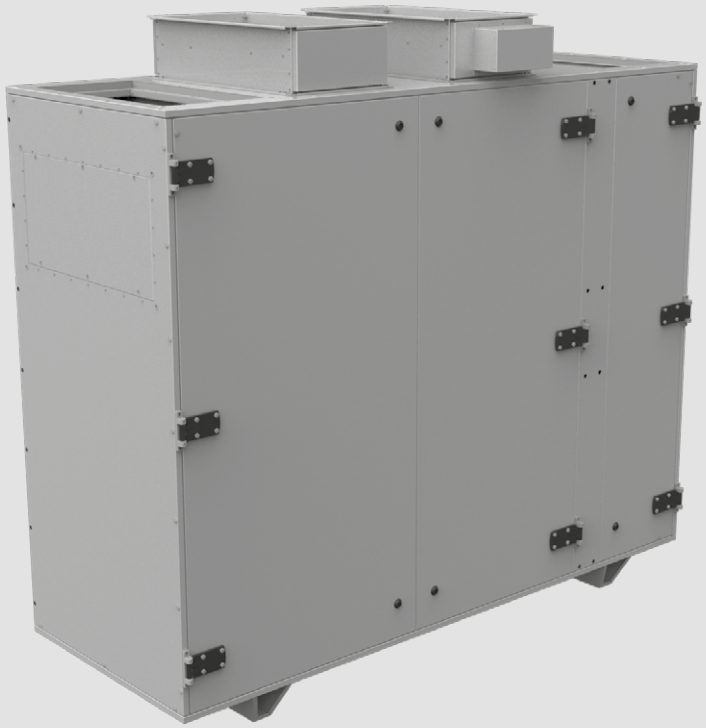
USER'S MANUAL

Airvents CFV



Air handling unit

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This user's manual is a main operating document intended for technical, maintenance, and operating staff.
The manual contains information about purpose, technical details, operating principle, design, and installation of the Airvents CFV unit and all its modifications.
Technical and maintenance staff must have theoretical and practical training in the field of ventilation systems and should be able to work in accordance with workplace safety rules as well as construction norms and standards applicable in the territory of the country.

This product is not compliant with the RoHS Directive (2011/65/EU) due to the presence of hazardous substances exceeding the permissible concentrations.
Warning: This product may contain substances (lead and cadmium) in concentrations that exceed the permissible limits set by the RoHS directive. This concentration is necessary for increased reliability of electrical components. Use of the product may pose risks to health and the environment, especially during disposal or waste treatment.
Warning: The product is subject to special disposal conditions and should not be disposed of with household waste. The product must be disposed of in accordance with the requirements for electronic waste at certified recycling centers authorized to handle materials containing lead and cadmium.

SAFETY REQUIREMENTS

All operations described in this manual must be performed by qualified personnel only, properly trained and qualified to install, make electrical connections and maintain ventilation units.
Do not attempt to install the product, connect it to the mains, or perform maintenance yourself. This is unsafe and impossible without special knowledge.
Disconnect the power supply prior to any operations with the unit.
All user's manual requirements as well as the provisions of all the applicable local and national construction, electrical, and technical norms and standards must be observed when installing and operating the unit.
Disconnect the unit from the power supply prior to any connection, servicing, maintenance, and repair operations.
Connection of the unit to power mains is allowed by a qualified electrician with a work permit for the electric units up to 1000 V after careful reading of the present user's manual.
Check the unit for any visible damage of the impeller, the casing, and the grille before starting installation. The casing internals must be free of any foreign objects that can damage the impeller blades.
While mounting the unit, avoid compression of the casing! Deformation of the casing may result in motor jam and excessive noise.
Misuse of the unit and any unauthorised modifications are not allowed.
Transported air must not contain any dust or other solid impurities, sticky substances, or fibrous materials.
Do not use the unit in a hazardous or explosive environment containing spirits, gasoline, insecticides, etc.
Do not close or block the intake or extract vents in order to ensure the efficient air flow.
Do not sit on the unit and do not put objects on it.
The information in this user's manual was correct at the time of the document's preparation.
The Company reserves the right to modify the technical characteristics, design, or configuration of its products at any time in order to incorporate the latest technological developments.
Never touch the unit with wet or damp hands.
Never touch the unit when barefoot.
Do not install or use the product until all construction and finishing work has been completed in the room where it is to be installed.
BEFORE INSTALLING ADDITIONAL EXTERNAL DEVICES, READ THE RELEVANT USER MANUALS.

THE PRODUCT MUST BE DISPOSED SEPARATELY AT THE END OF ITS SERVICE LIFE.
DO NOT DISPOSE THE UNIT AS UNSORTED DOMESTIC WASTE.

PURPOSE

The air handling unit with heat recovery is designed for integration into central mechanical ventilation systems.
The unit is rated for continuous operation.
Transported air must not contain any flammable or explosive mixtures, evaporation of chemicals, sticky substances, fibrous materials, coarse dust, soot and oil particles or environments favourable for the formation of hazardous substances (toxic substances, dust, pathogenic germs).

THE UNIT SHOULD NOT BE OPERATED BY CHILDREN OR PERSONS WITH REDUCED PHYSICAL, MENTAL, OR SENSORY CAPACITIES, OR THOSE WITHOUT THE APPROPRIATE TRAINING.

