

DOMEKT
C8 AUTOMATION

INSTALLATION MANUAL



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1. INTRODUCTION

This manual is intended for qualified technicians installing the DOMEKT air handling unit. Qualified professionals are persons with sufficient professional experience and knowledge of ventilation systems, their installation, knowledge of electrical safety requirements and ability to work without risk to themselves or others.

1.1. Safety requirements

To avoid misunderstandings, read this manual carefully before installing the unit.

Air handling unit may only be installed by a qualified technician in accordance with the instructions given in this manual and in accordance with applicable legal and safety requirements. The air handling unit is an electrical-mechanical device that contains electrical and moving parts, therefore, ignoring the instructions in the manual not only shall invalidate the manufacturer's warranty but can also cause direct damage to property or human health.



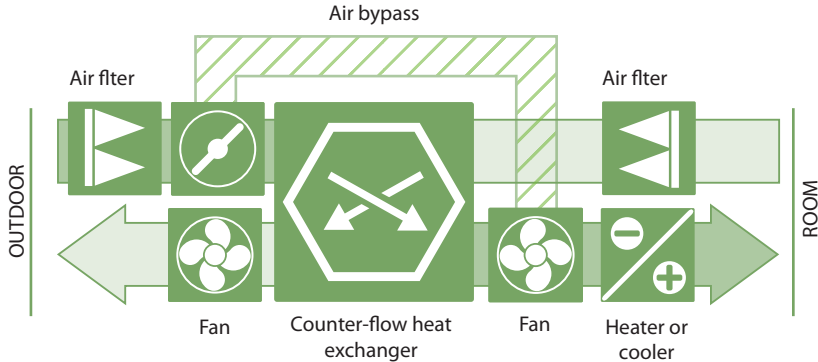
- When performing any kind of work, make sure the unit is unplugged from electrical supply.
- Use caution when working near heaters inside or outside the unit, as their surfaces may be hot.
- Do not connect the unit to the power supply network before all the external assemblies are fully installed.
- Do not connect the unit to the electrical supply, if there is visible damage that occurred during transport.
- Do not leave objects or tools inside the unit.
- It is forbidden to operate the unit in the premises where there is a risk of release of explosive substances.
- Use appropriate personal protective equipment (gloves, goggles) when installing or repairing the unit.



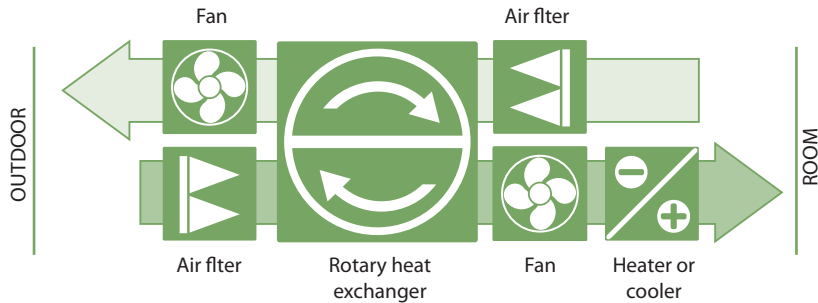
This sign means that the product may not be disposed of together with your household waste as defined in Directive (2002/96/EC) and national legislation on the management of WEEE. This product must be disposed of at an appropriate collection point or recycling facility for waste electrical and electronic equipment (WEEE). Improper handling of this type of waste due to hazardous substances inside electrical and electronic equipment can endanger the environment and human health. By helping to ensure proper disposal of this product, you will also contribute to the efficient use of natural resources. For more information on how to dispose of such waste for further recycling, contact your city authorities, waste management organisations, approved WEEE systems or your household waste management bodies representatives.

1.2. Design of the units

Domekt CF is an air handling unit with a counter-flow recuperator (heat exchanger). Lamellas of the heat exchange come in contact with different air flows. Exchange of heat or cold takes place between extracted indoor and fresh outdoor air. If no recuperation is required, the air bypass damper is opened and the heat exchanger is closed. This way the outdoor air passes around the recuperator and enters the premises directly.



Domekt R – air handling units with a rotary recuperator (heat exchanger). The rotating drum of the rotary recuperator absorbs heat or cold from the air of the premises, transferring it to the fresh outdoor air. If recuperation is not required, the rotation of the rotary heat exchanger is stopped.





If the capacity of the heat exchanger is not sufficient to reach the temperature set by the user, heaters or coolers may additionally be switched on¹. Heat exchanger and heater (or cooler) are designed to compensate for heating/cooling losses during the ventilation of the premises, thus AHU is not recommended to be used as main heating/cooling source of the building. AHU may not reach the supply temperature setpoint if the actual room temperature differs a lot from the desired value, since in that case heat exchanger capacity will be low.

Counter flow (CF) heat exchangers may freeze at low outside air temperatures. For this reason, these units are equipped with several different frost protection functions:

- **Standard** – Air-handling unit is stopped when outside air temperature drops below -4°C for longer than 1 hour. Then the unit is switched on periodically every several hours to check whether the outdoor temperature has increased, if so, ventilation is resumed.
- **Special** – when outside air temperature drops below -4°C, the unit slows down supply of cold air and increases extraction of warm indoor air to ensure that less cold air and more extracted warm air enters the heat exchanger, thus preventing frost formation inside the heat exchanger. This function is sufficient to ensure frost protection for temperatures up to -10°C. As soon as the outside temperature drops below -11°C, the air-handling unit is stopped because an additional heater is necessary to protect the heat exchanger under such temperature conditions.



Special frost protection mode changes the balance of airflows, which may lead to pressure differences indoors, therefore, this mode is not recommended in very airtight buildings (A+ or higher energy efficiency class) or in houses with a fireplace.

- **External pre-heater** – by measuring indoor humidity as well as indoor and outdoor air temperatures, the exact weather conditions are calculated when the heat exchanger might freeze. Then the pre-heater is switched on and operated in a way to ensure that the temperature of air entering the air-handling unit is always higher than the freezing point. External pre-heater is controlled by 0..10 V signal. It may be electric or water heater (water-glycol solution). Use of a pre-heater for frost protection of the counter flow heat exchanger requires humidity control. Humidity sensor is integrated in a control panel that must be installed in ventilated premises (do not leave this control panel on the air handling unit). If you operate your unit with your smart phone or computer instead, you should install a separate humidity sensor (see Chapter “Electrical Installation”).

For information on how to set a frost protection mode², see “Domekt User Manual”.

¹ Depends on the unit components.

² Only in CF units.

1.2.1. Classification of units by duct connection side

Depending on the installation and connection of the ducts, the air handling units are divided into:

- Vertical units – when all ducts are connected at the top.
- Flat units – thinner units are designed for mounting over suspended ceilings. All ducts are connected at the sides of the unit.

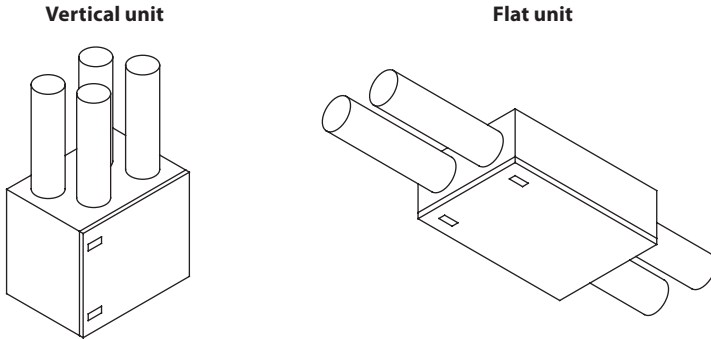


Fig. 1. Classification of units by duct connection

Also, each unit may be left or right inspection side¹. The inspection side indicates which side of the unit contains the air supply duct to the premises.

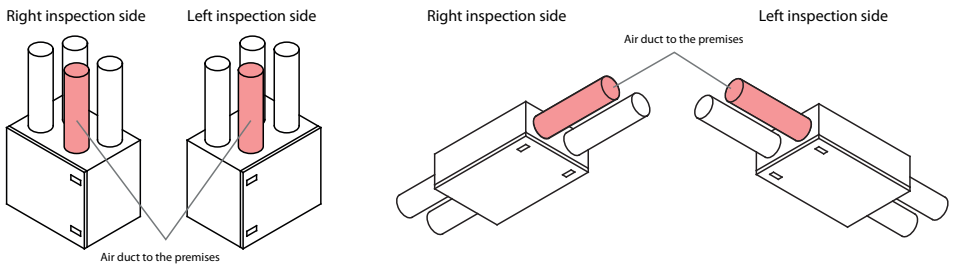
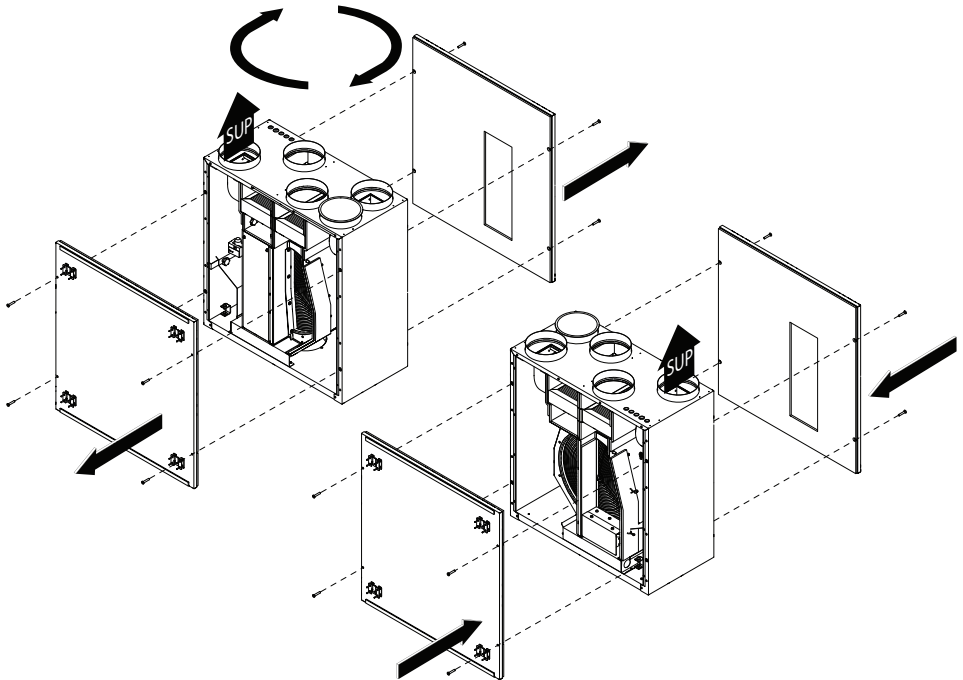


Fig. 2. Classification of units by inspection side

¹ Depends on your order. The exact duct location is shown in the following paragraphs: «Components», «Unit dimensions».

1.2.2. Switching inspection side of DOMEKT R 190 V T - R 200 V T

DOMEKT R 190 V T - R 200 V T is a universal unit and its inspection side may be easily switched during installation. Inspection side is changed by removing front and back panels (fastened with screws) and rotating the unit.



SUP – supply air duct connection.

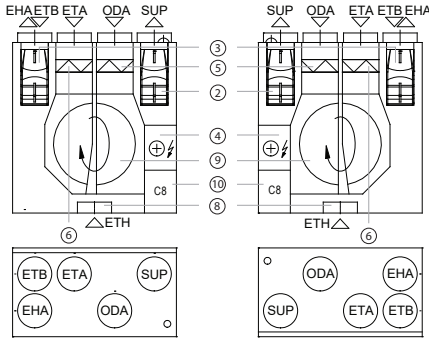
This air handling unit is designed to be integrated into the kitchen furniture (front panel has mounting plates for furniture panel; see Section 3.4.3.). In other cases, when the unit is mounted on a wall, you can remove these mounting plates and swap the front and back panels for the unit to look nicer.

