

Translation of the original instruction manual

Heat Recovery Unit CLIMOS F 200 Eco



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1 Introduction

1.1 General

This translation of the original instruction manual contains instructions and information on the safe operation, correct installation, operation and maintenance of the Climos 200 Eco ventilation unit.

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This documentation has been compiled with the utmost care. However, no rights can be derived from this regarding the publisher's liability for damages due to missing or incorrect information in this documentation. As a result, it is possible that the unit may deviate slightly from this description. In the event of disputes, the German version of the documentation shall be binding.

- ▶ Read the instructions in full before installing and commissioning the ventilation unit. This will help you avoid hazards and errors.
- ▶ Be sure to observe all safety notes, warnings and information on precautionary measures.
- ▶ The instruction manual constitutes a part of the product. Keep the manual for future reference.

! Questions

You can address all questions and request the most recent manuals and new filters from your Zehnder representative. The contact information is found on the back cover of this manual.

1.2 Validity

This document applies to the following unit types:

- Unit type Climos 200 Eco series (Zehnder Climos 200 Enthalpy Eco series)

All the units in the Climos 200 Eco series are referred to below using the generic product name CLIMOS, except where it is necessary to distinguish between specific types.

This instruction manual deals with the various design variants of the CLIMOS heat recovery unit. Possible accessories are only described to the extent necessary for appropriate operation of the unit. Please refer to the respective instructions for further information on accessory parts.

1.3 Target groups

This instruction manual is for users and qualified personnel. The activities are only allowed to be carried out by appropriately trained personnel who are sufficiently qualified for the respective work involved.

1.3.1 Qualification of target group

1.3.1.1 Users

Users must be instructed by qualified personnel as follows:

- ▶ Instruction in hazards when handling electrical devices.
- ▶ Instruction in the operation of the CLIMOS unit.
- ▶ Instruction in the maintenance of the CLIMOS unit.
- ▶ Knowledge of and compliance with this manual, including all safety instructions.

1.3.1.2 Qualified personnel

Qualified personnel must have the following qualifications:

- ▶ Training in dealing with hazards and risks when installing and operating electrical devices.
- ▶ Training for the installation and commissioning of electrical devices.
- ▶ Knowledge of and compliance with the locally applicable building, safety and installation regulations of the relevant local authorities or municipalities, the regulations of the water and electric utilities and other official regulations and guidelines.
- ▶ Knowledge of and compliance with this document, including all safety instructions.

1.4 Conformity

The Climos 200 Eco series ventilation units from the manufacturer



Zehnder Group Zwolle B.V.

Lingenstraat 2 • 8028 • PM Zwolle-NL • Tel.: +31 (0)38-4296911

Zwolle commercial register 05022293

comply with the directives and standards of the EU Declaration of Conformity.

2 Proper use

2.1 Operation of the unit

- The unit may only be operated if it has been installed correctly and according to the specifications and directives of the installation manual of the unit.
- The unit may be operated by the following groups of people: children from age 8, persons with limited physical, sensory or mental abilities, or persons with insufficient experience and specialised knowledge, provided they are supervised or instructed in the safe handling of the unit and understand the associated hazards.
- Children must not play with the unit.
- Children must not carry out cleaning and maintenance without supervision.

2.2 Intended use

- The CLIMOS unit can be used for controlled ventilation in homes and offices (and in industrial buildings subject to certain restrictions), in which no exceptional humidity loads occur. The air humidity of the ventilated rooms may not permanently exceed 70% RH, short term increased humidity of 80% RH for approximately one hour is permissible. Any other use or any use beyond this is considered improper use.
- The ventilation unit is not suitable for smoke extraction or drying buildings, for ventilation of rooms with aggressive and corrosive gases or for rooms with extreme dust levels.
- The unit must not be used for extracting combustible or explosive gases.
- Intended use also includes observing all instructions in the instruction manual.

In the event of improper use, the Zehnder Group accepts no liability for any damage that may occur and no warranty for the proper and functional operation of the ventilation unit.

2.3 Provisions for operation with fireplaces

Local requirements must be taken into account through appropriate standards, laws and guidelines. The CLIMOS unit may only be installed in rooms, apartments or utilisation units of comparable size in which open flue fireplaces are installed if:

- safety features prevent simultaneous operation of open flue fireplaces and the air extracting system or
- the flue gas discharge of the open flue fireplace is monitored by special safety features. In case of open flue fireplaces for liquid or gaseous fuels, the fireplace or the ventilation system must be switched off if the safety feature is triggered. In case of open flue fireplaces for solid fuels, the ventilation system must be switched off if the safety feature is triggered.

The ventilation units for controlled ventilation of an apartment or comparable utilisation unit must not be installed if open flue fireplaces are connected to multiple-occupancy flue systems in the utilisation unit.

For proper operation, it must be possible to shut off any combustion ventilation lines and flue gas systems of open flue fireplaces. In case of flue gas systems of fireplaces for solid fuels, it must only be possible to operate the cut-off device manually. The position of the cut-off device must be recognisable from the setting of the operating handle. This is considered to be fulfilled if a cut-off device against soot (soot blocker) is used. Fire protection requirements with regard to the fire protection installation regulations for the construction of the ventilation system, and federal state regulations, in particular the building authority guideline on the fire protection requirements for ventilation systems in the currently valid version, must be observed.

2.4 Guarantee conditions, warranty and liability

2.4.1 Guarantee conditions

The manufacturer gives a warranty of 24 months starting from the installation date, or a maximum 30 months starting from the date of manufacture, for the unit. Warranty claims may only be asserted for material defects and/or design faults that have occurred during the warranty period.

In the event of a warranty claim, the unit must not be disassembled without the written consent of the manufacturer. Spare parts are only covered by the warranty if they have been supplied by the manufacturer and fitted by an approved technician.

2.4.2 Warranty

In the event of a warranty claim, the unit must not be disassembled without the written consent of the manufacturer. Spare parts are only covered by the warranty if they have been supplied by the manufacturer and fitted by an approved technician.

The warranty shall be null and void if:

- ▶ The warranty period has elapsed.
- ▶ The installation has not been carried out in accordance with the applicable regulations.
- ▶ The unit is operated without a filter.
- ▶ Original parts have been replaced by non-original parts.
- ▶ Unauthorised changes or modifications to the unit have been made.
- ▶ The defects are due to improper installation, improper use or neglected maintenance of the system.

2.4.3 Liability

The CLIMOS is intended for use in the mechanical ventilation of apartments, offices and rooms with a similar purpose. Every other use other than that described in chapter 2 is considered "improper use" and may result in personal injury or damage to the balanced ventilation unit for which the manufacturer cannot be held liable.

The liability of the manufacturer becomes null and void in the following cases:




- ▶ Failure to observe the instructions specified in this manual pertaining to safety, operation and maintenance.
- ▶ Modifications to the ventilation unit or the use of components that have not been approved or recommended by the manufacturer.
- ▶ Incorrect installation, improper use or contamination of the system.
- ▶ Original parts have been replaced by non-original parts.
- ▶ The unit is operated without a filter.

3 Safety

Carefully read all safety instructions prior to commissioning the unit to make sure that you use the unit in a safe and intended way.

3.1 Hazard classification

This manual contains information that must be observed for your personal safety and in order to prevent personal injury and damage to property. This information is highlighted in the form of warning notes, which are shown below according to the degree of risk.

 DANGER
This signal word indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
 WARNING
This signal word indicates a hazard with a medium level of risk which, if not avoided, will result in death or serious injury.
 CAUTION
This signal word indicates a hazard with a low level of risk which, if not avoided, will result in a minor or moderate injury.
NOTE
In the meaning of this manual, a note includes important information about the product or the respective section of the manual to which special attention is drawn.

3.1.1 Safety regulations

3.1.1.1 Safety instructions – general

- Always observe the safety regulations, warning, comments and instructions stated in this manual. Non-observance results in hazard of injury and hazard of material damage to the CLIMOS.
- The installation, commissioning and maintenance (except for filter replacement) must be carried out by an approved technician unless stated otherwise in the instructions. Implementation of this work by a non-approved technician can result in personal damage or reduced performance capacity of the ventilation system.
- Do not disconnect the unit from the power supply unless instructions to the contrary are listed in the manual. This can result in the formation of moisture and mould.
- Do not make any changes to the unit or to the specifications listed in this document. Such changes can cause personal injury or lead to reduced performance of the ventilation system.

- To prevent accidents, a damaged mains cable must be replaced by an original cable by the manufacturer, a person commissioned to carry out maintenance by the manufacturer or a similarly qualified person.
- After installation, have your system engineer/installer instruct you on the unit and the control panel. The ventilation unit may only be used in accordance with chapter 2 "Intended Use".
- Only operate the unit with a closed housing.

3.1.1.2 Safety instructions – Installation

- Comply with the general locally applicable building, fire, safety and installation regulations of the relevant local authorities, the regulations of the water and electric utilities and all other official regulations.
- Pull the unit's plug from the mains socket to separate the unit from the power supply. If the unit does not have a plug, use a switch according to EN 60335-1 (with separation of all three poles and 3 mm clearance, over-voltage category III).
- Always disconnect the unit from the power supply prior to commencing maintenance or repair activities. If the CLIMOS unit is operated while open, there is hazard of injury.
- Make sure that the CLIMOS unit cannot switch on unintentionally.
- To eliminate the risk of coming into contact with the running fans, the air ducts must be fastened to the unit before the power supply is connected, observing a minimum length of 900 mm.
- Therefore, always apply measures to prevent electrostatic discharges when working on the electronics. Wear an antistatic wrist band, for example. Static energy can cause damage to electronic components.
- The entire installation must comply with the applicable (safety) regulations from the following sources:
 - local EU standard for safety features for low voltage systems;
 - Mounting/installation manual of the manufacturer (see the back cover of the instruction manual for the contact data of Zehnder).
- A socket with grounding at a distance of 1 meter or no more than the length of the included mains cable must be present.
- Always use the included mains cable.
- For safety reasons do not use an extension cable.

3.1.2 Installation conditions

The following conditions must be considered when deciding whether a unit should be installed in a specific area to ensure the correct installation of the unit.

- ▶ Ensure that the temperatures in the installation area are in the permissible range year-round. The information regarding the permissible temperature can be found in the "Technical specification" table.
- ▶ When choosing an installation location, it is recommended that you avoid areas with a high average level of humidity (ambient conditions for indoor climate control system must not continuously exceed 70% RH at 22 °C).
- ▶ The unit must not be installed in rooms subject to explosion hazards.
- ▶ Inside wet rooms, the unit may only be installed outside of protection zones 1 and 2 in accordance with DIN 57100/VDE 100 Part 701.
- ▶ Connect the unit to a power source with 230 V/50 Hz.
- ▶ Check whether the electrical installation is suitable for the maximum output of the unit. The values for the electrical input power can be found in the "Technical specification" chapter.

3.1.3 Disposal

The unit must be disposed of in an environmentally-friendly manner. Do not dispose the unit with your domestic waste.

NOTE

Packaging materials, consumables and waste equipment must be disposed of at the end of their useful life in accordance with the applicable regulations in your country.

4 Chapter for operators and qualified personnel

4.1 Product description

The CLIMOS unit is built to the current state of the art and the recognised safety regulations. The unit is subject to continuous improvement and development. This is why it is possible for your unit to deviate slightly from the description.

4.1.1 Unit design and function

The CLIMOS unit is a ventilation unit with heat recovery for healthy, well-balanced and energy-saving comfort ventilation. A comfort ventilation system extracts foul-smelling waste air from areas such as kitchens, bathrooms and toilets and conveys an identical quantity of fresh air into living rooms, bedrooms and children's rooms.

A membrane moisture heat exchanger (enthalpy exchanger), which can transfer both humidity and heat owing to its physical characteristics, is used in the CLIMOS unit for the waste heat recovery. We recommend the use of humidity sensors for monitoring the limits in rooms with high humidity.

The housing is made from sheet metal with an anthracite powder coating. The high-quality polypropylene inner lining ensures the necessary thermal insulation and unit soundproofing.

Depending on the unit variation, the CLIMOS unit is equipped with an integrated defroster based on a PTC heating register and available in the types >R (right – type A) or L (left – type B). The type label includes information about the type of the unit.

