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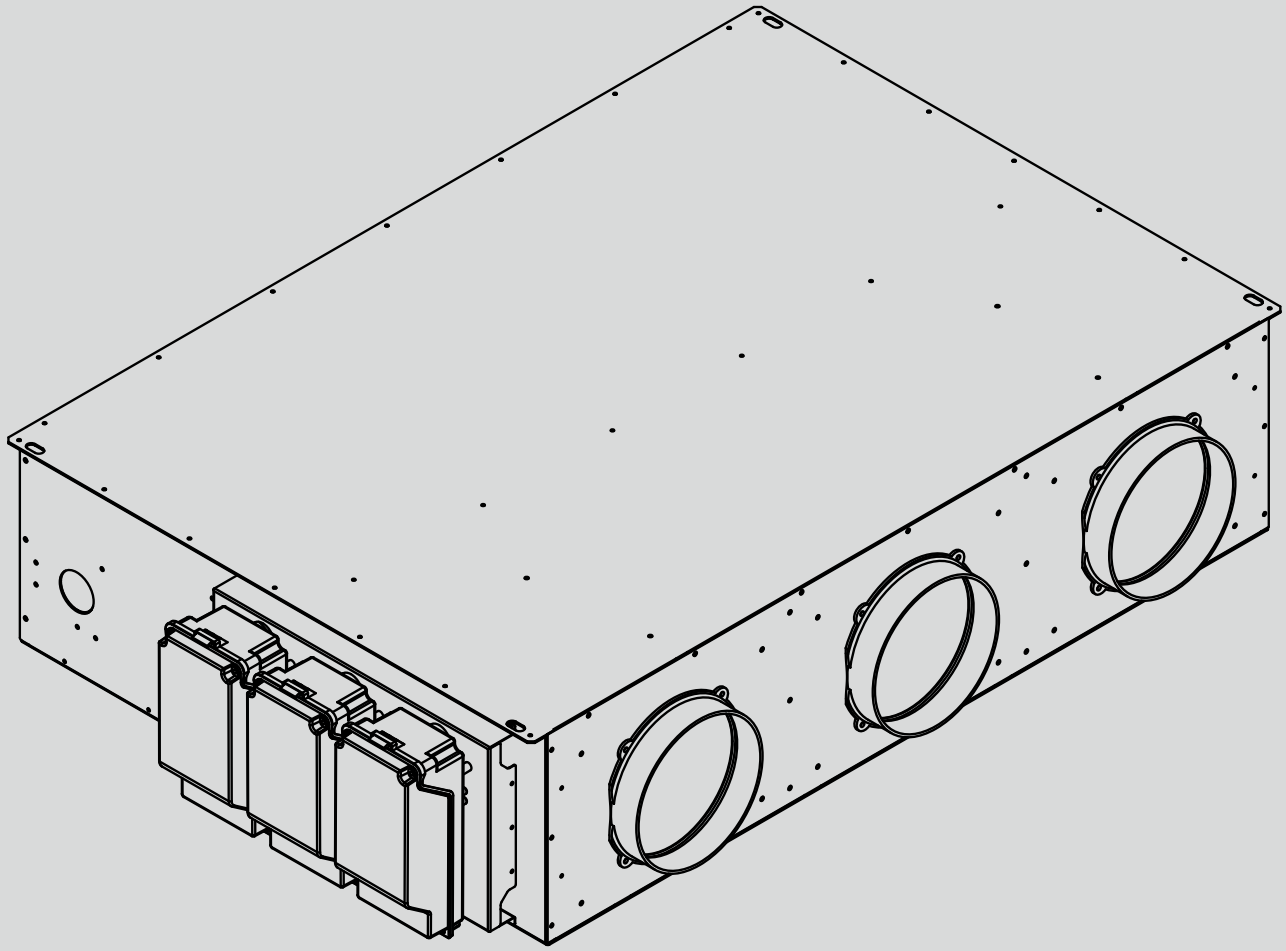

RAUCLIMATE Silent Breeze Ceiling MD

EN Installation and user manual

REHAU | Building Solutions

Contents

01 Information and safety instructions

Read these instructions thoroughly and completely before you start working with the fan coil. Keep this document for the entire lifetime of the machine and pass it on to subsequent users. To view and download the current version of these and other guides, see **www.rehau.com/TI**

Pictograms and logos

Electric voltage! Danger to life

Safety instructions

Legal notice

Important information

Further informationions can be found on the internet, for example

Currentness of manual
To ensure your safety and the proper use of our products, please regularly check whether a more recent version of the manual is available. The publication date of your manual is always found on the bottom right of the cover page. The latest version of the manual is available from your REHAU sales office, specialist wholesaler or it can be downloaded via the Internet at **www.rehau.com/TI**

- This instruction manual forms an integral part of the device and therefore must be carefully preserved and must always travel with it, even if you transfer the device to another owner or relocate it to other premises. If the manual gets damaged or lost, download a copyfrom the website.
- Read this manual carefully before proceeding with any operation and follow the instructions in the individual chapters.

- The manufacturer is not responsible for damages to persons or property caused by failure to follow the instructions in this manual.
- This document is restricted in use to the terms of the law and may not be copied or transferred to third parties without the express authorization of the manufacturer.

Safety sign
Every effort has been made in the design and manufacture of the machine to eliminate risks. The system is marked with the following safety signs, which must be observed:

Caution: electrical danger
The concerned personnel is informed to the presence of electricity and the risk of suffering an electric shock.

General information
These instructions and the documents supplied are intended to enable the installer and the technical service to correctly install, commission and maintain the device without endangering persons or causing damage to the device.
They also enable the subsequent user to carry out simple checks and maintenance.
We recommend that the following be observed for all activities related to the operation and maintenance of the machine:

- Activities to be carried out only by suitably qualified persons who must apply safe working practices and use the appropriate personal protective equipment for the task in hand.
- Activities to be carried out only by appropriately instructed and trained persons who have read and understood these instructions, the technical information and the safety instructions.
- Access to the machine must be denied to persons who are not appropriately trained or competent.
- The electrical installation may only be carried out by a qualified electrician. The electrical installation must be carried out in accordance with the applicable national regulations as well as the regulations of your local electricity supplier.

Working clothes
Wear safety glasses, appropriate working clothes, antistatic safety shoes with non-slip soles, gloves, a protective helmet and, if you have long hair, a hairnet. Do not wear loose-fitting clothing or jewellery, as they may become caught in moving parts.
When performing work at head-height or above the head, wear a protective helmet.

General warnings

- Specific warnings are given in each chapter of the document and must be read before starting operations.
- All personnel involved must be aware of the operations and dangers that may arise when beginning all unit installation operations.
- Installation performed outside the warnings provided in this manual and use of the appliance outside the prescribed temperature limits will invalidate the warranty.
- The installation and maintenance of climate control equipment could be dangerous because there is live electrical components inside the appliances. The installation, initial start-up and subsequent maintenance phases must be carried out exclusively by authorised and qualified personnel.
- Any contractual or extra-contractual liability for damage caused to persons, animals or property, due to installation, adjustment and maintenance errors or improper use is excluded. All uses not expressly indicated in this manual are not permitted.
- Only qualified installer companies are authorised to install the device.
- First start-up and repair or maintenance operations must be carried out by the Technical Assistance Centre or by qualified personnel following the provisions of this manual.
- Do not make any changes or tamper with the unit as this may lead to dangerous situations.
- Use suitable accident-prevention clothing and equipment during installation and/or maintenance operations. The manufacturer is not liable for the non-observance of the current safety and accident prevention regulations.
- In case of water leaks, turn the master switch of the system to "OFF" and close the water taps. As soon as possible, call the REHAU technical service department or else professionally qualified personnel and do not intervene personally on the appliance.
- When replacing components, use only original spare parts.

- The manufacturer reserves the right to make changes to its models at any time to improve its product, with out prejudice to the essential characteristics described in this manual. The manufacturer is not obliged to add such modifications to machines previously manufactured, already delivered or under construction.
- If the appliance is not used for a long period of time, the following operations should be performed:
  - Turn the master switch of the system to "OFF"
  - Close the water taps
  - If there is the risk of freezing, make sure that anti-freeze has been added to the system otherwise empty the system.
- If the room temperature is too low or too high it is damaging for the health and is also a useless waste of energy.
- Avoid prolonged contact with the direct air flow.
- Do not leave the room closed for long periods. Periodically open the windows to ensure a correct change of air.
- Danger from burns – take care when touching.

Fundamental rules of security

Attention: danger to life!
Please keep in mind that the use of products powered by electricity and water requires compliance with certain basic safety rules:

- This unit is not intended to be used by persons (including children) with restricted physical, sensory or mental skills or who lack experience or knowledge.
- Ensure that children do not play with this product.
- It is forbidden to touch the device with wet or damp body parts.
- It is forbidden to carry out any operation before disconnecting the appliance from the power supply by setting the plant master switch to „off".
- lt is forbidden to modify the safety or adjustment devices or adjust without authorization and indications of the manufacturer.
- It is forbidden to pull, unplug, twist, cut or knot the device's electric cables, even if it is disconnected from the mains.
- lt is forbidden to poke objects and substances through the air inlet and outlet grilles.
- It is forbidden to open the access doors of the device' internal parts without first having set main switch of the system to" off".
- It is forbidden to dispose of, or leave in the reach of children, the packaging materials which could become a source of danger.

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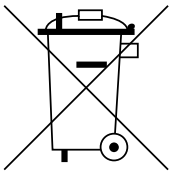
- It is forbidden to climb on the unit or place objects on it. It is prohibited to hang onto the unit or attach objects to it.
- The external parts of the appliance can reach temperatures of more than 70 °C.
- Interventions or modifications to the unit using tools may only be carried out by qualified service personnel.
- This machine has been designed and manufactured according to the strictest safety regulations. Nevertheless, no sharp objects (screwdrivers, needles or similar) may be inserted in the grilles or other unit openings.
- The unit must be connected to a power supply. An electrical disconnect must always be used to eliminate hazards during maintenance (electric shock, burns, automatic restart, moving parts and remote control).
- The unit must always be connected to the earth cable of the electrical system. Failure to comply with this regulation, as with all electrical equipment, is a cause of danger for which the manufacturer accepts no liability.
- All maintenance and cleaning work on the unit must be carried out in a de-energised state. Never remove or open any part of the unit without first disconnecting the power supply.

Disposal



The symbol on the product or its packaging indicates that the product must not be treated as normal household waste, but must be taken to the appropriate collection point for the recycling of electrical and electronic equipment. Proper disposal of this product avoids harm to humans and the environment and promotes the reuse of valuable raw materials. For more detailed information about the recycling of this product, contact your local city office, your household waste disposal service or the shop where you purchased the product. Illegal disposal of the product by the user involves the application of the administrative sanctions provided for by the regulations in force. This provision is only valid in the EU Member States.

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- Avoid disassembling the unit yourself.
- Contact an authorised Technical Assistance Centre to disassemble the appliance.