1.3. Components

Below are the principal diagrams of air handling units, including the marking of assemblies of the unit.

1.3.1. Vertical units

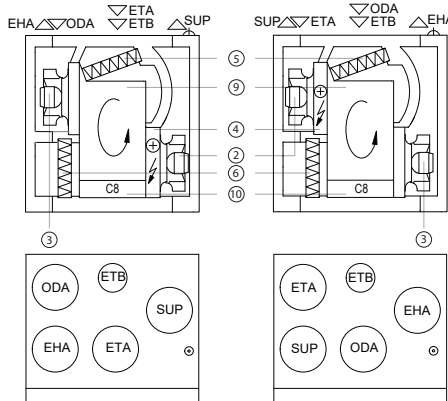
Domekt R 190 V T - R 200 V T



RIGHT INSPECTION SIDE

LEFT INSPECTION SIDE

Domekt R 300 V



RIGHT INSPECTION SIDE

LEFT INSPECTION SIDE

ODA – outdoor air

SUP – supply air

ETA – extract air

EHA – exhaust air

ETB – by-pass extraction (without heat recovery)

ETH – kitchen hood connection (without heat recovery)

① – counter-flow heat exchanger

② – supply air fan

③ – extract air fan

④ – electric heater

⑤ – outdoor air filter

⑥ – extract air filter

⑦ – condensate drainage

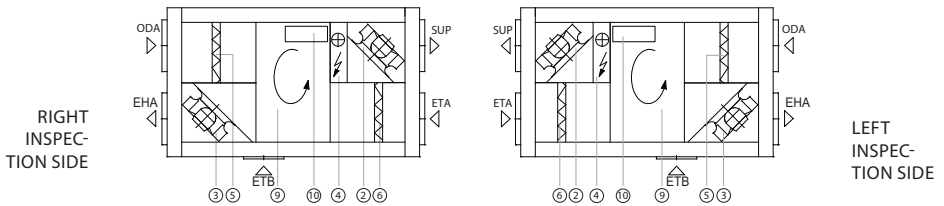
⑧ – air bypass damper

⑨ – rotary heat exchanger

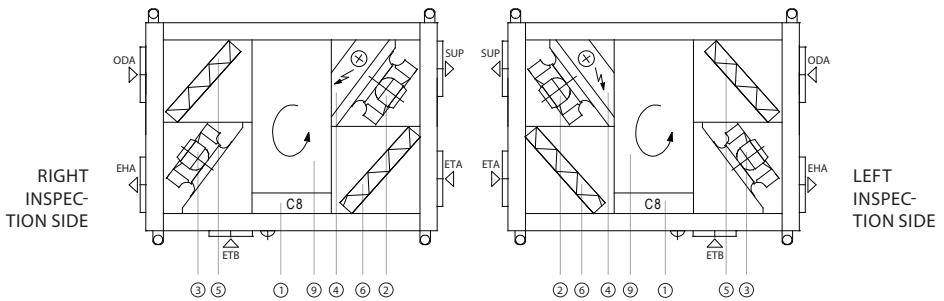
⑩ – C8 controller main board

1.3.2. Flat units

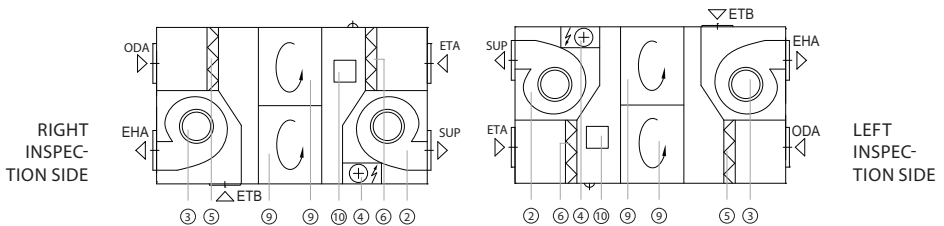
Domekt R 150 F





Domekt R 250 F





Domekt R 300 F



ODA  - outdoor air

SUP  - supply air

ETA  - extract air

EHA  - exhaust air

ETB  - by-pass extraction (without heat recovery)

ETH  - kitchen hood connection (without heat recovery)

① - counter-flow heat exchanger

② - supply air fan

③ - extract air fan

④ - electric heater

⑤ - outdoor air filter

⑥ - extract air filter

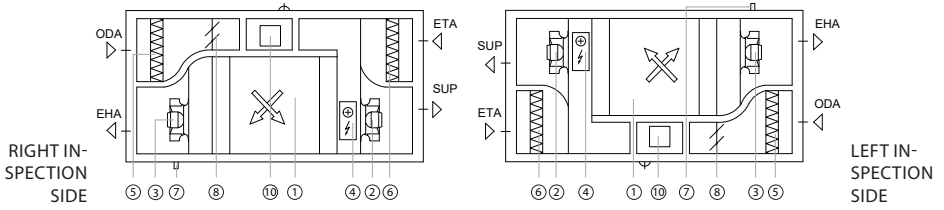
⑦ - condensate drainage


⑧ - air bypass damper


⑨ - rotary heat exchanger


⑩ - C8 controller main board


Domekt CF 200 F



ODA  - outdoor air

SUP  - supply air

ETA  - extract air

EHA  - exhaust air

ETB  - by-pass extraction (without heat recovery)

ETH  - kitchen hood connection (without heat recovery)

① - counter-flow heat exchanger

② - supply air fan

③ - extract air fan

④ - electric heater

⑤ - outdoor air filter

⑥ - extract air filter

⑦ - condensate drainage

⑧ - air bypass damper

⑨ - rotary heat exchanger

⑩ - C8 controller main board

2. UNIT TRANSPORTATION AND STORAGE

Equipment must be transported and stored in the original packaging. During transportation, equipment must be properly secured and further protected against possible mechanical damage, rain or snow.

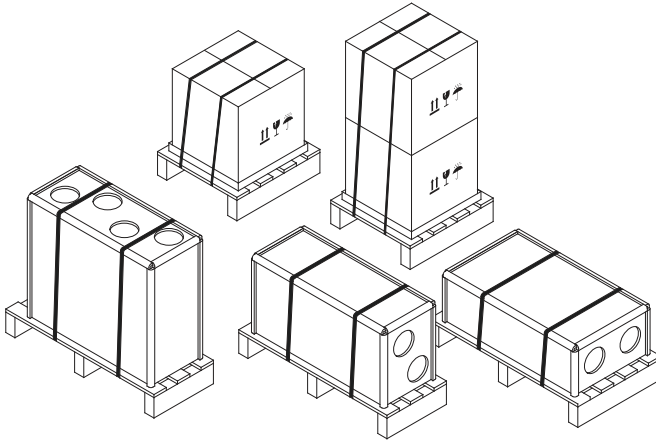


Fig. 3. Examples of equipment packaging

Forklift truck or crane can be used for loading or unloading. For the crane operation, special lashes or ropes must be used to securing them in the designated areas. Ensure that lifting lashes or ropes do not crush or otherwise damage the housing of the unit. We recommend using special belt supports. When lifting and transporting the equipment with a forklift, the forks must be long enough to prevent the unit from being overturned or mechanically damaging its bottom side. Air handling units are heavy, therefore, be careful during lifting, moving or transportation. Use personal protective equipment. Even small units should be transported on a forklift, a trolley or carried by multiple persons.



Fig. 4. Examples of transportation by crane, forklift and trolley

After delivery of the air handling unit, carefully inspect its packaging for damage. If mechanical or other damage is visible (e.g., wet cardboard packaging), notify the carrier immediately. If the damage is significant, do not accept the unit. Inform the selling company or the representative of UAB KOMFOVENT within three business days about any damage detected during delivery.¹

Units should be stored in a clean, dry room at a temperature of 0–40°C. When selecting a storage location, make sure the unit is not accidentally damaged, that other heavy objects are not loaded on top and dust or moisture does not get inside the unit.



Before installation AHU must be stored in clean and dry premises in their original packaging. If the unit is installed but not yet in use, all connection openings must be tightly closed and the unit must be additionally protected against environmental influences (dust, rain, cold, etc.).

¹ UAB KOMFOVENT is not responsible for losses caused by the carrier during transportation and unloading.

3. MECHANICAL INSTALLATION

3.1. List of parts in the package

Before installing the unit, check for any missing parts. If something is missing from the list, contact the company that sold the air handling unit.

1. Air handling unit.
2. Control panel C6.1 or C6.2¹.
3. Control panel cable.
4. Unit suspension brackets².
5. Mounting bolts for brackets³.
6. User guide.
7. Installation manual.

3.2. Installation site requirements

DOMEKT units are designed for installation in household or technical rooms with an air temperature of 0°C to +40°C, relative humidity from 20% to 80% (non-condensing). It is recommended to install the air handling unit in a separate room or in an insulated attic on a solid, level base with vibration damping mat. We recommend not to rest the unit against the wall to prevent noise or vibration and accumulation of moisture or mould on the wall due to condensation.



It is forbidden to install DOMEKT air handling units outdoors. They are also not designed for ventilation or dehumidification of humid premises (swimming pools, baths, car washes, etc.).



Make sure that children will not reach and will not play with air handling unit without adult supervision.



With additional accessories, DOMEKT R units can also be installed in unheated premises (for example an attic), where ambient temperature is below 0°C. In this case, additional air closing dampers must be installed in the supply and extract air ducts (on the room side). It should prevent warm indoor air from circulating inside the unit when it is stopped to avoid condensation damage to the electronic components. It is also necessary to insulate all ducts passing through unheated rooms.

¹ Depends on your order.

^{2,3} Only for units to be mounted on the wall or ceiling.

3.2.1. Maintenance area

When selecting the installation or mounting location of the unit, provide unrestricted and safe access to the equipment for its repair or preventive maintenance. Minimum service area A defines an area, which must be free of any stand-alone or immovable devices, equipment, partitions, structures or furniture. This area is sufficient for performing service and filter replacement works. For repair and replacement of components (e.g., removal of a rotary heat exchanger), access area equal or greater than zone B shall be ensured.

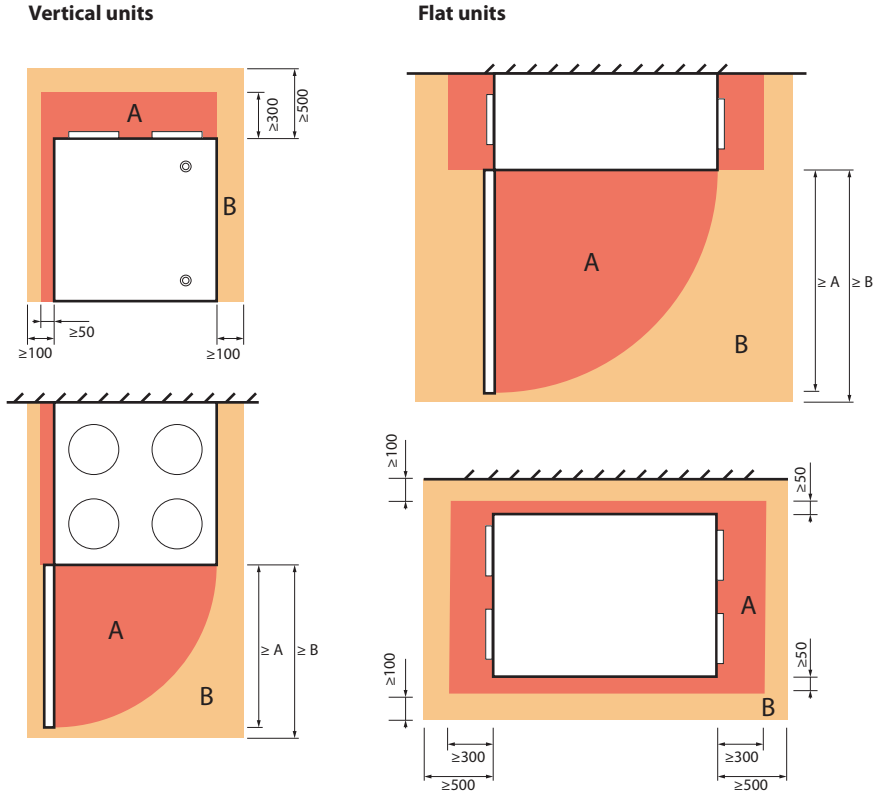


Fig. 5. Minimum space for maintenance

| Unit model | A, mm | B, mm |
|------------------|-------|-------|
| Domekt R 150 F | 780 | 785 |
| Domekt CF 200 F | 1100 | 1105 |
| Domekt R 200 V T | 330 | 330 |
| Domekt R 250 F | 842 | 847 |
| Domekt R 300 F | 1090 | 1095 |
| Domekt R 300 V | 605 | 610 |

Make sure to provide a suitable installation location for ceiling-mounted flat units and wall-mounted vertical units. Do not install these devices above stairs or in areas with exceptional ceiling heights, where special equipment would be required to access the unit. In case of the units mounted above the suspended ceiling: service access (if any) for the unit mounted above the suspended ceilings cannot be smaller than the dimensions of the unit or the ceiling must be installed to allow easy dismantling without damaging the structure.



