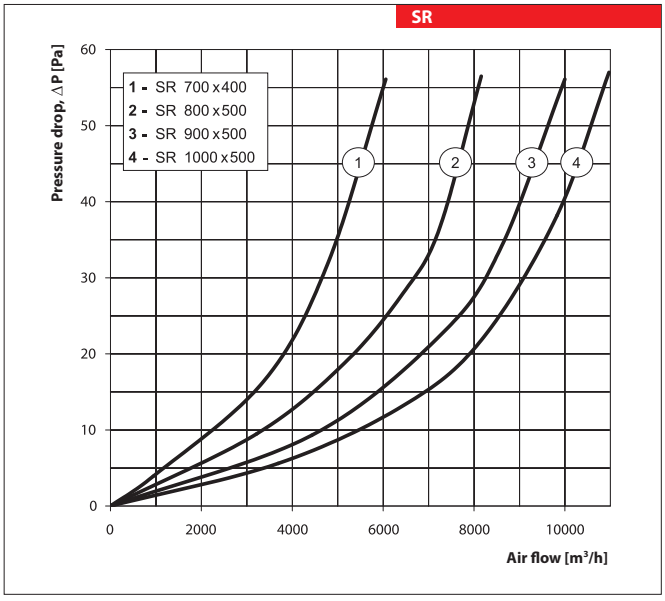
| Series | Flange dimensions (WxH) [mm] |
|---|---|
| SR | 400x200; 500x250; 500x300; 600x300; 600x350; 700x400; 800x500; 900x500; 1000x500 |

**Overall dimensions**

| Type | Dimensions [mm] | | | | | | | Mass [kg] |
|---|---|---|---|---|---|---|---|---|
| | B | B1 | B2 | H | H1 | H2 | L | |
| SR 400x200 | 400 | 420 | 440 | 200 | 220 | 240 | 950 | 18.5 |
| SR 500x250 | 500 | 520 | 540 | 250 | 270 | 290 | 950 | 20.5 |
| SR 500x300 | 500 | 520 | 540 | 300 | 320 | 340 | 950 | 24.5 |
| SR 600x300 | 600 | 620 | 640 | 300 | 320 | 340 | 950 | 26.5 |
| SR 600x350 | 600 | 620 | 640 | 350 | 370 | 390 | 950 | 28.7 |
| SR 700x400 | 700 | 720 | 740 | 400 | 420 | 440 | 1010 | 36.7 |
| SR 800x500 | 800 | 820 | 840 | 500 | 520 | 540 | 1010 | 50.0 |
| SR 900x500 | 900 | 920 | 940 | 500 | 520 | 540 | 1010 | 51.7 |
| SR 1000x500 | 1000 | 1020 | 1040 | 500 | 520 | 540 | 1010 | 57.3 |



# NKP A21 V.2

Series

Heater for heat exchanger frost protection

## Application

Duct electric heater for heat exchanger frost protection by means of supply air preheating and supply air duct temperature maintaining at a point that ensures heat exchanger freezing protection.

Compatible with round Ø125, 150, 160, 200, 250 and 315 mm air ducts.

## Design

The casing and the control box are made of galvanized steel and the heating elements are made of stainless steel.

The heater casing is extra heat insulated with 20 mm non-flammable mineral wool layer.

The heater spigots are rubber sealed for airtight connection to the air ducts.

The NKP duct heaters are equipped with a power cable and a control cable for connection to a controller of an air handling unit.

Air temperature is controlled with a triac power controller that switches the maximum load on/off.

Load is commutated with a semiconductor (triac).

The heaters are equipped with overheat protection thermostats:

- self-resetting overheat protection thermostat actuated at +60 °C.
- emergency overheat protection thermostat actuated at +90 °C.

## Mounting

The heater design ensures its connection to round air ducts by means of the clamps from the delivery set.

The arrow on the heater casing must match the air flow direction in the system.

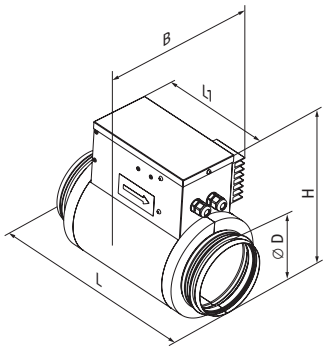
The heater is controlled by the ventilation unit through the cable supplied and already connected to the heater at the factory.

The control box cover must be directed upwards with the maximum deviation angle 90°.

The control box cover must not be directed downwards.

### Overall dimensions

| Model | Dimensions [mm] | | | | |
|---|---|---|---|---|---|
| | Ø D | B | H | L | L1 |
| NKP 125-0,6-1 | 125 | 164 | 249 | 306 | 192 |
| NKP 125-0,8-1 | | | | | |
| NKP 125-1,2-1 | | | | | |
| NKP 150-0,8-1 | 150 | 189 | 280 | 306 | 192 |
| NKP 150-1,2-1 | | | | | |
| NKP 150-1,7-1 | | | | | |
| NKP 150-2,0-1 | | | | | |
| NKP 160-0,8-1 | 160 | 197 | 291 | 306 | 192 |
| NKP 160-1,2-1 | | | | | |
| NKP 160-1,7-1 | | | | | |
| NKP 160-2,0-1 | | | | | |
| NKP 200-1,2-1 | 200 | 239 | 336 | 306 | 192 |
| NKP 200-1,7-1 | | | | | |
| NKP 200-2,0-1 | | | | | |
| NKP 250-1,2-1 | 250 | 287 | 388 | 307 | 192 |
| NKP 250-2,0-1 | | | | | |
| NKP 250-3,0-1 | | | | | |
| NKP 315-2,0-1 | 315 | 353 | 454 | 306 | 192 |
| NKP 315-3,0-1 | | | | | |




### Technical data

| Model | Min. air flow [m³/h] | Power [kW] | Current [A] |
|---|---|---|---|
| NKP 125-0,6-1 | 60 | 0.6 | 2.6 |
| NKP 125-0,8-1 | 80 | 0.8 | 3.5 |
| NKP 125-1,2-1 | 90 | 1.2 | 5.2 |
| NKP 150-0,8-1 | 80 | 0.8 | 3.5 |
| NKP 150-1,2-1 | 90 | 1.2 | 5.2 |
| NKP 150-1,7-1 | 160 | 1.7 | 7.4 |
| NKP 150-2,0-1 | 170 | 2.0 | 8.7 |
| NKP 160-0,8-1 | 80 | 0.8 | 3.5 |
| NKP 160-1,2-1 | 150 | 1.2 | 5.2 |
| NKP 160-1,7-1 | 160 | 1.7 | 7.4 |
| NKP 160-2,0-1 | 170 | 2.0 | 8.7 |
| NKP 200-1,2-1 | 150 | 1.2 | 5.2 |
| NKP 200-1,7-1 | 160 | 1.7 | 7.4 |
| NKP 200-2,0-1 | 170 | 2.0 | 8.7 |
| NKP 250-1,2-1 | 180 | 1.2 | 5.2 |
| NKP 250-2,0-1 | 200 | 2.0 | 8.7 |
| NKP 250-3,0-1 | 375 | 3.0 | 13.0 |
| NKP 315-2,0-1 | 220 | 2.0 | 8.7 |
| NKP 315-3,0-1 | 320 | 3.0 | 13.0 |

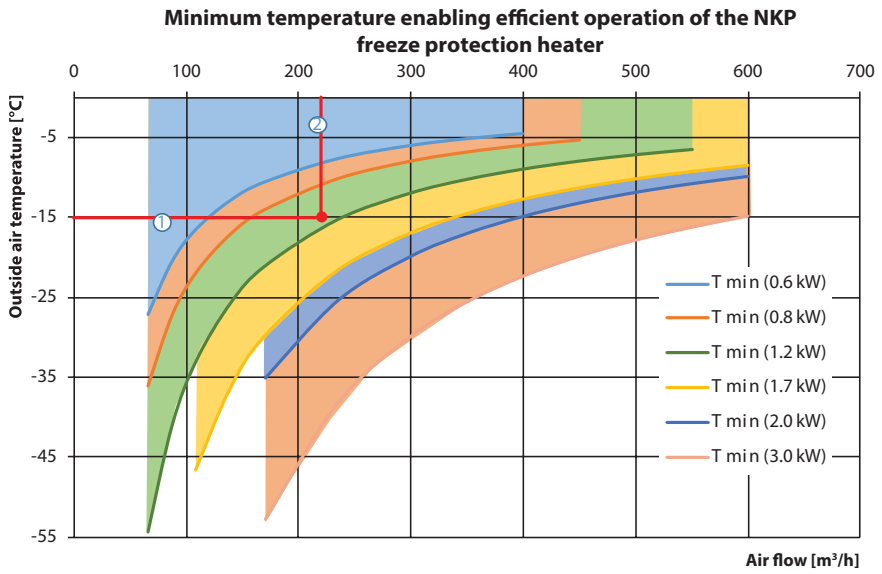
### Compatibility table

| Heater model (connected air duct diameter) | |
|---|---|
| NKP 125 A21 V.2 | VUT/VUE VB EC A21 |
| NKP 150 A21 V.2 | VUT/VUE VB EC A21 |
| NKP 160 A21 V.2 | VUT/VUE VB EC A21 |
| NKP 200 A21 V.2 | VUT/VUE VB EC A21 |
| NKP 250 A21 V.2 | VUT/VUE VB EC A21 |
| NKP 315 A21 V.2 | AirVents with a 315 mm spigot and an A21 automation |