CE conformity

The fan coils described in this manual complies with the essential requirements of the following European directives:

- Electrical safety for low-voltage applications 2014/35/EU
- Electromagnetic compatibility 2014/30/EU
- RoHS directive 2011/65/EU

Further information

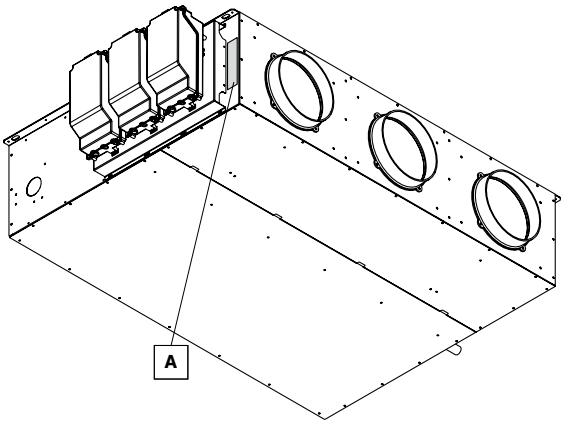
Documents such as the technical information, manuals and declarations of conformity for REHAU fan coil units RAUCLIMATE Silent Breeze and accessories can be downloaded here:

or use the link:
www.rehau.com/qr/08c9b3ec70

02 Product Description

02.01 Identification

The appliance can be identified by the rating plate:



[A] Technical rating plate

02.02 Destination of use

RAUCLIMATE Silent Breeze Ceiling MD fan coils are compact units for heating or cooling of indoor air suitable exclusively for ceiling installation. These fan coils are intended exclusively for installation and operation in the interior of residential and light commercials.

02.03 Description of the appliance

Four sizes of RAUCLIMATE Silent Breeze Ceiling MD fan coils for heating or cooling of indoor air with different dimensions, number of fans and capacities are available. The fan coil is exclusively to be installed on the ceiling connected to an air duct system. RAUCLIMATE Silent Breeze Ceiling MD fan coils consist of 2 and up to 5 fans each assigned to an electronic box and a circular air outlet. Each fan can be controlled individually, allowing for multiple rooms and zones to be air-conditioned as needed.

RAUCLIMATE Silent Breeze Ceiling MD fan coils are controlled by the REHAU control system NEA SMART 2.0. They are connected to the SYSBUS. The end user can operate the fan coils in three ways:

- NEA SMART 2.0 Room unit
- NEA SMART 2.0 App
- NEA SMART 2.0 Room webpages

Principle of function
The air is drawn in by the fan through the filter and the finned heat exchanger. Thereby, the air is cooled or heated by the water flow. The air is then blown out of the corresponding air outlets by the fans. In the case of cooling, the condensate produced is collected in a condensate tray and discharged through the drain pipe.

Structure: high-strength, self-supporting frame in galvanized sheet metal with internal thermal and acoustic insulation.

Fans: low-energy consumption forward-curved EC centrifugal fans for reduced noise.

Filters: flat with Coarse filtration class.

Exchange coil: coil optimized for the best heat exchange.

Models: 4 sizes with different flow rates are available.

Technical rating plate
This shows the technical and performance specifications of the appliance.

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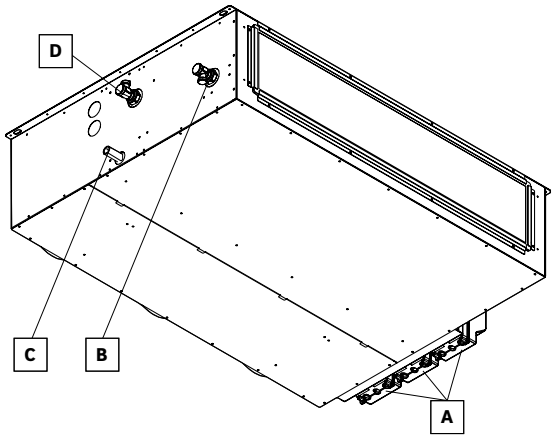
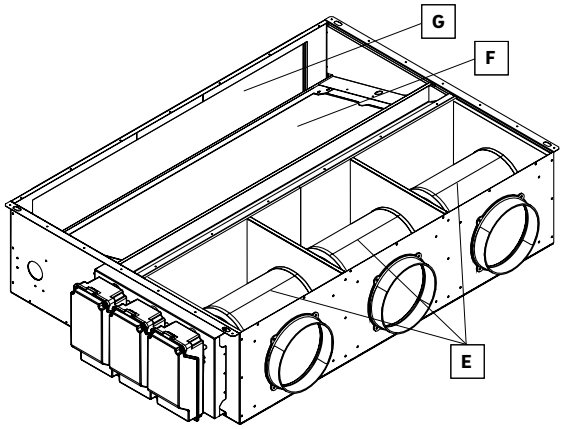
Tampering with, removing or missing identification plates does not allow the product to be reliably identified by its serial number and therefore invalidates the warranty.

02.04 List of external components



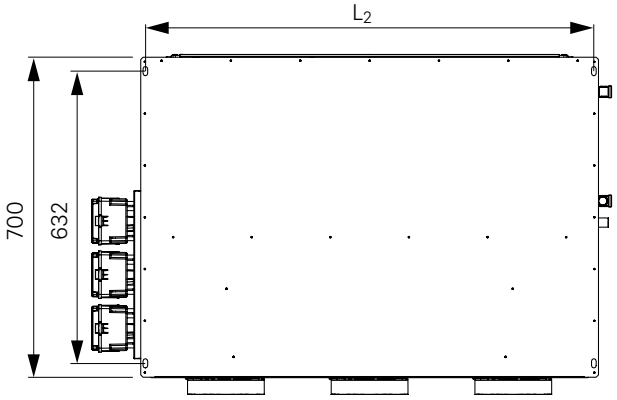
[A] Electrical panel
[B] Hydraulic connection water outlet from the unit including air vent
[C] Condensate drain
[D] Hydraulic connection water inlet to the unit including air vent

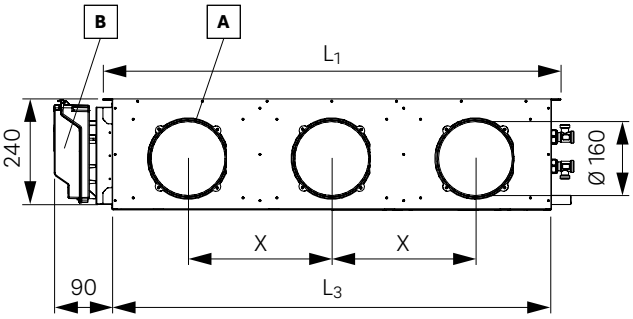
02.05 List of internal components



E Fan
F Hydronic coil
G Filter

02.06 Dimensions





Example: RAUCLIMATE Silent Breeze Ceiling MD 55-3

Model		**MD 40-2**	**MD 55-3**	**MD 70-4**	**MD 80-5**
Length L_1	mm	790	990	1,190	1,480
Length L_2	mm	770	970	1,170	1,460
Length L_3	mm	750	950	1,150	1,440
Height	mm	240	240	240	240
Depth	mm	700	700	700	700
Outlets A/ Electronic box B	mm	2	3	4	5
Distance outlets X	mm	373	316	287	287

03 Installation

For detailed information on the products, refer to chapter 8 technical data.

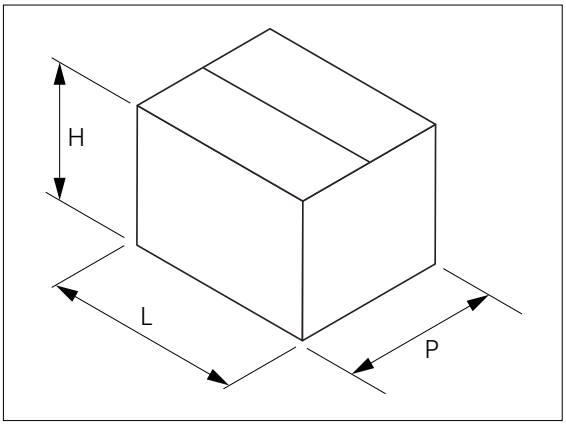
- The installation must be carried out by the installer. There is a risk of water leakage, electric shock or fire if the installation is not performed correctly.
- During installation, it is necessary to observe the precautions mentioned in this manual, and on the labels affixed to the inside of the appliances, as well as to take every precaution suggested by common sense and the safety regulations in force at the place of installation.
- Using only the supplied installation-specific components is recommended. Use of different components could lead to water leakage, electric shock or fire.
- Failure to apply the indicated rules may cause malfunctions of the appliances and relieves the manufacturer from any warranty and from any damage caused to persons, animals or property.

03.01 Packaging

Upon receipt of the package check that it is not damaged, otherwise accept the goods with reserve, producing photographic evidence of any damage.

The packaging is made of suitable material and carried out by experienced personnel.
The units are all checked and tested and are delivered complete and in perfect condition.
The appliance is shipped in standard packaging consisting of a cardboard box and a set of polystyrene foam protectors, placed on a wooden pallet and secured with straps.

03.01.01 Dimensions and weights with packaging



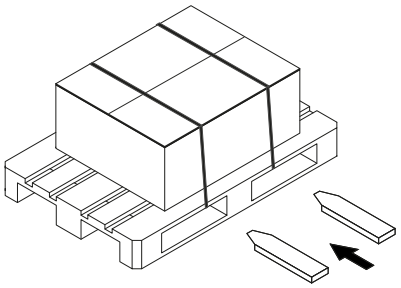
		Packaging dimensions[1)]			
Model		MD 40-2	MD 55-3	MD 70-4	MD 80-5
Width P	mm	925	1,125	1,325	1,650
Length L	mm	880	880	880	785
Height H	mm	285	285	285	285
Weight	kg	40	43	46	53

[1)] Excluding pallet

03.01.02 Handling with packaging

- The unit may only be handled by qualified personnel adequately equipped and with equipment suitable for the weight and dimensions of the unit.
- Before each handling operation, check the lifting capacity of the machinery used in accordance with the indications on the packaging.
- When the load is lifted from the ground, stay clear of the immediate and surrounding area.
- Check the information on the packaging for the amount of stackable packages.
- In manual operations, the maximum weight per person required by current legislation must always be observed.

With pallet: Use a forklift



Without pallet: Use a forklift

The unit can only be moved manually for short trips in exceptional cases. In this case it is necessary to carefully check that the weight of the unit does not exceed what is stipulated by the regulations with respect to the number of people employed.

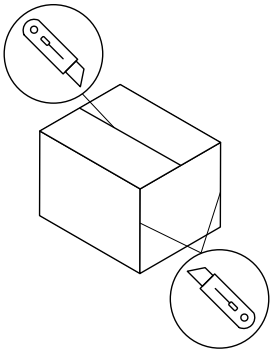
03.01.03 Storage

Ensure that the unit is
- stored in accordance with the applicable national regulations
- stored in a closed environment protected from the weather, off the ground by means of sleepers or pallets with temperatures not below 0 °C, up to a maximum of 40 °C.

