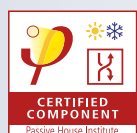




SMART BOX SYSTEM

COMPLETE VENTILATION SYSTEM





ATREA'S PRODUCT RANGE

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 2017 ATREA marketed a brand new concept for central ventilation **SMART Box system** giving designers, installers and architects another tool how to effectively ventilate public buildings, apartment blocks, schools, offices etc. This concept has given another potential to already existing wide range of ATREA's DUPLEX ventilation units with heat recovery and proves ATREA is a leading and innovative company in this field.

For more information please visit www.atrea.eu

ATREA'S PRODUCT RANGE

- Commercial ventilation
– air handling units from 500–15.000 mc/h
- Residential ventilation
– air handling units from 170–500 mc/h
- Kitchen ventilation
– whole area ventilation ceilings and kitchen hoods
- School ventilation by ATREA
- **SMART box ventilation system**



SMART box system

○ What is SMART box system?

SMART box system by ATREA is the only comprehensive solution on the market, linking together a central heat recovery air handling unit, up to 63 individually controllable decentralized VAV boxes and a cutting-edge control system including sophisticated controllers and a service interface for each flat or office.

○ Why SMART box system?

SMART box system by ATREA is unique, because it is supplied by a single producer as a complete set – a top-of-the-range comprehensive control system, ensuring error-free operation of the entire system, as well as each mechanical component. **Thus, one supplier provides warranty on everything.**

○ Where SMART box system?

SMART box system by ATREA can be used as an economical and technically beneficial decentralized ventilation solution as well as centralized one, particularly in apartment buildings, schools and offices – every place where air change demands vary from one part of the building to the next.



Main advantages of the SMART box system:

○ Economical operation:

(owners, end users, designers)

Not only does the SMART box system save energy by providing 92 % heat recovery efficiency in conjunction with ATREA ventilation units, but ATREA is the only company offering its own system concept, which instead of maintaining constant pressure the performance of the central unit lowers in response to current demand from flats or offices as a result of intelligent communication between each SMART box and the unit. This optimization extremely lowers the system's running costs.

○ Packet system:

(installers, owners, designers, facility managers):

ATREA now provides a comprehensive system. A single supplier (producer) guarantees error-free operation of the entire system, from each central box, ventilation unit to a fully functional control system.

○ Service:

(installers, owners and housing associations)

ATREA's SMART box system concept is also a perfect solution for installers and follow-up system servicing as everything is clearly visible through remote administration and an internet interface. The revolutionary feature of ATREA's SMART box system is that it is possible to monitor the performance of each SMART box using a web interface, making any servicing as simple and efficient as possible.

○ Billing allocation:

(end users, housing associations)

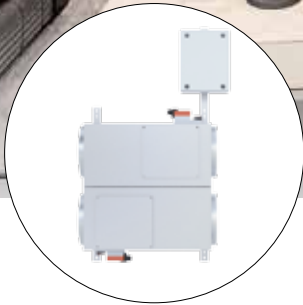
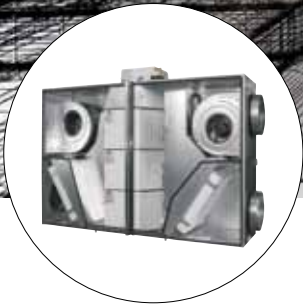
Another truly revolutionary option offered by the SMART box system concept is the allocation of bills per flat, office or any other part of the entire HVAC system in the same way it is done with water or power bills.



SMART box system

The SMART box system is an across-the-board system, joining together a central air handling unit, located either on the roof or in the technical room, individual VAV boxes and a top-of-the-range control system which provides a revolutionary option of fitting each of the VAV boxes with a controller for simple control by the end user. On top of that, the current performance of each of the boxes can be monitored in real time using a web service interface, a feature to be greatly appreciated by service technicians.

COMPLETE CONCEPT



Central DUPLEX unit

The basis of the SMART box system is a compact heat recovery air handling unit, located anywhere inside or outside the building as chosen by the designer.

SMART boxes

The heart of the SMART box system is a VAV controller. Compared with conventional devices, it has a wider range of settings and control options and above all minimizes energy demands.

Control system

The roof and heart of the whole system is the cutting-edge RD5 control system, offering full control of each box through a web interface or using a touch-screen controller.

Internet connection

This oversees the entire system for its administrator, at the same time allowing the users to control it using computers and smart phones.



