



COMPACT VENTILATION UNITS  
**DUPLEX EC5**





## COMPANY HISTORY

**ATREA** was started as a private company in 1990 in the Czech Republic. Very shortly it began to focus on the production of ventilation units with waste heat recovery. The company's founder has authored many authorship certificates, patents and industrial designs in this field.

ATREA's high quality products started to make their mark also in the demanding markets of Western Europe. The economic and geographic proximity led ATREA to focus primarily on the German market where it has established itself really well as a result of a good partnership and top-quality products, with the Netherlands, Switzerland, UK, Italy, Slovenia and other countries to follow.

In 2016 ATREA marketed a new line of recovery units **DUPLEX ECS / ECV5**, which is already the fifth generation and which builds upon the lessons learnt in the previous four generations of these popular and frequently used units not exclusively for houses and flats. Supreme quality of construction of the higher version units is supplemented with the most modern control system, e.g. even with standard option of internet connection.

## ATREA PRODUCTS

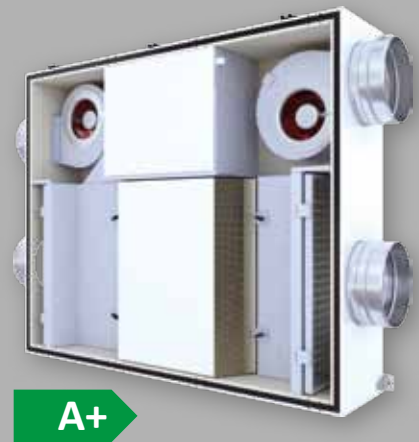
- Multi-purpose ventilation units with heat recovery
- Residential ventilation and warm-air heating systems
- Kitchen ventilation – ventilation ceilings and kitchen hoods
- Passive ATREA houses
- Heat pumps and integrated heat reservoirs

For more information please visit: [www.atrea.eu](http://www.atrea.eu)

# DUPLEX EC5

New and already fifth generation of compact ventilation units with heat recovery DUPLEX EC5, ECV5 is, just like its predecessors, meant for comfort ventilation of houses and flats. Its parameters make it particularly suitable for low-energy passive houses. It is also very suitable for use in flats with decentralized ventilation systems or for decentralized systems in schools and other administrative objects. The units come in two basic models – EC5 to be mounted under the ceiling and ECV5 to be mounted on walls.

The EC5 and ECV5 units meet all criteria on appliance in the highest energy class A+.



## COMPETITIVE ADVANTAGES

- The highest energy class A+
- Mounting on walls and under ceilings
- Three performance variants to choose from
- Counterflow heat recovery exchangers
- Heat recovery efficiency up to 95 %
- Fully closeable automatic bypass
- The most energy-saving EC ventilators
- Simple controls
- Two types of controls for different price ranges
- Low noise emissions
- Integrated electric pre-heater/reheater
- Easily connectible control system
- Constant air flow function
- Extensible electric pre-heater/reheater
- Warm-water heating
- **INTEGRATED WEB SERVER** @  
Option of controlling via PC, tablet or phone





## DUPLEX EC5



### WHAT YOU GET WITH EC5

**1. Three performance sizes** – The units EC5 and ECV5 are always available in three performance options:

DUPLEX EC5 – 170 m<sup>3</sup>/h, 370 m<sup>3</sup>/h and 570 m<sup>3</sup>/h.

DUPLEX ECV5 – 280 m<sup>3</sup>/h, 380 m<sup>3</sup>/h and 580 m<sup>3</sup>/h.

**2. Horizontal and vertical mounting position** – With respect to the different requirements and habits of European markets, you can choose from two versions.

Horizontal version of DUPLEX EC5 – to be mounted under the ceiling – with maximum emphasis on the depth of the units. The design was altered for minimum height, which allows DUPLEX 170 EC5 and even DUPLEX 370 EC5 to be placed in the space above a dropped ceiling 325 mm high! This is the main advantage of mounting under ceilings.

DUPLEX ECV5 in the vertical version - the unit was designed so that both DUPLEX 280 ECV5 and DUPLEX 380 ECV5 would fit into a regular wardrobe of 620 mm in depth, which very significantly simplifies the architectural planning of buildings!

