



# DUPLEX EC4



## ATREA 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 2012 ATREA marketed a new DUPLEX **EC4** concept and because of top quality design significantly increased its market share. The company's export activities then focused on the remaining European markets and introductory negotiations are now taking place with customers from overseas.

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

## ATREA'S PRODUCT RANGE

- Multi-purpose unit ventilators with heat recovery
- Residential ventilation and warm-air heating systems
- Kitchen ventilation – ventilation ceilings and kitchen hoods
- Passive houses by ATREA

# DUPLEX EC4

New, already the 4<sup>th</sup> generation of residential DUPLEX heat recovery units is available in two basic ranges: DUPLEX EC4 units to be mounted under the ceiling, and vertical DUPLEX ECV4 units.

These units are designed for comfort ventilation in all types of residential and civil buildings, and are particularly suitable for low-energy and passive houses and flats in residential buildings with decentralized ventilation systems.

DUPLEX EC4 and ECV4 fulfill all criteria for PASSIVE HOUSE certification (in process and coming soon)



## COMPETITIVE ADVANTAGES

- Horizontal and vertical mounting position
- Three sizes to meet market requirements
- Excellent dimensions
- 92 % counterflow heat recovery exchanger
- 100 % by-pass damper
- Top quality EC fans – German quality
- Easy airflow settings using just the controller
- Two kinds of control system for different price ranges
- Plug-and-play control system
- Constant flow function
- Electric pre-heater
- Electric re-heaters
- Hot-water re-heater
- **INTEGRATED WEBSERVER** @ Controlable through smartphones





## BUSINESS EC4



### BUSINESS COMPETITIVE ADVANTAGES

#### Horizontal and vertical mounting position

With respect to the varied requirements and customs of foreign markets we make DUPLEX EC4 and ECV4 units available in both a horizontal version – suitable for mounting below the ceiling (EC4) – and a vertical version for installation in built-in wardrobe or utility rooms (ECV4).

#### Three sizes to meet market requirements

The vertical and horizontal version of the EC4 range has three performance sizes each:

EC4 – 180 mc/h, 370 mc/h a 520 mc/h.

ECV4 – 190 mc/h, 390 mc/h and 510 mc/h

#### Excellent dimensional parameters

The EC4 and ECV4 ranges were developed with a constant emphasis on the market's requirements for the size of units. The units' design has been modified to achieve the height of the ceiling-suspended DUPLEX 180 EC4 and even the DUPLEX 370 ECV4 (!) of 280 mm. This factor is the key advantage for the ceiling-suspended version.

Likewise, as these are often installed in wardrobes, DUPLEX 190 ECV4 and DUPLEX 390 ECV4 have been designed as shallow as possible – a definite advantage for the integration of these units within the design.

#### 92 % efficiency

Our counterflow heat recovery exchangers achieve an excellent efficiency of up to 92 %; this is of course effectively reflected in lower energy consumption and resulting savings on heating bills.

#### 100 % by-pass damper

Unlike many competing products, DUPLEX EC4 and ECV4 units have an option of 100 % by-pass of the heat recovery exchanger via a by-pass damper; in addition, this is fully automatically controlled in units with a digital control system.

#### Top quality EC fans

The fans of the EC4 and ECV4 range are made by EBM Papst, the world's leading manufacturer. This German quality ensures a minimum failure rate and maximum performance at low energy consumption. The EC technology to allow the smooth control of the fans' operation is a matter of course.

#### Airflow setting through the controller

The digital control system of our units allows easy setting of airflow through the unit by simply entering the parameter via the controller. This simplifies the initial set-up of the unit.

#### Two kinds of control system

In the EC4 and ECV4 range you can choose from two basic control system types. A fully equipped digital control system is designed for the automatic control of all components of the unit including constant flow control. This control system has also an integrated web interface for **controlling the unit remotely via the Internet or smartphones.** @

A cheaper, analogue control system is also available; this is really affordable thanks to its simplicity while it still allows controlling the basic parameters of the unit.

# DUPLEX EC4 180, 370, 510

ATREA also offers a full HVAC system for air distribution within a house or flat with components such as flat air ducts, circular ducts, floor grilles etc.