03.01.04 Unpacking

- Check that the individual components are present.
- Check that no components were damaged during transport.
- Dispose of the packaging components following the applicable waste disposal regulations. Check for disposal arrangements with your municipality.
- Handle with care.
- The packing material (cardboard, staples, plastic bags, etc.) must not be dispersed or abandoned in the surrounding environment and must be kept out of children reach, as it can be dangerous.

To remove the packaging:
- use a cutter
- open the cardboard packaging



To aid removal of the product, also cut the vertical edges.

- remove the accompanying components
- remove the polystyrene elements
- remove the appliance from the box

Accompanying material
They are included with the appliance, inside the packaging:
- Installer manual
- Labels/stickers provided on the unit

Check the presence of the individual components.

03.01.05 Handling without packaging

- The appliance must be handled only by qualified personnel, adequately equipped and with equipment suitable for the weight and dimensions of the appliance.
- The unit must be handled using non-slip gloves.
- The unit may only be handled by qualified personnel adequately equipped and with equipment suitable for the weight and dimensions of the unit.
- Before each handling operation, check the lifting capacity of the machinery used in accordance with the indications on the packaging.
- When the load is lifted from the ground, stay clear of the immediate and surrounding area.

- Check the information on the packaging for the amount of stackable packages.
- In manual operations, the maximum weight per person required by current legislation must always be observed.

Use a fork lift, scaffolding or other suitable lifting system.

The unit can only be moved manually for short trips in exceptional cases. In this case it is necessary to carefully check that the weight of the unit does not exceed what is stipulated by the regulations with respect to the number of people employed.

03.02 Installation site

The location of the appliance must be determined by the plant engineer or a competent person and must take into account both purely technical requirements and any national / local legislation in force.
The appliance is intended to be installed indoors in a horizontal position fixed to the ceiling.

The appliance is declared IPXO protected, therefore not suitable for installation outdoors or in rooms with the presence of water (swimming pool, etc.).

Avoid installing the unit in the vicinity of:
- obstacles or barriers that cause recirculation of the exhaust air
- narrow places where the sound level of the appliance can be enhanced by reverberations or resonances
- environments with the presence of flammable or explosive gases
- very damp environments (laundries, greenhouses, bathrooms with high humidity, etc.) to prevent the formation of condensation on the external panels of the unit

Avoid installing the unit in the vicinity of:
- environments with the presence of flammable or explosive gases or flammable fluids
- solar radiation and proximity to heat sources

- Avoid installing the unit in the vicinity of the sea. Salty atmospheres cause corrosion and oxidation of the internal components, compromising the functioning of the unit.
- Avoid placing the unit within 1 metre of radio and video equipment.
- Do not install above heat sources.

- Ensure that:
  - the installation site of the unit must be chosen with the utmost care to guarantee adequate protection from shocks and consequent damage
  - the supporting surface is capable of supporting the weight of the appliance
  - the supporting surface does not affect load-bearing building elements, piping or power lines
  - the functionality of load-bearing elements is not compromised
  - there are no obstacles to the free circulation of air through the holes (plants, leaves ...)
  - the appliance must be installed in a position where it can be easily serviced
  - the safety distances between the units and other appliances or structures are scrupulously respected so that the air entering and leaving the fans is free to circulate

If the unit is installed incompletely or on an unsuitable surface, it could cause damage to persons or property if it becomes detached.
The appliance must not be in a position where the air flow is aimed directly at a person.

- Provide the following:
  - a drain nearby for the outflow of condensation
  - a compliant power supply nearby
  - fastening elements suitable for the type of support

03.02.01 Minimum installation distances

The clearance zones for the installation and maintenance of the appliance are shown in the figure. Established spaces are necessary to avoid barriers to airflow and allow for normal cleaning and maintenance.

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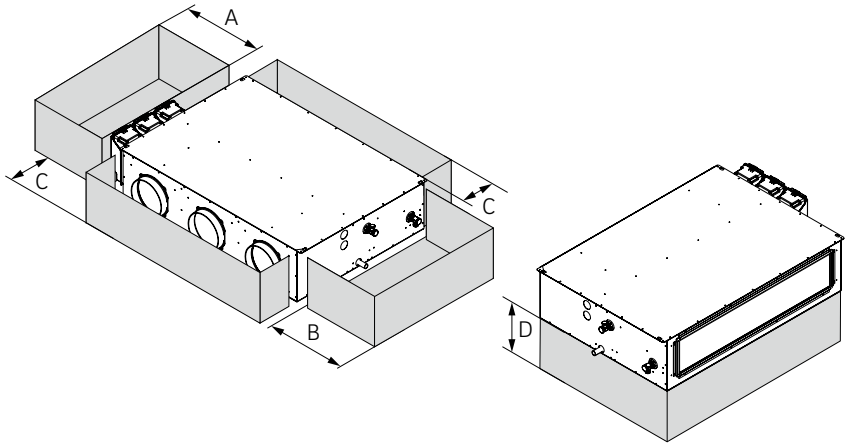
Make sure that there is sufficient space to allow the panels to be removed for routine and supplementary maintenance operations.

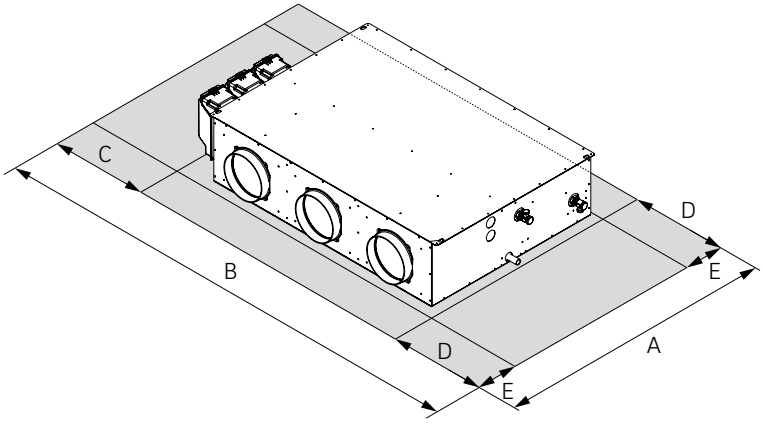


Minimum distances

RAUCLIMATE Silent Breeze Ceiling		MD 40-2	MD 55-3	MD 70-4	MD 80-5
A	mm	350	350	350	350
B	mm	350	350	350	350
C	mm	50	50	50	50
D	mm	250	250	250	250

03.02.02 Hatch dimensions

The dimensions of the inspection flap in the suspended ceiling must be realised as described below so that the device can be maintained and be removed without dismantling the soffit if, for example, irreversible damage has occurred on site.
The function of the device must be tested before closing the soffit.



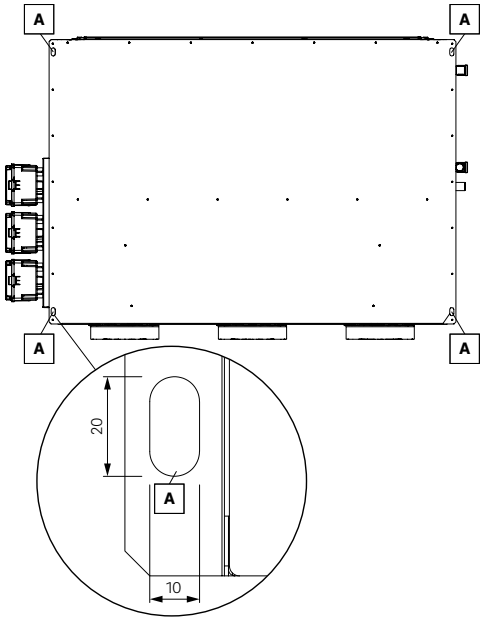
Hatch dimensions

RAUCLIMATE Silent Breeze Ceiling		MD 40-2	MD 55-3	MD 70-4	MD 80-5
A	mm	795	795	795	795
B	mm	1,490	1,690	1,890	2,140
C	mm	350	350	350	350
D	mm	350	350	350	350
E	mm	50	50	50	50

03.02.03 Positioning

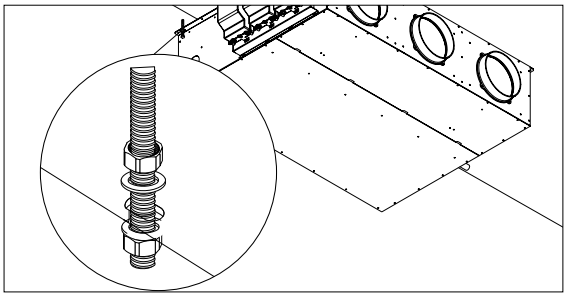
Check that:
- the surface supports the weight of the appliance
- the surface does not affect piping or power lines
- the functionality of load-bearing elements is not compromised

Positioning the unit



A mounting holes

Use the 4 mounting holes on the upper side of the unit.



Check the correct orientation of the unit.
- mark the position of the fixing holes
- use fixing systems appropriate for the type of supporting surface and the weight of the unit
- secure the unit to the fixing system
- the unit must be installed with a slight slope in the direction of the hydraulic connections so that the condensate can drain completely from the tray. A maximum slope of 1° must not be exceeded.
- the minimum installation distances are respected

Do not install the appliance so that the surface is in direct contact with the ceiling to avoid contact noise. In this case, insert rubber or neoprene strips.

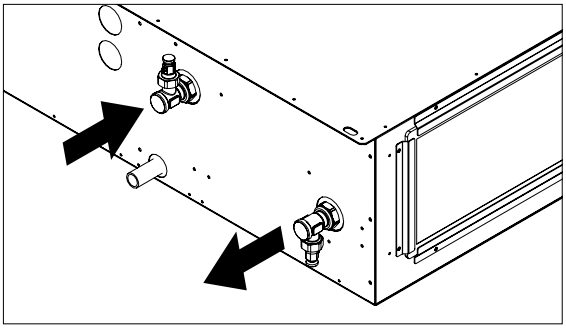
03.03 Hydraulic connections

03.03.01 Chemical and physical characteristics of water

- Incompatible chemical and physical characteristics could compromise the integrity of the hydraulic components of the unit.
- Check the characteristics of the water

Description	Limit Value
Hardness	< 10 °F, < 5.6 °dH
PH value	7.5 – 9
Oxygen	< 0.1 mg/L
Conductivity	< 500 µS/cm
Iron	< 0.5 mg/L
Manganese	< 1 mg/L
Nitrate	< 70 mg/L
Sulphate	< 70 mg/L
Chlorine compounds	< 50 mg/L
Free radical Carbon Dioxide	< 10 mg/L
Ammonium	< 20 mg/L

03.03.02 Position and dimensions



Supply and return, 3/4" Eurocone

03.03.03 System connection

To make the connections:
- position the hydraulic lines
- use the "key against key" method
- tighten the connections
- check for any leaks
- insulate the connections with insulation material

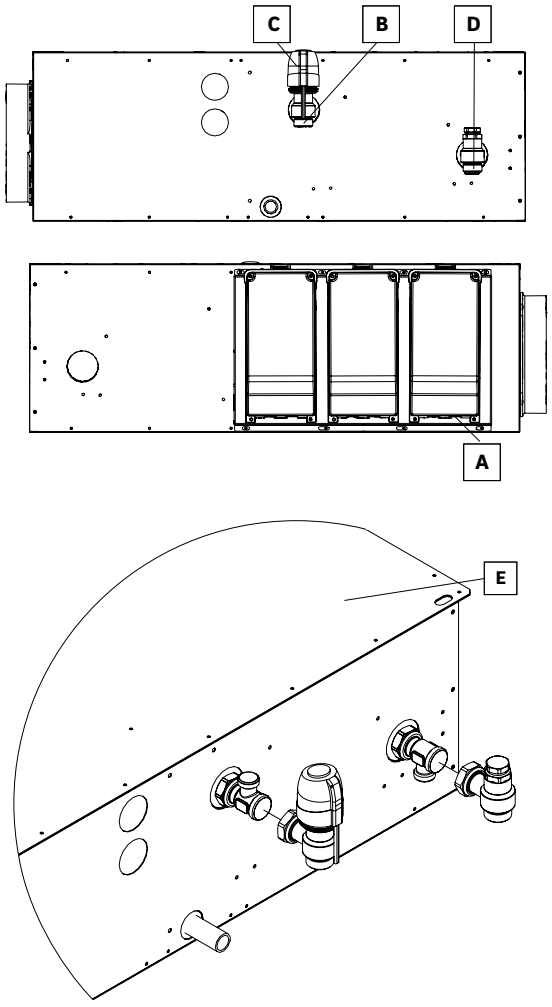
For correct operation of the appliance, it is mandatory to install a valve with a suitable actuator in the supply line to interrupt the water flow when the appliance is not in operation.