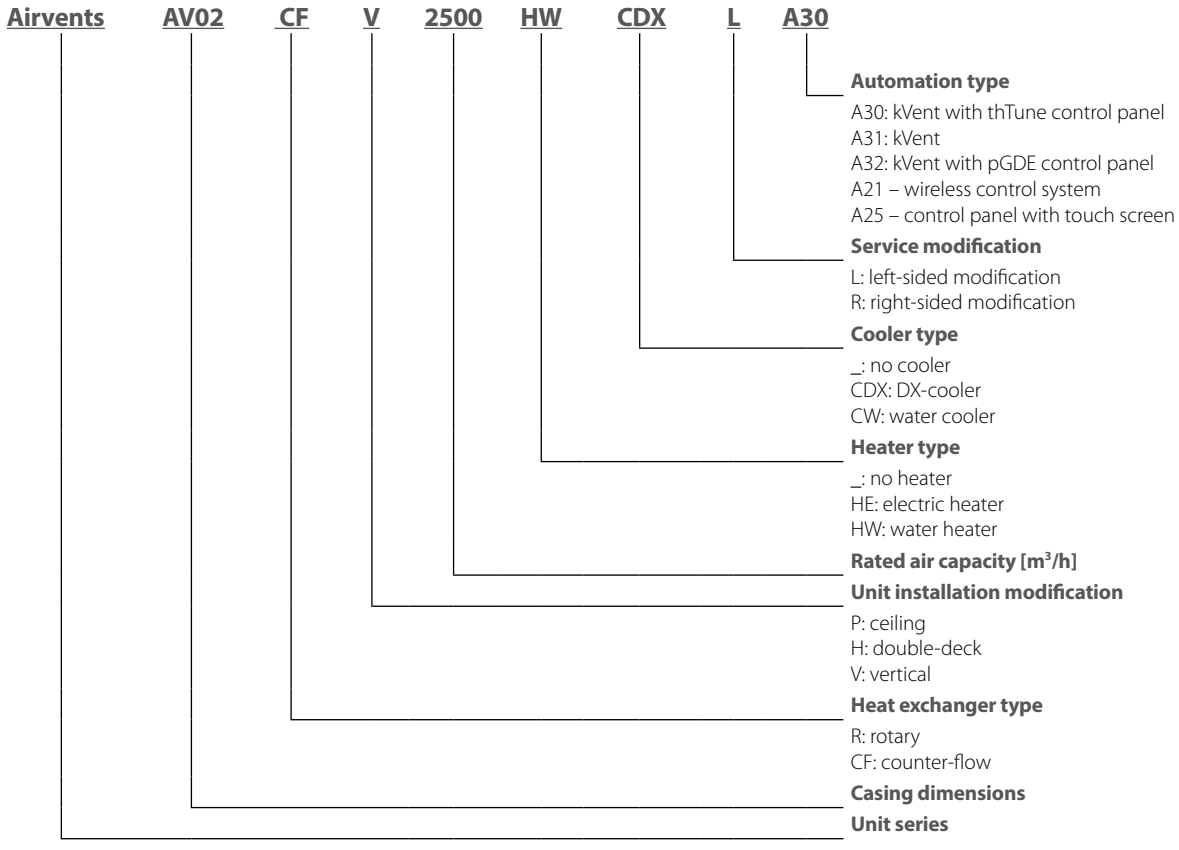
THE UNIT MUST BE INSTALLED AND CONNECTED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE BRIEFING.

THE CHOICE OF UNIT INSTALLATION LOCATION MUST PREVENT UNAUTHORISED ACCESS BY UNATTENDED CHILDREN.

DELIVERY SET

Name	Number
Unit	1 pc.
User's manual	1 pc.
Technical data sheet	1 pc.
Automation wiring	1 pc.
Control panel	1 pc.
User's manual for automation	1 pc.
Packing box	1 pc.

DESIGNATION KEY



TECHNICAL DATA

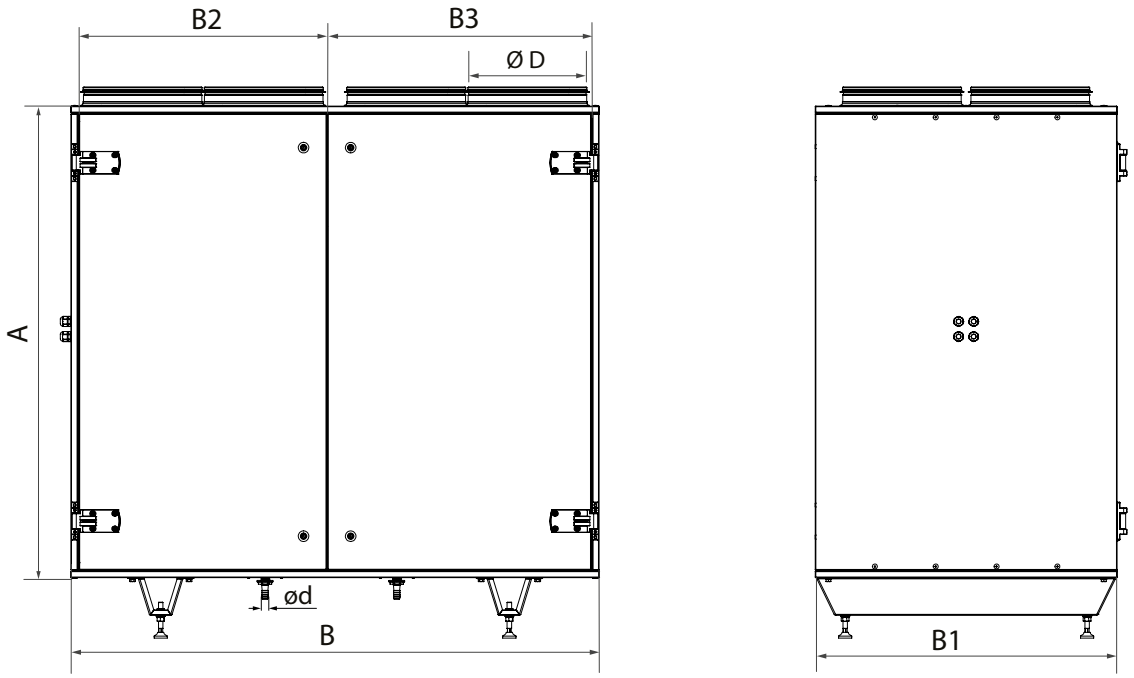
The unit is designed for indoor or sheltered use. Outdoor unsheltered mounting is allowed provided an extra cover and weather hoods are installed on the air ducts (not included in the delivery set). The frost protection for the water drainage and connected pipelines must be provided during sub-zero ambient temperatures (if the unit is equipped with air cooler). The heat medium temperature in the water heat exchangers (if available) must be sufficient to prevent its freezing.

