



Participant: Vent-Service LLC.
Commercial range name: GreenStr.
Aeroselect selection software version 2.0.4.24 (10-11-2024)
Certificate number: 19.04.077
www.eurovent-certification.com

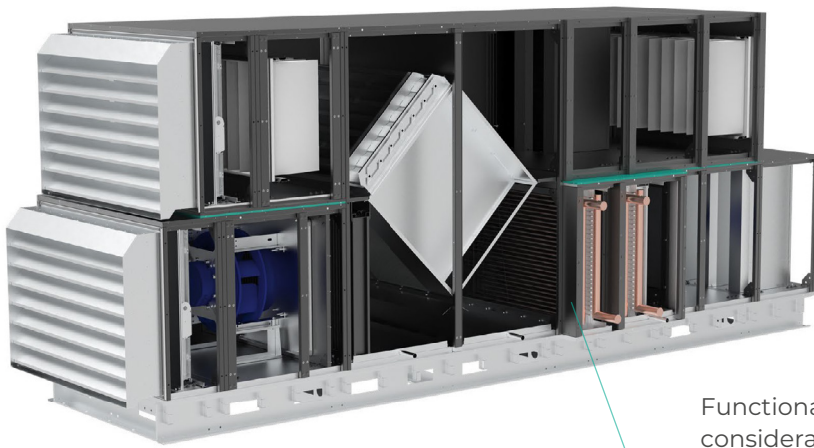
GreenSTR

Multifunctional Air Handling Unit

PERFORMANCE: FROM 1000 M³/H TO 25,000 M³/H



Solutions that work



FIELDS OF APPLICATION:

Suitable for various types of facilities, including medical institutions and other premises with high cleanliness requirements.

Functional modules are designed with consideration for necessary parameters: installation dimensions and construction openings, simplifying the assembly process of ventilation units on-site.

ADVANTAGES

88% Resource Savings:



80% HEAT RECOVERY UNITS

Reduce total energy consumption by up to 80% and contribute to environmental protection.



5% EC MOTORS

Energy-efficient EC motors help reduce operating costs by at least 5%.



3% IMPELLERS

Advanced fans with backward-curved blades:

- Increase efficiency;
- Reduce energy consumption by 3%;
- Minimize noise levels.



Automation is developed individually for each unit, enabling optimal performance management.



Precise design and exclusive AeroSelect selection software.



Units feature a variety of energy-saving technologies, maximizing efficiency while minimizing resource consumption.



Minimal equipment production time.