**3. Up to 95% recovery efficiency** – Our counterflow recovery exchangers reach an exquisite real efficiency of 95 % with the airflow of 100 m<sup>3</sup>/h, which is of course reflected in lower energy consumption and a reduction in heating costs.

**4. Fully closeable bypass** – Unlike many competitors' products, the EC5 and ECV5 units fully close the recovery exchanger when the bypass is open. Furthermore, in the units with digital control systems, everything is controlled automatically.

**5. Top quality EC fans** – The fans feature a free rotor and are a product of the EBM Paps company, which is the world's leading manufacturer. German quality ensures a minimum failure rate and maximum performance at low energy consumption. The EC technology allows for smooth control of the fan's operation. Furthermore, the fans are built into an original half-spiral case developed by ATREA and thus offer an even better pressure/flow ratio. Attachment to the inner casing of the unit uses vibration isolators, which ensures minimum transfer of vibrations and very low noise.

**6. Airflow setting** – Our units' control systems allow for easy control of ventilation performance. The setting is done using a control wheel in the range of 10–100% and units with CPA and CP Touch controls feature the option of setting a weekly programme.

**7. Two types of control system** – With the EC5 and ECV5 units you can choose from two basic control system types. A fully equipped digital control system RD5 is designed for automatic control of all functions of the unit including constant flow. This system also features an integrated web interface for remote control of the unit via the internet or a superordinate system. A second – also digital – CP control system is cheaper and allows for comfortable control of the unit's basic parameters using two basic controls.

**8. Simple installation and plugging in** – Plug-and-use – this is a basic feature of our control system, which saves time and costs during installation and putting into service. Furthermore, DUPLEX EC5 and ECV5 units only leave the factory after a thorough inspection of all the functions of the integrated control system as well as the unit itself.

# DUPLEX EC5

ATREA also offers 5 compact systems for air distribution, which are even mutually compatible. It is thus possible to cover all installation types.



## DUPLEX SIZE COMPARISON

**9. Constant flow function** – When a digital RD5 control system is used, EC5 and ECV5 units may operate with constant airflow, which means high user comfort.

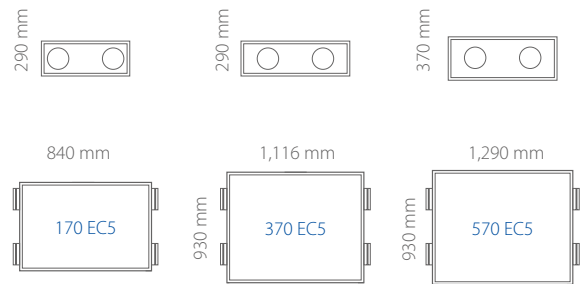
**10. Air pre-heaters and reheaters** – For absolute comfort in ventilated areas, the units can be equipped with an integrated electric pre-heater and reheater, which are made using PTC cells. This greatly simplifies the installation and saves space. The electric pre-heater also serves as protection against the recovery exchanger freezing up.

**11. External heaters and pre-heaters** – It is also possible to choose from electric or hot-water reheaters in pipes as optional components. The electric pre-heater also serves as protection against the recovery exchanger freezing up.

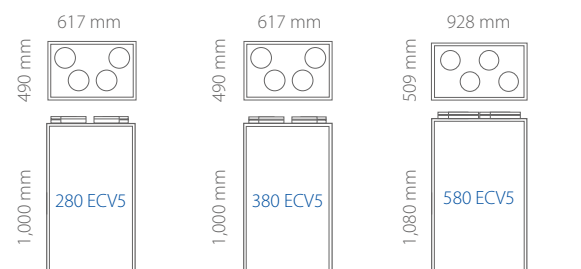
**12. Integrated web server @** – A great advantage is the possibility to control or monitor the units remotely over the Internet using a built-in web server in the RD5 digital control system. This means not only the comfort of a remote control option for the user, but also greatly simplified, more convenient and significantly cheaper servicing.

Choosing the DUPLEX EC5, ECV5 units, ideally with a digital control system RD5, makes the subsequent long-term operation of the entire system much more economical.