### Designation key

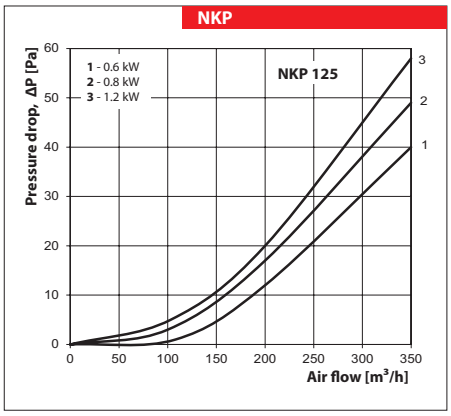
| Series | Connected air duct diameter [mm] | - | Heater power, kW | - | Phase | Options |
|---|---|---|---|---|---|---|
| NKP | 125; 150; 160; 200; 250; 315 | | 0.6; 0.8; 1.2; 1.7; 2.0; 3.0 | | 1: single-phase | A21 V.2: compatible with A21 automation, without a DB-9M connector |

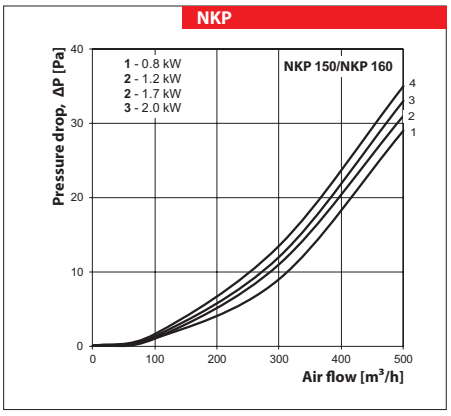
## Electric heater power selection diagram

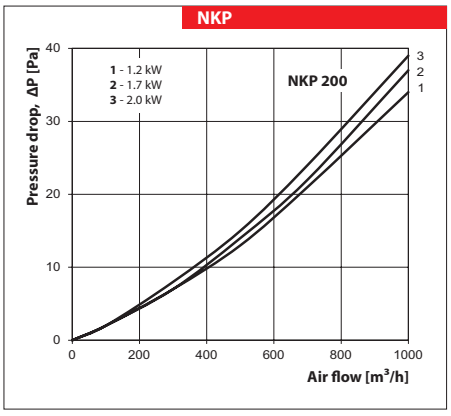


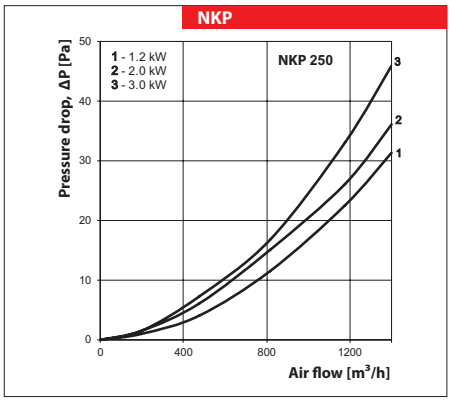

### How to use NKP electric heater diagrams

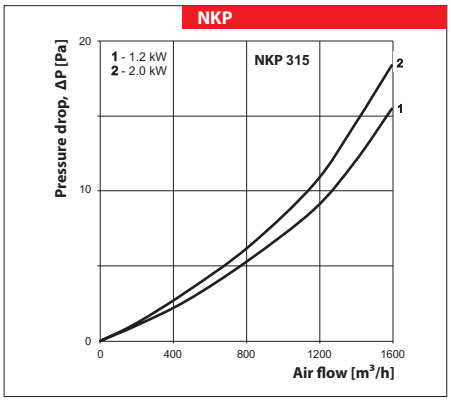
- Selection of the NKP heater model compatible with VUT 350 VB EC A21 air handling unit. The rated winter outside air temperature is -15 °C. The rated air flow is 220 m³/h. Starting from the rated winter outside air temperature (1) draw a horizontal line till the air flow axis (2). The NKP heater with heating capacity 1200 W is able to provide efficient heat exchanger frost protection.
- The NKP 160-1.2-1 with the diameter matching the spigot diameter of the VUT 350 VB EC A21 air handling unit is a suitable model.



# NKD A21 V.2

Series

Duct heater for supply air post-heating with external control

## Application

The heater is designed for integration into a ventilation system and joint operation with an air handling unit equipped with a control system used to switch on the heater and control its operation.

The heater maintains the supply duct air temperature at a point set by the unit controller.

## Design

The casing, the junction box and the heater cover are made of galvanized steel with the heating elements in stainless steel. The heater casing is additionally heat-insulated with 20 mm non-flammable mineral wool layer. The heaters are equipped with rubber seals for airtight connection to the air ducts.

NKD A21 V.2 duct heaters are equipped with a factory-wired power cable and a control cable, and also have a duct temperature sensor that is connected to the ventilation unit. Temperature control is carried out smoothly by the ventilation unit controller due to the PWM signal in cycles of 10 seconds. Load commutation is carried out by the semiconductor device (triac).

The heaters are equipped with overheat thermostats:

- main overheat protection with automatic reset at +50 °C
- emergency overheat protection with manual reset at +90 °C

## Mounting

The heater design ensures its mounting on the round ducts in any position by means of clamps (included in delivery).

The air flow direction shall match the direction of the arrow on the heater casing.

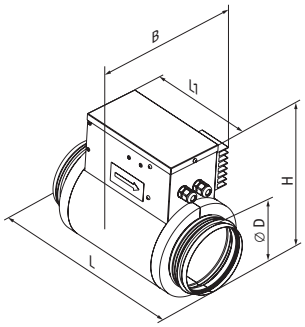
In case of horizontal mounting the control box must be installed with the cover upwards.

Swivel range from the normal position up to max. 90°.

Do not install the control box with the cover downwards.

### Overall dimensions of the units

| Model | Dimensions [mm] | | | | |
|---|---|---|---|---|---|
| | Ø D | B | H | L | L1 |
| NKD 125-0,6-1 | 125 | 164 | 249 | 306 | 192 |
| NKD 125-0,8-1 | | | | | |
| NKD 125-1,2-1 | | | | | |
| NKD 150-0,8-1 | 150 | 189 | 280 | 306 | 192 |
| NKD 150-1,2-1 | | | | | |
| NKD 150-1,7-1 | | | | | |
| NKD 150-2,0-1 | | | | | |
| NKD 160-0,8-1 | 160 | 197 | 291 | 306 | 192 |
| NKD 160-1,2-1 | | | | | |
| NKD 160-1,7-1 | | | | | |
| NKD 160-2,0-1 | | | | | |
| NKD 200-1,2-1 | 200 | 239 | 336 | 306 | 192 |
| NKD 200-1,7-1 | | | | | |
| NKD 200-2,0-1 | | | | | |
| NKD 250-1,2-1 | 250 | 287 | 388 | 307 | 192 |
| NKD 250-2,0-1 | | | | | |
| NKD 250-3,0-1 | | | | | |
| NKD 315-2,0-1 | 315 | 353 | 454 | 306 | 192 |
| NKD 315-3,0-1 | | | | | |




### Technical data

| Model | Min. air flow [m³/h] | Power [kW] | Current [A] |
|---|---|---|---|
| NKD 125-0,6-1 | 60 | 0.6 | 2.6 |
| NKD 125-0,8-1 | 80 | 0.8 | 3.5 |
| NKD 125-1,2-1 | 90 | 1.2 | 5.2 |
| NKD 150-0,8-1 | 80 | 0.8 | 3.5 |
| NKD 150-1,2-1 | 90 | 1.2 | 5.2 |
| NKD 150-1,7-1 | 160 | 1.7 | 7.4 |
| NKD 150-2,0-1 | 170 | 2.0 | 8.7 |
| NKD 160-0,8-1 | 80 | 0.8 | 3.5 |
| NKD 160-1,2-1 | 150 | 1.2 | 5.2 |
| NKD 160-1,7-1 | 160 | 1.7 | 7.4 |
| NKD 160-2,0-1 | 170 | 2.0 | 8.7 |
| NKD 200-1,2-1 | 150 | 1.2 | 5.2 |
| NKD 200-1,7-1 | 160 | 1.7 | 7.4 |
| NKD 200-2,0-1 | 170 | 2.0 | 8.7 |
| NKD 250-1,2-1 | 180 | 1.2 | 5.2 |
| NKD 250-2,0-1 | 200 | 2.0 | 8.7 |
| NKD 250-3,0-1 | 375 | 3.0 | 13.0 |
| NKD 315-2,0-1 | 220 | 2.0 | 8.7 |
| NKD 315-3,0-1 | 320 | 3.0 | 13.0 |