The CLIMOS unit has two maintenance-free 230 VAC centrifugal fans with an integrated power supply unit and electronic commutation. The fans run at a steady volume flow to keep the air volume constant at any selected fan speed. The air volume is not affected even if the filters become soiled.

The unit contains filters according to EN ISO 16890 of the filter class ISO Coarse for the outdoor air and the extract air. These consist of a synthetic non-woven filter medium with a polypropylene frame. As an option, filters of filter class ISO ePM1 can be used for the outdoor air.

4.1.2 Control panel

The external control panel allows you to operate the system from a central location.

NOTE

The external control panel is only suitable for use in indoor areas.

4.1.3 Main components

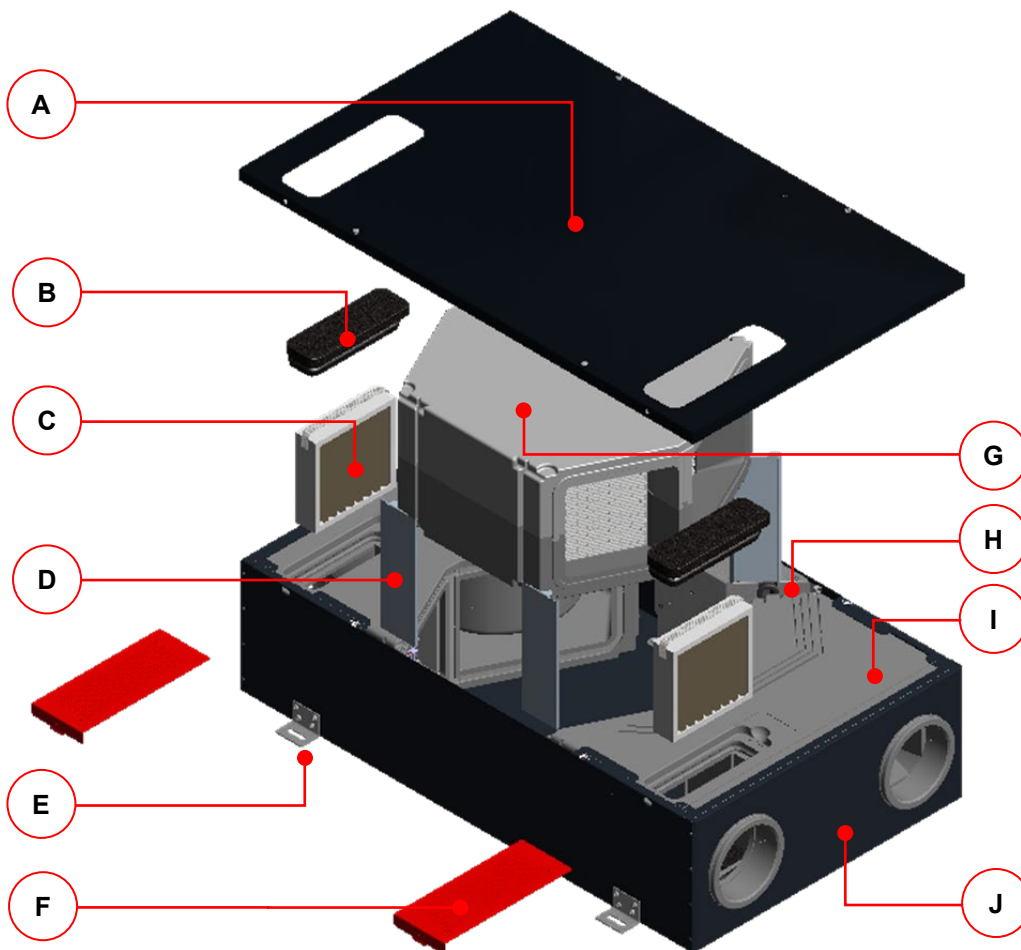


Fig. 1: Main components of the CLIMOS ventilation unit

Item	Description
A	Casing lid with quarter-turn lock (4x)
B	EPP filter cover (2x)
C	Filter (2x)
D	Holding clamp (4x)
E	Mounting bracket (4x)
F	Design filter cover (2x), optional
G	Heat exchanger box
H	Control panel housing
I	Fan box (2x)
J	Housing

Table 1: CLIMOS main components

4.1.4 Type label

The type label identifies the product unequivocally. The type label is found on the housing side next to the electrical connections. You will need the details on the type label for the safe use of the product and in case of questions for service. The type label must be attached permanently on the product.

4.1.5 Frost protection

The CLIMOS unit is equipped with an automatic frost protection function to prevent the thermal exchanger from icing up. If the outdoor air temperature at the location of the unit drops below the threshold value, variations with integrated defroster activate a PTC heating register. Units without integrated defroster activate an optional external pre-heater. If the temperature drops below the threshold of 0 °C. Otherwise, the fans are temporarily shut off.

NOTE

Only the electric pre-heat register of type Iso defroster heating DN125 (Zehnder art. no 527003450) may be used as an external defroster heater.

If an optional hydraulic heating register is installed downstream, please note that the supply air temperature is not monitored to protect it against freezing.

4.2 Available control modules

The CLIMOS unit can be operated with the following control modules:

- External control panel (W x H x D in mm: 71 x 71 x 25)
- External control signal (0–10 V)
- External boost ventilation key(s) (as many as required, potential-free)

4.2.1 External control panel

To control the fans, the control panel has a rotary knob with an infinitely variable adjustment range (first scaling segment on the intensity scale) for the air volume flow.

The two ON/OFF keys can be used to set the operating mode. You can choose between normal mode (both fans switched on), extract air mode (only the exhaust air fan switched on) or supply air mode (only the supply air fan switched on). The green LED above the respective symbol indicates which mode has been set. Use the boost ventilation mode/reset filter running time key to trigger the operating function associated with each one. The operating LED lights up red to indicate that the un-occupied or boost ventilation operating modes are possibly active or that the filters should be inspected.

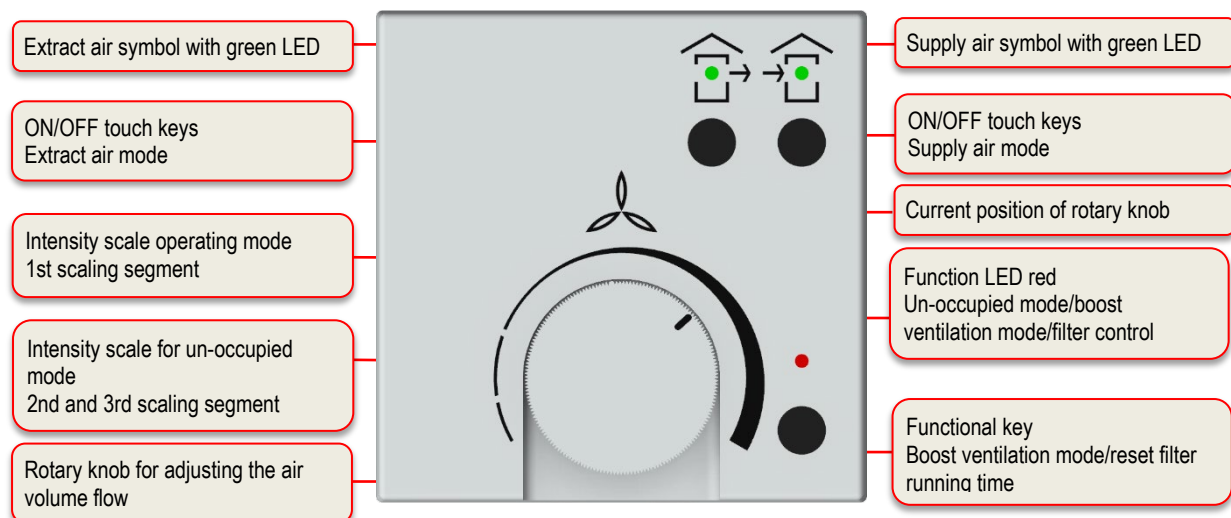


Fig. 2: Operation and information fields control panel

4.2.1.1 Control panel operating functions

Description	Explanation
Intensity scale Rotary knob positioning	<p>Operating mode: Ventilation with constant air volume flow according to the intensity scale</p> <p>Position 1st scaling segment on the left: lowest air volume flow</p> <p>Position 1st scaling segment on the far right: highest air volume flow</p> <p>Positions within the 1st scaling segment: air volume flow proportional to the intensity scale</p> <p>Un-occupied mode: Ventilation with the lowest intermittent air volume flow</p> <p>Position 2nd scaling segment: 5 minutes ON and 1 minute OFF</p> <p>Position 3rd scaling segment on the far left: 1 min ON and 5 min OFF</p> <p>Positions within 2nd and 3rd scaling segment: ON/OFF cycle-time ratio adapted indirectly proportional</p>
Touch key Extract air mode	<p>Pressing this key so that it clicks into place activates extract air mode and switches on the exhaust air fan. Pressing it again deactivates extract air mode.</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">⚠ DANGER</p> <p>Potentially lethal smoke poisoning</p> <p>If the ventilation unit is being operated together with a fireplace, do <u>not</u> use this touch key unless supply air mode is activated at the same time! Simultaneous operation of a ventilation system and fireplace imposes more stringent safety requirements with regard to <u>low pressure monitoring</u> and a switch-off function is required for the ventilation unit.</p> </div>
Touch key Supply air mode	<p>Pressing this key so that it clicks into place activates the supply air mode and switches on the supply air fan. Pressing it again deactivates the supply air mode.</p>
Normal mode	<p>Pressing both keys so that they click into place switches on both fans.</p>

Key	Function key for boost ventilation mode: Pressing this key activates boost ventilation for 15 minutes with an air volume flow corresponding to the rotary knob being turned all the way to the right. At the end of the 15-minute boost ventilation time, the unit reverts to the previous air volume in the currently active mode. You can cancel the boost ventilation mode at any time by pressing this key again for > 3 s.
Boost ventilation mode/reset filter running time	Function key for reset filter running time: To ensure cyclic filter inspection, the control has an integrated operating hours counter with a fixed running time of 180 d. The boost ventilation mode/reset filter running time key allows you to reset the filter running time. To restart the filter running time, press and hold this key for > 3 s. If the filter running time is reset before the end of 180 d by pressing this key for > 3 s, the LED - fan symbol will blink rapidly four times in succession to confirm the reset operation.
NOTE	
No reset command can be issued while the boost ventilation mode is active.	

Table 2: External control panel operating functions

4.2.1.2 Signals used to indicate working/maintenance conditions

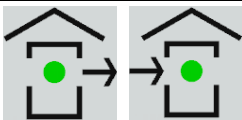
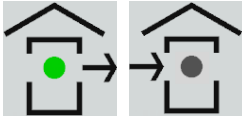




Symbol	LED signal	Function / Meaning / Action required
	Both LEDs light up	Normal mode (extract air and supply air)
	Extract air symbol LED lights up	Extract air mode is active (extract air only)
	Supply air symbol LED lights up	Supply air mode is active (supply air only)
	Fan symbol LED lights up	Ventilation boost mode is active NOTE Ventilation boost mode can be selected while in any other mode.
	Fan symbol LED blinks	Un-occupied mode is active NOTE Un-occupied mode can be selected while in any other mode.
	Fan symbol LED blinks rapidly	Filter change interval expired Inspect or replace filter NOTE Boost ventilation mode cannot be activated until a reset command is issued.

Table 3: Functions assigned to LED signals

4.2.2 External control signal, 0–10 V

The ventilation unit can be operated with an external 0–10 V control signal. When a 0–10 V analogue signal is applied, it is interpreted as a control signal for the fan speed. The current position of the rotary knob on the scale marks the point at which the external control voltage becomes effective.

NOTE

To make use of the entire external 0–10 V control range, the rotary knob must be pointing to the position of the 3rd scaling segment.

4.2.3 Boost ventilation mode with external boost ventilation key

Boost ventilation keys are usually installed in rooms from which air is extracted, such as bathrooms, toilets or kitchens. In this way, maximum ventilation can be activated locally within these rooms for a specific period to enable rapid extraction of high humidity and odours. When this control module is activated, the functional features and displays described for boost ventilation mode apply. Boost ventilation mode is restarted each time it is activated and interrupts the currently set air volume flow. Afterwards, the unit reverts to the previously active working condition.