Hazardous parts access and water ingress protection rating:

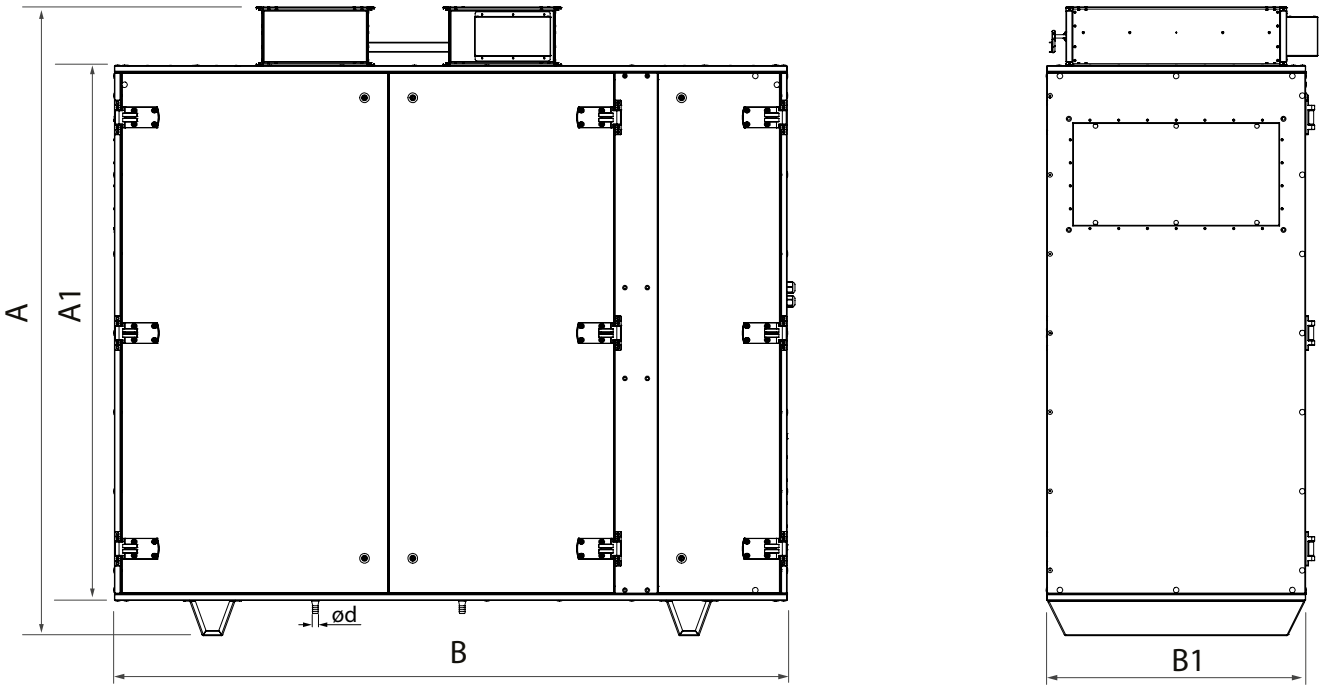
- IP54 for the unit motors
- IP40 for the assembled unit connected to the air ducts without extra cover or weather hoods
- IP00 for the unit not connected to the air ducts

The unit design is constantly being improved, thus some models may be slightly different from those described in this manual.

UNIT OVERALL DIMENSIONS [mm]



Model	A	B	B1	B2	B3	D	d
AV01 CFV 800(1200)	**1250**	**1400**	**800**	**656**	**698**	**315**	**18**

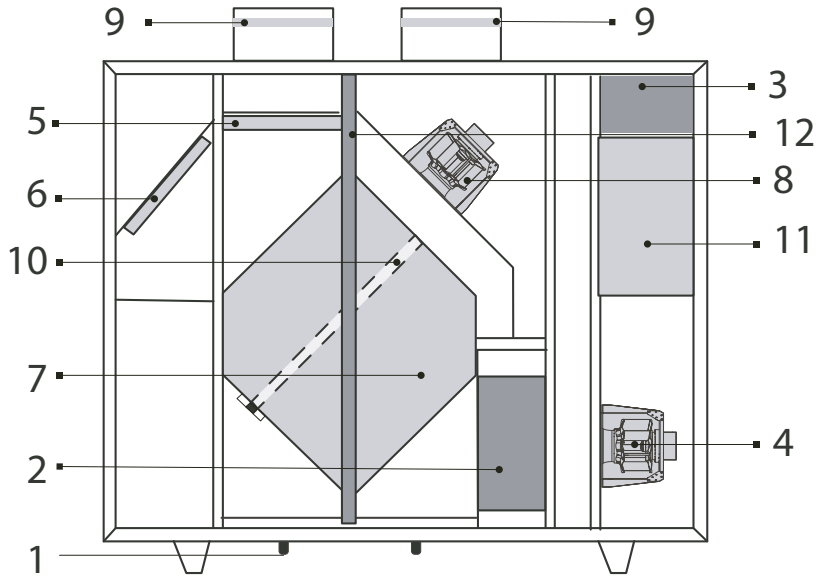


Model	A	A1	B	B1	d
AV02 CFV 1500(2500)	1822	1550	1950	750	18
AV03 CFV 3500	2070	1800	2200	890	18
AV07 CFV 5000(6000)	2070	1800	2330	1390	18

The full technical data list is stated in the supplied technical data sheet.