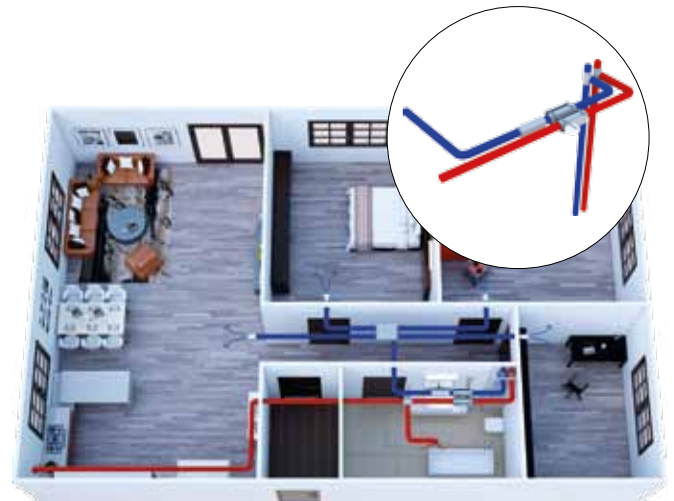
SMART box system

The SMART box system is designed in a way to be entirely all-purpose and allow versatile use of each of the boxes as required by individual projects. The inlet and outlet sections of the SMART box system are simply selected using the service interface provided by the cutting-edge RD5 control system. This parameter is set by a service technician during system commissioning.

DESIGN OPTIONS

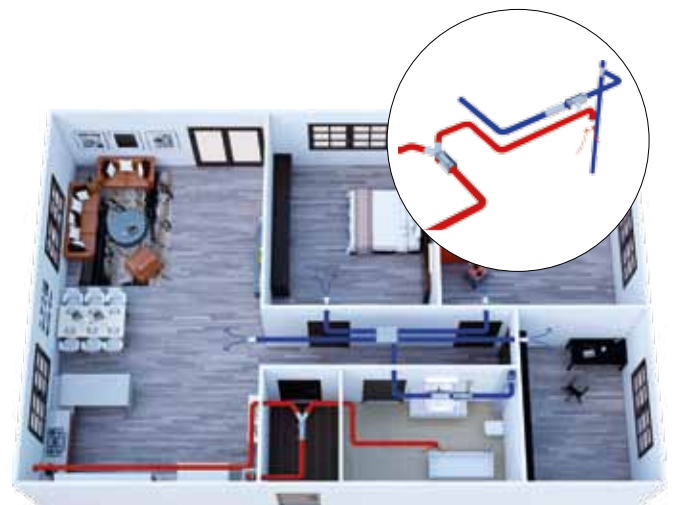
Compact design:

The inlet and outlet pipes are joined together using an installation frame and mounted next to each other so that they could be provided with a casing to make a compact SMART box.



Split design:

The inlet and outlet pipes may be installed separately in another part of the room as required by the designer. The maximum distance between the two components is 20 metres.





SMART box system – benefits



For DESIGNERS

Packet system

– Clearly, the main advantage for designers and installers is the complete system and the fact that a single supplier is responsible for the operation of both the mechanical components and the cutting-edge control system that tops everything off.

For INVESTORS

Comprehensive solution

– The key advantage for owners is that ATREA's SMART box system concept combines a central air handling unit, up to 63 SMART boxes, a top-quality control system and remote access – and the company fully guarantees trouble free operation of the entire system, eliminating multiple-supplier responsibility as is often the case on the market.

- **Economical project**

– The absolute adjustability and precise optimization of the HVAC equipment reduces the subsequent operating costs of the entire system.

- **Initial investment costs**

– Compared with decentralized systems, the SMART box system is apparently much cheaper (a specific rate of return must be calculated against a specific decentralized system).

- **Cheaper insulation**

– Unlike in decentralized systems, the central unit-based system eliminates the need to insulate inlet and outlet ducts in the building. This cost reduction alone may prove an extremely attractive advantage in large apartment buildings.

- **Lower maintenance costs**

– No condensate drain necessary inside the flats, users do not have to replace filters and the system is practically maintenance-free. All this is done centrally at the unit.

- **Simple servicing**

– It is the top-of-the-range RD5 control system and detailed service interface that allow service technicians to monitor the performance of each separate SMART box. This extremely simplifies servicing, which obviously positively affects servicing costs.