4.3 Maintenance by the user

For the user, maintenance of the ventilation unit and system is limited to replacing the filters periodically and cleaning the supply and extract air valves. The filters should be inspected every three months. Filter replacement should be carried out as necessary, but no later than once every six months. As part of this process, please inspect the other filters in the ventilation system and replace them if necessary. The filter mats on the extract air valves (e.g. bathroom, kitchen, WC) should be replaced or cleaned every 2–3 months or when checking the degree of contamination at one's own discretion.

NOTE

If the maintenance work is not carried out regularly, this will affect the functionality of the comfort ventilation system in the long run.

4.3.1 Replacing the unit filters

NOTE

The system must not be operated without filters. During filter replacement and maintenance work, the ventilation unit must remain switched off.

Two high-quality original filters from the manufacturer are installed in the CLIMOS unit. The filters in the unit must be inspected following the respective message of the control panel or after display of a programmed digital output signal. In doing so, proceed as follows:

1. Set the unit to the standby mode or disconnect it from the mains.
2. If present, pull the red design filter cover **A** from the bracket of the casing lid.

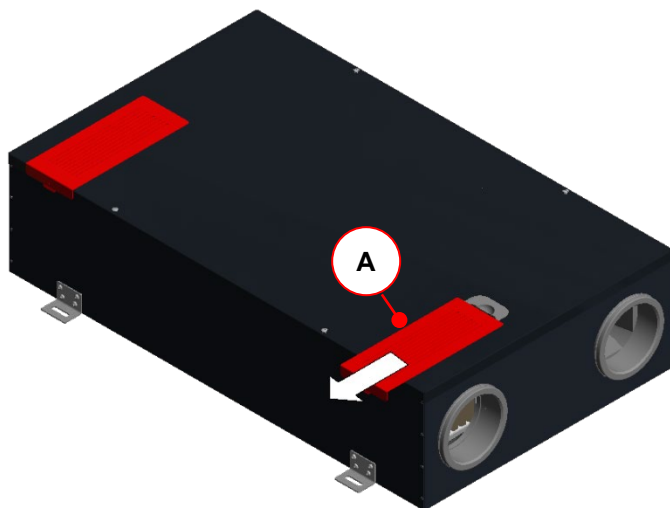


Fig. 3: Pulling out the design filter cover

3. Reach with your finger inside the recessed grip **B** of the filter compartment and pull the EPP filter cover out of the EPP housing.

NOTE

The EPP filter cover may be very tightly lodged at the first filter change. You can lever the EPP filter cover out in the area of the recessed grip using a blunt object (e.g. the handle of a spoon).



Fig. 4: Filter compartment recessed grip

- Remove the filter cover **C**.

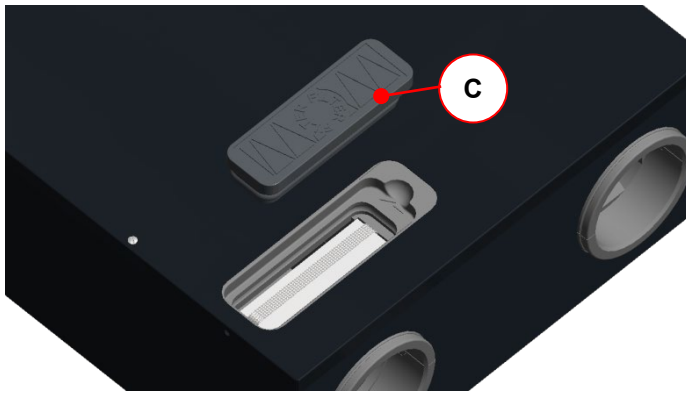


Fig. 5: Removing the EPP filter cover

- Holding it by the strap, pull the filter **D** out of the filter compartment.

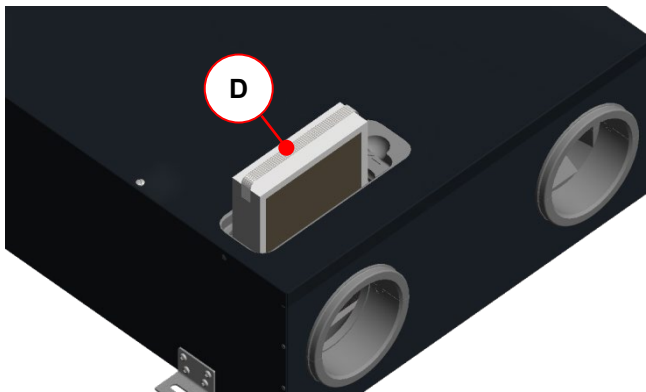


Fig. 6: Removing the filter

- Insert the new filter.

NOTE

The arrow **E** on the filter frame and the arrow **F** imprinted on the EPP filter compartment (next to the recessed grip) must point in the same direction.

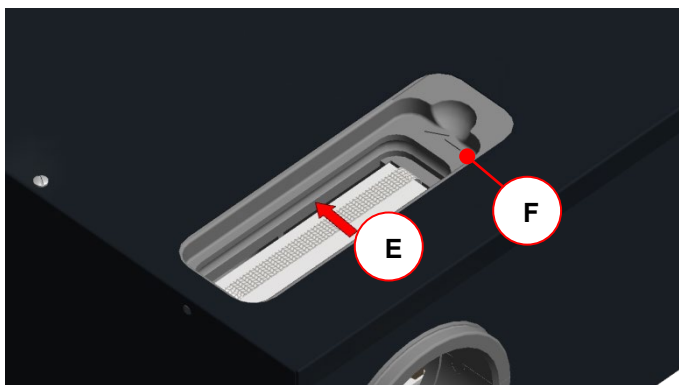


Fig. 7: Inserting the new filter

NOTE

Depending on the unit type, filters with filter class ISO ePM1 must be inserted into the filter compartment of the outdoor air connector in accordance with the type label.

The outdoor air connector is indicated by the symbol



on the air connections sticker.

- Close all filter covers in reverse order.
- Proceed in the same way for the other unit filter.
- Reconnect the unit to the mains.

4.3.2 Resetting the filter running time

After completing the filter replacement, the counter for the filter running time must be reset. To reset the filter running time, press and hold the boost ventilation mode/reset filter running time key for > 3 s. The LED on the fan symbol stops blinking rapidly.

NOTE

Use check-list A to document the maintenance work completed.

4.3.3 What should I do in case of a fault

Contact the installation technician in case of a fault. Note the error display or malfunction code of the used control panel. Also note the type of your CLIMOS unit, see the type label on the side of the unit.

The mains connection must always be present, unless the CLIMOS unit has to be shut down due to a serious fault, for maintenance work or for some other urgent reason.

NOTE

As soon as a mains disconnection is made, the apartment will no longer be mechanically ventilated. This may result in moisture and mould problems in the apartment. For the duration of the absence the system should operate at the lowest fan speed or in the un-occupied mode.

5 Chapter for qualified personnel

5.1 Installation requirements

The following requirements must be assured for the correct installation:

- ▶ Installation in accordance with the general and locally applicable safety and installation regulations, such as the electric and water utilities etc. and in accordance with the regulations stipulated in this instruction manual
- ▶ Frost-free indoor area
- ▶ Power supply 230 VAC, 50–60 Hz
- ▶ Sufficient room for air connections and maintenance activities

5.1.1 Transport and packaging

Proceed with care when transporting and unpacking the CLIMOS unit.

NOTE

Do not remove the unit packaging until right before installation! Before and during interruptions to installation, the ventilation tube connections must be closed with the air connector sealing caps to prevent construction site dust and moisture from entering.

5.1.2 Checking the scope of delivery

If the delivered product is found to be damaged or incomplete, please contact the supplier immediately. Included in the scope of delivery are:

- ▶ Ventilation unit CLIMOS, check the type label to make sure that the unit is the right one (type, version as per type label)
- ▶ 230 V mains cable with non-heating device plug connection, 2 m long
- ▶ Control panel
- ▶ 4 mounting brackets, including 16 crosshead screws
- ▶ Instruction manual
- ▶ Product labels showing energy efficiency
- ▶ Set of design filter covers (optional)

5.2 Mounting

For the CLIMOS unit, the distances from adjacent surfaces shown in Fig. 8 must be observed. Please note that these clearances are not shown to scale. The surfaces are allowed to be made from flammable materials.

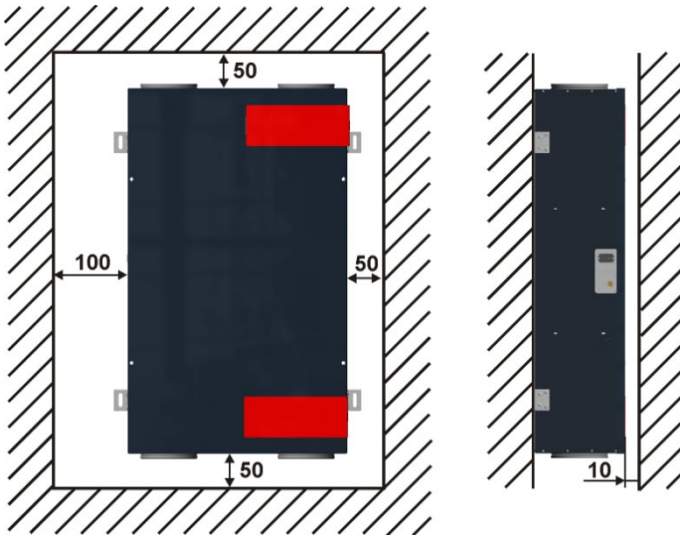


Fig. 8: Distances from adjacent surfaces in mm

The following fitting positions are available for the CLIMOS unit:

- ▶ Suspended from the ceiling or reclined (horizontal)
- ▶ Mounted on the wall (horizontal or vertical)
- ▶ Mounted sloped on the wall (horizontal or vertical)

NOTE



The exhaust air connection must always be on the top.

5.2.1 Installation preparations

First attach 2 of the included mounting brackets using 4 crosshead screws each to the longitudinal sides of the CLIMOS unit.



Fig. 9: Attaching the mounting brackets

Check in advance the required carrying capacity of the respective mounting surface (dead weight of the CLIMOS approx. is 30 kg) and the secure mounting option using the mounting brackets. If the unit is attached to a wooden or light construction element we recommend the insertion of a vibration-reducing spacer ring for each mounting bracket.

5.2.2 Installation position: suspended from the ceiling

In the installation position suspended from the ceiling, the unit is mounted horizontally to the ceiling in the slotted holes (38x10 mm) of the 4 mounting brackets using suitable fixing elements depending on the ceiling structure.

If you want to mount the CLIMOS unit on a suspended ceiling, we recommend the installation of the product-related dry wall inspection flap in the suspended ceiling. The distance between the bottom edge of the structural slab to the bottom edge of the dry wall inspection flap is at least 270 mm. In this case, the ventilation unit is attached to the structural slab at the centre of the opening area of this maintenance hatch.

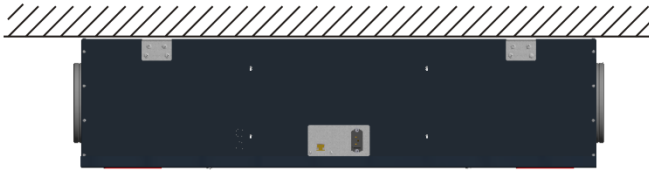


Fig. 10: Installation position suspended from the ceiling

5.2.3 Installation position: reclined

In the installation position reclined, the unit is mounted horizontally to the floor in the slotted holes (38x10 mm) of the 4 mounting brackets using suitable fixing elements depending on the floor structure.

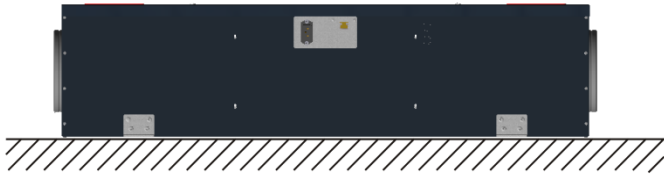




Fig. 11: Installation position inclined

5.2.4 Installation position: mounted horizontally on the wall

In the installation position mounted horizontally on the wall, the unit is mounted horizontally to the wall in the slotted holes (38x10 mm) of the 4 mounting brackets using suitable fixing elements depending on the wall structure.

NOTE	
	
	The exhaust air connection must always be on the top.