The actuator must be connected to the corresponding output on the fan coil PCB. The use of the accessories 2-way or 3-way valve kit is mandatory. The valve kits have to be ordered separately.

- The hydraulic lines and joints must be thermally insulated.
- Avoid partial insulation of the pipes.
- Do not overtighten the connections to avoid damaging the insulation.
- Carefully check the insulation seals to prevent condensation formation and dripping.

03.03.04 Connection with 2-way valve

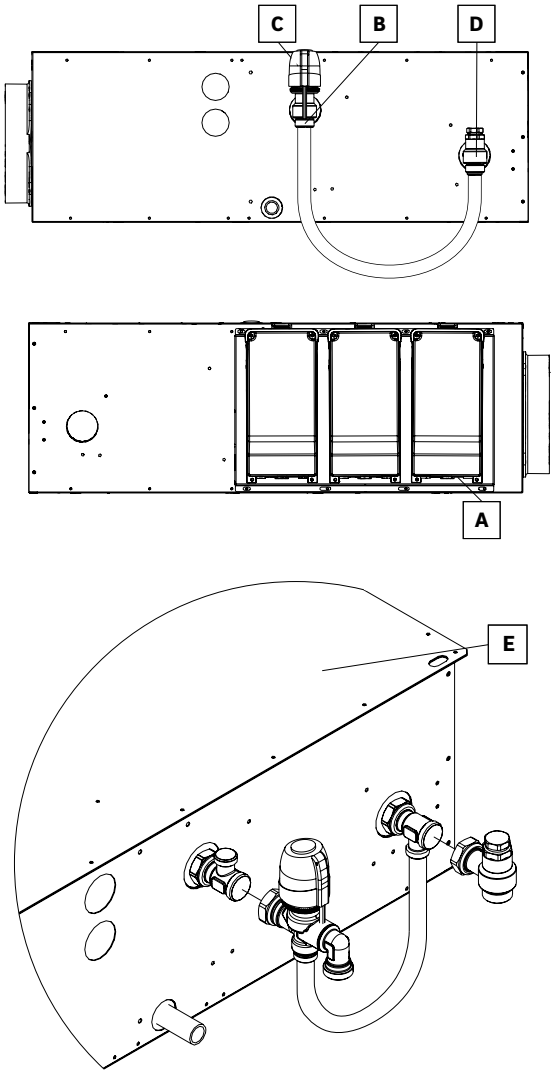
The actuator cable must be routed to the electronics box and connected to the pre-assembled connector on the fan coil PCB.
The actuator may only be installed orientated as shown in the following drawings.



A Electrical cable entry hole
B Connection for water inlet pipe
C Thermoelectric actuator
D Connection with lockshield valve for water outlet pipe
E Machine body

03.03.05 Connection with 3-way valve

The actuator cable must be routed to the electronics box and connected to the pre-assembled connector on the fan coil PCB.
The actuator may only be installed orientated as shown in the following drawings.

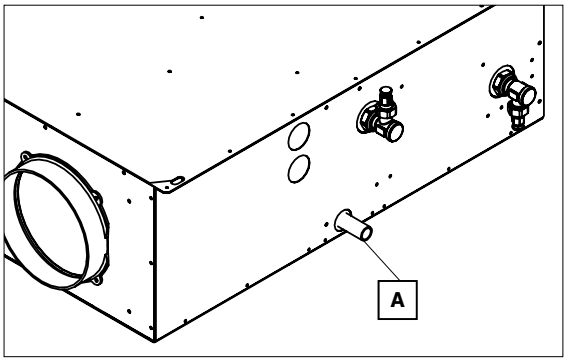


A Electrical cable entry hole
B Connection for water inlet pipe
C Thermoelectric actuator
D Connection with lockshield valve for water outlet pipe
E Machine body

03.04 Condensate drain connection

This appliance is equipped with trays for collecting the condensate that is produced during operation.
Condensate must be routed to a suitable place for drainage.
If the drainage line runs into a container (tank or other) it must be ensured that the container itself is not hermetically sealed and most importantly it must be ensured that the drainage pipe is not immersed in water.
The hole for the condensate pipe must always have an outwards slope.
When connecting the condensate drain, take care not to crush the rubber pipe.

The size and position of the condensate drain connection shown below.

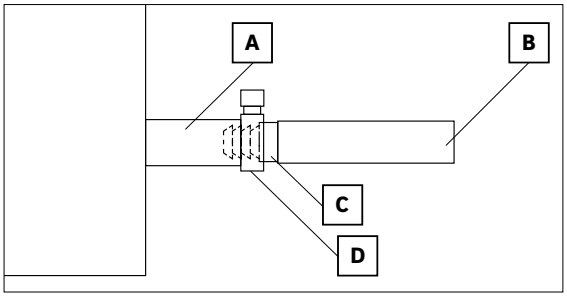


A Flexible condensate drain pipe, Ø 20 mm

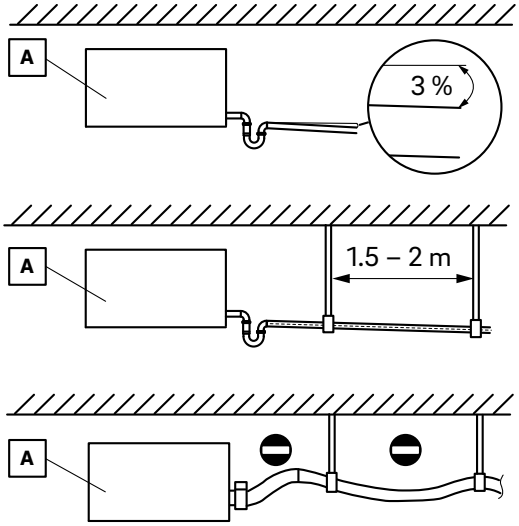
The flexible condensate drain pipe is connected to the condensate drain connection of the condensate tray in the fan coil unit at the factory.

Do not pull on the flexible drain pipe.

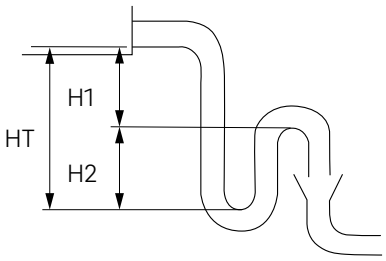
After installation, the correct and tight connection of the condensate drain pipe must be checked.



A Condensate drain connection
B Condensate drain pipe
C Hose fitting
D Hose clamp



A Unit



HT 100 mm
H1 50 mm
H2 50 mm

To connect the condensate drain:
- connect the drainage pipe to the connection provided on the unit
- install a siphon on the condensate drainage pipe near the unit
- direct the condensate drain pipe to a suitable place for draining
- maintain a minimum slope of 3 % towards the drain location
- insulate junction points

- It is mandatory to install an adequate siphon on the condensate drainage pipe to prevent the negative pressure generated by the fans from obstructing the proper flow of condensate, which could lead to spillage inside the premises.
- The drainage system must include a suitable siphon to prevent unwanted air from entering the vacuum system. The siphon also prevents the entry of odours or insects.

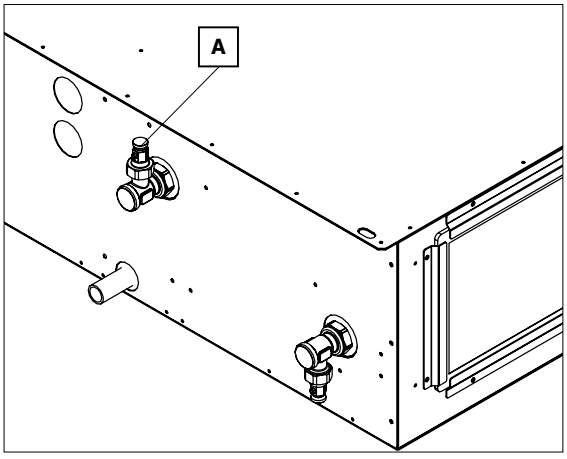
- The siphon must be fitted with a plug at the bottom or must in any case permit quick dismantling for cleaning.
- Use plastic drainage pipes.
- Avoid metal pipes.
- Make sure all joints are sealed to prevent leakage of water.
- Condensate drain pipes must be insulated for both indoor and outdoor sections to avoid condensation on the surface and / or frosting problems. The insulation must be inserted all the way to the condensate drain pipe connection on the unit.

03.05 System charging

To charge the system:
- open the relief valves on the devices
- open all the shut-off devices of the system
- slowly open the filling valve

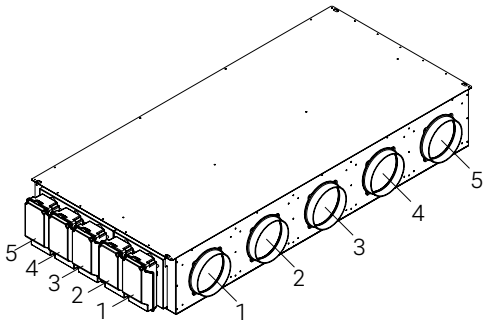
When water starts coming out of the relief valves:
- close the relief valves
- proceed with the filling
- check that you have reached the nominal pressure specified for the system
- close the filling valve
- check the hydraulic tightness of the joints

- It is advisable to repeat the operation after the appliance has been running for a few hours.
- Periodically check the system pressure.