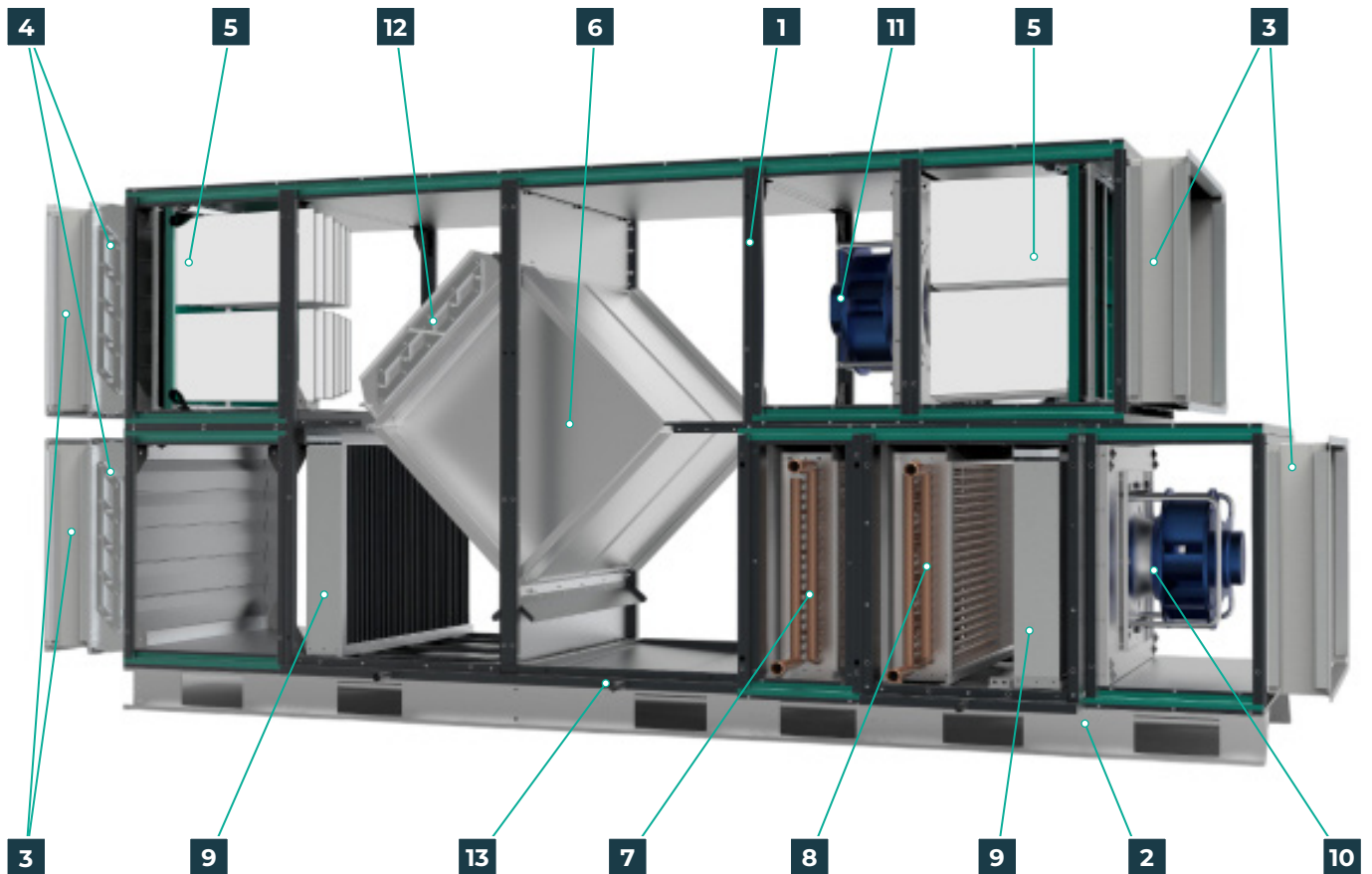


Medical-grade unit options available.



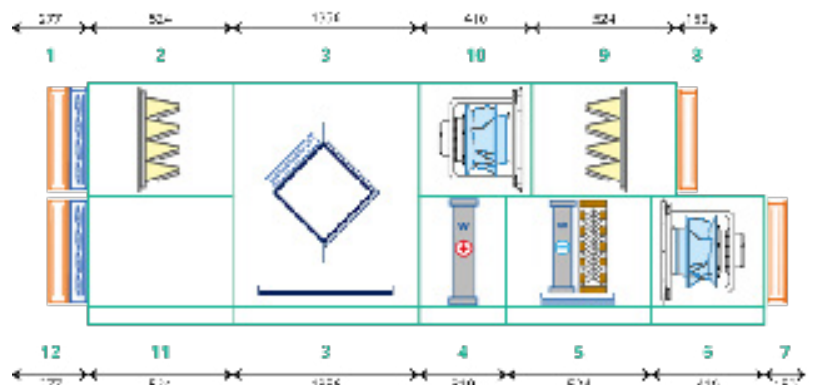
Custom solutions for all room types.