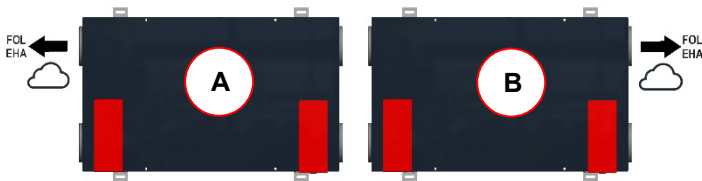




Fig. 12: Installation position mounted horizontally on the wall

5.2.5 Installation position: mounted vertically on the wall

In the installation position mounted vertically on the wall, the unit is mounted vertically on the wall in the slotted holes (38x10 mm) of the 4 mounting brackets using suitable fixing elements depending on the wall structure.

NOTE	
	
	The exhaust air connection must always be on the top.

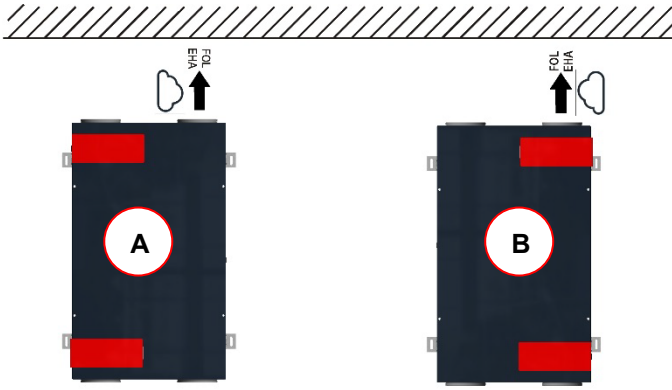




Fig. 13: Installation position mounted vertically on the wall

5.2.6 Installation position: mounted horizontally on the wall slope

In the installation position mounted horizontally on the wall slope, the unit is mounted horizontally on the wall slope in the slotted holes (38x10 mm) of the 4 mounting brackets using suitable fixing elements depending on the wall structure.

NOTE	
 FOL  EHA	The exhaust air connection must always be on the top.

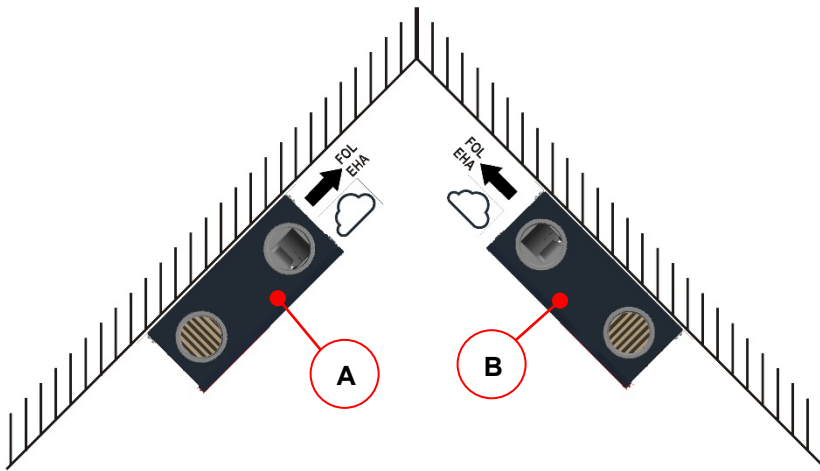




Fig. 14: Installation position mounted horizontally on the wall slope

5.2.7 Installation position: mounted vertically on the wall slope

In the installation position mounted vertically on the wall slope, the unit is mounted vertically on the wall slope in the slotted holes (38x10 mm) of the 4 mounting brackets using suitable fixing elements depending on the wall structure.

NOTE	
 FOL  EHA	The exhaust air connection must always be on the top.

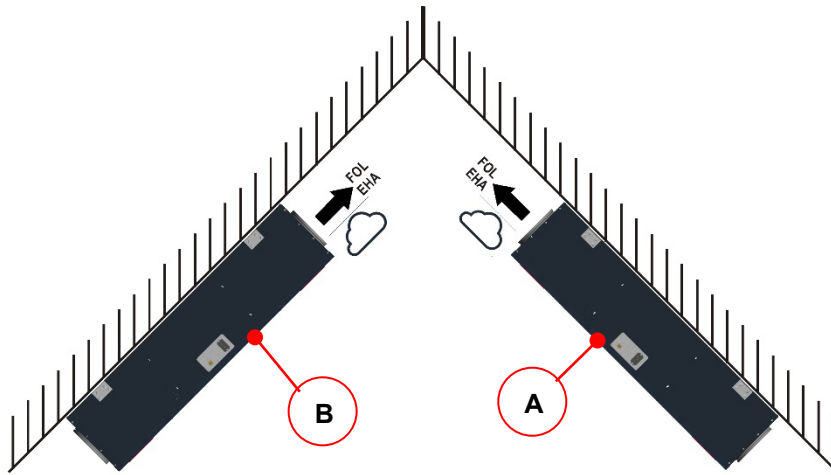


Fig. 15: Installation position mounted vertically on the wall slope

5.2.8 Connecting the ventilation tubes

The following points must be observed when installing the ventilation tubes:

- ▶ Attach the different types of ventilation tube provided with the ventilation system to the relevant connectors according to the unit type **R (right - type A)** / **L (left - type B)** (see air connections sticker next to the type label).

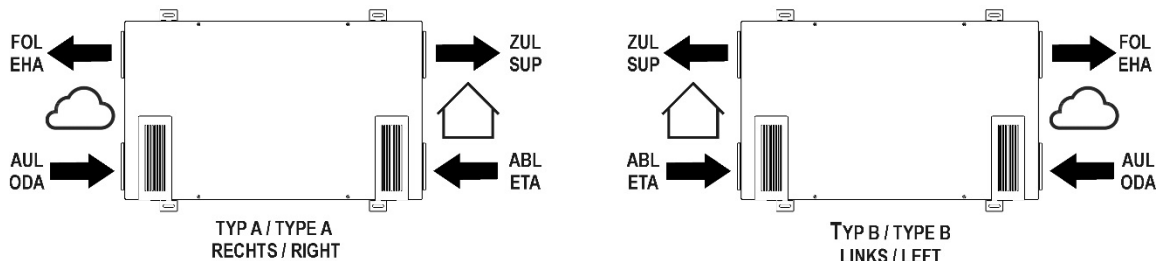


Fig. 16: Arrangement of air connections according to type R (right - type A) / L (left - type B)

- ▶ Remove the sealing caps from the air connectors.
- ▶ Using ventilation tube materials with the lowest possible air resistance, connect the ventilation technology components to one another so that they are air-tight.
- ▶ The unit connectors are made from EPP and have a sleeve size of DN125.
- ▶ The outdoor air and exhaust air tubes must be insulated in such a way that they are sealed against vapour diffusion. This prevents condensate from forming on the outside of the ventilation tubes.
- ▶ If – when installing the exhaust air tube – it is not possible to avoid a low point between the exhaust air connector on the unit and the exhaust air outlet, a connection to the condensate drain must be provided at this point. This is because the exhaust air is saturated with steam at cold outdoor temperatures and droplets may be deposited on the inner wall of the tube.
- ▶ The exhaust air pipework that runs from the unit connector to the roof terminal must not be straight. Otherwise, any ice that forms could drop onto the blades of the exhaust air fan when it thaws, causing damage to the blades.

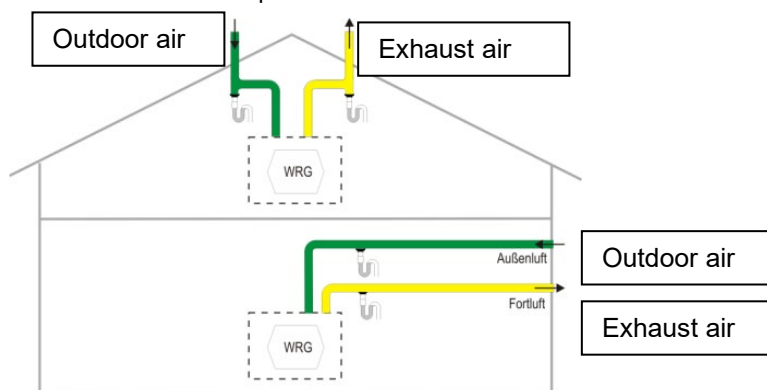


Fig. 17: Drainage arrangement for outdoor and exhaust air tubes

- ▶ If an attenuator is fitted at the exhaust air connector, it must be routed upwards with a bend to prevent it being drenched by condensate running back from the exhaust air tube.
- ▶ If the exhaust air is routed above the roof, a double-walled or insulated roof passage must be installed. This prevents condensate from forming between the roof boards.
- ▶ For the supply and extract air ducts, we recommend using thermal and vapour-tight insulation to prevent unnecessary temperature losses in both the summer and winter.

5.3 Electrical connections

⚠ DANGER

Fatal voltages

Electrical connections are to be implemented in accordance with the standards specific to the relevant country and by qualified personnel only.

The electrical mains power supply of the CLIMOS is via the 3-core non-heating device plug connection **A** with the mains cable. The control panel is connected to the ventilation unit with a 4-wire cable using the flat connector **B**. The cable of a potentially connected pre-heating register must be fed through an M16 cable gland **C** and fixated. This cable must be fed through a rubberised grommet of the control panel housing and clamped to the respective clamping points of the control board.

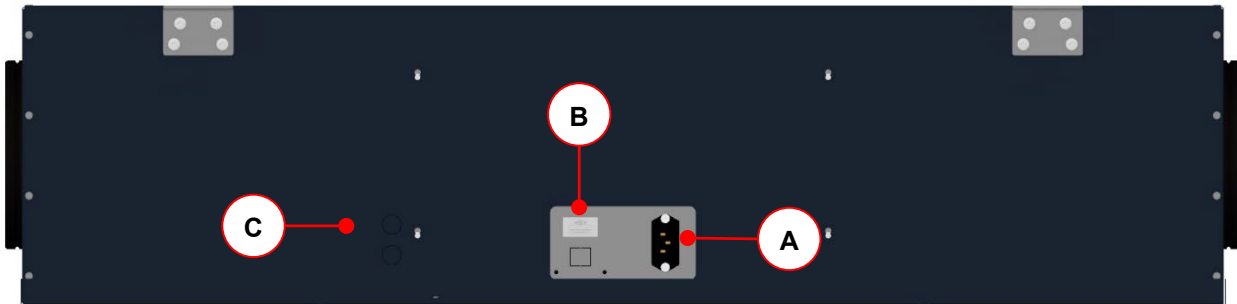


Fig. 18: Side of the housing with electrical connections

Item	Description
A	3-- pole rubber connector
B	Flat connector socket for control panel connecting cable
C	Pre-punched cable guides (2x) for M16 cable gland
5.7.4	Terminal assignment CLIMOS with integrated defroster
5.7.5	Terminal assignment CLIMOS without integrated defroster

Table 4: Overview of the electrical connections

5.3.1 Connecting the control panel

5.3.1.1 Connecting the connecting cable to the flat connector plug

As shown in Fig. 19, a J-Y(St)Y 2x2x0.6 cable is recommended as the connecting cable between the control panel and the CLIMOS. The maximum permitted cable length is 25 m.

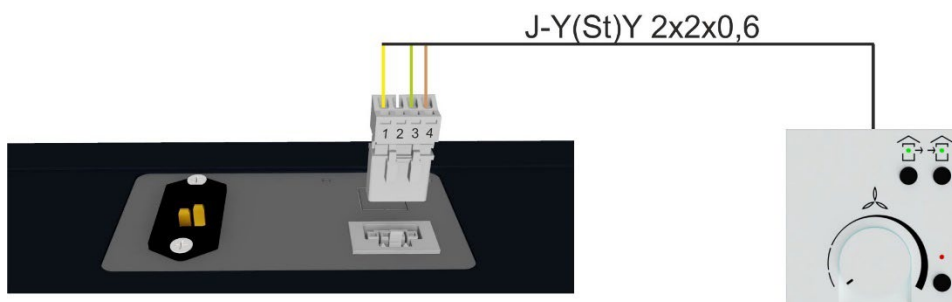


Fig. 19: Connecting cable with flat connector plug

The four wires are to be connected to the spring-type terminals of the flat connector as shown in Table 5.