When selecting an installation or mounting location, keep in mind that preventive maintenance works must be performed at least twice a year or more often, therefore, a safe and easy access to the unit must be foreseen.

3.2.2. Humidity in the installation room

If the unit is installed in a room with high humidity, condensation may occur on the walls of the unit in cold weather conditions. Newly built flats or homes have high probability of condensation, especially in the first year, until the construction or finishing materials haven't dried up completely. When installing the unit in the rooms with a high probability of condensation (For example, in bathrooms), it is necessary to ensure that the condensate does not damage the building structures or furniture.

To reduce condensation on the outside of the AHU, the following is recommended:

- maintain a lower relative humidity in the room where the AHU is installed;
- install a pre-heater to increase the air temperature of the outdoor air entering the unit.
- if the air is drier outside, you can increase the ventilation intensity and the temperature settings so that the rooms are dried faster. For this purpose, you can also use the "Humidity control function" (see "Domekt User Guide").

If the unit is shut down in cold outside temperatures, due to free air circulation, condensate can form inside of the unit, therefore, it is important to install air closing dampers (motorized are recommended) to close the air intake and exhaust openings when the unit is OFF. This will prevent cold air from the outside and warm air from the premises to enter the unit.



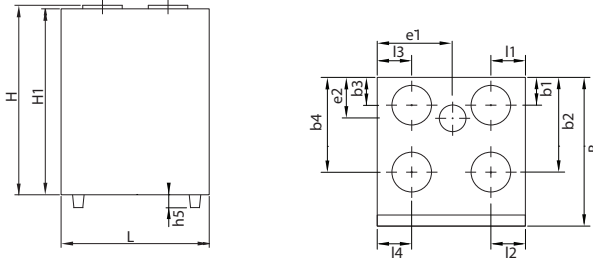
We recommend that you always keep the unit turned on and use it at minimum of 20% intensity even if no ventilation is required. This will ensure good indoor climate conditions and reduce condensation inside the unit, which might damage electronic components.



CF air handling units with a counter-flow heat exchanger are prone to condensation at low outdoor temperatures. For this reason, these units must be equipped with a proper condensate drainage system (see Chapter "Connection of a Condensate Drain").

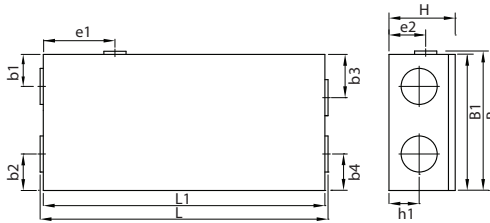
3.3. Unit dimensions

3.3.1. Vertical units



| Unit | Inspection side | Dimensions, mm | | | | | | | | | | | | | | |
|------------------|-----------------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|
| | | H | H1 | L | B | b1 | b2 | b3 | b4 | l1 | l2 | l3 | l4 | h5 | e1 | e2 |
| Domekt R 190 V T | Right | 660 | 625 | 600 | 325 | 95 | 230 | 95 | 230 | 81 | 226 | 226 | 81 | - | 81 | 95 |
| Domekt R 200 V T | Left | 660 | 625 | 600 | 325 | 95 | 230 | 95 | 230 | 81 | 226 | 226 | 81 | - | 519 | 230 |
| Domekt R 300 V | Right | 615 | 615 | 605 | 515 | 195 | 330 | 115 | 330 | 102 | 290 | 102 | 102 | - | 302 | 82 |
| | Left | 615 | 615 | 605 | 515 | 195 | 330 | 115 | 330 | 102 | 290 | 102 | 102 | - | 302 | 82 |

3.3.2. Flat units



| Unit | Inspection side | Dimensions, mm | | | | | | | | | | | e1 | e2 |
|-----------------|-----------------|----------------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| | | H | L | L1 | B | B1 | b1 | b2 | b3 | b4 | h1 | | | |
| Domekt R 150 F | Right | 280 | 812 | 780 | 475 | 460 | 117 | 117 | 117 | 117 | 125 | 299 | 88 | |
| | Left | 280 | 812 | 780 | 475 | 460 | 117 | 117 | 117 | 117 | 125 | 481 | 88 | |
| Domekt R 250 F | Right | 310 | 875 | 842 | 617 | 602 | 150 | 133 | 133 | 150 | 146 | 245 | 106 | |
| | Left | 310 | 875 | 842 | 617 | 602 | 133 | 150 | 150 | 133 | 146 | 597 | 106 | |
| Domekt R 300 F | Right | 280 | 1120 | 1090 | 633 | 630 | 145 | 135 | 145 | 135 | 125 | 275 | 170 | |
| | Left | 280 | 1120 | 1090 | 633 | 630 | 135 | 145 | 135 | 145 | 125 | 815 | 170 | |
| Domekt CF 200 F | Right | 294 | 1100 | 1100 | 560 | 560 | 147 | 114 | 112 | 195 | 119 | - | - | |
| | Left | 294 | 1100 | 1100 | 560 | 560 | 195 | 112 | 114 | 147 | 119 | - | - | |

3.4. Hanging of the units

Smaller vertical units can be hung on the walls, partitions, or other vertical structures. Such units come with their wall mounting brackets and mounting screws. If necessary, use other fixing screws suitable for the specific type of wall or partition (concrete, plasterboard, brick, etc.)

Flat units are usually mounted to ceilings, slab or other horizontal structures with the access door facing downwards. For this purpose, these units have special brackets with integrated vibration absorbers. Brackets are fixed to the supporting structure or slab with threaded rods or anchor bolts. Some flat units can also be hung on the wall or mounted on the floor.

| Unit model | | | | |
|----------------|---|---|---|---|
| Domekt R 150 F | + | + | + | + |
| Domekt R 250 F | + | + | + | + |
| Domekt R 300 F | + | + | + | + |

Fig. 6. Installation positions of flat devices



- It is forbidden to drill or screw into the casing of the unit, in places not provided for purpose, as there is a danger of damaging cables or tubes inside the housing.
- Domekt CF 200 F flat units must be fitted with a 15 mm slope on the drainage side to facilitate the discharge of condensate from the unit.

If possible, avoid hanging air handling units on thin partitions (especially those made of plasterboard) when it separates the technical room from the living premises, as the vibrations of the device and the noise it emits can be transmitted through. When hanging the unit on plasterboard constructions, we recommend installing additional crossbars at the hanging points and using a double layer of plasterboard. We also recommend filling the partition with noise-dampening materials.

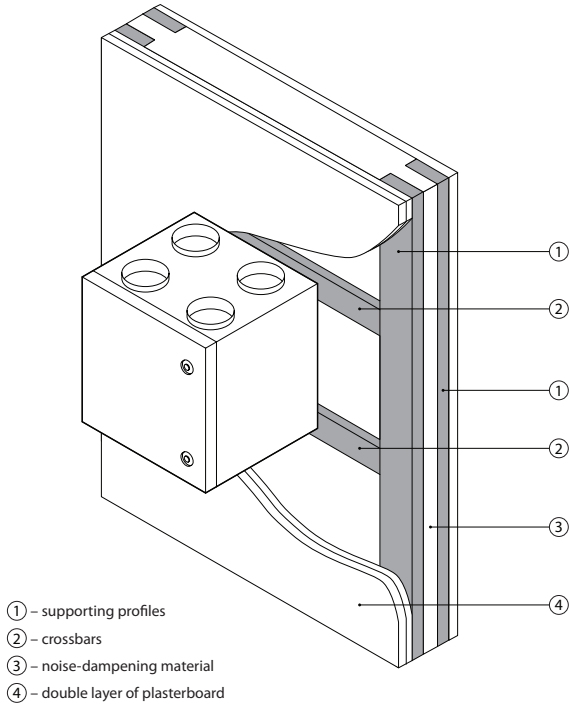


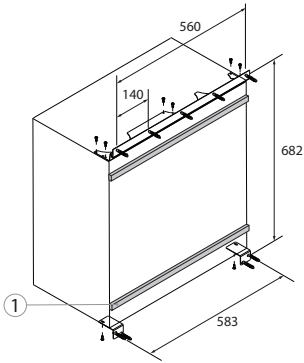
Fig 7. Mounting the unit on a plasterboard partition

3.4.1. Types and dimensions of suspension brackets

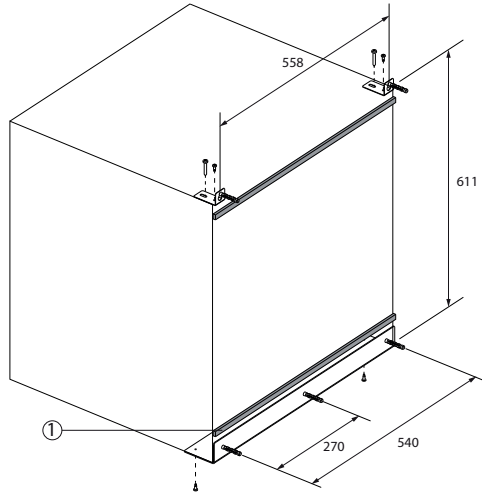
Special brackets, wall screws with plastic bushings and self-tapping screws are provided for mounting the units. When mounting the units, care must be taken to ensure that vibrations of the unit are not transmitted to the building structures, as it may lead to additional noise. In order to eliminate vibrations, additional anti-vibration gaskets are attached to the back wall of the unit. In case of ceiling-mounted units, vibration absorbers are integrated in mounting brackets.

The following are the types of mounting brackets and mounting dimensions.