## DUPLEX units' size range

### Plug-and-play control system

The plug-and-play feature of our control system saves time and cost needed for installing the unit. In addition, units leave the factory after a thorough inspection of all functions of the integrated control system as well as the unit itself.

### Constant flow function

When a digital control system is used, units may be operated with constant airflow – often requested – to enhance the high comfort of the EC4 and ECV4 range for the user.

### Optional pre-heater and reheaters

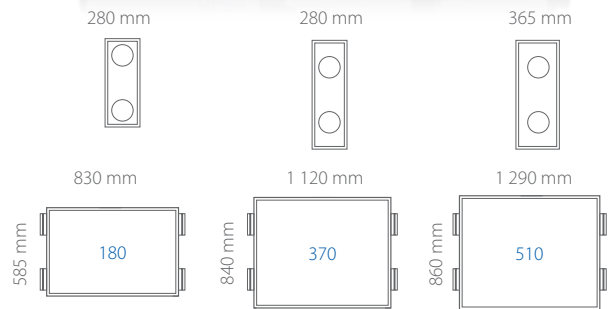
Units can be equipped with an electric pre-heater or an electric or hot-water re-heater to ensure the absolute comfort of ventilated indoor spaces. The electric pre-heater simultaneously acts as freeze protection.

### Integrated webserver @

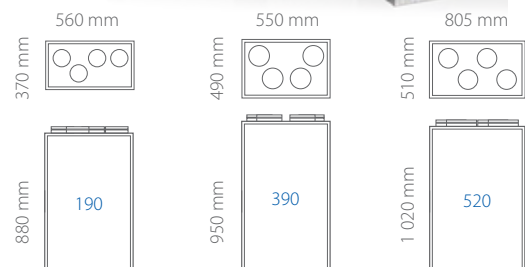
A huge advantage for the sales force as well as the customer. Units can be remotely controlled through the Internet via the built-in web server of the RD4 digital control system. This means not only comfort and a remote control option for the user, but also greatly simplified, more convenient and significantly cheaper servicing.

It is this option to utilize the built-in webserver for servicing that makes the subsequent operation of the unit vastly cheaper.

### EC4

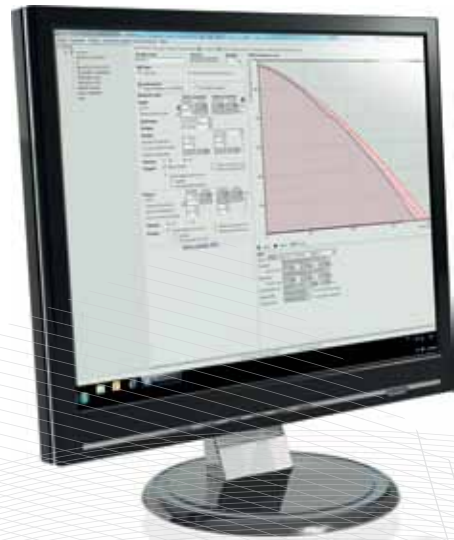


### ECV4





## SELECTION SOFTWARE



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

Atrea is the only producer with highly sophisticated software available also for residential ventilation.