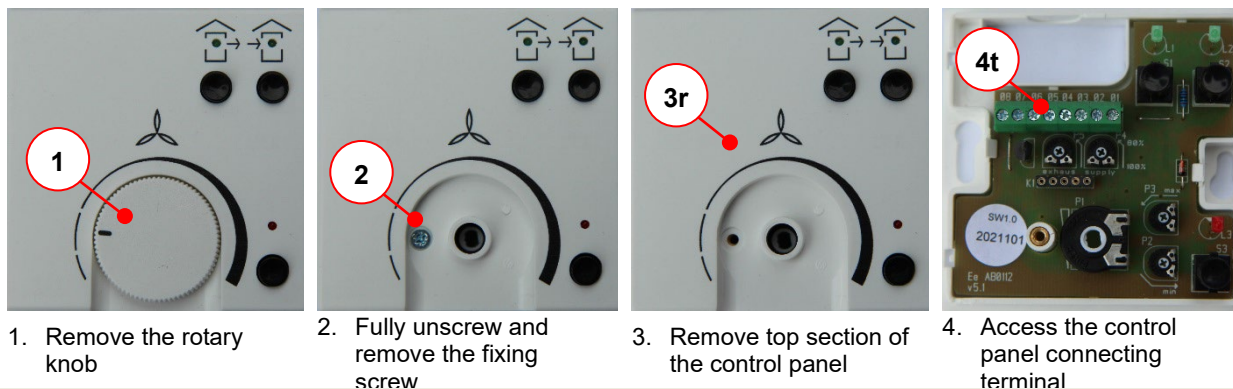
Flat connector connecting cable wire	Signal
1	+12 V
2	U _s (supply fan control voltage)
3	U _s (extract air fan control voltage)
4	GND

Table 5: Flat connector wire assignment

5.3.1.2 Connecting the connecting cable to the control panel

The external control panel is installed in a standardised \varnothing 60 mm switchbox for in-wall installation. The wires of the connecting cable are to be connected to the relevant connection terminal of the control panel according to the flat connector wire assignment, as shown in Table 6.

To open the control panel, proceed as follows:



1. Remove the rotary knob

2. Fully unscrew and remove the fixing screw

3. Remove top section of the control panel

4. Access the control panel connecting terminal

Control panel connecting terminal	Flat connector wire	Signal
X.01	1	+12 V
X.02	2	U _s (supply fan control voltage)
X.03	3	U _s (extract air fan control voltage)
X.04	4	GND
X.05	./.	Analogue input 0–10 V
X.06	./.	Analogue input GND
X.07	./.	Input for external boost ventilation key
X.08	./.	GND input for external boost ventilation key

Table 6: Control panel connecting terminal assignment

5.3.2 Connecting external boost ventilation keys

Boost ventilation mode can be activated by operating one or more boost ventilation keys (connected in parallel). The keys that are usually installed as part of the switch range design are triggered when the boost ventilation mode is selected. To establish the potential-free connection between the key and control panel connecting terminal, use a 2-core cable as a minimum (recommended cable type: J-Y(ST)Y 2x2x0,6).

Control panel connecting terminal	Wire of boost ventilation key cable
X.07	Wire 1
X.08	Wire 2 (GND)

Table 7: Terminal assignment of boost ventilation key connection

5.3.3 Connecting external sensors

A sensor-controlled automatic mode is supported. This can be operated by an analogue 0–10 V sensor signal generated by one or more sensors. To establish the connection between the sensor module and control panel connecting terminal, use the type of cable stipulated for transmitting the sensor signal.

Control panel connecting terminal	Sensor module cable wire
X.05	Wire 1 (0–10 V sensor signal)
X.06	Wire 2 (GND)

Table 8: Terminal assignment of analogue sensor signal connection

5.3.4 Connecting an external pre-heating register (optional)

The external electrical pre-heating register type Iso defroster heating DN125 (Zehnder art. no. 527003450) is connected to terminals X2 / X4b of the control board.

X2 / X4b terminal on control board	Wire of pre-heater cable
X2.33– PE	PE
X4b.44 – N	N
X4b.45 – Lvo	L

Table 9: Control board terminal assignment for connection of external pre-heater

5.4 Commissioning

5.4.1 Readiness for operation

NOTE

The unit is ready for operation once all the requirements of the safety regulations and installation conditions have been met. In particular, this means ensuring that the ventilation tube material is clean and that all the ventilation technology components required to operate the system are present, properly installed and ready for operation.

⚠ WARNING

Danger of injury

Check all the safety-related components and carry out a function test.

Proceed as follows for the initial commissioning:

1. Check the ventilation unit for any damage and for the presence/completeness of all safety and functional assemblies.
2. Connect the ventilation unit with a 230V socket with grounding via a mains cable with non-heating device plug connection.

5.4.2 Adjusting the air volume flow

Once you have checked that the CLIMOS unit is ready for operation, you can commission it as described below. Diagram 1 shows the scale for the available air volume flow in relation to the rotary knob positioning. As per the system design rules, the nominal ventilation must equal the total outdoor air volume flow. This nominal air volume flow must correspond to a turnkey position according to the illustration of the control unit.

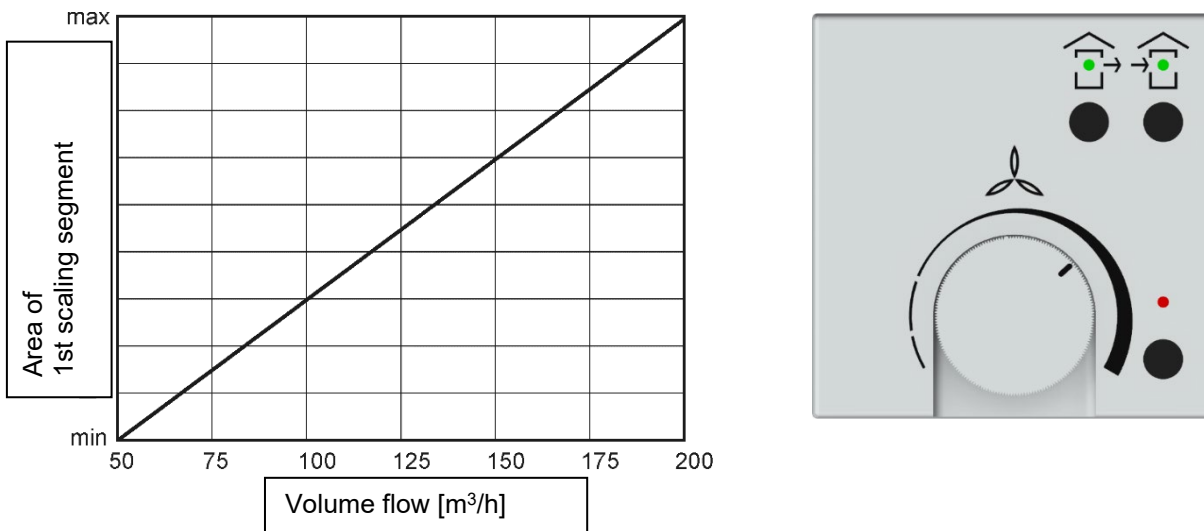


Fig. 20: Diagram 1, fan speeds parametrization

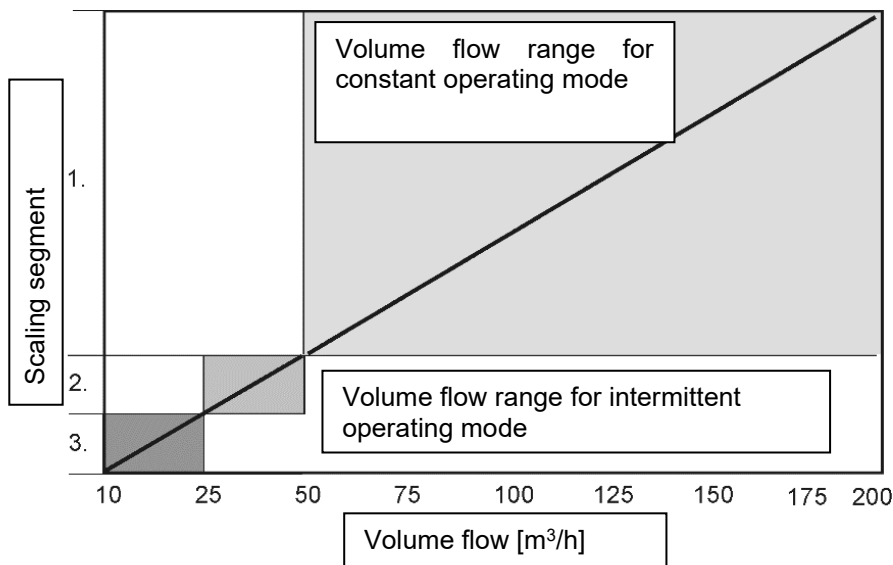


Fig. 21: Diagram 2, assignment of volume flow ranges

5.4.3 Adjusting the valves

NOTE

At the start of volume flow measurement, make sure that the supply air and extract air valves are open as wide as possible.

- ▶ Set the fans to the target air volume flow.
- ▶ Adjust the valve orifices, throttle valves or throttle foam inserts.
- ▶ Measure the volume flows at the outlets using a volume flow hood and flow meter (see air volume protocol).
- ▶ Readjust the valves.
- ▶ Lock the valves, shutters and throttles in their adjusted positions.
- ▶ Record the set air volumes and all other settings in the documentation intended for this purpose.

5.5 Service and maintenance

NOTE

If regular maintenance work is not carried out on the CLIMOS unit, this will affect the functionality of the comfort ventilation.

Maintenance and repair by qualified personnel should be carried out by a maintenance service team on the basis of a maintenance contract. Maintenance and repair measures of the CLIMOS include inspecting and cleaning the fans and heat exchanger. The heat exchanger should be cleaned based on how dirty it gets but the maintenance interval must not exceed two years.

NOTE

Use checklist B to document the maintenance work completed.

5.5.1 Inspection and cleaning of the heat exchanger

In doing so, proceed as follows:

1. Disconnect the CLIMOS unit from the mains power supply.
2. If present, pull the red design filter cover **A** from the bracket of the casing lid.