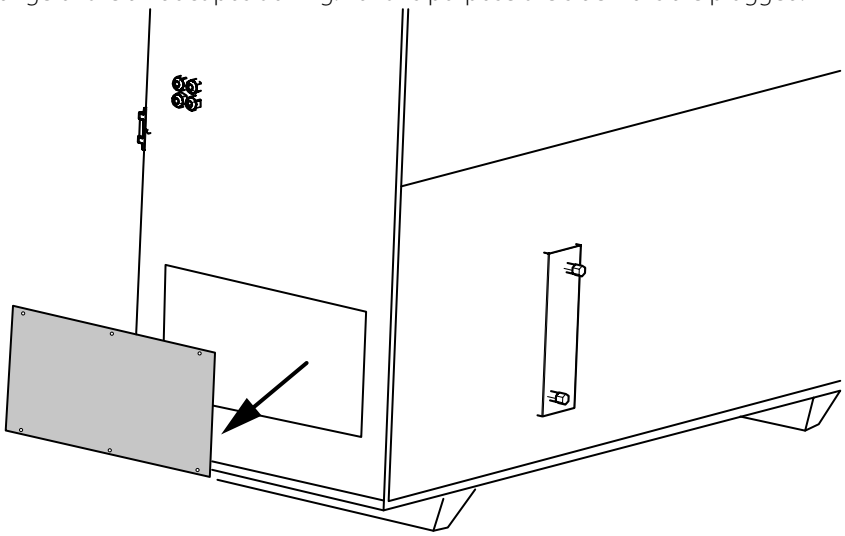
UNIT

UNIT DESIGN

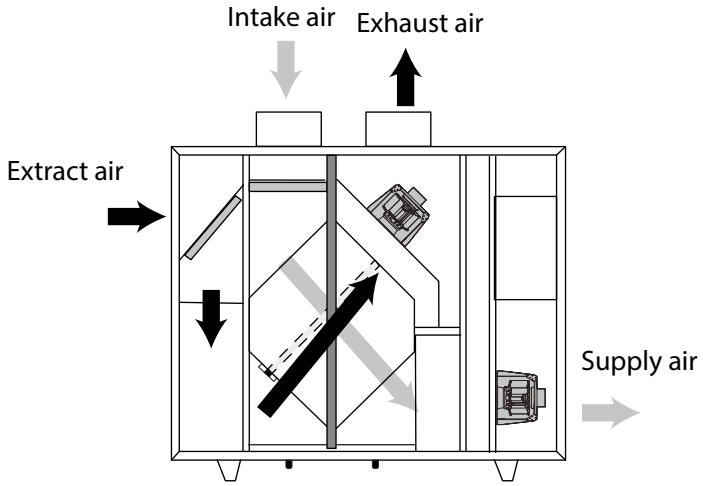


1: drain pipe; 2: water heater (only for the units with water heater); 3: electric heater (only for the units with electric heater);
4: supply fan ; 5: supply filter; 6: extract filter; 7: heat exchanger; 8: extract fan; 9: air flow control damper with electric actuator;
10: bypass damper; 11: control unit; 12: removable holder

The unit design provides change of the air duct positioning. For this purpose the side walls are plugged.



To change positioning of the air ducts use the plugs from the side walls for the front panel.



INSTALLATION AND SET-UP

ALL OPERATIONS DESCRIBED IN THIS USER'S MANUAL MUST BE PERFORMED BY QUALIFIED PERSONNEL ONLY, PROPERLY TRAINED AND QUALIFIED TO INSTALL AND MAINTAIN VENTILATION EQUIPMENT.

DO NOT ATTEMPT TO INSTALL THE PRODUCT YOURSELF.

IT IS UNSAFE AND IMPOSSIBLE WITHOUT SPECIAL KNOWLEDGE.

Condensate drainage

The components of the unit that have a condensate drain must be equipped with a trap to ensure that the casing is watertight and that water can be drained out uninterrupted through the drainage spigot on both the suction and discharge sides.

Recommendations for organizing condensate drainage are given below.
All components of the system are not included in the delivery set of the unit and must be purchased separately.
The manufacturer of the ventilation system is not liable for the operability of the condensate drainage system installed at a particular facility.

When installing the units on the floor, allow sufficient distance from the floor to the bottom of the unit to fit the entire condensate drainage system.

A trap must be provided at each drainage spigot, separating it from the drainage pipe. Multiple outlets must not be connected to a common trap.

The drainage pipes must have a downward slope of at least 3°, without any tapering or loops, so as not to obstruct the water flow.

Due to the positive or negative air pressure inside the air handling unit, water cannot drain out of the condensate drip tray by itself. Therefore, it is necessary to connect a trap of a suitable height or a trap with a one-way valve to the drainage pipe. The trap must have a water level that is high enough to counteract the pressure drop between the internal and external space.

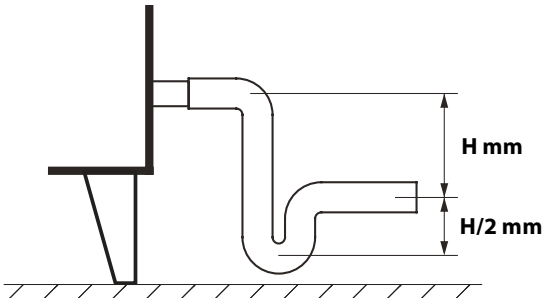
The height of the trap is selected based on the static pressure inside the air handling unit (the static pressure is specified in the technical data sheet for the unit).

