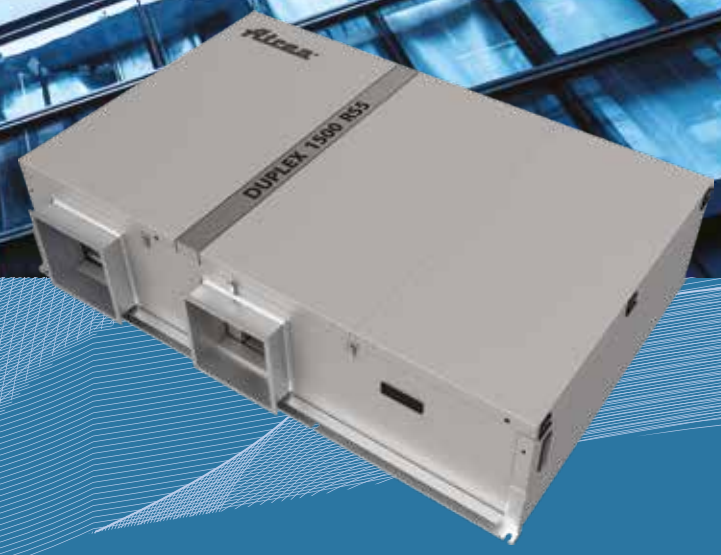
EN

COMMERCIAL LINE

DUPLEX **RS5**



ErP 2018

Atrea®

Atrea® *Leader in ventilation and heat recovery*

DUPLEX RS5

Brand new patented-protected ventilation units **DUPLEX RS5** with unique air circulation and cooling solution via central air ducting, allowing full-fledged ventilation and internal air circulation at the same time.

Units are produced in several sizes from 1 500 / 700 to 5 500 / 2 000 m^3/h of circulation / ventilation volume and are intented for ventilation of every type of civil and residential buildings, as well as from commercial and industrial buildings, where the emphasis is not only for ventilation, but also for heating and cooling.

All the sizes are manufactured in two basic casing sizes, which are then fitted with performance-graded accessories – fans and built-in heat or cold exchangers. If cooling or heating of the supply air is required, the unit can be combine with all types of built-in exchangers – electric or water heater, direct or water coolers as well as duct heaters and coolers. Within the air preheating it is possible to use an electric duct preheater of the EPO series or even a hot water duct preheater.

DUPLEX RS5
(under-ceiling)

DUPLEX RS5 are manufactured in modern production hall in Jablonec nad Nisou.

For more information please visit **www.atrea.com**

DUPLEX **RS5**

- Heat recovery efficiency up to 93 % – superior counter-flow heat exchanger
- Excellent thermal insulation of the housing (Class T2)
- Thermal bridging suppression (Class TB1)
- An integrated recirculation damper with independent recirculation air supply
- Easy on-site installation including levelling and stabilisation
- The enhanced compact design of the new unit types saves up to 60 % of space in comparison with modular units
- Low investment cost
- Low power input – high efficiency of EC fans
- Acoustically efficient housing with 50 mm mineral wool insulation
- Built-in heaters and coolers
- A wide range of accessories
- Comprehensive built-in control systems fully integrated in the unit
- Internet interface as standard
- Possibility of automatic control of microclimate quality according to CO_2, rH sensors…
- Rapid temperature compensation of climate in the area
- Fast response to performance change requests
- Thanks to optimal ventilation, the right climate in terms of humidity is also guaranteed
- The circulating air from the unit can transmit high heating or cooling power
- Small demands on utility room space – under-ceiling design allows the use of utility room as a warehouse

Usage of DUPLEX RS5 in most common applications

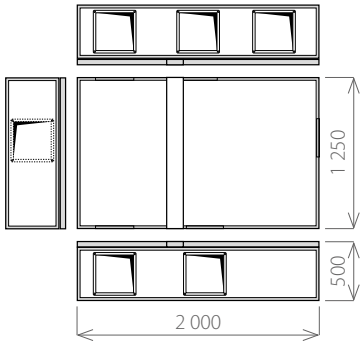
- The units are designed for areas where **hot air heating** is required. For example, where it is not possible to use conventional heating systems either **due to interior design** (spaces where **radiators cannot be used**) and the impossibility of covering all heat losses (floor heating systems that have limited output).
- The units are advantageous for **buildings with low energy performance,** where it is necessary **to quickly balance the temperature**, eg due to a sudden external heat gain from sunlight, which conventional heating systems don't solve fast enough (especially floor heating systems). Air systems **respond more quickly** to the demands of **increasing and decreasing heat output**.
- **Thanks to ventilation at the required performance**, ie no over-ventilation or low-ventilation, an **optimal climate is guaranteed even in terms of relative humidity**.
- **The circulation air from the unit can transmit a high heating or cooling capacity**, of course corresponding to the air volume from the unit.
- **The minimalist dimensions of the units place small demands on the utility room space**. The units are always delivered in an **under-ceiling design**, thanks to which they **enable the use of the given space**, for example for storage.