- **Flexibility of control**

– Compared to many of its competitors ATREA offers in the shape of the SMART box system with its completely individualised and simple choice of controls, which may vary even for each flat and consequently each SMART box.

Competitive products do not provide such individualization. What makes SMART Box system by ATREA interesting is its variability, which makes it easy to install and use in projects, additionally offering fully individualised and separate control of each single SMART box.



SMART box system – benefits



For END-USERS

Allocation of bills according to actual consumption

– Thanks to the comprehensive SMART box system and top-of-the-range digital control it is possible to determine precisely the percentage of utilisation of the central HVAC system per flat or office. This enables the allocation of total billed amount in the same way it works with heating and water bills.

● Noise

– There is no doubt that the elimination of noise in flats, offices or classrooms is the crucial advantage for end users. Unlike in decentralized systems, the source of noise (air handling unit) is located on the roof of a building or in a utility room, far enough for quiet operation of the system.

● Space

– The compact design of the SMART box system requires very little space in the plasterboard suspended ceiling of each room. This eliminates the issue as to where to place it. Furthermore, there is no need to install a condensate drain as in the case of decentralized systems.

● Service costs

– SMART boxes are essentially maintenance-free devices as a result of their simplicity and top-quality components used (Belimo actuators and the cutting-edge control systems). Thanks to this any servicing concerns the central unit, which is a much simpler and cheaper solution when it comes to cost sharing among individual users in apartment buildings, for instance.

● Immediate functionality check

– A controller for each SMART box and the remote web interface allows each flat, office or classroom user to simply check and set the immediate performance of their equipment.

● Zero servicing

– Compared with decentralised systems, end users comfortably pass organization, commissioning and overall servicing on to their housing association or facility manager as the system is a central one for the entire building, and this approach is therefore very convenient for the end user.

● Accessories

– A wide range of sensors and other accessories such as heating and cooling allow end users to set indoor climate very comfortably, fully maintaining with their individual requirements.



SMART box system



CONTROL SYSTEM ACCESSORIES

Smartphones access



Control via internet



Control panels (touchscreen / simple; optional choice)



CP Touch (touchscreen)



CP 10 RT (simple)

Built-in web server as standard

Remote control via the Internet and an option to check all settings of the unit to enable service technicians to determine the kind of malfunction before departing for servicing or even remotely "fix" the unit.

- Remote access firmware updates with maintaining the user parameter settings.
- Displaying current error messages.
- Displaying error message history. The unit records the time and date of power-on; also malfunctions resulting from power cuts can therefore be identified.
- An intuitive user interface with a well-arranged menu of all service parameters and more user-friendly display of all user settings

Optional accessories

Sensors (CO₂, rH, ...)



Signals 0-10V



Signals OFF / ON



Signals 230 V (bathroom, toilet)

Dampers



2 zone dampers



1 kitchen extractor

Heating and cooling



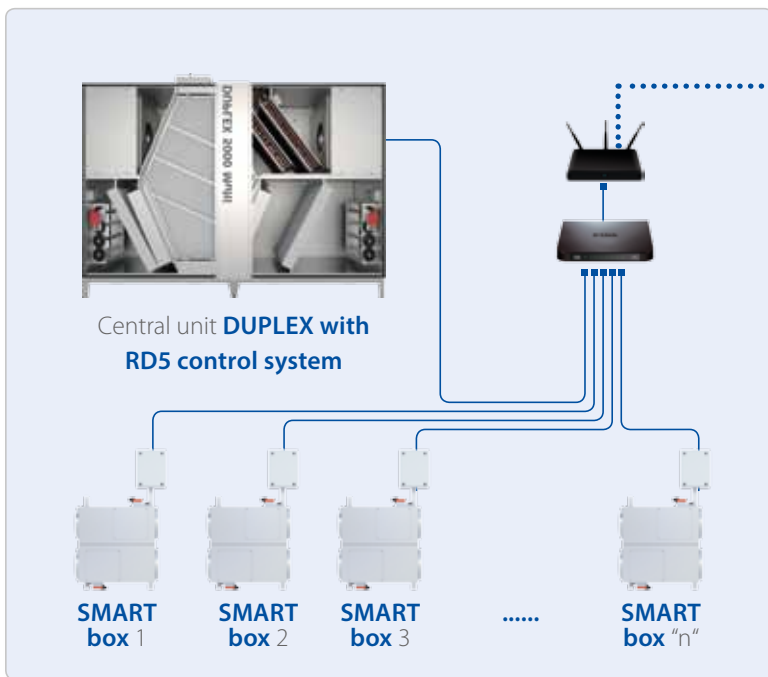
Electrical heater



Hot-water heater



CONTROL SYSTEM



ATREA connect server



SMART box user



SMART box user



System administrator

Basic topology schematic

The system is based on individual SMART boxes and a central DUPLEX air handling unit with RD5 digital control system.