GREENSTR WITH PLATE HEAT EXCHANGER

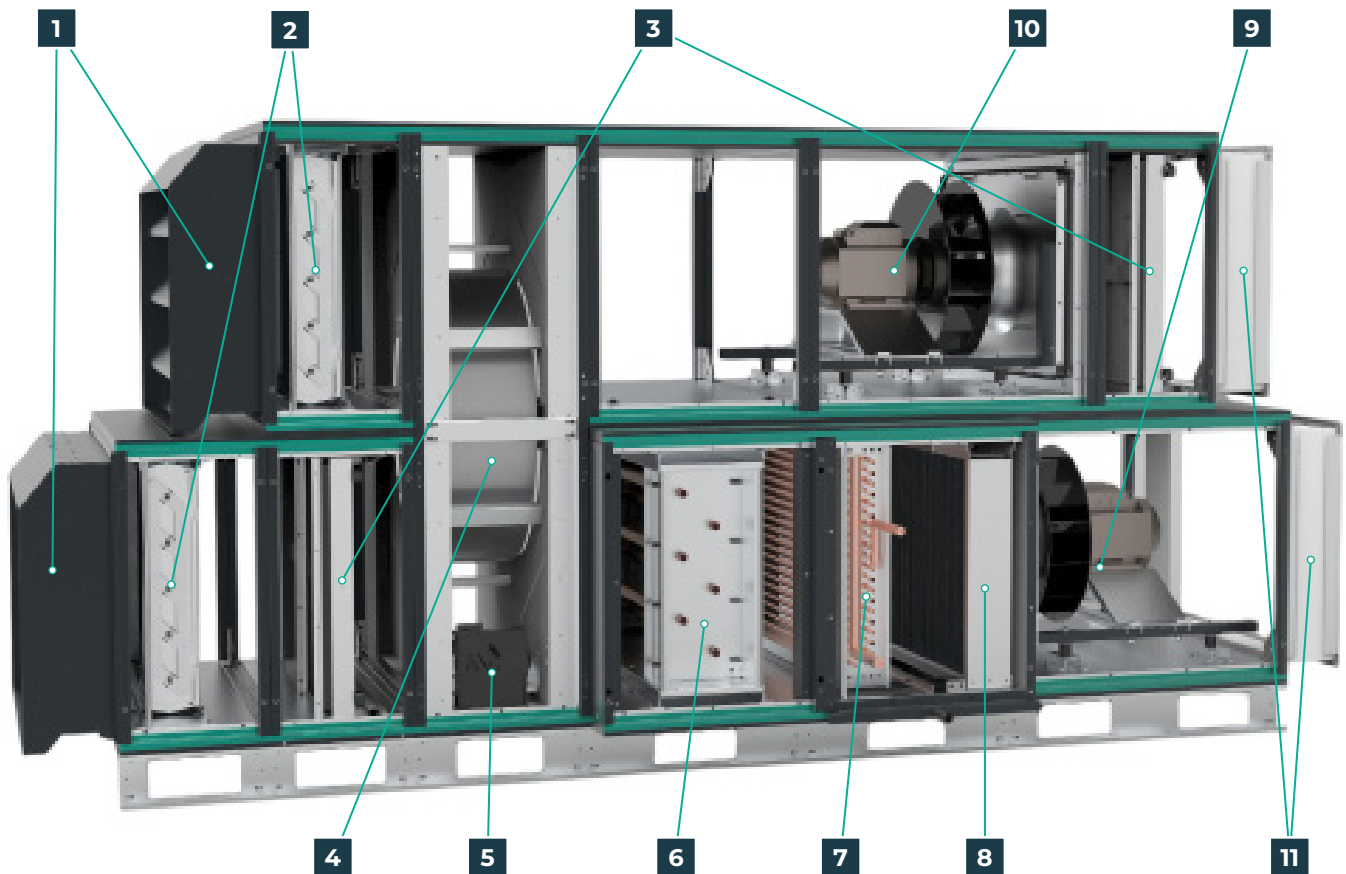


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|--|--|
| 1. Innovative PVC profile casing. | 7. Water heater. |
| 2. Section frame 120mm high, made of quality galvanized metal. | 8. Water cooler. |
| 3. Flexible connector. | 9. Droplet separator with plastic lamellas. |
| 4. External air damper. | 10. Supply EC motor manufactured in Germany. |
| 5. Pocket filter G4 (filters of other classes available upon request: M5, F7, F9). | 11. Exhaust EC fan manufactured in Germany. |
| 6. High-efficiency cross-flow plate heat exchanger. | 12. Bypass damper. |
| | 13. Condensate collection pan. |