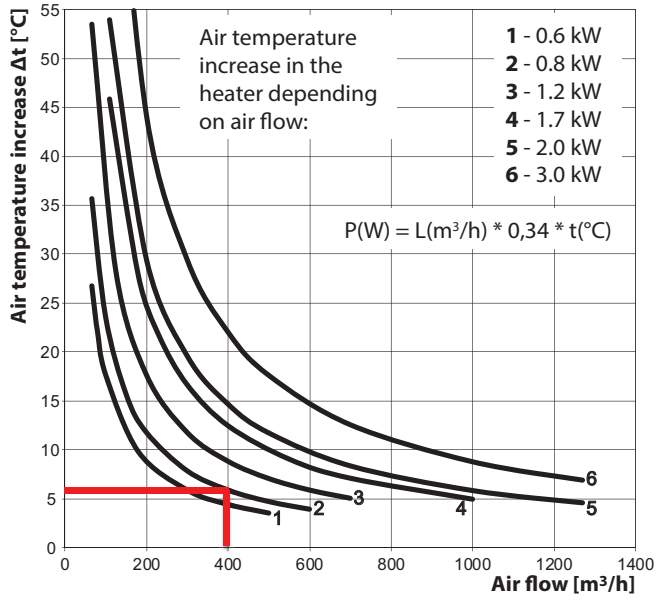
### Compatibility table

| Heater model (connected air duct diameter) | |
|---|---|
| NKD 125 A21 V.2 | VUT/VUE VB EC A21 |
| NKD 150 A21 V.2 | VUT/VUE VB EC A21 |
| NKD 160 A21 V.2 | VUT/VUE VB EC A21 |
| NKD 200 A21 V.2 | VUT/VUE VB EC A21 |
| NKD 250 A21 V.2 | VUT/VUE VB EC A21 |
| NKD 315 A21 V.2 | AirVents with a 315 mm spigot and an A21 automation without a DB-9M connector |

### Designation key

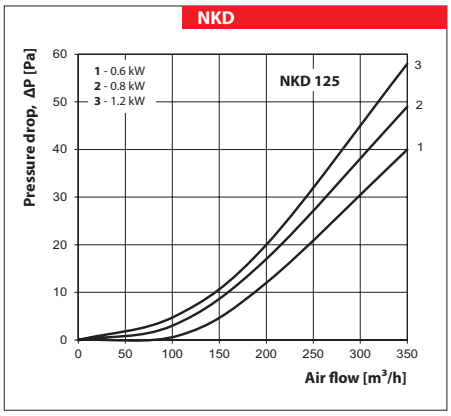
| Series | Connected air duct diameter [mm] | - | Heater power [kW] | - | Phases | Options |
|---|---|---|---|---|---|---|
| NKD | 125; 150; 160; 200; 250; 315 | | 0.6; 0.8; 1.2; 1.7; 2.0; 3.0 | | 1: single-phase | A21 V.2: compatible with A21 automation, without a DB-9M connector |

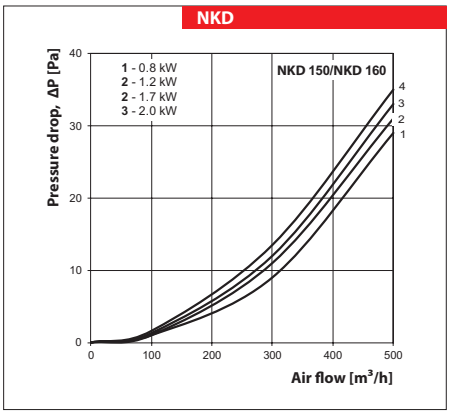
**Technical data**

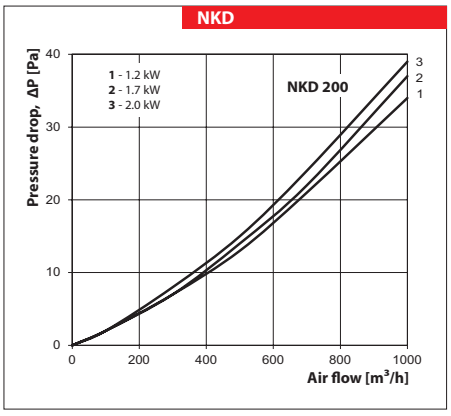


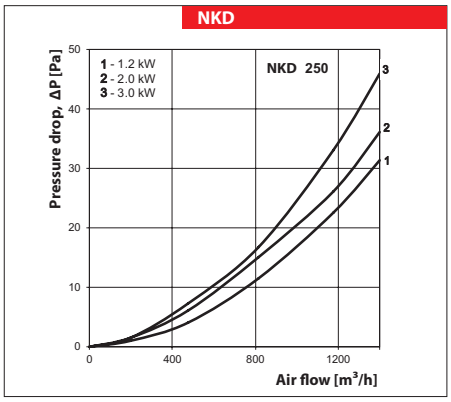

**The NKD heater parameters calculation example:**

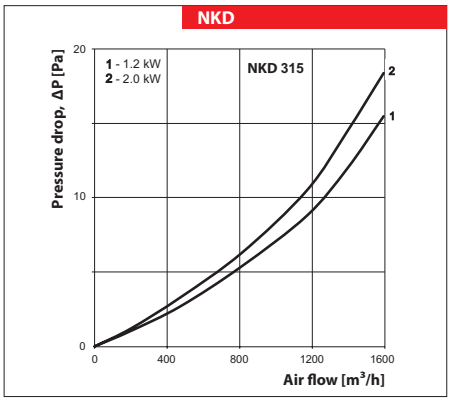
- It is necessary to select a heater for supply air post-heating to a temperature of +24 °C, provided the temperature downstream of the heat exchanger is +17 °C. Therefore, it is essential to increase temperature by 7 °C. The ventilation system incorporates the VENTS VUT 350 VB EC A21 air handling unit. The rated air flow is 400 m³/h. Determine the intersection of the post-heating temperature line (+7 °C) and the rated air flow line (400 m³/h).
- In this case the 1200 W heater capacity provides necessary post-heating (+7 °C). The NKD heater 160-1.2-1 kW with the diameter matching the spigot diameter of the VUT 350 VB EC A21 air handling unit is a suitable model.



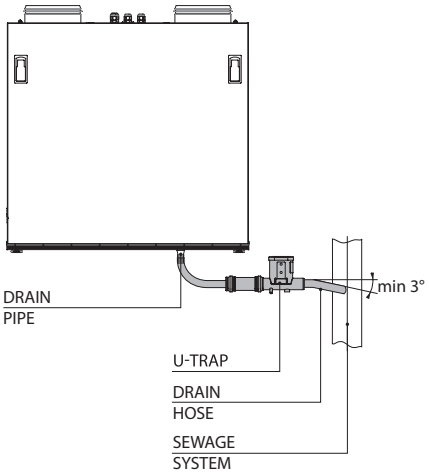
# SH-32
series

## Application

The hydraulic U-trap SH-32 is designed for condensate drainage from heat exchangers and coolers in ventilation and air conditioning systems.

The U-trap must be connected to a drain pan pipe F 18 mm.

## A mounting example for the SH-32 U-trap




## Design

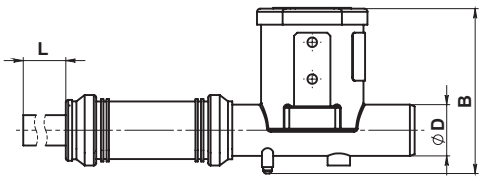
When the condensate is drained from the ventilation unit, it passes the drain pipe through the flexible PVC hose, the connection coupling and reaches the U-trap with the mechanical locking device that does not let sewage system odours out after the hydraulic seal dries out. Then the condensate is moved to the sewage system.

The SH-32 set consists of:

1. Coupling 32/32;
2. Rubber sleeve 32/20;
3. U-trap;
4. PVC hose 15x2 of 1000 mm length.

**Overall dimensions:**

| Type | Dimensions, mm | | |
|---|---|---|---|
| | ØD | B | L |
| SH-32 | 32 | 103 | 1000 |



Series
# KOM

## Applications
Spring-loaded backdraft damper for round ducts. The damper prevents back draft when the system is off. The blades are opened with air flow and are closed with a spring.

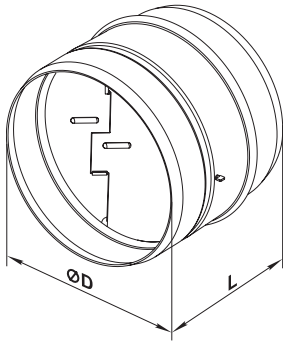
## Design
The damper is made of galvanized steel housing with spring-loaded aluminium blades.