- only use the positive value for calculations;
- take into account the final pressure drop (filter, etc.).

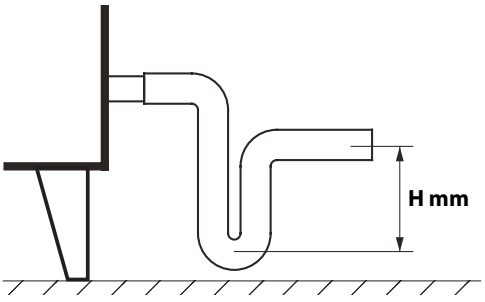
For a trap wit no one-way valve, the height **H** is determined by the static pressure **p** using the formula:
H [mm] = 25 + **p,** if the pressure is expressed in mm of the water level.
H [mm] = 25 + 0.1**p** if the pressure is expressed in Pa.

The figures below illustrate the geometric features of the traps.

The suction side. Negative pressure (**p < $p_{atmospheric}$**)

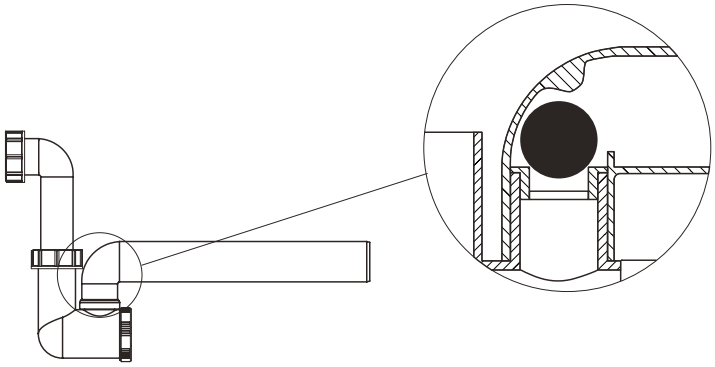


The discharge side. Positive pressure (**p > $p_{atmospheric}$**)



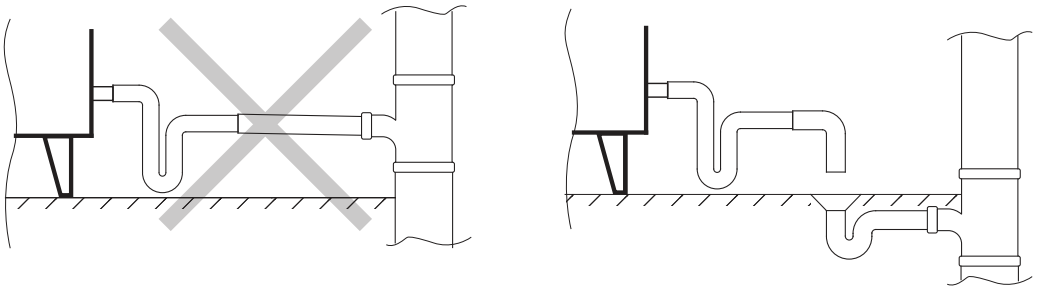
If the trap is equipped with a one-way valve, the height can be reduced, but this depends on the technical data of the trap. It is recommended to choose the height similarly to the trap without a one-way valve.

The figure below illustrates a schematic example of a trap with a one-way valve.



Fill up the U-traps with water before using the system.
The trap must be filled with water at all times as long as the system is operating.

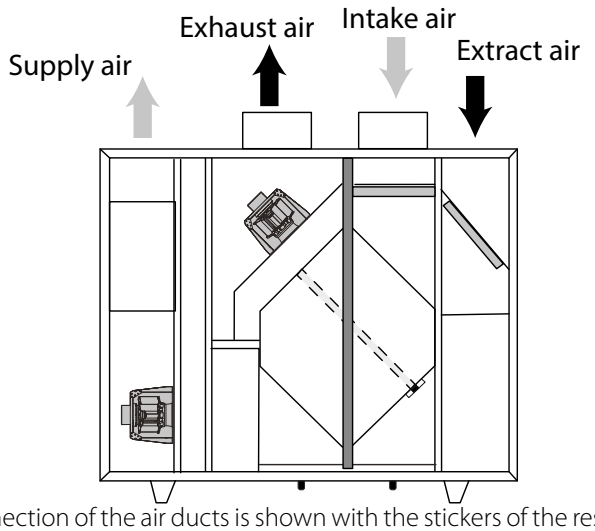
The condensate drainage system should not be directly connected to the common sewage system to avoid polluting the air with bacteria and odors.



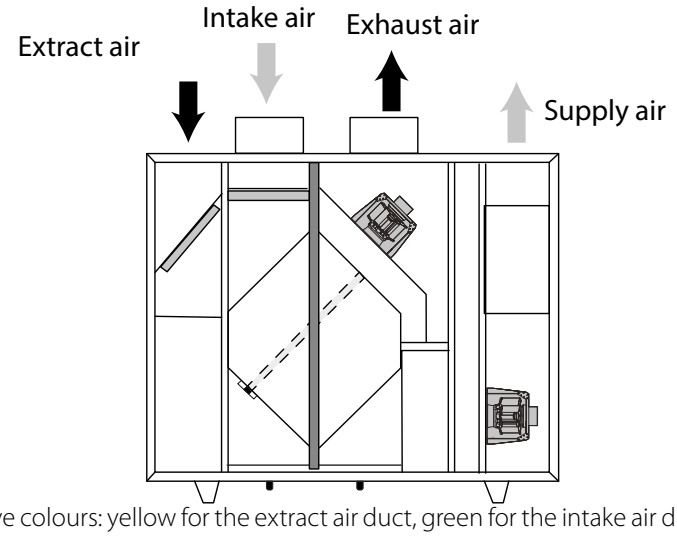
To prevent the water from freezing over in winter, the pipeline laid outdoors or in unheated rooms must be equipped with heat insulation and pre-heating.