**Schematic View
of the GreenSTR Unit**

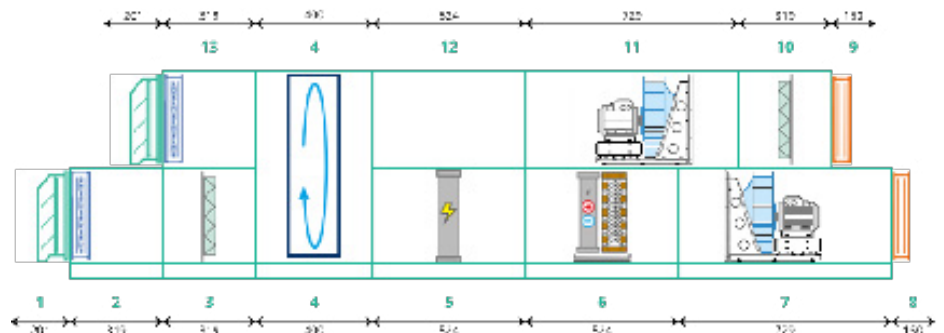


GREENSTR WITH ROTARY HEAT EXCHANGER



- | | |
|---------------------------|--------------------------|
| 1. Air grille. | 7. Freon heat exchanger. |
| 2. Dampers. | 8. Droplet separator. |
| 3. Cassette filter. | 9. Supply AC fan. |
| 4. Rotary heat exchanger. | 10. Exhaust AC fan. |
| 5. Motor-gearbox. | 11. Flexible connector. |
| 6. Electric heater. | |

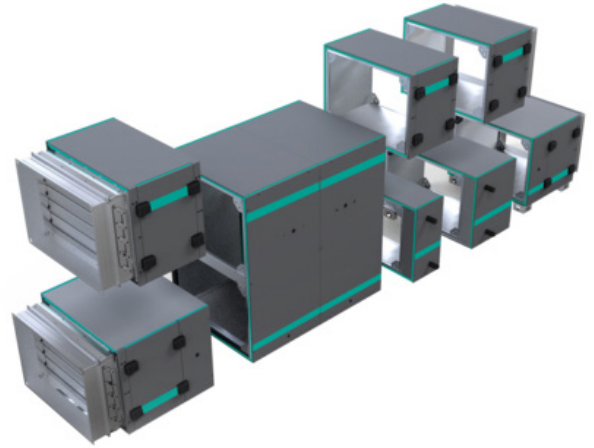
**Schematic View
of the GreenSTR Unit**



STANDARD GREENSTR CONFIGURATION

CASING

GreenStar units feature a **frameless design** composed of **metal panels filled with mineral wool**. Structural strength is achieved through **labyrinth-style panel connections** and a **specialized frame**. **High-zinc-content metal** and **ultra-durable anti-corrosion coating** allow for installation indoors and outdoors in all building types. **Outdoor units are equipped with a roof, air intake hood, and protective canopies**. Air dampers and automation are mounted internally.



SANDWICH PANELS

Provide enhanced structural strength, thermal and sound insulation.

Thickness: 50 mm.

Filler: Mineral wool, density - 50 kg/m³.

- ▶ Minimized heat loss.
- ▶ High-sealing air damper (with heating option).
- ▶ Minimal energy loss per square meter of surface area.
- ▶ Reinforced PVC profiles.
- ▶ Powder epoxy coating on both interior and exterior surfaces.
- ▶ Simple and airtight section connections.
- ▶ Reduced unit weight.
- ▶ Shorter production time.

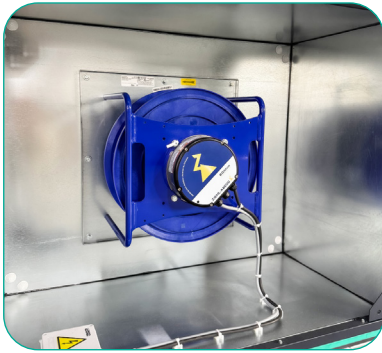


ITALIAN HARDWARE

Equipped with high-quality, ergonomic Italian hardware: locks, handles, hinges.