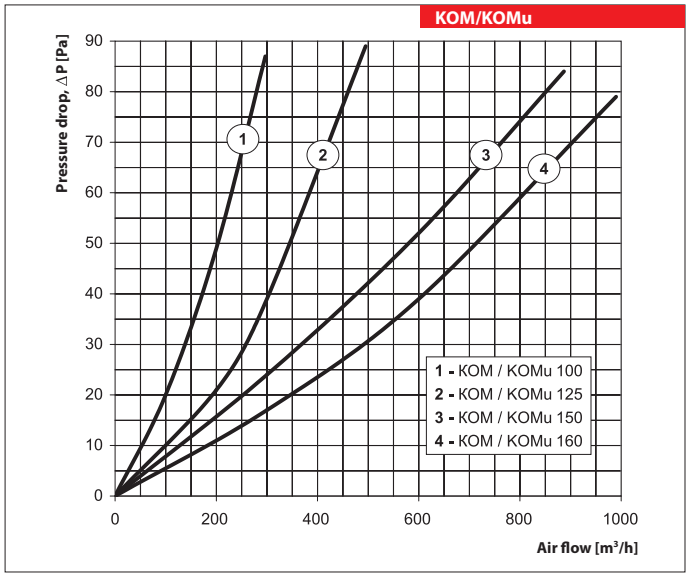
## Modifications
**KOMu** model is sealed with foamed rubber for noise absorption and extra air tightness.

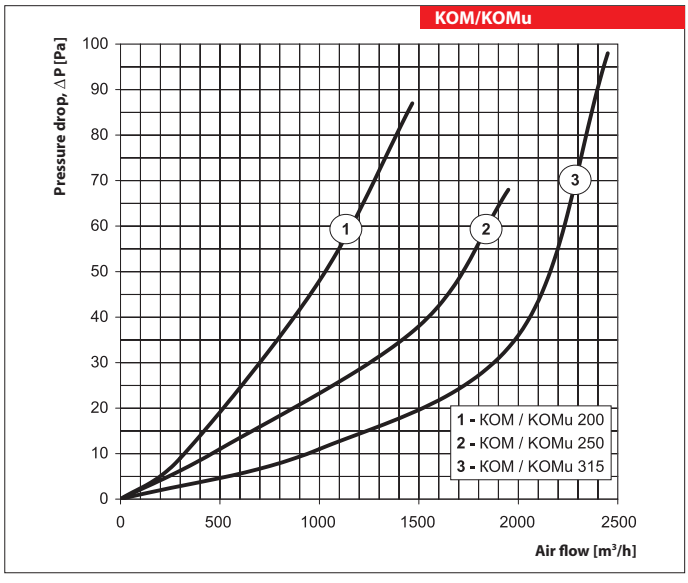
## Mounting
The damper is connected to round air ducts and fixed with clamps. The blade axis should be in vertical position. Correct air flow direction should be considered.

**Overall dimensions**

| Type | Dimensions [mm] | | Mass [kg] |
|---|---|---|---|
| | ØD | L | |
| KOM 100<br>KOMu 100 | 99 | 80<br>90 | 0.18 |
| KOM 125<br>KOMu 125 | 124 | 100<br>110 | 0.27 |
| KOM 150<br>KOMu 150 | 149 | 115<br>125 | 0.38 |
| KOM 160<br>KOMu 160 | 159 | 120<br>130 | 0.42 |
| KOM 200<br>KOMu 200 | 199 | 145<br>155 | 0.63 |
| KOM 250<br>KOMu 250 | 249 | 165<br>175 | 0.90 |
| KOM 315<br>KOMu 315 | 314 | 190<br>200 | 1.31 |




**Designation key**

| Series | Spigot diameter [mm] |
|---|---|
| KOM/KOMu | 100; 125; 150; 160; 200; 250; 315 |

Series
# KOM1

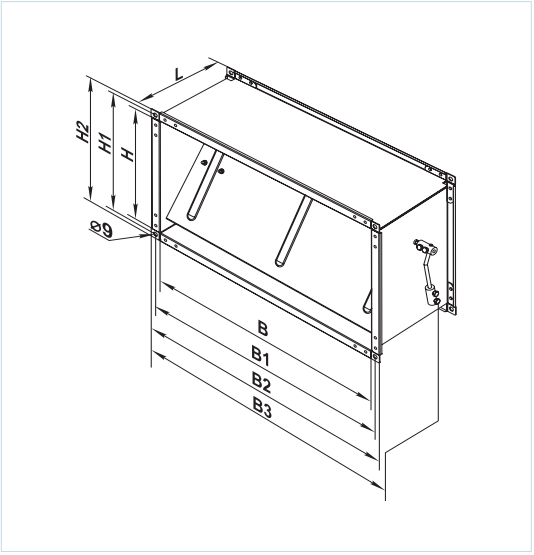
## Applications
Gravity backdraft damper for air flow cut-off in rectangular air duct. The damper prevents back draft when the system is off.

## Design
The housing and the rotary blade are made of galvanized steel. The damper blade is opened by the air pressure and is closed when the system is off.
The damper handle counterweight enables regulation of the damper opening-closing sensitivity.

## Mounting
Standard spigot connection for rectangular air ducts.
The blade axis should be in horizontal position allowing the blade to close by its own weight. Correct airflow direction should be considered.

**Overall dimensions**

| Type | Dimensions [mm] | | | | | | | | Mass [kg] |
|---|---|---|---|---|---|---|---|---|---|
| | B | B1 | B2 | B3 | H | H1 | H2 | L | |
| KOM1 400x200 | 400 | 420 | 440 | 461 | 200 | 220 | 240 | 202 | 2.9 |
| KOM1 500x250 | 500 | 520 | 540 | 561 | 200 | 270 | 290 | 202 | 3.73 |
| KOM1 500x300 | 500 | 520 | 540 | 561 | 300 | 320 | 340 | 202 | 4.1 |
| KOM1 600x300 | 600 | 620 | 640 | 661 | 300 | 320 | 340 | 202 | 4.64 |
| KOM1 600x350 | 600 | 620 | 640 | 661 | 350 | 370 | 390 | 202 | 5.03 |




**Designation key**

| Series | Flange dimensions [mm] |
|---|---|
| KOM 1 | 400x200; 500x250; 500x300; 600x300; 600x350 |

Series
# KR

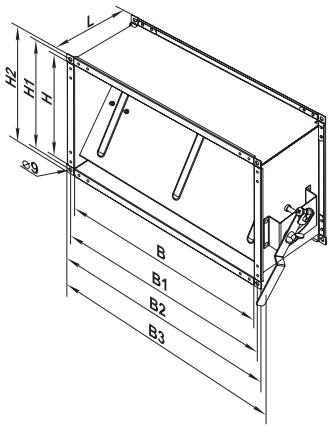
## Applications
Air damper for air flow control in rectangular air ducts. Compatible with duct sizes 400x200, 500x250, 500x300, 600x300, 600x350 mm.

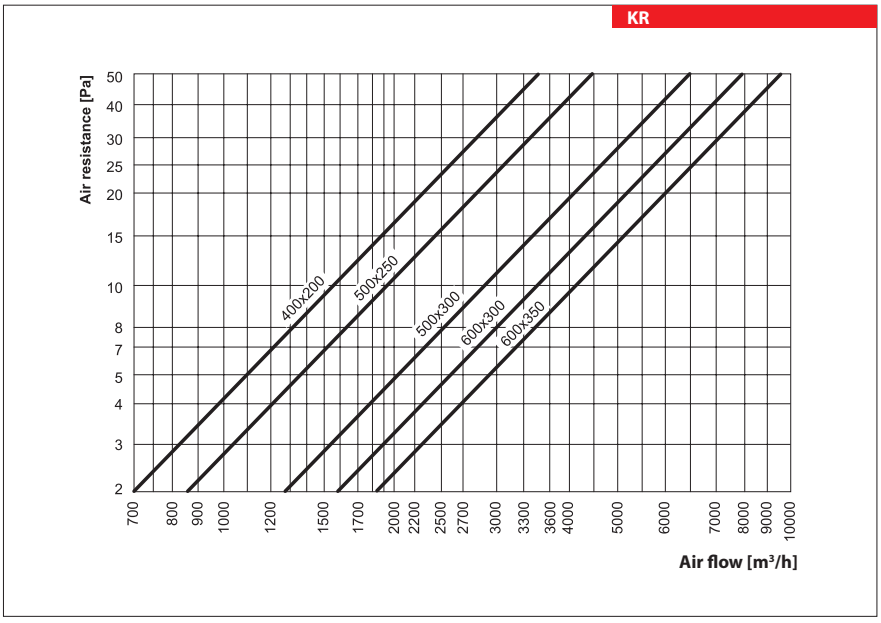
## Design
The housing and the blade made of galvanized steel. Lever with metal handle and fixing clamp let fix the damper position with a butterfly bolt.

## Mounting
Standard connection flange for rectangular air ducts or other ventilation system components.
Flanges should be connected with galvanized bolts and clamps.