DUPLEX RS5

Mounting positions

Under-ceiling **1500–5500**

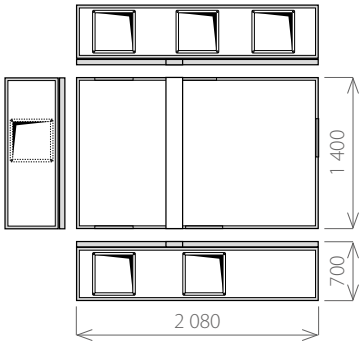
Dimensions



DUPLEX **RS5**

1500 / 700 | 1500 / 1000

2500 / 700 | 2500 / 1000



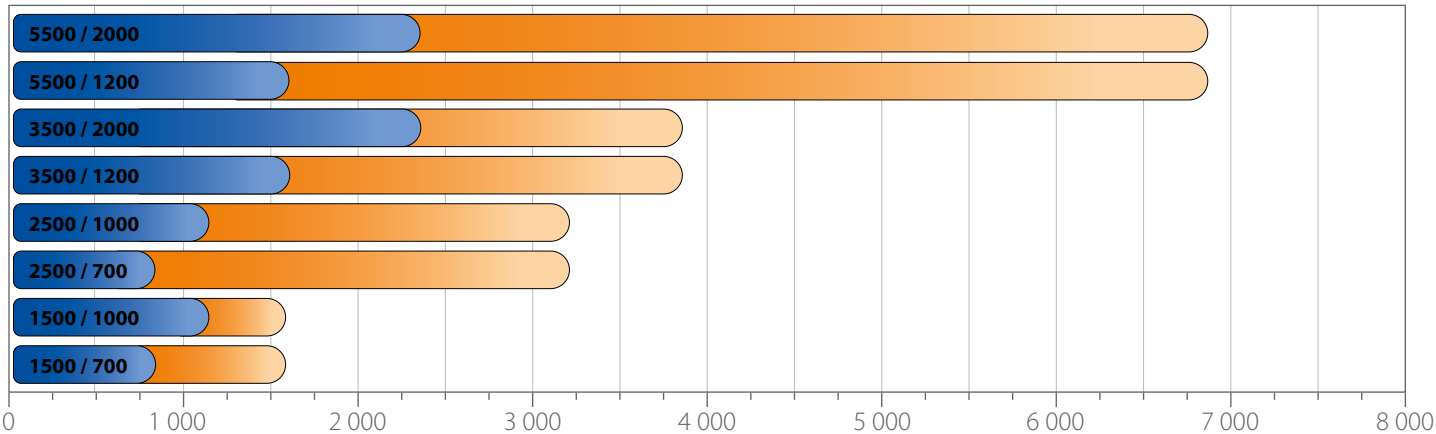
DUPLEX **RS5**

3500 / 1200 | 3500 / 2000

5500 / 1200 | 5500 / 2000

DUPLEX RS5

Performance graph – ventilation performance – circulation performance



DUPLEX **RS5**

1500 / 700 | 1500 / 1000 | 2500 / 700 | 2500 / 1000
3500 / 1200 | 3500 / 2000 | 5500 / 1200 | 5500 / 2000

circulation perfomance / ventilation performance

DUPLEX RS5

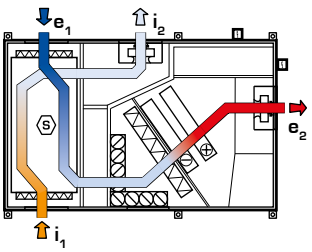
THE RS5 DUPLEX UNIT BRINGS A NEW LEVEL OF FLEXIBILITY OF USE THANKS TO THE SEPARATION OF EXHAUST AND CIRCULATION AIR, WHICH ALLOWS YOU TO CHOOSE A UNIT TAILORED TO EACH PROJECT.