Doors can open in any direction or be removed.

AC MOTOR



AC motors are alternating current motors (**AC = alternating current**) with typical single- or two-speed control (star/delta). Additional control components, such as a frequency converter or transformer, are required for speed switching or more precise speed regulation. Mounted on a vibration-resistant frame, separated from the unit casing. Ideally adapted to the aerodynamics of the ventilation system.

Long service life.

Relatively cost-effective.

Input voltage: 1~230 V, 50 Hz; 3~230/400 V D/Y, 50 Hz; non-standard voltages and 60 Hz solutions available.

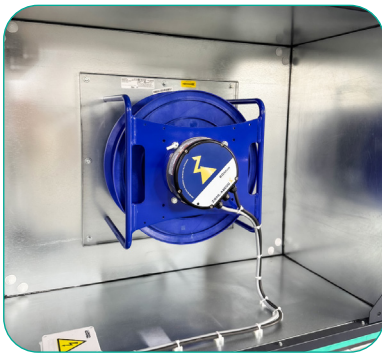
Energy efficiency classes: IE2, IE3.

Protection rating: IP 55.

EC MOTOR

EC motors have a wider speed range and smooth speed control. These motors allow precise adjustment of the operating point across the entire working range. This means the fan consistently delivers the exact power required for uninterrupted operation and high efficiency. As a result, EC drives outperform AC motors, especially under partial load conditions. They comply with IE5 energy efficiency class and are pioneers from both environmental and economic perspectives

Equipped with a frequency converter that allows rapid achievement of the operating point.



High operating pressure: up to 2500 Pa.

Wide nominal voltage range:
1 ~ 200..277 V or 3 ~ 380..480 V, 50/60 Hz.

Long service life: over 80,000 hours of continuous operation.

EC ELECTRIC MOTOR WITH EFFICIENCY ABOVE 90%

- ▶ An EC electric motor with efficiency above 90% saves at least 30% more electricity than an AC motor.
- ▶ Complies with the ErP 2015 directive.
- ▶ Built-in EMC filter protects against phase loss and undervoltage in the power network.
- ▶ Protection against motor and electronics overheating, as well as rotor blockage.
- ▶ No starting current surges.

- ▶ Does not require maintenance.
- ▶ Absence of a frequency converter saves installation space..
- ▶ Allows for an increase in rotational speed by up to 10%.
- ▶ The EC motor optionally supports the MODBUS RTU protocol.

Optional: Use of **Flow Grid** technology – an airflow straightening grid.

METAL IMPELLER



Welded steel construction.

Static pressure: up to 2500 Pa.

Static efficiency: up to 73%.

High-quality balancing: G2,5.

COMPOSITE IMPELLER



ZAmid — high-quality composite material.

Three-dimensional blades shaped like water droplets.

Profiled blade design.

Low noise level.

Static pressure: up to 2500 Pa.

Static efficiency: up to 75%.

HEAT RECOVERY UNITS

The heat recovery system allows for the reuse of energy from exhaust air to heat or cool incoming outdoor air. Using a heat recovery unit enables the regeneration of **up to 90% of the energy from the exhaust air**.



ROTARY HEAT EXCHANGER

Moisture recovery depends on the temperature difference between outdoor and exhaust air.

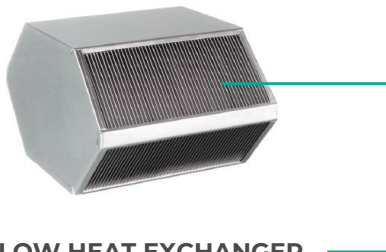
Equipped with a high-efficiency brush seal.

Foil thickness: from 1.4 to 1.8 mm.

Foil wave height: from 1.6 to 2.5 mm.

Efficiency: up to 88%, depending on unit size and operating parameters.

Variable-speed electric drive for maintaining maximum efficiency and adjusting the level of energy recovery. Motor overload protection.