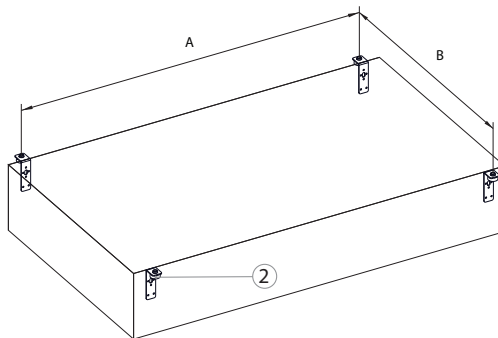
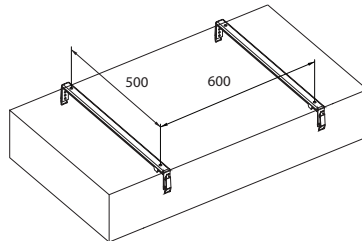
Domekt R 190 V T - R 200 V T



Domekt R 300 V



Domekt CF 200 F



| Unit | A, mm | B, mm |
|----------------|-------|-------|
| Domekt R 150 F | 710 | 511 |
| Domekt R 250 F | 772 | 653 |
| Domekt R 300 F | 1030 | 681 |

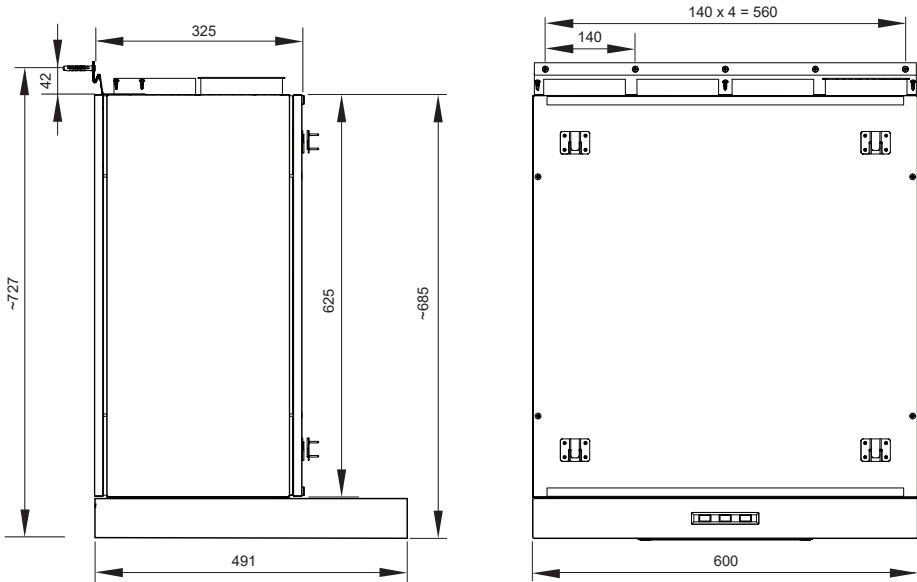
- ① – Adhesive anti-vibration gasket
- ② – Rubber vibration absorbers

3.4.2 Dimensions of DOMEKT R 190 V T - R 200 V T with a kitchen hood

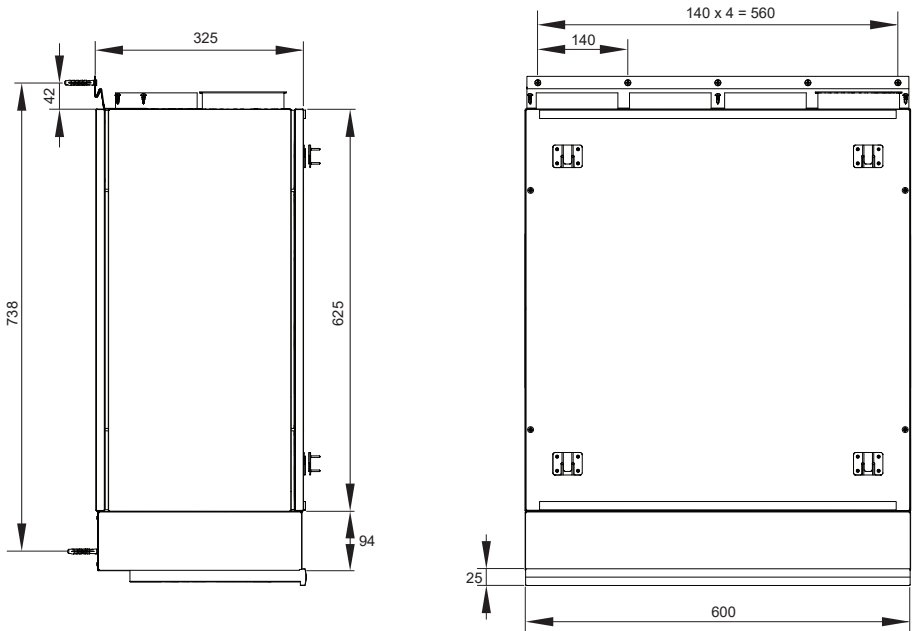
R 190 V T - R 200 V T air handling units may be supplied with two types of kitchen hoods. These units are designed to be integrated into the kitchen furniture above the cooker. Available kitchen hoods are equipped with a damper that closes airflow when not in use. When kitchen hood is on, the damper is opened and air from the cooker is extracted directly to the exhaust air duct, bypassing the rotary heat exchanger.

The following are the dimensions of the unit and mounting dimensions for a kitchen hood.

Dimensions with a kitchen hood 1224G-12



Dimensions with 392-12 kitchen hood

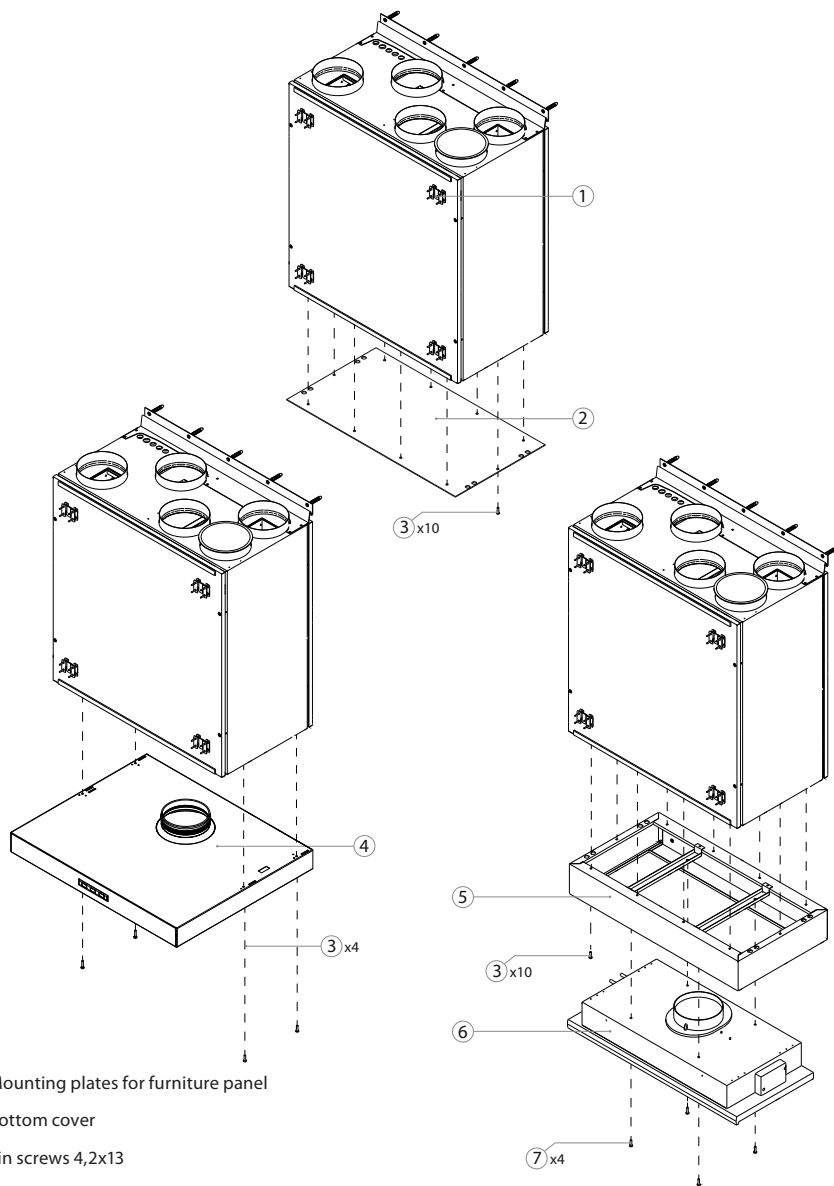


3.4.3. DOMEKT R 190 V T - R 200 V T and kitchen hood installation

1224G-12 or 392-12 kitchen hoods are mounted at the bottom of the unit prior to the installation in the kitchen cabinet.

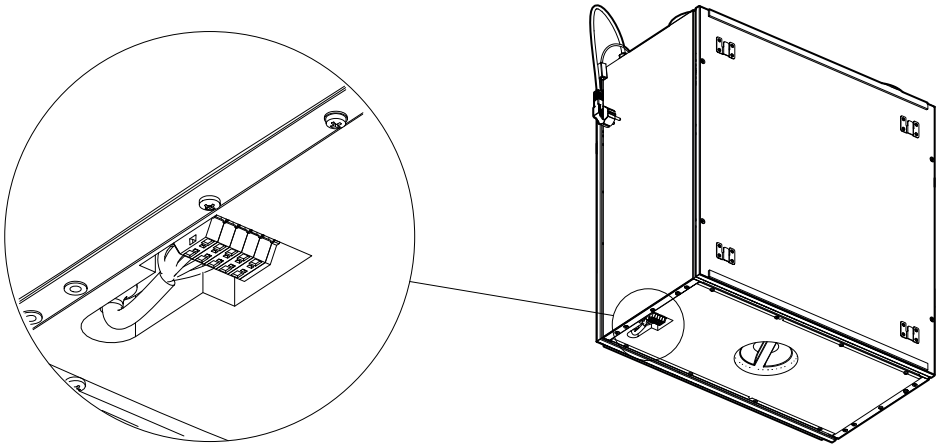


In order to install a kitchen hood, remove a bottom cover of the unit by unscrewing the screws.



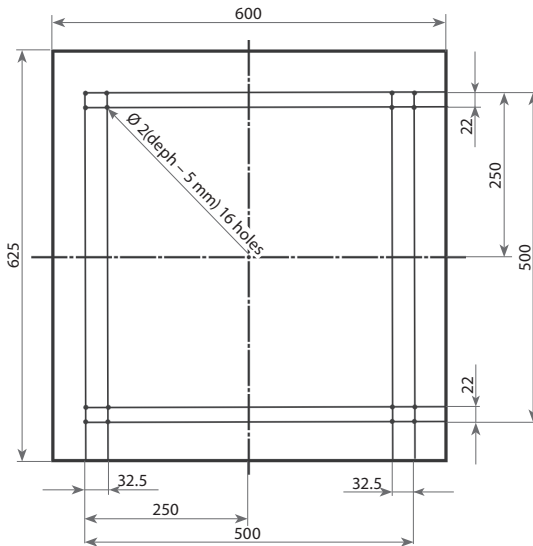
- ① – Mounting plates for furniture panel
- ② – Bottom cover
- ③ – Tin screws 4,2x13
- ④ – Kitchen hood 1224G-12
- ⑤ – Adapter for 392-12 kitchen hood
- ⑥ – Kitchen hood 392-12
- ⑦ – M4 screws for fixing the kitchen hood

The kitchen hood wires are connected to the terminal block at the bottom of the unit.



Front panel of R 190 VT - R 200 VT unit is equipped with mounting plates for furniture panel mounting. Mounting plates are screwed to a furniture panel and then the panel can be hung on the front of the unit.