- **Unit casing** – Silver painted sheet metal panels with 50 mm thick mineral wool sandwich panels ensure great insulation and acoustic properties.
- **Filters G4 / M5 / F7** – Casette filters, easy to replace thanks to the ingeniously designed clips. The patented design allows filtration through the filter frame as well.
- **5 temperature and 6 pressure sensors inputs** – A wide range of temperature, air and pressure sensing options, fully compatible with ATREA's own control system RD5.
- **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.
- **Low noise** – Very good acoustic properties of our units can be defined for various working points in our design software.
- **Automatic frost protection** – An option to rearrange fan operation or the unit can be provided with an EPO-V electrical pre-heater (see Accessories).
- **Constant flow** – The units can be equipped with accessories supplied to enable constant flow control.
- **Constant pressure** – The RS5 series can be equipped with accessories to ensure constant supply and / or exhaust air pressure.

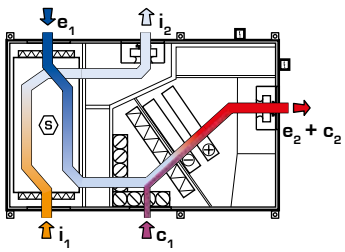
Heating – DUPLEX RS5 offers a wide range of heating accessories, such as external electric preheaters and integrated water or external electric reheaters. Maximum heating output up to 51 kW.

Cooling – built-in water or direct evaporator (heat pump mode). Maximum cooling output up to 47 kW.

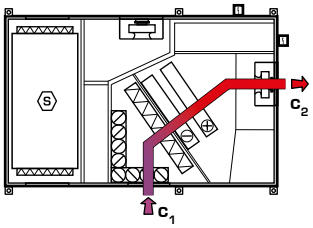
Operating modes



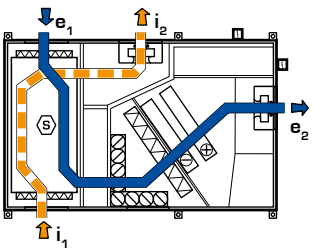
Equal pressure ventilation with heat recovery



Circulation heating and ventilation



Circulation heating with boost ventilation



Equal pressure ventilation without heat recovery (via by-pass)

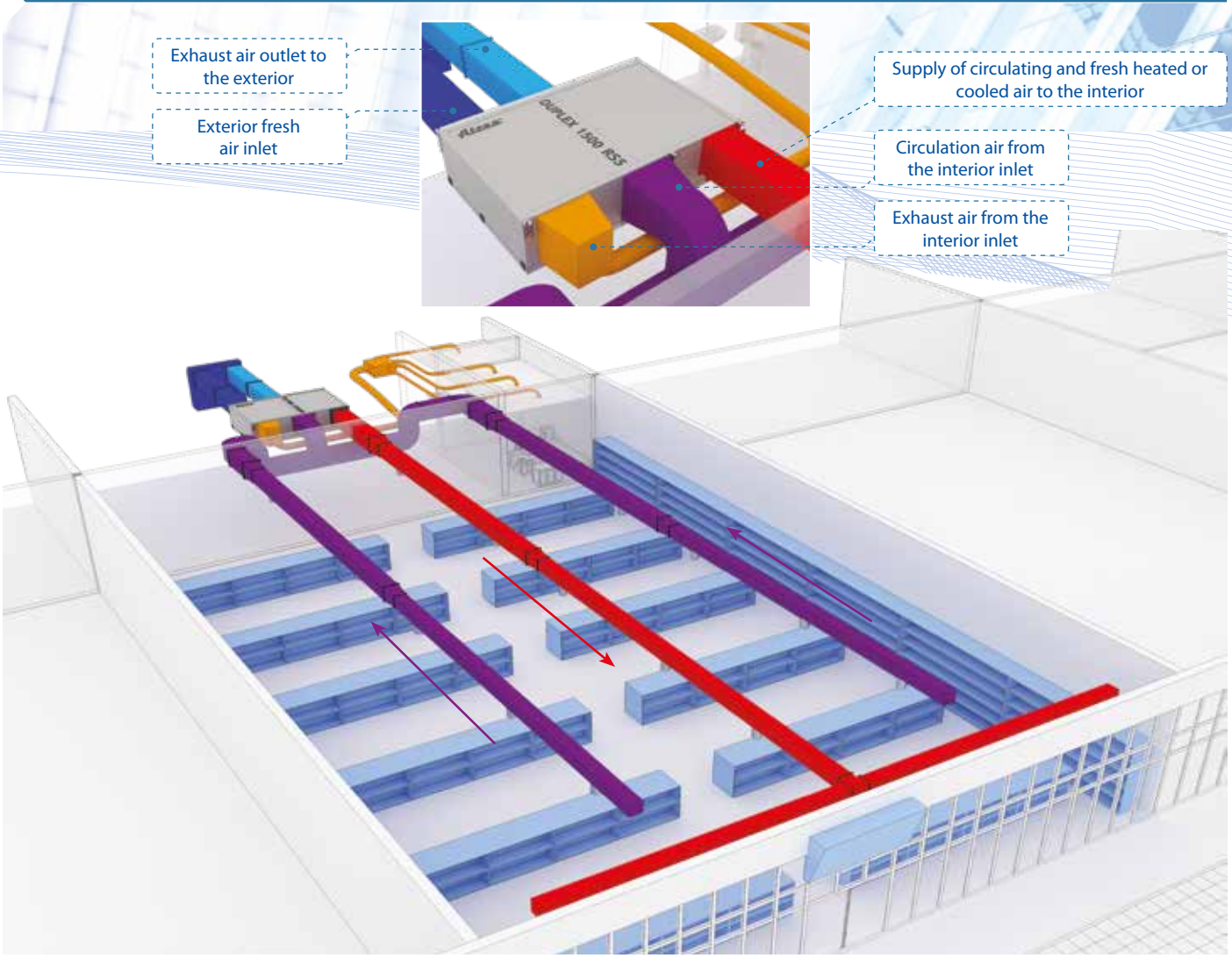
- e_1 – Fresh outdoor air inlet
- i_1 – Exhaust air inlet
- i_2 – Exhaust air outlet
- c_1 – Circulation air inlet
- e_2,c_2 – Fresh and recirculation air outlet