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.**



Try it – ATREA's design software in 13 European language versions

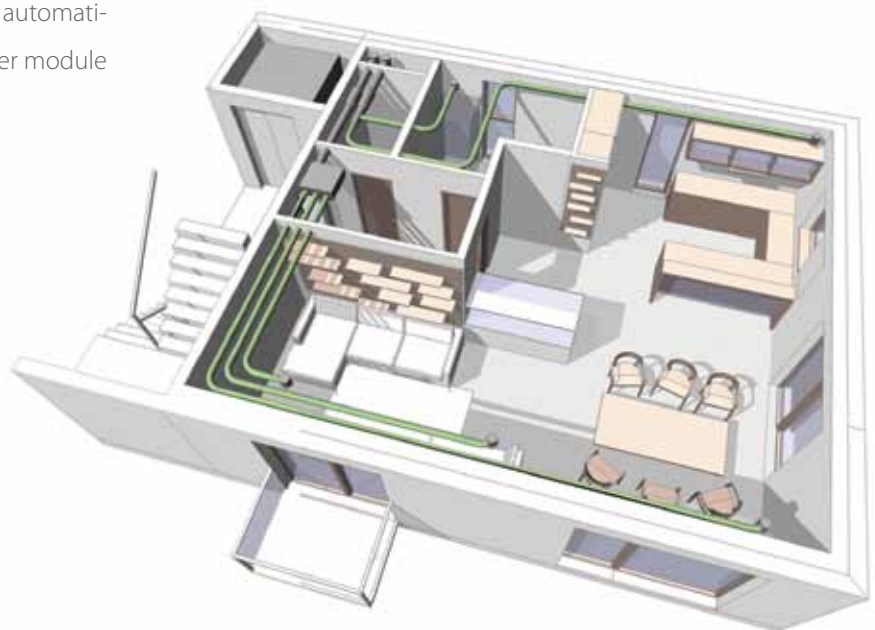


## ENGINEERING EC4

### GENERAL DESCRIPTION

The unit's casing, fitted with excellent 30 mm ( $U = 0.65 \text{ W}^2\text{mK}^{-1}$ ) thick polyurethane insulation with suppressed thermal bridging, contains a built-in counterflow heat exchanger made of plastic with an efficiency of up to 92 %, two free-wheel fans with EC electronic control and an optional constant flow control feature, G4 (F7) supply and exhaust air filters upstream the heat recovery exchanger, an automatically controlled by-pass damper, a controller module

with optional remote control through the Internet and a connecting terminal strip. Condensate drains in the door of ceiling-mounted EC4 units are arranged for both operational directions of the unit. Connecting ports are circular to connect to flexible or rigid ducts with suppressed thermal bridging. Access to the unit is via an openable hinged door with securing latches.

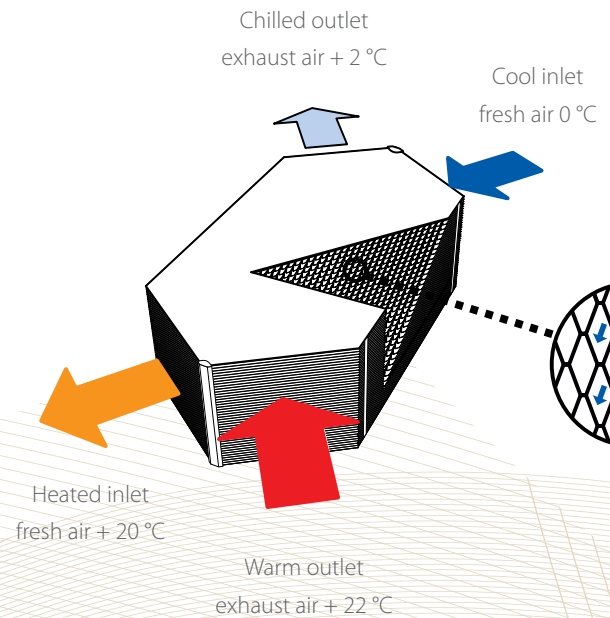


# HEAT RECOVERY

## PRINCIPLE

Heat transfer occurs through the separating walls of a heat exchanger – in winter warmer exhaust air preheats colder supply air. The same principle is applied also in summer for cool recovery.

In winter time humidity condensates in exhaust air. This condensate increases heat recovery efficiency through improved heat transfer and is continuously drained into a sewer system.



## TECHNICAL PARAMETERS

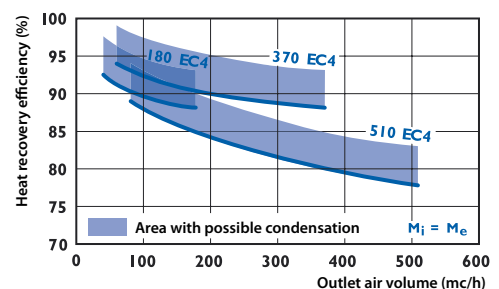
- **Casing** – Frameless construction. The 30 mm PU sandwich panels ensure great insulation and acoustic properties.
- **Filter G4 / F7** – Customers can select either standard G4 grade filters or cassette filters with an F7 grade.
- **4+1 temperature and 2 pressure sensors inputs** – A wide range of temperature, air and pressure sensing options, fully compatible with ATREA's own control system RD4.
- **Easy access** – The hinged door opens fully for easy access to all equipment sets of the unit. They enable easy installation and any servicing of the unit.
- **Servo drives** – Top quality Belimo servo drives.
- **100 % by-pass** – Full automatic control according to outdoor temperature (with a digital control system) or manual control (with an analogue system).
- **Energy factor** – The gained ratio during ventilation reaches an energy efficiency of 17 – 25 W, which means from every 1 W of power used to run a DUPLEX EC4 it is possible to gain up to 25 W from exhaust air to make an effective ratio of 1 : 25.
- **Automatic frost protection** – Provided with an EPO-V electrical pre-heater (see Accessories) or solved by temporary stopping of the supply fan (analogue control system).
- **Constant flow** – An option to fit sensors for constant flow control.