### EC5

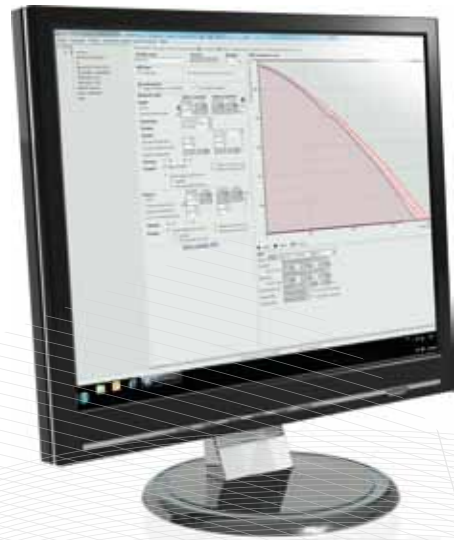


### ECV5





## SELECTION SOFTWARE



[www.atrea.eu](http://www.atrea.eu)

ATREA is a reliable producer who also developed a highly effective and sophisticated software for designing even small ventilation units for houses and flats, which has been tested through years of service.

ATREA offers its proprietary design software that is a highly useful and practical tool to select DUPLEX series units and provide great marketing support!

**Very positive feedback from designers of all over Europe gives a good opportunity to easily include ATREA's units in all kinds of projects.**

Very detailed calculations on all specifications are standard.

The software checks whether all components were selected and whether the selected system is working. This way you can avoid any possible mistakes.

### It includes:

- Selecting a unit and its accessories
- Showing parameters of the selected appliance
- An option to adjust the various parameters, designs or mounting positions of the units
- Selecting the control system with accessories in a functional set
- Electrical wiring diagrams
- Displaying and printing the components installed, an h-x diagram and HVAC diagrams
- Price specifications of individual components
- Print output to a printer or PDF
- Exporting drawings and diagrams to DXF in 2D or 3D
- Sending the design and export by e-mail
- **Additionally, the design software includes a full catalogue of ATREA's products in PDF format.**



Give it a try – ATREA design software is available in seventeen languages and can be downloaded freely.

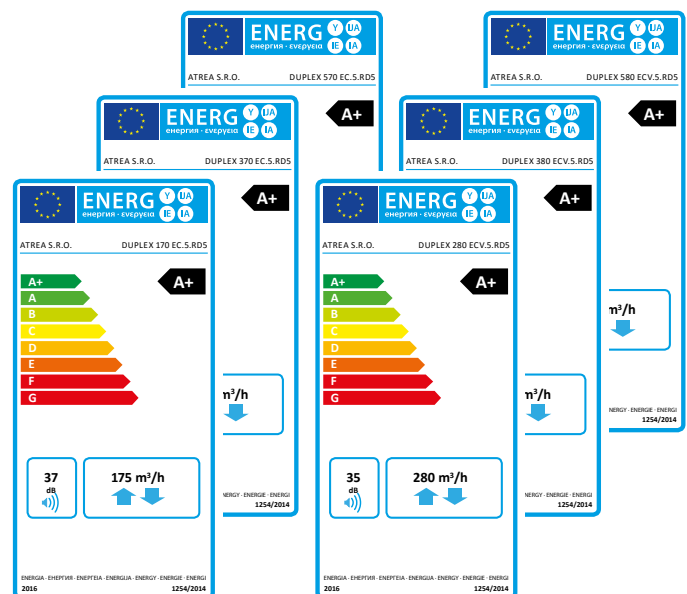


# CONSTRUCTION EC5

## GENERAL DESCRIPTION

The unit's casing is made of a high-quality, 30 mm thick mineral insulation with metal plating ( $U = 0.81 \text{ W}^{-2}\text{mK}^{-1}$ ) on both sides and thoroughly suppressed thermal bridging. The units contain an ATREA counterflow heat exchanger made of plastic with a real recovery efficiency without condensation during air flow of  $100 \text{ m}^3/\text{h}$  up to 87 %, two free-wheel fans with an optional constant flow control feature, G4 (F7) input and exhaust air filtration, automatically controlled bypass damper and a control module with optional controller or remote control over the Internet. The ceiling-mounted EC5 units allow for a change in direction of the outlets simply through a change of parameters in the control system. Connecting ports are circular for connection to flexible or rigid ducts with suppressed thermal bridging. The unit can be accessed via a door which can be fully opened.