Dimensions for mounting furniture panel

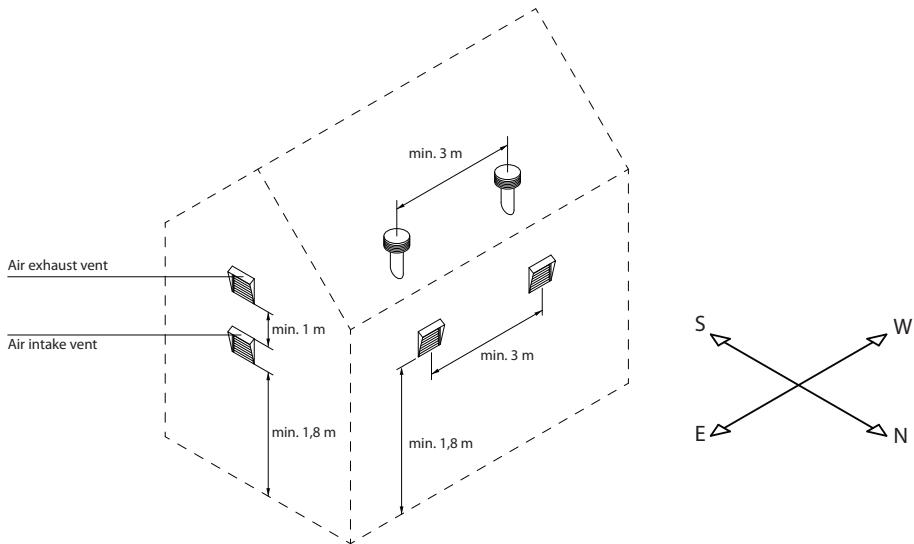


3.5. Duct system installation

The air in and out of the unit flows through the duct system. The duct system should be designed and selected to have low airflow rates and low pressure differentials, ensuring more accurate airflow rates, lower energy consumption, lower noise levels and longer life of the unit.

Outdoor vents must be installed as far apart as possible on different sides of the building to prevent the exhaust air from returning to the air intakes. Try to install the air intake vents where the outdoor air is the cleanest: do not direct them towards the street, car park or outdoor fireplace. We also recommend installing the air intake vent on the north or east side of the building, where the heat of the sun in summer will not have a significant effect on the supply air temperature.

It is highly recommended to install unit connecting ducts of supply inlet and exhaust outlet with a minimum slope on the outside of the premise, to avoid water flowing into the unit in case of rain or snow.



It is recommended to insulate the ducts in unheated rooms (attic, basement) to avoid heat loss. It is also recommended to insulate the supply air ducts if the unit is used for room cooling.

The air ducts are fitted to the unit with self-tapping screws. Different air flow duct positions are marked on the sticker located on the AHU:

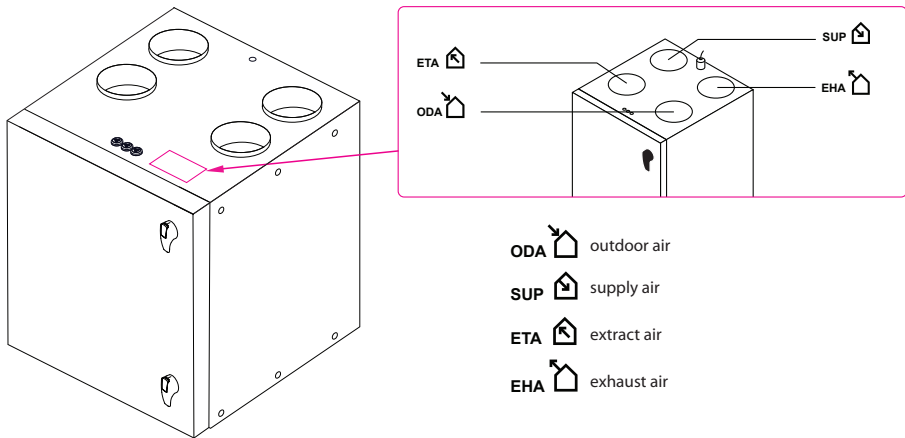


Fig. 8. Air duct marking

Most units with a rotary heat exchanger also have a fifth branch (labelled E) to connect an additional exhaust duct (see 1.3. section). The airflow through this opening is delivered directly to the exhaust fan, bypassing the filters and heat exchanger, therefore, you can connect ducts from the bathroom, toilet, or kitchen in cases when there is no additional extraction fan in these premises. However, air is extracted through an additional branch without recuperation, thus reducing the efficiency of the heat exchanger. For this reason, we do not recommend using the extra air extraction continuously. An additional exhaust duct should be fitted with air closing damper (motorized are recommended) and should only be opened when additional extraction is required (e.g. when bathing). If the additional branch is connected to the kitchen hood with an integrated closing damper, an additional damper is not needed.

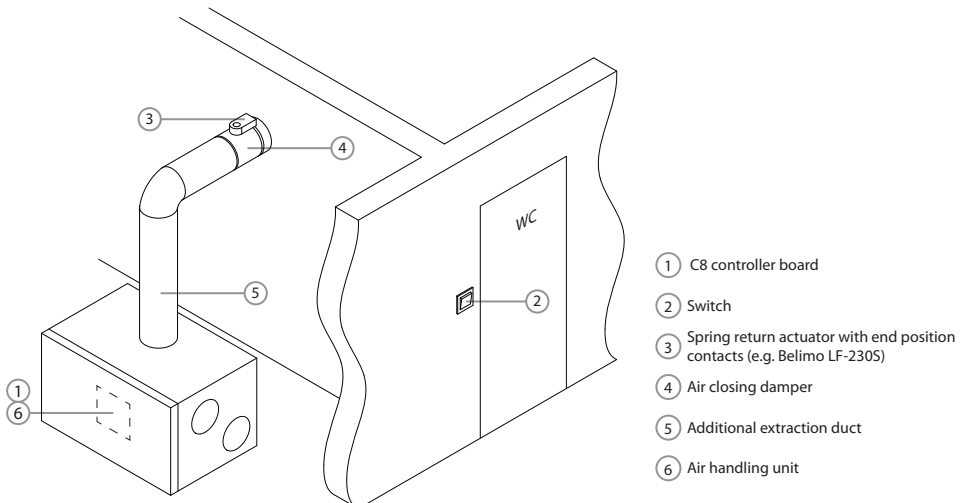


Fig. 9. Example of mounting of an additional air extraction duct



- Ducts connecting the unit to the exterior of the building must be insulated (insulation thickness 50–100 mm) to prevent condensation on cold surfaces.
- Air intake and exhaust ducts must be fitted with air closing dampers (mechanical spring-loaded or electric with actuators) to protect the unit from exposure to climatic conditions when the unit is switched off.
- In order to minimise AHU noise transferring through the ducts into ventilated areas, sound attenuators must be connected to the unit.
- Duct system elements must have separate brackets and to be mounted in a way that their weight is not shifted to the unit casing.
- The kitchen hood with integrated exhaust fan must not be connected to the additional air exhaust duct. Such hood must be connected to a duct separated from the general ventilation system.

The diameter of the ducts varies by unit model:

| | | Unit | | | |
|----------------------|-----|--------------------------------------|----------------|--|-----------------|
| | | Domekt R 190 V T Domekt R 200 V T | Domekt R 300 V | Domekt R 150 F Domekt R 250 F Domekt R 300 F | Domekt CF 200 F |
| Duct diameter, mm | ODA | 125 | 160 | 160 | 160 |
| | SUP | 125 | 160 | 160 | 160 |
| | ETA | 125 | 160 | 160 | 160 |
| | EHA | 125 | 160 | 160 | 160 |
| | ETB | 125 | 100 | 125 | – |
| | ETH | 125 | – | – | – |

3.6. Connection of external heating/cooling units¹

The following devices may be additionally connected to DOMEKT air handling units:

- Water heater.
- Water cooler.
- Direct expansion (DX) cooler/heater.
- Pre-heater (electric or water-glycol).

These accessories are intended for installation inside the supply air duct (except for the pre-heater). Pre-heater shall be installed inside the outdoor air duct, upstream the air handling unit. A qualified specialist must perform all connections to the heating or cooling system piping.



Non-freezing water-glycol mixture must be used as heat medium in a water pre-heater.

¹ Ordered separately.

When connecting the heater/cooler pipes, they must be supported by a box spanner – otherwise they will be damaged. If water is used in the heater, for frost protection water temperature sensor (B5), must be installed and fixed with strap on the return water pipe as close to the heater as possible. Fix the sensor in a way that its metal part has good contact with a surface of the pipe. The sensor must be thermally insulated so that the room temperature does not distort water temperature measurements.

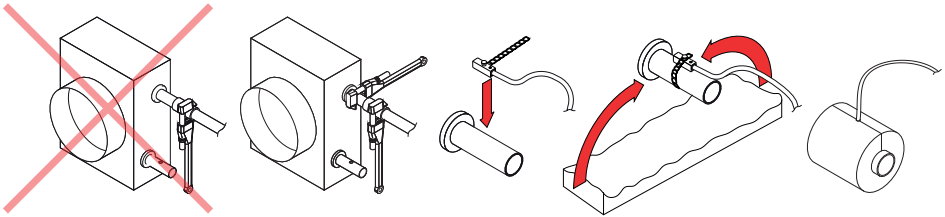


Fig. 10. Connecting the water heater/cooler hoses and installing the water temperature sensor



When operating the unit with negative outdoor temperature, a water-glycol mixture must be used as heat medium in a water heater or cooler or it is necessary to ensure a return water temperature of at least 25°C.



Pipework package¹ must include circulation pump, which circulates heating/cooling medium through the coil (smaller circuit) and 3-way mixing valve with modulated actuator. In cases if 2-way valve is used, additionally it must be installed non-return valves to ensure continuous circulation around smaller circuit. PPU must be installed as close to the water coil as possible.

Heat exchanger coil of DX coolers/heaters are factory-filled with nitrogen gas. Before connecting heat exchanger coil to the refrigerant system, the nitrogen gas is discharged through a valve which is then cut off and coil connections are soldered to the pipeline.

3.6.1. Thermostat function²

C6.1 control panel can also be used as a room thermostat to turn on/off external heating or cooling devices (e.g., heating boiler, heat pump or air conditioner) according to the temperature of the room where the control panel is installed. Based on the control panel settings, the digital output is activated according to the room temperature (terminals No. 16-18, see "Connection of Electrical Components"). If two control panels are used, you can select different digital outputs on each of the control panels. This will allow activating different heating / cooling devices depending on which control panel temperature does not meet the desired temperature. Thermostat function can also be active when the device is stopped.

Read more about the function and settings in the User Manual.

¹ It is recommended to use PPU made by Komfovent.

² C8 controller software version must be C8_1_1_7_18 or later, and for control panel – C6_1_slim_1_1_4_39 or later.

3.7. Connection of condensate drain

In Domekt CF units with counter-flow plate recuperator, condensate is formed due to the difference between indoor and outdoor temperature, therefore, units of this type are equipped with condensate drip pans and drainage outlets. Due to the negative air pressure in the air handling unit, the water cannot drain out of the condensate collection tray by itself, therefore, it is necessary to connect a siphon or a siphon with a one-way valve to the drain pipe.

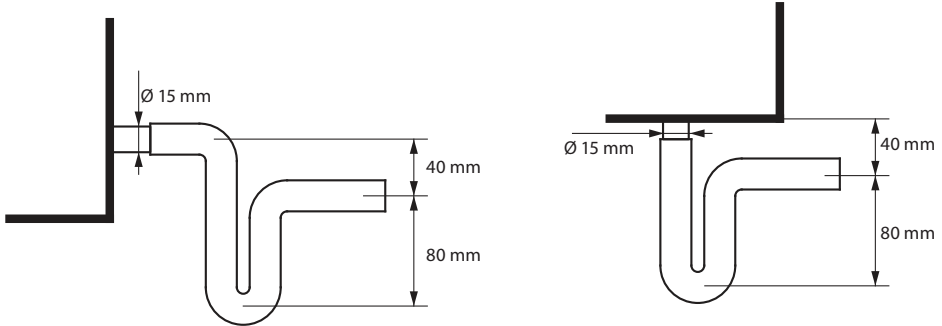


Fig. 11a. Installation of a siphon without one-way valve

The drainage pipeline must be mounted with a slope, without any constrictions or loops, which might prevent water from draining easily. If the drainage pipeline passes through the outdoors or unheated premises, it must be adequately insulated or equipped with a drainage heating cable to prevent water freezing in winter. Any drainage system cannot be directly connected to the wastewater system in order to prevent the transmission of odours and bacteria into the supply air. Condensate from the drain of the air handling unit must be collected in a separate container or into the sewage grate without direct contact: do not connect drain directly to sewer pipe and do not immerse it into water. The condensate collection point should be easy to clean and disinfect.