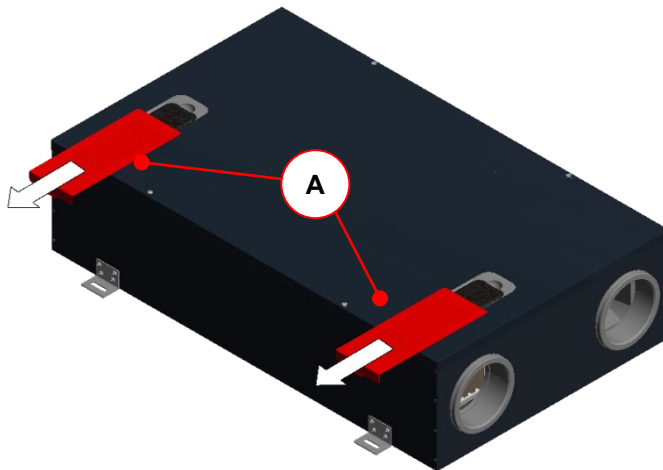


Fig. 22: Pulling out design filter covers **A**

3. Open the quarter turn locks **B** by a 90° turn of the captive screw.

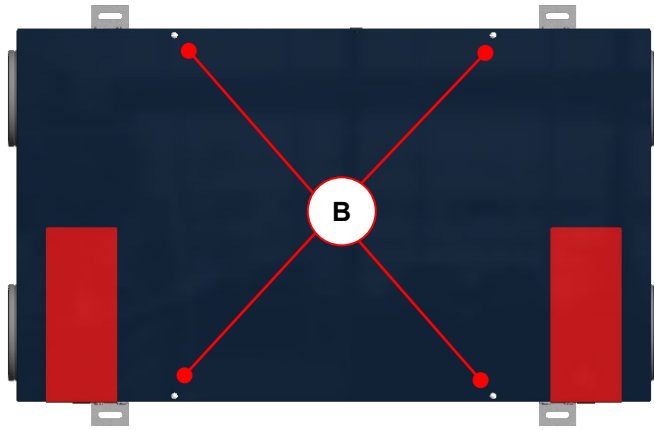


Fig. 23: Casing lid with 4 quarter turn locks **B**

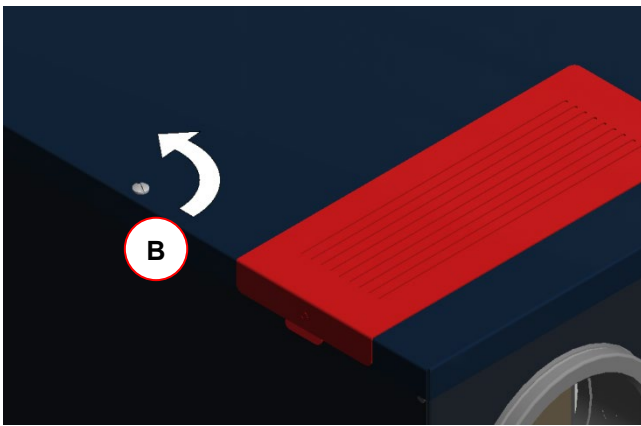


Fig. 24: Quarter turn lock with captive screw

4. Remove the casing lid **C** and pull the cable for the potential equalisation off the contact pin of the casing lid.

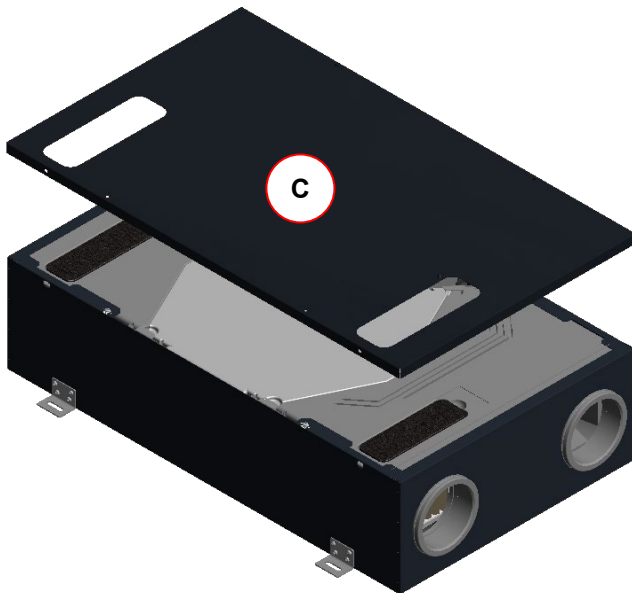


Fig. 25: Removing the casing lid **C** from the unit

5. Pull the holding clamps **D** (4x) vertically out of the EPP foam modules.

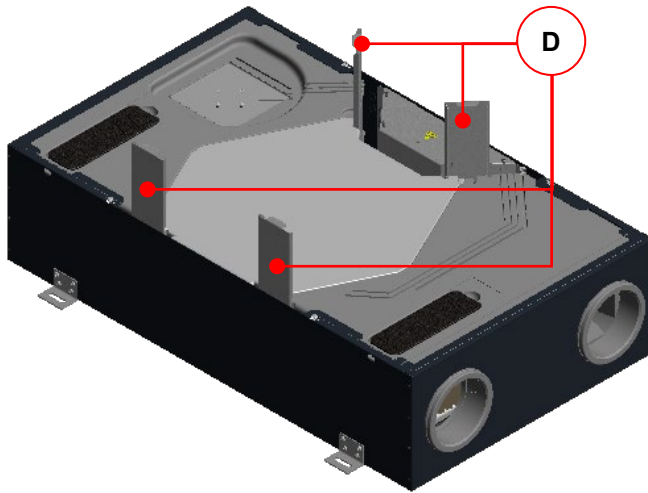


Fig. 26: Holding clamps **D** for positive fixation of the EPP foam modules

6. Push each fan box **F** approx. 3 - 4 mm in the direction of the ventilation tube connections in order for the heat exchanger box **G** to be released from the tongue-and-groove connection.

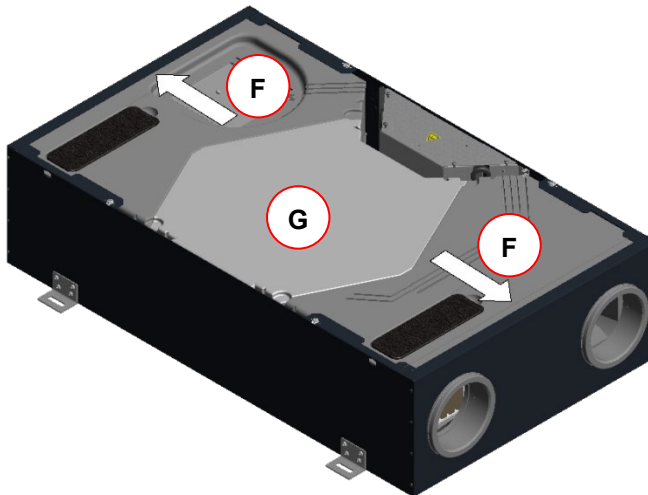


Fig. 27: Releasing the heat exchanger box **G** by pushing the fan boxes **F**

NOTE

If the fan boxes **F** cannot be moved, the ventilation tube connectors of the fan boxes must be shortened.

Cut through the all-round groove **H** (set cutting point) of the EPP connectors.

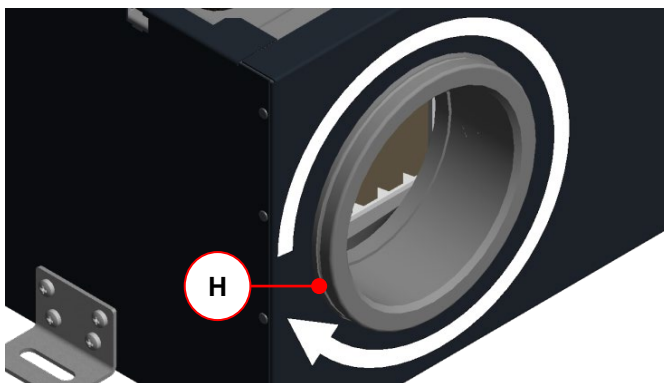


Fig. 28: Shortening the EPP connectors at the set cutting point of the all-round groove

NOTE

After completing the maintenance work, all disconnected ventilation tubes must be reconnected air-tight to the heat recovery system again. Provide a vapour-tight thermal insulation at the cutting points of the outdoor and exhaust air connectors.

7. Pull the heat exchanger box **G** out vertically.

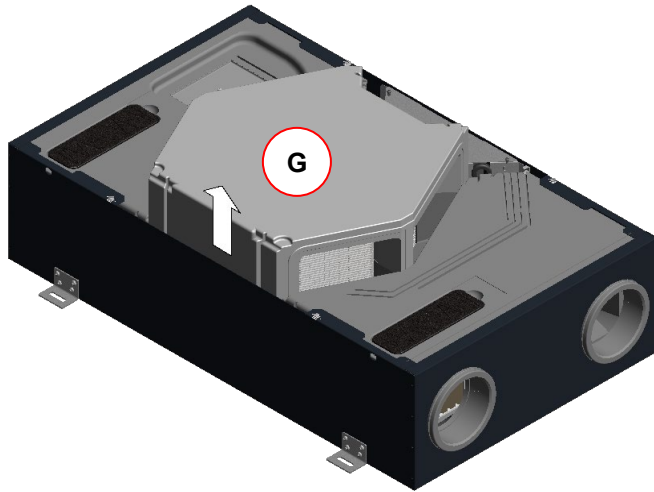


Fig. 29: Removing the heat exchanger box **G**

8. Clean the heat exchanger **I** located inside the heat exchanger box **G** if needed.

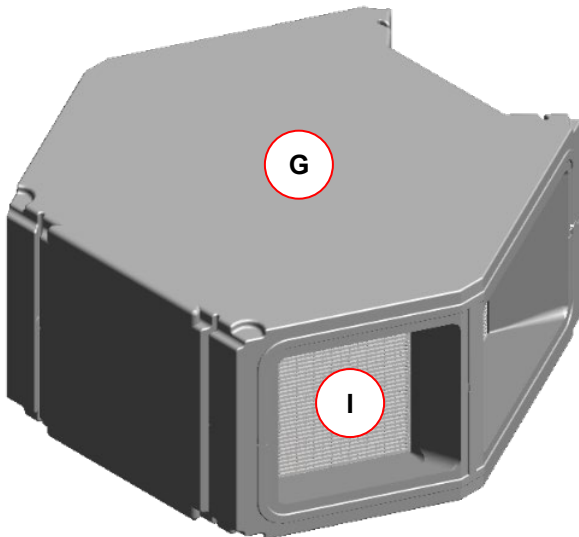


Fig. 30: Heat exchanger **I** in the heat exchanger box **G**

In doing so, proceed as follows:

NOTE

Do not use aggressive or solvent-based cleaning agents.
Instructions for proper disinfection can be found at www.core.life.

1. Immerse the heat exchanger box a few times in warm water of max. 40 °C.
 2. Then rinse off the heat exchanger box thoroughly with warm tap water of max. 40 °C.
 3. In order to dry it, position the heat exchanger box such that residual water can run out of the openings.
 4. Leave the heat exchanger box to dry fully before reinstalling it.
9. Using a vacuum cleaner, carefully vacuum the two suction casings **J** of the fan boxes and vacuum the PTC heating elements of the integrated defroster with a suitable suction nozzle.

NOTE

Do not touch any parts of the defroster by hand and do not damage the temperature sensor during cleaning.

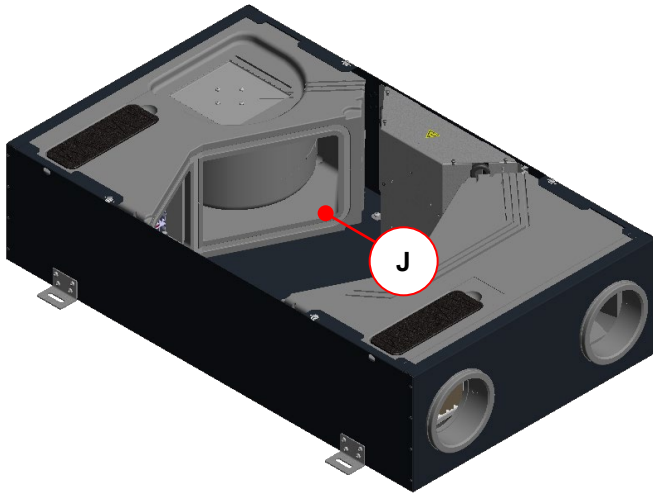


Fig. 31: Fan box suction casing J (2x)

10. Following the inspection, install all parts in reverse order.

NOTE

When installing the heat exchanger box, make sure that it engages correctly with the fan boxes via the tongue-and-groove connection.

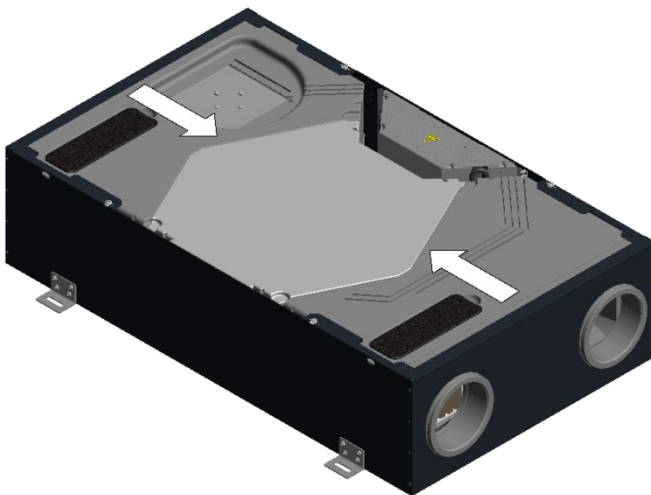


Fig. 32: Moving direction of the fan boxes for engaging with the heat exchanger box

11. Connect the cables for the potential equalisation to the contact pin of the casing lid.
12. Close the casing lid by turning the 4 captive screws of the quarter turn locks by 90°.
13. Reconnect the unit to the mains.