Shopping mall

Solution design

In recent years has become modern to construct shopping malls, which consist of individual shops of different sizes. The **DUPLEX RS5 unit series** is fully suitable for these kind of operation. It will provide ventilation, heating and cooling of the shop of up to 300 m² size. Fresh, heat-treated air is supplied mainly to the entrance part, towards the glazed surface. Circulation air is extracted from the entire space and exhaust air from the back of the shop, which usually serves as a warehouse, toilet and facilities for staff.

With one system, you will provide everything you need and at a low purchase price.



Showroom

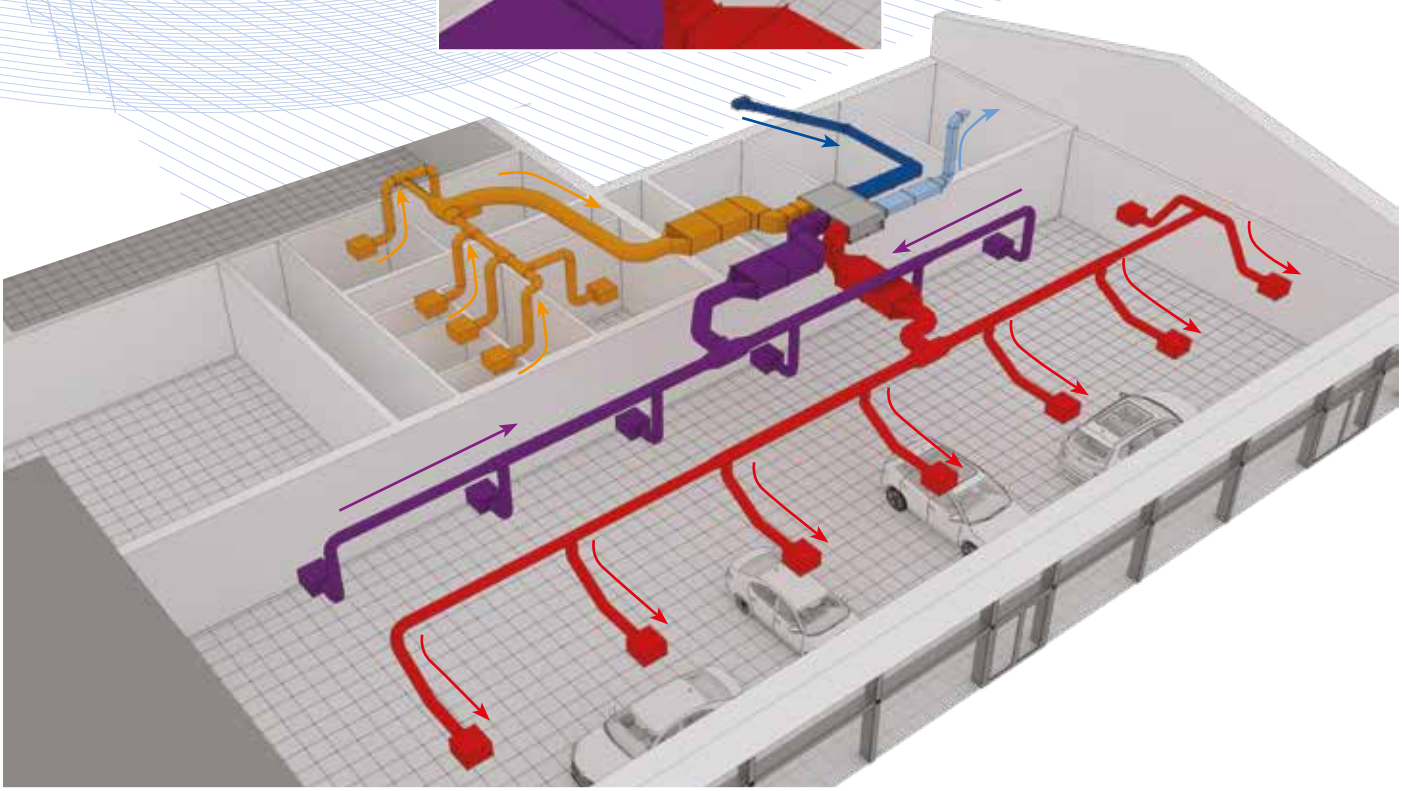
Solution design

The solution concept was designed for the **car showroom** and **other office, technical and service rooms connected to it**.

The main reason for the **use of DUPLEX RS5 units** was the requirement to **exclude radiators** from the store premises and to **ensure its heating and cooling**. Significant was also the requirement for **regular ventilation** of the showroom and removal of odors from polishing agents.

Hot air heating and cooling of the space using the circulation air **was the ideal solution**. Part of the circulation air passed through the heat recovery exchanger is replaced by ventilation air as required.

Air ducts were designed in under-ceiling or attic spaces with sufficient insulation. Thanks to height of the sales space, under-ceiling duct inlets could be used, which were chosen for the glazed parts of the building.



References

V-Tower Prague