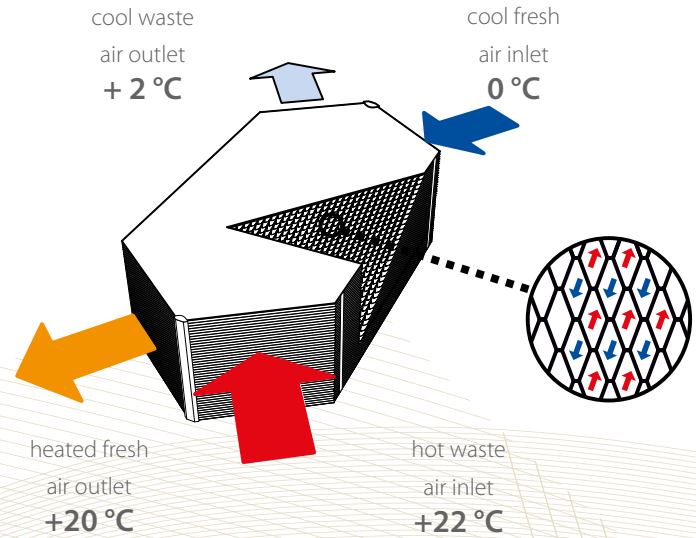
Thanks to a new sophisticated construction all sizes of the EC5 and ECV5 units meet the required standards to be placed in the highest **energy class A+**. This is so due to a very good ratio of heat recovery to energy consumption. The most important parameters can be found on the energy label on the device which shows: energy class, maximum flow and noise emissions during a referential flow.



# HEAT RECOVERY

## PRINCIPLE

Heat transfer occurs through separating walls of the heat exchanger – in winter, warmer exhaust air preheats the colder supply air. The same principle also applies in summer for cool recovery. Humidity in waste air condenses during the recovery. This condensate increases the recovery efficiency due to a more intense heat transfer and it is continuously drained into a sewer system.



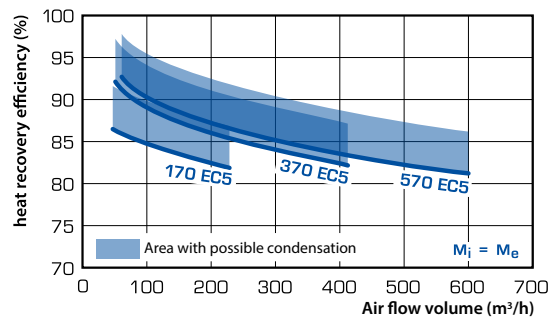
## TECHNICAL PARAMETERS

- **Casing** – Sandwich construction with 30 mm mineral heat insulation with outer and inner panels.
- **Filter G4 / F7** – Customers can choose between standard G4 / F7 grade fabric filters or cassette filters with G4 / F7 grade to choose from.
- **Connection options** – Standard control system allows for connection with a wide range of external sensors of air quality with switch contact or a 0–10V outlet, control of closeable and mixing heating valves and thanks to 4+1 temperature and 2 pressure sensors inputs, optimal operation of the unit is ensured in every mode.
- **Easy access** – The door opens fully for easy access into the unit and it makes replacing filters and other servicing after installation easier.
- **Fully closeable bypass** – Operation of the bypass is fully automatic depending on the temperature in both versions of the control system. In RD5 control system it is based on the setting of input air temperature and in CP control system on a fixed temperature for opening the bypass shutter. When it is open, the recovery exchanger is fully closed.
- **Energy** – The ration of the energy input of the ventilators / recovery during ventilation reaches the energetic efficiency value of 20 – 40, i.e. for 1 W of electric energy for operation of DUPLEX EC5, up to 40 W of energy is recovered from waste air. **Effective ratio 1 : 40.**
- **Automatic frost protection** – Can be achieved via an electric pre-heater or an automatic control of ventilator rotation at air outlet and inlet.
- **Constant flow** – Option of controlling the unit's performance for a constant flow.