A Air relief

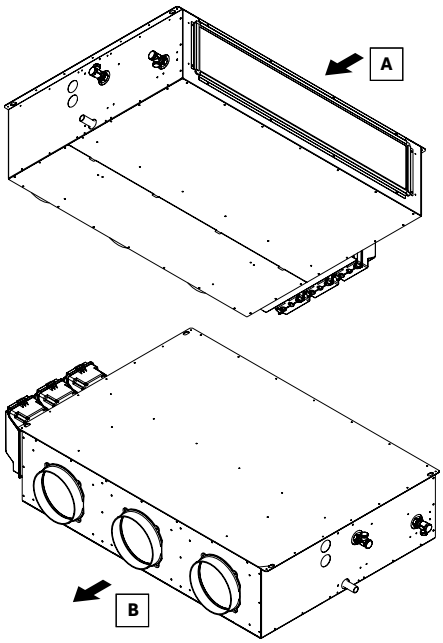
03.06 Correspondence between the air supply channel and the electrical panel



The picture shows the correspondence between the air supply channel and the electrical panel:
1 belongs to 1, 2 to 2 and so on.

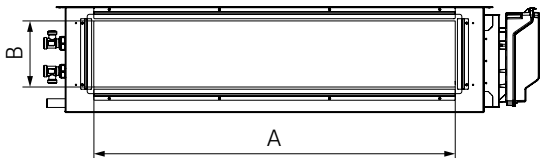
03.07 Aeraulic connections

- The sizing of ducting and supply and extract grids must be carried out by a professionally qualified person.
- To prevent the transmission of any vibrations of the machine into the room, an anti-vibration joint should be placed between the fan outlets and the ducts.
- The connecting pipes must be of a suitable diameter and supported so that their weight does not put a strain on the appliance.

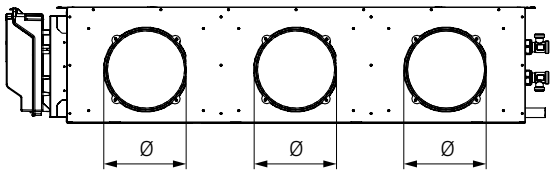


A Extracted air
B Air supply

Extracted air dimensions



Air supply dimensions



Model		MD 40-2	MD 55-3	MD 70-4	MD 80-5
Extracted air dimensions					
A	mm	630	830	1,030	1,320
B	mm	150	150	150	150
Air supply dimensions					
Connections number		2	3	4	5
Supply air connection	mm	160	160	160	160

03.08 Electrical connections

The appliance leaves the factory fully wired and only requires connection to the power supply, the water valve actuator and the NEA SMART 2.0 SYSBUS.

Protective earthing is mandatory

- The appliance is equipped with protective earthing. Conductive parts of the appliance are connected to the PE conductor of the power supply.

The use of a residual-current device, also known as residual-current circuit breaker or ground fault circuit interrupter is mandatory

- In the event of a residual or leakage current to the ground the residual-current device rapidly interrupts the electrical circuit within milliseconds preventing prolonged electric shocks that could cause serious injury.
- Type F recommended for this application.

The use of a main switch with a miniature circuit breaker is mandatory

- The main switch allows to disconnect the appliance from the mains in case of maintenance work or a fault in the appliance.
- The appliance is protected against overload and short circuit by a miniature circuit breaker.

- All operations of an electrical nature (installation or maintenance) must be carried out by qualified electrician having the necessary legal requirements, trained and informed about the risks related to such operations.
- All connections must be made in accordance with the relevant regulations in force in the country of installation.
- Before carrying out any work, make sure that the power supply is switched off.
- The unit should only be powered after the plumbing and electrical work has been completed.

- References:
  - for electrical connections please refer to the wiring diagrams in this manual, especially for the part concerning the power terminal
  - for the supply voltage, frequency and power consumption, please refer to the nameplate on the appliance.

- Check that:
  - the mains characteristics are adequate for the power consumption of the appliance, also taking into account any other machinery in parallel operation
  - the power supply voltage and frequency correspond to those specified on the nameplate on the appliance
  - the cables are suitable for the type of laying in accordance with the IEC standards in force
  - the power supply is adequately protected against overloads, short circuits and residual current.
- Ensure that a connection to protective earth is made. Do not ground the appliance to distribution pipes (such as gas or water pipes), surge arresters or the ground of the telephone system.

- Electrical connections must be carried out in accordance with the instructions in the manual and the standards or practices governing the connection of electrical appliances at national level. Insufficient capacity or incomplete electrical connections could lead to electric shock or fire.
- The power supply line must be adequately dimensioned to avoid voltage drops or overheating of cables or other devices placed on the line.
- Use a dedicated power supply circuit. Never use a power supply to which another appliance is also connected due to risk of overheating, electric shock or fire.
- For the electrical connection, use a cable of sufficient length to cover the entire distance without any connection. Do not use extension cables. Do not apply other loads on the power supply.
- After connecting the interconnection and power supply cables, ensure that the cables are arranged so that they do not exert excessive forces on the strain reliefs or electrical panels. Install the strain reliefs on the cables. Incomplete connections of the strain reliefs can lead to overheating of the terminals, electric shock or fire.
- The manufacturer is not liable for any damage caused by the lack of earthing or failure to comply with the specifications in the respective diagrams.

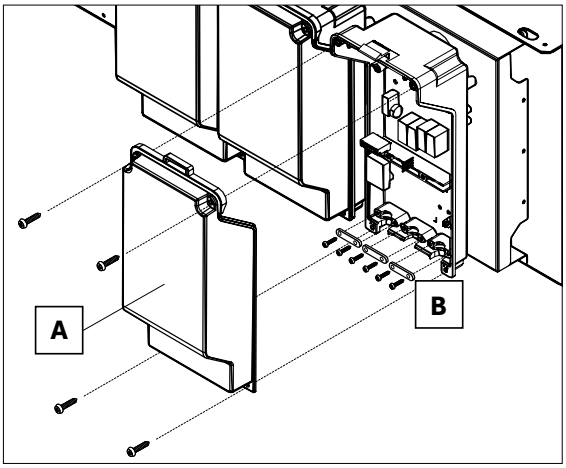
03.08.01 Power line dimensioning

For dimensioning the cable for the power supply and the safety devices, the electrical characteristics of the corresponding fan coil unit in the technical data in chapter 8 and on the rating plate must be observed.

The minimum cable cross-section area must be verified according to the actual conditions of the installation: length of the cable, characteristics of the electrical supply, etc.

03.08.02 Access to the electrical panel

- Access to the electrical panel is only permitted to qualified personnel.
- Before carrying out any work, ensure that the power supply is switched off.



A Electrical panel cover
B Strain reliefs

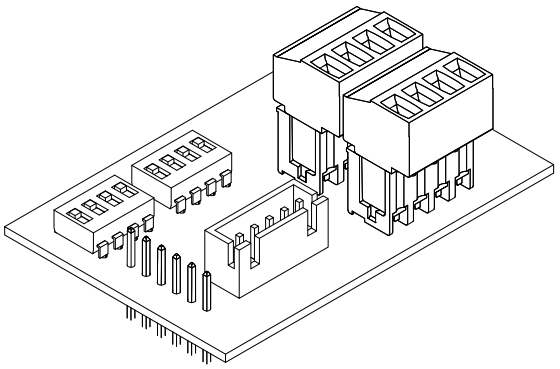
To access the connections:
- remove the fixing screws
- remove the electrical panel cover

03.08.03 Integration into NEA SMART 2.0

Modulating RAUCLIMATE SILENT BREEZE Fan Coils are connected to the NEA SMART 2.0 system bus (SYSBUS) and controlled via it.

The RAUCLIMATE SILENT BREEZE Fan Coils must be clearly assigned to one of the NEA SMART 2.0 bases (Master, Slave 1, Slave 2, Slave 3 or Slave 4) and get a unique numbering within an assigned base.

The connection of the system bus (SYSBUS) and the assignment (addressing) is carried out via DIP switches on the so-called gateway PCB. The gateway PCB is a component of the main PCB of the fan coil.



Connection to system bus (SYSBUS)
Two 4-pin terminals labelled GND, 1, 2, VDC are available for connecting the system bus. One terminal is provided for the connection of the ingoing system bus. The second terminal allows the system bus to be easily looped through to other bus subscribers (bases, U-modules, RAUCLIMATE SILENT BREEZE fan coils).

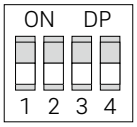
- The polarity of the System Bus (SYSBUS) must be strictly followed.
- Swapping the polarity damages the devices connected to the system bus (SYSBUS) (bases, U-modules, RAUCLIMATE SILENT BREEZE fan coils)
- Systembus (SYSBUS):
  permissible topology: Line
  maximum length: 500 m
  type of cable: J-Y(ST)Y 2 x 2 x 0.8 mm

Make sure that the bus cables in the terminal box are routed directly to the pluggable terminal blocks and only stripped as far as is necessary for the connection.

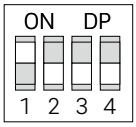
Connect the cable according to the electrical diagram using the provided pluggable terminal connectors, making sure that they are plugged in correctly.

Assignment (Addressing)
Assignment (addressing) is done via two 4-pin DIP switches labeled B_ADR and FC_ADR.

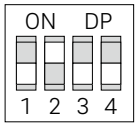
B_ADR: Assignment of the selected RAUCLIMATE SILENT BREEZE fan coil to the corresponding base (Master, Slave 1, Slave 2, Slave 3, or Slave 4).



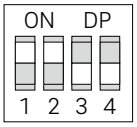
Base Master



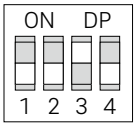
Base Slave 1



Base Slave 2

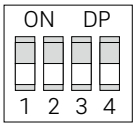


Base Slave 3

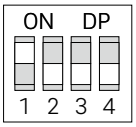


Base Slave 4

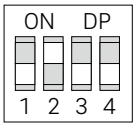
FC_ADR: Numbering (1 to 16) of the RAUCLIMATE SILENT BREEZE Fan Coil within an assigned base.



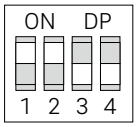
Fan Coil Nr. 1



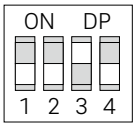
Fan Coil Nr. 2



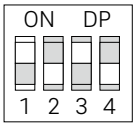
Fan Coil Nr. 3



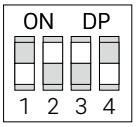
Fan Coil Nr. 4



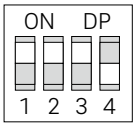
Fan Coil Nr. 5



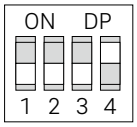
Fan Coil Nr. 6



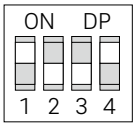
Fan Coil Nr. 7



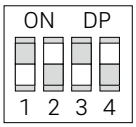
Fan Coil Nr. 8



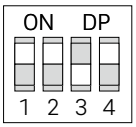
Fan Coil Nr. 9



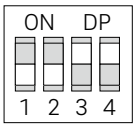
Fan Coil Nr. 10



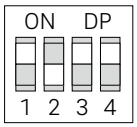
Fan Coil Nr. 11



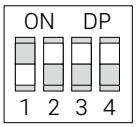
Fan Coil Nr. 12



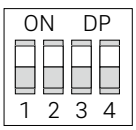
Fan Coil Nr. 13



Fan Coil Nr. 14



Fan Coil Nr. 15



Fan Coil Nr. 16

03.08.04 Connection of the actuator

The cable of the actuator of the associated RAUCLIMATE Silent Breeze accessory must be routed to the "Zone 1" electronics box.