The units are available in left- and right-sided modifications with the right or left service side.
All the assembly units are accessible on the service side.

Left-sided modification (service side view)

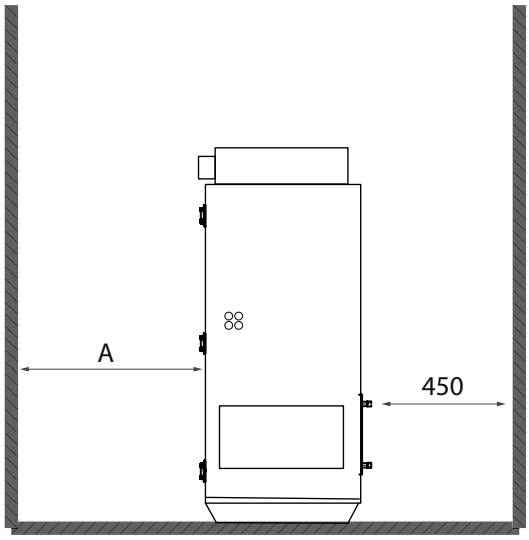


Right-sided modification (service side view)

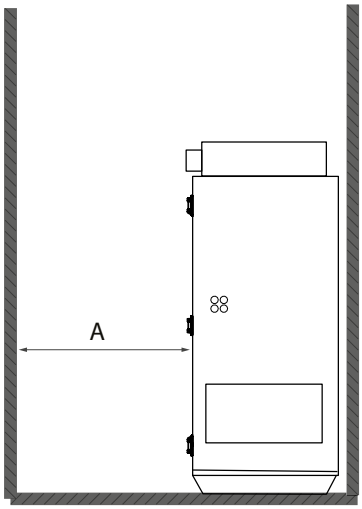


Connection of the air ducts is shown with the stickers of the respective colours: yellow for the extract air duct, green for the intake air duct, red for the supply air duct and brown for the exhaust air duct.
During installation works sufficient maintenance and service access must be provided.
The recommended minimum distances from the unit to the walls are shown below.

For the models with a water heater

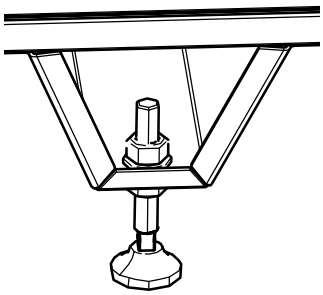


For the models without water heater



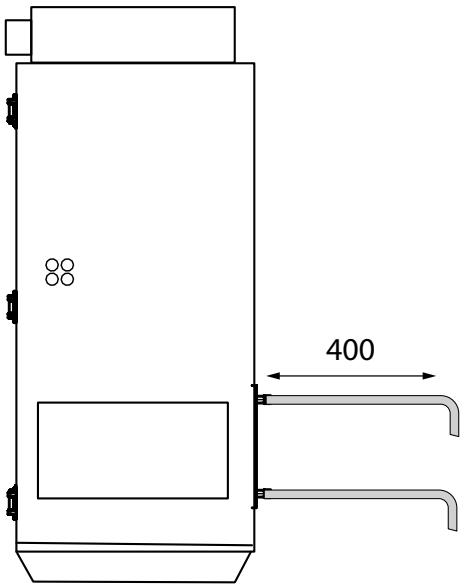
Casing dimensions	A [mm]
AV02 CFV	850
AV03 CFV AV07 CFV	1000

The delivery set includes removable levelling feet to adjust horizontal levelling of the unit and provide required clearance from the floor to enable correct mounting of the condensed water drainage.