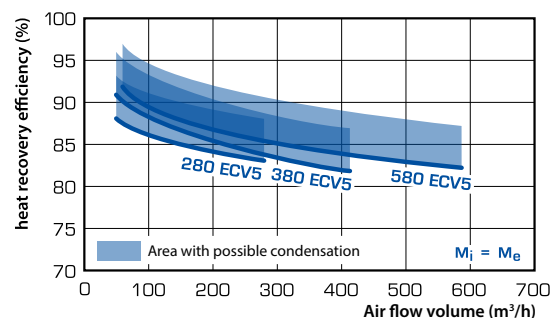
Control system	DUPLEX EC5	DUPLEX ECV5
CP +2x external signal	<b>A+</b>	<b>A+</b>
RD5 +2x external signal		

**PLEASE NOTE:** All types of control systems in the unit as a standard contain at least two inputs for connecting electrical signals, which are the result of human manipulation with light, or other devices which automatically regulate the unit's performance. These inputs must always be in use or other types of sensors (e.g. CO<sub>2</sub>, VOC, rH etc.) must be used in their place.

### EC5 heat recovery efficiency



### ECV5 heat recovery efficiency





# CONTROL SYSTEM

DIGITAL RD5, DIGITAL CP

There are two types of control system available for DUPLEX EC5 and DUPLEX ECV5:

- **digital control system RD5 (EC5.RD5)**, which meets all requirements for the most advanced system,
- **digital control system CP (EC5.CP)**, which is a cheaper and simpler control system for controlling the basic functions of the unit.



## DIGITAL control system RD5

Fully programmable version – EC5.RD5, EC5.RD5.CF

EC5.RD5 units are equipped with the ATREA – RD5 control module. This system meets all conceivable requirements for a modern and user friendly control system.



CP Touch controller



CP Touch colour versions

RD5 control options:

- **Constant airflow function (RD5.CF)**
- **CO<sub>2</sub> sensors, relative humidity sensors, air quality sensors** – automatic operation of the device using values from the sensors.
- **Versatility** – The unit comes as a versatile device, the orientation itself is set merely through a change in the control parameters, that is via a specification of the fans' function.
- **Modbus TCP** – universal and open communication with a higher-ranking control system using a defined protocol.
- **Zoning** – option of dividing space into zones defining their operation.
- **Parameter-setting by the user** – setting weekly programmes for ventilation performance and air heating function. Instant manual setting for higher user comfort, control through external signals when a light is switched on in a bathroom or a toilet.
- **Start and finish delay option** – setting at external signals
- **Combined heating and preheating** (integrated electrical or external electrical and water-based)
- **Internet connection as a standard** easy access via a personal computer, tablet or smart phone

CP 10 RT controller



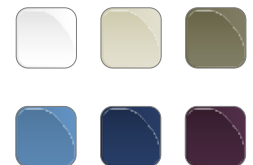
## DIGITAL control system CP

Simplified cheaper version – EC5.CP

The basic digital control system of the CP series is unrivalled on the market. The unit's standard equipment does not include controller. For control is possible choose digital controller with a touch display – CPA – or optionally a mechanical CPB. As a standard it contains inputs for connecting air quality or humidity sensors, inputs for higher performance of bathroom, toilet and kitchen ventilation. Inputs for a shutter and control of electrical pre-heaters and reheaters. The control system also offers above-standard features, which are common for ventilation units of the highest categories.



CPA controller



CPA colour versions



CPB controller

For more information check the catalogue page of units EC5 / ECV5



# TECHNOLOGY EC5



## OPTIONAL ACCESSORIES

supplied separately

### Built-in electric EDO-PTC heater

The heater is placed directly inside the unit on a designated place, it is used for a small increase in temperature of incoming air as a reheater or as frost protection – pre-heater.



### CO<sub>2</sub> or cigarette smoke sensor

CO<sub>2</sub> concentration sensor with a continuous output



Pipe sensor also with a continuous output.



### Hot-water heater TPO EC THV

Functions as a input air heater and is placed directly in the pipes (can only be used with a unit with the RD5 digital control system).



### rH sensor

Relative humidity sensor with a switch contact.



Relative humidity sensor for continuous control.



### Electric EPO-V heater

Can be placed into the pipes as a fresh air pre-heater in front of the unit or as a reheater of incoming air. Can only be used with a unit with the RD5 digital control system.



### Filtration cassette

Simple replacement – filtration G4 / F7 for high filtration efficiency.