All devices are linked together in a closed communication network (Ethernet interface), ensuring continuous communication between each of the elements and their mutual optimization.

A router connects the entire system to the Internet, at the same time linking ATREA to the connect server. This service enables remote administration of the system using access passwords and provides each user with remote access to control each individual SMART box. The router is included in the package as standard.

Zoning (tip for the designers!)

Air supply zoning ensures optimum airing of the room based on occupancy or demand.





SELECTION SOFTWARE



www.atrea.eu

Try it – ATREA's selection software in 17 European language versions!

ATREA offers its proprietary selection software that is a highly useful and practical tool to select the right system 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:

- **Possibility to design the whole central system, not just individual parts.**
- 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 format
- Sending the design and export by e-mail
- **Additionally, the selection software includes a full catalogue of ATREA's products in PDF format.**





SMART box system

DESCRIPTIONS AND SIZES

Inspection opening
for accessing the inside of the box.

Control module

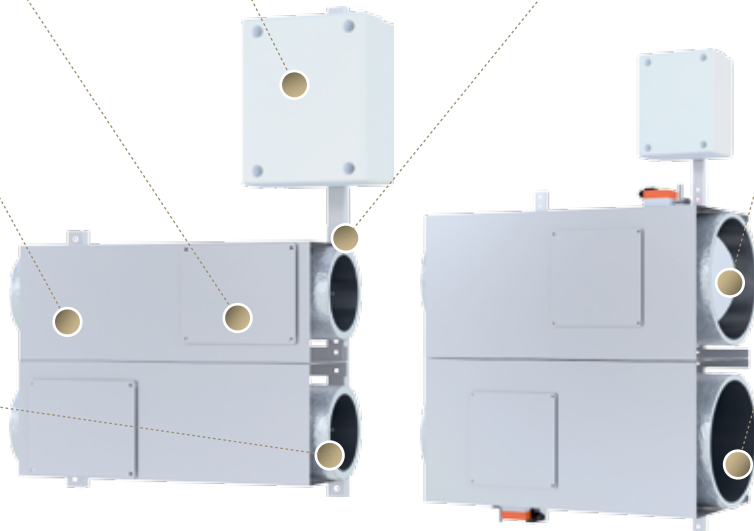
Base frame
for easy and fast installation and simple assembly on site.

Control dampers
including seals.

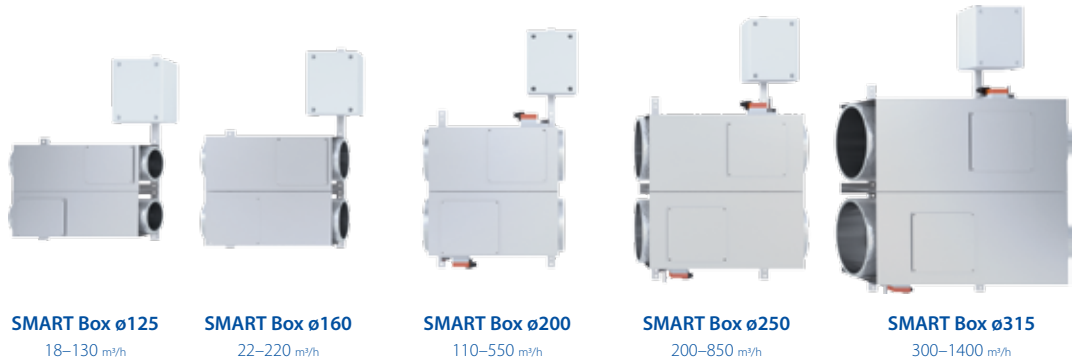
Belimo actuator
with integrated air flow rate measurement.

Orifice gauge
inside the controller.

Tube
including self-adhesive insulation.



SMART box sizes:



SMART Box ø125
18–130 m³/h

SMART Box ø160
22–220 m³/h

SMART Box ø200
110–550 m³/h

SMART Box ø250
200–850 m³/h

SMART Box ø315
300–1400 m³/h



ATREA[®]

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

email: export@atrea.eu