**Overall dimensions**

| Type | Dimensions [mm] | | | | | | | | Mass [kg] |
|---|---|---|---|---|---|---|---|---|---|
| | B | B1 | B2 | B3 | H | H1 | H2 | L | |
| KR 400x200 | 400 | 420 | 440 | 460 | 200 | 220 | 240 | 202 | 3.0 |
| KR 500x250 | 500 | 520 | 540 | 560 | 250 | 270 | 290 | 202 | 3.8 |
| KR 500x300 | 500 | 520 | 540 | 560 | 300 | 320 | 340 | 202 | 3.1 |
| KR 600x300 | 600 | 620 | 640 | 660 | 300 | 320 | 340 | 202 | 4.2 |
| KR 600x350 | 600 | 620 | 640 | 660 | 350 | 370 | 390 | 202 | 5.1 |




**Designation key**

| Series | Flange dimensions (WxH) [mm] |
|---|---|
| KR | 400x200; 500x250; 500x300; 600x300; 600x350 |

Series
# KR

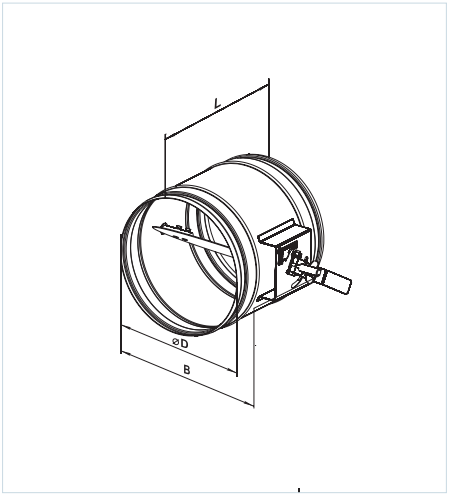
## Application
Air damper for air flow control in round air ducts. Compatible with duct sizes: Ø 80, 100, 125, 150, 160, 200, 250, 315, 355, 400, 450, 500, 550 and 630 mm.

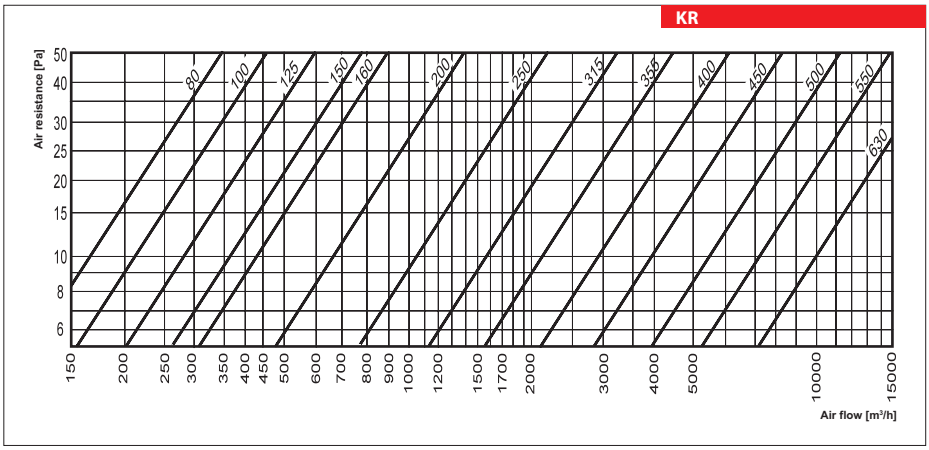
## Design
The housing and the blade made of galvanized steel. Lever with metal handle and fixing clamp. In closed position about 10 % of cross section is left open. Connection spigots with rubber sealing gaskets.

## Mounting
The damper is connected to round air ducts and fixed with clamps.

**Overall dimensions**

| Type | Dimensions [mm] | | | Mass [kg] |
|---|---|---|---|---|
| | ØD | B | L | |
| KR 80 | 79 | 140 | 200 | 0.57 |
| KR 100 | 99 | 170 | 200 | 0.68 |
| KR 125 | 124 | 195 | 200 | 0.82 |
| KR 150 | 149 | 220 | 200 | 0.95 |
| KR 160 | 159 | 230 | 200 | 1.01 |
| KR 200 | 199 | 270 | 200 | 1.29 |
| KR 250 | 249 | 320 | 200 | 1.64 |
| KR 315 | 314 | 385 | 240 | 2.51 |
| KR 355 | 348 | 425 | 240 | 2.84 |
| KR 400 | 399 | 470 | 240 | 3.38 |
| KR 450 | 449 | 520 | 240 | 3.94 |
| KR 500 | 499 | 570 | 240 | 5.72 |
| KR 550 | 549 | 620 | 240 | 6.47 |
| KR 630 | 629 | 700 | 240 | 7.76 |




**Designation key**

| Series | Spigot diameter [mm] |
|---|---|
| KR | 80; 100; 125; 150; 160; 200; 250; 315; 355; 400; 450; 500; 550; 630 |

Series
# KRV

## Application
Air damper for air flow cut-off in round air ducts. Compatible with duct sizes: Ø 80, 100, 125, 150, 160, 200, 250, 315, 355, 400, 450, 500, 550 and 630 mm.

## Design
The housing and the blade made of galvanized steel.
Connecting spigots with rubber sealing gaskets.
Universal shaft for automatic actuator (available upon separate order). Compatible actuators are shown in the table below.

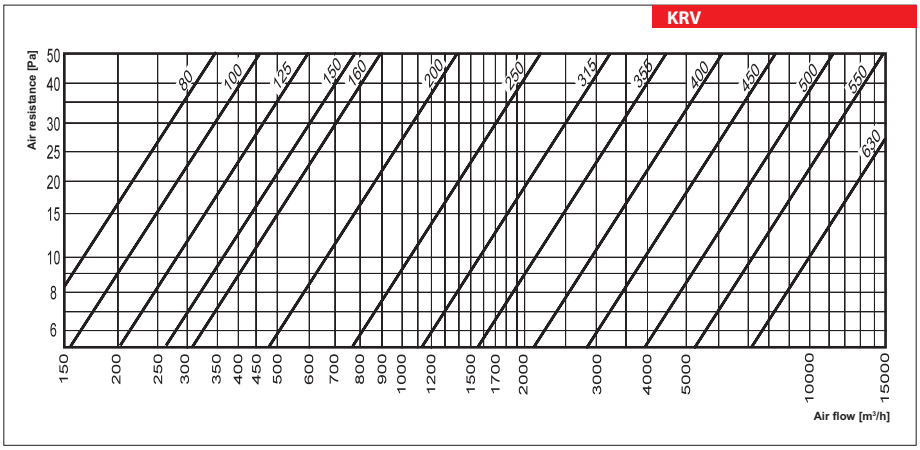
## Mounting
The damper is connected to round air duct and fixed with clamps.

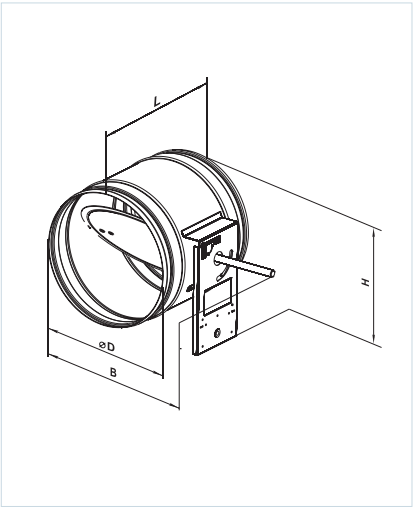
### Compatible Belimo actuators

| Model | Actuator drive | | | |
|---|---|---|---|---|
| | Electric actuator, 230 V | Electric actuator with spring return, 230 V | Electric actuator, 24 V | Electric actuator with spring return, 24 V |
| KRV 80<br>KRV 100 | CM230/LM230A | TF230 | CM24 / LM24A | TF24 |
| KRV 125<br>KRV 150 | CM230/LM230A | TF230 | CM24 / LM24A | TF24 |
| KRV 160<br>KRV 200 | CM230/LM230A | TF230 | CM24 / LM24A | TF24 |
| KRV 250<br>KRV 315 | CM230/LM230A | TF230 | CM24 / LM24A | TF24 |
| KRV 355<br>KRV 400<br>KRV 450 | CM230/LM230A | TF230 | CM24 / LM24A | TF24 |
| KRV 500<br>KRV 550<br>KRV 630 | CM230/LM230A | TF230 | CM24/LM24A | TF24 |

### Overall dimensions

| Type | Dimensions [mm] | | | | Mass [kg] |
|---|---|---|---|---|---|
| | ØD | B | L | H | |
| KRV 80 | 79 | 190 | 200 | 170 | 0.6 |
| KRV 100 | 99 | 220 | 200 | 180 | 0.72 |
| KRV 125 | 124 | 245 | 200 | 195 | 0.86 |
| KRV 150 | 149 | 270 | 200 | 205 | 1.01 |
| KRV 160 | 159 | 280 | 200 | 210 | 1.07 |
| KRV 200 | 199 | 320 | 200 | 230 | 1.33 |
| KRV 250 | 249 | 370 | 200 | 255 | 1.68 |
| KRV 315 | 314 | 435 | 240 | - | 2.44 |
| KRV 355 | 348 | 475 | 240 | - | 2.75 |
| KRV 400 | 399 | 520 | 240 | - | 3.26 |
| KRV 450 | 449 | 570 | 240 | - | 3.78 |
| KRV 500 | 499 | 620 | 240 | - | 5.55 |
| KRV 550 | 549 | 670 | 240 | - | 6.27 |
| KRV 630 | 629 | 750 | 240 | - | 7.49 |




### Designation key

| Series | Spigot diameter [mm] |
|---|---|
| KRV | 80; 100; 125; 150; 160; 200; 250; 315; 355; 400; 450; 500; 550; 630 |

### Accessories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Series
# RRV

## Application

Multi-blade damper for air flow control or cut-off in rectangular air ducts.