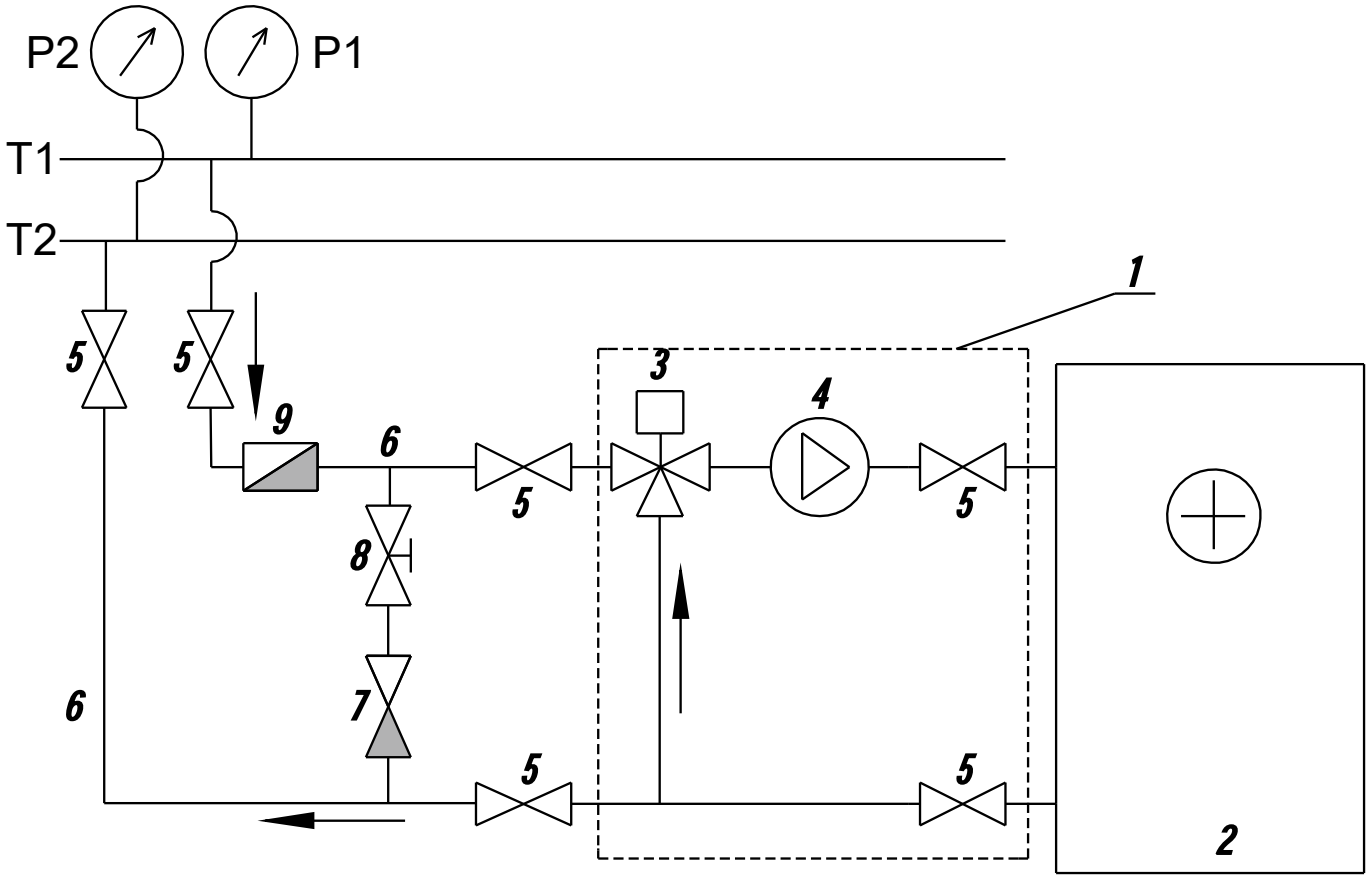


Connection of the water heater (only for the models with water heater)

While connecting the water heater keep the straight air duct section length not less than 400 mm from the unit. Otherwise the maintenance panel cannot be opened!



Connection diagram to municipal water mains



T1 and T2 - supply and return pipelines of heating/cooling system
P1 and P2 - liquid pressure gages in the heat distribution system
1 - USWK mixing unit
2 - water heater
3 - three-way valve with actuator
4 - circulation pump
5 - shut-off valve
6 - supply and return pipeline connection between heating system and water heater
7 - non-return valve
8 - balancing valve
9 - coarse filter

CONNECTION TO POWER MAINS

Connection to power mains must be conducted in compliance with the automation user's manual.

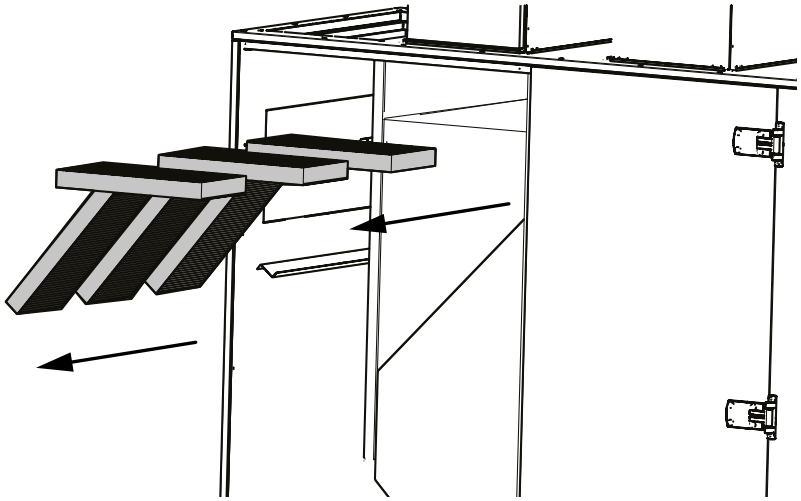
TECHNICAL MAINTENANCE

OPEN THE UNIT FOR INSPECTION AND SERVICE NOT LESS THAN 2 MINUTES AFTER COMPLETE DE-ENERGIZING OF THE UNIT.
THE FANS ROTATION MAY BE STILL PRESENT.

IN CASE OF ANY ABNORMAL NOISE, SMELL AND COMPONENT DEFORMATION IMMEDIATELY CUT OFF POWER SUPPLY TO THE UNIT AND CONTACT A SERVICE PROVIDER OR THE UNIT SELLER.

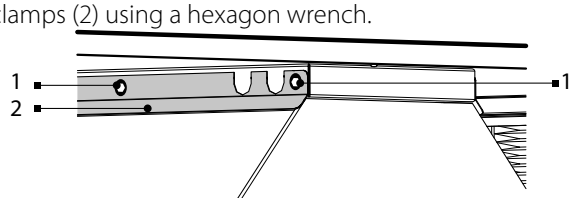
The unit operation requires regular inspection, dry cleaning of inner components, check-up and replacement of air filters in case of filter contamination. 3-6 months after commissioning of the unit it must be inspected by a service expert for planned preventive maintenance of the unit. Next maintenance operations must be conducted at least every 6-12 months.
Maintenance periodicity is determined by a service expert depending on operation conditions of the unit.
Dust deposits on the inner parts of the unit, especially in the electric heater, may lead to unpleasant odours.
It is not a malfunction. Clean the unit to troubleshoot unpleasant odours.

Open the service doors to access the filters.