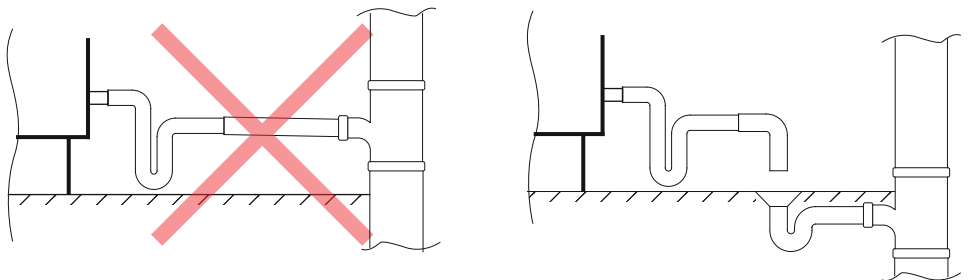


Fig. 11b. Condensate drain connection to sewer system

4. ELECTRICAL INSTALLATION

Electrical work may only be carried out by a qualified electrician in accordance with the instructions given in this manual and in accordance with applicable legal requirements and safety requirements. Before performing electrical component installation:



- Make sure the unit is unplugged from the mains.
- If the unit has been standing in an unheated room for a long time, make sure there is no condensation inside it and check that the connectors and electronic parts of the connectors are not damaged by moisture.
- Check the insulation of the power cable or other cables for damage.
- Locate the electrical diagram of the unit according to the specific unit type.

4.1. Electrical input requirements



- The power supply rating for the unit is 230 V AC, 50 Hz.
- Connect the unit only to suitable power socket with appropriate earthing and meeting the electrical safety requirements.
- It is recommended to connect AHU to the mains via 16 A automatic circuit breaker with 30 mA current leakage protection (type B or B+).
- It is recommended that the control cables be placed at least 20 cm from the power cables, to reduce the possibility of electrical interference.
- All external electrical elements must be connected strictly according to the electrical diagram of the unit.
- Do not disconnect the connectors by pulling them on wires or cables.

4.2. Connecting electrical components

All internal and external unit elements are connected to the main controller board.

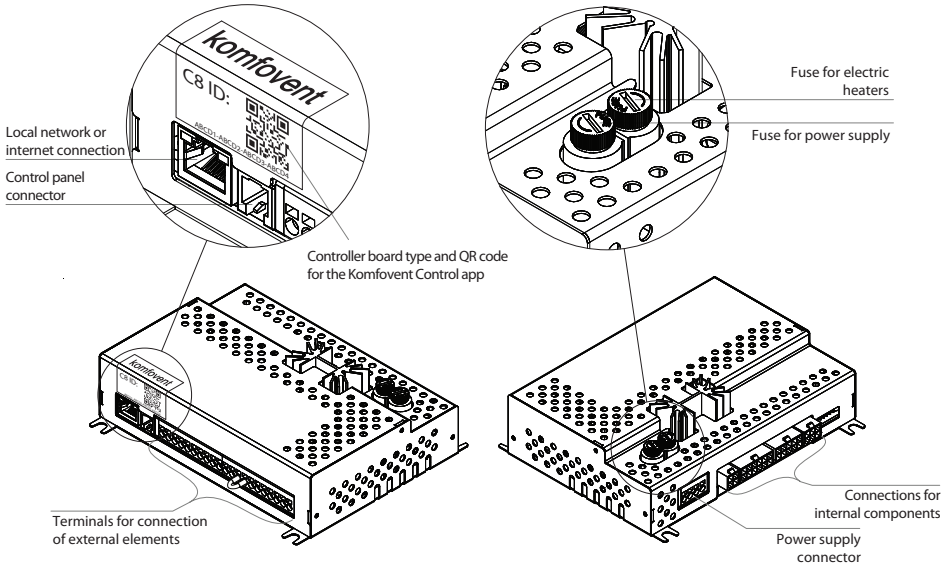


Fig. 12. C8 controller main board

The controller board on the unit may be concealed under the protective cover that must be removed for access to the controller terminals. For the location of the automation box and the controller board, see section 1.3. The terminals of the external elements of the controller board are numbered and are used only to connect optional components and may remain empty if no additional features are required.

| | | | |
|----|--------|---|-------|
| 1 | A | Modbus RTU | RS485 |
| 2 | B | | |
| 3 | +24V | Air quality sensor / Humidity sensor | B8 |
| 4 | GND | | |
| 5 | 0..10V | | |
| 6 | +24V | Water mixing valve actuator / DX control Frost protection | AOUT |
| 7 | GND | | |
| 8 | 0..10V | | |
| 9 | NTC | Supply air temperature sensor | B1 |
| 10 | GND | | |
| 11 | NTC | Return water temperature sensor | B5 |
| 12 | GND | | |
| 13 | C | General Fire alarm Priority | DIN |
| 14 | NC | | |
| 15 | NO | | |
| 16 | C | General Heating Cooling | DOUT |
| 17 | NO | | |
| 18 | NO | | |
| 19 | Q | Air damper actuators Max 15W | FG1 |
| 20 | ~230V | | |
| 21 | N | | |

Fig. 13. Terminals for connecting external elements of C8 board



- The terminal numbering shown here only applies for C8 controller board. Before connecting the external elements, check the board type on the sticker in the front of the controller (see Fig. 12).
- The total power of external elements using 24 V voltage may not exceed 30 W.

- **RS485 (1–2)** – here it can be connected:
 - Control panel (see. Fig. 16)
 - Data cable for a building management system, working via Modbus RTU protocol.
 - Fire dampers controller.¹
- **B8 (3–5)** – for connection of air quality or humidity sensors for “Air quality” function. When the sensors are connected, its type and connection point must be specified in the settings (see “Domekt User Guide”).
- **Outputs TG1 (6–8)** – Power supply and control signal for a water mixing valve actuator of the external heat exchanger or direct evaporation (DX) cooler/heater. Depending on the “External coil” type selected in the settings (see “Domekt User Guide”), the valve actuator will be controlled by a heating or cooling signal. An external pre-heater for frost protection of the CF heat exchanger may also be connected here.
- **B1 (9-10)** – if additional duct-mounted heating/cooling devices are used, duct supply air temperature sensor must be installed instead. In the duct, the sensor must be installed downstream all heating/cooling units at a distance of at least two duct diameters from the nearest heat exchanger coil.

¹ Optional fire damper controller must be configured and connected. Refer to Fire damper controller manual for more information.

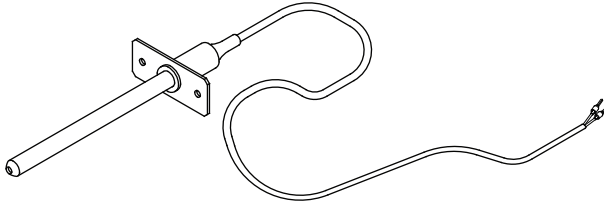


Fig. 14a Duct mounted supply air temperature sensor

- **B5 (11-12)** – for duct mounted water heater, a return water temperature sensor must be installed to protect against freezing (see section 3.6).

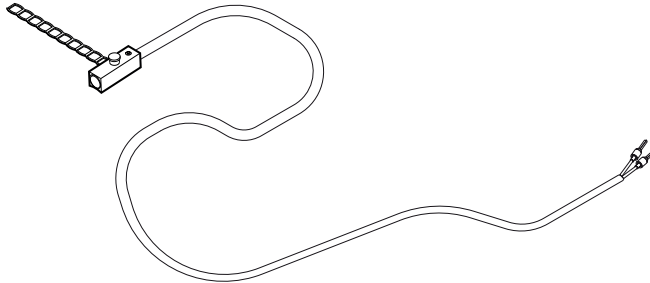


Fig. 14b. Water temperature sensor

- **Inputs (13–15)** – to switch between the “Override” ventilation modes (see “Domekt User Guide”), connect the respective terminals together with the common terminal 13 (ventilation modes will operate until the terminals are connected). To activate these modes, a switch, a motion detector or kitchen hood with normally open contacts (NO) can be connected to the terminals.

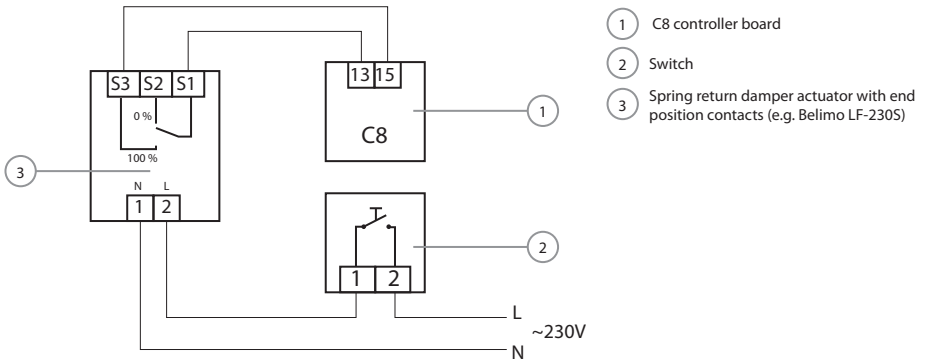


Fig. 15. Example of “Override” ventilation mode activation when using additional air extraction with a motorised damper (see Fig. 8)

Fire alarm requires a normally closed contact (NC), therefore, a jumper is connected between terminals 13 and 14, instead of which, building fire system can be connected. When the contact is disconnected, the unit is stopped and a fire alarm message is displayed.

- **Outputs (16–18)** – the terminals are used when external heating/cooling units require an additional closed/open contact (i.e. to start the DX unit). The corresponding contacts are closed depending on whether the air handling unit heats or cools.

If the thermostat function is used, you can connect external devices (e.g., heating boiler or heat pump) to these terminals, which will turn on/off when the control panel temperature does not meet the desired temperature. In the function settings on the control panel (see “User manual”), you can select which terminal will be used to switch on the external device. You can also select the signal type: normally open (NO) or normally closed (NC) contact. Based on these settings, terminals 16 + 17 or 16 + 18 will be activated as soon as the thermostat is activated.



If an external DX unit is used, the “Thermostat function” will be blocked and these terminals will be used to control the DX unit.

- **FG1 (19–21)** – terminals used to connect air damper actuators. 230 V power supply actuators with or without a spring return can be connected to them.

4.3. Control panel installation

The control panel must be installed in a room with:

- ambient temperature – 0...40°C;
- relative humidity 20% to 80%;
- protection against accidental water droplets.

The control panel can be mounted on a concealed mounting box or directly on the wall – the screws are supplied with the panel. You can also use the magnets on the back to attach the panel to metal surfaces (i.e. on the door of the unit). If possible, mount the control panel in a place with good circulation of the ventilated air. Do not install the control panel inside of cabinets, behind doors, in a corner of a room and avoid direct sunshine. This is very important when room temperature maintenance is used or in CF type AHU's, which uses temperature and humidity sensors inside of the control panel for operation.



Do not use any other size or type of screws but those that are packed together for control panel mounting. Wrong screws may damage the panel's electronics board.

The control panel comes with a 10 m cable. If this cable is too short, you can replace it with a 4x0.22 mm cable, no longer than 150 m.