One of the main landmarks of the capital city of Prague, with original exterior and interior appearance, offers appartment owners truly an original and comfortable living. The building is designed and realized to the last technical detail and our products have become an integral part. Only for this project, DUPLEX RS ventilation and circulation units were developed and subsequently manufactured, which guarantee the right ventilation of each appartment separately. At the sime time circulation air is adjusted to the required temperature and humidity. Units are centrally controlled, together with other systems, with guarantee of optimal microclimated in every apartment.

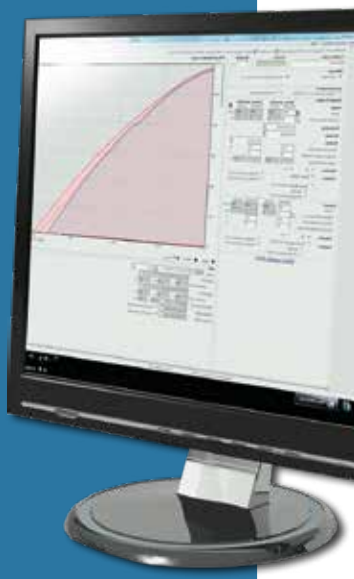
ATREA production hall

It's a building of a new production and logistics plant of a floor area of 75 × 160 m, with built-in hygienic and administrative facilities. Hot air heating and ventilation of the the production hall is provided by 12 HVAC units DUPLEX RS5 3600/1200, placed on landings under the ceiling. Heat losses caused by the operation of the ventilation unit are covered by built-in hot-water heaters. Fresh air supply is sucked from the exterior through suction valve and led through the supply duct to the air handling unit. The treated air is supplied from the units through ducts under the roof and supply nozzles. Circulation air is sucked by large-scale diffusers to the circulation spigot of the RS5 units. Exhaust air unsuitable for circulation (eg from toilets or welding) is led to the unit, where it transfers the heat to the supplied air (winter operation) or is led through the by-pass damper directly to the exterior (summer operation).