Make sure that the cable is laid and fastened properly and that the insulation of the cable is not damaged during installation.

Connect the cable to the "Zone 1" PCB according to the electrical diagram using the pre-assembled connector.

03.08.05 Connection of the power supply

Before connecting the unit to the mains power supply, make sure that the installation is in a de-energised state, e.g. by swiching off circuit breaker.

Use properly sized cables to avoid voltage drops or overheating.

Connect the power supply (230 V, AC, single-phase, 50 Hz) to the Phase L, Neutral N and PE terminals of the device, as shown in the electrical diagram. To do this, use the pre-assembled pluggable terminal blocks.

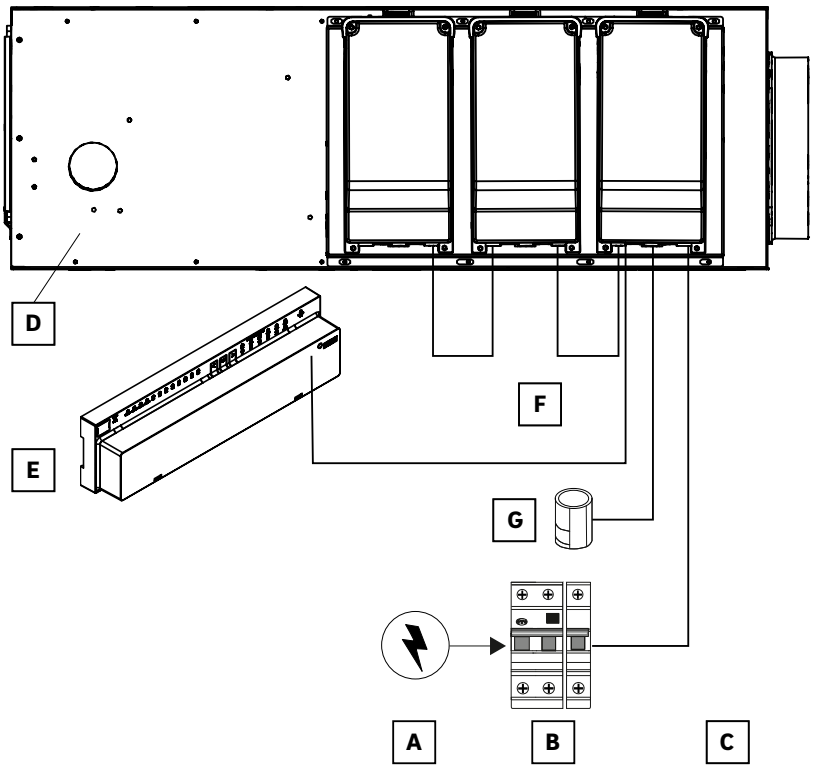
The grounding of the fan coil housing is implemented at the factory. The grounding of the housing is mandatory. Before the electronics box is closed, the grounding of the fan coil housing has to be checked.

With the help of the cable strain relief clamps on the electronics boxes, reliable strain relief must be ensured for all cables that are routed out of the electronics boxes.

After the cables are connected correctly and without tension and sufficient strain relief is ensured, the electronics boxes must be properly closed before commissioning.

03.09 Electrical diagrams

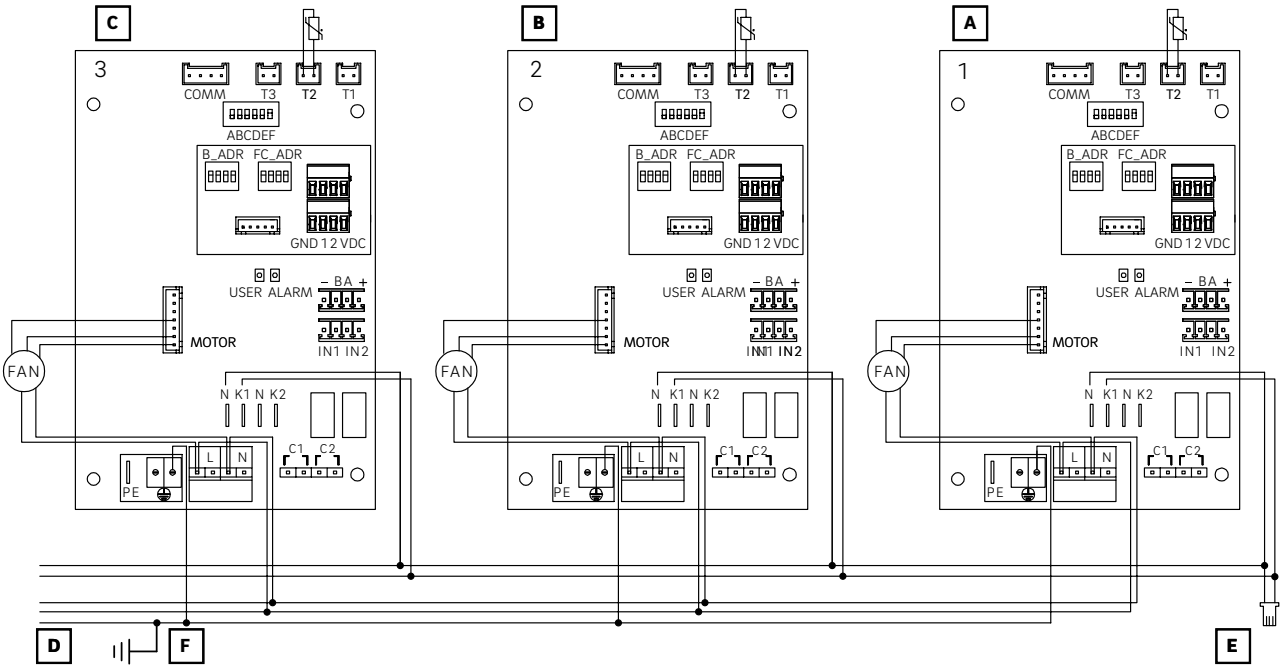
Wiring overview



- A Power supply 230 V /1 ph /50 Hz
- B Residual current circuit breaker and miniature circuit breaker
- C Power cable
- D RAUCLIMATE Silent Breeze Ceiling MD
- E NEA SMART 2.0 Base
- F NEA SMART 2.0 SYSBUS
- G Water valve actuator 230 V

Factory wiring of the device

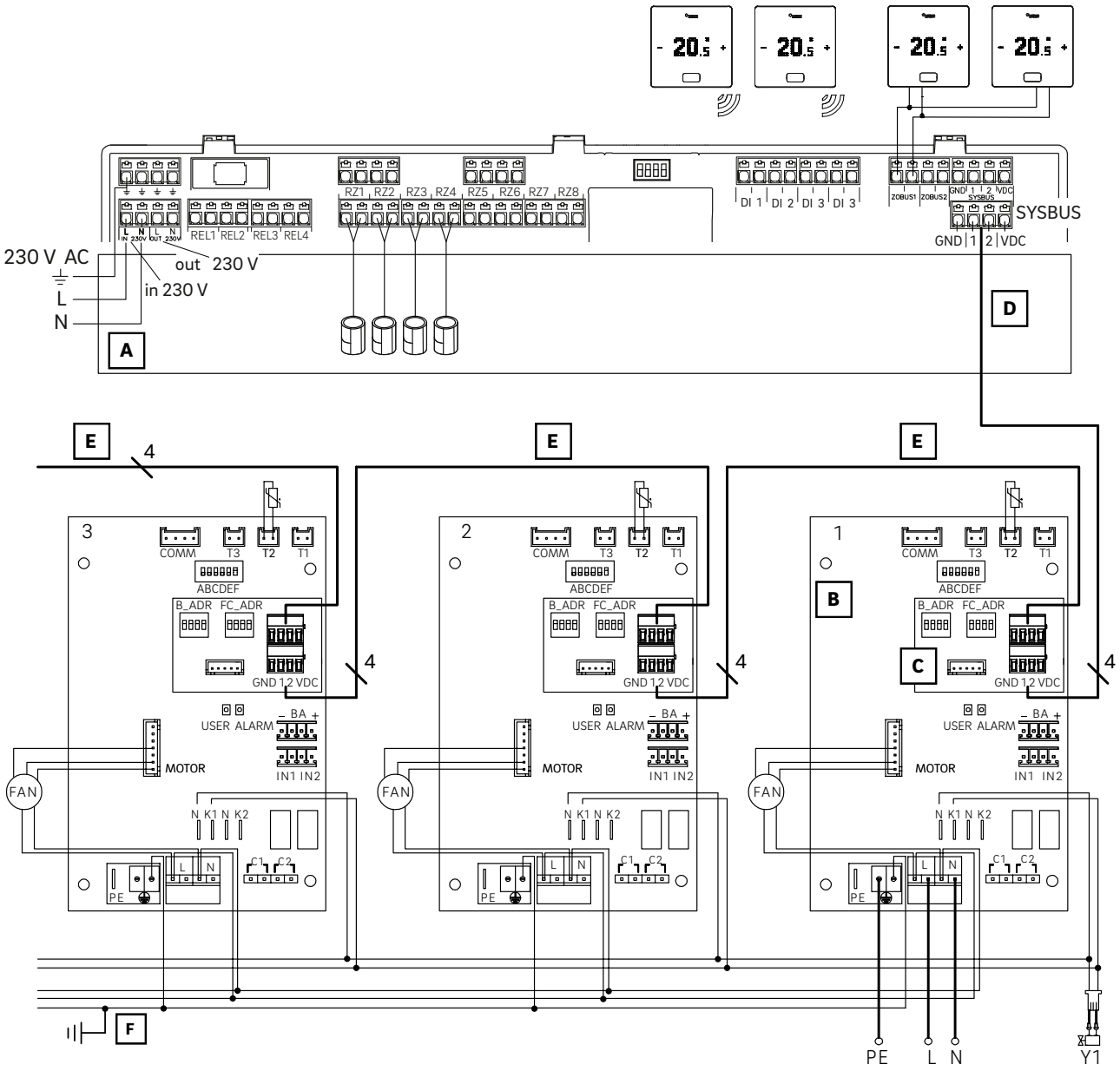
The fan coil leaves the factory pre-wired. The following diagram shows the factory wiring.



A Zone 1 Fan Coil PCB with Gateway PCB
B Zone 2 Fan Coil PCB with Gateway PCB
C Zone 3 Fan Coil PCB with Gateway PCB
D Up to 5 zones
E Connector for water valve actuator (230 V / 50 Hz / max. 1 A)
F Grounding of the fan coil housing
T2 Water temperature probe (10 kOhm)
FAN Fan motor

Onsite wiring of the device

The following diagram shows the onsite wiring of NEA SMART 2.0 SYSBUS, water valve acatuator and power supply.