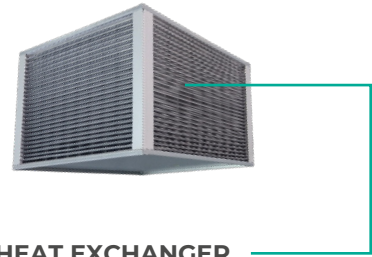


COUNTERFLOW HEAT EXCHANGER

Counterflow air movement ensures high performance with low pressure loss across the entire air distribution surface.

Made from marine-grade aluminum. Precise factory manufacturing. Meticulous craftsmanship – flawlessly smooth surfaces. Ensures airtightness of the air conditioning system.

The heat exchanger is manufactured without the use of screws or rivets. High strength. Frost-resistant. Heat-resistant. No risk of hazardous vapor leakage in case of fire.



CROSS-FLOW HEAT EXCHANGER

Thanks to the plate heat exchanger, two air streams — such as warm exhaust air and cold supply air-pass alongside each other without mixing, through thin plates.

Energy exchange occurs on the surface of the heat exchanger plates, with no mixing of the two airflows.

Efficiency: up to 85%, depending on unit size and operating parameters.

Corrosion-resistant aluminum foil.

*Epoxy resin coating available (optional).

Strong plate connections due to double folding; pressure stability ensured by fivefold material thickness.

Plate structure: embossed plates, spacing between plates from 3.8 to 11.5 mm.

Airflow capacity: up to 25,000 m³/h.

The plates form a sealed casing through the diffusion of an adhesive sealant, which gives the device the following characteristics:

- ▶ High airtightness;
- ▶ Hygienic operation due to complete condensate drainage.

Efficiency up to 90% guaranteed by patented technology. Ideal plate geometry.

Low pressure loss achieved through computer modeling.

100% of the products are leak-tested.

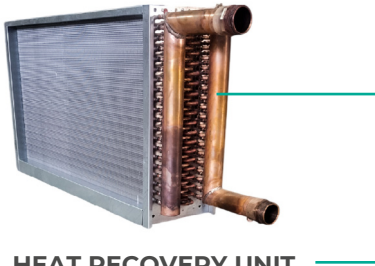
Certified by Eurovent, RLT, and AHRI.

Bypass installation possible.

COMBI solution.

Epoxy-coated version available.

HEAT EXCHANGERS



GLYCOL HEAT RECOVERY UNIT

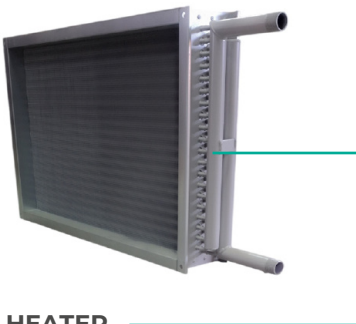
Consists of **two heat exchangers**: one located in the exhaust air stream, the other in the supply air stream.

The main advantage of this heat recovery unit is the ability to be used when airflows are positioned at a distance from each other.

Used in systems where mixing of air streams is NOT permissible.

The heat exchanger in the exhaust air stream captures thermal energy and transfers it via a circulating heat transfer medium — a water and glycol solution — to the heat exchanger installed in the supply air stream.

| Glycol heat recovery unit efficiency: up to 70%.

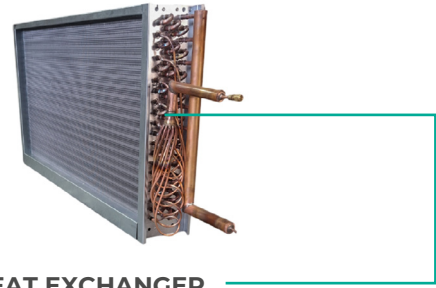


WATER HEATER

The heater casing is made of galvanized sheet metal. The tube collectors are welded from steel tubes with a synthetic paint surface coating.

The heat exchange surface consists of 0.1 mm thick aluminum fins mounted on copper tubes. Standard design is two-row with alternating geometry.