### Heat sensor ADS 120

Heat sensor placed behind a reheater EPO-V or TPO EC THV.



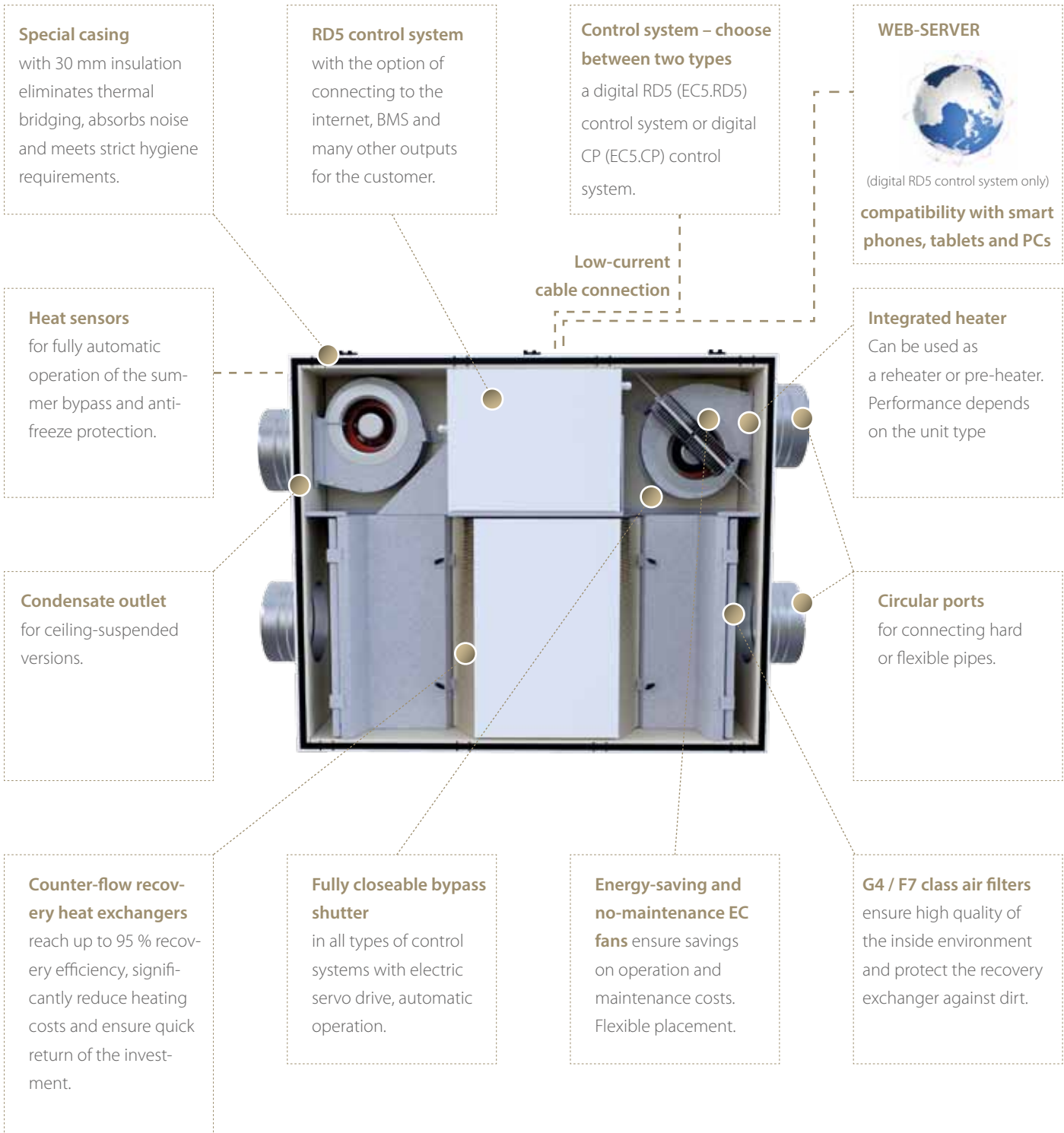
### Filtration textile

Easy application for fast and convenient replacement.





# TECHNOLOGY EC5



### RD5 digital controllers



CP Touch controller



CP 10 RT controller

### CP digital controllers



CPA controller



CPB controller



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