Compatible with duct sizes 400x200, 500x250, 500x300, 600x300, 600x350, 700x400, 800x500, 900x500 and 1000x500 mm.

## Design

The housing made of galvanized steel. The aluminium blades driven by plastic gearwheels. Lever with removable metal handle and fixing clamp.

Universal shaft for automatic actuator. Compatible actuators are shown in the table below (available upon separate order). For actuator connection the metal handle should be removed from the shaft.

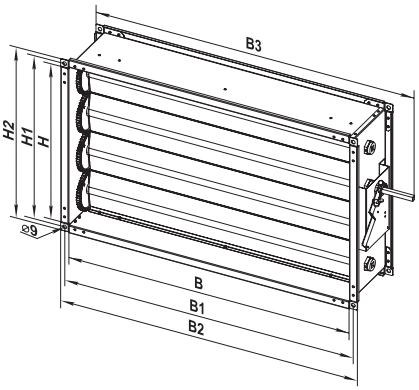
## Mounting

Standard connection flange for rectangular air ducts or other ventilation system components.

Flanges should be connected with galvanized bolts and clamps.

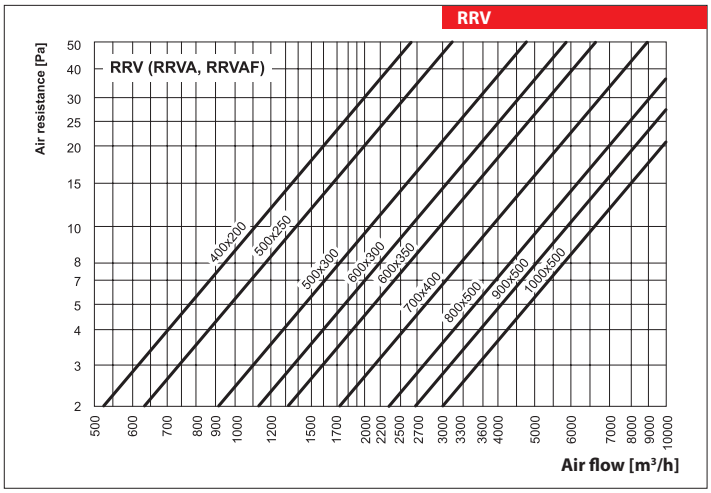
### Overall dimensions

| Type | Dimensions [mm] | | | | | | | | Mass [kg] |
|---|---|---|---|---|---|---|---|---|---|
| | B | B1 | B2 | B3 | H | H1 | H2 | L | |
| RRV 400x200 | 400 | 420 | 440 | 540 | 200 | 220 | 240 | 170 | 3.5 |
| RRV 500x250 | 500 | 520 | 540 | 640 | 250 | 270 | 290 | 170 | 4.2 |
| RRV 500x300 | 500 | 520 | 540 | 640 | 300 | 320 | 340 | 170 | 4.9 |
| RRV 600x300 | 600 | 620 | 640 | 740 | 300 | 320 | 340 | 170 | 5.4 |
| RRV 600x350 | 600 | 620 | 640 | 740 | 350 | 370 | 390 | 170 | 5.7 |
| RRV 700x400 | 700 | 720 | 740 | 840 | 400 | 420 | 440 | 170 | 7.7 |
| RRV 800x500 | 800 | 820 | 840 | 940 | 500 | 520 | 540 | 170 | 8.8 |
| RRV 900x500 | 900 | 920 | 940 | 1040 | 500 | 520 | 540 | 170 | 9.6 |
| RRV 1000x500 | 1000 | 1020 | 1040 | 1140 | 500 | 520 | 540 | 170 | 10.3 |




### Compatible Belimo actuators

| Model | Actuator type | | | |
|---|---|---|---|---|
| | Electric actuator, 230 V | Spring return electric actuator, 230 V | Electric actuator, 24 V | Spring return electric actuator, 24 V |
| RRV 400x200 | CM230/ LM230A | TF230/LF230 | CM24/ LM24A | TF24/LF24 |
| RRV 500x250 | | | | |
| RRV 500x300 | | | | |
| RRV 600x300 | | | | |
| RRV 600x350 | | | | |
| RRV 700x400 | LM230A | LF230 | LM24A | LF24 |
| RRV 800x500 | | | | |
| RRV 900x500 | | | | |
| RRV 1000x500 | | | | |




### Designation key

| Series | Flange dimensions [mm] |
|---|---|
| RRV | 400x200; 500x250; 500x300; 600x300; 600x350; 700x400; 800x500; 900x500; 1000x500 |

### Accessories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## A22

## A22 WiFi

### Application

The A22/A22 WiFi control panels are used for control of industrial and domestic air handling units with an A21 automation system.

### Installation and connection

The A22/A22 WiFi control panels are suitable for wall flush and wall surface mounting. Mounting boxes for wall surface mounting and wall flush mounting are included in the delivery set. Connection of the control panel is carried out according to the User's manual of the unit.

### Technical data

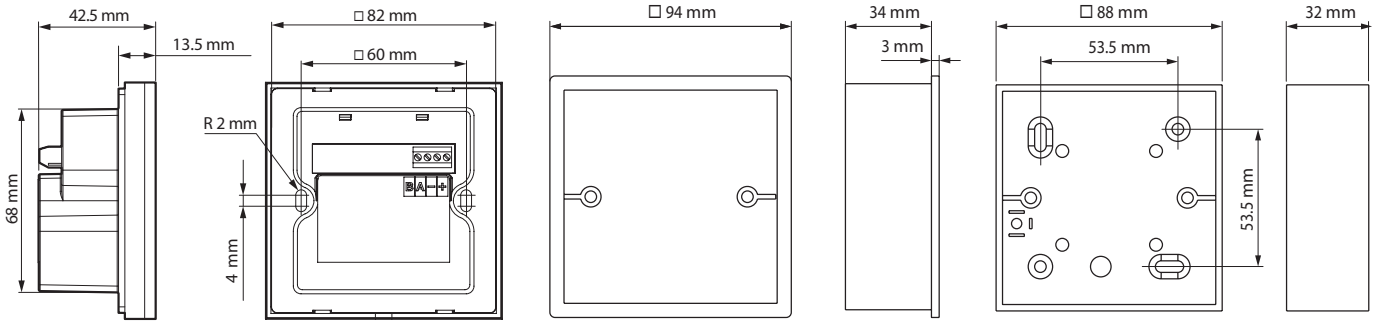
Wired A22 control panel (connected to the unit with a cable)

| | A22 |
|---|---|
| Voltage [V] | 24 |
| Maximum current [A] | 0.025 |
| Cable type | 4x0.25 mm² |
| Temperature range [°C] | from +10 up to +45 |
| Humidity range [%] | from 10 % up to 80 % (no condensation) |
| SEC class | IP40 |

Wireless A22 WiFi control panel (connected to the unit via Wi-Fi)

| | A22 WiFi |
|---|---|
| Supply voltage, 50 (60) Hz [V] | 110-230 |
| Maximum current [A] | 0.012 |
| Cable type | 2x0.35 mm² |
| Temperature range [°C] | from +10 up to +45 |
| Humidity range [%] | from 10 % up to 80 % (no condensation) |
| Casing material | Plastic |
| Sensor surface material | Glass |
| SEC class | IP40 |
| Weight [g] | 190 |
| | **Wi-Fi data** |
| Standard | IEEE 802.11 b/g/n |
| Frequency band [GHz 2.4] | 2.4 |
| Transmission power [mW] (dBm) | 100 (+20) |
| Network | DHCP |
| WLAN safety | WPA, WPA2 |

### Overall dimensions




**Mounting box for surface wall mounting**

**Mounting box for flush wall mounting**

# A25


## Application

The A25 control panel with a sensor display is used for control of industrial and domestic air handling units with an A21 automation system.