All heaters are leak-tested with air at 2 MPa pressure for 5 minutes under water.



FREON HEAT EXCHANGER

The freon heat exchanger consists of copper tubes, aluminum fins, and a galvanized steel casing. It can operate in both heating and cooling modes.

A droplet separator is installed near the heat exchanger.

The heat exchanger and droplet separator are mounted in a painted or stainless steel condensate tray.

During production, the heat exchanger is tested in a bath under 40 atm pressure, after which it is filled with nitrogen, which is released upon connection to the system.

The following refrigerants are used as filling agents: R123, R134a, R152a, R404a, R410a, R407c, R507, R12, R22 (ASHRAE Number).

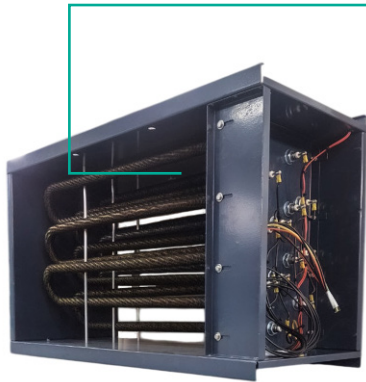


WATER COOLER

The cooler casing is made of galvanized steel. The collectors are welded from steel tubes with a synthetic paint surface coating.

The heat exchange surface consists of 0.1 mm thick aluminum fins mounted on copper tubes. Downstream of the heat exchanger, a droplet separator is installed to effectively capture condensate and direct it to the collection tray.

The condensate collection tray is made of painted galvanized steel or stainless steel.

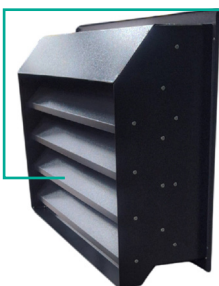


ELECTRIC HEATER

The heating rods are made of steel with a finned surface. They are installed in a galvanized steel casing. The electric heater is equipped with two-stage overheat protection.

The first-stage sensor (with automatic reset) activates when the air temperature at the heater casing reaches 60°C.

The second-stage sensor (with manual reset) activates when the air temperature at the heater casing reaches 90°C.



AIR GRILLE

The air grille is installed on outdoor units. It serves a protective function, specifically preventing foreign objects and precipitation from entering the unit during operation.

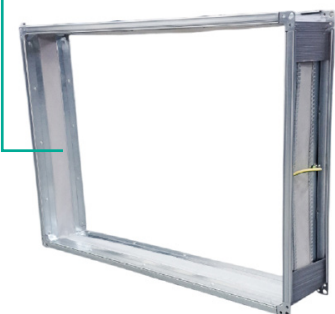


AIR DAMPER

The air damper is designed to regulate the flow of air and explosion-proof gas mixtures passing through the air duct, or to block the ventilation channel.

The casing is made of galvanized steel, and the blades are made of anodized aluminum.

Damper air tightness is achieved through rubber seals installed on each rotating blade.



FLEXIBLE CONNECTOR

The flexible connector is designed to prevent the transmission of vibrations from the unit or fan section to the air duct, as well as to partially compensate for thermal deformation of the air duct.

The flexible connector consists of two flanges connected by a vibration-isolating material. Connectors are not intended to bear mechanical loads and must not be used as a supporting structure.



CASSETTE FILTER

- Durable galvanized metal frame.
- Filter material mounted on mesh.
- Made from polyester fibers.

Filtration class ISO 16890: Coarse 70%, ePM10 60%, ePM2,5 75%.

Operating temperature: up to 80°C.

Operating humidity: ≤ 100%.



POCKET FILTER

The pocket design **increases the filtration area** and ensures maximum efficiency. The frame is made from a PVC plastic profile.

Filter material: polyester / micro-glass fiber.

Filtration class ISO 16890: Coarse 70%, ePM10 60%, ePM2.5 75%.

Operating temperature: up to 80°C.

Operating humidity: ≤100.



GREASE FILTERS

Grease Filter FVP-ZhKS consists of layers of corrugated mesh placed within a cassette cartridge.