5.6 Display of operating conditions on the control board

The control board is equipped with three LEDs for signalling operating conditions. The following operating conditions are signalled via the LEDs:

LED	Signal	Condition / Cause
LED 1 (green)	Lights up	Unit ready for operation / operating voltage present
LED 2(red)	Lights up dimly	Normal operating mode
	Blinking	Temperature too low downstream of pre-heater; fans to be switched off
	Blinks 2x per second	Temperature downstream of pre-heater < 1K below limit value
	Blinks 3x per second	Temperature downstream of pre-heater < 2K below limit value
	Blinks 4x per second	Temperature downstream of pre-heater < 3K below limit value
LED 3 (yellow)	Lights up	Pre-heater heating up

Table 10: Overview of how working conditions are displayed

5.7 Technical description

5.7.1 Air connections of the versions

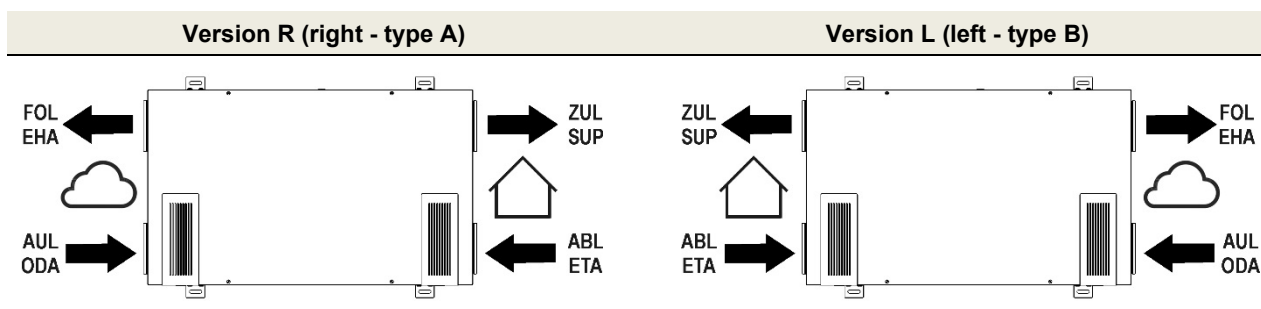


Fig. 33: Arrangement of air connections according to type R (right - type A) and L (left - type B)

5.7.2 Technical specification

General specifications	Description / Value
Heat exchanger type	Enthalpy exchanger with polymer membrane
Housing / Interior lining	Galvanised sheet steel, powder-coated, free of thermal bridges; interior lining is made of expanded polypropylene (EPP) to provide thermal and sound insulation
Pipe connections	DN 125 (sleeve size)
Weight	30 kg
Electrical connection	230 VAC, 50-60 Hz; 2 m mains cable with non-heating device plug connection
Connection power	110 W / 810 W (without / with integrated defroster heating)
Protection class	I
Degree of protection	IP 30
Temperature range for transport and storage	-20 to 50 °C
Temperature range for moving air	-20 to 50 °C
Temperature range at the mounting location	Permanently frost-free
Installation positions	Suspended from the ceiling or reclined (horizontal)
	Suspended on the wall (horizontal or vertical) exhaust air connection must always be on top
	Suspended sloped on the wall (horizontal or vertical) exhaust air connection must always be on top

Table 11: General specifications

Operation data	Value
Volume flow	50 to 200 m³/h
Efficiency criterion	0.40 Wh/m³ (at 111 m³/h / 100 Pa)
Waste heat recovery according to PHI	84% (at 111 m³/h / 100 Pa); CLIMOS F 200
Heat output according to DIN 4719	111% (at 112 m³/h / 100 Pa)
Sound pressure level, distance of 3 m (unit emission according to DIN EN ISO 3743-1)	38 dB(A) (at 100 m³/h / 100 Pa)
	42 dB(A) (at 200 m³/h / 100 Pa)

Table 12: Operation data

$p\dot{V}$ characteristic curve

NOTE

The numerical values shown in the $p\dot{V}$ characteristic curve diagram indicate the power consumption in [W] for the respective operating points without activated integrated defroster.

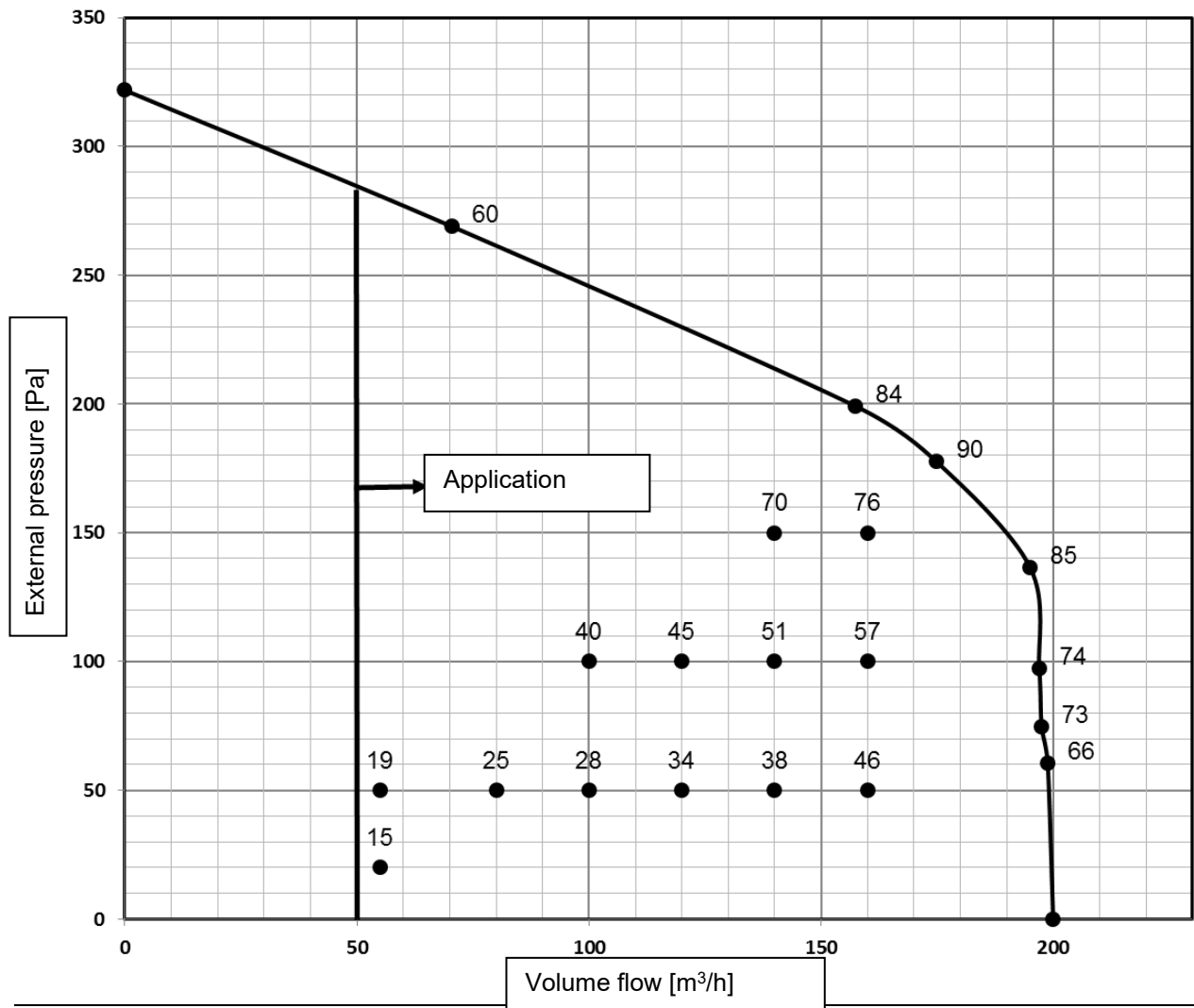


Fig. 34: Diagram 3, $p\dot{V}$ characteristic curve

5.7.3 Dimensions

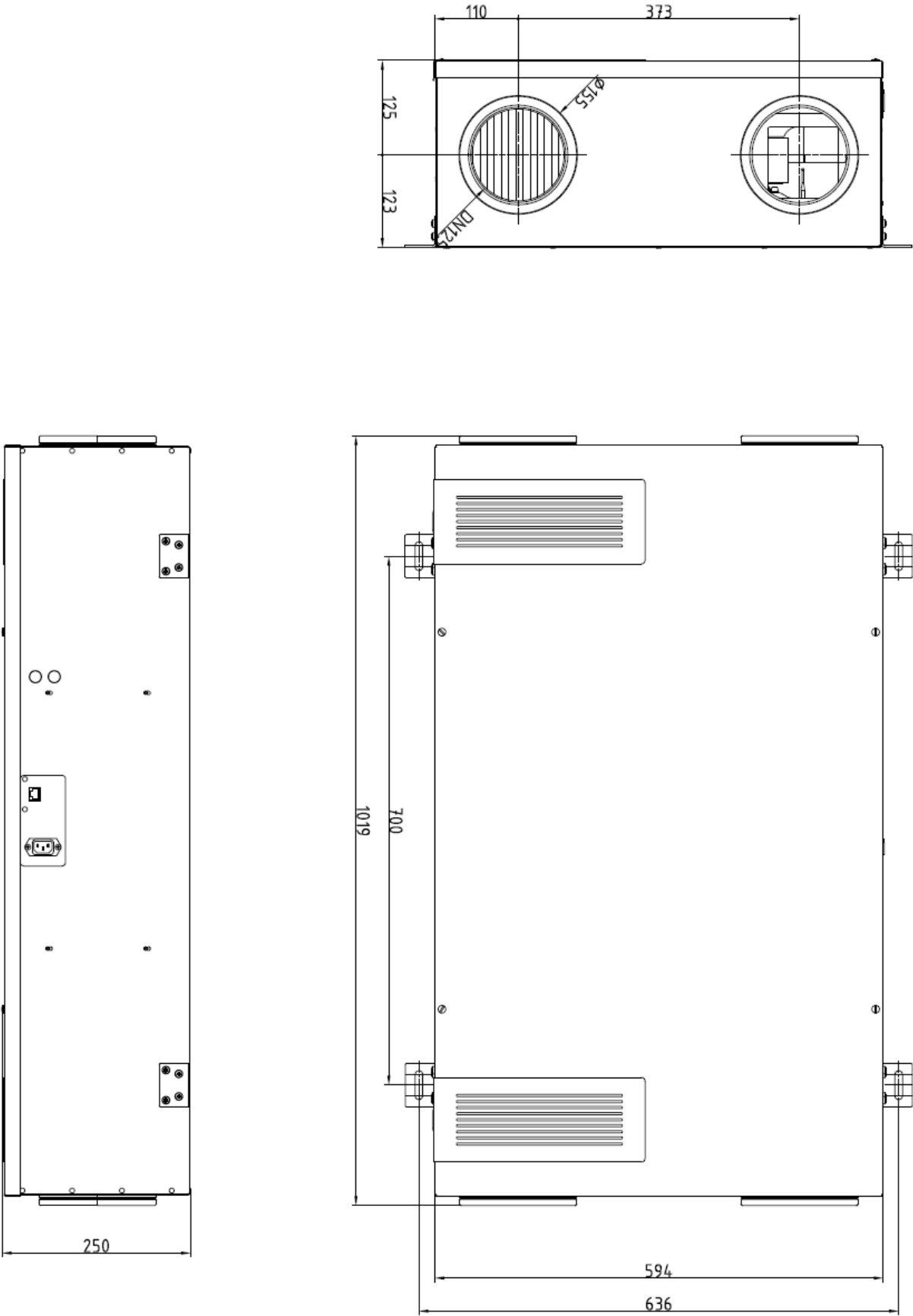


Fig. 35: Dimensional drawing

5.7.4 Terminal assignment CLIMOS 200 Eco with integrated defroster

funktion adjusting trimmer on control panel:

- P2 - limitation min. fan speed (limitation un-occupied mode)
- P3 - limitation max.fan speed
- P4 - decrease supply fan speed
- P5 - decrease extract fan speed

BS - input boost button

AI - analogue input 0-10V

Ue - output voltage for exhaust fan

Us - output voltage for supply fan

P1 - setting anti-freeze treshold value:
 $0^{\circ}\text{C}_{(\text{max})}$ through $-3^{\circ}\text{C}_{(\text{min})}$ J1 on position **III**