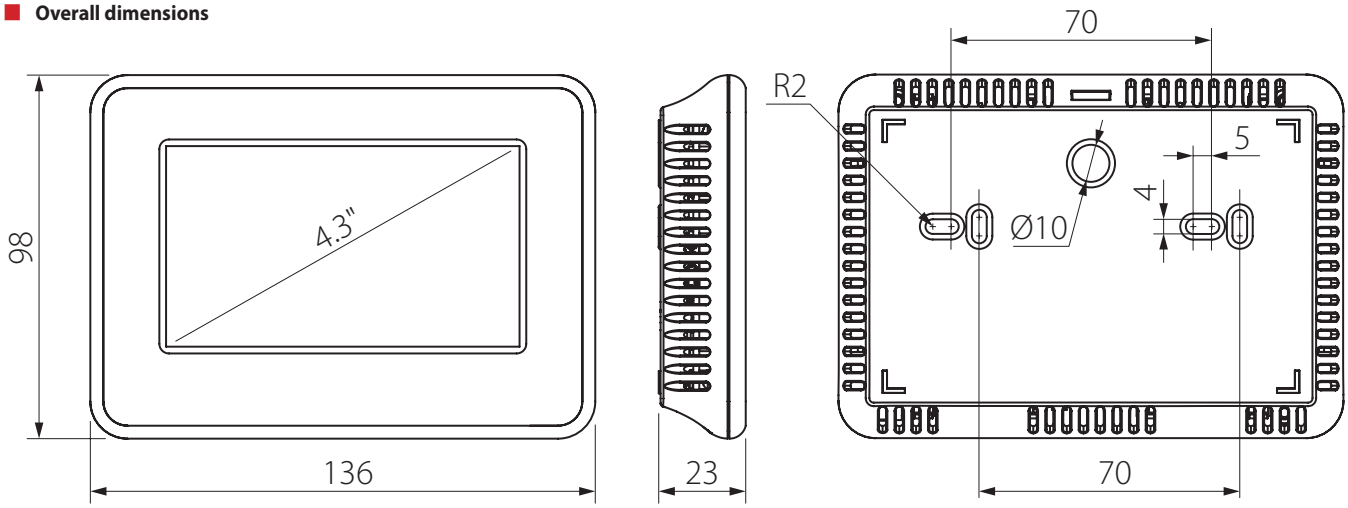
## Installation

Connection and mounting of the control panel are carried out according to the User's manual of the unit.

## Technical data

| | A25 |
|---|---|
| Voltage DC [V] | 12-32 |
| Current at 24 VDC [A] | 0.1 |
| Power cable type (10 m) | 4x0.25 mm² |
| Temperature range [°C] | from +10 up to +45 |
| Humidity range [%] | from 10 % up to 80 % (no condensation) |
| SEC class | IP20 |

## Overall dimensions



Electro-mechanical humidistats

# HR-S

## Purpose

The humidistat is designed for controlling humidification and/or dehumidification in ventilation, air conditioning and heating systems. Can also be used to alarm when the humidity exceeds or falls below a pre-set level.

## Design

The single-stage humidistat HR-S uses a synthetic element as sensor medium. The synthetic element stretches as the humidity increases and shrinks as the humidity decreases.

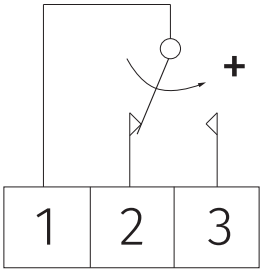
## Mounting

The humidistat is designed for indoor mounting on the wall surface.

### Technical data

| | |
|---|---|
| Switch contact | 250 V AC, 5 A |
| Moisture [%] | 20-90 % |
| Casing material | Polycarbonate |
| Temperature range [°C] | 0-40 |
| Mounting | Wall surface mounting |
| Ingress protection | IP30 |
| Dimensions [mm] | 86x86x30 |

### Humidistat wiring diagram




| | |
|---|---|
| Humidification | Closing contact between terminals 1 and 2 |
| Dehumidification | Closing contact between terminals 1 and 3 |

Series

# BELIMO TF24/TF230

## Application

The TF series actuators with actuating torque 2 Nm are designed for controlling air dampers with cross section up to 0.4 m² installed in various ventilation and air conditioning systems and performing protection functions, as freezing protection, smoke detection, etc.

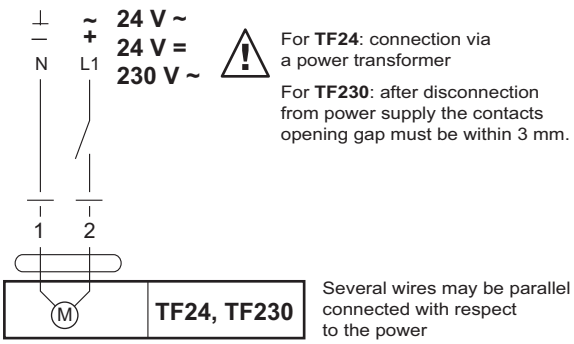
## Design

The actuator moves the damper to its operating position while tensioning the return spring at the same time. In case of power supply cut-off, the damper moves back to its safe position by the spring energy. The actuator is installed directly on the damper axis and locked with a special spindle clamp to prevent its turning-through. The actuator overload protection stops the actuator once it reaches the end positions. The turning angle may be adjusted by a mechanical end stop.

## Technical data

| | TF24 | TF230 |
|---|---|---|
| Voltage | 24 AC 50/60 Hz, 24 DC | 230 V~50/60 Hz |
| Nominal voltage range [V] | 19.2...28.8 AC<br>21.6…28.8 DC | 85...265 AC |
| Rated power [VA] | 4 ( max. I 5.8 A at t = 5 ms) | 4 (max. I 150 mA at t = 10 ms) |
| Power consumption in operation/at rest [W] | 2/1.3 | 2/ 1.3 |
| Connecting cable | 1 m long, 2 x 0.75 mm² | |
| Rotation direction | determined by L/R positioning | |
| Torque (motor/spring) [Nm] | 2, nominal voltage/2 | |
| Rotation angle: | max. 95°, adjustable 37…100 % with a mechanical end stop | |
| Running time (motor/spring) [s] | 40…75 (0…2 Nm)/< 25 at -20…50 °C | |
| Service life | 60 000 switching operations | |
| Ingress protection | IP42 | |
| Electrical protection class | III low voltage<br>II totally insulated | |
| Operation temperature [°C] | -30…+50 | |
| Storage temperature [°C] | -40…+80 | |
| Ambient humidity | 95 %, no condensation | |
| Noise level (motor/ spring) [dBA] | 50 /~62 | |
| Maintenance | not required | |
| Mass [kg] | 0.6 | |

## Wiring diagram

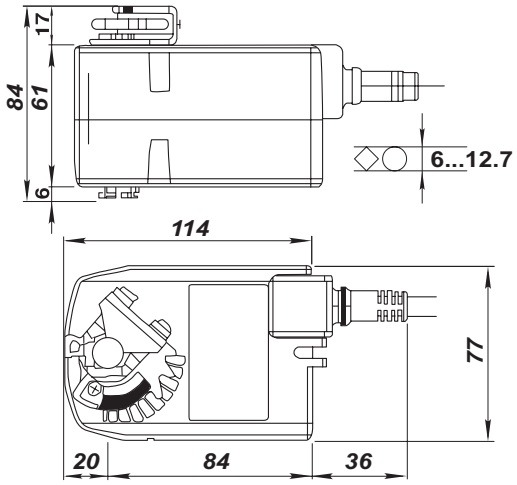



For **TF24**: connection via a power transformer

For **TF230**: after disconnection from power supply the contacts opening gap must be within 3 mm.

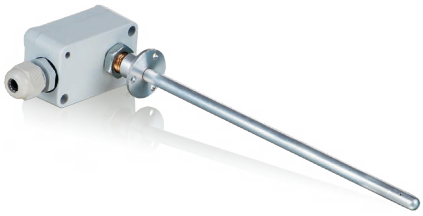
Several wires may be parallel connected with respect to the power

## Overall dimensions [mm]



Duct temperature sensors with a terminal box

# KDT-MK



## Application

The duct temperature sensors are designed for installation in the air duct and temperature measurement of the air flow in the ventilation and air conditioning systems.

## Design

The sensing element, NTC thermometer resistor, is enclosed in the aluminium sleeve. The thermometer resistor electric resistor depends on the temperature, the non-linear resistance. Connection of the sensor to the controller is double-wired, regardless of polarity.

The KDT-MK sensor delivery set includes a mounting flange with a fixing screw for its fixation to the air duct wall.

The sensors are supplied with a 2.5 m connecting cable. The immersion depth is adjusted for 100, 150, 200 or 400 mm.

## Mounting

Fixation with screws to the air duct wall by means of the flange with the sensing element located the air stream.