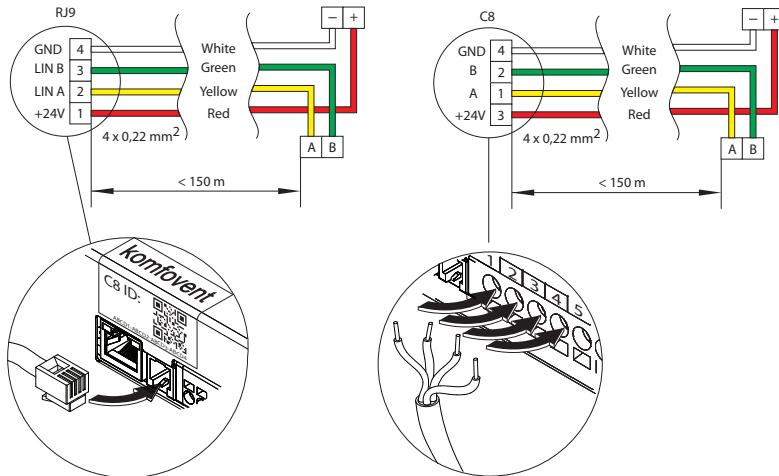


Fig. 16. Control panel cable wiring diagram

Control panel cable is connected to the C8 main board as shown in Fig. 16. The exception is the R 200 V unit, where, if needed, the panel cable can be also connected to an external RJ10 connector.

It is advisable to run the control panel cable in such a way that it does not go near the power supply wires or high voltage electrical equipment (electrical inlet cabinets, electric water heating boiler, air conditioning unit, etc.). The cable can be passed through the holes in the back or bottom of the control panel (follow the installation instructions supplied with the control panel). The wire to C8 controller board is connected to a dedicated slot (RJ9 connector; see Fig. 12) or to the terminals for external connections.

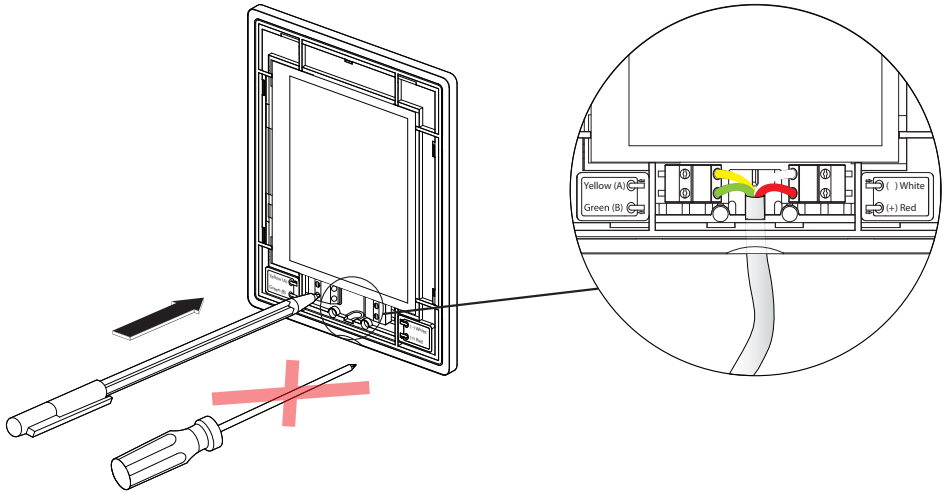


Fig. 17. Cable connection to the control panel



Do not use sharp tools (e.g. screwdriver) to press on the control panel's contacts. Pencil or ballpoint pen is best for this.

4.4. Connecting the unit to an internal computer network or the Internet

The unit can be controlled not only by the control panel, but also by computer or smart phone. In such cases, the air handling unit must be connected to an local computer network or to the Internet. The unit is controlled by a computer using a web browser, or a smartphone with a Komfovent Control app. The air handling unit is connected to the computer network with a CAT5 type cable (RJ45 connector; see Fig. 12). The total cable length between the unit and the network router must not exceed 100 m.

By default, the IP address of the air handling unit is 192.168.0.60, but it can be changed (if necessary) according to the local network parameters. The IP address can be found and changed on the control panel¹.

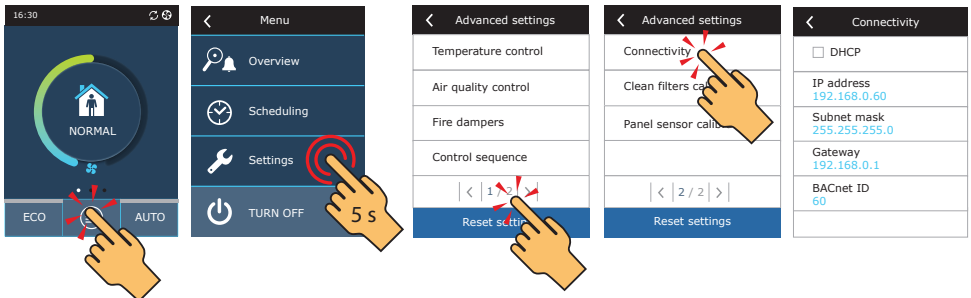


Fig. 18. View and change the IP address of the AHU on the control panel

An air handling unit connected to a network router can be controlled by a computer via a wireless connection (Wi-Fi) on the internal network. After connecting the unit to the network router, activate the DHCP setting on the panel (see Fig. 18). This will automatically assign the unit a free IP address on the local network (do not use this setting if you connect the computer directly to the unit).

When connecting the computer directly to the unit, in the network settings of the computer, it is needed to manually assign an IP address the last number of which would be different from the unit's IP address (for example, if the unit's IP address is 192.168.0.60, assign the address 192.168.0.70 to the computer). Also enter the subnet mask: 255.255.0.0.

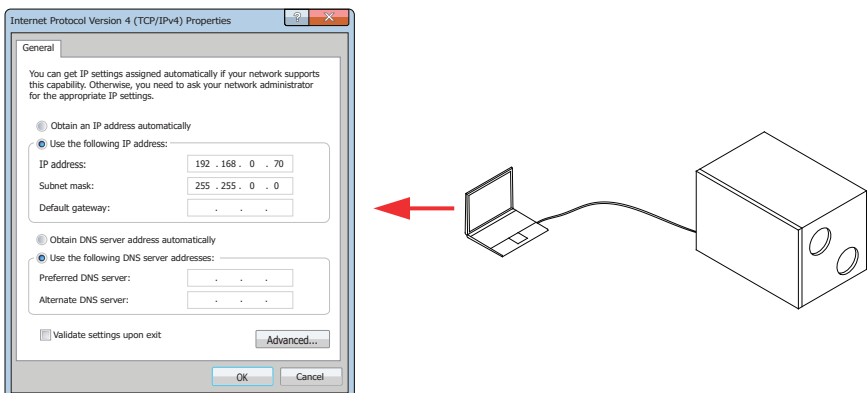


Fig. 19. Computer network settings for direct connection to the unit

¹ Only on the C6.1 panel (see Fig. 21).

To control the unit over the Internet, it must be connected to a network router with Internet access. Subsequent settings vary depending on whether the unit is controlled by a computer or a smartphone.

- The easiest way to manage your unit over the internet is to use a smartphone with the Komfovent Control app. Launch the app on your phone (the phone must have Internet access). When you connect for the first time, the app will ask you to scan the QR code at the front of the controller board (see Fig. 12). When you scan the code, the app will automatically establish the connection to the unit (for more information on the Komfovent Control app, see “Domekt User Guide”).
- You will need to change more settings to control your unit over the Internet using your computer. First, port forwarding must be configured to the IP and port number of the unit 80, according to the instructions of the network router. When you connect to the internet with a computer, you will have to enter an external router IP address and the port number in the Internet browser to point to the user interface of the air handling unit (see “Domekt User Guide” for more information on computer control).

Connection over the Internet

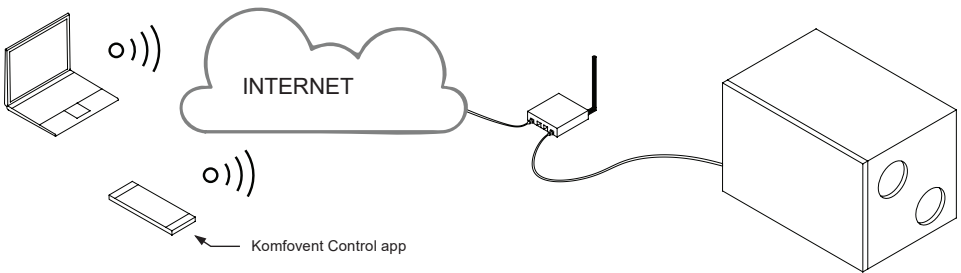


Fig. 20. Examples of unit connection to a local network or the Internet

5. STARTING AND CHECKING THE UNIT

Check for any foreign objects, garbage, or tools inside the unit before turning it on. Check that air filters are installed, or that condensate drainage is connected (if required), and fill the siphon with water. Inspect the duct system for unnecessary obstructions such as fully closed diffusers, regulation dampers, check that outdoor air grills are not blocked.



The operation, maintenance or repair of the air handling unit is prohibited for people (including children) with mental, physical or sensory disabilities, as well as for persons without sufficient experience and knowledge, unless supervised and instructed by the person responsible for their safety in accordance with these instructions.



- **The air handling unit can only be started when it is fully installed, with ducts and external electrical elements connected. Do not start the unit without duct system, as this may distort the measurement of the airflow required for stable fan control.**
- **Do not use the unit with a temporary electrical power supply as unstable power can damage the electronic components.**

The air handling unit can be equipped with one of two control panels¹:

- C6.1 control panel with touch screen and colour display. Many functions and settings of the AHU can be reviewed and adjusted on the panel.
- C6.2 control panel with touch buttons that can only switch between basic ventilation modes and settings.

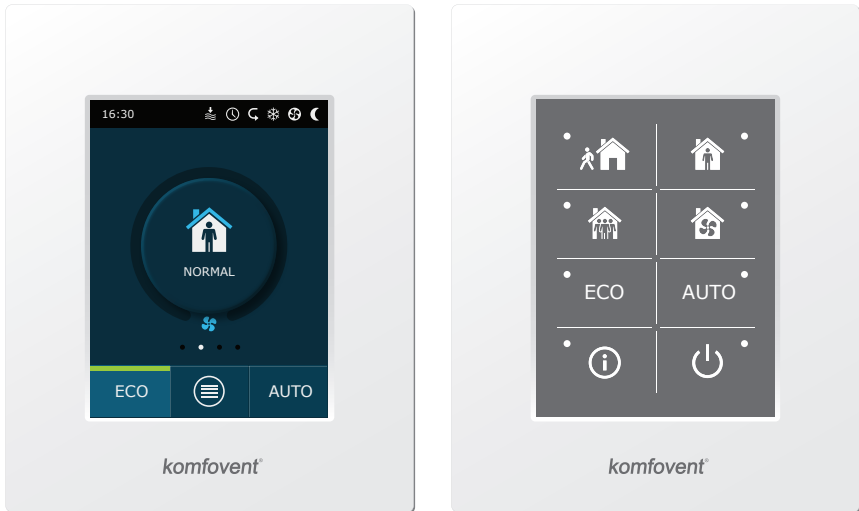






Fig. 21. Control panels C6.1 and C6.2

By default, the following standard ventilation modes are preprogrammed in the unit:

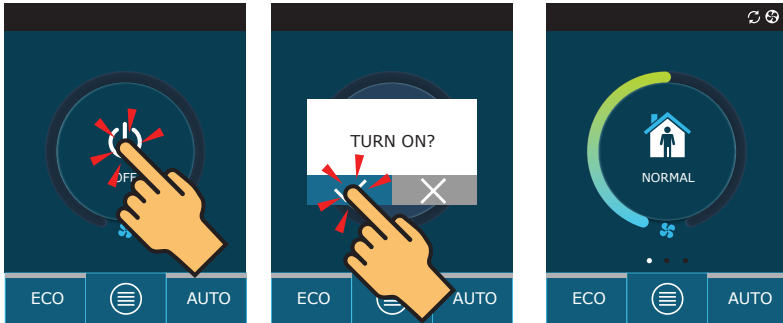
| |  |  |  |  |
|-----------------------|---|---|---|---|
| | AWAY | NORMAL | INTENSIVE | BOOST |
| Ventilation intensity | 20% | 50% | 70% | 100% |
| Set temperature | 20°C | 20°C | 20°C | 20°C |

¹ Depends on your order.