A	NEA Smart 2.0 Base 230 V (example)
B	Zone 1 Fan Coil PCB with Gateway PCB
C	Zone 1 Gateway PCB
D	SYSBUS connection to NEA SMART 2.0
E	SYSBUS connection to further zones or bus participants
F	Grounding of the fan coil housing
B_ADR	Dip switches for assigning of the zone fan to the corresponding base
FC_ADR	Dip switches for numbering of the zone fan within an assigned base
Y1	Water valve actuator (230 V / 50 Hz / max. 1 A)
PE, L, N	Power supply connection (230 V / 50 Hz / 1 ph) Protective earth PE, phase L, neutral N

04 Configuration and operation with NEA SMART 2.0

Configuration
The detailed description of the configuration of the NEA SMART 2.0 system can be found in the following documents.

- NEA SMART 2.0 control system- Commissioning instructions for switched fan coils and modulating RAUCLIMATE SILENT BREEZE fan coils (954666)
- NEA SMART 2.0 service instructions (954647)

These documents are available online at
www.rehau.com/neasmart2

Operating
RAUCLIMATE Silent Breeze Fan Coils can be operated by the user in three ways:

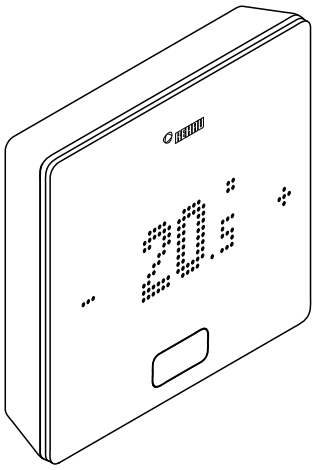
- NEA SMART 2.0 Room webpages
- NEA SMART 2.0 room unit
- NEA SMART 2.0 app

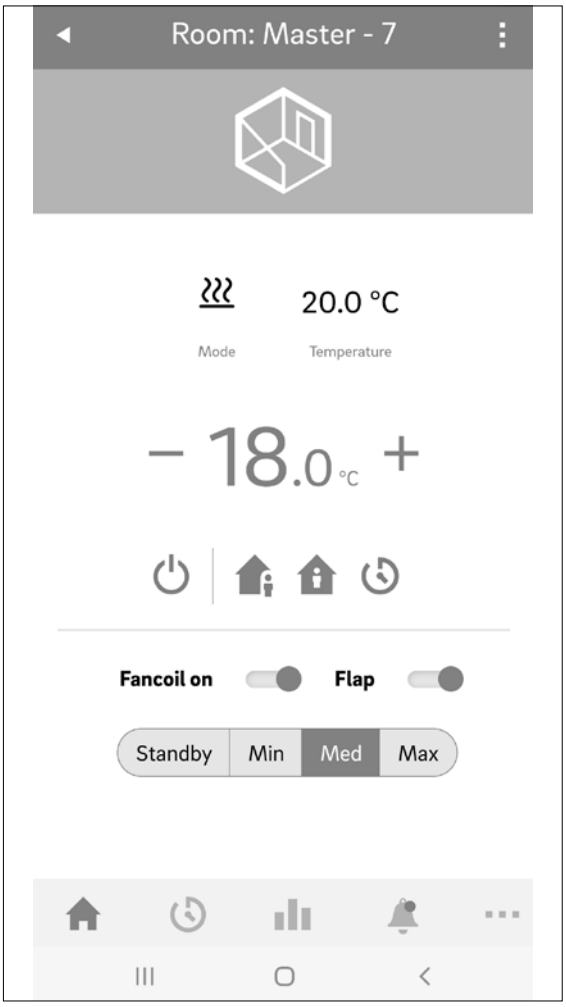
Available controls:

- Temperature setpoint
- Fan Coil speed levels
- Flap control (only available for High Wall)
- Smart Function Control

Further information on operation can be found in the following documents, which can be accessed online at
www.rehau.com/neasmart2

- End user manual (954641)
- NEA SMART 2.0 control system-Commissioning instructions for switched fan coils and modulating RAUCLIMATE SILENT BREEZE fan coils (954666)





05 Start-Up

- The initial commissioning must be carried out by the qualified and authorized personnel.
- For detailed information on accessories, refer to the document technical information RAUCLIMATE Silent Breeze which can be downloaded online.
- The customer must be present when the appliance is tested and informed of the contents of the manual and procedures. After commissioning, all supplied documents such as this manual must be handed over to the customer.
- Before start-up, all works (electrical, hydraulic and airflow connections, configuration of NEA SMART 2.0) must have been completed.

05.01 First start-up

05.01.01 Preliminary Checks

Before commissioning, check that:

Operational checks
- all safety conditions have been met
- the unit has been properly secured to the supporting surface
- the minimum technical spaces have been observed

Airflows
- the airflow connections have been made according to the instructions in the manual
- all airflow connections are correctly secured
- the ducting is correctly supported
- the ducting does not have any bottlenecks
- the ducting is thermally insulated

Electrical checks
- the cross-section of the power supply cables is adequate for the absorption of the appliance and the length of the connection made
- grounding is correctly performed
- the electrical connections have been established correctly
- the water valve actuator is connected correctly
- all components, the SYSBUS wiring and the DIP switch configuration of NEA SMART 2.0 are correctly performed
- all cables are secured with sufficient strain relief

05.01.02 Start-up

After all checks have been carried out successfully, the unit can be put into operation to configure the system NEA SMART 2.0.

After configuration was carried out completely and succesfully, the fan coil can be activated.
Deactivate T2 probe: If the start is hindered by a inappropriate water temperature, the start can be temporarily forced. To do this, the T2 probe must be disconnected (deactivated) at the main board by a qualified electrician when the fan coil unit has been disconnected from the power supply. After re-powering, the threshold values for the water temperature are ignored.
Reactivate T2 probe: Reconnect the probe as soon as possible in the fan coil's de-energised state and re-power afterwards to ensure that the appliance functions properly.

05.01.03 Checks with the machine switched on

After starting up, check that

Operational checks:
- verify the different modes of operation
- verify that the appliance stops and then restarts
- switch the appliance off and on again and check that it restarts correctly
- the appliance operates within the recommended operating conditions (see technical specifications table)
- check that the air flow rates are correct

Hydraulic Checks
- check for proper condensate drainage

Electrical Checks
- the current absorbed must not be higher than the maximum indicated in the technical data table
- the supply voltage value is within the set limits and does not fall below the nominal value –10 % during operation

05.02 Plant delivery

Once all the checks and controls on the correct operation of the plant have been completed, the installer must explain the following to the user:w

- the basic functional characteristics of the appliance
- the instructions for use
- the routine maintenance

05.03 Switching off for extended periods

If the appliance is not used for a long period of time, the following steps must be taken:

- deactivating the device
- disconnect the power supply

To restart the appliance after it has been out of use for a long period, call in the Technical Service Centre.

06 Maintenance

06.01 Routine maintenance

06.01.01 Annual operations

The once-a-year maintenance plan includes the following operations and checks and must be carried out by the Technical Service Centre or by qualified personnel.

Electrical circuit
Check:
- electrical supply voltage
- the electrical absorption
- connections tightening
- that there is no damage or excessive wear to electrical cables
- that the gaskets and sealing materials have not deteriorated to such an extent that they are no longer suitable for the purpose of preventing the development of flammable atmospheres inside
- the correct fixing of cable glands
- safety devices

Mechanical checks
Check:
- tightening of the screws, fans and electrical box, of the unit's external panelling
- the state of the structure

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- Bad fixings result in abnormal noise and vibration.
- If oxidised parts are present, treat them with suitable paints to eliminate or reduce oxidation.

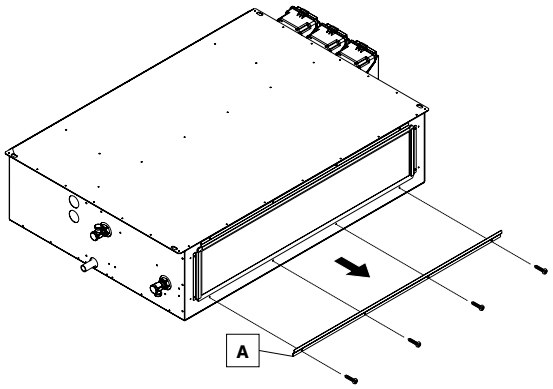
Hydraulic controls
Check:
- the regular drainage of condensate
- cleaning the condensate collection trays
- cleaning the exhaust ducts

Airflow controls
Check:
- the regular flow of air
- cleaning of any intake grids
- cleaning the ducting

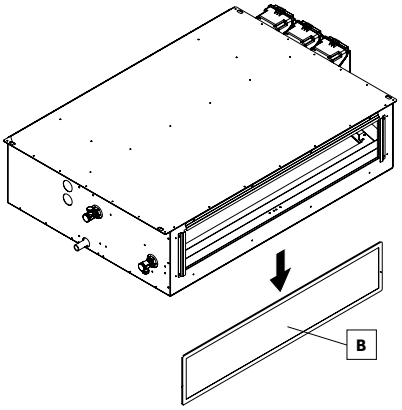
Cleaning
- cleaning or filter replacement
- cleaning the heat exchanger

06.01.02 Cleaning or filter replacement

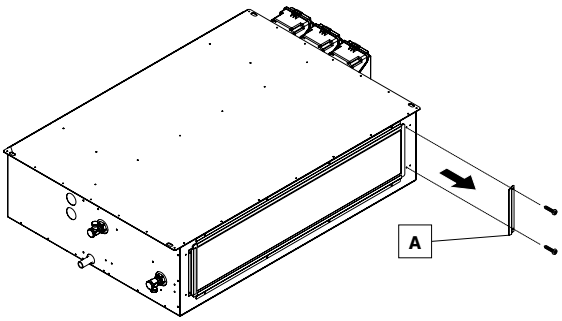
Unit without accessories



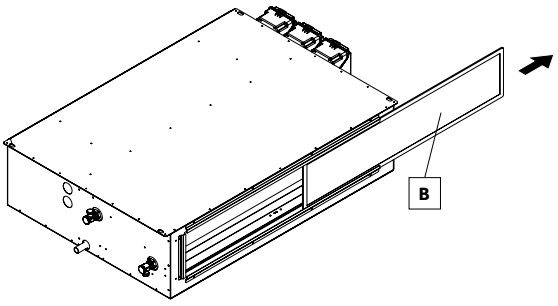
A Lower filter guide



B Filter



A Side filter guide



B Filter

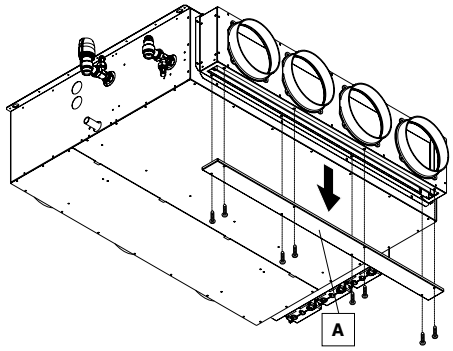
To remove:
- disconnect the power supply to the unit
- remove the screws from the lower filter guide
- remove the lower filter guide
- take out the filter

Pay attention to sharp edges and surfaces.