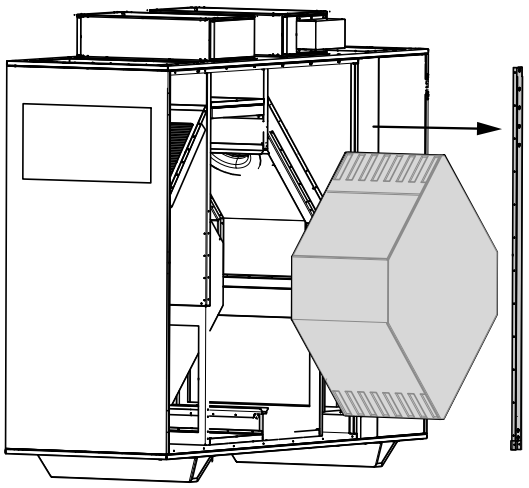


Remove the filter elements.

To access the heat exchanger remove the holder 13 (see page 7).
Loosen the screws (1) on the retaining clamps (2) using a hexagon wrench.



Pull the heat exchanger out.



STORAGE AND TRANSPORTATION REGULATIONS

- Store the unit in the manufacturer's original packaging box in a dry closed ventilated premise with temperature range +5...+40 ˚C and relative humidity up to 70 %.
- Storage environment must not contain aggressive vapors and chemical mixtures provoking corrosion, insulation, and sealing deformation.
- Use suitable hoist machinery for handling and storage operations to prevent possible damage to the unit.
- Follow the handling requirements applicable for the particular type of cargo.
- The unit can be carried in the original packaging by any mode of transport provided proper protection against precipitation and mechanical damage. The unit must be transported only in the working position.
- Avoid sharp blows, scratches, or rough handling during loading and unloading.
- Prior to the initial power-up after transportation at low temperatures, allow the unit to warm up at operating temperature for at least 3-4 hours.

MANUFACTURER'S WARRANTY

The product is in compliance with EU norms and standards on low voltage guidelines and electromagnetic compatibility. We hereby declare that the product complies with the provisions of Electromagnetic Compatibility (EMC) Directive 2014/30/EU of the European Parliament and of the Council, Low Voltage Directive (LVD) 2014/35/EU of the European Parliament and of the Council and CE-marking Council Directive 93/68/EEC. This certificate is issued following test carried out on samples of the product referred to above.
The manufacturer hereby warrants normal operation of the unit for 24 months after the retail sale date provided the user's observance of the transportation, storage, installation, and operation regulations. Should any malfunctions occur in the course of the unit operation through the Manufacturer's fault during the guaranteed period of operation, the user is entitled to get all the faults eliminated by the manufacturer by means of warranty repair at the factory free of charge. The warranty repair includes work specific to elimination of faults in the unit operation to ensure its intended use by the user within the guaranteed period of operation. The faults are eliminated by means of replacement or repair of the unit components or a specific part of such unit component.

The warranty repair does not include:

- routine technical maintenance
- unit installation/dismantling
- unit setup

To benefit from warranty repair, the user must provide the unit, the user's manual with the purchase date stamp, and the payment paperwork certifying the purchase. The unit model must comply with the one stated in the user's manual. Contact the Seller for warranty service.

The manufacturer's warranty does not apply to the following cases:

- User's failure to submit the unit with the entire delivery package as stated in the user's manual including submission with missing component parts previously dismounted by the user.
- Mismatch of the unit model and the brand name with the information stated on the unit packaging and in the user's manual.
- User's failure to ensure timely technical maintenance of the unit.
- Damage to the unit casing and internal components caused by the user.
- Redesign or engineering changes to the unit.
- Replacement and use of any assemblies, parts and components not approved by the manufacturer.
- Unit misuse.
- Violation of the unit installation regulations by the user.
- Violation of the unit control regulations by the user.
- Unit connection to power mains with a voltage different from the one stated in the user's manual.
- Unit breakdown due to voltage surges in power mains.
- Discretionary repair of the unit by the user.
- Unit repair by any persons without the manufacturer's authorization.
- Expiration of the unit warranty period.
- Violation of the unit transportation regulations by the user.
- Violation of the unit storage regulations by the user.
- Wrongful actions against the unit committed by third parties.
- Unit breakdown due to circumstances of insuperable force (fire, flood, earthquake, war, hostilities of any kind, blockades).
- Missing seals if provided by the user's manual.
- Failure to submit the user's manual with the unit purchase date stamp.
- Missing payment paperwork certifying the unit purchase.

FOLLOWING THE REGULATIONS STIPULATED HEREIN WILL ENSURE A LONG AND TROUBLE-FREE OPERATION OF THE UNIT

USER'S WARRANTY CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE PURCHASE DATE STAMP

CERTIFICATE OF ACCEPTANCE

Unit Type	Air handling unit
Model	
Serial Number	
Manufacture Date	
Quality Inspector's Stamp	

SELLER INFORMATION

Seller	
Address	
Phone Number	
E-mail	
Purchase Date	
This is to certify acceptance of the complete unit delivery with the user's manual. The warranty terms are acknowledged and accepted.	
Customer's Signature	

Seller's Stamp

INSTALLATION CERTIFICATE

The _____ unit is installed pursuant to the requirements stated in the present user's manual.		
Company name		
Address		
Phone Number		
Installation Technician's Full Name		
Installation Date:	**Signature:**	
The unit has been installed in accordance with the provisions of all the applicable local and national construction, electrical and technical codes and standards. The unit operates normally as intended by the manufacturer.		
Signature:		

Installation Stamp

WARRANTY CARD

Unit Type	Air handling unit
Model	
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Seller	

Seller's Stamp

Manufacturer: Ventilation Systems LLC,
Ukraine, Kyiv, 1 M. Kotsyubynskoho Street
Address of production facilities:
Ukraine, Kyiv Region, Fastiv District, Boyarka, 36 Sobornosti Street

V192-5EN-03