Central Depository of UPM Prague

The HVAC solution for central depository consists in the treatment of the inlet ventilation air in summer period, when it's necessary to prepare the air especially by it's dehumidifying. Fresh air is mixed in the unit with circulation air and in order to maintain the required temperature difference in the room between ±1 °C, temperature treatment is also done by built-in heating or cooling. This maintans the required indoor air parameters without significant fluctiations of temperature and relative humidity. DUPLEX RS5 unit series are ceiling-suspended and located outside the ventilation space. Compared to other depositories, this solution saved large spaces, commonly used for HVAC rooms and also spaces commonly used for long and large-diameter ducts from central utility rooms.

Selection software

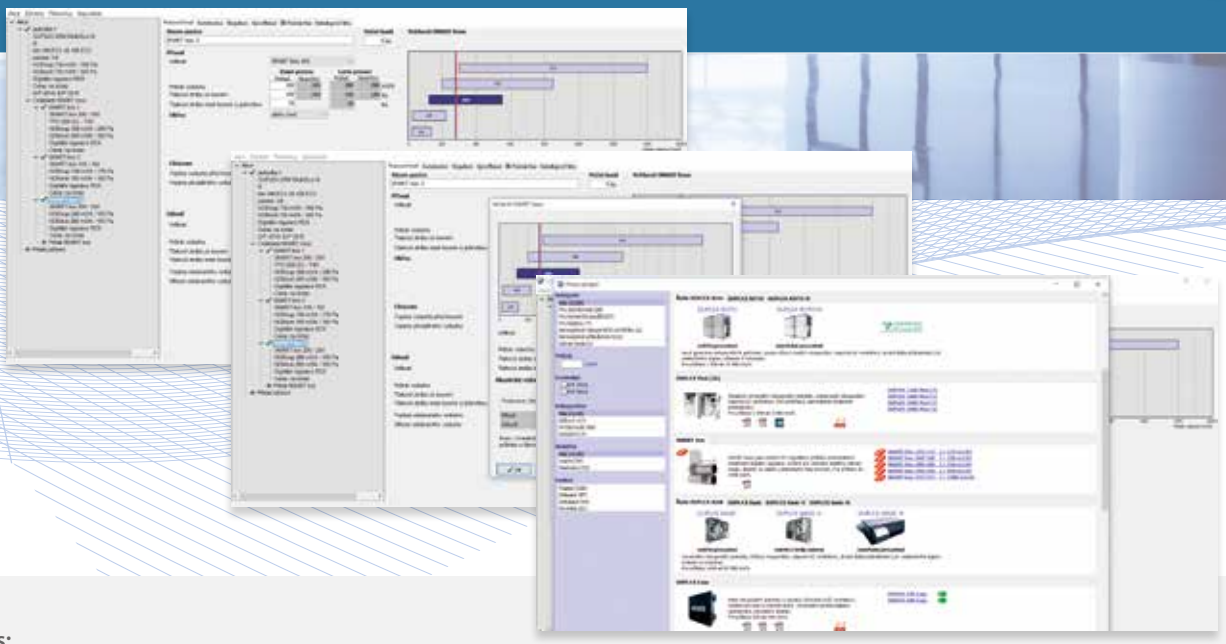


ATREA offers its proprietary design software that is a highly useful and practical tool to select DUPLEX series units and provides great technical and business support!

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, BIM support
- Sending the design and export by e-mail
- **Additionally, the design software includes a full catalogue of ATREA's products in PDF format.**

DUPLEX **RS5**

RS5 ADVANTAGES

1. Two casing sizes – up to 8 air flow perfomance sizes.

2. Elegant design – the units are designed in a very attractive design with a continuous emphasis on the maximum level of comfort of installers.

3. Up to 93 % heat recovery efficiency – counter-flow exchangers enable to achieve excellent heat recovery efficiency thus consequently reduces the energy costs.

4. 100 % customization for customer needs – DUPLEX RS5 unit series are highly variable. Designers can easily choose from 8 unit configurations.

5. Full-area opening door – All the components are easily accessible in the unit.

6. Integrated heating and cooling – all components are neatly included in the units so that installation and eventual servising is as easy as possible.

7. Internet interface as a standard – ATREA provides its products with internet connection as standard! Thus no extra expenses are needed. Via its built-in web server the units can be remotely controlled through the Internet.

8. Smart phones application – ATREA follows the modern trends and provides application that is iPhone and Android compatible. Thus a client can control all parameters of ATREA units easily with his smartphone.

9. A major decrease in servicing – the standard internet connection in ATREA units means not only comfort and a remote control option for the user, but also greatly simplified, more convenient and significantly cost-saving servicing. All this makes the subsequent operation of the units vastly cheaper.