L1 - signalling power supply

L2 - signalling working mode

lightless - normal mode

slowly blink - preheater temperature very high

quickly blink - preheater temperature low

2x - temperature lower 1°C like setpoint

3x - temperature lower 2°C like setpoint

4x - temperature lower 3°C like setpoint

fans off

is lit - ext. enable signal is activ, fans off

L3 - signalling powered preheater

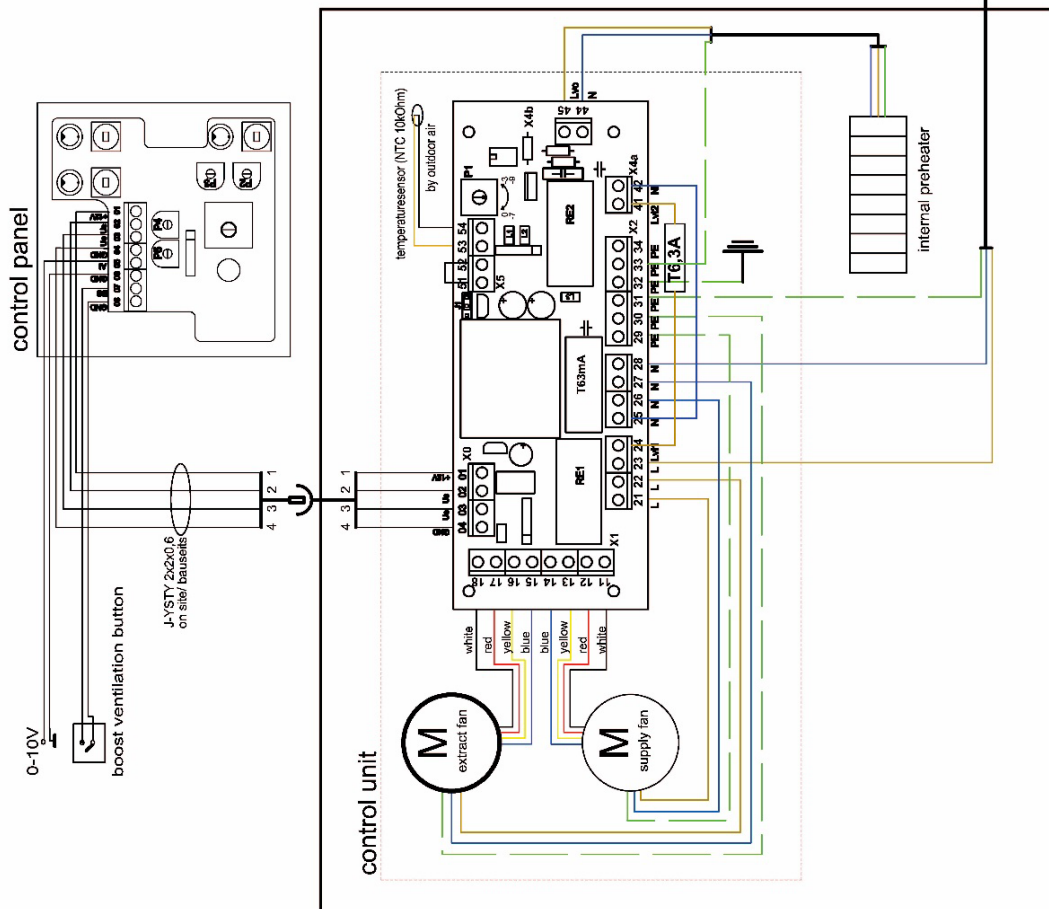


Fig. 36: Terminal assignment terminal diagram CLIMOS with integrated defroster

5.7.5 Terminal assignment CLIMOS 200 Eco without integrated defroster

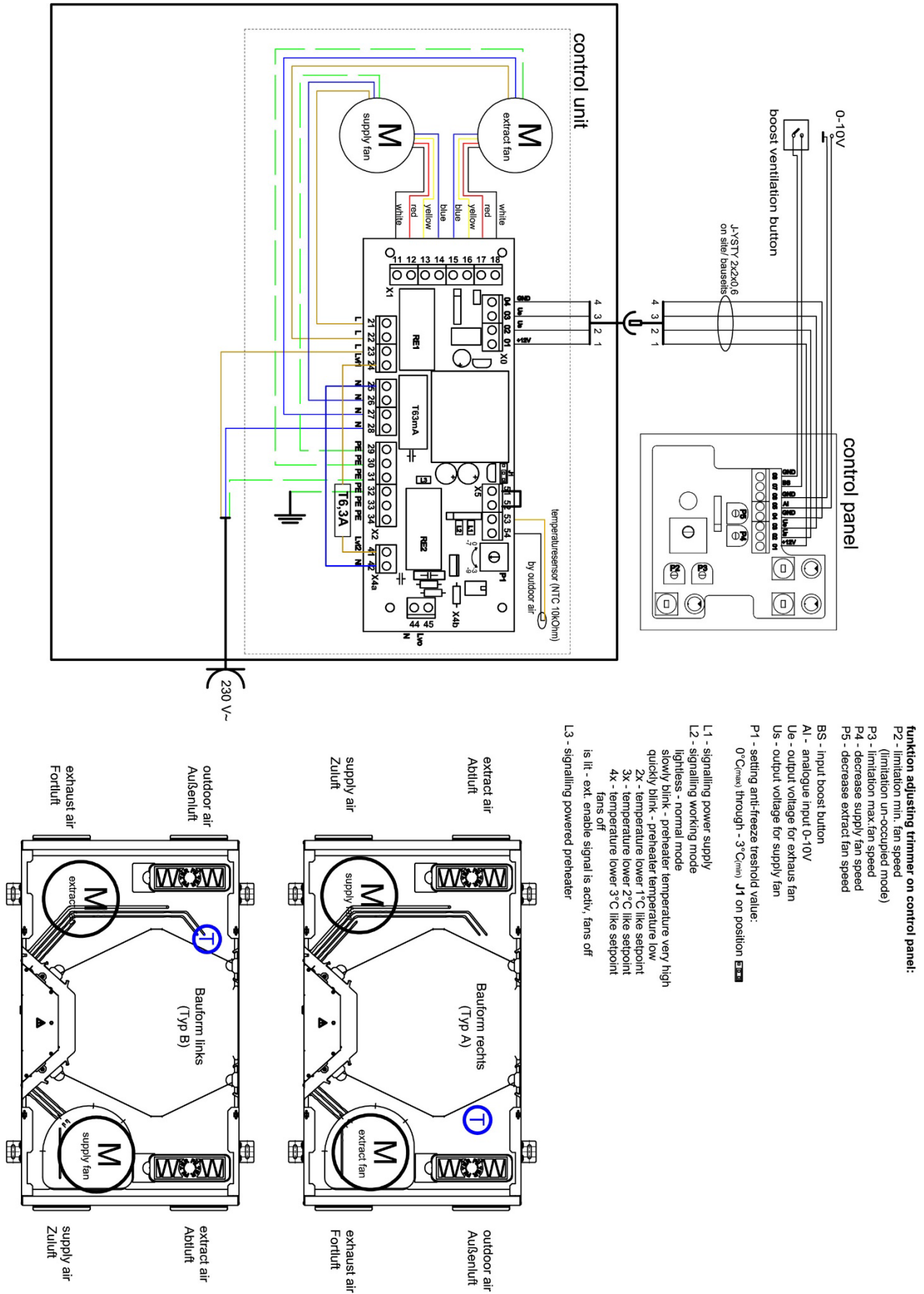


Fig. 37: Terminal assignment circuit diagram CLIMOS without integrated defroster

6 Appendices

6.1 Checklist A Maintenance work for users

Maintenance work		Enter date in quarter			
1st Replace both filters in the HR unit (filter replacement cycle 90 days)					
Year \ Quarter	I	II	III	IV	
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
2nd Extract air supplementary filter / clean the filters in extract air valves (filter replacement cycle approx. 2 months)					
Year \ Quarter	I	II	III	IV	
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
3rd Replace other filters in the ventilation tube system					
Year \ Quarter	I	II	III	IV	
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					
20...					

6.2 Checklist B Maintenance work for qualified personnel

Maintenance work			enter result					
<ul style="list-style-type: none"> ▶ The listed maintenance work must be carried out in accordance with the components actually present. ▶ Comments on status using informal protocol ▶ Further annual tranches on separate sheet 								
No.	Components	Annually	Result	20...	20...	20...	20...	20...
1	Fan / ventilation unit	Cleaning of components carried out?	yes / no					
		- Fan						
		- Enthalpy exchanger						
		- Air-contacting surfaces on unit						
		Frost protection / dew device operational?	yes / no					
		Structure-borne sound transmission, are fasteners avoided?	yes / no					
		Are status displays operational?	yes / no					
2	Electrical engineering / control	Cable connections and clamping assemblies secure?	yes / no					
		Are the regulating and control units functional?	yes / no					
3	Ventilation tube / heat insulation	Has cleaning (if necessary) been carried out? Testing OK? For cleaning when needed, see VDI 6022	yes / no					
		Heat insulation and moisture barrier OK?	yes / no					
		Are flexible connections between the unit and ventilation tube functional?	yes / no					
4	Fan, ventilation unit, filter, filter status	Stipulated filter class adhered to?	yes / no					
5	Fan / ventilation unit and fireplace if available	Safety feature with fireplace operational?	yes / no					
6	Extract air / supply air passage	Seat and locking provided?	yes / no					
		Stipulated filter class adhered to?	yes / no					
		Filter, filter status OK?	yes / no					
		Air volumes acc. to protocol OK?	yes / no					
7	Overflow air vents	Open cross section provided?	yes / no					
		No structure-borne and airborne sound transmission?	yes / no					

6.3 Commissioning and handover protocol

Customer data		
Family name:	First name:	Tel.:
Street:	Postcode:	Town/city:
Construction project:		
Unit type:	Serial no.:	Year of construction:

Completeness			
No.	Components	Version	Result
1	Supply air duct	- Design as planned - Cleaning option provided	yes / no yes / no
2	Supply air vents	- Arrangement as planned - Design as planned - Cleaning option provided	yes / no yes / no yes / no
3	Overflow air vents	- Arrangement as planned - Design as planned	yes / no yes / no
4	Extract air vents	- Arrangement as planned - Design as planned - Cleaning option provided	yes / no yes / no yes / no
5	Extract air duct	- Cleaning option provided	yes / no
6	Extractor fan	- Cleaning option provided	yes / no
7	Control / regulation system	- Operational	yes / no
8	Filter, optional	- Replacement or cleaning option provided	yes / no
9	Heat exchanger for waste heat recovery	- Cleaning option provided	yes / no
10	Documentation	- Available	yes / no

Function			
1	Operational with rated ventilation, as planned	Result OK Action required	yes / no yes / no
2	Switching steps possible, as planned	Result OK Action required	yes / no yes / no
3	Electrical power consumption	Result OK Action required	yes / no yes / no

Record of confirmation	
<p>Date:..... Signature/stamp:</p> <p style="text-align: center;">Commissioning personnel / installation technician</p>	

6.4 Air volume protocol

Customer data					
Family name:		First name:		Tel.:	
Street:		Postcode:		Town/city:	
Construction project:					
Unit type:		Serial no.:		Year of construction:	
Measurement data					
Measuring instrument used:		Faults during measurement:		Indoor temperature:	
				Outdoor temperature:	
Filter status when measuring	Outdoor	Extract	Building moisture status: % relative humidity without ventilation mode	Fan speed ratio Extract air / supply air: 	
clean					
approx. ... days used					
very dirty					
Supply air				Fan speed: %	
No.	Room name	Project data		Measurement data	
		m ³ /h	m ³ /s	m ³ /h	m ³ /s
Extract air				Fan speed: %	
No.	Room name	Project data		Measurement data	
		m ³ /h	m ³ /s	m ³ /h	m ³ /s
P _{el} = W					
<p>⇒ The listed measurement data must be determined in accordance with the components actually present. ⇒ Reference has been made to the hygienic requirements for operating the ventilation system. ⇒ Reference has been made to the influence of room air humidity for winter and summer operation. ⇒ To safeguard warranty claims, only original parts (e.g. filters) are allowed to be used.</p>					
Date: Signatures:					
				Commissioning personnel / installation technician	
				User	



PAUL Wärmerückgewinnung GmbH
August-Horch-Str. 7
08141 Reinsdorf
Germany

Tel: +49 (0) 375 - 30 35 05 0
Fax: +49 (0) 375 - 30 35 05 55

info@paul-lueftung.de
www.paul-lueftung.de