### Ceiling-suspended version (EC4) Vertical version (ECV4)

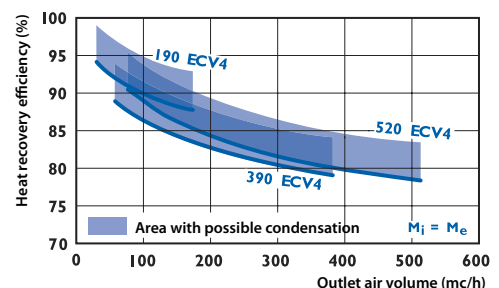
180 EC4	height 280 mm	190 ECV4	width 560 mm
370 EC4	height 280 mm	390 ECV4	width 550 mm



### Heat recovery efficiency EC4



### Heat recovery efficiency ECV4







# CONTROL SYSTEM

DIGITAL OR ANALOGUE

There are two types of control system available for DUPLEX EC4 and DUPLEX ECV4 units – a digital control system (EC4.D) which meets all requirements for demand-controlled ventilation, and a cheaper, simpler analogue control system (EC4.A) for controlling only the basic functions of the unit.



## DIGITAL control system

Fully equipped version

EC4 series units are provided with a proprietary RD4 control system by ATREA. This control system meets all requirements for demand-controlled ventilation.



CP 19 RD

Various functions of the RD4 control system:

- **Optional constant flow function**
- **CO<sub>2</sub> sensors, relative humidity sensors and air quality sensors** – An option to set the intensity of ventilation automatically based on those parameters.
- **Versatility** – The orientation of the unit, that is, which is the supply and which is the extractor fan, is determined simply by setting the parameter in the control system.
- **Modbus TCP** – Communication with a higher-ranking system for BMS.
- **Parameter setting by the user** including setting weekly programmes for ventilation and heating modes. Immediate manual override settings for more convenience to the user as well as weekly programme control.
- **A ventilation run-down and delay time option** provided by external inputs.
- **Combined heating and preheating** (electrical, water based)
- **Internet connection as a standard** allows simple setup through computer or any smartphone or tablet.

## ANALOGUE control system

Simple cheaper version

This simplified control system is a choice for less demanding systems requiring only basic functions. The unit is controlled with the CP 04 RA controller via a mechanical button.



CP 04 RA

For more information check our EC4 catalogue sheet.



# ENGINEERING EC4



## OPTIONAL ACCESSORIES

supplied separately

### Built-in electric reheater EDO4

To be integrated in the unit, installation at a predetermined place inside the unit. Operating temperature control is provided by the control system of the unit (the analog control system must be completed with an expansion module RA4-E).



### Sensors CO<sub>2</sub>

Room sensor for continuous ventilation control according to current CO<sub>2</sub> values.



Duct sensor CO<sub>2</sub> (0 – 2000 ppm)



### Hot water heaters TPO EC THV

Used to reheat air, to be installed in ducts (can be used only with digital control system).



### Sensors rH

Room hygrometer – relative humidity sensor.



### Electric heaters EPO-V

Used as preheater to preheat fresh air or as a reheater to be installed in ducts on fresh air inlet – can be used with analog and digital control system.



### Spare filter cassettes

Easily removable F7 filters for higher filtration demands.



### ADS 120

Temperature sensor required for EPO-V or TPO EC THV reheaters.



### Spare filter textile

Easy application for fast and convenient replacement.





# ENGINEERING EC4





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