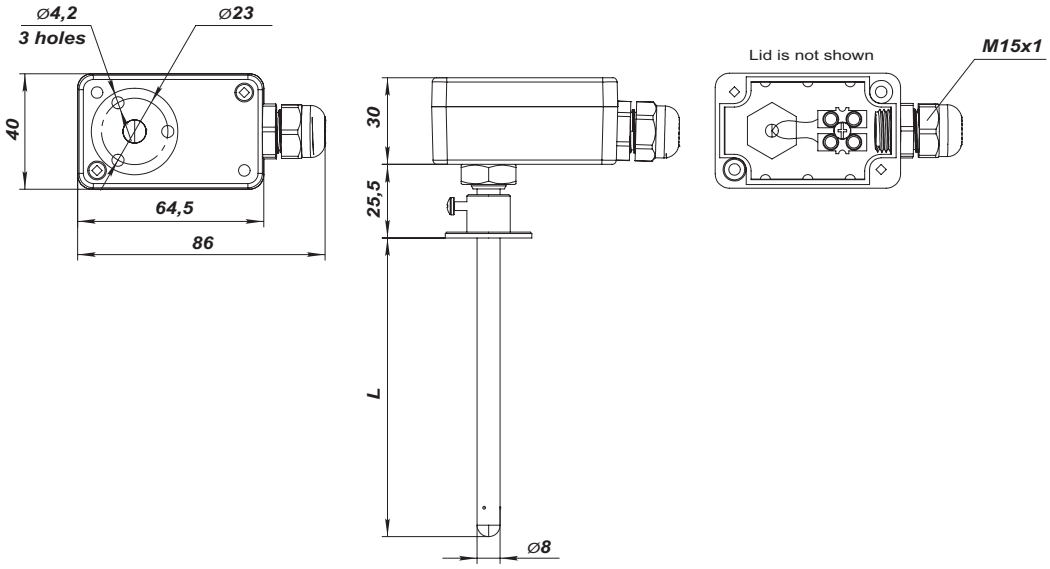
**Technical data**

| | KDT-MK |
|---|---|
| Temperature measuring range [°C] | -30…+60 |
| Voltage [V] | ≤ 5 DC * |
| Output | resistance |
| Electric connection | double-wire, cross section 2x0.25 mm² |
| Relative humidity | up to 90 %, no condensation |
| Protection rating | IP54 |
| Electrical appliance class | III |

*Maximum current generated through the sensor by the applied voltage is 2 mA.

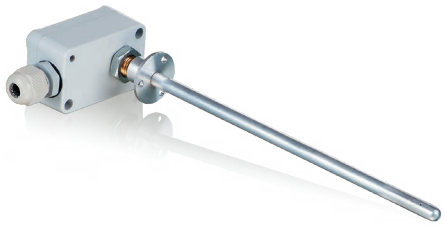
**Overall dimensions:**

| Type | L [mm] |
|---|---|
| KDT-MK 100 | 100 |
| KDT-MK 150 | 150 |
| KDT-MK 200 | 200 |
| KDT-MK 400 | 400 |



Duct temperature sensors with a terminal box

# KDT2-MK



## Application

The duct temperature sensors are designed for installation in the air duct and temperature measurement of the air flow in the ventilation and air conditioning systems.

## Design

The sensor consists of the integrated circuit chip located inside the plastic casing. This sensor type has a linear transfer characteristics of output voltage to temperature and a three-wire connection to power mains.

This sensor type is not compatible with resistance sensors. During electric connections the polarity of the outputs connected to the inputs of the air handling units must be considered.

The KDT2-MK sensor delivery set includes a mounting flange with a fixing screw for its fixation to the air duct wall. The sensors are supplied with a 2.5 m connecting cable. The immersion depth is adjusted for 100, 150, 200 or 400 mm.

## Mounting

Fixation with screws to the air duct wall by means of the flange with the sensing element located the air stream.

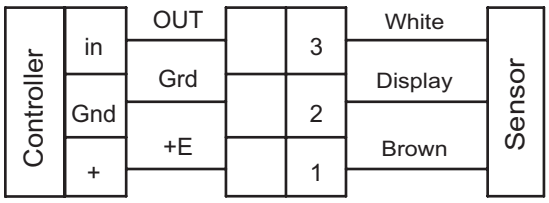
**Technical data**

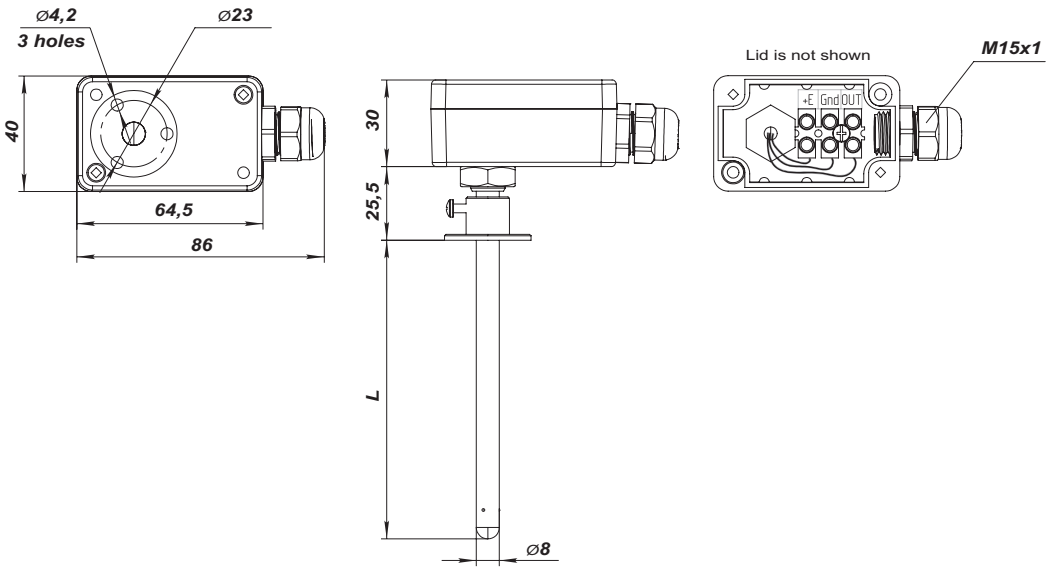
| | KDT2-MK |
|---|---|
| Temperature measuring range [°C] | -30…+60 |
| Voltage [V] | 2,7…10 |
| Output resistance [Ohm] | 800 |
| Electric connection | three-wire, cross section 3x0.25 mm² |
| Relative humidity | up to 90 %, no condensation |
| Protection rating | IP54 |
| Electrical appliance class | III |

**Overall dimensions:**

| Type | L [mm] |
|---|---|
| KDT2-MK 100 | 100 |
| KDT2-MK 150 | 150 |
| KDT2-MK 200 | 200 |
| KDT2-MK 400 | 400 |

**Wiring diagram**



## $CO_2$ SENSORS

$CO_2$ sensor
# CO2–1


$CO_2$ sensor
# CO2–2


### Application

The sensor is designed for indoor carbon dioxide concentration measurement and respective air flow regulation through the control output signal to the fan. Air flow control based on $CO_2$ concentration is an efficient energy saving solution.

### Design and compatability

The sensor has two separate outputs: a normally opened dry relay contact and an analogue output 0…10 V (this output is adjustable for 2…10 V/0…20 mA/4…20 mA).

### Modifications

The sensor is available in two modifications: CO2-1 and CO2-2. The CO2-1 model incorporates LED lights for $CO_2$ concentration and operation buttons indicating the level of three operation modes.

### Mounting and power supply

The sensor is designed for wall surface mounting. 24 VAC low current power supply.. If power supply 24 V is not available, connect the TRF plug that is offered as an accessory.

### Accessories

Power supply unit is applied for connection of the sensor to 220 V (model **TRF-220/24-1,6**) or 120 V (**TRF-120/24-1,6**) AC power mains.

### Technical data

| Parameters | Value |
|---|---|
| Power supply/consumption | 24 VAC (50/60 Hz ± 10 %), 24 VDC/1.6 W Max |
| Gas detection analyzer | Non-dispersive infrared detector (NDIR) with self-calibration system |
| $CO_2$ measuring range | 0–2,000 ppm (parts per million) |
| Accuracy at 25 °C, 2,000 ppm | ±30 ppm + 3 % of reading |
| Response time | max. 2 min |
| Warm up time for each turning-on | 2 hours (first time), 2 minutes (operation) |
| Analogue output | 0–10VDC (default), 4–20mA selectable by jumpers |
| On/Off output | 1X2A switch load<br>Four set points selectable by jumpers |
| 6 LED lights for $CO_2$ concentration indication (for model CO2-1) | 1st green indicator lights when $CO_2$ concentration is below 600 ppm;<br>1st and 2nd green indicators light when $CO_2$ concentration is 600–800 ppm;<br>1st yellow indicator lights when $CO_2$ concentration is 800–1200 ppm;<br>1st and 2nd yellow indicators light when $CO_2$ concentration is 1200–1400 ppm;<br>1st red indicator lights when $CO_2$ concentration is 1400–1600 ppm;<br>1st and 2nd red indicators light when $CO_2$ concentration is above 1600 ppm |
| Operating conditions/storage recommendations | 0–50 °C; 0–95 % RH non condensing/0–50 °C |
| Mass/Dimensions | 0.120 kg/100 mm x 80 mm x 30 mm |

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