10. BMS compatibility – communication with a higher-ranking system for BMS is a matter of course. As standard via Modbus TCP, optionally via BACnet or KNX protocols.

11. VDI 6022 hygienic design – the unit meets all requirements of key certification for hygiene versions under German standard VDI 6022 that start being internationally relevant. The RS5 units can therefore be successful in projects whose specifications require a healthy, clean and easy to maintenance product.

12. Ecodesign – the units meet requirement in accordance with Commision regulation (EU) No. 1253/2014 (Ecodesign).

DUPLEX **RS5**

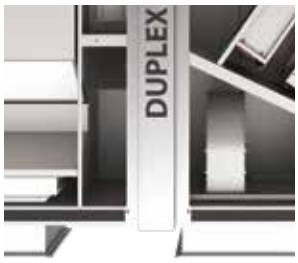
RS5 ADVANTAGES

Up to 93 % heat recovery efficiency

Plastic plate turbulent counter-flow heat recovery cores by ATREA enable to achieve a great level of heat recovery and subsequent cost savings.

Circulation / 100% by-pass valve

Circulation valve used for mixing exhaust and supply air, by-pass damper allows supply of fresh, cold and filtered air to the building.



Web server

A web server that allows running the unit over the Internet to drastically reduce the cost of servicing and indirectly also the market entry price of the unit.

1. Absolute customization – the great variety of possible construction including all needed positions gives a great advantage to place the units in any project.

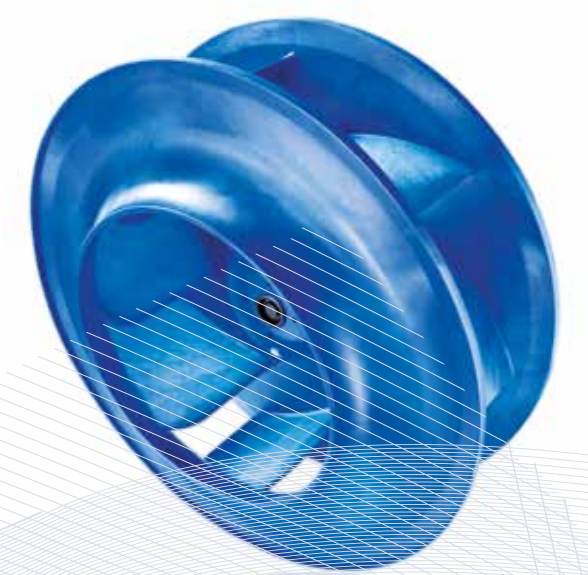
2. Short delivery time – despite the 100 % customization the delivery time is 3 weeks and earlier.

3. Vast reduction in servicing costs – Control via the Internet enables easy servicing including error message history, firmware updates and information on the current settings of the unit. As a result the time costs of the servicing department are vastly reduced.

4. ATREA selection software – All advantages are supported by the company's major marketing tool – its proprietary design software to help your clients design HVAC equipment easily, intuitively and efficiently. At the same time the software is used to efficiently check various designs for correctness and completion.

EC type FANS

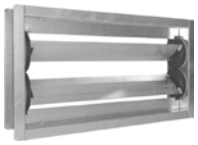
Fans from the world´s top producer Ziehl-Abegg and ebm-papst. The outstanding German quality helps eliminate servicing costs. RS5 units use backward bending blades fans to ensure great SFP.



OPTIONAL ACCESSORIES

Shut-off dampers

Shut-off dampers to be fitted on the suction port (the unit's inlet).



Spare filter cassettes

Spare filter cassettes in sizes according to the type of the unit. Supplied with G4, M5 and F7 class filters.

RE-TPO Control manifolds for hot-water air heaters

They are intended to control the heating performance of the hot-water heaters.

R-CHW control manifolds for chilled water coolers

They are designed to control the cooling performance of chilled water coolers.

EPO-V electrical re-heaters

Heaters to be installed in circular or rectangular ducts connected to DUPLEX units.

T Hot water heaters

Built-in hot water air heaters. There are several types available with different performance.

CHW chilled water cooler

Built-in chilled water air cooler. There are several types available with different performance.

CHF direct cooler

Built-in direct coolers. There are three types available with different performance.

Inclined manometers

A filter accessory for the easy visualisation of current pressure loss of the filters.