5.1. Control panel C6.1

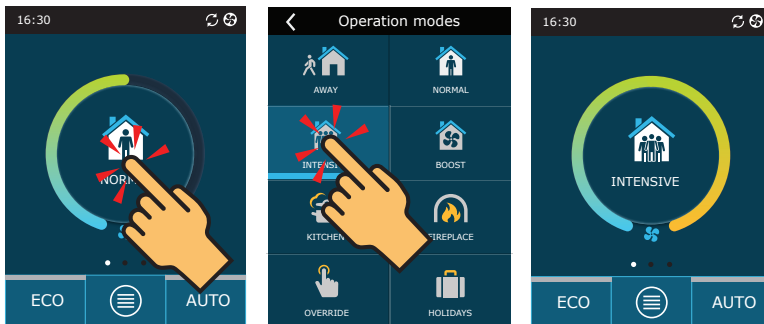
If the unit is connected to the mains, you will see a home screen or a screen saver on the control panel. Touching screen saver on the panel display will return it to the home screen.

To turn on the air handling unit:

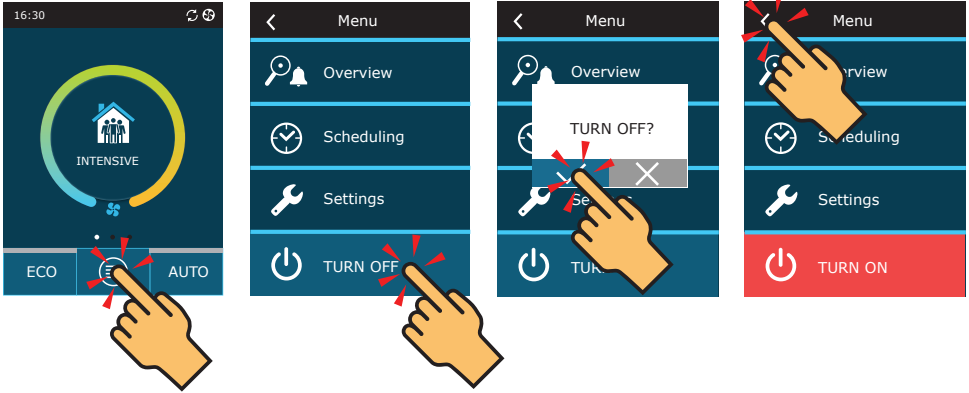


During the first minute after start-up, the automation of the unit will evaluate the unit settings, check the automation components and open the air dampers (if the duct system is equipped with air dampers with actuators). Afterwards a signal to the fans will be given and the unit will start operating in the last used ventilation mode.

To change the ventilation mode:



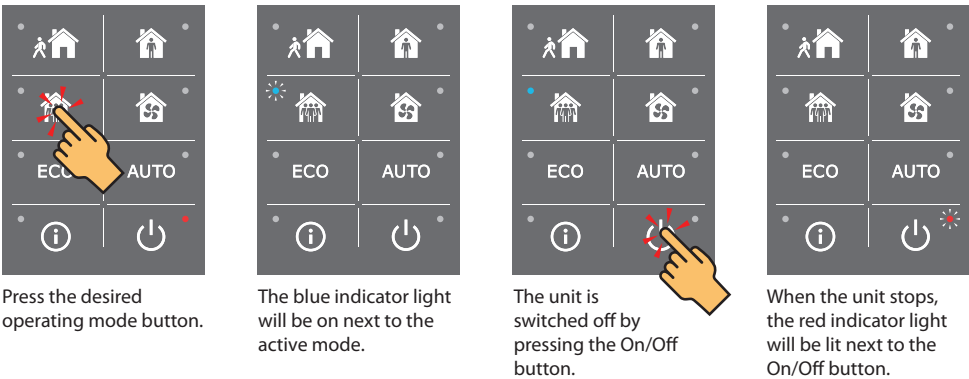
To turn off the air handling unit and return to the home screen:



5.2. Control panel C6.2

If the unit is connected to the mains and is currently stopped, a red indicator next to the power button will light up.

To turn ON/OFF the AHU or select the operating mode:



Press the desired operating mode button.

The blue indicator light will be on next to the active mode.

The unit is switched off by pressing the On/Off button.

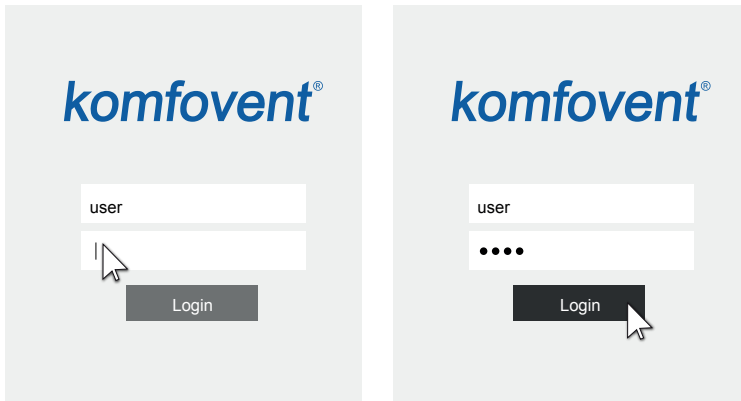
When the unit stops, the red indicator light will be lit next to the On/Off button.

5.3. Start-up of the unit using a computer

If the unit was ordered without a control panel, it can be started by using a computer. The unit is controlled by a computer using a web browser. Connect the computer directly to the air handling unit or to the computer network to which the air handling unit is connected as described in section 4.4. Disable the use of all proxy servers that may block the connection to your unit in Internet browser settings. Enter the IP address of the unit in your web browser:

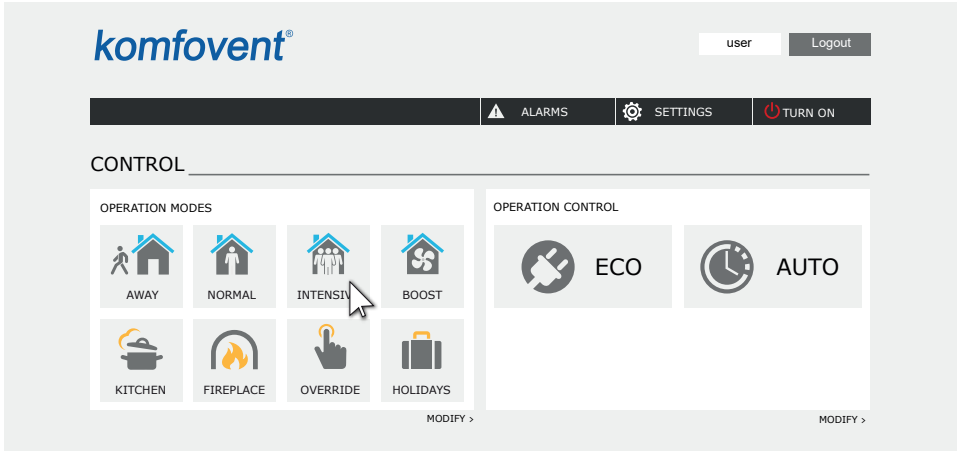


Log in to the C8 controller user interface: enter the user name *user*, password *user*¹ and press the “Login” button.

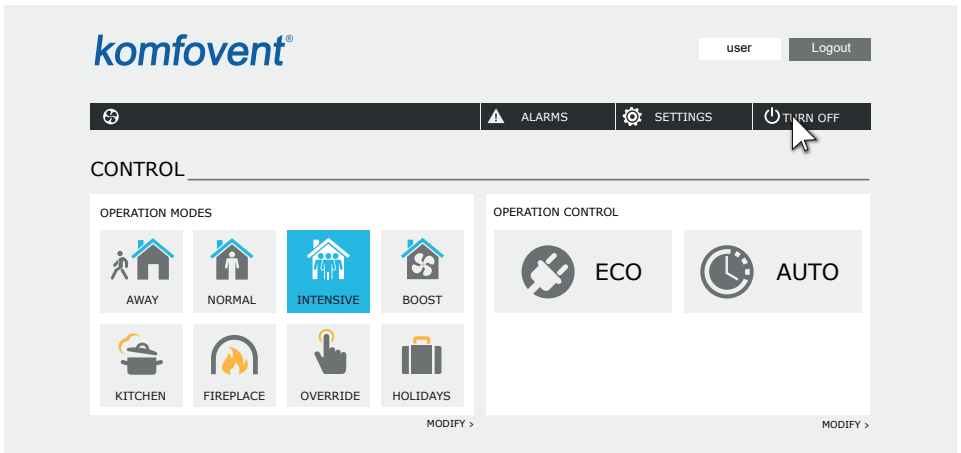


¹ Should you forget a changed password, it can be reset to the initial “user”. To do this, you must restore the factory settings for the air handling unit using control panel.

To start the unit, press the required ventilation mode button:



You can stop the unit by pressing the "OFF" button:



5.4. Quick check

When you start your unit for the first time, check whether:

| Task | Yes | No | Notes |
|---|-----|----|-------|
| The control panel operates responds to touches, and there are no error messages | | | |
| The air dampers opens fully | | | |
| There are no extraneous sounds and vibrations | | | |
| Changing the ventilation modes changes the fan speed | | | |
| The unit is airtight without gaps or air leakage | | | |
| Heating/cooling devices operates correctly | | | |
| External devices connected operates correctly | | | |
| The condensate easily flows from the unit and the drainage piping is watertight | | | |
| Other notes: | | | |
| | | | |
| Unit installed by | | | |
| Company | | | |
| Phone | | | |
| Date | | | |
| Signature | | | |

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| BE | Ventilair group ACB Airconditioning | www.ventilairgroup.com www.acbairco.be |
| CZ | REKUVENT s.r.o. | www.rekuvent.cz |
| CH | WESCO AG SUDCLIMATAIR SA CLIMAIR GmbH | www.wesco.ch www.sudclimatair.ch www.climair.ch |
| DK | Øland A/S | www.oeland.dk |
| EE | BVT Partners | www.bvtpartners.ee |
| FR | ATIB | www.atib.fr |
| HR | Microclima | www.microclima.hr |
| HU | AIRVENT Légtechnikai Zrt. Gevent Magyarorszá g Kft. Merkapt | www.airvent.hu www.gevent.hu www.merkapt.hu |
| IE | Lindab | www.lindab.ie |
| IR | Fantech Ventilation Ltd | www.fantech.ie |
| IS | Blikk & Tækniþjónustan ehf Hitataekni ehf | www.bogt.is www.hitataekni.is |
| IT | ICARIA | www.icaria.srl |
| NL | Ventilair group DECIPOL-Vortvent CLIMA DIRECT BV | www.ventilairgroup.com www.vortvent.nl www.climadirect.com |
| NO | Ventilution AS Ventistål AS Thermo Control AS | www.ventilution.no www.ventistal.no www.thermocontrol.no |
| PL | Ventia Sp. z o.o. | www.ventia.pl |
| SE | Nordisk Ventilator AB | www.nordiskventilator.se |
| SI | Agregat d.o.o | www.agregat.si |
| SK | TZB produkt, s.r.o. | www.tzbprodukt.sk |
| UA | TD VECON LLC | www.vecon.ua |