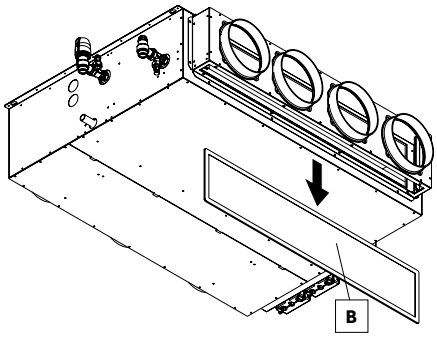
- If the condition of the filters is acceptable, they can be cleaned using a vacuum cleaner or a low-pressure compressor.
- If it is impossible to clean them, the filters must be replaced.

To reposition proceed in reverse order.

Unit with extracted air plenum



A Filter port



B Filter

To remove:
- disconnect the power supply to the unit
- remove the screws from the filter port
- remove the filter port
- take out the filter

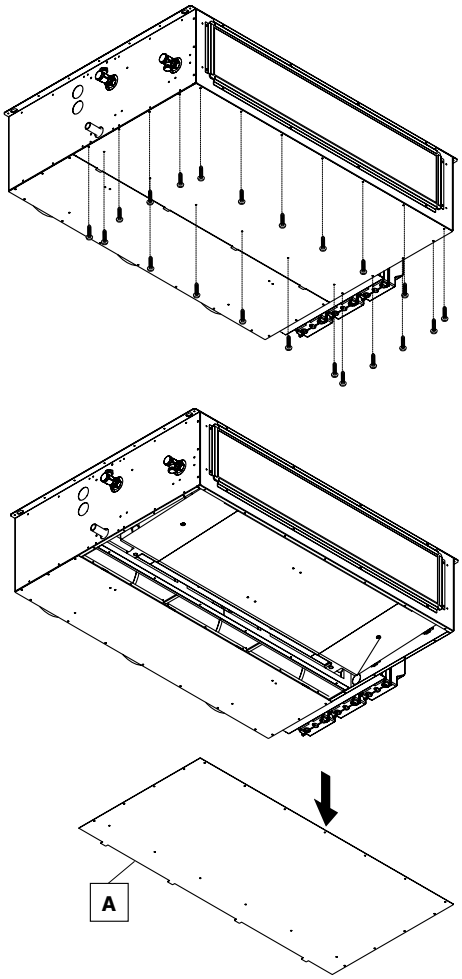
Pay attention to sharp edges and surfaces.

- If the condition of the filters is acceptable, they can be cleaned using a vacuum cleaner or a low-pressure compressor.
- If it is impossible to clean them, the filters must be replaced.

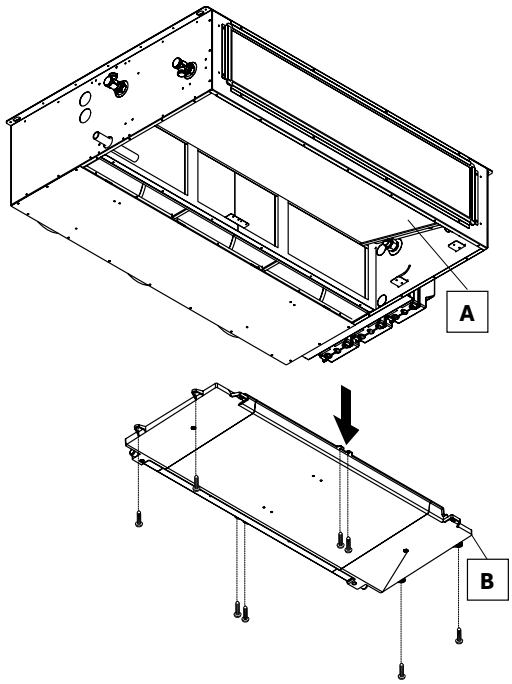
To reposition proceed in reverse order.

06.01.03 Cleaning the heat exchanger

Cleaning the heat exchanger



A Lower panel



A Heat exchanger
B Condensate collection tray

- disconnect the power supply to the unit
- disconnect the condensate drain pipe
- access the heat exchanger
- gently proceed with the cleaning of the heat exchanger using a vacuum cleaner or a low-pressure compressor

To reposition proceed in reverse order

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Never touch the fins of the heat exchanger

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07 Faults and Remedies

If one of the following faults is found:
- the ventilation does not activate even if hot or cold water is present in the hydraulic circuit
- the appliance is leaking water during heating operation
- the appliance is leaking water only in cooling mode
- the appliance makes excessive noise
- there is dew formation on the front panel

Follow the instructions below:
- immediately disconnect the power supply
- close the water valves
- contact an authorized service center or professionally qualified personnel

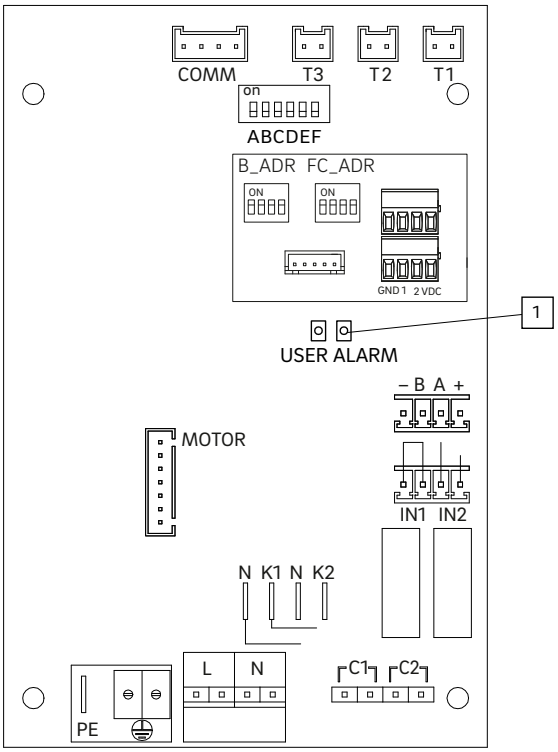
- Work must be carried out by a qualified installer or a specialised service centre.
- Personal intervention is prohibited.

07.01 Troubleshooting table

Description of fault	Cause	Remedy
The fans are not active	The power supply is not switched on The fan speed regulation device does not work Incorrect electrical connections	Check the power supply on the fan Check fan speed regulation device Check electrical connections.
Insufficient air flow or pressure	Clogged filters Insufficient rotation speed Piping or exchanger clogged	Clean filters Increase rotation speed Clean piping or heat exchanger
Insufficient heat exchanger efficiency	Exchanger fins clogged	Clean exchanger surfaces
Excessive vibration and noise	Incorrect installation of the unit Incorrect piping installation Fan impeller imbalance	Check unit brackets and fastenings Check brackets and pipe fixings Check fan impeller condition
Water leaks from unit	Clogged condensate drain Siphon not installed correctly	Clean condensate drain Check the correct installation of the siphon
Difficult start-up	Supply voltage too low	Check that the supply voltage is not below 10 % of the rated voltage

07.02 Status LED on PCB

The PCB has a status LED.



1 LED

LED signals

→ LED off
Fan coil ist switched off.

→ LED flashes
There is an alarm.
Further information is shown on the room unit.

→ LED lights up
Fan coil is switched on and there is no alarm.

08 Technical data

		Silent Breeze Ceiling			
Models		**MD 40-2**	**MD 55-3**	**MD 70-4**	**MD 80-5**
Fancoil airflow performance					
Airflow at maximum fan speed	m^3/h	600	900	1,200	1,500
Nominal pressure at maximum fan speed	Pa	100	100	100	100
Single zone fancoil airflow performance					
Airflow at maximum fan speed	m^3/h	300	300	300	300
Airflow at medium fan speed	m^3/h	205	205	205	205
Airflow at minimum fan speed	m^3/h	60	60	60	60
Heating performance (W 45/40 °C; A 20 °C)[1)]					
Heating capacity	kW	3.90	5.70	7.40	9.00
Water flow rate	L/h	610	980	1,290	1,570
Pressure drop	kPa	29	23	20	11
Performance in single-zone heating (W 45/40 °C; A 20 °C)[1)]					
Heating capacity	kW	2.20	2.20	2.20	2.20
Cooling performance (W 7/12 °C; A 27 °C)[2)]					
Total cooling capacity	kW	3.80	5.50	7.20	8.10
Sensible cooling capacity	kW	2.70	3.90	5.10	6.10
Water flow rate	L/h	620	950	1,300	1,380
Pressure drop	kPa	29	27	22	11
Performance in single-zone cooling (W 7/12 °C; A 27 °C)[2)]					
Total cooling capacity	kW	2.10	2.10	2.10	2.10
Sensible cooling capacity	kW	1.50	1.50	1.50	1.50
Room side fan					
Type		Forward-curved EC Brushless centrifugal fan			
Number	No.	2	3	4	5
Sound data (UNI EN 3741; 3744)[3)]					
Sound power transmitted to the Lw structure	dB (A)	61	61	63	65
Sound power radiated in the Lw channel	dB (A)	65	69	69	71
Average sound pressure at 1 m Lp	dB(A)	46	47	50	52
Average sound pressure at 3 m Lp	dB(A)	39	40	42	44
Heat exchanger (W 7; W 12)[4)]					
Type		Hydronic coil			
Number	No.	1	1	1	1
Coil water content	L	1.13	1.46	1.80	2.14
Maximum operating pressure	bar	10	10	10	10

		Silent Breeze Ceiling			
Models		**MD 40-2**	**MD 55-3**	**MD 70-4**	**MD 80-5**
Electrical characteristics					
Power supply	V / ph / Hz	230 / 1 / 50			
Maximum total absorbed power	W	140	210	280	350
Total absorbed current	A	0.70	1.40	2.10	2.80
Protection rating	IP	X0			
Connections					
Condensate drain connection (d_i / d_o)	mm	16 / 20	16 / 20	16 / 20	16 / 20
Hydraulic connections	"EK	3/4"	3/4"	3/4"	3/4"
Supply air connection	mm	160	160	160	160
Extracted air connection (base x height)	mm	630 × 150	830 × 150	1,030 × 150	1,320 × 150
Operating limits					
Minimum water inlet temperature	°C	4			
Maximum water inlet temperature	°C	80			
Product dimensions					
Width	mm	790	990	1,190	1440
Length	mm	695	695	695	695
Height	mm	240	240	240	240
Net weight	kg	37	39	41	47

[1] Water temperature in 7 °C, Water temperature out 12 °C, Room temperature 27 °C d.b. and 19 °C w.b. Performances according to EN 1397.
[2] Water temperature in 45 °C, Water temperature out 40 °C, Room temperature 20 °C d.b. and 15 °C w.b. Performances according to EN 1397.
[3] Data refers to the UNI EN 3741 and UNI EN 3744 standards
[4] Water temperature in 7 °C, Water temperature out 12 °C

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