DUPLEX **RS5**

RD5 CONTROL SYSTEM

„high-tech" control system line with all comfort and possibilities

CP Touch controller (touchscreen)

CP Touch color variations

Control via internet

Smartphone application

INTEGRATED WEB SERVER AS STANDARD

A service technician is able to remotely check the setting, check any defect and promptly fix the problem.

- Remote software update with preserving user settings.
- Show error messages, including history.
- Intuitive and user friendly interface with display both basic and servis parameters.

Various functions of the RD5 control system:

- **Constant flow** – An option to fit sensors for constant flow control.
- **Constant pressure** – An optional accessory for constant pressure control.
- **CO_2 sensors, relative humidity sensors and air quality sensors** – An option to set the intensity of ventilation automatically based on those parameters.
- **Modbus TCP** – Communication with a higher-ranking system for BMS.
- **User preferences** – including setting weekly programmes for ventilation, heating and cooling modes.
  Immediate manual override settings for more convenience to the user as well as weekly programme control.
- **External inputs function** – ventilation switches as required.
- **Combined heating and preheating** (electrical or water based)
- **Zoning** – the ability to split the building into zones and define their operation.
- **BACnet / KNX** – optional converter enables connection to the superior system via BACnet or KNX protocol.

BUSINESS RS5

Why DUPLEX RS5

E **Easy** – Easy to integrate in the project.

S **Space-saving** – ceiling-suspended design does not take up space.

M **Money-saving** – heat treatment of circulation air saves money on heating or cooling of the space.

E **Efficient** – However compact, RS5 is perfectly efficient – up to 93 % of heat recovery efficiency.

- **With very short delivery time**
- **High-end RD5 control system**

RS5 Is the Way

ENGINEERING RS5

Perfectly isolated (class T2)
frame-less construction with minimal thermal bridges (class **TB1**).

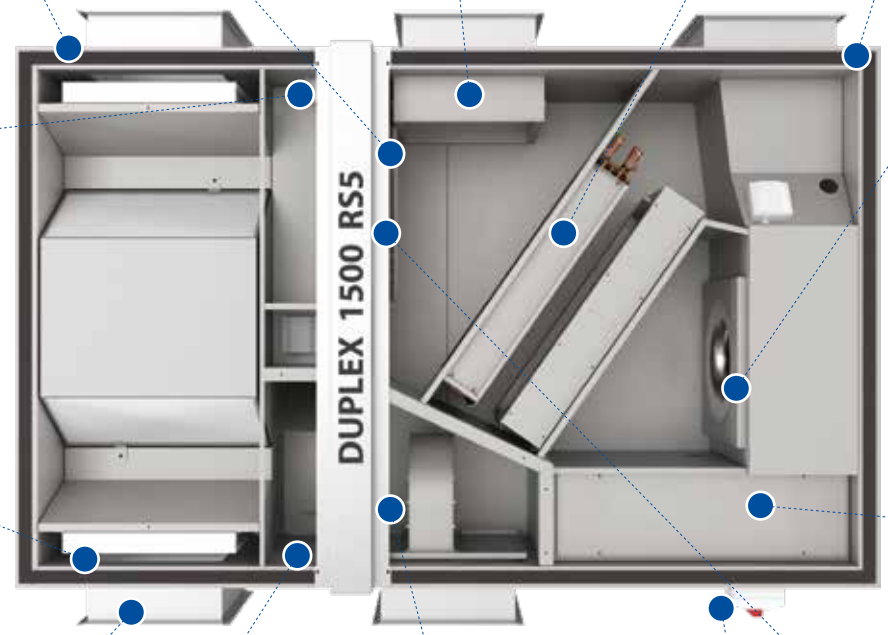
100% by-pass
facility provides a flow of cool, fresh and filtered air into the property.

Circulation damper
with motorized servodrive.

Built-in heating and cooling
with aluminium fins and copper tubes.

Sealing material
according to VDI 6022.

Pressure Sensors
for filter monitoring.



Low energy, maintenance free EC fan technology ensures long term savings on operating costs.

Built-in temperature sensors for the fully automatic operation.

RD5 control system
with internet and BMS connection as a standard.

Shut-off dampers
tightly close inlets.

Condensate drain
and condensate pan after heat recovery and cooling.

The new generation of counter flow heat exchanger
exceed with the thermal efficiency up to 93 %.

Safety switch
to shut off the power in case of emergency.

High quality servo drives
enable steady function of by-pass and circulation dampers.

ATREA s.r.o.
Československé armády 32
466 05 Jablonec nad Nisou
Czech Republic

e-mail: export@atrea.com

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