The use of galvanized steel construction makes the filter housing resistant to corrosion and high temperatures, while the polymer coating provides protection against all types of mechanical damage.

Filtration class EN 779: G2.

Filtration class Eurovent 4/5: EU2.

Filter material: galvanized / stainless steel mesh.

Frame material: painted galvanized steel.

Fire safety class DIN 53438: Fire-resistant.

Operating temperature: ≤ 200°C.

Operating humidity: ≤ 100%.

Filtration efficiency [Ea]: 75%.

MODULAR FILTERS

For effective air filtration, ventilation filters are used to clean supply and exhaust air from dust and other contaminants. Additionally, such filtration devices are essential for purifying air masses at nearly all industrial enterprises to maintain proper air cleanliness in accordance with sanitary standards. First and foremost, all filtration devices differ in their level of air purification, and the quality of the filters directly affects the overall service life of the ventilation system. Cassette and pocket-type filters are used.

Filter Groups	Particle Size (µm)	Classification Criteria
ISO Coarse	$0.3 \leq x \leq 10$	Average efficiency < 50 %
ISO ePM10	$0.3 \leq x \leq 10$	Average efficiency ≥ 50 %
ISO ePM2,5	$0.3 \leq x \leq 2,5$	Minimum efficiency ≥ 50 %
ISO ePM1	$0.3 \leq x \leq 1$	Minimum efficiency ≥ 50 %

AUTOMATION

Depending on customer preferences, units can be equipped with automation and control devices that ensure uninterrupted and efficient operation within specified parameters.

The automatic control system can be configured in two versions:

- ▶ **Built-in** — Installed at the factory within a unit section (typically a dedicated section for automation, or within the plate or rotary heat exchanger sections). The control panel is mounted, and all automation components (temperature sensors, pressure switches, etc.) are installed and connected. The installation team only needs to connect the power cable to the unit, after which it can be commissioned for operation.
- ▶ **Non-built-in** — The unit sections are delivered to the site with automation components and the control panel included as part of the package. All components must be installed on-site in accordance with the installation instructions for the specific unit.

AUTOMATION ALLOWS:

- ▶ Switching the unit on/off via the control panel.
- ▶ Selecting one of three speeds or automatic mode.
- ▶ Automatic pressure maintenance with a function to automatically reduce performance at low outdoor air temperatures.
- ▶ Power regulation of the electric heater at low outdoor air temperatures.
- ▶ Air heating function in the controller (selection between water or electric heating).
- ▶ Heating temperature adjustable during setup in the range of +16 to +26°C.
- ▶ Connection of electric drives for air dampers.
- ▶ Input for alarm signal from the fire alarm system.
- ▶ Relay input for connecting a CO₂ / humidity / IAQ sensor or any other sensor, upon signal from which the unit switches to maximum speed.
- ▶ Filter clogging control using a pressure switch.
- ▶ Operation scheduling via daily timer.
- ▶ Installation of a Wi-Fi module, enabling control of the unit via smartphone.

ADDITIONAL OPTIONS

CUSTOM DESIGN

Allows adaptation to any parameters and solves tasks of varying engineering complexity.

OPTION TO INSTALL A HEAT PUMP of various complexity levels:

- Heating of supply air
- Cooling of supply air
- Heating/cooling of supply air using an energy-efficient heat pump operating on ozone-safe refrigerant R410a.

INSPECTION WINDOWS

Enable visual inspection of the unit without opening the doors.

PAINTING IN ANY RAL COLOR

INSTALLATION OF LIGHTING

Optional installation of lights inside the section for equipment inspection.

SERVICE SWITCH

Installed for safe maintenance of the unit.



Convenient control of the unit via smartphone using the Aerostar APP



Allows you, at any time and from anywhere in the world, to:

- ⊕ Monitor equipment operating parameters
- ⊕ Adjust settings
- ⊕ Receive notifications about emergency situations
- ⊕ Consult with AEROSTAR service support



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DEVICES**



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individual settings

all units on one screen

personal schedule

reports

instant emergency
notifications

service support